



CMe3100 User's Manual
English
v 1.0

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1 Document notes

All information in this manual, including product data, diagrams, charts, etc. represents information on products at the time of publication, and is subject to change without prior notice due to product improvements or other reasons. It is recommended that customers contact Elvaco AB for the latest product information before purchasing a CMe Series product.

The documentation and product are provided on an “as is” basis only and may contain deficiencies or inadequacies. Elvaco AB takes no responsibility for damages, liabilities or other losses by using this product.

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2 Important usage and safety information

The following safety precautions must be observed during all phases of the operation, usage, service or repair of any CMe Series product. Users of the product are advised to convey the following safety information to users and operating personnel and to incorporate these guidelines into all manuals supplied with the product. Failure to comply with these precautions violates safety standards of design, manufacture and intended use of the product. Elvaco AB assumes no liability for customer's failure to comply with these precautions.

The product is developed for indoor use. If the product is intended to be used outdoors, it must be protected by an enclosure of International Protection Marking (IP code) 67.

The installation of the product should be performed by a qualified electrician or another professional with the required knowledge. It is important to follow all safety information mentioned throughout the installation chapter of this manual when installing the CMe3100.

Make sure to read this manual carefully and follow it step by step to ensure a secure usage and to get the most out of your product.

3 Using this manual

3.1 Purpose and audience

This manual provides all information needed to mount, install, configure and use the CMe3100 M-Bus Metering Gateway, and is intended for field engineers and developers. The information is based on software version 1.6.0. Please note that other versions may exhibit slight differences in appearance and/or functionality.

3.2 Online resources

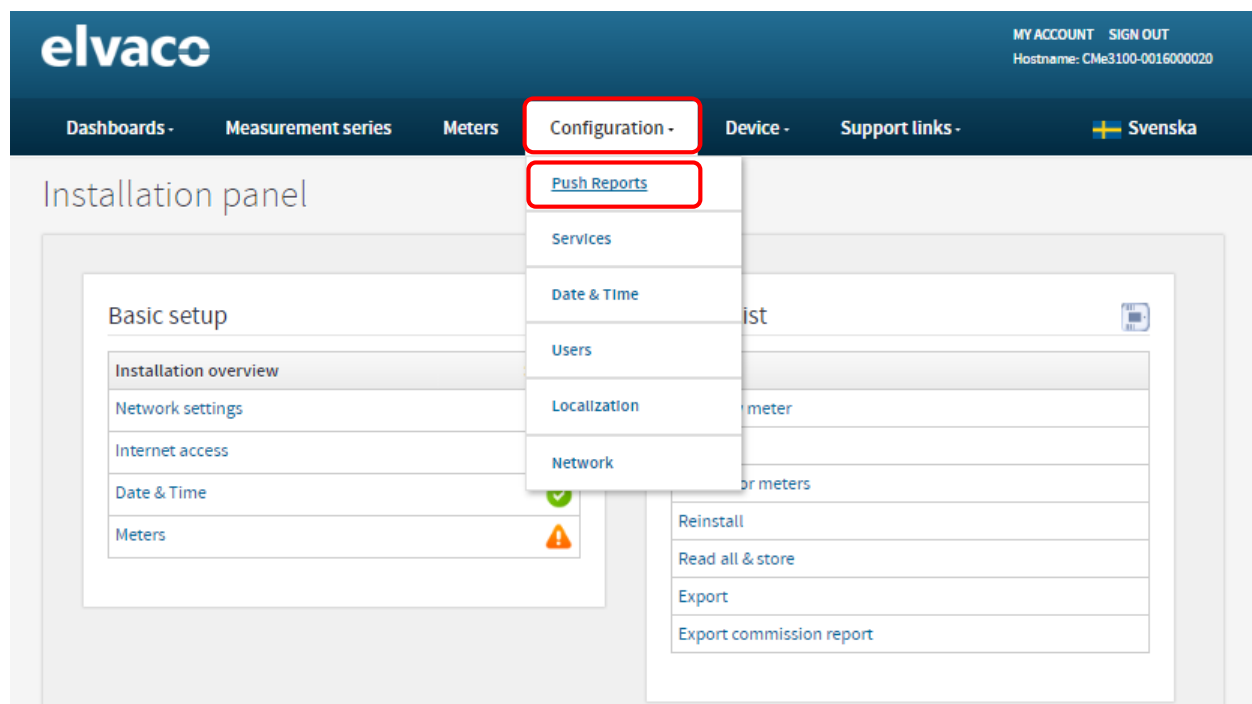
To download the latest version of this user's manual, please visit <http://www.elvaco.com/en/download>. There, you will also find information about Elvaco's other products and services, and how they can help you to achieve successful metering.

3.3 Notation

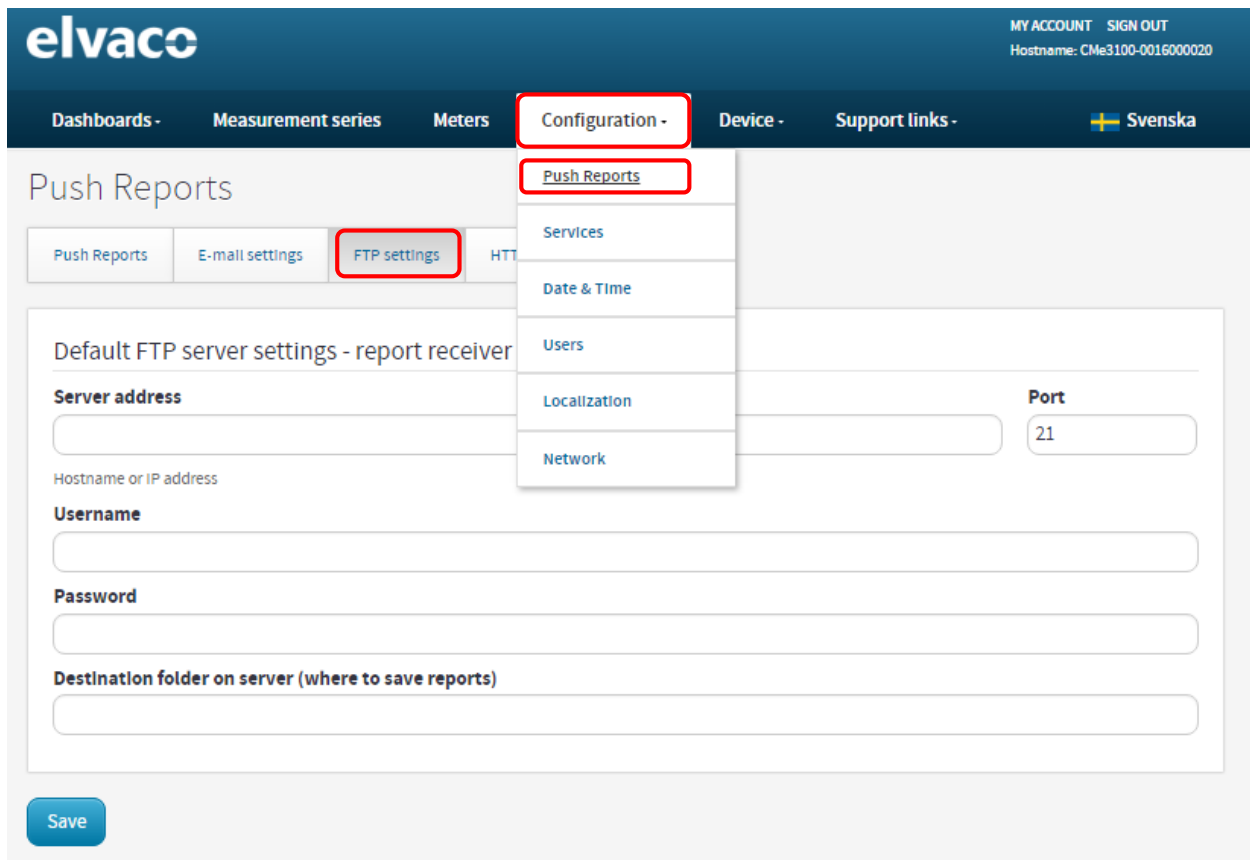
3.3.1 Navigation

All navigation in the web-interface is described referencing the **Dashboards > Installation Panel** (start page when logging in). Navigation will be noted as **[Top menu item] > [Sub menu item] > [Tab item]**.

Example 1: To display Push Reports, go to **Configuration > Push Reports**.



Example 2: To configure FTP Push Report default settings, go to **Configuration > Push Reports > FTP settings**.



The screenshot shows the elvaco web interface. The top navigation bar includes links for Dashboards, Measurement series, Meters, Configuration, Device, and Support links. The Configuration menu is expanded, showing options like Push Reports, Services, Date & Time, Users, Localization, and Network. The Push Reports menu is also expanded, showing options like Push Reports, E-mail settings, and FTP settings. The FTP settings page is displayed, showing fields for Server address, Username, Password, and Destination folder on server. A Save button is at the bottom.

3.4 Symbols

The following symbols are used throughout the manual to emphasize important information and useful tips:



The Note symbol is used to mark information that is important to take into consideration for safety reasons or to assure correct operation of the Metering Gateway.



The Tip symbol is used to mark information intended to help you get the most out of your product. It can for example be used to highlight a possible customization option related to the current section.

4 Introduction

4.1 Purpose

This chapter provides an initial description of the CMe3100 Metering Gateway and how it can be applied to different types of metering systems. In the next-coming sections you will get to know the product features and how to combine the CMe3100 with other products to build versatile solutions.

4.2 Application description

4.2.1 Applications

The CMe3100 is, directly out of the box, a very powerful and versatile Metering Gateway. It can be extended in various ways using a flexible model for licence and add-on upgrades.

While there are many ways to utilize the potential in the CMe3100, its three core application areas are:

1. Quick and simple metering with integrated statistics
2. Metering and local integration with PLC/DCS
3. Full Gateway integration using e.g. DLMS or REST

Additionally, all features can be used in a mix to address application specific needs. It also fully supports all types of utility meters that are M-Bus or Wireless M-Bus compliant.

4.2.2 Quick and simple metering with integrated statistics

For small applications with a low requirement for integration, the CMe3100 is very quickly setup using its predefined readout schedules and metering reports (Push Reports). Once the meters have been installed, the device can be configured to readout meter values at specific time intervals and compile them in a suitable report format to be sent to a receiving system. If the need of integration is low, the report can be as simple as an e-mail sent at a fixed schedule.

Thanks to the device's built-in M-Bus decoder, meter values can be delivered in a human readable format with correct precision and unit. With its user friendly web interface the device also serves as a complete metering web service. Among various features, measurement series and calculated series, such as mean value, can be displayed as illustrative graphs.

The built in database, storing all meter values locally in the CMe3100, provides a solid base for its system robustness. All Push Reports have intelligent retry mechanisms that automatically schedules retries for failed reports including all values for which previous transmissions have failed.

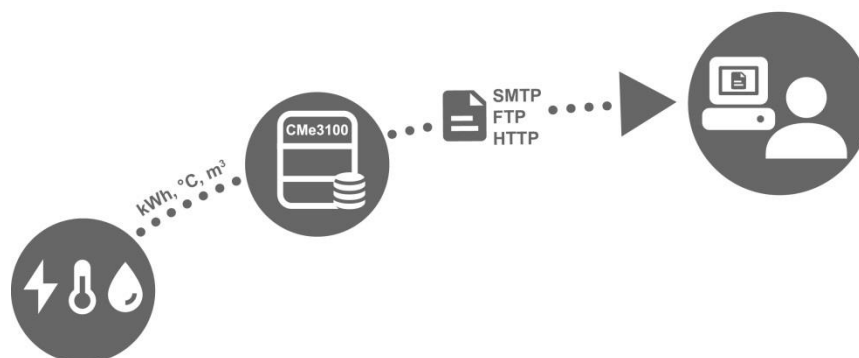


Figure 1: Quick and simple metering with integrated statistics

4.2.3 Metering and local integration with PLC/DCS

For standard applications with a medium requirement for integration, the CMe3100 is very quickly setup using its predefined readout schedules and metering reports (Push Reports). Once the meters have been installed, the device can be configured to readout meter values at specific time intervals and compile them in a suitable report format to be sent to a receiving system. Reports are transmitted using standardized internet protocols, such as SMTP (e-mail), FTP or HTTP.

Thanks to the device's built-in M-Bus decoder, meter values can be delivered in a human readable form with correct precision and unit.

The built-in database, storing all meter values locally in the CMe3100, provides a solid base for its system robustness. All Push Reports have intelligent retry mechanisms that automatically schedules retries for failed reports including all values for which previous transmissions have failed.

The built-in database also enables excellent and reliable options for local integration with a Digital Control System (DCS) or a Programmable Logic Controller (PLC). These types of system components are usually found in real-estate systems to control for example heat and ventilation. Interfacing systems may choose to connect using ModBus, M-Bus or JSON (TCP/IP) to retrieve meter values directly from the CMe3100 without affecting its normal operation or having to communicate with the M-Bus meters directly.

If the CMe3100 is used in a mixed application with metering reports and high demand for real-time meter values being supplied to a PLC or a DCS, there is an additional mode available, *Continuous Readout Mode*. When activated, the CMe3100 reads all meters as frequent as possible and makes the readouts available to interfacing systems *but* without affecting the reporting mechanism. This enables metering reports to be configured independently from how the interfacing system's meter value requirements.

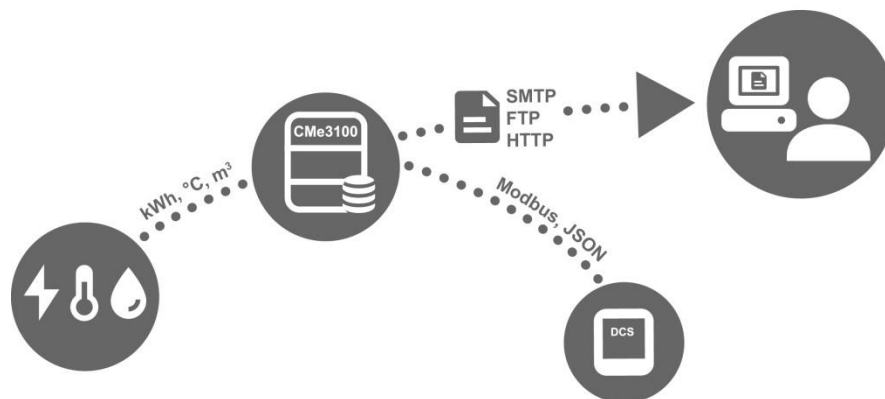


Figure 2: Metering and local integration with DCS

4.2.4 Full Gateway integration using e.g. DLMS or REST

For demanding applications that requires a high level of vertical integration, the CMe3100 supports the REST or DLMS protocols. Using these protocols, meter values and configuration settings are available without having to bother about specific details of the M-Bus metering format. A head-end system may access most current readouts, historical values as well as log information, Meter Lists and change notifications.

The built in database, storing all meter values locally in the CMe3100, provides a solid base for its system robustness as historical meter can be recovered by the head-end system at any time.

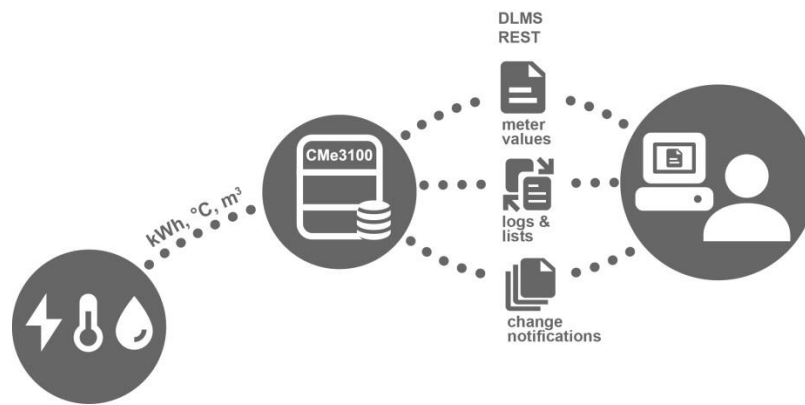


Figure 3: Full Gateway integration

4.3 Product features

The CMe3100 M-Bus Metering Gateway has the potential to read, convert and deliver meter values from all types of M-Bus meters, regardless of manufacturer. This makes the device quick and easy to integrate into an existing M-Bus system. The key features of the product include:

- An integrated M-Bus Master which can drive up to 32 unit loads (32T). By using an Elvaco M-Bus Master it is possible to extend this number up to 256 unit loads.
- Customized meter value reports via HTTP, FTP and e-mail.
- A built-in web interface for easy configuring of settings.
- Remotely updatable software.
- Meter value integration via MODBUS, REST, JSON-RPC and DLMS.

A more extensive technical description of the Metering Gateway is provided in chapter 7 ([Technical specifications](#)).

4.4 Compatibility and extensions

4.4.1 Licensing scheme

The CMe3100 is equipped with a flexible licensing scheme that allows its capabilities and features to be enhanced through the addition of license files. This allows for both a cost effective customization at the purchase point as well as the possibility to later extend the product functionality without changing the hardware.

Licenses are distributed as files, bound to a specific serial number. A license file may contain several different types of licenses but an individual file is always required for each product.

There are two main categories of licenses available, performance and feature licenses.

The performance licenses determine, from a software perspective, how many meters that may be used with the device. Licenses range from 8 to 256 meters in steps of, 8, 32, 64, 128 and 256.

Feature licenses enable new services in the product, for example integration protocols such as Modbus, REST, JSON and DLMS.

To learn more about the different licenses available, please visit <http://www.elvaco.com/en/products/cme-series/cme3100>.



A software update is not necessary when changing the licenses, the functionality is already part of the software and just needs the correct license file to be unlocked.



Without a license, the product is limited to 8 meters even though the integrated M-Bus master can handle up to 32 unit loads.

4.4.2 Integration with other products

The CMe3100 can be used in combination with an M-Bus Master from Elvaco to increase the number of slave devices it is able to drive (the device can by default drive up to 32 unit loads, where one load equals 1.5 mA). It can also be combined with an Elvaco Wireless M-Bus Receiver to receive meter reading from wireless meters using the Wireless M-Bus Protocol.

The CMe3100 is compatible with a wide range of meters, including:

- ABB electricity meters supporting communication via IR interface.
- All types of M-Bus meters, regardless of manufacturer.
- The following temperature and humidity sensors, manufactured by Elvaco: CMa10, CMa10W, CMa11, CMa11W, CMa12W, CMa20, CMa20W.

4.4.3 Wired and Wireless M-Bus

The CMe3100 can be used together with Wired M-Bus meters, Wireless M-Bus meters or a combination of both. The integrated M-Bus master can handle up to 32 unit loads so for smaller systems, the CMe3100 may operate independently. For larger systems, the amount of M-Bus devices the CMe3100 is able to drive is easily extendable through any of Elvaco's M-Bus Masters in combination with a licence upgrade.

CMe3100 has a built-in system for wireless encryption key handling, and can easily be integrated in a Wireless M-Bus metering system. In order to receive wireless meters, the CMe3100 needs to be complemented with an Elvaco Wireless M-Bus Receiver.

All extension devices, Wireless Receivers and M-Bus Masters from Elvaco are equipped with IR interface to enable communication without any cabling by simply stacking the devices together.

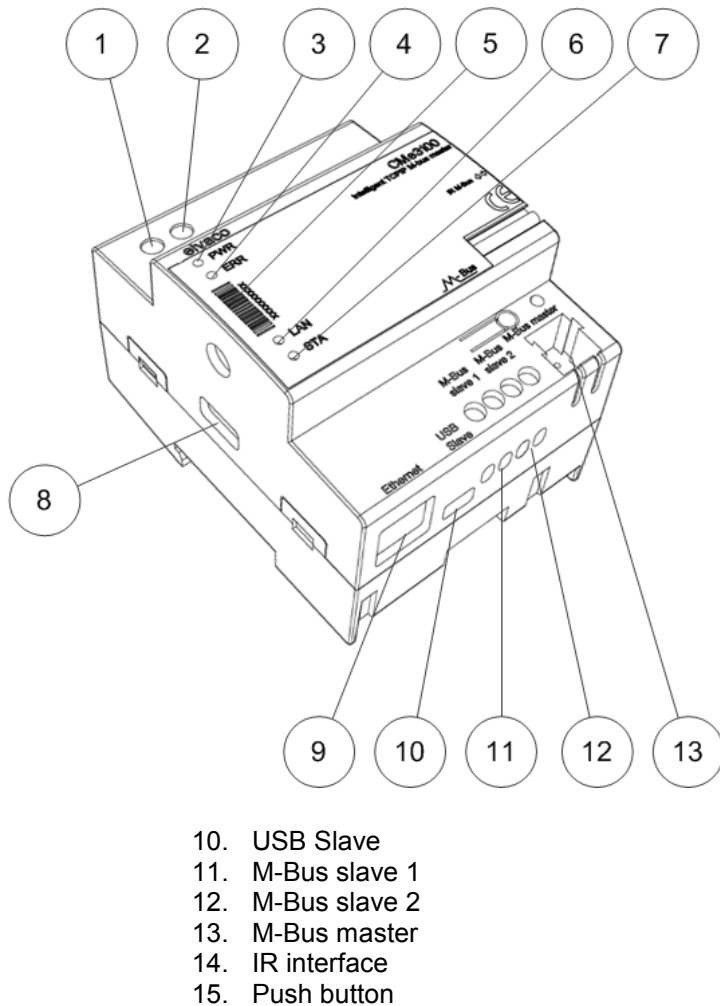
Elvaco offers box-build turnkey solutions, containing all necessary products preconfigured, directly from factory.

5 Getting started

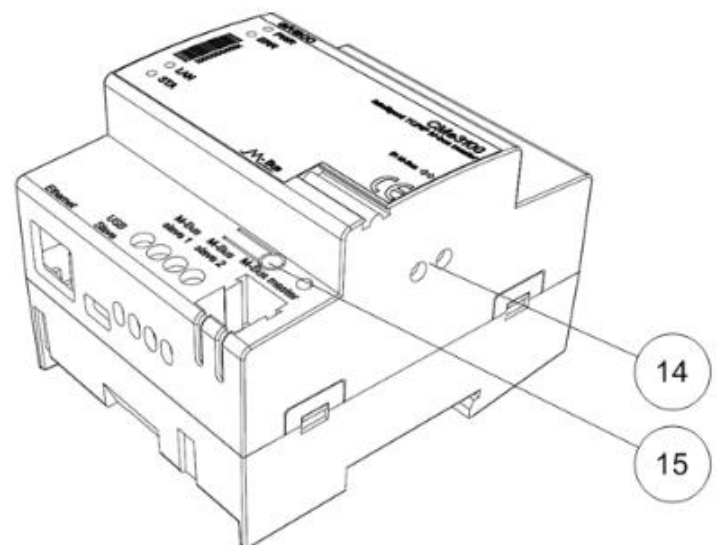
5.1 Purpose

This chapter provides instructions on how to get started with the CMe3100. After reading and carefully following each step of this chapter, the Metering Gateway will have started up, and you will have logged into its integrated web interface.

5.2 Product specification



1. Power supply L
2. Power supply N
3. Green LED
4. Red LED
5. Serial number
6. Yellow LED
7. Blue LED
8. USB Master
9. Ethernet connection



5.3 Mount the device

The CMe3100 is mounted on a DIN-rail. The metallic clip on the bottom is used to attach and detach the CMe3100. For safety reasons, a DIN-rail enclosure must cover the terminals.

5.4 Connect the device

5.4.1 Power supply

Screw terminal (1) and (2) are used to supply the device with power. The main supply voltage should be in the range of 100-240 VAC, with a frequency of 50/60Hz. The power needs to be connected by a clearly marked and easily accessible switch to make sure the device can be switched off during service work. On successful connection of power, the red LED and the green LED will begin to flash after undergoing a booting session of approximately 20 seconds.



The installation should be performed by a qualified electrician or another professional with the required knowledge.



The power supply must be protected with a 10 A circuit breaker of characteristics C or slow blow fuse.

5.4.2 M-Bus Master

The CMe3100 is equipped with an M-Bus master port (13), which is used to connect up to 32 slave devices (32 M-Bus loads, 48mA). If more than 32 slave devices need to be connected to the CMe3100, an M-Bus Master from Elvaco can be used to extend its limit. Use a cable with a cross sectional area of 0.25-1.5 mm², e.g. a standard telephone cable EKKX 2x2x0.5 may be used to connect the CMe3100 with its slave devices.



Do not exceed the maximum cable length of 1000 m.

5.4.3 M-Bus slave ports

CMe3100 is equipped with two M-Bus slave ports, which are used to share meter values with another M-Bus device, for example a DCS. Connect a cable of cross sectional area 0.25-1.5 mm² between the M-Bus device and port (11) or (12) of the CMe3100.

5.4.4 Ethernet

The CMe3100 is equipped with an Ethernet port to be able to connect to the local network. Use a cable of at least category 5e and connect it to the Ethernet port (9). On successful network connection, the yellow LED (6) will be permanently on or flashing, indicating active communication.

5.4.5 IR interface

The CMe3100 supports communication with all ABB electricity meters equipped with the IR interface as well as all products from the Elvaco CMeX series. To use the IR functionality, remove the shield (14) and mount the CMe3100 on the left side of, and right next to, the device it will communicate with.

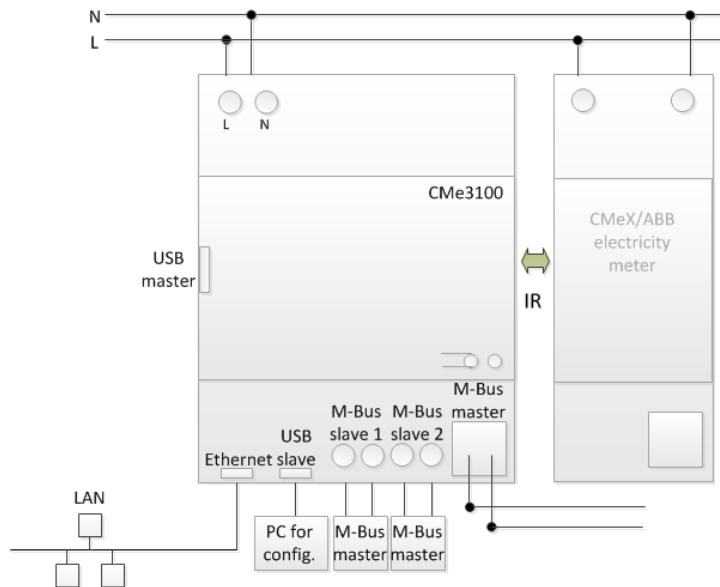


Do not remove the IR shield unless the IR interface is going to be used.

5.4.6 USB Port

The CMe3100 is equipped with a USB slave port (10) to make it able to connect to a computer and install the integrated web interface. By using the web interface, device and M-Bus settings are conveniently configured.

5.4.7 Wiring Diagram



5.5 Start up the device

5.5.1 Start-up

When connected to a power supply, the CMe3100 will undergo a boot-up for approximately 20 seconds. Thereafter, the green LED (3) and the red LED (4) will begin to flash and the device is ready to use.

5.5.2 Reset to factory default

In order to reset the product configurations to factory default, press and hold the push button (15) on power-up until the green and red LED lights flashes fast. Now release the button. The product configuration will be reset to factory default and the product will restart.

5.5.3 LED indications

The product is equipped with four LED lights. The green LED displays current operations, the red LED indicates error and the yellow LED displays the network status. Table 1-4 below provides an explanation of each LED indication.

