

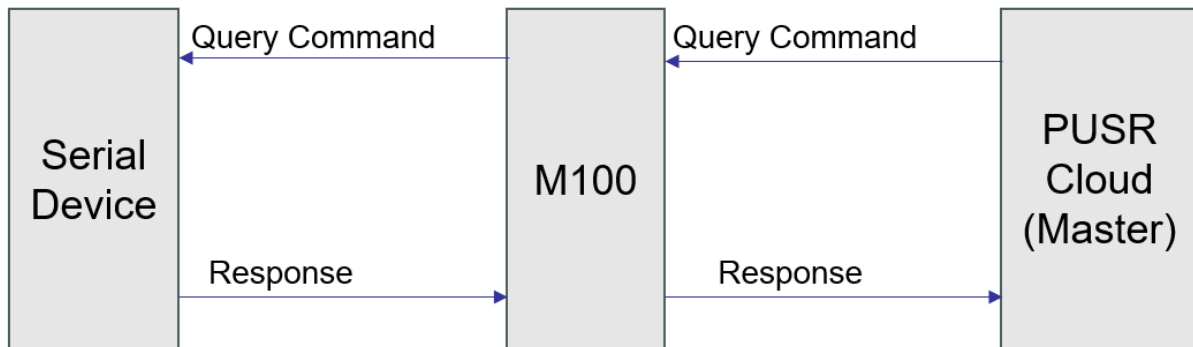
# USR-M100 Connects to PUSR Platform

## 1. Introduction of the application

When the M100 is used with the PUSR cloud, there are generally two situations: Cloud polling and edge computing. The specific block diagram of the function is illustrated in the picture below. In this case, we will explain how these two situations are achieved.

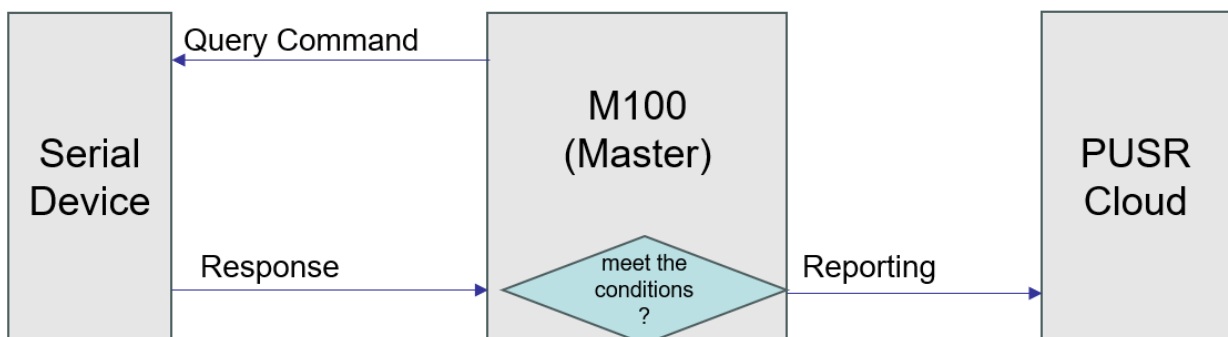
### 1.1 Cloud polling

PUSR cloud actively sends polling query command, and the M100 forwards the data to the serial device intact. The response data will be sent back to PUSR cloud and analyzed and visualized by the platform.



### 1.2 Edge computing

The PUSR platform sends the collection rules and reporting rules to the M100, which actively polls the terminal device at high speed. The M100 reports data to the cloud only when the data meets the reporting conditions. Edge computing can achieve a response speed of milliseconds. It's very fast speed.

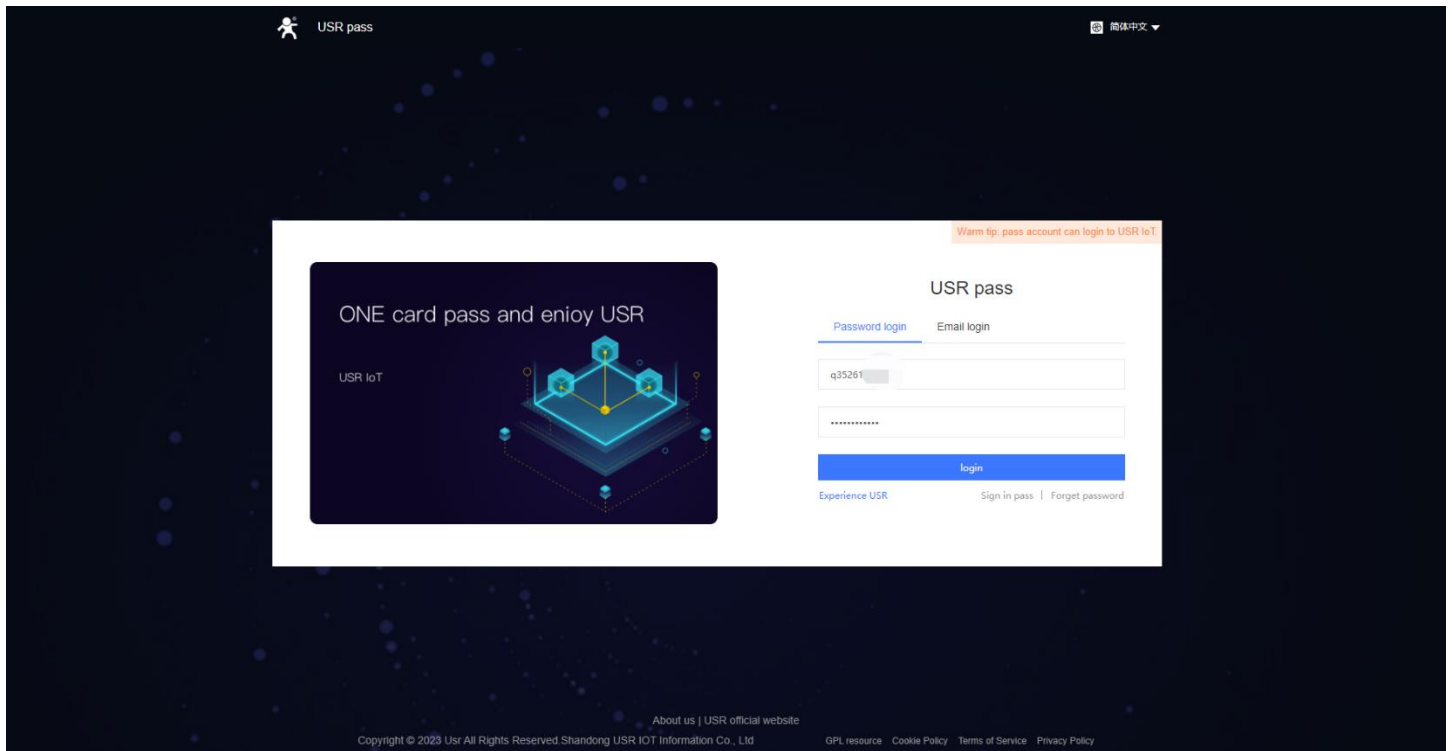


## 2. Preparation Work

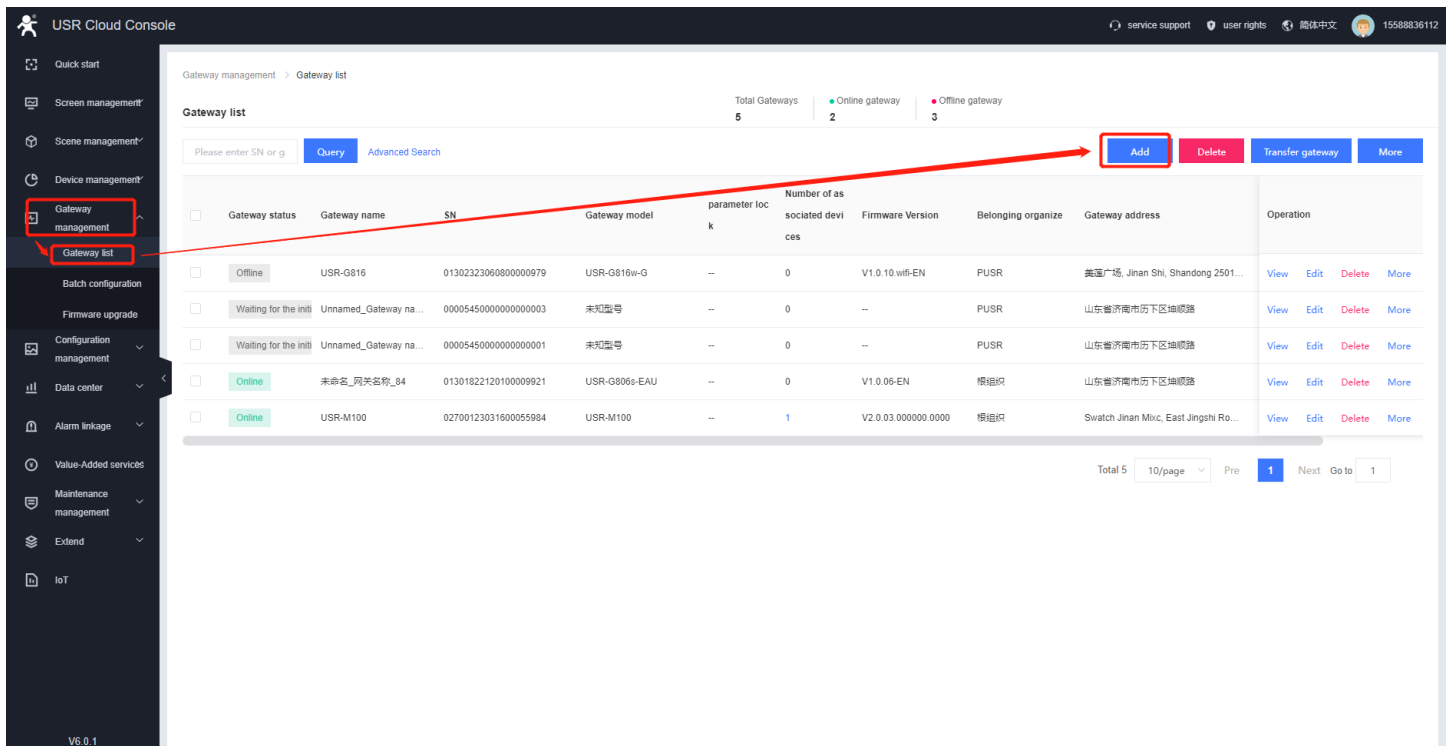
- USR-M100 \* 1
- USB to RS485 converter \* 1
- Network cable \* 1
- Power supply 12V/1A \* 1

### 3. Settings of PUSR

1> Log into the platform: <https://mp.usriot.com>



2> Add Gateway



3> Edit the device, the SN and MAC/IMEI can be found in webpage.



