RUTX11 DLMS

The information in this page is updated in accordance with firmware version **RUTX_R_00.07.07.1**.

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Contents

- 1 Summary
- 2 Main
  - 2.1 DLMS Physical devices
    - 2.1.1 DLMS Physical device configuration
  - 2.2 DLMS Cosem groups
    - 2.2.1 DLMS Cosem group configuration
    - 2.2.2 DLMS Cosem value
- 3 Connections
  - 3.1 DLMS Connections
    - 3.1.1 DLMS Connection configuration

Summary

The **DLMS / COSEM** standard suite (IEC 62056 / EN 13757- 1) is the most widely accepted international utility meter data exchange standard. DLMS is the application layer protocol that transforms the data into messages and COSEM describes the general object model and can be used for all kinds of presentations.

This manual page provides an overview of the DLMS functionality in RUTX11 devices.

Note: DLMS is additional software that can be installed from the **System → Package Manager** page. **Note:** The count of DLMS connections is limited to 30, physical devices - up to 30, space groups - up to 10, cosem objects - up to 20 in each group.

Main

The **Main** page is used to configure DLMS physical devices and Cosem Groups.

Notice the Global section config. It is used to outright turn the service off or on if any active configurations are present.

Clicking the Cog icon opens a modal window. The global configuration slider can be set and it's state saved.

DLMS Physical devices

Interoperable devices in DLMS categorize as server (physical device) and client. Data collection device act as a client that supports system dependent features, parameters, functions and classes requesting data from the server (physical device). In this structure, communication protocol stack is independent of application layer so both devices may communicate different media. To add a new physical device, click the 'Add' button.

After clicking 'Add' you will be redirected to the newly added physical device's configuration page.

DLMS Physical device configuration

The **DLMS Physical device configuration** section is used to configure the parameters of server (physical device).

Field	Value	Description
Enable	off | on; default: **off**	Enables specific physical device configuration.
Connection	empty ; default: **none**	DLMS connection.
Name	string; default: **none**	Physical device name.
Server address type	Default | Serial number; default: **Default**	Select 'Default' for server address or 'Serial Number' for addressing by a specific serial number.
Server address	integer [0..255]; default: **1**	DLMS device server address.
Serial number	unsigned integer; default: **1**	DLMS device serial number. Uses formula 'SN % 10000 + 1000'.
Logic server address	integer [0..255]; default: **0**	DLMS device logical server address.
Client address	integer [0..255]; default: **16**	DLMS device client address.
Access security	none | Low | High | High MD5 | High SHA1 | High GMAC; default: **none**	DLMS device authentication type.
Password	string; default: **none**	DLMS device password if authentication is used.
Interface type	HDLC | WRAPPER; default: **HDLC**	DLMS device interface type.

Transport security	none | Authentication | Encryption | Authentication encryption; default: **none**	DLMS device message encryption.
Authentication/Encryption/Authentication encryption: Invocation counter OBIS code	string; default: **none**	DLMS device invocation counter OBIS code.
Authentication/Authentication encryption: Authentication key	string (Length of the value must be 32); default: **none**	DLMS device authentication key.
Encryption/Authentication encryption: Block cipher key	string (Length of the value must be 32); default: **none**	DLMS device block cipher key.
Encryption/Authentication encryption: Dedicated key	string (Length of the value must be 32); default: **none**	DLMS device dedicated key.
Logical name referencing	on | off; default: **on**	DLMS devices use Logical Names to reference and access specific data objects or attributes during communication. For example, when requesting data from a device, you might reference a specific Logical Name to retrieve the information.
Test	-(interactive button)	Test device configuration.

DLMS Cosem groups

To add a new cosem group, click the 'Add' button.

After clicking 'Add' you will be redirected to the newly added cosem group's configuration page.

DLMS Cosem group configuration

The **DLMS Cosem group configuration** section is used to configure the parameters of cosem groups.

Field	Value	Description
Enable	off | on; default: **off**	Enables Cosem group.
Name	string; default: **none**	OBIS code group name.
Interval	integer [1..4294967295]; default: **1**	Interval for OBIS code reading (in seconds).
Test	-(interactive button)	Test cosem group.

DLMS Cosem value

Cosem value is a specific value retrieved from a defined server (physical device). To add a new cosem value, click the 'Add' button.

After clicking 'Add' you will be redirected to the newly added cosem value's configuration page.