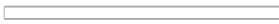



Green LED	Product state	Visual
Permanently off	No power or boot mode	
Short flashes	Normal operation	
50 percent on/50 percent off	Bootling in progress	
Permanently on	Software error indication	

Table 1: Green LED




Red LED	Product state	Visual
Permanently off	Normal operation	
50 percent on/50 percent off	Network problems or bootling in progress	
Permanently On	M-Bus master short circuit protection active	

Table 2: Red LED




Yellow LED	Product state	Visual
Permanently off	Network connection to Ethernet port is missing	
Short flashes	Ongoing communication on network	
Permanently on	Ethernet port connected to network	

Table 3: Yellow LED



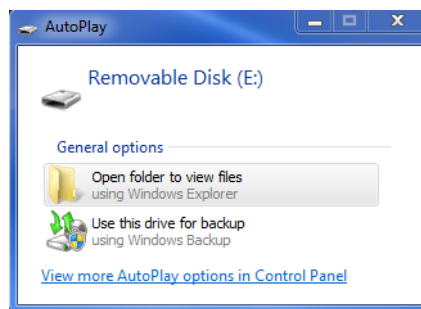
Blue LED	Product state	Visual
Permanently off	Power off for USB connector	
Permanently on	Power on for USB connector	

Table 4: Blue LED

5.6 Access the web interface

5.6.1 Log in on the web interface from a browser

The CMe3100 is configured through its web interface, which is easily reached via the local USB slave port (10). Connect the included USB cable between a computer and the Metering Gateway. After approximately 30 seconds, a new removable disk will be available on the computer. Open the folder on the removable disk, run the file CMe3100-SETUP.EXE and follow the instructions.



When the installation has completed, the web browser will open along with a login page. If the browser fails to do so, please enter the IP address for the device USB port manually. For software versions older than 1.6.0, the IP address 192.168.100.1 is used. For software version 1.6.0 or later, use the IP address 169.254.254.1.

Login using the following credentials:

Username: admin Password: admin

After logging in for the first time, a new password will have to be registered.



If the SETUP.EXE utility has already been run once on the computer, it will not have to be run again. The utility has installed a driver that creates a virtual TCP/IP connection on the computer which accesses the CMe3100 using the local IP address.

Links -

Change default admin password

Change default admin password

Password

Enter a new password of the user.

Confirm password

Confirm the new password of the user.

E-Mail

Address to send new generated password if the password is forgotten, if not configured it will be sent to Elvaco

Save

5.6.2 Change the default administrator password

Use a strong password with at least 8 characters consisting of both letters and numbers. The password is case sensitive. Make sure to write your credentials down, since the only way of resetting the password is through a factory reset of the product.

6 Operations guide

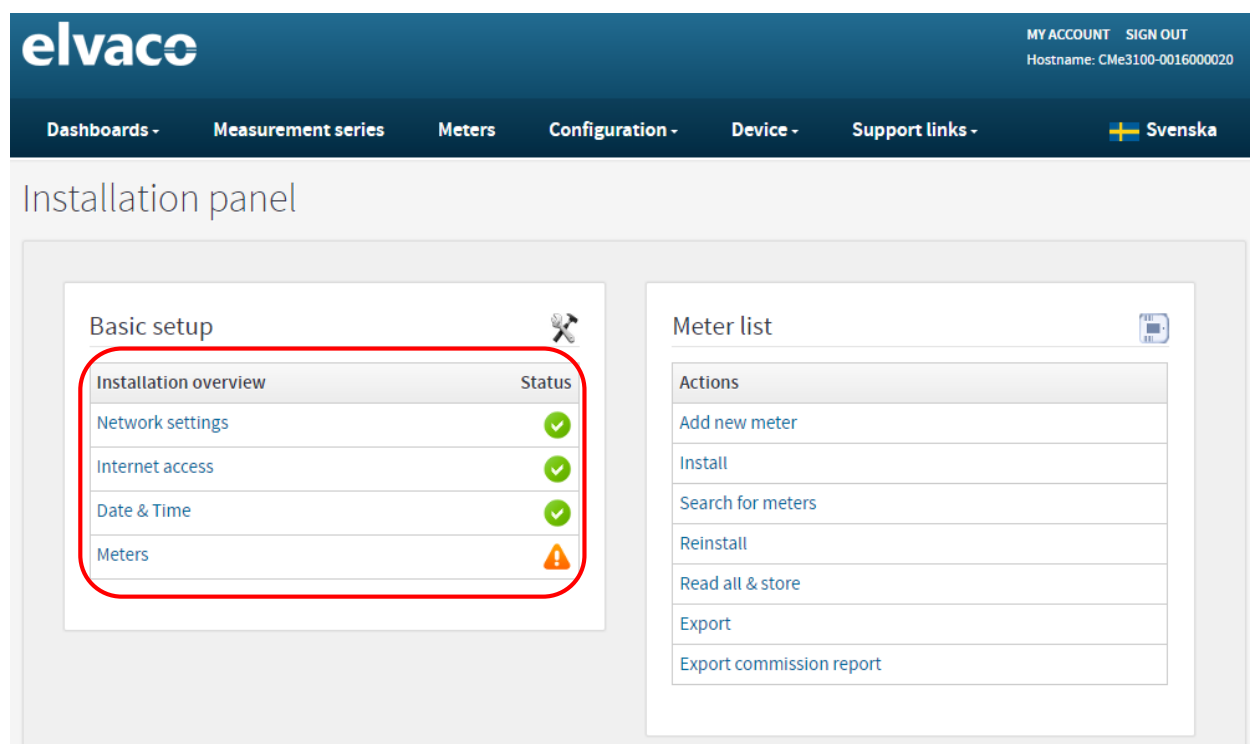
Basic operations

6.1 Purpose

This chapter provides instructions on how to use the web interface to configure the most basic settings of the CMe3100. After executing each step of this chapter, the Metering Gateway will perform scheduled readouts of its installed meters, and deliver customized reports with meter values. Please read through each step carefully.

6.2 Use the installation panel to perform basic setup

When first logging in on the web interface, the Installation panel will be presented. From this page, all parts of the basic setup process are easily accessible. To ensure correct operation of the product, time and network settings should be configured first.



6.3 Set the time

Purpose

In order for the device to operate accurately, it is important to set the correct time and make sure that the clock stays synchronized. This is done by synchronizing it with a time server at a fixed time interval and selecting the maximum accepted time difference the device's clock is allowed to have.

6.3.1 Configure time settings

To configure time settings:

- Go to **Date & Time** from the Basic setup window of the Installation panel. Enter the time and select the time zone.
- Set the Time synchronizing schedule and the Maximum accepted time difference.
- Select whether to use a Daytime or a Network Time Protocol (NTP) server and enter the address of the server. If using the NTP alternative, a server timeout value needs to be set. It determines for how long the Metering Gateway will wait for the NTP server to respond during

a time synchronization attempt before interrupting the action.

- Click **Save**.



The time synchronizing schedule that should be used depends on how tightly clocks need to be synchronized. Assuming that the maximum accepted time drift is in the order of one minute per month, utilizing a schedule of every 12th hour should assure that the product has less than one second's time difference ($31 \text{ days} * 24 \text{ hours} = 744 \text{ hours}$, $60 \text{ seconds} / 744 \text{ hours} * 12 \text{ hours} = 0,97 \text{ seconds}$). The default value will work well in most cases and allow for an ample timeout.

If the radio link between the product and the time server is of poor quality, the value might have to be increased until reliable operation is obtained. It's important to note that a poor quality radio link will negatively affect the performance of the time synchronization as it relies on low latency communication.



You may disable the use of time synchronization and manually enter time and date in the product if the long term accuracy is not a concern. However, be aware of:

- The product has a built in super capacitor to maintain time and date during e.g. a power outage but it will only last around 24 hours. After that the clock will no longer be running and time will be offset accordingly.
- The built in clock will drift over time, theoretical worst case is around the order of one minute per month but will most likely be smaller in practice and will vary due to temperature, tolerances and age of components.
- If you are using multiple products for collecting meter values, it is very strongly advised that you configure the products to use time synchronization to assure that measurements from different sources are aligned with regards to time and date.

Schedule

Every hour

Choose how often time will be synchronized.

Accepted time difference

60

Time will NOT be synchronized if the time difference is less than this value in seconds.

Synchronization protocols

☐ Use Daytime protocol

☒ Use NTP protocol

NTP server hostname or IP address

europe.pool.ntp.org

TCP port number

123

NTP server timeout

60

Timeout in seconds when attempting to synchronize time.

Save

6.4 Configure network settings

Purpose

Configuring the basic network settings will enable the Metering Gateway to connect to the local network. This is necessary to enable the Metering Gateway to connect to servers and deliver its collected meter data.

6.4.1 Configure IP address settings

There are two types of IP address assignment options available, the static and the dynamic option. Using a static IP address enables assignment of the IP address manually. It will thereafter stay constant over time. By instead using dynamic IP addressing, an available IP address is automatically assigned to the Metering Gateway through a DHCP server, which must be available on the local network.

To configure the IP address settings:

- Go to **Network settings** from the Basic setup window in the Installation panel.
- Select whether to use static or dynamic IP address assignment. If selecting the static option, enter IP-addresses and a netmask.
- Click **Save**.



It is highly recommended that you use dynamic IP-address assignment to avoid mistakenly duplicated IP-addresses and make IP-address administration as easy as possible. Please refer to your IT administrator for details and/or more information about what network settings to use.

☒ Dynamic (DHCP)
 ☐ Static

Select how the device obtains its network settings. Static settings that are manually configured or dynamic settings automatically provided by a DHCP server (recommended).

IP address

10.40.1.230

Netmask

255.255.255.0

Gateway

10.40.1.1

6.4.2 Change the hostname (optional)

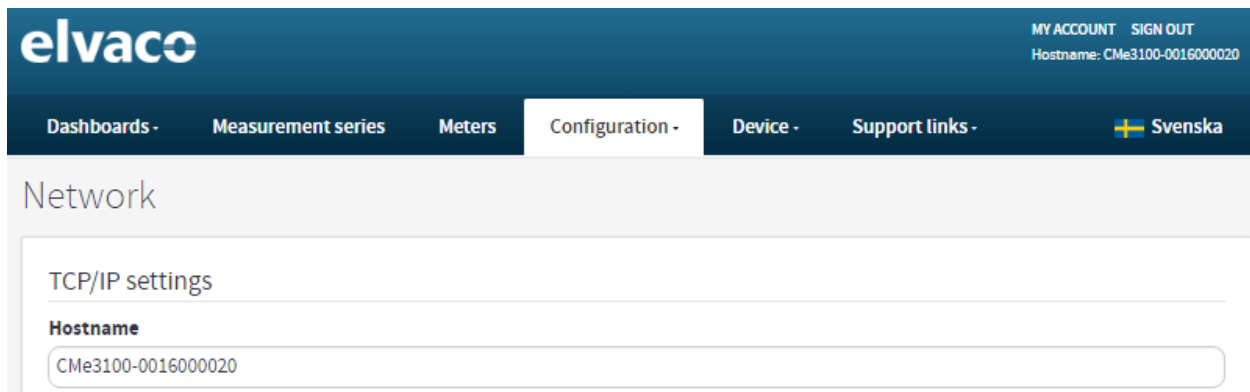
The hostname setting determines which name the Metering Gateway will use to identify itself on the network. If not changed, a default name based on the product name and serial number will be used, e.g. "cme3100-0016002383". The hostname is **ONLY** used for network addressing and should not be confused with the product's name, the latter is used to identify the product in e.g. Push Reports. For more information about how to configure the device name used in Push Reports, see section 6.34 ([Configure identity settings](#))

To change the hostname of the device:

- Go to **Network settings** from the Basic setup window in the Installation panel.
- Enter the name that will be assigned the Metering Gateway.
- Click **Save**.



Your DHCP server must have enabled support for dynamic DNS update in order to support resolution of the hostname to an IP-address. Please refer to your IT administrator for details and/or more information about what features that are supported.



6.4.3 Set the Domain Name Server

The Domain Name Server (DNS) is used to find and retrieve information about the IP address corresponding to a certain domain name. The DNS is added manually when using static IP assignment. If using the dynamic IP address option, DNS settings will be assigned automatically upon connection to the network.

To set a Domain Name Server (DNS):

- Go to **Network settings** from the Basic setup window in the Installation panel.
- Add the IP address of a DNS server and search domain manually or check the Obtain from DHCP box to automatically obtain the address when the Metering Gateway connects to the local network.
- Click **Save**.

☒ Obtain from DHCP

If using DHCP setting, uncheck to override and manually specify search domain and DNS server addresses.

Search domain

Domain name is added as a suffix to hostnames that are specified without domain (e.g. example.com).

Primary DNS server

Secondary DNS server

6.5 Install meters

Purpose


The Meter List contains information about all meters that the device should read, and needs to be uploaded to the web interface before meters can be installed. Figure 4 illustrated what the template of such a Meter List looks like and Table 5 explains what should be added to each field. The Meter List template is available for download directly from the web interface under **Meters > Install**.

If not aware of the addresses of the meters, it is possible to perform an automatic search and installation of meters without uploading a Meter List. However, this also means that you will have to verify that the “right” meters have been installed after the installation has completed.


When the installation has completed, all installed meters will be displayed in the Meter List of the web interface, under **Meters > Meter List**. A Commission Report should always be downloaded after the installation to help assure it was successful.



Make sure that your licence matches the number of meters included in the Meter List. If you try to install more meters than your licence supports, some will be marked as “passive”. By going to **Meters > Meter List** and check **Show passive meters**, passive meters will be displayed.



MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016000020

Dashboards - Measurement series **Meters** Configuration - Device - Support links -  Svenska

Meter list - Install

Update list from import file

Select file to import

Välj fil Ingen fil har valts

Meter information in a semicolon-separated format (CSV) or Excel (Excel 97 - 2003) [Download example file](#)

	A	B	C	D	E	F
1	Position	SecondaryAddress	BaudRate	AddressingMode	PrimaryAddress	EnhancedAddress
2						
3						
4						
5						
6						
7						
8						
9						
10						

Figure 4: Template of Meter List

Column	Explanation
Position	The position represents the name that will be used to identify the meter in the Meter List of the web interface. It may be arbitrarily chosen, but it is recommended to assign the field a name that relates to the meter's function, e.g. its position in the metering system.
SecondaryAddress	The secondary address is set by the manufacturer and is printed on the meter. This address is unique for each device and expressed as an 8-digit number.
BaudRate	The Baud rate determines the speed of communication between the Metering Gateway and the meters. Set the field to “300” or “2400” (bit/s), but make sure that all meters support the baud rate selected.
AddressingMode	The addressing mode sets the way meters are addressed by the Metering Gateway. There are three options: the primary and the secondary addressing mode used for Wired M-Bus and the enhanced secondary addressing mode used for Wireless M-Bus. Set this field to “primary”, “secondary” or “esecondary”.
PrimaryAddress (optional)	The primary address is assigned to the meter by the user as a number between 0 and 255. The column is optional to fill out. However, if using primary addressing mode, it will have to be included.
EnhancedAddress (optional)	The enhanced address is only used when communication with the meters are held through a Wireless M-Bus Receiver. Nothing needs to be added to this column.

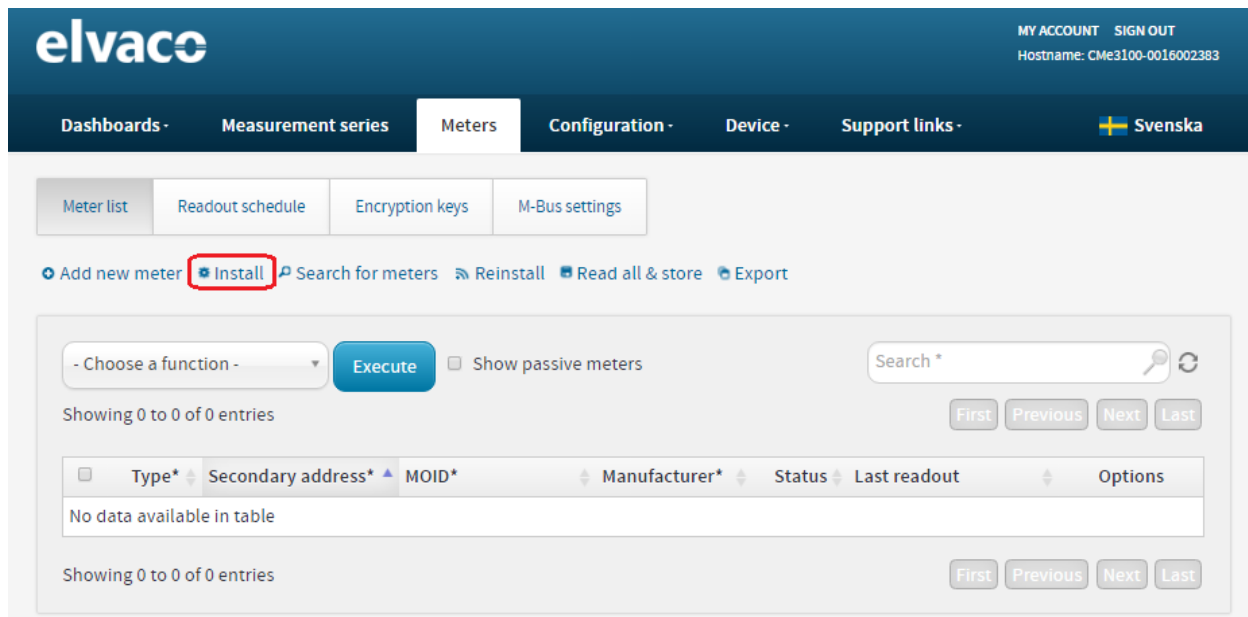
Table 5: Meter List fields

6.5.1 Create and install a list of Wired M-Bus meters

When using Wired M-Bus, each meter is addressed using either its primary or secondary address. It is recommended to use the secondary addressing mode, since this will assure that each meter is addressed in a unique way.

To create and install a Meter List of Wired M-Bus meters:

- Go to **Meters > Install**.
- Select a Meter List, structured as comma-separated values (CSV format) to upload. The Meter List can be created in Excel and saved as a CSV file. Figure 5 illustrates what a Meter List might look like. The template can be downloaded from the web interface.
- Click **Install** to upload the Meter List to the web interface, and install the included meters.



The screenshot shows the Elvaco web interface. At the top, there's a navigation bar with 'elvaco' logo, 'MY ACCOUNT', 'SIGN OUT', and 'Hostname: CMe3100-0016002383'. Below this is a menu bar with 'Dashboards', 'Measurement series', 'Meters', 'Configuration', 'Device', and 'Support links'. The 'Meters' tab is active. Under 'Meters', there are sub-tabs: 'Meter list', 'Readout schedule', 'Encryption keys', and 'M-Bus settings'. The 'Meter list' sub-tab is selected. Below the sub-tabs, there's a toolbar with 'Add new meter', 'Install' (highlighted with a red box), 'Search for meters', 'Reinstall', 'Read all & store', and 'Export'. Below the toolbar, there's a section for 'Execute' with a dropdown menu, a search bar, and a table of meter entries. The table is currently empty, showing 'No data available in table'.

	A	B	C	D	E	F
1	Position	SecondaryAddress	BaudRate	AddressingMode	PrimaryAddress	EnhancedAddress
2	Cafeteria	13001651	2400	Secondary		
3	Sales office	14290591	2400	Primary	221	
4	Reception	67690871	2400	Secondary		

Figure 5: Example file of wired Meter List

6.5.2 Create and install a list of Wireless M-Bus meters

When using Wireless M-Bus, the Metering Gateway communicates with meters through one or several Wireless M-Bus Receivers. Each Elvaco Wireless M-Bus Receiver will assign itself with an enhanced address and by combining it with the secondary address of the meter, the communication chain is specified. The Metering Gateway will automatically communicate with each meter through the Wireless M-Bus Receiver that has established the best connection.

To create and install a list of Wireless M-Bus meters:

- Go to **Meters > Install**.
- Select a Meter List, structured as comma-separated values (CSV format) to upload. The Meter List can be created in Excel and saved as a CSV file. Figure 6 illustrates how a Meter List for wireless meters might look. The template can be downloaded from the web interface.

- Click **Install** to upload the Meter List to the web interface, and install the included meters.

	A	B	C	D	E	F
1	Position	SecondaryAddress	BaudRate	AddressingMode	PrimaryAddress	EnhancedAddress
2	Cafeteria	61007338	2400	secondary		
3	Sales office	63000040	2400	secondary		
4	Reception	74109179	2400	secondary		

Figure 6: Example file of wireless Meter List

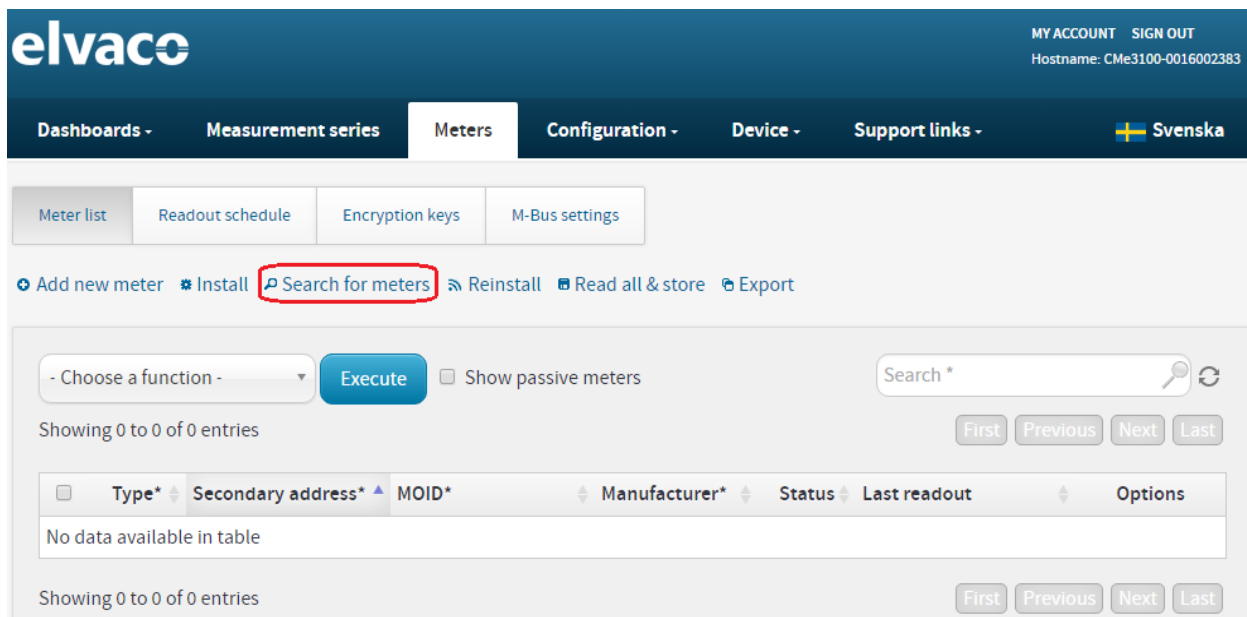


If conditions have changed since the last installation, for example if a meter has been moved, another Wireless M-Bus Receiver might be able to establish a clearer connection with that meter. By performing a reinstallation, communication will then be held through that Wireless M-Bus Receiver instead. To perform a reinstallation, go to **Meters > Reinstall > Reinstall**.

6.5.3 Install meters through a meter search

To perform an automatic meter search:

- Go to **Meters > Meter List > Search for meters**.
- Select what type of addressing mode that will be used in the meter search and installation (wireless, secondary or primary).
- The installation process will start automatically when the search has been completed and might take up to 20 minutes to complete.



6.6 Download a Commission Report of installed meters

Purpose

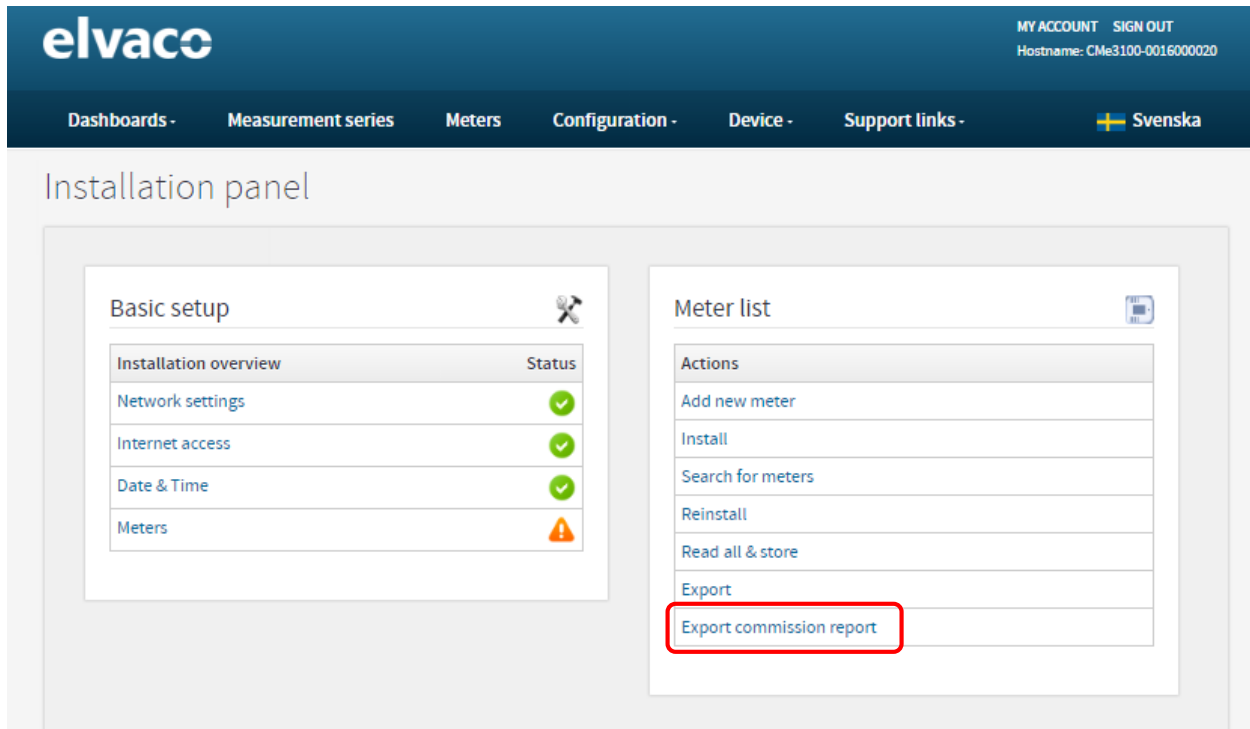
After installing the meters, a Commission Report should always be downloaded. This report contains information about the settings of all installed meters, and will help ensure that the installation was successful.

6.6.1 Download a Commission Report

To download a Commission Report:

- Click **Export commission report** in the Meter List window of the Installation panel. A download of the document will start.

- Open the downloaded document.
- There are four different tabs in the Commission Report. The first one provides an overview of the Metering Gateway settings, the second tab contains an overview of installed slave devices, the third tab displays the latest readout of each installed meter and the fourth tab provides an overview of what slave devices that have Modbus enabled.



6.7 Schedule meter readouts

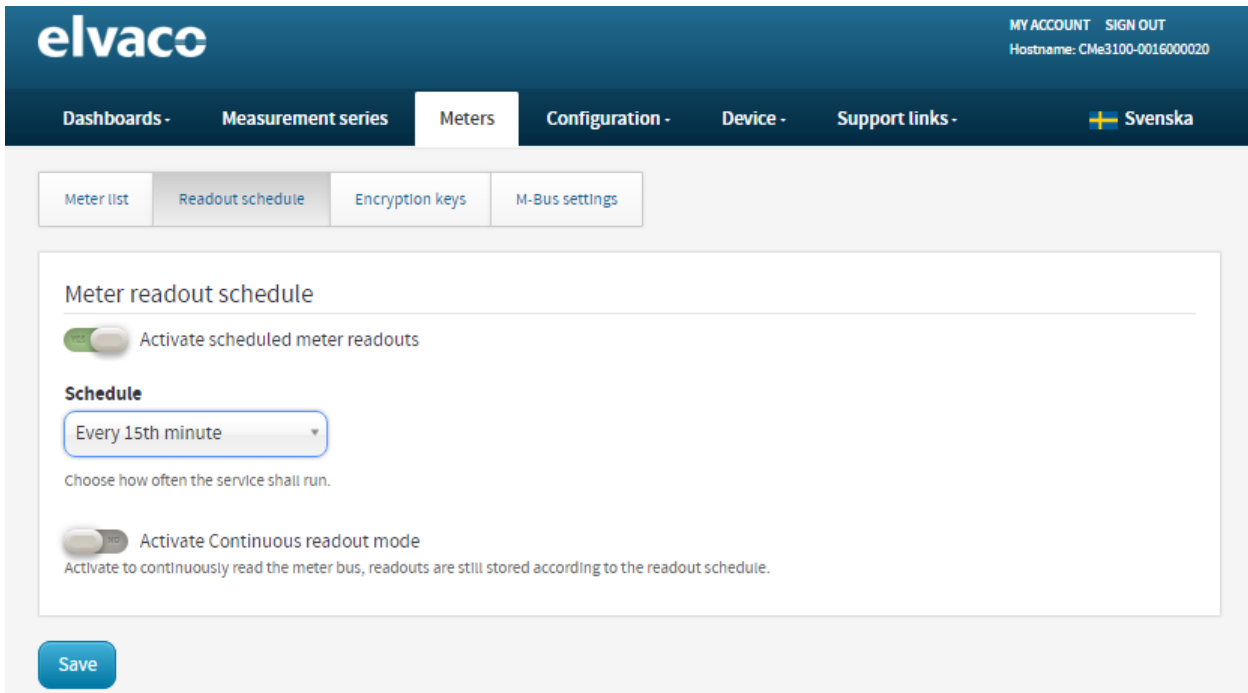
Purpose

When all meters have been installed, a readout schedule can be set. It will determine the time interval by which the Metering Gateway will perform readouts of the meters in its Meter List.

