J1939

FAQ

Document Rev. 26

2026-08-06

aparian

FAQ ID 0001:

Modbus Client VS Modbus Server

When working with an Aparian Router that uses Modbus, you are able to set the router to be a Modbus Client (Master) or Server (Slave)....
You would set the router as a master if you want it to initiate the Modbus requests (send queries to a sever to read or write data).
Alternatively you would set it as a Server to respond to the requests (Receive the requests from the client and send back the requested data).

FAQ ID 0002:

How does reformat work in the Internal Map:

Reformat is used for byte order differences and can be set to the following

Format	Description
None	No Byte reordering. Data remains AA BB CC DD.
BB AA	Swaps the two bytes in each 16-bit value. AA BB becomes BB AA.
BB AA DD CC	Swaps the bytes within each 16-bit word. AA BB CC DD becomes BB AA DD CC.
CC DD AA BB	Swaps the two 16-bit words without changing the byte order inside each word. AA BB CC DD becomes CC DD AA BB.
DD CC BB AA	Reverses the complete four-byte order. AA BB CC DD becomes DD CC BB AA.

FAQ ID 0003:

When Router is set to Ethernet/IP originator, why does my slave device say “Invalid Originator to Target size”?

This happens when the instances and sizes of the input and outputs don’t match the device configured in the path’s expected size.
You will need to verify:

- Input assembly size
- Output assembly size
- Configuration assembly size

FAQ ID 0004:

Why won’t my router be owned by the controller.

Ensure your router has been set to a EIP target, and ensure the configuration has been downloaded in Slate. In Logix you should ensure that you added the correct router in the program tree and set the correct connections based on what was set in slate (eg, target connections 4), with the matching IP Address.

FAQ ID 0005:

Router not going into run mode:

Check that the router has been downloaded with no configuration errors.

FAQ ID 0007:

Why does my router not appear in the target browser?

The router is likely in DHCP mode and the IP Address can be set in Tools - DHCP Server, there may be an IP conflict or the router may be on a different subnet.

FAQ ID 0009:

How do I factory reset the router?

In Slates target browser, right click the router and select reset-factory reset.

FAQ ID 0010:

How to flash a module with new firmware

You can flash a module by doing the following:

1. In Slate select tools and DeviceFlash
2. It will open file explorer where you can select the new firmware file.
3. Click okay and it will open the target browser where you can select the device you want to flash.
4. Click Flash and let the process complete.

5. Ensure it completes without any errors and your device has the new firmware revision.

FAQ 11

How do I download my configuration to the Device.

You can do this in Slate by ensuring that you've applied the configuration and then right clicking the device in the project explorer and selecting Download.

FAQ 12

What is DHCP mode?

Dynamic Host Configuration Protocol (DHCP) mode allows a device to automatically obtain an IP address from a DHCP server. In the built in Slate DHCP tool, you are able to give a router its own IP address when it is in DHCP mode.

FAQ ID 0013

Why am I getting Modbus timeout errors?

It is likely that the master is not receiving a response in time due to these common causes:

- Wrong IP address or port
- Incorrect slave ID
- Baud rate mismatch
- Wiring issues
- Device not powered or offline
- Incorrect register address
- Network latency too high
- Timeout setting too short

FAQ 0014

What is the difference between EIP Target and Originator?

The Originator is the device that starts the communication. It sends requests to other devices. It is usually a PLC or a router configured as the originator. Its responsibility is to initiate requests, request data (read/write), and control when communication happens.

The Target is the device that responds to the Originator. It provides data or executes commands sent by the originator. It is typically I/O modules, drives, sensors, or gateways. It listens for incoming requests, sends back data or status, executes control commands.

FAQ 0017

CAN Baud rate

If your router is unable to discover or connect to configured devices then it may be due to the BAUD rate being wrong. Ensure your router is configured to the same BAUD rate as any connected CAN devices.

FAQ 0018

PGNs in J1939

J1939 does not support TPDOs/RPDOs and instead is PGN based. Communication is usually broadcast based or message oriented. The J1939 router reads incoming CAN frames, extracts PGN and data, and maps it to internal registers (or another protocol such as EIP or Modbus). In Slate PGNs are selectable.

FAQ 0019

How do I use Explicit Messaging to read J1939 PGN data?

The router allows you to read J1939 PGN data using explicit EtherNet/IP (CIP) messages via a J1939 Passthrough service. J1939 passthrough (PGN Read) requires you to set up a MSG in Ladder logic with the following settings:

- Service Code: 0x6B
- Class: 0x437
- Instance: 1

- Request Data Length: 8 Bytes

The request and Response tags need to use the predefined UDTS, as seen in section 6.2.2.2. in the J1939/B user manual.

FAQ 0025

What is the internal resistor in slate and when should I use it?

Some Aparian modules (configured via slate) include an internal termination resistor for networks like CAN, DeviceNet, or RS485. It is used to provide network termination, prevent signal reflections, and improve communication stability.
It is recommended to enable it if the router is at the end of the network, and if there is no external termination resistor installed.

FAQ 26

Unable to upload from the router in slate.

If you are unable to upload the configuration from the router, it is likely due to one of the following reasons:

- The router has no configuration loaded.
- Incorrect IP address is being used
- Network connection issue

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Modbus status has constant timeouts

The common causes of this issue are:

- Wrong node
- There is no terminator
- Baud rate could be incorrect
- Wiring issue

FAQ ID 0037

How do I connect to an Aparian module in Slate when it is on a different subnet?

Slate's automatic discovery normally relies on local-subnet broadcast traffic, so a module on another subnet may not appear automatically even though it responds to ping.

In the Slate Target Browser:

1. Select the plug symbol on the top right corner
2. Enter the module on a different subnets IP address manually

The device should now appear.