



ADVANTECH LwM2M Router App User Guide

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ADVANTECH

 **RouterApp**
Modbus to LwM2M

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LwM2M Router App



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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.



Example – Example of function, command or script.

Changelog

1.1 Modbus to LwM2M Changelog v1.0.0 (2020-08-28)

- First release.

Router App Modbus to LwM2M

2.1 Description



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

Modbus to LwM2M router app provides seamless communication between Modbus/TCP devices and LwM2M device. LwM2M works as Modbus/TCP master to communicate with Modbus/TCP devices.

2.2 Installation

The latest version of Modbus to LwM2M router app can be downloaded from the Engineering Portal[EP] at <https://icr.advantech.cz/products/software/user-modules>.

In the GUI of the router navigate to Customization -> Router Apps page. Here choose the downloaded module's installation file and click to the Add or Update button.

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. Figure 1 shows the main menu of the module. It has the LwM2M, Mapping Table and Log menu items. To return back to the router's web GUI, click on the Return to Router item.

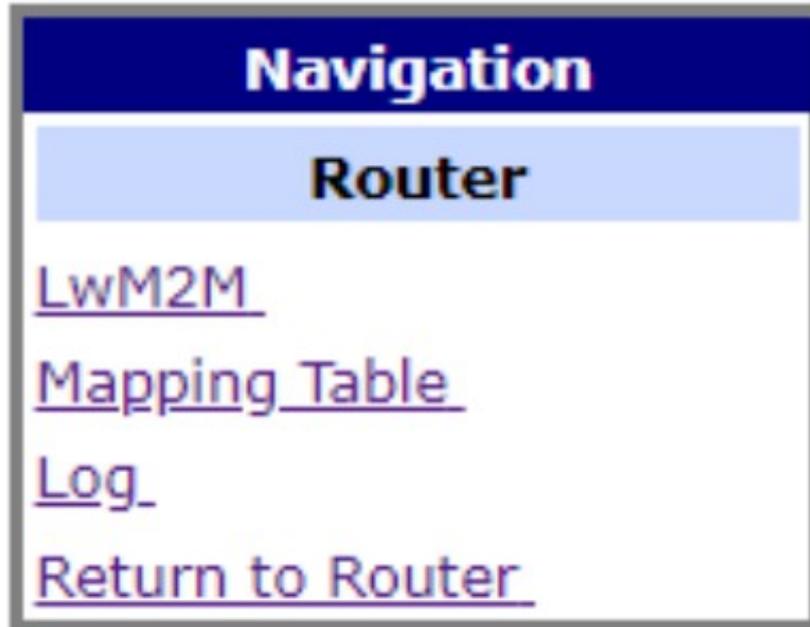


Figure 1: Main Menu

2.3 Module Configuration

Configuration of the router app can be done on the LwM2M page. This configuration page is shown in Figure 2. There are two sections on the page, LwM2M Settings, and Modbus TCP. The configuration items are described on the page next to the items. Do not forget to click the Save button below to save changes made on the page.

LwM2M Settings

LwM2M

LwM2M Enable
 Enable the LwM2M Client.

Log Enable
 Enable the LwM2M Log.

Name
 Endpoint name of client.

LwM2M Server Address
 The remote LwM2M Server Address.

LwM2M Lifetime
 The LwM2M lifetime (30 - 300).

LwM2M Server Port
 The LwM2M Server Port Number (1 - 65535).

PSK Identity

Pre-shared-key Mode
 Pre-shared-key Mode.

Pre-shared-key

Update Time
 The lwm2m update time.

Modbus TCP

Modbus TCP Server Address
 The Remote Modbus TCP Address.

Modbus TCP Server Port
 The Remote Modbus TCP Port Number (1 - 65535).

Slave ID
 The Modbus TCP Slave number (1 - 256).

Interval(ms)
 The Modbus TCP Polling Interval.

Timeout(ms)
 The Modbus TCP Timeout.

Figure 2: LwM2M and Modbus TCP Configuration Page

2.3.1 Configuration Uploading

Configuration of Modbus TCP and LwM2M devices mapping can be imported by a CSV file. Format of this file is shown in Figure3and the key columns are described in Table1. Separator (delimiter) for the CSV file is a comma.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
IPSO S0	Name	#	Type	Device ID	Function Code	Address Start	Data Length	Designator	Serial	IP	Port	Trigger	Preload	Verify	Threshold	Datatype
10701	Vibration_Alarm	1	TCP	1	3	10811	1	/10701/0/101	Port 1	192.168.0.12	502	none	none	0 Always	FALSE	7 Boolean
10702	Water_Alarm	1	TCP	1	3	10820	1	/10702/0/105	Port 1	192.168.0.12	502	none	none	0 Always	FALSE	7 Boolean
10706	Max_Pressure	1	TCP	1	3	40054	2	/10706/0/201	Port 1	192.168.0.12	502	none	none	0 Always	FALSE	4 IEEE, Re
10706	Min_Pressure	1	TCP	1	3	40062	2	/10706/0/202	Port 1	192.168.0.12	502	none	none	0 Always	FALSE	4 IEEE, Re
10707	DC_Voltage	1	TCP	1	3	40802	2	/10707/0/302	Port 1	192.168.0.12	502	none	none	0 Always	FALSE	4 IEEE, Re
10707	DC_Current	1	TCP	1	3	40804	2	/10707/0/303	Port 1	192.168.0.12	502	none	none	0 Always	FALSE	4 IEEE, Re
10708	Temperature_Alarm	1	TCP	1	3	10808	1	/10708/0/105	Port 1	192.168.0.12	502	none	none	0 Always	FALSE	7 Boolean
10708	Pressure_Alarm	1	TCP	1	3	10810	1	/10708/0/107	Port 1	192.168.0.12	502	none	none	0 Always	FALSE	7 Boolean