▼ Status

Overview

> Network

> Port

> Gateway

> Cloud Service

> System

Status

System

Model Name	USR-M100
Firmware Version	V2.0.04
Type	H7
Run Time	0day: 2hour: 2min
OS	RT-Thread
MAC Address	D4-AD-20-38-A4-5C
IMEI	86005905957
SN	0040342207150014
Current Network Card Type	EtherNET
System Time	2023-07-13 19:21:41

- Screen management
- Product / scene management
- Device
  - Networking devices
  - Variable template
- Configuration management
- Gateway management
- Alarm linkage
- Data center
- Value-Added services
- Maintenance management
- Extend
- IoT

Device > Networking devices > Add device

Add Device Add Devices In Bulk

Basic Information

\* Device name USR-M100

Upload Pictures

Select the File

Only support JPG, GIF, PNG format, the size of 5M or less

\* Belonging organize 根组织

Device Tags

Add tags

\* SN 0270012303160

SN does not support, click here

\* MAC / IMEI 0270012303160

Device Configuration

Template /transparent transmission Choose a template

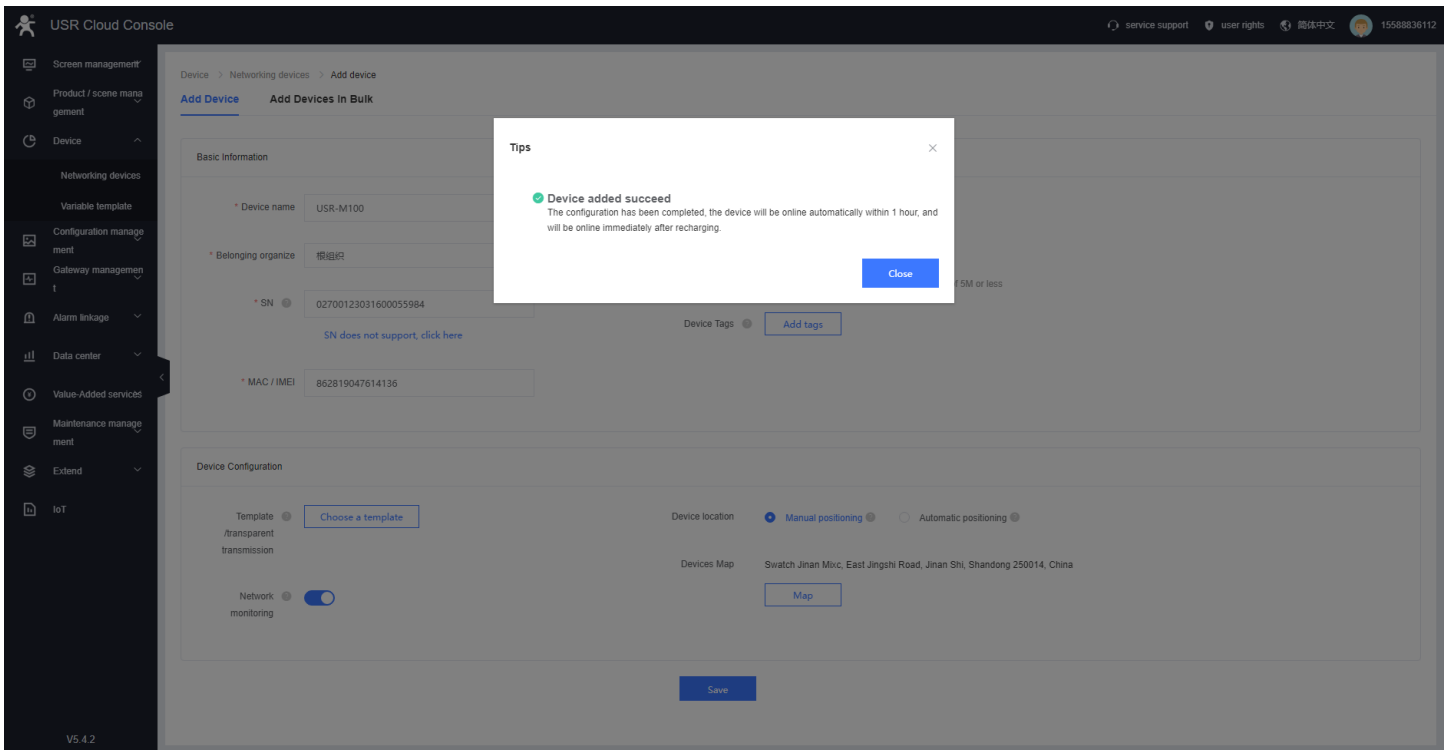
Device location Manual positioning Automatic positioning

Devices Map Swatch Jinan Mixc. East Jingshi Road, Jinan Shi, Shandong 250014, China

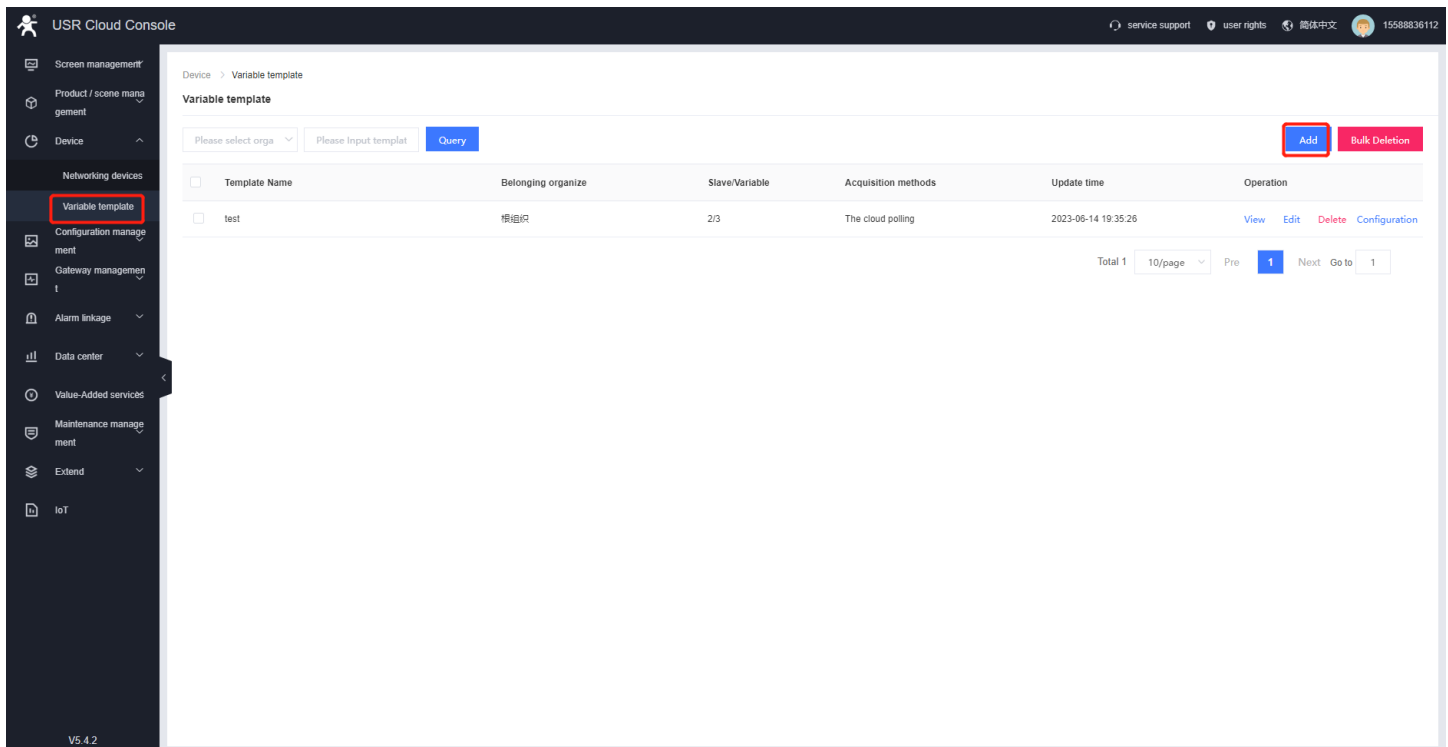
Map

Network monitoring

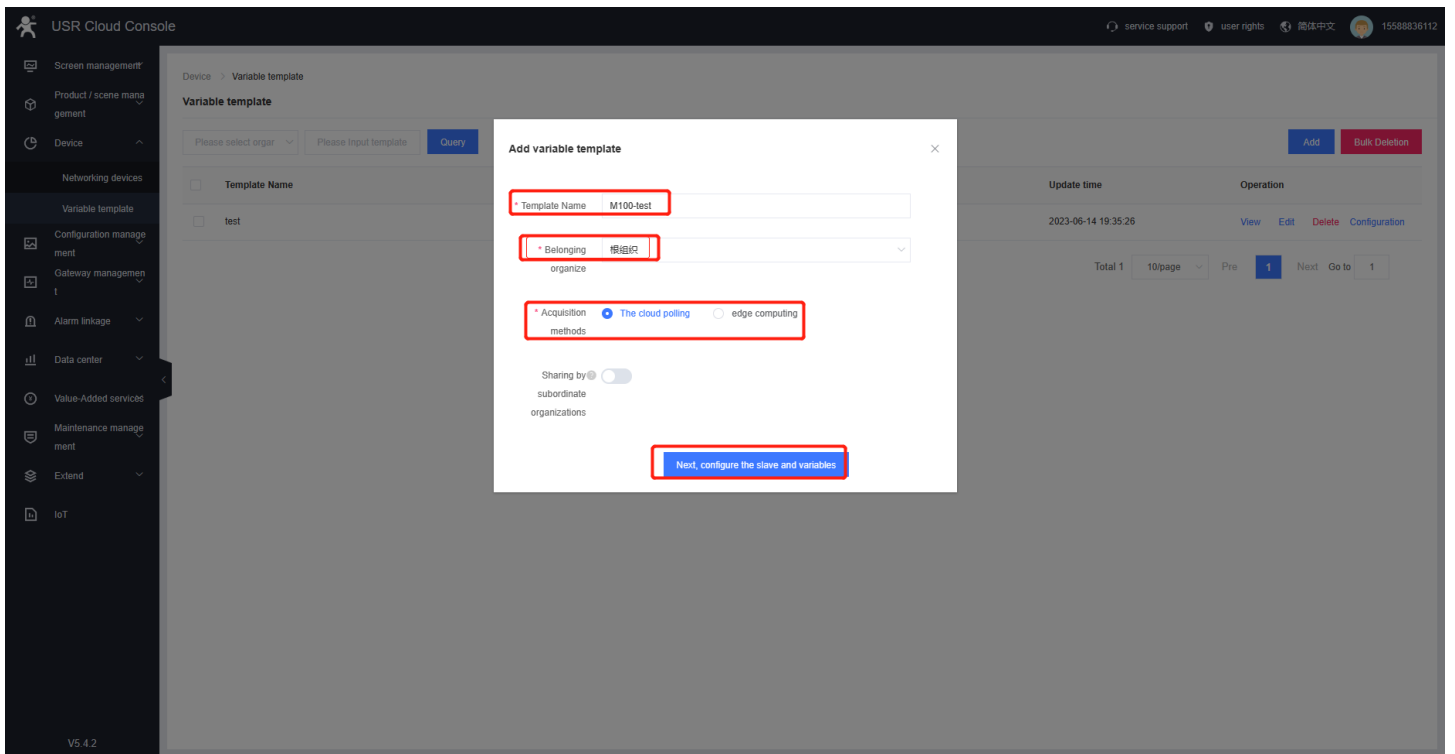
Save



#### 4> Add variable template



5> Edit the variable template, in this step, users need to choose use Cloud Polling or Edge Computing. These two options correspond to the two topologies in the first chapter respectively. Here we choose Cloud polling first.

