Introduction of Advantech EdgeLink Studio

In an on-site application, one or several RTU devices may have been installed. If there is a tool which manages to carry out the configuration and management of these RTU devices as well as the whole project, the customers will definitely benefit a lot from it. Therefore, we have developed EdgeLink Studio to configure and manage the devices and the project which may have multiple devices under it.

Advantech EdgeLink Studio can run stably on Windows XP/ Windows 7/ Windows 10.

Double-click the installer icon and follow the instructions to install the studio. After the installation, the icon of Advantech EdgeLink Studio will appear on the desktop. Double-click it to start the configuration and management.

The main functions of Advantech EdgeLink Studio include:

- 1. Configure the project and the devices offline. The studio can identify different Node IDs and download them to the device batch by batch.
- 2. Create IO tags and local tags of engineering significance and implement the mapping between the

tags and the addresses through Modbus and DNP3 server.

- Support the configuration of the input/output range of each channel for both onboard IO and extended IO, as well as AI calibration.
- 4. For network communication, Ethernet, Wifi, Cellular are all supported.
- Since protocol services are crucial to communication devices, EdgeLink offers Modbus RTU, Modbus TCP and BACnet servers for users to select according to their specific requirements.
- 6. Moreover, monitoring the communication status of both remote serial ports and network ports is supported. The acquisition path for EdgeLink Studio installation package is as follows:

http://www.advantech.com.cn

Advantech EdgeLink Studio implements project configuration

Project management

The Device in the EdgeLink usage scenario is uniformly managed by the project, and EdgeLink Studio implements a series of activities such as project creation, device creation, and meter addition

Project Configuration by Advantech EdgeLink Studio

Project Management

When EdgeLink Studio is opened for the first time, users can follow the procedures of "Create Project" -> "Add Device" -> "Copy" (if multiple devices are required) -> "Save" to initialize the project.

Create Project

Click "Create Project" under "Project" tab to pop up the below window. Then enter a name, path and description, and click "OK" button.

🚳 Project	x
Name:	3600
Name:	3000
Author:	li.shi
Path:	C:\Users\li.shi.ACN\Documents\Advantech iRTU Studio\Project ···
Description:	Demo
	· · · · · · · · · · · · · · · · · · ·
	OK Cancel

Add Device

There are two ways to add device to a created project

- Add blank device: After adding, all configurations are empty, and the user can manually configure it, please refer to Section 2.1.2.1 for specific steps
- Copy from existing device: When adding, you can copy and add the device that has been configured in the project, and you can copy each other regardless of the device model, but because the number of hardware interfaces between different models of device is different, the actual copy content is determined by the final device type, and the specific steps can refer to Section 2.1.2.2

Add Device and Edit Information

- 1. Right-click on the project name to add a device.
- 2. Enter a device name.
- Enter a password. This default password is 00000000. Users can change the password referring to 3.1.4 "Password Setting". After the password is changed, users need to enter the new one to download the project.
- 4. Here allows users to identify the device by Node ID or IP Address.
- 5. Enter the corresponding Node ID or IP Address.
- 6. Select the time zone in which the device is located.
- 7. Fill in the device description (optional).

8			Advar	ntech TagLink St	udio				- - x
Project	Help		6						~ (0)
	× 🗂 📭		»						
Project Project Pro		ad SD Card Cou	unt						
Project	- D	eploy / Optic			1		-		
Project Configuration	» «	IO Tag(3600-Wir	eless D	ynamometer)	📑 Periodic L	.ogger(3600)*	III New Devi	ice* ×	- →
	ties	Device						Apply	Cancel Change
👍 Add D	evice 1	General Inform	ation						
		Name:	3600						
		Device Type:		4-3600-C2GL1A1E					
		Password:				-3			
		Indentity:	Node	ID		- 4			
	=	Node ID:	1			-5			
		IP Address:	0.0.0	.0					
		Description:							
						·			
	1								
		L							1
Apply	🗙 Discard								
General Inform	nation								
Name:	New Node		_						
Model:				Select Noc					x
Password:	******		_	ADAM-360					
Indentity:	Node ID		•	ECU-1152-					
Node ID:	1		_	ECU-1251-			-		
IP Address:	0.0.0.0		_	UNO-2271					
Time Zone:		,重慶,香港特別行		010 2101	~	-		<mark></mark>	
Description:	(010+00.00) JLR	·重度「官/包付別1]。							
Description.						CPU A8 AM33 DDR3L 256 M			<u>^</u>
			Ŧ			On-board IO-8 4 Expansion S	3AI /8DI/4DO		
L						Wireless comn	nunication- Zigl	oee/ wifi/ 3G/G	PRS
									·
								ОК	Cancel

Identify Types

• Node ID :

Indentity:	Node ID 👻	
Node ID:	31	
IP Address/Domain Name:	192.168.172.220	

When downloading, search the network for the device IP with node ID as the configuration value, and download the project to this device.



• IP Address/Domain Name :

Indentity:	IP Address/Domain Name 🔻
IP Address/Domain Name:	192.168.172.220

You can download the project to the configured device with the device IP or domain name. When using remote.it or devices in the gateway with port forwarding service to download the project, the port number can be configured, such as:

adam3600-generic-tcp.at.remote.it:30000

• Azure

Indentity:	Azure	•
IotHub Connection String:	HostName=edgelink.azure- devices.net;SharedAccessKeyName=iothubowner; SharedAccessKey=yxl +x9zaMt1IlYCyuLXLvl151w7PhP2YQPDobE2mLWY =	÷
IotHub Device ID:	xue.xu3600	

You can download the project to the device through azure cloud service. You need to configure the primary connection string in iothub and the device ID in iothub.

IotHub Connect String :

	${\cal P}$ Search resources, services, and docs (G+/		도 타 다 않 ⑦ 윤 abjrd@Advanted ADV EMBI	
Home > edgelink			iothubowner	×
🔶 edgelink Shared a	ccess policies 👒 🐃		edgelink	
	Shared access policies may be used to genera	te security tokens to consume IoT hub functionality. Learn more	Regenerate primary key Regenerate secondary key I Swap keys I Swap keys	
🔎 Queries	Connect using shared access policies		Primary key	• h
Hub settings			Secondary key	ų
 Built-in endpoints 				• 0
🔽 Message routing			Primary connection string	
💁 File upload				۵ (
🗠 Failover	Manage shared access policies		Secondary connection string	
😂 Properties		Delete		۵ 🔍
🛆 Locks	Policy Name	Permissions	Permissions	
Security settings			🖌 Registry Read	
🐍 Identity 🧹		Registry Read, Registry Write, Service Connect, Device Connect	Registry Write	
Shared access policies			Service Connect	
Networking		Device Connect	V Device Connect	
🔎 Certificates				
Defender for IoT	registryRead	Registry Read		
Overview		Registry Read, Registry Write		
🔋 Security Alerts				
= Recommendations			Update Permissions Cancel	

IotHub Device ID:

Microsoft Azure	, P Search resources, services, and do	cs (G+/)		≥ Ç ¢	왕 ⑦ & abjrd@Advantecher.on ADV EMBEDDED IOT
edgelink Devices					
	View, create, delete, and update devic				
Activity log					
	Find devices				
	🕂 Add Device 🕚 Refresh 🗊				
Diagnose and solve problems					
🗲 Events	Device ID	Status	Last Status Update	Authentication Type	Cloud to Device Message Count
O Pricing and scale		Enabled		Sas	
Device management		LINDEA			
Devices		Enabled			
		Enabled			
🤶 Configurations		Enabled	2021/11/25 GMT+8 下午2:27:28		
🚸 Updates					
🔎 Queries					
Hub settings					
Built-in endpoints					
12 Message routing					

copy from existing device

1. At this time, there is already a device in the project file: ADAM-3600-13, right-click the project name to add a new device.

ect Configuration	« ADAM-3600 ×
example_ADAM-3500	Apply X Discard
🖶 🗣 Data Centi 💠 🛛 Add Device 🧹 1	General Information
	Name: ADAM-3600
COM1	Model: ADAM-3600-C2GL1 ····
IO Tag	Password:
ia-w COM2 ia-m Meter2	Indentity: Node ID Node ID: 13
IO Tag COM3(Disable)	I3 I
TCP	Time Zone: (UTC+08:00) 北京,重庆,香港特别行政区, ▼ 3
IO Tag	
Gloculation Tag User Tag Data Storage	Description:
ADAM-3600 New Apply 5 Disc	
General Information	
Name:	1050 2
Model:	ECU-1050TL-R10AA [ECU-1050] ···· 3
Password:	*****
Indentity:	IP Address/Domain Name
Indendcy.	
IP Address/Domain Name:	10.0.0.1
Time Zone:	(UTC+08:00) 北京,重庆,香港特别行政区, ▼ 3
	A
Description:	
Copy from existing device:	Select the device to copy the configuration to t
	None 4 ADAM-3600-13 (ADAM-3600-C2GL1)
	NDAH-3000-13 (NDAH-3000-020E1)

- 2. Enter the device name.
- 3. Select the type of device you want to add.

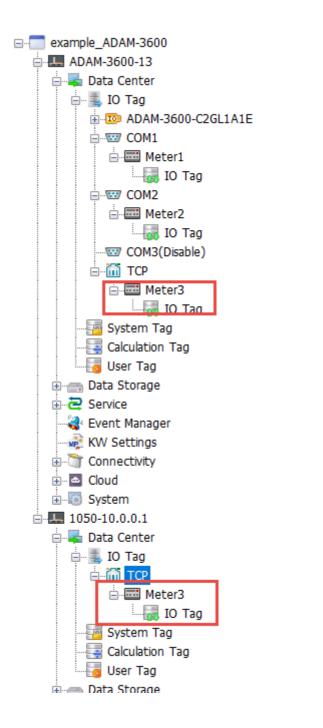
4. Copy the file from an existing device

5. Apply

When the device type is inconsistent, the following picture will be displayed. If you confirm the creation, click OK

Warnin	g
	There is a difference between the number of hardware ports of the new device type and the source device type, and the number of meters that can be imported is determined by the actual number of ports. Do you want to continue?
	Cancel

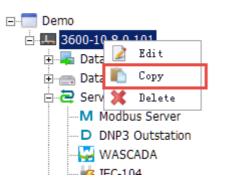
At this time, a new device is added to the project. The model is the model selected during the addition, and the configuration information is copied from ADAM-3600-13 (the number of ports is determined by the model selected during the addition).



Сору

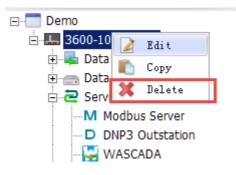
This feature is suitable for copying between identical devices.

For the project which has multiple devices to be configured, it will be relatively complicated to repeatedly add a new device. EdgeLink Studio supports to completely copy the existing device information. Users only need to right-click on the device name and select "Copy" to add another device. Then users can edit the device information (name, Node ID and description. etc) via two ways: double-click the device name or right-click on the device name and select "Edit".



Delete

If users need to completely delete a device from the project, please right-click on the device name and select "Delete" to remove it.



Project Download

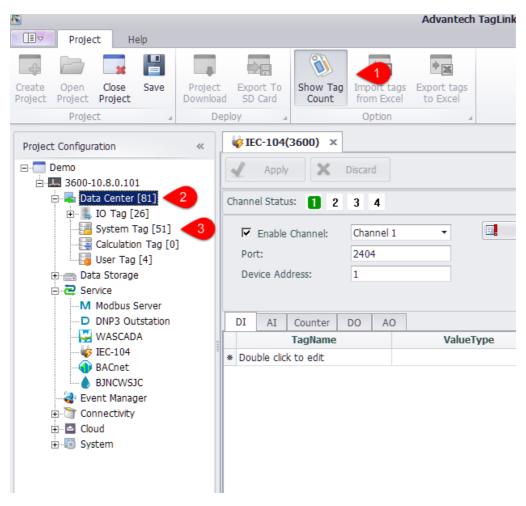
After the device has been identified, users can download the device information to the relevant device. Batch download function is supported. If users select a project on the left tree menu and then click "Project Download", a dialog will pop up listing all RTU devices for batch download; if users select a certain device and then click "Project Download", a dialog will pop up with only one RTU device to be downloaded.

- 1. Select a device.
- 2. Click "Project Download".
- 3. Click "Download" button to start downloading.
- 4. In "Project Download" dialog, "Progress" shows the current download progress. When complete, click "Close" button.
- 5. In "Project Download" dialog, "Reboot" allows users to set whether to reboot the device after the downloading is complete.

Project Help	Advantech TagLink Studio		
Create Open Close Save Project Downlos	d SD Card Count from Excel to Excel option		
Project Configuration «	FIEC-104(3600) ×		
🖻 🌆 3600-10.8.0.101 < 1	Channel Status: 🔏 Project Download		_ D X
	Image: Status Port: Device Address DI Iat Co Tat Pouble clck to	IP	Progress 0%
	5 C Reboot	3 Download	<u>C</u> lose 4
× 🔤			

Show Tag Count

Click "Show Tag Count" to show the number of the configured tags of each device under a project.



- 1. Click this button to show/hide the tag number on the left tree menu.
- 2. The number within the brackets after "Data Center" indicates the total count of tags that have been configured in the selected device.
- 3. The number within the brackets under "Data Center" indicates the count of tags that have been configured under a certain node.

Export to SD Card

This function exports the configured project to the SD card. In the absence of a network connection, the SD card can be plugged into the device to update EdgeLink.

- No matter the project is selected or not, click "Export to SD Card" will pop up the window listing all devices in the project.
- 2. Select a target path to export to.
- 3. Click "Export" button. When the progress bar is complete, export action is successfully completed.
- 4. Click "Close" button.

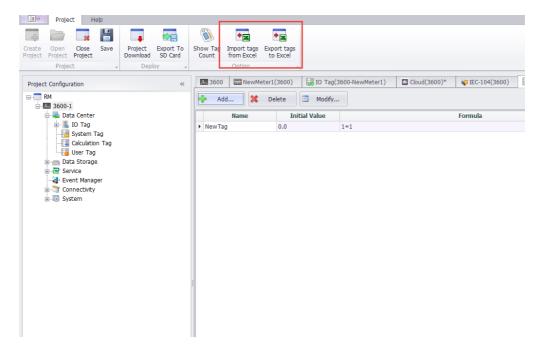
Then insert SD card into EdgeLink and power on it to update the project.

Note!: The device with identification method of Node ID can use this feature to update EdgeLink.

8	Advantech TagLink Studio	X
Project Help		۵ (t)
	Export To SD Card ploy Option a	
Project Configuration «		
Demo Total Solo-1 Data Logger Demo Service System System Markowski System Markowski System Ma	Export To SD Card Name Status 3600-1 Status There is not removable device Export To: 2 tefresh 2 tefresh	3 Export Cose 4

Device Tag Import and Export

EdgeLink Studio supports bulk importing and exporting the IO tags, calculation tags and user tags of a device in Excel format.



Import from Excel

The IO tags, calculation tags, and user tags in the Excel table should be saved in the format defined by the project definition, including the sheet name, header name, table data format, and so on. Users select the device to import the tag, click the "import from Excel" button, and select the Excel file to import in the pop-up window.

Select meters form Excel	10	D Preview												
🗹 I/O-BoardIO		BoardIO	User '	Tag Ca	lc Tag	2								
tcp-NewMeter1 COM2-NewMeter		Nar	ne	Тур	e	Data Type	Initial Value	Description	Scan Rate	ReadWrite	Conve			
User Tag	•	BoardIO	:AI.0	IOTag		analog	0		1	1	0			
🗸 Calc Tag		BoardIO	:AI.1	IOTag		analog	0		1	1	0			
		BoardIO	:AI.2	IOTag		analog	0		1	1	0			
		BoardIO	:AI.3	IOTag		analog	0		1	1	0			
		BoardIO	:AI.4	IOTag		analog	0		1	1	0			
		BoardIO	:AI.5	IOTag		analog	0		1	1	0			
		BoardIO	rdIO:AI.6 IOT			analog	0		1	1	0			
		BoardIO:AI.7 J BoardIO:DI.0 J		-		analog	0		1	1	0			
						discrete	0		1	1	0			
		BoardIO	oardIO:DI.1 IOT		OTag	discrete	0		1	1	0			
		BoardIO:DI.2		IOTag		discrete	0		1	1	0			
				BoardIO:DI.3 IOTag	BoardIO:DI.3 IOTag	BoardIO:DI.3 IOTag discrete	DI.3 IOTag	I.3 IOTag	OTag	Tao	ад	discrete	0	1
		BoardIO	:DI.4	IOTag		discrete	0	1	1	0				
		BoardIO:DI.5		IOTag		discrete	0				1			
		BoardIO	DI.6 IOT	IOTag		discrete	0		1	1	0			
	4			-					1					
-														
Output	3													
Check meter: Calc Tag succes	s!										4			
======== Import: 3 succ	eeded	, 0 failed,	0 skipp	oed, 2 mi	sed ==									

1.Select the Excel table that you want to import in the left checkbox.

2.In the "Excel Preview" pane, click the tab to preview the data in the table.

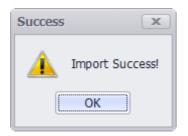
3. The system automatically checks whether the selected Excel table file format meets the import requirements and, if not, displays the error content in the export window.

4.If the Excel file format is checked correctly, click the OK button to start importing.

After you start importing, the system will ask whether to update the Tag of the selected device. Click "OK" button to confirm the import.

Warning	j X
	Do you want to update tags in checked meters
	Cancel

When the import is successful, the system will pop up a successful prompt.



When you import a device calculation tag, the system will check the calculation tag formula and the variable definition in the Excel table. If the formula is incorrect or the variable in the formula is not defined as the tag in the system, a prompt will be given in the export window so that the user can check the formula and variable definitions.

5.Check meter: Calc Tag success!

0

At this point, the contents of the first line in the Calc Tag table are:

New Tag			
🚰 Basic		1	Advanced
Name:	calc		Mathematical Functions Trigonometry
Initial Value:	0.0		Assignment 🔹 Boolean logic 🔹 Constant 🔹
Period(s): Description:	1	*	Expression: A+B+Q
			A: BoardIO:AI.0 B: BoardIO:AI.2
			C: Double click to add tag D: Double click to add tag.
			E: Double click to add tag F: Double click to add tag.
		-	G: Double click to add tag H: Double click to add tag.
		l	OK Cancel

You can see that the formula in the Excel table is "A+B+C", and the variable ParametersC is empty, that is, the Tag corresponding to the variable "C" is not correctly defined in the formula.

Export to Excel

Select the device to export tags in the project, click the "export to Excel" button, in the pop-up window, you can export Tags to the Excel file.

			-					/	Preview	10	Select meters to Excel
			2	Calc Tag	User Tag	NewMeter	Meter1	New	BoardIO		I/O-BoardIO
e Conve	ReadWrite	Scan Rate	Description	Initial Value	ta Type	pe Da	Ту	ne	Nan	Ľ	tcp-NewMeter1 COM2-NewMeter
0	1	1		0	og	anal	IOTag	:AI.0	BoardIO	F	User Tag
0	1	1		0	og	anal	IOTag	:AI.1	BoardIO		Calc Tag
0	1	1		0	og	anal	IOTag	:AI.2	BoardIO		
0	1	1		0	og	anal	IOTag	:AI.3	BoardIO		
0	1	1		0	og	anal	IOTag	:AI.4	BoardIO		
0	1	1		0	og	anal	IOTag	BoardIO:AI.5 IOTa BoardIO:AI.6 IOTa			
0	1	1		0	og	anal	IOTag				
0	1	1		0	discrete discrete	ag discr	IOTag				
0	1	1		0					BoardIO		
0	1	1	1	0					BoardIO		
0	1	1		0			IOTag	ardIO:DI.2			
0	1	1		0	ete	discr	IOTag	:DI.3	BoardIO:D		
0	1	1		0	ete	discr	IOTag	:DI.4	BoardIO		
0	1	1		0	ete	discr	DI.5 IOTag	BoardIO			
0	1	1		0	ete	discr	IOTag	:DI.6	BoardIO		
•										4	
	1	1		0	ete	discr	IOTag	DI.6			Output 3

1.Select the tag you want to export in the left checkbox.

2.In the "EXcel preview" pane, click the tab to preview the device tag data.

3. The export content is displayed in the export window.

4.Click the OK button to start the export operation.

5.When the export is successful, the system will pop up a successful prompt.

Success	x
Export Suc	cess!
ОК	

Data Acquisition Configuration

Data acquisition is an important function for RTU devices. EdgeLink supports the acquisition of onboard IO, extended IO, IO of serial devices, Ethernet devices to satisfy the diversified acquisition needs. Therefore in EdgeLink Studio, users need to add and configure those tags based on the specific acquisition requirements.

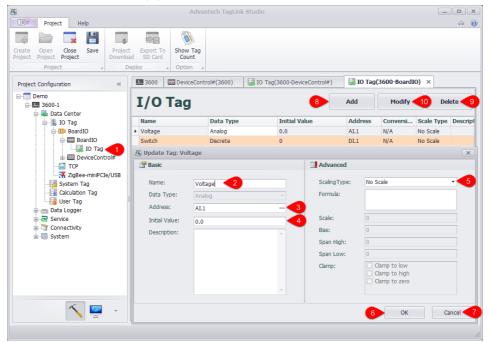
These IO tags added into the project are real tags; while in actual project deployment, local tags of engineering significance are also needed. Users are required to add and configure them in EdgeLink Studio.

Configure Onboard IO

In project configuration, users can add and configure IO tags based on the real input. The detailed operation procedures are as follows:

- 1. Double-click "IO Tag" in the left tree menu or rightclick on it and select "Edit".
- 2. Fill in a tag name.
- 3. Select a tag address.
- 4. Set its initial value.
- 5. Select its scaling type.
- 6. Click "OK" button to successfully add the tag. Then this new tag will appear in I/O Tag list.
- 7. Click this button to cancel the changes.
- 8. Add another new tag.
- 9. Choose one or several tags to delete.
- 10. Choose one or several tags to modify.
 - ADAM-3600 supports 8-ch AI, 8-ch DI and 4-ch DO.

• UNO-1372G supports 4-ch DI, 4-ch DO.



Expansion Module Configuration

ADAM-3600 supports a variety of extension modules, including DO, DI, AI, AO, and other types. The currently supported modules are as follows:

- 1. ADAM-3617 AI module supports the 4channel AI
- 2. ADAM-3618 AI module supports the 4channel AI
- 3. ADAM-3624 AO module supports the 4channel AO
- 4. ADAM-3651 DI module supports the 8channel DI
- 5. ADAM-3656 DO module supports the 8channel DO UNO devices support iDoor extension modules:
- 6. PCM-24R1TP and PCM-24R2GL LAN card
- 7. PCM-24D2R4, PCM-24D2R2, PCM-24D4R2, PCM-24D4R4 serial cards
- 8. PCM-24S2WF Wifi module
- 9. PCM-2300MR-AE FRAM module
- 10. PCM-24S33G 3G module

Add Extension Module

EdgeLink supports various extension modules, including DO, DI, AI and AO, etc. Please follow the below procedures to add an extension module.

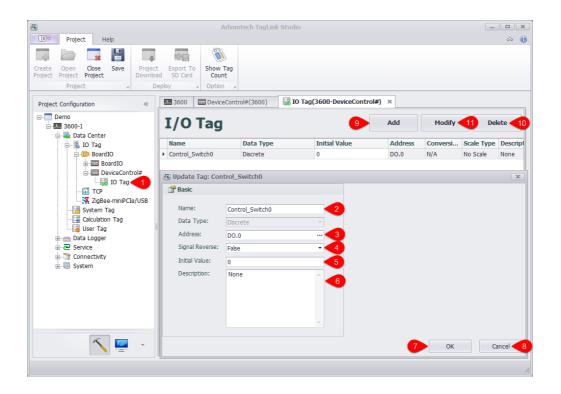
Project Configuration «	⊠ I/0(3600-1)* ×									
⊡ Demo 	Apply 🗙 Discard									
Data Center	General Information				î					
BoardIO 🗲 1	Type: I/O	Ţ	Scan Time(ms):	250						
BoardIO	Description:	*	Time Out(ms):	3000						
			Retry Count:	3						
⊞		-	Auto Recover Time(s): 10						
G User Tag G Data Storage G Data Stor	Extension IO	Slot1 Slot2 Slot3: ADAM-3 e Code Integrati	ADAM-3656 5lot4	Name	Mode					
	Type name namy		D		Normal -					
			D	01	Normal DW/M					
			D		PWM Normal					
1			IO_DO DO		Normal					

- 1. Double click to open the BoardIO node.
- 2. Modify the basic properties of the BoardIO port.
- Users can select a Board or Slot picture on the EdgeLink schematic, and edit the IO tag property and the slot type.
- 4. After clicking on the Slot picture, users can select the module type of the ExtensionIO.
- 5. AI tag supports four range options for +/-10V, +/-2.5V,
 0-20mA, and 4-20mA. DI tag supports Normal,
 Counter two working modes. DO tag supports
 Normal, PWM two working modes.

Configure Extended IO

Please follow the below procedures to configure IO tag of the extension module.

- 1. Double-click "IO Tag" in the left tree menu or rightclick on it and select "Edit".
- 2. Fill in a tag name.
- 3. Select a tag address.
- 4. Select whether to reverse the signal, which is only available for DO module.
- 5. Set its initial value.
- 6. Give a description of the IO tag, which is optional.
- 7. Click "OK" button to successfully add the tag. Then this new tag will appear in I/O Tag list.
- 8. Click this button to cancel the changes.
- 9. Add another new tag.
- 10. Choose one or several tags to delete.
- 11.Choose one or several tags to modify.



Configure IO of Serial Devices

When creating the device, all serial ports on devices will be created at the same time. Users need to add new ports into EdgeLink Studio following the below procedures.

Demo 	Apply	X Discard				
Data Center	General Inform	nation				
BoardIO	Type:		- < 2	can Time(ms):	1000	
	Name:	Serial (Built-in or miniPCIe/USB) Serial (FourFaith F891X ZigBee)		Time Out(ms):	3000	
🛓 🟋 ZigBee-miniPCIe/USB	Description:	Serial (XBee/XBee-PRO) TCPIP		Retry Count:	3	
Calculation Tag			×	Auto Recover Time(s):	10	
User Tag	1					
Data Logger						
E Z Service						
🖅 🐻 System						

- 1. Right-click on "IO Tag" and choose "Add Port".
- Select the port type from the drop-down list. Then "Serial Port Setting" will appear and allow users to set the related parameters according to their requirements.
- 3. After the setup, click "Apply" button to save the changes. If users do not want to save the changes, click "Discard" button.

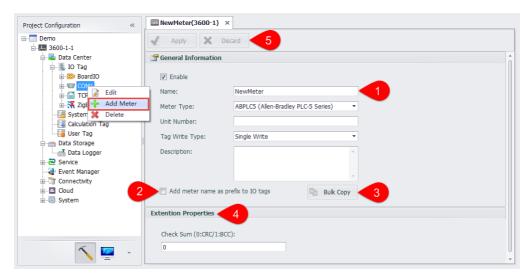
After the port has been added successfully, users can edit/delete it and add device.

A. Right-click on the port name and select "Edit" to change the serial port settings which are shown in below.

Project Configuration «	W COM1(3600-1)	x								
	Apply	K Discard								
🖮 🛼 Data Center	General Information									
in Tag	Type:	Serial (Built-in or miniPCIe/USB)	Ŧ	Scan Time(ms):	1000					
e-w Correction For Edit	Description:		*	Time Out(ms):	3000					
🗄 🟋 Zi 📫 Add Meter				Retry Count:	3					
Calculation Tag			Ŧ	Auto Recover Time(s):	10					
User Tag	Serial Port Set	ting								
Data Logger	Port:	COM1	•							
- 🥞 Event Manager	Baud Rate:	9600	•	Parity:	None 🔻					
Connectivity	Data Bit:	8	•	RTS:	False •					
System	Stop Bit:	1	•	DTR:	False •					
~					•					

B. Right-click on the port name and select "Delete" to remove this port.

C. Right-click on the port name and select "Add Device" to configure the serial device, whose detailed settings are shown in the below figure.



1.Fill in the device name information, select the device type, set the device unit number, IO tag write mode, fill in the description information (optional).

2.Select whether to add a name prefix to the IO tag. If you select "Yes", the Tag name is composed of "Device name: Tag name" when you add a Tag under this device. 3.Whether to batch copy the Tags under this device. The button is only available if you have chosen to add a name prefix to the IO tag.

Copy Meter Editor			New Meter Names	
Source name : newDevice1			New Name (Edit)	Unit Number (Edit)
IOtags: 1			newDevice11	1
Path : 3600-1/Data Center/I	O Tag/COM1/			
Serial devices require unique unit	number			
Copy Count:		1 🗘		
Nama Tamahta				
Name Template				
[N][C]				
[N]Source Name [U]Unit Numbe	er [C]Counter			
Counter Setting	Unit Number Setting			
counter setting	onic Number Security			
Initial Value: 1 🗘	Initial Value:	1 🗘		
Step: 1 🗘	Step:	1 🗘		
Digit: 1 🔻				

4.In "Extension Properties", users can know the different protocols and their corresponding configurations.

5.Then, click "Apply" button save the settings.If users do not want to save the changes, click "Discard" button.

D.After a new device has been successfully added, users need to configure IO tag, the procedures of which are similar as for "Configure Onboard IO" (see below)...

Demo Demo Demo Deta Sconetr Data Center Data Center Data Center Data Conter Data Storage Data Storage Data Storage Data Storage Service Service Service Service Soystem Soystem Deta Storage Soystem Data Storage Soystem Scale: Data Storage Soystem Scale: Data Storage Soystem Scale: Description: Description: Scale: Scale:						_		vice1) ×)0-1-newDe	😽 IO Tag(360	«	uration	Project Conf
IO Tag newDevice1:mewTag1 Analog 0.0 1 0.000 Image: Solution Tag Image: Solution Tag <t< th=""><th></th><th></th><th></th><th></th><th></th><th>2</th><th>Modify</th><th>lete 🔳</th><th>🗶 De</th><th>💠 Add</th><th></th><th>-1-1</th><th></th></t<>						2	Modify	lete 🔳	🗶 De	💠 Add		-1-1	
Board10 New Tag Image of the second sec	ss Conversi !	s Conversi	Address	e Address	Scan Rate	Initial Value	аТуре	Data	ne	Nan			
Image: System New Tag Image: System Image: System Image: System Name: New Tag Image: System Image: Start Bt: O Image: System Image: System Image: System Scale: O Image: System Image: System Image: System Span High: 100 Image: System Image: System Image: System Image: System <td>Unsigned N</td> <td>Unsigned</td> <td>:000</td> <td>O:000</td> <td>1</td> <td></td> <td>0.</td> <td>Analog</td> <td>newTag1</td> <td>newDevice1:n</td> <td></td> <td></td> <td>.</td>	Unsigned N	Unsigned	:000	O:000	1		0.	Analog	newTag1	newDevice1:n			.
Image: System Image: Start Bit: 0 Image: System Start Namage: Start Namage: Start Bit: 0 Image: System Start Rit: 0 Offset: 0 Image: System Image: Start Bit: 0 Offset: 0 Image: System Span Low: 0 0 Offset: 0 Image: System Image: Start Bit: 0 Offset: 0 0 Image: System Image: Start Bit: 0 Offset: 0 0 0 Image: System Image: Start Bit: 0										v Tag	New	-	
1 is total 0 1 is total 0 1 is total 0 0 1 1 0 0 1 is total is total 0 <td></td>													
Image: System Tag Name: NewTag Scaling Type: No Scale Image: System Tag Data Type: Analog Formula: Image: Scale Image: Scale Image: System Tag Address: Image: Scale Image:						Advanced				Basic 3			
Image: System Tag Data Type: Analog Formula: Image: System Tag Conversion Unsigned Integer Scale: Image: Scale: Image: Data Storage Address: Image: Scale:	•	-			No Scale	ScalingType:			NewTag	Name:		тср 📶	
System Conversion Unsigned Integer User Tag Address: Scale: 0 Data Storage Start Bit: 0 Offset: 0 Data Logger Start Bit: 0 Offset: 0 Event Manager Span High: 100 Camp to span h Camp to zero Coludition System Initial Value: 0.0 Scan Rate: 1						Formula:	-		_	Data Type:			
User Tag Address: Scale: 0 Data Storage Start Bit: 0 Offset: 0 Data Logger Start Bit: 0 Offset: 0 Data Logger Length(bit): 16 Clamp: Clamp to span la Connectivity Span High: 100 Clamp to zero Could Span Low: 0 Clamp to zero Could System Initial Value: 0.0 Scan Rate: 1 Scan Rate: 1													
Data Storage Start Bit: 0 Offset: 0 Data Logger Start Bit: 0 Offset: 0 Data Logger Length(bt): 16 Camp: Camp to span k Connectivity Span High: 100 Camp to span k Cloud Span Low: 0 Cloud System Initial Value: 0.0 Scan Rate: 1							•	nteger	Unsigned I				
Data Logger Start Bit: 0 Offset: 0 Data Logger Length(bit): 16 Clamp to span line Point Manager Span High: 100 Clamp to span line Connectivity Span Low: 0 Data Could Span Low: 0 System Initial Value: 0.0 Scan Rate: 1													
Event Manager Span High: 100 Connectivity Span Low: 0 Could Span Low: 0 System Initial Value: 0.0 Scan Rate: 1						Offset:			0	Start Bit:			
Clamp to zero Cloud System Initial Value: 0.0 Scan Rate:						Clamp:			16	Length(bit):			
a Guine Curky Span Low: 0 b ⊆ Goud Initial Value: 0.0 System Initial Value: 1	1	1							100	Span High:			
B- System Initial Value: 0.0 Scan Rate: 1									0	Span Low:			
Scan Rate: 1									-	Initial Value			
									1				
							<u>^</u>			Description:			
· · · · · · · · · · · · · · · · · · ·													
							-						
												_	
🔨 💻 -	Close	Close		OK	E T							1	

E.If users want to delete the newly added device, rightclick on the device name and select "Delete" to remove it.

Configure IO of Ethernet Devices

EdgeLink Studio supports to edit/delete the port via Ethernet and add device to it.

 Right-click on the port name and select "Edit" to change the Ethernet port settings which are shown in below.

8	Advantech Ta	agLink Studio	_ – ×
Project Help			a 🚯
Create Open Close Save Project Project Downlos			
Project Configuration «	TemperatureSensor1#(3600)	IO Tag(3600-TemperatureSensor1#)	TCP(3600) × ↔
Demo 	ТСР		Apply Cancel Change
→ →	General Information Type: TCPIP Name: TCP	Scan Time(ms): Time Out(ms):	1000
- — — — — — Zi 2 Edit - — — — Edit - — — Add Meter - — ⊒ Calcu ※ Delete	Name: TCP Description:	Retry Count:	3
Bata Logger Bata			

Note! This TCP port is a software port, so the quantity of its entity ports is not restricted to 2. Users can freely add a new port as required.

- 2. Right-click on the port name and select "Delete" to remove this port.
- 3. Right-click on the port name and select "Add Device" to configure the Ethernet device, whose detailed

settings are shown in the below figure.

R	Advant	ech TagLink Studio			_ D X
Project Help					~ (i)
Create Open Cose Save Project Project Devenion					
Project Configuration «	IO Tag(3600-Temperatur	eSensor1#) 🛗 TCP(3600) 🔤	NewMeter(3600)* ×		
Demo 	New Meter	ŕ		Apply	Cancel Change
🖶 🗒 Data Center [4]	General Information				Â
	Name: Meter Type: Unit Number: Description:	PowerMeter Modicon 2 Power Meter Data	* ^		
🗄 🐻 System	A TCP/IP				
	IP Address: Port Number:	10.0.0.2 502			
	Extention Properties				
· · · · · · · · · · · · · · · · · · ·	Device Address (if oth	ner than Unit Number):			Ţ

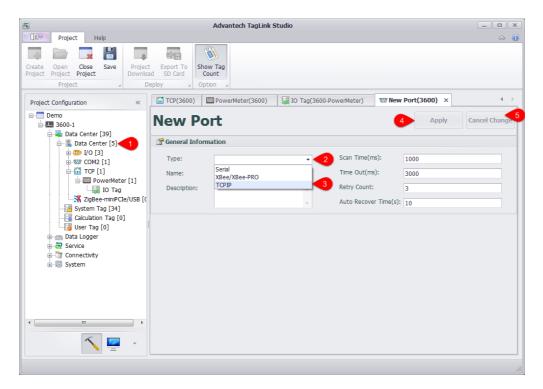
 After a new device has been successfully added, users need to configure IO tag, the procedures of which are similar as for "Configure Onboard IO" (see below).

8		Advantech TagLink S	tudio				_	
Project Help								~ (î
Create Open Close Project Project Project Close Download	ad SD Card Co	v Tag unt						
Project a D	eploy _ Opti	on 🔺						
Project Configuration «	TCP(3600)	PowerMeter(3600)	🛃 IO Tag(3600-P	owerMeter) ×				
Demo 1 3600-1	I/O Tag	J		6 Add	i	Modify	8 Del	lete 🦰
Data Center [39]	Name	Data Type	Initial Va	lue Ad	dress	Conversi	Scale Type	Descript
∎ I/O [3]	 current 	Analog	0.0	300	002	Unsigned	No Scale	
	🔏 Update Tag: cu	rrent			_			x
📥 🔤 PowerMeter [1]	🚰 Basic	2		🔄 Advanced	3			
IO Tag 1	Name:	current		ScalingType:	No S	Scale		•
System Tag [34]	Data Type:	Analog	•	Formula:				
	Conversion	Unsigned Integer	•					
🗈 📻 Data Logger	Address:	30002		Scale:	0			
	Start Bit:	0		Bias:	0			
in IIII System	Length(bit):	16		Span High:	0			
	Initial Value:	0.0		Span Low:	0			
4 m b	Description:		* *	Clamp:		Clamp to low Clamp to high Clamp to zero		
					4	ок		ancel

If users want to delete the newly added device, rightclick on the device name and select "Delete" to remove it.

It should be noted that EdgeLink Studio supports one Ethernet port by default. If two or more Ethernet ports are required, users need to add new ports referring to the following procedures.

- 1. Right-click on "Data Center" and select "Add Port".
- 2. Select the port type and fill in the port name.
- 3. Give a description of the port, which is optional.
- 4. Then, click "Apply" button save the settings.
- 5. If users do not want to save the changes, click "Discard" button.



Configure IO of Wireless Zigbee Devices

For acquisition requirements of wireless Zigbee devices, users can right-click on the port name to edit/delete it and add device to it.

a. The port settings are preset when Zigbee port was firstly added. If there is any information needed to be changed, right-click on the port name and select "Edit" to modify, then click "Apply" button to save the changes.

B. Right-click on the port name and select "Add Device" to add a new Zigbee device.

8	Advant	ech TagLink Studio			_ D X
Project Help					a 🚯
Create Open Oose Save Project Project Downloa					
Project Configuration «	IO Tag(3600-PowerMeter	 Wew Port(3600) 	GUser Tag(3600)	NewMeter(3600)* ×	
Demo Demo Demo Demo Data Center [40] Data Center [5]		r 		3 Apply	Cancel Change
⊕	Name:	NewMeter			
	Meter Type:	Modicon	•		
	Unit Number:	1			
Calculatic Add Meter	Description:	None	A		
Data Logger	_				
Gervice Genectivity			Ψ		
B					
	Extention Properties	2			
	ZigBee 64-bit Address:				
	00000000000ffff				
	ZigBee 16-bit Address:				-
	0xfffe				
4	Use ASCII Protocol:				
<i>K</i>	0				
	Packet Delay (ms):				-

C. Add IO tag of wireless Zigbee device, the procedures of which are similar as for "Configure Onboard IO" (see

below).

- 1. Double-click or right-click IO tag to edit it.
- 2. Fill in the basic information of the tag.
- 3. Set the scaling type of the tag.
- 4. Click "OK" button to add this new tag.
- 5. Click "Add" button to add another tag.
- 6. Select one or several tags and click "Delete" button to remove it/them.
- 7. Select one or several tags and click "Modify" button to modify it/them.

Project Help		Advantech TagLink Stud	lio				_	ر 🗆 (
Create Open Close Save Project Project Own		/ Tag Int						
Project Configuration «	Juser Tag(3600)	Wireless Dynamomet	er(3600)	😺 IO Tag(3600-W	Vireless Dy	namometer)	x	
	I/O Tag	J		5	Add	Modify 4	🚺 De	lete
Data Center [41]	Name	Data Type	Initia	al Value	Address	Conversi	Scale Type	Descrip
∎ 1/0 [3]	Displacement	Analog	0.0		30001	Unsigned	No Scale	
System		Displacement Analog Unsigned Integer 30001 0 16 0.0		Clamp:		Scale Clamp to low Clamp to high Clamp to zero		
×					4	ОК	C	ancel

The Zigbee wireless device supports configuring tags in the device template mode. For details, see 2.2.12 Device Template.

System Tag

There are two types of system tags: General system tag和 Special system tag

General system tag : It is generally read-only. Systemrelated information, module (4G, Wifi, GPS) information, serial port, network port information, etc

Special system tag : Some can be read and written

- 1. When a meter is added to DataCenter, three system tags are generated, representing information about the meter.
- 2. DatLogger Status

Project Configuration	« 1	System Tag(ADAM-3600) ×					
	S	ystem Tag					
🔄 🚋 IO Tag		Name	Data Type	Unit	Span High	Span Low	Description
ADAM-3600-C2GL1A1E	+ 1	#SYS_UPTIME	Analog	s	1.84467440737096E+19	0	The current uptime(s)
	2	#SYS_CURRENT_TIME	Analog	5	1.84467440737096E+19	0	The current system time(s)
E TOM2	3	#SYS_CPU_FREQ	Analog	Hz	1.84467440737096E+19	0	CPU frequency
	4	#SYS_MEM_SIZE	Analog	Byte	687194767362	0	Memory size(Byte)
в ТСР	5	#SYS_CPU_USED	Analog	%	100	0	CPU utilization rate(%)
- Giculation Tag	6	#SYS_CPU_IOWAIT	Analog	%	100	0	CPU usage occupied by IOwait(%)
- Gacuation Tag	7	#SYS_MEM_USED	Analog	%	100	0	Memory utilization rate(%)
🕀 📺 Data Storage	8	#SYS_SYSCARD_CAPACITY	Analog	Byte	1000	0	System partition capacity(Byte)
Service	9	#SYS_SYSCARD_FREE_SPACE	Analog	Byte	1000	0	System partition free space(Byte)
- 🤤 Event Manager	. 10	#SYS_DATACARD_CAPACITY	Analog	Byte	1000	0	Data partition capacity(Byte)
	11	#SYS_DATACARD_FREE_SPACE	Analog	Byte	1000	0	Data partition free space(Byte)
Connectivity	12	#SYS_NODE_ID	Analog		255	0	Node ID on RTU
Eloud	13	#SYS_ROOT_READONLY	Analog		1	0	Read-only system: 0-System Partition Readable and Writ
🗓 🐻 System	14	#SYS_COM_COUNT	Analog		100	0	COM count
	15	#SYS_LAN_COUNT	Analog		100	0	LAN count
	16	#SYS_DEFAULT_IF	Analog		1000	0	Meaning of the value: 0-Cant't find default interface for
	17	#MOBILE_SIM	Analog		100	0	0 error
	18	#MOBILE_IP	Analog		4294967295	0	Celluar device ip
	19	#MOBILE_MNO	Analog		99999	-1	Mobile network operator
	20	#MOBILE_MNT	Analog		999	-1	Mobile network type
	21	#MOBILE_MDT	Analog		1.84467440737096E+19	0	Mobile data traffic
	22	#MOBILE_MPN	Analog		1.84467440737096E+19	0	Mobile phone number
	23	#MOBILE_SIGNAL_QUALITY	Analog		100	0	Signal quality of mobile network.
K	24	#MOBILE_CSQ	Analog		1000	0	Received Signal Strength Indication
	25	#MODIE MCC	Analog		000	.1	Mobile Country Code, MCC

General system tag description(Read Only)

Name	Description
#SYS_UPTIME	The current uptime(s)
#SYS_CURRENT_TIME	The current system time(s)
#SYS_CPU_FREQ	CPU frequency
#SYS_MEM_SIZE	Memory size(Byte)

Name	Description
#SYS_CPU_USED	CPU utilization rate(%)
#SYS_CPU_IOWAIT	CPU usage occupied by IOwait(%)
#SYS_MEM_USED	Memory utilization rate(%)
#SYS_SYSCARD_CAPACITY	System partition capacity(Byte)
#SYS_SYSCARD_FREE_SPACE	System partition free space(Byte)
#SYS_DATACARD_CAPACITY	Data partition capacity(Byte)
#SYS_DATACARD_FREE_SPACE	Data partition free space(Byte)
#SYS_NODE_ID	Node ID on RTU
#SYS_ROOT_READONLY	Read-only system : 0-System Partition Readable and Writable, 1- System Partition Read-Only
#SYS_COM_COUNT	COM count
#SYS_LAN_COUNT	LAN count
#SYS_DEFAULT_IF	Meaning of the value : 0-Cant't find default interface for route, 1-LAN1, 2- LAN2, 3-LAN3, 4- LAN4, 101-WiFi, 201-Cellular

#MOBILE_SIM	Name	Description
		0 error 1 READY: MT is not pending for any password 2 SIM PIN: MT is waiting SIM PIN to be given 3 SIM PUK: MT is waiting SIM PUK to be given 4 SIM PIN2: MT is waiting SIM PIN2 to be given 5 SIM PUK2: MT is waiting SIM PUK2 to be given 6 PH-NET PIN: MT is waiting network personalization password to be given 7 PH-NETSUB PIN: MT is waiting network subset personalization password to be given 8 PH-SP PIN: MT is waiting service provider personalization password to be given 9 PH-CORP PIN: MT is waiting corporate personalization password to be given 10 PH-SIM PIN:

Name	Description MT is waiting phone to SIM/UICC card password to be given 99 not
#MOBILE IP	known Celluar device ip
#MOBILE_MNO	Mobile network operator
#MOBILE_MNT	Mobile network type
#MOBILE_MDT	Mobile data traffic
#MOBILE_MPN	Mobile phone number
#MOBILE_SIGNAL_QUALITY	Signal quality of mobile network
#MOBILE_CSQ	Received Signal Strength Indication
#MOBILE_MCC	Mobile Country Code, MCC
#MOBILE_MNC	Mobile Network Code, MNC
#MOBILE_LAC	Location Area Code, LAC
#MOBILE_CID	Cell Tower ID, Cid
#MOBILE_IMSI	IMSI, International Mobile Subscriber Identity
#MOBILE_IMEI	IMEI, International Mobile Equipment Identity

Name	Description
#MOBILE_IMEI_RAW	IMEI raw data
#MOBILE_USBID	mobile modem, usb vendor id, product id
#MOBILE_DATA_DAY	Cellular data, current day used traffic
#MOBILE_DATA_MONTH	Cellular data, current month used traffic
#MOBILE_DATA_YEAR	Cellular data, current year used traffic
#WLAN0_SIGNAL_QUALITY	Signal quality of wlan0
#WLAN0_SIGNAL_LEVEL	Signal level of wlan0
#WLAN0_SIGNAL_NOISE	Signal noise of WLAN0
#WLAN0_SIGNAL_BITRATE	Bit rate of WLAN0
#WLAN0_AP_MAC	MAC or BSSID in Wifi AP mode
#ICDM_COM1_SCORE	COM 1 score
#ICDM_COM2_SCORE	COM 2 score
#ICDM_COM3_SCORE	COM 3 score
#ICDM_LAN1_SCORE	LAN 1 score
#ICDM_LAN1_LINK	LAN 1 link state
#ICDM_LAN2_SCORE	LAN 2 score

Name	Description
#ICDM_LAN2_LINK	LAN 2 link state
#GPS_LATITUDE	Latitude for the GPS module
#GPS_LONGITUDE	Longitude for the GPS module
#GPS_ALTITUDE	Altitude for the GPS module
#GPS_SPEED	Speed for the GPS module
#GPS_COURSE	Course for the GPS module
#GPS_SATELLITE	Status of the GPS module: 0-error state, 1-use GPS module working, 2- use a preset location information
#SYS_BATTERY_LOW	Battery power: 1 indicates that the battery is low, 0 indicates that the battery is normal
#SYS_TIME_SECOND	(0~59, when leap seconds: 60)
#SYS_TIME_MINUTE	Minutes (0~59)
#SYS_TIME_HOUR	Hours (0~23)
#SYS_TIME_DAY	Day (1~31)
#SYS_TIME_MONTH	Month (1~12)
#SYS_TIME_YEAR	Year (for example,2016)

Name	Description
#SYS_TIME_WDAY	Week (0~6, Sunday: 0, Monday to Saturday: 1~6)
#SYS_TIME_YDAY	Number of days from the beginning of the annual January 1st (0~365,January 1st: 0, January 2nd: 1, and so on)
#SYS_TIME_ISDST	Daylight saving time identifier, implementing daylight saving time, the value is positive. Do not implement the time in the summer, the value is 0. Cannot be determined when the value is negative
#SYS_TIME_GMT_OFFSET	The deviation of GMT seconds and local time, the eastern time zone is positive and negative for West Zone, such as China, should be 28800
#DATALOG_ENABLE	Enable Datalogger storage when the value is 1, and stop storage when the value is 0

Name	Description
#DATALOG_ERROR	When the value of DATALOG_ERROR is 0, it means that there is no error in the program. Check the manual for other error code information
#SYS_MAC_LAN1	MAC address of lan1
#SYS_MAC_LAN2	MAC address of lan2
#SYS_TFCARD_CAPACITY	TF card capacity(Byte)
#SYS_TFCARD_FREE_SPACE	TF card root partition free space(Byte)
#SYS_SDCARD_CAPACITY	SD card capacity(Byte),the value is 0 if there is no SD card
#SYS_SDCARD_FREE_SPACE	SD card free space(Byte),the value is 0 if there is no SD card
#SYS_DNP3_AI_POLLED_COUNTER	The number of times AI data was polled in DNP3 Outstation

Name	Description
#MQTTStatus_WISE-Edge365_0	0- Not connected; 1- Connecting; 2- Connected, subscribing to topics; 3- Connected, the topics is subscribed

Special system tag description

- #DATALOG_ENABLE : Read-write, enabling
 DataLogger storage when the value is 1 and stopping the DataLogger storage when the value is 0
- #DATALOG_ERROR : Read-only, 0—The program runs normally, other error codes need to be found in the DataLogger manual section
- #DISABLE_DEVICE_MeterName : Read-write, each meter in the DataCenter has its own tag, distinguished by the name of the meter. 0—meter available, 1—meter not available. For example, if the meter name is Test Device 1, there will be a corresponding system tag #DISABLE_DEVICE_ Test Device 1, through which the meter can be disabled or started
- #BATCH_WRITE_MeterName : Read-write, each meter in the DataCenter has its own tag, distinguished by the name of the meter. 0—meter single point write, 1 —meter batch write. For example, if the name of the meter is testdevice1, there will be a corresponding system point #BATCH_WRITE_ testdevice1, through which the writing method of the meter can be set

- #DEVICE_ERROR_MeterName : Read-only, each meter in the DataCenter has its own tag, distinguished by the name of the meter. The error code when the current meter is collecting errors. For example, if the instrument name is TestDevice1, there will be a corresponding system tag
 #DEVICE_ERROR_TestDevice1, through which the current meter collection status can be viewed
- #DISABLE_PORT_PortName : Read-write, each port has its own tag, 0—port available, 1-disable port. For example, the COM1 port will have a corresponding system tag #DISABLE_PORT_COM1, through which the port can be turned on or disabled

Configure Calculation Tag

Calculation tag is a kind of special tags, the value of which indicates the calculation result of an formula. The parameter of this formula can be a tag or a constant. Also, the expression can utilize some common calculation methods, including arithmetic & logic operation and trigonometric function, etc..

Calculation tag can perform some relatively complex operations, such as converting the acquired sensor value to the real physical quantity (liquid level, wind speed, etc.), so as to make the computation less intensive for the upper computer as well as the device more intelligent.

Each calculation tag corresponds to one expression which may support at most 8 tags as its input variables. For users' convenience, 8 tags are represented by A, B, C, D, E, F, G and H (case insensitive) in the expression.

Add Calculation Tag

Please follow the procedures to add a calculation tag:

- 1. Double-click on "Calculation Tag" in the left tree menu.
- 2. Click "Add" button to add a new calculation tag.
- 3. Fill in the basic information. "Periods (s)" specifies how often the tags are calculated, and its unit is second.

- 4. Enter an expression. Uses can select default function or operator from the pull-down lists or type them manually. The example figure shows the calculation expression of "Lighting Failure", the expression logic of which is that the lighting is failed when the value of any tag in four switches is 0.
- 5. Double-click the variable box to add a tag.
- 6. Click "OK" button to save the changes.

