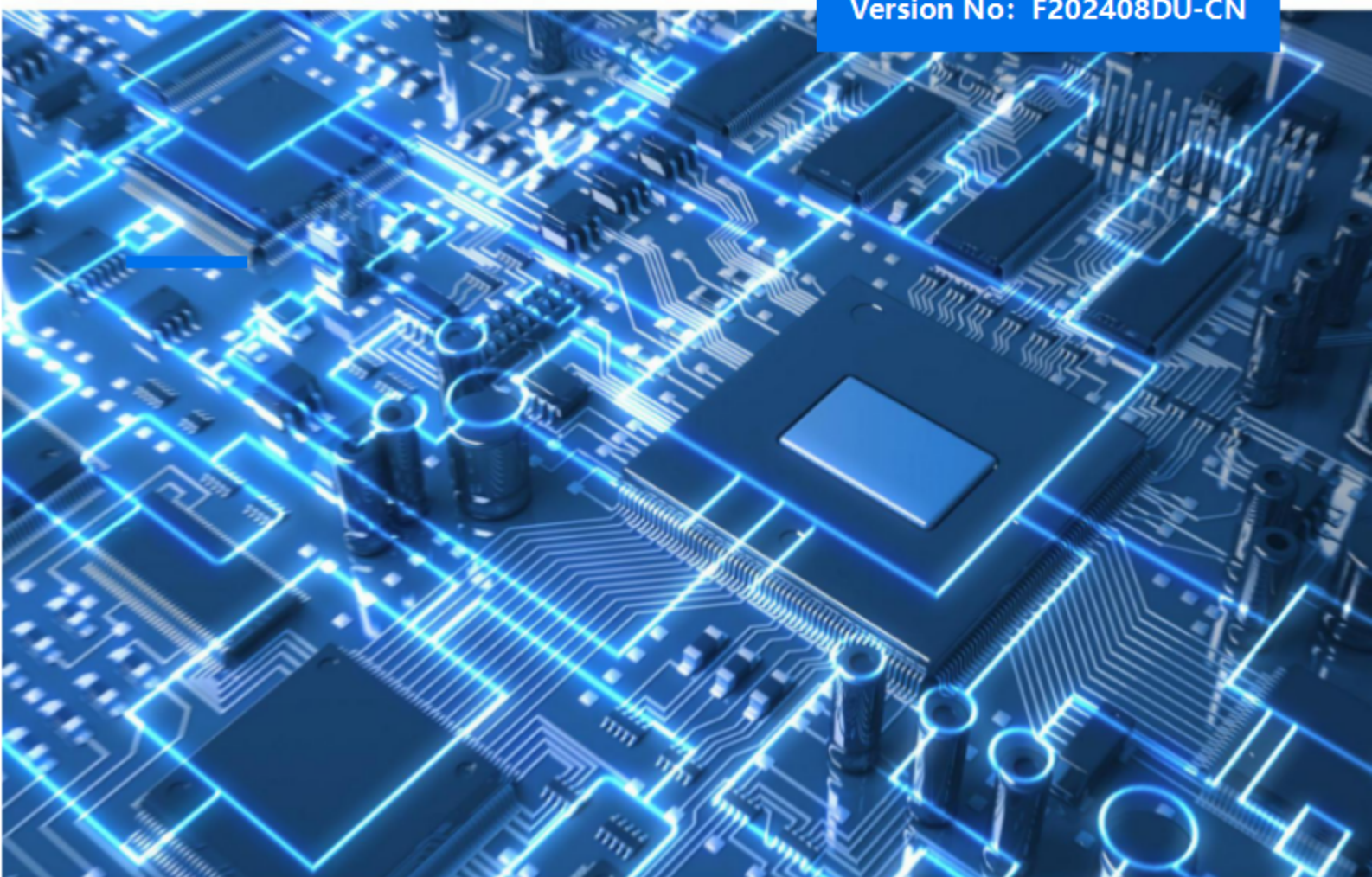


Finger iLink Digital Gateway Product User Manual

Version No: F202408DU-CN



CONTENTS

1. Product Overview	1
1.1 Product Introduction	1
1.1.1 Finger iLink Configuration Software	1
1.1.2 Hardware Specifications	2
1.1.3 Product Interfaces	3
2. Configuration Tools Introduction	6
2.1 Configuration Software	6
2.1.1 Gateway Manager Software	6
2.1.2 MQTT Broker	6
2.1.3 MYSQL	6
2.1.4 Using the Gateway Manager Software	6
2.2 GateWayLink Development System	9
2.2.1 Configuration Process	9
2.3 GateWayLink Network Management System	22
2.3.1 Usage Process	23
3. Product Function Overview	27
3.1 IoT Framework Diagram	27
3.1.1 Device Side	27
3.1.2 Data Collection and Forwarding	28
3.1.3 Data Storage	28
3.1.4 Data Application	29
3.2 Function Overview	29
3.2.1 Data Collection	29
3.2.2 Edge Computing	30
3.2.3 Data Forwarding	30
3.2.4 Data Caching	31
3.2.5 Device Time Synchronization	31

3.2.6 Controller and Digital Gateway Connection	31
3.2.7 Other Devices	32
3.2.8 Communication Data Collection Configuration	32
3.2.9 Communication Forwarding Configuration	76
3.2.10 Device Maintenance	99
3.2.11 Factory Installation Process	104
4.Disclaimer	110

1. Product Overview

1.1 Product Introduction

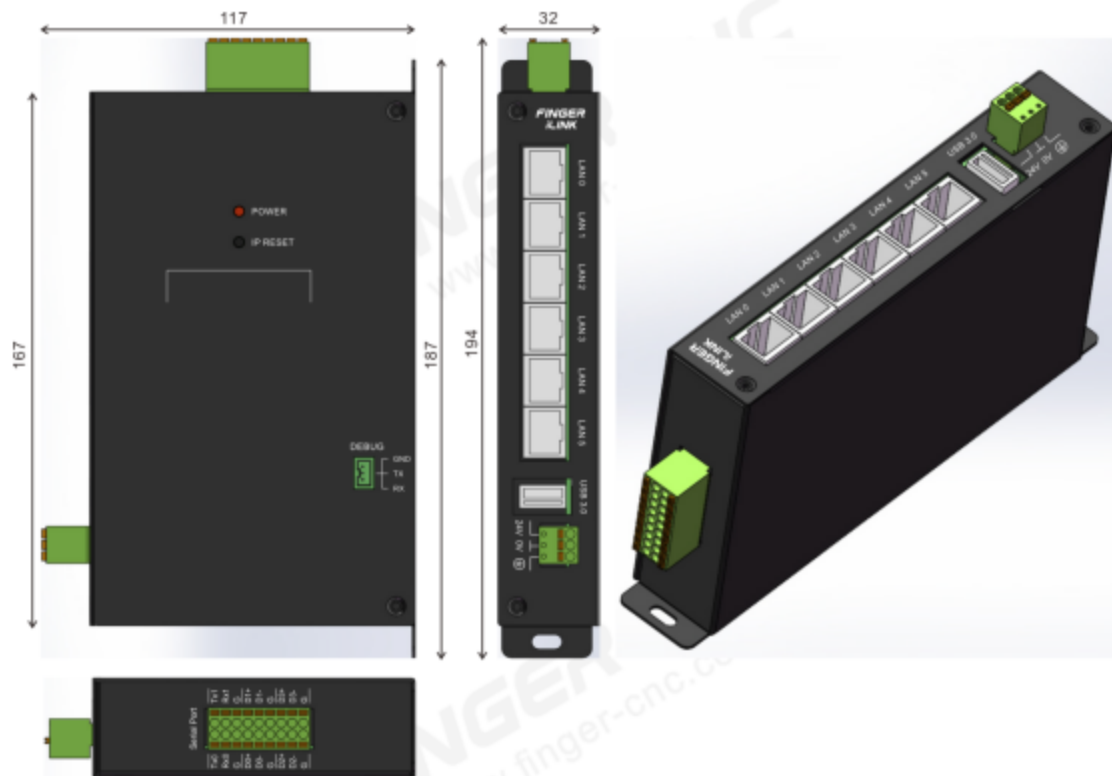
- The Finger iLink Digital Gateway is an embedded, high-performance industrial-grade product.
- It features two 100Mbps Ethernet ports, two RS232 ports, and four RS485 serial ports.
- The device supports time synchronization and data buffering in case of connection loss.
- It offers a wide range of communication interfaces and high-performance processing capabilities.
- The gateway supports various methods for edge data collection and data relay functions.

1.1.1 Finger iLink Configuration Software

Finger iLink Gateway Manager is the configuration software for the gateway. It enables gateway parameter settings, device addition, data forwarding, and data monitoring functionalities.

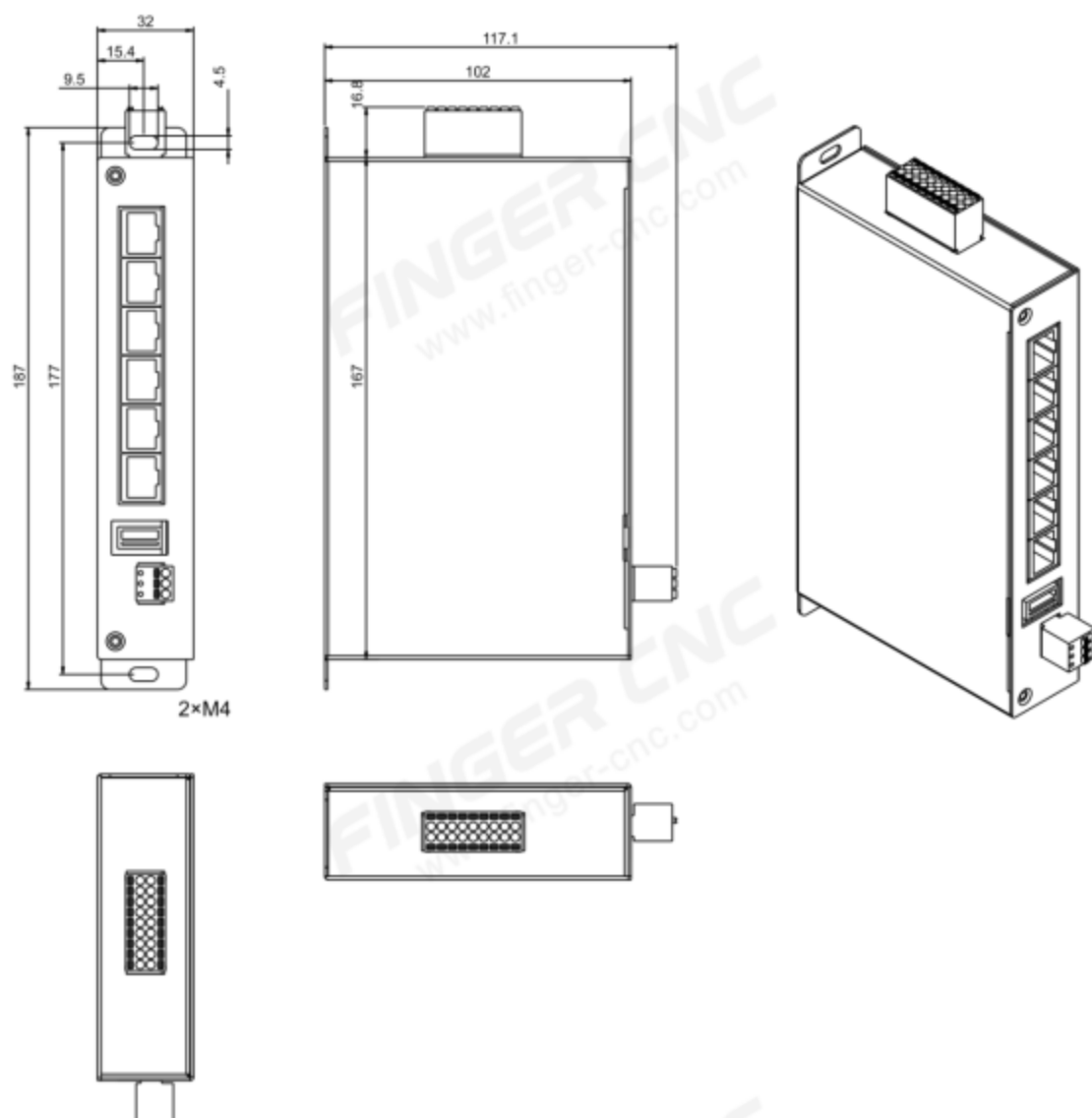
1.1.2 Hardware Specifications

1.1.2.1 Product Appearance



1.1.2.2 Product Dimensions

单位:mm



1.1.3 Product Interfaces

- Ethernet Ports 1 & 2: WAN/LAN, can be used for internet or LAN connection.
- Power Terminal Interface: Used for powering the gateway.
- USB Interface: Can be connected to a USB drive or other USB devices.
- COM0~COM1: RS232 interfaces.

- COM2~COM5: RS485 interfaces.

1.1.3.1 Basic Specifications

Basic Specifications			
Chip Architecture	ARM A55 Dual-Core Architecture	CPU Frequency	Single-Core Performance at 2.0GHz
RAM	2GB/4GB LPDDR4	Storage	8GB/64GB EMMC5.0
Communication Interfaces			
Serial Ports	6 serial communication ports, including 2 RS232 ports and 4 RS485 ports		
Ethernet	2 adaptive 100Mbps Ethernet ports		
Industrial-Grade Protection			
EMC	4.5KV (Power, Coupling)		
Vibration (Operating/Storage)	7mm@2~9Hz;2g@10~500Hz		
Operating Temperature	-20~85℃	Storage Temperature	-20~85℃
Power Supply and Consumption			
Power Supply Voltage	24 VDC		
Power Consumption	10W	Cooling Method	Passive Cooling
Installation Dimensions			
Installation Method	Free Installation	Dimensions	158*108*30 mm
Weight (KG)	0.6	Material and Appearance	Dark Gray

Software System			
Software Platform	Finger GateWay Link IDE	Data Collection Interface Library	6 types, expandable
Data Processing Capacity	20,000 points		
Operating System	Debian 11	Data Forwarding Interface Library	3 types, expandable

1.1.3.2 Serial Port Detailed Description

ComX	Identifier	Type	Diagram
Com0	TX0 / RX0 / GND	RS232_0	
Com1	TX1 / RX1 / GND	RS232_1	
Com2	D0+ / D0- / GND	RS485_0	
Com3	D1+ / D1- / GND	RS485_1	
Com4	D2+ / D2- / GND	RS485_2	
Com5	D3+ / D3- / GND	RS485_3	

2. Configuration Tools Introduction

2.1 Configuration Software

2.1.1 Gateway Manager Software

The configuration software for the gateway allows for gateway parameter settings, device addition, data forwarding, and data monitoring functionalities.

2.1.2 MQTT Broker

Used to receive data forwarded by the gateway via MQTT and to relay relevant commands to subscribers.

2.1.3 MYSQL

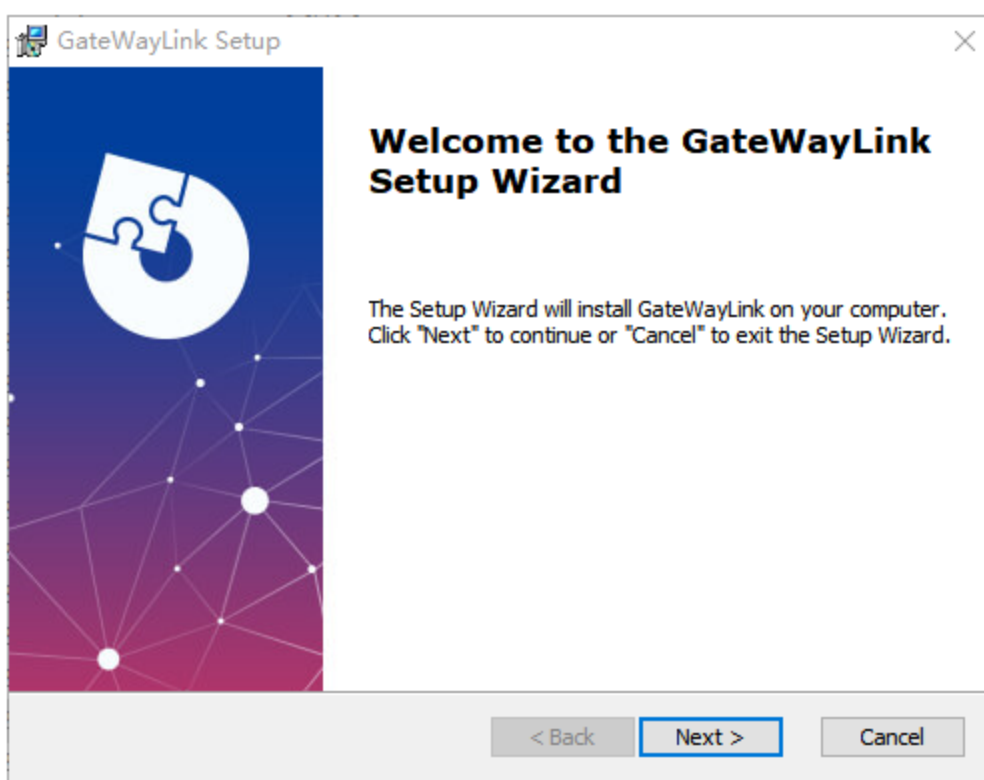
Used to store the data collected from devices.

2.1.4 Using the Gateway Manager Software

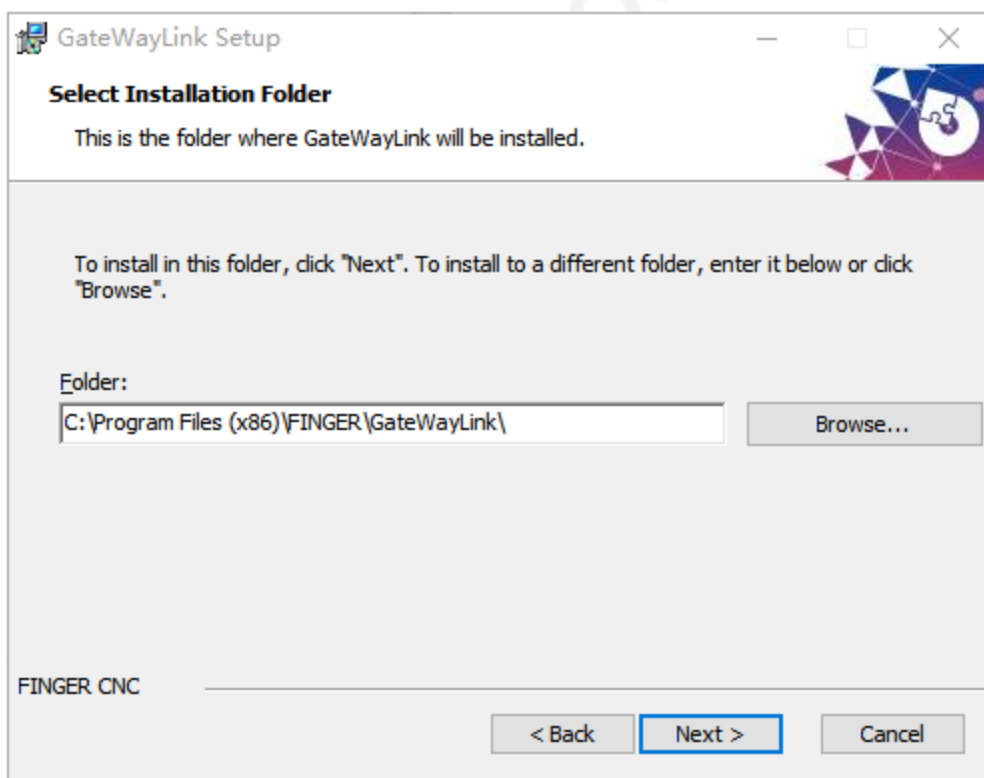
2.1.4.1 Installation Process

Hardware Requirements: Windows x64 Operating System

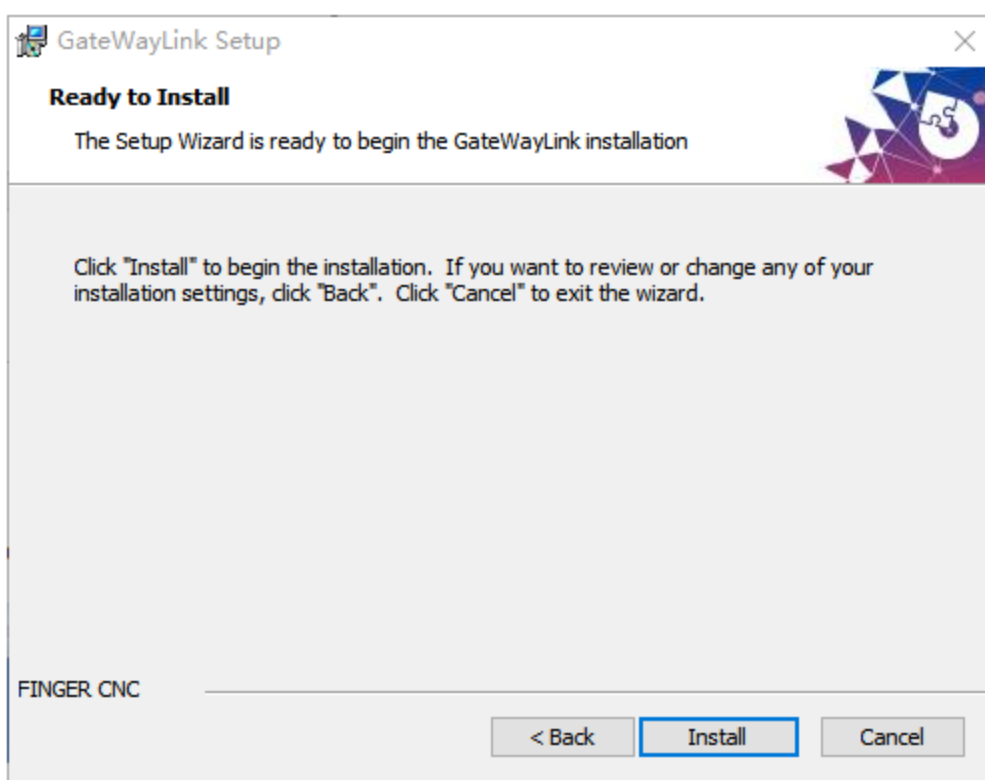
1. Double-click the "Finger GateWayLink1.1.30.exe" file to start the installation.



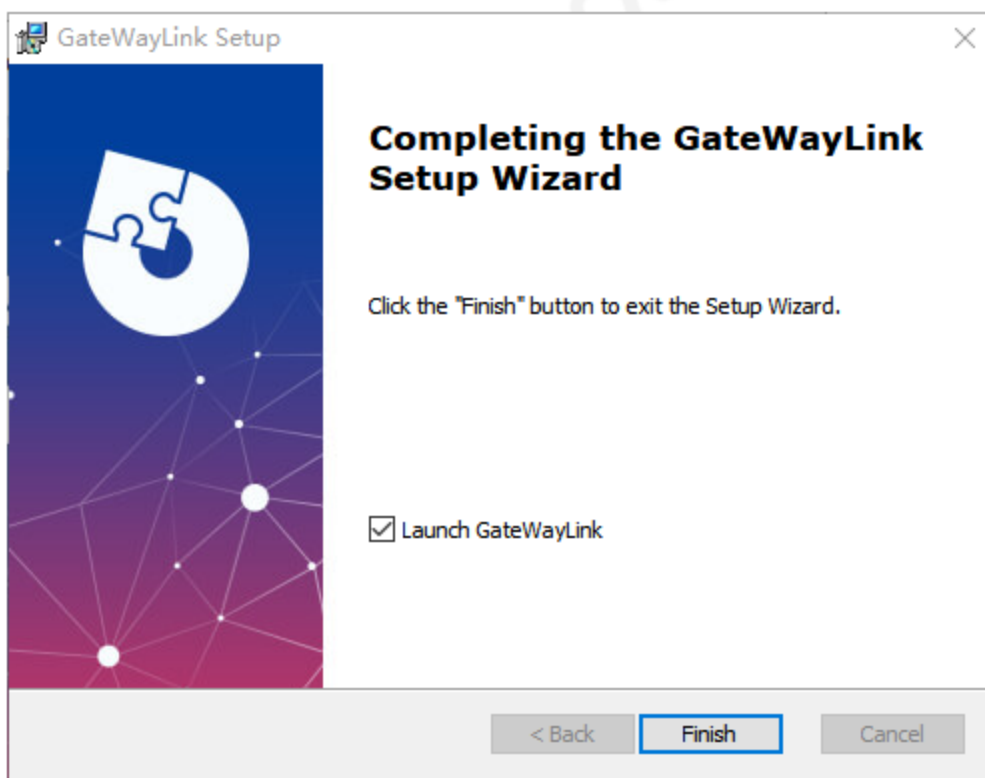
2. Select Installation Path.



3. Continue clicking "Next" in each step.



4. After completion, launch the configuration software.



5. Upon successful installation, two shortcuts will be created on the desktop.



2.2 GateWayLink Development System

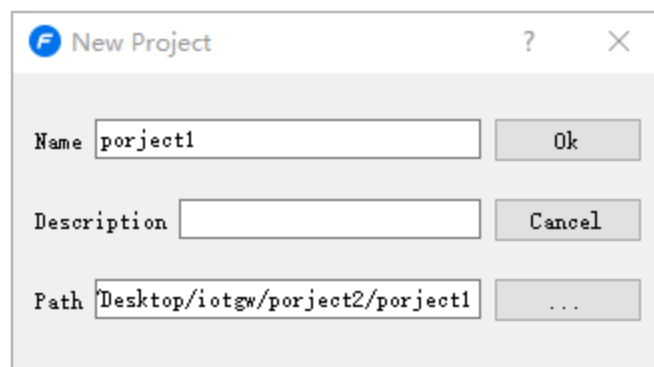
This system is used to connect to the gateway, configure related data collection and forwarding projects, modify the gateway's IP address, search for online gateway devices, and other functionalities.

2.2.1 Configuration Process

1. Create a Project

In the "Project Management" window, right-click and select "New Project..." as shown below:

- Name: You can customize the project name.
- Description: You can add a description for the project.
- Path: This is where the project will be saved.
- Click "OK" to proceed.



2. Create a Project

Select the newly created project name, right-click, and choose "New Project...". You can click "OK" by default to proceed.



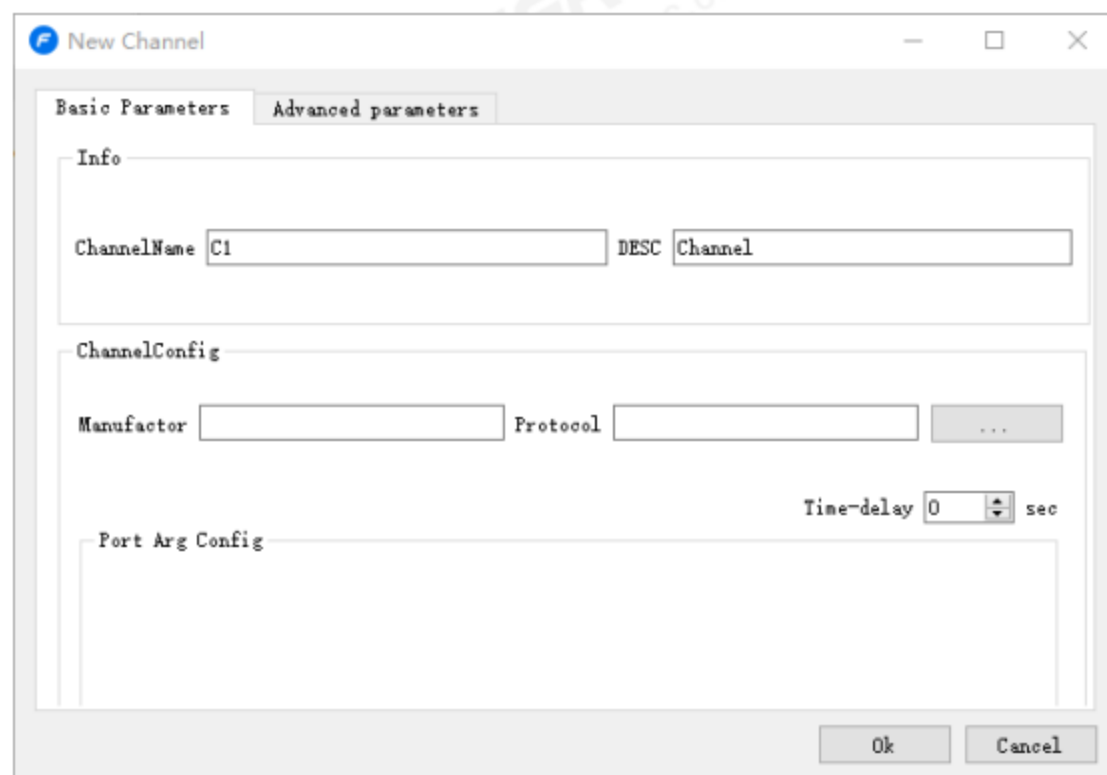
The "Project-New" dialog box has three tabs: "Info", "Run Argument", and "Alarm notification". The "Info" tab is active. It contains the following fields:

- Name:** A text box containing "engine1".
- Project ID:** A text box containing "{78c0365a-02f0-48a0-934b-69721d66eded}".
- Project Path:** A text box containing "C:/Users/Phoebus/Desktop/iotgw/project2/project1/engine1".
- DESC:** A large empty text area.

At the bottom right, there are "Ok" and "Cancel" buttons.

3. Create a Device

Select the "Collection Service" under the newly created project, right-click, and choose "New Channel".



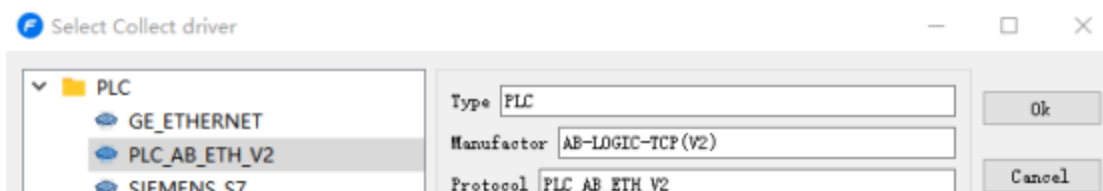
The "New Channel" dialog box has two tabs: "Basic Parameters" and "Advanced parameters". The "Basic Parameters" tab is active. It contains the following sections and fields:

- Info:**
 - ChannelName:** A text box containing "C1".
 - DESC:** A text box containing "Channel".
- ChannelConfig:**
 - Manufactor:** An empty text box.
 - Protocol:** A text box with a dropdown arrow.
 - Time-delay:** A numeric input box containing "0" and a unit "sec".
- Port Arg Config:** A large empty text area.