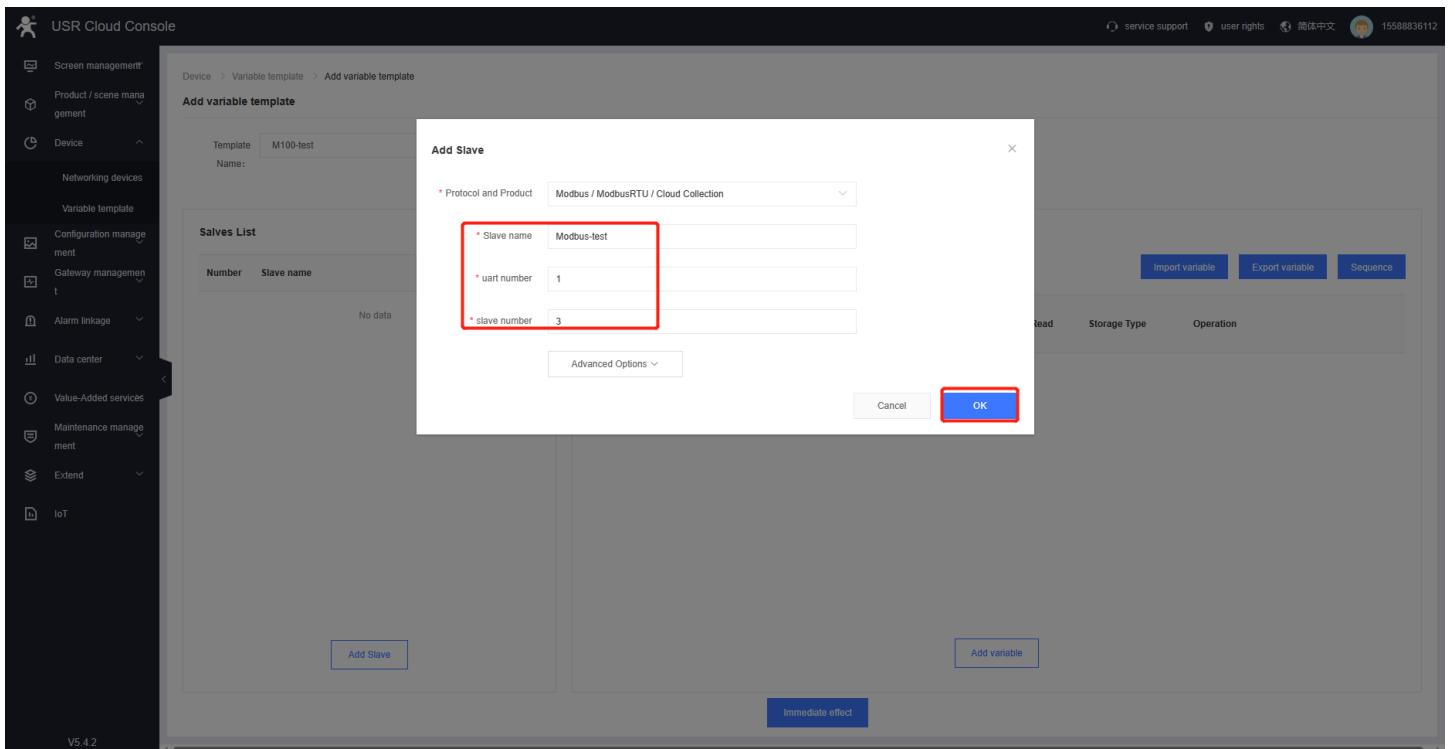


6> Add and edit the slave,

Slave name: User-defined

Uart number: 1, for Cloud Polling, the serial device can only connect to the first serial port.

Slave number: also known as Slave address which can be found in the documentation of the terminal serial device.



7> Add and edit the variable,

**Variable name:** User-defined

**Register:**

The number in the first box corresponds to the register type and function code.

The number in the second box is equal to the register address + 1, and should be decimal data.

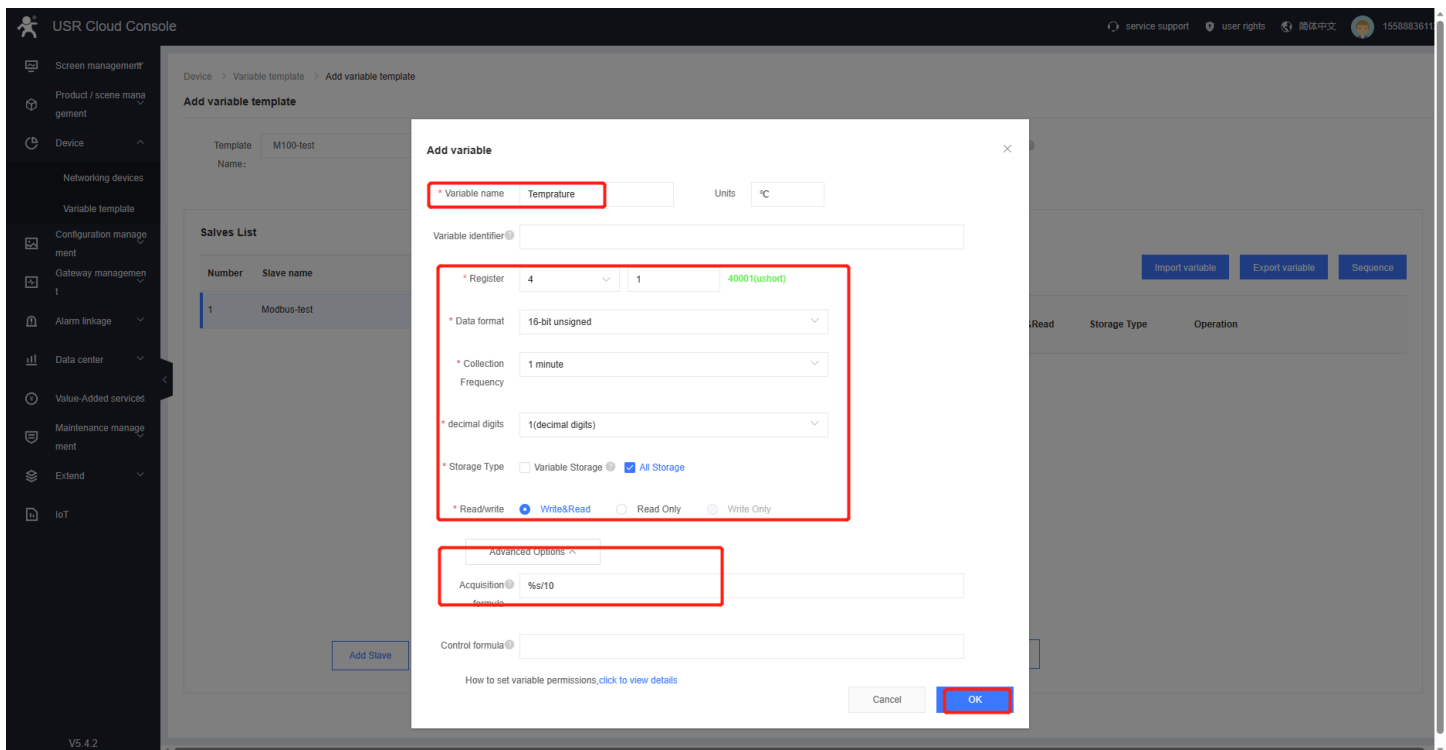
For example: If you want to send this command 03 03 00 0A 00 05 0A 0D, select 4 in the first box and fill in 11 in the second box.

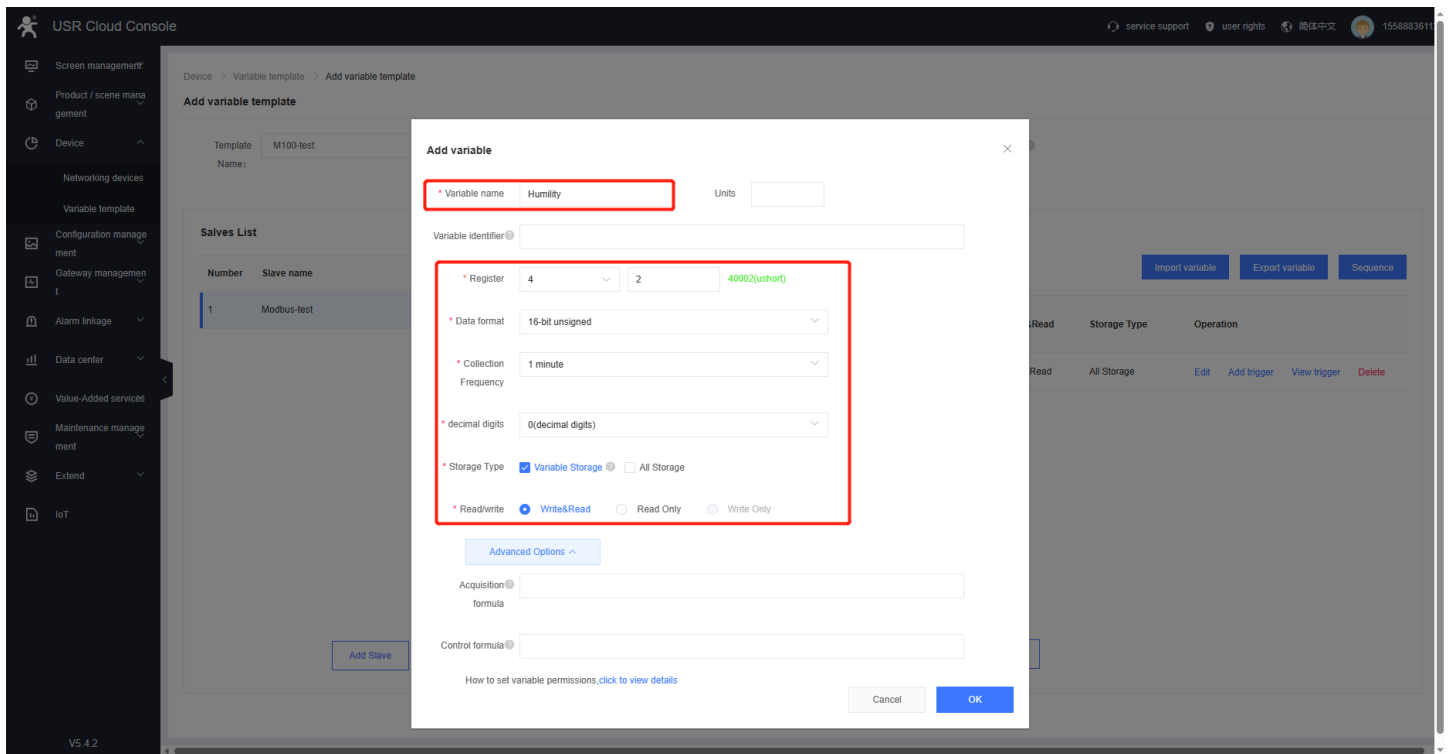
**Data format:** should be consistent with that of the terminal serial device.

