

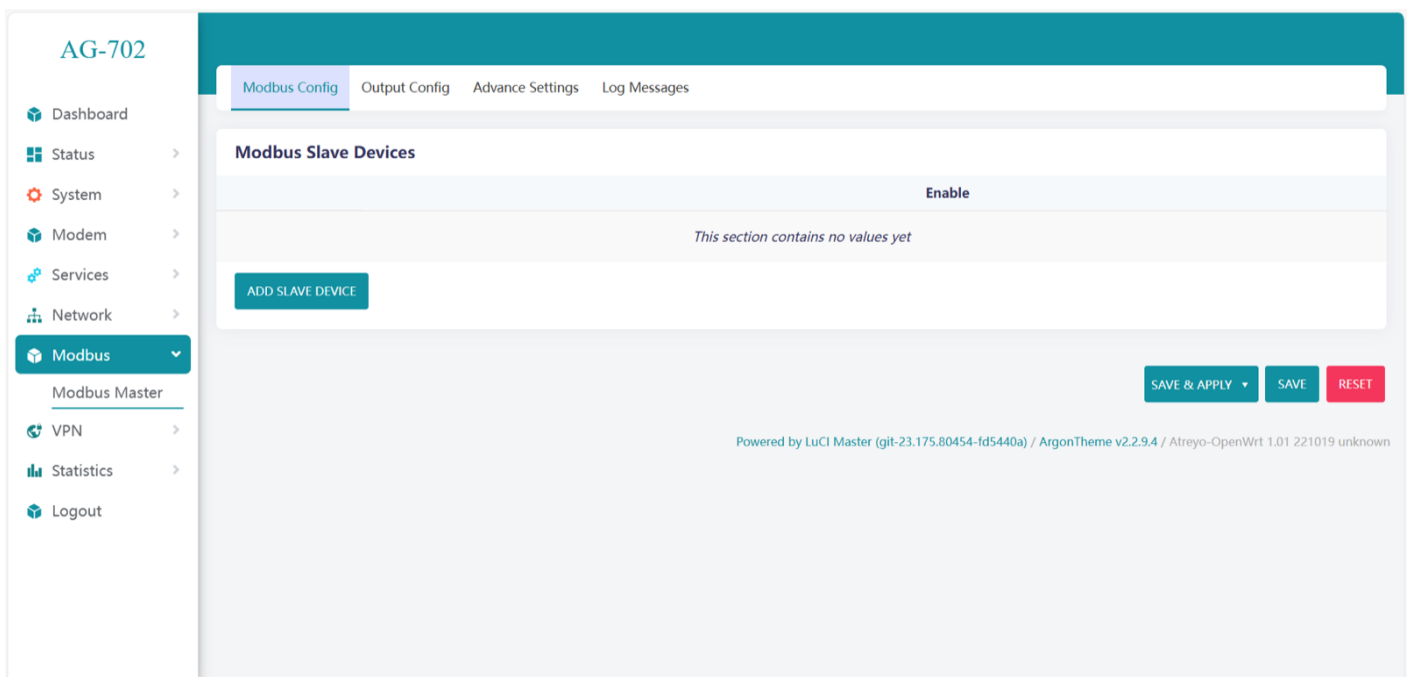
Modbus Master

Modbus Master is an application that allows full operation of devices connected to the gateway over Modbus RTU and Modbus TCP/IP. Also, the application allows sending data to the server via MQTT, TCP/IP JSON and saving to storage.