		Advantech TagLink Stuc				
Project Help						\diamond
ate Open Close Save Proj	· · · · · · · · · · · · · · · · · · ·					
ect Project Project Down						
Project 🛛	Deploy / Option	n 🔺				
oject Configuration «	Active Connection	(3600) 🔄 Calculati	on Tag(3600) ×			
Demo 	Calculat	ion Tag	2	Add	Modify	Delete
👜 📲 Data Center	Name	Data Type	Initial Value	Formula		Description
- Galculation Tag	Lighting failure	Analog	0.0	not(A and B	and C and D)	
e 👕 Connectivity e 🐻 System	Basic		Adv			
	3 Name:	Lighting failure	Math	ematical 🝷 Funct	ions 🔻 Tr	igonometry 🔻
	Initial Value:	0.0	Assig	nment • Boole	an logic 🔻 Co	nstant 🔹
	Period(s):	1	Expre	ession:		
	Description:		- 4 not	A and B and C and E))	+- ×=
			A: 7	F关0	B: 开关1	
			5 c: 7	F关2	D: 开关3	
			E: D	ouble click to add ta	g F: Double d	ick to add tag.
			- G: D	ouble click to add ta	g H: Double d	ick to add tag.

Expression Check

On the right of "Expression" box there is a calculator

button EXE. Click it to open "Calc Expression" window shown as below. This interface is roughly the same as "Advanced" setting interface in the above, but with a "=" button and a box displaying the operation result. Besides, the variable boxes here require users to input the variable values rather than tag names.

🔏 Calc Expression			x
Mathematical Functio	ns	•	
Assignment 🔻 Boolear	n logic 🔻 Constant	•	
Formula:			
not(A and B and C and D)			*
		· _	Ψ
A= 1	B= 2		
C= 3	D= 4		
E= 5	F= 6		
G= 7	H= 8	OK Car	ncel

To verify the expression is correct or not, users can click this button to get the result, then review it to see its correctness. After the expression has been verified, click "OK" button to update the value; if users do not want to update it, click "Cancel" button.

Function and Operator Description

Through the drop-down boxes, users can set the functions and operators calculation tag supports, which is divided into five categories: "Mathematical", "Functions", "Trigonometry", "Assignment" and "Boolean logic". Moreover, "Constant" box is also provided, allowing users to select from three constants: pi (the ratio of the circumference to the diameter of a circle), epsilon (the smallest positive double value that is greater than zero) and inf (infinity).

As shown in the figure below, the functions or operators listed in the box can be classified into three types: 1. With no brackets, this indicates binary operations (labeled with 1); 2. With brackets but no comma, this means this function only has one parameter (labeled with 2); 3. With brackets and comma, this means the function supports more than one parameter (labeled with 3).

Mathematical 🔻	Functions	▼ Trigor	nometry 🔻		
Assignment 🔹	Boolean logic	▼ Const	ant 🔻		
Formula: 1 not(A and B and	nand	Î	A. V		* *
A= 1 2	nor not()	·			
C= 3	or	-			
E= 5	F= 6	;			
G= 7	H= 8			ОК	Cancel

All functions and operators are described as follows:

0. Arithmetic & Assignment Operators

OPERATOR	DEFINITION
+	Addition between x and y. (eg: x + y)
-	Subtraction between x and y. (eg: x - y)

OPERATOR	DEFINITION
*	Multiplication between x and y. (eg: x * y)
/	Division between x and y. (eg: x / y)
%	Modulus of x with respect to y. (eg: x % y)
٨	x to the power of y. (eg: x ^ y)
:=	Assign the value of x to y. Where y is either a variable or vector type. (eg: y := x)
+=	Increment x by the value of the expression on the right hand side. Where x is either a variable or vector type. (eg: x += abs(y - z))
-=	Decrement x by the value of the expression on the right hand side. Where x is either a variable or vector type. (eg: x[i] -= abs(y + z))

OPERATOR	DEFINITION
*=	Assign the multiplication of x by the value of the expression on the righthand side to x. Where x is either a variable or vector type. (eg: x *= abs(y / z))
/=	Assign the division of x by the value of the expression on the right-hand side to x. Where x is either a variable or vector type. (eg: x[i + j] /= abs(y * z))
%=	Assign x modulo the value of the expression on the right hand side to x. Where x is either a variable or vector type. (eg: x[2] %= y ^ 2)

1. Equalities & Inequalities

OPERATOR	DEFINITION
== or =	True only if x is strictly equal to y. (eg: x == y)

OPERATOR	DEFINITION
<> or !=	True only if x does not equal y. (eg: x <> y or x != y)
<	True only if x is less than y. (eg: x < y)
<=	True only if x is less than or equal to y. (eg: x <= y)
>	True only if x is greater than y. (eg: x > y)
>=	True only if x greater than or equal to y. (eg: $x \ge y$)

2. Boolean Operations

OPERATOR	DEFINITION
true	True state or any value other than zero (typically 1).
false	False state, value of exactly zero.
and	Logical AND, True only if x and y are both true. (eg: x and y)
mand	Multi-input logical AND, True only if all inputs are true. Left to right short-circuiting of expressions. (eg: mand(x > y, z < w, u or v, w and x))

OPERATOR	DEFINITION
mor	Multi-input logical OR, True if at least one of the
nand	Logical NAND, True only if either x or y is false. (eg: x nand y)
nor	Logical NOR, True only if the result of x or y is false (eg: x nor y)
not	Logical NOT, Negate the logical sense of the input. (eg: not(x and y) == x nand y)
or	Logical OR, True if either x or y is true. (eg: x or y)
xor	Logical XOR, True only if the logical states of x and y differ. (eg: x xor y)
xnor	Logical XNOR, True iff the biconditional of x and y is satisfied. (eg: x xnor y)

OPERATOR	DEFINITION
&	Similar to AND but with left to right expression short circuiting optimisation. (eg: (x & y) == (y and x))

3. General Purpose Functions

FUNCTION	DEFINITION
abs	Absolute value of x. (eg: abs(x))
avg	Average of all the inputs. (eg: avg(x,y,z,w,u,v) == (x + y + z + w + u + v) / 6)
ceil	Smallest integer that is greater than or equal to x.
clamp	Clamp x in range between r0 and r1, where r0 < r1. (eg: clamp(r0,x,r1))
equal	Equality test between x and y using normalised epsilon
erf	Error function of x. (eg: erf(x))

FUNCTION	DEFINITION
erfc	Complimentary error function of x. (eg: erfc(x))
ехр	e to the power of x. (eg: exp(x))
expm1	e to the power of x minus 1, where x is very small. (eg: expm1(x))
floor	Largest integer that is less than or equal to x. (eg: floor(x))
frac	Fractional portion of x. (eg: frac(x))
hypot	Hypotenuse of x and y (eg: hypot(x,y) = sqrt(xx + yy))
iclamp	Inverse-clamp x outside of the range r0 and r1. Where r0 < r1. If x is within the range it will snap to the closest bound. (eg: iclamp(r0,x,r1)
inrange	In-range returns 'true' when x is within the range r0 and r1. Where r0 < r1. (eg: inrange(r0,x,r1)
log	Natural logarithm of x. (eg: log(x))

FUNCTION	DEFINITION
log10	Base 10 logarithm of x. (eg: log10(x))
log1p	Natural logarithm of 1 + x, where x is very small. (eg: log1p(x))
log2	Base 2 logarithm of x. (eg: log2(x))
logn	Base N logarithm of x. where n is a positive integer. (eg: logn(x,8))
max	Largest value of all the inputs. (eg: max(x,y,z,w,u,v))
min	Smallest value of all the inputs. (eg: min(x,y,z,w,u))
mul	Product of all the inputs. (eg: mul(x,y,z,w,u,v,t) == (x * y * z * w * u * v * t))
ncdf	Normal cumulative distribution function. (eg: ncdf(x))
nequal	Not-equal test between x and y using normalised epsilon
pow	x to the power of y. (eg: pow(x,y) == x ^ y)

FUNCTION	DEFINITION
root	Nth-Root of x. where n is a positive integer. (eg: root(x,3) == $x^{(1/3)}$)
round	Round x to the nearest integer. (eg: round(x))
roundn	Round x to n decimal places (eg: roundn(x,3)) where n > 0 and is an integer. (eg: roundn(1.2345678,4) == 1.2346)
sgn	Sign of x, -1 where x < 0, +1 where x > 0, else zero. (eg: sgn(x))
sqrt	Square root of x, where x >= 0. (eg: sqrt(x))
sum	Sum of all the inputs. (eg: sum(x,y,z,w,u,v,t) == $(x + y + z + w + u + v + t)$)
swap	Swap the values of the variables x and y and return the
<=>	current value of y. (eg: swap(x,y) or x <=> y)
trunc	Integer portion of x. (eg: trunc(x))

4. Trigonometry Functions

FUNCTION	DEFINITION
acos	Arc cosine of x expressed in radians. Interval [-1,+1] (eg: acos(x))
acosh	Inverse hyperbolic cosine of x expressed in radians. (eg: acosh(x))
asin	Arc sine of x expressed in radians. Interval [-1,+1] (eg: asin(x))
asinh	Inverse hyperbolic sine of x expressed in radians. (eg: asinh(x))
atan	Arc tangent of x expressed in radians. Interval [-1,+1] (eg: atan(x))
atan2	Arc tangent of (x / y) expressed in radians. [-pi,+pi] eg: atan2(x,y)
atanh	Inverse hyperbolic tangent of x expressed in radians. (eg: atanh(x))
COS	Cosine of x. (eg: cos(x))

FUNCTION	DEFINITION
cosh	Hyperbolic cosine of x. (eg: cosh(x))
cot	Cotangent of x. (eg: cot(x))
CSC	Cosecant of x. (eg: csc(x))
sec	Secant of x. (eg: sec(x))
sin	Sine of x. (eg: sin(x))
sinc	Sine cardinal of x. (eg: sinc(x))
sinh	Hyperbolic sine of x. (eg: sinh(x))
tan	Tangent of x. (eg: tan(x))
tanh	Hyperbolic tangent of x. (eg: tanh(x))
deg2rad	Convert x from degrees to radians. (eg: deg2rad(x))
deg2grad	Convert x from degrees to gradians. (eg: deg2grad(x))
rad2deg	Convert x from radians to degrees. (eg: rad2deg(x))
grad2deg	Convert x from gradians to degrees. (eg: grad2deg(x))

5. String Processing

FUNCTION	DEFINITION
=,==	All common equality/inequality operators are applicable
!=, <>	to strings and are applied in a case sensitive manner.
<=, >=	In the following example x, y and z are of type string.
< , >	(eg: not((x <= 'AbC') and ('1x2y3z' <> y)) or (z == x)
in	True only if x is a substring of y. (eg: x in y or 'abc' in 'abcdefgh')
like	True only if the string x matches the pattern y. Available wildcard characters are '' and '?' denoting zero or more and zero or one matches respectively. (eg: x like y or 'abcdefgh' like 'a?dh')

FUNCTION	DEFINITION
ilike	True only if the string x matches the pattern y in a case insensitive manner. Available wildcard characters are '' and '?' denoting zero or more and zero or one matches respectively. (eg: x ilike y or 'a1B2c3D4e5F6g7H' ilike 'a?dh')

FUNCTION	DEFINITION
[r0:r1]	The closed interval [r0,r1] of the specified string. eg: Given a string x with a value of 'abcdefgh' then: 1. $x[1:4] ==$ 'bcde' 2. $x[:5] == x[:10 / 2] ==$ 'abcdef' 3. $x[2 + 1:] == x[3:]$ == 'defgh' 4. $x[:] == x[:] ==$ 'abcdefgh' 5. $x[4/2:3+2] == x[2:5]$ == 'cdef' Note: Both r0 and r1 are assumed to be integers, where r0 <= r1. They may also be the result of an expression, in the event they have fractional components truncation will be performed. (eg: 1.67 —> 1)

FUNCTION	DEFINITION
:=	Assign the value of x to y. Where y is a mutable string or string range and x is either a string or a string range. eg: 1. y := x 2. y := 'abc' 3. y := x[:i + j] 4. y := '0123456789'[2:7] 5. y := '0123456789'[2i + 1:7] 6. y := (x := '0123456789'[2:7]) 7. y[i:j] := x 8. y[i:j] := (x + 'abcdefg'[8 / 4:5])[m:n] Note: For options 7 and 8 the shorter of the two ranges will denote the number characters that are to be copied.

FUNCTION	DEFINITION
+	Concatenation of x and y. Where x and y are strings or string ranges. eg 1. $x + y$ 2. $x + 'abc'$ 3. $x + y[:i + j]$ 4. $x[i:j] + y[2:3] +$ '0123456789'[2:7] 5. 'abc' + x + y 6. 'abc' + '1234567' 7. $(x + 'a1B2c3D4' + y)$ [i:2j]
+=	Append to x the value of y. Where x is a mutable string and y is either a string or a string range. eg: 1. $x += y$ 2. $x += 'abc'$ 3. $x += y[:i + j] + 'abc'$ 4. $x +=$ '0123456789'[2:7]
<=>	Swap the values of x and y. Where x and y are mutable strings. (eg: x <=> y)

FUNCTION	DEFINITION
	The string size operator returns the size of the string being actioned. eg: 1. 'abc'[] == 3 2. var max_str_length := max(s0[],s1[],s2[],s3[]) 3. ('abc' + 'xyz')[] == 6 4. (('abc' + 'xyz')[1:4])[] == 4

6. Control Structures

STRUCTURE	DEFINITION
if	If x is true then return y else return z. eg: 1. if (x, y, z) 2. if ((x + 1) > 2y, z + 1, w / v) 3. if (x > y) z; 4. if (x <= 2*y) { z + w };

STRUCTURE	DEFINITION
if-else	The if-else/else-if statement. Subject to the condition branch the statement will return either the value of the consequent or the alternative branch. eg: 1. if $(x > y) z$; else w; 2. if $(x > y) z$; else w; 2. if $(x > y) z$; else if (w != u) v; 3. if $(x < y) \{ z; w + 1; \}$ else u; 4. if $((x != y) and (z > w))$ $\begin{cases} y := sin(x) / u; z := w + 1; \\ \} else if (x > (z + 1)) \\ \{ w := abs (x - y) + z; u := (x + 1) > 2y ?$ 2u : 3u; \end{cases}

STRUCTURE	DEFINITION
switch	The first true case condition that is encountered will determine the result of the switch. If none of the case conditions hold true, the default action is assumed as the final return value. This is sometimes also known as a multi-way branch mechanism. eg: switch { case x > (y + z) : 2 * x / abs(y - z); case x < 3 : sin(x + y); default : 1 + x; }

STRUCTURE	DEFINITION
while	The structure will repeatedly evaluate the internal statement(s) 'while' the condition is true. The final statement in the final iteration will be used as the return value of the loop. eg: while ((x -= 1) > 0) { y := x + z; w := u + y; }
repeat/	The structure will repeatedly evaluate the internal
until	statement(s) 'until' the condition is true. The final statement in the final iteration will be used as the return value of the loop. eg: repeat y := x + z; w := u + y; until ((x += 1) > 100)

STRUCTURE	DEFINITION
for	The structure will repeatedly evaluate the internal statement(s) while the condition is true. On each loop iteration, an 'incrementing' expression is evaluated. The conditional is mandatory whereas the initialiser and incrementing expressions are optional. eg: for (var x := 0; (x < n) and (x != y); x += 1) { y := y + x / 2 - z; w := u + y; }
break	Break terminates the execution of the nearest enclosed

STRUCTURE	DEFINITION		
break[]	<pre>loop, allowing for the execution to continue on external to the loop. The default break statement will set the return value of the loop to NaN, where as the return based form will set the value to that of the break expression. eg: while ((i += 1) < 10) { if (i < 5) j -= i + 2; else if (i % 2 == 0) break; else break[2i + 3]; }</pre>		
continue	Continue results in the remaining portion of the nearest enclosing loop body to be skipped. eg: for (var i := 0; i < 10; i += 1) { if (i < 5) continue; j -= i + 2; }		

STRUCTURE	DEFINITION
return	Return immediately from within the current expression. With the option of passing back a variable number of values (scalar, vector or string). eg: 1. return [1]; 2. return [x, 'abx']; 3. return [x, x + y, 'abx']; 4. return []; 5. if (x < y) return [x, x - y, 'result-set1', 123.456]; else return [y, x + y, 'result-set2'];
?:	Ternary conditional statement, similar to that of the above denoted if- statement. eg: 1. x ? y : z 2. x + 1 > 2y ? z + 1 : (w / v) 3. min(x,y) > z ? (x < y + 1) ? x : y : (w * v)

STRUCTURE	DEFINITION
~	Evaluate each sub- expression, then return as the result the value of the last sub-expression. This is sometimes known as multiple sequence point evaluation. eg: \sim (i := x + 1, j := y / z, k := sin(w/u)) == (sin(w/u))) \sim {i := x + 1; j := y / z; k := sin(w/u)} == (sin(w/u)))
[*]	Evaluate any consequent for which its case statement is true. The return value will be either zero or the result of the last consequent to have been evaluated. eg: [*] { case (x + 1) > (y - 2) : x := z / 2 + sin(y / pi); case (x + 2) < abs(y + 3) : w / 4 + min(5y,9); case (x + 3) == (y * 4) : y := abs(z / 6) + 7y; }

STRUCTURE	DEFINITION
	The vector size operator returns the size of the vector being actioned. eg: 1. v[] 2. max_size := max(v0[],v1[],v2[],v3[])

Configure User Tag

IO tags described in the previous sections are all real ones, while some unreal IO tags are also need in the process of project deployment. This kind of tags is optional and called User Tag which can be used for C and KW language programming, as a control signal or a manifestation of an operation result.

User tag configuration is supported by EdgeLink Studio. Users can configure them one by one based on real needs for future programming. Please follow the below procedures to configure a user tag:

- 1. Double-click or right-click "User Tag" in the left menu tree to select "Edit".
- 2. Fill in the tag name.
- 3. Select the data type.
- 4. Set the initial value.
- 5. Give a description of the user tag, which is optional.
- 6. Click "OK" button to save the changes.
- 7. If users do not want to save the changes, click"Cancel Change" button.
- 8. Add another new tag.
- 9. Users can select one or more tags and click "Delete" button.

10. Users can select one or more tags and click "Modify" button.

8	Advant	tech TagLink Studio			_ – ×
Project Help Create Open Cose Save Project Project Project Downloa	Export To d SD Card ploy				
Project Configuration «	PowerMeter(3600)	🙀 IO Tag(3600-PowerM	eter) 🐨 New Port(360	0) 📴 User Tag(3600) 🗴	. ا
Demo 	User Tag			Add Modify 10	Delete 9
🖶 📕 Data Center [5]		Data Type	Initial Value	Retain Description	
	UserTag1	Analog	10.0	None	
Calvalation Tag [0] Calvalation Tag [0] Calvalation Tag [1] Data Logger Data Logger Calvalation Tag [1] Connectivity Connectivity Connectivity	K New Tag	NewTag	-2	x	
	Data Typ	Analog	~		
	Initial Val	lue: 10.0			
	Retain:	Not Retain	- 4		
	Descripti	on: None	÷ 5		
			бок	Cancel 7	

ODBC Device

1. Select the device type ODBC-MSSQL in the device interface, and can be configured to collect data via an online ODBC server



2. In the device interface, enter the ODBC service configuration.

A TCP/IP			
IP Address: 🚺	10.0.0.2]
Port Number:	502]
Extention Properties			
Version:			
Microsoft SQL Serve	2008 •]	
Login ID: <3			
]	
Password: 4		_	
Database: 5		1	

- 1. Server IP address.
- SQL Server version, you can choose SQL Server2008, SQL Server2005, SQL Server2000 and so on.
- 3. The user name required for logging in SQL Server.
- 4. The password required for logging in SQL Server.

- 5. The name of the database that you need to log in.
- 3. Data acquisition script

ODBC Address Configuration					
Column Name:	name				
SQL Script:	select name, value from data Table	*			
		×			
	OK Cancel				

Click on the address bar of the Tag edit interface to edit the SQL scripts for data collection,

which "SQL Script" enter the SQL query script, "Column Name" enter the column name of the query result..

JDBC Device

1. Select the device type JDBC-ORACLE in the device interface, and can be configured to collect data via an online JDBC server

General Information	
☑ Enable	
Name:	NewMeter
Meter Type: 1	JDBC-ORACLE (JDBC for Oracle Database)
Unit Number:	1
Tag Write Type:	Single Write
Description:	
Add meter name as pre	efix to IO tags Bulk Copy

2. In the device interface, enter the JDBC service configuration.

<u>₩</u> ТСР/IР				
IP Address: 🛛 🚺				
Port Number:	0			
Extention Properties				
Version:				
Oracle Database 11g		•	-2	
Login ID:				
			-3	
Password:				
			-4	
Database:				
			-5	

- 1. Server IP address.
- Oracle version, you can choose Oracle Database
 10g、Oracle Database 11g、Oracle Database
 12c and so on.
- 3. The user name required for logging in Oracle.
- 4. The password required for logging in Oracle.
- 5. The name of the database that you need to log in.
- 3. Data acquisition script

JDBC Address Configuration					
Column Name:	name				
SQL Script:	SELECT name, value FROM tablename	<u>_</u>			
		-			
	<u>O</u> K <u>C</u> ancel				

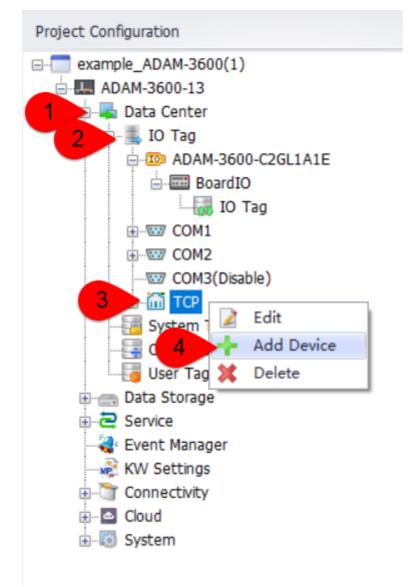
Click on the address bar of the Tag edit interface to edit the SQL scripts for data collection,

which "SQL Script" enter the SQL query script, "Column Name" enter the column name of the query result..

BACnet IP(TCP/IP)

1.Driver support start version number:

2.Add Meter



 DataCenter->I/O点->TCP->Right Click : Add Device

NewDevice(ADAM-3600)* ×
Apply Disc	ard
General Information	
🗹 Enable	
Name:	BACnetIP
Device Type:	BACnet IP 👻
Device Model	Double Click to Select Device Template
Unit Number:	1
Tag Write Type:	Single Write 🔻
Description:	
	· · ·
Add device name as pro	efix to IO tags Bulk Copy
유 TCP/IP	
IP/Domain:	
Port Number:	0
Extention Properties	
Device Address (if othe	er than Unit Number):
Device Broadcast [I AM] T	Time (second):
0	
Polling Cycle:	
1	
Device Instance #:	
0	
Max Property/ Request:	
0	
Synchronize Time at(Ex. 2	23:50:00):
01:00:00	

- Name: Fill in as you please.
- Device Type: Select BACnet IP。
- IP/Domain Name: The IP address of the BACnet server.
- Port Number: The port number of the BACnet server.
- Device Broadcast[I AM] Time (second) : Frequency of EdgeLink sending "I AM" messages.
- Polling Cycle : Data Collection Period
- Device Instance # : Device Instance ID of the BACnet server。
- Max Property/Request : 0 means polling 70 points in one round, and other values mean the number of points configured for one round of polling.
- Synchronize Time at (Ex. 23:50:00) : Sync time with server at a certain time $_{\circ}$
- After configuring the above parameters, click "Apply" to add it. Click "Cancel" to cancel the operation.

3.Add tag

Basic			Advanced	
Name:	NewTag		ScalingType:	No Scale 🔻
Data Type:	Analog	•	Formula:	
Conversion	AUTO	•		
Address:			Scale:	0
Start Bit:	0	Default Address Con	figuration	
Length(bit):	16	Address Template:	TypeNo.Instance	Clamp to span low Clamp to span high
Span High:	1000		TypeNo.InstanceNo.P	PropertyId p to zero
Span Low:	0	Address:	TypeNo.InstanceNo.P	n.
Initial Value:	0.0	ОК	Cancel	
Scan Rate:	1			
Read Write:	Read/Write	•		
Description:		A.		
		~		

1).Fill in or select the parameters on the above interface according to the requirements, and click "OK" to save the changes.

2). Tag point address format :

TypeNo.InstanceNo.PropertyId

 TypeNo : Representing the type number_o The driver protocol supports six types: Analog Input, Analog Output, Analog Value, Binary Input, Binary Output, and Binary Value :

Туре	TypeN um
Analog Input	0
Analog Output	1
Analog Value	2
Binary Input	3
Binary Output	4

Туре	TypeN um
Binary Value	5

- InstanceNo : Tag point sequence number in the server_o
- Propertyld : Please refer to the Bacnet protocol.

example : The Property ID for "Present Value" in BACNet is 85 . The address example for reading "Present Value" is as follows:

Type and index	Address
AI_2	0.2.85
AO_2	1.2.85
AV_2	2.2.85
BI_2	3.2.85
BO_2	4.2.85
BV_2	5.2.85

4.FAQ

4.1.ErrorCode

ErrorCode	Description	
GOOD	No error	
C010	Device Idle, I-AM timeout	
C002	Data type mismatch	
A00X	iscrete value over max state	

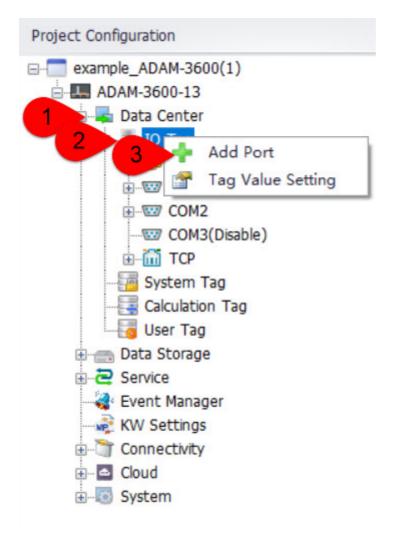
ErrorCode	Description
QCode bit coded	0001 in alarm, 0002 Fault, 0004 Overridden, 0008 Out of service
b014	No space to write property
b01b	Read access denied
b01f	Unknown object
b020	Unknown property
b025	Value out of range
b028	Write access denied
b02a	Invalid array index
b02f	Datatype not supported
b030	Duplicate name
b031	Duplicate object id
b032	Property is not an array
b033	Abort buffer overflow
b034	Abort invalid apdu in this state
b035	Abort preempted by higher priority task
b036	Abort segmentation not supported
b037	Abort proprietary
b038	Abort other
b03b	Reject buffer overflow
b03c	Reject inconsistent parameters
b03d	Reject invalid parameter data type

ErrorCode	Description
b03e	Reject invalid tag
b03f	Reject missing required parameter
b040	Reject parameter out of range
b041	Reject too many arguments
b042	Reject undefined enumeration
b043	Reject unrecognized service
b044	Reject proprietary
b045	Reject other
b050	Parameter out of range
b07b	Abort apdu too long
b07c	Abort application exceeded reply time
b07d	Abort out of resources
b07e	Abort tsm timeout
b07f	Abort window size out of range
b0100	Loss of port connection
b0101	Header timeout error
b0102	Data timeout error
b0103	NPDU Timeout error
b0104	Header CRC error
b0105	Data CRC error
b0106	Non-NPDU message error
b0107	Timeout error

ErrorCode	Description
b0108	Serial port error
b0109	Invalid Write Properity Error
b010a	Invalid Read Properity Error
b010b	No valid read data
b010c	Unsupported Frame Type
b010d	Error in the MS/TP Network
b010e	Unknown Data Type to write
b010f	Invalid Destination MAC Address
b0110	Invalid Source MAC Address
b0111	Invalid Header Information
b0112	Unable to get a valid Invoke ID

BACnet MS/TP

- Driver support start version number : v2.8.0
- \equiv Quic start
- 1.Add Port
 - DataCenter->I/O点->Add Port



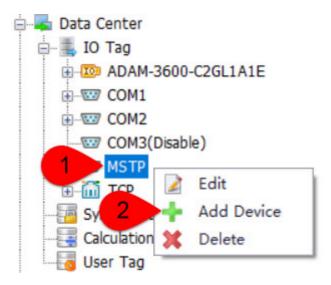
- Port Type : Select "Serial(BACnet MS/TP)"->Name: Fill in as desired (The name used in this document is "MSTP")
- 2.Configure the port

Port:	miniPCIe/USB	•			
Baud Rate:	9600	•	Parity:	None	
Data Bit:	8	•	RTS:	False	

- Serial Number : Gateway serial port number
- Other parameters : Configure according to device characteristics
- After configuring, click "Apply"

3.Add Device

DataCenter->I/O Tag->MSTP->Add Device



- 4.Configure Device
 - Device Type : Select "BACnet Device"->Name: Fill in as desired (The name used in this document is "MSTP")->click "Apply"

Enable	
Name:	MSTP
Device Type:	BACnet Device
Device Model	Double Click to Select Device Template
Unit Number:	0
Tag Write Type:	Single Write
Description:	

5.Add tag point

6.Download project, You have successfully completed the configuration of BACnet MS/TP.

 Ξ , Detailed configuration instructions

1.Detailed explanation of the extended attributes in the port configuration interface

Extension Properties	
This Station Device ID:	
1	
MAC (0 - 127):	
127	
Device Unit Number As:	
Device ID	
🔲 Max Info Frames:	
1	
Max Client:	
127	
APDU Timeout (MS):	
10000	
Number Of APDU Retries	
3	

- This Station Device ID : Device ID.
- MAC(0~127) : The MAC address of the device, default is 127.
- Device Unit Number As : The Unit Number value in the device configuration is the device ID, not the MAC address of the device.
- Max Info Frames : The maximum number of information frames that a designated node can send before the token must be transfer.
- Max Master : The highest address allowed by the master node in the network, default is 127.

- APDU Timeout(MS) : The amount of time (milliseconds) between unconfirmed attempts to resend an APDU when confirmation is required. For devices that allow modification of this parameter, the recommended value for this property is 10000 milliseconds. Otherwise, the default value should be 60000 milliseconds.
- Number of APDU Retries : The maximum number of times an APDU should be retransmitted. The recommended value for this property is: if this device does not perform retries, this property should be set to zero. If the value of this property is greater than zero, a non-zero value should be placed in the APDU_Timeout property of the device object.

2.Detailed explanation of the extended attributes in the device configuration interface

Ext	tention Properties
	Max Property/Request:
	16

- Max Property/ Request : The maximum number of tags included in each request packet.
- 3. Detailed description of tag point address

Address Template: TypeNo.Instance TypeNo.InstanceNo.P
Address: TypeNo.InstanceNo.P

Tag point address format :

TypeNo.InstanceNo.PropertyId

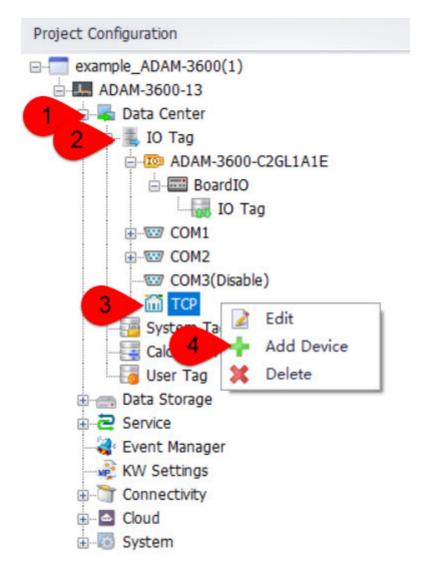
The specific address instructions can be found in the BACnet IP documentation.

DNP3(TCP)

- -、Driver support start version number :
- \Box , Quick Connection

1.Add Device

 DataCenter->I/O Tag->TCP->Rigth click : Add Device



2.Configure the device

 Select Device Type : DNP3.0 Master Driver->Fill in the DNP3 server IP and port number: such as 172.21.67.56 and 20000->click "Apply"

3 Apply X D	iscard			
General Information				
Enable				
Name:	DNP3			
Device Type:	DNP 3.0 Client Driver			
Device Model	Double Click to Select Device Template 1 Single Write			
Unit Number:				
Tag Write Type:				
Description:	*			
Add device name as prefix to IO tags Bulk Copy				
유 TCP/IP				
IP/Domain:	172.21.67.56			
Port Number:	20000			

3.Add tags

4.Download project, completed the quick configuration of DNP3.

- Ξ , Detailed configuration instructions
- 1. Detailed configuration interface instructions

🚰 General Information						
Enable						
Name:	DNP3					
Device Type:						
Device Model						
	Unit Number: 1					
	Tag Write Type: Single Write					
Description:		-				
	C					
Add device name as p	orenx to IO tags	Bulk Copy				
A TCP/IP						
IP/Domain:	172.21.67.56					
Port Number:	20000					
	1					
Extention Properties						
Client Address:						
3						
	Server Address:					
Request Timeout(s):	4 Request Timeout(s):					
5						
Analog Inputs variation:						
	Variation 5 - float-point with flag					
Analog Outputs variation	1:					
Variation 3 - float-point						
Binary Inputs variation:						
Variation 2 - with flags	•					
Binary Outputs variation:	:					
Variation 2 - output stat	tus with flags 🔹					
Counter variation:						
Variation 1 - 32-bit with						
Frozen counter variation						
Variation 1 - 32-bit with						
Keep-Alive Interval(s)):					
60						
The period of TimeS	ync(s):					
000						

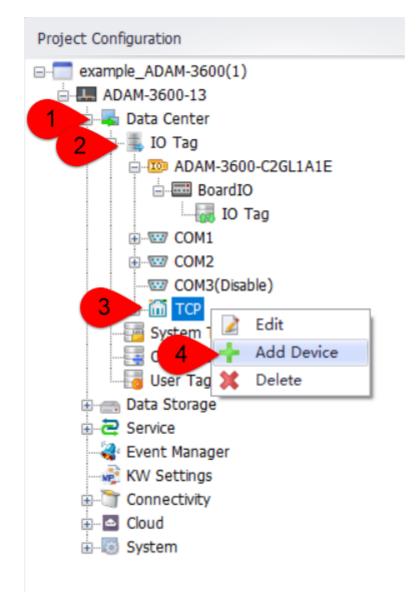
- Name: Fill in as desired.
- Device Type : Select DNP3.0 Master Driver.
- IP/Domain Name: The IP address of the DNP3 server.
- Port Number: The port number of the DNP3 server.
- Master Address : Session Master address.
- Slave Address : Session Slave Address.
- Request Timeout(s) : Response timeout time for data request commands.
- Keep-Alive Interval(s) : Heartbeat period: When this option is not selected, it means that the Master endpoint does not send heartbeat packets.
- The period of TimeSync(s) : Time synchronization period: When this option is not selected, it means that time synchronization operations are not performed.
- xx variation : It is possible to configure the default variation (i.e., data format) for each different data type. Please refer to the specification document for details. If there are no special requirements, it is sufficient to keep the defaults.
- 2. Detailed description of tag point address

Group:	Analog Inputs	-
	Analog Inputs	
Index:	Analog Outputs	
	Binary Inputs	
	Binary Outputs	
	Counters	
	Frozen Counters	

- Group : There are six types in total. Please select the appropriate type from the dropdown list based on the actual situation.
- Index : Index on slave , Under the same data type, there may be multiple tag points. The index number is the sequential number of the tag point.
- Note: Due to the inability of the Master in Linux to issue the Frozen command, the Frozen counter point is only used for data collection.

IEC104

- -、Driver support start version number :
- \Box , Quick Connection
- 1.Add Device
 - DataCenter->I/O Tag->TCP->Right Click : Add Device



2.Configure the device

 Select Device Type : IEC 60870-5-104–>Fill in the IEC104 server IP and port number: such as 172.21.67.56 and 2404–>click "Apply"

3 Apply 🗶 D	Discard			
General Information				
Inable				
Name:	IEC104	IEC104		
Device Type:	IEC 60870-5-104	IEC 60870-5-104 •		
Device Model	Double Click to Select	t Device Template		
Unit Number:	1 Single Write			
Tag Write Type:				
Description:		±		
Add device name as prefix to IO tags Bulk Copy				
유 TCP/IP				
IP/Domain:	172.21.67.56			
Port Number:	2404			

3.Add tag(s)

4.Download project, completed the quick configuration of IEC104.

 Ξ , Detailed configuration instructions

1.Detailed configuration interface instructions

General Information							
I Enable							
Name:							
Device Type:	IEC 60870-5-104 -						
Device Model	Double Click to Select	Device Template					
Unit Number:	1						
Tag Write Type: Single Write							
Description:							
Add device name as	prefix to IO tags	Bulk Copy					
♣ TCP/IP							
IP/Domain:	172.21.67.56						
Port Number:	Port Number: 2404						
Extention Properties							
Device Address (if o	ther than Unit Number):						
t1:t2:t3:k:w:OA:DA:ST	t1:t2:t3:k:w:OA:DA:ST:						
15:10:20:12:8:0:3:30							

- Name: Fill in as desired.
- Device Type: Select IEC 60870-5-104.
- IP/Domain Name: The IP address of the IEC104 server.
- Port Number: The port number of the IEC104 server.
- t1:t2:t3:k:w:OA:DA:ST :

- [] t1 : 1~255 seconds, Refer to the IEC104 protocol for specific requirements.
- [] t2 : 1~600 seconds, Refer to the IEC104 protocol for specific requirements.
- [] t3 : 1~600 seconds, Refer to the IEC104 protocol for specific requirements.
- [] k : 1~32767, Refer to the IEC104 protocol for specific requirements.
- [] w : 1~32767, Refer to the IEC104 protocol for specific requirements.
- [] OA : Master Address , Refer to the IEC104 protocol for specific requirements.
- [] DA : Slave public address.
- [] ST : Scan time. 1 ~3000 seconds.
- 2. Detailed description of tag point configuration

There are three types of Tag.

```
A. Read Only Tag
Format: R:Read Address / Read Data Type / Read
Example: R:402 / M_BO_NA_1 / n
B. Write Only Tag
Format: W:Write Address / Write Command
Example: W:2300 / C_RC_NA_1
Note: Always show value 0 for this kind of tag
C. Read And Write Tag
Format: R:Read Address / Read Data Type / Read
Example: R:400 / M_BO_NA_1 / n / W:2400 / n
```

Note: Add /SE after Write Command to change "Direct Execute" to "Select and Execute" - Read And Write Tag Format: R:Read Address / Read Data Type / Read Command / W:Write Address / Write Command / SE Example: R:100 / M_SP_NA_1 / n / W:2100 / n / SE -Write Only Tag Format: W:Write Address / Write Command / SE Example: W:2100 / C_SC_NA_1 / SE

Add A Device Name Prefix for the IO tag

IO Tag(NewDevice-Meter1_1) Meter1(NewDevice) ×							
Apply X Dis	card						
🚰 General Information							
Enable							
Name:	Meter1						
Meter Type:	Modicon (Modicon Modbus Ethernet)						
Unit Number:	1						
Tag Write Type:	Single Write 🔹						
Description:	▲						
	· · · · · · · · · · · · · · · · · · ·						
Add meter name as p	refix to IO tags 🦰 🕒 Bulk Copy						

Click the option of "add device name as prefix to IO tags", and it will add a prefix for the IO tag, format such as'meter name: IO tag name'.

The device name prefix will be removed after cancling point .If the the IO tag name is not unique after the prefix is canceled, the user will be prompted to allow the system to automatically rename the duplicate IO tag.

Image: Initial State Biology Initi	Project Configuration «	IO Tag(NewDevi	e-Meter1_1) 🔲 Meter1(NewDevice)	😹 IO Tag(NewDe	vice-Meter1) ×	
Description:	<pre>demo demo demo demo demo demo demo demo</pre>	Add Name Meteritagi Update Tag: Meter Basic Name: Data Type: Conversion Address: Start Bit: Length(bit): Span Low: Initial Value:	Delete Modify. Data Type Analog 1:tag1 tag1 Analog Unsigned Integer 00001 0 16 100	In 0.0	ittal Value 0000 Caling Type: Formula: Scale: Bas:	Address I01 No Scale Comp to span low Camp to span high	Conv Unsigned I

The device name prefix is displayed in the I/O tag editing interface, but cannot be edited.

Bulk Copy

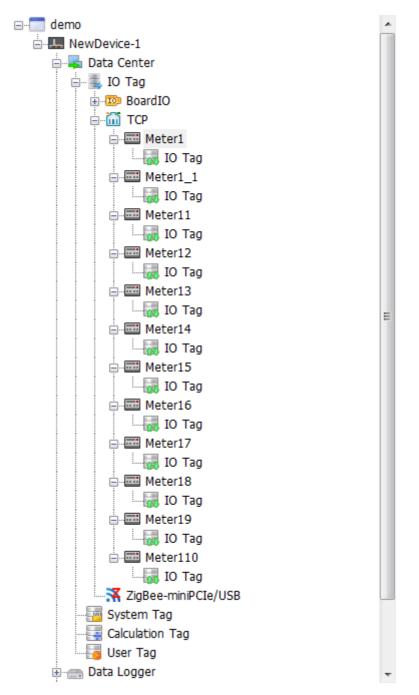
IO Tag(NewDevice-Meter1	_1) Meter1(NewDevice) ×
Apply X Disca	rd
Provide the second seco	
Enable	
Name:	Meter1
Meter Type:	Modicon (Modicon Modbus Ethernet)
Unit Number:	1
Tag Write Type:	Single Write 🔹
Description:	*
	· ·
Add meter name as pres	fix to IO tags

After selecting add the device name prefix, you can try to copy the current device with bulk copy function.

Copy Meter Editor		New Meter Names	
Source name : Meter1		New Name (Edit)	7 Unit Number (Edit)
IOtags: 1		Meter11	1
Path : NewDevice/Data Center/IO Tag/TC	P/ 1	Meter12	2
		Meter13	3
Copy Count:	10 🖊	2 Meter14	4
		Meter15	5
Name Template		Meter16	6
[N][C]		Meter17	7
[וו][כ]	3	Meter18	8
		Meter19	9
[N]Source Name [U]Unit Number [C]Cour	nter 4	Meter110	10
Counter Setting 5 Unit Nu	mber Setting 6		
Initial Value: 1 🗘 Initial V	alue: 1 🗘		
Step: 1 🗘 Step:	1 🗘		
Digit: 1 🔻			
			OK Close

Click the bulk copy button to pop up the page of editing the device name, in which users can edit the number of meters to be copied, the name of the device, and the number of units.

- 1. Display the basic information of the original instrument.
- 2. Select the number of meters to copy up to 100 once.
- 3. The name of the device will be generated according to the name template.
- 4. You can use the name of the original device and unit number and counter with the change of the number.
- 5. The initial value and the step size of the unit number can be set.
- 6. The counter can set the initial value, the step size and the number of the display.
- 7. The name of the generated device is showed in the right list, and the value in the device can be modified, but it will be reset after the modification to the left property.



Click OK and users can see the generating bulk copied device under the port.

Device Template

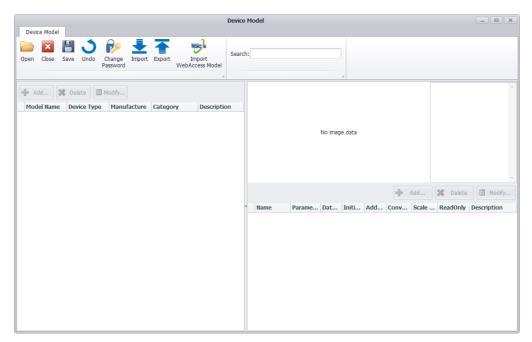
In EdgeLink Studio, a set of templates is created for each model of the device according to different device drivers and models. The template includes the basic information of the device and the tag information under the device, which is the "device template". When adding devices in EdgeLink Studio, you can use the device template to add the tags included in the device template to the device according to certain rules, instead of adding tags one by one. The device template is a sqlite database file, which is divided into the default template and the user template. The default template is saved in the EdgeLink Studio installation directory to store the factory device templates included in the factory. The user template is saved in the template path where the project file is located. The device template can be set to an open password. The user can use the EdgeLinkStudio device template tool to open the template with the password to maintain the template. The ordinary user can only open the user template for maintenance, and the developer can open the default template for maintenance.

Device Template Tool

Click the Device Template button in the EdgeLink Studio toolbar to open the device template tool.



Device template tool interface :



In the device template tool, the functions of opening, closing, saving, revoking, modifying password, importing and exporting, and importing Webaccess templates are supported.

1. Open the device template

When you open the device template tool in the EdgeLink Studio page, you will open the user template by default.When you open the device template tool in the EdgeLink Studio page, the User Template will be opened by default, and users can view template information, template images, and tag information in the interface.

Device Model	De	vice Model-C:\U	sers\xuying.liu	u\Documents\Adv	ant	ech EdgeLink S	tudio\Ten	nplate\	DeviceN	1odelok	dm*			
Dpen Close Sa		Change assword		Import Access Model	arch:									
👆 Add 🔀	Delete 📃 N	1odify								•			Template N Manufactur	lame: 华为逆变器 e: 华为
Model Name	Device Type	Manufacture	Category	Description									Category: : Driver: Mod	
华为逆变器	Modicon	华为	华为模块	huawei									Description	: huawei
川源水泵	Modicon	川源	中/50km	Water Pump				_	_					
		川源	川源3	Water Treatm										
川源鼓风机	Modicon	川源	川源3	Blower			_							
源空气品质	Modicon	川源	川源3	Air quality mon.										
1935年1月11日日本1月11日日本1月11日日本1月11日日本1月11日日本1月11日日本1月11日日本1月11日日本1月11日日本1月11日日本1月11日日本1月11日日本1月1日本1月1日本月月1月1日本月月1日本月月1日本月月1日本月月1日本月月1日本月月1日本月月1日本月月1日本月月1日本月月1日本月月1日本月月1日本月月1日本月月1月1日本月月1月1日本月月1日年月月1月1日本月月1月1日本月月1日本月	Modicon	康达	康达	Power Generati	or									
王星空调系统	Modicon	三星	三星	HVAC System			1.1		-	-				
l源SAR表面	Modicon	川源	川源3	Surface Mecha.										
						华为逆变	を器				+	Add	💢 Dele	ete 📃 Modi
					4	Name	Parame	Dat	Initi	Add	Conv	Scale	ReadOnly	Description
						Input_Vol		Discr	0	00001	N/A	No Scale	\checkmark	输入电压
						Input_Cur		Discr	0	00001	N/A	No Scale	\checkmark	输入电流
						Grid_Volta		Discr	0	00001	N/A	No Scale	\checkmark	电网电压
						Grid_Current		Analog	0.0	00001	Unsign	No Scale	\checkmark	电网电流
						Grid_Freq		Analog	0.0	00001	Unsign	No Scale	\checkmark	电网频率
						DC_Input		Analog	0.0	00001	Unsign	No Scale		直流输入总功率
						Power_Fa		Analog	0.0	00001	Unsign	No Scale		功率因数
						Internal		Analog	0.0	00001	Unsign	No Scale		机内温度
						Covert_Ef		Analog	0.0	00001	Unsign	No Scale		转换效率
						Daily_Gen		Analog	0.0	00001	Unsign	No Scale		当日发电量
						Cumulativ		Analog	0.0	00001	Unsign	No Scale		累计发电量
						CO2_Red		Analog	0.0	00001	Unsign	No Scale	\checkmark	二氧化碳碱排

If a user template does not exist locally, a prompt box will pop up and the user can create an empty user template according to the prompt.

I	nforma	tion
	?	The user template file does not exist. Click YES to create an empty user template.
		Yes No

Users can click on the Open button to open any device template file.

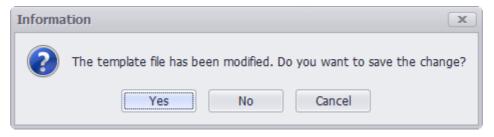
组织 ▼ 新建文件	夹				!≡ ▼ 🔳	?
週 最近访问的位置	ţ	<mark>文档库</mark> Template			排列方式: 文件夹 🔻	
[潯 库 局 Subversion		名称	修改日期	类型	大小	
视频]] DevicePicture	2018/5/23 16:17	文件夹		
🔤 图片		DeviceModel.dm	2018/5/28 14:13	DM 文件	484 KB	
📄 文档		DeviceModel1.dm	2018/5/25 11:39	DM 文件	44 KB	
👌 音乐	E	DeviceModel3.dm	2018/5/24 16:17 2018/5/23 16:51	DM 文件 DM 文件	420 KB 484 KB	
🜉 计算机						
🏭 本地磁盘 (C:)						
🧰 新加卷 (E:)						
💼 m#s	-					

If the open device template needs to be opened with a password, you need to enter the template password. A prompt will be given when the password is wrong.

🔏 Device	e Template Pass	word	x
	Password:	l	
		ОК	Cancel
🔏 Device	e Template Pass	word	x
S Device	Password:	*** Password Error!	×

2.Close the device template

The user can click the Close button to close the current device template file. If there are unsaved changes to the template, a prompt box will pop up.



3. Modify the device template

In the device template tool, users can view, sort, search, filter, add, modify, and delete templates, and add, modify, sort, and delete tags included in the template.

Click the device template list header to sort the template. Click the tag list header to sort the tags.

Fill in the keyword in the search box of the toolbar, and click the Enter button to search for the template information in the current template file.

_	an 🔸		-										
<u> </u>		🏴 📩	_	Webkg:ss Search	1: 川源								
pen Close Sa		hange Import issword		Import Access Model				-					
				A									
- Add 🔀	Delete 📃 M	lodify					-	715	-			Template 机	Name: 川源鼓区
	Device Type	Manufacture	Category	Description								Manufactu Category:	ure: 川源 川順3
	Modicon	川源	Li版3	Water Pump				12	- >			Driver: M	odicon n: Blower
	Modicon	川源	川原3	Water Treatm		- I-	: 11	-				Description	n: Blower
	Modicon	川源	川原3	Blower									
川源空气品质		川源	川原3	Air quality mon					100	20			
川源SAR表面		川源	川原3	Surface Mecha		-		Z.					
		1			100				5 17	de la			
				1	to the second state		10000	1 Contractor					
					川源鼓励	札札				+	Add	💢 Delet	e 📃 Modify
					Name	Param	Dat	Initi	Add	Conv	Scale	ReadOnly	Description
							Discr	0	00001	N/A	No Scale	\checkmark	停机
					 Shutdown 		DISCI						
					Shutdown Inlet_Pres		Analog	0.0	00001	Unsig	No Scale		入口压力
											No Scale No Scale	\checkmark	入口压力 出口压力
					Inlet_Pres		Analog	0.0	00001	Unsig		√ √	
					Inlet_Pres Outlet_Pr		Analog Analog	0.0 0.0	00001 00001	Unsig Unsig	No Scale	✓ ✓ ✓	出口压力
					Inlet_Pres Outlet_Pr Flow		Analog Analog Analog	0.0 0.0 0.0	00001 00001 00001	Unsig Unsig Unsig	No Scale No Scale	✓ ✓ ✓	出口压力 流量

The template can be filtered by column in the header section of the template list.

💠 Add 🗱 Delete 🗏 Modify		
Model Name 7 Device Type Manufacture	Category	Des
▶ 华为逆变器 ↓ 小顶SAR表面曝气机	华为模块	huav
川源水泵 川源鼓风机	川源3	Wat
川源水处理设备 🗆 川源空气品质监测系统	川源3	Wat
川源鼓风机 川源水泵	川源3	Blow
□ 川源空气品质. □ 川源水处理设备	川源3	Air q
康达发电机	康达	Pow
三星空调系统 🔲 三星空调系统	三星	HVA
川源SAR表面 OK Cancel	川源3	Surfa

Click the Add button above the template list to add a new device template. The information includes the template name, driver type, manufacturer, device category, device image, and description. The template name cannot be duplicated with other templates in the template file. The manufacturer and device categories can be added by clicking the Add button on the right side of the input box. You can also select an existing manufacturer by pull-down. Device images can upload image files of up to 200K in .PNG, .JPG, .JPGE, .BMP, and .GIF formats.

Create Template	
Model Name:	New_Model
Meter Type:	ABMLGX
Manufacture:	
Category:	-
Picture:	
Description:	
	
	OK Cancel

Double-click on an existing template in the list, or select a template in the list and click the Modify button above the list to modify the template.

Update Template	
Model Name:	华为逆变器
Meter Type:	Modicon 🔹
Manufacture:	华为 🔹 🔶
Category:	华为模块 🔹 🔶
Picture:	
Description:	huawei
	OK Cancel

Select a template in the list and click the Delete button above the list to delete the template.