6.7.1 Activate and set the meter readout schedule

To activate and set the meter readout schedule:

- Go to **Meters > Readout schedule** and activate Scheduled meter readouts.
- Set a Meter readout schedule. By for example setting "Every 15th minute", a readout of all meters in the Meter List will be performed every 15th minute.
- Click **Save**.



6.8 Configure Push Report Default settings

Purpose

When all meters have been installed and the readout schedule has been set, Push Reports can be enabled. The Push Reports structure the data from the meter readouts by a chosen template, and are delivered by a set schedule and protocol.

The Push Reports can be delivered by e-mail (SMTP), as a downloadable file (FTP) or uploaded to a server running a HTTP web service. The first step is to set the default recipient option for the alternatives that will be used. All activated Push Reports will be sent to the default recipient if not overridden in the settings of an individual Push Report.


6.8.1 Configure e-mail Push Report default settings

To configure the e-mail Push Report default settings:

- Go to **Configuration > Push Reports > E-mail settings**.
- Set the address to a valid e-mail server.
- Add credentials used to access the e-mail server.
- Set the e-mail addresses of the default e-mail Push Report recipients.
- Click **Save**.

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MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016002383

Dashboards - Measurement series Meters Configuration - Device - Support links -  Svenska

Push Reports

Push Reports E-mail settings FTP settings HTTP settings

Default SMTP server settings - report receiver

Server address

Port

Hostname or IP address

Username

Password

E-mail addresses

From

Sender's e-mail address. Leave empty to use Elvac.
Enter a new Product name to change default senders e-mail address.

To:

Recipient's e-mail address. Use a comma to separate addresses.

CC:

Copy recipient's e-mail address. Use a comma to separate addresses.

BCC:

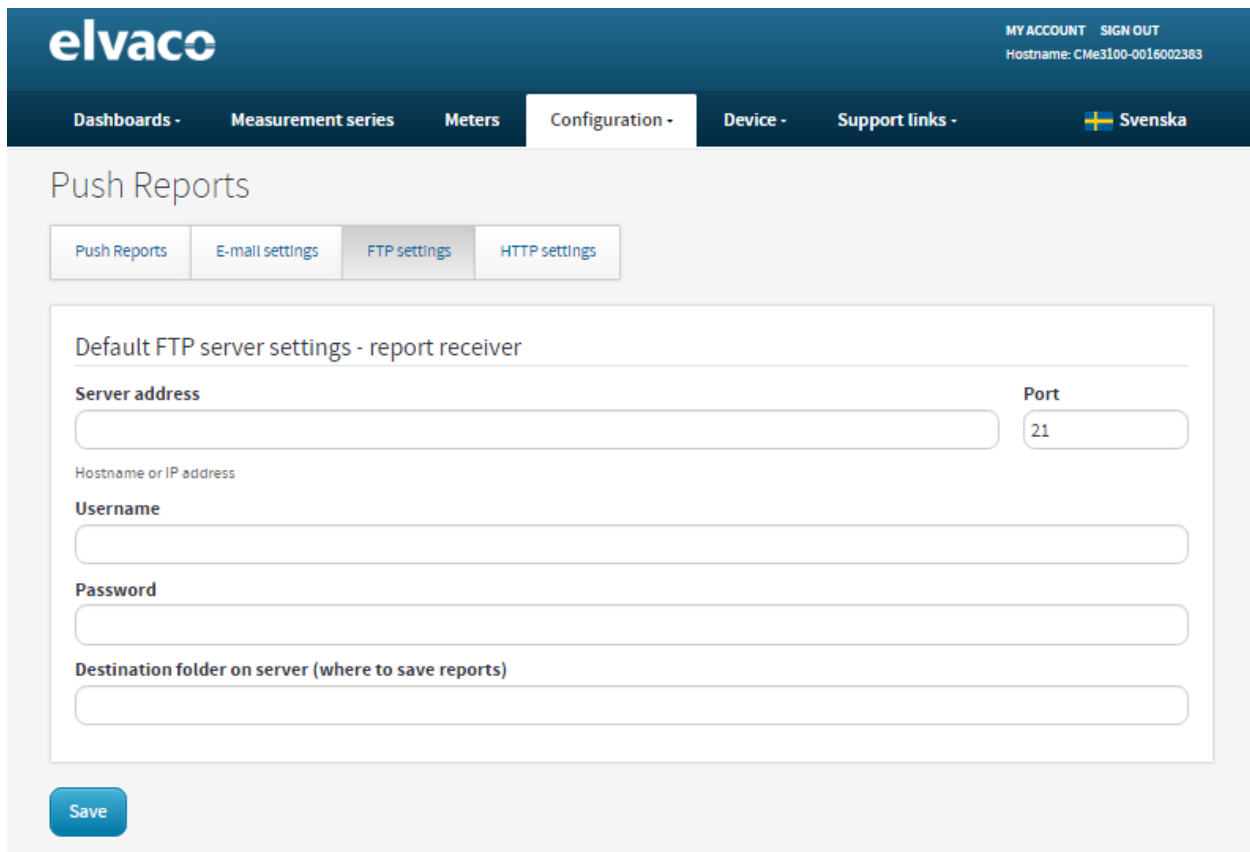
Hidden recipient's e-mail address. Use comma to separate addresses.

Save Save & Send test report

6.8.2 Configure FTP Push Report default settings

To configure the FTP Push Report default settings:

- Go to **Configuration > Push Reports > FTP settings**.
- Set the address to a valid FTP server.
- Add credentials for the CMe3100 to access the FTP server.
- Click **Save**.



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MY ACCOUNT SIGN OUT
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Push Reports

Push Reports E-mail settings FTP settings HTTP settings

Default FTP server settings - report receiver

Server address Port

Hostname or IP address 21

Username

Password


Destination folder on server (where to save reports)

Save

6.8.3 Configure HTTP Push Report default settings

To configure the HTTP Push Report default settings:

- Go to **Configuration > Push Reports > HTTP settings**.
- Add a URL to a valid HTTP server where the Push Reports will be received.
- Set the Authentication mode (basic or none). If using the basic mode, add credentials for the CMe3100 to access the HTTP server.
- Click **Save**.



[MY ACCOUNT](#)
[SIGN OUT](#)

Hostname: CMe3100-0016000148-DEMO

[Dashboards -](#)
[Measurement series](#)
[Meters](#)
[Configuration -](#)
[Device -](#)
[Support links -](#)
[Svenska](#)

Push Reports

[Push Reports](#)
[E-mail settings](#)
[FTP settings](#)
[HTTP settings](#)

Default HTTP server settings - report receiver

URL

Authentication mode

Basic

Username

Password

[Save](#)

6.9 Schedule Push Reports and Event Reports

Purpose

After the Push Report default settings have been made, individual reports can be configured. By going to **Configuration > Push Report**, an overview of all available reports and their current status is provided. There are two different types of reports available, Push Reports and Event Reports. The difference between the two is explained in Table 6.

By default, the Metering Gateway supports three different types of report delivery protocols: HTTP, FTP and e-mail. Each delivery protocol has a number of predefined report templates available. Report template numbers always start with "1" for e-mail, a "2" for FTP and a "3" for HTTP. For example, selecting the e-mail report template 1101 (2101 for FTP, 3101 for HTTP) will structure all meter values in one single post while template 1112 (2112 for FTP, 3112 for HTTP) will deliver the meter values in an Excel file.



To learn more about the different templates available, please visit <http://www.elvaco.com/en/products/cme-series/cme3100> and go to **Downloads**.

Type of report	Explanation
Push Report	Push Reports are used to deliver meter values by a set time interval, structured according to a selected template.
Event Report	The Event Report is triggered by a certain event taking place in the Metering Gateway. A schedule does therefore not have to be set for this type of report.

Table 6: Type of reports

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MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016000148-DEMO

Dashboards · Measurement series Meters Configuration · Device · Support links · Svenska

Push Reports

Push Reports E-mail settings FTP settings HTTP settings

Scheduled reports	Enabled
Report 1	<input checked="" type="checkbox"/>
sending email report 1107 to cv@elvaco.se	
Report 2	<input checked="" type="checkbox"/>
sending email report 1111 to unknown	
Report 3	<input type="checkbox"/>
Report is disabled	
Report 4	<input type="checkbox"/>
Report is disabled	
Report 5	<input type="checkbox"/>
Report is disabled	

Event reports	Enabled
Boot-up report	<input type="checkbox"/>
Report is disabled	
Installation report	<input type="checkbox"/>
Report is disabled	
On demand report	<input checked="" type="checkbox"/>
Sending email report 1101 to Ts@elvaco.se	

6.9.1 Enable and configure Push Reports

To configure Push Reports:

- Go to **Configuration > Push Report** and click on an arbitrary Push Report.
- Set what type of report to use (e-mail, FTP or HTTP) and the desired template.
- Set the Report schedule, preferably by using one of the preset options available. It will determine the time interval by which the Push Report will be sent
- Set the Value Period to “Auto” to ensure that all new meter values that have failed to be transmitted will be included in the next successful Push Report, thus also providing an automatic recovery mechanism.
- Set the Value Interval to “All Values” to include all available meter readouts in the Push Reports (as defined by the readout schedule).
- Add recipients of the report. If no recipient is added, the default option will be used.
- Click **Save**. By clicking **Save & Send test report** or **Save & Download test report** you will receive a copy of the Push Report, structured according to the template you have selected. In this way, you may test different templates to find the one you wish to use.




For the advanced user it is possible to customize the Push Report schedule using cron patterns. However, this will also remove the automatic synchronization between readout cycles and report sending, and might result in Push Reports being sent before a readout cycle has finished.

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[MY ACCOUNT](#)
[SIGN OUT](#)

Hostname: CMe3100-0016000020

[Dashboards -](#)
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[Meters](#)
[Configuration -](#)
[Device -](#)
[Support links -](#)

 Svenska

Push Reports - Report 5

Report type

Email

Report template

1112 Email value report ...

Report schedule

Every hour

Choose how often the service shall run.

Meter readout schedule

Every hour

Current setting in Meters > Readout schedule.

Report content

Value period

- Auto -

Choose which values to include in the report based on how long ago they were stored compared to when the report is sent. For example, using settings "1 Day(s)" include all values stored within 1 day from when each report is sent.

Value interval

All values

Choose "All values" to include all available values (defined by readout schedule) or choose a higher setting to create a sparse value report with a longer time between reported values.

Report receiver

☐ Send report to default e-mail address
 Uncheck to override settings for default recipients.

To:

anton.larsson@elvaco.se

Recipient's e-mail address. Use a comma to separate addresses.

CC:

Copy recipient's e-mail address. Use a comma to separate addresses.

BCC:

Hidden recipient's e-mail address. Use comma to separate addresses.

Save

Save & Send test report


Save & Download test report

Cancel


6.9.2 Enable and configure Event Reports

To enable and configure Event Reports:

- Go to **Configuration > Push Reports** and select one of the Event Reports by clicking on it.
- Set what type of report to use (e-mail, FTP or HTTP) and the desired template.
- Add receivers of the report. If no receiver is added, the default receiver option will be used.
- Click **Save**.



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Dashboards - Measurement series Meters Configuration - Device - Support links -  Svenska

Push Reports - Boot-up report

☒ Send e-mail report when system has completed a boot-up.
Report template
1005 (Email event repor...
☒ Send report to default e-mail address
Uncheck to override settings for default recipients.
E-mail sender

E-mail to use as from address. Leave empty to use CMe3100-0016000020@elvaco.se.

To:

Recipient's e-mail address. Use a comma to separate addresses.

CC:

Copy recipient's e-mail address. Use a comma to separate addresses.

BCC:

Hidden recipient's e-mail address. Use comma to separate addresses.

☐ Send FTP report when system has completed a boot-up.

☐ Send HTTP report when system has completed a boot-up.

Save Cancel

Common operations

6.10 Purpose

At this point you should have gotten started with your CMe3100, and are receiving recurrent Push Reports with meter values. This chapter will present some common features, which will help you enhance the operation of your Metering Gateway even further.

6.11 Create a configuration file

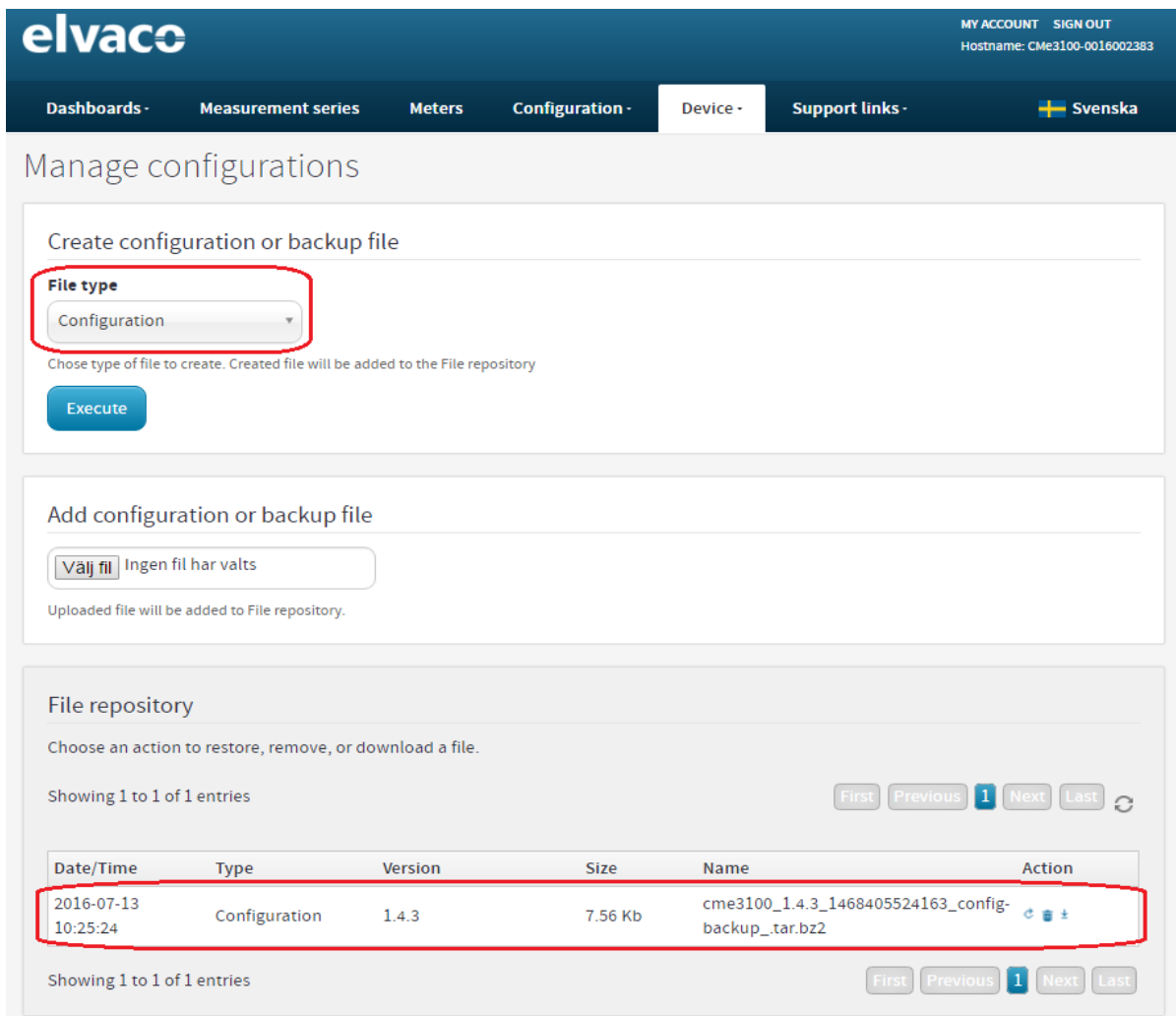
Purpose

A configuration file contains all *none device specific* settings such as readout schedule and Push Report configurations (but excludes IP address, etc.). By using a configuration file, settings may be restored on an individual device or duplicated to a number of devices without having to go through all steps manually. Therefore, a configuration file should always be saved before performing an update to be able to restore the settings of the Metering Gateway if something should go wrong.

6.11.1 Save device specific settings in a configuration file

To save device specific settings in a configuration file:

- Go to **Device > Manage configurations**.
- Select "Configuration" as File type and click **Execute**.
- When the configuration file has been created, it will be displayed in, and can be downloaded from, the File repository.



elvaco MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016002383

Dashboards - Measurement series Meters Configuration - **Device -** Support links - Svenska

Manage configurations

Create configuration or backup file

File type
Configuration

Chose type of file to create. Created file will be added to the File repository

Execute

Add configuration or backup file




Välj fil Ingen fil har valts

Uploaded file will be added to File repository.

File repository

Choose an action to restore, remove, or download a file.

Showing 1 to 1 of 1 entries

Date/Time	Type	Version	Size	Name	Action
2016-07-13 10:25:24	Configuration	1.4.3	7.56 Kb	cme3100_1.4.3_1468405524163_config-backup_.tar.bz2	  

Showing 1 to 1 of 1 entries

6.12 Create a backup file

Purpose

A backup file contains all meter values stored by the Metering Gateway and all settings including *device specific settings*. By using a backup file, the settings and stored data of a device may be completely restored and is suitable for restoring a device if the hardware is replaced. However, it should not be used to duplicate settings into different devices as it contains device specific settings such as IP address.

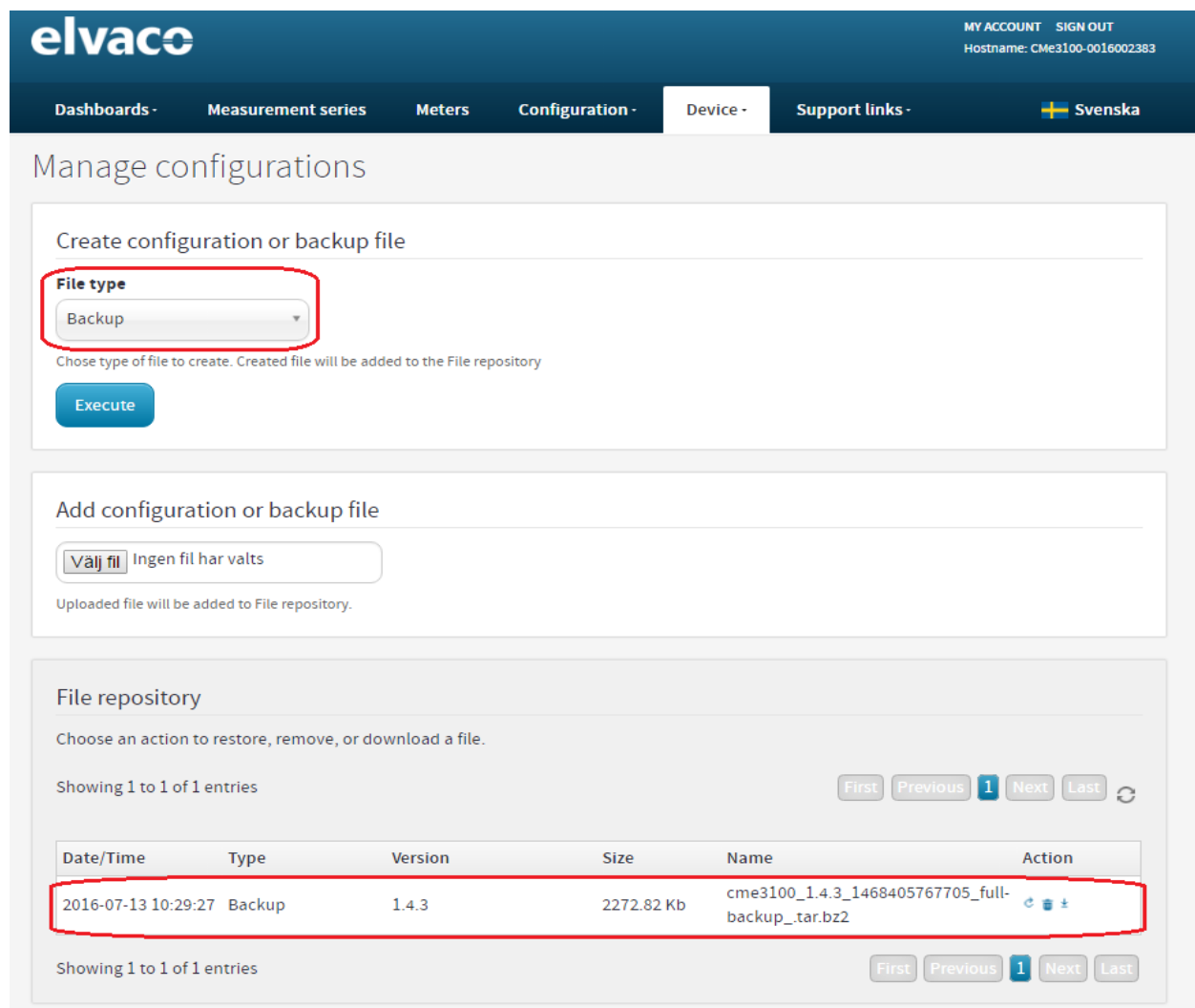


Back-up files can take a long time to create and restore settings and data from. They also consume a lot of storage space. It is therefore not recommended to keep more than one backup file in the device's repository at a given time. You may however of course choose to download backup files and keep them safe using another media.

6.12.1 Save meter values and device specific settings in a backup file

To save meter values and device specific settings in a backup file:

- Go to **Device > Manage configurations**.
- Change File type to "Backup" and click **Execute**.
- When the backup file has been created, it will be displayed in, and can be downloaded from, the File repository.



elvaco MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016002383

Dashboards - Measurement series Meters Configuration - **Device -** Support links - Svenska

Manage configurations

Create configuration or backup file

File type
Backup

Chose type of file to create. Created file will be added to the File repository

Execute

Add configuration or backup file

Valj fil Ingen fil har valts




Uploaded file will be added to File repository.

File repository

Choose an action to restore, remove, or download a file.

Showing 1 to 1 of 1 entries

First Previous 1 Next Last

Date/Time	Type	Version	Size	Name	Action
2016-07-13 10:29:27	Backup	1.4.3	2272.82 Kb	cme3100_1.4.3_1468405767705_full-backup_tar.bz2	  

Showing 1 to 1 of 1 entries

First Previous 1 Next Last

6.13 Check device and meter settings

Purpose

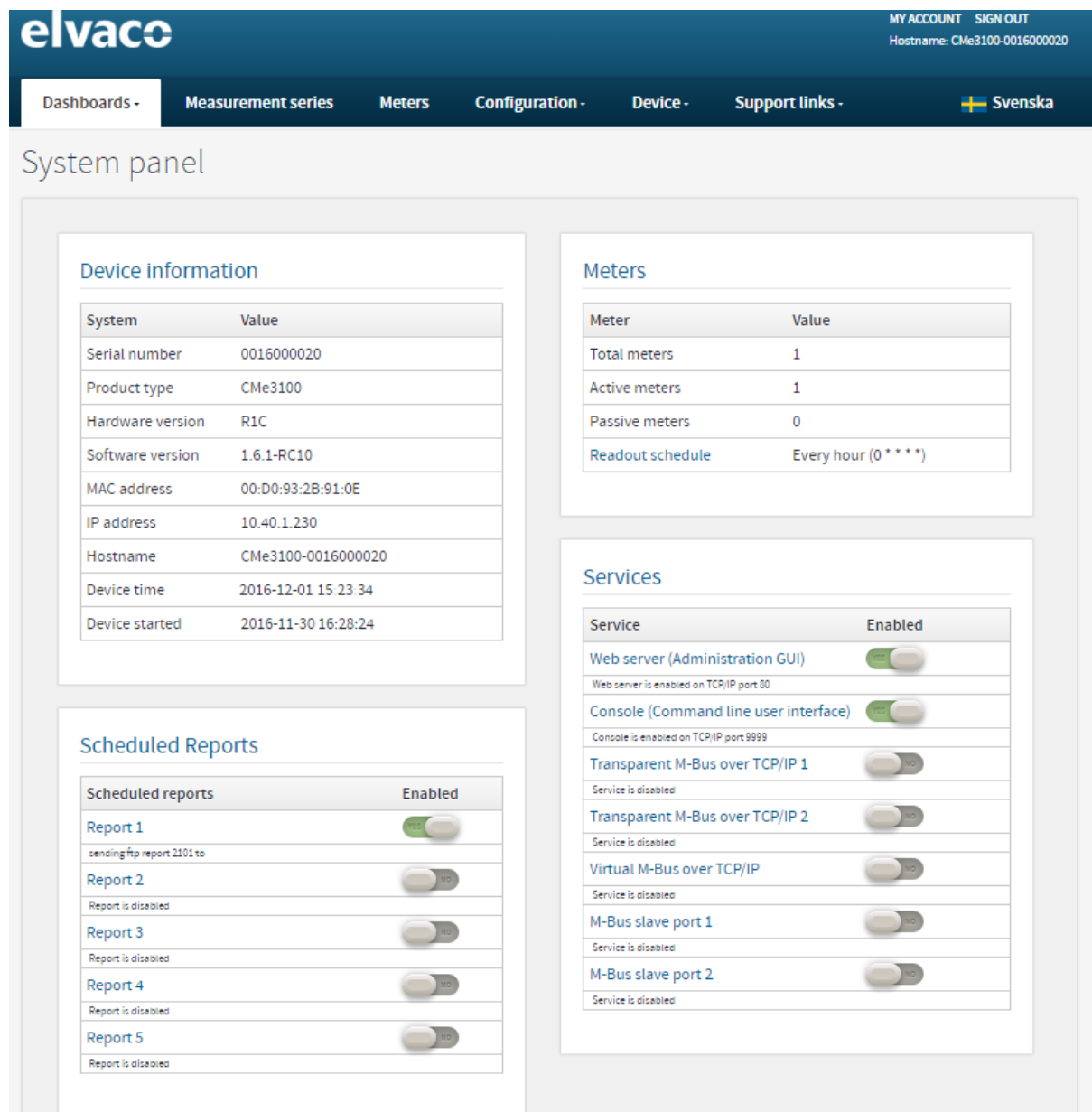
There are several different ways to use the web interface to check the current settings of the Metering Gateway and its installed meters. As three main sources you may use:

- The System Panel, which contain information about the Metering Gateway, active/passive meters and scheduled reports and services.
- The device overview, which displays device specific settings and scheduled tasks.
- The meter settings document, which contain addressing modes, baud rates and addresses.

6.13.1 Check status through the System Panel

To check status through the System Panel:

- Go to **Dashboards > System Panel**.
- The System Panel will display device information, scheduled reports, enabled services and information about installed meters.



The screenshot shows the elvaco web interface. The top navigation bar includes 'MY ACCOUNT', 'SIGN OUT', and 'Hostname: CMe3100-0016000020'. The main menu has 'Dashboards -', 'Measurement series', 'Meters', 'Configuration -', 'Device -', 'Support links -', and a language selector 'Svenska'.