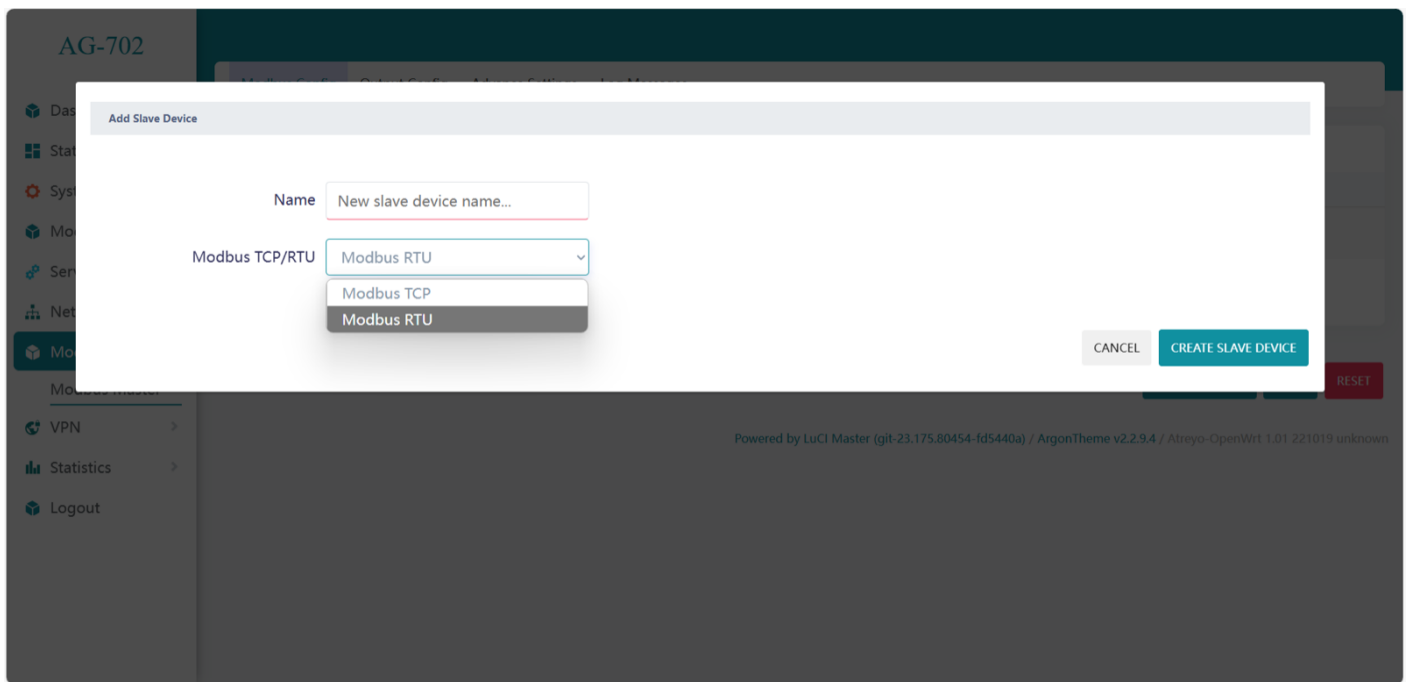
Configuration of Modbus Master

To open Modbus master, go to **Modbus > Modbus Master**

Add Slave Device in Modbus Slave Devices



Enter a slave device name of your choice & Select communication protocol.