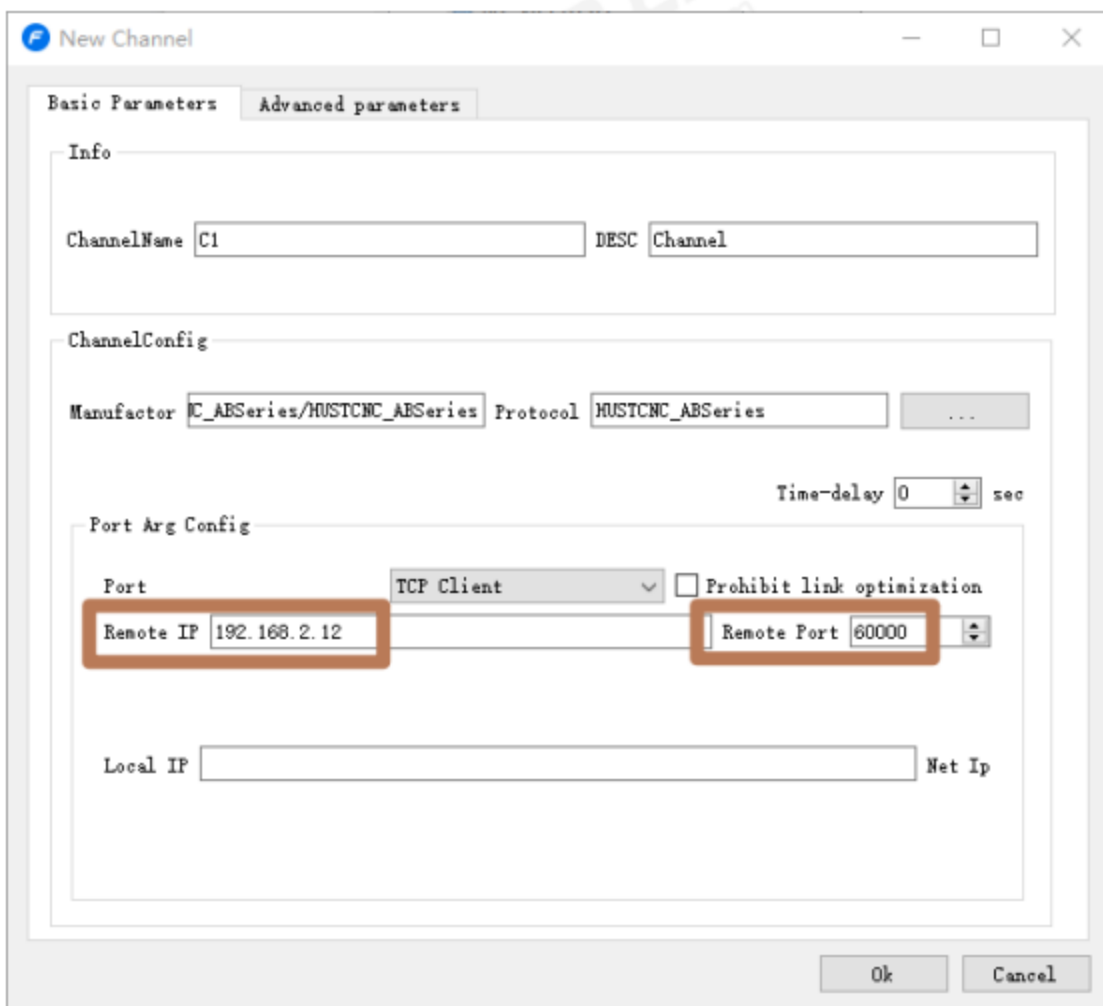
At the bottom right, there are "Ok" and "Cancel" buttons.

- Name: Must consist only of letters and numbers.
- Channel Configuration: Select the appropriate data collection protocol based on the

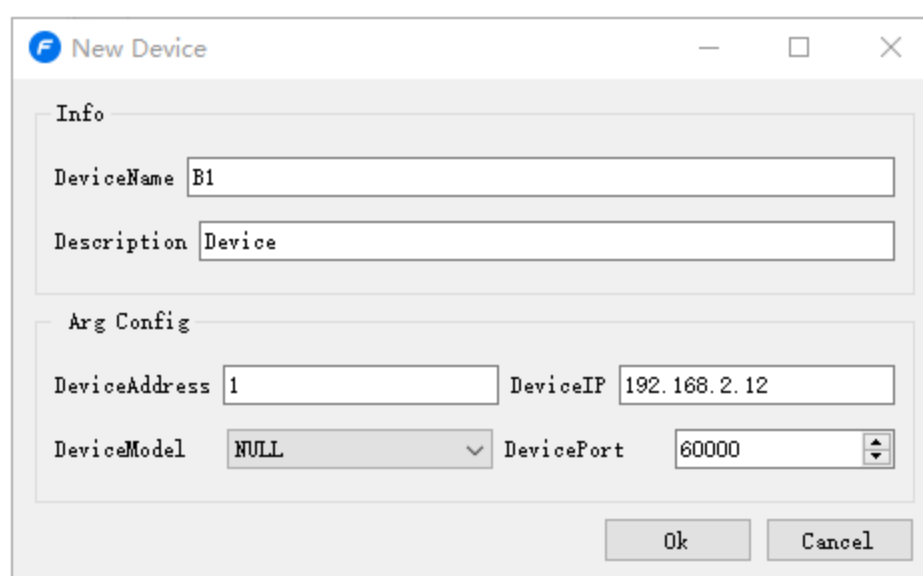
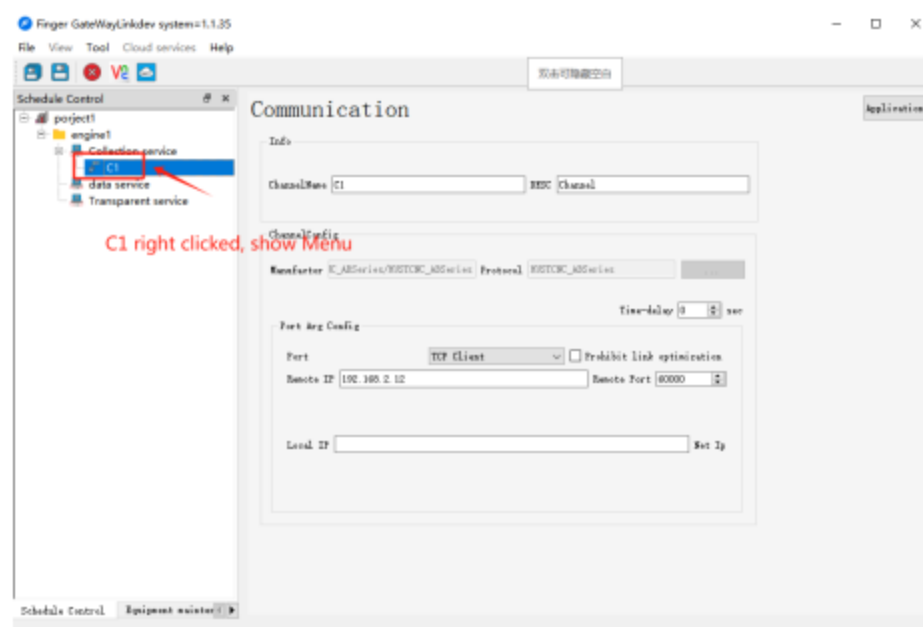
device.



- Add the corresponding parameters for the device.

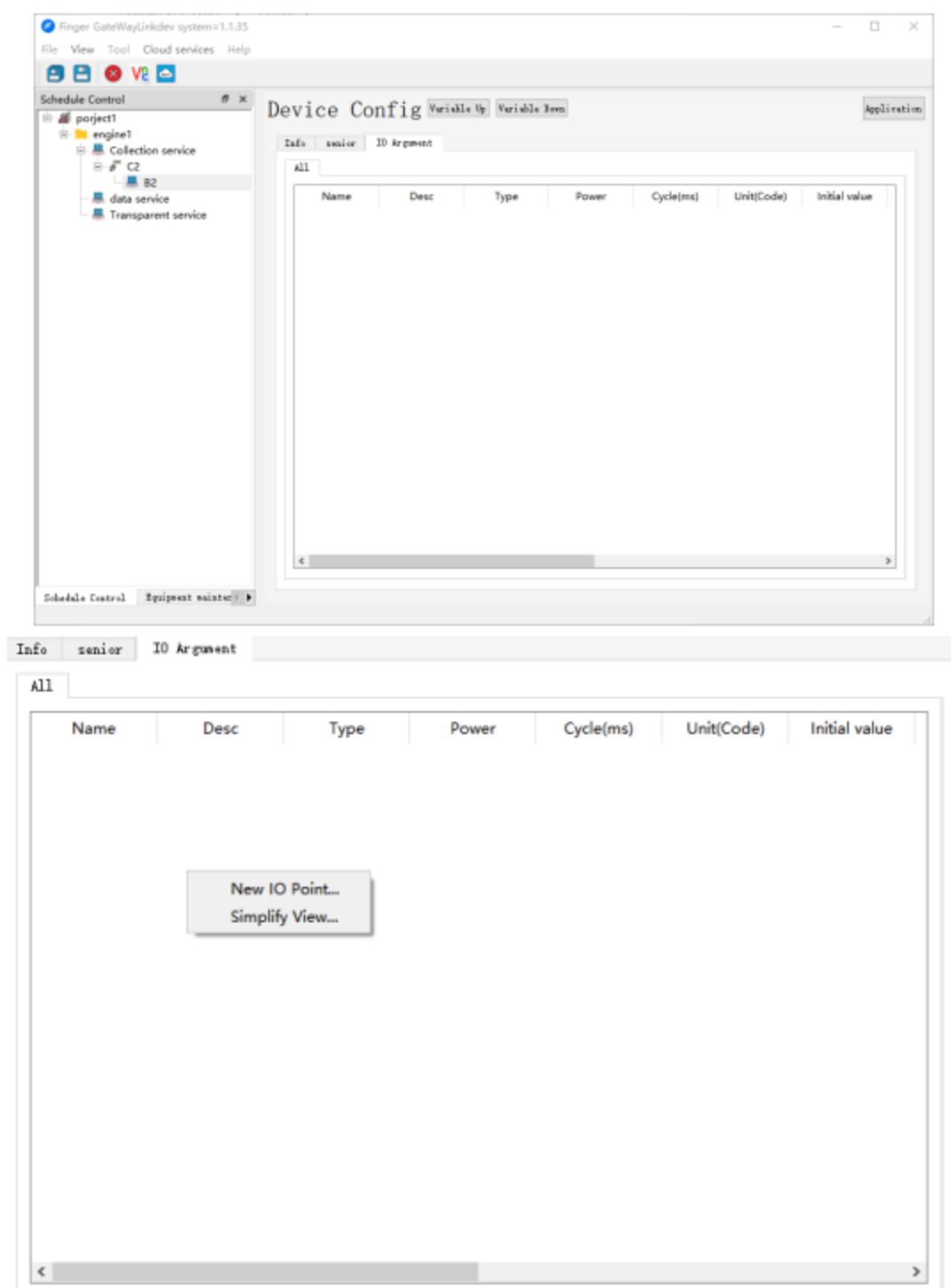


- Select the corresponding channel, right-click, and choose "New Device". The interface will appear as shown below:



4. Configure Point Table

Select the relevant device, click "IO Parameters", right-click on the blank area of the interface, and choose "New IO Point".



- In the "IO Point Data - Configuration" window that appears, configure the data points to be collected according to the device's protocol. For detailed configuration, refer to the "Communication Collection Configuration" section.

Info Other

Name tag1 ☐ Not Collect

Desc

Default Data None Normal

Unit/Code

None 0 Sec

Data Type NONE

Channel Nummer 1

Data Address 0

BIT

Decimal places 0

Ok Cancel

● Related Operations:

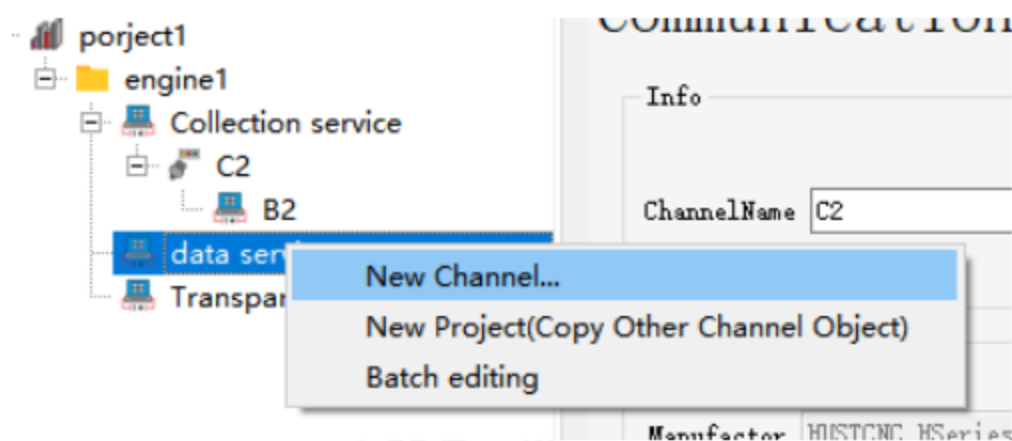
Right-click to access the corresponding options. You can use "Ctrl+C", "Ctrl+V", and the "Delete" key for respective functions.

Cycle(ms)	Unit(Code)	Initial value	Factor	Threshold	Data(Bit) Address	Data Type	Bit Collect	Function	Error Handle
1000			1	0	0	PEL			

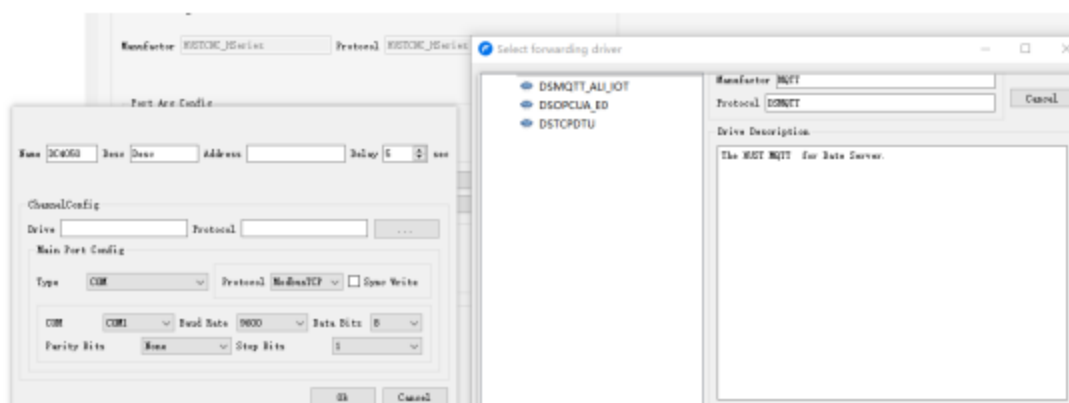
New IO Point...
 Simplify View...
 Batch settings
 Batch settings:Same
 Batch settings:Increments 1
 Batch settings:Decreasing 1

5. Forwarding Configuration

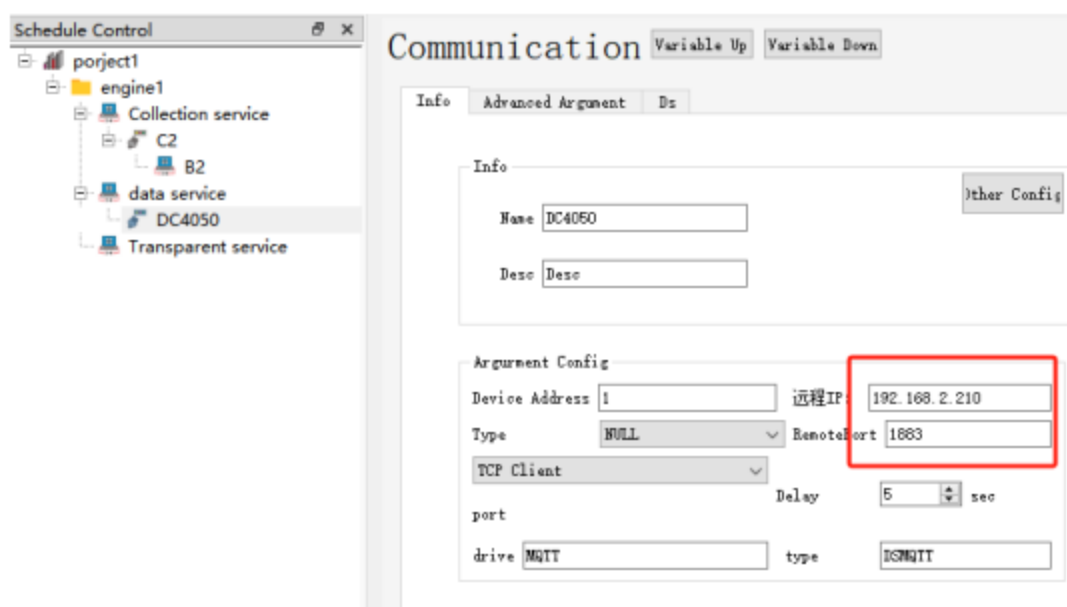
Select "Data Service" → "New Channel".



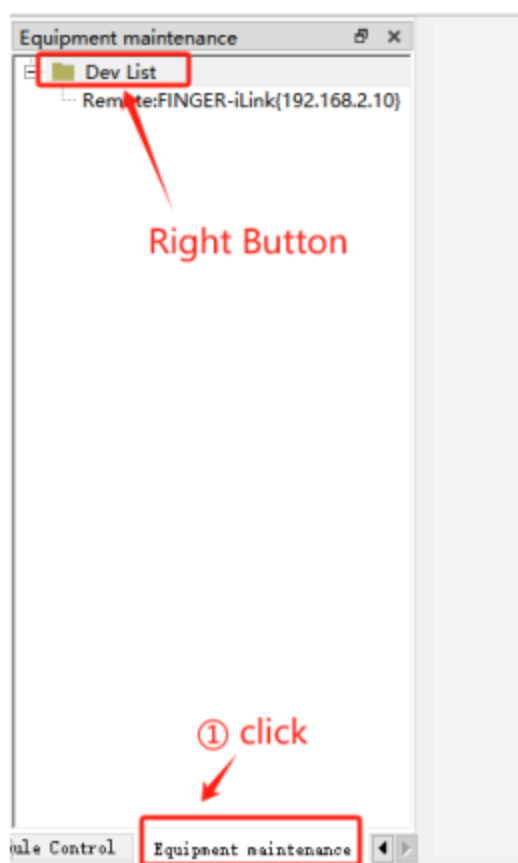
- Choose the appropriate forwarding driver according to the protocol being integrated.



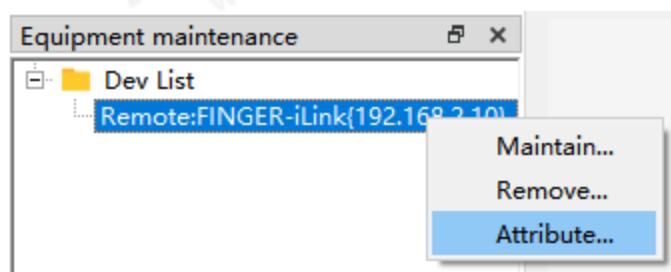
- Select the corresponding configuration to proceed.



6. Download the Project



- Add an online gateway. The gateway and the computer must be on the same network segment to search for online gateways.
- Select the added gateway device, right-click, and choose "Attribute".



- Click the "Refresh" button to search for the online gateway list.
- Click on the gateway device in the table, then click "OK".

Project

Gateway Name: FINGER-iLink

IP: 192.168.2.10 Port: 9200

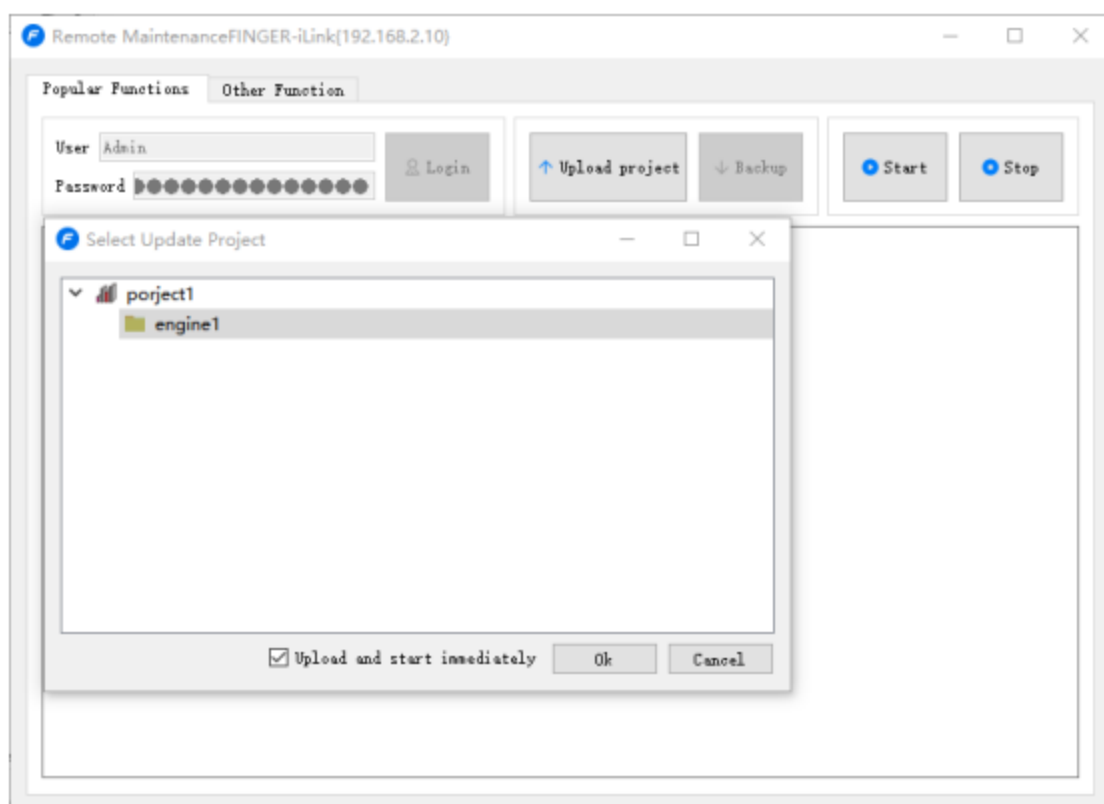
Network card IP selection: 192.168.2.37

Static IP

Refresh

	Name	Id	IP	Mac
1	Finger	1	192.168.2.8	FE:26:F2:98:43:77
2	Finger	1	192.168.2.6	66:5E:DC:87:B7:7D
3	Finger	1	192.168.2.9	FA:60:45:69:58:04
4	Finger	1	192.168.2.12	1E:05:EE:47:02:E7
5	FINGER-iLink	1	192.168.2.10	3E:22:4F:F6:4B:63

- You can connect directly or via a LAN cable.
- Project Download: Right-click and select "Maintenance". In the common functions interface, click "Update Project", check "Select Update Project", and click "Start".
- When the project update is complete, to start or stop the project, simply click the "Start" or "Stop" button.



- If the log output window shows "Startup Successful!", it indicates that the project update was successful.

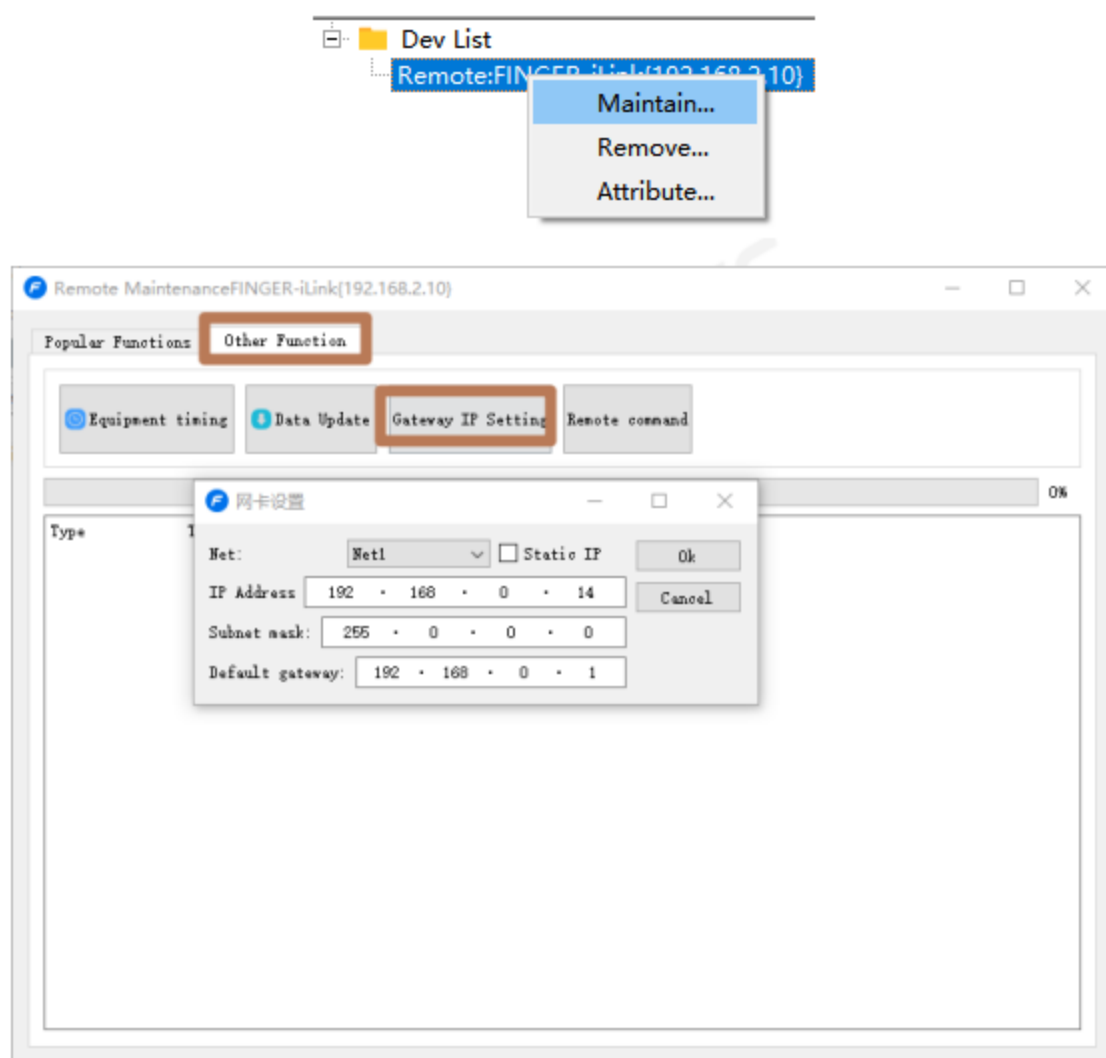
```

Stop Response 2024-10-08 13:24:26   Connect Gateway      Connection successful
Select project 2024-10-08 13:25:11   Upload project C:/Users/Phoebus/Desktop/iotgw/project2/project1/engine1/db.xml
Select project 2024-10-08 13:25:11   Upload project Please wait for the update...
Upload project 2024-10-08 13:25:11   Upload project project file update success!
Stop Response 2024-10-08 13:25:11   Connect Gateway      Connection successful
Start response 2024-10-08 13:25:12   start-up             start-up success!
  
```

2.2.1.1 Network Configuration

Plug the Ethernet cable into the gateway's Ethernet interface.



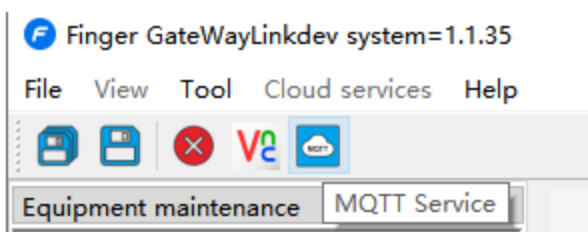


2.2.1.2 MQTT Subscriber

The MQTT Subscriber is used to write data forwarded by the MQTT driver into a designated MySQL database table.

2.2.1.2.1 Usage Process

Before running the data collection project, you need to first start the "MQTT Subscriber" and then follow the "Configuration Process" → "Download Project" to start the data collection project.



