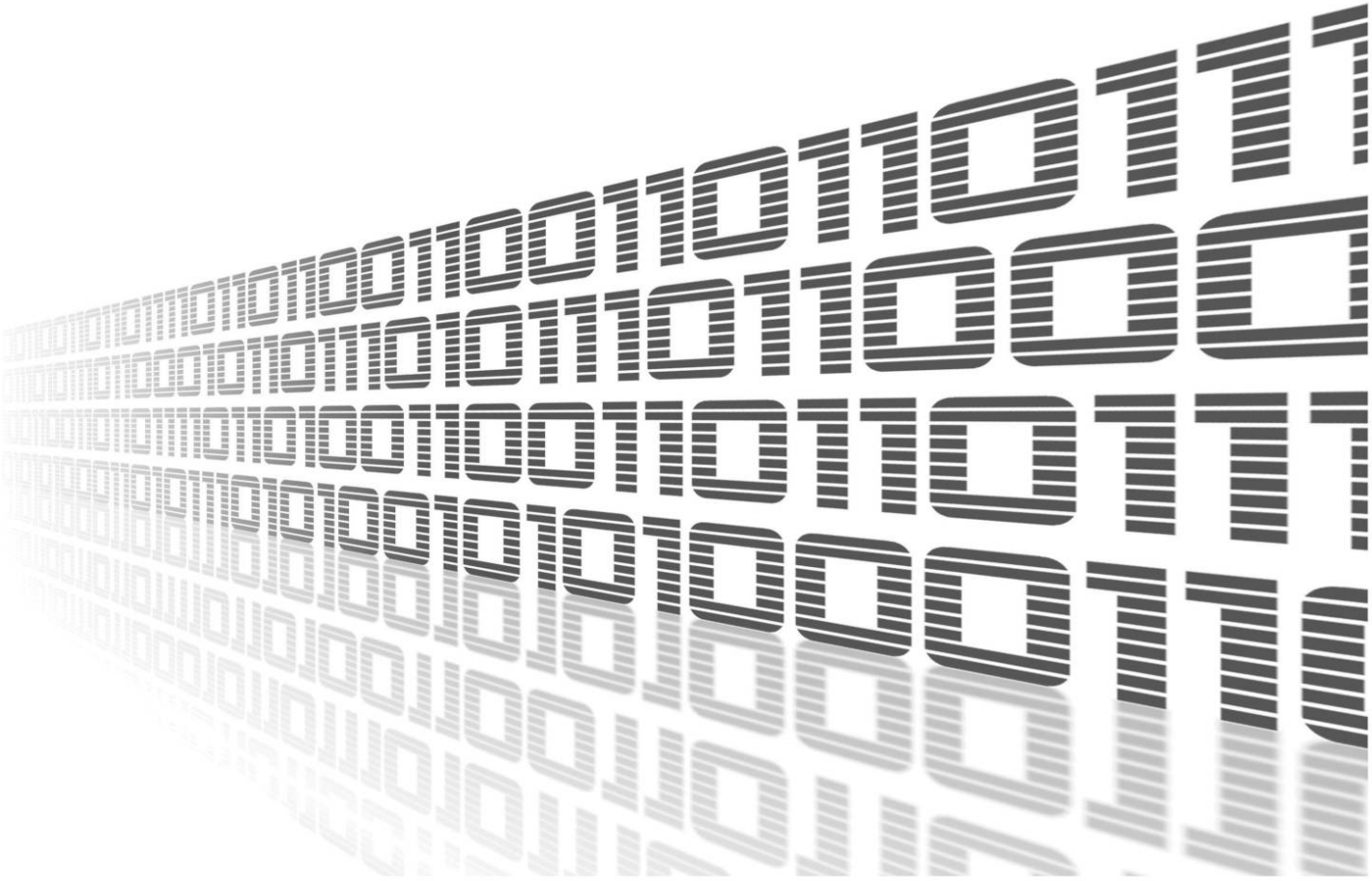
ADVANTECH

RouterApp

Modbus Logger



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Used symbols

Danger – Information regarding user safety or potential damage to the router.

Attention – Problems that can arise in specific situations.

Information – Useful tips or information of special interest.

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1. Module usage

1.1 Description of the module

This Router app is not included in the standard router firmware. Uploading of this router app is described in the Configuration manual (see Chapter Related Documents).

This router app is not v4 platform compatible.

Modbus Logger router app can be used for logging of communication on a Modbus RTU device connected to the serial interface of an *Advantech* router. RS232 or RS485/422 serial interfaces can be used for this purpose. Serial interface is available as an expansion port (see [5] and [6]) for some routers or can be already built-in for some models.