Field	Value	Description
Enable	off | on; default: **off**	Enables Cosem state.
Name	string; default: **none**	COSEM option name.
Physical device	selection; default: **none**	Physical device to read from.
OBIS code	string; default: **none**	OBIS code value, actions are not executed, only properties are read.
COSEM class id	DATA (ID: 1) | REGISTER (ID: 3) | EXTENDED REGISTER (ID: 4) | DEMAND REGISTER (ID: 5) | REGISTER ACTIVATION (ID: 6) | PROFILE GENERIC (ID: 7) | CLOCK (ID: 8) | SCRIPT TABLE (ID: 9) | SPECIAL DAYS TABLE (ID: 11) | ASSOCIATION LOGICAL NAME (ID: 15) | SAP ASSIGNMENT (ID: 17) | IMAGE TRANSFER (ID: 18) | IEC LOCAL PORT SETUP (ID: 19) | ACTIVITY CALENDAR (ID: 20) | REGISTER MONITOR (ID: 21) | ACTION SCHEDULE (ID: 22) | IEC HDLC SETUP (ID: 23) | IEC TWISTED PAIR SETUP (ID: 24) | UTILITY TABLES (ID: 26) | MODEM CONFIGURATION (ID: 27) | AUTO ANSWER (ID: 28) | AUTO CONNECT (ID: 29) | PUSH SETUP (ID: 40) | TCP UDP SETUP (ID: 41) | IP4 SETUP (ID: 42) | MAC ADDRESS SETUP (ID: 43) | GPRS SETUP (ID: 45) | GSM DIAGNOSTIC (ID: 47) | IP6 SETUP (ID: 48) | COMPACT DATA (ID: 62) | SECURITY SETUP (ID: 64) | ARBITRATOR (ID: 68) | DISCONNECT CONTROL (ID: 70) | LIMITER (ID: 71); default: **DATA (ID: 1)**	Object type for OBIS code.
Entries	interger [1..32767]; default: **none**	How many data objects to read.

Connections

The **Connections** page is used to configure DLMS connections. You can use either TCP or serial (depending on the router) connection to establish a connection between the physical device and the router.

DLMS Connections

To add a new connection, click the 'Add' button.

After clicking 'Add' you will be redirected to the newly added connection's configuration page.

DLMS Connection configuration

The **DLMS Connection configuration** section is used to configure the parameters of connections.

Field	Value	Description
Enable	off | on; default: **off**	Enables Cosem state.
Name	string; default: **previously added connection name**	Name of DLMS connection configuration.
Connection type	TCP | Serial; default: **TCP**	DLMS connection type.
Serial device	USB RS232 interface; default: **USB RS232 interface**	DLMS serial device.
Baud rate	300 | 1200 | 2400 | 4800 | 9600 | 19200 | 38400 | 57600 | 115200; default: **9600**	Serial data transmission rate (in bits per second).
Data bits	5 | 6 | 7 |8; default: **8**	Number of data bits for each character.
Stop bits	1| 2; default: **1**	Stop bits sent at the end of every character allow the receiving signal hardware to detect the end of a character and to resynchronise with the character stream. Electronic devices usually use one stop bit. Two stop bits are required if slow electromechanical devices are used.
Parity	Even | Odd| Mark | Space | None; default: **None**	In serial transmission, parity is a method of detecting errors. An extra data bit is sent with each data character, arranged so that the number of 1 bits in each character, including the parity bit, is always odd or always even. If a byte is received with the wrong number of 1s, then it must have been corrupted. However, an even number of errors can pass the parity check. • **None** (**N**) - no parity method is used. • **Odd** (**O**) - the parity bit is set so that the number of "logical ones (1s)" has to be odd. • **Even** (**E**) - the parity bit is set so that the number of "logical ones (1s)" has to be even. • **Space** (**s**) - the parity bit will always be a binary 0. • **Mark** (**M**) - the parity bit will always be a binary 1.

Flow control	None | RTS/CTS | Xon/Xoff; default: **None**	In many circumstances a transmitter might be able to send data faster than the receiver is able to process it. To cope with this, serial lines often incorporate a "handshaking" method, usually distinguished between hardware and software handshaking. • **RTS/CTS** - hardware handshaking. RTS and CTS are turned OFF and ON from alternate ends to control data flow, for instance when a buffer is almost full. • **Xon/Xoff** - software handshaking. The Xon and Xoff characters are sent by the receiver to the sender to control when the sender will send data, i.e., these characters go in the opposite direction to the data being sent. The circuit starts in the "sending allowed" state. When the receiver's buffers approach capacity, the receiver sends the Xoff character to tell the sender to stop sending data. Later, after the receiver has emptied its buffers, it sends an Xon character to tell the sender to resume transmission.
IP address	ip; default: **none**	DLMS device IP address for TCP connection.
Port	integer [1..65535]; default: **none**	DLMS device IP port for TCP connection.
Persistent	off | on; default: **off**	Open TCP connection once and reuse it between requests.