**Advanced Option:**

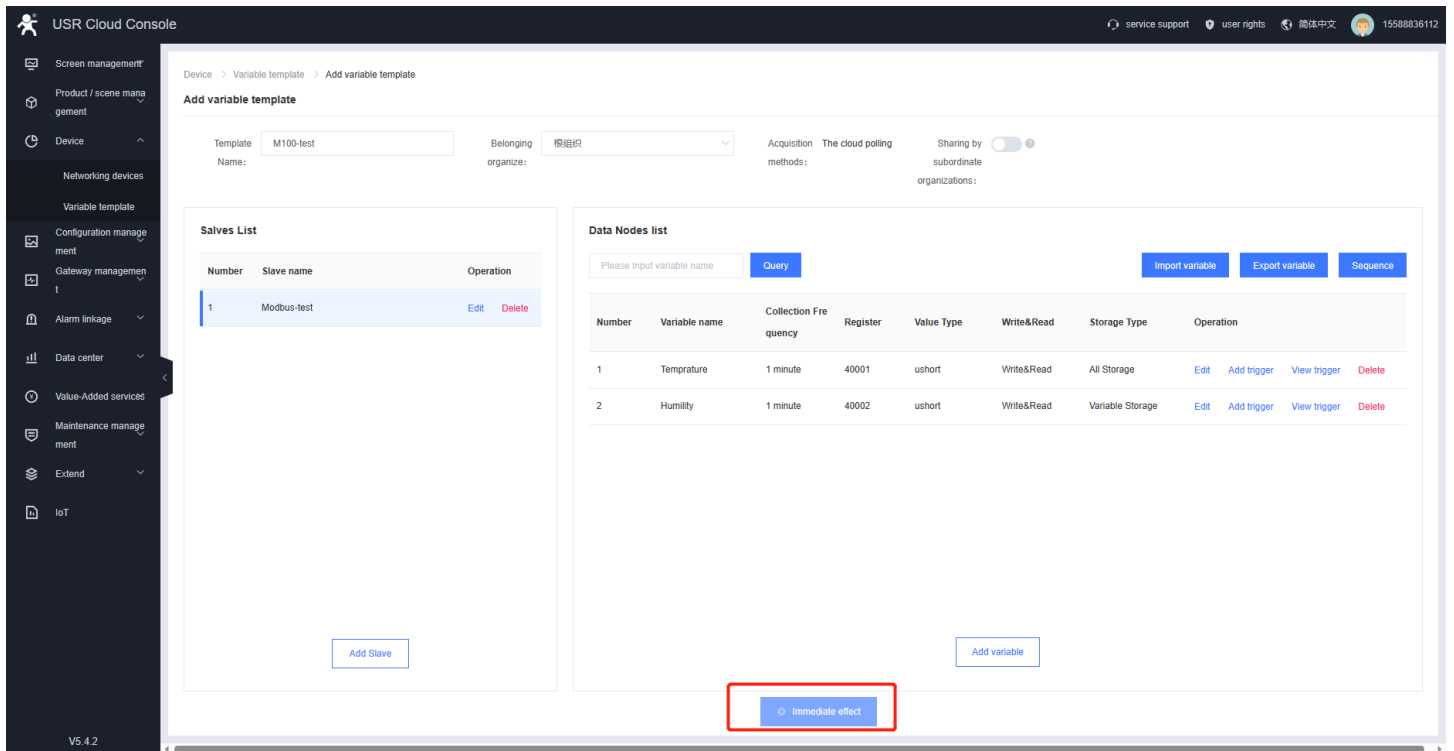
This function is to calculate the actual collected value or sent value.

The other parameters can be set Other parameters can be set according to customer needs.





8> Enable the variable template.



9> Bind the added device with the variable template.

- Screen management
- Product / scene management
- Device
- Networking devices
- Variable template
- Configuration management
- Gateway management
- Alarm linkage
- Data center
- Value-Added services
- Maintenance management
- Extend
- IoT

Device > Networking devices

### Networking devices

Please select orga SN or Device Name Query Advanced Search Add Device Enable device Disable device Bulk Deletion Advanced Settings

Device status	Device Name	SN	Device Model	Belonging organize	Device Location	Enable status	Tag	Operation
Offline	USR-M100	02700123031600055984	USR-M100	根组织	Swatch Jinan Mixc, East Jingshi Roa...	<input checked="" type="checkbox"/>		Data view <b>Editing device</b> More

Total 1 10/page < 1 > Go to 1

- Screen management
- Product / scene management
- Device
- Networking devices
- Variable template
- Configuration management
- Gateway management
- Alarm linkage
- Data center
- Value-Added services
- Maintenance management
- Extend
- IoT

Device > Networking devices > Editing device

### Edit Device

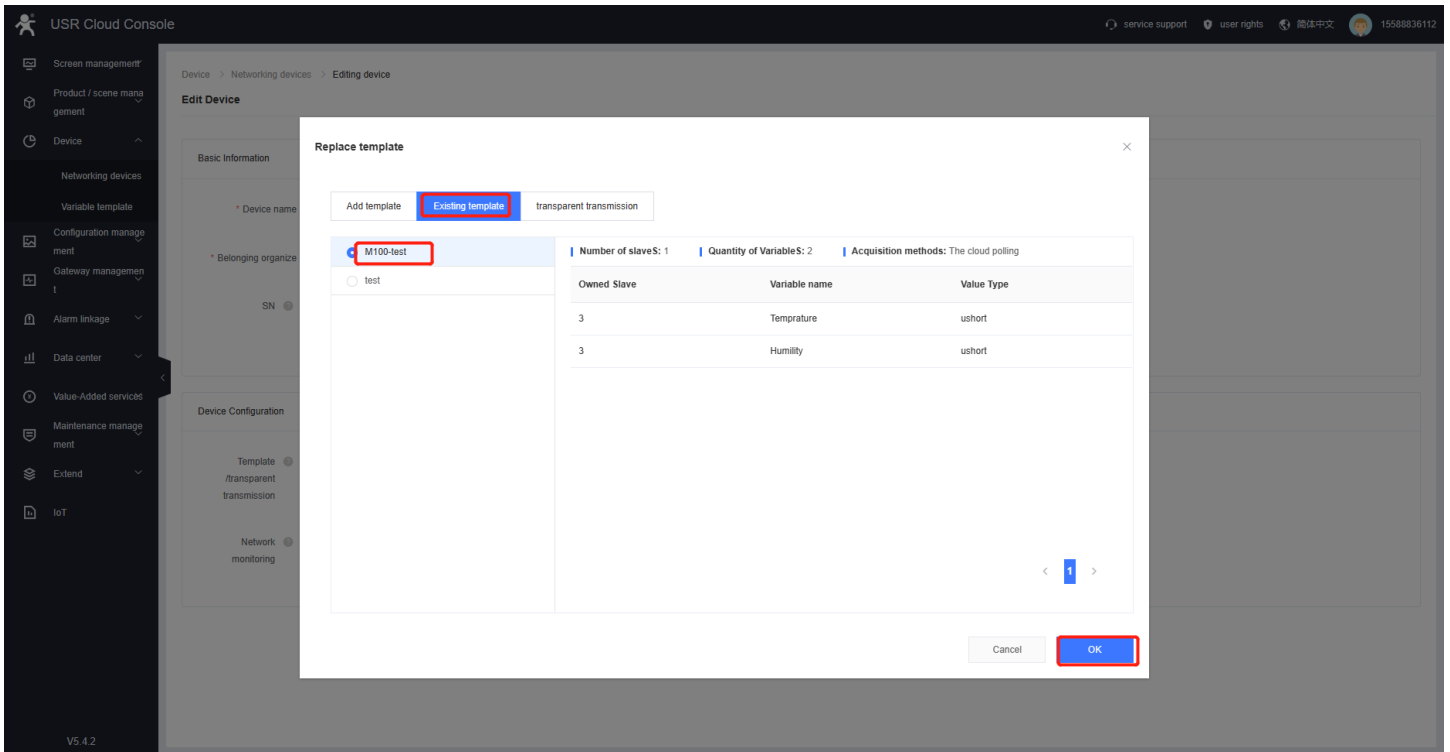
#### Basic Information

\* Device name  Upload Pictures   
\* Belonging organize  Only support JPG, GIF, PNG format, the size of 5M or less  
SN  Device Tags