Click the Add button above the list of tags to add a new tag to the currently selected template. The tag information is similar to the IO Tag information in EdgeLink Studio. The added tag name cannot be the same as the other tags under the same template.

New Tag			
Basic		Advanced	
Name: Parameter: Data Type: Conversion Address: Start Bit: Length(bit): Span High: Span Low: Initial Value: Scan Rate: ReadOnly: Description:	NewTag Analog Unsigned Integer Unsigned Integer 0 16 100 0 0.0 1	ScalingType: Formula: Scale: Offset: Clamp:	No Scale
		·	OK Close

Double-click an existing tag in the list, or select a tag in the list, and click the "modify" button above the list to modify the tag.

te Tag: Input_' ic		
Name:	Input_Voltage	
Parameter:		
Data Type:	Discrete	•
Address:	00001	
Signal Reverse:	False	•
Start Bit:	0	
Length(bit):	1	
Initial Value:	0	
Scan Rate:	5	
ReadOnly:	\checkmark	
	输入电压	*
Description:		
Description:		
		-

Select a tag in the list and click the Delete button above the list to delete the tag.

4.Save the device template modification

Adding, modifying, deleting, importing, etc. to the template file requires clicking the Save button in the page toolbar to save to the template file. After saving successfully, a prompt box will pop up.

Information X
Save Success!
ОК

5. Undo the device template modification

Click the Undo button to undo unsaved changes, and the template will be returned to the previous save.

Informa	tion
?	Whether to cancel the modification?
	Yes No

6.Modify the device template password

Click the Change Password button, and the template password can be modified in the pop-up dialog box.

🚳 Device Template Passwo	rd	x
Old Password: New Password: Confirm Password:		
	OK Cancel	_

7.Import the device template

Click the Import button to import templates from other device templates files into the currently open template. To import a template that requires a password to open, a password dialog box pops up to prompt the user for a password.

组织 ▼ 新建文件夹				≣ ▼ 🚺 (
🖫 最近访问的位置 🕯	<u>文档库</u> Template			排列方式: 文件夹 ▼
│ 库 │ Subversion	名称	修改日期	类型	大小
■ 视频	DevicePicture	2018/5/23 16:17	文件夹	
	DeviceModel.dm	2018/5/28 14:13	DM 文件	484 KB
	DeviceModel1.dm	2018/5/25 11:39	DM 文件	44 KB
	DeviceModel3.dm	2018/5/24 16:17	DM 文件	420 KB
● / 目示	DeviceModel2.dm	2018/5/23 16:51	DM 文件	484 KB
■ 计算机				
🏭 本地磁盘 (C:)				
🥅 新加卷 (E:)				
• • • • • • • •				

Select to open the template file to be imported, and users can view the template information in the preview panel. Check the template information to be imported. Click the Append button to import the selected template into the current template file, click the Overwrite button to clear the current template and then import the selected template to the current template.

en Clos	e Sav	ve Undo Chang Passwo		Export We	I	mport ccess Model	earch:					10 - 1 10 min 10	
Add. P	review	Template											
todel	Sele	ect Templ	ate			ADAM-	4013(AS	CII)					
华为逆3		odel N Device		Category	*	Name	Data Type	Initial Value	Address	Conversion	Scale Type	Description	
川源水3 ,		DAM-4 ADAM4K	研华	IO模块	1	AI0	Analog	0	4013&AI@0.0		No Scale		
1源水3		DAM-4 ADAM4K	研华	IO模块									
源鼓り		DAM-4 ADAM4K	研华	IO模块									
1源空4		DAM-4 ADAM4K	研华	IO模块									
夏达发6		DAM-4 ADAM4K	研华	IO模块									
三星空ì		DAM-4 ADAM4K	研华	IO模块									
I源SA		DAM-4 ADAM4K	研华	IO模块									
		DAM-4 ADAM4K	研华	IO模块									
		DAM-4 ADAM4K	研华	IO 模块		1							
		DAM-4 ADAM4K	研华	IO模块									
		DAM-4 ADAM4K	研华	IO模块									
		DAM-4 ADAM4K	研华	IO模块									
		DAM-4 ADAM4K	研华	IO模块	U								
		DAM-4 ADAM4K	研华	IO模块									
		DAM-4 ADAM4K	研华	IO模块									
		DAM-4 ADAM4K	研华	IO模块									
		DAM-4 ADAM4K	研华	IO模块									
		DAM-4 ADAM4K	研华	IO模块									
		ПАМ-4 АПАМ4К	研化	TO:槽中	Ŧ								
										Append C	Overwrite	Cancel	
					_		CO2_Redu			AU	aivy	0.0	
							Active_Pov	ver		An	alog	0.0	
							Pated Dow	ior		40	alaa	0.0	

Whether it is append or overwrite, it will judge whether there is a template duplicate name and a tag duplicate name. If there is a duplicate name, it will be highlighted in the preview panel, and you can choose to rename the duplicate template or tag.

Se	lect Te	empla	te		1	半为逆变器	臣					
	Model Na			Category		Name	Data Type	Initial Value	Address	Conversion	Scale Type	Description
	华为逆变器	Modicon	华为	华为模块	•	Input_Voltage	Discrete	0	00001		No Scale	输入电压
	川源水泵	Modicon	川源	川源3		Input_Current	Discrete	0	00001		No Scale	输入电流
	川源水处	Modicon	川源	川源3		Grid_Voltage	Discrete	0	00001		No Scale	电网电压
	川源鼓风机	Modicon	川源	川源3		Grid_Current	Analog	0.0	00001		No Scale	电网电流
	川源空气	Modicon	川源	川源3		Grid_Frequency	Analog	0.0	00001		No Scale	电网频率
	康达发电机	Modicon	康达	康达		DC_Input_Power	Analog	0.0	00001		No Scale	直流输入
	三星空调	Modicon	三星	三星		Power_Factor	Analog	0.0	00001		No Scale	功率因数
	川源SAR	Modicon	川源	川源3		Internal_Temp	Analog	0.0	00001		No Scale	机内温度
					1	Covert_Efficiency	Analog	0.0	00001		No Scale	转换效率
						Daily_Generation	Analog	0.0	00001		No Scale	当日发电量
						Cumulative_Ge	Analog	0.0	00001		No Scale	累计发电量
						CO2_Reduction	Analog	0.0	00001		No Scale	二氧化碳
						Active_Power	Analog	0.0	00001		No Scale	有功功率
						Rated_Power	Analog	0.0	00001		No Scale	额定功率
						Max_Coverter	Analog	0.0	00001		No Scale	最大转换
						Reactive_Power	Analog	0.0	00001		No Scale	无功功率
										Append	verwrite	Cancel
nfo	rmation											x
	Ther	e are dupl	icate nam	es in the te	emp	late or tags. Cl	ick YES to sa	ave the first or	ie, and click	NO to save ther	n all and ren	ame them.
						Yes	No	Cance	I			

	Model Name 📍	Device Type	Manufacture	Category	Description
ŀ	华为逆变器	1odicon	华为	华为模块	huawei
	川源水泵	Modicon	川源	<u>川源</u> 3	Water Pump
	川源水处理设备	Modicon	川源	川源 3	Water Treatm
	川源鼓风机	Modicon	川源	<u> 川源</u> 3	Blower
	川源空气品质	Modicon	川源	川源 3	Air quality mon
	康达发电机	Modicon	康达	康达	Power Generator
	三星空调系统	Modicon	三星	三星	HVAC System
	川源SAR表面	Modicon	川源	<u> 川源</u> 3	Surface Mecha
	华为逆变器 (1)	Modicon	华为	华为模块	huawei

8.Export the device template

Click the Export button to export the currently opened template to a new template file. When exporting, you still need to check the template to be exported in the preview panel, and click the OK button to save the template file.

✓ 年 ✓ 川 ✓ 川 ✓ 川	卢为逆变器 H源水泵 H源水处	Modicon	Manufac 华为			Name						
√ JI √ JI √ JI √ JI	Ⅱ源水泵 Ⅱ源水处		华为			Hame	Data Type	Initial Value	Address	Conversion	Scale Type	Description
ון ⊠ ון ⊠ ון ⊠	目原水处	Modicon		华为模块	•	Heating_room	Analog	0.0	00001		No Scale	室内温度
ון ⊠ ע וו			川源	川源3		Cooling/Heatin	Analog	0.0	00001		No Scale	冷热模式
🗹 JI		Modicon	川源	川源3		Outdoor_Tem	Analog	0.0	00001		No Scale	室外温度
	源鼓风机	Modicon	川源	川源3		Mute_Control	Analog	0.0	00001		No Scale	控制逻辑
	I源空气	Modicon	川源	川源3		Master_inform	Analog	0.0	00001		No Scale	仪表信息
☑ 康	兼达发电机	Modicon	康达	康达		Setting_history	Analog	0.0	00001		No Scale	历史记录
	三星空调	Modicon	三星	三星		Control_level	Analog	0.0	00001		No Scale	监控等级
🗹 Л	ll源SAR	Modicon	川源	川源3		Connect_Devi	Analog	0.0	00001		No Scale	连接设定
🗹 🕸	≱为逆变	Modicon	华为	华为模块	1	Peak_power	Analog	0.0	00001		No Scale	电压峰值

组织 ▼ 新建文件	挟				
🚺 下载 💻 桌面	^	<mark>文档库</mark> Template			排列方式: 文件夹 🔻
📃 最近访问的位置	5	名称	修改日期	类型	大小
库	=	퉬 DevicePicture	2018/5/23 16:17	文件夹	
Subversion		DeviceModel.dm	2018/5/28 14:13	DM 文件	484 KB
ju subversion ■ 视频		DeviceModel1.dm	2018/5/25 11:39	DM 文件	44 KB
		DeviceModel3.dm	2018/5/24 16:17	DM 文件	420 KB
■ 图片 ■ 文档		DeviceModel2.dm	2018/5/23 16:51	DM 文件	484 KB
■ <i> <i> <i> <i> <i> <i> <i> <i> <i> <i></i></i></i></i></i></i></i></i></i></i>					
🖳 计算机	-				
文件名(N):					
保存类型(T):	Exce	files(*.dm)			

After saving successfully, the preview panel automatically closes.

9.Import Webaccess template

Webaccess template is an access database file in .mdb format. Click the Import Webaccess Template button, select the file to be imported, select the template information to be imported in the preview panel, click the Add button to import the selected template into the current template file, click the Overwrite button will clear the current template. Then import the selected template to the current template.

Select Template					S	Sun2Kx	TL					
	Model Na	Device T	Manufac	Category		Name	Data Type	Initial Value	Address	Conversion	Scale Type	Descripti
	Sun2KxTL	ADAM4K			•	Aa	Analog	0	32280		Linear Scale,	电网A相电流
\checkmark	S2KxTL	ADAM4K				Ab	Analog	0	32281		Linear Scale,	电网B相电流
\checkmark	SM34CWB	SM34CWB				Ac	Analog	0	32282		Linear Scale,	电网C相电流
						BootTime	Analog	0	32325		No Scale	逆变器开
						Capacity	Analog	0	32001		No Scale	逆变器额
						CO2	Analog	0	32202		Linear Scale,	二氧化碳
						DEnergy	Analog	0	32300		Linear Scale,	当前日发
						DevTemp	Analog	0	32286		Linear Scale,	机内温度
						Effct	Analog	0	32285		Linear Scale,	逆变器效率
						Fac	Analog	0	32283		Linear Scale,	电网频率
						HEnergy	Analog	0	32298		Linear Scale,	当前小时
						IA01	Analog	0	32263		Linear Scale,	PV1输入
						IA02	Analog	0	32265		Linear Scale,	PV2输入
						IA03	Analog	0	32267		Linear Scale,	PV3输入
						IA04	Analog	0	32269		Linear Scale,	PV4输入
						IA05	Analog	0	32271		Linear Scale,	PV5输入
						IA06	Analog	0	32273		Linear Scale,	PV6输入
						IA07	Analog	0	32315		Linear Scale,	PV7输入
						Imnedanc	Analog	n	32323		Linear Scale	缩绕阳坑值

Similar to the import device template file, when importing the Webaccess template, it will also determine whether there is a template duplicate name and a tag duplicate name. If there is a duplicate name, it will be highlighted in the preview panel, and you can choose to rename the duplicate template or Tag.

💠 Add 🕽	🕻 Delete 📃 🛛	Modify											Template Sun2KxT Manufact	L	
Model Name	Device Type	Manufacture	Category	Description									Category		
华为逆变器	Modicon	华为	华为模块	huawei									Driver: A Description	DAM4K on: Huawei	
川源水泵	Modicon	川源	川原3	Water Pump									SUN2000		
川源水处理设备	Modicon	川源	川源3	Water Treatm				No ima	age data						
川源鼓风机	Modicon	川源	川源3	Blower											
川源空气品质	. Modicon	川源	川原3	Air quality mon											
康达发电机	Modicon	康达	康达	Power Generator											
三星空调系统	Modicon	三星	三星	HVAC System											
川源SAR表面	Modicon	川源	川原3	Surface Mecha	•										
华为逆变器(1)	Modicon	华为	华为模块	huawei	5	Sun2K	۲L				+	Add	💢 Dele	te 📃 Modify	
Sun2KxTL	ADAM4K			Huawei SUN20		Name	Param	Dat	Initi	٨dd	Conv	Scale	ReadOnly	Description	
S2KxTL	ADAM4K			Huawei SUN20	Ŀ.	Aa	Pdidili	Analog		32280	COIIV	Linear		电网A相电流	
SM34CWB	SM34CWB			Huawei SUN20	Ľ	Ad							×		
						AD		Analog		32281		Linear	×	电网B相电流	
								Analog		32282		Linear		电网C相电流	
						BootTime		Analog		32325		No Scale		逆变器开机时间	
						Capacity		Analog		32001		No Scale		逆变器额定容量	
						CO2		Analog	0	32202		Linear	\checkmark	二氧化碳碱排量	
						DEnergy		Analog	0	32300		Linear	\checkmark	当前日发电量	

Use Device Template

1、 Check the Use Device Template when adding and modifying devices.

Project Configuration «	
⊡ DemoProject	
'	
COM1	
TO Edit	
Syster 🕂 Add Device	
Calcula X Delete	
Data Storage	
E Service	
🛶 Event Manager	
I	1
Image: I	
Apply 🗙 Discard	
General Information	
Enable	
Name: newDevice	2
Name: newDevice	nodicon Modbus Series)
Name: newDevice Device Type: Modicon (1	
Name: newDevice Device Type: Modicon (1	Nodicon Modbus Series)
Name: newDevice Device Type: Modicon (1 Device Model Double Clice	Aodicon Modbus Series)
Name: newDevice Device Type: Modicon (1	Aodicon Modbus Series)
Name: newDevice Device Type: Modicon (1 Image: Device Model Double Clice Unit Number: 10 Tag Write Type: Single Write	Aodicon Modbus Series)
Name: newDevice Device Type: Modicon (1 Image: Device Model Double Clice Unit Number: 10 Tag Write Type: Single Write	Aodicon Modbus Series)
Name: newDevice Device Type: Modicon (1 Image: Device Model Double Clice Unit Number: 10 Tag Write Type: Single Write	Aodicon Modbus Series)

Double-click the device template selection box to bring up the panel to view and select all the device templates in the Default Template and User Template supported by the device driver. The tags under the template can be selected all or part of them.

	Manufacture	Categor	У	Device Ty	pe	Model	Name	Mod	lelType		
\checkmark	研华	IO模块		Modicon (I	Modicon Modbus Ser	ies) ADAM-	6017	Defa	ult Template	1	
	研华	IO模块		Modicon (I	Modicon Modbus Ser	ies) ADAM-	6050	Defa	ult Template		
	研华	IO模块		Modicon (I	Modicon Modbus Ser	ies) ADAM-	6051	Defa	ult Template		
	研华	IO模块		Modicon (I	Modicon Modbus Ser	ies) ADAM-	6224	Defa	ult Template		
A	DAM-6	017			A				Select All	💢 Seleo	ct None
	DAM-6	017 Parameter Na	Data Type	Initial Value	Address	Conversio	Scale Type	ReadOnly	Select All		ct None
			Data Type Discrete	Initial Value	Address 40001	Conversio N/A	Scale Type No Scale	ReadOnly			ct None
	Name										ct None
 ☑	Name DO0		Discrete	0	40001	N/A	No Scale				ct None
 ✓ ✓	Name DO0 DO1		Discrete Discrete	0	40001 40002	N/A N/A	No Scale No Scale				ct None
 ✓ ✓	Name DO0 DO1 AI0_150mV		Discrete Discrete Analog	0 0 0	40001 40002 00001	N/A N/A Integer	No Scale No Scale Scale Define				ct None
	Name DO0 DO1 AI0_150mV AI1_150mV		Discrete Discrete Analog Analog	0 0 0 0	40001 40002 00001 00002	N/A N/A Integer Integer	No Scale No Scale Scale Define Scale Define				ct None
	Name DO0 DO1 AI0_150mV AI1_150mV AI2_150mV		Discrete Discrete Analog Analog Analog	0 0 0 0 0	40001 40002 00001 00002 00003	N/A N/A Integer Integer Integer	No Scale No Scale Scale Define Scale Define	N N N N N N			ct None
	Name DO0 DO1 AI0_150mV AI1_150mV AI2_150mV AI3_150mV		Discrete Discrete Analog Analog Analog Analog	0 0 0 0 0 0	40001 40002 00001 00002 00003 00004	N/A N/A Integer Integer Integer	No Scale No Scale Scale Define Scale Define Scale Define Scale Define				ct None
	Name DO0 DO1 AI0_150mV AI1_150mV AI2_150mV AI3_150mV AI4_150mV		Discrete Discrete Analog Analog Analog Analog Analog	0 0 0 0 0 0 0	40001 40002 00001 00002 00003 00004 00005	N/A N/A Integer Integer Integer Integer	No Scale No Scale Scale Define Scale Define Scale Define Scale Define Scale Define				ct None
	Name DO0 DO1 AI0_150mV AI1_150mV AI2_150mV AI3_150mV AI3_150mV AI5_150mV AI6_150mV AI0_500mV		Discrete Discrete Analog Analog Analog Analog Analog Analog Analog Analog	0 0 0 0 0 0 0 0	40001 40002 00001 00002 00003 00004 00005 00006	N/A N/A Integer Integer Integer Integer Integer	No Scale No Scale Scale Define Scale Define Scale Define Scale Define Scale Define Scale Define Scale Define	N N N N N N N N N N N N N N N N N N N			ct None
	Name DO0 DO1 AI0_150mV AI1_150mV AI2_150mV AI3_150mV AI4_150mV AI5_150mV AI6_150mV		Discrete Discrete Analog Analog Analog Analog Analog Analog Analog	0 0 0 0 0 0 0 0 0 0 0	40001 40002 00001 00002 00003 00004 00005 00006 00007	N/A N/A Integer Integer Integer Integer Integer Integer	No Scale No Scale Scale Define Scale Define Scale Define Scale Define Scale Define Scale Define	X X X X X X X X X X X X X X X X X X X			ct None

After clicking the OK button, the use template is set for the device. Click the Apply button on the device information page to add or update the device information. At the same time, the selected tag under the selected device template will be automatically added to the IO Tag list under the device.

	👼 IO Tag(新节点1	-newDevice)	×								
4	🛉 Add 🔹 🗱 Delete 🔲 Modify										
	Name	Data Type	Source	Initial Val	Scan Rate	Address	Conversion	Scale Type	Description		
۲	newDevice:DO0	Discrete	Template: ADAM-6017	0	1	40001	N/A	No Scale			
	newDevice:DO1	Discrete	Template: ADAM-6017	0	1	40002	N/A	No Scale			
	newDevice:AI0	Analog	Template: ADAM-6017	0	1	00001	Integer	Scale Defined Input H/L to Span			
	newDevice:AI1	Analog	Template: ADAM-6017	0	1	00002	Integer	Scale Defined Input H/L to Span			
	newDevice:AI2	Analog	Template: ADAM-6017	0	1	00003	Integer	Scale Defined Input H/L to Span			
	newDevice:AI3	Analog	Template: ADAM-6017	0	1	00004	Integer	Scale Defined Input H/L to Span			
	newDevice:AI4	Analog	Template: ADAM-6017	0	1	00005	Integer	Scale Defined Input H/L to Span			
	newDevice:AI5	Analog	Template: ADAM-6017	0	1	00006	Integer	Scale Defined Input H/L to Span			

Click the Add button in the list of IO Tags to add tags customarily, and you can choose to add tags in bulk from the template by clicking the Add from Template button in the Add button drop-down menu.

S	👆 🗛		🕻 Delet	e 🔳	Modify			
	Add	From Tm	plate	pe	Source	Ini	ti	
ew	Tag	ice.DO0	Discrata	Temp	bte. ADAM-6	017 0		
1	ADAM-60)17					🧹 Select All	X Select None
1	Name	Data Tuno	Initial Value	Address	Conversion Tu	Cople Type	Description	
	Name	Data Type	0	Address 40001	Conversion Ty	Scale Type No Scale	Description	
		Discrete	0	40001	N/A N/A	No Scale		
	AI0 150mV	Analog	0	40002	Integer	Scale Defined In		
	AI1_150mV	Analog	0	00002	Integer	Scale Defined In		
	AI2_150mV	Analog	0	00002	Integer	Scale Defined In		
	AI3 150mV	Analog	0	00004	Integer	Scale Defined In		
V	_	Analog	0	00005	Integer	Scale Defined In		
	AI5_150mV	Analog	0	00006	Integer	Scale Defined In		
	AI6 150mV	Analog	0	00007	Integer	Scale Defined In		
E	_	Analog	0	00001	Integer	Scale Defined In		
	AI1 500mV	Analog	0	00002	Integer	Scale Defined In		
C	-	Analog	0	00003	Integer	Scale Defined In		
E	AI3 500mV	Analog	0	00004	Integer	Scale Defined In		
C	-	Analog	0	00005	Integer	Scale Defined In		
C	_	Analog	0	00006	Integer	Scale Defined In		
C	_	Analog	0	00007	Integer	Scale Defined In		
C	_	Analog	0	00001	Integer	Scale Defined In		
C	AI1_5V	Analog	0	00002	Integer	Scale Defined In		
	 AI2_5V	Analog	0	00003	Integer	Scale Defined In		
C	AI3_5V	Analog	0	00004	Integer	Scale Defined In		
E	AI4_5V	Analog	0	00005	Integer	Scale Defined In		
C	AI5_5V	Analog	0	00006	Integer	Scale Defined In		
C	AI6_5V	Analog	0	00007	Integer	Scale Defined In		
C	AI0_10V	Analog	0	00001	Integer	Scale Defined In		
C	AI1_10V	Analog	0	00002	Integer	Scale Defined In		
E	AI2_10V	Analog	0	00003	Integer	Scale Defined In		
C	AI3_10V	Analog	0	00004	Integer	Scale Defined In		
	AI4_10V	Analog	0	00005	Integer	Scale Defined In		

The tag information under the device can be saved as a template on the IO tag list page. Click the Save Template button to pop up the input template information panel. If the user template has an open password set, you will need to enter the open password to save the template.

ł	🛃 IO Tag(新节点1	-newDevice)	×									
4	🛉 Add 🔻 🗶 Delete 🔲 Modify											
	Name	Data Type	Source	Initial Val	Scan Rate	Address	Conversi	Scale Type	Description			
۲	newDevice:DO0	Discrete	Template: ADAM-6	0	1	40001	N/A	No Scale				
	newDevice:DO1	Discrete	Template: ADAM-6	0	1	40002	N/A	No Scale				
	newDevice:AI0	Analog	Template: ADAM-6	0	1	00001	Integer	Scale Defined Input H/L to Span				
	newDevice:AI1	Analog	Template: ADAM-6	0	1	00002	Integer	Scale Defined Input H/L to Span				
	newDevice:AI2	Analog	Template: ADAM-6	0	1	00003	Integer	Scale Defined Input H/L to Span				
	newDevice:AI3	Analog	Template: ADAM-6	0	1	00004	Integer	Scale Defined Input H/L to Span				
	newDevice:AI4	Analog	Template: ADAM-6	0	1	00005	Integer	Scale Defined Input H/L to Span				
	newDevice:AI5	Analog	Template: ADAM-6	0	1	00006	Integer	Scale Defined Input H/L to Span				

Export Template	
Model Name:	Template1
Meter Type:	Modicon
Manufacture:	研华 🔹 🕈
Category:	IO模块 🔹 🔶
Picture:	
Description:	save template
	· · · · · · · · · · · · · · · · · · ·
	OK Cancel

After saving successfully , the newly saved device template information can be viewed in the user template

•

	Delete 🔳 N	4odify											Template Nam Manufacture: Category: IO	研华 観块
Model Name	Device Type	Manufacture	Category	Description									Driver: Modico Description: si	
华为逆变器	Modicon	华为	华为模块	huawei									Description. s	we cemplate
川源水泵	Modicon	川原	川原3	Water Pump										
川源水处理设备	Modicon	川原	川原3	Water Treatm				No imag	ie data					
川源鼓风机	Modicon	川原	川原3	Blower										
川源空气品质	Modicon	川原	川原3	Air quality mon										
康达发电机	Modicon	康达	康达	Power Generator										
三星空调系统	Modicon	三星	三星	HVAC System										
川源SAR表面	Modicon	川原	川原3	Surface Mecha	h						_			
Sun2KxTI	ADAM4K			Huawei SUN20	I٦	[empla	te1				÷.	Add	💢 Delete	📃 Modif
Template1	Modicon	研华	IO模块	save template		Name	Parame	Dat	Initi	Add	Conv	Scale	. ReadOnly	Description
						DOD		Discr	0	40001		No Scale		Description
					•	D00		Discr		40001	N/A	No Scale	e 🗹	beschpelon
					•	D01		Discr	0	40002	N/A N/A	No Scal	e 🗹	beschption
					•	DO1 AI0_150mV		Discr Analog	0 0	40002 00001	N/A N/A Integer	No Scale	e 🗹	
					•	DO1 AI0_150mV AI1_150mV		Discr Analog Analog	0 0 0	40002 00001 00002	N/A N/A Integer Integer	No Scale Scale Scale		
					•	DO1 AI0_150mV AI1_150mV AI2_150mV		Discr Analog Analog Analog	0 0 0 0	40002 00001 00002 00003	N/A N/A Integer Integer Integer	No Scale Scale Scale Scale		
					•	DO1 AI0_150mV AI1_150mV		Discr Analog Analog	0 0 0 0 0	40002 00001 00002	N/A N/A Integer Integer	No Scale Scale Scale		

DataLogger configuration

DataLogger is the software module that implements historical data storage on EdgeLink.

The DataLogger module uses SQLite as the base storage medium, saves the data in the "Tag historical data table", and saves the data in minutes, hours and days three historical data tables.

DataLogger Parameter Configuration :

Project Configuration <	< 📜 👅	EdgeSync 360/Ed	geHub(ADAM-3600)	📑 Data Log	Jger(ADAM-3600)*	x	
example_ADAM-3600		Apply	C Discard				
 Data Center Tag System Tag Calculation Tag User Tag 		☑ Enable □ USB Disk Bac Storage Path:		Ţ	It is about 609.36 M save historical data.	B free space needed in SD Ca	ard to
🖻 📻 Data Storage		Max Days(d):	7 4				Ŧ
	Та	gLogList 🗙 👍					
🛶 Event Manager		Name:	TagLogList		ON/OFF by Tag		
KW Settings		Log Type:	Periodic Storage	•	Choose Tag:		••• 🟮
ie``````````````````````````````````		Period(s):	1		Cache:	By Count	Ŧ
A Advantech					Cache Before ON:	0	
DeviceOn/BI					Cache After OFF:	0	
EdgeSync 360/EdgeHub							
* IoTSuite/DataHub			Tag Name				
→ WISE-PaaS/DataHub	+ 1	#DISABLE_DEVI	_				
Δ. Δτυτο	2	#BATCH_WRITE	=_BoardIO				

- 1. Enable: select this item to enable data storage;
- 2. USB Disk backup: select this item, the existed historical data will be copied into the USB disk from SD card only when the system detects an insertion event. The newly added historical data is still stored in the SD card.
- Storage address enabled: the location of the data store is stored on the SD card by default. The SD card must be installed before using DataLogger function;

4. Save the number of days (days): the maximum number of days of historical data is 7 days by default. If the number of days saved is exceeded, the system will automatically delete the earliest stored data.

Example: - If the periodic storage period is 10S, the stored program starts to run at 13:15:17, then the time is 13:15:20 for the first stored data and 13:15:30 for the next data

Storage group parameter configuration :

Tag values can be stored in a data table in a variety of ways depending on the configuration of the storage group

1	agLogList × 🕕	gList1 × 🐈 🥑			
	Name:	TagLogList 3	🗹 ON/OFF by Tag	4	
	Log Type:	Cycle Storage 🔹	Choose Tag:	BoardIO:AI.0	
	Period(s):	1	Cache:	By Count	•
			Cache Before ON:	0	
			Cache After OFF:	0	
_					
	Tag Name		Description		
١	#SYS_UPTIME	The current uptime(s)			
	#SYS_CURRENT_T	The current system time(s)	5		
	#SYS_CPU_FREQ	CPU frequency			
	#SYS_MEM_SIZE	Memory size(Byte)			
	Double click to edit				

- 1. The storage group configures the Tab page, and the user can click "x" to close the current configuration page.
- 2. Users can click "+" to add storage groups
- 3. The basic parameters of a storage group:
 - Name: the name of the storage group, which is used only to distinguish storage groups

- Storage mode: you can select cycle storage and change storage.
- Period needs to be configured when selecting cycle storage.
- 4. The user can select a tag to control the current storage group ON and OFF. When the Tag value is 0, the storage group is not enabled, and the storage group is enabled when the rest of the values are present.
 - Select the control tag: select a tag in the Data Center as the control tag.
 - Cache mode: when the control tag ON and OFF, it will cache a certain amount of data. In the cache mode, you can choose to cache log information by count or time.
 - Cache before ON: some Tag data is cached before the storage group starts its storage
 - Cache after OFF : after the storage group stops storage, some Tag data is stored.
- 5. Edit the tags to be stored in the list, and the total number of tags stored in all storage groups is limited to 200.

Name:	TagLogList
Log Type:	On Value Change 🔹
Detection Cycle(s):	0
Change Type:	 ✓ Value Change ✓ Quality Change ✓ Timestamp Change

When the storage mode is selected as the change storage, it is necessary to configure " Detection Cycle " and " Change Type ". The time of each " Change Type " after the storage group is enabled is to detect whether the tags in the storage group and the attributes selected in the " Detection Cycle " are consistent with the values saved after the last detection cycle. If there is a change, it will be stored in the data table.

When the value of " Change Type " is 0, it will be immediately stored in the data table when the change of the tag attribute is detected.

Edit the storage tag

Double-click on the last line in the tag name column to add the storage tag, and double-click the added Tag to modify. To delete the Tag, right-click on the Tag line that you want to delete, and click the delete button on the pop-up toolbar to remove the current Tag.

·	TagLogList × TagLo	gList1 🗙 💠		🕅 Select Tag 🛛 🗙
	Name: Log Type: Period(s):	TagLogList Cycle Storage 1	2 C C C C C C	IO Tag IO Tag
	Tag Name #SYS_UPTIME #SYS_CURRENT_T #SYS_CPU_FREQ #SYS_MEM_SIZE	The current uptime(s) The current system time(s) CPU frequency Memory size(Byte)		BoardIO:AI.3 BoardIO:AI.4 BoardIO:AI.4 BoardIO:AI.5 BoardIO:AI.6 BoardIO:AI.7 BoardIO:AI.7 BoardIO:DI.0
0.	Double click to edit			BoardIO:DI.1 BoardIO:DI.2 BoardIO:DI.3 BoardIO:DI.4 BoardIO:DI.5 BoardIO:DI.6
				OK Cancel

Note! Tags are added to a storage thread and cannot be added to other storage threads

Error code information of #DATALOG_ERROR

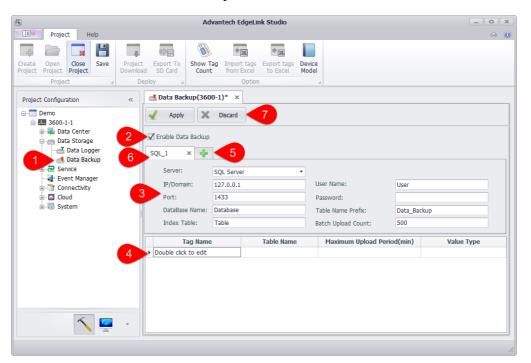
When the value of #DATALOG_ERROR is 0, it means that there is no error in the program.

Error $1 \sim 9$ are critical errors

1: DataLogger is not enabled. 2: Storage path is invalid. 3: DataLogger SDK initialize Storage path failed. 4: DataLogger SDK initialize failed. 5: Failed to allocate memory at DataLogger startup. 6: Failed to initialize the logging thread at DataLogge 7: Open Control Tag failed. 8: Read Control Tag value failed. 9: Add Tag to data center failed. 257: Insufficient storage space. The safety space is 50 512 ~ 767: Insert value to DataLogger SDK value cache f 768 ~ 1023: DataLogger SDK write values to storage fail 1024 ~1279: DataLogger SDK reposition the write file fa

Data Backup

In EdgeLink Studio, users can set the historical data for the specified tag to be stored. According to the set storage method, historical data will occupy some of the SD card or U disk space.With the increase of running time, the historical data will be more and more.To improve the backup performance and security of historical data, users can backup huge amounts of data to other servers remotely.



- 1.Open the "Data backup" page.
- 2.Select Enable Data Backup.
- 3.Fill in data backup settings.

4.Select the tags to be backed up and other necessary information.

5.Click the "+" button to add a backup setting.

6.Click the "×" button to delete a backup setting.

7. Click Apply to complete the configuration.

Currently, data backup is divided into SQL Server and FTP Server according to the type of server used:

Server:	SQL Server 🔹		
IP/Domain:	SQL Server FTP Server	User Name:	User
Port:	1433	Password:	
DataBase Name:	Database	Table Name Prefix:	Data_Backup
Index Table:	Table	Batch Upload Count:	500

After the content to be backed up (such as a tag) has been added to the backup list under the connection, the server type cannot be modified; after all the contents in the backup list have been deleted, the server type can be modified.

SQL Server Method

In the data backup settings area, select Server Type as SQL Server to back up the selected tag data in ODBC mode. The information you need to fill out includes:

IP/Domain: The IP address or domain name of the backup server.

Port: The port number of the database.

DataBase Name: The name of the database that already exists on the connected server side.

Index Table: Custom table name. The table will be automatically generated in the SQL server, and the last time of each upload tag will be recorded in the table for the data store and forward. User Name: The username to log in to the remote server.

Password: The password to log in to the remote server.

Table Name Prefix: Used to automatically create a database table by table name in the connected database.

Batch Upload Count: The default limit for allowing the client to upload data each time is 500. That is, the system queries the cached 500 data and uploads them to the server in batches.

In the tag list, double-click on the blank row of the tag name column, and you can add the tags included in this backup.

🥖 Apply 🗙 Discard		
Enable Data Backup SQL_1 Server: SQL Ser IP/Domain: 127.0.0. Port: 1433 DataBase Name: DataBase Name: Table Index Table: Tag Name Double click to edit	BoardIO:AI.2 BoardIO:AI.3 BoardIO:AI.4 BoardIO:AI.5	X Jser 23 Data_Backup 300 iod(Value Type
	OK	cel

A tag is saved as a database table during backup. By default, the "table name prefix _tag name" is used as the

table name stored in the tag. To distinguish the storage table of the same name tag, you can specify different contents for the "table name prefix" in different connections, or modify the table name column by yourself. If the table name prefix and the tag are the same, the system will automatically rename the table name.

Server: SQL Server +							
IP/Domain:	1433 se Name: Database		User Name: User Password: 123		User		
Port:					123		
DataBase Name:			Table Name Prefix:	Data_Ba			
Index Table:			Batch Upload Count: 5		500		
Tag Name	9	Table Name		Maximum Upload	d Period(Value Type	
BoardIO:AI.0		Data_Backup_BoardIO:	AI.0	2		float	
 BoardIO:AI.1 		Data_Backup_BoardIO:AI.1		2		float	
BoardIO:AI.1		Data_Backup_BoardIO:	AI.1(1)	2		float	
* Double click to edit							

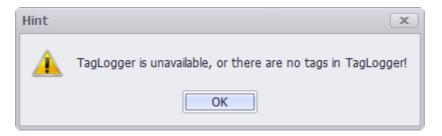
The default maximum upload period of the tag is 2 minutes. It is compatible with the "batch upload count". New data is not queried beyond the maximum upload period, and if the single maximum upload limit is not reached, the data cached at this time will be uploaded to the server.

The tag storage value type is the format of the stored data. The default value type is float, and can be saved as float, int, big int, navarchar, bit type.

Users can modify the "table name", "maximum upload period", and "value type" in the tag list as needed.



If the "TagLogger" function is unavailable or the stored Tag is not specified in "TagLogger", a dialog box will pop up and indicate that the user should set the "TagLogger" function before setting the backup tag when adding the tag to data backup. ***



MySQL Server Method

In the data backup settings area, select Server Type as MySQL Server to back up the selected tag data in MySQL mode. The information you need to fill out is same as SQL Server.

ORACLE Method

In the data backup setting area, select Server Type as ORACLE Server to back up the selected tag data by ORACLE. The information you need to fill out includes:



- 1. IP/Domain : The IP address of the database, where the domain mode is not tested.
- 2. Port : The port that the database listens to. When the database is installed, the default is 1521. If there is

no modification when configuring the database, the default is 1521.

- 3. DataBaseName : The instance name of the Oracle database . The name of this instance is orcl by default during installation. If there are changes during the installation process, please use the custom instance name.
- 4. TableName: The table in Oracle that stores data. This version of the data upload mechanism is that all data that needs to be backed up on the device side is stored in this table on the database side. The database does not need to be created manually. When the device uploads data, the table will be created automatically if it does not exist, and must start with a letter. Table 2 is the table structure.

	<pre> COLUMN_NAME </pre>	DATA_TYPE	NULLABLE	DATA_DEFAULT	<pre> {COLUMN_ID } </pre>	COMMENTS
1	RECDATETIME	DATE	No	(null)	1	(null)
2	METERCODE	VARCHAR2 (20 BYTE)	No	(null)	2	(null)
3	ATTRCODE	VARCHAR2 (20 BYTE)	No	(null)	3	(null)
4	VALUE	FLOAT	No	(null)	4	(null)

- RECDATETIME field : Tag timestamp , stored in Date format.
- METERCODE field : Corresponds to the MeterCode in table 1, same as in Tagname.
- ATTRCODE field: Corresponds to the Alias content in Table 1.
- VALUE field : Tag value.

The rules for defining transmission fields are as follows:

- Tag name format : devicename:tagname .
 Tagname automatically corresponds to the field Alias , and devicename corresponds to the field metercode.
- When the tag name format is tagname, Tagname automatically corresponds to the field Alias, the field metercode can be empty, and the field Alias cannot be empty
- 5. UserName and Password are the credentials for remote login to oracle.
- 6. Timestamp: The type of time stored in the RECDATETIME field in the database table. Local time and UTC time can be selected. The table storing the timestamp of the tag value cannot be customized. When the device connects to the database, the FORRECORDTIME table will be created by default to store the last uploaded timestamp of the tag, which is used for the device's data resume function.

FTP Server Method

In the data backup setting area, select Server Type as FTP Server to back up the selected tag data by FTP. The information you need to fill out includes:

IP/Domain: The IP address or domain name of the backup server.

Port: The port number of the database.

User Name: The username to log in to the remote server.

Password: The password to log in to the remote server.

Upload Interval: The interval at which the device uploads files to the server. The default is 5 minutes.

Whether to enable active mode: whether the mode of connecting to the server is active. FTP supports two modes, one is Standard (PORT), and the other is Passive (PASV). In active mode, the FTP client sends a PORT command to the FTP server. In passive mode, the FTP client sends a PASV command to the FTP server. Active mode is not enabled by default, ie passive connections are used.

Whether to enable upload from break: For files that are incompletely transmitted due to network reasons during transmission, continue to transmit or delete incomplete files and retransmit after network recovery. Consider that some servers do not support this feature and are not enabled by default.

File name prefix: Multiple users or multiple devices transmitting to the same server at the same time will result in consistent file name conflicts, prefixing the file names for differentiation.

Column type: Click on the blank line in the "column type" in the list, you can choose to add a column of data to the backup FTP file. The optional types include "tag" and the corresponding "row index", "local time", and "UTC time" when the tag is stored. Format: Only for the format of "serial number", "local time", "UTC time".

Column Name: Users can rename the name of the data column that needs to be stored.

📑 Data Backup(36	00-1)* ×					
🖌 Apply	Discard					
Z Enable Data Backur	0					
FTP_1 × 🚽	•					
Server:	FTP Server	•				
IP/Domain:	127.0.0.1		Uplo	oad Interval(min):	5	
Port:	21			Active Mode		
User Name:	User			Jpload From Break		
Password:			File	Name Prefix:	Data_Backup	
Column Ty	уре	Tag Name		Forma	it	Column Name
<i>0</i> .	ype •	Tag Name		Forma	it	Column Name
	ype T	Tag Name		Forma	it	Column Name
2. Tag Row Index Local Time	ype	Tag Name		Forma	it	Column Name
d. Tag Row Index	ype	Tag Name		Forma	it	Column Name
2. Tag Row Index Local Time	ype	Tag Name		Forma	it	Column Name
2. Tag Row Index Local Time	ype v	Tag Name		Forma	it	Column Name
2. Tag Row Index Local Time	ype v	Tag Name		Forma	it	Column Name
2. Tag Row Index Local Time	уре	Tag Name		Forma	ıt	Column Name

Tag: When the selected column type is "tag", the user can select the tag to be backed up in the pop-up dialog box and modify the "column name" in the list. The contents of the data will be displayed in the FTP file according to the "column name" set by the user.

Row Index: When the selected column type is "serial number", the user can modify the "format" and "column name" in the list. The "format" should be filled with an integer greater than 0, indicating the index value of the first row of the backup data.

Local Time or UTC Time: When the selected column type is "local time" or "UTC time", the default saved data

format is "% F% T". Users can set the time format of the backup in the pop-up dialog box. The code in different time formats is given in the date list at the bottom of the window, and an example of the time format is shown in "Save as". Users can use the various formats in the date list. Specify the time format and click the OK button, and the "time format" code will appear in the list, where the user can modify the "column name" that is saved by the time column.

🔏 Set Time	e Format 🛛 🗙
Format:	%F %T •
Output:	2001-08-23 14:55:02
%a:Abbrevi	ated weekday name.e.g. "Thu"
%A:Full wee	ekday name.e.g. "Thursday"
	ated month name.e.g. "Aug"
	th name.e.g. "August"
	d time representation.e.g. "Thu Aug 23 14:55:02 2001"
	vided by 100 and truncated to integer (00-99).e.g. "20"
	the month, zero-padded (01-31).e.g. "23"
	IM/DD/YY date.e.g. "08/23/01" the month.e.g. "23"
	YYY-MM-DD date.e.g. "2001-08-23"
	ased year, last two digits (00-99).e.g. "01"
-	based year.e.g. "2001"
	ated month name.e.g. "Aug"
	OK Cancel

pphy X Data Backup X Yer: Domain: :: r Name:			Up	load Interval(min):		
× 🕂	FTP Serve 127.0.0.1		Up	load Interval(min):		
ver: Domain: ::	FTP Serve		Up	load Interval(min):	-	
)omain: ::	127.0.0.1		Up	load Interval(min):	-	
:			Up	load Interval(min):	-	
	21			iodd incontai(miny)	5	
r Name:				Active Mode		
	User	User Name: User		Upload From Break		
sword:			File	e Name Prefix:	Data_Backup	p
Column Ty	ре	Tag Name		Forma	at	Column Name
dex	•			1		
ïme				%F %T		local_time
me				%с		utc_time
		BoardIO:AI.0				
		BoardIO:AI.1				
	Column Ty dex me	Column Type dex •	Column Type Tag Name dex me ne BoardIO:AI.0	Column Type Tag Name dex me ne BoardIO:AI.0	Column Type Tag Name Formation dex 1 me %F %T ne %c BoardIO:AI.0	Column Type Tag Name Format dex 1 me %F %T ne %c BoardIO:AI.0

The file uploaded by FTP Server is a csv file. The system records the value of the same timestamp of all tags selected for backup as one piece of data in the table.

Protocol Service Configuration

EdgeLink supports four standard protocols: Modbus service, BACnet service, WASCADA service, IEC-104 service, which can realize the communication between RTU and the lower acquisition devices as well as the upper central devices.

Modbus Server

Modbus server achieves the mapping from tag to Modbus address, allowing Modbus Client on the upper computer to read/write tags via Modbus TCP or Modbus RTU.

Device ID Setting

Set a different Device ID for ModbusServer for client access

📴 System Tag(System Tag(ADAM-3600) M Modbus Server(ADAM-3600)* ×					
🖌 Apply	X Disca	ard				
Modbus TCP				🔲 Modbus RTU		
Port Number: 502		Port:	COM4(slot1)	Ψ		
Max Users:	Max Users: 4		Baud Rate:			
Idle Time(s): 120		Data Bit:		Ψ.		
Modbus RTU	Modbus RTU Over TCP: 🔲 False			Stop Bit:		Ψ
				Parity:		Ŧ
Device ID: 1	Device ID: 2	Device ID: 3	Device ID: 4	Device ID: 5 🗙 👍		
Device ID:	Device ID: 5					
	Tag Name			Tag Type		Address
* Double click to	o edit					

Modbus TCP Configuration

Modbus TCP service allows the upper computer to access the device through Modbus TCP protocols of TCP/IP.

The configurations of Modbus TCP are as follows:

- Port Number: Set the number of the port Modbus TCP listens on. The default number is 502.
- Max Users: Set the maximum number of users that can be connected at the same time. The default value is 4, which means at most 4 client ends can simultaneously access the device through Modbus TCP protocol.
- Idle Time: Specify the maximum time when the client writes/reads no data to/from the server after the TCP connection has be established. The default value is 120

seconds. After that, the client will be automatically disconnected from the server. If this value is set to 0, the server will never be disconnected.

Modbus RTU Configuration

Modbus RTU service allows the upper computer to access the device through serial port connection (RS-232/485) or virtual serial port connection via Modbus RTU protocol.

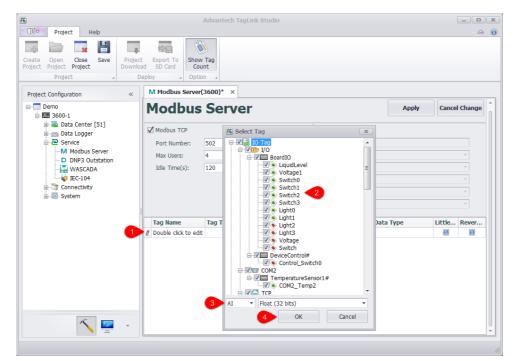
The configurations of Modbus RTU are as follows:

- Device ID: It is sometimes called Station Number, which is the node ID of a Modbus RTU device on serial bus.
- Port: Specify the serial port number Modbus RTU service will apply to. The drop-down list shows all available ports of the current device. If a certain port is missed, it means this port may be occupied by other services. At this time, you need to manually delete the occupied COM port in the data center to configure this port.
- Baud Rate: Set the baud rate of the serial transmission.
 The default value is 9600.
- Data Bit: Set the data bit of the serial transmission. The default value is 8.
- Stop Bit: Set the stop bit of the serial transmission. The default value is 1.
- Parity: Specify the parity check rules of the serial transmission. The default option is Node, which means no parity check is applied.

Modbus Address Mapping

To let Modbus client capable of accessing to the tags on the device, users should map the tags to the corresponding Modbus addresses first. The procedures are as below:

- 1. Add the tag to Modbus address list.
- Double-click "Double click to edit" cell.
- Tick the tag(s) to be added into Modbus address list. One or multiple tags can be selected at the same time.
- Select the data type and data converting method of the mapping, which will be applied to all the selected tags.
- Click "OK" button to finish adding tags to the address list.
- Repeat the above steps to add more tags.



- 2. If users want to change the mapping settings, the available options are:
- Tag Type: There are four tag types: AI, AO, DI and DO, respectively corresponding to four tag types of Modbus protocol.

- Address: Set the starting address of a tag in Modbus address space. The minimum address is 1. On the right is Modbus Address column, which is non-editable. The values within this column are made of tag type and tag address, ruled by Modicon.
- Data Type: There are 2 broad types: Integer and Float. The former one is further classified to 6 categories by sign and bit number (16, 32, 64); while the later one is classified to 2 categories (Float and Double) by its precision (single or double).
- Little Endian: The default option is big endian (Network Byte Order). If the client only can accept the data of little endian, please tick "Little Endian" box.
- Reverse Word: If "Little Endian" is ticked, then this option will reverse the byte order. Normally, this option will reverse the word (two bytes) order. It should be noted that "Little Endian" option is before "Reverse Word" option, which means if both options are ticked, the byte oder will be firstly reversed and then the word order will be reversed when the mapped tag value is read.

Tag Name	Tag Type	Address	Modbus Address	Data Type	Little	Revers
8. LiquidLevel	AI	0001	30001	Float (32 bits)		
Voltage1	AI	0003	30003	Float (32 bits)		
Switch0	AI	0005	30005	Float (32 bits)		
Switch1	AI	0007	30007	Float (32 bits)		
Switch2	AI	0009	30009	Float (32 bits)		
Switch3	AI	0011	30011	Float (32 bits)		
Light0	AI	0013	30013	Float (32 bits)		
Light1	AI	0015	30015	Float (32 bits)		
Light2	AI	0017	30017	Float (32 bits)		
Light3	AI	0019	30019	Float (32 bits)		
Voltage	AI	0021	30021	Float (32 bits)		
Switch	AI	0023	30023	Float (32 bits)		
* Double click to edit						

Comparison Table of Modbus Data Type Conversion

To facilitate the understanding of the data type conversion, please refer to the below examples, in which the tag values are hexadecimal and every byte is separated by space.

Name	Original Value	Little Endian	Reserve Word	Little Endian + Reverse Word
Signed/Unsigned Integer (16 bits)	12 34	34 12	12 34	34 12
Signed/Unsigned Integer / Float (32 bits)	12 34 56 78	78 56 34 12	56 78 12 34	34 12 78 56
Signed/Unsigned Integer / Double (64 bits)	12 34 56 78 90 AB CD EF	EF CD AB 90 78 56 34 12	CD EF 90 AB 56 78 12 34	34 12 78 56 AB 90 EF CD

Tag List Import & Export

The user can export the tag list into the EXCEL, and then edit it and import into the EdgeLink Studio.

🖌 Apply 🕽	C Discard	Export	To Microsoft Excel	Import From Mic	crosoft Excel
Modbus TCP			Modbus RTU		
Port Number:			Device ID:		
Max Users:			Port:	COM4(slot1)	$\overline{\nabla}$
Idle Time(s):			Baud Rate:		T
			Data Bit:		Ŧ
			Stop Bit:		Ŧ
			Parity:		T

Users can edit the list of tags exported to EXCEL, but note that the order of columns cannot be adjusted.