The 'System panel' section contains four main panels:

- Device information:** A table with system details.

System	Value
Serial number	0016000020
Product type	CMe3100
Hardware version	R1C
Software version	1.6.1-RC10
MAC address	00:D0:93:2B:91:0E
IP address	10.40.1.230
Hostname	CMe3100-0016000020
Device time	2016-12-01 15:23:34
Device started	2016-11-30 16:28:24
- Meters:** A table showing meter status.

Meter	Value
Total meters	1
Active meters	1
Passive meters	0
Readout schedule	Every hour (0 * * * *)
- Scheduled Reports:** A table with report status and toggle switches.

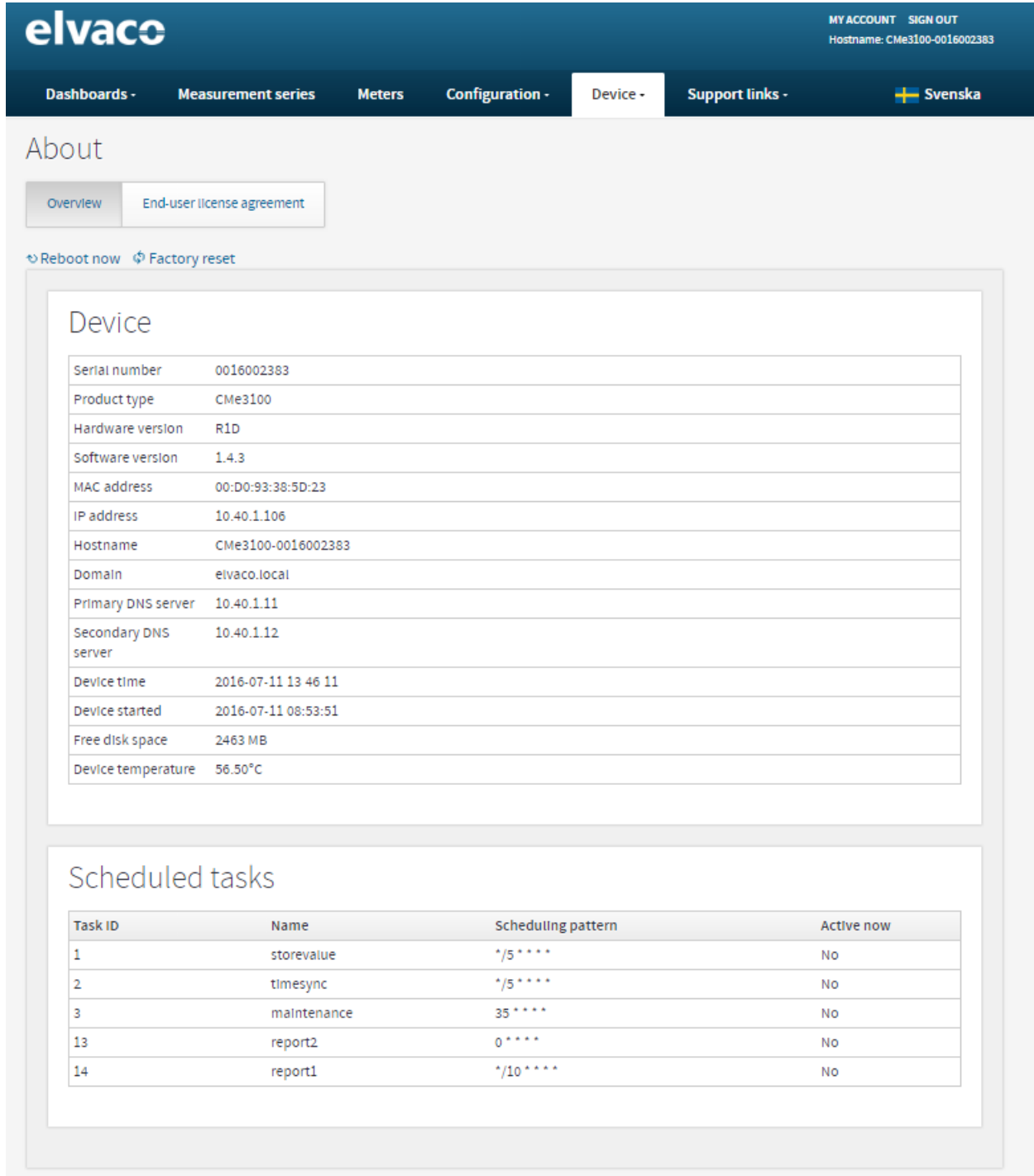
Scheduled reports	Enabled
Report 1 sending fip report 2101 to	<input checked="" type="checkbox"/>
Report 2 Report is disabled	<input type="checkbox"/>
Report 3 Report is disabled	<input type="checkbox"/>
Report 4 Report is disabled	<input type="checkbox"/>
Report 5 Report is disabled	<input type="checkbox"/>
- Services:** A table with service status and toggle switches.

Service	Enabled
Web server (Administration GUI) Web server is enabled on TCP/IP port 80	<input checked="" type="checkbox"/>
Console (Command line user interface) Console is enabled on TCP/IP port 9999	<input checked="" type="checkbox"/>
Transparent M-Bus over TCP/IP 1 Service is disabled	<input type="checkbox"/>
Transparent M-Bus over TCP/IP 2 Service is disabled	<input type="checkbox"/>
Virtual M-Bus over TCP/IP Service is disabled	<input type="checkbox"/>
M-Bus slave port 1 Service is disabled	<input type="checkbox"/>
M-Bus slave port 2 Service is disabled	<input type="checkbox"/>

6.13.2 Check the device overview

To check the device overview:

- Go to **Device > About**.
- The device overview will display Metering Gateway information and scheduled tasks.



elvaco MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016002383

Dashboards - Measurement series Meters Configuration - **Device -** Support links - Svenska

About

Overview End-user license agreement

↻ Reboot now ⚙ Factory reset

Device

Serial number	0016002383
Product type	CMe3100
Hardware version	R1D
Software version	1.4.3
MAC address	00:D0:93:38:5D:23
IP address	10.40.1.106
Hostname	CMe3100-0016002383
Domain	elvaco.local
Primary DNS server	10.40.1.11
Secondary DNS server	10.40.1.12
Device time	2016-07-11 13:46:11
Device started	2016-07-11 08:53:51
Free disk space	2463 MB
Device temperature	56.50°C

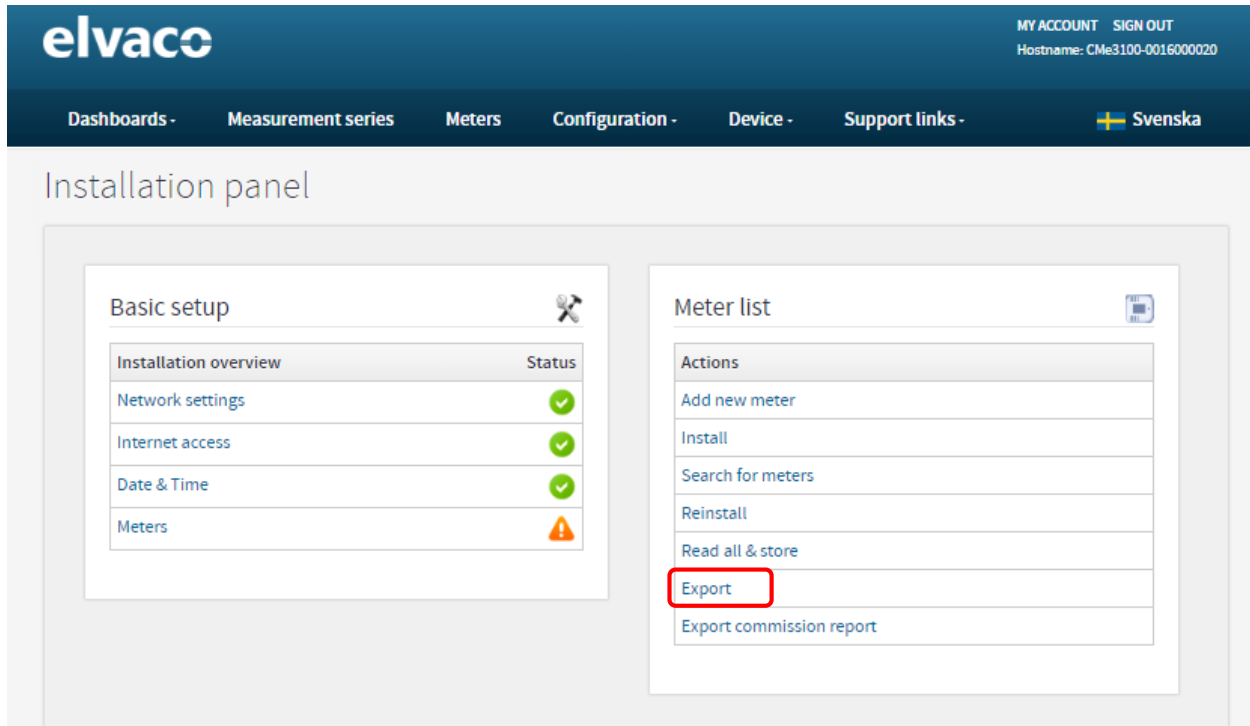
Scheduled tasks

Task ID	Name	Scheduling pattern	Active now
1	storevalue	* / 5 * * * *	No
2	timesync	* / 5 * * * *	No
3	maintenance	35 * * * *	No
13	report2	0 * * * *	No
14	report1	* / 10 * * * *	No

6.13.3 Download a meter settings report

To download a meter settings report:

- Go to the Meter List window in the Installation panel.
- Click **Export**.
- Open the document. It contains information about the addressing mode, baud rate and address of all installed meters.



6.14 Check operational status of the system

Purpose

All information about different system events is logged and stored in the System Log. For each log entry, a severity type icon (error, warning or information), timestamp and plain text explanation is shown. This makes it a good tool for investigating operational status of the system and pin-pointing errors in the metering process.

6.14.1 Filter the System Log

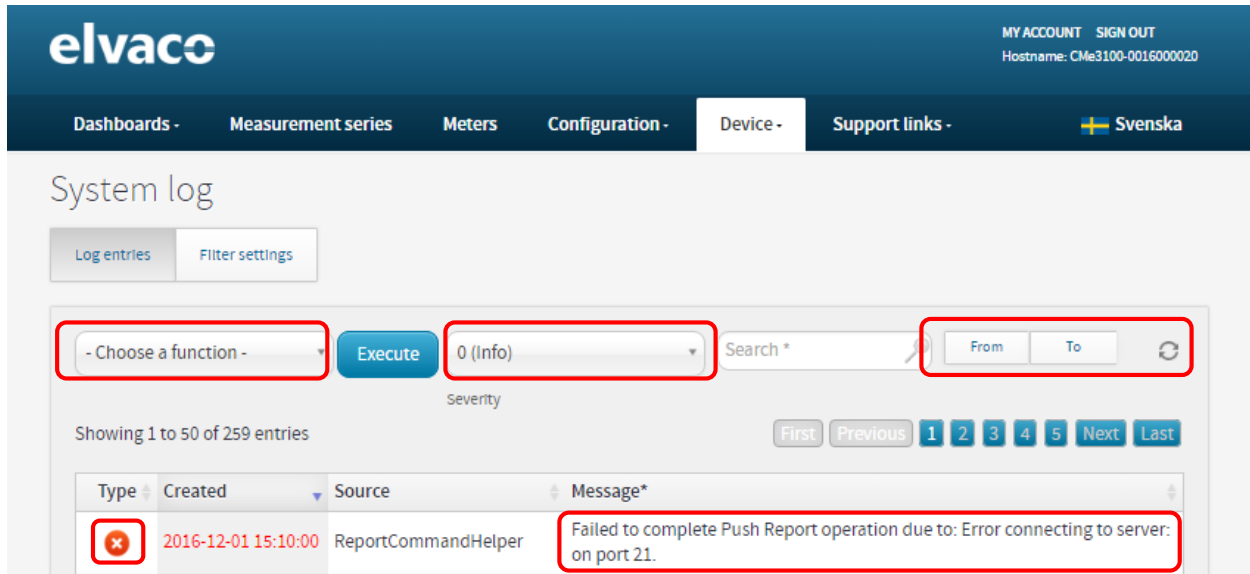
To facilitate inspection, the System Log can be filtered with respect to severity level and date interval of the logs.

To filter the System Log:

- Go to **Device > System Log**. All saved log entries are displayed here.
- To filter the log entries by a specific severity level, click on the Severity tab and select a desired level. By using the **From** and **To** buttons, logs stored over a certain time period can be displayed.
- To export the System Log table as a CSV file, click on the Choose a function tab and set "Export table as CSV". Click **Execute** to start the download.



To learn more about the different log entries of the System Log and how they are interpreted, go to <http://www.elvaco.com/en/download> and download the document named "CMe3100 Guide to System Log".



6.14.2 Set the minimum severity level of logged events

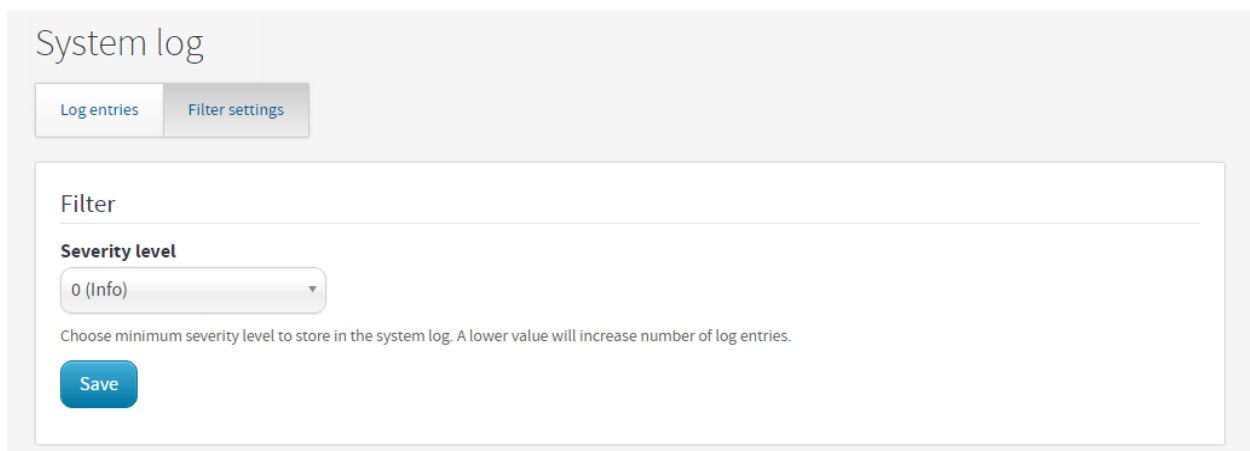
The minimum severity level for an event that gets stored in the System log is also configurable but should generally not be adjusted without good reasons as it may cause important information to be lost or the log to become very extensive.

To set the minimum severity level of logged events:

- Go to **Device > System Log > Filter settings**.
- Select a minimum severity level of the logs that should be saved. By choosing "0", all events except the debug events are logged. By choosing "-1", all events including the debug events are logged.
- Click **Save**.



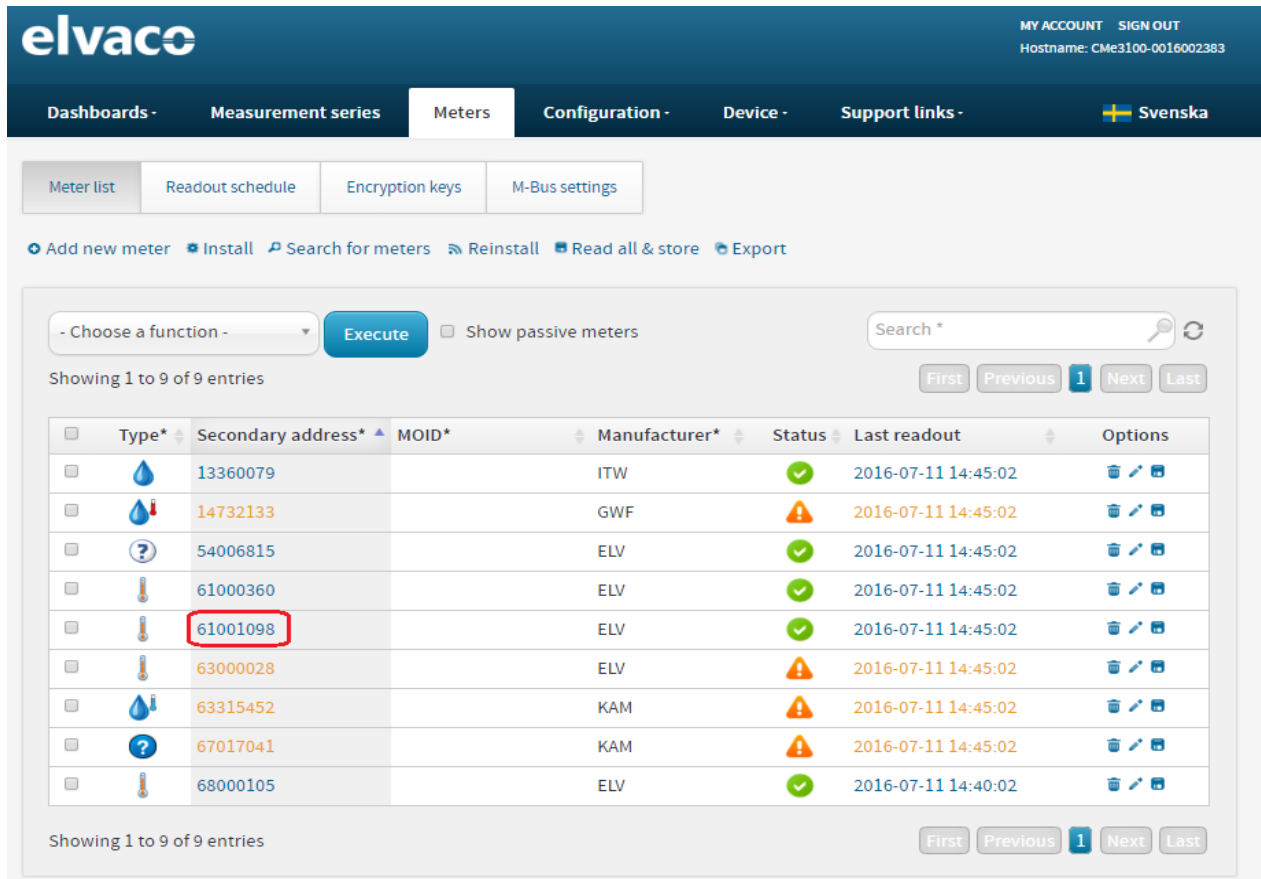
It is highly recommended that the debug log entries are only logged in case of troubleshooting. If not, the System Log will fill up very fast, and it might be hard to navigate. Activating debug log entries might also affect the performance of the Metering Gateway in a negative way.



6.14.3 Check the readout status of an individual meter

To check the readout status of an individual meter:

- Go to **Meters** and click on the secondary address of a meter.
- Click **Readings**. Here, the status and time of recent readouts of that specific meter are displayed.
- By setting a start and an end date, readings conducted over that specific time period will be displayed.



elvaco MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016002383

Dashboards - Measurement series **Meters** Configuration - Device - Support links - Svenska

Meter list Readout schedule Encryption keys M-Bus settings

[Add new meter](#)
[Install](#)
[Search for meters](#)
[Reinstall](#)
[Read all & store](#)
[Export](#)

- Choose a function - [Execute](#) ☐ Show passive meters Search *

Showing 1 to 9 of 9 entries [First](#) [Previous](#) [1](#) [Next](#) [Last](#)

<input type="checkbox"/>	Type*	Secondary address*	MOID*	Manufacturer*	Status	Last readout	Options
<input type="checkbox"/>		13360079		ITW		2016-07-11 14:45:02	
<input type="checkbox"/>		14732133		GWF		2016-07-11 14:45:02	
<input type="checkbox"/>		54006815		ELV		2016-07-11 14:45:02	
<input type="checkbox"/>		61000360		ELV		2016-07-11 14:45:02	
<input type="checkbox"/>		61001098		ELV		2016-07-11 14:45:02	
<input type="checkbox"/>		63000028		ELV		2016-07-11 14:45:02	
<input type="checkbox"/>		63315452		KAM		2016-07-11 14:45:02	
<input type="checkbox"/>		67017041		KAM		2016-07-11 14:45:02	
<input type="checkbox"/>		68000105		ELV		2016-07-11 14:40:02	


Showing 1 to 9 of 9 entries [First](#) [Previous](#) [1](#) [Next](#) [Last](#)

elvaco

[MY ACCOUNT](#)
[SIGN OUT](#)

Hostname: CMe3100-0016002383

[Dashboards -](#)
[Measurement series](#)
[Meters](#)
[Configuration -](#)
[Device -](#)
[Support links -](#)

 Svenska

Meters - Edit: 61001098

Overview

Settings

Readings

Log

Measurement series

☐ Store value
 ☐ Link encryption key

Start date

End date

2016-07-11

2016-07-11

Refresh

Showing 1 to 50 of 72 entries

First

Previous

1

2

Next

Last

Created	Status	Message	Telegram count
2016-07-11 14:50:02	Readout successfully	M-Bus status power-low	1
2016-07-11 14:45:02	Readout successfully	M-Bus status power-low	1
2016-07-11 14:40:02	Readout successfully	M-Bus status power-low	1
2016-07-11 14:35:04	Readout successfully	M-Bus status power-low	1
2016-07-11 14:30:01	Readout successfully	M-Bus status power-low	1
2016-07-11 14:25:02	Readout successfully	M-Bus status power-low	1
2016-07-11 14:20:02	Readout successfully	M-Bus status power-low	1
2016-07-11 14:15:02	Readout successfully	M-Bus status power-low	1
2016-07-11 14:10:07	Readout successfully	M-Bus status power-low	1
2016-07-11 14:05:02	Readout successfully	M-Bus status power-low	1
2016-07-11 14:00:02	Readout successfully	M-Bus status power-low	1
2016-07-11 13:55:02	Readout successfully	M-Bus status power-low	1

6.15 Install encryption keys for wireless meters

Purpose

The CMe3100 has a built-in management system for wireless encryption keys. The meter encryption key is registered in the web interface and will be used by the Metering Gateway to enable decryption of incoming messages.

Encryption keys are uploaded in an encryption key file (CSV or Excel 97-2003), structured by the template of Figure 7, or registered directly in the web interface. The encryption key file contains the matching criteria for each key which defines a filter for what meters the encryption key will be applied to.

See Table 7 for a full explanation of all fields in the key file, which together make up the matching criteria.

	A	B	C	D	E
1	Address	Key	Manufacturer	DeviceType	Version
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Figure 7: Template of encryption key file

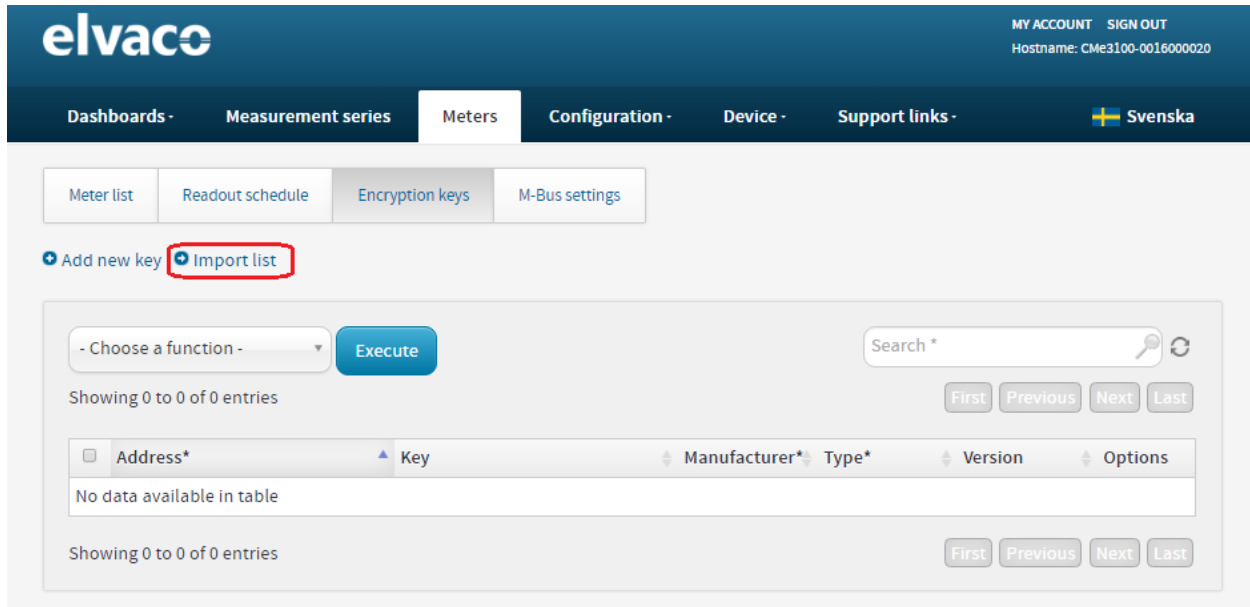
Encryption key field	Explanation
Address	This field contains the secondary address of the meter that the encryption key will be applied to. Set “-1” to exclude this field from the matching criteria.
Key	This field contains the actual encryption key that will be used, consisting of 32 character in hex format.
Manufacturer	This field contains the manufacturer of the meter that the encryption key will be applied to. To find a list of the different manufacturers, and their initials, go to Meters > Encryption keys > Add new key . Uncheck the Manufacturer box and use the list. Use “*” character to exclude this field from the matching criteria.
DeviceType	This field contains the type of meters which the encryption key will be applied to. To find a list of the different device types, go to Meters > Encryption keys > Add new key . Uncheck the Type box and use the list. Use “-1” to exclude this field from the matching criteria.
Version	This field contains the version of the meter that the encryption key will be applied to. Use “-1” to exclude this field from the matching criteria.

Table 7: Encryption key file fields

6.15.1 Add an encryption key through a file upload

To add an encryption key through a file upload:

- Go to **Meters > Encryption keys**. Here, a list of all registered encryption keys is displayed.
- An encryption key is uploaded as an CSV or Excel (97-2003) file. Click **Import list** and select the file, structured according to Figure 7. An example file is provided in Figure 8. The template can be downloaded directly from the web interface by clicking **Download example file**.
- Click **Save**.



elvaco MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016000020

Dashboards - Measurement series Meters Configuration - Device - Support links - Svenska

Meter list Readout schedule Encryption keys M-Bus settings

+ Add new key **Import list**

- Choose a function - Execute Search * First Previous Next Last

Showing 0 to 0 of 0 entries

<input type="checkbox"/>	Address*	Key	Manufacturer*	Type*	Version	Options
No data available in table						

Showing 0 to 0 of 0 entries First Previous Next Last

	A	B	C	D	E
1	address	key	manufacturer	deviceType	version
2	-1	AAAABBBBCCCCDDDDDEEEFFFFFFF11112222	*	-1	-1
3	13360079	A1B2C3D4E5F6A1B2C3D4E5F678910111	ELV	-1	-1
4	-1	FFEEDDCCBBAA99887766554433221100	*	-1	-1
5	-1	AAAA1111BBBB2222CCCC3333DDDD4444	ACA	-1	-1
6	-1	9999AAAA8888BBBB7777CCCC6666DDDD	ELV	-1	2

Figure 8: Encryption key example file


6.15.2 Add an encryption key directly in the web interface

To enter an encryption key directly in the web interface:

- Go to **Meters > Encryption keys**.
- Click **Add new key**.
- Set the matching criteria to determine the meters the encryption key will be applied to. By checking the All box, the encryption key will be used for decryption of messages from all meters of that specific matching criteria field.
- Click **Save**.

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MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016002383

Dashboards - Measurement series **Meters** Configuration - Device - Support links -  Svenska

Encryption keys - Add new key

Encryption key matching criteria

Encryption key will be applied to all meters that matches the criteria.