Key	Value	Type
"hostName"	"192.168.2.3"	string
"port"	1883	real
"root"	"sensor"	string
"user"	"admin"	string
"pwd"	"123"	string
"interval"	60000	real
"keepAlive"	true	boolean
"autoReCon"	true	boolean
"cfgdb"	600000	real
"recall"	false	boolean
"mysql_ip"	"192.168.2.3"	string
"mysql_port"	3306	real
"mysql_user"	"root"	string
"mysql_pwd"	"clannad"	string
"mysql_db"	"test_11_06"	string

```
{
  "hostName" : "192.168.2.3",
  "port" : 1883,
  "root" : "sensor",
  "user" : "admin",
  "pwd" : "123",
  "interval" : 60000,
  "keepAlive" : true,
  "autoReCon" : true,
  "cfgdb" : 600000,
  "recall" : false,
  "mysql_ip" : "192.168.2.3",
  "mysql_port" : 3306,
  "mysql_user" : "root",
  "mysql_pwd" : "clannad",
  "mysql_db" : "test_11_06"
}
```

2.2.1.2.2 Database Table Write Instructions

2.2.1.2.2.1 devs Device List

名	类型	长度	小数点	不是 null	虚拟	键
ied	int	12	0	☒	☐	1
cid	varchar	255	0	☐	☐	
name	varchar	255	0	☐	☐	

Sample Data:

ied	cid	name
1	lathe1	C13
2	clientID	HUSTA6Cnc1

2.2.1.2.2.2 cfigs Device Collection Point Table

名	类型	长度	小数点	不是 null	虚拟	键
tid	int	12	0	☒	☐	1
ied	int	12	0	☐	☐	
tagName	varchar	255	0	☐	☐	
dsc	varchar	255	0	☐	☐	
addr	int	12	0	☐	☐	

Sample Data:

tid	ied	tagName	addr
18387984	456	COM35000	0
18387985	456	COM35001	0
18387986	456	COM35002	0
18387987	456	COM35003	0
18387988	456	COM35004	0
18387989	456	COM35005	0
18387990	456	curErr	0
18387991	456	curPro	0
18387992	457	COM35000	0

2.2.1.2.2.3 realTimedatas Real-Time Data

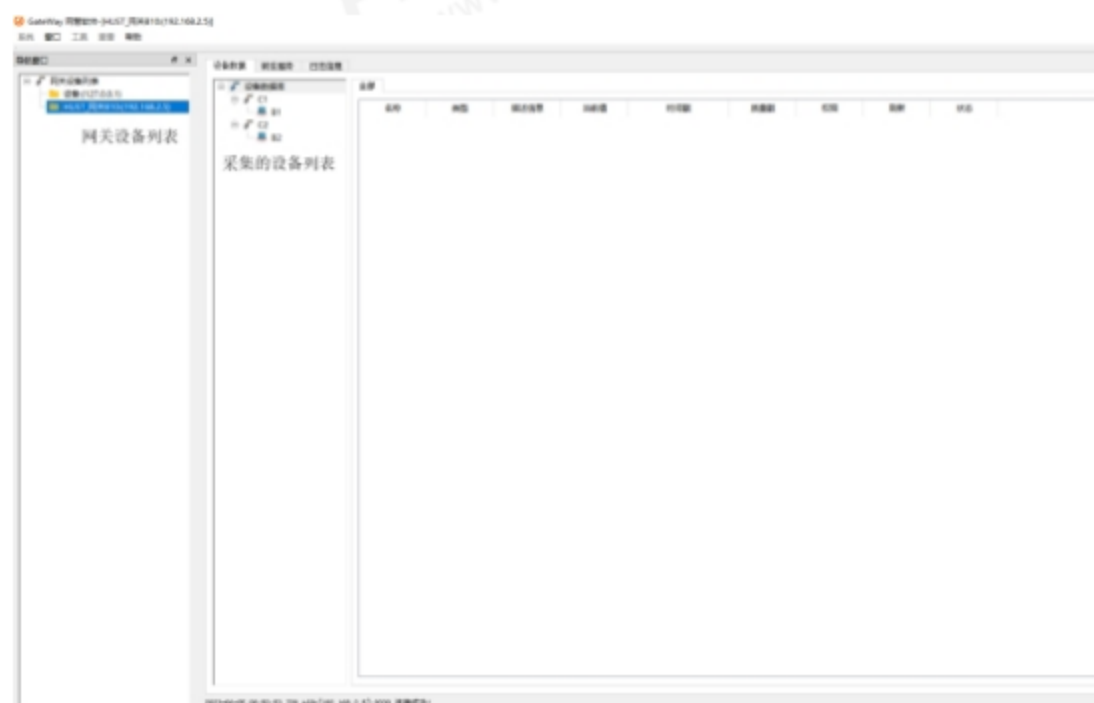
名	类型	长度	小数点	不是 null	虚拟	键
interid	int	12	0	☒	☐	1
tid	int	12	0	☒	☐	
cid	varchar	255	0	☐	☐	
dev	varchar	255	0	☐	☐	
tag	varchar	255	0	☐	☐	
value	varchar	255	0	☐	☐	
t	timestamp	6	0	☐	☐	
cf	tinyint	4	0	☐	☐	
vt	tinyint	4	0	☐	☐	
q	tinyint	4	0	☐	☐	

Sample Data:

interid	tid	cid	dev	tag	value	t	cf	vt	q
1	0	lathe1	C13	tag717	80.975	2023-04-26 18:21:29.000000	...	0	2 0
2	0	lathe1	C13	tag718	80.975	2023-04-26 18:21:29.000000		0	2 0
3	0	lathe1	C13	tag719	80.975	2023-04-26 18:21:29.000000		0	2 0
4	0	lathe1	C13	tag720	80.975	2023-04-26 18:21:29.000000		0	2 0
5	0	lathe1	C13	tag721	80.975	2023-04-26 18:21:29.000000		0	2 0
6	0	lathe1	C13	tag722	80.975	2023-04-26 18:21:29.000000		0	2 0
7	0	lathe1	C13	tag723	80.975	2023-04-26 18:21:29.000000		0	2 0
8	0	lathe1	C13	tag724	80.975	2023-04-26 18:21:29.000000		0	2 0
9	0	lathe1	C13	tag725	80.975	2023-04-26 18:21:29.000000		0	2 0
10	0	lathe1	C13	tag726	80.975	2023-04-26 18:21:29.000000		0	2 0
11	0	lathe1	C13	tag727	80.975	2023-04-26 18:21:29.000000		0	2 0
12	0	lathe1	C13	tag728	80.975	2023-04-26 18:21:29.000000		0	2 0
13	0	lathe1	C13	tag729	80.975	2023-04-26 18:21:29.000000		0	2 0
14	0	lathe1	C13	tag730	80.975	2023-04-26 18:21:29.000000		0	2 0
15	0	lathe1	C13	tag731	80.975	2023-04-26 18:21:29.000000		0	2 0
16	0	lathe1	C13	tag732	80.975	2023-04-26 18:21:29.000000		0	2 0
17	0	lathe1	C13	tag733	80.975	2023-04-26 18:21:29.000000		0	2 0
18	0	lathe1	C13	tag734	80.975	2023-04-26 18:21:29.000000		0	2 0
19	0	lathe1	C13	tag735	80.975	2023-04-26 18:21:29.000000		0	2 0
20	0	lathe1	C13	tag736	80.975	2023-04-26 18:21:29.000000		0	2 0
21	0	lathe1	C13	tag737	80.975	2023-04-26 18:21:29.000000		0	2 0
22	0	lathe1	C13	tag738	80.975	2023-04-26 18:21:29.000000		0	2 0

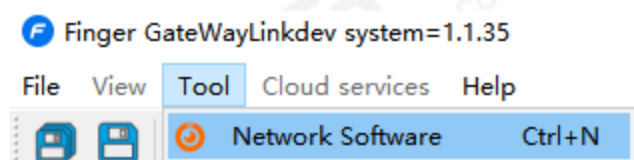
2.3 GateWayLink Network Management System

The GateWayLink Network Management System is used for monitoring the data collected and forwarded by the gateway.



To Access:

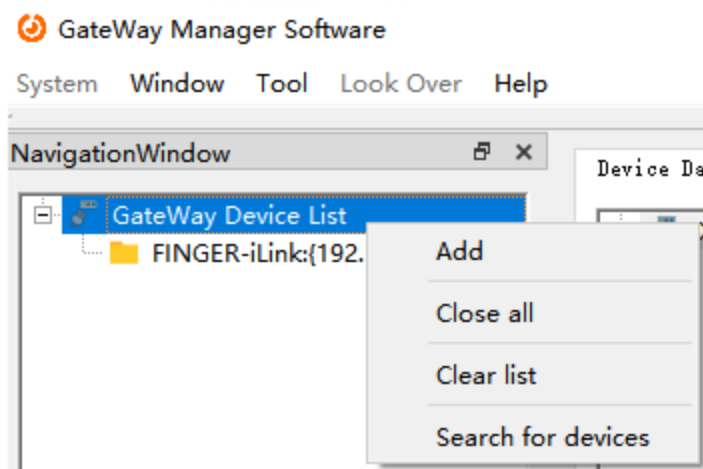
- Double-click the "GateWayLink Network Management System" icon on the desktop to launch the software.
- Alternatively, access the software through the GateWayLink Development System's "Toolbar" → "Network Management Software".



2.3.1 Usage Process

2.3.1.1 Connecting to the Gateway

1. Add Gateway



Set

Name: Address:

UserName: Password:

All Freq: sec

Auto Time-check: sec

Remote Device Port

DevicePort:

本地网卡(IP)选择: Search IP Online

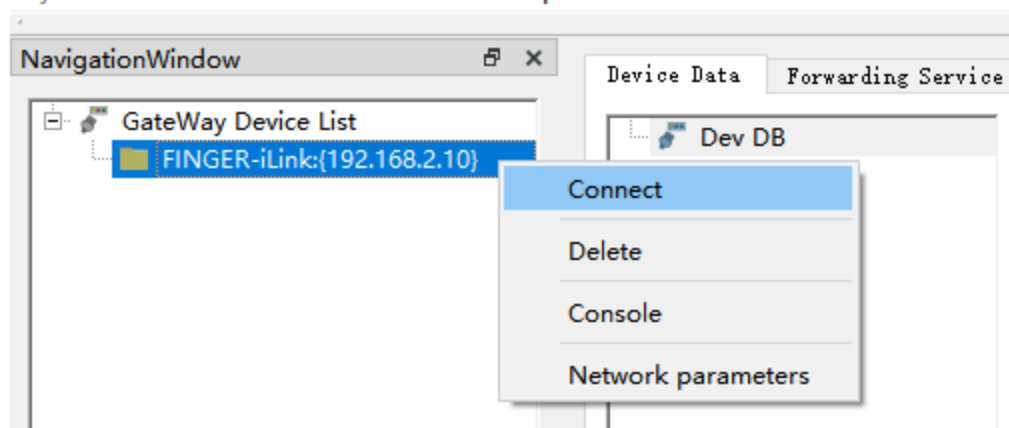
	Name	Id	IP	Mac
1	Finger	1	192.168.2.8	FE:26:F2:98:43:77
2	Finger	1	192.168.2.9	FA:60:45:69:58:04
3	Finger	1	192.168.2.6	66:5E:DC:87:B7:7D
4	Finger	1	192.168.2.12	1E:05:EE:47:02:E7
5	FINGER-iLink	1	192.168.2.10	3E:22:4F:F6:4B:63

2. Connect to the Gateway

Select a gateway from the gateway device list, right-click and choose "Connect," or double-click a device in the list to connect.

GateWay Manager Software

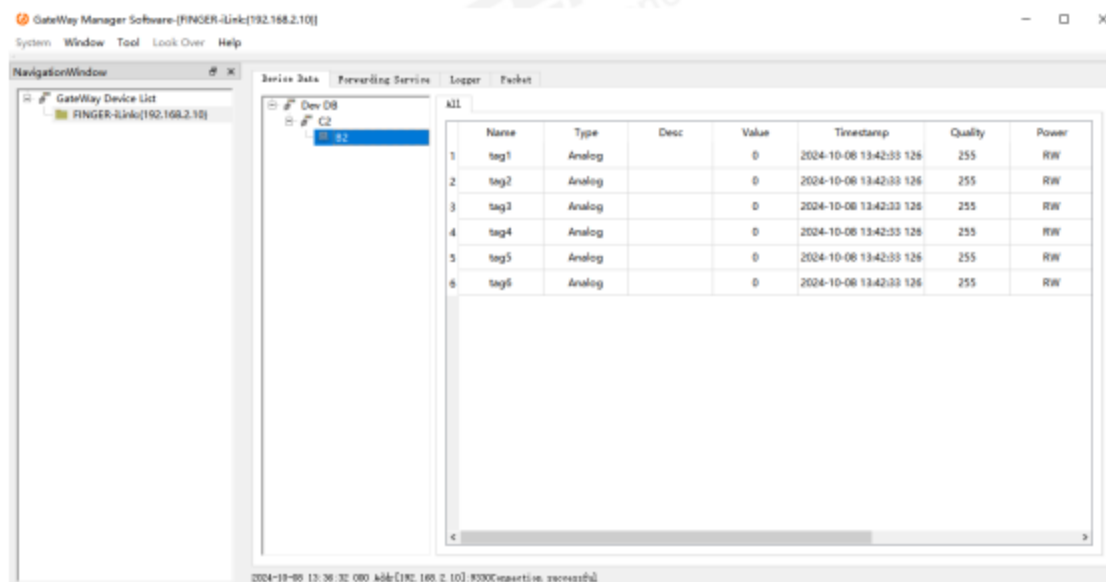
System Window Tool Look Over Help



2.3.1.2 Viewing Data

2.3.1.2.1 Device Data

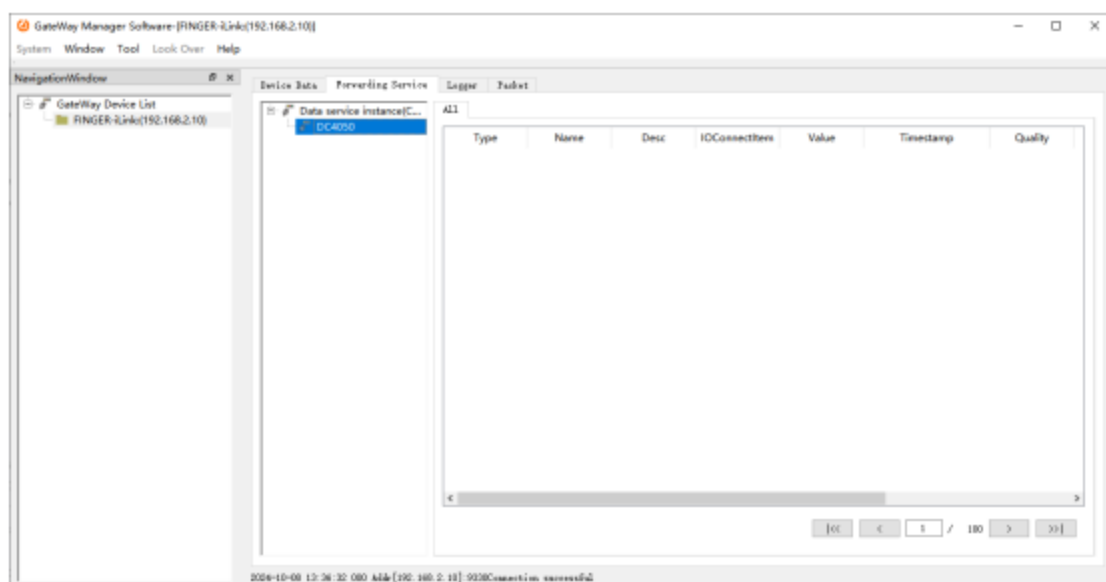
Select a device under "Device Data" to view the collected data in the table on the right.



- **Current Value:** The value of the data collected from the device, which refreshes in real-time according to the collection cycle.
- **Timestamp:** The time when the data was last updated.
- **Quality Stamp:** A value of 0 indicates that the data has been updated and is normal; 255 indicates the data has not been updated and is abnormal.
- **Permission:** RW (Read/Write), R (Read-only), W (Write-only).

2.3.1.2.2 Forwarded Data

Select a data service instance under "Forwarding Service" to view the forwarded data.



2.3.1.2.3 Log Information

You can check whether the project configuration files are correct, verify the collection and forwarding processes, and view the version information of the collection and forwarding drivers.

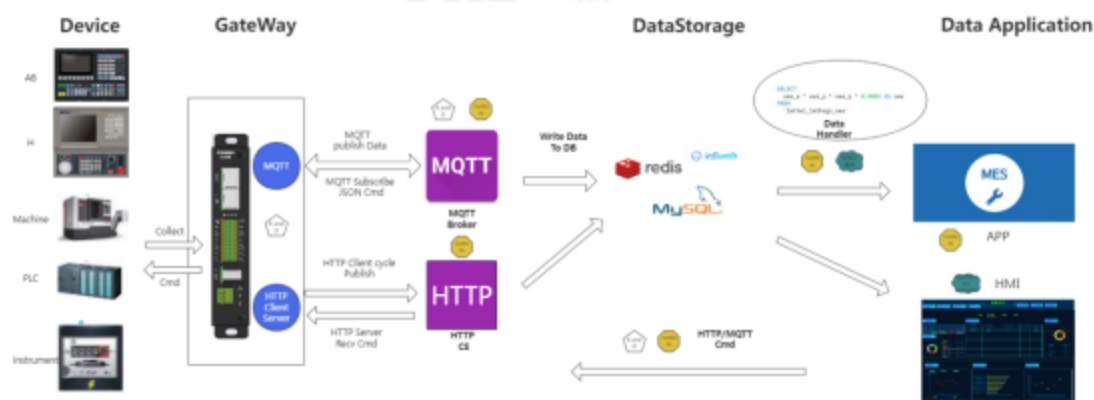
Device Data Forwarding Service Logger Packet						
	Level	Time	Model	Source	Object	Content
1	Message	2024-10-08 13:42:33 114	IO ...	Collection ...	CONFIG	密钥匹配成功!
2	Message	2024-10-08 13:42:33 114	IO ...	Collection ...	CONFIG	配置工程文件正常!
3	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	检测GwlSever 版本...
4	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	检测GwlSever 版本 1.1.22GwlSever 日期 2023-03-2...
5	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	检测GwlKernel 插件版本...
6	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	检测GwlKernel 插件版本...
7	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	GwlKernel 版本 1.1.25GwlKernel 日期 2023-04-08 ...
8	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:Core版本:1.0.5
9	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:DSMQTT版本:1.0.7 2023-11-09 15:54
10	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:DSMQTT_ALI_IOT版本:1.0.0 2023-10-10 17:54
11	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:DSMQTT_ALI_IOT版本:1.0.0 2023-10-10 17:54
12	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:DSModbusRTU版本:1.0.6 2023-03-24 15:54
13	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:DSOPCUA_E0版本:1.0.5
14	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:GE_ETHERNET版本:1.0.5
15	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:HTTP_V2版本:1.0.5
16	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:HUSTCNC_ABSeries版本:1.0.6
17	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:HUSTCNC_HSeries版本:1.0.6 2023-04-18 16:24
18	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:ModbusASCII版本:1.0.5
19	Message	2024-10-08 13:42:33 118	IO ...	Collection ...	版本检测	名称:ModbusRTU版本:1.0.5

View the connection status of the "Collection" and "Forwarding" drivers.

	Level	Time	Model	Source	Object	
15	Message	2024-10-08 13:42:33 125	IO communicate	Collection service	C2	启动通道
16	Message	2024-10-08 13:42:34 128	IO communicate	Collection service	HUSTCNC_HS...	db.C2.B2 [/dev/ttyUSB0,38400 7
17	Message	2024-10-08 13:42:44 126	IO communicate	Forwarding Service	DSMQTT_Error	ds.DC4050 [192.168.2.210]:1883
18	Message	2024-10-08 13:42:50 206	IO communicate	Forwarding Service	DSMQTT_Error	ds.DC4050 [192.168.2.210]:1883
19	Message	2024-10-08 13:42:56 286	IO communicate	Forwarding Service	DSMQTT_Error	ds.DC4050 [192.168.2.210]:1883
10	Message	2024-10-08 13:43:02 366	IO communicate	Forwarding Service	DSMQTT_Error	ds.DC4050 [192.168.2.210]:1883
11	Message	2024-10-08 13:43:08 446	IO communicate	Forwarding Service	DSMQTT_Error	ds.DC4050 [192.168.2.210]:1883
12	Message	2024-10-08 13:43:14 526	IO communicate	Forwarding Service	DSMQTT_Error	ds.DC4050 [192.168.2.210]:1883
13	Message	2024-10-08 13:43:20 606	IO communicate	Forwarding Service	DSMQTT_Error	ds.DC4050 [192.168.2.210]:1883
14	Message	2024-10-08 13:43:26 686	IO communicate	Forwarding Service	DSMQTT_Error	ds.DC4050 [192.168.2.210]:1883
15	Message	2024-10-08 13:43:32 766	IO communicate	Forwarding Service	DSMQTT_Error	ds.DC4050 [192.168.2.210]:1883

3. Product Function Overview

3.1 IoT Framework Diagram



3.1.1 Device Side

Collection Protocols:

- Modbus protocol: Support Modbus TCP、RTU、ASCII collection。
- OPCUA
- PLC Siemens S7 Series

- GE Ethernet RSTP Protocol
- Custom Protocol for B Series Controllers

Customers only need to know the data acquisition address of the respective protocol, define the commands, and configure everything uniformly in the software.

- ✧ Advantages: Supports multiple protocols with data acquisition of up to 20,000 points.
- ✧ Disadvantages: When there are fewer devices, hardware resources may not be fully utilized.

3.1.2 Data Collection and Forwarding

Data is reported via standard protocols like MQTT, HTTP, and Alibaba Cloud MQTT.

- Built-in MQTT/HTTP allows configuration of default data types for writing into databases and tables. Customers only need to understand the corresponding field descriptions of the database/table.
- The forwarding protocol only selects periodic reporting data, enabling customers to independently manage the data written into the database.
- ✧ Advantages: No need to understand device-side protocols, enabling uniform data forwarding and reporting.
- ✧ Disadvantages: Currently, supported protocol types are limited, which may not meet customers' specific protocol requirements.

3.1.3 Data Storage

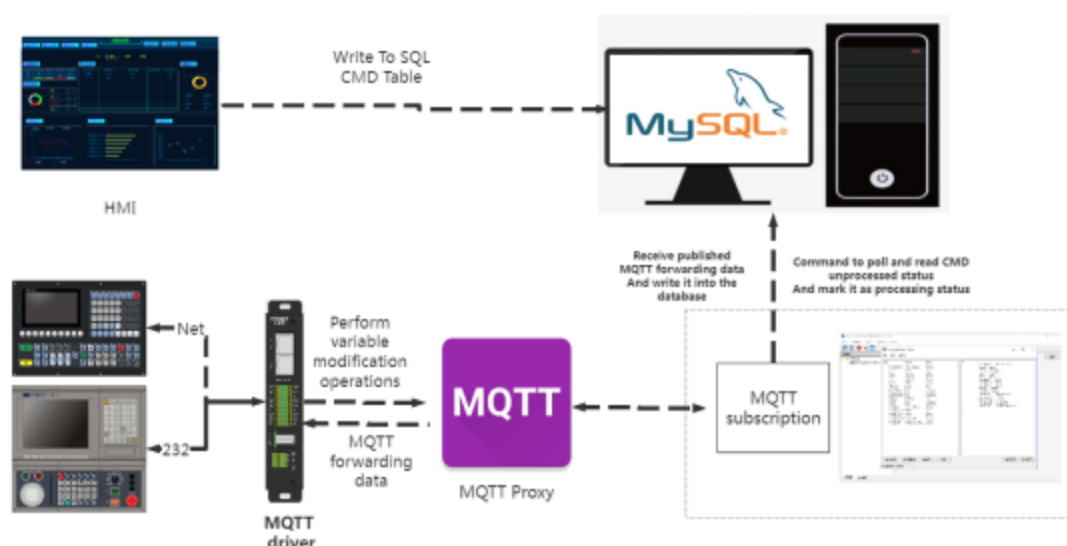
For storing automatically reported data, customers are required to develop their own MQTT and HTTP Server management programs.

3.1.4 Data Application

Database data can be processed by higher-level systems to achieve visualization.

- Application engineers can design IoT interfaces via HMI to achieve data association and display.
- Customers can independently develop IoT interfaces for data visualization and integration with MES or other upper-level systems.
- ✧ Advantages: Data is uniformly sourced from the database, facilitating data processing and display.

MQTT Forwarding and MQTT Subscription Data Flow Diagram



3.2 Function Overview

3.2.1 Data Collection

The system uses intelligent collection algorithms to support data collection from various devices such as PLCs, CNC machines, power systems, and water management systems.

It is embedded with mainstream industrial protocols (Modbus, OPCUA, Siemens S7, GE

Ethernet) and also supports the development of custom protocols.



3.2.2 Edge Computing

- The gateway has edge computing functions such as intelligent data collection, data filtering, formula calculation, and data grouping strategies.
- It standardizes data from different devices, significantly reducing development costs for customers.

3.2.3 Data Forwarding

- Supports various protocols for connecting to cloud platforms.
- Protocols include MQTT, Modbus, HTTP(s), and Alibaba Cloud IoT platform
 1. Customers can define their own HTTP device commands to modify device data, upload files, and perform other operations.
 2. HTTP commands include gateway time synchronization, gateway reboot, modification of device-side variable values, file upload/download, etc.
- Supports custom plugin development.

The gateway can receive commands issued by upper-level applications.

3.2.4 Data Caching

The gateway supports caching data to its internal disk.

3.2.5 Device Time Synchronization

- In industrial environments, data generated by devices in real time is time-sensitive. Data without timestamps or with incorrect timestamps is often of no value. Therefore, devices and data in industrial settings must have accurate timestamps. Many devices provide their own accurate timestamps, but some communication protocols, such as Modbus, do not transmit timestamps. Finger iLink collects data via protocols like Modbus without timestamps and then assigns a current timestamp to each data point. This makes time synchronization a crucial function for Finger iLink.
- Finger iLink supports two methods of time synchronization:
 1. Synchronizing with the computer managing the configuration, setting the gateway's time to match the computer's current time.
 2. Synchronizing with a network time server.

3.2.6 Controller and Digital Gateway Connection

3.2.6.1 Serial Connection to Controller

The H series controllers can be connected to the gateway via a USB to 232 cable, supporting only a 1-to-1 connection.

3.2.6.2 Ethernet Connection to Controller

A/B series controllers can connect to gateway devices in the local area network (LAN) using an Ethernet cable.

3.2.7 Other Devices

Customers can select connections via Ethernet port, RS232, or RS485.

3.2.8 Communication Data Collection Configuration

3.2.8.1 Modbus

Modbus, as the most widely used international standard protocol in industrial equipment communication, has a well-defined application layer. Here's a brief introduction to its protocol definition:

Type	Description
Device Address	Corresponds to any number address from 1 to 255 set for the communication device.
Function Code	For reading analog values, function codes 03 or 04 are generally used; for reading digital values, function codes 01 or 02 are commonly used. To force a single bit or multiple consecutive bits in the holding register, function codes 05 or 15 are used. To force a single register or multiple consecutive registers in the holding register, function codes 06 or 16 are used.
Starting Address	The data is defined in the communication device's register, typically provided by the manufacturer in a point table.
Data Type	The format of the data in the register is often 16-bit unsigned, as

	each register is 16 bits in length.
CRC Check	After the CRC check algorithm is applied, the calculated CRC value is added at the end of the protocol transmission frame to prevent errors caused by serial port transmission issues.

3.2.8.1.1 Device Connection

- **RS485 Communication:**

The A terminal of the device connects to the A terminal of the Finger iLink, and the B terminal of the device connects to the B terminal of the Finger iLink. It is important to ensure that each RS485 device has a unique address, and that the baud rate and other serial parameters are consistent. Additionally, when wiring multiple RS485 devices on a single line, connections should be made from the AB terminals of one RS485 device to the AB terminals of the next device, to prevent parallel connections from dispersing the transmission signal.

- **RS232 Communication:**

The device's transmit pin connects to the RX of the Finger iLink, and the device's receive pin connects to the TX of the Finger iLink (RX and TX should be cross-connected). The device's ground pin connects to the GND of the Finger iLink.

- **Ethernet Communication:**

The device's network port connects to the LAN port of the Finger iLink. If multiple Ethernet devices are communicating, a switch is required.

3.2.8.1.2 Device Configuration

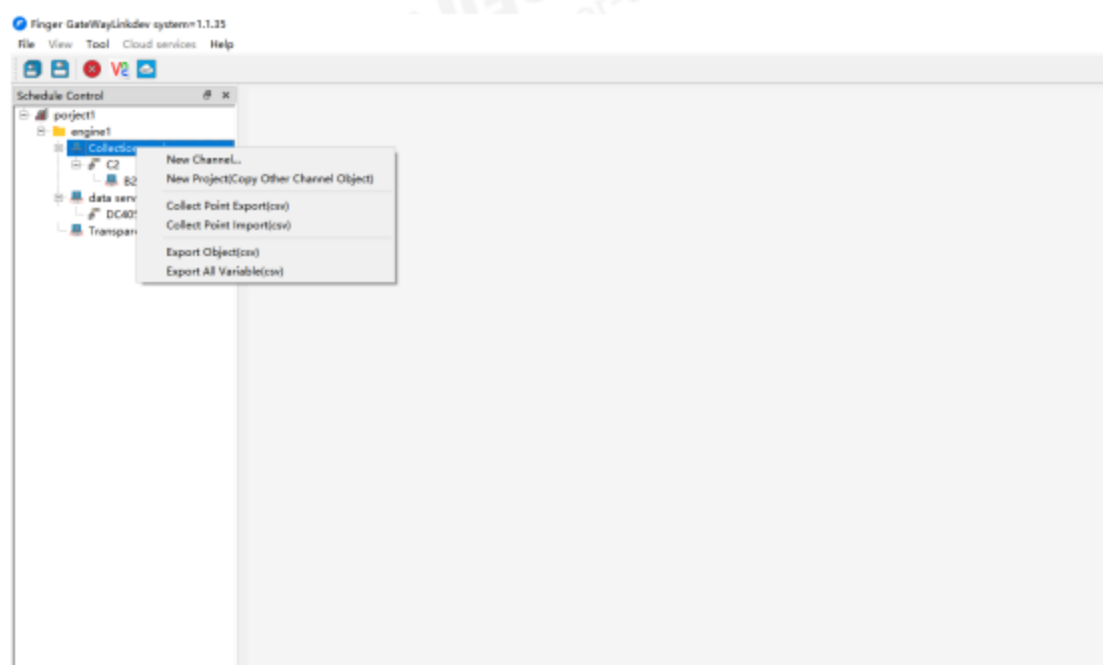
- **Refer to the actual device manual.**

Select the protocol in the configuration that corresponds to the device, such as Modbus TCP, Modbus RTU, or Modbus ASCII.

- **Define communication interface parameters:**
 1. For serial communication, define transmission baud rate, data bits, stop bits, and parity.
 2. For Ethernet communication, define the IP address and TCP port number.
- **Define device address.**
- **Use the manufacturer's device point table and the data displayed on the device panel for simple correspondence.**
- **Use the manufacturer's provided testing software or third-party testing software (such as Modscan or Modbus Poll) to perform communication testing on the device.**

3.2.8.1.3 Communication Configuration

Select "Acquisition Service" under the project, then right-click and choose "New Channel" from the menu.



New Channel

Basic Parameters Advanced parameters

Info

ChannelName: C2 DESC: Channel

ChannelConfig

Manufacturer: ModbusTCP/ModbusTCP Protocol: ModbusTCP ...