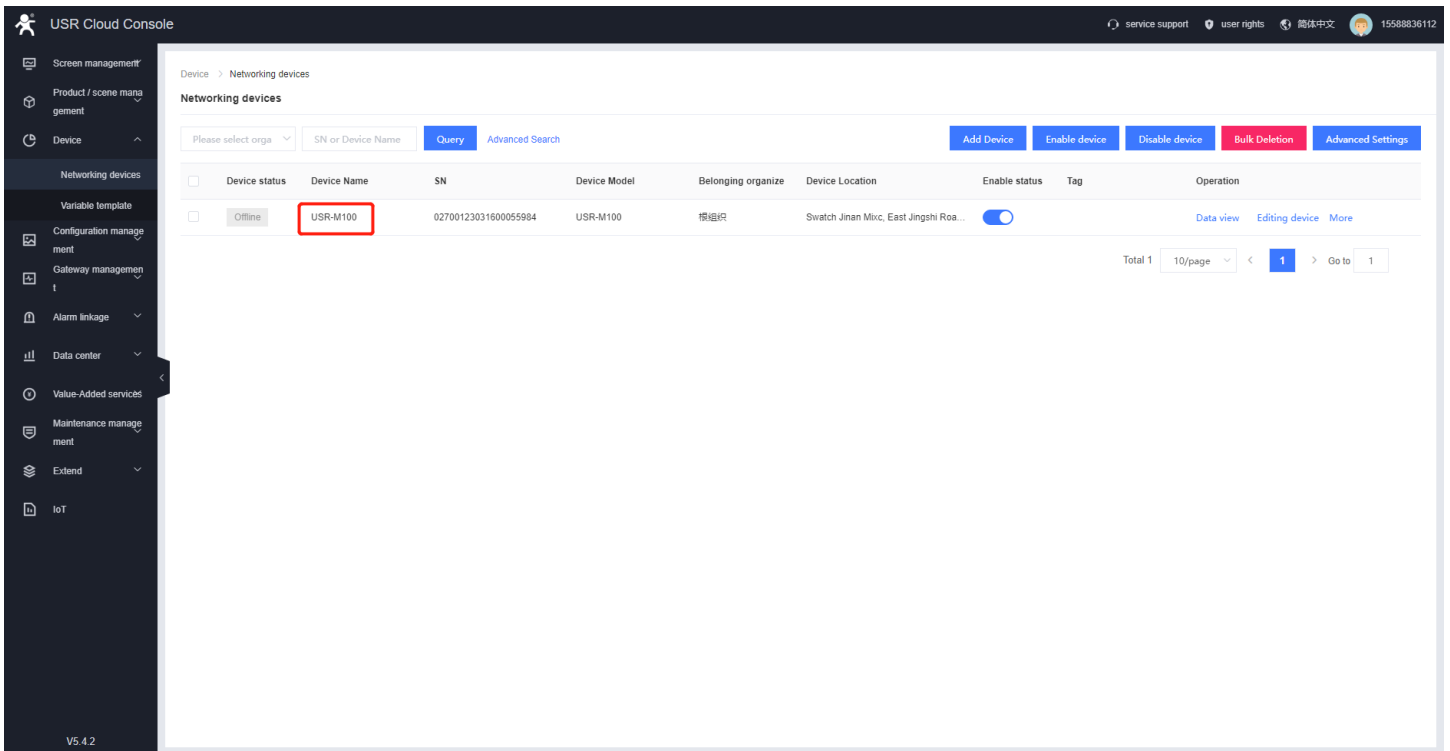
#### Device Configuration

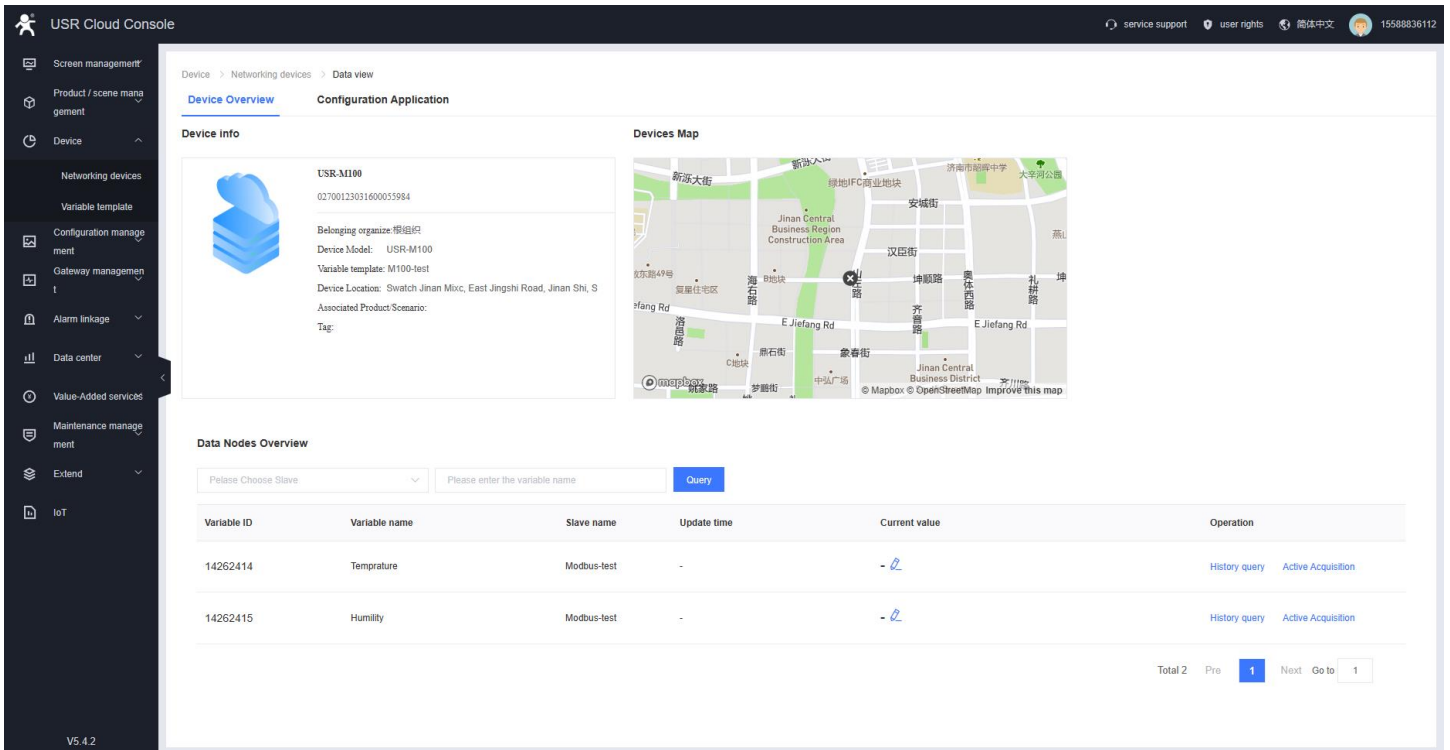
Template transparent transmission  Device location  Manual positioning  Automatic positioning  
Network monitoring  Devices Map Swatch Jinan Mixc, East Jingshi Road, Jinan Shi, S





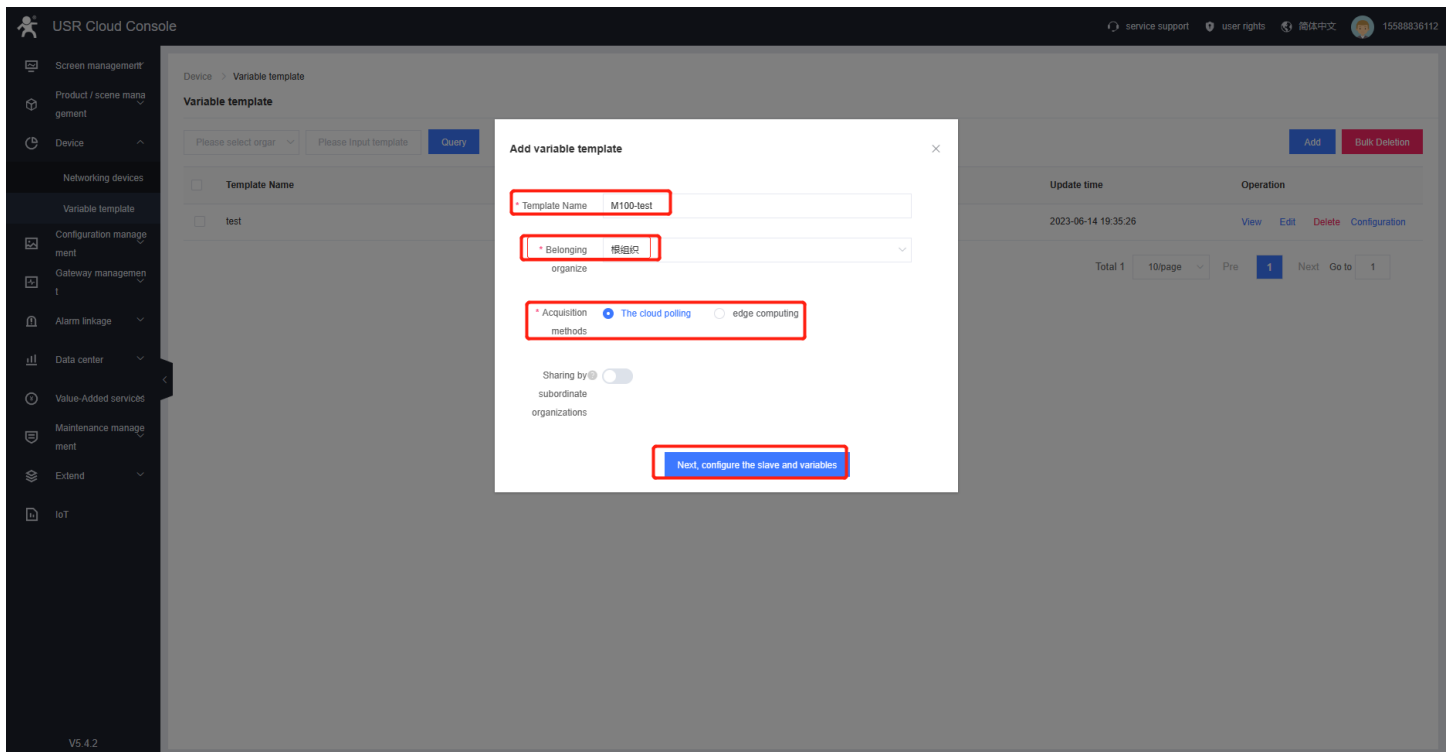
10> Check the variable, it has no data yet.





## 4. Cloud polling

### 4.1. Select Cloud Polling



### 4.2. Settings of USR-M100

- > Status
- > Network
- > Port
- ▼ Gateway
  - MQTT Gateway
  - Edge Computing
  - IO Fuction

- ▼ Cloud Service
  - USR Cloud**
  - Alibaba Cloud
  - AWS IoT
  - AZURE IoT

- ▼ System
  - System Setting
  - Management
  - Feedback

### USR CLOUD

Supports connecting to USR Cloud platform to achieve cloud gateway functions such as edge acquisition, edge computing, and edge reporting.