A meter is configuration of address, data length and read function for Modbus data capturing. Required number of meters can be specified separately for the data logging. Data for all meters are consolidated in given storage and afterward distributed (in defined intervals) to a FTP(S) server.

1.2 Web interface

Once the installation of the module is complete, the module's GUI can be invoked by clicking the module name on the *Router apps* page of router's web interface.

Left part of this GUI contains menu with *Status* menu section, followed by *Configuration* menu section which contains the module's configuration page named as *Global*. *Customization* menu section contains only the *Return* item, which switches back from the module's web page to the router's web configuration pages. The main menu of module's GUI is shown on Figure 1.

Figure 1: Main menu

1.3 Configuration

Configuration of this router app can be done on *Global* page, under *Configuration* menu section. Configuration form is shown on Figure 2. It contains three main parts, for configuration of serial line parameters, for configuration of connection to FTP(S) server and for configuration of meters. Configuration of meters is described in detail in chapter 1.3.1. All configuration items for *Global* configuration page are described in table 1.

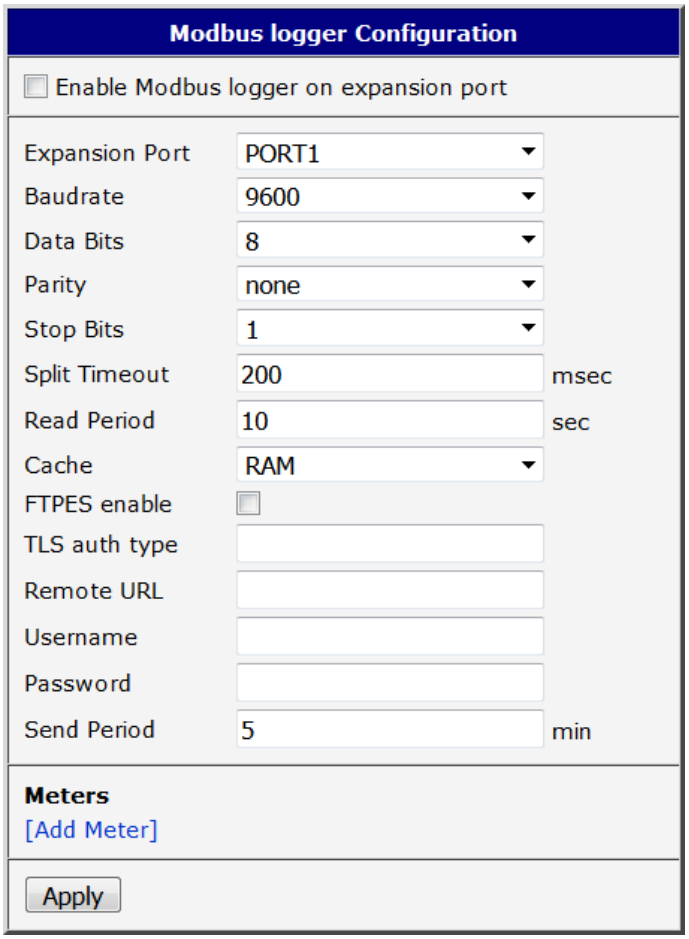

Figure 2: Configuration page

Item	Description
Enable Modbus logger on expansion port	If enabled, logging functionality of the module is turned on.
Expansion Port	Choose expansion port (port1 or port2) with serial interface for *Modbus* data logging. Port1 corresponds with *ttyS0* device, port2 with *ttyS1* device mapped in the kernel.
Baudrate	Choose baudrate for *Modbus* communication.
Data Bits	Choose data bits for *Modbus* communication.

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Item	Description
Parity	Choose parity for *Modbus* communication.
Stop Bits	Choose stop bits for *Modbus* communication.
Split Timeout	Maximum time interval which is allowed between two of received bytes. If exceeded, the data are treated as invalid.
Read Period	Time period for capturing data from the *Modbus* device. Minimum value is 5 seconds.
Cache	Select destination for the module data storage. Logged data are stored into this destination as files and deleted once successfully sent to the destination server. There are these three options: • RAM - store to RAM memory, • SDC - store to SD card, • USB - store to USB disk.
FTPES enable	Enables FTPES connection - FTP that adds support for the Transport Layer Security (TLS). Remote URL address starts with ftp://...
TLS auth type	Specification of the type for TLS authentication (parameter for the *curl* program). Currently, only TLS-SRP option is supported. Enter this string (without the quotation marks): "*-tlsauthtype=SRP*".
Remote URL	Remote URL of directory on an FTP(S) server for data storage. This address must be terminated by backslash.
Username	Username for access to the FTP(S) server.
Password	Password for access to the FTP(S) server.
Send Period	Time interval in which the data captured locally on the router will be stored to the FTP(S) server. Minimum value is 5 minutes.
Meters	Definition of meters. For more information see Chapter 1.3.1.
Apply	Button to save and apply all changes made in this configuration form.