Time-delay: 0 sec

Port Arg Config

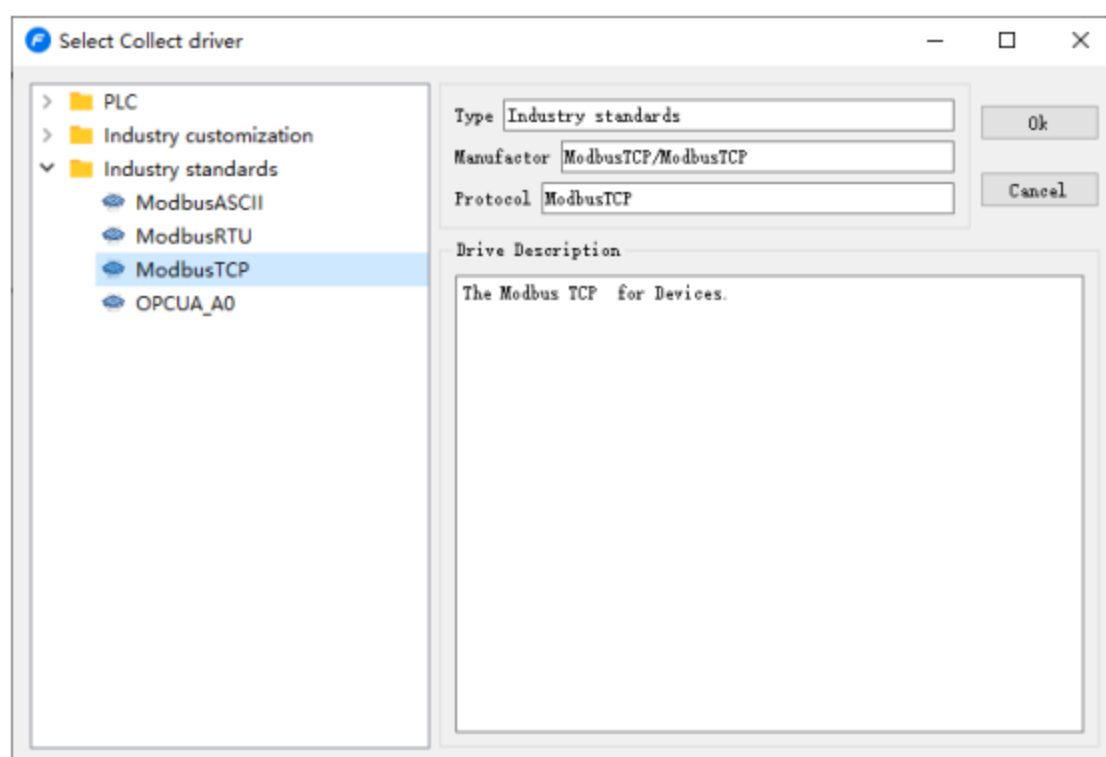
Port: TCP Client ☐ Prohibit link optimization

Remote IP: 192.168.2.238 Remote Port: 502

Local IP: Net Ip:

Ok Cancel

- In the pop-up interface, you can enter the channel name and description. Click the "... " button and select the Modbus driver (taking Modbus TCP acquisition as an example).



- Define the port information. When Modbus uses Ethernet communication, select "TCP Client" in the port parameters, enter the IP address and port of the device to be collected, and click the "OK" button to complete.

Communication

Info

ChannelName
DESC

ChannelConfig

Manufacturer
Protocol
...

Time-delay sec

Port Arg Config

Port
☐ Prohibit link optimization

Remote IP
Remote Port

Local IP
Net Ip

- If Modbus uses serial communication, select "Serial Port" in the port parameters below and configure the communication parameters such as the serial port, baud rate, data bits, and stop bits.

Port Arg Config

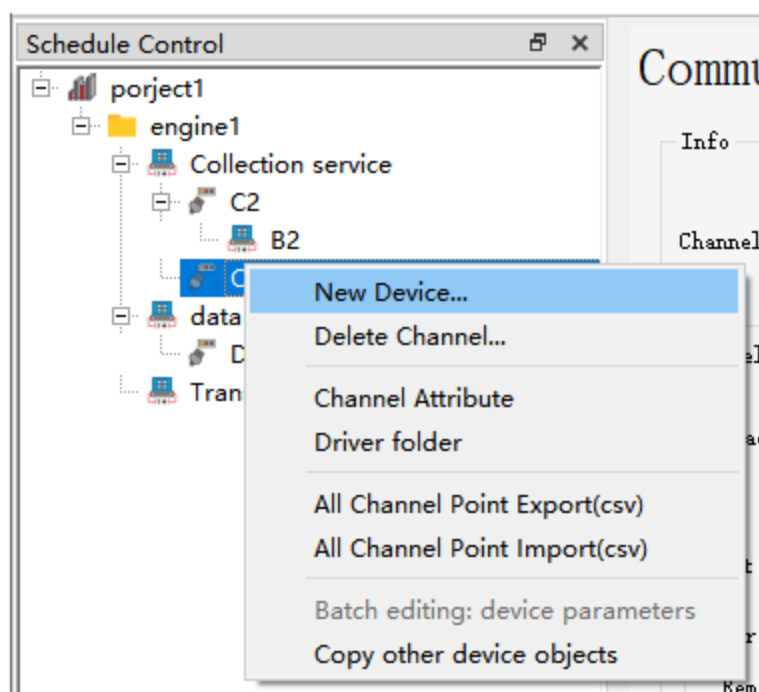
Port

COM
Baud rate
Data Bit

Parity
Stop Bit

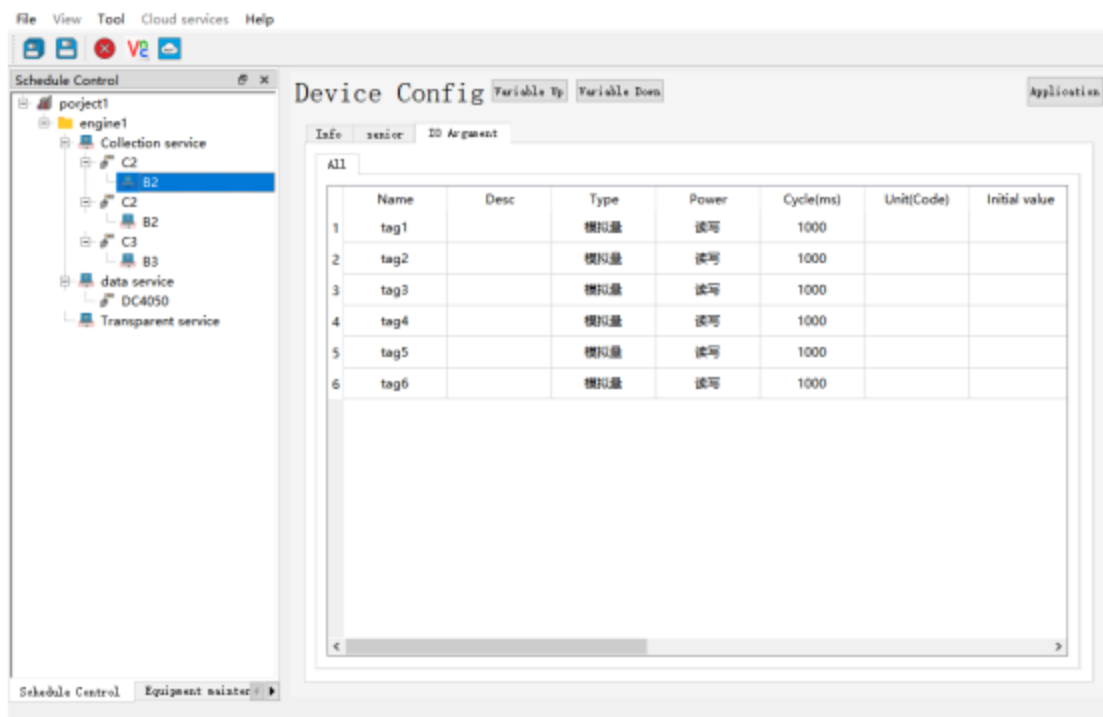
- In addition to completing the protocol selection and communication interface parameters, the channel configuration also requires creating connected devices and device parameters under the channel to complete all communication settings.

- Select the newly created channel, right-click, and choose "New Device" from the context menu.

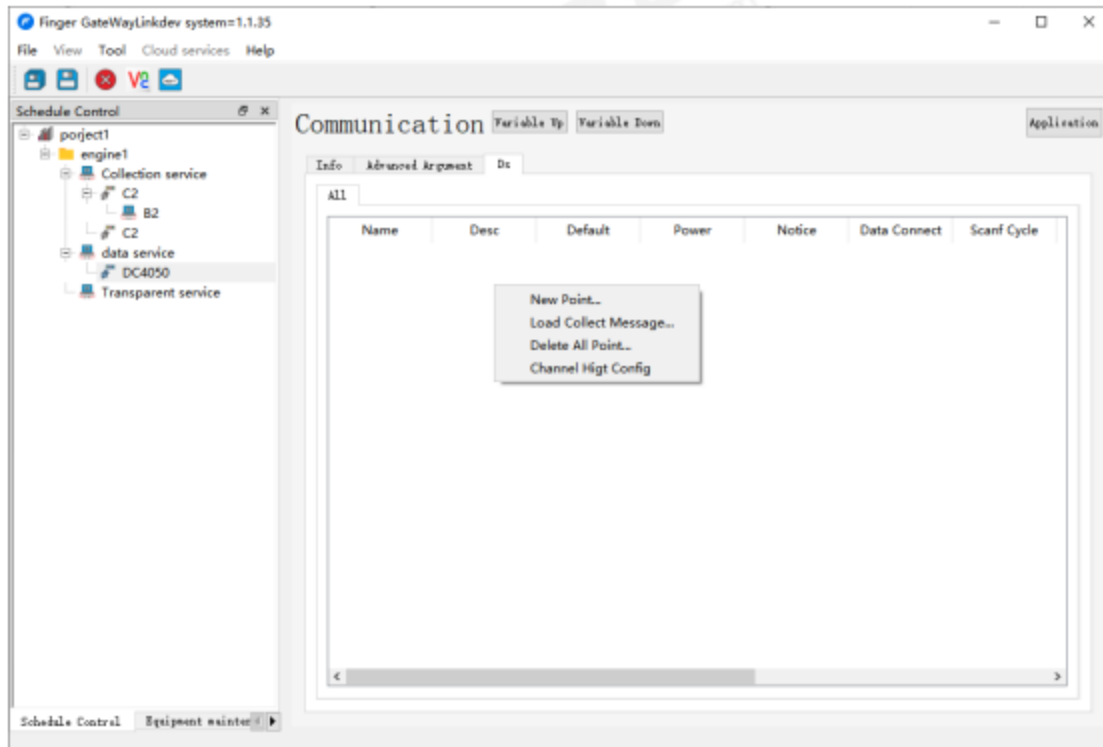


3.2.8.1.4 Data Connection

- After completing the configuration of the Modbus device and channel, specific data from the device has not yet been collected. To collect data from the device individually, you need to create I/O points under the device in the channel of the data collection service and configure the correct I/O connection parameters.
- In the left navigation pane, select Data Collection Service -> Channel -> Device, and the right view will display the list of I/O points.



- In the blank area of the "IO Parameters" tab, right-click and select "New IO Point..." from the pop-up context menu.



- Click on "IO Point Data - Configuration" -> "Basic Parameters."

- The IO point configuration parameters for Modbus are shown in the table below:

Connection Item Description	
Function Code	01, 05 Command (DO): Purpose: Read/write discrete outputs, measured in bits. Read Operation: Use command 01 to read multiple discrete outputs. Write Operation: Use command 05 to write a single discrete output. Direction: Options available: Read-only, Write-only, Read/Write.
	02 Command (DI): Purpose: Read discrete inputs, measured in bits. Direction: Read-only; can read multiple discrete inputs.
	03, 06 Command (HR): Purpose: Read/write holding registers, measured in bytes. Read Operation: Use command 03 to read multiple registers. Write Operation: Use command 06 to write a single register. Direction: Options available: Read-only, Write-only, Read/Write.

	04 Command (AR): Purpose: Read input registers, measured in bytes; can read multiple registers. Direction: Read-only.
	05 Command (DO): Purpose: Write a single discrete output when the point type is remote control. Direction: Write-only.
	06 Command (HR): Purpose: Write a single holding register when the point type is remote control. Direction: Write-only.
	03, 16 Command (HR): Purpose: Read/write multiple contiguous holding registers, measured in bytes. Read Operation: Use command 03. Write Operation: Use command 16. Direction: Options available: Read-only, Write-only, Read/Write.
	15 Command (DO): Purpose: Write multiple contiguous discrete outputs. Direction: Write-only.
Data Address	Refer to the manufacturer's point table; Finger iLink data addresses start from 0. If the manufacturer's table starts from 1, subtract 1 accordingly. Ensure to check if the description is in hexadecimal; if so, convert to decimal. For example, hexadecimal 010A is decimal 266.
Data Type	One register represents 2 bytes of data; two registers represent 4 bytes of data. For 4-byte data formats, ensure to select the correct high/low byte order (default is high to low). Block data occupies multiple contiguous registers; the number of registers depends on data length.
Data Length	This setting applies only to block data, measured in bytes, and must be an even number.

Bit Offset	To read 16-bit data from a single register and access each bit, select the data type as bits, with offsets ranging from low to high as 0-15.
Read/Write Attributes	The system will automatically set according to the register type. If both read and write are supported for a register, manually select the read/write type.

3.2.8.2 OPC UA

UA stands for Unified Architecture. To address the trend of standardization and cross-platform compatibility, and to better promote OPC, the OPC Foundation introduced a new OPC standard in recent years—OPC UA (Unified Architecture). The OPC UA interface protocol integrates previously separate OPC standards such as A&E, DA, OPC XML DA, and HDA, allowing access to all previous objects using a single address space. Additionally, it is not limited to the Windows platform.

3.2.8.2.1 Device Connection

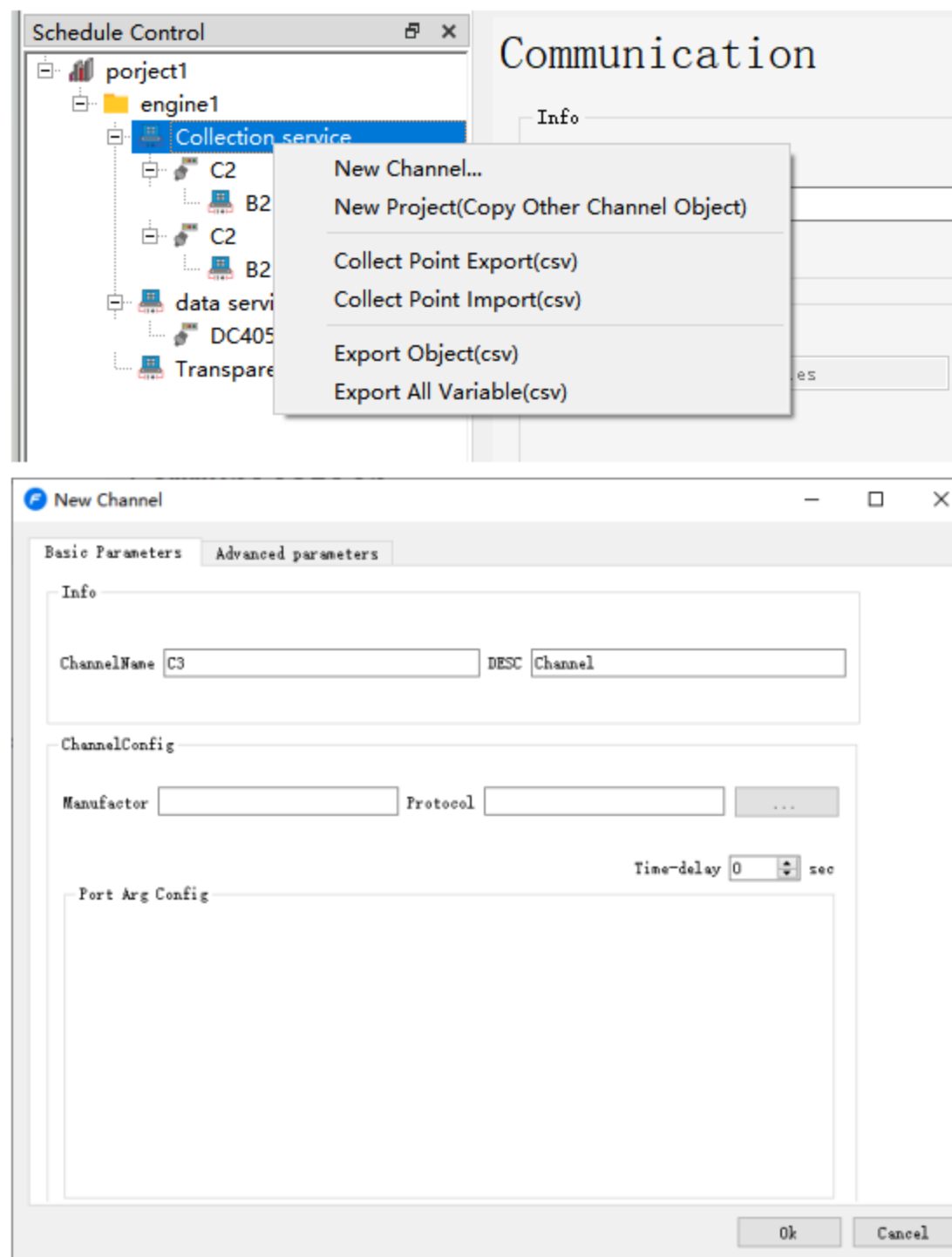
For Ethernet communication, connect the device's network port to the Finger iLink LAN port in the same subnet. If multiple Ethernet devices need to communicate, a switch is required.

3.2.8.2.2 Device Configuration

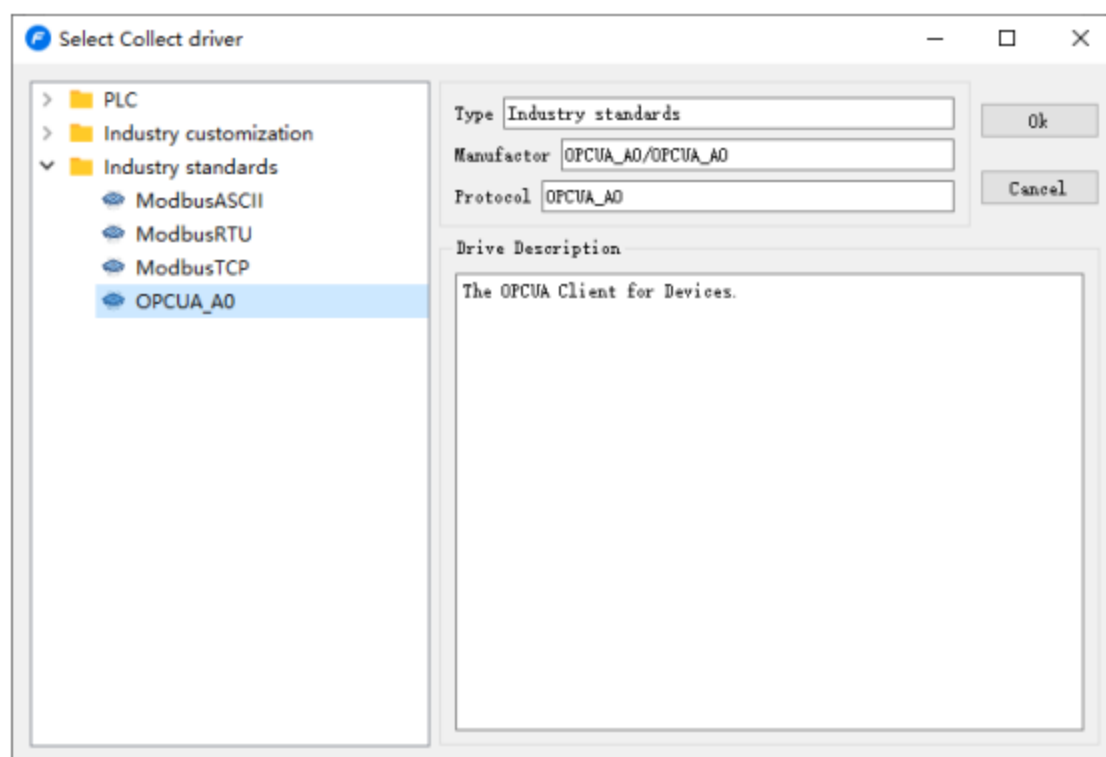
Refer to the device's manual to determine the IP address, port, and point table data of the collection end.

3.2.8.2.3 Communication Configuration

Select "Collection Service" under the project, right-click, and choose "New Channel" from the menu.



- In the pop-up interface, enter the channel name and click the "..." button to select the OPCUA_A0 driver.



After creating the device, configure the OPCUA server IP and port.

Info

Name

Desc

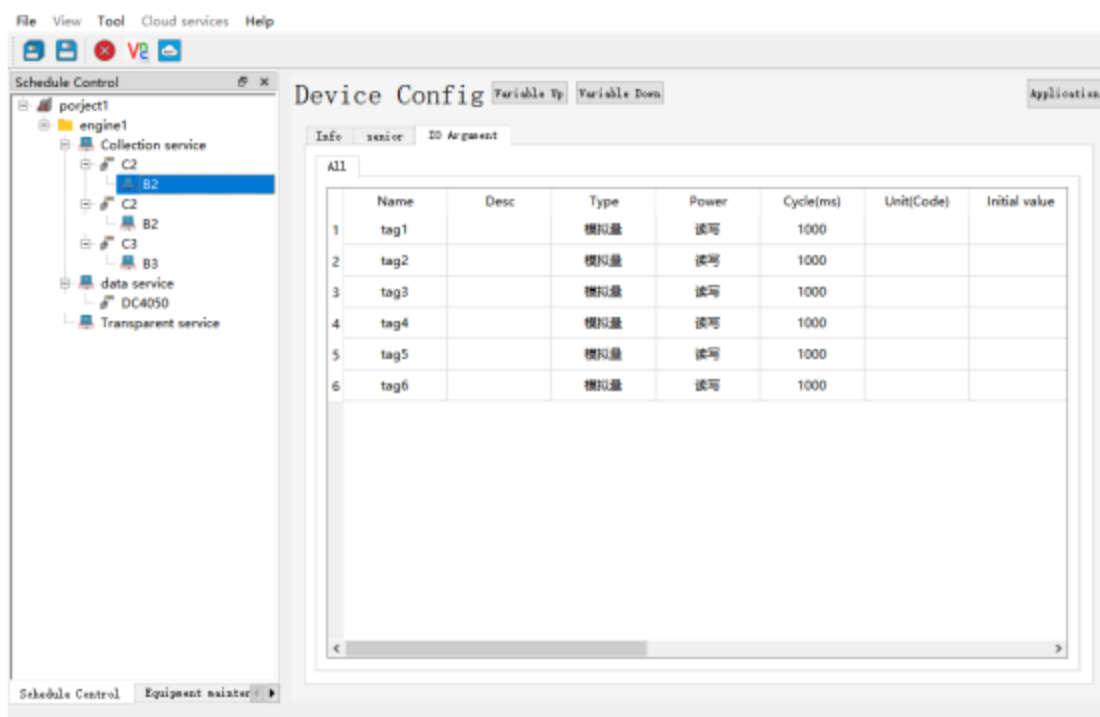
Argument Config

Device Address Device IP

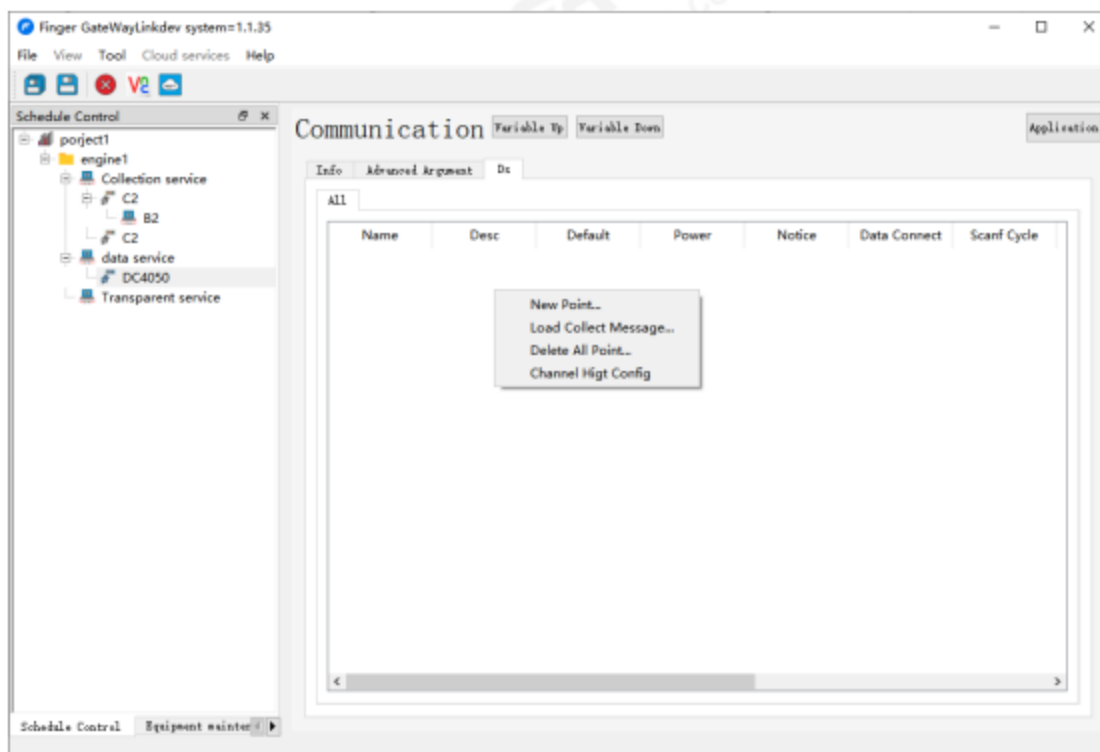
Type Port

3.2.8.2.4 Data Connection

In the left-hand navigation panel, select Acquisition Services -> Channel -> Device. The right-hand view will display the IO Point List.



Click on the "IO Parameters" tab, then right-click in the blank area. In the context menu that appears, select "Create New IO Point...".



Select "IO Point Data - Configuration" -> "Basic Parameters" to configure the IO point properties.

Info Other

Name ☐ Not Collect

Desc

Default Data None Normal ▾

Unit/Code

None Sec

Namespace Index ☐ Sub

ID Type Char ID ▾

ID: array idx

default Encode decode

data format

Address Byte offset

bit offset

Ok Cancel

● Parameter Description

Option	Description	Required
Name	Alphanumeric Composition	√
Description	Node Description	×
Namespace Index	0-n	√
Access ID Type	Default Character ID Access	√
ID	OPCUA Variable Node Name	√

3.2.8.3 Siemens S7

Perform the same operation and select the corresponding acquisition plugin.

3.2.8.3.1 Device Connection

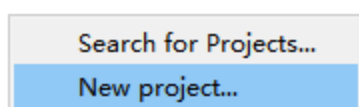
The Siemens S7 PLC acquisition plugin is based on Ethernet communication, supporting various S7 series including S7-200, S7-200 Smart, S7-300, S7-400, S7-1200, and S7-1500.

3.2.8.3.2 Device Configuration

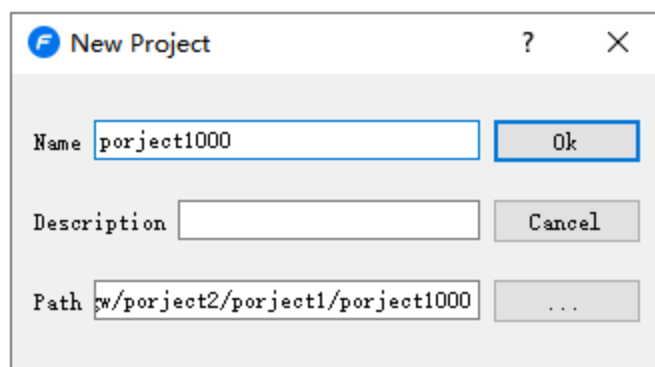
Refer to the device manual to determine the IP address, port, and point table data for the acquisition endpoint.

3.2.8.3.3 Communication Configuration

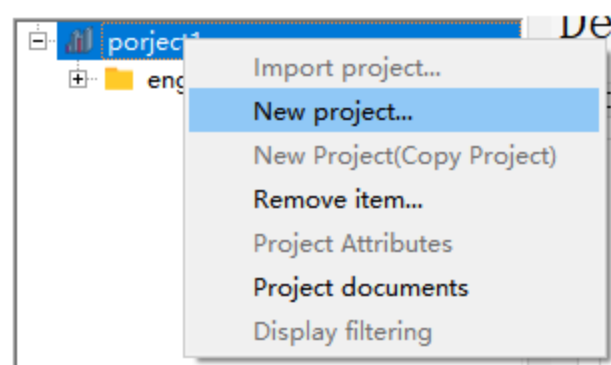
1. Click on the blank area in the left project bar, right-click, and select "New Project..."



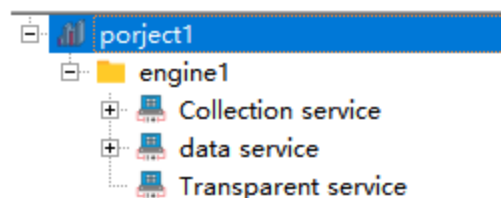
2. Specify the project name and select the project save path.



3. Right-click the project -> "New Project..."



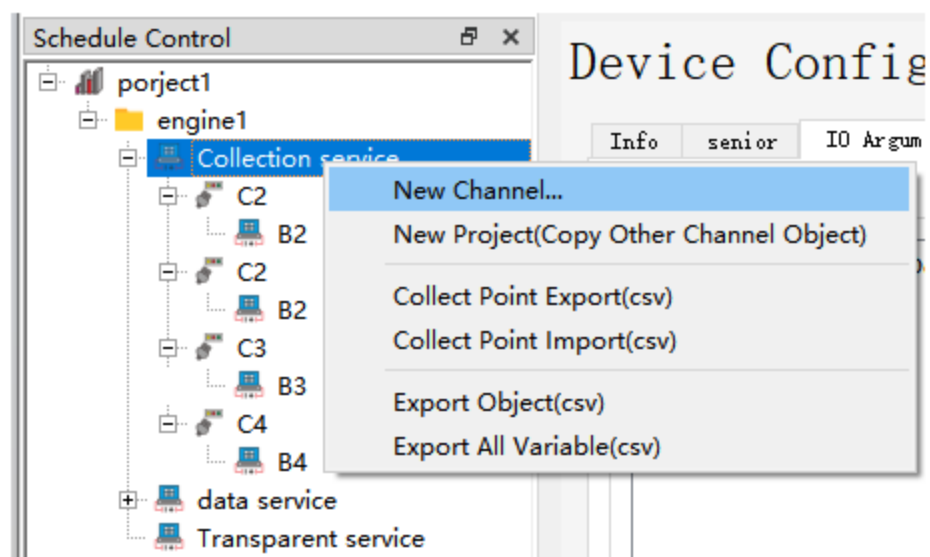
4.The project includes "Data Collection Service" and "Data Service."