Manufacturer <div>Select an Option ▾</div> <input checked="" type="checkbox"/> All	Type <div>- Select meter type - ▾</div> <input checked="" type="checkbox"/> All
Version <div>-1</div> <input checked="" type="checkbox"/> All	Address <div>-00000001</div> <input checked="" type="checkbox"/> All <small>The address of the encryption key.</small>

Key

Enter the 16 bytes encryption key in hex-format (32 characters).


Save

6.15.3 Link an encryption key to an individual meter

The Metering Gateway supports linking encryption keys to individual meters. Using this option will make the device apply the key to decrypt information from the linked meters only.

To link an encryption key to an individual meter:

- Go to **Meters** and select a desired meter from the list.
- Click the edit (pen) symbol in the **Options** column.
- Click **Link encryption key** on the top of the page.
- The meter information in the resulting menu should by default be correct. Now add the encryption key that will be used for decryption of meter values sent from that meter.
- Click **Save**.



[MY ACCOUNT](#)
[SIGN OUT](#)

Hostname: CMe3100-0016002383

[Dashboards -](#)
[Measurement series](#)
[Meters](#)
[Configuration -](#)
[Device -](#)
[Support links -](#)
[Svenska](#)

[Meter list](#)
[Readout schedule](#)
[Encryption keys](#)
[M-Bus settings](#)

[Add new meter](#)
[Install](#)
[Search for meters](#)
[Reinstall](#)
[Read all & store](#)
[Export](#)

- Choose a function -

Execute

☐ Show passive meters

Search *


Showing 1 to 9 of 9 entries

[First](#)
[Previous](#)
[1](#)
[Next](#)
[Last](#)

<input type="checkbox"/>	Type*	Secondary address*	MOID*	Manufacturer*	Status	Last readout	Options
<input type="checkbox"/>		13360079		ITW		2016-07-12 14:10:04	
<input type="checkbox"/>		14732133		GWF		2016-07-12 14:10:04	
<input type="checkbox"/>		54006815		ELV		2016-07-12 14:10:04	
<input type="checkbox"/>		61000360		ELV		2016-07-12 14:10:11	
<input type="checkbox"/>		61001098		ELV		2016-07-12 14:10:04	
<input type="checkbox"/>		63000028		ELV		2016-07-12 14:10:04	
<input type="checkbox"/>		63315452		KAM		2016-07-12 14:10:04	
<input type="checkbox"/>		67017041		KAM		2016-07-12 14:10:04	
<input type="checkbox"/>		68000105		ELV		2016-07-12 14:10:04	

Showing 1 to 9 of 9 entries

[First](#)
[Previous](#)
[1](#)
[Next](#)
[Last](#)



[MY ACCOUNT](#)
[SIGN OUT](#)

Hostname: CMe3100-0016000148-DEMO

[Dashboards -](#)
[Measurement series](#)
[Meters](#)
[Configuration -](#)
[Device -](#)
[Support links -](#)
[Svenska](#)


Meter list - Edit: 68000086

[Overview](#)
[Settings](#)
[Readings](#)
[Log](#)
[Measurement series](#)

[Store value](#)
[Link encryption key](#)

Meter information

Last readout 2016-07-14 08:00:04



Measure Object ID (MOID) Drift

Secondary address 68000086

Interface Integrated M-Bus Master: 2400 Bd

Addressing mode Elvaco Wireless M-Bus - 68000086 on 62000682

Manufacturer ELV

Type Room sensor

Version 30

Encryption key Matched

State active

6.16 Configure settings for an individual meter

Purpose

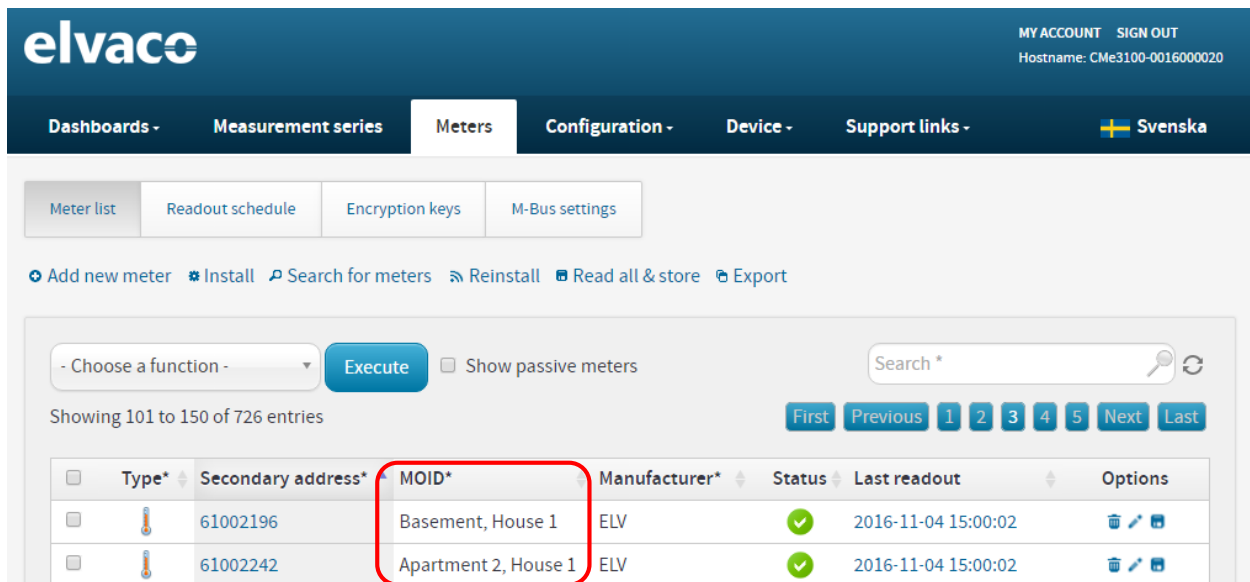
In some cases, it might be desired to configure individual settings of a specific meter. This might for example include changing the Measurement Object Identification (MOID), switching the state of the meter from active to passive (which will exclude it from the meter readout cycle) or changing the interface used by the Metering Gateway when communicating with the meter.

6.16.1 Edit Measurement Object Identification of a meter

The MOID is used to identify the meter in the Meter List, and is preferably set to display the function or the location of the meter.

To edit the MOID:

- Go to **Meters** and click the secondary address of a desired meter.
- Click on **Settings**.
- Enter a MOID and click **Save**.
- The MOID will now be displayed for the meter in the Meter List.



elvaco MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016000020

Dashboards - Measurement series **Meters** Configuration - Device - Support links - Svenska

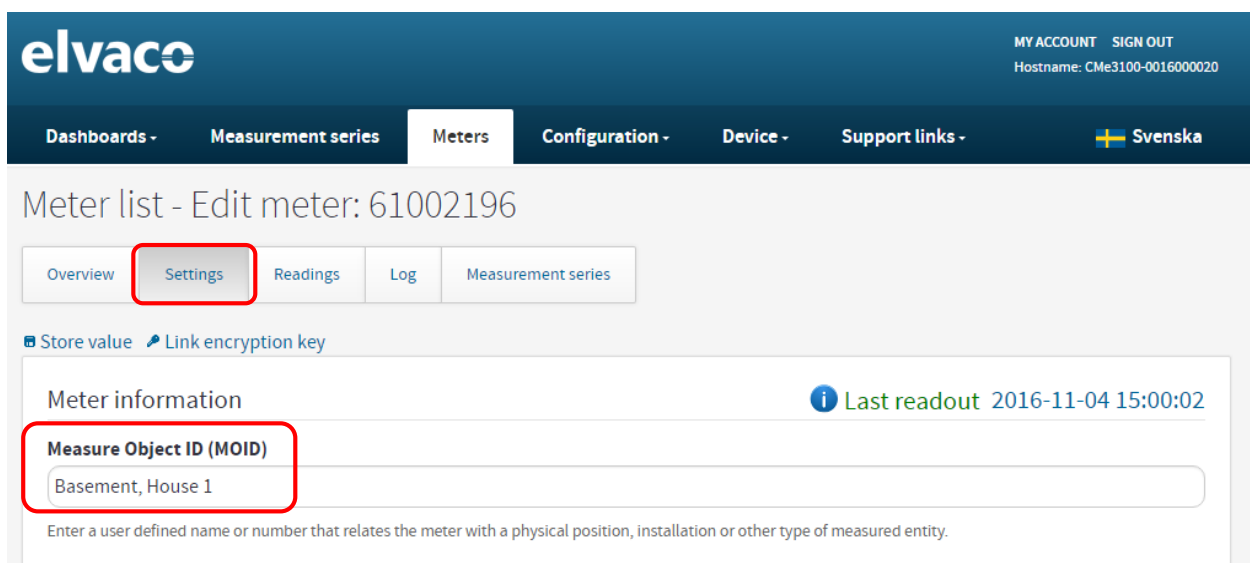
Meter list Readout schedule Encryption keys M-Bus settings

[Add new meter](#)
[Install](#)
[Search for meters](#)
[Reinstall](#)
[Read all & store](#)
[Export](#)

- Choose a function - [Execute](#) ☐ Show passive meters Search *

Showing 101 to 150 of 726 entries [First](#) [Previous](#) [1](#) [2](#) [3](#) [4](#) [5](#) [Next](#) [Last](#)

<input type="checkbox"/>	Type*	Secondary address*	MOID*	Manufacturer*	Status	Last readout	Options
<input type="checkbox"/>		61002196	Basement, House 1	ELV	✓	2016-11-04 15:00:02	
<input type="checkbox"/>		61002242	Apartment 2, House 1	ELV	✓	2016-11-04 15:00:02	



elvaco MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016000020

Dashboards - Measurement series **Meters** Configuration - Device - Support links - Svenska

Meter list - Edit meter: 61002196

Overview **Settings** Readings Log Measurement series

[Store value](#)
[Link encryption key](#)

Meter information [i](#) Last readout 2016-11-04 15:00:02

Measure Object ID (MOID)

Basement, House 1

Enter a user defined name or number that relates the meter with a physical position, installation or other type of measured entity.

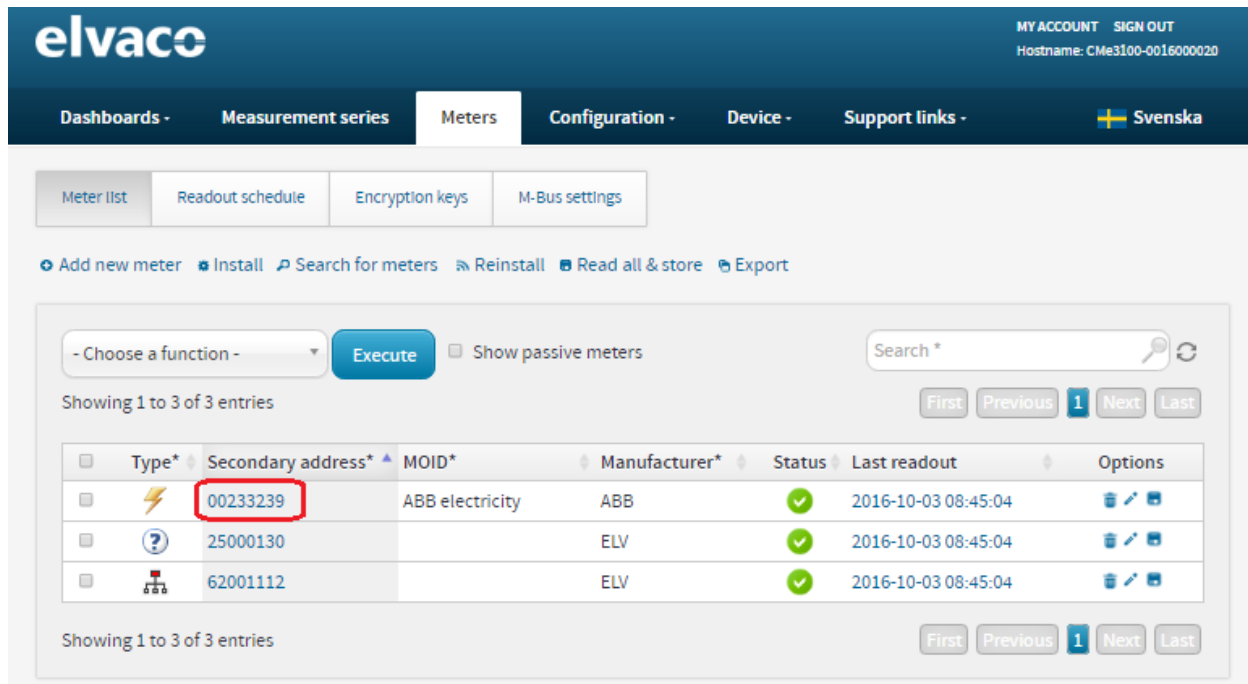
6.16.2 Configure communication settings of an individual meter

Switching a meter's status from active to passive means that it will no longer be included in the meter readout process. If more meters are installed than the software license supports, the latest installed meters will automatically be set to passive.













The meter access settings determine which interface will be used by the M-Bus Metering Gateway to access a specific meter. Normally, all meters are connected directly or indirectly to the integrated M-Bus master (by 2-wire M-Bus or the IR interface) but it is also possible to use the Ethernet network to connect a remote meter (M-Bus over TCP/IP).


To configure communication settings of an individual meter:

- Go to **Meters** and click the secondary address of a meter
- Click on **Settings**.
- Set the desired state of the meter and the interface that will be used by the Metering Gateway to access the meter.
- Click **Save**.



The screenshot shows the elvaco web interface. The top navigation bar includes 'Dashboards', 'Measurement series', 'Meters', 'Configuration', 'Device', and 'Support links'. The 'Meters' tab is active. Below the navigation bar, there are tabs for 'Meter list', 'Readout schedule', 'Encryption keys', and 'M-Bus settings'. The 'Meter list' tab is selected. A toolbar contains links for 'Add new meter', 'Install', 'Search for meters', 'Reinstall', 'Read all & store', and 'Export'. A search bar and a 'Show passive meters' checkbox are also present. The main area displays a table with 3 entries. The first entry's 'Secondary address' is highlighted with a red box.

Type*	Secondary address*	MOID*	Manufacturer*	Status	Last readout	Options
	00233239	ABB electricity	ABB	✓	2016-10-03 08:45:04	  
	25000130		ELV	✓	2016-10-03 08:45:04	  
	62001112		ELV	✓	2016-10-03 08:45:04	  



MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016000020

Dashboards -


Measurement series

Meters

Configuration -

Device -

Support links -

 Svenska

Meter list - Edit meter: 61002196



Overview

Settings


Readings

Log

Measurement series

 Store value  Link encryption key

Meter information

 Last readout 2016-11-04 15:00:02

Measure Object ID (MOID)

Basement, House 1

Enter a user defined name or number that relates the meter with a physical position, installation or other type of measured entity.

Secondary address

61002196

Enter the meter's secondary address. This is usually the same as the meter number or serial number.

Primary address

211

Enter the meter's primary address. Leave set to 0 if secondary addressing is used, 0-250 are valid primary addresses.

State

Active

Manufacturer

ELV - Elvaco AB, Kungsbacka, Sweden

Type

Room sensor

Version


1

Meter access

Interface

Integrated M-Bus Master

Choose which interface the meter is accessed through.



Special operations

6.17 Purpose

This chapter is targeting advanced users and contains instructions on how to perform operations that are less frequently used. Typically, these operations are needed to configure more complex metering setups of the Metering Gateway and the M-Bus system.

6.18 Update software

Purpose

Elvaco regularly launches new software updates for products to enable continuous improvement and new functionality. New software can easily be installed using the web interface, simply by uploading the software file.



Please visit <http://www.elvaco.com/download> to find the latest software releases. Make sure to read through the release notes carefully before installing new software.

6.18.1 Perform a software update

To perform a software update:

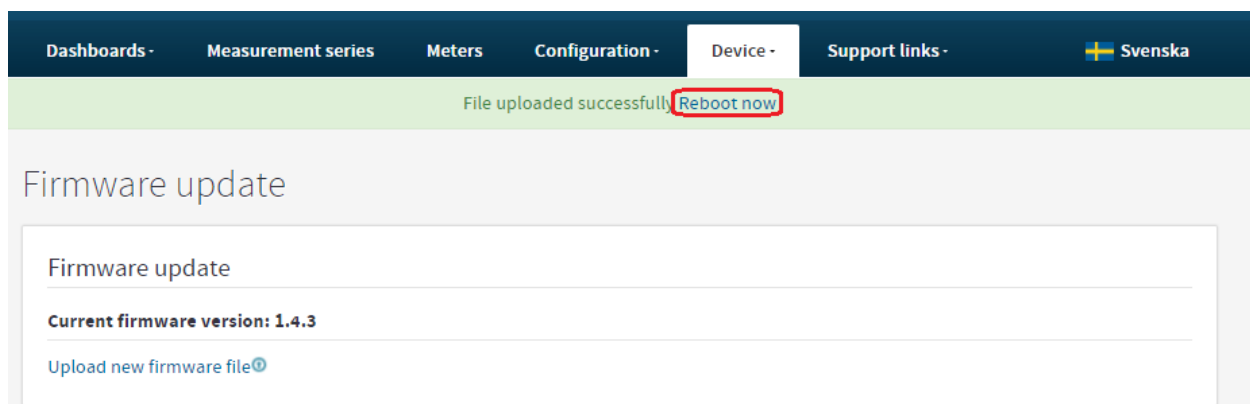
- Go to **Device > Firmware update**.
- Click **Upload new firmware file**, select a software file (.tar) and click **Upload**.
- Click **Continue**.
- Click **Reboot now**. The reboot might take up to an hour to complete.



It is very important that the power is not cut during the update. Do not attempt to update the browser, the page will automatically reload once the reboot has completed.



If the software version used is older than version 1.6.0 and is updated to 1.6.0 or later, the link-local address for the USB network interface will be changed from 192.168.100.1 to 169.254.254.1. The device will then be unable to automatically reload the page when the reboot has finished if performed over USB cable. The same applies if the IP address has been changed manually. To make sure that the reboot has completed, the LED lights will instead have to be used. When the green and the red LED light blink alternately, the reboot is ongoing. When the green LED blinks with a "80 percent on-20 percent off" frequency, the rebooting has been completed.



The screenshot shows the Elvaco web interface. At the top, there is a navigation bar with tabs: Dashboards -, Measurement series, Meters, Configuration -, Device -, and Support links -. The 'Device' tab is currently selected. Below the navigation bar, a green status bar displays 'File uploaded successfully' and a red-outlined button labeled 'Reboot now'. The main content area is titled 'Firmware update'. It contains a section with the heading 'Firmware update', the text 'Current firmware version: 1.4.3', and a link 'Upload new firmware file' with a circular icon.

6.19 Administrate user accounts

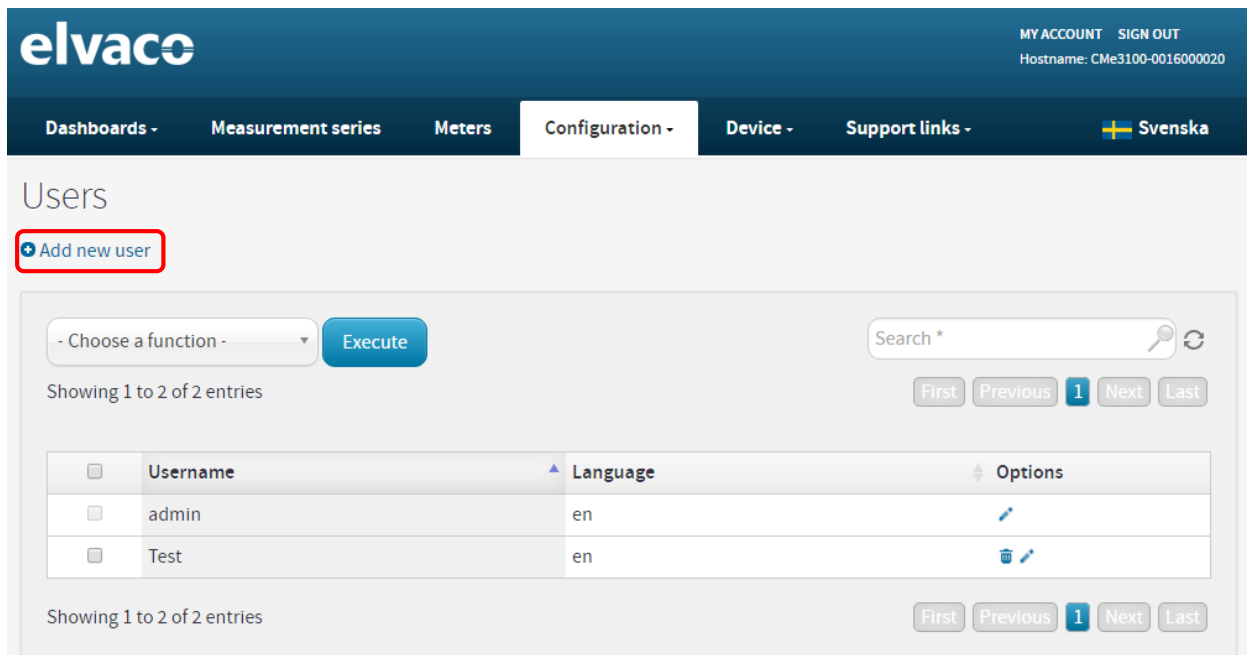
Purpose

Through the web interface, user accounts to log in on the web interface can be added, edited or deleted.

6.19.1 Add a new user account

To add a new user account:

- Go to **Configuration > Users**.
- Click **Add new user**.
- Type a desired username and password. Use a strong password, consisting of at least 8 characters. Click **Save**.




The screenshot shows the 'Users' management page in the elvaco web interface. The top navigation bar includes 'Dashboards -', 'Measurement series', 'Meters', 'Configuration -', 'Device -', 'Support links -', and a language selector 'Svenska'. The 'Users' section has a red-bordered button 'Add new user'. Below it, there's a search bar and a table of users. The table has columns for 'Username', 'Language', and 'Options'. Two users are listed: 'admin' and 'Test', both with language 'en'. The 'Options' column contains edit (pen icon) and delete (trash icon) symbols. Navigation buttons 'First', 'Previous', '1', 'Next', 'Last' are present at the bottom of the table.

6.19.2 Edit an existing user account

To edit an existing user account:

- Go to **Configuration > Users**.
- Click the edit (pen) symbol in the “Options” column of the account to be edited.
- Make desired changes to the username and password of the account. Click **Save**.



[MY ACCOUNT](#)
[SIGN OUT](#)



 Hostname: CMe3100-0016000020

[Dashboards -](#)
[Measurement series](#)
[Meters](#)
[Configuration -](#)
[Device -](#)
[Support links -](#)
[Svenska](#)




Users

[+ Add new user](#)

- Choose a function -
 Execute

Search *
 


Showing 1 to 2 of 2 entries


<input type="checkbox"/>	Username	Language	Options
<input type="checkbox"/>	admin	en	
<input type="checkbox"/>	Test	en	 

Showing 1 to 2 of 2 entries

6.19.3 Delete an existing user account

To delete an existing user account:

- Go to **Configuration > Users**.
- Click the delete (trashcan) symbol in the “Options” column of the account to be deleted.
- Click **Yes**.



[MY ACCOUNT](#)
[SIGN OUT](#)



 Hostname: CMe3100-0016000020

[Dashboards -](#)
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[Configuration -](#)
[Device -](#)
[Support links -](#)
[Svenska](#)




Users

[+ Add new user](#)

- Choose a function -
 Execute

Search *
 


Showing 1 to 2 of 2 entries

<input type="checkbox"/>	Username	Language	Options
<input type="checkbox"/>	admin	en	
<input type="checkbox"/>	Test	en	 

Showing 1 to 2 of 2 entries

6.20 Add a new license

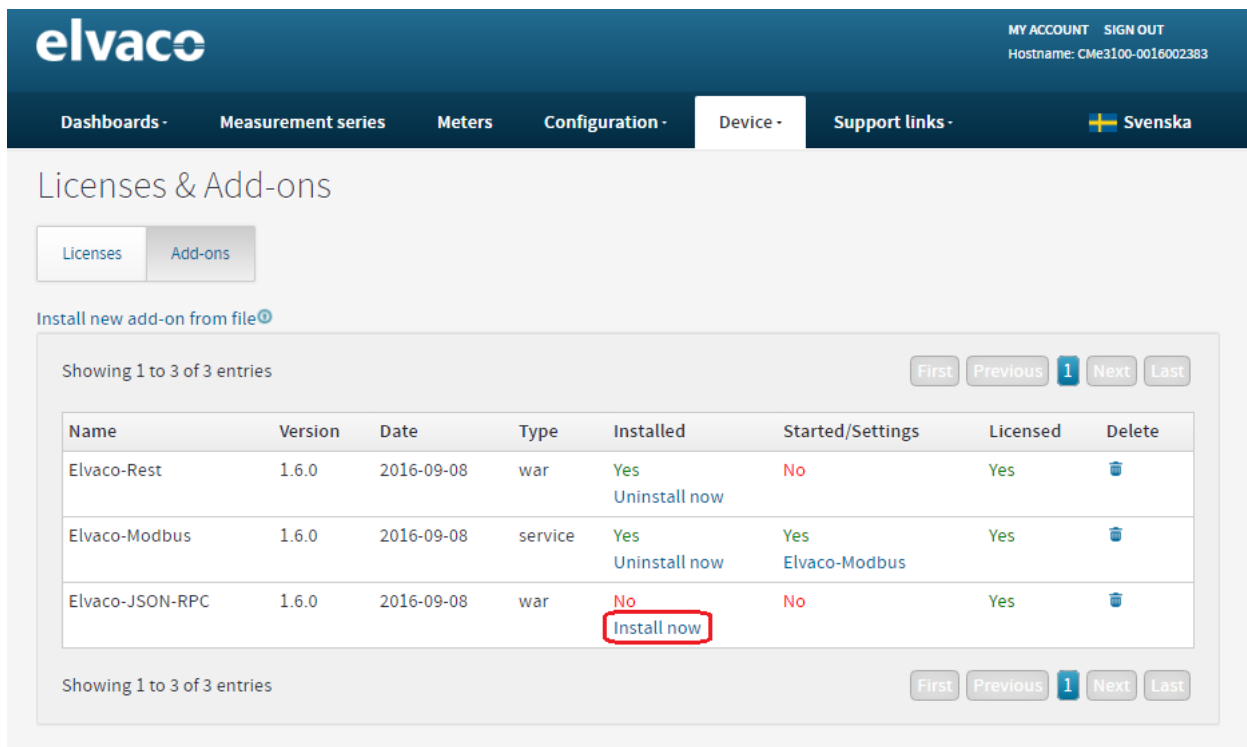
Purpose

The CMe3100 is equipped with a flexible licensing scheme that allows its capabilities and feature set to be altered through the addition of license files. See section 4.4.1 for more information about the licensing scheme. A license file needs to be uploaded to the web interface before the new capabilities are implemented on the Metering Gateway.

6.20.1 Upload and install a license

To upload and install a license:

- Go to **Device > Licences & Add-ons**.
- Click **Upload new licence file**, select the licence file and click **Upload**.
- Go to **Device > License & Add-ons > Add-ons**.
- Find the Add-on that should be installed, and click **Install now**. You can uninstall previously installed add-ons by clicking **Uninstall now**.



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Hostname: CMe3100-0016002383

Dashboards - Measurement series Meters Configuration - Device - Support links - Svenska

Licenses & Add-ons

Licenses Add-ons

Install new add-on from file

Showing 1 to 3 of 3 entries

Name	Version	Date	Type	Installed	Started/Settings	Licensed	Delete
Elvaco-Rest	1.6.0	2016-09-08	war	Yes Uninstall now	No	Yes	
Elvaco-Modbus	1.6.0	2016-09-08	service	Yes Uninstall now	Yes Elvaco-Modbus	Yes	
Elvaco-JSON-RPC	1.6.0	2016-09-08	war	No Install now	No	Yes	

Showing 1 to 3 of 3 entries

6.21 Perform an advanced meter search

Purpose

The M-Bus Metering Gateway has the capability of performing advanced meter searches using certain predefined criteria defining what meters should be searched for.