Table 1: Configuration items description

1.3.1 Meters configuration

A meter is configuration of address, data length and read function for Modbus data capturing. Required number of meters can be specified separately for the data logging. A new meter definition can be done by clicking on *[Add Meter]* link in *Meters* section of the configuration page, see Figure 2. Configuration form for a new meter is shown on Figure 3.

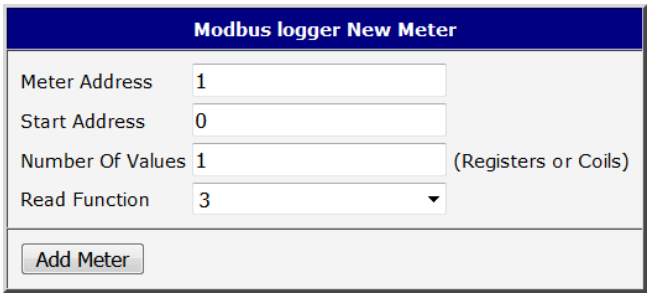

Figure 3: New meter configuration

Description of all items required for a new meter configuration is described in table 2. To delete an existing meter click on *[Delete]* button on the main configuration screen, see Figure 4.

Item	Description
Meter Address	Address of slave device (from 1 to 247).
Start Address	Start reference of registers/coils address.
Number of Values	Number of registers/coils values to be captured.
Read Function	Chose number of read function from: 1 = Read Coils 3 = Read Holding Registers 4 = Read Input Registers
Add Meter	Button to add new configuration of meter.

Table 2: Meter items description

1.4 Configuration example

Example of module's configuration is shown on Figure 2. In this example, the data will be captured from Modbus RTU device connected to the first serial interface every 5 seconds. Captured are data from Modbus slave device with address 120 and there is definition of two different meters. The first meter reads 10 coil values starting at coil number 10. The second meter reads 100 registers starting at register number 4001.