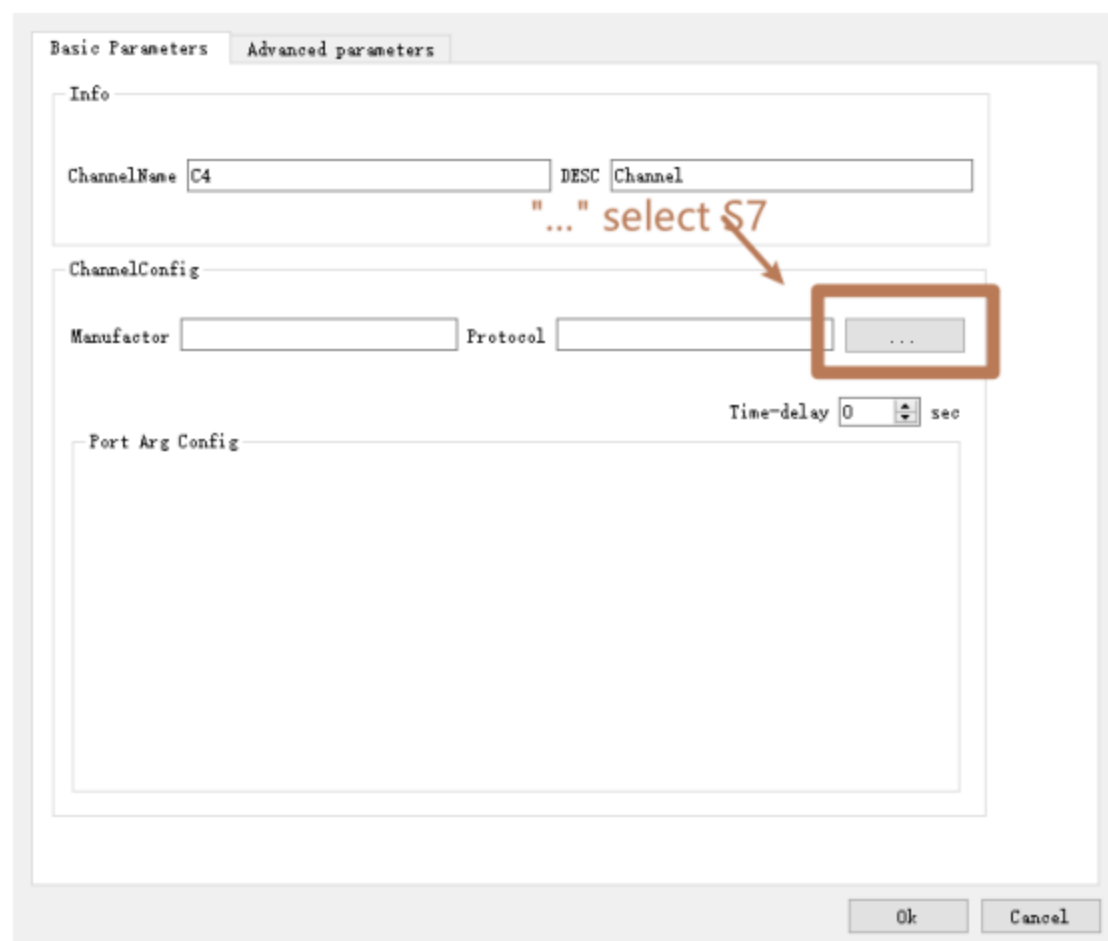
Data Collection Service: Used for configuring device-side data collection.

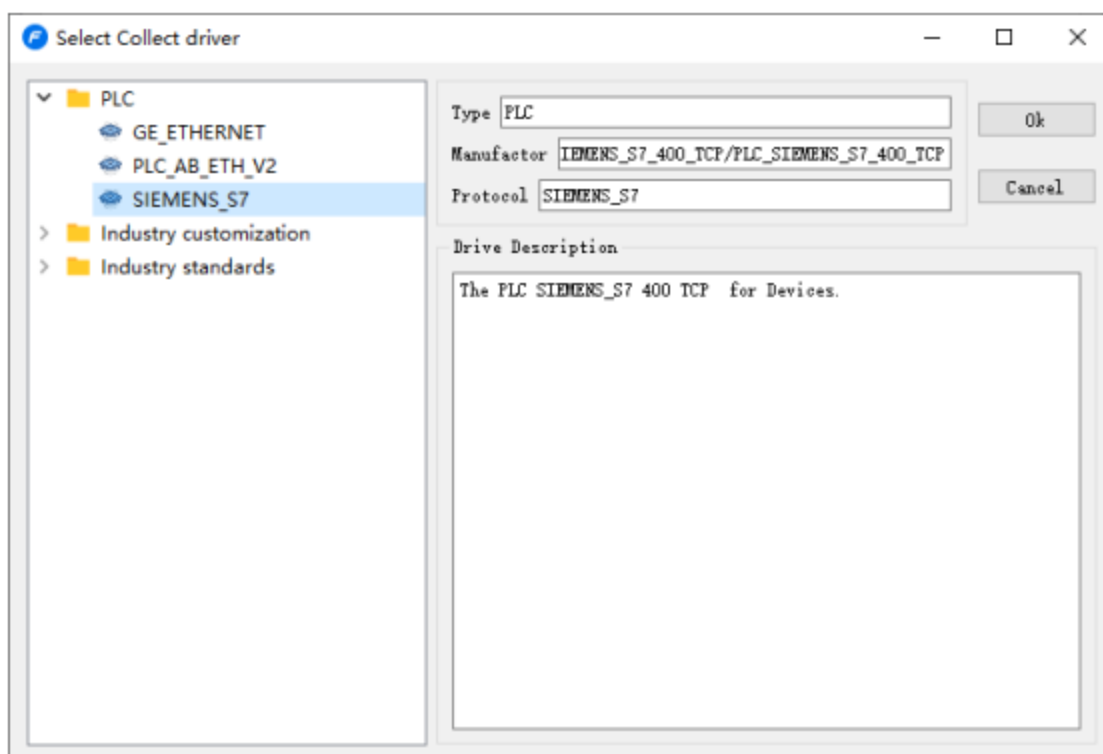
Data Service: Used for data forwarding.

5.Right-click "Data Collection Service" -> "New Channel..."

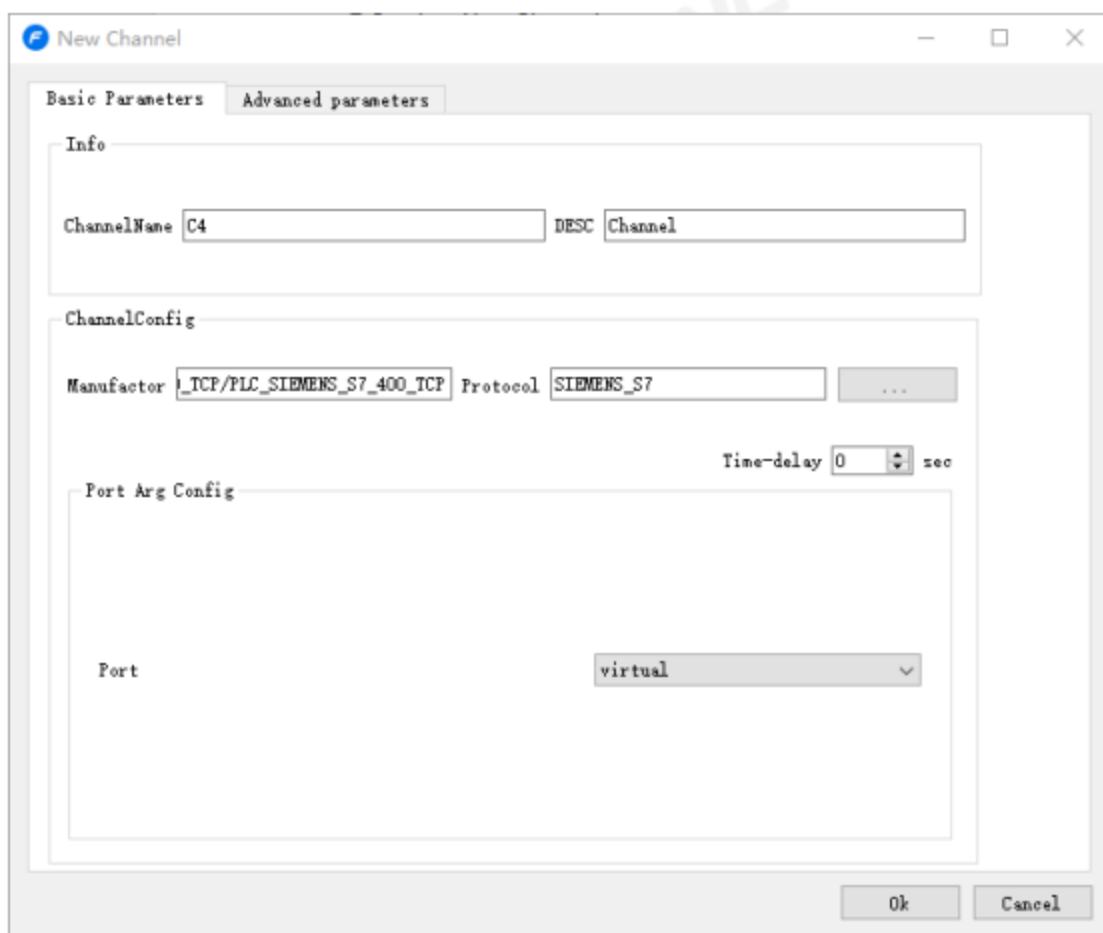


6. elect the Siemens plugin.



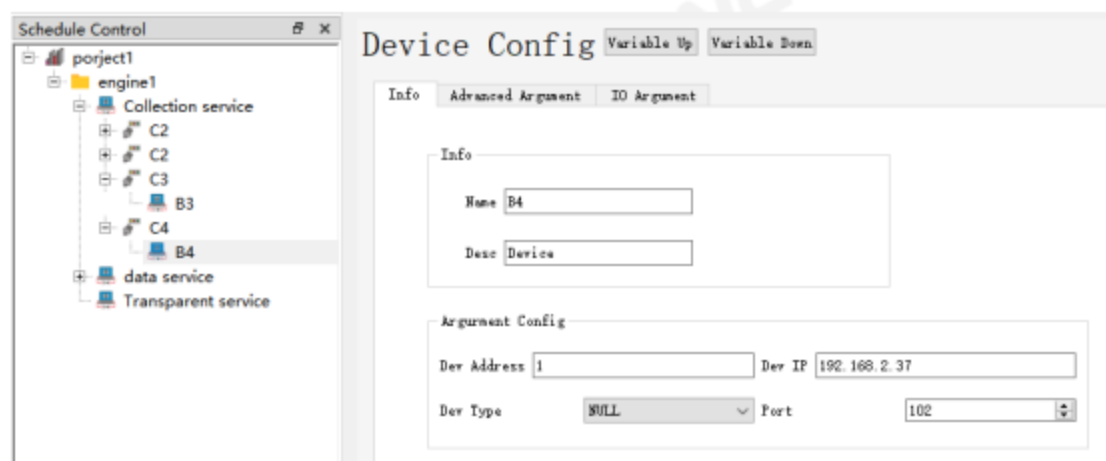
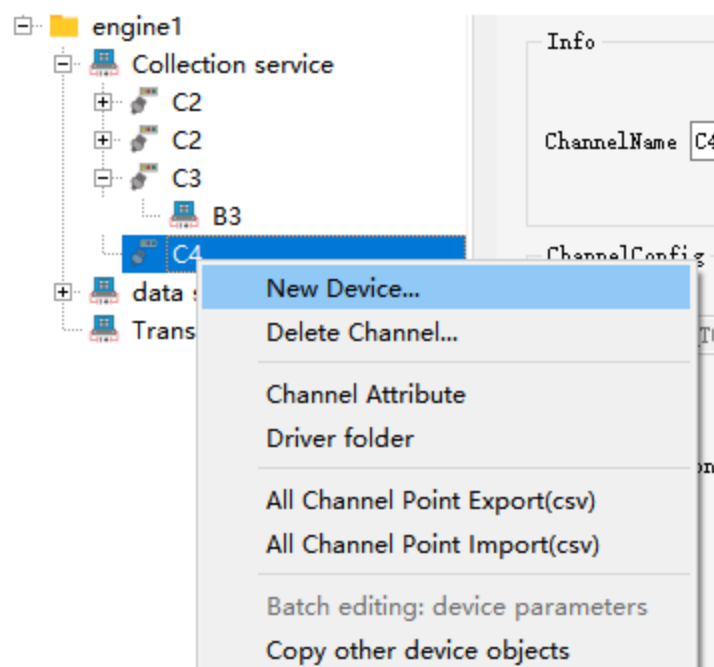


7. Create a New Channel



Name: Composed of letters and numbers.

8. Create a Device



Name: Composed of letters and numbers.

Device IP Address: The IP address of the Siemens PLC.

Device Port: Default is 102.

Click "Advanced Parameters" to configure PLC information.



Info Advanced Argument IO Argument

Protocol

IP Port 102

Rack 0 Slot 2

TSAP: 本机 (HEX) 02.00 TSAP: PLC (HEX) 02.00

role PG Packet

DB Register Cnt hide Packet

Debug Level String Format F0

The address and port are consistent with the "Basic Parameters" and do not require further configuration.

Option	Description	Required
Rack Number	Specifies the virtual rack number used to locate the device within the PLC system.	All Series S7
Slot Number	Used to assign the specific locations for various modules such as CPU modules, power supply modules, interface modules, I/O signal modules, communication modules, and function modules.	All Series S7
Local TSAP (HEX)	Represents the address of the collection program (similar to the client address in communication).	S7-200 Series
TSAP PLC (HEX)	Represents the address of the PLC (similar to the server address in communication).	S7-200 Series

PLC Reference Rack and Slot.

PLCModel	rack	slot
S7-300	0	2
S7-400	0	2
S7-1200	0	0

S7-1500	0	0
---------	---	---

In the Siemens S7 communication protocol, TSAP is a value similar to an address, represented by two bytes. TSAP is divided into Local TSAP (equivalent to the address of the acquisition program) and Remote TSAP (equivalent to the address of the PLC).

For different PLC models, the default values of the addresses vary, and both values can be modified. If they are modified, they can only be obtained through querying.

The default and possible values of TSAP for the following models are shown in the table below:

PLC Model	LTSAP Default Value	LTSAP Possible Values	RTSAP Default Value	RTSAP Possible Values
S7-200	1000	200	1001	200
S7-300	100	1000/4B54/4B57 7	302	1000/4B57
S7-400	100	1000/4B54/4B57 7	302	1000/4B57
S7-1200	Not filled: empty.			
S7-1500				

Role type: The connection methods for Siemens PLC include PG, OP, and S7 Basic.

- Using PG (default), OP, or S7 Basic can all connect to the PLC without additional configuration.
- If one connection method is fully occupied in the connection resources, only another connection method can be used.
- S7-200 can only use the S7 Basic method.

9. Create Points

Used for the configuration of points to collect PLC data.

Info senior IO Argument

All

Name	Desc	Type	Power	Cycle(ms)	Unit(Code)	Initial value
New IO Point... Simplify View...						

Info Other

Name tag1 ☐ Not Collect

Desc

Default Data None Normal ▾

Unit/Code

None 0 Sec

Area I ▾

Data Address 0 T C is acutal Address

bit offset 0 EnCode Bit ▾

DB. Numb 0

Ok Cancel

Name: Point name, composed of letters and numbers.

Area: I, Q, M, DB, T, C.

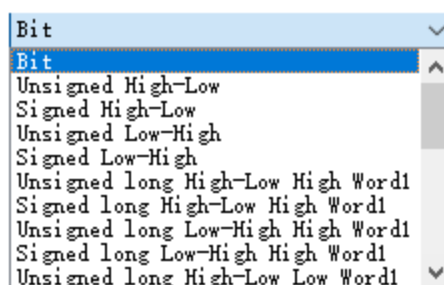
Data Address: The address of the data area to be read.

Bit Offset: Valid when performing BIT operations and encoded as "bit." Range: 0-15.

DB Number: DB or V area number. For Siemens S7-200, the number is 1.

For other models, 1~n actual PLC-provided data blocks (DB) determine the number.

Encoding types are as follows:



Siemens PLC supports the following data types:

Data Type	Bit Size	Numerical Type	Value Range	Constant Example	Address Example
BOOL	1	Boolean Operations	FALSE or TRUE	TRUE	I0.1 Q0.1 M10.0 DB1.DBX0.0
		Binary	2#0 or 2#1	2#1	
		Unsigned Integer	0 or 1	1	
		Octal	8#0 or 8#1	8#1	
		Hexadecimal	16#0 or 16#1	16#1	
Byte	8	Binary	2#0 to 2#11111111	2#0000_100 0	I00 QB0 MB10 DB1.DBB4
		Unsigned Integer (USInt)	0 to 255	8	
		Signed Integer (SInt)	-128 to 127	-8	
		Octal	8#0 to 8#377	8#17	
		Hexadecimal	B#16#0 to B#16#FF. 16#0 to 16#FF	B#16#F、 16#F	
Word	16	Binary	2#0 to 2#1111111111111111	2#110101001 0110	IW10 QW10 MW10
		Unsigned Integer	0 to 65535	64	DB1.DBW2

		(UInt)			
		Signed Integer (Int)	-32768 to 32767	27648	
		Octal	8#0 to 8#177777	8#170 362	
		Hexadecimal	W#16#0 to W#16#FFFF、 16#0 to 16#FFFF	W#16#F1C0	
DWord	32	Binary	2#0 to 2#1111111111 111111111111 1111111111 0	2#110101001 111 11101000110 0	MD10 DB1.DBD8
		Unsigned Integer (UDInt)	0 to 4294967295	15_793_935	
		Signed Integer (DInt)	-2147483648 to 2147483647	-400000	
		Octal	8#0 to 8#377777777 77	8#74177417	

		Hexadecimal	DW#16#0000 0000 to DW#16#FFF FFFFF、 16#00000000 to16#FFFFFF FF	DW#16#20F 30A 16#B01F6	
--	--	-------------	--	------------------------------	--

Area Type Description:

Area	Description	Scope of Application
I	DI, process-image input	I0.0-I37.7
Q	DO, process-image output	Q0.0-Q37.7
AI	Analog Input Storage Area	AIW0-AIW110
AQ	Analog Output Storage Area	AQW0-AQW110
V / DB	V, Variable memory	Mainly used for data storage V: Siemens S7-200 DB: Siemens S7-300/400/1200/1500
M	M, Flag memory	M area: Primarily used for logical intermediate variables, which facilitate programming. It can also store bits, but the capacity is

		limited. M0.0-M37.7
T	T, Timer	
C	C, Counter	

The range of PLC S7-200 is described as follows:

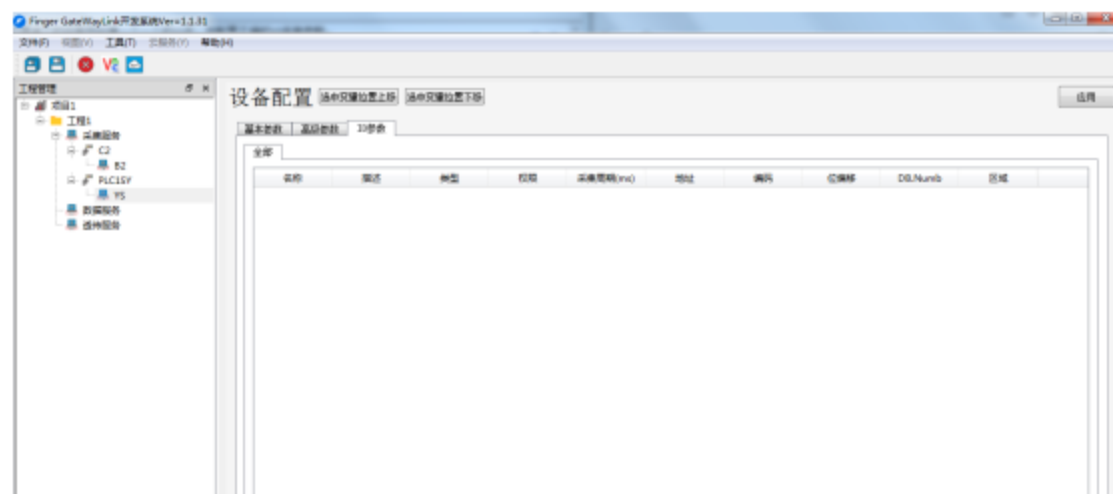
Region	Description Information
I	Bit-wise: From I0.0 to I15.7, with a total of 128 points. Byte-wise: From IB0 to IB15, with a total of 16 bytes. Word-wise: From IW0 to IW14, with a total of 8 words. Double Word-wise: From ID0 to ID12, with a total of 4 double words.
Q	Bit mode: From Q0.0 to Q15.7, totaling 128 points. Byte mode: From QB0 to QB15, totaling 16 bytes. Word mode: From QW0 to QW14, totaling 8 words. Double word mode: From QD0 to QD12, totaling 4 double words.
AI	From AIW0 to AIW30, totaling 16 words, allowing up to 16 analog input channels.
AQ	From AQW0 to AQW30, totaling 16 words, allowing up to 16 analog output channels.
V / DB	Bit mode: From V0.0 to I5119.7, totaling 40,960 points. Byte mode: From VB0 to VB5119, totaling 5,120 bytes. Word mode: From VW0 to VW5118, totaling 2,560 words. Double word mode: From VD0 to VD5116, totaling 1,280 double words.
M	Bit mode: From M0.0 to M31.7, totaling 256 points. Byte mode: From MB0 to MB31, totaling 32 bytes. Word mode: From MW0 to MW30, totaling 16 words.

	Double word mode: From MD0 to MD28, totaling 8 double words.
T	T0、T1、.....、T255
C	C0、C1、.....、C255

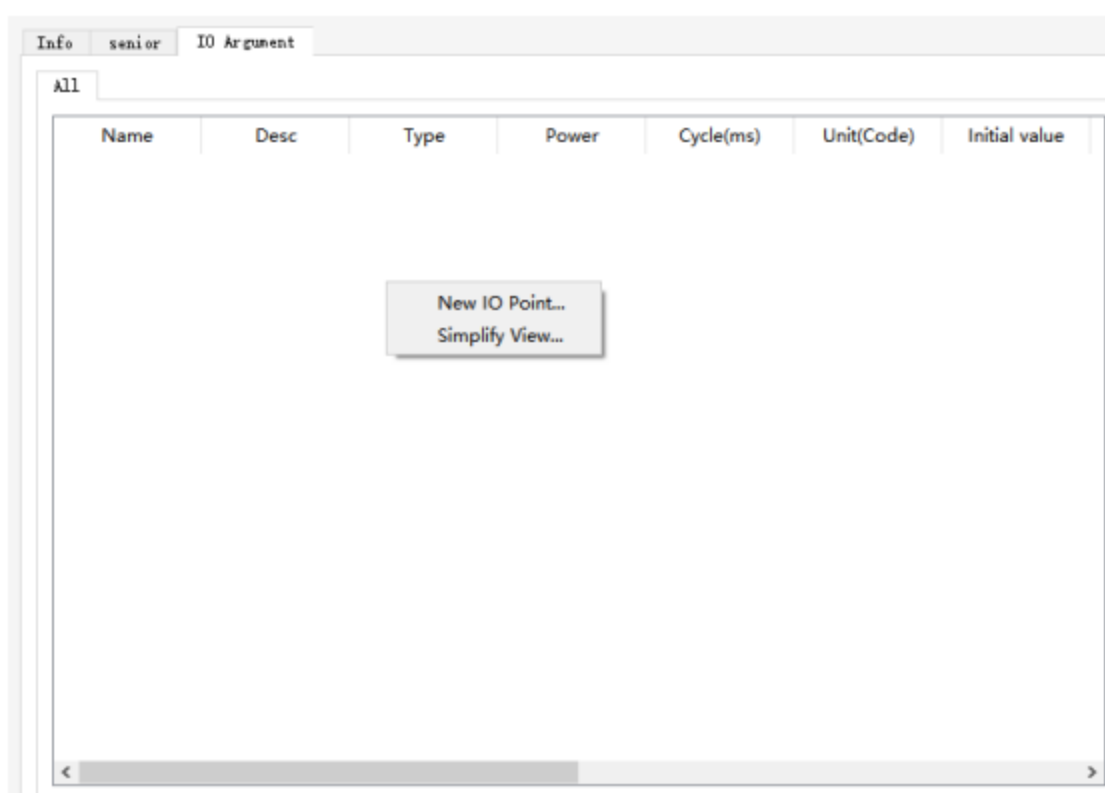
When Siemens reads DB/V area, the default encoding for float and int is 15 and 5, respectively.

3.2.8.3.4 Data Connection

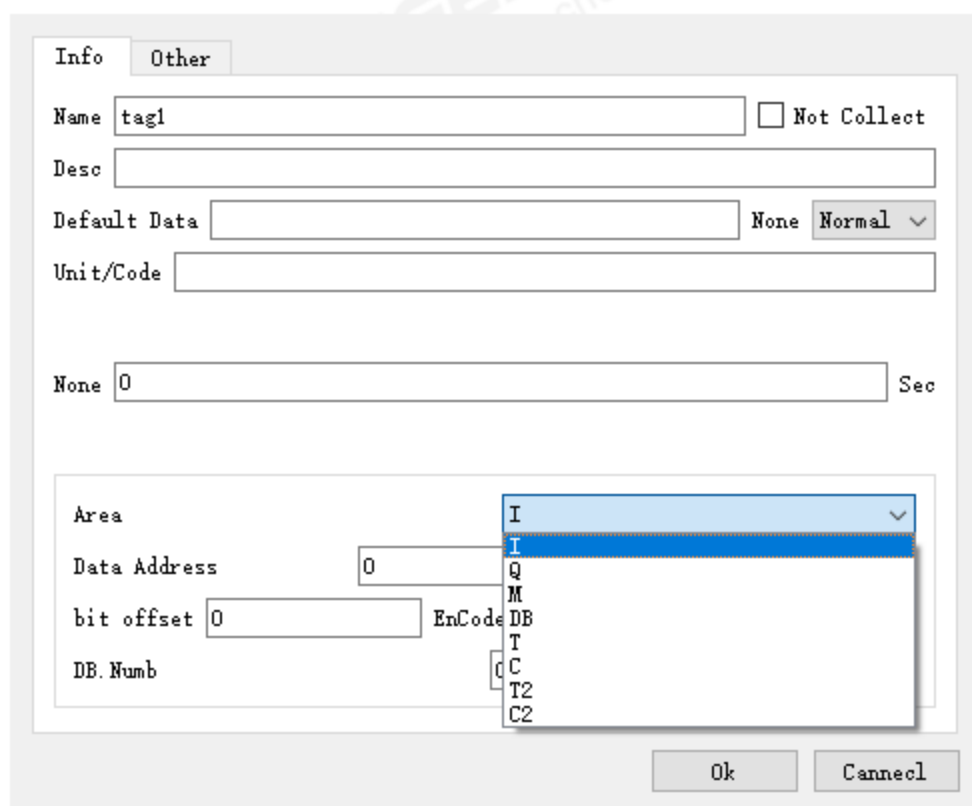
- After completing the communication configuration of the Siemens Ethernet driver device and channel, specific data from the device has not yet been collected. To collect the device's data one by one, it is necessary to create individual IO points under the device in the channel of the data acquisition service and configure the correct IO connection parameters.
- After selecting the device under the channel in the data acquisition service from the left navigation, the right view will display a list view of IO points. By default, there are no IO collection points.



Right-click on the blank area, and in the context menu that appears, select "Create IO Point."



A dialog box for creating a new collection point will pop up, allowing you to select the configuration protocol and the parameters for the collection point.



3.2.8.4 GE Ethernet

Similarly, select the corresponding collection plugin for the operation.

3.2.8.4.1 Device Connection

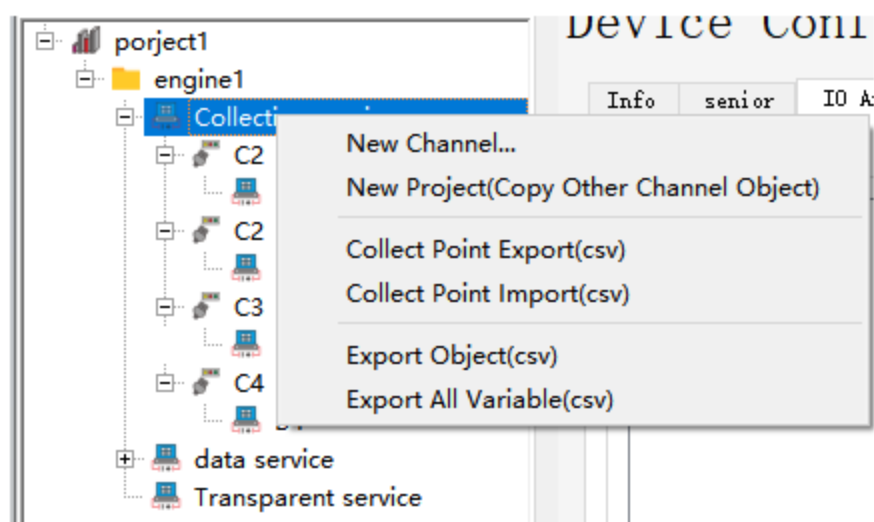
Finger iLink supports GE Ethernet drivers to communicate directly via Ethernet.

3.2.8.4.2 Device Configuration

Refer to the device manual to determine the IP address, port, and point table data for the collection end.

3.2.8.4.3 Communication Configuration

1. Select "Collection Service" under the project, right-click, and choose "New Channel" from the menu.



2. In the pop-up interface, define the channel name and click the browse button next to the protocol to select the GE Ethernet driver.

New Channel

Basic Parameters Advanced parameters

Info

ChannelName: C5 DESC: Channel

ChannelConfig

Manufacturer: Protocol: ...

Time-delay: 0 sec

Port Arg Config

Ok Cancel

- In the left category, select GE Ethernet under PLC, and click the OK button to complete.

PLC

- GE_ETHERNET
- PLC_AB_ETH_V2**
- SIEMENS_S7

Type: PLC

Manufacturer: AB-LOGIC-TCP (V2)

Protocol: PLC_AB_ETH_V2

Ok Cancel

- Define the port information. The GE Ethernet protocol uses Ethernet communication. In the port parameters below, define the PLC's IP address and port, with the default port being 18245. After completing the definition, click the OK button to finish.

New Channel

Basic Parameters Advanced parameters

Info

ChannelName: C5 DESC: Channel

ChannelConfig

Manufacturer: GE_ETHERNET/PLC_GE_ETHERNET Protocol: GE_ETHERNET ...