### SETTING

#### USR Cloud setting

**USR Cloud** ON ▼  
 Usrcloud Private OFF ▼  
 **Binding Port** Port 1, ▼  
 Edge computing OFF ▼

Save&Apply

## 4.3. Device online

USR Cloud Console
service support user rights 简体中文 15588836112

- Screen management
- Product / scene management
- Device
  - Networking devices
  - Variable template
  - Configuration management
  - Gateway management
  - Alarm linkage
  - Data center
  - Value-Added services
  - Maintenance management
  - Extend
  - IoT

Device > Networking devices

**Networking devices**

Please select orga ▼ SN or Device Name Query Advanced Search Add Device Enable device Disable device Bulk Deletion Advanced Settings

<input type="checkbox"/>	Device status	Device Name	SN	Device Model	Belonging organize	Device Location	Enable status	Tag	Operation
<input type="checkbox"/>	Online	USR-M100	02700123031600055984	USR-M100	模组组织	Swatch Jinan Mixc, East Jingzhi Roa...	<input checked="" type="checkbox"/>		<a href="#">Data view</a> <a href="#">Editing device</a> <a href="#">More</a>

Total 1 10/page < 1 > Go to 1

V5.4.2

## 4.4. Settings of Modbus slave

Modbus Slave - [Mbslave1]

File Edit Connection **Setup** Display View Window Help

ID = 1: F = 03

Alias	00000
0	0
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0

**Slave Definition**

Slave ID: 3

Function: 03 Holding Register (4x)

Address: 0

Quantity: 10

View

Rows:  10  20  50  100  Fit to Quantity

Hide Alias Columns  PLC Addresses (Base 1)

Error Simulation

Skip response  Insert CRC/LRC error (Not when using TCP/IP)

0 [ms] Response Delay  Return exception 06, Busy

OK Cancel

For Help, press F1. Port 15: 115200-8-N-1

Modbus Slave - [Mbslave1]

File Edit **Connection** Setup Display View Window Help

ID = 3: F = 03

No connection

Alias	00000
0	0
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0

**Connection Setup**

Connection: Serial Port

Serial Settings

USB-SERIAL CH340 (COM15)

115200 Baud Mode:  RTU  ASCII

8 Data bits Flow Control:  DSR  CTS  RTS Toggle

1 Stop Bit 1 [ms] RTS disable delay

TCP/IP Server

IP Address: 127.0.0.1 Port: 8234

Any Address  Ignore Unit ID  IPv4  IPv6

OK Cancel

## 4.5. Test result

The screenshot displays the USR Cloud Console interface. On the left, a sidebar contains navigation options such as 'Screen management', 'Product / scene management', 'Device', 'Networking devices', 'Variable template', 'Configuration management', 'Gateway management', 'Alarm linkage', 'Data center', 'Value-Added services', 'Maintenance management', 'Extend', and 'IoT'. The main area is titled 'Device Overview' and 'Configuration Application'. It shows details for a device named 'USR-M100' (ID: 02700123031600055984) with a 'Belonging organization' of '根组织'. A 'Devices Map' shows the device location in Jinan. A 'Data Nodes Overview' table lists two variables: 'Temperature' (ID: 14262414) and 'Humidity' (ID: 14262415), both with a 'Slave name' of 'Modbus-test' and an 'Update time' of '2023-07-07 16:18:00'. The current values are 32.5 and 45, respectively. A 'Modbus Slave' window is overlaid on the right, showing a table of slave addresses and their corresponding values, with red arrows pointing from the '45' value in the console to the '45' value in the Modbus Slave window.

Variable ID	Variable name	Slave name	Update time	Current value	Operation
14262414	Temperature	Modbus-test	2023-07-07 16:18:00	32.5	History query Active Acquisition
14262415	Humidity	Modbus-test	2023-07-07 16:18:00	45	History query Active Acquisition

## 5. Edge computing

### 5.1 Select Edge Computing

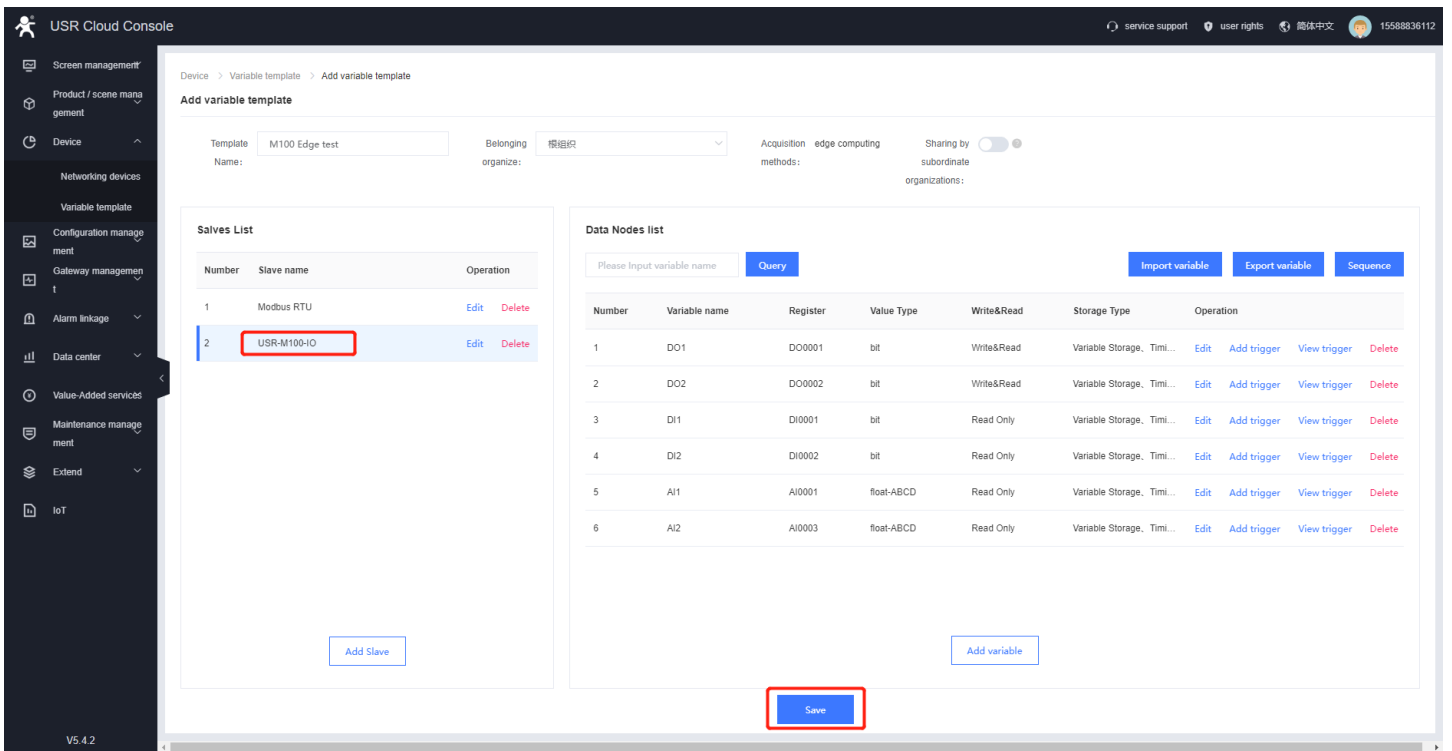
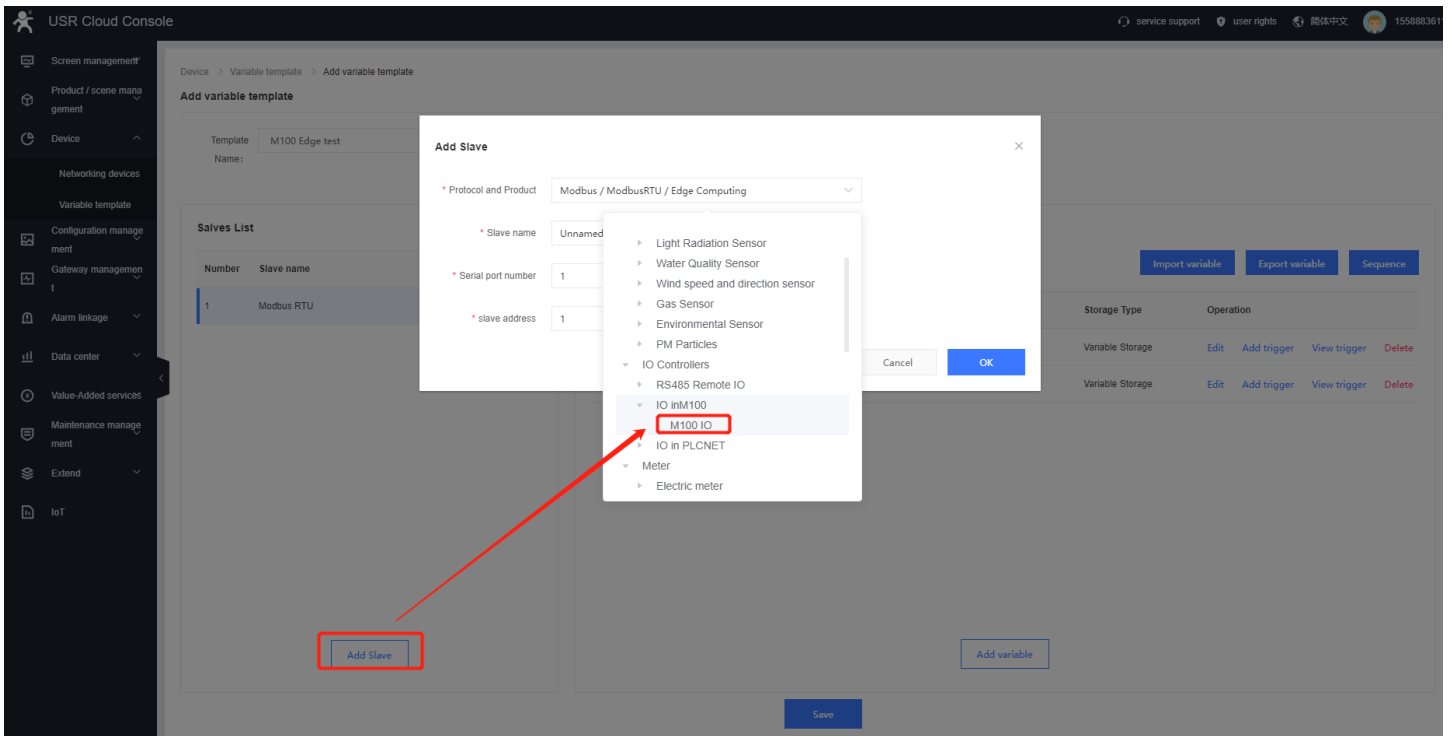
1> Add variable template, here we can add 2 slave, one about Modbus RTU(Refer to the settings in Chapter 3), another one is about the built-in IO of M100.