6.21.1 Customize the meter search

To customize the meter search:

- Go to **Meters > Search for meters**. Check the Change to advanced search mode box.
- Select the number of meters that will be installed and the baud rate that will be used by the Metering Gateway to communicate with the meters.
- Set the addressing mode of the meters the Metering Gateway will search for. A priority order may

also be set to determine what addressing mode will be used if the first choice should not work.


- Set the Interfaces to use to search for meters. Possible options include “integrated M-Bus master” (2-wire M-Bus), “TCP/IP” (Ethernet) or a combination of both. Click **Add new** to select an additional interface. Click **Save**.
- Click **Start Search**.



[MY ACCOUNT](#)
[SIGN OUT](#)

Hostname: CMe3100-0016002383

[Dashboards -](#)
[Measurement series](#)
[Meters](#)
[Configuration -](#)
[Device -](#)
[Support links -](#)

 Svenska

Meter list - Search

Search for meters

☒ Change to advanced search mode
Check to configure search settings manually.

☐ Clear current meter list
Check to remove all current meters before starting the search.

Number of meters

Leave empty to add all meters found.

Baud rate

Choose baud rate according to what is supported by the meters.

Addressing mode

Choose which addressing modes and in what order they will be used when searching for meters.

Interfaces to search

Showing 1 to 1 of 1 entries

[First](#)
[Previous](#)
[1](#)
[Next](#)
[Last](#)

<input type="checkbox"/> Interface	Port	Options
<input type="checkbox"/> Integrated M-Bus Master		N/A

Showing 1 to 1 of 1 entries

[First](#)
[Previous](#)
[1](#)
[Next](#)
[Last](#)

6.22 Perform manual meter readouts

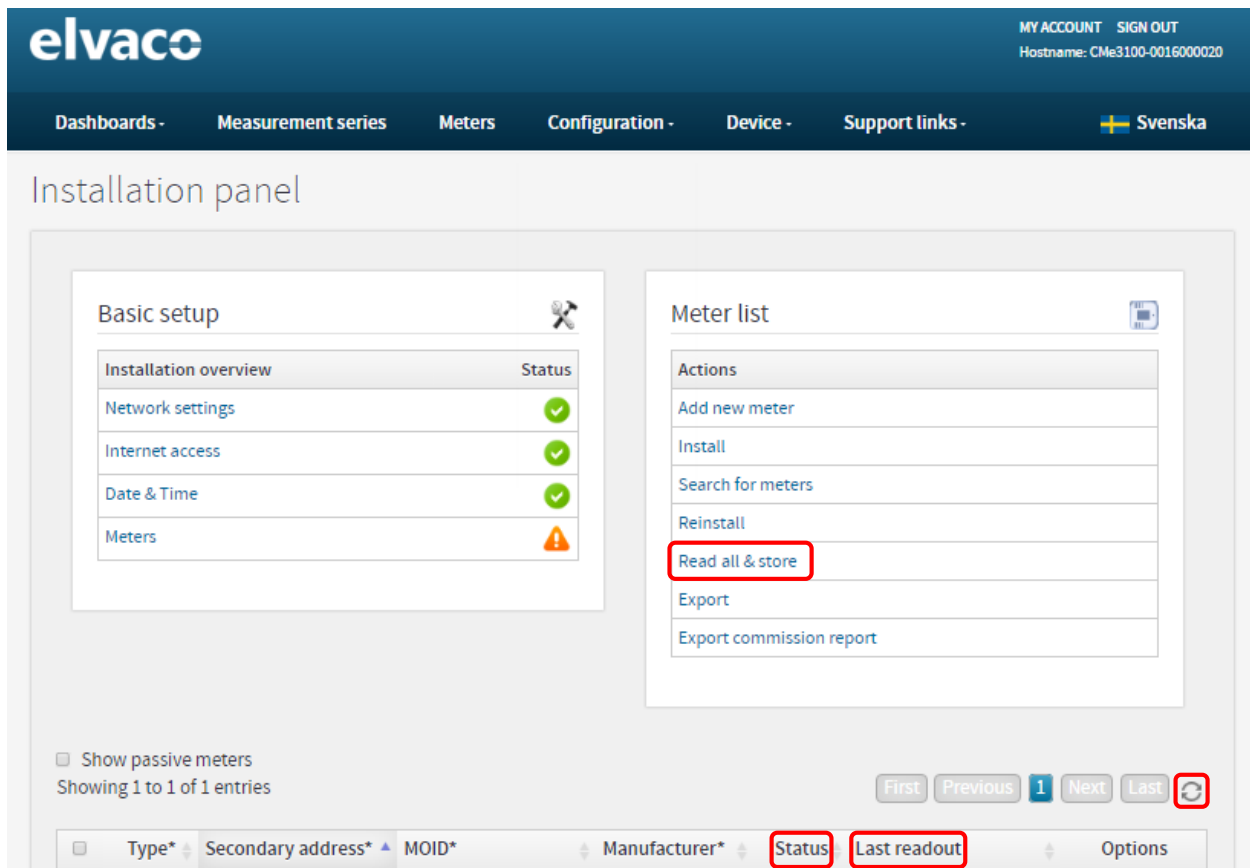
Purpose

The manual meter readout is most often used in troubleshooting purpose, to ensure that the readout process works the way it is supposed to. It will trigger a readout of one or all meters without having to wait for the scheduled readout cycle. When the settings of an individual meter have been edited, for example through a change of MOID, a manual readout of the meter has to be performed before the change is fully implemented. Manual meter readouts can be performed for all installed meters or for one individual meter.

6.22.1 Perform a manual readout of all installed meters

To perform a manual readout of all installed meters:

- Go to the Installation Panel
- Click **Read all & store**.
- Go to the Meter List, just below. Make sure that the readout succeeded by clicking the update symbol and check the last readout time along with the status of the readout.



The screenshot shows the elvaco web interface. At the top, there's a navigation bar with the elvaco logo and user account information (MY ACCOUNT, SIGN OUT, Hostname: CMe3100-0016000020). Below this is a menu bar with links: Dashboards -, Measurement series, Meters, Configuration -, Device -, Support links -, and a language selector for Svenska.

The main content area is titled "Installation panel". It contains two main sections:

- Basic setup**: A table with columns "Installation overview" and "Status".

Installation overview	Status
Network settings	✓
Internet access	✓
Date & Time	✓
Meters	⚠
- Meter list**: A list of actions:
 - Add new meter
 - Install
 - Search for meters
 - Reinstall
 - Read all & store** (highlighted with a red box)
 - Export
 - Export commission report

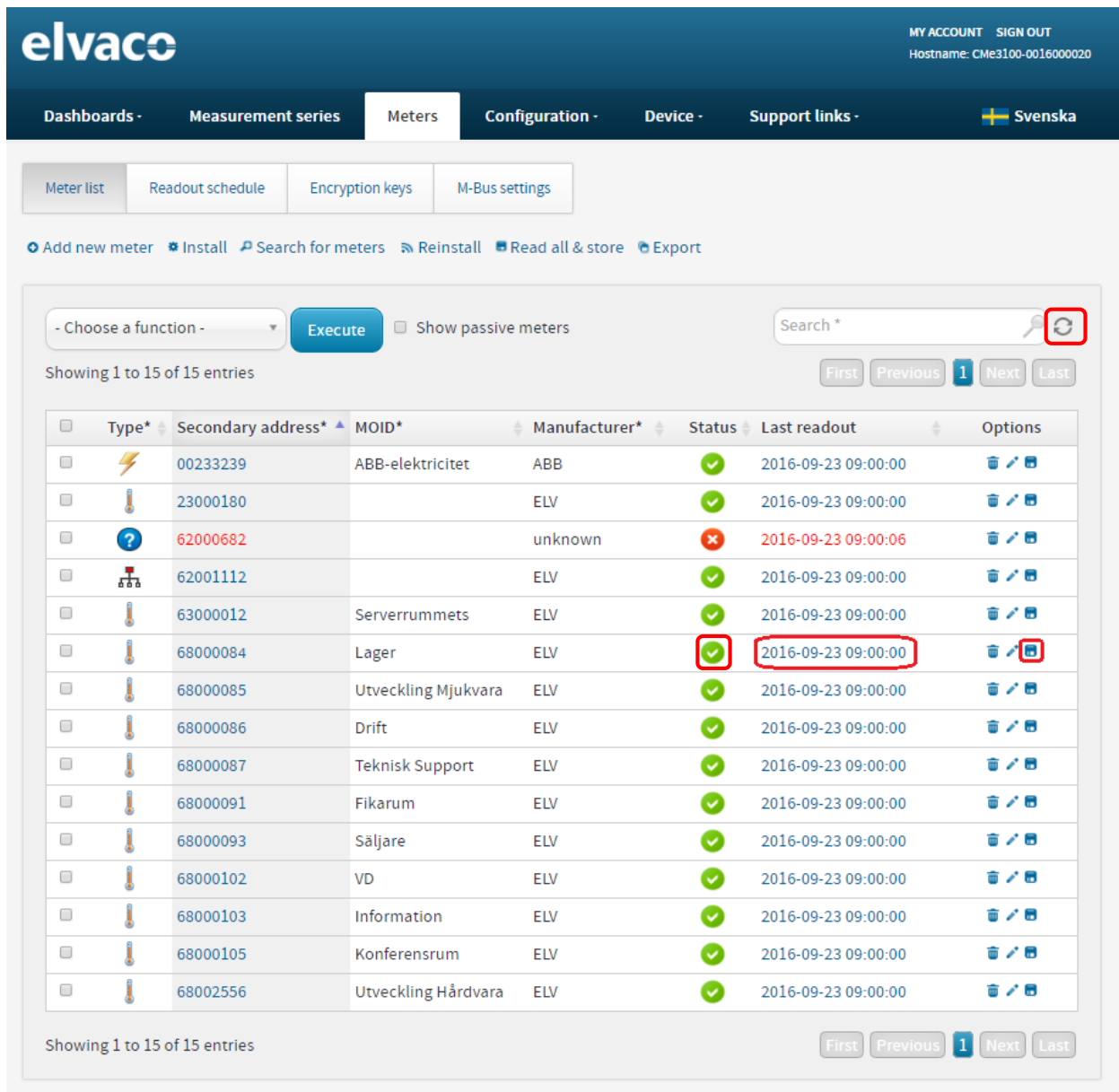
Below these sections, there's a checkbox for "Show passive meters" and a message "Showing 1 to 1 of 1 entries". At the bottom, there's a table with columns: Type*, Secondary address*, MOID*, Manufacturer*, **Status** (highlighted with a red box), **Last readout** (highlighted with a red box), and Options. The table currently shows one entry.

6.22.2 Perform a manual readout of an individual meter

To perform a manual readout of an individual meter:

- Go to **Meters > Meter List**.

- Select the desired meter and click the readout (floppy) symbol.
- Click the update symbol and make sure that the latest readout was successful by checking the “Last readout” and the “Status” column.



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Dashboards - Measurement series **Meters** Configuration - Device - Support links - Svenska

Meter list Readout schedule Encryption keys M-Bus settings

Add new meter Install Search for meters Reinstall Read all & store Export

- Choose a function - Execute Show passive meters Search *

Showing 1 to 15 of 15 entries First Previous 1 Next Last

Type*	Secondary address*	MOID*	Manufacturer*	Status	Last readout	Options
	00233239	ABB-elektricitet	ABB	✓	2016-09-23 09:00:00	
	23000180		ELV	✓	2016-09-23 09:00:00	
	62000682		unknown	✗	2016-09-23 09:00:06	
	62001112		ELV	✓	2016-09-23 09:00:00	
	63000012	Serverrummets	ELV	✓	2016-09-23 09:00:00	
	68000084	Lager	ELV	✓	2016-09-23 09:00:00	
	68000085	Utveckling Mjukvara	ELV	✓	2016-09-23 09:00:00	
	68000086	Drift	ELV	✓	2016-09-23 09:00:00	
	68000087	Teknisk Support	ELV	✓	2016-09-23 09:00:00	
	68000091	Fikarum	ELV	✓	2016-09-23 09:00:00	
	68000093	Säljare	ELV	✓	2016-09-23 09:00:00	
	68000102	VD	ELV	✓	2016-09-23 09:00:00	
	68000103	Information	ELV	✓	2016-09-23 09:00:00	
	68000105	Konferensrum	ELV	✓	2016-09-23 09:00:00	
	68002556	Utveckling Hårdvara	ELV	✓	2016-09-23 09:00:00	

Showing 1 to 15 of 15 entries First Previous 1 Next Last

6.23 Activate the Continuous Readout Mode

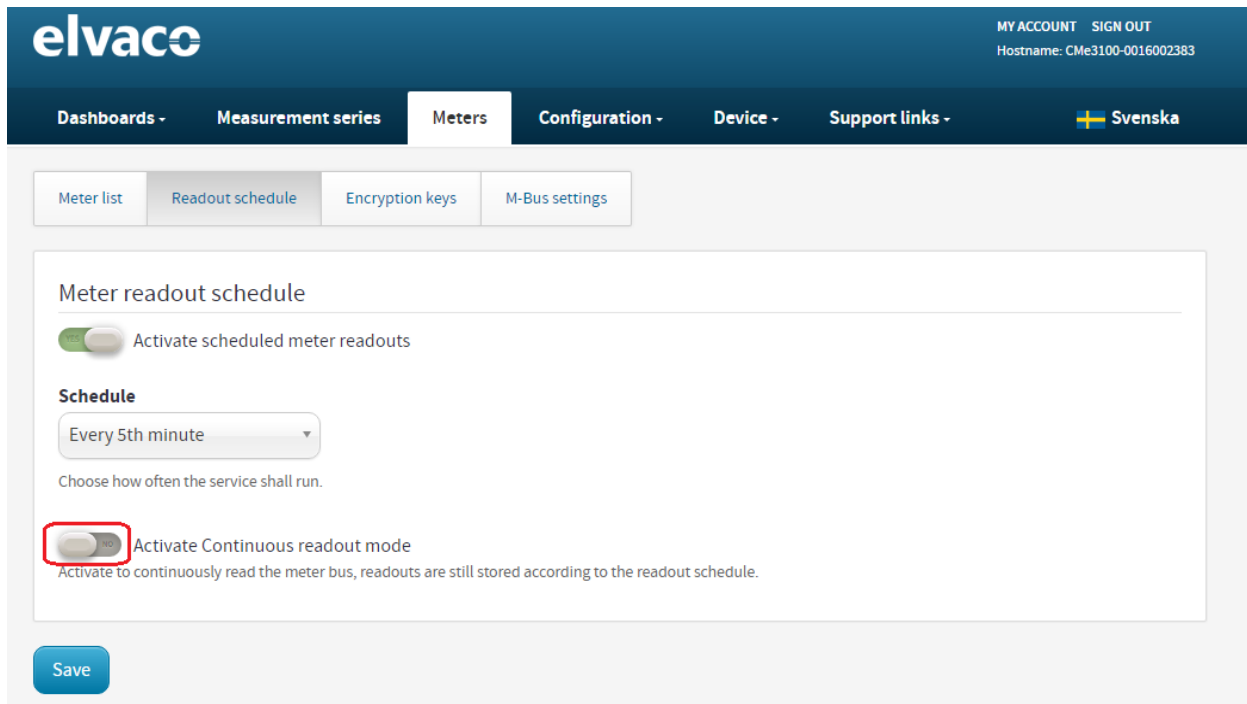
Purpose

The Metering Gateway offers the possibility of performing meter readouts continuously. The device will then constantly collect meter values, which can for example be used by a control system to regulate a heating system. Note that meter values collected through the Continuous Readout Mode will only be held in the internal memory of the M-Bus Metering Gateway (not stored in the database) and can *only* be accessed using integration protocols such as REST, Modbus, JSON or DLMS. They will therefore not be included in Push reports. To use Continuous Readout Mode in combination with Push Reports, the meter readout schedule still needs to be set.

6.23.1 Enable continuous meter readouts

To enable the Continuous Readout mode:

- Go to **Meters > Readout schedule**.
- Click on **Activate Continuous readout mode**.
- Click **Save**.



6.24 Enable security features

Purpose

The Metering Gateway supports transmissions over HTTPS, where a Secure Socket Layer (SSL) is used to encrypt data between the device and the HTTP server. To enable HTTPS, at least one SSL certificate has to be installed in the web interface.



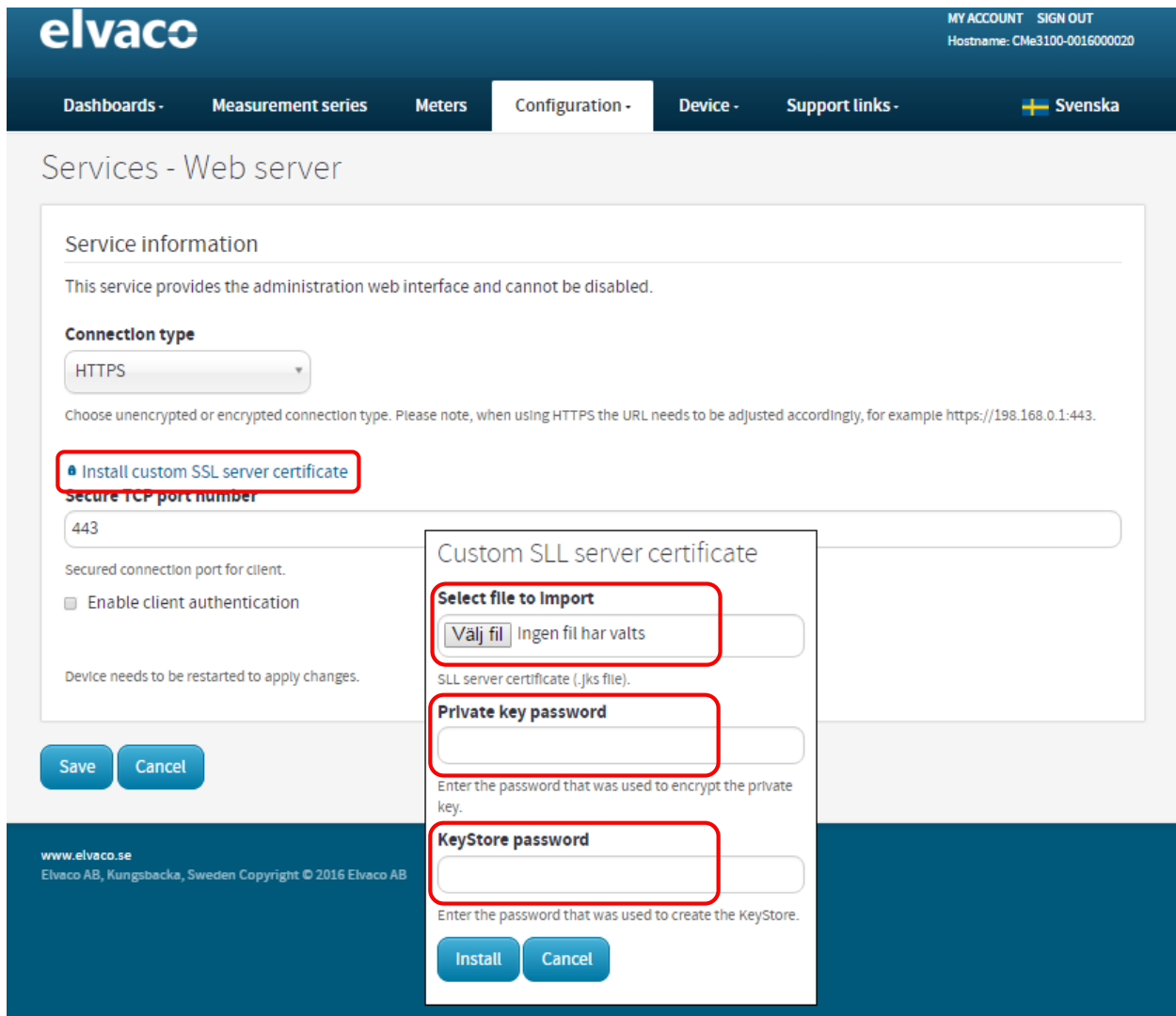
It is important that your server certificate works with your web browser. Otherwise, you might not be able to log in on the device and will have to perform a factory reset.

6.24.1 Enable HTTPS for authentication towards a client

When enabling HTTPS, a SSL *server* certificate, either self-signed or executed by a certificate authority (CA), is used by the Metering Gateway to authenticate towards connecting clients, for example a web browser. If the certificate has been executed by a CA, the client will automatically trust the Metering Gateway. However, when a self-signed certificate is used, it always needs to be added to the client's list of trusted servers before a connection can be established.

To enable HTTPS for authentication towards connecting clients:

- Go to **Configuration > Services > Web server**.
- Change the Connection type from "HTTP" to "HTTPS".
- Click **Install custom SSL server certificate**. Attach the CA or the self-signed certificate (as a ".jks" file) as well as the private key password and the KeyStore password, which were both issued along with the certificate.
- Click **Install**.
- Click **Save**.



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Hostname: CMe3100-0016000020

Dashboards - Measurement series Meters **Configuration -** Device - Support links - Svenska

Services - Web server

Service information

This service provides the administration web interface and cannot be disabled.

Connection type

HTTPS

Choose unencrypted or encrypted connection type. Please note, when using HTTPS the URL needs to be adjusted accordingly, for example https://198.168.0.1:443.

Install custom SSL server certificate

Secure TCP port number

443

Secured connection port for client.

☐ Enable client authentication

Device needs to be restarted to apply changes.

Save Cancel

Custom SLL server certificate

Select file to Import

Välj fil Ingen fil har valts

SLL server certificate (.jks file).

Private key password

Enter the password that was used to encrypt the private key.

KeyStore password

Enter the password that was used to create the KeyStore.

Install Cancel

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6.24.2 Add a list of trusted clients

By uploading a SSL *client* certificate, a list of trustworthy clients that the Metering Gateway is allowed to communicate with is defined. In other words, connections will only be established with clients represented on the list.

To add a list of trusted clients:

- Go to **Configuration > Services > Web server**.
- Change the Connection type from "HTTP" to "HTTPS".
- Check the Enable client authentication box.
- Click **Install SSL client certificate**. Attach the client certificate (".cer" file), a certificate alias and the TrustStore password, which were both issued along with the certificate.
- Click **Install**.
- Click **Save**.

Install custom SSL server certificate

Secure TCP port number

443

Secured connection port for client.

☒ Enable client authentication

Install SSL client certificate

Certificate alias

No data available in table

Showing 0 to 0 of 0 entries

Device needs to be restarted to apply changes.

Save Cancel

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Install SSL client certificate

Select file to import

Välj fil Ingen fil har valts

Client certificate (.cer file).

Certificate alias

Enter the alias which will be used to identify the certificate.

TrustStore password

Enter TrustStore password to unlock the certificate archive (minimum 6 characters). The password is set the first time a client certificate is added.

Install Cancel

Options

6.24.3 Enable HTTPS for Push Reports

The Metering Gateway supports transmission of Push Reports over HTTPS. The SSL *client* certificate will then be used to validate *self-signed* server certificates before any Push Report is sent.

To enable HTTPS for Push Reports:

- Go to **Configuration > Push Reports**.
- Select a Push Report by clicking on it.
- Select "HTTP" as Report type.
- After configuring all HTTP settings, go to the bottom of the page. Uncheck the Send report to default HTTP server box and enter a URI. Note that the URI must begin with <https://> to activate the secure version of Push Reports.
- Click **Save**.

elvaco

MY ACCOUNT SIGN OUT
Hostname: CMe3100-0016000020

Dashboards - Measurement series Meters Configuration - Device - Support links - Svenska

Push Reports - Report 2

Report type

HTTP

Report template

3101 HTTP value report ...

Report schedule

Every hour

Meter readout schedule

Every hour

Choose how often the service shall run.

Current setting in Meters > Readout schedule.

Report content

Value period

- Auto -

Choose which values to include in the report based on how long ago they were stored compared to when the report is sent. For example, using settings "1 Day(s)" include all values stored within 1 day from when each report is sent.

Value interval

All values

Choose "All values" to include all available values (defined by readout schedule) or choose a higher setting to create a sparse value report with a longer time between reported values.

Report receiver

☐ Send report to default HTTP server
Uncheck to override settings for default HTTP server settings.

URI

https://

Examples: http://ex.com/rec, http://ex.com:49152/rec.aspx, https://ex.com

Authentication mode

None

Save

Save & Send test report

Cancel

6.25 Configure M-Bus settings

Purpose

The web interface enables configuring of M-Bus settings which will be applied to all meters connected to the Metering Gateway over M-Bus. This includes baud rate, addressing mode and the interface used to search for meters.


The Metering Gateway also supports configuring of more advanced M-Bus settings, including timeout and retry settings for various M-Bus events as well as multi telegram settings.

6.25.1 Set the way meters are searched for

To set the way meters are searched for:

- Go to **Meters > M-Bus settings**.

- Set the Baud rate that will be used in the meter search. Make sure that the baud rate set for the M-Bus is supported by all the meters that the Metering Gateway is going to communicate with.
- Set the Addressing mode that will be used in the meter search. A priority order can also be set, determining what addressing mode to use if the first choice should not work.
- Set the Interfaces to search for meters. If using “Integrated M-Bus”, meters will be accessed over the M-Bus interface. By instead selecting “TCP/IP”, meters will be accessed over the Ethernet network. Click **Add New**, select TCP/IP or M-Bus and click **Save** to add an additional interface.
- Click **Save**.



[MY ACCOUNT](#)
[SIGN OUT](#)

Hostname: CMe3100-0016000020

[Dashboards -](#)
[Measurement series](#)
[Meters](#)
[Configuration -](#)
[Device -](#)
[Support links -](#)
[Svenska](#)

[Meter list](#)
[Readout schedule](#)
[Encryption keys](#)
[M-Bus settings](#)

M-Bus search settings

Baud rate

2400

Choose baud rate according to what is supported by the meters.

Addressing mode

Secondary

Choose which addressing modes and in what order they will be used when searching for meters.

Interfaces to search

Showing 1 to 1 of 1 entries

[First](#)
[Previous](#)
[1](#)
[Next](#)
[Last](#)

Interface	Port	Options
Integrated M-Bus Master		N/A

Showing 1 to 1 of 1 entries

[First](#)
[Previous](#)
[1](#)
[Next](#)
[Last](#)


Add New

☐ Show advanced settings

Interfaces to search

Showing 1 to 2 of 2 entries

[First](#)
[Previous](#)
[1](#)
[Next](#)
[Last](#)

Interface	Port	Options
Integrated M-Bus Master		N/A
10.40.1.118	10001	

Showing 1 to 2 of 2 entries

[First](#)
[Previous](#)
[1](#)
[Next](#)
[Last](#)

Interface

Integrated M-Bus Master

[Save](#)
[Cancel](#)

6.25.2 Configure M-Bus time and retry settings

The timeout and retry settings for various M-Bus events are configurable through the web interface of the Metering Gateway. Table 8 provides a full description of possible customization options.

To configure the M-Bus time and retry settings:

- Go to **Meters > M-Bus settings** and check the Show advanced settings box.
- Set the Response timeout, Readout retries, Selection retries, Initialization idle time, Collision idle time and Request idle time.
- Click **Save**.

Field	Explanation
Response timeout	The Response timeout sets the number of milliseconds the Metering Gateway will wait for a response after making a request over the M-Bus.
Readout retries	The Readout retries set how many times a meter readout will be attempted before marked as a failed attempt.
Selection retries	The Selection retries set how many times the addressing of a meter will be attempted before marked as a failed attempt.
Initialization idle time	The Initialization time sets the number of milliseconds the Metering Gateway will wait after sending an initialization request over the M-Bus.
Collision idle time	The Collision idle time sets the number of milliseconds before a new request over the M-Bus is attempted after a collision has been detected.
Request idle time	The Request idle time sets the number of milliseconds of waiting time between making two requests over the M-Bus.

Table 8: M-Bus time and retry settings

☒ Show advanced settings

Response timeout

 Number of milliseconds to wait for response.

Readout retries

 Number of retries when performing a meter readout.