Time-delay: 0 sec

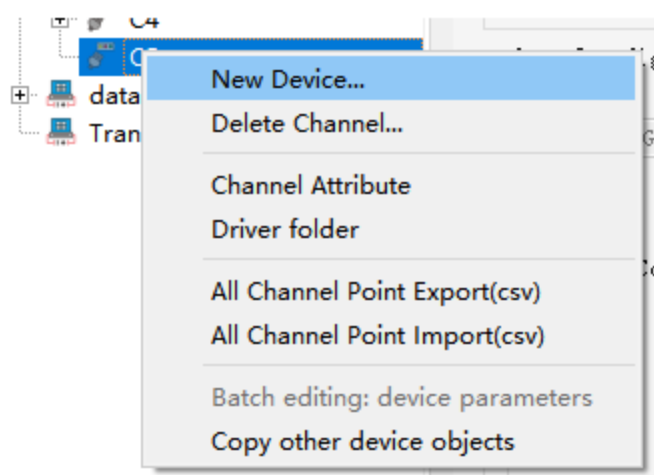
Port Arg Config

Port: TCP Client ☐ Prohibit link optimization

Remote IP: 192.168.2.238 Remote Port: 18245

Ok Cancel

5. The channel configuration only completes the protocol selection and communication interface parameters. You also need to create connected devices and their parameters under the channel to finish the communication configuration with the specific device.
- Select the newly created channel, right-click, and choose "New Device" from the right-click menu.



6. In the device configuration panel, define the device name and description; the device address does not need to be filled in by default.

Info

Name

Desc

Argument Config

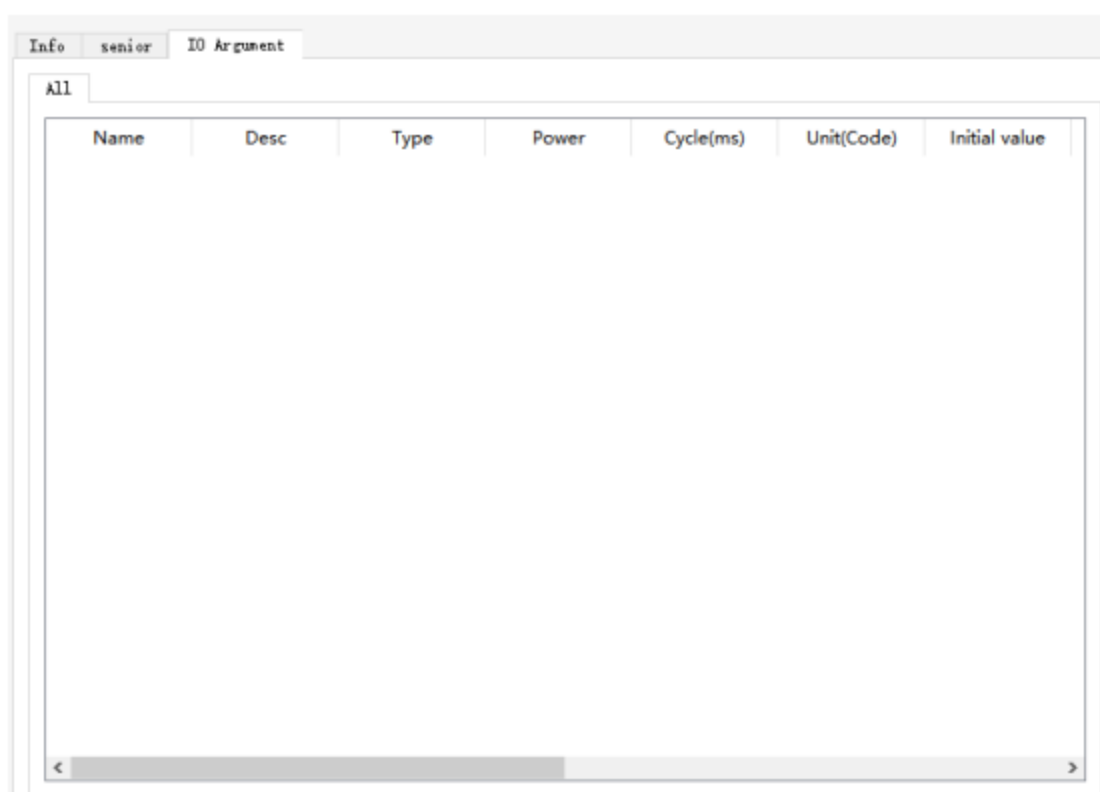
Dev Address Dev IP

Dev Type Port

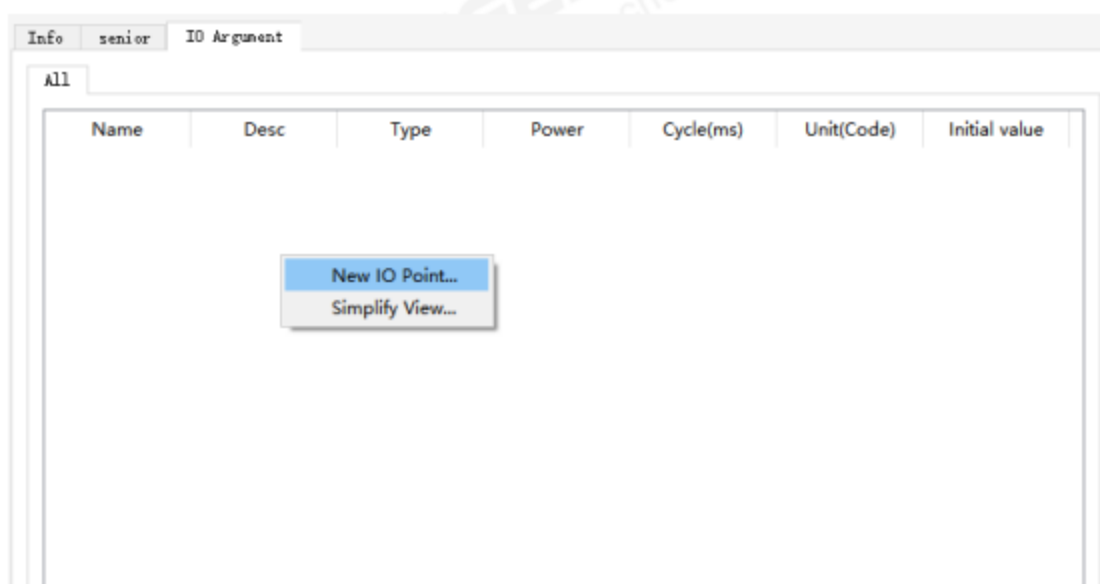
7. The advanced parameters can use the default configuration.

3.2.8.4.4 Data Connection

- After completing the communication configuration for the Siemens Ethernet driver device and channel, specific data from the device has not yet been collected. To collect the data from the device one by one, you need to create individual IO points under the device in the channel of the data acquisition service and configure the correct IO connection parameters.
- In the left navigation panel, select the device under the channel in the data acquisition service; the right view will display the list of IO points. By default, there are no IO acquisition points.



1. Right-click in the blank area and select "Create IO Point" from the context menu that pops up.



2. A new acquisition point dialog box will appear: select the configuration protocol and parameters for the acquisition point.

Info Other

Name tag1 ☐ Not Collect

Desc

Default Data None Normal ▾

Unit/Code None None ▾

None 0 Sec

Input Channel R ▾

Address(decimalism) 0 ▾

data format bit ▾

which bit(1-15) 0 ▾

Ok Cancel

3. Input Channel: GE data storage area type.

Memory Address (Decimal): Address of the storage area.

Data Format: Bit operation (bit), 16-bit signed number (Short), 16-bit unsigned number (Word), 32-bit signed number (int), 32-bit unsigned number (dword), 32-bit floating point number (float).

Bit Number (0-15): Valid only if the data format is "Bit operation (bit)"; other types default to 0.

4. GE Data Storage Area Type Table:

R

AI

AQ

I

Q

T

M

3.2.8.5 AB Series Controllers

Same as above, select the corresponding acquisition plugin.

3.2.8.5.1 Device Connection

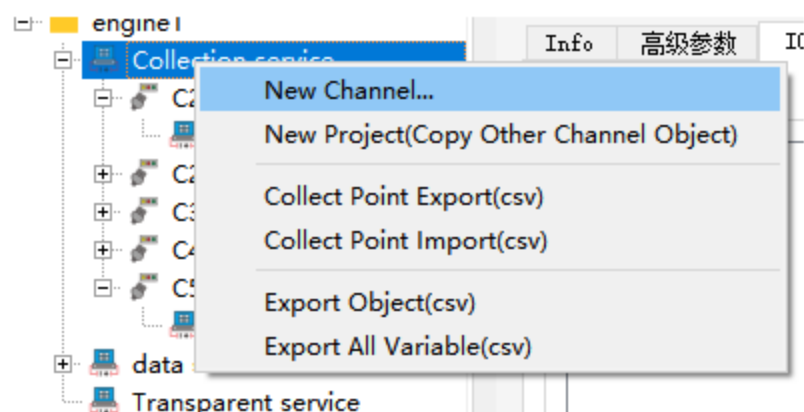
For Ethernet communication, connect the device's network port to the Finger iLink LAN port on the same subnet. If multiple Ethernet devices are communicating, a switch is needed.

3.2.8.5.2 Device Configuration

The default port for AB controllers is 60000.

3.2.8.5.3 Communication Configuration

1. Select "Acquisition Service" under the project, right-click to bring up the menu bar, and choose "New Channel" from the menu.



Basic Parameters Advanced parameters

Info

ChannelName DESC

ChannelConfig

Manufacturer Protocol ...

Time-delay sec

Port Arg Config

2. In the pop-up interface, enter the channel name and click the “...” button to select the HUSTCNC_ABSeries driver.

Select Collect driver

> PLC

▼ Industry customization

 HUSTCNC_ABSeries

 HUSTCNC_HSeries

> Industry standards

Type

Manufacturer

Protocol

Drive Description

AB Ctrl Cnc Data Collect.

3. Configure the controller's IP address and port.

time delay 0 sec

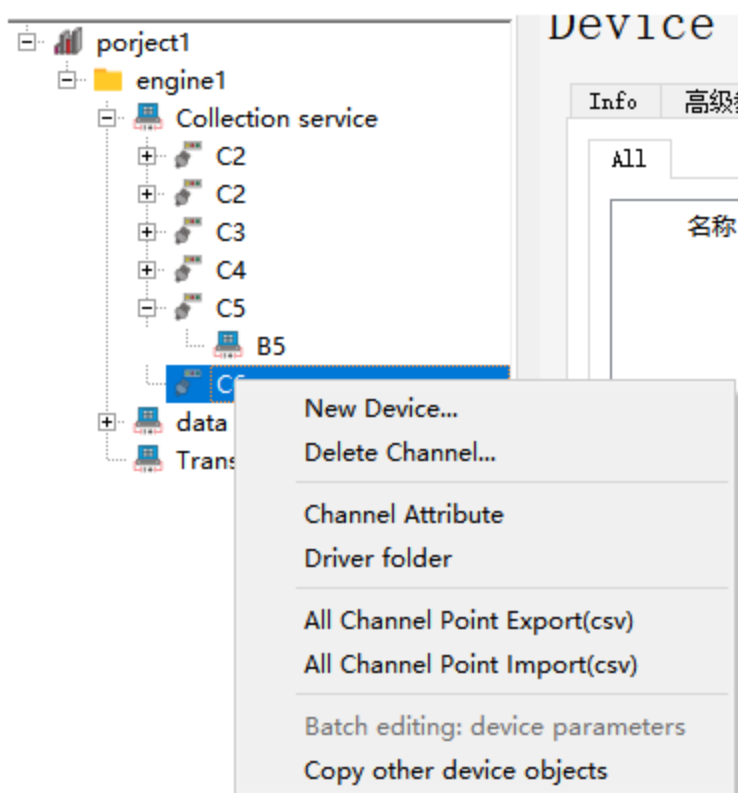
Port Arg Config

Port TCP Client ☐ Prohibit link optimization

Remote IP 192.168.2.12 Remote Port 60000

Local IP Net Ip

4. Right-click on the channel node and select "New Device" from the menu.



5. Choose "Basic Parameters" -> "Parameter Configuration" and configure the controller's IP and port. If you need to collect current alarms and execution programs, you can check "Collect Current Alarms" and "Collect Current Execution Programs"; by default, these options are not checked.

Info

Name

Desc

Argument Config

Dev Address Dev IP

Dev Type Port

☒ Collect Device Error ☒ Collect Program

3.2.8.5.4 Data Connection

1. In the left navigation pane, select Data Collection -> Channel -> Device; the right view will display the list of IO points.
2. Click on the "IO" parameters, then right-click in the blank area of the table and select New IO Collection Point.

Info senior IO Argument

All

Name	Desc	Type	Power	Cycle(ms)	Unit(Code)	Initial value
New IO Point... Simplify View...						

3. Select IO Point Data - Configuration -> Basic Parameters to configure the IO point attributes.

Info Other

Name tag1 ☐ Not Collect

Desc

Default Data None Normal

Unit/Code

None 0 Sec

Data Type	Channel Number
Data Type	
Channel Number	
Data Address	
BIT	
Decimal places	

Ok Cancel

Supported Data Types:

USR	IBIT
REG	OBIT
MCM	CBIT
SYS	SBIT
SYSINF	ABIT
BUS	CNBIT
COM	TMBIT

3.2.8.6 H Series Controllers

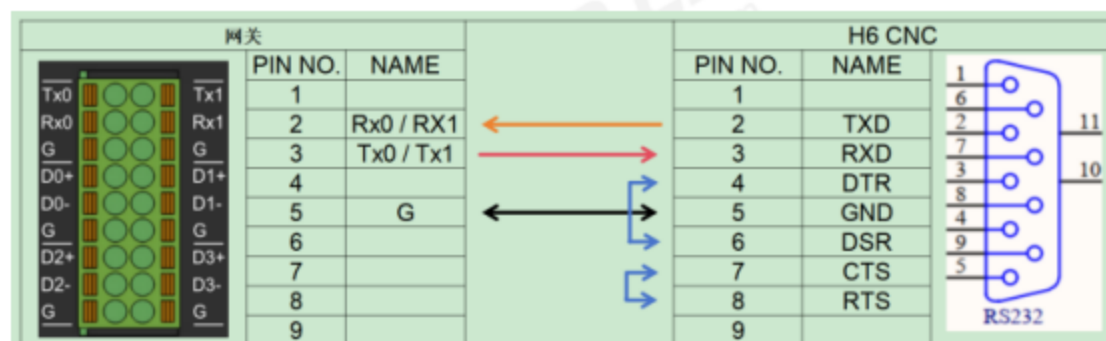
3.2.8.6.1 Device Connection

H Series devices can be connected to the gateway via a USB to RS232 cable, supporting a 1-to-1 connection.

3.2.8.6.2 Device Configuration

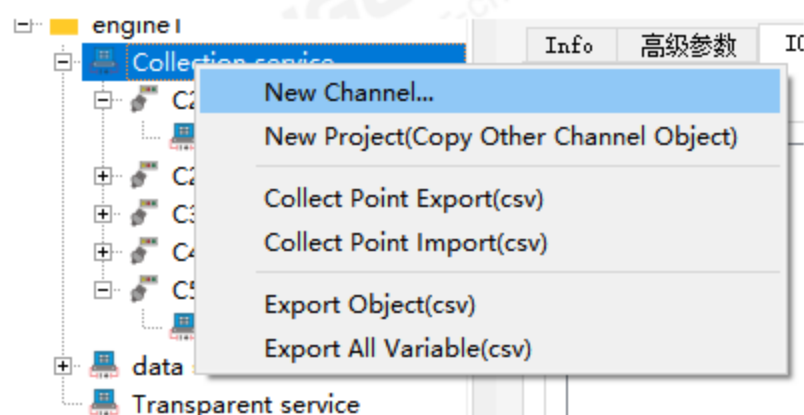
Connect the USB to RS232 cable: one end of the USB connects to the digital gateway's USB port, and the nine-pin female end connects to the H Series controller's RS232 male end.

The RS232 wiring is shown in the diagram below:



3.2.8.6.3 Communication Configuration

Select "Acquisition Service" under the project, right-click, and then choose "New Channel" from the menu.



Basic Parameters Advanced parameters

Info

ChannelName DESC

ChannelConfig

Manufacturer Protocol ...

Time-delay sec

Port Arg Config

- In the pop-up interface, enter the channel name and click the "..." button to select the HUSTCNC_HSeries driver.

Select Collect driver

> PLC
▼ Industry customization
 HUSTCNC_ABSeries
 HUSTCNC_HSeries
> Industry standards

Type

Manufacturer

Protocol

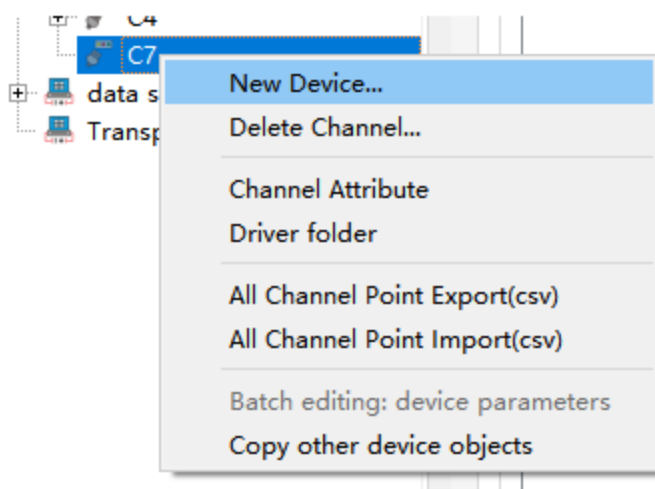
Drive Description

H Ctrl CNC Data Collect.

- Configure the controller's serial port information.



- Right-click on the channel node and select "New Device" from the menu.



- Under "Basic Parameters", go to "Parameter Configuration" and input the communication parameters. By default, the settings are: USB0, 38400, 1E7.

Info

Name

B7

Desc

Device

Argument Config

Serial

USB0

Baud Rate

38400

Data Bit

7

Parity

无

Stop Bit

1

3.2.8.6.4 Data Connection

In the left navigation, select Data Acquisition Services → Channel → Device. The right view will display a list of IO points. In the blank area of the "IO Parameters" table, right-click and select "New IO Point...".

Info

sensor

IO Argument

All

Name	Desc	Type	Power	Cycle(ms)	Unit(Code)	Initial value
New IO Point... Simplify View...						

- Select "IO Point Data - Configuration" → "Basic Parameters" to configure the IO point attributes.

Info Other

Name tag1 ☐ Not Collect

Desc

Default Data None Normal

Unit/Code

None 0 Sec

Data Type Data Address BIT Decimal places

NONE
PLC_C
PLC_R
PLC_T
USER
MCM
SYS
CNCInfo
BUS
IBIT

Supported Data Types:

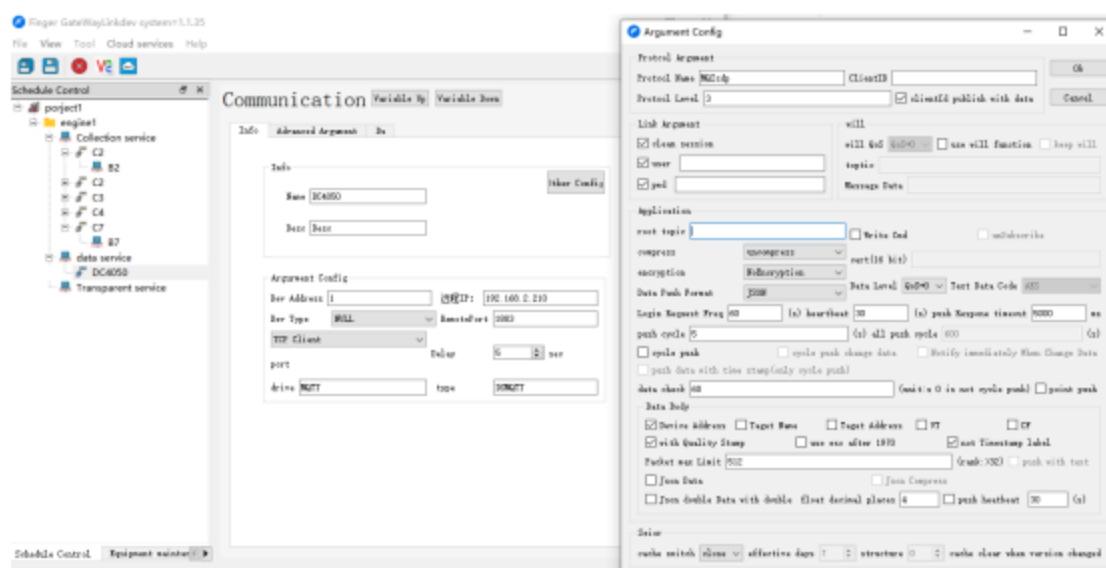
PLC_C	BUS
PLC_R	IBIT
PLC_T	OBIT
USER	CBIT
MCM	SBIT
SYS	ABIT
CNCInfo	CNBIT
	TMBIT

3.2.9 Communication Forwarding Configuration

3.2.9.1 MQTT Forwarding

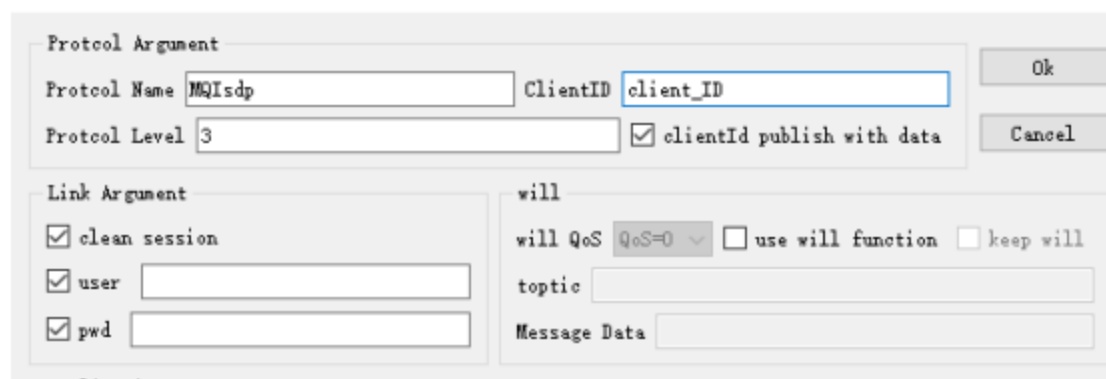
3.2.9.1.1 Usage Process

1. Use the Finger iLink software to configure the acquisition and forwarding protocols.



2. Download the acquisition project to the gateway and start the acquisition program.
3. Start the MQTT server.
4. Use Navicate.exe to view the data stored in the database.

- The data table writes the changing data uploaded via MQTT into the data table.
- By default, a configuration for one point generates a table named MQTT clientID_channel name_tag table name, for example: clientid_c13_tag1.



The screenshot displays the Finger iLink Digital Gateway software interface. On the left, a tree view shows the database structure, including tables like 'c13_tag1' through 'c13_tag17'. The main window shows a table with columns: 'interid', 'ppn', 'ppa', 'nam', 'value', 't', 'cf', 'vt', and 'q'. The table contains 36 rows of data, each representing a tag value. Below the table, a detailed view of the 'interid' column is shown, indicating its data type as 'int' and its length as 12.

interid	ppn	ppa	nam	value	t	cf	vt	q
1	C13	tag2	1626.345	2023-04-17 10:59:46.0000	0	2	0	
2	C13	tag2	1626.357	2023-04-17 10:59:51.0000	0	2	0	
3	C13	tag2	1626.367	2023-04-17 10:59:55.0000	0	2	0	
4	C13	tag2	1626.379	2023-04-17 11:00:00.0000	0	2	0	
5	C13	tag2	1626.391	2023-04-17 11:00:05.0000	0	2	0	
6	C13	tag2	1626.404	2023-04-17 11:00:10.0000	0	2	0	
7	C13	tag2	1626.416	2023-04-17 11:00:15.0000	0	2	0	
8	C13	tag2	1626.428	2023-04-17 11:00:20.0000	0	2	0	
9	C13	tag2	1626.440	2023-04-17 11:00:25.0000	0	2	0	
10	C13	tag2	1626.452	2023-04-17 11:00:30.0000	0	2	0	
11	C13	tag2	1626.465	2023-04-17 11:00:35.0000	0	2	0	
12	C13	tag2	1626.477	2023-04-17 11:00:40.0000	0	2	0	
13	C13	tag2	1626.489	2023-04-17 11:00:45.0000	0	2	0	
14	C13	tag2	1626.501	2023-04-17 11:00:50.0000	0	2	0	
15	C13	tag2	1626.514	2023-04-17 11:00:55.0000	0	2	0	
16	C13	tag2	1626.526	2023-04-17 11:01:00.0000	0	2	0	
17	C13	tag2	1626.538	2023-04-17 11:01:05.0000	0	2	0	
18	C13	tag2	1626.550	2023-04-17 11:01:10.0000	0	2	0	
19	C13	tag2	1626.563	2023-04-17 11:01:15.0000	0	2	0	
20	C13	tag2	1626.575	2023-04-17 11:01:20.0000	0	2	0	
21	C13	tag2	1626.587	2023-04-17 11:01:25.0000	0	2	0	
22	C13	tag2	1626.599	2023-04-17 11:01:30.0000	0	2	0	
23	C13	tag2	1626.612	2023-04-17 11:01:35.0000	0	2	0	
24	C13	tag2	1626.624	2023-04-17 11:01:40.0000	0	2	0	
25	C13	tag2	1626.636	2023-04-17 11:01:45.0000	0	2	0	
26	C13	tag2	1626.648	2023-04-17 11:01:50.0000	0	2	0	
27	C13	tag2	1626.661	2023-04-17 11:01:55.0000	0	2	0	
28	C13	tag2	1626.673	2023-04-17 11:02:00.0000	0	2	0	
29	C13	tag2	1626.685	2023-04-17 11:02:05.0000	0	2	0	
30	C13	tag2	1626.698	2023-04-17 11:02:10.0000	0	2	0	
31	C13	tag2	1626.710	2023-04-17 11:02:15.0000	0	2	0	
32	C13	tag2	1626.722	2023-04-17 11:02:20.0000	0	2	0	
33	C13	tag2	1626.734	2023-04-17 11:02:25.0000	0	2	0	
34	C13	tag2	1626.747	2023-04-17 11:02:30.0000	0	2	0	
35	C13	tag2	1626.759	2023-04-17 11:02:35.0000	0	2	0	
36	C13	tag2	1626.771	2023-04-17 11:02:40.0000	0	2	0	

interid	int	12	0	☒	☐	1
ppn	varchar	255	0	☐	☐	
ppa	varchar	255	0	☐	☐	
nam	varchar	255	0	☐	☐	
value	varchar	255	0	☐	☐	
t	timestamp	6	0	☐	☐	
cf	tinyint	4	0	☐	☐	
vt	tinyint	4	0	☐	☐	
q	tinyint	4	0	☐	☐	

3.2.9.1.2 MQTT Built-in Topic

● Get Current Point Table

Topic Description: Root Topic: _dncmds/sys/dbcfg

JSON String Format Data:

```
{ "cid": "clientID", "frmt": 2, "taglst": [ { "mid": "B1", "nam": "B1", "taglst": [ { "addr": 0, "dsc": "描述信息 1", "nam": "db.C1.B1.tag1" } ] } ] }
```

Field	Type	Comment
-------	------	---------

cid	String	Client ID: Configured MQTT client ID using Gateway Link software.
frmt	Integer	Message Type (Type 2): Indicates that the gateway is pushing real-time data.
taglst	array	Device Array: Array of devices associated with the point table.
mid	String	Device Name: Name of the device.
addr	String	Device Address: Address of the device.
dsc	String	Point Table Description: Description of the point table.
nam	String	Device Name/Point Table Name: Combination of the device name and point table name.

3.2.9.1.3 Periodic Real-Time Data Push

MQTT will by default push real-time data to the root topic. The JSON string format for periodic push is as follows:

```
{
  "cid": "clientID",
  "datas": [
    {
      "ad": "16",
      "cf": 0,
      "nm": "tag17",
      "ppn": "C13",
      "t": "2023-04-08 18:53:31",
      "v": "3257.494",
      "vt": 2
    }
  ],
  "frmt": 10,
  "ver": 1
}
```

Field	Type	Comment
cid	String	MQTT Client ID configured using Gateway Link software.
frmt	Integer	Message type 10: Represents gateway real-time data.
ver	Integer	Protocol version number, default is 1.
datas	array	Real-time data array.
ad	String	Device address.
cf	Integer	Default is 0.
nm	String	Tag table name.
ppn	String	Device name.
t	String	Time string accurate to the second.

v	String	Current tag table value.
vt	Integer	Data type: 2: Float, 1: Integer, 0: String.

3.2.9.1.4 Command Issuance

MQTT supports command issuance to perform operations on the gateway.

Topic Description: Root Topic / _dnbody

Command Issuance JSON Format String:

```
{"uuid":"897","resp":1,"tag":"C1.TEST_CMD","value":"11"}
```

Field	Type	Comment
uuid	String	UUID: Generated when the upper-level MQTT sends a command.
resp	Integer	Response Status: 1: Return the write status. 0: Do not return the write status.
tag	String	Tag: MQTT point table name configured using the Gateway Link software.
value	String	Value: The corresponding modified value.

● JSON Description Table for Lower Command Response:

Field	Type	Comment
ver	Integer	Protocol Version Number: Default is 1.
frmt	Integer	Message Type 13: Indicates IO command feedback.
ios	array	Response Array.
uuid	String	UUID: Generated when the upper-level MQTT sends a command.
tag	Integer	Modified MQTT Point Table Name.
rsn	Integer	Execution Result:

		0: Success. Non-0: Failure.
rss	String	Execution Result Description.

3.2.9.2 Alibaba Cloud IoT Platform MQTT Forwarding

3.2.9.2.1 Usage Process

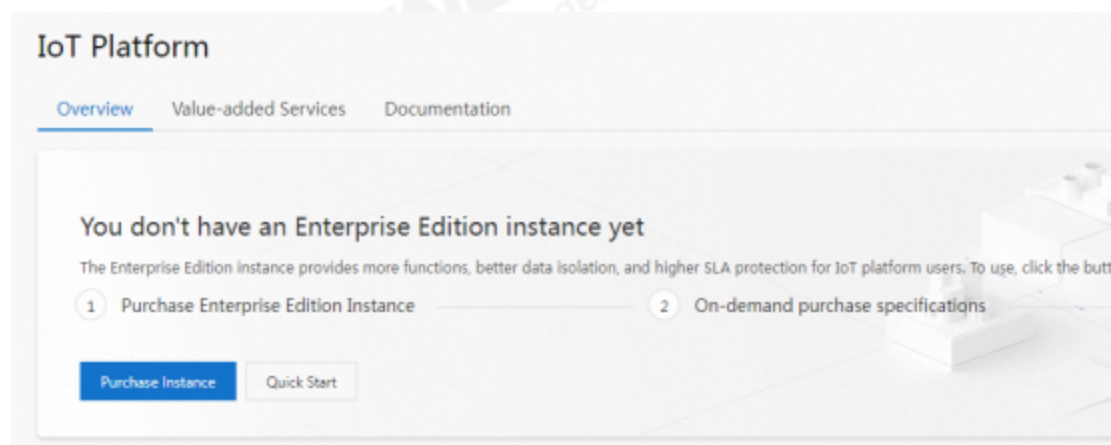
3.2.9.2.1.1 Alibaba Cloud IoT Platform Configuration

- Log in to the Alibaba Cloud website.