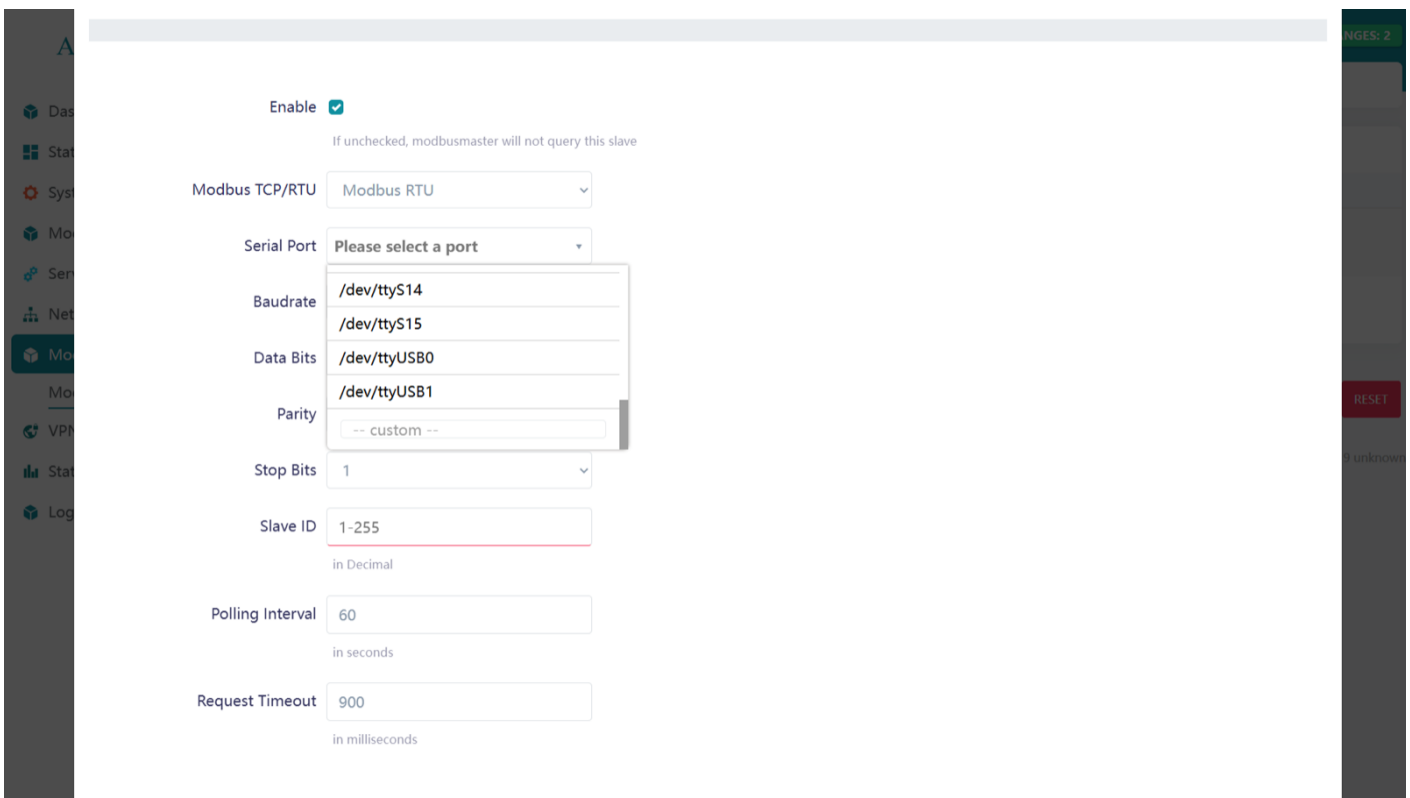


Modbus RTU

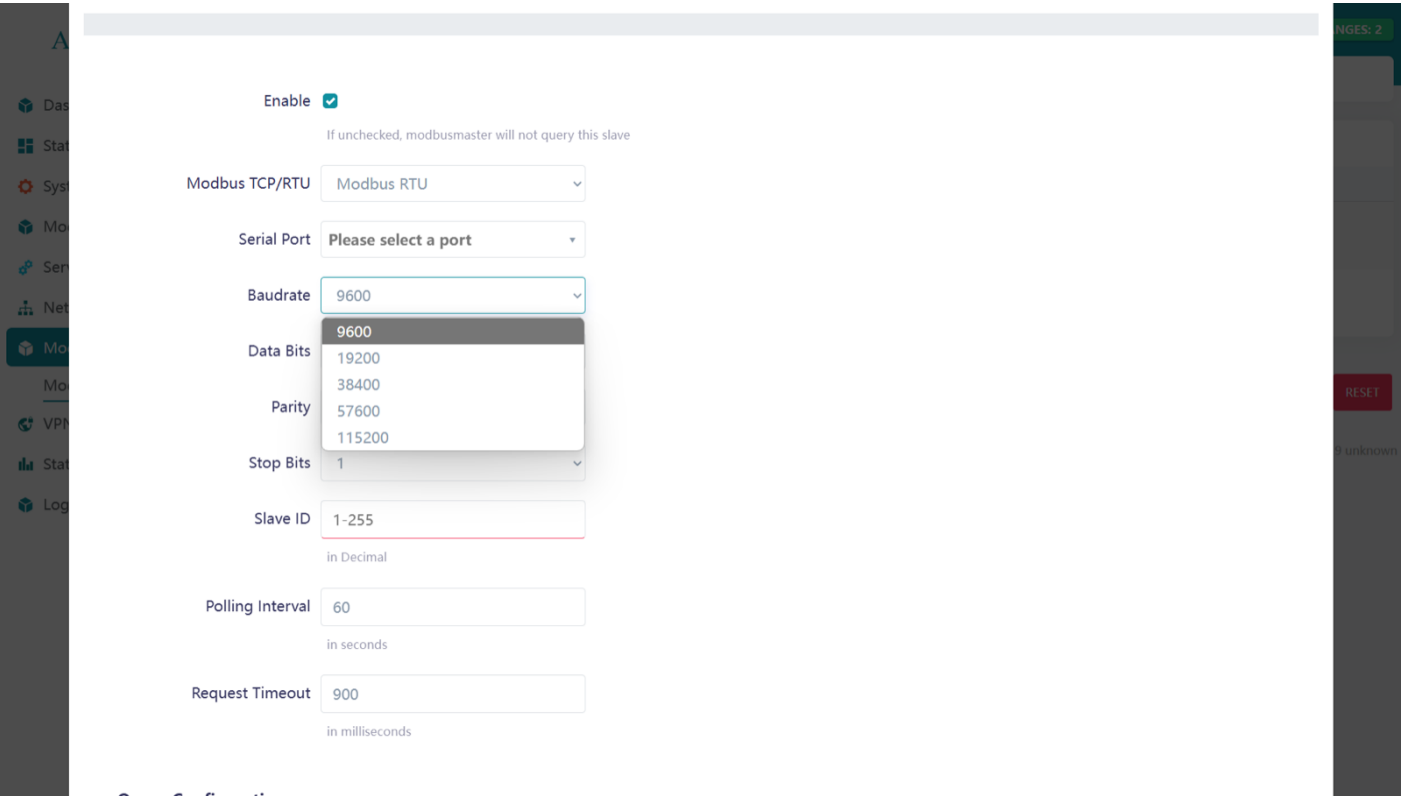
Need to enter the serial port configuration according to the slave device. Here in AG-702 serial port USB0 is for RS232 & USB1 is for RS485. If you use a USB to serial converter, you can customize the port name by adding another port.