	Α	В	С	D	E	F	(
1	tagName	address	modbusDataType	isLittleEndian	isReverse		
2	#DISABLE_DEVICE_BoardIC	30001	uint32	TRUE	FALSE		
3	#BATCH_WRITE_BoardIO	30003	float	TRUE	FALSE		
4	#DEVICE_ERROR_BoardIO	30005	float	TRUE	FALSE		
5	BoardIO:AI.0	30007	float	TRUE	FALSE		
6	BoardIO:AI.1	30009	float	TRUE	FALSE		
7	BoardIO:AI.2	30011	float	TRUE	FALSE		
8	BoardIO:AI.3	30013	float	TRUE	FALSE		
9	BoardIO:AI.4	30015	float	TRUE	FALSE		
10	BoardIO:AI.5	30017	float	TRUE	FALSE		
11	BoardIO:AI.6	30019	float	TRUE	FALSE		
12	BoardIO:AI.7	30021	float	TRUE	FALSE		
13	BoardIO:DI.0	30023	float	TRUE	FALSE		
14	BoardIO:DI.1	30025	float	TRUE	FALSE		
15	BoardIO:DI.2	30027	float	TRUE	FALSE		
16	BoardIO:DI.3	30029	float	TRUE	FALSE		
17	BoardIO:DI.4	30031	float	TRUE	FALSE		
18	BoardIO:DI.5	30033	float	TRUE	FALSE		
19	BoardIO:DI.6	30035	float	TRUE	FALSE		
20	BoardIO:DI.7	30037	float	TRUE	FALSE		
21	BoardIO:DO.0	30039	float	TRUE	FALSE		
22	BoardIO:DO.1	30041	float	TRUE	FALSE		
23	BoardIO:DO.2	30043	float	TRUE	FALSE		
24	BoardIO:DO.3	30045	float	TRUE	FALSE		
25							
26							

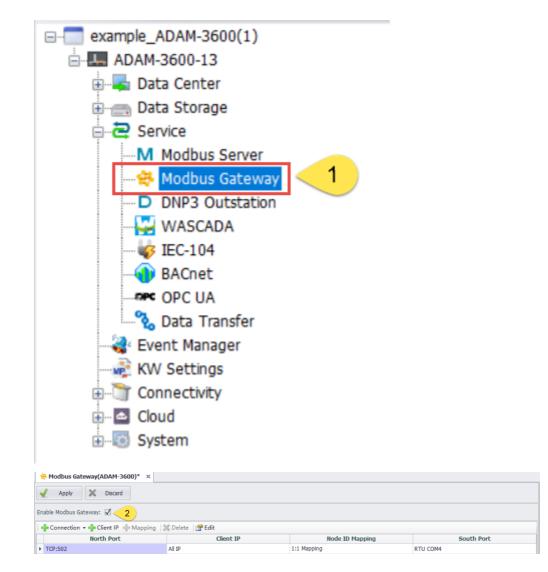
ModbusGateway

Architecture

The ModbusGateway program primarily performs the conversion between Modbus TCP and Modbus RTU protocols. The Modbus Client on the north side can directly access the Modbus Gateway program on the gateway device to connect to the instruments on the south side.

Enable

To enable the Modbus Gateway functionality, a connection from ETH to COM will be added by default.



Default Connection Parameters Description

Parameters	Description
North - direction port	The port type used by the client to send requests, TCP:502 means the requests are sent through the TCP port to access the Modbus Gateway using port number 502
Client IP	The IP address of the requesting client. If there are no special restrictions, all IP addresses will be allowed to access

Parameters	Description
Node IP mapping	The mapping relationship between the requesting client's ID and the south-facing instrument's ID, where 1:1 mapping means that if the requesting client's ID is "a", the request will be forwarded to the instrument with the ID of "a" in the south-facing connection
South - direction port	The port type used to connect to the actual instruments

Configuration Instruction

1. Add

Enable Modbu	Enable Modbus Gateway: 🗹				
🕴 📥 Connecti	- Connection - 🛉 Client IP < 2 ping 🎕 Delete 🖀 Edit				
	North Port	Client IP	Node ID Mapping	South Port	
TCP:502	< 1	All IP	1:1 Mapping	RTU COM4	

When the cursor selects the northbound port, a new connection can be added, and different client IPs can be added under the same northbound port



When the cursor selects any one of the client IP, node ID mapping, or southbound port, a new connection can be added, or a new client IP or node ID mapping and southbound port can be added

2. Connection

There are four types of connection methods

Apply Discard					
Enable Modbus Gateway: 🗹					
Connection - Client IP - Mapping	🚽 Connection 🗸 🚽 Client IP 🚽 Mapping 🛛 💥 Delete 🛛 😭 Edit				
FTH → COM prt	Client				
I 💠 COM → ETH	All IP				
◆ ETH → ETH					
COM → COM					

Connection type	Description
ETH— >COM	Convert the northbound network requests to southbound serial requests
COM— >ETH	Convert the northbound serial requests to southbound network requests
ETH— >ETH	Convert the northbound network requests to southbound network requests
COM— >COM	Convert the northbound serial requests to southbound serial requests

3. NorthPort

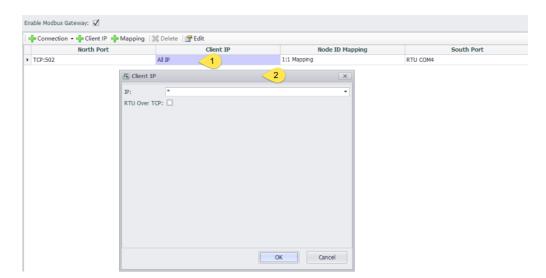
Double-click the northbound port of a specific connection to access the northbound port settings

:502 < 1	North Pa	t <mark>2</mark>	x	South Port RTU COM4
	Type:	Modbus TCP	•	
	Port:	502		
	Idle Time(s):	120		
	Max Connect	ons: 16		
	Method:	Reject new connection	-	
		ОК	Cancel	

Parameters	Description
Туре	The type of Modbus request : Modbus TCP/ Modbus UDP / Modbus RTU / Modbus ASCII
Port	The port number needs to be set only when using Modbus TCP or Modbus UDP for access
Idle time	The maximum idle time of a specific connection
Max Connection	The maximum number of connections allowed by Modbus Gateway
When the maximum number of connections is exceeded	he strategy when the number of connections exceeds the maximum: refuse connection / drop the earliest connection

4. Client IP

Double-click the client IP of a specific connection to access the client IP settings



Parameters	Description
IP	Allowed client IP addresses. Using an asterisk (*) allows all IP addresses, while specifying a single IP or an IP range is also possible
RTU Over TCP	After selecting this option, the protocol type for northbound requests will be Modbus RTU Over TCP

5. Node ID mapping

Double-click the node ID mapping of a specific connection to access the node ID mapping settings. Using an asterisk (*) represents no ID conversion, meaning a 1:1 mapping

No	rth Port	C	lient IP	Node ID N		South Port
2		All IP		1:1 Mapping	1	RTU COM4
	🔏 Node ID Mapp	ing	2	x		
	Add multiple: 1	🕂 Add	Delete			
	Req	uest Node ID	Physica	Node ID		
			• *			
			ОК	Cancel		

Parameters	Description
Add multiple	By default, each click on add will increase the number of ID mappings by one. Clicking add on an empty field allows you to add multiple ID mappings at once
Request Node ID	The node ID of the northbound client when sending requests
The actual node ID	The actual ID of the instrument on the southbound side

6. South Port

Double-click the southbound port of a specific connection to access the southbound settings

CP:502 All IP 1:1 Mapping RTU COM4 1 Image: Comparison of the state of th	North Po	rt	Client IP	Node ID	Mapping		South Port
Type: Modbus RTU Port: COM4(slot1) Baud Rate: 9600 Data BR: 8 Stop BR: 1 Parity: None	TCP:502	A	NI IP	1:1 Mapping		RTU COM4	
Port:COM4(slot1)Baud Rate:9600Data Bit:8Stop Bit:1Parity:None		🔊 South Por	t 2		×		<u> </u>
Baud Rate:9600Image: Comparison of the second		Type:	Modbus RTU		•		
Data Bit: 8 Stop Bit: 1 Parity: None		Port:	COM4(slot1)		•		
Stop Bit: 1 Parity: None		Baud Rate:	9600		•		
Parity: None 👻		Data Bit:	8		•		
					•		
Timeout(ms): 1000					•		
		Timeout(ms):	1000				

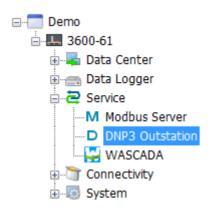
Parameters	Description
Туре	The Modbus protocol type used by the southbound instrument : Modbus TCP/ Modbus UDP / Modbus RTU / Modbus ASCII
Serial number	The serial port used to connect the gateway to the southbound instrument
Timeout	The timeout time for southbound requests

DNP3 Server

ADAM-3600 can work as DNP3 Outstation (hereinafter referred to as DNP3 server) to exchange data with DNP3 Master of HMI/SCADA (hereinafter referred to as DNP3 client). Current version of DNP3 server has passed DNP3 Level 2 test.

Here will explain the application of DNP3 Outstation in detail.

1. Double-click "DNP3 Outstation" under "Service" item in the left menu tree to pop up the configuration interface.



 The main configuration interface of DNP3 server is shown as below. Some terms appeared here should be explained:

	x					
Apply Disca	rd					
Channel						
Port Number: 20000						
Session Status: 1 2 3	4					
Sessions						
Session List: Session 1 🔹 🗹 E	Enable I 2 Slave Address: 3	L2 Master Address: 4	Duplicate From Session1	Clear Session	More Parameter	rs
		put Number(AI): 8	Counter Number(CNT):			
Elligità all'hor Mattiber(B1):	V Analog In	put Number(AI). 0	Councer Number(CNT):	0		
(Discourse of the standard (DO))	A sector O	the set Manuel and A O Manuel	Devildelith Territ Months	-(DDT): 0		
☑ Binary Output Number(BO):	4 Analog Ou	utput Number(AO): 0	🗹 Doublebit Input Numbe	r(DBI): 0		
	4 🗹 Analog Ou	utput Number(AO): 0	🗹 Doublebit Input Numbe	r(DBI): 0		
	4 ✓ Analog Ou Assign Class	utput Number(AO): 0 TagName	Doublebit Input Numbe	r(DBI): 0 Event Low Limit	Event Deadband	
Session1 DNP3 Point					Event Deadband	
Session1 DNP3 Point	Assign Class	TagName	Event High Limit	Event Low Limit		
Session1 DNP3 Point AI,000	Assign Class Class 2	TagName Double click to edit	Event High Limit	Event Low Limit	-1	
Session1 DNP3 Point AI,000 AI,001	Assign Class Class 2 Class 2	TagName Double click to edit Double click to edit	Event High Limit	Event Low Limit	-1 -1	
Session1 DNP3 Point AL,000 AL,001 AL,002	Assign Class Class 2 Class 2 Class 2 Class 2	TagName Double click to edit Double click to edit Double click to edit	Event High Limit	Event Low Limit	-1 -1 -1	
Session1 DNP3 Point AL,000 AL,001 AL,002 AL,003	Assign Class Class 2 Class 2 Class 2 Class 2 Class 2 Class 2	TagName Double cick to edit Double cick to edit Double cick to edit Double cick to edit	Event High Limit	Event Low Limit	-1 -1 -1 -1	
Session1 AL000 AL001 AL002 AL003 AL003 AL004	Assign Class Class 2 Class 2 Class 2 Class 2 Class 2 Class 2 Class 2	TagName Double click to edit Double click to edit Double click to edit Double click to edit Double click to edit	Event High Limit	Event Low Limit 0 0 0 0	-1 -1 -1 -1 -1	
DNP3 Point AL,000 AI,001 AI,002 AI,003 AL,004 AI,005	Assign Class Class 2 Class 2 Class 2 Class 2 Class 2 Class 2 Class 2 Class 2 Class 2	TagName Double click to edit Double click to edit Double click to edit Double click to edit Double click to edit	Event High Limit 0 0 0 0 0	Event Low Limit 0 0 0 0 0 0 0	-1 -1 -1 -1 -1 -1	
AL,000 AL,001 AL,002 AL,003 AL,004 AL,005 AL,006	Assign Class Class 2 Class 2	TagName Double click to edit Double click to edit	Event High Limit 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Event Low Limit 0 0 0 0 0 0 0 0	-1 -1 -1 -1 -1 -1 -1 -1	

• Channel:

It represents the media of DNP3 server to communicate with the outside. Current version of DNP3 server only supports Ethernet communication which indicates TCP/IP network communication protocol by default.

Slave Station: It is DNP3 server address. DNP3 protocol specifies that source address and target address of DLL should be set. If users are not quite familiar with this part, please keep the default settings.

Port number: It is the port number of TCP/IP communication on DNP3 server. The default number is 20000.

• Session:

Here the supported number of sessions means at most 4 DNP3 clients are supported to communicate with DNP3 server at the same time. Users should set an appropriate number of sessions based on real needs to avoid extra idle sessions, so as to less burden the CPU and improve the operating efficiency of EdgeLink.

Enable: Users need to tick "Enable" option to give the right to DNP3 client to access this session.

Master Station: It is DNP3 client address. DNP3 protocol specifies that source address and target address of DLL should be set. If users are not quite familiar with this part, please keep the default settings.

• Database:

Each session has an independent database, allowing users to classify DNP3 points and configure their properties based on the pre-configured tags and DNP3 points mapped to DNP3 server.

Note: Please keep the total number of DNP points in all sessions less than 2000 so as to ensure the operating efficiency of EdgeLink.

- 3. Next will describe the detailed settings of each term.
 - Channel Setting

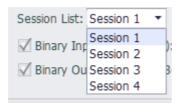
Session Status: There are in all 4 sessions here. When any of them is enabled, it will turn green to show its status: read-only.

See the below screenshot.

Channel
Port Number: 20000
Session Status: 1 2 3 4

• Session Setting

Before starting to edit a session, users should select a session from the drop-down list. The default setting is Session 1. Please tick "Enable" box first,



then choose whether to show and use 6 categories of DNP3 points. The box before each category allows users to select to show or hide points in the editing interface below; while the box after allows users to set the number of DNP3 points. The studio provides 8 BIs, 8 AIs and 4 BOs by default, and all BI points are shown in the editing interface. "Show/Hide All" determines whether to show all points in each category in the editing interface, to avoid a long list which may in turn affect operation convenience of users. See the below screenshot:

Binary Input Number(E Binary Output Number		Input Number(AI): 8 Output Number(AO): 0	Counter Number(CN		Show/Hidden All
Session1					
DNP3 Point	Assign Class	Tag Name	Event High Limit	Event Low Limit	Event Deadband
BI,000	Class 1	Double click to edit	0	0	-1
BI,001	Class 1	Double click to edit	0	0	-1
BI,002	Class 1		0	0	-1
BI,003	Class 1	Double click to edit	0	0	-1
BI,004	Class 1		0	0	-1
BI,005	Class 1	Double click to edit	0	0	-1
BI,006	Class 1		0	0	-1
BI,007	Class 1		0	0	-1

When users want to configure multiple sessions which are basically similar, please click this button to clone session 1.

When users make too many configuration errors, please click this button to clear the session and re-start editing. Note: This operation can't be undone, please operate with care.

For advanced users who want to customize DNP3 service, please click this button to pop up "DNP3 Session Advanced Parameters Configuration" page which includes four part:

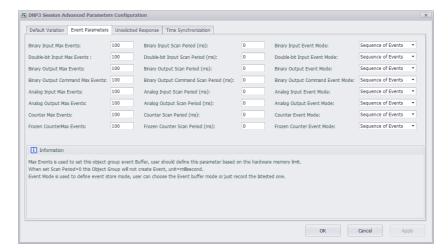
1. [Default Variation]

Click this tab to show the default data type of each DNP3 group. "Information" box provides the related description and remarks. For more detailed information, please refer to Appendix A DNP3 data object library — object descriptions in DNP3 protocol (This manual refers to 2012 version of DNP3 protocol. Different version may vary in chapter arrangements).

efault Variation Event Parameters Un	solicited Response Time Synchronization			
ary Inputs(Group 1):	Variation 1 - packed, without status	 Binary Input Events(Group 2): 	Variation 3 - with Relative Time	,
uble-bit Binary Inputs(Group 3):	Variation 1 - packed, without status	 Double-bit Binary Input Events(Group 4): 	Variation 3 - with Relative Time	,
ary Output(Group 10):	Variation 2 - with Status	 Binary Output Events(Group 11): 	Variation 1 - without Time	•
ary Output Command Event(Group 13):	Variation 1 - without Time	 Counters(Group 20): 	Variation 5 - 32-Bit without Flag	•
zen Counters(Group 21):	Variation 9 - 32-Bit without Flag	 Counter Events(Group 22): 	Variation 1 - 32-Bit without Time	•
zen Counter Events(Group 23):	Variation 1 - 32-Bit without Time	 Analog Inputs(Group 30): 	Variation 6 - Long Floating Point(64-bit)	
log Input Events(Group 32):	Variation 1 - 32-Bit without Time	Analog Input Reporting Deadband(Group 34):	Variation 2 - 32-Bit Variation 2 - 16-Bit without Time	
log Output Status(Group 40):	Variation 2 - 16-Bit	 Analog Output Events(Group 42): 		
log Output Command Events(Group 43):	Variation 2 - 16-Bit without Time	•		
Information				
fault Variation is used in responses when	the master does not specify a reporting v	ariation in its request. Such as request Variation 0.		

2. [Event Parameters]

Click this tab to configure the behavior pattern parameters of the events created by DNP3 point groups. "Information" box provides the related description and remarks. For more detailed information, please refer to 4.1.5.2 Events in DNP3 protocol.



3. [Unsolicited Response]

Click this tab to choose to enable the unsolicited response function of DNP3 server based on the premise that DNP3 client actively enables this function of DNP3 server. Users can select the class (Class 1, Class 2 and Class 3) to implement this function. "Information" box provides the related description and remarks. For more detailed information, please refer to 4.6 Unsolicited Responses in DNP3 protocol.

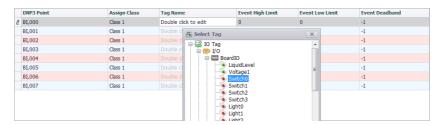
Default Variation	Event Parameters	Unsolicited Response	Time Synchronization			
veraule variation	Evence Parameters		Time Synchronization			
Support Uns	olicited Response					
Class 1	[Class 2	Class 3			
i Information						
Interference Description		han Mashar Cashla it un		- de Unesleited Desseres		
insolicited Resp	onse can send just wi	nen master Enable it, us	er can cnoose which clas	s do Unsolicited Response.		

4. [Time Synchronization]

DNP3 protocol supports time synchronization function by default. Click this tab to choose whether to enable this function on DNP3 client end. If the box is ticked, the default setting is 30 minutes, which means the synchronization will be carried out every 30 minutes. The length of synchronization time depends on the requirements of time precision in users' application. "Information" box provides the related description and remarks. For more detailed information, please refer to 10.3 Time Synchronization in DNP3 protocol.

S DNP3 Session Advanced Parameters Configuration	×
Default Variation Event Parameters Unsolicited Response Time Synchronization	
Support Time Synchronization Synchronization Period(Minutes): 30	
[] Information	
Tme Synchronization Period is for Outstation request: Mater to do Time synchronization for it, unit-minutes.	
ОК Са	ncel Apply

- [Database] Editing of Session
 - DNP3 point in each session should be associated with a tag. Double-click on a cell in "Tag Name" column to add a tag.



- After the association, the changes of "Switch0" will be sent to [BI0] of DNP3 point. Columns of "Event High Limit", "Event Low Limit" and "Event Deadband" are only effective for Analog Input; while for other columns, please keep the default settings.
- For analog input event of DNP3 point, DNP3 server provides the following three settings: "Event High Limit", "Event Low Limit" and "Event Deadband". Here, users who set AI event can adjust its event parameters so as to trigger an AI event.

D	DNP3 Point 🔺	Assign Class	Tag Name	Event High Limit	Event Low Limit	Event Deadband
► A	AI,000	Class 2	Double click to edit	0	0	-1

4. The above shows the basic parameter settings of DNP3 server. If advanced users need to configure more parameters, please contact Advantech technical support staff to get more detailed answers.

WASCADA Service

WASCADA protocol is a private communication protocol of WebAccess which can directly access all tags on RTU through TCP connection with the help of WACADA service, with no address mapping needed (such as Modbus service). In addition, the tags supporting periodic data storage will be capable of resuming broken transmission through WASCADA service.

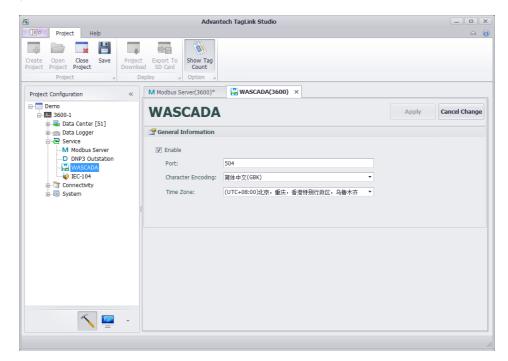
Basic Configuration of WASCADA

WASCADA service is enabled by default. Barring special circumstances, please do not disable it.

WASCADA has three configuration options:

- 1. Port: Set the port WASCADA listens on. The default setting is 504.
- 2. Character Encoding: Select the character encoding of WebAccess from the drop-down list. Please set it base on the real character encoding used by WebAccess, otherwise parse error may occur when it comes to a non-Chinese tag name. If WebAccess is the simplified Chinese version, please keep the default setting "Simplified Chinese (GBK)".
- 3. Time Zone: Select the time zone for WebAccess server. Sometimes, the time zone of WebAccess server may be different from that of RTU devices. In

order to keep the consistency of data time stamp, please set the correct time zone here.



Add RTU Tag on WebAccess

There are two ways to add a tag to WebAccess:

• Import a RTU project file;

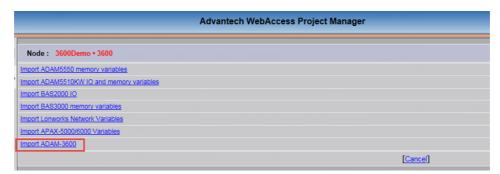
Node Property Delete Add Comport AccPoint CalcPoint ConstPoint SysPoint FacePlate RealTimeTrend DataLogTrend Alar AlarmManagementSystem EventLog KeyMapping ImportExternalData DemandControl BACNetServerConfig ModbusServerCon

- Add manually.
- 1. Import a RTU project

Only the new version WebAccess offers the function of importing a RTU project . If your WebAccess does not support this function, please download the new version or install the function expansion package.

1.1 Open Advantech WebAccess Project Manager.Then enter the SCADA node property page and click"ImportExternalData" as shown below.

1.2 If your WebAccess supports importing a RTU project file, the option of "Import EdgeLink" should be listed here. Click it to enter the import page.



1.3 Click "Browse" button on this page to select a RTU project file with an extension of .acproj, then click "Submit" button as shown below.

Node : demo • RTU Import RTU project file(*.acproj)	
please select a .acproj file	Browse
Cancel	Submit

1.4 The page displays "File uploading, please wait...", which means the selected project file with an extension of .acproj is being uploaded.

1.5 After the upload, the import will be automatically started. When the file has been imported, a window will pop up, showing the information of a successful import and the number of imported tags.

Advantech WebAccess Project Manager					
Project name = Demo					
Import to port 1					
Import device, name=3600, desc=, ip=	=192.168.1.36				
UserTag1					
LiquidLevel					
Voltagel					
Switch0 Switch1					
Switch2					
Switch3					
Light0					
Light1					
Light2					
Light3 Voltage					
Switch					
Control_Switch0					
current					
Displacement					
COM1_Temp2 Lighting failure					
Imported 18 tags for Device 3600					
imported to tags for Deffee 5000			C		
			Success, 18 tags imported!		
Import time=0.1200104 seconds			OV		
			<u>OK</u>		

1.6 Delete the unnecessary tags. The import process imports all the tags, some of which are usually unnecessary since they may cause unwanted data traffic, so users need to delete these unuseful tags. Delete method: Please firstly locate the imported device node from the project node, then find the node list icon on its right. [1] Click the icon to open the tag list of the device; [2] Tick the tags to be deleted; [3] Click "Delete" button on the top left of the page to complete the delete operation.

Advantech WebAccess Project Manager						
Project/Node		Delete	3 : demo • RTU • 3600de			
demo a RTU	^	Device	Tagname	mo	Description	Address
Port1 (tcpip)			COM1_Temp2	А		COM1_Temp2/T
<u>3600demo</u> ≡			current	А		current/T
Control_Switch0 current			Displacement	А		Displacement/T
Displacement	2		Lighting failure	А		Lighting failure
Light0 Light1			LiquidLevel	А		LiquidLevel/T
Light2 Light3			UserTag1	А	None	UserTag1
Lighting failure			Voltage	А		Voltage/T
LiquidLevel Switch			Voltage1	A		Voltage1/T
Switch0			Control_Switch0	D	None	Control_Switch0/T
Switch1 Switch2			Light0	D		Light0/T
Switch3			Light1	D		Light1/T
UserTag1 Voltage			Light2	D		Light2/T

2. Add manually.

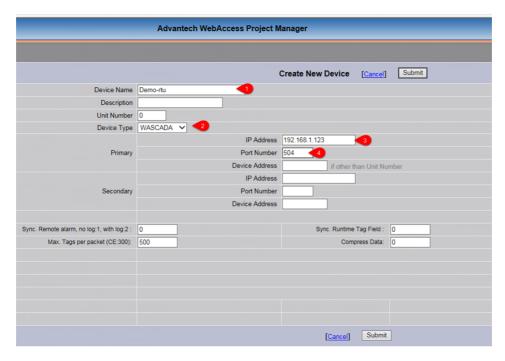
This method is only applicable to two circumstances: a. The installed WebAccess does not support the function of importing a RTU project file; b. Users want to adjust some parameters after the project file has been imported.

2.1 Create a new SCADA node (If users want to add a new device to the existing SCADA node, please ignore this step).

2.2 When users create a new comport on the newlycreated SCADA node, the following three places should be noticed: [1] The interface name should be TCPIP; [2] Users should set the scan time based on real needs, and the time should not be too short. The default value of 1 second is not useful at most circumstances, so please reset it. [3] The timeout value is set to 1000 milliseconds by default, which is applicable to LAN communication. As for Internet or wireless cellular network communication which has a long transmission delay of link data, 1000 milliseconds is not appropriate any more. Users should modify it to 10000 milliseconds (10 seconds), so as to avoid connection failure due to bad network communication.

Advantech WebAccess Project Manager					
	Create New Comport [Cancel] Submit				
Interface Name					
Comport Number	2				
Description	Description				
2 Scan Time	1 OMilliSecond OSecond OMinute OHour				
3 Timeout	10000 MilliSecond				
Retry Count	3				
Auto Recover Time	60 Second				
Backup Port Number	0				
Scan Devices in Parallel	⊖Yes ●No				
	[Cancel] Submit				

2.3 Create a new device for the new comport. The following options should be set: [1] The device name which should be the distinguished name of the RTU by WebAccess. If the RTU is connected with WebAccess through active connection (please refer to "Active Connection"), the device name here should be the same as the distinguished name of WherelAm in active connection settings; [2] The device type should be set to "WASCADA"; [3] For IP Address, please fill in the real IP address of RTU. If the RTU is connected with WebAccess through active connection, please leave this box blank; [4] The port number is set to 504 by default. It should be consistent with the port number of WASCADA configured in RTU project. For the rest setting options, please leave them unchanged.



2.4 Create a new tag for the new device. [1] For "Parameter" option, "A" refers to analog tags on RTU; "B" refers to discrete tags on RTU; the tags of "Text" type are currently not supported; [2] The tag name should be the same as the tag name used in SCADA on RTU. This tag name is globally unique in SCADA node; [3] For "Address" option, users should input the tag name on RTU. If this tag is configured for periodic storage on RTU, "/T" can be added after the tag name (for example, "Voltage/T"), which means the function of resuming broken transmission is supported.

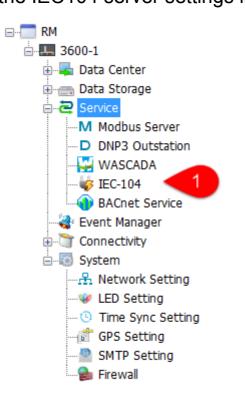
Description of resuming broken transmission: For tags with a "/T" suffix, if "Log Data" is configured to "Yes", WebAccess will reconnect to read the stored data logged on the tag during disconnection to complete the local historical trend data record of SCADA. It should be noted that, the stored data mentioned above could only include the data of minute, hour and day precision. In other words, when users want to view the data during disconnection and the time precision of the historical trend graph is as accurate as second for example, no data curve will be displayed in this graph.

For the configurations of other parameters, please refer to "WebAccess User Manual".

	Create New Tag [Cancel] Submit
1 Parameter	A V Point (analog)
Alarm	No Alarm 🗸
2 Tag Name	Device1_Voltage
Description	Analog Data
Scan Type	Constant Scan 🗸
3 Address	Voltage ×
Conversion Code	AUTO 🗸
Start Bit	0
Length	16
Signal Reverse	O Yes ● No

IEC-104 Server

Double click the IEC-104 in the protocol service to open the IEC104 server settings interface.



Main Interface

🖌 Apply 🗙 Discard				
Channel Status: 🔟 🛛 🕄 🚺 🚽				
Channel: Channel 1 Port: 2404	Advance Setting			
Device Address: 1				
Device Address: 1	ValueType	Public Address	Point Number	SOE
Device Address: 1 DI AI Counter DO AO 4 TagName	ValueType single-point information(M_SP_NA_1)	Public Address 2	Point Number	SOE SOE
Device Address: 1 DI AI Counter DO AO 4			Point Number 2 3	

Users can configure up to 4 IEC-104 channels in EdgeLink. Each channel parameter needs to be configured independently.

1. The user can choose to enable or not enable the channel. The channel enabled in the channel state is

a green background and not enabled is a white background.

- 2. The channel parameters that need to be configured by the user are placed in the middle area of the interface.
- At the bottom of the interface is the tag corresponding table, including DI, AI, Counter, DO, AO five types of data tags.

Channel parameter configuration

Advance Setting

1. Enable channel: drop box can choose to switch channels, and can also choose whether to enable this channel.

- 2. Port: the default is 2404, and each channel needs to have a different port number.
- 3. Advanced parameters: set other properties of IEC-104.
- 4. Device address: defaults to 1, the public address in the data tag configuration should match the device address of the channel. When the device address changes, the public address in the data tag configuration is automatically updated.

🔏 IEC-1	04 Advance Setting	x
General	Scope	
	DO Access Control	
	 Any IP Address These IP Address 	
	172.21.66.88	Add
		Remove
	AO Access Control	
	 Any IP Address These IP Address 	
		Add
		Remove
		OK Cancel

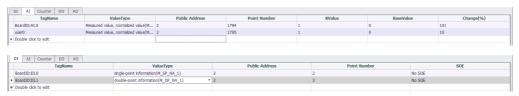
Users can set to allow only some IPs to modify the values of DO and AO in IEC-104.

- 1. When checking check box, do not limit the changes.
- 2. When unchecked, only allow IP in the list below to modify DO and AO value.
- 3. DO and AO values are not allowed to modify when the list below is empty.

🔏 IEC-104 Advance Sett	ing			x
General Scope				
t0(s): 30 t1(s): 15	t2(s): 10 t3(s): 30	k(APDUs): w(APDUs)		
Common Address Length:	2	Fime Tag:	CP56 Time2a	Ŧ
Info Address Length:	3			
Transmit Cause Length:	2			
ASDU Data Length:	253			
Description:				Â
				•
		OK	Cancel	

- 1. t0: Timeout of connection establishment. (Not editable)
- 2. t1: Timeout of sending or testing APDU. (Not editable)
- t2: A timeout that is confirmed when no data message is received, t2 <t1.
- 4. t3: Timeout of sending test frame in long idle state.
- 5. K: The maximum difference between the sending status variable and the received sequence number.
- 6. W: The acknowledgment is given after receiving the APD of the I-format.
- 7. Time stamp format: defaults to CP56 Time2a.(Not editable)

Data Tag Configuration



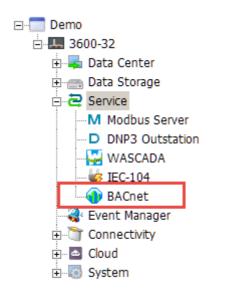
- 1. TagName: The name of the tag created in the Utility.
- 2. ValueType: The numeric type of the variable.
- 3. Public address: the public address to which the variable belongs should be filled with the same value as the device address.
- 4. Point Number: the corresponding variable number.
- 5. KValue, BaseValue: AI: engineering value = BaseValue + acquisition value * KValue, AO: export value = (engineering value - BaseValue) / KValue.
- 6. Change: this variable is greater than this percentage when uploaded to the server.
- 7. SOE: records the time at which the failure occurred and the type of event.

BACnet Server

EdgeLink can work as BACnet Server to exchange data with BACnet Client of HMI/SCADA. Current version of BACnet server is designed to conform to BACnet Advanced Application Controller (B-AAC) level.

Here will explain the application of BACnet Server in detail.

1. Double-click "BACnet Server" under "Service" item in the left menu tree to pop up the configuration interface.



The main configuration interface of BACnet server is shown as below.

BACnet Setting	Device Setting	Foreign Device Setting			
Enable BA	Cnet Service		APDU Timeout:	3000	ms
Port:	47808		APDU Retry:	3	times
Bind Interface	: LAN1	-			
🗖 Broadcast	IAm when service	start	. Notification S	etting	

 BACnet Setting: To define the parameters of BACnet IP Server. Current version of BACnet server only supports TCP/IP network communication protocol by default.

```
Port: It is the port number of TCP/IP communication
Bind Interface: EdgeLink has 2 LAN Port, user should
Broadcast IAm when service start[Checkbox]: To conf:
APDU Timeout: To define the timeout value of APDU re
APDU Retry: To define the retry times of APDU reques
APDU Segment Timeout: To define the timeout of APDU
```

BACnet Setting Devi	ce Setting		
Device Instance:	914	Vendor Name:	advantech
Device Name:	samsungdemo	Vendor ID:	150
Daylight Saving Stat	us: 🔻	Location:	Beijing
Description:	first run demo		

 Device Setting: To define the properties of this device object. Please make sure the device instance is the unique in one whole BACnet network.

Device Instance: As the property [Object_Identifier] Device Name: As the property of [Object_Name] of the Daylight saving status: As the Property of [Daylight Description: As the Property of [Description] of the Vendor Name: As the Property of [Vendor_Name] of the Vendor ID: As the Property of [Vendor_Identifier] of Location: As the Property of [Location] of this devi

Next will describe the detailed settings of each object.

Note: Please keep the total number of BACnet Server Objects less than 3000 so as to ensure the operating efficiency of EdgeLink.



Add new BACnet object



User can add new BACnet object by [Double click to edit], then will mapping an EdgeLink Tag to this BACnet Object, and the system will auto create the object instance index for you, please keep the continuity of the index, and the system will start from index 0.

• Update BACnet obejct



User can update and edit the existed BACnet obejct, some property should left click to edit, and some property should do double click to edit such as re-link a new EdgeLink Tag.

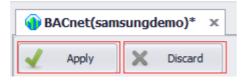
• Delete BACnet obejct



User can delete the existed BACnet obejct, select one or more lines and then right click to call [delete] popup menu out then to delete it.

Note: When appear the [*] in the title, please save or cancel your operation by the button on the left top.

• Apply and discard your operation



OPC UA Server

The OPC Unified Architecture is a standard defined by the OPC Foundation and is a modern industrial automation communication protocol. It is an open standard that traditional local applications, industrial Internet of Things, and industrial 4.0 applications and platforms are increasingly using for data collection and control. The EdgeLink Gateway Appliance as an OPC UA server can seamlessly connect to OPC UA Client applications running on any operating system.

Interface Settings

2.6.2x	Apply	X Discard			
□ Ⅲ 新节点-1					
	General Settin	g Security Policy Di	scovery Server	~	
Data Storage	Enable OPC	UA Service			
E Z Service	_			2	[.
Modbus Server	Port:	51210		ax Client:	4
DNP3 Outstation WASCADA	User Account C	ontrol: Anonymous	•	Node ID Namespace:	2 - OpcUaServer.Data_Center
VASCADA					
BACnet	User Name:				
DACIEL					
	Password:				
PPC UA	Password:				
🖓 Event Manager	Password:				
	Password:				
KW Settings					
KW Settings	Password:	3 3			
Wevent Manager		€ I → Name	3	Node ID	Description
Event Manage KW Settings Connectivity Gloud System			3	Node ID	Description
Event Manage KW Settings Connectivity Goud Goud System	 	Name SABLE_DEVICE_BoardIO	3 ns=2;s=12	Node ID	Description
Event Manage KW Settings Connectivity Goud Goud System		Name	ns=2;s=12 ns=2;s=23		Description
Event Manage KW Settings Connectivity Goud Goud System		Name SABLE_DEVICE_BoardIO :VICE_ERROR_BoardIO	ns=2;s=12 ns=2;s=23 ns=2;s=Devic		Description
Event Manage KW Settings Connectivity Goud Goud System		Name SABLE_DEVICE_BoardIO EVICE_ERROR_BoardIO BoardIO:DI_2	ns=2;s=12 ns=2;s=23 ns=2;s=Devic ns=2;s=34		Description
Event Manager KW Settings Connectivity Goud Gosymetry Goud Gosymetry		Name SABLE_DEVICE_BoardIO VICE_ERROR_BoardIO BoardIO:DI_2 BoardIO:DI_3	ns=2;s=12 ns=2;s=23 ns=2;s=Devic ns=2;s=34 ns=2;s=45		Description
Event Manage KW Settings Connectivity Goud Goud System		Name SABLE_DEVICE_BoardIO EVICE_ERROR_BoardIO BoardIO:DI_2	ns=2;s=12 ns=2;s=23 ns=2;s=Devic ns=2;s=34		Description

- 1. The user can click on the OPC UA node under the protocol service to enter the configuration interface.
- The general settings and security policies of the OPC UA server on the device can be configured in the OPC UA configuration interface.
- 3. The configured tags in the device can be added to the OPC UA server.

General Settings

General Setting	Security Policy Discovery Server		
Enable OPC UA S			4
Port:	51210 2	Max Client:	4
User Account Contro	ol: Anonymous 🔹	Node ID Namespace:	2 - OpcUaServer.Data_Center 🔹
User Name:	3		5
Password:			_

- The user can choose to enable or disable the OPC UA service. The OPC UA configuration document is not generated when the service is not enabled.
- 2. Port: The port number of the OPC UA server on the device. The default is 4840.
- 3. User account control: The server allows the client to access the server anonymously or to verify the username and password when accessing.

Anonymous: The default connection mode. The server allows the client to create a connection anonymously without the need to configure a username and password.

User Account Control:	Anonymous 🔻
User Name:	
Password:	

User Name/Password: The client needs to configure the username and password when creating the connection. The username must be entered and the password can be empty.

User Account Control:	User Name/Password 🔹
User Name:	username
Password:	password

- 4. Max Client : A maximum of several clients are allowed to connect to the server at the same time.
- 5. Node ID Namespace : Index of the node namespace
 - 0. OPC UA Namespace
 - 1. Local Server
 - 2. OpcUaServer.Data_Center

Security Policies

General Setting	Security Policy	
🗹 None		
🗹 Basic128Rsa15	Sign	•
Basic256Sha256	5 Sign	•
Ca File Path:	D:\opcua.crt	
Key File Path:	D:\client.key	

EdgeLink's OPC UA server supports

None/Basic128RSA15/Basic256Sha256 three security policies, which can be flexibly applied to different occasions.

None		
Basic128Rsa15	Sign, Sign and Encrypt	•
Basic256Sha256	Sign	•
Ca File Path:	D:\opcua.crt	
Key File Path:	D:\client.key	

After selecting Basic128RSA15 and Basic256Sha256, you need to select the message security mode for each of these two security policies. The message security mode has two types: "Sign", "Sign and Encrypt".

- 1. When only the message security mode is "Sign", you need to select the CA file to download to the device.
- When at least one security policy selects the message security mode as "Sign and Encrypt", you need to select the CA file and the Key file to download to the device.

🗸 None		
Basic128Rsa15	Sign, Sign and Encrypt	Ŧ
Basic256Sha256	Sign	Ŧ
Ca File Path:	D:\opcua.crt	
Key File Path:	D:\client.key	

If neither Basic128RSA15 nor Basic256Sha256 is checked, the security policy is preset to "None".

Local Discovery Server (LDS)

The Local Discovery Server (LDS) is a DiscoveryServer that maintains a list of all OPC UA Servers and Gateways available on the host/PC that it runs on, and is the OPC UA equivalent to the OPC Classic OPCENUM interface.

General Setting Set	ecurity Policy	Discovery Server
🗹 Enable Local Discov	very Server(LDS)	-1
LDS Server URL:	opc.tcp://8	.8.8.8:4840
Registration Interval(s)): 300	

- 1. Enable LDS
- 2. LDS Server URL : The address of the LDS server
- 3. Registration Interval : The interval for registering the OPC UA server with the Local Discovery Server, in seconds.

HDA

First, save the data that needs to be read using historical data to the local data record, refer to DataLogger

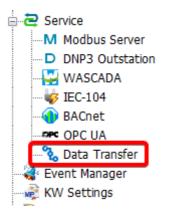
Then, add the corresponding data (tags) to the point table on OPCUA Server

Data Transfer

Data Transfer is used to write the value of a specified tag to another tag, according to the preset cycle and tag change detection criteria.

Configuration

1. The user can click the Data Transfer node under the protocol service to enter the configuration page.



2. The configuration page of Data Transfer is shown in the figure below. Up to 4 groups can be configured, and each group can have a different cycle and change detection configuration. If you have more points, you can use Export/Import Excel function to assist in editing.

🍾 Data Transfer(e	example) ×								
Apply	K Discard	Export To Microso	oft Excel 🚺 Import	From Microsoft Excel					
Group(1) × Grou	Group(1) × Group(2) × Group(3) × Group(4) ×								
 ✓ Enable Group Name: Gransfer Cycle(s): 1 	e Change ty Change stamp Change								
Source Tag	Target Tag	Deadband	Deadband Type	Jitter Time(s)					
► A	Х	0	Absolute	0					
В	Υ	0	Absolute	0					
С	Z	0	Absolute	0					
* Double click to	Double click to edit								

According to the configuration in the above figure, the Data Transfer program will transfer the tag values (A=>X, B=>Y, C=>Z) per second, or on detection of any change of the source tag's value, quality, and time stamp.

Event Management

Event management pages allow users to set trigger conditions for events. Trigger events when conditions are met; The event is removed when the state transitions from the satisfaction condition to the non-satisfying condition.

« 🖟 IO Tag(NewDevice-NewMeter) 📑 Data Logger(NewDevice)* 💐 Event Manager(NewDevice) 🗴 Project Configuration ----- NewProject Add... 💥 Delete 🗐 Modify... 🕒 Copy 🥠 NewDevice-1 Enable Name Event Class Event Type Event Trigger Event M New Event Tag value changed Out of range Send SMS 🚊 属 Data Center Event Clear 🗄 틟 IO Tag Calculation Tag 📻 Data Storage Data Logger 💐 Event Manager 🥣 🗄 े Connectivity + System Description 4 Event-action name: New Event when BoardIO:DI.0's value more than 0 or less then 0, trigger this event the trigger interval is 5000ms, jitter time is 0ms. When trigger this event, send message: alarm to these phone number: 1377777777;13888888888;+86139999999999 When this event clear, send message: alarm clear to these phone number: 13777777777;13888888888;+8613999999999 1 🖉 🗸

Event Management Page

- 1. Double click the "event management" node to open the edit page.
- 2. You can add, delete, modify, or copy an event.
 - Add: pop-up the event edit page, create a new event
 - Delete: delete the selected events
 - Modify: pop-up the event edit page, modify the selected event

- Copy: copy the selected event and add it to the event list.
- 3. The time you have added will be displayed in the list.
- You can set whether this event is enabled when the device is running by clicking the "Enable" column of the selection box.
- 5. When you select an event in the list, the description of the event will be displayed in the description box.
- 6. After setting up, you need to click the "apply" button to save the settings.

Event Edit Page

EventAction			
Event Name: New Event			
Event	On Event Trigger		On Event Clear
Event Class:	Action Type:		Action Type:
Tag value changed 🔻	Send SMS	-	Send SMS 👻
Event Type:	Message:		Message:
Out of range 🔻	alarm	-	alarm clear
Interval(ms):			
5000			
Tag Name:		Ψ.	-
BoardIO:DI.0 ···	Append Event Message		Append Event Message
High Limit:	Phone Number:		Phone Number:
0	1377777777 13888888888	-	13777777777
Low Limit:	+8613999999999		+8613999999999
0			
Jitter time(ms):			
0			
		Ŧ	~
Description 5			
Event-action name: New Event			A
when BoardIO:DI.0's value more than 0 or k	ess then 0, trigger this event.		1
the trigger interval is 5000ms, jitter time			
When trigger this event, send message:			
alarm			
			-
			6 OK Cancel

1. Edit event name.

- 2. The event parameters can be determined by selecting the event type and the specific time type.
- 3. Perform processing actions when an event is triggered.
- 4. You can also edit the actions that are performed when the event is lifted.
- 5. As with the event management page, the description of the event is refreshed in real-time in the description box.
- 6. When the settings are complete, click OK to save the settings.

Supported Events

Tag Value Change

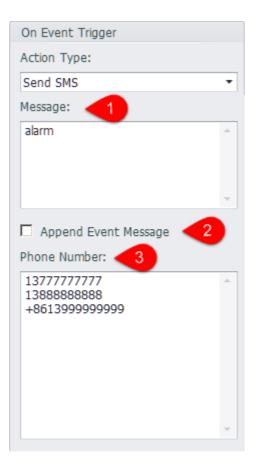
Currently support tag value change events. You can monitor the tag value out of range and tag quality is not good two cases.

Event
Event Class:
Tag value changed 🔹
Event Type:
Out of range 🔹
Interval(ms):
5000
Tag Name:
BoardIO:DI.0 ····
High Limit:
0
Low Limit:
0
Jitter time(ms):
0

- 1. Interval means that the same event is not triggered within an interval after an event has been triggered.
- 2. Jitter time means that the tag value exceeds the range or the quality is not good for the duration of time is less than the jitter time, then the event is not triggered.

Supported Actions

• Send messages: supports sending SMS messages to designated mobile phone numbers



- 1. Text messages to send to the phone.
- 2. The details of the event can be added at the end of the text message after

Tag Name: #BATCH_WRITE_BoardIO Value: "current value" Quality: "current tag quality" Time Stamp: "timing of event"

- 3. After the event is triggered, the message will be sent to the number in this text box. If there are multiple numbers, it should be wrapped or separated by the ';' semicolon.
- Send mail: supports sending an alert message to the specified mailbox via the SMTP server.

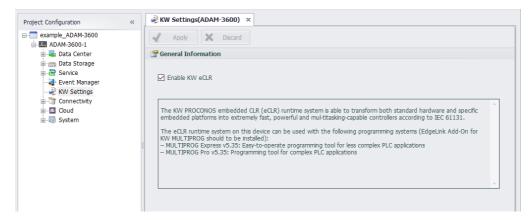
On Event Trigger				
Action Type:				
Send Email	•			
SMTP Server: <1				
Need to create SMTP server first!	•			
то: 💙				
admin@me.com	^			
	Ψ.			
Subject: <3				
Alarm				
Email Contents: 🛛 4				
Alarm	*			
Append Event Message 5				

- 1. Select a configured SMTP server, if not configured, please refer to the SMTP server configuration section of this document.
- 2. Please enter the standard mail format for the recipients section. If there are multiple recipients, please enter or use '; 'separation.
- 3. Topic of alarm email.
- 4. Contents of the alarm message to be sent.
- 5. The details of the event can be added at the end of the email:

Tag Name: #BATCH_WRITE_BoardIO Value: "current value" Quality: "current tag quality" Time Stamp: "timing of event"

KW Settings

The KW PROCONOS embedded CLR (eCLR) runtime system is able to transform both standard hardware and specific embedded platforms into extremely fast, powerful and mul-titasking-capable controllers according to IEC 61131.



"KW Settings" allows the user to configure the start and stop of the KW function. When "Enable KW eCLR" is checked, eclr will be enabled when the device starts. If it is not checked, eclr will not be enabled.

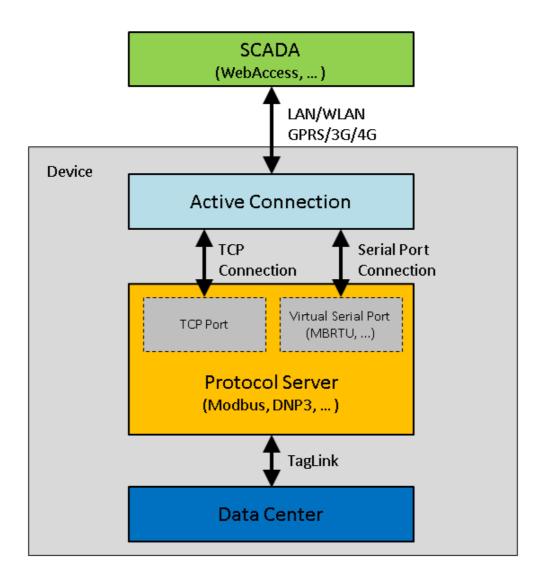
Connectivity Settings

The connectivity settings include the configuration of some additional external connection functions of EdgeLink, such as Active Connection, Serial Port Bridge, and third-party VPN connections.

Active Connection

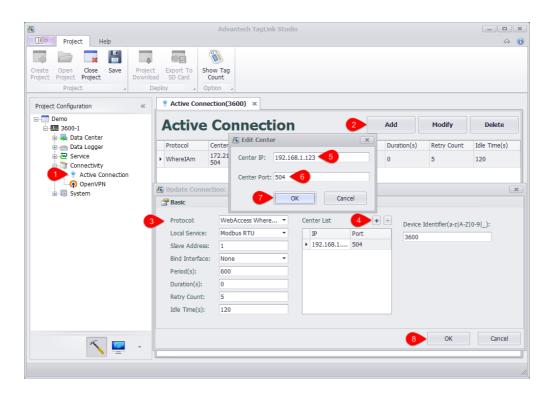
The main application scenario of active connection: RTU can directly access SCADA center, while the latter has no direct access to the former. RTU connected via cellular wireless connection or RTU behind the firewall is such kind of situation. In this case, the traditional TCP connection created by SCADA is not applicable any more. It should be the responsibility of RTU to actively connect with SCADA which will access data in future through this connection.

The fundamentals of active connection is illustrated in the below figure. In active connection, two connections will be established: one is the connection with a service of the device over TCP port or virtual serial port, which is called upward connection; the other is the connection with SCADA center, which is called downward connection. After the establishment, active connection will perform the data forwarding between two connections. Downward connection adopts the standard TCP connection, so it can support all protocols that listens on TCP port, including Modbus TCP, NDP3, etc; while upward connection supports two protocols: one is WhereIAm protocol, used to connect with WebAccess; the other is DTU protocol of FourFaith, used to realize the connection with the server which supports four faith DTU. More upward connection protocols will be added in future.



Active Connection Settings

In active connection page, the items that should be configured include upward connection protocol, downward connection service, center list of upward connection as well as some related parameters. Please follow the below steps to add an active connection:



- 1. Locate "Active Connection" in "Connectivity" in the left tree menu, and then double-click it to open the configuration page.
- 2. Click "Add" button to add an active connection
- 3. Set the related parameters of active connection, including:
 - Protocol: Select the upward connection protocol from the drop-down list. "WebAccess WhereIAm" is used to connect with WebAccess server, while "DTU - Four Faith PROT" is used to connect with four faith DTU server. Different protocol requires users to set different parameters in the lower right corner of the page. For WhereIAm protocol, users only need to set one parameter: "Device Identifier" which should be consistent with the device name in WebAccess project so as to make sure

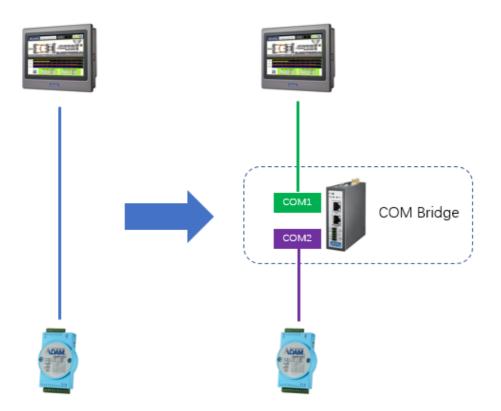
WebAccess can correctly identify every connected device.

- Local Service: Select the downward connection service from the drop-down list. "Modbus RTU" means to connect with Modubus RTU through the virtual serial port, while other options realize the connection through TCP connection.
- Salve Address: This item is only available when "Local Service" is set to "Modbus RTU". It specifies the slave address of Modbus RTU.
- Bind Interface: Specify the communication port of active connection. "None" means no port is binded. This parameter is typically used when a device has multiple network connections, the data channel of active connection should be explicitly specified to avoid the uncertainties of the system default route. For example, if "Cellular" option is selected, only cellular wireless network can be applied to data transmission.
- Period (s): Set the time interval for active connection to establish a second upward connection.
- Duration (s): Set the time duration before the upward connection is disconnected. "0" means the connection will never be actively disconnected after it is established.

- Retry Count: Set the retry times after an upward connection is failed. If the count is exceeded, active connection will never try to reconnect again until the next period comes.
- Idle Time (s): After an upward connection is established, if there is no data transmission within the specified idle time, active connection will disconnect and try to reconnect. "0" means no idle time is set.
- 4. Click "+" button to add center IP and center port of the upward connection.
- 5. Enter a center IP, which can be either an IP address or a domain name address.
- 6. Enter a center port. If WebAccess is used, this item is usually set to 504 by default.
- Click "OK" button to add the center information to "Center List". Repeat steps 4~7 to add more centers. Each active connection can support at most 5 centers.
- 8. Click "OK" button to add this new connection to active connection list.