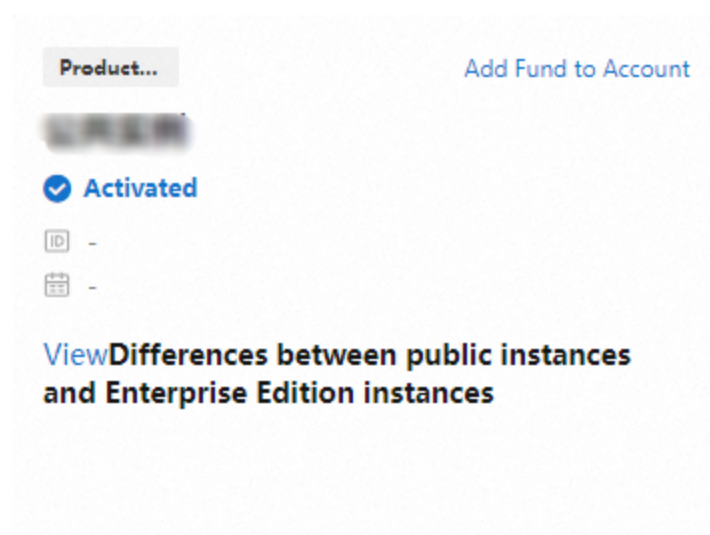
[https://account.aliyun.com/login/login.htm?oauth_callback=https%3A%2F%2Fiot.console.aliyun.com%2Fdevices%2Fk0a3sVWO6V2%2Flathe1%2F1\(&=zh](https://account.aliyun.com/login/login.htm?oauth_callback=https%3A%2F%2Fiot.console.aliyun.com%2Fdevices%2Fk0a3sVWO6V2%2Flathe1%2F1(&=zh)

Test Account: 13424131628 **Password:** Hmantic123

- Enter the "Console Interface" and check "IoT Platform" under "Product & Services."



- Select the instance.



- Create a product.

← IoT Platform

Instance Details

Devices ^

Products

Devices

Groups

Device Simulation

Device Distribution

CA Certificate

Message Forwarding v

Resource Allocation v

Maintenance v

Link Analytics

Link Visual v

Documentation and Tools

Feedback

IoT Platform / Devices / Products / Create Product

← **Create Product (Device TSL)**

Create Product | Create Product from Device Center

* Product Name

You must specify a product name

* Category

☒ Standard Category ☐ Custom Category

Select a standard category View Features

* Node Type

Directly Connected Device

Gateway sub-device

Networking and Data Format

* Network Connection Method

Wi-Fi

* Data Type

ICA Standard Data Format (Alink JSON)

Checksum Type

Authentication Mode

More

Product Description

OK

Cancel

- Create a device.

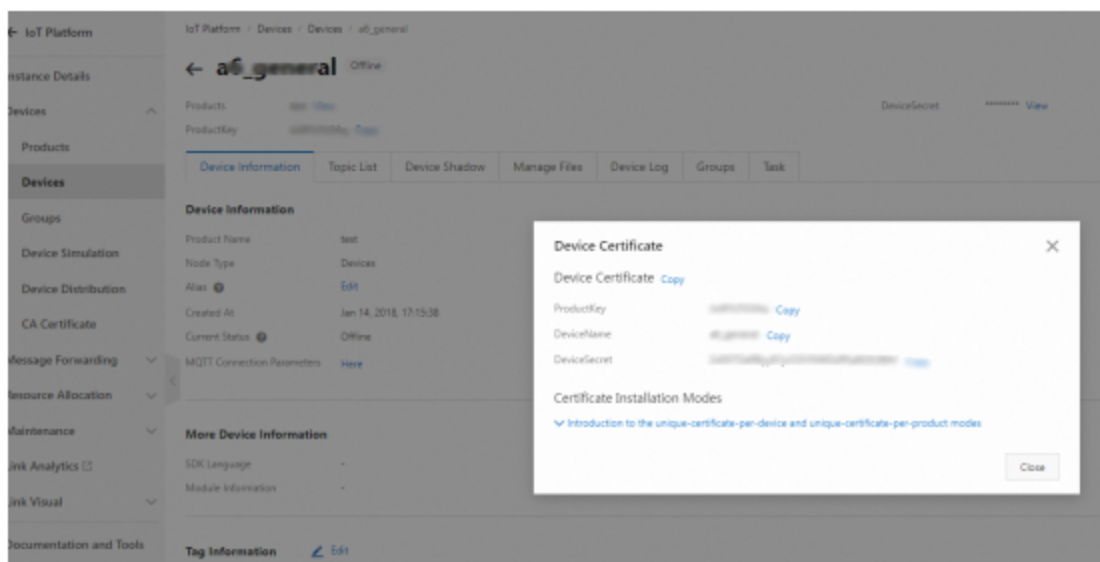
Notes:

Name the device and provide the required information during the creation process.

After successful creation, the device will initially show as inactive.

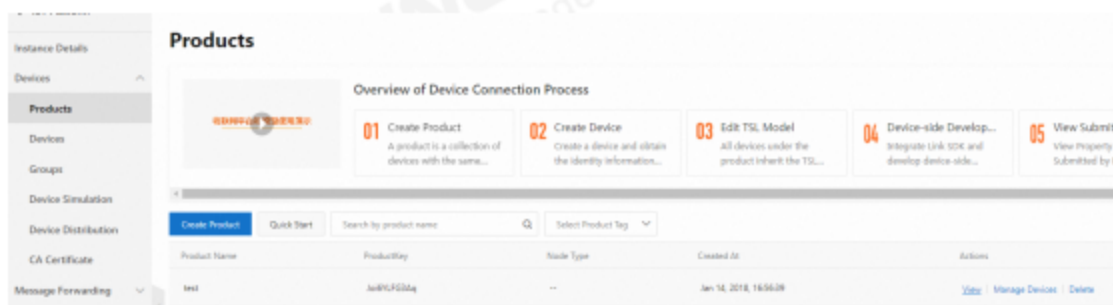
Review the device and product parameters, as these will be needed later in the software configuration.

- MQTT Connection Required Parameters:

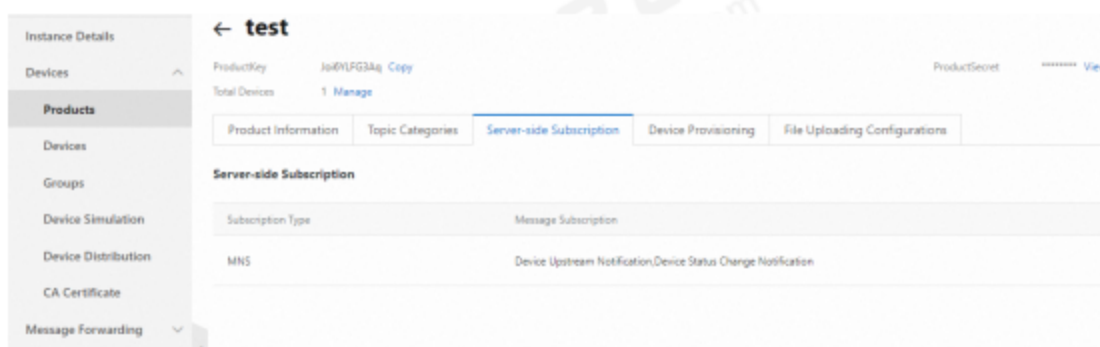


- Create Data Model:

Select the newly created device and click on "View."



Create a "Module," which can be understood as a grouping feature.



Note:

The module identifier, such as "cnc_1" in the image above, will be used in the configuration software. Each module's identifier is determined based on the actual creation.

- Create "Attributes"

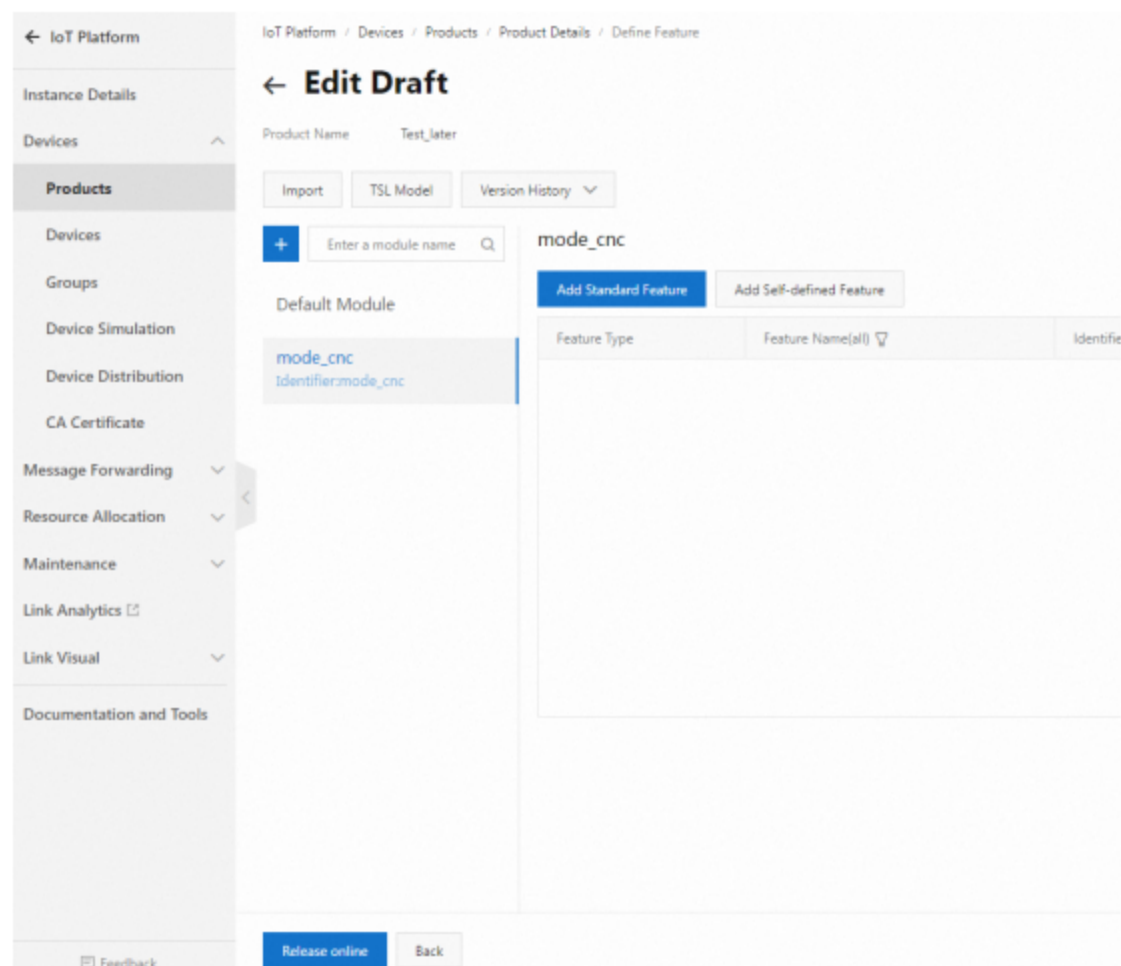
The screenshot shows the 'Add Self-defined Feature' dialog box in the Finger iLink software. The dialog is open over the 'Edit Draft' screen. The 'Add Self-defined Feature' dialog has tabs for 'Properties', 'Services', and 'Events'. The 'Properties' tab is active, showing fields for Feature Name, Identifier, Data Type (set to Int32), Value Range (Min to Max), Step, Unit, Read/Write Type (Read/Write selected), and Description. The background 'Edit Draft' screen shows a product named 'Test_later' and a module named 'mode_cnc' with identifier 'mode_cnc'.

Note:

The identifier/data type will be needed in the configuration software.

- Publish the Model Online

After editing the device property model, it is necessary to publish it online; otherwise, the data will not be received correctly!



3.2.9.2.1.2 GateWayLink Configuration

- Configure the Collection Device

Create a new collection channel and select the corresponding communication protocol.

Basic Parameters Advanced parameters

Info

ChannelName C6 DESC Channel

ChannelConfig

Manufacturer ModbusTCP/ModbusTCP Protocol ModbusTCP ...

Time-delay 0 sec

Port Arg Config

Port TCP Client ☐ Prohibit link optimization

Remote IP 192.168.2.238 Remote Port 502

Local IP Net Ip

Ok Cancel

Add the device's IP address and the Modbus TCP port.

Info

DeviceName B6

Description Device

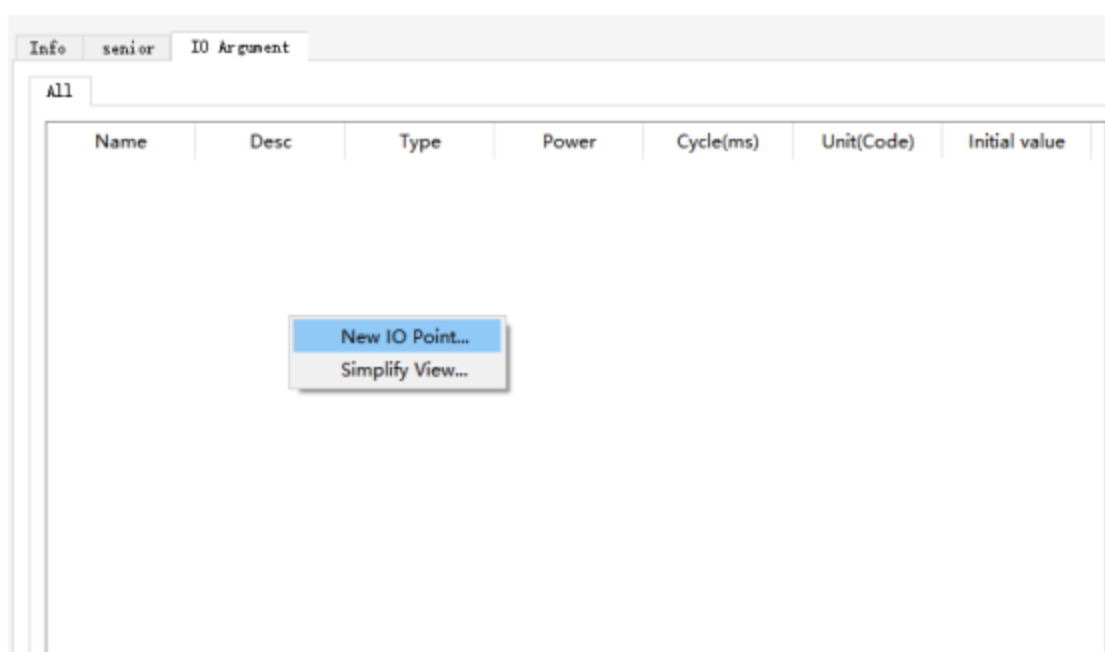
Arg Config

DeviceAddress 1 DeviceIP 192.168.2.238

DeviceModel NULL DevicePort 502

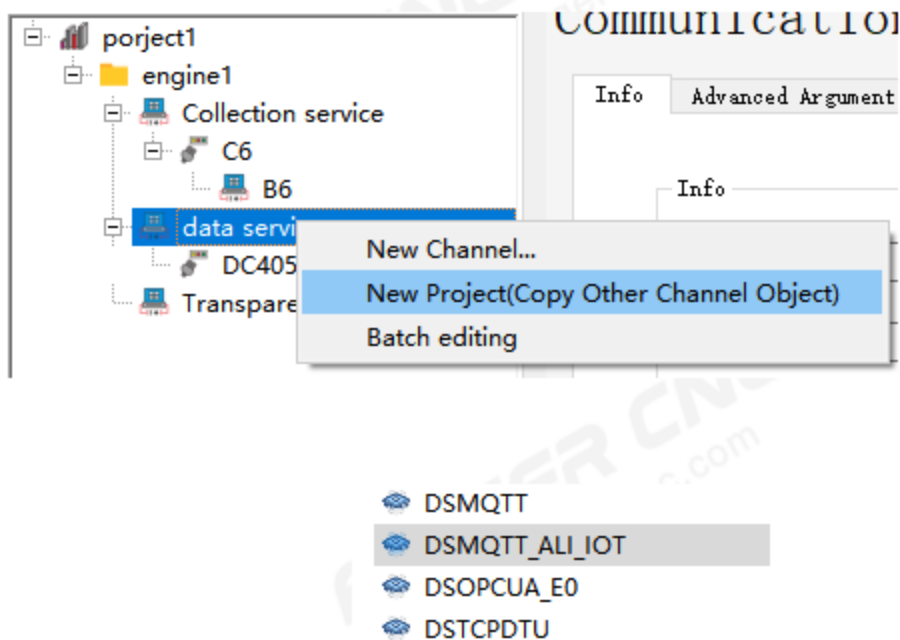
Ok Cancel

Create a Collection Point Table



● Configure Data Forwarding

Create a data forwarding channel.





Select the corresponding forwarding service name, click on "Advanced Configuration," and configure according to the diagram below. Click "OK" to complete the setup.

The Advanced Configuration dialog box contains the following fields and options:

- URL:** [Empty text field]
- Port:** 1883 (with up/down arrows)
- Buttons:** Ok, Cancel
- Connect Argument:**
 - Product Key: [Empty text field]
 - Device Name: [Empty text field]
 - Device Seret: [Empty text field]
 - KeepAlive: 60 (with up/down arrows) unit: sec 30-1200
 - userName: &
 - userPwd: d74f4174f7eb8e260897d49dbf0295a25367a7d9ea309c92c74faefd30c23e87
- Apply Argument:**
 - topic: [Empty text field]
 - down topic: [Empty text field]
 - publish cycle: 5 (with up/down arrows) sec
 - retall data: 900 (with up/down arrows) sec
 - ☐ push changed data
 - ☐ bad data not handle
 - ☐ down control Cmd

Configuration Interface Parameter Descriptions:

Product Key: The specific product key created in Alibaba Cloud.

Device Name: The name of the device created in Alibaba Cloud.

Device Secret: The device secret created in Alibaba Cloud.

Username: The username required for logging into MQTT (automatically generated).

Password: The password required for logging into MQTT (automatically generated).

Data Push Topic: The MQTT topic for device data pushing (automatically generated by default).

Data Downlink Topic: The topic for the gateway to receive data issued by Alibaba Cloud MQTT (automatically generated by default).

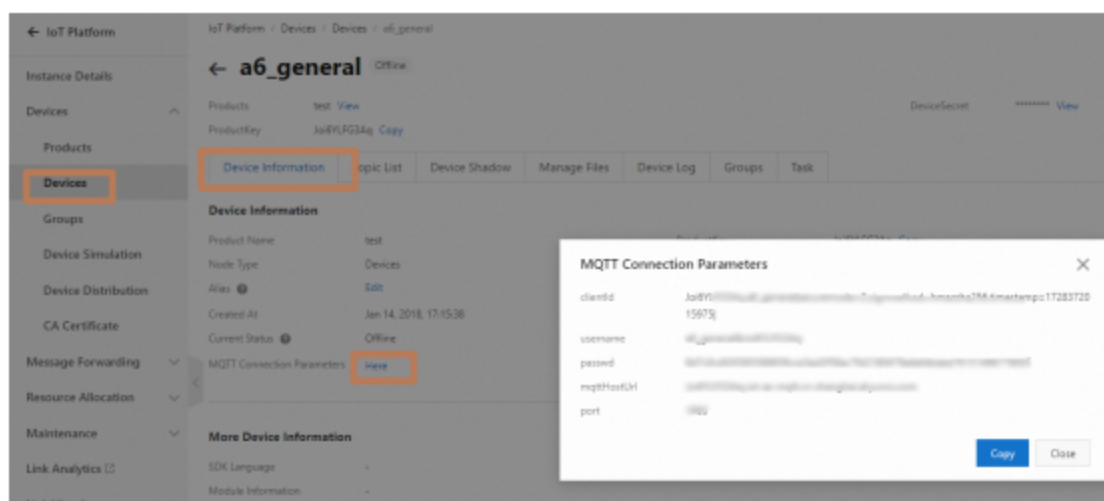
Push Interval: The interval for regular data pushing, measured in seconds.

Total Call Interval: Effective only when "Periodically Push Only Changed Data" is checked; after the total call interval, all data will be pushed to Alibaba Cloud MQTT (including unchanged data).

Periodically Push Only Changed Data: When checked, only changed data will be pushed.

Execute Downlink Control Commands: When checked, allows effective modification of device data; if unchecked, the Alibaba Cloud IoT platform cannot remotely modify data.

You can view the MQTT connection parameters in the Alibaba Cloud IoT platform under "Devices" -> "Device Information." The parameters "MqttHostUrl," "port," and the corresponding "URL" and "Port" in the "Advanced Configuration" section will match as follows.



After configuring the forwarding point table as shown in the figure, simply click "OK" to complete the setup.

Info

Name

tag1

Ok

Desc

Cancel

Associated collection

...

None

factor

calculate

none

Base

0.0000

Rate

0.0000

$Y = \text{base} + \text{ratio}(* /) \text{Value}$

Note:

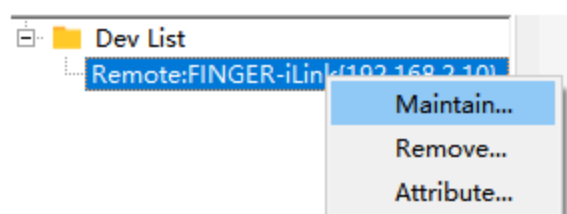
Point Name: Model + ":" + Attribute.

Point Data: The type should be consistent with the Alibaba Cloud device.

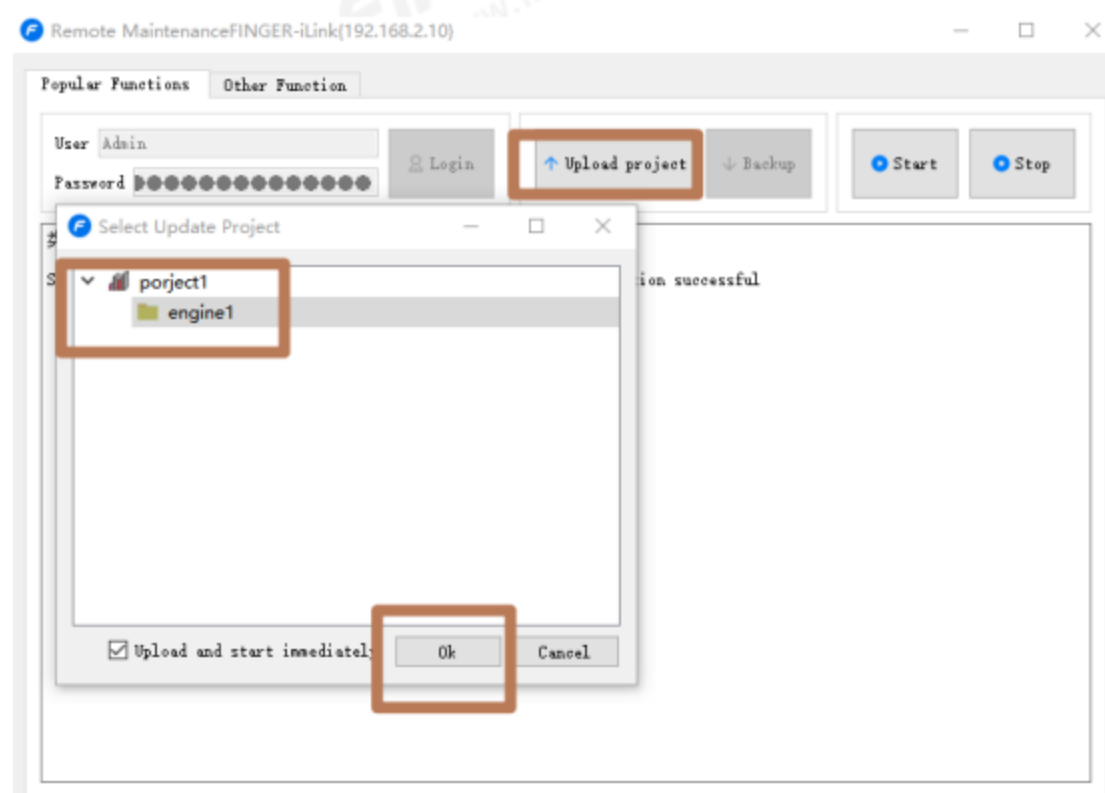
● Download Project

1. Click on "Device Maintenance" at the bottom right corner of the software to jump to the maintenance interface and create a new connection.
2. Right-click on the options in the "Device List" and select "Maintenance" from the

popup menu.



Select "Common Functions" -> "Update Project."



After checking "Upload and Start Immediately," the log output window displays the following information:

```

Stop Response 2024-10-08 15:21:37  Connect Gateway      Connection successful
Select project 2024-10-08 15:22:04  Upload project  C:/Users/Phoenix/Desktop/iotgw/project2/project1/engine1/db.xml
Select project 2024-10-08 15:22:04  Upload project  Please wait for the update...
Upload project 2024-10-08 15:22:04  Upload project  project file update success!
Stop Response 2024-10-08 15:22:04  Connect Gateway      Connection successful
Start response 2024-10-08 15:22:04  start-up          start-up success!
  
```

3.2.9.2.1.3 View Data

- View Uploaded Data on Alibaba Cloud
- View Data in Network Management Software

Check if the collected data matches the device data. A quality timestamp of 0 indicates that the data is correct, while 255 indicates a connection collection anomaly.

Log Information: You can check the plugin version and development logs, as well as view the logs output by the gateway execution program.

3.2.9.2.1.4 Data Issuance from Alibaba Cloud

- Set up the data issuance in the "Online Debugging" interface.

3.2.9.3 HTTP Forwarding

Port: Specified by the configuration software, with the default URL being [/Finger/Cmd/Api](#)

3.2.9.3.1 Gateway Time Synchronization

Access Interface: [http://127.0.0.1:54000/Finger/Cmd/Api/sys_time?time="2023-12-25 14:45:10"](http://127.0.0.1:54000/Finger/Cmd/Api/sys_time?time='2023-12-25 14:45:10')

Return JSON Result:

```
{
  "code": 0,
  "data": "Gateway Time Synchronization",
  "errInf": ""
```

```
"url": "sys_time"
}
```

3.2.9.3.2 Restart the gateway

Access Interface:<http://127.0.0.1:54000/Finger/Cmd/Api/reboot>

Return JSON Result:

```
{
  "code": 0,
  "data": "Restart the gateway",
  "errInf": "",
  "url": "reboot"
}
```

3.2.9.3.3 Start the collection program

Access Interface:<http://127.0.0.1:54000/Finger/Cmd/Api/start>

Return JSON Result:

```
{
  "code": 0,
  "data": "Start collecting",
  "errInf": "",
  "url": "start"
}
```

3.2.9.3.4 Close the collection program

Access Interface:<http://127.0.0.1:54000/Finger/Cmd/Api/stop>

Return JSON Result:

```
{
  "code": 0,
  "data": "Stop the collection",
  "errInf": "",
  "url": "stop"
}
```

3.2.9.3.5 Retrieve all point configuration information

Access Interface:

http://127.0.0.1:54000/Finger/Api/_dncmds/sys/dbcfg

Return JSON Result:

```
{
  "code": 0,
  "data":
    "{\\\"clinetID\\\":\\\"HTTPClinet\\\",\\\"frmt\\\":2,\\\"iedlst\\\":[{\\\"mid\\\":\\\"C2\\\",\\\"nam\\\":\\\"C2\\\",\\\"tag1st\\\":[{\\\"ad\\\"dr\\\":0,\\\"dst\\\":\\\"描述\\\"\\\",\\\"nam\\\":\\\"tag1\\\"},{\\\"addr\\\":0,\\\"dst\\\":\\\"\\\",\\\"nam\\\":\\\"tag2\\\"}],\\\"uuid\\\":1}],\\\"ver\\\":1}\\\",
  "errInf": "",
  "url": "_dncmds/sys/dbcfg"
}
```

3.2.9.3.6 Get data from all collection devices of the current gateway

Access Interface:

http://127.0.0.1:54000/Finger/Api/_dncmds/sys/rtcall

Return JSON Result:

```
{
  "code": 0,
  "data":
    "{\\\"clinetID\\\":\\\"HTTPClinet\\\",\\\"datas\\\":[{\\\"ad\\\":0,\\\"cf\\\":0,\\\"ppn\\\":\\\"C2\\\",\\\"q\\\":0,\\\"t\\\":\\\"2023-05-22 14:50:28\\\",\\\"tag\\\":\\\"tag1\\\",\\\"v\\\":\\\"37959\\\",\\\"vt\\\":1},{\\\"ad\\\":0,\\\"cf\\\":0,\\\"ppn\\\":\\\"C2\\\",\\\"q\\\":0,\\\"t\\\":\\\"2023-05-22 14:50:28\\\",\\\"tag\\\":\\\"tag2\\\",\\\"v\\\":\\\"37959\\\",\\\"vt\\\":1}],\\\"frmt\\\":10,\\\"ver\\\":1}\",
  "errInf": "",
  "url": "_dncmds/sys/rtcall"
}
```

3.2.9.3.7 Get the value corresponding to a specific device address

Access Interface:

http://127.0.0.1:54000/Finger/Cmd/Api/_dncmds/read/ioaddr?addr=0

Return JSON Result:

```
{
  "code": 0,
  "data": "39148",
  "errInf": "",
  "url": "_dncmds/read/ioaddr"
}
```

3.2.9.3.8 Get the value corresponding to a specific device address

Access Interface:

http://127.0.0.1:54000/Finger/Cmd/Api/_dncmds/read/iotag?tag=tag2

Return JSON Result:

```
{
  "code": 0,
  "data": "43297",
  "errInf": "",
  "url": "_dncmds/read/iotag"
}
```

3.2.9.3.9 Modify the value of a specific device address by TAG name

Access

Interface: http://127.0.0.1:54000/Finger/Cmd/Api/_dncmds/write/iotag?tag=C2.tag2&value=123

Return JSON Result:

```
{
  "code": 0,
  "data": "Operation successful!",
  "errInf": "",
  "url": "_dncmds/write/iotag"
}
```

Access Interface:

http://127.0.0.1:54000/Finger/Cmd/Api/_dnbody?tag=C2.tag1&value=123

Return JSON Result:

```
{
  "code": 0,
  "data": "Operation successful!",
}
```

```

    "errInf": "",
    "url": "_dnbody"
}

```

3.2.9.3.10 Modify the value of a specific device address by forwarding address

Access Interface:

http://127.0.0.1:54000/Finger/Cmd/Api/_dncmds/write/ioaddr?addr=1&value=12

Return JSON Result:

```

{
    "code": 0,
    "data": "Operation successful!",
    "errInf": "",
    "url": "_dncmds/write/ioaddr"
}

```

3.2.9.3.11 Periodically Upload Data to URL

Supports two functions: data periodic upload and data change upload.