/dev/ttyUSB0 = RS232

/dev/ttyUSB1 = RS485

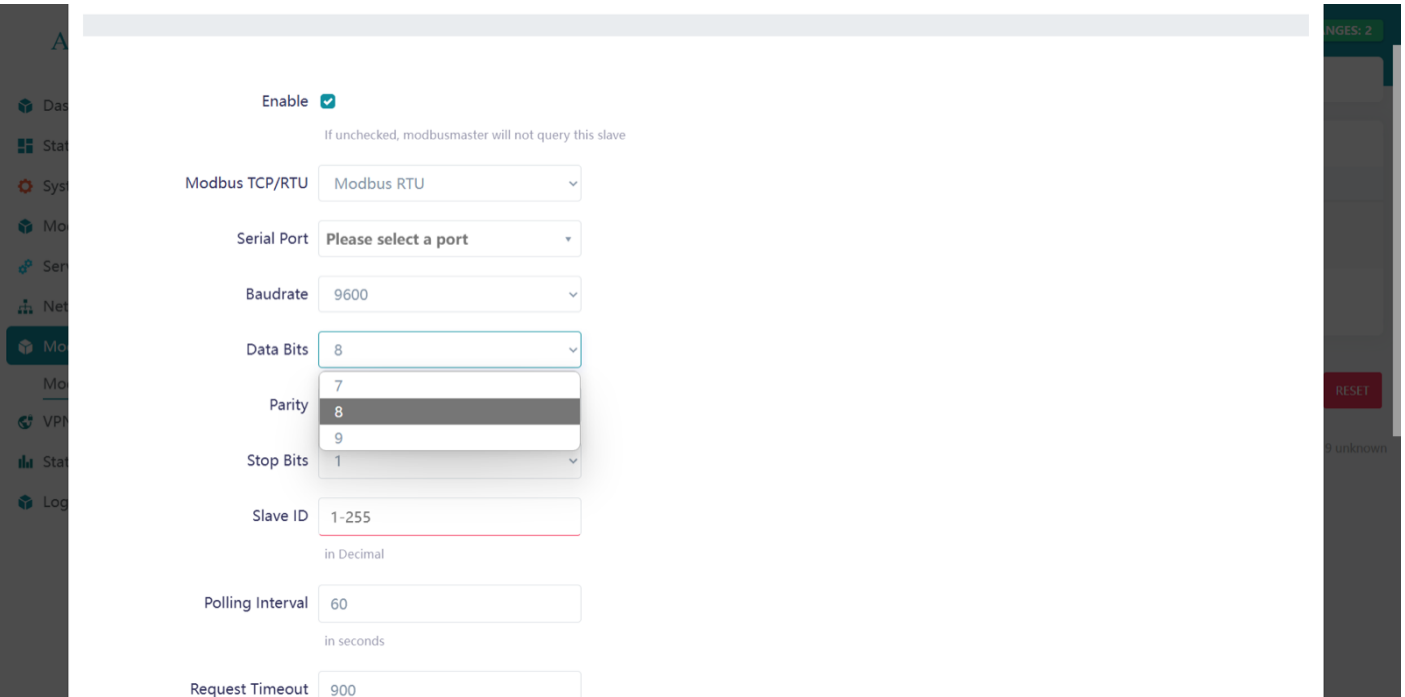


Change the baud-rate according to your slave device requirement. In Modbus RTU 9600 baud-rate is most common used.



The screenshot shows a configuration page for a Modbus device. On the left is a dark sidebar with icons for Dashboard, Statistics, System, Modules, Serial, Network, Modbus, Modbus Plus, VPI, Status, and Log. The main area has a light gray header. Below it, the 'Enable' checkbox is checked, with a note: 'If unchecked, modbusmaster will not query this slave'. The 'Modbus TCP/RTU' dropdown is set to 'Modbus RTU'. The 'Serial Port' dropdown is 'Please select a port'. The 'Baudrate' dropdown is open, showing options: 9600 (selected), 19200, 38400, 57600, and 115200. The 'Data Bits' dropdown is set to 8. The 'Parity' dropdown is set to None. The 'Stop Bits' dropdown is set to 1. The 'Slave ID' text input contains '1-255' with a note 'in Decimal'. The 'Polling Interval' text input contains '60' with a note 'in seconds'. The 'Request Timeout' text input contains '900' with a note 'in milliseconds'. On the right side, there is a 'RESET' button and a status indicator 'UNKNOWN'.

Data bits are used to represent each character or data unit in a communication protocol. Select the appropriate setting.



This screenshot is similar to the previous one, but the 'Data Bits' dropdown menu is open, showing options: 7, 8 (selected), and 9. The 'Parity' dropdown is still set to None. All other settings remain the same as in the previous image.

Parity is an error-checking mechanism to detect data transmission errors. Most devices use the **None** option.

Das

Stat

Syst

Mo

Ser

Net

Mo

Mo

VPH

Stat

Log

Enable ☒

If unchecked, modbusmaster will not query this slave

Modbus TCP/RTU

Modbus RTU

Serial Port

Please select a port

Baudrate

9600

Data Bits

8

Parity

None

Stop Bits

None

Even

Odd

Slave ID

1-255

in Decimal

Polling Interval

60

in seconds

Request Timeout

900

in milliseconds

NGES: 2

RESET

9 unknown

A stop bit signals the end of a data frame, helping the receiver recognize when one byte is complete.

- 1 Stop Bit: For stable connections and higher speed.
- 2 Stop Bits: For increased reliability or when devices need more processing time.

Select the option according to the slave device.