Serial Port Bridge

Serial Port Bridge is mainly used to add a gateway for data acquisition while retaining the existing serial port connection logic. As shown in the figure below, a gateway is added between the HMI and the end device, by bridging the serial ports in the gateway, the original HMI data acquisition is not affected, and the gateway can also read data from the end device..



Principle

The serial port bridge program will open two serial ports, one is the slave port connected with the upper master station, and the other is the master port connected with the lower-level end device. When the serial port bridge program receives a request from the upper master station from the slave station port, it will forward the data message to the master station port, accept the response data of the end device, and return it from the slave station port to the upper master station.

Because the serial port is an exclusive resource, in order to realize that the data center of the gateway and the upper master station can collect data from a lower-level collected device at the same time, the serial port bridge program needs to share the same master port with the data center, using time-sharing multiplexing. Because the master station port is used in time-sharing, the scan time of the data center and the upper master station should be coordinated when using the serial port bridge program, otherwise the data acquisition result will be affected.

Settings

The serial port bridge function is located in the connection settings of the project configuration tree, as shown in the following figure:



Double-click the serial port bridge setting item in the project configuration tree to open the serial port bridge configuration page, and click "Enable" to configure the serial port bridge.

Serial Port Bridge(et	xample)* ×	
🖌 Apply 🗙	Discard	
Enable		
Master		
Port:	COM2 •	Master port must be configured in[Data Center\IO Tag].
Slave		
Port:	COM1 ·	
Baud Rate:	9600 🔹	
Byte Size:	8 •	
Stop Bit:	1 •	
Parity:	None 🔻	
Frame Interval (ms):	1000	
Timeout (ms):	3000	

Parameters:

- **Master Port**: select a serial port that has been configured in the data center for acquisition.
- Slave Port: select a serial port that has not been added to the data center and is not occupied by other applications to be used as a slave port.
- Baud Rate/Byte Size/Stop Bit/Parity: set according to the actual connection with the upper master station.
- Frame interval (ms): specify the minimum interval for data requests from the upper master station, in milliseconds. The serial port bridge program will split the complete data message received from the slave station port according to this setting parameter.
- Timeout (ms): specify the timeout time of waiting for response from the end device, the unit is milliseconds. After the serial port bridge program forwards the message, if the waiting time for a response exceeds this set parameter, it is considered

that the end device has no response. At this time, the serial port bridge program will release the occupation of the master port so that the data center can continue to do data acquisition.

Cloud Service

EdgeLink can communicate with the IoT center device on the cloud via the MQTT protocol. Currently, EdgeLink supports communication with IoT center of Baidu cloud, Azure and other cloud service providers.

In EdgeLink Studio, users can configure devices on the cloud service page to upload device tag information to the IoT Center, and support uploading to multiple different types of IoT centers.

Users need to configure IoT center connection properties and upload conditions, receive service attributes, tags to be uploaded and other information.

According to different connection types, EdgeLink supports multiple cloud services, which configure corresponding connection information respectively.

Project Configuration «	WebAccess(360	0-1) ×						
⊡ Demo 	Apply 🗶 Discard							
🗄 🖳 Data Center	iot.advantech.com-1883 × 💠							
Data Storage	Connect Type:	MQTT ~	â		Tag Name	Tag Type	Deadband Type	Deadban
- Went Manager				* Doub	le click to edit			
Connectivity	Enable:							
E-Cloud	Use Socks5 Proxy:	Edit						
	host:	iot.advantech.com						
Azure	Port:	1883						
- 🐻 System	SSL Enable:							
	SSL Scenario:	Anonymous conne ···						
	MQTT Version:	3.1.1 🔹						
	Client ID:		U					
	User Name:							
	Password:							
	Keep Alive(s):	60						
	Timeout(s):	30						
	Periodic Publish:	\checkmark						
	Publish Period(s):	60						
1	Publish Penou(s):	00	Ŧ	- C				÷

Basic Configuration

t.advantech.com-	1883 × 🕂 🖊	-	_					
			Т	Tag Name	Tag Type	Deadband Type	Deadband	Uni
Connect Type:	MQTT		*	Double click to edit				
Enable:								
Use Socks5 Proxy:	Edit		Ŀ					
host:	iot.advantech.com		Ŀ					
Port:	1883		L					
SSL Enable:			L					
SSL Scenario:	Anonymous conne		L					
MQTT Version:	3.1.1	-	L					
Client ID:		ון	Ŀ					
User Name:			L					
Password:								
Keep Alive(s):	60							
Timeout(s):	30							
	7							
Periodic Publish:	\checkmark							

- For the configuration to take effect, users must check "Enable". This switch can be used reasonably during the debugging phase to test multiple connections added in the same cloud service type.
- Click the "+" button on the right of the main page to add multiple connections to the cloud service. Each cloud service type allows up to 4 connections to be added.

Cloud Connection Properties and Upload Conditions

EdgeLink uses the standard MQTT protocol specification to connect to cloud services, so most cloud service types have the same configuration interface in the MQTT connection settings section. The Azure IoT Hub is an exception. Because Microsoft uses connection string configuration to provide user login credentials, the Azure IoT Hub connection configuration will be different. See the Azure IoT Hub configuration page for details.

As shown in the following figure, the MQTT configuration interface, the red frame is the configuration information connected to the broker, the green frame is the configuration information of the data upload, and the blue frame is the configuration information specific to each cloud service type. This section will be described in detail on the description page for each cloud service type.

iot.advantech.com-1	883 × 👆
Connect Type:	MQTT 🔹
Enable:	\checkmark
Use Socks5 Proxy:	Edit
host:	iot.advantech.com
Port:	1883
SSL Enable:	
SSL Scenario:	Anonymous conne
MQTT Version:	3.1.1 🔹
Client ID:	
User Name:	
Password:	
Keep Alive(s):	60
Timeout(s):	30
Periodic Publish:	
	√ 60
Periodic Publish:	
Periodic Publish: Publish Period(s):	60
Periodic Publish: Publish Period(s): Diff Publish:	60
Periodic Publish: Publish Period(s): Diff Publish: Detection Cycle(s):	60 1 Value Change Quality Change Timestamp Change
Periodic Publish: Publish Period(s): Diff Publish: Detection Cycle(s): Diff Type:	60 1 Value Change Quality Change Timestamp Change
Periodic Publish: Publish Period(s): Diff Publish: Detection Cycle(s): Diff Type: Topic/Payload Sche	60 1 Value Change Quality Change Timestamp Change
Periodic Publish: Publish Period(s): Diff Publish: Detection Cycle(s): Diff Type: Topic/Payload Sche Group ID:	60 1 Value Change Quality Change Timestamp Change WebAccess
Periodic Publish: Publish Period(s): Diff Publish: Detection Cycle(s): Diff Type: Topic/Payload Sche Group ID: Device ID:	60 1 Value Change Quality Change Timestamp Change WebAccess

Connection Configuration Section

 Use Socks5 Proxy - If the device is used in a network environment that requires a proxy server to connect to the MQTT Broker, then the SOCKS5 proxy needs to be enabled. Click the Enable check box and then click the "Edit" button to set the SOCKS server information in the pop-up box. As shown below, you can set the IP address, port number, user name and password of the SOCKS5 proxy server.

Socks5		x
Host:	127.0.0.1	
Port:	1080	
User Name:		
Password:		
	OK Cancel	

- Host The IP or domain name of entering the MQTT Broker.
- Port Enter the listener port number of the MQTT Broker. By default, the unencrypted TCP port is 1883 and the encrypted TLS port is 8883. EdgeLink does not currently support WebSocket connections.
- **SSL Enable** If the Broker requires an SSL/TLS connection, then SSL needs to be enabled and selected from three authentication methods depending on the configuration provided by the Broker:
 - 1. Anonymous connection: Only encrypted connections are provided, and the communicating parties do not verify the identity.
 - 2. Server authentication: The device side verifies the authenticity of the cloud server, and the cloud

server is required to provide the CA file. EdgeLink comes with some public server certificate files. If you are connected to a public cloud, you can try to use the default CA file. If you use a self-signed certificate for your own server, you will not be able to authenticate with a third-party certificate authority. In this case, in addition to loading the CA file to the device, you need to cancel the verification host name, otherwise the connection will not succeed. set up.

3. Mutual authentication: The difference from the server-side authentication is that in this case, the cloud server needs to verify the identity of the device. In this case, in addition to processing the CA file of the server, the certificate file and the key file of the device need to be loaded. When the cloud server is connected, the device side will authenticate with the cloud server side.

SSL Scenario		
Scenario:	Anonymous Connection	•
Verify Host:	Anonymous Connection Server Authentication Mutual Authentication	
CA File:		- Load
Cert File:		Load
Key File:		Load
	ОК	Cancel

SSL Scenario		
Scenario:	Server Authentication 🔹	
Verify Host:	iot.advantech.com	
CA File:	Use Default Ca File	Load
Cert File:	Load CA File Use Default Ca File	Load
Key File:		Load
	ОК	Cancel

- MQTT Version Specify the version of the MQTT specification that the communication parties follow. Generally, the default version 3.1.1 can be used. If the Broker has special requirements, it can be configured according to its requirements.
- Client ID Client ID is used by the Broker to distinguish multiple clients connected to it. Please enter a unique client ID here. If the Broker supports it, you can leave it blank for automatic distribution by the Broker.
- User Name The username used to connect to the Broker, please follow the instructions of the Broker. If you are configuring a connection to WISE-PaaS, you can leave it blank here. The WISE-PaaS protocol plugin will get the corresponding username and password through the DCCS API.
- **Password** The password used to connect to the Broker.

- Keep Alive The unit is seconds. According to the MQTT protocol, when there is no communication between the device and the Broker within a certain period of time, the MQTT PING message must be sent to the Broker to maintain the connection. The setting of this parameter should be determined according to the actual project needs and combined with the configuration of the Broker.
- **Timeout**. The unit is in seconds. Define the maximum time interval for the client to send information to the cloud.

Data Upload Configuration Section

There are two modes of data uploading. One is regular upload, that is, to report all the tag instant data in the tag list on the right side at a fixed time interval; the other is change upload. In this mode, the program checks the change of the tag with the configured detection period and detection condition, and uploads the real-time data of the changed tag when the tag change is detected.

Both the regular upload and change upload modes can be enabled at the same time, or only one of them can be enabled. The recommended configuration method is to enable regular upload and change upload at the same time. The detection period of the change upload is set to a shorter time, and the period of the periodic upload is set longer, so that the data can be considered in real time and effective, and reduce bandwidth usage.

- **Periodic Upload**: The enable switch of periodic upload.
- **Publish Period**: Select the upload cycle for data during periodic uploads.
- **Diff Upload**: The enable switch of change upload.
- **Detection Cycle**: Specify the detection period for detecting tag changes.
- **Diff Type**: Select to detect parameter changes for tags. Optional parameters include tag value, quality, and timestamp. The detection of the change of the tag value is affected by the three parameters of the threshold type, the Deadband and the jitter time configured in the tag table. For details, see the tag table configuration description below.

Tag Table Configuration

The tag table is used to add the data center tags to the MQTT connection. Each connection can have its own tag table configuration to meet the needs of different cloud servers.

Tag Name	Alias	Tag Type	Deadband	Deadband Type	Unit	Jitter Time(s)	Decimal Digits	Description
#WLAN0_SIGNAL		analog	0	Absolute		0	2	SYSTEMTAG_WLAN0_SIGNAL_NOISE
#WLAN0_SIGNAL		analog	0	Absolute		0	2	SYSTEMTAG_WLAN0_SIGNAL_BITRATE
#ICDM_COM1_SC		analog	0	Absolute		0	2	SYSTEMTAG_ICDM_COM1_SCORE
#ICDM_COM2_SC		analog	0	Absolute		0	2	SYSTEMTAG_ICDM_COM2_SCORE
#ICDM_COM3_SC		analog	0	Absolute		0	2	SYSTEMTAG_ICDM_COM3_SCORE
#ICDM_LAN1_SC		analog	0	Absolute		0	2	SYSTEMTAG_ICDM_LAN1_SCORE
#ICDM_LAN1_LINK		analog	0	Absolute		0	2	SYSTEMTAG_ICDM_LAN1_LINK
#ICDM_LAN2_SC		analog	0	Absolute		0	2	SYSTEMTAG_ICDM_LAN2_SCORE
#ICDM_LAN2_LINK		analog	0	Absolute		0	2	SYSTEMTAG_ICDM_LAN2_LINK
#GPS_LATITUDE		analog	0	Absolute		0	2	SYSTEMTAG_GPS_LATITUDE
#GPS_LONGITUDE		analog	0	Absolute		0	2	SYSTEMTAG_GPS_LONGITUDE
#GPS_ALTITUDE		analog	0	Absolute		0	2	SYSTEMTAG_GPS_ALTITUDE
#GPS_SPEED		analog	0	Absolute		0	2	SYSTEMTAG_GPS_SPEED
#GPS_COURSE		analog	0	Absolute		0	2	SYSTEMTAG_GPS_COURSE
#GPS_SATELLITE		analog	0	Absolute		0	2	SYSTEMTAG_GPS_SATELLITE
#SYS_BATTERY		analog	0	Absolute		0	2	SYSTEMTAG_SYS_BATTERY_LOW
#SYS_TIME_SEC		analog	0	Absolute		0	2	SYSTEMTAG_SYS_TIME_SECOND
#SYS_TIME_MIN		analog	0	Absolute		0	2	SYSTEMTAG_SYS_TIME_MINUTE
#SYS_TIME_HOUR		analog	0	Absolute		0	2	SYSTEMTAG_SYS_TIME_HOUR
#SYS_TIME_DAY		analog	0	Absolute		0	2	SYSTEMTAG_SYS_TIME_DAY
#SYS_TIME_MONTH		analog	0	Absolute		0	2	SYSTEMTAG_SYS_TIME_MONTH
#SYS_TIME_YEAR		analog	0	Absolute		0	2	SYSTEMTAG_SYS_TIME_YEAR
#SYS_TIME_WDAY		analog	0	Absolute		0	2	SYSTEMTAG_SYS_TIME_WDAY
#SYS_TIME_YDAY		analog	0	Absolute		0	2	SYSTEMTAG_SYS_TIME_YDAY
#SYS_TIME_ISDST		analog	0	Absolute		0	2	SYSTEMTAG_SYS_TIME_ISDST
#SYS_TIME_GMT		analog	0	Absolute		0	2	SYSTEMTAG_SYS_TIME_GMT_OFFSET
HEVE MAC LANS		20200	0	Absoluto		0	-	EVETENTAC EVE MAC LANS

- **Tag Name**: Double-click this field to add or select a tag in the device.
- Alias: Set the name when uploading data. Use the tag name as the data name when the alias is empty.
- **Tag Type**: Displays the data type of the tag. This item is a read-only item and cannot be modified in this tag table. If you need to modify it, please modify the original tag attribute in the data center.
- Deadband Type: Used to configure the change detection method of tag values. There are two ways: absolute value and percentage. When the type is configured as an absolute value, the difference between the current tag value of the tag and the last uploaded tag value is taken as an absolute value and compared with the *Deadband*, and if it is exceeded, the tag is considered to have changed; When the type is configured as a percentage, the difference between the current tag value of the tag and the last uploaded tag value is taken as an absolute value and compared with the last uploaded tag value. If the change exceeds the *Deadband*, the tag is considered to have changed.
- **Deadband**: Used to specify the Deadband value of the tag detection. The value change of the tag does not trigger the tag value change within the threshold.
- Unit: Read-only item, when the Deadband type is percentage, a percent sign is displayed to distinguish

it from the absolute value.

- Jitter time: The unit is second. When the detected tag value exceeds *Deadband*, verification of *jitter time* will start. When the tag value is detected as exceeding the *Deadband* within the specified *jitter time*, it will be finally judged as a little value change, and the changed value will be uploaded at this time, otherwise it will be judged as tag value jitter. Not uploaded.
- **Decimal Digits**: The number of digits after the decimal tag for specifying the analog tag value. The default is 2. When the actual tag value has only one integer value, you can set this field to 0 to save data traffic.
- **Description**: The description of the tag. This item is a read-only item and cannot be modified in this tag table. If you need to modify it, please modify the original tag attribute in the data center.

EdgeSync 360/EdgeHub

precondition :

1. The prerequisite for establishing a connection between a gateway and EdgeSync 360/EdgeHub is to create a device in EdgeSync 360/EdgeHub and obtain a connection string

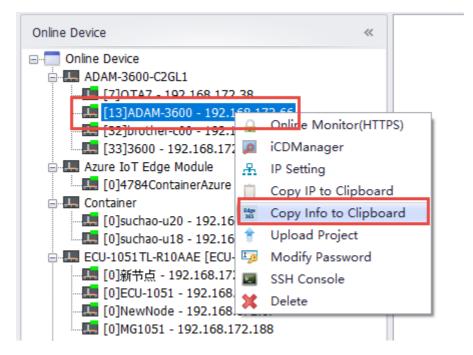
2. The prerequisite for downloading a project or upgrading an image for a gateway through EdgeSync 360/EdgeHub is that a connection between the gateway and EdgeSync 360/EdgeHub has already been established

function list :

- Obtaining the connection string in EdgeHub
- Establishing a connection between a gateway and EdgeHub
- Uploading data to EdgeHub
- Downloading projects to the gateway through EdgeHub
- Upgrading the image on the gateway through EdgeHub

the steps of get connection string :

 In EdgeLink Studio, select the online page for the gateway you want to add to EdgeSync 360/EdgeHub, right-click, and choose "Copy device information to clipboard"



2. Open the EdgeSync 360/EdgeHub login page, enter your username and password to log in



3. Device Management



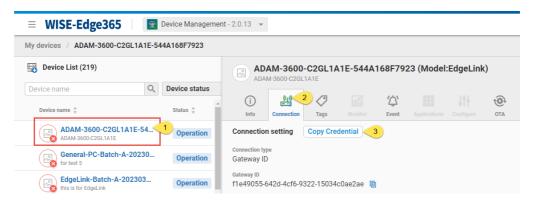
4. Select the option to add an EdgeLink device

My devices	
	Total devices 218
D vice L	ist (218)
ADAM	Q Device status All -
WISE	Status 👙
EdgeLink <	2
SCADA	eral-PC-Batch-A-2023032 Operation
General PC	eLink-Batch-A-202303210 Operation

5. Paste from Clipboard

Device informat	on	
	Paste from Clipboard 1	
	Device name *	
	ADAM-3600-C2GL1A1E-544A168F7923	
	Description ADAM-3600-C2GL1A1E	
Connection set	ng	
MAC Address *		
54-4A-16-8F-79-23		

 Click on the newly added device, and the device information will appear on the right side. Copy the "Credential" to the clipboard



Establishing a connection between a gateway and EdgeHub :

- Open the EdgeLink Studio project configuration page for EdgeSync 360/EdgeHub by selecting "Project" > "Cloud Service" > "Advantech" > "EdgeSync 360/EdgeHub", and enable the connection
- 2. Paste the "Credential Key" into the corresponding field

Connect Type: Enable:	WISE-Edge365	•
Skip certificate vali	dation: 🗹	
Credential Key:	Cred from Clipboar	2
-dev.azure- devices.net;Devic 4e1d-a572- ddc6044dTTT,,,,, UDt70lG0/03Com e30gIOPA="},"m {"host":"rabbitmo paas.o , porc.oc e":"3Ke5G572xny assword":"hkWUt "devId":14652,"n C2GL1A1E- D0FF50C103B8",' -4e1d-a572-	"HostName=edge365 eeId=12c8ad1a-5f75- hareuAccessKey=20 ' hort": p-dev.edge365.wise- poo, sol":true,"usernam rY:8xQn3M5XOEeD","p comB2GprTecbuLlu"}}, amr". ADAM-3600- 'uuid":"12c8-11a-5f75	·

3. Configure connection parameter, parameter

description

,"type":"EdgeLink"	*
Periodic Publish:	True 🔻
Periodic Control Tag	Double click to edi
Publish Period(s):	60
Diff Publish:	False 🔹
Diff Control Tag:	Double click to edi
Detection Cycle(s):	1
Diff Type:	 Value Change Quality Change Timestamp Change
Diff pub all tags:	
Pub all after reconn	: 🗹
Enable data resume	: 🗹
Data before break(s	s): 0
Data after reconnec	tt(s): 0
Delay before resum	e(s): 120
Bad Quality Tag:	Pub '*' once 🔻
Max Payload Size:	256 KB 🔹

4. Configure tag point, the parameter description of tag

	Tag Name	Alias	Tag Type	Deadband	Deadband Type	Spa	Sp	Unit	Jitter Time(s)	Decimal Digits	Description
۲	BoardIO:AI_0		analog	0	Absolute	1000	0		0	2	
	BoardIO:AI_1		analog	0	Absolute	1000	0		0	2	
	calc1		analog	0	Absolute	1000	0		0	2	
	usertag1		analog	0	Absolute	1000	0		0	2	
*	Double click to edi										

5. Download the project file to the gateway

**											
	Project	Help									
4			2		Edge 365			•			
	open Clos Coject Proje		Project Download	Export To SD Card	Export to WISE-Edge365	Show Tag Count	Import tags from Excel	Export tags to Excel	Dev Mo		
	Project	4		Deploy	4		Option	1			
exa	onfiguration mple_ADAM ADAM-3600- Data Cen Data Cen	ter g		Note: Wh WISE-Edg	pply X nen enabling ge365_0 ×	Discard SSL, please	WISE-Edge36 ensure that	-			
.	Calcul G User Data Sto Service	Tag rage			Credent	cols":{"iothu ectionStr":"H	Cred from C	Clipboard	•	Tag Nar BoardIO:AI_0 BoardIO:AI_1 calc1 usertao1)

\checkmark	Name	Status	IP	Progress
	ADAM-3600-13	Compile success		0%

6. View the device as online in EdgeHub

aaa 12343444	Operation	EdgeLink
ADAM-3600-C2GL1A1E-544A ADAM-3600-C2GL1A1E	Operation	EdgeLink

Uploading data to EdgeHub

The gateway is already online in EdgeSync

360/EdgeHub

1. Click the online gateway-> Tags

ADAM-3600-C2GL1A1E-544A168F7923 (Model:EdgeLin ADAM-3600-C2GL1A1E	k)				$\cdots \mid $
① ∰ ₹ ↓	ATO ATO				
Tags (13) Parameter					
Tag name Q			0	1 × × Rov	vs per page 50 👻
Tag name 🔺	Tag type 🍦	Value	Upload time	Record time	Quality
#MSYS_EdgeStatus	Discrete	1	2023-03-29 18:02:33	-	0
#SYS_UPTIME SYSTEMTAG_SYS_UPTIME	Analog	35778.33	2023-03-29 18:08:00		0
calc	Analog	312	2023-03-29 18:08:00	-	0
OS Operation System	Text	Linux	2023-03-29 18:02:34	-	0
os:arch CPU Architecture	Text	armv7l	2023-03-29 18:02:34		0
os:release OS Release Version	Text	4.9.65-rt23- g7069a470d5	2023-03-29 18:02:34		0
os:version OS Build Version	Text	#1 PREEMPT RT Tue Mar 21 05:33:40 UTC 2023	2023-03-29 18:02:34		9

2. For more detailed instructions on additional features, please refer to the relevant documentation of

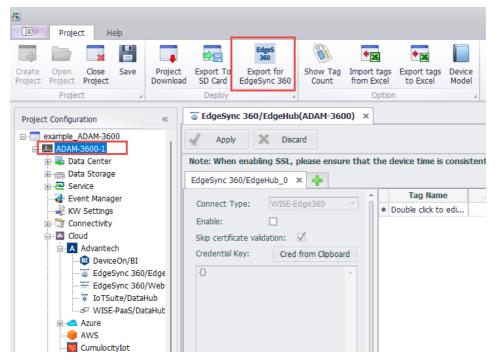
EdgeSync 360/EdgeHub

Downloading Edgelink-Studio generated project files to the gateway through EdgeHub

1. Uploading project files to EdgeSync 360/EdgeHub

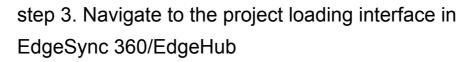
Method 1 : Uploading project files to EdgeSync 360/EdgeHub through EdgeLink Studio

step 1. Save the project and click "Export for EdgeSync 360"



step 2. After seeing the "Compile success" message, click "Copy Path"

MM-3600-1 tructions ter successful compliation, you o cition on the cloud platform to	Compile success	oath. The P				
ter successful compilation, you o	can view the generated Project.zacr file from the relevant (enable remote configuration of the gateway.	oath. The P				
ter successful compilation, you o	can view the generated Project.zacr file from the relevant ; enable remote configuration of the gateway.	oath. The P				
ter successful compilation, you on the cloud platform to	can view the generated Project.zacr file from the relevant enable remote configuration of the gateway.	oath. The P				
nction on the cloud platform to	enable remote configuration of the gateway.		roject.z	acr file can b	e imported through the fil	e managemer
	- Coen File				x	
Add Project		~	0 0	Search Downloads	Add Project * Required	
* Required			0	iii • 🖬		
	Organice - New folder	Date modified	Τγρ		Project Name *	
Project Name *		Date modified	9P	e 5/24		ure IoT Edge Modul
Project Name	ConeDrive V Earlier this year (23) ADAM3600_adv-recets_EdgeLink_28.3_Beta_230221706_v2.8.x.bin	2023/3/18/51		File 106	332.8	are tot toge mount
	B and the second second by the test of the second s	2023/3/1851			332 K 332 K	
Description	JD Objects Attabastility advantative Edgel ink 2.8.3 Reta 230221208 v2.8 v his	2023/3/1 8:50	BIN		053 N Description	
Description	Desktop ADAM6750_adv-rootfs_EdgeLink_2.8.3_Beta_230221709_v2.8x.bin	2023/3/1 8:50	BIN	File 105/	653 K Description	
	Documents ADAM6760D_adv-rootfs_EdgeLink_2.8.3_Beta_230221710_v2.8.x.bin	2023/3/1 8:47			,645 k	
	Downloads ECU1050_adv-rootfs_EdgeLink_2.8.3_Beta_230221711_v2.8.x.bin	2023/3/1 8:47			235 8	
File Name* Upload File	Music ECU1051_edv-rootfs_EdgeLink_2.8.3_Beta_230221712_v2.8.x.bin	2023/3/1 8-47	BIN		251 K File Name* 264 k Project zacr	
Upload File	Pictures ECU10518_adv-rootfs_EdgeLink_2.8.3_Beta_230221713_v2.8.x.bin ECU10518F_adv-rootfs_EdgeLink_2.8.3_Beta_230221714_v2.8.x.bin	2023/3/1 8-47 2023/3/1 8-46	BIN		244 k Project.zacr	G
	ECHIPSIPEE advectories Educations 19.2 Parts 20031175 v/2 Parkin	2023/3/1846	BIN		249.8	
Version*	ECUTOSIE advantific Educitie 28.3 Reta 230221716 v2.8 v bin	2023/3/1 8:46			259.8 Version*	
Version	data (D.) ECU1152 adv-rootfs EdgeLink 2.8.3 Beta 230222717 v2.8.x.bin	2023/3/1 8:46	Paste		193 8 Version	
	Work (E) ECU1251_adv-rootfs_EdgeLink_2.8.3_Beta_230222720_v2.8.x.bin	2023/3/1 8:46	Path	105,	193 K	
	-> Network Y K				>	
	File name	//	~ ALE	les (*.*)	* ·	
Cancel Save				Open Cancel		Cancel Sav
				open cance		Gander
					-	



Method 2 : Directly add the project file generated by EdgeLink Studio to EdgeSync 360/EdgeHub

step 1. Click on "File Management" in the EdgeSync 360/EdgeHub interface



step 2. Add the project file

← → C ● portal-dpm-qa-eks001.edge365.advantech.com/#/inu ■ WISE-Edge365 Image: Device Management - 2.0.5		ype=Project Q 년 ☆
File Management	Add Project * Required Project Name* Add Project Name* Add Project Name* Add Project Name* Description File Name* Upload File Uraslen* Uraslen* Uraslen*	© Open ← → → ↑ ↑ ■ Build → A3600_EC248989DAB Organize ▼ New folder ■ OneDrive - sdvan ■ This PC ■ 30 Objects ■ Decumenta ♥ Downloads ■ Potures ■ Vetros ■ Ucal Disk (C)
	Cancel	Local Disk (D:) File name Save

 Find the corresponding project file in EdgeSync 360/EdgeHub and click Add Dispatch

File Management	t						
EdgeLink Project							
+ Add Q		C					
Project Name	Version \div	Description ≑	Creator 🔶	Create time $\mbox{$\stackrel{\wedge}{_{\rm T}}$}$	Modified by $\ensuremath{\hat{\div}}$	Last modified 🔻	Actions
A3600_add_a_tag	1.0.0		Alger Tan	2023-02-10 17:14:55	Alger Tan	2023-02-10 17:14:55	
							Edit
							Delete
							Download
							Add Dispatch

3. Add a Dispatch, enter a dispatch name, and select the corresponding device

< Back Add "A3600_add_a_tag" Dispatch *Recurst	CANCEL	Data Source $ imes$
Information		Device List Device Group
Basic Information		Search Q
Name* Description Overwrite setting		1 Devices Selected: + Add
Device List (0)	•	ADAM-3600-C2GL1A1E-EC24B898DAB1 ADAM-3600-C2GL1A1E
		CONTAINER-C400ADED3D7B

4. Click "Submit" to confirm and submit the dispatch

< Back		
Add "A3600_add_a_tag" Dispatch * Required	CANCEL	SUBMIT
Information		<u> </u>
Basic Information		
Name* Description Overwrite A3600 setting		
Device List (1)		
Search		
Device Name 💠		
ADAM-3600-C2GL1A1E-EC24B898DAB1		

5. View the dispatch results

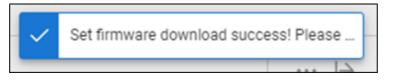
🛣 WIS	E-Edge365: Device Managerri 🗙 🕂				~ -	0 ×
$\leftarrow \ \rightarrow$	C portal-dpm-qa-eks001.edge365.advante	ch.com/#/index/edgeLinkManagement?edgeLinkManageEditType=Proj	ect	९ 🖻 ☆	C: 🛛 🛪	□ 😩 :
≡	WISE-Edge365 🛛 📓 Device Manag	ement - 2.0.9 👻				at
Fil	EdgeLink Project / Dispatch Task					$\left ight>$
		tch Status All 👻	_			
Proj	Device Name 💠	Result	Error Message	Created Time 🗵	Updated 1	Time
	ADAM-3600-C2GL1A1E-EC24B898DAB1	100%	•	2023-02-10 17:20:20	2023-02-1	0 17:20:28

Upgrading the image on the gateway through EdgeHub

- 1. Confirm that the device is online and click to enter the functional page.
- 2. Select the "OTA" feature
- 3. Click on "Firmware list" under "Firmware OTA" to view all files available for upgrade
- 4. Click on the "..." behind "2.8.30616" and select "Download And Upgrade"

My devices / Devices / ECU-1051TL-R10A-D4CA6EA0B	182			
Devices 1 Devices Batch Task ③	ECU-1051TL-R10A-D4CA6EA0B0	82 (Model:Edg	jeLink)	··· >
Device List (1) Device name Q Device status	0 🗮 🧭 🔤			
Device name 💠 🚺 Status 💠	Firmware OTA			
ECU-1051TL-R10A-D4CA6 Operation	Firmware list History Search 4 Q			н < 1/1 > н Rows per page 50 +
	FW version $\frac{A}{\Psi}$	FW state 🖕	Description $\frac{1}{2}$	Released time 🗘 🌀 Actions
	2.8.30616	Release	Beta_2306161080_v2.8.x.bin	2023-06-16 08:00:00
	2.8.30606	Release	Beta_2306051031_v2.8.x	2022.0 Download And Upgrade
	2.8.30523	Release	Beta_230523985_v2.8.x	2 6 23 08:00:00

5. You will see the message "Set firmware download success..."



6. At this point, the user can click on "History" under "Firmware OTA" to view the current upgrade status

	-R10A (by Alger)	4CA6EA0)B082 (I	Model:Edg	eLink)					$\cdots \; \mid \geq$
info Conne			۲۵۵۲ Event			ATO ATO				
Firmware OTA		-								
Firmware list	History									
Search		Q					С	⊣	Rows per page	50 👻
FW version $\frac{A}{\Psi}$	Result	D	escription 👙					Set time 👻	Updated time $\frac{\mathbb{A}}{\Psi}$	Editor
2.8.30616	Processing							2023-06-20 13:38:09	2023-06-20 13:38:50	AT

 Click on the "Refresh" button to refresh the current upgrade status until you see "Success", which means the upgrade was successful

(i) info	010 Connection	Taga		(ل) Event		OTA		
Firmware Firmwar		istory					Refresh	
							Retresh	
Search			Q				C × < 1/1 → × Rows per	page 50
Search	; Re	sult		scription \$			K ← 1/1 → K Rows per point of the first streng for streng for the first	page 50 Edito

parameter description

parameter	parameter description
Connection Type	MQTT type
Enable	Check the box to activate the connection for the current page, and the current page configuration will take effect
skip certificate validation	Check the box to skip the certificate validation

parameter	parameter description
Periodic Publish	Periodic Upload Mode: Enable, Disable, and start by tag
Periodic Publish	Periodic Upload Mode: Enable, Disable, and start by tag
Periodic Control Tag	Select the periodic upload control tag. Upload data when the value of the point is not 0; do not upload data when the value of the point is 0
Publish Period	Periodic Upload Period, units seconds
Diff Publish	Trigger Upload Mode: Enable, Disable, and start by tag Upload
Diff Control Tag	Select the trigger upload control tag. Upload data when the value of the point is not 0; do not upload data when the value of the point is 0
Detection Cycle	Detection Period for tag Change Detection
Diff Type	the type of Diff Publish

parameter	parameter description
Diff pub all tags	pub all tags in list when Diff Publish
Pub all after reconn	When EdgeLink establishes a connection with the cloud, does it upload the current values of all points once to the cloud, with enabling sending and disabling not sending? The default setting is enabling sending
Enable data resume	Enable switch for resume upload from break
Data before break	Default: 0, resume uploading data from the most recent n seconds before the disconnection
Data after reconnect	Default: 0, resume uploading data until the most recent n seconds after the reconnection
Delay before resume	Default: 120, resume uploading data after an interval of n seconds after the reconnection

parameter	parameter description
Bad Quality Tag	Upload mode for Tag Quality not equal to 0 (GOOD) : Pub * once; Pub * always; Still pub value; Don't pub

the parameter description of tag

Tag Name	Alias	Tag Type	Deadband	Deadband Type	Spa	Sp	Unit	Jitter Time(s)	Decimal Digits	Description
BoardIO:AI_0		analog	0	Absolute	1000	0		0	2	
BoardIO:AI_1		analog	0	Absolute	1000	0		0	2	
calc1		analog	0	Absolute	1000	0		0	2	
usertag1		analog	0	Absolute	1000	0		0	2	
Double dick to edi										

- **Tag Name**: Double-click this field to add or select a tag in the device.
- Alias: Set the name when uploading data. Use the tag name as the data name when the alias is empty.
- **Tag Type**: Displays the data type of the tag. This item is a read-only item and cannot be modified in this tag table. If you need to modify it, please modify the original tag attribute in the data center.
- Deadband Type: Used to configure the change detection method of tag values. There are two ways: absolute value and percentage. When the type is configured as an absolute value, the difference between the current tag value of the tag and the last uploaded tag value is taken as an absolute value and compared with the *Deadband*, and if it is exceeded, the tag is considered to have changed; When the

type is configured as a percentage, the difference between the current tag value of the tag and the last uploaded tag value is taken as an absolute value and compared with the last uploaded tag value. If the change exceeds the *Deadband*, the tag is considered to have changed.

- **Deadband**: Used to specify the Deadband value of the tag detection. The value change of the tag does not trigger the tag value change within the threshold.
- Unit: Read-only item, when the Deadband type is percentage, a percent sign is displayed to distinguish it from the absolute value.
- Jitter time: The unit is second. When the detected tag value exceeds *Deadband*, verification of *jitter time* will start. When the tag value is detected as exceeding the *Deadband* within the specified *jitter time*, it will be finally judged as a little value change, and the changed value will be uploaded at this time, otherwise it will be judged as tag value jitter. Not uploaded.
- **Decimal Digits**: The number of digits after the decimal tag for specifying the analog tag value. The default is 2. When the actual tag value has only one integer value, you can set this field to 0 to save data traffic.
- **Description**: The description of the tag. This item is a read-only item and cannot be modified in this tag

table. If you need to modify it, please modify the original tag attribute in the data center.

AWS

The AWS Cloud Service Plugin supports connecting to Amazon AWS IoT to upload tag values to the cloud.

Topic/Payload Schema: AWS -					
Thing Name:	AWS				

• **Thing Name**: Specify the corresponding 'things' name on this device on AWS IoT.

Others

Tag List

resume

export/import

Azure IoT Hub

Connect Type:	Azure IotHub
Enable:	
Lindbidi	E Edit
Use Socks5 Proxy:	Edit
Address Format:	Connection String 🔹
Connection String:	
	me;DeviceId=devicei y=sharedaccesskey
	Ψ.
Host Name:	hostname
Device ID:	deviceid
Shared Access Key:	sharedaccesskey
	· ·
Keep Alive(s):	60
Timeout(s):	30
Periodic Publish:	
Publish Period(s):	60
Diff Publish:	
Detection Cycle(s):	1
Diff Type:	Value Change Quality Change Timestamp Change

When connecting to the Microsoft Azure cloud, the connection type must be Azure IoTHub, and the client needs to configure the connection string provided by the cloud.

Users can directly edit the connection string, or generate a connection string by setting the attributes: Host Name, Device ID, and shared Access Key.

Since v2.8.1, the bottom layer of EdgeLink uses the Microsoft Azure IoT SDK to connect to the Azure IoT

Hub, so the communication-related parameters other than the connection string do not need to be set.

If you are using this plugin in the environment of an IoT Edge-launched EdgeLink Container, you do not have to enable resumable uploads, as IoT Edge will cache the transferred data.

This plugin supports the following Direct Method, please note that method names are case sensitive.

1. GetVersion - Get EdgeLink version information

Method Name: GetVersion

Parameters: none

Return Value: JSON object, where the Result parameter indicates whether the call result is successful or not, Success indicates success, and Error indicates failure. The content of the content parameter in the successful result is the EdgeLink version information, and the content of the Error parameter in the failure result indicates the reason for the failure. Please refer to the return value example below.

Example of return value when the call is successful:

```
{
    "Result": "Success",
    "Content": "ADAM-3600-C2GL1A1E Standard Edition ima
}
```

Example of return value when the call fails:

```
{
    "Result": "Error",
    "Error": "fail to read version file"
}
```

Remarks: None

2. PubAllTags - Publish all tag values in the tag list at once

Method Name: PubAllTags

Parameters: none

Return Value: None

Remarks: After the gateway receives this method call, it will immediately publish a message containing the current values of all tags in the tag list. Please note that the content of the message will not be returned from the direct method, but will be published to the data topic.

2. ReadTag - Read tag value

Method Name: ReadTag

Parameters: JSON object, including an array of tag names and related read parameters, where the tags parameter is a string array, including all the tag names that need to be read; the value_as_string parameter is a boolean value, used for control tags Whether the value is returned as a string, the default value is false, i.e. not returned as a string.

Example: The following call parameters will read three tags named tag1, tag2 and tag3 and return the tag value

as a string.

```
{
    "tags": ["tag1", "tag2", "tag3"],
    "value_as_string": true
}
```

Return Value: JSON object, where the tags parameter is the object type, including all requested tag values, each object parameter corresponds to a tag, the parameter name is the tag name, and the parameter value is the tag value.

Example:

When there is no value_as_string in the calling
parameter or its value is false, an example of the return
value is as follows:

```
{
    "tags": {
        "tag1": false,
        "tag2": 3.1415926,
        "tag3": 1.28
    }
}
```

When there is value_as_string in the call parameter and its value is true, an example of the return value is as follows:

```
{
    "tags": {
        "tag1": "0",
        "tag2": "3.1415926",
        "tag3": "1.28"
    }
}
```

Remarks: None

2. WriteTag - Write tag value

Method Name: WriteTag

Parameters: JSON object, including all the tag values to be modified, each object parameter corresponds to a tag, the parameter name is the tag name, the parameter value is the tag value, the tag value can be a string type or can is a numeric type or a boolean type.

Example:

```
{
    "tag1": false,
    "tag2": "3.1415926",
    "tag3": 1.28
}
```

Return Value: JSON object, where the Result parameter indicates whether the call result is successful or not, <u>Success</u> indicates success, and <u>Error</u> indicates failure. The successful result has no additional parameters, and the <u>Error</u> parameter in the failed result indicates the reason for the failure. Please refer to the return value example below.

Example of return value when the call is successful:

{
 "Result": "Success"
}

Example of return value when the call fails:

```
{
    "Result": "Error",
    "Error": "Cannot found tag handle!"
}
```

Others

Tag List

resume

export/import

LwM2M

The LwM2M cloud service plug-in is used to support the OMA Lightweight M2M protocol to implement remote management of devices on the cloud platform. See Supported Objects and Resources for the capability of this plug-in.

Settings

General Settings

General Setting	
🗹 Enable	
Server URI:	coap://leshan.eclipse.org:5683
Is Bootstrap Server	
EndPoint Name:	urn:advantech:edgelink
Registration Lifetime(s):	25
Bind to UDP Port	5683
Confirmable Notifications	

- Enable: Check to enable this plugin
- Server URI: Enter the full URI of the server.
- Is Bootstrap Server: If the server URI related to a Bootstrap Server, it should be checked here.
- EndPoint Name: Enter the end point name of this device. This name should be named according to the management rules of the server.
- **Registration Lifetime(s)**: Specify how often this device is registered with the server, in seconds.
- Band to UDP Port: Check this box and fill in the value of 1 ~ 65534 to band the Lightweight M2M

device to the specified port.

 Confirmable Notifications: Lightweight M2M messages can be sent as a Non-confirmable or as a Confirmable message, you can specify the behavior of the client by this option.

Security Mode

Security Mode		
No Security		
O DTLS with Certified	cates	
Client Certificate:	Load CA File	
Client Key:	Load Key File	
◎ DTLS with PSK		
PSK Identity:	PSK Id	Hexlified String
PSK Key:	PSK Key	Hexlified String

- No Security : Select this option to use an in-secure connection. In this case, the server URI should be filled with coap:// instead of the address starting with coaps://. Conversely, if you choose the two security options below, then the server URI should be filled with the address starting with coaps://.
- DTLS with Certificates : Use a secure connection for a given client certificate. Load the client certificate file in the client Certificate and load the client certificate key file in the Client Key.
- DTLS with PSK : Use the secure connection of the given PSK method. Please fill in the PSK string in PSK Identity. If the string is a hexadecimal format string, please check the Hexlified String option. Fill

the PSK Key with the PSK key and check the Hexlified String option as appropriate.

Tag List Settings

	Digital Input	Digital Output	Analog Input	Analog Output
	Instance ID		Tag Nan	1e
	1		BoardIO:DI_0	
×	2		BoardIO:DI_1	
	3		BoardIO:DI_2	
	4		BoardIO:DI_3	
*	*		Double click to ed	it

Currently, you can map the tag to the four I/O objects defined by the IPSO (Digital Input, Digital Output, Analog Input, Analog Output). In the four types of tag lists, double-click the tag name field and select the tag to be mapped in the dialog, then the tag will be added to the tag list.

The default Instance ID is automatically incremented, you can click the Instance ID field to modify it.

Supported Objects and Resources

```
<b>Object<b>
>b>Object ID<b>
<b>Object ID<b>
<b>Resource<b>
<b>Resource ID<b>
```

```
LwM2M Security
0
LWM2M Server URI
LWM2M Server URI
```

```
Bootstrap-Server
```

```
Security Mode
2
```

Public Key or Identity 3

Server Public Key 4

Secret Key 5

LwM2M Server 1 Short Server ID 0

Lifetime

Default Minimum Period 2

Default Maximum Period

Disable Timeout

Notification Storing When Disabled or Offline</td 6

Binding 7

Registration Update Trigger

```
Device
3
Manufacturer
40
```

Model Number1

Serial Number

Reboot 4

Error Code 11

Current Time

UTC Offset 14

Timezone 15

Device Type 17

Software Version

IPSO Digital Input 3200 Digital Input State 5500

Application Type 5750

```
IPSO Digital Output 
3201
Digital Output State
5550
```

Application Type 5750

IPSO Analogue Input 3202 Analog Input Current Value 5600

Application Type

IPSO Analogue Output 3203 Analog Output Current Value 5650

Application Type

Proud Smart

When connecting to the ProudSmart Cloud server, you need to configure the connection properties of the receiving server.

Topic/Payload Schema: ProudSmart v				
MQTT Account:				
Gateway ID:				
Device ID:				
PING Interval (s):	60			
Timestamp:	UTC Time 🔹			

- **MQTT Account**: MQTT account name. Required field.
- **Gateway ID**: The name of the gateway to use for the connection. Required field.
- **Device ID**: The device name of the project in ProudSmart Cloud. Required field.
- **PING Interval**: The interval at which the server sends a PING command.
- **Timestamp**: This option is used to control the timestamp representation format in the published message. UTC Time is expressed in UTC time and Local Time is represented in the local time of the device. For example, if the time zone of the device is set to East 8 (ie, Beijing time), the message is sent at 11:30:45 on January 1, 2018 Beijing time, then UTC

Time will be 2018-01-01T03:30:45+0000, and the Local Time will be 2018-01-01T11:30:45+0800.

Others

Tag List

resume

export/import

Simple MQTT

Simple MQTT provides a simple topic / load scheme in which topics can be defined by the user to test and verify MQTT data communications or to be applied to cloud services that require simple development. In addition to tag data upload and modification, Simple MQTT also supports the ability of the server to deliver messages of a specific topic to perform the specified commands for special application extensions.

The default simple MQTT publishing data payload format is as follows:

```
{
    "d":[
        {
            "tag":"AI.0",
            "value":12.00,
            "quality":0
        },
        {
            "tag":"AI.1",
            "value":12.00,
            "quality":0
        }
    ],
    "ts":"2017-12-22T08:05:20+0000"
}
```

· Among them

 "d" represents an array object that contains all reported tag information. Each tag is represented by an object. Its properties are as follows:

Attributes	Introductions	
tag	tag name	
value	tag current value	
Quality	tag current quality value (selectable via parameter switch)	

• "ts" is the timestamp of the message and follows the ISO 8601 standard.

The data retransmission of the disconnected SimpleMQTT packet is exactly the same as the data packet format of the real-time data. The difference is that the time stamp is obtained from the data record, not the current time.

Parameter settings

Data Topic:	data/device_id
Resume Topic:	data/device_id/r
Command Topic:	cmd/device_id
Payload Type:	Simple 🔻
Compress Payload:	No Compression 🔹
QoS:	1 •
Timestamp:	UTC Time (ISO-86 🔻
External Topic:	ext/device_id/logger
External Command:	logger %p

- **Data Topic**: Required fields that specify topics for publishing real-time data. To facilitate parsing of data packets from different devices on the cloud server, it is recommended to add the device unique identifier to the topic when setting this topic.
- **Resume Topic**: Optional, specifies the topic for publishing resuming data. If this field is not set, then the topic specified in Data Topic will be used.
- **Command Topic**: Optional, specifies the subject to receive the command. Publishing data from the cloud server to the topic can modify the tag value on the device. The format of the data is the same as the publishing format except that "d" is changed to "w". There can be no timestamp data in the write packet (that is, ts). If this field is not filled in, the device will not accept the command to modify the value of the cloud service.

The example of modifying the value of a packet is as follows: The following packet will write the value of AO_1 as 12.88 and the value of AO_2 as 18.76.

json { "w":[{ "tag":"A0_1", "value":12.88 }, { "tag":"A0_2", "value":18.76 }], "ts":"2017-12-

- Payload Type: This option is used to control the payload format.
- simple: The default payload type, no quality field in payload
- Simple with quality: The default payload type with quality field in payload
- compact: The compact payload type as below.
 {"ts":1451649600512, "values":{"tag1":"value1", "tag2":"value2"}}
- Compress Payload: This option controls whether to use GZIP to compress the message payload. By default, the payload is not compressed. If this option is set to GZIP compression, you must make sure that the cloud platform also uses the same GZIP method for decompression. At the same time, the cmd payload must also be GZIP compressed message content.
- **QoS**: This option is used to control the quality of service used when publishing messages. The default value is QoS 1.
- Qos 0: Distributed at most once, the distribution of messages depends on the capabilities of the underlying network. The recipient will not send a response and the sender will not retry. The message may or may not be delivered at all.
- Qos 1: Distribute at least once, the quality of service ensures that the message is delivered at least once.
- Qos 2: Distribute only once, which is the highest level of quality of service, and message loss and duplication are unacceptable. There is an additional overhead in using this quality of service level.
- Timestamp: This option is used to set the timestamp format in the published message.
- UTC Time (ISO-8601): UTC time in ISO-8601 format , such as 2018-01-01T03:30:45+0000
- Local Time (ISO-8601): Local time in ISO-8601 format, such as 2018-01-01T11:30:45+0800
- UNIX Time: UNIX time stamp format, such as 1600058903
- UNIX Time w/ MS: UNIX time stamp format with millisecond, such as 1600058903001

- External Topic: This option is used to set the topic for external command. If set, the device will subscribe this topic, and will execute the command specified in "External Command" when the message arrived.
- External Command: This option is used combined with the "External Topic", to specify the command line to be executed when message arrived. For example: logger %p, this command will output the message payload to syslog when it is executed. The command line can have arguments, the following patterns supported in the command line:
 - $\circ~$ %t: Topic, this pattern will be substitute by the topic when executing.
 - $\circ~$ %p: Payload, this pattern will be substitute by the payload when executing.
 - %pf: Payload file, this pattern will be substitute by a file contains the payload when executing.

Note: Don't use newline or one of [, &, ;, <, >, (,), {, } in the command string, and because of the MQTT application is running as unprivileged user, please don't specify any command needs to run in privileged mode.

Others

Tag List

resume

export/import

Custom MQTT

Custom MQTT provides a customized topic / payload scheme in which topic / payload can be defined by the user to test and verify MQTT data communications or to be applied to cloud services that require customized development. In addition to tag data upload and modification, Custom MQTT also supports the ability of the server to deliver messages of a specific topic to perform the specified commands for special application extensions.

Parameter settings

Data Topic:	data/device_id
Data Payload:	Configured …
Resume Topic:	data/device_id/r
🗹 Resume Payload	Configured …
Command Topic:	cmd/device_id
Compress Payload:	No Compression 🔻
QoS:	1 •
External Topic:	ext/device_id/logger
External Command:	logger %p
Will Topic:	data/device_id
Will Message:	will message

- **Data Topic**: Required fields that specify topics for publishing real-time data. To facilitate parsing of data packets from different devices on the cloud server, it is recommended to add the device unique identifier to the topic when setting this topic.
- Data Payload: Required fields that specify payload for publishing real-time data.

Payload Configuration instructions

- **Resume Topic**: Optional, specifies the topic for publishing resuming data. If this field is not set, then the topic specified in Data Topic will be used.
- **Resume payload**: Optional, specifies the payload for publishing resuming data. If this field is not set, then the load specified in Data Payload will be used.

Payload Configuration instructions

• **Command Topic**: Optional, specifies the subject to receive the command. Publishing data from the cloud server to the topic can modify the tag value on the device. The format of the data is as follows. Tags and Tags value are defined by the user. There can be no timestamp data in the write packet (that is, ts). If this field is not filled in, the device will not accept the command to modify the value of the cloud service.

The example of modifying the value of a packet is as follows: The following packet will write the value of AO_1 as 12.88 and the value of AO_2 as 18.76.

- Compress Payload: This option controls whether to use GZIP to compress the message payload. By default, the payload is not compressed. If this option is set to GZIP compression, you must make sure that the cloud platform also uses the same GZIP method for decompression. At the same time, the cmd payload must also be GZIP compressed message content.
- **QoS**: This option is used to control the quality of service used when publishing messages. The default value is QoS 1.
- Qos 0: Distributed at most once, the distribution of messages depends on the capabilities of the underlying network. The recipient will not send a response and the sender will not retry. The message may or may not be delivered at all.
- Qos 1: Distribute at least once, the quality of service ensures that the message is delivered at least once.
- Qos 2: Distribute only once, which is the highest level of quality of service, and message loss and duplication are unacceptable. There is an additional overhead in using this quality of service level.
- External Topic: This option is used to set the topic for external command. If set, the device will subscribe this topic, and will execute the command specified in "External Command" when the message arrived.
- External Command: This option is used combined with the "External Topic", to specify
 the command line to be executed when message arrived. For example: logger %p, this
 command will output the message payload to syslog when it is executed.
 The command line can have arguments, the following patterns supported in the
 command line:
 - %t: Topic, this pattern will be substitute by the topic when executing.
 - %p: Payload, this pattern will be substitute by the payload when executing.
 - %pf: Payload file, this pattern will be substitute by a file contains the payload when executing.