Example of JSON format for upload:

```

{
    "clinetID": "HTTPClnet",
    "datas": [
        {"ad": 0, "cf": 0, "ppn": "C2", "q": 0, "t": "2023-05-22 15:57:53", "tag": "tag1", "v": "123", "vt": 1},
        {"ad": 1, "cf": 0, "ppn": "C2", "q": 0, "t": "2023-05-22 15:57:53", "tag": "tag2", "v": "12", "vt": 1}],
    "frmt": 10,
    "ver": 1
}

```

```
}
```

JSON format data description:

clientId: The configured local identification code

tag: Point name

ad: Forwarding point address

v: Point value

ppn: Device name

vt: Data type: 1 for string, 2 for integer, 3 for floating-point

t: Formatted time string

frmt: 10 for real-time data

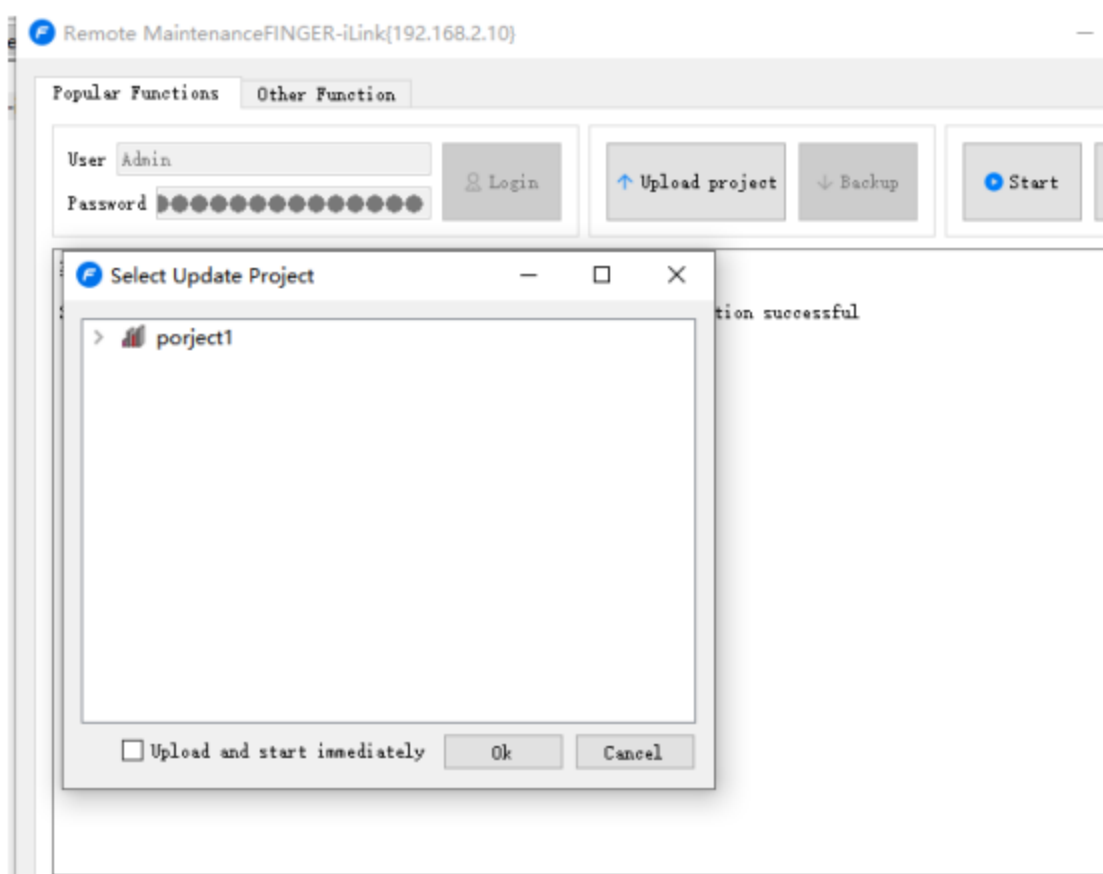
ver: Version.

3.2.10 Device Maintenance

3.2.10.1 Update Configuration Project

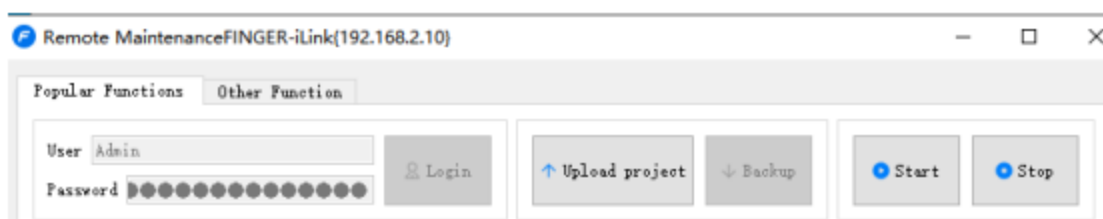
You can remotely update the configuration project to the digital gateway.

Click on "Common Functions" and select "Update Project," choose the project you want to update, and click "OK" to complete the process.



3.2.10.2 Start and Stop Collection

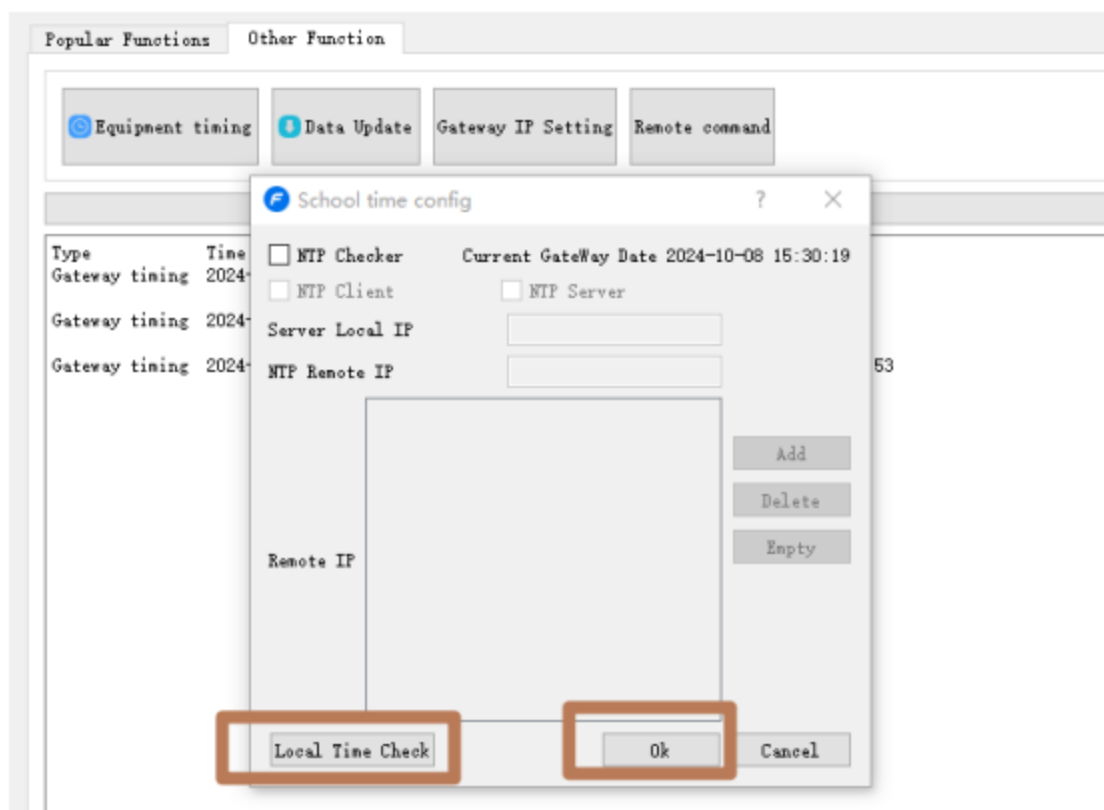
You can start and stop the gateway's collection function.



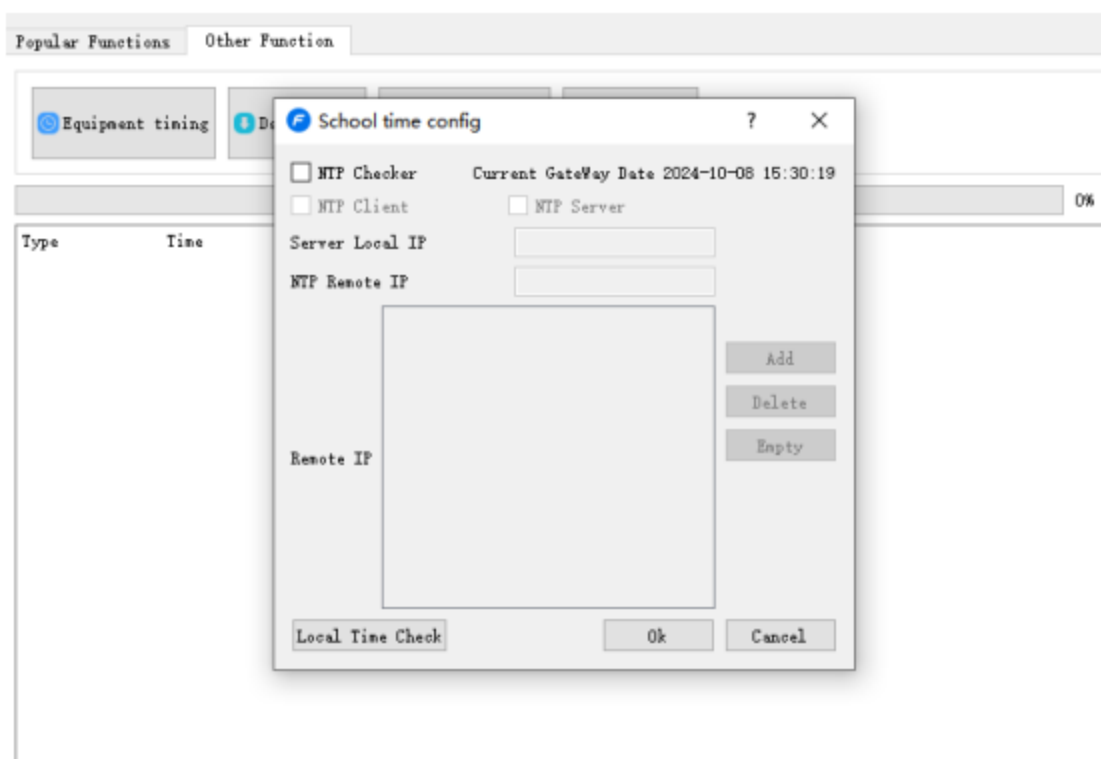
3.2.10.3 Device Time Synchronization

Configure as shown in the following diagram:

1. Connect to the gateway through the remote maintenance of the GateWayLink development system, and click on "Other" then select "Device Time Synchronization," and choose "Synchronize with Local Machine Time."

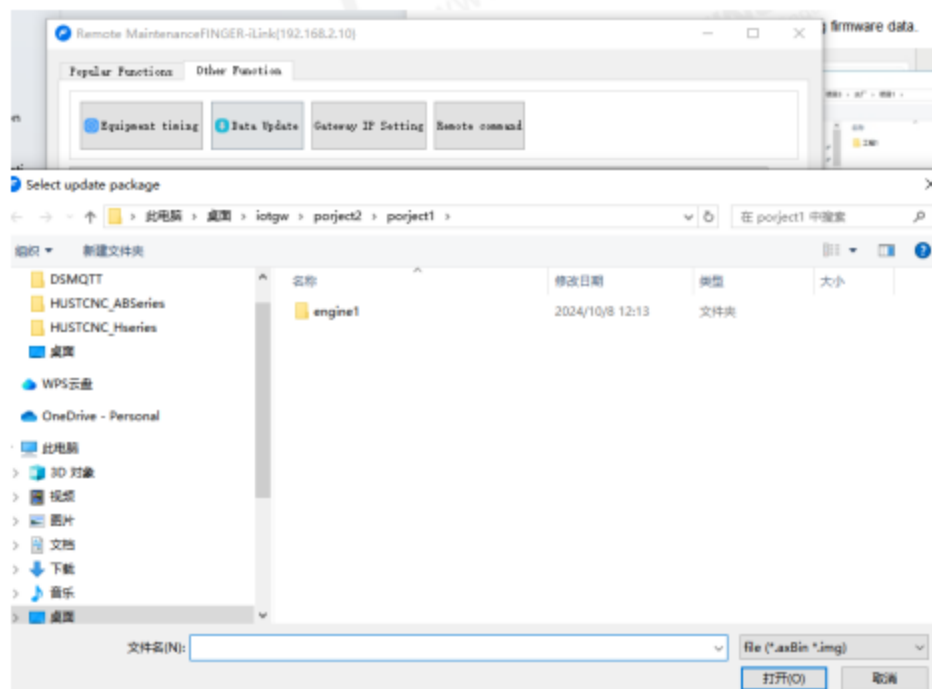


2. In the pop-up interface, check "Enable NTP Time Synchronization" and set the IP address of the network time server.



3.2.10.4 Firmware Data Update

Supports updating and upgrading the underlying firmware data.



3.2.10.5 Gateway IP Settings

Popular Functions Other Function

Equipment timing Data Update Gateway IP Setting Remote command

Net: Net1 ☐ Static IP Ok

IP Address 192 . 168 . 0 . 14 Cancel

Subnet mask: 255 . 0 . 0 . 0

Default gateway: 192 . 168 . 0 . 1

3.2.10.6 Remote SSH Command

Remote Maintenance FINGER-iLink(192.168.2.10)

Popular Functions Other Function

Equipment timing Data Update Gateway IP Setting Remote command

Remote Cmd Target IP: 192.168.50.102 Run

Run Cmd GateWay IP 192.168.2.10

3.2.10.7 Advanced Features

- Serial Port Debugging

The digital gateway has a serial port debugging interface on its side. The baud rate for standard digital gateway devices is 115200, while for edge controller models, it is 1500000.

- SSH Debugging

An SSH server is pre-installed for remote connection and debugging.

Account: root

Password: 123456

3.2.11 Factory Installation Process

3.2.11.1 Configure Gateway IP Address

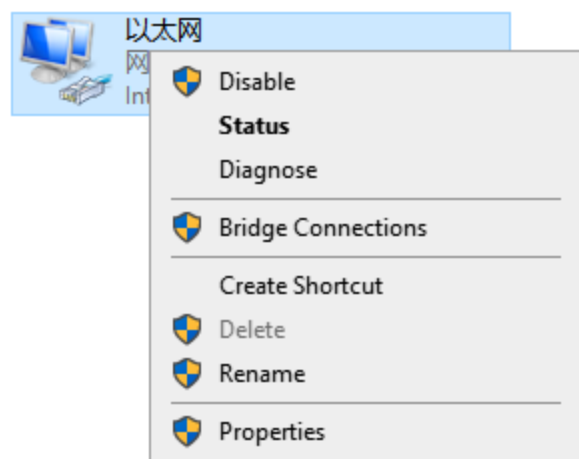
1. Preparation: One laptop computer, One digital gateway, One Ethernet cable, Finger GateWayLink software.

- The digital gateway comes with a default configuration. You can restore factory settings by pressing and holding the "IP_Reset" button on the device for 10 seconds.

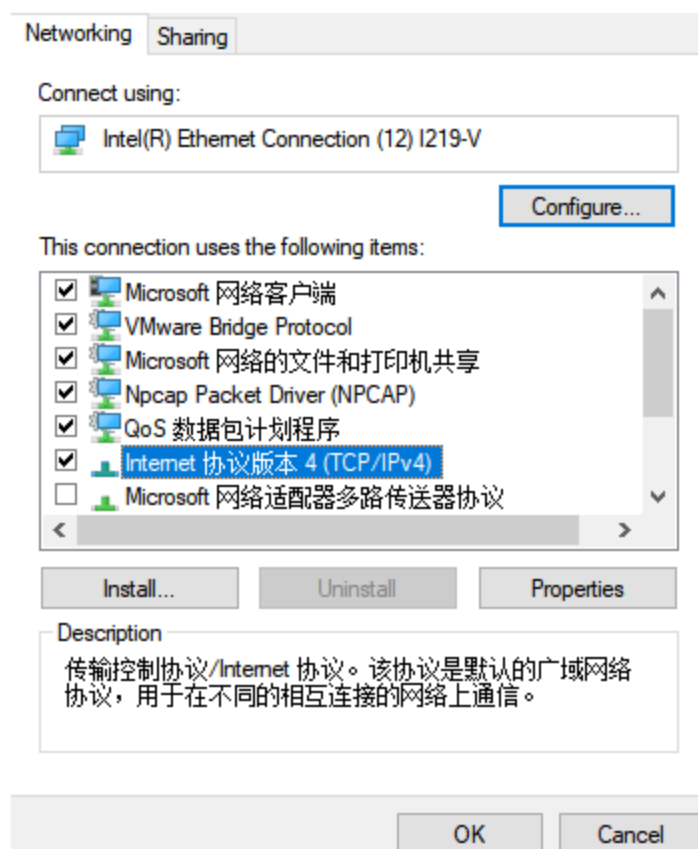
Network Interface	Default IP	Default Gateway
Net0	192.168.0.245	192.168.0.1
Net1	192.168.1.245	192.168.1.1

2. Connect the digital gateway to a 24V power supply, and use the Ethernet cable to connect the laptop computer to the Net0 port of the digital gateway.

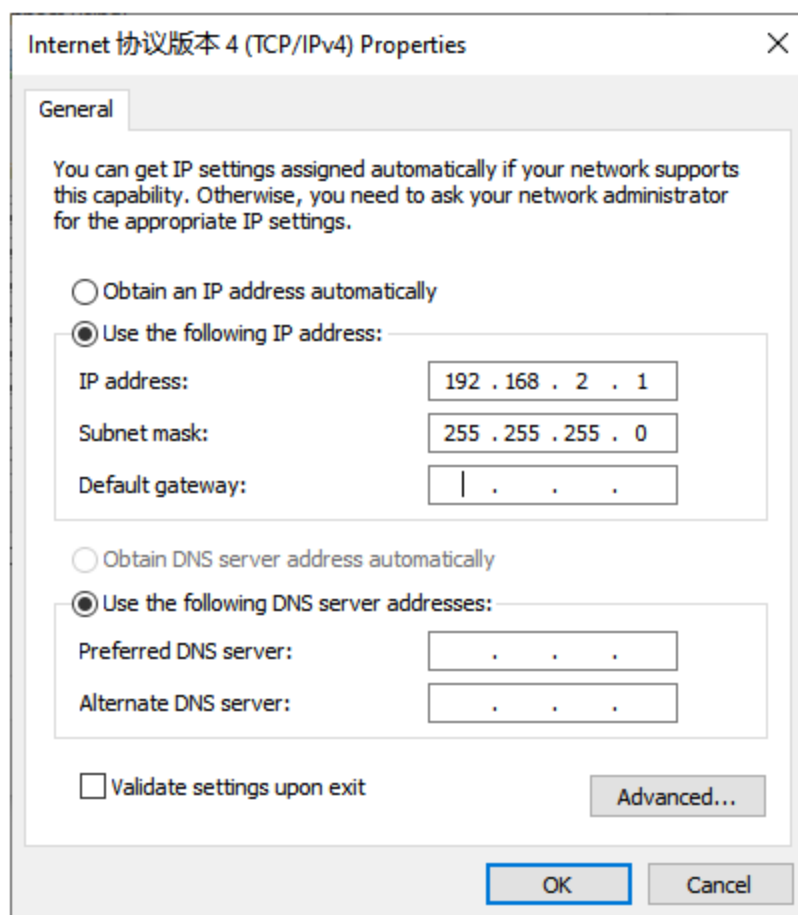
- Install the "Finger GateWayLink" software on the laptop.
- On the laptop, select the network card "Local Area Connection," right-click and choose "Properties."



3. Select "Internet Protocol Version 4 (TCP/IPv4)" and set a static IP address. The IP address must be in the same subnet as the Net0 port. For example: 192.168.0.12.



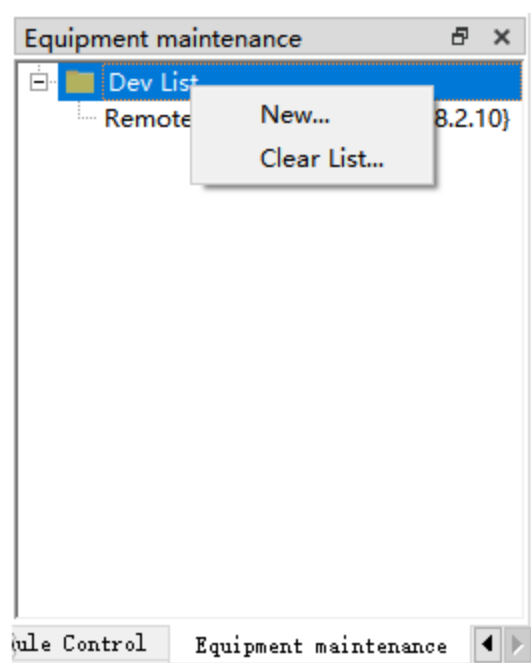
4. In the popped-up property configuration window, enter the IP address and subnet mask.



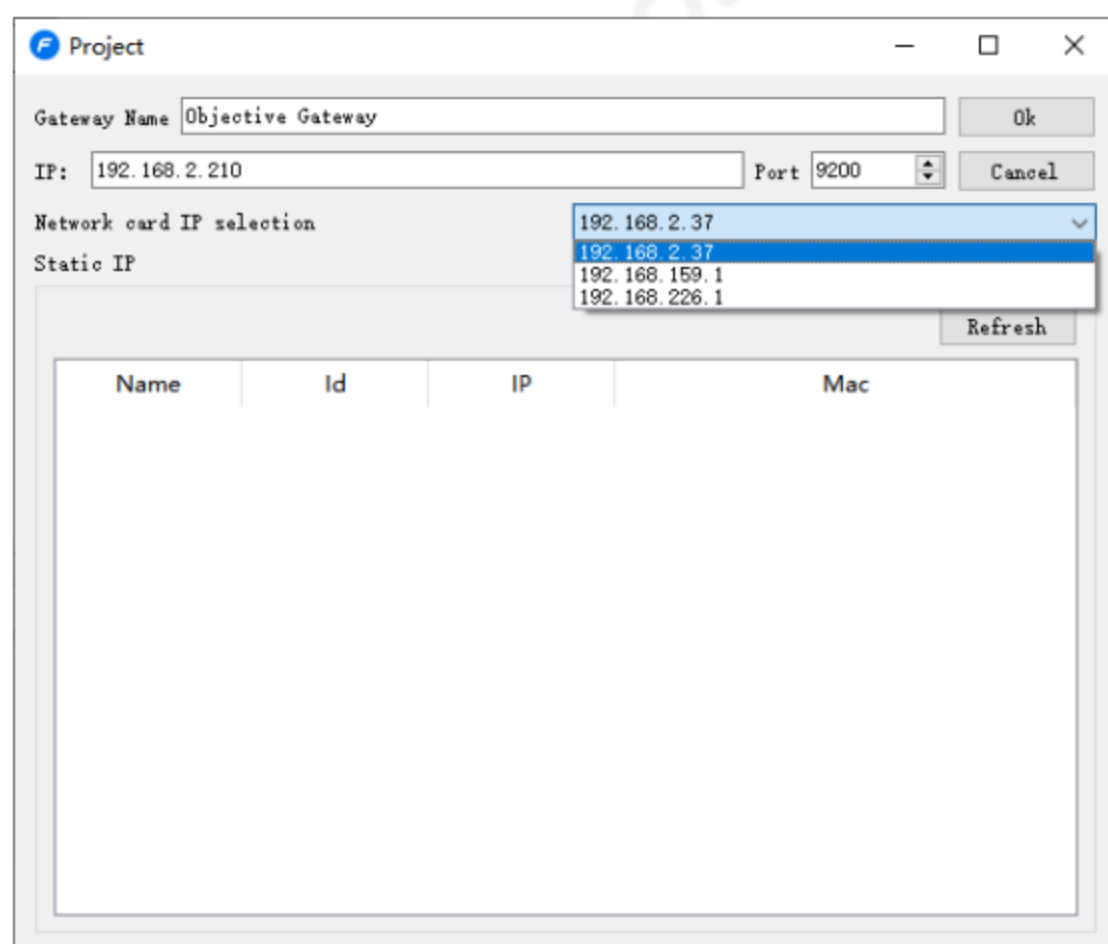
5. Double-click the desktop icon for the "GateWayLink Development System" software to open the configuration software.



6. Use the GateWay Development System software to configure the IP by going to "Device Maintenance" -> right-click on "Device List" -> select "New" from the menu.



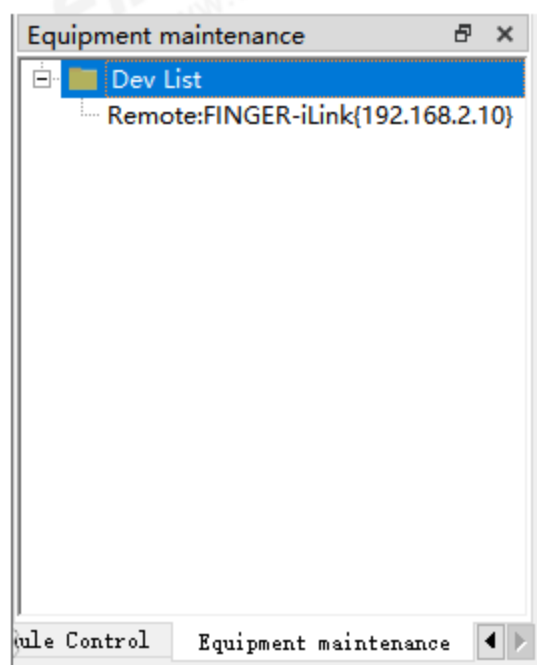
7. Choose the IP address of the network card configured on the laptop, "192.168.0.12," and click refresh.



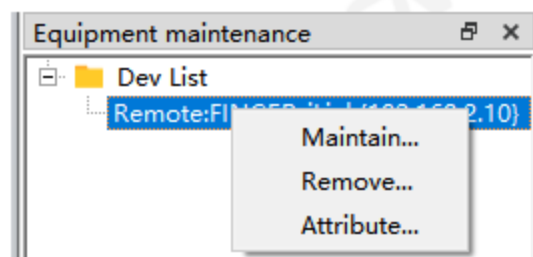
In the table below, search for the directly connected digital gateway. The gateway device information is as follows:

Name	Number	IP Address	MAC Address
Finger iLink	1	192.168.0.245	Actual Physical Address

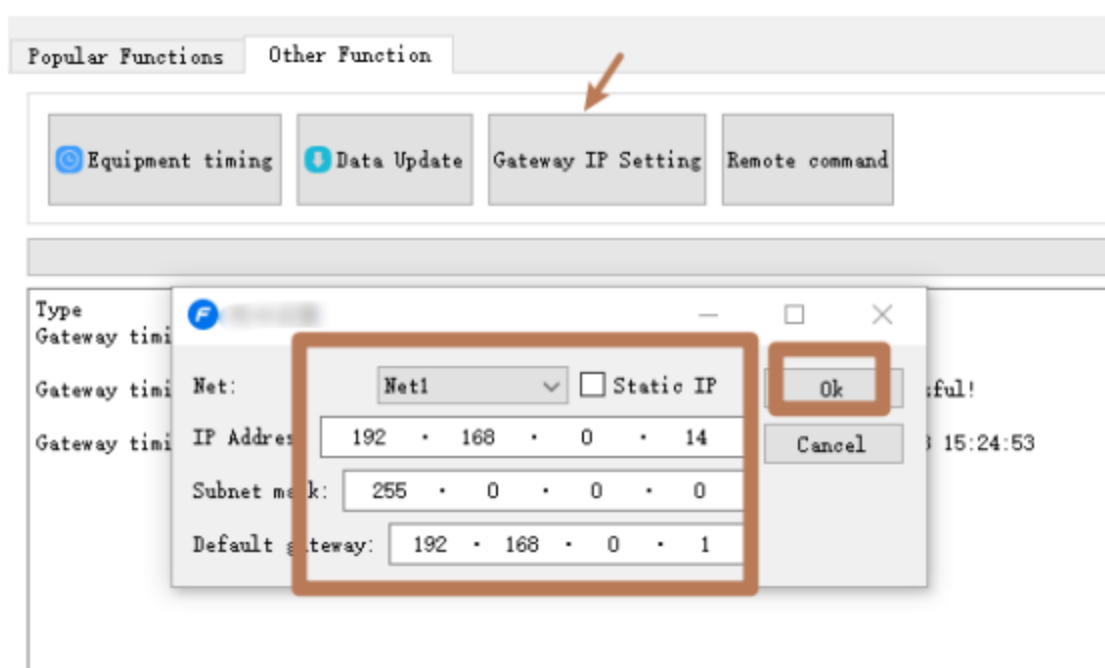
- Double-click to select "Finger iLink" and click the "OK" button. A gateway device will appear in the device list. You can create multiple entries for multi-device maintenance.



- Right-click on "Remote: Finger iLink{192.168.0.245}" and select "Maintenance" from the menu.



- Click on the "Other Functions" tab and select "Network Card IP Settings."



11. In the pop-up "Network Card Settings" window, configure the IP addresses, subnet masks, and default gateways for Net0 and Net1.
12. Check "Static IP" to set the network card to a static IP address for easier maintenance.
13. After entering the network information for both network cards, click "OK." A message will pop up indicating "Configuration successful, restarting gateway (10 seconds)." Wait for the reboot to complete.

3.2.11.2 Installing the Digital Gateway

- The external power supply for the digital gateway is 24V, and it should be installed in a hook-type form.
- When connecting the two network ports of the gateway to an actual switch, ensure that Net0 and Net1 are connected correctly. After connecting one network cable, use a laptop to connect to the other Net port, search the online IP list, and check if the IP is correct.
- After connecting the network cables, labels with the IP addresses should be attached to the Net0 and Net1 network cables.

4.Disclaimer

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Official Website



Official Wechat