Selection retries

 Number of retries when selecting a meter using secondary addressing.

Initialization idle time

 Number of milliseconds to wait after sending initialize.

Collision idle time

 Number of milliseconds to wait after a collision is detected.

Request idle time

 Number of milliseconds to wait between two requests.

6.25.3 Configure M-Bus multi telegram settings

The M-Bus multi telegram settings determine the maximum amount of telegrams received by the Metering Gateway for each meter readout. Disabling Multi telegrams means that only the first telegram will be read for each meter readout, regardless of if the meter is trying to send additional ones. The maximum amount of telegrams per readout is configured by setting the multi telegram read limit.

To configure M-Bus multi telegram settings:

- Go to **Meters > M-Bus settings**.
- To enable multi telegrams, select "Auto" in the Multi telegram tab.
- Set the Multi telegram read limit to configure the maximum amount of telegrams sent per readout.
- Check the Show advanced settings box to configure time and retry settings for the multi telegrams. In Table 8 of section 6.25.2 ([Configure M-Bus time and retry settings](#)) an explanation of each field is presented.

M-Bus readout settings

Multi telegram
Off

Choose auto to enable support for multi telegram readouts.

Multi telegram read limit
0

Enter the maximum number of telegrams to read, set to 0 for automatic detection.

☒ Show advanced settings

Response timeout
1500

Number of milliseconds to wait for response.

Readout retries
3

Number of retries when performing a meter readout.

Selection retries
2

Number of retries when selecting a meter using secondary addressing.

Initialization idle time
10000

Number of milliseconds to wait after sending initialize.

Collision idle time
3500

Number of milliseconds to wait after a collision is detected.

Request idle time
1000

Number of milliseconds to wait between two requests.

Save

6.25.4 Configure M-Bus settings of an individual meter

. To configure M-Bus settings of an individual meter:

- Go to **Meters** and click the secondary address of a meter.
- Go to **Settings**.
- Set the Baud rate that will be used by the Metering Gateway to communicate with the meter.
- Set the Addressing mode that will be used by the Metering Gateway to access the meter. If using the wireless addressing mode, you may select through which Wireless M-Bus Receiver the meter should be accessed. However, the meter will by default automatically be assigned to the Wireless Receiver which has managed to establish the best connection.
- Set the state of the multi telegram. If enabled, set the Multi telegram read limit. It will determine the maximum amount of telegrams read by the Metering Gateway per readout.
- Click **Save**.

M-Bus settings

Addressing mode

Elvaco Wireless M-Bus

Choose which addressing mode to use when communicating with the meter.

Wireless receiver address

62000997

Enter secondary address to wireless receiver.

Optional receivers

62000997, -96dBm (2016...

Baud rate

2400

Choose baud rate according to what is supported by the meters.

Multi telegram

Off

Choose auto to enable support for multi telegram readouts.

Multi telegram read limit

0

Enter the maximum number of telegrams to read, set to 0 for automatic detection.

Save

6.26 Access the M-Bus from a master device

Purpose

The Transparent M-Bus service enables a master device, other than the Metering Gateway, to communicate directly with the meters on the M-Bus. The Transparent M-Bus service might for example be used if direct communication with a meter is necessary for debug or meter software update purposes. In such cases, the service allows for example a Head-end system to communicate directly with the meter, completely bypassing the Metering Gateway. A maximum of two different Transparent M-Bus TCP/IP services with different baud rates can be enabled at the same time

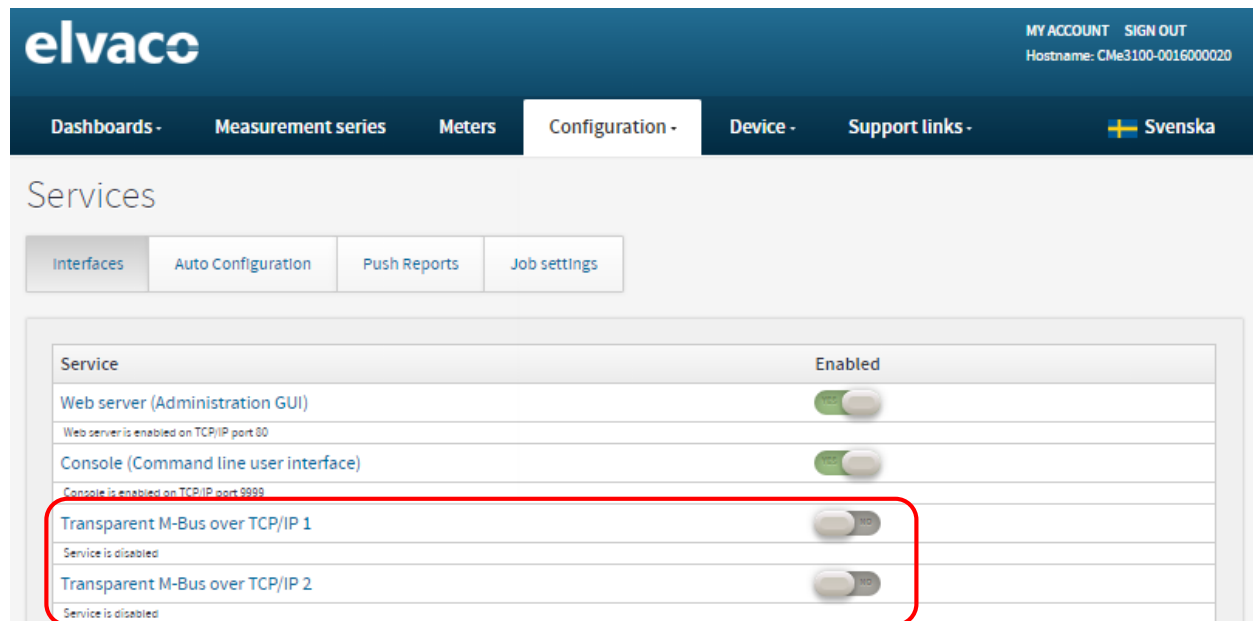


It is not recommended to enable the Transparent M-Bus service if other services that access the M-Bus, e.g. Push Reports, are active in the Metering Gateway. This might otherwise lead to that M-Bus activity due to one service interrupts the other service.


6.26.1 Enable a master device to communicate directly on the M-Bus

To enable a master device to communicate directly on the M-Bus:


- Go to **Configuration > Services**. In the list, the Transparent M-Bus services are easily enabled or disabled. Select one of the Transparent M-Bus services by clicking on it.
- Set the Baud rate and make sure it is supported by the M-Bus meters.
- Select a Packing mode. By using “M-Bus”, all data transmitted over Transparent M-Bus is controlled by the Metering Gateway to assure it follows the M-Bus standard. By setting the packing interval to “Transparent”, the data will be transmitted without performing any such control.
- Set the Packing interval to determine number of milliseconds that need to pass before data received from the master device is transmitted on the M-Bus.
- Set the Idle timeout to determine the number of seconds of inactivity that needs to pass before a connection with a master device is closed. Make sure that the time is set to reflect the connection scheme of the master device.
- Click **Save**.



Service	Enabled
Web server (Administration GUI)	<input checked="" type="checkbox"/>
Web server is enabled on TCP/IP port 80	
Console (Command line user interface)	<input checked="" type="checkbox"/>
Console is enabled on TCP/IP port 9999	
Transparent M-Bus over TCP/IP 1	<input type="checkbox"/>
Service is disabled	
Transparent M-Bus over TCP/IP 2	<input type="checkbox"/>
Service is disabled	



[MY ACCOUNT](#)
[SIGN OUT](#)
 Hostname: CMe3100-0016000148-DEMO

Dashboards -
Measurement series
Meters
Configuration -
Device -
Support links -
 Svenska

Services - Transparent M-Bus over TCP/IP 1

Service information

This service enables M-Bus communication to be tunneled over TCP/IP in a transparent way. A connecting client may communicate in the same way as if it would have been connected directly to the M-Bus network. Two services can be enabled simultaneously with different configuration. However, only one client can use one of the services at a particular time.

☒ Enable Transparent M-Bus over TCP/IP 1

TCP port number

2400

Connection port for client.

Baud rate

2400 ▼

Choose baud rate according to what is supported by the meters.

Packing mode

Transparent ▼

Choose M-Bus for M-Bus communication, transparent mode will disable M-Bus packing.

Packing interval

0

Number of milliseconds of inactivity on the M-Bus that the service waits before sending data received by the integrated M-Bus master.

Idle timeout

60

Number of seconds to wait before closing an inactive connection.

Save

Cancel

6.27 Access meter readings from a master device

Purpose

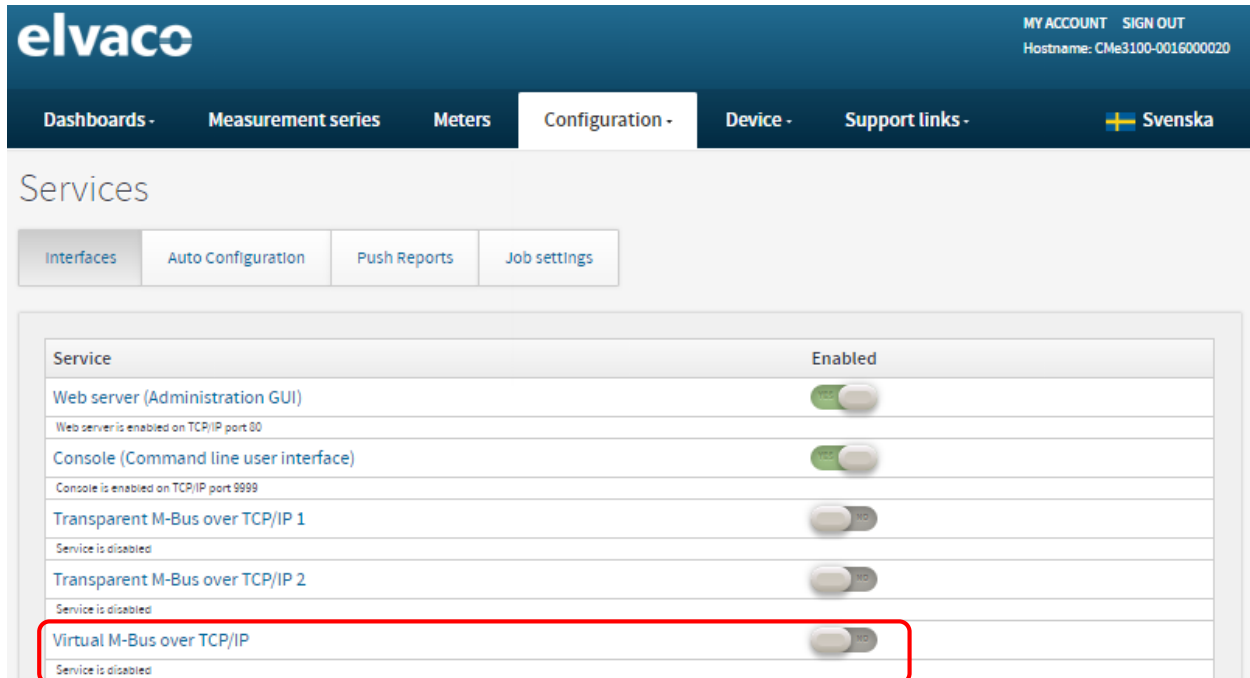
The Metering Gateway supports Virtual M-Bus communication over TCP/IP, which means that another master device can retrieve data directly from the database of the CMe3100. When using the Virtual M-Bus mode, the master device will never communicate directly on the M-Bus, but only with the Metering Gateway and its meter value database.

6.27.1 Allow a master device to collect meter values from the database

To allow a master device to collect meter values from the database of the Metering Gateway:

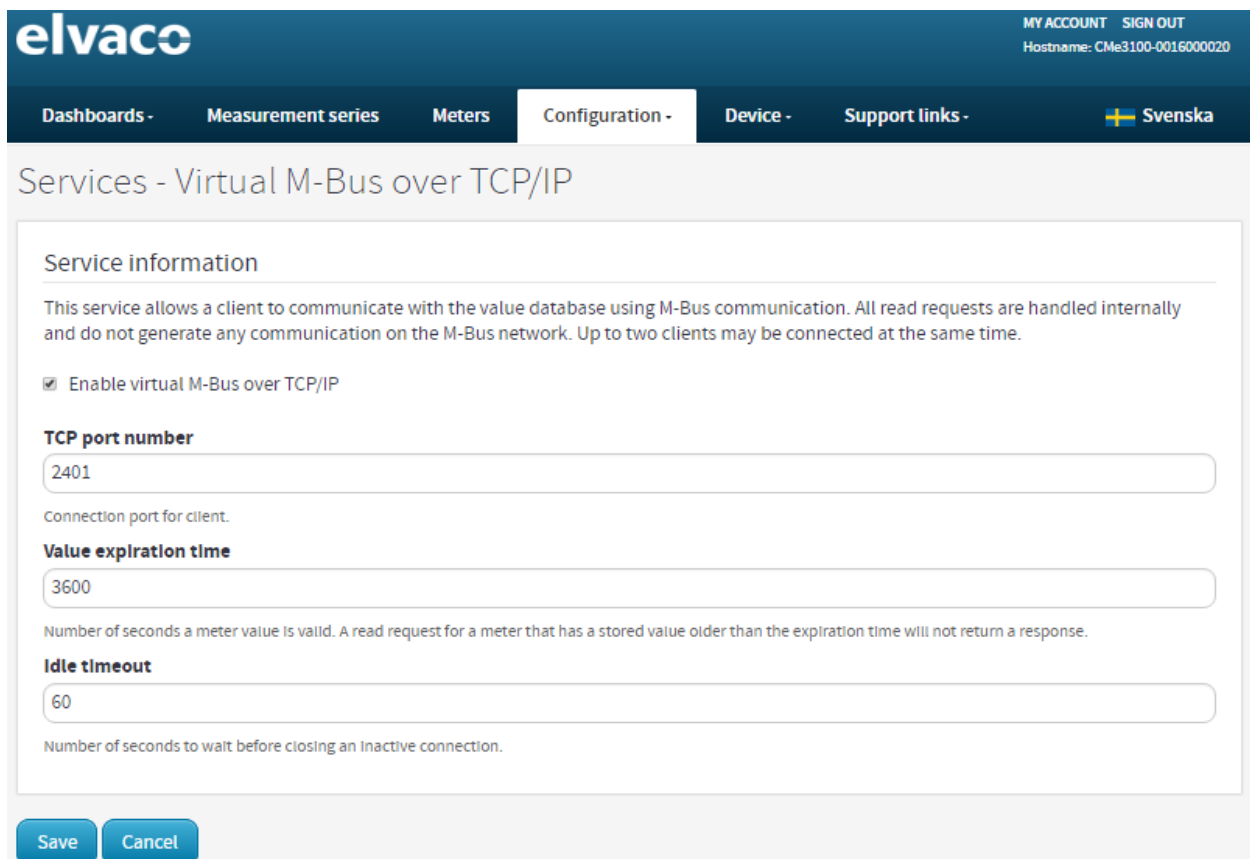
- Go to **Configuration > Services**.
- Enable the Virtual M-Bus service. Click on it to configure the Virtual M-Bus settings.
- Set the Value expiration date to determine how long a stored meter value will be valid if requested over Virtual M-Bus. If a meter value has been stored in the database for a longer time than the value expiration time, a requesting master device will receive a “not valid” notification if the meter value should be requested.

- Set the Idle timeout to determine how many seconds a communication link with a master device may be inactive before it is closed. The default setting allows for ample time between operations without the need of reconnecting and also assures that a connection that is lost, automatically closes after the timeout period. It will work well in a majority of cases. However, the Idle timeout needs to be set to reflect the connection scheme of the master device.
- Click **Save**.



The screenshot shows the 'Configuration - Services' page in the elvaco web interface. The 'Interfaces' tab is selected. A table lists various services with their status (Enabled/Disabled) indicated by a toggle switch. The 'Virtual M-Bus over TCP/IP' service is highlighted with a red rectangle.

Service	Enabled
Web server (Administration GUI) <small>Web server is enabled on TCP/IP port 80</small>	<input checked="" type="checkbox"/>
Console (Command line user interface) <small>Console is enabled on TCP/IP port 9999</small>	<input checked="" type="checkbox"/>
Transparent M-Bus over TCP/IP 1 <small>Service is disabled</small>	<input type="checkbox"/>
Transparent M-Bus over TCP/IP 2 <small>Service is disabled</small>	<input type="checkbox"/>
Virtual M-Bus over TCP/IP <small>Service is disabled</small>	<input type="checkbox"/>



The screenshot shows the 'Services - Virtual M-Bus over TCP/IP' configuration page. It includes a 'Service information' section and several configuration fields.

Service information

This service allows a client to communicate with the value database using M-Bus communication. All read requests are handled internally and do not generate any communication on the M-Bus network. Up to two clients may be connected at the same time.

☒ Enable virtual M-Bus over TCP/IP

TCP port number

 Connection port for client.

Value expiration time

 Number of seconds a meter value is valid. A read request for a meter that has a stored value older than the expiration time will not return a response.

Idle timeout

 Number of seconds to wait before closing an inactive connection.

Buttons: Save, Cancel

6.28 Use M-Bus slave ports for Virtual or Transparent M-Bus

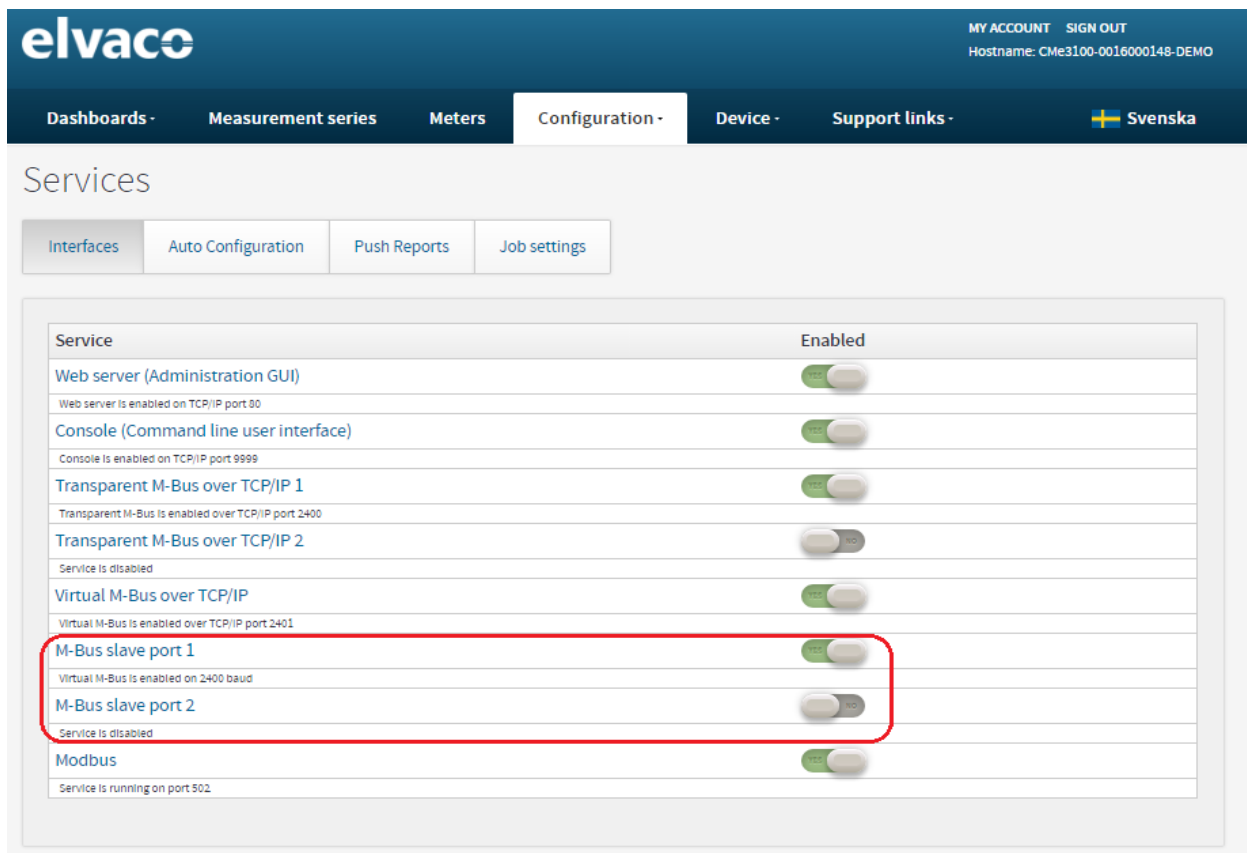
Purpose

The Metering Gateway has two slave ports available, which can be used by a master device to access the Virtual or Transparent M-Bus services. Each port can be individually configured by setting the baud rate, packing interval and idle timeout settings.

6.28.1 Activate and configure the settings of the M-Bus slave ports

To activate and configure the settings of the M-Bus slave port:

- Go to **Configuration > Services**.
- Enable the desired slave port. Click on it to configure its settings. Select whether the master device should use the Transparent M-Bus or Virtual M-Bus service when connecting to the slave ports.
- Set the Baud rate to determine the rate of communication between the Metering Gateway and its master device.
- Set the Packing interval to determine how many milliseconds that will have to pass before data received by the Metering Gateway will be sent to the master device.
- Set the Idle timeout to determine the amount of seconds of inactivity that needs to pass before a connection with the master device is closed. Make sure that the time is set to reflect the connection scheme of the master device.
- Click **Save**.



The screenshot shows the Elvaco web interface. The top navigation bar includes the Elvaco logo, user account links (MY ACCOUNT, SIGN OUT), and a hostname (CMe3100-0016000148-DEMO). Below the navigation bar, there are tabs for Dashboards, Measurement series, Meters, Configuration (selected), Device, and Support links. A language selector for Svenska is also present.

The main content area is titled 'Services' and contains a sub-navigation bar with tabs for Interfaces, Auto Configuration, Push Reports, and Job settings. The 'Interfaces' tab is active, displaying a table of services.

Service	Enabled
Web server (Administration GUI)	<input checked="" type="checkbox"/>
Web server is enabled on TCP/IP port 80	
Console (Command line user interface)	<input checked="" type="checkbox"/>
Console is enabled on TCP/IP port 9999	
Transparent M-Bus over TCP/IP 1	<input checked="" type="checkbox"/>
Transparent M-Bus is enabled over TCP/IP port 2400	
Transparent M-Bus over TCP/IP 2	<input type="checkbox"/>
Service is disabled	
Virtual M-Bus over TCP/IP	<input checked="" type="checkbox"/>
Virtual M-Bus is enabled over TCP/IP port 2401	
M-Bus slave port 1	<input checked="" type="checkbox"/>
Virtual M-Bus is enabled on 2400 baud	
M-Bus slave port 2	<input type="checkbox"/>
Service is disabled	
Modbus	<input checked="" type="checkbox"/>
Service is running on port 502	

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Services - M-Bus slave port 1

Service information

This service enables either a Virtual M-Bus or a Transparent M-Bus service to be accessed over the physical M-Bus slave port. Service functions are equal to their counterparts over TCP/IP.

☒ Enable M-Bus slave port 1

Service mode

Transparent M-Bus

Choose what service mode to run on the slave port.

Baud rate

2400

Local baud rate of the port.

Packing interval

0

Number of milliseconds which the service will wait until sending received data to the local M-Bus master.

Idle timeout

15

Number of seconds to wait before closing an inactive connection.

Save

Cancel

6.29 Allow a master device to perform readouts over Modbus


Purpose

The Metering Gateway supports meter readouts by master devices over the Modbus protocol, which might for example be desired in a Digital Control System. The Modbus readout is performed by TCP/IP (Ethernet network).


6.29.1 Enable meter readouts over Modbus

To enable meter readouts over Modbus:

- Go to **Configuration > Services**.
- Enable the Modbus service in the list. Click on it to enter the settings.
- Go to **Settings**. Set the Number of simultaneous connections that should be allowed (i.e. the number of requesting clients in the system).
- Set the Default data type and the Default constant to handle decimal values. Make sure they correspond with the ones used by the master device.
- Select if the Metering Gateway should respond to invalid Modbus addresses.
- Click **Save**.



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Services

Interfaces

Auto Configuration

Push Reports

Job settings

Service	Enabled
Web server (Administration GUI) <small>Web server is enabled on TCP/IP port 80</small>	<input checked="" type="checkbox"/>
Console (Command line user interface) <small>Console is enabled on TCP/IP port 9999</small>	<input checked="" type="checkbox"/>
Transparent M-Bus over TCP/IP 1 <small>Transparent M-Bus is enabled over TCP/IP port 2400</small>	<input checked="" type="checkbox"/>
Transparent M-Bus over TCP/IP 2 <small>Service is disabled</small>	<input type="checkbox"/>
Virtual M-Bus over TCP/IP <small>Virtual M-Bus is enabled over TCP/IP port 2401</small>	<input checked="" type="checkbox"/>
M-Bus slave port 1 <small>Virtual M-Bus is enabled on 2400 baud</small>	<input checked="" type="checkbox"/>
M-Bus slave port 2 <small>Service is disabled</small>	<input type="checkbox"/>
Modbus <small>Service is running on port 502</small>	<input checked="" type="checkbox"/>

Services - Modbus

[Overview](#)
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Modbus settings

☒ Activate Modbus

TCP port number

502

Connection port for client.

Simultaneous connections

2

Choose how many simultaneous connections that should be allowed.

Modbus slave address

1

☐ Respond on invalid address

Check to send a response even if a Modbus address is incorrect.

Default data type

Two byte unsigned integer

Choose what data type that should be default.

Default constant

100,0

Factor that all returned values gets multiplied with to allow handling of decimal values using integers.

Save

6.30 Enable automatic updates of configuration settings

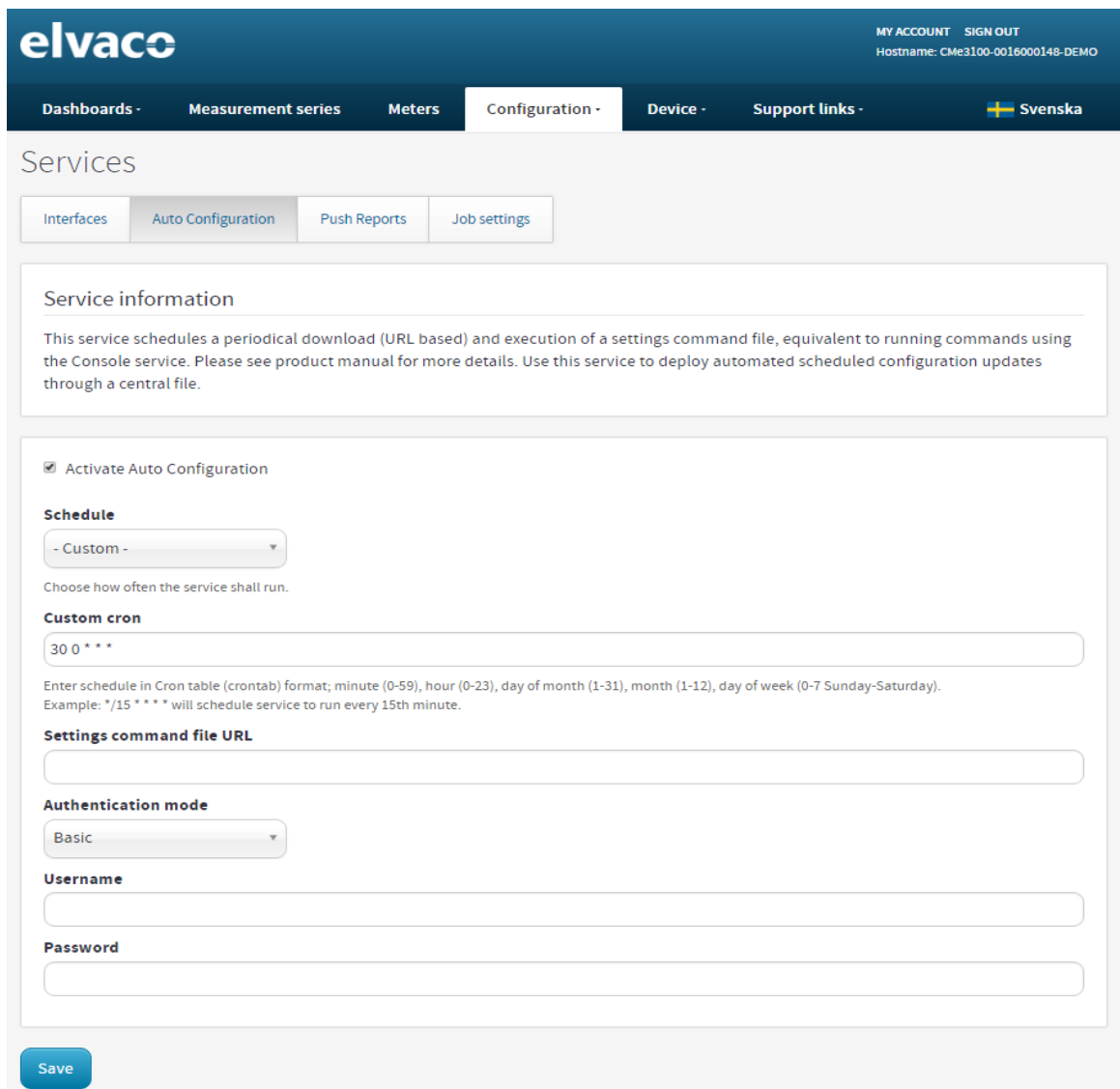
Purpose

By activating the Auto Configuration service, the Metering Gateway will periodically check a URL for a settings command file (.cad file) which will be downloaded and parsed. The settings command file can include settings updates similar to what is possible using the command line interface.