Note: Don't use newline or one of [, &, ;, <, >, (,), {, } in the command string, and because of the MQTT application is running as unprivileged user, please don't specify any command needs to run in privileged mode.

- Will Topic: Optional, specifies the topic for publishing will message.
- Will message: Optional, specifies the content for publishing will message.

Others

Tag List resume export/import

T-System

Connect to the Cloud Of Thing.

SSL need to Enable, SSL Scenario please chose Server Authentication, Port 8883.

Topic/Payload Scher	ma:	T-System	Ŧ
ICCID:			

• ICCID: Device unique identification ICCID.

Others

Tag List

resume

export/import

WebAccess

Topic/Payload Schema: WebAccess				
Group ID:				
Device ID:				
Heart Beat Period(s):10				
Publish Ctrl:	None 🔻			
Timestamp:	UTC Time 🔹			

- Group ID: The Group ID is a combination of the project name of the WebAccess Cloud and the SCADA name with an underscore "_", for example: MyProject_MySCADA.
- **Device ID**: The device name of the project in the WebAccess Cloud.
- **Heart Beat Period**: The period during which the client sends heartbeat information to the server.
- **Publish Ctrl**: Choose whether to upload data by Publish Ctrl.
- Timestamp: This option is used to set the timestamp representation format in the published message. UTC Time is expressed in UTC time and Local Time is expressed in the local time of the device. For example, if the time zone of the device is set to East 8 (ie, Beijing time), the message is sent at 11:30:45 on January 1, 2018 Beijing time, then UTC Time will be 2018-01-01T03:30:45+0000, and the Local Time will be 2018-01-01T11:30:45+0800.

Others

Tag List

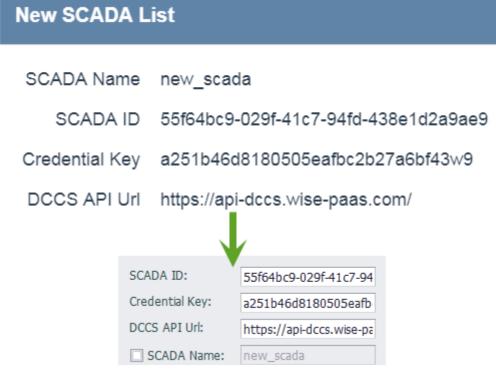
resume

export/import

WISE-PaaS/DataHub

The WISE-PaaS/DataHub plug-in supports sending tag data to WISE-PaaS/DataHub cloud service. It supports device configuration data upload in Plug&Play, and does not support modifying device configuration from cloud.

Because the WISE-PaaS/DataHub connection depends on the DCCS API to get the connection parameters, the basic connection parameters in the setting configuration will be ignored. Please copy and paste the DataHub ID, Credential Key and DCCS API Url generated on the website to the the corresponding field as following figure shows.



SCADA Name is optional. When not specified, the name of the gateway node configured in the project will be used.

WISE-PaaS/DataHub data uses a sub-device model to upload data. The name of the child device is distinguished by the colon (:) in the tag name or alias. The name before the colon is used as the child device name, and the name after the colon is used as the actual uploaded point name. If there is no colon in the name or alias, SCADA Name is used.

Data resume

Enable data resume:	\checkmark
Data before break(s):	0
Data after reconnect(s):	0
Delay before resume(s):	120

- Data before break(s) :0(default) Cache the data n seconds before disconnection and send it to the server after reconnection
- Data after reconnect(s) :0(default) Cache the data n seconds after reconnection and send it to the server after reconnection
- Delay before resume(s) :120(default) Wait n seconds after reconnecting to the server before starting data transmission

Others

Tag List

resume

export/import

DeviceOn/BI

The DeviceOn/BI cloud service plugin is used to upload data to the DeviceOn/BI platform.

Because the DeviceOn/BI connection requires the DCCS API to get the connection parameters, the connection parameters in the basic configuration will be ignored. Simply copy and paste the Gateway ID, Credential Key and DCCS API Url generated on the website into the corresponding fields to complete the connection configuration.

Gateway ID:	12345678-abcd-dcba-1:
Credential Key:	5b61e30bdff259c3852:
DCCS API Url:	https://api-dccs.wise-pa

Gateway Name is optional. When not specified, the name of the gateway node configured in the project will be used.

DeviceOn/BI data uses a sub-device model to upload data. The name of the child device is distinguished by the colon (:) number in the tag name or alias. The name before the colon will be the child device name, and the name after the colon will be the actual uploaded point name. If there is no colon in the name or alias, then Gateway Name will be used as the name of the child device.

Others

Tag List

resume

export/import

ThingsBoard

ThingsBoard is an open-source Internet of Things platform for data collection, processing, visualization, and device management. It supports device connectivity through protocols such as MQTT, CoAP, and HTTP, and offers both cloud and on-premise deployment options.

Others

Tag List

resume

export/import

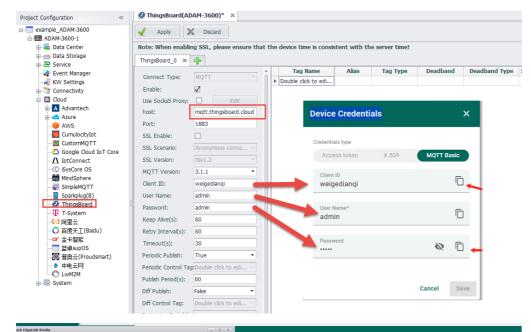
Steps:

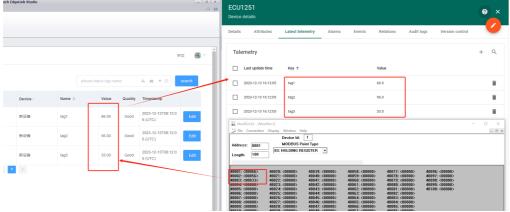
1. Log in to the ThingsBoard server and create a gateway device

ThingsBoard	🗔 Devices 🔸 🖬 All		Current subscription Things Status (Trial on	Board Cloud Maker 33	weigedlangl@outlook.com Tenant.administrator
🛧 Home	Cat All Cat Groups				
🖶 Plan and billing		Add new device	(2) ×		
\land Alarms	Devices \Xi Device Filter 🛛 💞 Inc	Device details	2 Credentials		+ C Q
🔡 Dashboards	Created time ↓ Name	Device details	Optional	Groups	Is gateway
III Solution templates NEW		Name* ECU1251			
🚓 Entities 📃 🔨					
🗔 Devices		Label			
E Assets		Device profile*			
🗰 Entity views		default	×		
🛍 Profiles 🗸 🗸		S gateway			
💵 Customers		-			
🕒 Users		Owner and groups			
🖸 Integrations center 🛛 🔺		Owner* weigedianqi@outlook.com	×		
 Integrations 					
13, Data converters		Groups			
<→ Rule chains					
😤 Edge management 🛛 🗸		Description			
& Advanced features			4		

	🗔 Devices 🔸 🗔 All				
♠ Home	🗔 All 🗔 Groups				
🖶 Plan and billing		Add new device	? ×		
\land Alarms	Devices \Xi Device Filter 🛷 In	c Device details	Credentials		
E Dashboards	☐ Created time ↓ Name	•	Optional		
III Solution templates		Credentials type Access token X.50	9 MQTT Basic		
🛦 Entities 🔥		Client ID			
🗔 Devices		weigedianqi	6		
Assets		User Name*	-		
IN Entity views		admin			
💼 Profiles 🗸 🗸		Password	0 5		
😕 Customers		admin	•		
😝 Users					
Integrations center					
➡ Integrations					
ू Data converters					
Install necessar		👌 Linux	ig shell Docker Documentation		
Execute the following command MQTT MQTTs mosquitto_pub -d -q 1 -h mqtt.thingsboard.cloud -p 1883 -t v1/devic 🔽					
State Active					

2. Connect to ThingsBoard





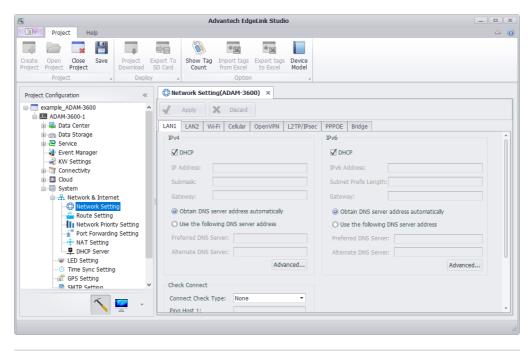
System Setting

System configuration in Advantech EdgeLink Studio includes network, LED, Time Sync, GPS, SMTP and Firewall setting.

Network and Internet

Network Settings

EdgeLink supports two network methods to achieve RTU communication with other devices, namely wired Ethernet transmission and wireless transmission. These two methods can be configured in EdgeLink Studio. In addition, it also includes settings for multiple network environments such as OpenVPN, L2TP / Ipsec, PPPOE, and bridging.

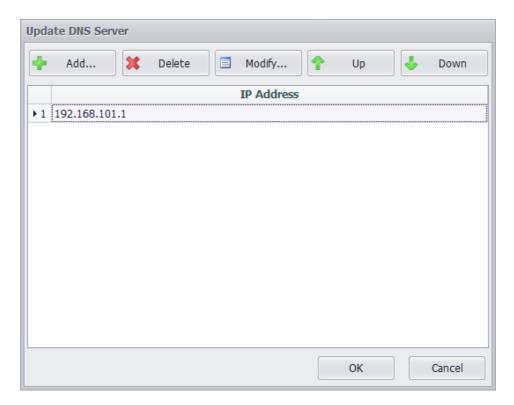


Wired Network Settings

EdgeLink has two Ethernet ports, which can be configured to support IPv4 and IPv6 network modes under the Ethernet network. In both modes, the user can set the RTU to DHCP or fixed IP.

Project Configuration «	③ Network Setting(ADAM-3600) ×		
	Apply X Discard		
🖶 🛼 Data Center 🛛 🕹 🕹	LAN1 LAN2 Wi-Fi Cellular OpenVPN L2TP/IPsec	PPPOE Bridge	
a Data Storage	IPv4	IPv6	
W Settings	☑ DHCP	☑ DHCP	
Connectivity 3	IP Address:	IPv6 Address:	
e⊡ Cloud ⊡	Submask:	Subnet Prefix Length:	
🖶 😤 Network & Internet	Gateway:	Gateway:	
Network Setting	Obtain DNS server address automatically	Obtain DNS server address automatically	
	\bigcirc Use the following DNS server address	○ Use the following DNS server address	
Port Forwarding Setting	Preferred DNS Server:	Preferred DNS Server:	
DHCP Server	Alternate DNS Server:	Alternate DNS Server:	
LED Setting () Time Sync Setting	Advanced	Advanced	
	Check Connect		
UCOM	Connect Check Type: None	5	
Firewall	Ping Host 1:		
	Ping Host 2:		
	Ping Host 3:		
	Retry Interval(min): 1		
1	Reboot system after 0 mins		

- 1. Open the "System Settings"-"Network and Internet"-"Network Settings" page.
- 2. Select to set a wired network information.
- 3. Check DHCP or uncheck, and write fixed IP information.
- 4. DNS settings. When selecting "Use the following DNS server address", in addition to entering "Preferred DNS server" and "Alternate DNS server", you can click the "Advanced" button to maintain more DNS information in the new window, including adding, deleting, modifying, and sorting. The top DNS server will be used first.



5. Set the network to check the connection information.Users can use the Ping IP / URL mode for network inspection, which requires the user to enter at least one ping target address. RTU will ping these destination addresses every once in a while. If you need to restart the RTU after judging that the connection is disconnected, you can check "Restart Device", and the RTU will restart after a period of disconnection.

Connect Check Type:	Ping IP/URL 🔻
Ping Host 1:	
Ping Host 2:	
Ping Host 3:	
Retry Interval(min):	1
🔲 Reboot system after	0 mins

6. Click apply to complete the configuration.

Wifi Network Settings

Wifi network supports two modes: client mode and AP mode, which can be set separately on the Wifi network setting interface.

LAN1	LAN2	Wi-Fi	Cellular	OpenVPN	L2TP/IPsec	PPPOE	Bridge				
E	nable										n
Wifi	Mode:	Clie	nt Mode		-						
Netv	work SSI).	nt Mode Mode			Connec	t Check T	ype:	None	~	
BSSI	D:					Ping Ho	ost 1:				
Secu	urity:	Ope	en		Ŧ	Ping Ho	ost 2:				
Pass	word:					Ping Ho	ost 3:				
Supp Mod	oorted			02E(RT5390)	(EOL)	Retry I	nterval(mi	n):	1		
1100			D-RYUW1 AX RYWD			Reb	oot syster	n after	0	mins	
IPv4						IPv6					
\checkmark	DHCP					V DH	СР				
IP /	Address:					IPv6 A	ddress:				
Sub	omask:					Subne	t Prefix Le	ength:			
Gat	teway:					Gatew	ay:				
٢	Obtain Di	NS serve	er address	automatically		i ob	tain DNS	server a	ddress automa	atically	
0	Use the f	following) DNS serv	er address		🔘 Us	e the follo	wing DI	NS server addr	ess	
Pre	ferred DI	IS Serve	er:			Prefe	rred DNS	Server:			
Alte	ernate Di	IS Serve	er:			Alterr	nate DNS :	Server:			
				Adv	/anced					Advanced	U
											Ψ.

Client Mode

Similar to the Ethernet port, the Wifi network client mode also supports IPv4 and IPv6 network mode settings. In these two modes, users can set the RTU to DHCP mode or fixed IP mode.

🖌 Apply 🗙 Discard	
Client Mode	PPPOE Bridge
BSSID: BSSID: Security: Password: Supported Model: Supported Model: Supported Supported Model: Supported Supp	A Ping Host 1: Ping Host 2: Ping Host 3: Retry Interval(min): Reboot system after
IPv4 ✓ DHCP IP Address: Submask: Gateway:	IPv6 IPv6 Address: Subnet Prefx Length: Gateway:
Obtain DNS server address automatically Use the following DNS server address Preferred DNS Server: Alternate DNS Server: Advanced	Obtain DNS server address automatically Use the following DNS server address Preferred DNS Server: Alternate DNS Server: Advanced
	Wifl Mode: Client Mode Network SSID:

- 1. Open the "System Settings"-"Network and Internet"-"Network Settings" page.
- 2. Select to set Wifi network information.
- 3. Users need to set the SSID name and security of the WLAN to join the network. There are 3 optional security modes for the network:
 - 1. Open : LAN is open. Users can enter the LAN without a password.
 - 2. WEP: A type of authentication that encrypts the LAN and requires a password.
 - 3. WPA/WPA2 PSK : A type of authentication that encrypts the LAN advanced and requires a password.

If you need to set the function of using the WIFI through the "MAC" address binding, you need to

select the "BSSID" check box on the page, and enter the MAC address of the AP in the text box behind it.

In addition, the page lists the wireless module information supported by the system.

4. Set the network to check the connection information. Similar to the Ethernet port, you can use the Ping IP / URL mode for network inspection, which requires the user to enter at least one ping target address. RTU will ping these destination addresses every once in a while. If you need to restart the RTU after judging that the connection is disconnected, you can check "Restart Device", and the RTU will restart after a period of disconnection.

Connect Check Type:	Ping IP/URL •
Ping Host 1:	
Ping Host 2:	
Ping Host 3:	
Retry Interval(min):	1
🔲 Reboot system after	0 mins

- 5. Similar to the Ethernet port, users need to check DHCP or not, write fixed IP information, and set the DNS information of the Wifi network.
- 6. Click apply to complete the configuration.

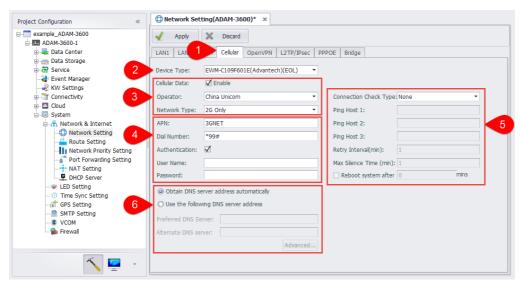
AP Mode

LAN1 LAN2 V	Vi-Fi Cellular	OpenVPN	L2TP/IPsec	PPPOE	Bridge			
🗹 Enable								
Wifi Mode:	AP Mode	AP Mode						
Network SSID:	WiFi AP	WiFi AP						
Channel:	6	6 🔹						
Security:	Open	Open 🔻						
Password:								
Max number stat	tion: 10							
Supported Model:	96PD-RYUW	EWM-W150H02E(RT5390)(EOL) 96PD-RYUW131 REYAX RYWDB00						
IPv4	IPv4							
DHCP	DHCP							
IP Address:	192.168.18	0.1						
Submask:	255.255.25	5.0						
Gateway:	Gateway:							
Obtain DNS	server addres	s automatically	,					
O Use the folk	owing DNS se	rver address						
Preferred DNS	Server:							
Alternate DNS	Server:							
		Adv	vanced					

In wifi ap mode, users need to fill in the network SSID, channel, security, password, maximum number of sites, supported wireless modules, IPv4 information.

Channel:	6	•
Security:	Auto	^
Password:	1 2	
	3	U
Max number stati	4 5	
Supported Model:	6	Ŧ
Model	2010 111011101	
Security:	Open	-
Password:	Open	
	WPA/WPA2 PSK	

Cellular Network Settings



- Open the "System Settings"-"Network and Internet"-"Network Settings" page, and select to set Cellular network information.
- Select the type of wireless data terminal used, that is, the module name. During project compilation, different scripts will be generated according to different terminal types.



3. Check the "Enable Mobile Data" selection box to enable RTU's GPRS function. Users can choose the operator supported by the wireless terminal, and can choose to connect to 2G, 3G, 4G mobile networks or wireless private networks.

Device Type:	EWM-C109F601E(Advantech)(EOL)	•
Cellular Data:	🗹 Enable	
Operator:	China Unicom	•
Network Type:	Auto China Unicom	
APN:	China Mobile Other	
81 H H	100 /	
Network Type:	2G Only	•
APN:	3G(prior)/2G 3G Only	
Dial Number:	2G Only	

- 4. Among the operators supported by the wireless terminal, if the user selects "Auto", the user does not need to enter the information such as APN, connection user name, password, and number; otherwise, the user needs to enter information such as APN, connection user name, password, and number. During project compilation, a set of scripts will be generated for each operator based on the default settings. EdgeLink will select the corresponding script to connect to the network according to the type of sim card inserted.
- RTU provides two connection judgment mechanisms, Ping IP / URL mode and monitoring data communication mode.
 - 1. Ping IP / URL mode requires the user to enter at least one ping target address. RTU will ping these destination addresses every once in a while. If you need to restart the RTU after judging that the connection is disconnected, you can check

"Restart Device", and the RTU will restart after a period of disconnection.

Connect Check Type:	Ping IP/URL •
Ping Host 1:	
Ping Host 2:	
Ping Host 3:	
Retry Interval(min):	1
Reboot system after	0 mins

2. In monitoring data communication mode, RTU will monitor the data transmission. If the time for no data transmission exceeds the maximum silence time, the RTU will determine that the connection has been disconnected. If you need to restart the RTU after judging that the connection is disconnected, you can check "Restart Device", and the RTU will restart after a period of disconnection.

Connection Check Type:	Monitor data traffic 🔹
Ping Host 1:	
Ping Host 2:	
Ping Host 3:	
Retry Interval(min):	1
Max Silence Time (min):	1
Reboot system after	0 mins

When setting the maximum silence time, please note that the maximum silence time should not be too long, otherwise it will affect the SIM card switching time. At the same time, when enabling "Restart Device", it is recommended that the

maximum silence time is less than half of the time to restart the device.

- 6. Set DNS information of GPRS network.
- 7. Click apply to complete the configuration.

Dual Network Card Configuration

On ADAM-3600-D1GL1 and other devices with dual network card functions, in addition to the above basic settings, you need to configure settings such as dual network card switching mode.

LAN1 LAN2 \	Vi-Fi Cellular OpenV	PN L2TP/IPsec	PPPOE	Bridge		
Device Type:	EWM-C109F601E(Adva	ntech)(EOL)	•			
Cellular Data:	🗹 Enable					
SIM1			2	Master SIM:	SIM1	•
Operator:	Auto		-	Switch Type:	○ None	
Network Type:	3G(prior)/2G		•	3	Ontrol Tag	()
APN:					Connection Check	
Dial Number:				Connection Che	ck Type: Monitor data traffic	-
Authentication:				Ping Host 1:		
User Name:				Ping Host 2:		
Password:				Ping Host 3:		
Obtain DNS se	rver address automatical	ły		Retry Interval(m	nin): 1	
🔘 Use the follow	ing DNS server address			Max Silence Tim	e (min): 1	
Preferred DNS Ser	ver:			Reboot syste	em after 0	mins
Alternate DNS ser	ver:					
		Advance				

- 1. Two network cards can be configured with different operators and connection information.
- Users need to select a network card as the default network card, and the device will connect to the default network card firstly when it starts.
- 3. Configure the switch mode of the network card

- No switching: No network card switching during operation
- Tag value control: Use the tag value to control the switch of the network card. When the value is 1, switch to the network card 1, and when the value is 2, switch to the network card 2. The rest will not be switched.
- Check the connection: Switch the network card according to the connection judgment mechanism, and switch the network card when the network connection fails.

OpenVPN Settings

OpenVPN can be set up to enable EdgeLink as a client to connect to the VPN server through a virtual private channel. OpenVPN is set in "System Settings"-"Network and Internet"-"Network Settings"-"OpenVPN".

Basic Settings

Server IP/Domain:	127.0.0.1		Certification Mode:	CRT/Key Pair	•
Server Port:	1194		CA File Path:		
Protocol:	тср 🔹		CERT File Path:		
Cipher:	BF-CBC(default)		KEY File Path:		
Network Name:	tun0 -				

Due to the need to connect to the VPN server, the following attributes need to be configured:

1. Server IP or domain name.

- 2. The port number used by the VPN connection is 1194 by default.
- 3. The transmission protocol used can be TCP or UDP.
- 4. There are three encryption methods for transmission: FB-CBC, AES-128-CBC and DES-EDE3-CBC.

Authentication Mode-CRT / Key Pairing

EdgeLink supports two authentication modes: CRT / Key pairing and username / password.

Certification Mode:	CRT/Key Pair
CA File Path:	
CERT File Path:	
KEY File Path:	

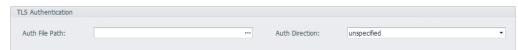
CRT / Key pairing requires the user to put the CA file, CERT file, and KEY file generated on the OpenVPN server on the computer where EdgeLink Studio is located. After loading this page, these three files will be downloaded to EdgeLink when the project is downloaded.

Authentication Mode-Username / Password

Certification Mode:	User Name/Password
CA File Path:	
User Name:	
Password:	

When using the user name and password to connect to the OpenVPN server, the CA file generated on the server is also required. It also requires the username and password assigned on the server.

TLS Authentication



- 1. When the connected OpenVPN server requires TLS authentication, you can enter the path of the authentication file in the authentication file field to enable TLS identity authentication.
- The value of the authentication direction should be complementary to the OpenVPN server. For example, when the server is "0", the client should select "1", or both ends should ignore this value.

L2TP/Ipsec Settings

L2TP / IPsec VPN can be set up to enable EdgeLink as a client to connect to the L2TP / IPsec VPN server through a virtual private channel. Set the L2TP / IPsec VPN in "System Settings"-"Network and Internet"-"Network Settings"-"L2TP / IPsec".

🖌 Apply 🗙	Discard					
LAN1 LAN2 Wi-Fi	Cellular (OpenVPN	L2TP/IPsec	PPPOE	Bridge	
Enable						
Server IP/Domain:	127.0.0.1			Server Port	:	1701
Protocol:	UDP			lpsec Work	Type:	tunnel 🔻
Client Setting						
Oynamic IP						
O Static IP						
Certification Mode						
X.509 Certificate	es					
CA File Path:						
CERT File Path:						
KEY File Path:						
O Preshared Key (PSK)					
Secret Key:						<u>ــــــــــــــــــــــــــــــــــــ</u>
						Ψ
PPP Authentication						
PPP Authenticat	tion:	🗹 СН	AP			
		PA	P			
		MS	-CHAP			
		MS	-CHAP-v2			
PPP Authenticat	tion User Na	me:				
PPP Authenticat	tion Passwo	rd:				

Basic Settings

Due to the need to connect to the VPN server, users need to configure the following attributes:

- 1. Server IP or domain name.
- 2. The port number used by the VPN connection, the default is% any.
- 3. The transmission protocol used can be TCP or UDP.
- 4. Ipsec working mode can choose tunnel or transport.

Client Settings

Set the way the client obtains the IP address: Dynamic IP is automatically assigned by the system, and static IP is set by the user.

When setting a static IP, make sure that the corresponding settings on the server side are correct, otherwise you cannot connect.

Authentication Mode

EdgeLink supports two authentication modes: certificate authentication and PSK.

Certificate authentication

Users need to put the CA file, CERT file, and KEY file generated on the OpenVPN server on the computer where EdgeLink Studio is located. After loading this page, these three files will be downloaded to EdgeLink when the project is downloaded.

PSK

Enter the key for authentication.

PPP Encryption Authentication

EdgeLink supports three PPP encryption authentication modes: no encryption, chap and pap.

When selecting chap and pap authentication, you need to enter the authentication user name and password. No input is required if you choose no encryption.

PPPOE Settings

Through the PPPOE setting, the LAN port can be used as a WAN port for dial-up Internet access. Set PPPOE in "System Settings"-"Network and Internet"-"Network Settings"-"PPPOE".

1	Apply	X	Discard				
LAN1	LAN2	Wi-Fi	Cellular	OpenVPN	L2TP/IPsec	PPPOE	Bridge
⊡ E	nable						
User	Name:						
Pass	word:						
Auth	enticatio	n:	🗹 СНА	Р			
			PAP				
			MS-0	СНАР			
			MS-0	CHAP-v2			
LAN:			LAN1			•	
DNS	Server:		Obta	ain DNS serve	r address auto	matically	
			🔘 Use	the following	DNS server ad	ldress	
Pref	erred DN	S Server:					
Alter	mate DN	S Server:					

Users need to fill in the PPPOE user name and password, select the authentication method to use (multiple choices), the network port to be set, and set the DNS server information to complete the PPPOE setting.

Network Bridge Settings

Network card bridge setting is supported on EdgeLink non-UNO and WISE710 Linux platforms. Set the network card bridge settings in "System Settings"-"Network and Internet"-"Network Settings"-"Bridge".

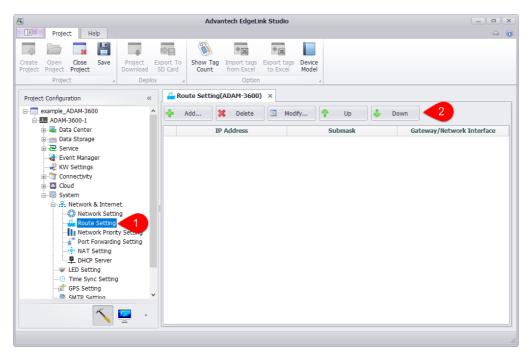
🖌 Apply	X Discard	
LAN1 LAN2	Wi-Fi Cellular OpenVPN L2TP/IP	sec PPPOE Bridge
Bridge Setting		
Bridge Name:	br0 -	
🗹 Enable Bridg	7 e	Binding Interface:
IPv4		ІРиб
DHCP		DHCP
IP Address:	192.168.0.100	IPv6 Address:
Submask:	255.255.255.0	Subnet Prefix Length:
Gateway:		Gateway:
🔘 Obtain DNS	server address automatically	Obtain DNS server address automatically
Ose the following of the second se	owing DNS server address	\bigcirc Use the following DNS server address
Preferred DNS	Server:	Preferred DNS Server:
Alternate DNS	Server:	Alternate DNS Server:
	Advanced	Advanced

The user needs to check whether to enable the bridge and set the bridge-associated network port and IPv4 and IPv6 information to complete the bridge setup.

Binding Interface:	•
IРvб	C (Select All)
🗹 DHCP	
IPv6 Address:	OK Cancel

Route Settings

In the case where multiple network cards have a gateway configuration, the preferred routing address will be selected according to the routing sequence set by the route. In the route setting panel, users can add, delete, and modify routing information, and adjust the order of routing information.

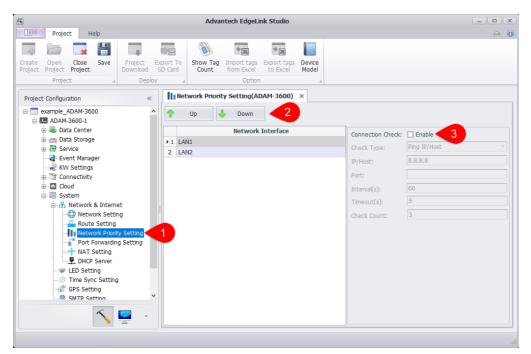


- Users can add, delete, modify and sort routes on the "System Settings"-"Network and Internet"-"Route Settings" page.
- 2. Configure routing information. In the routing information editing window, the user can choose to set the gateway or network card.

New Static Routing Infor	mation	
IP Address:		
Submask:		
Gateway		
Network Interface	Cellular	•
	ОК	Cancel

Network Priority Settings

Users can configure the network priority, which is the priority of the default route. The network cards on existing devices are listed in the network priority setting panel, and users can click the sort button to sort.



- 1. Open the "System Settings"-"Network and Internet"-"Network Priority Settings" page.
- Select the network card and click the "Move Up" or "Move Down" button to modify the network priority order.
- 3. Enable connection checking on the network.

According to the network priority setting, when the high priority network is not available, it will switch to the second priority network and update the routing table; when the high priority network is restored, switch back to the high priority network and update the routing table .

Connection Check:	🗹 Enable
Check Type:	Ping IP/Host 🔹
IP/Host:	www.baidu.com
Port:	
Interval(s):	60
Timeout(s):	5
Check Count:	3

- Inspection method: Ping IP / Host means to check the network connection by ping, and TCP Connect means to specify the TCP port through TCP protocol connection.
- IP / HOST: Users can fill in IP or Domain. It is recommended to fill in the public network IP / HOST. When setting Domain, if the network card is fixed IP, the user must set up a DNS server.
- Port number: Only TCP Connect requires the port number. Please fill in the corresponding port number.
- Inspection interval: the inspection cycle, in seconds.
- Time-out time: Time-out time when the check fails, in seconds
- Number of inspections: Switch the network card after the inspection failure exceeds this value.

Some servers are not allowed to ping. In this case, users can select TCP Connect as the check method. Taking wise-paas as an example, users can set it as follows:

Connection Check:	🗹 Enable
Check Type:	TCP Connect 🔹
IP/Host:	wise-msghub.eastasia.cloudapp.azure.com
Port:	8080
Interval(s):	60
Timeout(s):	5
Check Count:	3

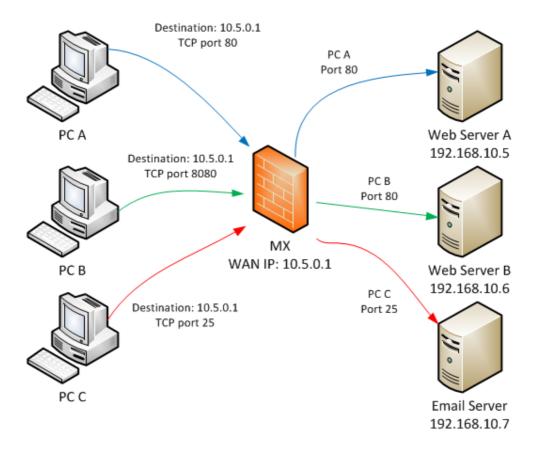
Gateway Function

When a device is used as a gateway, one network port is used to connect to the external network, and one or more network ports are connected to the internal network. EdgeLink supports port forwarding and NAT to help users manage the network more conveniently.

Port Forwarding

When a device is used as a gateway, the external network user cannot directly access the devices on the internal network. Users can set the mapping between the port of the external network port and the IP address of the internal network device by setting port forwarding on the router. That is, the gateway forwards the request to a specific port of the external network port of the gateway to the device of a specific IP address of the intranet through the intranet port, and the intranet device can be accessed by the external network.

Port Forwarding



As shown in the above figure, the device will forward the tcp request of port 80 with the external device IP of 10.5.0.1 to port 80 of the intranet device IP 192.168.10.5.

The device will forward the tcp request of port 8080 with the external device IP of 10.5.0.1 to port 80 of the intranet device IP 192.168.10.6.

The device will forward the tcp request of port 25 with the external device IP of 10.5.0.1 to port 80 of the intranet device IP 192.168.10.7.

The configuration in Studio is as follows:

外行	Weight and	内部网络 目的设备IP	内部网络 目的设备端口	协议	启用
10.5.0.1	80	192.168.10.5	80	TCP	True
10.5.0.1	8080	192.168.10.6	80	TCP	True
10.5.0.1	25	192.168.10.7	80	BOTH	True

Convert to iptables script as:

iptables -t nat -A PREROUTING -d 10.5.0.1 -p tcp --dpor iptables -t nat -A PREROUTING -d 10.5.0.1 -p tcp --dpor iptables -t nat -A PREROUTING -d 10.5.0.1 -p tcp --dpor iptables -t nat -A POSTROUTING -j MASQUERADE

The attributes that users can configure are as follows:

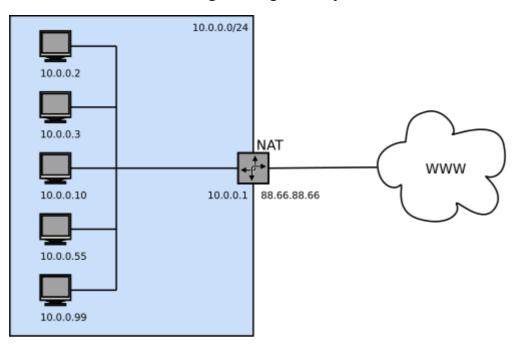
Port Forwarding Setting	
□ 启用	
协议 🗹 TCP 🗹 UDP	
外部网络	内部网络
● 兩口	目的设备 IP地址
ALL 🔻	192.168.1.1
〇 IP地址	目的设备 端口号
127.0.0.1	443
端口号	
6726	
	确定(O) 取消(C)

- Enable: When you select Enable, this configuration will be added to forward.sh.
- Protocol: You can choose to support either TCP / UDP or both.
- External Interface: Select to forward all access or only forward requests from specific network ports.
- External IP Address: Select to forward only requests for specific IPs.

- External Port: Set the port number to be forwarded, that is, the port requested by the external network.
- Internal Dest IP Address: Set the IP address of the intranet device to be forwarded to.
- Internal Dest Port: Set the port number of the intranet device to be forwarded to.

NAT Function

When using the device as a gateway, enable the NAT function to allow the intranet device to access the external network through the gateway.



Convert to iptables script as:

```
iptables -t nat -A POSTROUTING -j MASQUERADE -o eth0
```

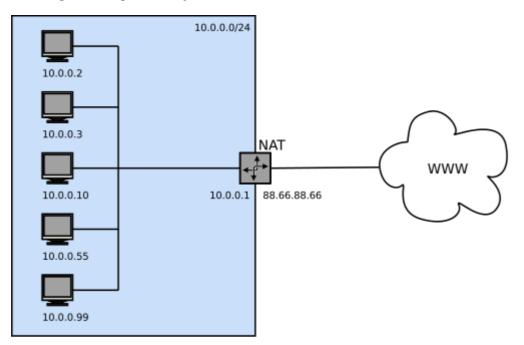
The attributes that users can configure are as follows:

NAT Setting	
Enable	
Name: NAT	
External	Internal
Interface	Interface
ALL 🔻	ALL
	OK Cancel

- Enable: When you select Enable, this configuration will be added to nat.sh.
- Name: You can choose to support either TCP / UDP or both.
- External Interface: Select to allow intranet devices to access the external network through a specific interface of the gateway, or access through all interfaces.

NAT Settings

When using the device as a gateway, the NAT function is enabled to allow devices connected to the network card from the internal network to access the external network through the gateway.



Converted to iptables script as:

```
iptables -t nat -A POSTROUTING -j MASQUERADE -o eth0
```

The user can configure the properties as follows:

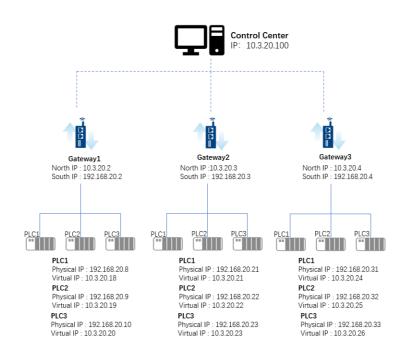
NAT Setting	
🗹 Enable	
Name: NAT	
External	Internal
Interface	Interface
ALL	▼ ALL ▼
	OK Cancel

- Enabled: When enabled, this configuration will be added to nat.sh.
- Name: You can choose to support only TCP or UDP or both protocols.
- External network-network port: Select to allow the internal network device to access the external network through the specific network port of the gateway, or can access through all network ports.

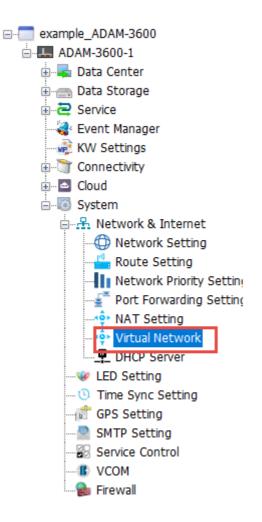
Virtual Network

Virtual network is used for remote operation and maintenance of PLCs. It establishes a network connection from the control center to the terminal PLC through configuration. That is, the control center and the PLC are set up in the same network through a virtual network.

Step 1: First, plan the virtual IP network based on the physical connections and network environment on-site, as shown in the example below:



Step 2: Open the EdgeLink Studio project -> System -> Network and Internet -> Virtual Network



Step 3: Complete the configuration and download the project to the gateway

Enable			
Gateway North I	P: 10.3.20.2		
Gateway South	P: 192.168.20.2		
IP Mapping:	🕂 💠 IP Address 💠 IP Range 🖙 Edit	🗱 Delete	
	Mapping Type	Physical IP	Virtual II
	 IP Address 	192.168.20.8	10.3.20.18
	IP Address	192.168.20.9	10.3.20.19
	IP Address	192.168.20.10	10.3.20.20
Shell Scripts;	route add 10.3.20.18 mask 255.255.255		

Parameter Description

Basic Configuration

🚰 Virtual Network	
🕑 Enable	
Gateway North IP:	10.3.20.2
Gateway South IP:	192.168.20.2

- Enable: Selecting enable will establish a virtual network according to the configuration.
- Gateway North IP: The network IP connecting the gateway to the control center.
- Gateway South IP: The network IP connecting the gateway to the southbound device.

IP Mapping Configuration

P Address 💠 IP Range	
	192,168,20,8
IP Address	192.168.20.9
IP Address	192.168.20.10
	Mapping Type IP Address IP Address

 IP Address Mapping: Add the mapping between physical IP and virtual IP (edit IP Address as you need).

8	IP Address Mapping	Rule		x
1	Add multiple: 1	👆 Add 🛛 🗱 Del	ete	
	Physical IP		Virtual IP	
ŀ	192.168.20.10		10.3.20.30	
L				
L				
L				
L				
L				
L				
L				
			ОК	Cancel

1. Click "Add" to add a mapping relationship.

2. After modifying the number of additions, click "Add" to add multiple mapping relationships at once.

3. Click "OK" to add the mapping relationships to the IP mapping table.

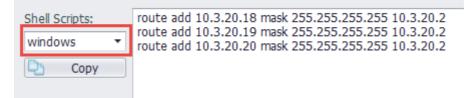
• IP Range Mapping: Edit the IP mapping range.

Edit the network segment and subnet mask bits of the physical IP and virtual IP to adjust the networking range.

🔏 IP Address Ra	nge Mapping Rule		x
Physical IP:	192.168.10.0	1	24
	192.168.10.0 - 192.168.10.255		
Virtual IP:	10.3.10.0	1	24
	10.3.10.0 - 10.3.10.255		
	ОК		Cancel

- Edit: Edit and modify the IP address mapping rules.
- Delete: Select one or more IP address mappings and click "Delete" to delete them.

Control Center Configuration



 The control center needs to add corresponding routes to implement the overall virtual networking application. Based on the IP mapping configuration, EdgeLink Studio automatically generates the corresponding control center route script (Windows and Linux versions). Copy this script to the control center computer and execute it on the command line.

DHCP Server Settings

DHCP (Dynamic Host Configuration Protocol) is a network protocol of a local area network. It refers to a range of IP addresses controlled by the server. When the client logs in to the server, it can automatically obtain the IP address and subnet mask assigned by the server. When the WIFI of this device is set to AP mode, users need to configure this service if they want the station connected to the AP to automatically obtain IP address and other related information.

Note: If you use this function on a fixed network card, please ensure that there is only one DHCP service in the whole LAN, otherwise it will cause abnormal IP allocation and make the entire LAN unable to work normally.

The user can configure the properties as follows:

DHCP	
Interface:	LAN1 -
Enable DHCP Server:	
Lease (s):	86400
Start IP Address:	192.168.180.20
End IP Address:	192.168.180.254
Subnet:	255.255.255.0
Gateway:	192.168.180.1
DNS:	8.8.8.8 8.8.4.4
	OK Cancel

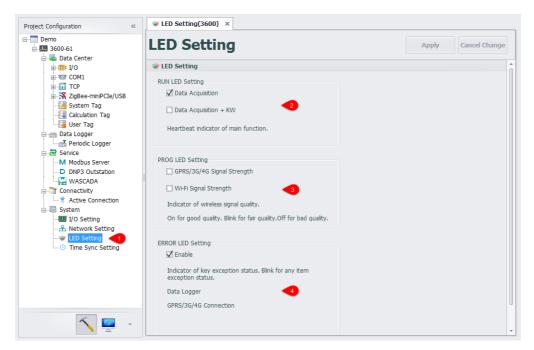
- Network port: Select to enable the DHCP Server function on a network port.
- Enable: Choose whether to enable this configuration.
- Lease time: The lease time of the DHCP server.
- Assign IP start address: Configure the start address of the range of IP addresses assigned by the DHCP server to clients.
- Assign IP end address: Configure the end address of the range of IP addresses assigned by the DHCP server to clients.
- Subnet mask: Configure the subnet mask assigned by the DHCP server to the client.
- Gateway: Configure the gateway assigned by DHCP Server to the client, generally the local IP of DHCP

Server.

• DNS: Configure the DNS address assigned by the DHCP Server to the client. Multiple DNS addresses are separated by spaces.

LED Setting

In this page, users can set the working modes of LED indicators on RTU, including RUN, PROG and ERROR.



- In the navigation bar, double-click on "LED Setting" of "System Setting" to open the edit page.
- 2. In the RunLED selection box, you can choose whether the RUN is enabled.

The RUN LED monitors the data acquisition and KW function. When the RUN flickers, it indicates that the main program is running normally.

3. In the ProgLED selection box, you can select whether the PROG is enabled or not.

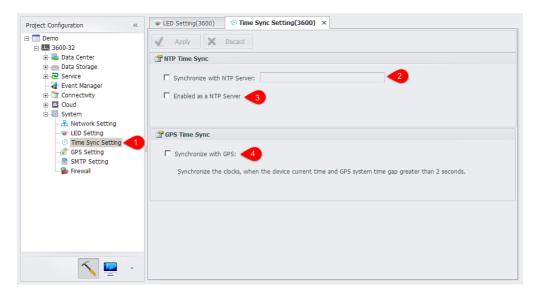
PROG lamp monitors the intensity of mobile signal or WIFI signal. The long light signal is good, the flicker signal is normal, and the signal is not bright. 4. In the ErrorLED selection box, you can choose whether the ERROR lamp is enabled.

When it is enabled, it will monitor whether the key modules are connected properly. When a module is abnormal, the ERROR light will flash. The modules that can be monitored include data storage module, mobile module and WIFI module.

When it is not enabled, the ERROR light will not light up, and users can write their own programs to use this light.

Time Sync Setting

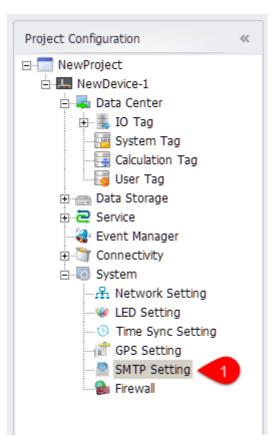
In this page, users can perform the time synchronization settings, making RTU time consistent with another time source. Meanwhile, users can also set RTU as a time synchronization source.



- 1. Double click the Time Sync Setting in the navigation bar to enter the configuration page.
- 2. The selection of "synchronization with the NTP server" allows the device to synchronize with a source, and the address of the source can be a domain name or a IP address.
- 3. Check "serve as a NTP server" to enable the device to be a time synchronization source and other devices to synchronize time with this device.
- 4. The user can choose to synchronize time through GPS.

GPS Settings

In the GPS settings, you can set the GPS module on RTU.



GPS Module

🖌 Apply 🗙 Di	scard
General Information	
☑ Obtain geographical in	formation by gps module
Module Name:	EWM-G108 - 2
🗹 Obtain geographical in	formation by preset value, before GPS module is working properly 🥑
Longitude(°):	0
Latitude(°):	0
Altitude(m):	0

- 1. Enable: enable the GPS module acquisition function, RTU will collect real-time location information, speed and angle through the GPS module.
- Module name: the GPS module type that can be selected. The program reads the module information from the configuration file .xml. When the module type is switched, the program sets the other properties as default values.
- 3. The preset latitude and altitude are used as the initial value before the GPS module works properly.
 Note! After the GPS module is working normally, if the unexpected situation occurs, such as: when the GPS module is pulled out and the GPS search star number is less than 3 stars, the longitude latitude and altitude value will be retained as the last normal value obtained when the position information is not available

GPS Default Mode

🖌 Apply 🗙 Dis	scard			
General Information				
Obtain geographical inf	ormation by gps module			
Module Name:	EWM-G108	•		
🗹 Obtain geographical information by preset value, before GPS module is working properly				
Longitude(°):	0			
Latitude(°):	0			
Altitude(m):	0			

1. The user can choose not to use the GPS module, but the preset RTU location information. Users can also choose not to use preset location information, and GPSManager modules will not be started at RTU.

GPS System Tag

After the GPS function is enabled, location information will be stored in the system tag.

#GPS_LATITUDE	Analog	degrees	Latitude for the GPS module
#GPS_LONGITUDE	Analog	degrees	Longitude for the GPS module
#GPS_ALTITUDE	Analog	m	Altitude for the GPS module
#GPS_SPEED	Analog	knots	Speed for the GPS module
#GPS_COURSE	Analog	degrees	Course for the GPS module
#GPS_SATELLITE	Analog		Status of the GPS module: 0-error state, 1-use GPS module working, 2-use a preset location information

The current working state of the GPS module is saved in GPS_SATELLITE

- When the value is 0, the GPSManager module in RTU is not started, or GPSManager is in error mode.
- The GPS module works when the value is 1.
- When the value is 2, the default location information is used to set the GPS _LATITUDE, GPS _LONGITUDE, GPS _ALTITUDE, and the GPS_SPEED and GPS_COURSE values are 0.

GPS Time Synchronization

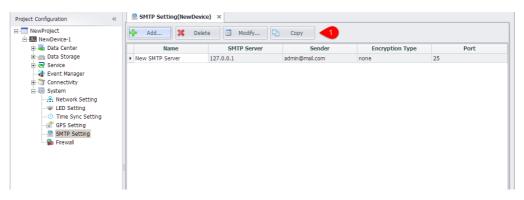
After the GPS function is enabled, you can use GPS to synchronize RTU time

Apply X Discard
MTP Time Sync
Synchronize with NTP Server: time.windows.com
Enabled as a NTP Server
GPS Time Sync
Synchronize with GPS:
Synchronize the clocks, when the device current time and GPS system time gap greater than 2 seconds.

- 1. You can choose at most one time synchronization mode.
- 2. When the gap between the GPS time and the RTU time is greater than the "calibration interval", the device time is synchronized with the GPS time.

SMTP Settings

In event management, you need to set up SMTP before sending the time message by mail.



- 1. In the device -> system Settings ->SMTP Settings node double click to open the edit interface.
- 2. Users can add, delete, modify SMTP, and copy existing SMTP settings.
- 3. The existing SMTP Settings are shown in the list, and double-clicking on the selected row can also open the edit interface

SMTP Editor

SMTP	
Name:	New SMTP Server
SMTP Server:	127.0.0.1
Sender:	admin@mail.com
User Name:	
Password:	
Confirm password:	
Encrypt Type:	None 🔻
Port:	25
	OK Cancel

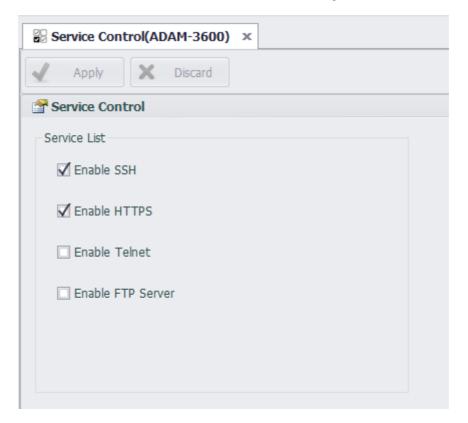
- 1. SMTP Name: used only in EdgeLink Studio
- 2. SMTP server: enter IP or domain name
- 3. Sender: the sender's mailbox address that is displayed when the message is received
- 4. User name: the user name needed to connect to the SMTP server
- 5. Password: the password needed to connect to the SMTP server
- 6. Confirm password: you need to type in the same password again
- 7. Encryption mode: you can choose either unencrypted or SSL, TLS two encryption methods
- 8. When the option is encrypted, the default port is 25.
 When you select SSL encryption, the default port is 465, and when you select TLS encryption, the default port is 587.

Service Control

Set the following services in system startup or not.

SSH and HTTPS is enabled by default.

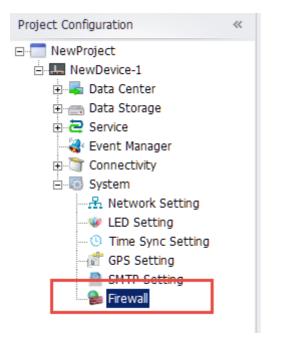
Telnet and FTP server is disabled by default.



Firewall Settings

In "firewall settings", you can restrict the network port of the device and only allow the set IP address to access the specified port.

When the firewall is started, only the connections in the firewall list are allowed to access the device.



Firewall List

	Tirewall Setting							
v	☑ Enable Firewall							
	🔶 Add 🔀 Delete 🔲 Modify							
Name Local Service			Socket Type	Port	Network Interface	Allowed IP		
۲	Project Download/Upl	Project Download/Upl	тср	6001	ALL	All IP		
	Device Search	Device Search	UDP	6513	ALL	All IP		
	HTTPS	HTTPS	тср	443	ALL	All IP		
	iCDManager	iCDManager	тср	7001	ALL	All IP		

After the new device is built, the firewall will start by default and include "project upload/download", "search device" and "HTTPS" three local services. "Project

upload/download" and "search device" are required for local services, and at least one of these services needs to be kept.

Add firewall settings

Click the add button in the firewall list interface to add firewall Settings.

Firewall Setting	J			
Name:	Special		Allowed access from IP address	3
Local Service:	Special	- 🕘	IP Address	+
Socket Type:	ТСР	3	127.0.0.1 127.0.0.0-127.255.255.255	-
Port:	0	4	127.0.0.0-127.255.255.255	
Allowed acces	s from network interface: 🥠			9
	ALL	•		
			10 ОК Сан	ncel

- 1. The name of this configuration, by default, is the same as the "local service" name, and the user can modify it.
- Local services include "project upload/download", "search device", "HTTPS" and the enabled "Modbus", "IEC104" and other services. Users can also select "custom" to set.

Firewall Setting		
		1
Name:	Special	
Local Service:	Special 🔹]
	Special 🔺	
Socket Type:	iCDManager	
Port:	Device Search	
Port:	Project Download/Upload	
	HTTPS	
Allowed access	SSH Telnet	
	ALL 🔻	1

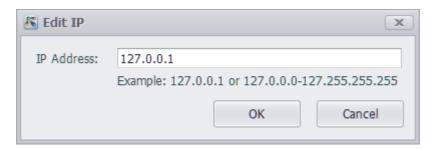
3. Users can set "TCP" or "UDP" access restrictions.