Note: If select Edge Computing option, the terminal serial device can connect to both the 2 serial port of M100

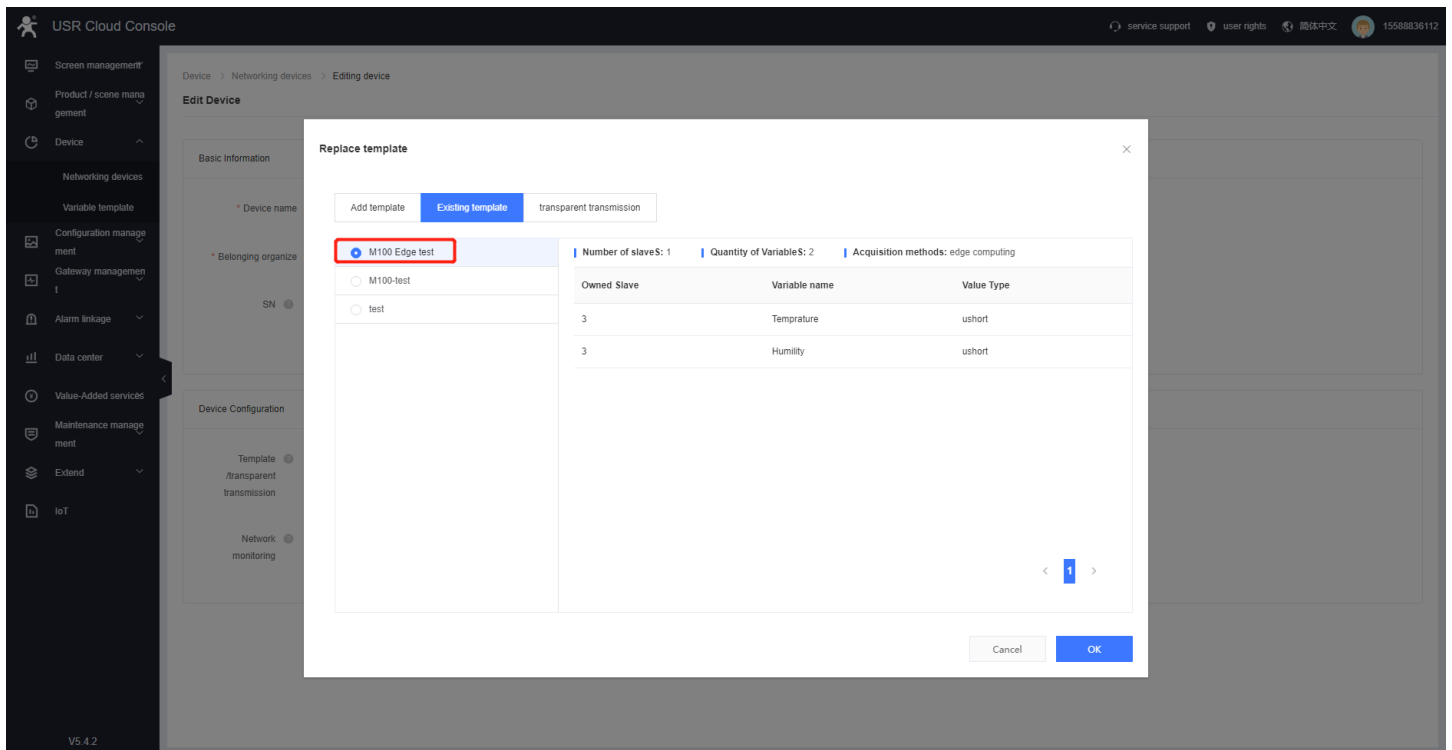
The screenshot shows the 'Add variable template' dialog box in the USR Cloud Console. The dialog has a title bar 'Add variable template' and a close button. It contains the following fields and options:

- Template Name:** M100 Edge test (highlighted with a red box and labeled '3.')
- Belonging organization:** 根组织
- Acquisition methods:**  The cloud polling,  edge computing (highlighted with a red box),  Terminal variable import
- Sharing by:** subordinate organizations (toggle is off)

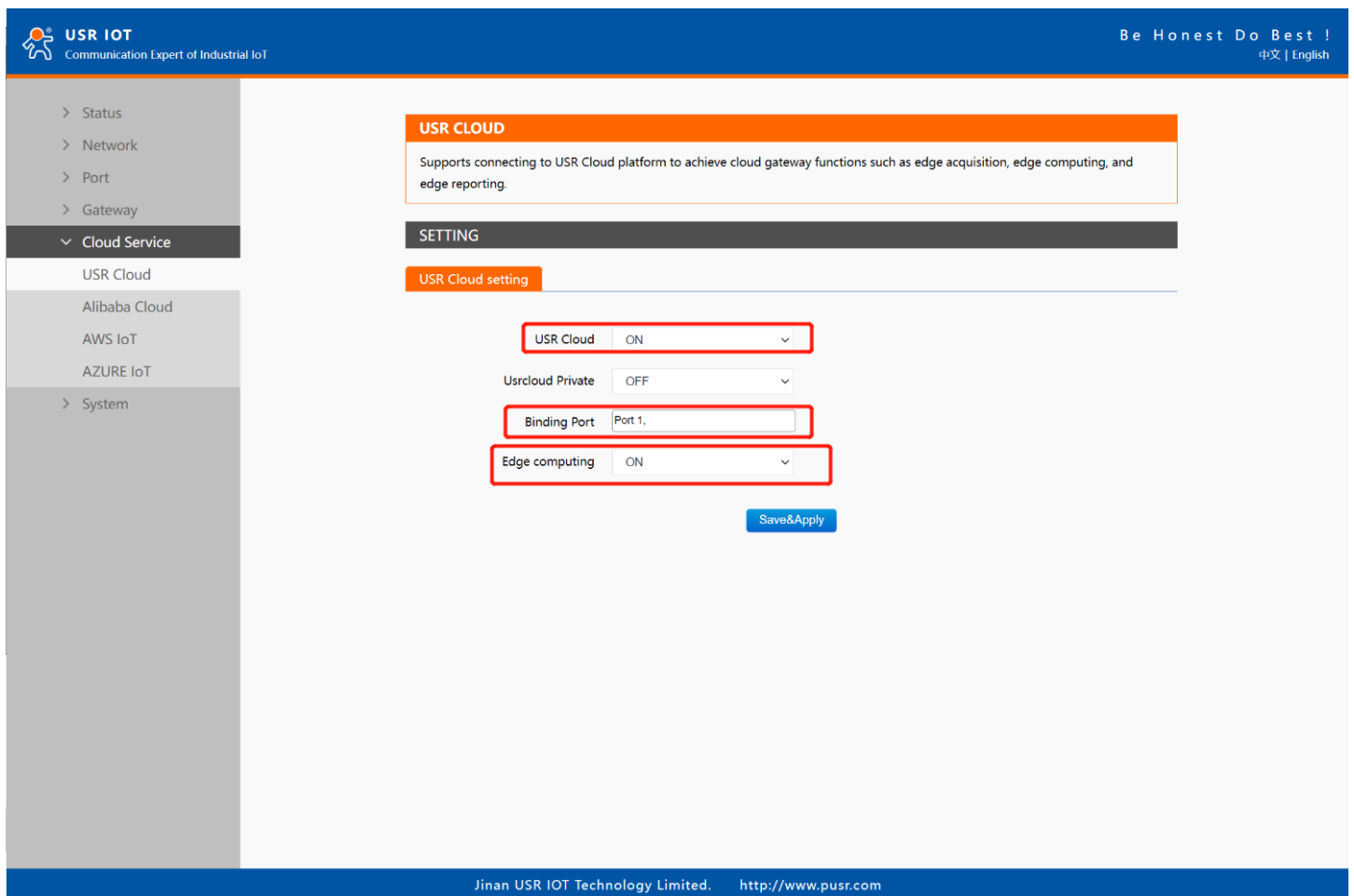
At the bottom of the dialog, there is a blue button labeled 'Next, configure the slave and variables' (highlighted with a red box and labeled '4.'). In the background, the 'Variable template' list is visible, with an 'Add' button highlighted by a red box and labeled '2.'. The list shows two templates: 'M100-test' (created 2023-07-05 20:59:13) and 'test' (created 2023-06-14 19:35:26).



2> Bind the added device with the variable template



## 5.2 Settings of M100



## 5.3 The test result

The screenshot displays the USR Cloud Console interface. On the left, a sidebar menu includes options like 'Screen management', 'Product / scene management', 'Device', 'Networking devices', 'Variable template', 'Configuration management', 'Gateway management', 'Alarm linkage', 'Data center', 'Value-Added services', 'Maintenance management', 'Extend', and 'IoT'. The main area shows a 'Modbus Slave - [Mbstlave1]' configuration window with a table of slave addresses and values. Below this, a table lists various Modbus RTU devices with their parameters and current values. Two red arrows point from the '45.1' and '47' values in the configuration window to the corresponding 'Current value' column in the table. A red box highlights the 'Active Acquisition' toggle switch for the DO1 device.

Slave name	Update time	Current value	Operation
14306886	Temperature	Modbus RTU 2023-07-07 18:04:16	45.1 °C <a href="#">History query</a> <a href="#">Active Acquisition</a>
14306887	Humidity	Modbus RTU 2023-07-07 18:03:21	47 <a href="#">History query</a> <a href="#">Active Acquisition</a>
14306888	DO1	USR-M100-IO 2023-07-07 18:03:03	<input checked="" type="checkbox"/> <a href="#">History query</a> <a href="#">Active Acquisition</a>
14306889	DO2	USR-M100-IO 2023-07-07 18:02:10	<input type="checkbox"/> <a href="#">History query</a> <a href="#">Active Acquisition</a>
14306890	DI1	USR-M100-IO 2023-07-07 18:02:10	<input type="checkbox"/> <a href="#">History query</a> <a href="#">Active Acquisition</a>
14306891	DI2	USR-M100-IO 2023-07-07 18:02:10	<input type="checkbox"/> <a href="#">History query</a> <a href="#">Active Acquisition</a>
14306892	AI1	USR-M100-IO 2023-07-07 18:02:10	0 <a href="#">History query</a> <a href="#">Active Acquisition</a>
14306893	AI2	USR-M100-IO 2023-07-07 18:02:10	0 <a href="#">History query</a> <a href="#">Active Acquisition</a>