Das

Stat

Syst

Mo

Ser

Net

Mo

Mo

VPH

Stat

Log

Modbus TCP/RTU

Modbus RTU

Serial Port

Please select a port

Baudrate

9600

Data Bits

8

Parity

None

Stop Bits

1

Slave ID

1

2

in Decimal

Polling Interval

60

in seconds

Request Timeout

900

in milliseconds

NGES: 2

RESET

9 unknown

Query Configuration

Function Code	Start Address	Register/Coil Quantity
	in Decimal	in Decimal
This section contains no values yet		

Modbus TCP/IP

In Modbus TCP/IP, only the IP address and port number (typically 502) are required for communication.

Das

Stat

Sys

Mo

Ser

Net

Mo

Mo

VPH

Stat

Log

Enable ☒

If unchecked, modbusmaster will not query this slave

Modbus TCP/RTU

Modbus TCP

IP Address

127.0.0.1

Port

502

Slave ID

1-255

in Decimal

Polling Interval

60

in seconds

Request Timeout

900

in milliseconds

Query Configuration

Function Code	Start Address	Register/Coil Quantity
	in Decimal	in Decimal
This section contains no values yet		

ADD QUERY

NGES: 2

RESET

9 unknown

Modbus slave

After entering these parameters, the next configuration steps are the same for both Modbus TCP and Modbus RTU.

You should enter the slave ID (1-255), polling interval, and request timeout according to your requirements.

Slave ID

1-255

in Decimal

Polling Interval

60

in seconds

Request Timeout

900

in milliseconds

Query Configuration

Function Code	Start Address	Register/Coil Quantity
	in Decimal	in Decimal
This section contains no values yet		

ADD QUERY

Parameter Configuration

Map parameters here to load them in JSON payload

Parameter Name	Register/Coil Address	Datatype	Endian Structure	Offset
	in Decimal			
This section contains no values yet				

Query Configuration

To make a Query, click on **ADD QUERY**

Request Timeout

900

in milliseconds

Query Configuration

Function Code	Start Address	Register/Coil Quantity
	in Decimal	in Decimal
This section contains no values yet		

ADD QUERY

Parameter Configuration

Map parameters here to load them in JSON payload

Parameter Name	Register/Coil Address	Datatype	Endian Structure	Offset
	in Decimal			
This section contains no values yet				

ADD PARAMETER

DISMISS

SAVE

Enter the **Function code**, **Start Address**, Register/Coil number as per the Slave documentation or instruction. Here 1-50 register/coil quantity is supported.

Query Configuration

Function Code	Start Address	Register/Coil Quantity	
	in Decimal	in Decimal	
03	0-65535	1-50	DELETE
01			
02	0-65535	1-50	DELETE
03			
04			
03	0-65535	1-50	DELETE

ADD QUERY

Parameter Configuration

Map parameters here to load them in JSON payload

Parameter Name	Register/Coil Address	Datatype	Endian Structure	Offset
	in Decimal			
This section contains no values yet				

ADD PARAMETER

DISMISS

SAVE

Parameter Configuration

Enter and select the option as per your requirement.

Query Configuration

Function Code	Start Address	Register/Coil Quantity	
	in Decimal	in Decimal	
03	0	20	DELETE

ADD QUERY

Parameter Configuration

Map parameters here to load them in JSON payload

Parameter Name	Register/Coil Address	Datatype	Endian Structure	Offset	
	in Decimal				
Parameter_1	40001	32-Bit Unsigned Integer	-	0	DELETE

ADD PARAMETER

- Binary
- 16-Bit Unsigned Integer
- 16-Bit Signed Integer
- 16-Bit Hexadecimal
- 32-Bit Unsigned Integer
- 32-Bit Signed Integer
- 32-Bit Floating Point
- 32-Bit Hexadecimal

DISMISS

SAVE

Modbus Slave Devices

Enable

Slave01

Type: modbusrtu
Serial Port: /dev/ttyUSB0
Baudrate: 9600
Data Bits: 8
Parity Bit: N
Stop Bit: 1
Polling Interval: 60sec