6.30.1 Enable and configure the Auto Configuration service

To enable and configure the Auto Configuration service:

- Go to **Configuration > Services > Auto Configuration**.
- Check the Activate Auto Configuration box.
- Select the schedule of the Auto Configuration service out of the preset alternatives or by using cron patterns. To learn more about cron patterns, see section 6.38.1 ([Set schedules with cron patterns](#)).
- Type in the URL of the command file.
- Select whether to enable Basic authentication mode, which will then be used every time an Auto Configuration is run.
- Click **Save**.



The screenshot shows the elvaco web interface. The top navigation bar includes the elvaco logo, user account links (MY ACCOUNT, SIGN OUT), and the hostname (CMe3100-0016000148-DEMO). The main navigation menu has tabs for Dashboards, Measurement series, Meters, Configuration (selected), Device, and Support links. A language selector shows Svenska.

The 'Services' section is active, with sub-tabs for Interfaces, Auto Configuration (selected), Push Reports, and Job settings.

Service information

This service schedules a periodical download (URL based) and execution of a settings command file, equivalent to running commands using the Console service. Please see product manual for more details. Use this service to deploy automated scheduled configuration updates through a central file.

☒ Activate Auto Configuration

Schedule

- Custom -

Choose how often the service shall run.

Custom cron

30 0 * * *

Enter schedule in Cron table (crontab) format; minute (0-59), hour (0-23), day of month (1-31), month (1-12), day of week (0-7 Sunday-Saturday).
Example: */15 * * * * will schedule service to run every 15th minute.

Settings command file URL

Authentication mode

Basic

Username

Password

Save

6.31 Configure advanced Push Report settings

Purpose

There is a group of more advanced Push Reports settings, configurable through the web interface of the Metering Gateway. These include:

- The Adaptive Retries functionality, which adjust retry attempts for failed Push Reports to the schedule in use.
- The Value Period, which determines how far back in time the Metering Gateway will include values for when compiling a Push Report.
- The Value Interval, which determines the time between the readouts included in the Push Reports.
- The timeout value, which for each protocol determines how long a Push Report transmit attempt may linger before timing out

6.31.1 Disable Adaptive Retries

The Adaptive Retries ensure that all Push Report retry attempts are performed before the next scheduled Push Report is going to be sent. For example, if the Push Report schedule is set to every 16th-60th minute, up to two retries will be attempted with 300 seconds between each one. If all retry attempts fail, the meter values will instead be included in the next Push Report. Table 9 provides a description of the concept.

Push Report schedule	Max amount of retry attempts	Seconds between each attempt
1-15 min	1	0
16-60 min	2	300
61 min-23 h	3	500
>23 h	6	3600

Table 9: Adaptive retry schedule

If choosing to disable the Adaptive Retries, the Metering Gateway will use its individual report settings to determine how to handle failed Push Report attempts. These settings are not displayed in the web interface, but can be accessed through the console interface. If no such report settings have been configured for the Metering Gateway, general job settings will determine how the device handles failed Push Report retry attempts.

To disable Adaptive Retries:

- Go to **Configuration > Services > Push Reports**.
- Disable Adaptive Retries.
- Click **Save**.

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Service information

This service schedules periodic reports to be sent containing stored measurement values for all installed meters. To configure basic settings such as report type, schedule and contents: Go to [Configuration > Push Reports](#). Please note that settings presented in this section only applies to Push Reports.

Advanced settings

☒
 Activate Adaptive Retries

Switch on to use an adaptive retry scheme when sending reports. Number of attempts and time between attempts will automatically be adjusted depending on report schedule. Please see product manual for more details. If this option is disabled, retries and time offset will default to report settings or general job settings.

E-mail server timeout

Timeout in seconds when attempting to send a report, set to -1 to disable timeout.

FTP server timeout

Timeout in seconds when attempting to send a report, set to -1 to disable timeout.

HTTP server timeout

Timeout in seconds when attempting to send a report, set to -1 to disable timeout.

Save

6.31.2 Configure the Value Period

The Value Period of the Metering Gateway can be set to “Auto” or to a fixed number. Using the “Auto” settings will deliver all previously unsent meter values up to a max limit of 180 meter readouts. For example, if the Metering Gateway has been unable to send Push Reports, scheduled every 15th minute for a certain amount of time, it will be able to go back and deliver a maximum of 45 hours of undelivered meter values with the next successful Push Report (180 * 15 minutes = 2700 minutes = 45 hours). If instead setting the Value Period to a fixed number, the Metering Gateway will look exactly that far back in time for undelivered meter values.

To configure the Value Period of the Metering Gateway:


- Go to **Configuration > Push Reports**. Select a Push Report by clicking on it.
- By setting the Value Period to “Auto”, the Metering Gateway will calculate the Value Period based on how far back in time it is able to find unsent meter values. By instead setting the Value Period to a specific value, meter values exactly that long back in time will be included in the Push Report, regardless of if there are older unsent meter values.
- Click **Save**.

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 Svenska

Push Reports - Report 1

Report type

Email

Report template

1101 Email value report ...

Report schedule

Every hour

Meter readout schedule

Every hour

Choose how often the service shall run.

Current setting in Meters > Readout schedule.

Report content

Value period

1

Month(s)

Choose which values to include in the report based on how long ago they were stored compared to when the report is sent. For example, using settings "1 Day(s)" include all values stored within 1 day from when each report is sent.

Value interval

12 hours

Choose "All values" to include all available values (defined by readout schedule) or choose a higher setting to create a sparse value report with a longer time between reported values.

6.31.3 Configure the Value Interval

To configure the Value Interval:


- Go to **Configuration > Push Reports**. Select a Push Report by clicking on it.
- Set the Value Interval to determine the time between each meter readout included in the Push Report. Setting the Value Interval to "All values" will automatically ensure that all meter values read by the Metering Gateway are included in the Push Reports.
- Click **Save**.

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Push Reports - Report 1

Report type

Email

Report template

1101 Email value report ...

Report schedule

Every hour

Meter readout schedule

Every hour

Choose how often the service shall run.

Current setting in Meters > Readout schedule.

Report content

Value period

1

Month(s)

Choose which values to include in the report based on how long ago they were stored compared to when the report is sent. For example, using settings "1 Day(s)" include all values stored within 1 day from when each report is sent.

Value interval

12 hours

Choose "All values" to include all available values (defined by readout schedule) or choose a higher setting to create a sparse value report with a longer time between reported values.

6.31.4 Configure the Push Report timeout settings

To configure the Push Report timeout settings:

- Go to **Configuration > Services > Push Reports**.
- Set the desired Timeout for each protocol. Setting it to "-1" will disable the timeout functionality of the Metering Gateway, and instead let the server determine when a connection should be closed. The default settings will work well in a majority of cases. However, if the connection between the Metering Gateway and the server is very slow, the timeout value might have to be increased accordingly.
- Click **Save**.

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Service information

This service schedules periodic reports to be sent containing stored measurement values for all installed meters. To configure basic settings such as report type, schedule and contents: Go to [Configuration > Push Reports](#). Please note that settings presented in this section only applies to Push Reports.

Advanced settings

☒ **Activate Adaptive Retries**
 Switch on to use an adaptive retry scheme when sending reports. Number of attempts and time between attempts will automatically be adjusted depending on report schedule. Please see product manual for more details. If this option is disabled, retries and time offset will default to report settings or general job settings.

E-mail server timeout

60

Timeout in seconds when attempting to send a report, set to -1 to disable timeout.

FTP server timeout

60

Timeout in seconds when attempting to send a report, set to -1 to disable timeout.

HTTP server timeout

-1

Timeout in seconds when attempting to send a report, set to -1 to disable timeout.

Save

6.32 Configure Job retry settings

Purpose

The job retry settings determine how the Metering Gateway will perform retry attempts for scheduled and manual jobs, for example meter readouts, if failing the first time. If Adaptive Retries have been disabled for Push Reports, and no other retry settings have been configured for the Metering Gateway, these job retry settings will also affect the Push Report retry settings.


6.32.1 Configure retry settings for scheduled and manual jobs

To configure retry settings for scheduled and manual jobs:

- Go to **Configuration > Services > Job settings**.
- Set the desired number of job retries to determine the maximum amount of times the Metering Gateway will attempt to perform a job.
- Set the Retry offset to determine the time between the Metering Gateway will wait between each attempt for these jobs.
- Click **Save**.

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Settings information

These settings control the default retry scheme for scheduled and manually started jobs. Please note that many services, such as Push Reports, has their own overridden parameters and does not rely on these default settings.

Scheduled job retries

3

Number of retries for scheduled jobs.

Scheduled job retry offset

60

Number of seconds between retries for scheduled jobs.

Manual job retries

0

Number of retries of manually started jobs.

Manual job retry offset

0

Number of seconds between retries for manually started jobs.

Save

6.33 Access the device through a console application


Purpose

The Metering Gateway can be accessed through a console application, i.e. by using a command-line interface. This is most often used for troubleshooting and advanced operations. To increase the security of the console application, the Metering Gateway supports the usage of passwords to access different levels of device functions. It is also possible to create a list of specific IP addresses which are allowed to access the Metering Gateway through the console application.


6.33.1 Enable and configure the console application

To enable and configure the console application:

- Go to **Configuration > Services**.
- The console application is easily enabled or disabled in this menu. Click on it to enter the settings.
- Set the TCP port where the console application will connect
- Set the Idle timeout to determine the number of seconds of inactivity that needs to pass before a connection with a console application is closed.
- Go to **Security**. Add a password for accessing different levels of device functions and a list of authorized IP addresses which will be able to use the console application.
- Click **Save**.



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Services - Console

Console TCP/IP Security

Service information

This service enables a user to connect to the device using a console application, for example Telnet. It is intended to be used mainly as a debug or advanced configuration tool to access functions not available from the web interface.

☒ Enable console service


TCP port number

Connection port for client.


Idle timeout

Number of seconds to wait before closing an inactive connection.

Save Cancel



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Services - Console

Console TCP/IP **Security**

Security settings

Password 1

Password for accessing level 1 functions.

Password 2

Password for accessing level 2 functions.

Password 3

Password for accessing level 3 functions.

Authorized IP address

Comma separated list of client IP addresses which will be accepted by the console service. Leave empty to allow all.

Save

6.34 Use On Demand Reports

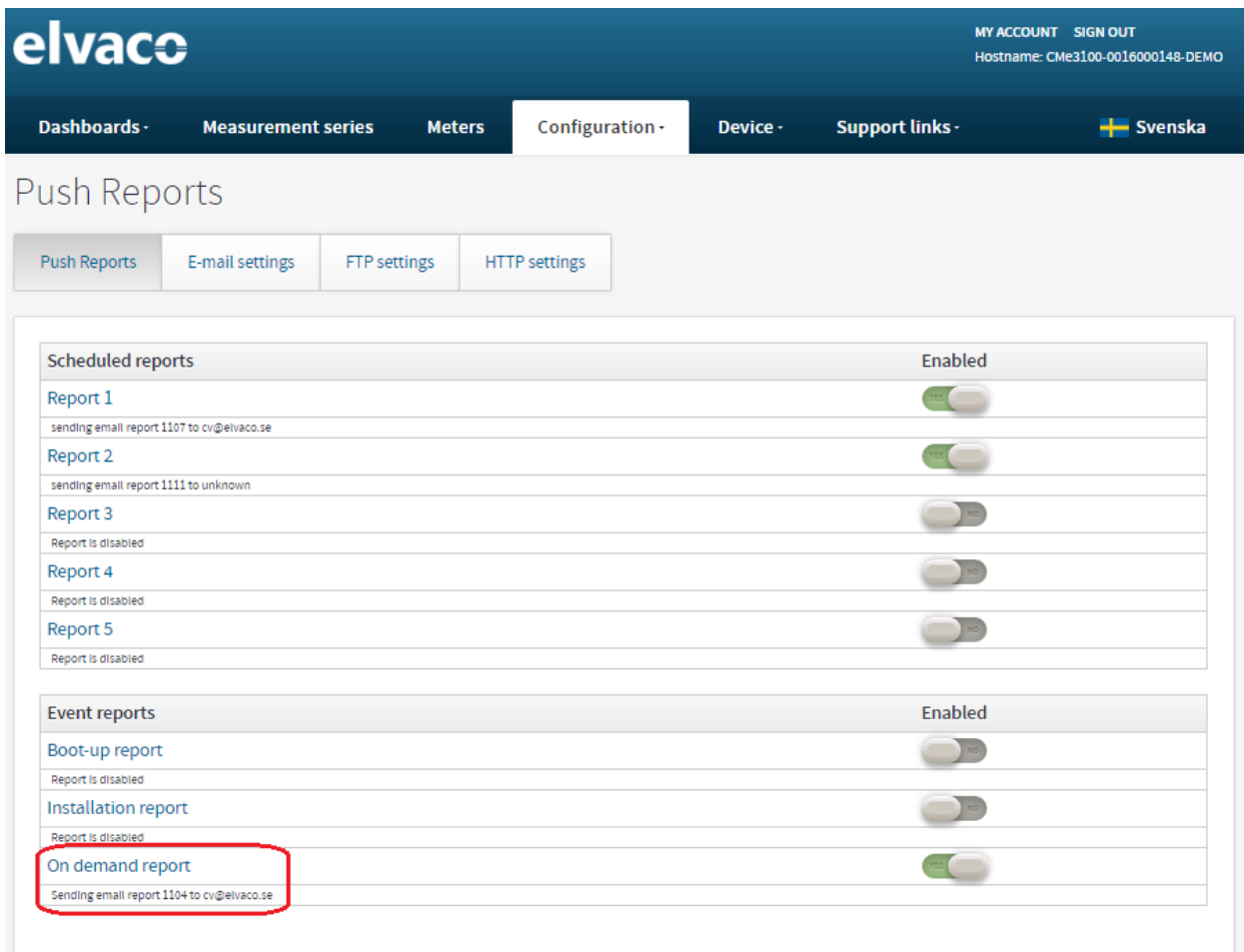
Purpose

The On Demand Report is a way of triggering a report manually, without having to set a schedule. It differs from other types of reports in the sense that an actual meter readout is performed each time an On Demand Report is requested. In contrast, all other types of Push Reports include meter values that has already been stored in the database of the Metering Gateway.

6.34.1 Enable and configure the On Demand Report

To enable and configure the On Demand Report:

- Go to **Configuration > Push Reports > On demand report**. Enable the On Demand Report and click on it to enter the settings.
- Set the protocol to receive the report by and a report template. To learn more about the report templates available, please visit <http://www.elvaco.com/en/download?tid=95>.
- Add recipients of the On Demand Report.
- Click **Save** (or **Save & Send test report** to test the settings).




The screenshot shows the Elvaco web interface. The top navigation bar includes the Elvaco logo, user account links (MY ACCOUNT, SIGN OUT), and the hostname (CMe3100-0016000148-DEMO). The main navigation menu has tabs for Dashboards, Measurement series, Meters, Configuration (selected), Device, and Support links. A language selector for Svenska is also present.

The 'Push Reports' section is active, with sub-tabs for Push Reports, E-mail settings, FTP settings, and HTTP settings. The 'Push Reports' tab is selected, showing a table of reports.

Scheduled reports	Enabled
Report 1 sending email report 1107 to cv@elvaco.se	<input checked="" type="checkbox"/>
Report 2 sending email report 1111 to unknown	<input checked="" type="checkbox"/>
Report 3 Report is disabled	<input type="checkbox"/>
Report 4 Report is disabled	<input type="checkbox"/>
Report 5 Report is disabled	<input type="checkbox"/>

Event reports	Enabled
Boot-up report Report is disabled	<input type="checkbox"/>
Installation report Report is disabled	<input type="checkbox"/>
On demand report Sending email report 1104 to cv@elvaco.se	<input checked="" type="checkbox"/>



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Push Reports - On demand report

Report type
 E-mail

Report template
 1104 (Email value report...

☒ Send report to default e-mail address
 Uncheck to override settings for default recipients.

To:
 cv@elvaco.se
 Recipient's e-mail address. Use a comma to separate addresses.

CC:

 Copy recipient's e-mail address. Use a comma to separate addresses.

BCC:

 Hidden recipient's e-mail address. Use comma to separate addresses.

[Save](#)
[Save & Send test report](#)
[Cancel](#)

6.35 Configure identity settings

Purpose

Configuring device identity settings includes assigning an identity for the Metering Gateway, which will be displayed as the sender of Push Reports, as well as contact information to be included in the Push Reports.

6.35.1 Customize the Push Report identity settings

To customize the Push Report identity settings:


- Go to **Configuration > Localization > Identity**.
- Assign a product identity for the Metering Gateway by assigning it a name. Also add contact information to be included in the Push Reports, if desired.
- Click **Save**.

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 Svenska

Localization

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Product identity

Product name

A unique product name to identify the product in for example Push Reports. Product name is also used as sending e-mail address for e-mail reports. If no product name is specified, product name will default to: CMe3100-0016000020.

Contact information

This information will be visible in for example Push Reports. Please fill in details to make it easier for a receiving party to get in contact with the right person regarding question or support.

Company name

Name or department

Address line 1

Address line 2

Address line 3

Address line 4

Save


6.35.2 Configure localization settings for Push Reports

To configure localization settings for Push Reports:

- Go to **Configuration > Localization > Conventions**.
- Set Desired language, Decimal separator and First day of the week. The Character encoding should be set with respect to the operational system used to make sure that all characters of the Push Reports will be encoded correctly.
- Click **Save**.

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Localization

Conventions Identity Branding

Conventions

Language

English

Choose language for translatable objects created by the system.

Decimal separator

,

Choose character used as decimal separator.

Character encoding

Windows (CP1252)

Choose character encoding for Push Reports.

First day of the week

Monday

Choose which is the first day of week.

Save

6.36 Perform a reboot of the device

Purpose

In rare cases, e.g. in case of troubleshooting, it might be desired to perform a reboot of the Metering Gateway. This can be done directly through the web interface.


6.36.1 Reboot the device

To perform a reboot of the device:

- Go to **Device > About**.
- Click **Reboot now**.



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About

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 Reboot now  Factory reset

6.37 Reset the device to factory default settings

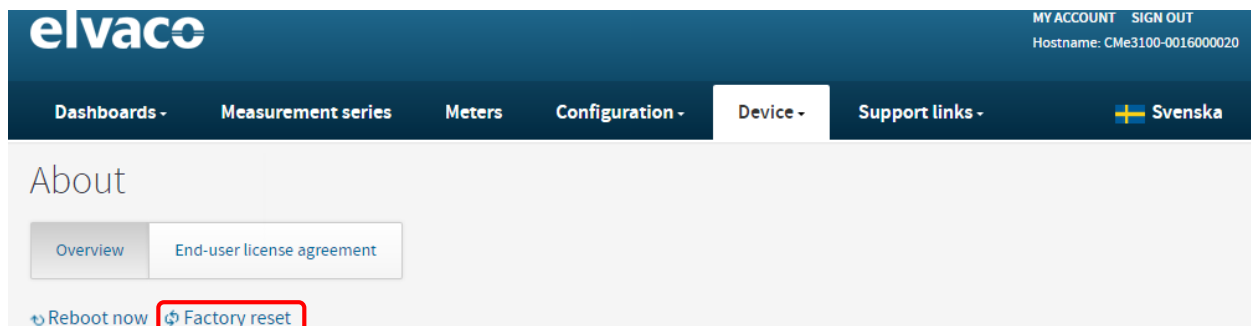
Purpose

By performing a factory reset of the Metering Gateway, all settings will be reset to default and the meter value database and logs will be cleared.

6.37.1 Perform a factory reset

To perform a factory reset:

- Go to **Device > About**.
- Click **Factory reset**.



6.38 Customize service and job schedules

6.38.1 Specify schedules using cron patterns

For scheduled jobs, e.g. meter readouts and Push Reports, cron patterns can be used to customize the time interval by which the jobs will be performed. It is done by setting up to five different time variables, each one represented by a star. Replace each star with a number to set a specific job execution schedule.

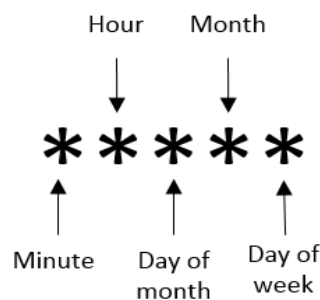


Figure 9: Illustration of cron pattern

The “/” character is used to set periodic values, i.e. schedule a job with a recurrent time interval. The “?” character is used to generate a random value. Lastly, using the “|” character allows to combine several cron patterns. An example table including a list of chosen cron patterns is presented in Table 10

Cron pattern	Description
15 * * * *	Schedule a job 15 minutes past every hour, i.e. 00:15, 01:15, 02:15 etc.
*/15 * * * *	Schedule a job every 15 th minute, i.e. 00:00, 00:15, 00:30, etc.
* * * * *	Schedule a job every minute, i.e. 00:01, 00:02, 00:03, etc.
* 12 * * mon	Schedule a job every minute during the 12 th hour of every Monday.
* 12 16 * mon	Schedule a job every minute during the 12 th hour of every Monday, if the day is the 16 th of the month.
59 11 * * 1,2,3,4,5	Schedule a job 11:59 on Monday, Tuesday, Wednesday, Thursday and Friday.
59 11 * * 1-5	Schedule a job 11:59 on Monday, Tuesday, Wednesday, Thursday and Friday.
*/15 9-17 * * *	Schedule a job every 15 th minute between the 9 th and the 17 th hour of the day, i.e. 09:00, 09:15, 09:30, etc.
* 12 10-16/2 * *	Schedule a job every minute during the 12 th hour of the day, if the day is the 10 th , the 12 th , the 14 th or the 16 th of the month.
* 12 1-15,17,20-25 * *	Schedule a job every minute during the 12 th hour of the day, if the day is between the 1 st and the 15 th , the 17 th or between the 20 th and 25 th day of the month.
0 5 * * * 8 10 * * * 22 17 * * *	Schedule a job every day at 05:00, 10:08 and 17:22.
?1-30 0 * * *	Schedule a job at a random chosen minute during the first 30 minutes of every hour.

Table 10: Examples of different cron patterns

7 Technical specifications

7.1 Characteristics

Type	Value	Unit	Comments
Mechanics			
Casing material	Polyamide	-	
Protection class	IP20	-	
Dimensions (w x h x d)	72 x 90 x 64	mm	5 DIN modules
Weight	190	g	
Mounting	DIN rail	-	Mounted on DIN rail (DIN 50022) 35 mm
Electrical connections			
Supply voltage	Screw terminal	-	Cable 0.25-1.5 mm ² , 0.5Nm tightening torque
M-Bus master port	Pin terminal	-	Solid Wire 0.6-0.8 Ø mm
M-Bus slave port 1	Screw terminal	-	Cable 0.25-1.5 mm ²
M-bus slave port 2	Screw terminal	-	Cable 0.25-1.5 mm ²
USB master port	Type A	-	
USB slave port	Type mini B	-	
Network	RJ45	-	Ethernet
Electrical characteristics			
Nominal voltage	100-240	VAC	+/- 10%
Frequency	50/60	Hz	
Power consumption (Max)	<15	W	
Power consumption (Nom)	<5	W	
Installation/overvoltage	CAT 3	-	
Environmental specifications			
Operating temperature	-20 to +55	°C	
Operating humidity max.	80 % RH at temperatures up to 31 °C, decreasing linearly to 50 % RH at 40 °C	-	
Operating altitude	0-2000	m	
Pollution degree	Degree 2	-	
Usage environment	Indoors	-	Can be extended with IP67 enclosure for outdoor use
Storage temperature	-40 to +85	°C	
User interface			
Green LED	Power	-	
Red LED	Error	-	
Yellow LED	Status Ethernet	-	
Blue LED	USB active	-	
Push button	Factory reset	-	
Configuration	Web interface (HTTP), Auto configuration (URL), Telnet, REST/JSON	-	
M-Bus			
Interfaces	IR, integrated M-Bus Master, M-Bus slave	-	
Maximum number of M-Bus devices (software limit)	Software licences for 8,	-	

	32, 64, 128 and 256 devices		
Transparent M-Bus	TCP/IP and M-Bus 2-wire slave interface	-	Software limit does not apply to Transparent M-Bus mode
Virtual M-Bus	TCP/IP and M-Bus 2-wire slave interface	-	
Decryption	Yes	-	
Integrated M-Bus Master			
M-Bus standard	EN 13757	-	Full M-Bus decoder implemented
M-Bus baud rate	300 and 2400	bit/s	
Nominal voltage	28	VDC	
Maximum unit loads	32/48	T/mA	Can be extended with CMeX10-13S Series
M-Bus search modes	Primary, secondary, enhanced secondary	-	
Maximum cable length	1000	m	100 nF/km, maximum 90 Ω
M-Bus slave interface			
M-Bus standard	EN 13757	-	
M-Bus baud rate	300 and 2400	bit/s	
Nominal voltage	21-42	VDC	
Addressing mode	Primary, secondary	-	
General			
Real time clock backup	24	h	
Real time clock accuracy	<2	s/day	
Script engine	Intelligent engine for active content generation	-	
Software/firmware update	Web interface	-	
Measurement reports	HTTP, FTP, SMTP (e-mail)	-	
Additions	ModBus, REST, JSON-RPC, DLMS	-	
Data storage (examples)			
15 minute values	<u>Meters</u>	<u>Years</u>	-
	1	15	
	32	4	
	128	1	
	256	0.5	
Hourly values	<u>Meters</u>	<u>Years</u>	-
	1	>15	
	32	>15	
	128	4	
	256	2	
Fixed network (Ethernet)			
Speed and duplex	10/100	MBit	Half/Full duplex

Table 11: Technical specification

8 Type approvals

CMe3100 is designed to comply with the directives and standards listed below.

Approval	Description
EMC	EN 61000-6-2, EN 61000-6-3
Safety	EN 61010-1, CAT 3

Table 12: Type approvals

9 Document History

9.1 Versions

Version	Date	Description	Author
1.0	2016-11	Initial version	Anton Larsson

Table 13: Document version

9.2 Document software and hardware appliance

Type	Version	Date	Comments
Hardware		2009-05	
Software	1.6.0	2016-09	

Table 14: Document software and hardware appliance

10 References

10.1 Terms and abbreviations

Abbreviation	Description
CA	Certificate Authority
CSV	Comma-Separated Values
DCS	Digital Control System
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name Server
MOID	Measurement Object Identification
NTP	Network Time Protocol
PLC	Programmable Logic Controller
SSL	Secure Sockets Layer
URL	Uniform Resource Locator
URI	Uniform Resource Identifier

Table 15: Terms and abbreviations