Socket Type:	тср	•
	UDP	
Port:	TCP	

- 4. Set the port number that allows you to pass through the firewall, in the range of 0-65535.
- 5. Set to allow specific network access devices.

AL	L			
AL	L			
Ce	llular			
W	i-Fi			
LA	N1			
LA	N2			
Op	enVPN			

- Users can choose to allow all IP access to this device through the previous configuration. You can also choose to only allow specific IP access.
- Users can click "+" to add the allowed IP address.
 When you add, you can enter the IP address or IP range.



- 8. Users can click "-" button to delete the selected IP address.
- 9. The added IP address or IP range can be displayed in the IP list, and the user can double-click the IP list to edit options.
- 10. After setting, click "OK" button to save the settings.

Default Settings for Local Services

The firewall contains local services including "Modbus", "DNP3", "IEC104", "BACnet", "NTP". These services will add this service when enabled the default settings to the firewall restrictions.When the service is disabled, all relevant settings in the firewall will be removed.

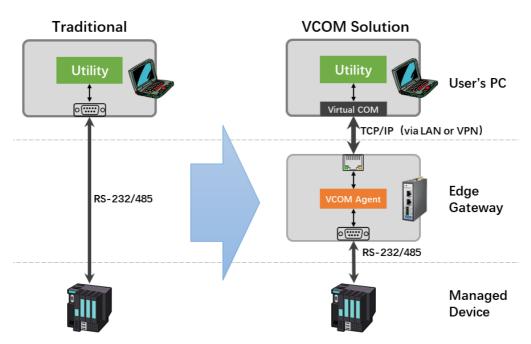
Name		Local Service	Socket Type	Port	Network Interface	Allowed IP
Project Downlo	ad/Upl P	Project Download/Upl	тср	6001	ALL	All IP
Device Search	C	Device Search	UDP	6513	ALL	All IP
HTTPS	F	HTTPS	тср	443	ALL	All IP
iCDManager	i	CDManager	тср	7001	ALL	All IP
NTP Server	N	NTP Server	UDP	123	ALL	All IP
BACnet Server	E	BACnet Server	UDP	47808	ALL	All IP
IEC104 Channel	1 I	EC104 Channel 1	тср	2404	ALL	All IP
DNP3 Outstatio	n D	ONP3 Outstation	тср	20000	ALL	All IP
Modbus Server	N	Aodbus Server	TCP	502	ALL	All IP

VCOM Manager Setup File download link: https://www.advantech.tw/support/details/utility?id=1-24KJ5E7

VCOM Instructions

1. Introduction

VCOM is Virtual COM, through the VCOM function provided by the gateway, users can map the remote serial port device to the virtual serial port of the PC, as shown in the following figure. In this way, users can directly manage and maintain the device through serial port communication. Generally speaking, the serial port communication software of the managed device can be directly used on the mapped virtual serial port.



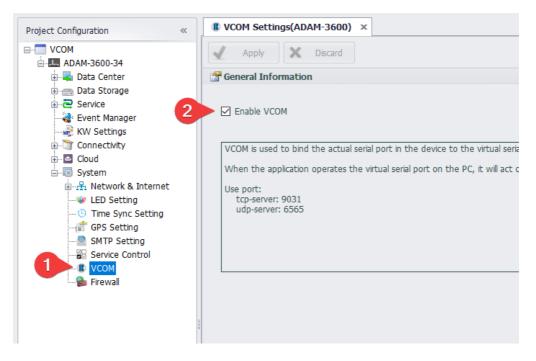
When using VCOM, please note the following:

 The VCOM function is designed for the purpose of remote device maintenance. It is suitable for applications that are not sensitive to communication delay and not long operation time applications, such as parameter configuration, firmware update, etc. Do not use it as a remote serial server.

- The delay and stability of the virtual serial port depend on the characteristics of the TCP connection. If the TCP connection is via a cellular wireless network or other high-latency links, please adjust the communication timeout parameters of the serial port device supporting application software.
- 3. If the serial port on the gateway has been configured as a port occupied by the data acquisition program, then due to the exclusive use of the serial port, after the serial port is bound by VCOM, the data acquisition program will stop data collection until the serial port is unbound, the data collection will be resumed.

2. Enable the VCOM function on the gateway

The VCOM function on the gateway is disabled by default. It can be enabled through the VCOM configuration item in the EdgeLink Studio. After downloading the project, the VCOM function can be enabled.

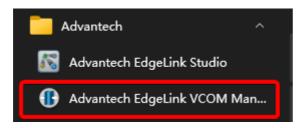


3. VCOM Management Program

The VCOM management program is an independent installation package. You can download the setup file from this site:

https://www.advantech.tw/support/details/utility?id=1-24KJ5E7.

After the installation is complete, you can find the shortcut of the Advantech EdgeLink VCOM Manager program in the startup item of the system start menu, as shown in the figure below.

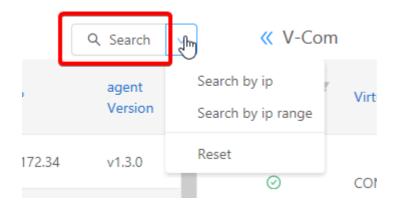


The main interface of the VCOM management program is shown below. The left half shows the information of the online device, including the device name, device IP, version number of the serial port agent (vcom-agent) and the list of physical serial ports contained in the device. The right half shows the list of virtual serial ports currently created by the management host, including the status of the device serial ports bound to the virtual serial ports.

Advante	ch EdgeLink VCOM M	lanager									- 0	>
Virtu	al COM Ma	nager							Show Device 💽	English	× 0	
Devi	ce		Q Search	v	≪ V-Com						C Reload	
	Device Name	Device IP	agent Version	Ç	Enable *	Virtual Com	Device Name	Device Q IP	Remote Com	Status 🔻	Action	
-	ADAM-3600-C2GL	.1A1E 192.168.172	.34 v1.3.0	^	Ø	COM7	ADAM-3 600-C2G	192.168. 172.34	COM1	• onlin e	80	ø
	Remote Com	Virtual Com	Action				L1A1E					
	COM1	COM7	Unbound							<	1 >	
	COM2		Bound	~								

3.1 Searching for online devices

Click the search button on the interface to search for online devices in the local area network that have enabled the VCOM function. If the device is not in the local area network, you can use the drop-down menu to select search by IP Or Search by IP Range, the Reset command in the drop-down menu can be used to clear the current search criteria and device information list.



3.2 Bound device serial port

In the device list, click on the left of the target device sign button, you can see a list of physical serial ports of the device, click on the right side of the serial bind command to complete the binding. During the binding process, the VCOM management program will create a new virtual serial port on the management host (the system will automatically assign an unoccupied serial port number, which cannot be specified manually).

Devi	ce				Q Search	~
	Device Name		Device IP		agent Version	Ŷ
-	ADAM-3600-C2GL1	IA1E	192.168.172	.34	v1.3.0	^
	Remote Com	Virtua	al Com	Ac	tion	
	COM1	COM	7		Unbound	l
	COM2			Γ	Bound	~
				_		

The bound serial port is displayed in the V-Com list on the right side of the main interface, as shown in the figure below.

≪ V-Com					C Reload
Enable	Virtual Com	Device q Name	Device _Q IP	Remote Com Q	Status Action
\odot	COM7	ADAM-3 600-C2G L1A1E	192.168. 172.34	COM1	Unbound Disable onlin e Monitor

For the virtual serial ports that have been bound, there are three operations to choose: Unbound, Disable and Monitor.

- Unbound: Unbound the virtual serial port and the physical serial port, and delete the virtual serial port from the management host.
- Disable: Unbound the virtual serial port and the physical serial port, but retain the virtual serial port in the management host, which can be re-bound if necessary.
- Monitor: Display the monitoring screen of the virtual serial port, from which you can see the data bytes sent and received by the application program using the serial port for debugging.

3.3 Unbound the serial port

As mentioned above, the VCOM function is designed for the purpose of remote device maintenance. When the remote device maintenance task is completed, the serial port binding should be released in time, otherwise it will affect the normal operation of the data acquisition program. The unbound operation can be completed by unbounding the corresponding physical serial port in the device list on the left half of the main interface. It can also be done through unbounding the corresponding virtual serial port in the V-Com list on the right half. The results of these two operations are exactly the same, as shown in the figure below.

Advanted	ch EdgeLink VCOM M	anager									- 🗆	>
Virtu	al COM Ma	nager							Show Device 🔵	English	× 0	
Devic	ce		Q Search	~	≪ V-Com						C Reload	
	Device Name	Device IP	agent Version	$\hat{}$	Enable	Virtual Com	Device q Name	Device Q IP	Remote Com	Status 👻	Action	
-	ADAM-3600-C2GL	1A1E 192.168.17	72.34 v1.3.0	^	\odot	COM7	ADAM-3 600-C2G	192.168. 172.34	COM1	• onlin	_& 0	ø
	Remote Com	Virtual Com	Action				L1A1E	112104				
	COM1	COM7	Unbound -	_						<	1 >	
	COM2		Bound			Unb	ound -					

3.4 Disable/Enable serial port bound

If you just want to unbound the serial port temporarily and reserve the virtual serial port for future rebinding, you can use disable, as shown in the figure below.

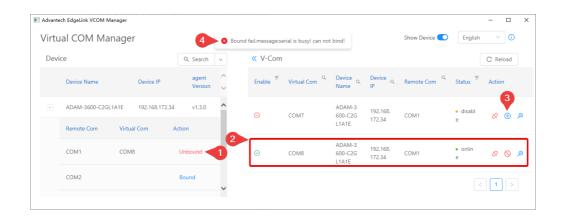
										- 🗆	×
al COM Ma	nager							Show Device 🔵	English	× 0	
e		Q. Search	~	« V-Com						C Reload	
Device Name	Device IP			Enable	Q. Virtual Com	Device Q Name	Device Q IP	Remote Com	Status 🔻	Action	6
ADAM-3600-C2GL	1A1E 192.168.1	72.34 v1.3.0	^	\odot	COM7	ADAM-3 600-C2G	192.168. 172.34	COM1	• onlin e		, 0
Remote Com	Virtual Com	Action				LIAIL					
COM1	COM7	Unbound							<		
COM2		Bound									
	2 Device Name ADAM-3600-C2GL Remote Com	Device Name Device IP ADAM-3600-C2GL1A1E 192.168.1 Remote Com Virtual Com COM1 COM7	Periode Name Periode Name Periode IP agent Version ADAM-3600-C2GL1A1E 192.168.172.34 v1.3.0 Remote Com Virtual Com Action COM1 COM7 Unbound	Perice Name Device IP agent Version	e C Search V Device Name Device IP agent Version C Enable C ADAM-3600-C2GL1A1E 192.168.172.34 v1.3.0 Remote Com Virtual Com Action C C M C M C M C M C M C M C M C M C M	Perice Name Device IP agent Version	Q. Search Name Device IP agent Version Name Enable Virtual Com Device Q ADAM-3600-C2GLIA1E 192.168.172.34 v1.3.0 COM7 COM7 ADAM-3 600-C2G LIA1E COM1 COM7 Unbound	Perice Name Device IP agent Version Common C	Perice Name Device IP Device IP agent Version ADAM-3600-C2GL1A1E 192.168.172.34 v1.3.0 Remote Com Virtual Com Action COM1 COM1 COM1 COM1 CoM1 Common Virtual Com Action Common Virtual Com Action Common Common Virtual Com Action Virtual Com Action Virtual Com Action Common Virtual Com Action Virtual Com Vortual Com Virtual Com Virtual Co	Q Search Device Name Device IP ADAM-3600-C2GL1A1E 192.168.172.34 v1.3.0 Remote Com Virtual Com Action COM1 COM1 COM2	a Q. Search Device IP agent Version ADAM-3600-C2GLIA1E 192.168.172.34 v1.30 Action Remote Com Virtual Com Virtual Com Action COM1 COM7 Unbound

After disabling, the virtual serial port will not disappear, which means that the virtual serial port still exists. But its status information will become disable, as shown in the figure below, the original disable button will also become an enable button, which is used to rebind the virtual serial port.

dvante	ech EdgeLink VCOM Manager										- 0
/irtu	ial COM Manage	er							Show Device 🔵	English	× 0
Devi	ice		Q Search	~	≪ V-Com						C Reload
	Device Name	Device IP	agent Version	÷	Enable ^T	Virtual Com	Device q Name	Device Q IP	Remote Com	Status 👻	Action
-	ADAM-3600-C2GL1A1E	192.168.172.34	v1.3.0	^	Θ	COM7	ADAM-3 600-C2G	192.168. 172.34	COM1	• disabl	Enabl
	Remote Com Virtu	ual Com A	tion				L1A1E				
	COM1		Bound							<	1 >
	COM2		Bound								
				~							

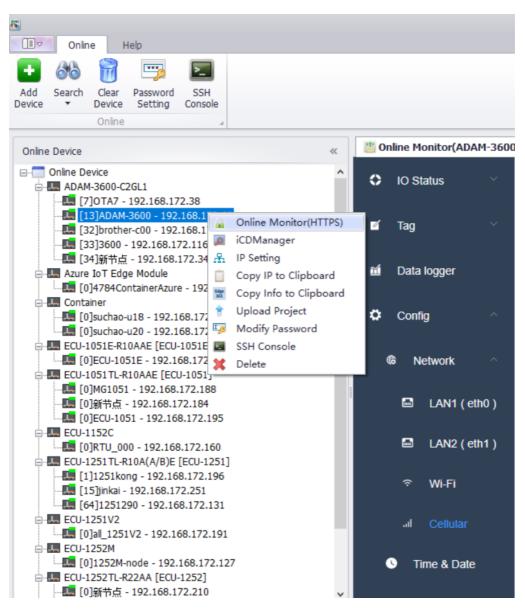
It should be noted that the disabling operation will cause the binding relationship between the physical serial port and the virtual serial port to be released. So when the virtual serial port is disabled, the binding operation on the corresponding physical serial port in the device information interface on the left can be executed. If the binding operation is performed on the physical serial port at this time, it will be bound to a newly generated virtual serial port, as shown in the following figure:

- 1. Click the Bind operation on the physical serial port
- 2. A new virtual serial port will be generated and bound to it
- 3. At this time, try to re-enable the previously disabled virtual serial port
- 4. You will receive an error message indicating that the binding failed, indicating that the physical serial port has been occupied



Online Functions

Advantech EdgeLink Studio supports online device operations and has the following main functions:



- 1. Add Device、Search、Clear Device
- 2. This password is used for Project download and online login (default password 0000000).
- 3. Online Monitor:IO Status、Tags、DataLogger、 Config、System Log

- 4. Set device IP address online (reboot expired)
- 5. Copy current device IP address to clipboard
- 6. Copy the current device information to the clipboard (used when creating the device in Edge365)
- 7. Upload the current device project to the local computer
- 8. SSH access
- 9. iCDManger

Online Configuration

- 1. Add Device
- 2. Search Device
- 3. Clear Device
- 4. Password Setting
- 5. IP settings (reboot expired)
- 6. Copy the current device IP address to the clipboard
- 7. Copy the current device information to the clipboard (used when creating the device in Edge365)
- 8. Upload the current device project to the local computer
- 9. SSH access
- 10. iCDManger

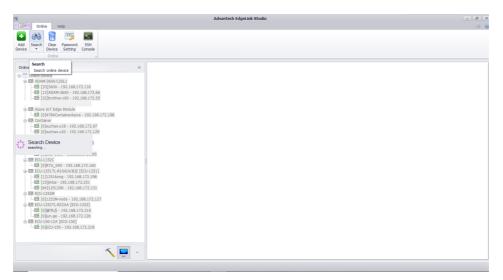
Add Device

Add devices by IP address, one device at a time

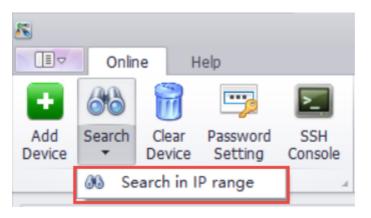
8					
	Onlin	ne H	lelp		
÷	66	8		2	
Add Device	Search	Clear Device	Password Setting	SSH Console	
		Online			
Add No	de				
Devi	ice IP:				•
			ОК	(Cancel

Search Device

1. Search for all devices in the network and list them in the online list.



2. Users can also choose to search within an IP range when searching.

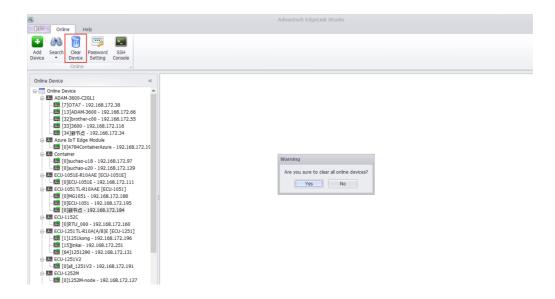


3. Multiple network segments can be added to search at the same time, and the program will send search commands to each IP in the IP range in turn, which can search for devices across the router.

Sear	rch Device			
IP	Range:			💢 Delete
	IP Start	-	IP End	
	10.0.0.1	-	10.0.200	
I	12.0.0.1		12.0.0.100	
	earch Device By IP Range			
			ОК	Cancel

Clear Device

Clear the list of online devices.

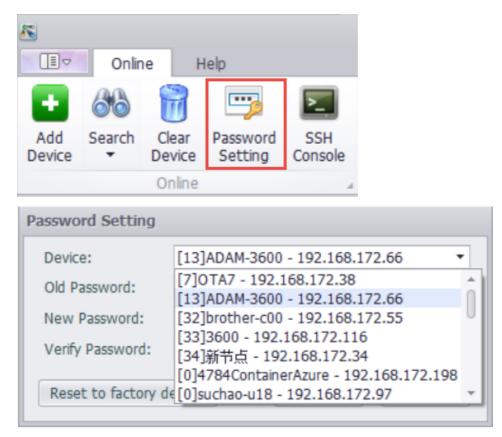


Password Setting

You can set a password for the device, and note that this password is also the download password (default password 00000000).

The first case: any one of the multiple devices is selected to change the password

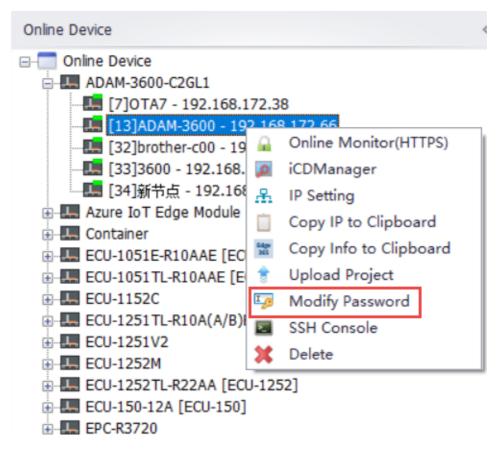
- 1. Click Password setting
- 2. Select the device you want to set up



The second case: Right-click on a specific online device and select Change Password to modify the password of the current device

1. Select the device, right-click

2. Select Modify password



After the above two situations

- 1. Fill in the old password, new password, and thenconfirm password
- 2. Click Modify to set a password

Password Setting			
Device:	[13]ADAM-3	600 - 192.168.17	2.66 🔻
Old Password:			
New Password:			
Verify Password:			
Reset to factory d	efault	<u>M</u> odify	Close

Reset to factory default

Click "Reset to factory default" on this interface, after which you need to restart the device within 10 seconds. After restarting, the device's passcode is restored to its factory state.

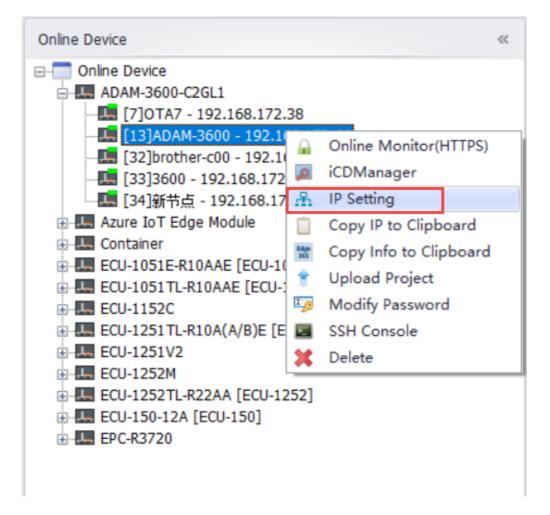
Password Setting	
Device: Old Password:	[13]ADAM-3600 - 192.168.172.66
New Password: Verify Password:	
Reset to factory d	efault Modify Close

IP Setting

Users can temporarily modify the IP address and subnet mask of the network port of online devices through EdgeLinkStudio. For example, the two network ports of RTU are set to DHCP mode (dynamically assigned IP), but there is no server in the network that can provide DHCP services. At this point, the RTU can be searched, but not accessed by IP. At this time, the user can temporarily set the IP address of the RTU for operations such as downloading projects.

Note : This setting expires after the RTU is rebooted. After restarting, the RTU sets the network port status according to the configuration document

 Right-click on the online device that has been searched, click Set IP, and open the "Set IP" pop-up box.



 In the Set IP pop-up box, the user first selects the network port to be modified, and then enters the new IP address and subnet mask.

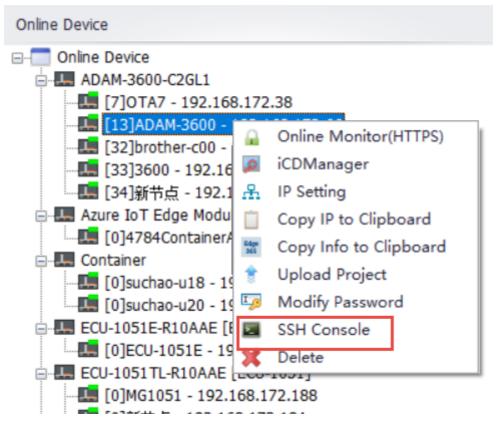
100 000	-					
	100	\sim			n	
IP	0.00	-		_		
_	-	_	-	_		-

The device IP address could be set temporarily. It will be reset by project configuration when the device is reboot.					
LAN:	LAN1 -				
Current IP Address:	192.168.172.66				
New IP Address:	192.168.172.66				
New Submask:	255.255.255.0				
New Gateway:	192.168.172.1				
Preparing set IP					
	Set IP Close				

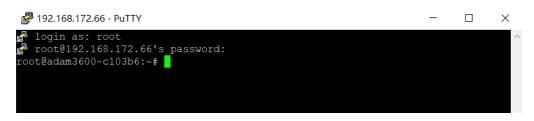
SSH Console

Users can log in directly to the online device via SSH Console in the Online interface.

Sign in to your online device



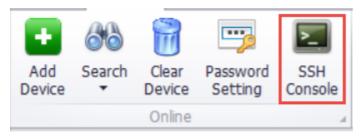
Right-click on the device in the online device to bring up the toolbar and click the SSH Console button in the toolbar.



After entering a user name and password, the user can remotely log in to the device's system.

! Note : EdgeLink Studio uses Putty to connect devices remotely

Log in to the device manually



If you need to set the connection parameters before logging in to the device, you can click the SSH Console button in the upper toolbar.

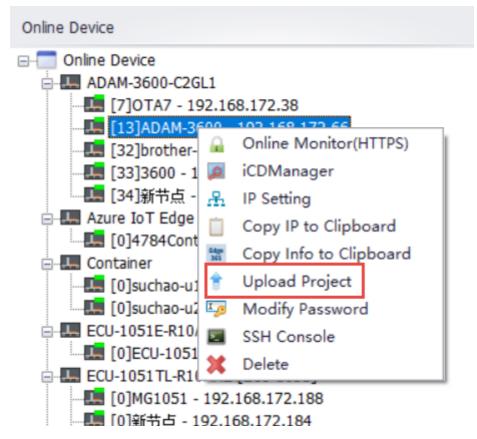
🔀 PuTTY Configuration		? ×			
Category:					
- Session Logging	Basic options for your PuTTY session				
	Specify the destination you want to connect to	Port			
Keyboard Bell	Host Name (or IP address)	22			
Features	Connection type:				
Appearance Behaviour	● SSH ○ Serial ○ Other: Telne	et 🖂			
	Load, save or delete a stored session Saved Sessions	1			
Connection Data Proxy	Default Settings	Load			
		Save			
Telnet Rlogin SUPDUP		Delete			
	Close window on exit Always Never Only on clo	ean exit			
About Help	Open	Cancel			

EdgeLink Studio will open Putty's configuration page for users to edit, and click Open to log in to the device after editing.

Upload Project

Users can upload the current device project on the device to EdgeLink Studio.

 Right-click on the already searched device and select "Upload Project" in the Online device list to start uploading device information.



2. Before loading the device information, the user needs to enter the password of the current device and verify that it is correct before uploading.

Check Password	ł	
To upload the This device red Device IP: 192	juires you to	enter the password.
Password:	I	
		OK Cancel

3. The current upload progress is displayed as a progress bar while uploading.

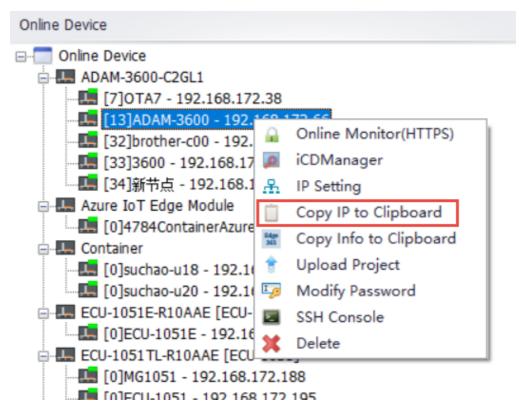
1		IP	Status	Progress
1	ADAM-3600	192.168.172	Uploading	46%
_				

- 4. When the upload is complete, the uploaded project is displayed in Project Management.
 - At this point, if there are no open projects in Project Management, a new project is created with the uploaded equipment information.
 - If you already have an open project, an attempt is made to save the device information in the existing project after the upload is complete.

Copy Device

Users can copy device information to the pasteboard for later use.

Copy the IP address to Clipboard, for example: 192.168.172.66



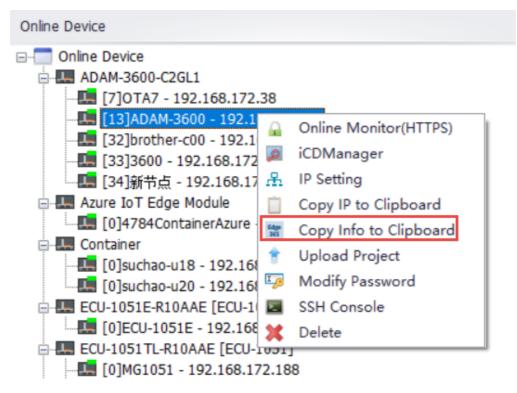
Copy the device information to Clipboard, this information is currently used when Edge365 creates an EdgeLink device (supported in versions 2.8.2 and above).

The information format is as follows:

```
{ "name": "",
"description": "",
"mac": "",
```

"type": "EdgeLink"





Online Monitor

There are mainly the following functions:

- 1. IO Stauts : Includes setup and reading of onboard and extended IOs
- 2. Tags : All tags on the device, including value, quality and timestamp
- 3. DataLogger : Check historical data online
- 4. Config: NetWork Setting、Time&Date、remote.it、 Image Recovery、Image Update、Reboot
- 5. System Log : system information

Note: Third-party clients are supported to access through RESTful API, download link of API specification document:Open RESTFul API Specification

I/O data acquisition and parameter setting

EdgeLink online operation provides on-board and extended I/O data acquisition and setting functions, different I/O modules correspond to different tabs, respectively AI, AO, DI and DO four types.

1. The device displays the current device model, and if there are expansion modules, it will also be listed on this page



2. Select Current Device to display all IO points on the device

O Status	Dashboard / IO Status / ADAM-3800					
A Device & Modules						
ad ADAM-3600	ADAM-3600					
🖬 Tag 🗸	AI DI DO					
📶 Data logger						
🗘 Config 🗸	Slot Number	Channel Number	Range Code	Value		
😑 System log	Slot 0	0	-10 ~ 10 V	0.876V	Edit	
	Slot 0	1	-10 ~ 10 V	0.876V	Edit	

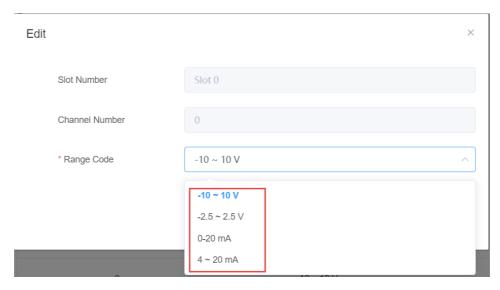
AI data acquisition and parameter setting

The data of the AI module is shown in the figure below. The data form items are as follows:

- Slot number: The module where the AI function block is located, and slot 0 is onboard.
- Channel number: Al channel number.
- Range: The range of AI sampled values.
- Value: The value of the AI.

IO Status	Deshboard / IO Status / ADAM-3600				
A Device & Modules					
d ADAM-3600	ADAM-3600				
🖬 Tag 🗸 🗸	AI DI DO				
🖬 Data logger					
🗘 Config 🗸	Slot Number	Channel Number	Range Code	Value	
System log	Slot 0	0	-10 ~ 10 V	0.876V	Edit
	Slot 0	1	-10 ~ 10 V	0.876V	Edit
	Slot 0	2	-10 ~ 10 V	0.876V	Edit

When you need to configure parameters, click the Edit button



Note: After the parameter is modified, you need to click the Confirm button to take effect

DI data acquisition and parameter setting

The data of the DI module is displayed in the figure below. The data form items are as follows:

- Slot number: The module where the DI function block is located, slot 0 is onboard.
- Channel number: DI channel number.
- Mode: Normal (i.e. DI) or Counter.
- Signal Status: DI port level value.
- Value: In Normal mode, the collected DI value is displayed here; Counter mode, the count value is displayed here.

Dashboard	/ IO Status / ADAM-360	0					EN 🐻
ADAM-3	600 DO						
Slot Number	Channel Number	Mode	Signal status	Counting	Counter Value	Clear Counter	
Slot 0	0	DI	•	-	-		Edit
Slot 0	1	DI		-	-	-	Edit
Slot 0	2	DI	•	-	-		Edit

When you need to configure parameters, click the Edit button to set the working mode of this DI channel

Edit		×
Slot Number	Slot 0	
Channel Number	0	
Mode	DI	^
	DI Counter	

When the DI channel operating mode is Counter, you can choose whether to enable Counter counting by starting counting:

Green is enabled, and if enabled, the DI channel is counted if there is an input

Red is not enabled, and DI channels do not count

Î.

Edit				×
:	Slot Number	Slot 0		
	Channel Number	0		
I	Mode	Counter		~
	Counting			
			Cancel	Confirm

Note: After the parameter is modified, you need to click the Confirm button to take effect

DO data acquisition and parameter setting

- 1. The data of the DO module is displayed in the following figure. The data form items are as follows:
- Slot number: The module where the DO function block is located, slot 0 is onboard.
- Channel number: DO channel number.
- Mode: Normal (i.e. DO) or PWM.
- Signal Status: DO port level value.
- Value: When in Normal mode, the output DO value is displayed here; Counter mode, the count value is displayed here.
- Low width: The low level pulse width of the output in PWM mode.
- High width: The high-level pulse width of the output in PWM mode.

0	IO Status	Dashboard	d / IO Status / ADAM-360	0					en 🐻 ~
	A Device & Modules								
	ad ADAM-3600	ADAM-3	600						
	Tag ~	AI DI	DO						
ai	Data logger	Slot Number	Channel Number	Mode	Signal status	Low Signal Width(0.1m s)	High Signal Width(0.1 ms)	PWM Value	
	Config \checkmark System log	Slot 0	0	DO	•	-	-	-	Edit
	Systemiog	Slot 0	1	DO	•		-		Edit

If you need to configure, click the Edit button to set the DO channel mode to DO or PWM

Edit		×
Slot Number	Slot 0	
Channel Number	0	
Mode	DO	^
Signal status	DO PWM	
		Cancel

2. DO mode: Set the DO output by clicking the signal status, green is high, red is low.

Edit		×
Slot Number	Slot 0	
Channel Number	0	
Mode	DO	~
Signal status		
		Cancel Confirm

- 3. PWM mode:
- PWM output: green is enabled, red is not enabled
- PWM value: Set the number of output PWM waveforms, the default is 0, 0 means always output
- Low signal width: The low level pulse width of the output PWM in 0.1ms, and the pulse width is (0.1* number) ms

 High signal width: The high level pulse width of the output PWM is 0.1ms, and the pulse width is (0.1* number) ms

Edit		X
	Slot Number	Slot 0
	Channel Number	0
	Mode	PWM ~
	PWM OutPut	
	* PWM Value	0
	* Low Signal Width(0.1ms)	5000
	* High Signal Width(0.1ms)	5000

Cancel

Confirm

Tags

EdgeLink online operation provides the function of obtaining and setting Tags, different Tag types correspond to different pages, System Tag, IO Tag, User Tagand and Calculation Tag, and support unified viewing of all tags.

IO Status	Ш	Dashboard / Tag	/ All Tags				EN 🐻 🛇
🖬 Tag 🗠	All	Tags			P	lease input tag name	A _a <u>ab</u> ,*
😅 System Tag	No.	Туре	Name ≑	Value	Quality	Timestamp	Desc
🔟 IO Tag	1	System Tag	#SYS_UPTIME	20502	Good	2023-07-13T05:45:12 (UTC)	The current uptime(s)
L User Tag	2	System Tag	#SYS_CURRENT _TIME	1689227112	Good	2023-07-13T05:45:12 (UTC)	The current system time(s)
 Data logger 	3	System Tag	#SYS_CPU_FRE Q	597600000	Good	2023-07-13T00:05:10 (UTC)	CPU frequency
🗘 Config 🗸	4	System Tag	#SYS_MEM_SIZ E	242.68 MB	Good	2023-07-13T00:05:10 (UTC)	Memory size
System log	5	System Tag	#SYS_CPU_USE D	30.70%	Good	2023-07-13T05:45:12 (UTC)	CPU utilization rate(%)
	6	System Tag	#SYS_CPU_IOW AIT	0.01%	Good	2023-07-13T05:44:52 (UTC)	CPU usage occupied by IOwait(%)
	7	System Tag	#SYS_MEM_USE D	29.59%	Good	2023-07-13T05:45:12 (UTC)	Memory utilization rate(%)

Search of Tags :

Tag Search

Note

1. The default number of displayed rows of the page is 10 rows, or you can choose to display the number of rows per page::100000

10page CARD_CAPACITY 954.00 MB Good 2023-07-14T00.02.14 (UTC) System partition capacity 20page SCARD_FREE_SPACE 166.30 MB Good 2023-07-14T00.02.14 (UTC) System partition capacity 100page CARD_FREE_SPACE 166.30 MB Good 2023-07-14T00.02.14 (UTC) System partition capacity 100page TACARD_CAPACITY 7.33 GB Good 2023-07-14T00.02.14 (UTC) Data partition capacity	7 #SYS_MEM_USED	28.59%	Good	2023-07-14T01:16:22 (UTC)	Memory utilization rate(%)
SCARD_FREE_SPACE 186.93 MB Good 2023-07-14T00.02.14 (UTC) System partition free space	SCARD_CAPACITY	954.00 MB	Good	2023-07-14T00:02:14 (UTC)	System partition capacity
100/page TACARD_CAPACITY 7.33 GB Good 2023-07-14T00.02:14 (UTC) Data partition capacity		186.93 MB	Good	2023-07-14T00:02:14 (UTC)	System partition free space
	100/page TACARD_CAPACITY	7.33 GB	Good	2023-07-14T00:02:14 (UTC)	Data partition capacity

2. The excess part is paginated and displayed, and you can switch to other tags by clicking the number or arrow in the lower right corner

9	System Tag	#SYS_SYSCARD _FREE_SPACE	186.93 MB	Good	2023-07-13T00:05:10 (UTC)	System partition free space
10	System Tag	#SYS_DATACAR D_CAPACITY	7.33 GB	Good	2023-07-13T00:05:10 (UTC)	Data partition capacity
10/	ipage \vee < 🔇	2 3 4	5 6 ··· 13 >			

System Tag

O Status	Ш	Dashboard / Tag / System Tag				EN 🐻
🖬 Tag 🔷	SV	stem Tag			please input tag name	A₀ ab ,* ⊙ search
🖬 🖌 All Tags	Uy.	stem rag				
🗟 System Tag	No.	Name ≑	Value	Quality	Timestamp	Desc
10 IO Tag	1	#SYS_UPTIME	20456	Good	2023-07-13T05:44:26 (UTC)	The current uptime(s)
💄 User Tag	2	#SYS_CURRENT_TIME	1689227066	Good	2023-07-13T05:44:26 (UTC)	The current system time(s)
🖬 Calc Tag	3	#SYS_CPU_FREQ	597600000	Good	2023-07-13T00:05:10 (UTC)	CPU frequency
🛍 Data logger	4	#SYS_MEM_SIZE	242.68 MB	Good	2023-07-13T00:05:10 (UTC)	Memory size
🗘 Config 🗸	5	#SYS_CPU_USED	19.00%	Good	2023-07-13T05:44:26 (UTC)	CPU utilization rate(%)
System log	6	#SYS_CPU_IOWAIT	0.01%	Good	2023-07-13T05:44:07 (UTC)	CPU usage occupied by IOwait(%)
	-		00.000	0	0000.07.40705.44.00.41705	• • • • • • • • • • • • • • • • • • •

Search of Tags :

Tag Search

General system tag description(Read Only)

Name	Description
#SYS_UPTIME	The current uptime(s)
#SYS_CURRENT_TIME	The current system time(s)
#SYS_CPU_FREQ	CPU frequency
#SYS_MEM_SIZE	Memory size(Byte)
#SYS_CPU_USED	CPU utilization rate(%)
#SYS_CPU_IOWAIT	CPU usage occupied by IOwait(%)
#SYS_MEM_USED	Memory utilization rate(%)
#SYS_SYSCARD_CAPACITY	System partition capacity(Byte)

Name	Description		
#SYS_SYSCARD_FREE_SPACE	System partition free space(Byte)		
#SYS_DATACARD_CAPACITY	Data partition capacity(Byte)		
#SYS_DATACARD_FREE_SPACE	Data partition free space(Byte)		
#SYS_NODE_ID	Node ID on RTU		
#SYS_ROOT_READONLY	Read-only system : 0-System Partition Readable and Writable, 1- System Partition Read-Only		
#SYS_COM_COUNT	COM count		
#SYS_LAN_COUNT	LAN count		
#SYS_DEFAULT_IF	Meaning of the value : 0-Cant't find default interface for route, 1-LAN1, 2- LAN2, 3-LAN3, 4- LAN4, 101-WiFi, 201-Cellular		
#MOBILE_SIM	0 error 1 READY: MT is not pending for any password 2 SIM PIN: MT is waiting SIM PIN to be given 3 SIM PUK: MT is waiting SIM PUK to be given 4 SIM PIN2: MT is waiting SIM PIN2 to		

Name	Description
	be given 5 SIM PUK2: MT is waiting SIM PUK2 to be given 6 PH-NET PIN: MT is waiting network personalization password to be given 7 PH-NETSUB PIN: MT is waiting network subset personalization password to be given 8 PH-SP PIN: MT is waiting service provider personalization password to be given 9 PH-CORP PIN: MT is waiting corporate personalization password to be given 10 PH-SIM PIN: MT is waiting phone to SIM/UICC card password to be given 99 not known
#MOBILE_IP	Celluar device ip
#MOBILE_MNO	Mobile network operator
#MOBILE_MNT	Mobile network type

Name	Description
#MOBILE_MDT	Mobile data traffic
#MOBILE_MPN	Mobile phone number
#MOBILE_SIGNAL_QUALITY	Signal quality of mobile network
#MOBILE_CSQ	Received Signal Strength Indication
#MOBILE_MCC	Mobile Country Code, MCC
#MOBILE_MNC	Mobile Network Code, MNC
#MOBILE_LAC	Location Area Code, LAC
#MOBILE_CID	Cell Tower ID, Cid
#MOBILE_IMSI	IMSI, International Mobile Subscriber Identity
#MOBILE_IMEI	IMEI, International Mobile Equipment Identity
#MOBILE_IMEI_RAW	IMEI raw data
#MOBILE_USBID	mobile modem, usb vendor id, product id
#MOBILE_DATA_DAY	Cellular data, current day used traffic
#MOBILE_DATA_MONTH	Cellular data, current month used traffic

Name	Description
#MOBILE_DATA_YEAR	Cellular data, current year used traffic
#WLAN0_SIGNAL_QUALITY	Signal quality of wlan0
#WLAN0_SIGNAL_LEVEL	Signal level of wlan0
#WLAN0_SIGNAL_NOISE	Signal noise of WLAN0
#WLAN0_SIGNAL_BITRATE	Bit rate of WLAN0
#WLAN0_AP_MAC	MAC or BSSID in Wifi AP mode
#ICDM_COM1_SCORE	COM 1 score
#ICDM_COM2_SCORE	COM 2 score
#ICDM_COM3_SCORE	COM 3 score
#ICDM_LAN1_SCORE	LAN 1 score
#ICDM_LAN1_LINK	LAN 1 link state
#ICDM_LAN2_SCORE	LAN 2 score
#ICDM_LAN2_LINK	LAN 2 link state
#GPS_LATITUDE	Latitude for the GPS module
#GPS_LONGITUDE	Longitude for the GPS module
#GPS_ALTITUDE	Altitude for the GPS module
#GPS_SPEED	Speed for the GPS module

Name	Description
#GPS_COURSE	Course for the GPS module
#GPS_SATELLITE	Status of the GPS module: 0-error state, 1-use GPS module working, 2- use a preset location information
#SYS_BATTERY_LOW	Battery power: 1 indicates that the battery is low, 0 indicates that the battery is normal
#SYS_TIME_SECOND	(0~59, when leap seconds: 60)
#SYS_TIME_MINUTE	Minutes (0~59)
#SYS_TIME_HOUR	Hours (0~23)
#SYS_TIME_DAY	Day (1~31)
#SYS_TIME_MONTH	Month (1~12)
#SYS_TIME_YEAR	Year (for example,2016)
#SYS_TIME_WDAY	Week (0~6, Sunday: 0, Monday to Saturday: 1~6)
#SYS_TIME_YDAY	Number of days from the beginning of the annual January 1st (0~365,January 1st: 0, January 2nd: 1, and so on)

Name	Description
#SYS_TIME_ISDST	Daylight saving time identifier, implementing daylight saving time, the value is positive. Do not implement the time in the summer, the value is 0. Cannot be determined when the value is negative
#SYS_TIME_GMT_OFFSET	The deviation of GMT seconds and local time, the eastern time zone is positive and negative for West Zone, such as China, should be 28800
#DATALOG_ENABLE	Enable Datalogger storage when the value is 1, and stop storage when the value is 0
#DATALOG_ERROR	When the value of DATALOG_ERROR is 0, it means that there is no error in the program. Check the manual for other error code information
#SYS_MAC_LAN1	MAC address of lan1

Name	Description
#SYS_MAC_LAN2	MAC address of lan2
#SYS_TFCARD_CAPACITY	TF card capacity(Byte)
#SYS_TFCARD_FREE_SPACE	TF card root partition free space(Byte)
#SYS_SDCARD_CAPACITY	SD card capacity(Byte),the value is 0 if there is no SD card
#SYS_SDCARD_FREE_SPACE	SD card free space(Byte),the value is 0 if there is no SD card
#SYS_DNP3_AI_POLLED_COUNTER	The number of times AI data was polled in DNP3 Outstation
#MQTTStatus_WISE-Edge365_0	0- Not connected; 1- Connecting; 2- Connected, subscribing to topics; 3- Connected, the topics is subscribed

Special system tag description

- #DATALOG_ENABLE : Read-write, enabling
 DataLogger storage when the value is 1 and stopping the DataLogger storage when the value is 0
- **#DATALOG_ERROR** : Read-only, 0—The program runs normally, other error codes need to be found in the

DataLogger manual section

- #DISABLE_DEVICE_MeterName : Read-write, each meter in the DataCenter has its own tag, distinguished by the name of the meter. 0—meter available, 1—meter not available. For example, if the meter name is Test Device 1, there will be a corresponding system tag #DISABLE_DEVICE_ Test Device 1, through which the meter can be disabled or started
- #BATCH_WRITE_MeterName : Read-write, each meter in the DataCenter has its own tag, distinguished by the name of the meter. 0—meter single point write, 1 —meter batch write. For example, if the name of the meter is testdevice1, there will be a corresponding system point #BATCH_WRITE_ testdevice1, through which the writing method of the meter can be set
- #DEVICE_ERROR_MeterName : Read-only, each meter in the DataCenter has its own tag, distinguished by the name of the meter. The error code when the current meter is collecting errors. For example, if the instrument name is TestDevice1, there will be a corresponding system tag
 #DEVICE_ERROR_TestDevice1, through which the current meter collection status can be viewed
- #DISABLE_PORT_PortName : Read-write, each port has its own tag, 0—port available, 1-disable port. For example, the COM1 port will have a corresponding system tag #DISABLE_PORT_COM1, through which the port can be turned on or disabled

IO Tag reading and setting

Support the reading and setting of IO tags, for the tags that need to be edited, you can click the edit button at the end of the corresponding point to enter the editing interface:

O Status	Ш	Dashboard / Tag / IO Tag						EN 🐻 🗸
ක් Tag ^ ක් All Tags	ю	Tag			please input tag i	name	Aa ab ,* ⊙	search
සි System Tag	No.	Port	Device	Name ≑	Value	Quality	Timestamp	
D IO Tag	1	ADAM-3600-C2GL1A1E	BoardIO	BoardIO:AI_0	0.88	Good	2023-07-13T05:43:22 (UTC)	Edit
L User Tag	2	ADAM-3600-C2GL1A1E	BoardIO	BoardIO:AI_1	0.88	Good	2023-07-13T05:43:22 (UTC)	Edit
🔟 Data logger	3	ADAM-3600-C2GL1A1E	BoardIO	BoardIO:AI_2	0.88	Good	2023-07-13T05:43:22 (UTC)	Edit
🗘 Config 🗸	4	ADAM-3600-C2GL1A1E	BoardIO	BoardIO:AI_3	0.88	Good	2023-07-13T05:43:22 (UTC)	Edit
System log	5	ADAM-3600-C2GL1A1E	BoardIO	BoardIO:AI_4	0.88	Good	2023-07-13T05:43:22 (UTC)	Edit
Edit								×
Name	e		BoardIO:	AI_0		_		
* Valu	le		0.88					
						C	ancel	nfirm

Search of Tags :

Tag Search

User Tag

User Tag support the reading and setting of user-defined points, click the edit button to enter the editing interface:

IO Status	III	Dashboard / Tag / User Tag				en 🐻 ~
🖬 Tag 🗠		-				
🖬 🖌 All Tags	Us	er Tag		p	olease input tag name	A _a <u>ab</u> ,* (*) search
Eð System Tag	No.	Name 💠	Value	Quality	Timestamp	
IO Tag	1	usertag1	0.00	Good	2023-07-13T00:05:11 (UTC)	Edit
User Tag Calc Tag	2	usertag2	0.00	Good	2023-07-13T00:05:11 (UTC)	Edit
🛍 Data logger	3	usertag3	0.00	Good	2023-07-13T00:05:11 (UTC)	Edit
🗘 Config 🗸	4	usertag4	0.00	Good	2023-07-13T00:05:11 (UTC)	Edit
System log	5	usertag5	0.00	Good	2023-07-13T00:05:11 (UTC)	Edit
	10	(namo 🗸 🖌 🚹 🔪				

Edit

Name			
usertag2			
* Value			
0.00			
		Cancel	Confirm

 \times

Search of Tags :

Tag Search

Calculate Tag

Read of Calculate Tag

IO Status ~	Dashboard / Tag / Calc Tag			EN
🖬 Tag 🗠	Calc Tag		please input tag name	A at .* () search
System Tag	No. Name 🗢	Value	Quality	Timestamp
🚺 IO Tag	1 calc1	13.00	Good	2023-07-13T05:41:34 (UTC)
👤 User Tag	2 calc2	91.00	Good	2023-07-13T05:41:34 (UTC)
Calc Tag	10/page \vee $<$ 1 $>$			

Search of Tags :

Tag Search

DataLogger

Users can view historical data stored on the device. First, the user needs to configure the "DataLogger" in the project interface.

	Advantech EdgeLink Studio	_ 8 ×
Bo Project Heb	Advantech Edgelink Studio	
Crasta Open Core Save Project Project Sove Project Configuration Common Core Sove Common Core Sove Core Sove Common Core Sove Core Sove Core Sove Co	New Tag Proce Show Tag Proce Court End to back Decc Stata Logger(ADAM-SGO) X X Apply X Decket Tag Stata Logger(ADAM-SGO) X X	~ 0
Dra Center Dra Loger	C Enable Image: Control of the Bardiol Callable Dista Dak Backelo Image: Control of the Bardiol Callable Strops Perk Image: Control of the Bardiol Callable TagLogist: X Image: Control of the Bardiol Callable Name: Trag Image: Control of the Bardiol Callable TagLogist: X Image: Control of the Bardiol Callable Image: Trag Image: Control of the Bardiol Callable Image: Trag Image: Control of the Bardiol Callable Image: Trag Image: Control of the Bardiol Callable Image: Tage Bardiol Callable Image: Control of the Bardiol Callable Image: Tage Bardiol Callable Image: Control of the Bardiol Callable Image: Tage Bardiol Callable Image: Control of the Bardiol Callable Image: Tage Bardiol Callable Image: Control of the Bardiol Callable Image: Tage Bardiol Callable Image: Control of the Bardiol Callable Image: Tage Bardiol Callable Image: Control of the Bardiol Callable Image: Tage Bardiol Callable Image: Control of the Bardiol Callable Image: Tage Callable Image: Control of the Bardio	

After downloading the project to the device, you can view the stored data on the "DataLogger" page of the online.

The query properties are as follows:

Image:	
Config Query Filter System log Start Time(UTC) Query College College	
System log 1 Name #SYS_UPTIME Start Time(UTC) © 2023-07-12 05:15:25 ©	
Start Time(UTC) © 2023-07-12 05:15:25	
2	
End Time(UTC) © 2023-07-13 05:15:25	
3 Date Type Minute	
4 Query	

- 1. Select the tag name
- 2. Select the start time and end time of the data storage
- 3. Select the statistics time of the query, select: minutes/hours/days/all data

4. Click Quary

Users can view data in three ways

1. Chart:



2. Table:

Table

Europe

Index	Timestamp	Last Value	Min Value	Max Value	Avg Value	Quality	Partial
1	2023-07-09T06:27:00 (UTC)	21205.4876	21195.1636	21205.4876	21200.2212	0	1
2	2023-07-09T06:28:00 (UTC)	21264.9006	21206.6042	21264.9006	21235.5843	0	0
3	2023-07-09T06:29:00 (UTC)	21324.9604	21266.0125	21324.9604	21295.8204	0	0
4	2023-07-09T06:30:00 (UTC)	21385.0791	21326.0738	21385.0791	21355.7753	0	0
5	2023-07-09T06:31:00 (UTC)	21445.1724	21386.2151	21445.1724	21415.6256	0	0
6	2023-07-09T06:32:00 (UTC)	21505.2872	21446.2876	21505.2872	21475.5993	0	0
7	2023-07-09T06:33:00 (UTC)	21565.4045	21506.3937	21565.4045	21535.6431	0	0
8	2023-07-09T06:34:00 (UTC)	21625.3308	21566.5203	21625.3308	21595.5878	0	0
9	2023-07-09T06:35:00 (UTC)	21685.5460	21625.3308	21685.5460	21655.4853	0	0
10	2023-07-09T06:36:00 (UTC)	21745.6279	21685.5460	21745.6279	21715.5977	0	0

3. Output to Excel document and download, users can download the document in the browser, this feature is not supported in Studio temporarily.