## 6. Device monitoring on PUSR platform

### 6.1 Checking gateway details

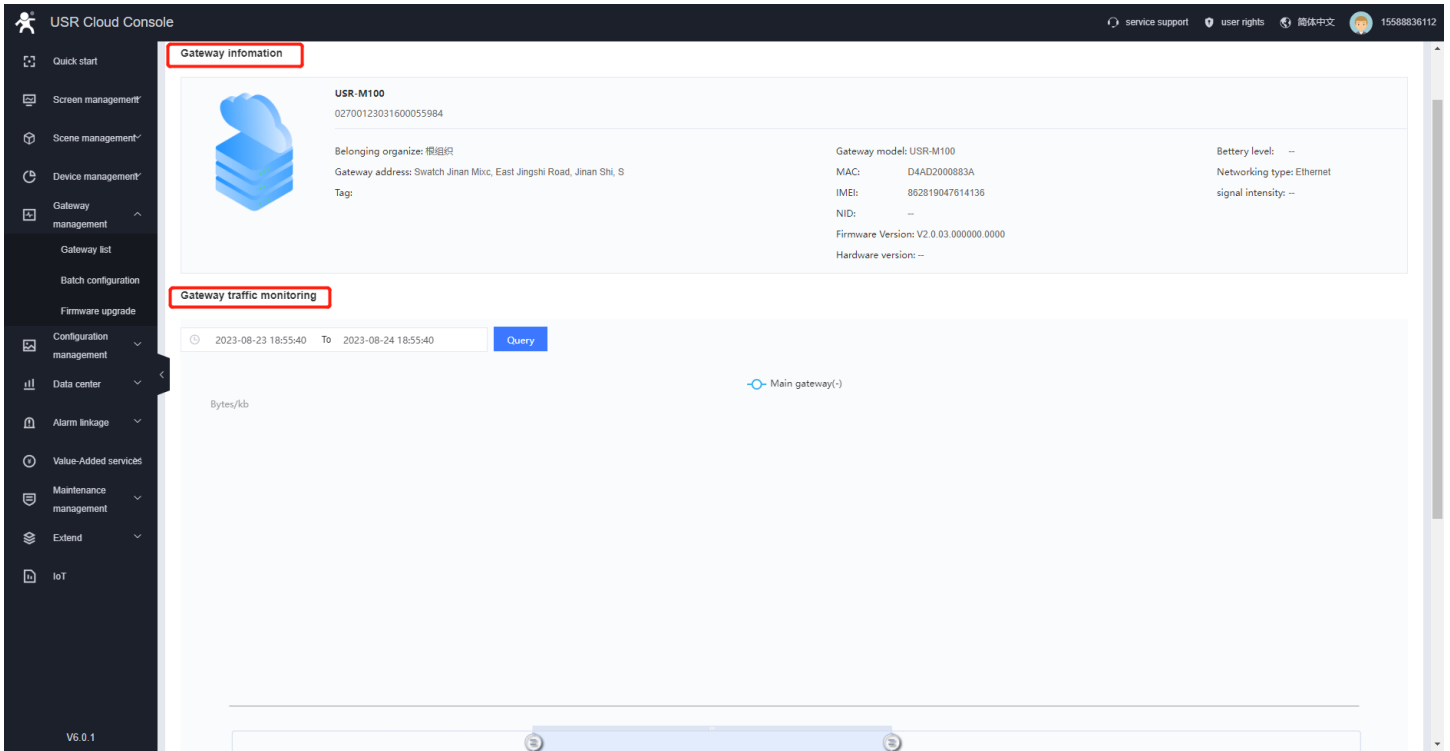
1> Click the gateway name

The screenshot shows the 'Gateway list' page in the USR Cloud Console. The page header indicates 'Total Gateways: 5', with '2 Online gateway' and '3 Offline gateway'. A search bar is present with 'Query' and 'Advanced Search' buttons. Below the search bar are buttons for 'Add', 'Delete', 'Transfer gateway', and 'More'. The main table lists gateway details. A red box highlights the 'USR-M100' gateway name, and a red arrow points to it from below. The table columns include 'Gateway status', 'Gateway name', 'SN', 'Gateway model', 'parameter location', 'Number of associated devices', 'Firmware Version', 'Belonging organize', 'Gateway address', and 'Operation'.

Gateway status	Gateway name	SN	Gateway model	parameter location	Number of associated devices	Firmware Version	Belonging organize	Gateway address	Operation
Offline	USR-G816	01302323060800000979	USR-G816w-G	--	0	V1.0.10-with-EN	PUSR	美莲广场, Jinan Shi, Shandong 2501...	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a> <a href="#">More</a>
Waiting for the init	Unnamed_Gateway na...	00005450000000000003	未知型号	--	0	--	PUSR	山东省济南市历下区坤顺路	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a> <a href="#">More</a>
Waiting for the init	Unnamed_Gateway na...	00005450000000000001	未知型号	--	0	--	PUSR	山东省济南市历下区坤顺路	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a> <a href="#">More</a>
Online	未命名_网关名称_04	01301622120100009921	USR-G806s-EAU	--	0	V1.0.06-EN	横组织	山东省济南市历下区坤顺路	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a> <a href="#">More</a>
Online	USR-M100	027001230316000055984	USR-M100	--	1	V2.0.03.000000.0000	横组织	Swatch Jinan Mixc, East Jingshi Ro...	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a> <a href="#">More</a>

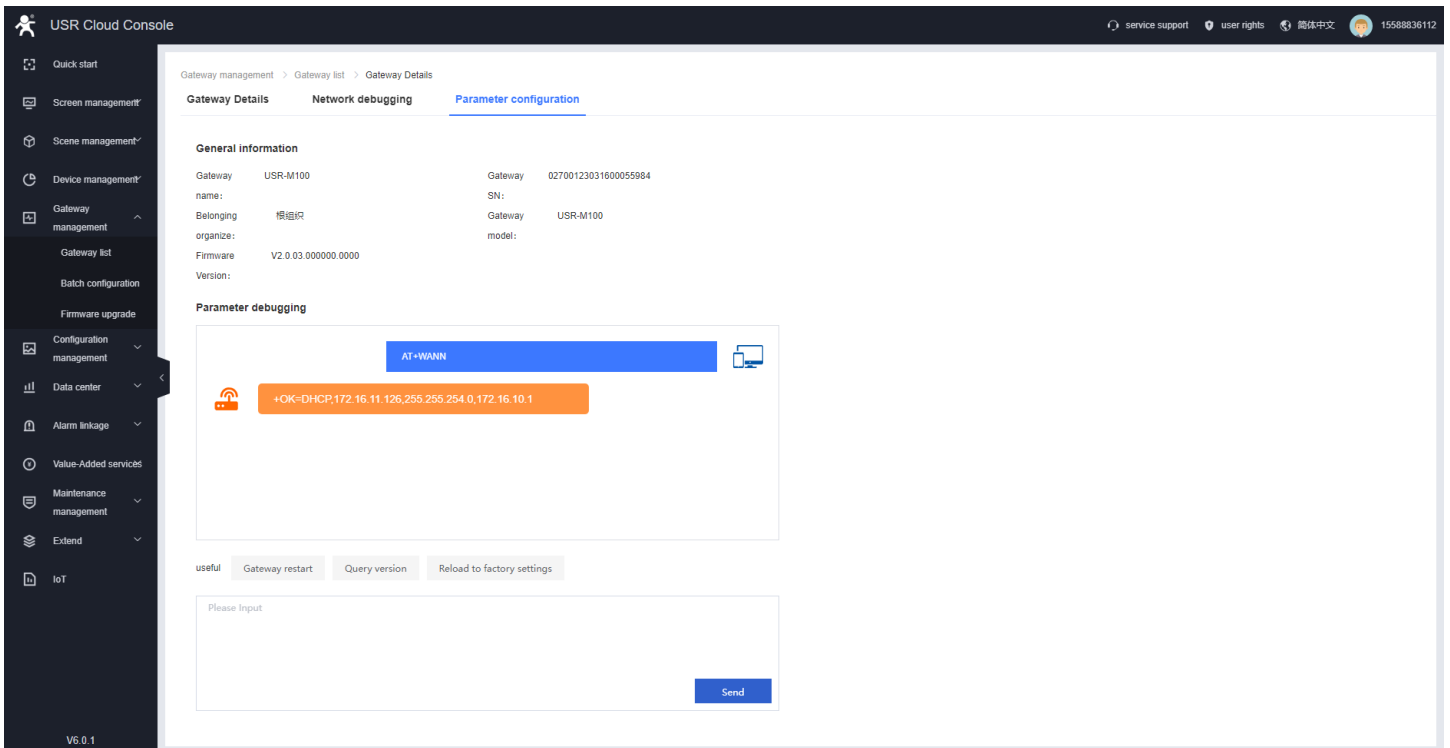


2> Users can check gateway details of M100, like basic information and traffic monitoring.



## 6.2 Parameters configuration

1> On parameter configuration page, users can send AT command to set and check parameters of USR-M100.



## 6.3 Firmware upgrade

1> Click "More" button on the following figure.

The screenshot shows the USR Cloud Console interface. The left sidebar contains navigation options like 'Quick start', 'Screen management', 'Scene management', 'Device management', 'Gateway management', 'Batch configuration', 'Firmware upgrade', 'Configuration management', 'Data center', 'Alarm linkage', 'Value-Added services', 'Maintenance management', 'Extend', and 'IoT'. The main area displays the 'Gateway list' with a table of gateways. The table has columns for Gateway status, Gateway name, SN, Gateway model, parameter location, Number of associated devices, Firmware Version, Belonging organize, Gateway address, and Operation. The 'USR-M100' gateway is highlighted, and its 'More' button is clicked, opening a dropdown menu with options: 'Disable', 'Configuration page', 'Firmware Upgrade', and 'Reboot gateway'. A red arrow points from the 'More' button in the table to the 'Firmware Upgrade' option in the menu.

Gateway status	Gateway name	SN	Gateway model	parameter location	Number of associated devices	Firmware Version	Belonging organize	Gateway address	Operation
Offline	USR-G816	01302323060800000979	USR-G816w-G	--	0	V1.0.10.with-EN	PUSR	美莲广场, Jinan Shi, Shandong 2501...	View Edit Delete More
Waiting for the init	Unnamed_Gateway na...	00005450000000000003	未知型号	--	0	--	PUSR	山东省济南市历下区坤颐路	View Edit Delete More
Waiting for the init	Unnamed_Gateway na...	0000545000000000000001	未知型号	--	0	--	PUSR	山东省济南市历下区坤颐路	View Edit Delete More
Online	未命名_网关名称_84	01301822120100009921	USR-G806s-EAU	--	0	V1.0.06-EN	极组织	山东省济南市历下区坤颐路	View Edit Delete More
Online	USR-M100	02700123031600055984	USR-M100	--	1	V2.0.03.000000.0000	极组织	Swatch Jinan Mixc, East Jingshi Ro...	View Edit Delete More

2>Set firmware upgrade parameters

The screenshot shows the 'Firmware Upgrade' dialog box in the USR Cloud Console. The dialog has the following fields: 'Task Name' (set to 'Firmware upgrade'), 'Gateway name' (set to 'USR-M100'), 'Gateway model' (set to 'USR-M100'), 'Firmware Upgrade Version' (with a dropdown menu showing 'V1.0.09.000000.0000', 'V1.0.17.000000.0000', and 'V2.0.03.000000.0000'), and 'Task Time'. The 'OK' button is highlighted with a red box. Red arrows point from the 'Task Name', 'Gateway name', 'Gateway model', and 'Firmware Upgrade Version' fields to the 'OK' button.

3>To check firmware upgrade task

- Quick start
- Screen management
- Scene management
- Device management
- Gateway management
  - Gateway list
  - Batch configuration
  - Firmware upgrade**
- Configuration management
- Data center
- Alarm linkage
- Value-Added services
- Maintenance management
- Extend
- IoT

### Firmware upgrade

Please select orga All status Start Date To End Date Please Input Task Na Query AddUpgrade Task

Status	Belonging organize	Task Name	Upgrade Progress	Gateway model	Upgraded Version	Task Time	Operation
Waiting	根组织	Firmware upgrade	0/1	USR-M100	V2.0.03.000000.0000	2023-08-24 18:58:34 - 2023-08-25 18:58:34	<a href="#">Upgrade Details</a> <a href="#">Terminate the task</a> <a href="#">Delete</a>

Total 1 10/page Pre 1 Next Go to 1