Defined queries: 1
Defined parameters: 1



EDIT

DELETE

ADD SLAVE DEVICE

SAVE & APPLY

SAVE

RESET

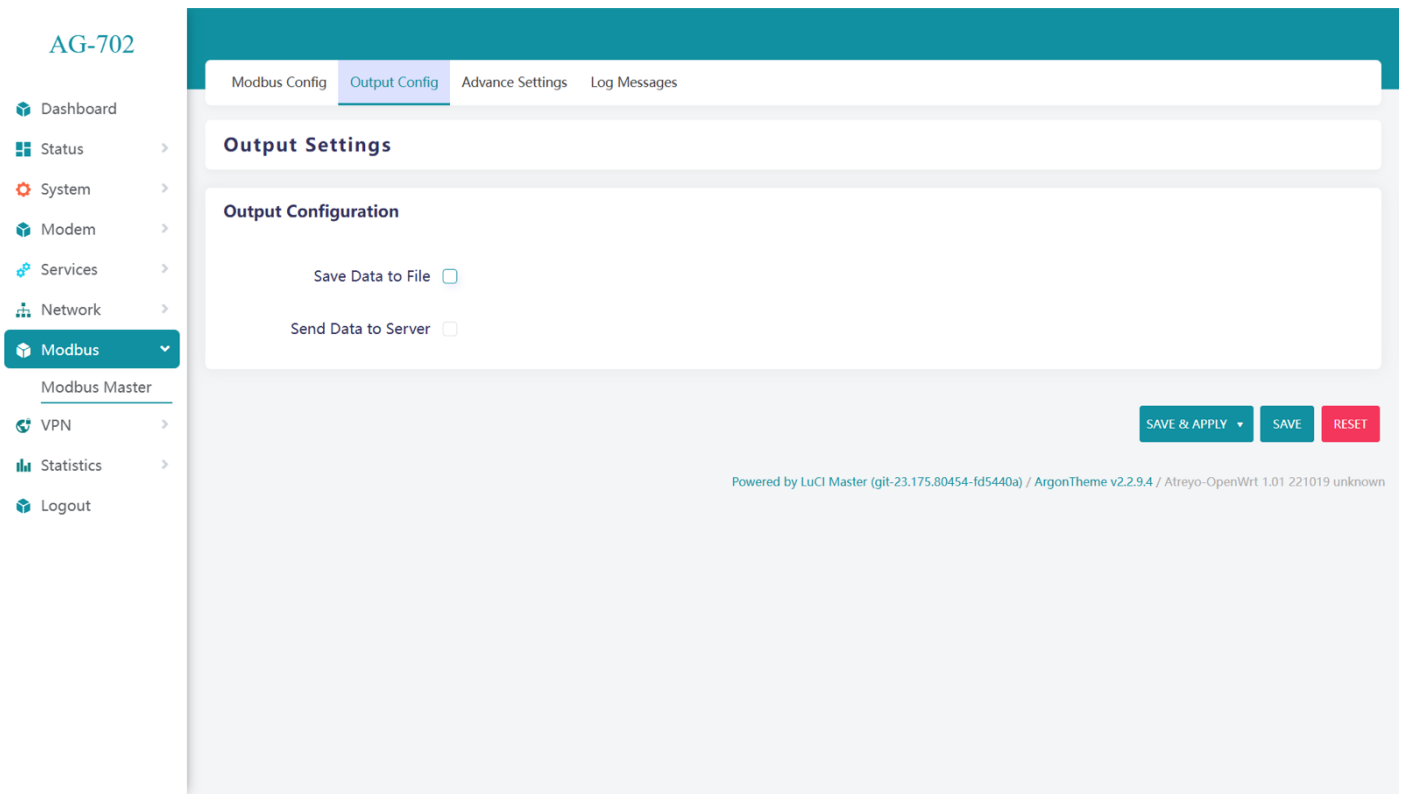
Powered by LuCI Master (git-23.175.80454-fd5440a) / ArgonTheme v2.2.9.4 / Atreyo-OpenWrt 1.01 221019 unknown

Data output configuration

Click on Output configuration. There are two option:

1. Save Data to File.
2. Send Data to Server.

We can choose both options and then the data is both sent to the server and saved locally.



If Save Data to File is selected, it is necessary to specify the folder path.