Figure 3: CSV File Example

To import this file, go to LwM2M configuration page, click on the Upload Config button, choose the file, and then click the Upload button. If uploaded successfully, click the Return button and finally click on the Save button LwM2M on the bottom of the configuration page. The new mapping configuration will take effect immediately.

Column	Field	Description
A	IPSO SO	LwM2M Object ID
B	Name	The name to identify the mapping.
G	Address Start	Designate the Modbus to starting address for the Modbus registry.
H	Data Length	For range 1 9999 or 10000 19999, the unit is bit(s). For range 30001 39999 or 40000 49999, the unit is word(s).
I	Designator	Designate LwM2M Object. Include Object ID, Short ID and Resource I D. Format: /Object_ID/Short_ID/Resource_ID
Q	Data Type	LwM2M data type with options: •7 Boolean •4 IEEE, Reversed Word •1 Double Precision

Table 1:Description of the Key Columns

2.4 Mapping Table

As shown in Figure4, the Mapping Table page just displays the mapping table of Modbus TCP and LwM2M devices. This table can be imported by a CSV file, see Chapter2.3.1.

LwM2M Settings				
Mapping Table				
Name	Object ID	Modbus Address	Data Length	Data Type
Vibration_Alarm	/10701/0/101	10811	1	Boolean
Water_Alarm	/10702/0/105	10820	1	Boolean
Max_Pressure	/10706/0/201	40054	2	Flot
Min_Pressure	/10706/0/202	40062	2	Flot
DC_Voltage	/10707/0/302	40802	2	Flot
DC_Current	/10707/0/303	40804	2	Flot
Temperature_Alarm	/10708/0/105	10808	1	Boolean
Pressure_Alarm	/10708/0/107	10810	1	Boolean

Figure 4: Example of Mapping Table

2.5 Log Messages

The Log page displays the log messages of the LwM2M router app. This loggin can be enabled on the LwM2M configuration page, see Chapter 2.3.

Lwm2M Settings

Log

```

2020-08-21 10:50:51.263, [cfg] lifetime=300, update_time=1
2020-08-21 10:50:51.264, [cfg] modbus id=1, interval=1000, timeout=1000
2020-08-21 10:50:51.264, [csv] parser /opt/Lwm2M/etc/config.csv
2020-08-21 10:50:51.265, [csv] line=11, active=9
2020-08-21 10:50:51.267, [lwm2m] Trying to bind Lwm2M Client to port 56830
2020-08-21 10:50:51.268, [lwm2m] Connecting coaps://127.0.0.1:5683
2020-08-21 10:50:51.270, [modbus] "127.0.0.1":502 slave:1 interval:1000 timeout:1000
2020-08-21 10:50:51.272, [lwm2m] Lwm2M Client "lwm2m" started on port 56830
2020-08-21 10:50:51.273, [lwm2m] Trans(Send): message code:Post, type:confirmables
2020-08-21 10:50:51.277, [lwm2m] State: STATE_REGISTERING
2020-08-21 10:50:51.278, [modbus] create
2020-08-21 10:50:51.279, [modbus] connecting
2020-08-21 10:50:52.278, [lwm2m] 123 reg_status: STATE_REG_PENDING
2020-08-21 10:50:53.280, [lwm2m] Trans(Send): message code:Post, type:confirmables

```

Refresh
Download

Figure 5: Log Example

Related Documents

[1] MC Manual Pages: <https://linux.die.net/man/1/mc>

You can obtain product-related documents on Engineering Portal at icr.advantech.cz 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 [DevZone](#) page.



Documents / Resources

	<p>ADVANTECH Lwm2M Router App [pdf] User Guide Lwm2M Router App, Lwm2M, Router App, App</p>
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References

- [Advantech 4G, 5G Cellular Routers & Gateways for IoT applications - Engineering Portal](#)
- [Advantech 4G, 5G Cellular Routers & Gateways for IoT applications - Engineering Portal](#)

- [▲ DevZone - Cellular Routers Engineering Portal](#)
- [▲ Router Apps - Cellular Routers Engineering Portal](#)
- [▲ Router Models - Cellular Routers Engineering Portal](#)

Manuals+.