Expor	t								
	File Name	#SY	S_UPTIME_2023071	3_155228					
		Do	wnload						
			_	-	_	_	-	-	
	A		В	С	D	E	F	G	H
1	timestamp		quality	partial	last	min	max	avg	tagname
2	09/28/2016	11:12	. 0	1	8.3758	0	8.3758	8.1662	AI.0
3	09/28/2016	11:13	0	0	8.3758	8.3755	8.3761	8.3758	AI.0
4	09/28/2016	11:14	0	0	8.3761	8.3755	8.3761	8.3759	AI.0

Config

There are mainly the following functions:

- 1. Network Setting
- 2. Time and Date
- 3. remote.it
- 4. Image Recovery
- 5. Image Update
- 6. Reboot

🖬 Tag 🗸 🗸	Dashboard / Config	/ Time & Date	EN	8
趙 Data logger	Time & Date			
🗘 Config 🗠	Time & Date			
🚯 Network 🗠	Current Device Time	© 2023-07-13 12:40:43		
🖬 LAN1 (eth0)	* Timezone	(GMT+08:00) Beijing, Chongqing, Hong Kong, Urumqi		
🖾 LAN2 (eth1)	* Calibrate	© 2023-07-13 12:40:43		
∻ Wi-Fi		Apply Refresh		
al Cellular				
S Time & Date				
rā remote.it				
Image Recovery				
Image Update				
😃 Reboot				

LAN

General

LAN1 • ٵ		4	Apply Cancel
IPv4 IPv6 Check Connec	tion		
DHCF	2 🔹 🔁		
MAC	D0.FF-50:C1:03:B6		
* IP Address	192.168.172.66		
* Submasl	255.255.255.0		
Gateway	192.168.172.1		
3	Obtain DNS server address automatically Use the following DNS server address		
	Add DNS		

1. led status

status	description
green	The network is connected
yellow	A network cable was detected, but not connected to the network
red	The network cable is unplugged

- When checked, it is DHCP mode, and when it is unchecked, it is static IP mode, and you can set the IP address, subnet mask, and gateway
- 3. DNS servers can be obtained automatically or added manually
- 4. Effective after apply

Check Connection

The connection mechanism is checked in order to make the network recoverable through some attempts in case the network is not available, including rebooting the network card and rebooting the device (customer choice)

LAN1 •		7	Apply	Cancel
IPv4 IPv6 Check Connectio	1			
Connection Check Type	None v 2			
Ping Host 1				
3 Ping Host 2				
Ping Host 3				
4 * Retry Interval(min)	t.			
5 Reboot System				
6 * Reboot System After(min)				

- 1. Swtich to Check Connection
- 2. Select the connection judgment mechanism, which currently supports Ping IP/URL
- 3. Ping host(1) Please fill in the IP or URL that can be accessed under normal network conditions
- 4. Retry interval: The interval between ping commands
- 5. Check whether to restart the device
- 6. How long to restart the device when checking that the network cannot be connected and the network card cannot be restored by turning it back on
- 7. Effective after apply

Configure of Wifi

General

Wi-Fi 🔹 🥣	8 Apply C	ancel
General IPv4 IPv6	Check Connection Wifi AP IPv4	
2 Enable	Win 🔤	
3 Wifi M	ode Client ~	
4 * Network S		
5 BS	Please input value SID	
6 Sect	vrtty Open ~	
7 Passw	bro	

1. led status

Status	Description
grey	The module is unplugged
green	The module has been detected and a network connection has been established
red	Module detected but no network connection is established

- 2. Whether Wifi networks are enabled
- 3. Mode : Client or AP

Client Mode

- 4. The SSID of the network that the Wifi module connects to in Client mode
- 5. BSSID:Optional. Fill in this field when you need to connect to a specific AP.

- 6. Security : Open、WEP、WPA/WPA2 PSK
- 7. Password
- 8. Effective after apply

AP Mode

Wi-Fi •	7	Apply	Cancel
General IPv4 IPv6 Ci	heck Connection Wifi AP IPv4		
Enable Wifi	8		
1 Wifi Mode	Wifi AP ~		
2 * Network SSID	WiFi AP		
3 Channel	6 ~		
4 * Max number station	10		
5 Security	Open ~		
6 Password			

- 1. select Wifi AP Mode
- 2. The SSID is a unique identifier for a wireless network that is used to distinguish it from other nearby networks.
- 3. Channel: Defaults to 6 and depends on the module.
- 4. Maximum number of stations: This refers to the maximum number of clients that the AP allows to connect to it.
- 5. Security : Open、WPA/WPA2 PSK
- 6. Password : Password for AP
- 7. Effective after apply

Dashboard /	Config / Netw	rork / Wi-Fi							EN	**	×
Wi-Fi •		-					3	\pply	Cano	cel	
General IPv4	IPv6 Ch	eck Connection	Wifi AP IPv4	-1							
	MAC										
	• IP Address	192.168.181.1									
2	* Submask	255.255.255.0									
	Gateway	192.168.181.1									

- 1. select Wifi AP IPv4
- 2. set up the IP range to be allocated to clients in AP mode
- 3. Effective after apply

检查连接 (Client模式)

The connection mechanism is checked in order to make the network recoverable through some attempts in case the network is not available, including rebooting the network card and rebooting the device (customer choice)

Dashboard / Config / Network / WI-FI	EN 🐻 🗸
Wi-Fi 7 A General IPv4 IPv6 Check Connection	ppiy Cancel
Connection Check Type Ping IP/URL ~ 2	
Pling Host 1	
3 Ping Host 2	
Ping Host 3	
4 • Retry Interval(min) 1	
5 Reboot System	
6 * Reboot System After(min) 0	

1. Swtich to Check Connection

- 2. Select the connection judgment mechanism, which currently supports Ping IP/URL
- 3. Ping host(1) Please fill in the IP or URL that can be accessed under normal network conditions
- 4. Retry interval: The interval between ping commands
- 5. Check whether to restart the device
- 6. How long to restart the device when checking that the network cannot be connected and the network card cannot be restored by turning it back on
- 7. Effective after apply

Celluar Configuration

General

O Status	Dashboard / Config / Network / Cellular EN 🐻 🗸
🗹 Tag 🗸 🗸	
🎬 Data logger	Cellular • 1 5 Apply Cancel
🛱 Config 🗠	Cellular SIM Check Connection DNS Settings Status
🏶 Network 🔿	
🖬 LAN1 (eth0)	2 Device Type Auto ~
🖬 LAN2 (eth1)	3 Enable Cellular 🔽
≎ Wi-Fi	4 Dial Type PPP V
II Cellular	

1. Led Status

Status	Description
grey	The module is unplugged
green	The module has been detected and a network connection has been established
red	Module detected but no network connection is established

- 2. Select Module Auto or None
- 3. Whether cellular networks are enabled
- 4. Dialing type: PPP or QMI (depending on module)
- 5. Effective after apply

SIM

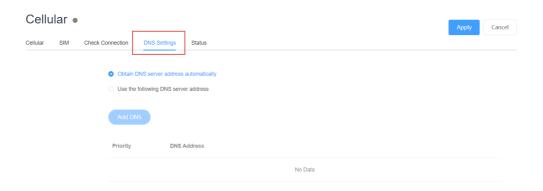
The default is Auto mode, which can be configured separately if needed

Cellular •		
	Apply	Cancel
Cellular SIM Check Connection DNS Settings Status		
SIM		
Operator Auto ~		
Network Type Auto China Unicom		
China Mobile		
China Telecom		
Other		
Cellular •	Apply	Cancal
	Apply	Cancel
Cellular Cellular Check Connection DNS Settings Status	Apply	Cancel
Cellular SIM Check Connection DNS Settings Status	Apply	Cancel
	Apply	Cancel
Cellular SIM Check Connection DNS Settings Status	Apply	Cancel
Cellular SIM Check Connection DNS Settings Status SIM Operator Auto	Apply	Cancel
Cellular SIM Check Connection DNS Settings Status	Apply	Cancel
Cellular SIM Check Connection DNS Settings Status SIM Operator Auto	Apply	Cancel
Cellular SIM Check Connection DNS Settings Status SIM Operator Auto Network Type Auto	Apply	Cancel
Cellular Check Connection DNS Settings Status SIM Operator Auto Network Type Auto Adg(LTE) 3G(UMTS)	Apply	Cancel
Cellular Check Connection DNS Settings Status SIM Operator Auto Network Type Auto Ad(LTE) 3G(UMTS) 2G(GSM)	Apply	Cancel
Cellular Check Connection DNS Settings Status SIM Operator Auto Network Type Auto Auto 4G(LTE) 3G(UMTS) 2G(GSM) 4G(LTE_M1)	Apply	Cancel
Cellular SIM Check Connection DNS Settings Status SIM Operator Auto Network Type Auto Ad(LTE) 3G(UMTS) 2G(GSM)	Apply	Cancel

Effective after apply

DNS

The default is to obtain DNS automatically, or you can configure it manually



Effective after apply

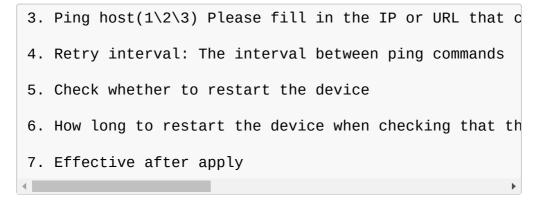
Check Connection

The connection mechanism is checked in order to make the network recoverable through some attempts in case the network is not available, including rebooting the network card and rebooting the device (customer choice)

Cellular •	7 Apply Cancel
Cellular SIM Check Conne	ction 1)S Settings Status
Connection Check Type	Ping IP/URL V
Ping Host 1	
3 Ping Host 2	
Ping Host 3	
4 * Retry Interval(min)	1
5 Reboot System	
6 * Reboot System After(min)	

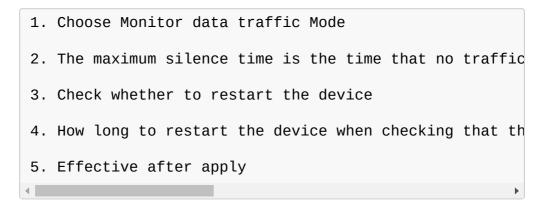
- 1. Swtich to Check Connection
- 2. Select the connection judgment mechanism, which currently supports Ping IP/URL and Monitor data traffic

Ping IP/URL Mode



Monitor data traffic Mode

	See suit evil. 5 Apply	Cancel
Cellular SIM Check Conn	ection DNS Settings Status	
Connection Check Type	Monitor data traffic v	
* Max Silence Time(min)	30 2	
Reboot System	□ <3	
* Reboot System After(min)	0 4	



Status

View module status online, divided into two parts, one is module status and the other is Celluar information, including dial-up and network status

Module Status

Cellular •		Apply Cancel
Cellular SIM Check Conne	on DNS Settings Status	
Module Info		
Device Id	-1	
Device Description	2	
Access Port	None 3	
Support Dial Type	ppp;qmi 4	

- 1. Device Id
- 2. Module Description
- 3. Access Port

4. Dial Type

Celluar Status

Cellular-related system tag, in order to avoid traffic waste, please click the "Refresh" button to update the current status every time you view it

Value	Quality	Timestamp	Description
0	Comm Error	2023-07-13T00:04:22 (UTC)	0 ERROR; 1 READY; 2 SIM PIN; 3 SIM PUK; 4 SIM PIN 2; 5 SIM PUK2; 6 PH-NET PIN; 7 PH-NETSUB PIN; 8 PH-SP PIN; 9 PH-CORP PI N; 10 PH-SIM PIN; 99 UNK NOWN
0.0.0.0	Comm Error	2023-07-13T00:04:22 (UTC)	Celluar device ip
No Cellular Service	Comm Error	2023-07-13T00:04:22 (UTC)	Mobile Network Operator
No Cellular Service	Comm Error	2023-07-13T00:04:22 (UTC)	Mobile network type
0	Comm Error	2023-07-13T00:04:22 (UTC)	Mobile phone number
Not Connected	Comm Error	2023-07-13T00:04:22 (UTC)	Signal quality of mobile net work.
0	Comm Error	2023-07-13T00:04:22 (UTC)	Received Signal Strength In dication
	0 0.0.0.0 No Cellular Service 0 Not Connected	0 Comm Error 0.0.0 Comm Error No Cellular Service Comm Error 0 Comm Error 0 Comm Error Not Connected Comm Error	DComm Error2023-07-13T00:04-22 (UTC)0.0.0Comm Error2023-07-13T00:04-22 (UTC)No Cellular ServiceComm Error2023-07-13T00:04-22 (UTC)No Cellular ServiceComm Error2023-07-13T00:04-22 (UTC)0Comm Error2023-07-13T00:04-22 (UTC)0Comm Error2023-07-13T00:04-22 (UTC)Not ConnectedComm Error2023-07-13T00:04-22 (UTC)

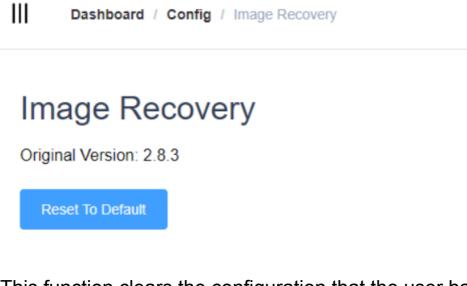
Time&Date

Set the current time and time zone of the device

IO Status	Dashboard / Config /	îme & Date	EN	8 ~
🗹 Tag 🗸 🗸				
ní Data logger	Time & Date			
🗘 Config 🗠	Current Device Time	9 2023-07-13 12:40:43		
🕸 Network 🗸	* Timezone	(GMT+08:00) Beijing, Chongqing, Hong Kong, Urumqi		
S Time & Date	* Calibrate	0 2023-07-13 12:40:43		
rā remote.it		Apply Refresh		
Image Recovery				
Image Update				
Reboot				
System log				
		ADAM-3600-C2GL1A1E Standard Edition image version 2.8.3 Alpha Jun 29 2023		

Image Recovery

IThe Image recovery function can help users restore the system version to the initial state of the currently used version



This function clears the configuration that the user has already made, so the permissions are high and a second confirmation is required.

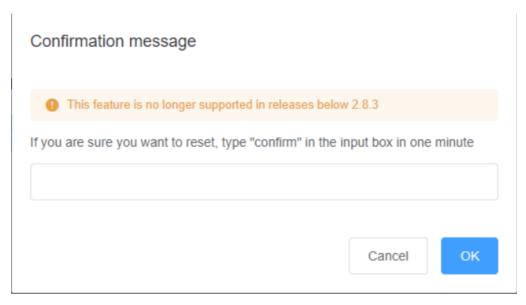
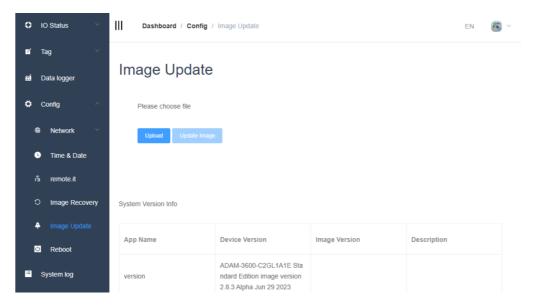


Image Update

The Image update page displays all system version and software version information of the current device, and can realize online firmware and software updates.



Information

The system version information of the current device is displayed as follows:

System Version Info			
App Name	Device Version	Image Version	De
MLO			
u-boot.img	U-Boot 2015.07 for adv335x boar		
ulmage	Linux-4.9.69-g9ce43c71ae		
ramdisk.gz			
am335x-adam3600.dtb			
System Volume Information			
ADAM-3600-mcu.bin	0 rev 01010194		
ADAM-3600-Al-aio.bin	0 rev 01010130		
ICDMANAGER-icdm.bin	01010148		

The software version information of the current device is displayed as follows:

App & Lib Version Info		
App Name	Device Version	Image Version
ActiveConnection	2.7.0 rev beeae91bb	
AdvAgentMain	2.7.0 rev beeae91bb	
AdvBurnInTest	2.7.0 rev beeae91bb	
AdvProgramMgr	2.7.0 rev beeae91bb	
AdvSystemSetting	2.7.0 rev beeae91bb	
AdvSystemTag	2.7.0 rev beeae91bb	
AdvUDBackup	2.7.0 rev beeae91bb	
AdvUserTag	2.7.0 rev beeae91bb	
AdvVersion	2.7.0 rev beeae91bb	
AdvWirelessCheckd	2.7.0 rev beeae91bb	
AutoDialup4G	2.7.0 rev beeae91bb	
BacnetDaemon	2.7.0 rev beeae91bb	
CalcTag	2.7.0 rev beeae91bb	
DNP3Daemon	2.7.0 rev beeae91bb	

Image Update

! Note : You must first log in for this operation

1. Click Upload to select the bin file to be updated.

Image Update		
Please choose file		
Upload Update Image		

2. The process of uploading the file is shown below, and the whole process takes about a few minutes.

Image Update

ECU1051_adv-rootfs_EdgeLink_2.8.3_Beta_230518967_v2.8.x.bin	
Upload Update Image	
17%)	
Image更新	
ADAM3600_adv-rootfs_EdgeLink_2.8.3_Alpha_2306291128_v2.8.x.bin 总主上传 更新mage	
○ 恢复出厂就从设置	100%

Before updating, you can choose whether to check 'Restore factory default settings', if checked, the original configuration will be cleared after the upgrade.

3. If the file is successfully uploaded, the 'Update Image' button will be displayed, as shown in the red box above. At the same time, the version number of each file in the uploaded package is listed, as shown in the following figure.

System Version Info					
ltem	RTU Version Info	Current Version Info	Description		
u-boot.img	U-Boot 2013.01.01R0001-svn5080	U-Boot 2013.01.01R0001-svn5080			
ulmage	Linux-3.12.10-rt15-ti2013.12.01	Linux-3.12.10-rt15-ti2013.12.01			
ramdisk.gz					
am335x- adam3600.dtb					
ADAM-3600- mcu.bin	0 rev 01010168	0 rev 01010169			
ADAM3600Al- aio.bin	0 rev 01010124	0 rev 01010124			
ADAM-3656- mcu.bin	2 rev 01010166	2 rev 01010169			
ICDMANAGER- icdm.bin	0xc0 rev 01010147	0xc0 rev 01010147			
rootfs.tar.gz	ADAM-3600-C2GL1AE image version 1.1.0 Release Aug 7 2015	ADAM-3600-C2GL1A1E image version 1.1.2 Release Sep 06 2015			

App & Lib Version Info

App Name	Device Version	Image Version
ActiveConnection	2.7.0 rev beeae91bb	2.7.0 rev beeae9
AdvAgentMain	2.7.0 rev beeae91bb	2.7.0 rev beeae9
AdvBurnInTest	2.7.0 rev beeae91bb	2.7.0 rev beeae9
AdvProgramMgr	2.7.0 rev beeae91bb	2.7.0 rev beeae9
AdvSystemSetting	2.7.0 rev beeae91bb	2.7.0 rev beeae9
AdvSystemTag	2.7.0 rev beeae91bb	2.7.0 rev beeae9
AdvUDBackup	2.7.0 rev beeae91bb	2.7.0 rev beeae9
AdvUserTag	2.7.0 rev beeae91bb	2.7.0 rev beeae9
AdvVersion	2.7.0 rev beeae91bb	2.7.0 rev beeae9
AdvWirelessCheckd	2.7.0 rev beeae91bb	2.7.0 rev beeae9
AutoDialup4G	2.7.0 rev beeae91bb	2.7.0 rev beeae9
BacnetDaemon	2.7.0 rev beeae91bb	2.7.0 rev beeae9
CalcTag	2.7.0 rev beeae91bb	2.7.0 rev beeae9

4. Click Update to start the Image update, and the update process is shown in the following figure.

(1)	Upda	42%)	×	
R		Advantech TagLink Stu	idio		_ – ×
Online Help		-			۵ ۵
Add Search Clear Password Device Device Device Setting Online					
Online Device «	Online Monitor(3600) ×				
Online Device (1)3600 - 172.21.67.150	ADAM-3600-C2G	te starting			L root →
	Tags reboot	system now			
	System Information				
				Information	
		Image U	.1.		
		ADAM-3600-in Load File	nage-1.1.2.bin	✓Upload	✓Update
		Please check	Upload	i Complete	
			Version Info		
		Item	RTU Version Info	Current Version Info	Description
Κ 🔽 .		u-boot.img	U-Boot 2013.01.01R0002- svn5516	U-Boot 2013.01.01R0001- svn5080	

5. After the update is complete, the EdgeLink device will restart, and after restarting, it will jump to the login interface, and the user can log in before performing subsequent operations.

Reoobt

Restart the gateway online

O Status	Dashboard / Config / Reboot	EN	8 ~
🖬 Tag 🗸 🗸			
🛍 Data logger	Reboot		
Config ^	Reboot System Reboot Apply		
🚳 Network 🗸			
S Time & Date			
奇 remote.it			
Image Recovery			
Image Update			
C Reboot			
System log			
https://192.168.172.66/#/advConfig/	ADAM-3600-C2GL1A1E Standard Edition image version 2.8.3 Alpha Jun 29 2023		

System Log

You can view the system logs of the device.

٥	IO Status	×	Dashboard / System Info / System log	EN	8 ~
ď	Tag				
M	Data logger		System log		
¢	Config		Download Log		
			Jul 13 13:27:15 adam3600-c103b6 user.notice sysmon: feed dog		7
			Jul 13 13:27:12 adam3600-c103b6 user.info AdvProgramMgr: ChekRun:checkrun 32,/home/sysuser/bin/DataCollector,		
			Jul 13 13:27:09 adam3600-c103b6 user.notice AdvWirelessCheckd: wlan_restartModern:[wlan0] [/usr/bin/minipcie_reset.sh PowerReset 0] end		
			Jul 13 13:27:09 adam3600-c103b6 user.notice AdvWirelessCheckd: wlan_restartModern:[wlan0] [/usr/bin/minipcle_reset.sh PowerReset 0] []		
			Jul 13 13:27:09 adam3600-c103b6 user.info AdvProgramMgr: StartProgram:start [/home/sysuser/bin/DataCollector -d]		
			Jul 13 13:27:07 adam3600-c103b6 user.info AdvProgramMgr: ChekRun:check run [/home/sysuser/bin/DataCollector -d] failed,start twice		
			Lid 12 12:07:04 adam2600 a100k8 usar lafa Ad-DrawamMarc PadProgrammatad (Bama/suusarikin/DataCallador 3)		

iCDManager

iCDManager is a communication monitoring unit which can diagnose both LAN port and serial port. For LAN port, iCDManager will acquire the network status information output by the network card to test its current status; for serial port, iCDManager will acquire the communication signals on physical layer of the serial port to obtain the related information, including its active status and the response time of the data package on serial port.

			Advante	ch TagLink Studio			
II ♥ Online							\$ (
+ 66	1						
	Clear Password						
evice Device [Onlin	-						
Onin	C A						
Online Device	~	🔎 iCDM	lanager(104test)	x			
🛛 🛞 Online Dev							
2 [63]10	.67.144	iCL)Manage	er	4	Serial Port Diagnose	LAN Port Diagnose
2 [63]104			. сом	Mode	Comm	unication Status	
3	iCDManager	• 🎲	COM1	Fully Tx/Rx	Comm	Poor	
	R IP Setting	- ×	COM2	Fully Tx/Rx		Poor	
	 Modify Password Delete 		сомз 6	Fully Tx/Rx <7		Poor 8	
	1						

Main Interface of iCDManager

As shown in the figure above, right-click on the device name go to "iCDManager" page.

1. Click "Online" button.

- 2. Select a device.
- 3. Right-click on the device name to open "iCDManager" page.
- 4. Click "Serial Port Diagnose" button to view the communication status of the serial port. The interface is shown as the above when it is opened for the first time.
- Click "LAN Port Diagnose" button to view the communication status of the LAN port. Please refer to "Network Monitoring" for its interface.
- Display the name of the serial port. Double-click it to pop up the parameter configuration window (refer to "Parameter Configurations of Serial Port").
- 7. Show the monitoring mode (refer to "Parameter Configurations of Serial Port").
- 8. Show the communication status: "Poor", "Good" and "Excellent" (refer to "Monitoring Status Tips").

Parameter Configurations of Serial Port

The time unit here is ms by default.

Full tx/rx

The parameters are described as follows:

COM Evaluation ConfigureCOM1						
Mode:	Full TX/RX ٵ 👻					
Rx time span(normal):	1000 2					
Rx time span(max):	10000 3					
Tx time span(normal):	1000 4					
Tx time span(max):	10000 🥌					
🤞 In Use: 🗹	OK Cancel					

- 1. Here the monitoring mode is set to "Full tx/rx" which means full function monitoring mode.
- 2. The minimum time span for receiving line to monitor the signal level variation. If the actual time span is less than it, the monitoring result will be excellent.
- 3. The maximum time span for receiving line to monitor the signal level variation. If the actual time span is greater than it, the monitoring result will be poor.
- 4. The minimum time span for transmitting line to monitor the signal level variation. If the actual time span is less than it, the monitoring result will be excellent.
- 5. The maximum time span for transmitting line to monitor the signal level variation. If the actual time span is greater than it, the monitoring result will be poor.
- 6. Choose whether to display the information of this port.

Half tx/rx

COM Evaluation ConfigureCOM3					
Mode:	Half TX/RX				
Tx time span(max):	1000 <2				
Rx time span:	100 <3				
Rx time span(max):	1000 4				
5 In Use: 🗹	OK Cancel				

- 1. Here the monitoring mode is set to "Half tx/rx" which means heartbeat monitoring mode.
- 2. The maximum time span for transmitting line to monitor the signal level variation. If the actual time span is greater than it, the monitoring result will be poor; if the actual time span is less than it, the heartbeat packet is sent normally and the response time will be monitored.
- 3. The minimum time span for receiving line to monitor the signal level variation. If the difference between the transmitting time and the receiving time is less than it, the monitoring result will be excellent.
- 4. The maximum time span for receiving line to monitor the signal level variation. If the difference between the transmitting time and the receiving time is greater than it, the monitoring result will be poor.
- 5. Choose whether to display the information of this port.

Tx Only

COM Evaluation ConfigureCOM3					
Mode:	TX Only				
Tx time span(normal):	100 <2				
Tx time span(max):	1000 -3				
4 In Use: 🗹	OK Cancel				

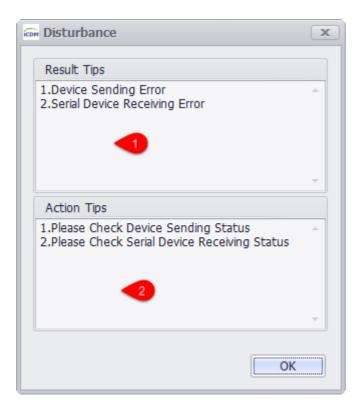
- 1. Here the monitoring mode is set to "Tx Only" which means only transmitting signals will be monitored.
- 2. The minimum time span for transmitting line to monitor the signal level variation. If the actual time span is less than it, the monitoring result will be excellent.
- 3. The minimum time span for receiving line to monitor the signal level variation. If the actual time span is less than it, the monitoring result will be poor.
- 4. Choose whether to display the information of this port.

Rx Only

COM Evaluation ConfigureCOM3					
Mode:	RX Only 1				
Rx time span(normal):	100 2				
Rx time span(max):	1000 -3				
4 In Use: 🗹	OK Cancel				

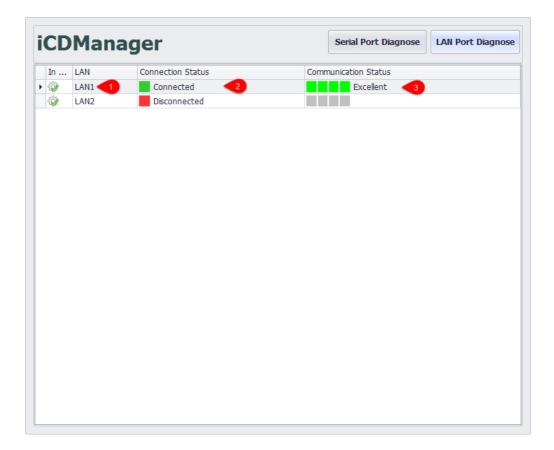
- 1. Here the monitoring mode is set to "Rx Only" which means only receiving signals will be monitored.
- 2. The minimum time span for receiving line to monitor the signal level variation. If the actual time span is less than it, the monitoring result will be poor.
- 3. The maximum time span for receiving line to monitor the signal level variation. If the actual time span is greater than it, the monitoring result will be poor.
- 4. Choose whether to display the information of this port.

Monitoring Status Tips



- 1. Result tips.
- 2. Action tips.

Network Monitoring



- 1. Network name.
- 2. Network connection status.
- 3. Network communication status.

PLC remote maintenance

The remote operation and maintenance described in this article refers to the process where customers configure remote PLCs by running PLC software on their control center computers.

Scenarios:

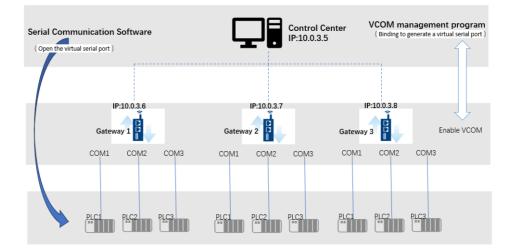
The PLC is a serial device, please refer to 4.1 Serial PLC Remote O&M

The PLC is a Ethernet device, please refer to 4.2 Ethernet PLC O&M

Serial PLC Remote Operation and Maintenance

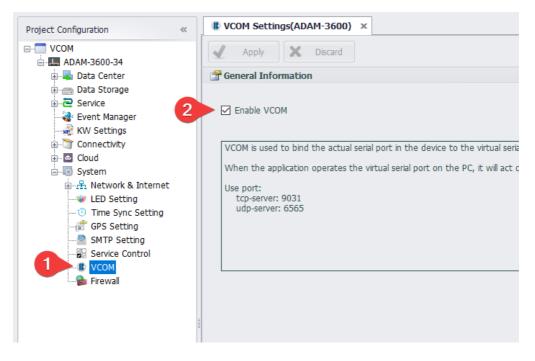
The general scenario involves a network connection (such as VPN) between the PC (control center) and the gateway, with serial devices (such as PLCs) connected below the gateway. Customers expect to use the serial communication software that comes with the serial devices to configure the serial devices on the PC (control center).

Architecture:



Operational Steps:

 Enable the VCOM function on the gateway using EdgeLink Studio and download the configuration file to the gateway.



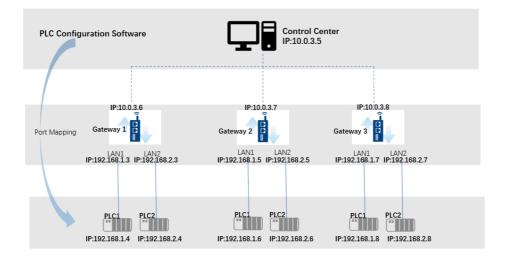
- Install the VCOM management program on the PC (control center). The download link for the VCOM management program installation package is: https://www.advantech.tw/support/details/utility?id=1-24KJ5E7. You can download the installation package that starts with "SetupEdgeLinkVCOM".
- 3. Virtualize the gateway's serial port to the PC (control center) using the VCOM management program. For example, if COM1 of Gateway 1 is connected to PLC1 and you want to configure this PLC, bind COM1 of Gateway 1 to the VCOM management program. At this point, you can see the virtualized serial port and its port number in the VCOM management program.
- Open the virtual serial port through the serial communication software on the PC (control center) to configure the serial device.

For detailed instructions on configuring the VCOM management program, please refer to the 2.9.8 VCOM section.

Ethernet PLC Remote Operation and Maintenance

Scenario 1

When a single Ethernet port of the gateway is connected to only one PLC, and the PLC configuration software transmits data through a fixed port, remote operation and maintenance can be directly achieved by using port forwarding.



For example, a PC (control center) establishes a network connection with the gateway via VPN. The gateway's LAN1 IP is: 192.168.1.3, and the IP of the PLC connected to LAN1 is: 192.168.1.4. The PLC communication software uses a communication port of: 100.

Operational Steps:

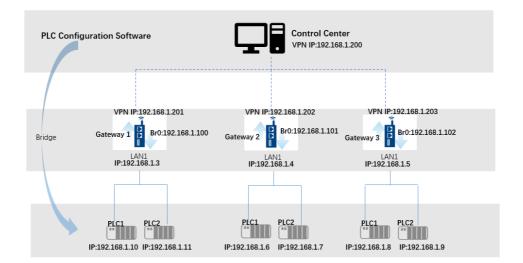
1. Configure the port forwarding on the gateway using EdgeLink Studio and download the project.

External IP/Interface		External Port	Internal Dest IP	Internal Dest Port	Protocol	Enable
▶1 tun0	100		192.168.1.4	100	BOTH	True
▶1 tun0	100	Port Forwarding Se Enable Protocol T TC External DenvPN O IP Address 127.0.0.1 Port		100 Internal Dest IP Address 192.168.1.4 Dest Port 100	вотн	True
		100		ОК	Cancel	

2. Open the PLC communication software at the control center to configure the PLC.(Connecting the communication software to 10.0.3.6 will enable the configuration to be pushed down to 192.168.1.4)

Scenario 2

When a single Ethernet port of the gateway connects to multiple PLCs (if there are multiple gateways on site, please note: the IP addresses of the PLCs connected under each gateway must not be duplicated), remote operation and maintenance can be achieved using network bridging.(Please set the VPN to tap mode)



For example, a PC (control center) establishes a network connection with the gateway via VPN, and the VPN IP is set to be in the same subnet as the PLC. As shown in the figure, the PC (control center) VPN IP is: 192.168.1.200, the gateway VPN IP is: 192.168.1.201, the gateway's LAN1 IP is: 192.168.1.3, and the IP of the PLC connected to LAN1 is: 192.168.1.10.

Operational Steps:

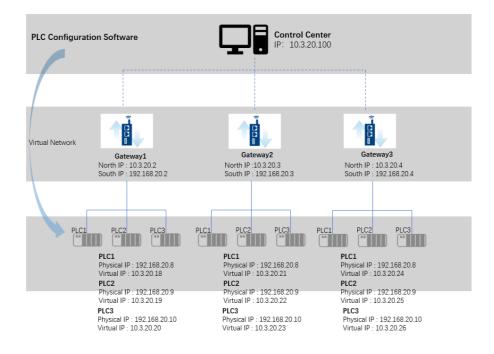
- 1. When deploying VPN, set the IP address to be in the same subnet as the PLC.
- 2. Use EdgeLink Studio to set up the VPN and LAN1 bridge together, and download it to the gateway. For example, set the br0 IP to: 192.168.1.100.

LAN1 LAN2 Wi-Fi Cellular OpenVPN L2TP/IPsec	PPPOE Bridge
Bridge Setting	
Bridge Name: br0	
☑ Enable Bridge	Binding Interface:
IPv4	IPv6
DHCP	🗹 DHCP
IP Address: 192.168.1.100	IPv6 Address:
Submask: 255.255.0	Subnet Prefix Length:
Gateway:	Gateway:
\bigcirc Obtain DNS server address automatically	Obtain DNS server address automatically
Our Use the following DNS server address	\bigcirc Use the following DNS server address
Preferred DNS Server:	Preferred DNS Server:
Alternate DNS Server:	Alternate DNS Server:
Advanced	Advanced

3. Open the PLC communication software at the control center to configure the PLC.(The communication software can directly connect to 192.168.1.10 for configuration)

Scenario 3

When a single Ethernet port of the gateway is connected to multiple PLCs, and the IP addresses of the PLCs connected under multiple gateways are duplicated, virtual networking functionality is required to achieve remote operation and maintenance. (Scenarios 1 and 2 can also be achieved through virtual networking, but port forwarding and network bridging configurations are simpler and easier to get started with, so the methods for scenarios 1 and 2 are recommended.)

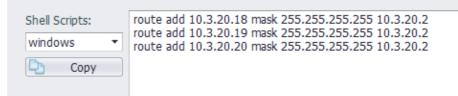


Operational Steps:

 Set up virtual networking through EdgeLink Studio and download it to gateway 1 (other gateways should be configured according to the actual virtual networking).

Virtual Network					
Enable					
Gateway North IP:	10	.3.20.2			
Gateway South IP:	19	2.168.20.2			
IP Mapping:		💠 IP Address 💠 IP Range 🚰 Edit	💢 Delete		
		Mapping Type	F	Physical IP	
	,	IP Address	192.168.20.8		10.3.20.18
	-		192.168.20.8 192.168.20.9		10.3.20.18 10.3.20.19

 Configure the corresponding route at the control center. EdgeLink Studio provides a reference script, which can be copied and directly executed in the command line at the control center.



 Open the PLC communication software at the control center to configure the PLC.(The communication software connects to 10.3.20.18 to configure PLC1 that is connected to Gateway 1)

For detailed configuration introduction of virtual networking, please refer to the 2.9.1.6 Virtual Network section.

Tag List Setting

#SYS_UPTIME

• **Tag Name**: Double-click this field to add or select a tag in the device.

 Span High
 Span Low
 Unit
 Jitter Time(s)
 Decimal Digits
 Descrit

 28147497...
 0
 0
 0
 2
 SYSTEMTAG_SYS_UPTIME

- Alias: Set the name when uploading data. Use the tag name as the data name when the alias is empty.
- **Tag Type**: Displays the data type of the tag. This item is a read-only item and cannot be modified in this tag table. If you need to modify it, please modify the original tag attribute in the data center.
- Deadband Type: Used to configure the change detection method of tag values. There are two ways: absolute value and percentage. When the type is configured as an absolute value, the difference between the current tag value of the tag and the last uploaded tag value is taken as an absolute value and compared with the *Deadband*, and if it is exceeded, the tag is considered to have changed; When the type is configured as a percentage, the difference between the current tag value of the tag and the last uploaded tag value is taken as an absolute value and compared with the *Deadband*, and if it is exceeded, the tag is considered to have changed; When the type is configured as a percentage, the difference between the current tag value of the tag and the last uploaded tag value is taken as an absolute value and compared with the last uploaded tag value. If the change exceeds the *Deadband*, the tag is considered to have changed.
- **Deadband**: Used to specify the Deadband value of the tag detection. The value change of the tag does

not trigger the tag value change within the threshold.

- Unit: Read-only item, when the Deadband type is percentage, a percent sign is displayed to distinguish it from the absolute value.
- Jitter time: The unit is second. When the detected tag value exceeds *Deadband*, verification of *jitter time* will start. When the tag value is detected as exceeding the *Deadband* within the specified *jitter time*, it will be finally judged as a little value change, and the changed value will be uploaded at this time, otherwise it will be judged as tag value jitter. Not uploaded.
- **Decimal Digits**: The number of digits after the decimal tag for specifying the analog tag value. The default is 2. When the actual tag value has only one integer value, you can set this field to 0 to save data traffic.
- **Description**: The description of the tag. This item is a read-only item and cannot be modified in this tag table. If you need to modify it, please modify the original tag attribute in the data center.

Data resume

- When an EdgeLink device is connected to an MQTT platform, the resumable upload function completes the data during the disconnection period
- Prerequisites: The tags that need to be resumably transferred must be configured to DataLogger for local storage, the device must have a memory card, you can refer to DataLogger description

Project Configuration	« e	Data Logger(ADA	M-3600)* ×					
example_ADAM-3600 ADAM-3600-1 ADAM-3600-1 Data Center Data Storage Data Storage Data Logger Data Backup Construction Added Analytic Storage KW Settings		Apply X Enable USB Disk Backu Storage Path: SD Max Days(d): 7		Ÿ	It is about 74.32 MB free space needed in SD Card to save historical data.			
ia-```` Connectivity ia⊡ Cloud	Ta	agLogList 🗙 💠						
🗄 🐻 System		Name:	TagLogList		ON/OFF by Tag			
		Log Type:	Periodic Storage	•	Choose Tag:		📵	
		Period(s):	1		Cache:	By Count	Ψ.	
					Cache Before ON:	0		
					Cache After OFF:	0		
		1	Fag Name					
	+1	#SYS_UPTIME		The curr	ent uptime(s)			
	*	Double click to edit						

Enable resumable transfer

Pub all after reconn:	\checkmark	<1
Enable data resume:	\checkmark	2
Data before break(s):	0	3
Data after reconnect(s)	: 0	4
Delay before resume(s)	120	<u> </u>

parameter

parameter description

parameter	parameter description
Pub all after reconn	When EdgeLink establishes a connection with the cloud, does it upload the current values of all points once to the cloud, with enabling sending and disabling not sending? The default setting is enabling sending
Enable data resume	Enable switch for resume upload from break
Data before break	Default: 0, resume uploading data from the most recent n seconds before the disconnection
Data after reconnect	Default: 0, resume uploading data until the most recent n seconds after the reconnection
Delay before resume	Default: 120, resume uploading data after an interval of n seconds after the reconnection

Export/Import Tag List

• The cloud service configuration interface supports the import and export function of point list (edited according to the specified format, which is convenient for adding or deleting tags in batches)

🖉 Apply 💙	C Discard											Export To Microsoft Excel	Import From Microsoft Exce
lote: When enablin	ng SSL, please ensure th	at the device time is consis	tent with t	he server time!									
CustomMQTT_0 ×	+												
Enable:	\checkmark	 Tag Name 	Alias	Tag Type	Deadband	Deadband Type	Spa	Sp	Unit	Jitter Time(s)	Decimal Digits		ription
Use Socks5 Proxy:	Edit	#SYS_UPTIME		analog	0	Absolute	281	0		0	2	SYSTEMTAG_SYS_UPTIME	
host:	lot.advantech.com	 Double click to edi 											
Port:	1883												
SSL Enable:													
SSL Scenario:	Anonymous conne												
SSL Version:	tlsv1.2 -												
MQTT Version:	3.1.1 *												
Client ID:													
User Name:													
Password:													
Keep Alive(s):	60												
Retry Interval(s):	60												
Timeout(s):	30												
Periodic Publish:	True *												
Periodic Control Tag	Double click to edi												
Publish Period(s):	60												
Diff Publish:	False -												
Diff Control Tag:	Double click to edi												
Detection Cycle(s):													
Diff Type:	Value Change Quality Change Timestamp Change												
Diff pub all tags:													-
Pub all after reconn	: 🗹												乞 op 🧿 🧶 📼 1
Enable data resume	. 7												

• excel format

	A	в	С	D	Е	F	G	н		
1	tagName	alias	deadband	deadband_type	default_value	jitter_time	decimal_digits			
2	#SYS_UPTIME		0	abs	0	0	2			
3	#SYS_CURRENT_TIME		0	abs	0	0	2			
4										
5										
6										
7										
8										
9										
10										
11										
	← → Cloud-0 Cloud-1 Cloud-2 Cloud-3 (+)									

Overview

Libextext built-in multiple macro function that is used to the system time or tag value are formatted output, the user can use the macro function to prepare the required text template. This module can be used to output mail and short message content in event management, or for other applications that require forwarding text data, such as MQTT or HTTP forwarding.

function	instructions	parameter	optional parameter
<pre>\$localtime(fmt)</pre>	output local time	fmt:formatting	%F,%T,%H,
<pre>\$gmttime(fmt)</pre>	output GMT time	fmt:formatting	%F,%T,%H,
<pre>\$ctime(fmt)</pre>	output the time stamp	fmt:formatting	s,ms,sms
<pre>\$tagLocalTime(tag_name,fmt)</pre>	output tag local time	tag_name:tag name fmt:formatting	%F,%T,%H,
<pre>\$tagGmtTime(tag_name,fmt)</pre>	output tag GMT time	tag_name:tag name fmt:formatting	%F,%T,%H,
<pre>\$tagCTime(tag_name,fmt)</pre>	output tag time stamp	tag_name:tag name fmt:formatting	s,ms,sms
<pre>\$tagName(tag_name)</pre>	output tag name	tag_name:tag name	_
<pre>\$tagValue(tag_name,fmt)</pre>	output tag value	tag_name:tag name fmt:formatting	%.1lf,%.2lf,%.3lf,%g
<pre>\$tagQuality(tag_name)</pre>	output tag quality	tag_name:tag name	_
<pre>\$tagValueDescriptor(tag_name)</pre>	output tag description	tag_name:tag name	_

Overview of macro functions

Macro function is introduced in detail

System time function

\$localtime(fmt), \$gmttime(fmt) and \$ctime(fmt) The three macro function is used to the current system time formatted as text, its output format by fmt parameter specifies, supports the following parameters format.

parameter	instructions	formatting
%a	Short for day of the week	wed
%A	The day of the week in full	Wednesday
%b	Short for month	Nov
%B	The full name of the month	November
%с	Standard date time string	Wed Nov 11 13:59:53 2020
%C	The first two digits of the year	20
%d	The day of the month in decimal notation	20
%D	Month/day/year	11/11/20
%e	In the two-character field, The day of the month in decimal notation	20
%F	Year - Month - Date	2020-11-11
%g	The last two digits of the year, Use a week-based year	20
%G	Year, using a year based on the week	2020
%h	The abbreviated name of the month	Nov
%H	Twenty-four hours	14
%I	Twelve hours	02
%ј	The day of the year in decimal notation	316
%m	A month in decimal notation	11
%M	The number of minutes in the ten hour system	12
%n	New line character	_
%р	Local AM or PM equivalent display	AM
%r	For 12 hours	02:05:53 PM
%R	Displays hours and minutes : hh:mm	14:06
%S	The number of seconds in decimal	39
%t	Horizontal tabs	-

parameter	instructions	formatting
%Т	Displays minutes and seconds : hh:mm:ss	14:05:36
%u	The day of the week	5
%U	The week of the year, with Sunday as the first day	46
%V	The week of the year, using the week-based year	47
%w	A decimal representation of the day of the week	3
%W	Week of the year, Monday is the first day	45
%x	Standard date string	11/11/20
%X	Standard time series	14:04:07
%у	A decimal year without centuries	20
%Y	Ten years with century section	2020
%z	Time zone name	+0800
%Z	An acronym for a time zone name	CST
%%	percent	%

\$localtime(fmt): Output local time

fmt :Time output format parameter item, the default output format parameter is: %F %T (year, month, day, hour, minute, second)

result : Output local time in format

The sample :

```
$localtime(%F %T) : 2020-11-10 17:07:15
$localtime(%T) : 17:07:15
```

\$gmttime(fmt): Output GMT time

fmt :Time output format parameter item, the default output format parameter is: %F
%T (year, month, day, hour, minute, second)
result : output GMT time in format
The sample :

```
$gmttime(%F %T):2020-11-10 09:07:15
$gmttime(%F):2020-11-10
```

\$ctime(fmt): output the time stamp

fmt:Time output format parameter item, default output format parameter is sms
(seconds and ms)
result : Output the timestamp by format
The sample :

```
$ctime(s):1604999235
$ctime(ms):291
$ctime(sms):1604999235291
```

The Tag function

\$tagName(tag_name): Output tag name

tag_name : tag name result : Output the tag name The sample :

\$tagName(tag_2):tag_2

\$tagValue(tag_name , fmt): Output tag value

tag_name : tag name

fmt : Preserve valid bit parameters, default to 2 decimal digits (%.2lf)
separator : Parameters are separated by a comma (,)
result : Output the tag value. Failure returns :0

The sample :

```
$tagValue(tag_8,%.3lf):7.000
$tagValue(tag_9,%.9lf):8.000000
$tagValue(tag_10,%.g):9
$tagValue(tag_,%.2lf):0.00
```

\$tagQuality(tag_name): output tag quality

```
tag_name:tag name
result:Output the tag quality. Fail to return :8080
The sample:
```

```
$tagQuality(tag_2):0
$tagQuality(tag_):8080
```

\$tagValueDescriptor(tag_name): output tag description

tag_name : tag name
result : Output the tag description. Failure returns :0.00
The sample :

```
$tagValueDescriptor(test:D1):111
$tagValueDescriptor(tag_):0.00
```

\$tagLocalTime(tag_name,fmt) : output tag local time

tag_name: tag name

fmt : Time output format parameter item, default output format %F %T(year, month, day, hour, minute, second)

separator : The arguments are separated by a comma (,)

result : Output the tag time according to the format, Failed to output: 1970-01-01

08:00:00

The sample :

```
$tagLocalTime(tag_9,%F %T):2020-11-10 17:07:16
$tagLocalTime(tag_9,%F):2020-11-10
$tagLocalTime(tag_,%F):1970-01-01 08:00:00
```

\$tagGmtTime (tag_name , fmt) : output tag GMT time

tag_name : tag name

fmt : Time output format parameter item, default output format %F %T(year, month, day, hour, minute, second) separator : The arguments are separated by a comma (,) result : Output the tag time according to the format,Failed to output:1970-01-01 08:00:00

The sample :

```
$tagGmtTime(tag_9,%F %T):2020-11-10 09:07:16
$tagGmtTime(tag_9,%T):09:07:16
$tagGmtTime(tag_,%T): 1970-01-01 00:00:00
```

\$tagCTime(tag_name , fmt): Output tag time stamp

tag_name : tag name

fmt : Time stamp output format parameter item, default time format sms (seconds and ms)

separator : The arguments are separated by a comma (,)

result : Output the tag stamp according to the format, Failed to output:0

the sample :

```
$tagCTime(tag_9,s):1604999236
$tagCTime(tag_9,ms):211
$tagCTime(tag_9,sms):1604999236211
$tagCTime(tag_,s):0
$tagCTime(tag_,sms):000
$tagCTime(tag_,sms):0000
```

Multi-tag custom template function

\$MulTagBegin(tag_1, tag_2...), template and \$MulTagEnd(separator) are composed of three parts, corresponding to the beginning part, template part and end part respectively. Only when the input text successfully matches the beginning part and end part, can the template output defined by multiple tags be realized.

\$MulTagBegin(tags) template \$MulTagEnd(separator)

tags:Add tag name with a comma (,) as the tag divider the sample : \$MulTagBegin(tag_1,tag_2,.....)

template:Templates to be output for each tag. Templates are user-defined the sample : {" tagname ":\$tagname (@)}, the @ character in the template will be replaced by the tag name

separator:Template delimiter

the sample:\$MultagEnd (,), with the comma (,) as the delimiter between the tag template

Multi-tag custom template example :

input :

```
$MulTagBegin(tag_8,tag_2,tag_5)
{
$$gmttime(%F %T):$gmttime(%F %T),
$$tagName(@):$tagName(@)
}
$MulTagEnd(,)
```

output :

```
{
$gmttime(%F %T):2020-11-10 12:13:28,
$tagName(@):tag_8
}
'{
$gmttime(%F %T):2020-11-10 12:13:28,
$tagName(@):tag_2
}
'{
$gmttime(%F %T):2020-11-10 12:13:28,
$tagName(@):tag_5
}
```

Tag Search

All pages of tags support searching by tag name

O Status	Ш	Dashboard / Tag /	All Tags				EN 🐻			
🖬 Tag 🗠	All Tags									
🗟 System Tag	No.	Туре	Name 🗘	Value	Quality	Timestamp	Desc			
🚺 IO Tag	1	System Tag	#SYS_UPTIME	20736	Good	2023-07-13T05:49:05 (UTC)	The current uptime(s)			
L User Tag	2	System Tag	#SYS_CURRENT _TIME	1689227345	Good	2023-07-13T05:49:05 (UTC)	The current system time(s)			
mi Data logger	3	System Tag	#SYS_CPU_FRE Q	597600000	Good	2023-07-13T00:05:10 (UTC)	CPU frequency			
🗘 Config 🗸 🗸	4	System Tag	#SYS_MEM_SIZ E	242.68 MB	Good	2023-07-13T00:05:10 (UTC)	Memory size			
System log	5	System Tag	#SYS_CPU_USE D	17.00%	Good	2023-07-13T05:49:05 (UTC)	CPU utilization rate(%)			
	6	System Tag	#SYS_CPU_IOW AIT	1.00%	Good	2023-07-13T05:49:05 (UTC)	CPU usage occupied by IOwait(%)			
	7	System Tag	#SYS_MEM_USE D	29.59%	Good	2023-07-13T05:49:05 (UTC)	Memory utilization rate(%)			
			#SYS_SYSCARD							

Туре

Type 1: Match Case



Type 2: Match Whole World

please input tag	name	Aa	<u>ab</u> .* 🛞	search	
Value	Quality	Timesetemen		Match Whole Wo	ord

Type 3: Use Regular Expression

please input tag	please input tag name		Aa	<u>ab</u> ,	.* ×	search
					Use Regul	ar Expression
		_		l		

Search of IO Tag

In addition to searching by tag name, the IO Point page supports filtering based on ports and meters

0	Tag			please input tag
No.	Port-1	Device	Name ≑	Value
1	ADAM-3600-C2GL1A1E CON (2) COM1 (2) COM2 (2)	(20)	设备1:温度	0.00
2	CON TCP (2)	1	设备1:电压	0.00
3	Confirm Reset 3 COM2	设备2	设备2:启动	0
4	COM2	设备2	设备2:停止	0
10,	/page V K 1 V			

IO Tag

please input tag

No.	Port~	Device~ 1	Name ≑	Value
1	COM1	□ 设备1 (2) 设备1	设备1:温度	0.00
2	COM1	Confirm Reset 3 设备1	设备1:电压	0.00
3	COM2	设备2	设备2:启动	0
4	COM2	设备2	设备2:停止	0
10/	10/page < 1 >			

button	Description		
Confirm	After checking the port list, click the Confirm button to take effect		
Reset	Click the reset button to uncheck all checks, that is, to revert to the state of no filtering		