Send data to server

In Send Data to Server. There are 2 option:

- ATRA-DATA
- 3rd-PARTY-PLATFORM

Atra-Data is Atreyo's system for quick and easy presentation of data in the cloud. In the case of 3rd-PARTY-PLATFORM, we can choose any data platform that communicates using one of the selected ports: HTTP, MQTT or TCP/IP.

ATRA-DATA

ATRA-DATA. In This Data is send direct to the ATRA server without any additional configuration.

Modbus Config

Output Config

Advance Settings

Log Messages

Output Settings

Output Configuration

Save Data to File ☒

Directory Path
Configure the path of directory that already exists

Send Data to Server ☒

Connect To ☒ ATRA-DATA ☐ 3rd-PARTY-PLATFORM

Add Slave information in ☐
Payload

SAVE & APPLY

SAVE

RESET

Powered by LuCI Master (git-23.175.80454-fd5440a) / ArgonTheme v2.2.9.4 / Atreyo-OpenWrt 1.01 221019 unknown

3rd-PARTY-PLATFORM.

There are some parameter required to select protocol – HTTP, MQTT, TCP/IP.

Save Data to File ☒

Directory Path
Configure the path of directory that already exists

Send Data to Server ☒

Connect To ☐ ATRA-DATA ☒ 3rd-PARTY-PLATFORM

Protocol

Server Hostname or IP

Server Port

Publish Topic

Subscribe Topic

QoS level

Client ID
Leave Empty to Auto-generate

Use Certificate based TLS ☐

Use Credentials ☐

Payload Type ☐ List of Objects

HTTP(s)

Enter the URL For HTTP Post and Header. Where able to Change default header or add new one if needed.

AG-702

Dashboard

Status

System

Modem

Services

Network

Modbus

Modbus Master

VPN

Statistics

Logout

Send Data to Server ☒

Connect To ☐ ATRA-DATA ☒ 3rd-PARTY-PLATFORM

Protocol

URL for HTTP Post

Header

Change default header or add new one if needed

Use Certificate based TLS ☐

Use Credentials ☐

Payload Type ☒ List of Objects

☐ Single Object

☐ Custom Payload

Selecting Payload type 'List of Objects' and 'Single Object' will show a non-editable sample payload below. While by selecting 'Custom Payload' one can design their own payload schema.

Add Slave information in ☐

Payload

Certificates

To enhance security for data transmission, you can use **certificate-based TLS** along with **credentials**.

Certificate-based TLS (Transport Layer Security) require **CA(Certificate Authorities)** file, **Client Certificate** and **Private key**

Credentials often require a username and password for authentication and access control in secure systems.

URL for HTTP Post Header 

Change default header or add new one if needed

Use Certificate based TLS ☒CA File Client Certificate Private Key Use Credentials ☒Username Password Payload Type ☒ List of Objects☐ Single Object☐ Custom Payload

Selecting Payload type 'List of Objects' and 'Single Object' will show a non-editable sample payload below. While by selecting 'Custom Payload' one can design their own payload schema.

Add Slave information in ☐

MQTT

Enter the Server **Hostname/IP**, **Server Port**, **Publish Topic** and **Subscribe Topic**. Select **QoS level** as per requirement and Client ID it is Auto-generate.

Send Data to Server ☒Connect To ☐ ATRA-DATA ☒ 3rd-PARTY-PLATFORMProtocol Server Hostname or IP Server Port Publish Topic Subscribe Topic QoS level Client ID

Leave Empty to Auto-generate

Use Certificate based TLS ☐Use Credentials ☐Payload Type ☒ List of Objects☐ Single Object☐ Custom Payload

Selecting Payload type 'List of Objects' and 'Single Object' will show a non-editable sample payload below. While by selecting 'Custom Payload' one can design their own payload schema.

QoS (Quality of Service) level

- QoS 0 (At most once): Fast, no acknowledgment, possible message loss.
- QoS 1 (At least once): Acknowledged, possible duplicates.
- QoS 2 (Exactly once): Highest reliability, no duplicates, uses a four-step handshake.

Revision #5

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