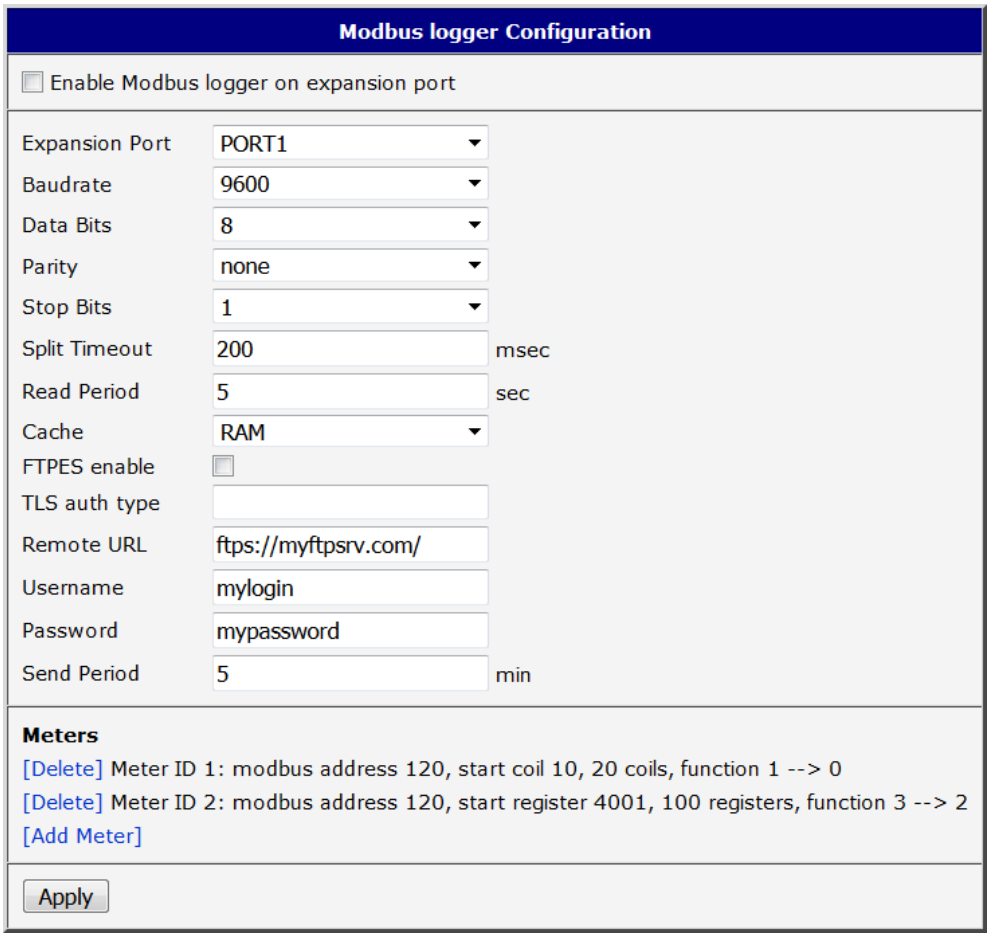

Figure 4: Configuration example

1.5 System Log

Log messages are available on *System Log* page, under *Status* menu section. This log contains log messages for this router app, but also all other router's system messages and is exactly the same as the system log available on *System Log* page in router's *Status* menu section. An example of this log is shown on Figure 5.

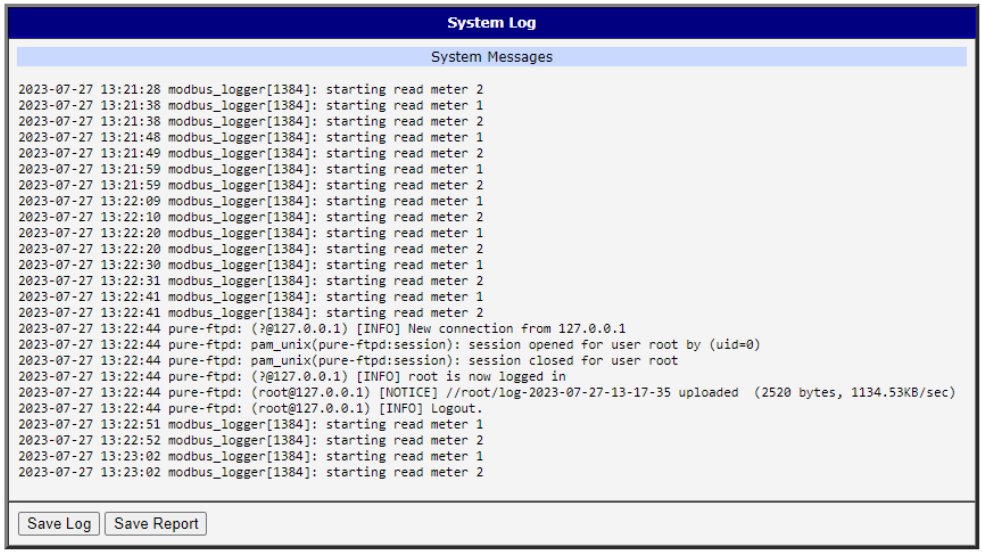

Figure 5: Example of System Log

1.6 Log file contents

The Modbus Logger module generates log files to record communication data from the Modbus RTU device. Each log file is created with a specific format and contains information related to the executed commands. The log files are named using the following format: *log-YYYY-MM-dd-hh-mm-ss* (where "YYYY" represents the year, "MM" the month, "dd" the day, "hh" the hour, "mm" the minute, and "ss" the second of the execution time).

The contents of each log file follow a specific structure, which is detailed below:

m0:2023−06−23−13−14−03:01 03 06 00 64 00 c8 01 2c d1 0e

"**m0**" represents the identifier of the user-defined meters.

"**2023-06-23-13-14-03**" shows the date and time when the Modbus command was executed, in the format "YYYY-MM-dd-hh-mm-ss".

The rest of the line represents the received Modbus command in hexadecimal format.

The log file contains lines for each executed Modbus command, and each line follows the same structure as shown in the example above.

2. Related Documents

[1] Advantech Czech: **Expansion Port RS232 – User Manual** (MAN-0020-EN)
[2] Advantech Czech: **Expansion Port RS485/422 – User Manual** (MAN-0025-EN)

You can obtain product-related documents on *Engineering Portal* at *icr.advantech.com* address.

To get your router's *Quick Start Guide*, *User Manual*, *Configuration Manual*, or *Firmware* go to the *Router Models* page, find the required model, and switch to the *Manuals* or *Firmware* tab, respectively.

The *Router Apps* installation packages and manuals are available on the *Router Apps* page.

For the *Development Documents*, go to the *Development* page.