

ReportLoq Soft



TECHNICAL USER MANUAL



REVISION 2.3 (1/6-2019)

Environmental Reporting



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Preface

This user manual describes how to setup and install ReportLoq and is intended for technical staff only.

The manual explains how to install and setup ReportLoq in general, and how ReportLoq Soft is commissioned. It leads the reader through the necessary steps required for full scale commissioning.

The manual is however not intended for users of ReportLoq. They should instead read the “ReportLoq User Manual” which is embedded in the ReportLoq software and can be obtained using the web interface for ReportLoq.

If you are evaluating, just read on. If, however you are commissioning a system, please make sure you have a license key and a configuration ready, or contact Olicem at <https://www.olicem.com/en/contact/>.

Installation

Installing ReportLoq is carried out by executing the ReportLoq installer on a dedicated Windows server. This will, in addition to ReportLoq, install OpenJDK and MongoDB Community server on the target server.

Please note that the server should as minimum

- Be Windows 10 / Windows server 2016 or newer
- Have 8GB memory for up to two stacks, or 16GB for more
- Have at least 20GB free disk space + 5GB per measured stack
- Have at least 2 cores (4 cores recommended)

The installer will install ReportLoq as default inside %ProgramFiles(x86)%. MongoDB and OpenJDK will be installed in their respective default directories.

MongoDB and ReportLoq will be installed as Windows services, which will launch with Windows.

Note that: The desktop icon will restart ReportLoq with UI and start ReportLoq as a service when closing the UI. This interface is intended for technical staff only. Users will not need access to this UI.

First launch

ReportLoq will prompt for the correct start approach on first launch. Three options are available:

- **Setup as new installation**
First time installations of ReportLoq should choose this option.
- **Restore from local backup**
Restoring a zipped backup of ReportLoq? Choose this option.
- **Restore from Cloud backup**
Only ReportLoq+ Cloud customers can successfully use this option.

Note: “Installation number” is for advanced users and can be disregarded.

Setting up ReportLoq

The first thing to do after installing ReportLoq is to install the missing license and configuration.

Installing a license

Press “Install” below the license warning and choose “Change License”. This lets you choose from using a trial license or installing an existing license.

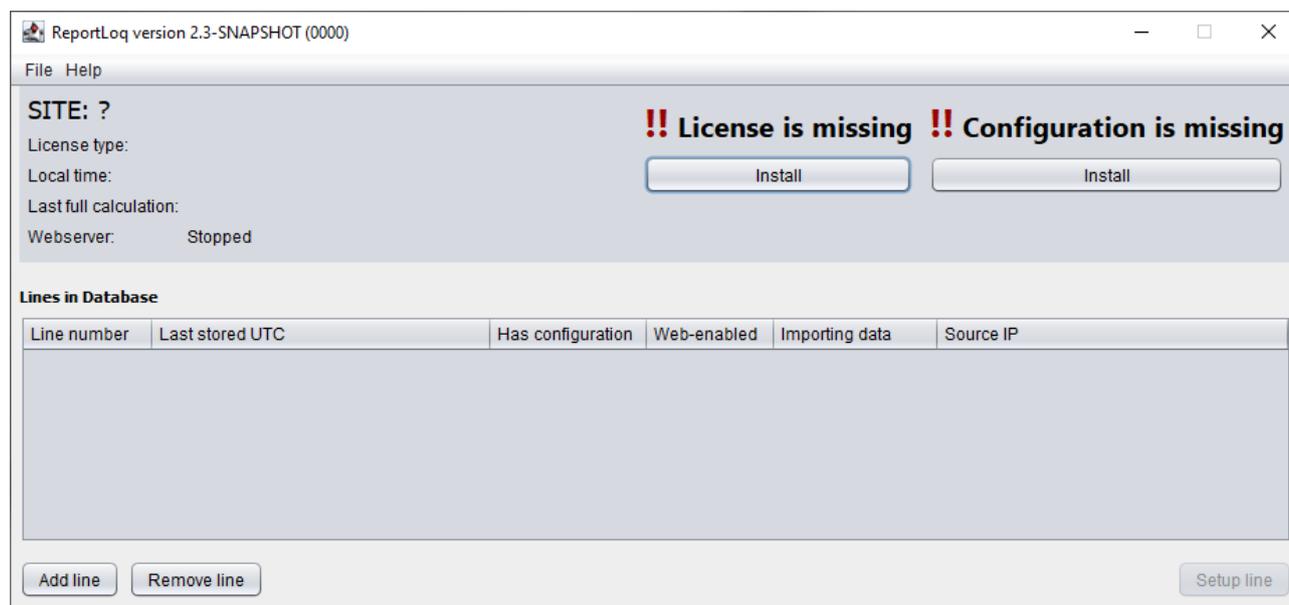


Figure 1 – Main window

ReportLoq will not calculate average values or start the embedded webserver if the license is missing, invalid or not activated. You must therefore choose from using a purchased license key, a purchased license text or an evaluation key. Evaluation keys and license keys will need online activation to work. Please make sure the firewall is open outbounds for <https://www.reportloq.com>

Evaluation keys

ReportLoq comes with a 60 days evaluation key with full functionality. The key can be activated only once per hardware device.

Purchased license keys

License keys are much like Windows keys and will only activate once. Once activated, the license key will lock to the hardware is activated on. Unless agreed otherwise, activation is not possible on other devices.

Purchased license text

License text are keys delivered in a file. This type of key can be installed without online activation. The license text is obtained from Olicem and will require you to forward the hardware ID of the server you installed ReportLoq on. This can be found by using the “Display hardware ID” button in the License Validation popup.

A license text key can be activated only on the hardware device it was generated for.

Configurations

The configuration contains the environmental setup needed to do calculations in ReportLoq. ReportLoq will not work without a configuration installed.

The configuration contains information about

- The company you are installing ReportLoq for
- The number of lines (stacks) needed
- Language files needed to support the locale you intend to use.

Trial customers can use any of the provided example files in the “\ReportLoq\examples” folder. This will start up ReportLoq with a predefined set of measurement points. This approach is suitable for evaluation purposes only and will demonstrate how ReportLoq can be configured.

Customers with a purchased license should contact Olicem ApS and ask for a signal clarification sheet. This must be filled in and returned to Olicem. It will be returned as a configuration which can be imported in ReportLoq.

Add/Remove line

This option is for advanced users and should be used with caution.

Lines are added during import of configurations. Adding lines manually is possible and will allow data to be collected. A suitable configuration will however need to be added before using the data for environmental calculations.

Removing a line will delete all collected data for that line and can take a long time with big data sets. It is recommended to backup the installation prior to removing lines.

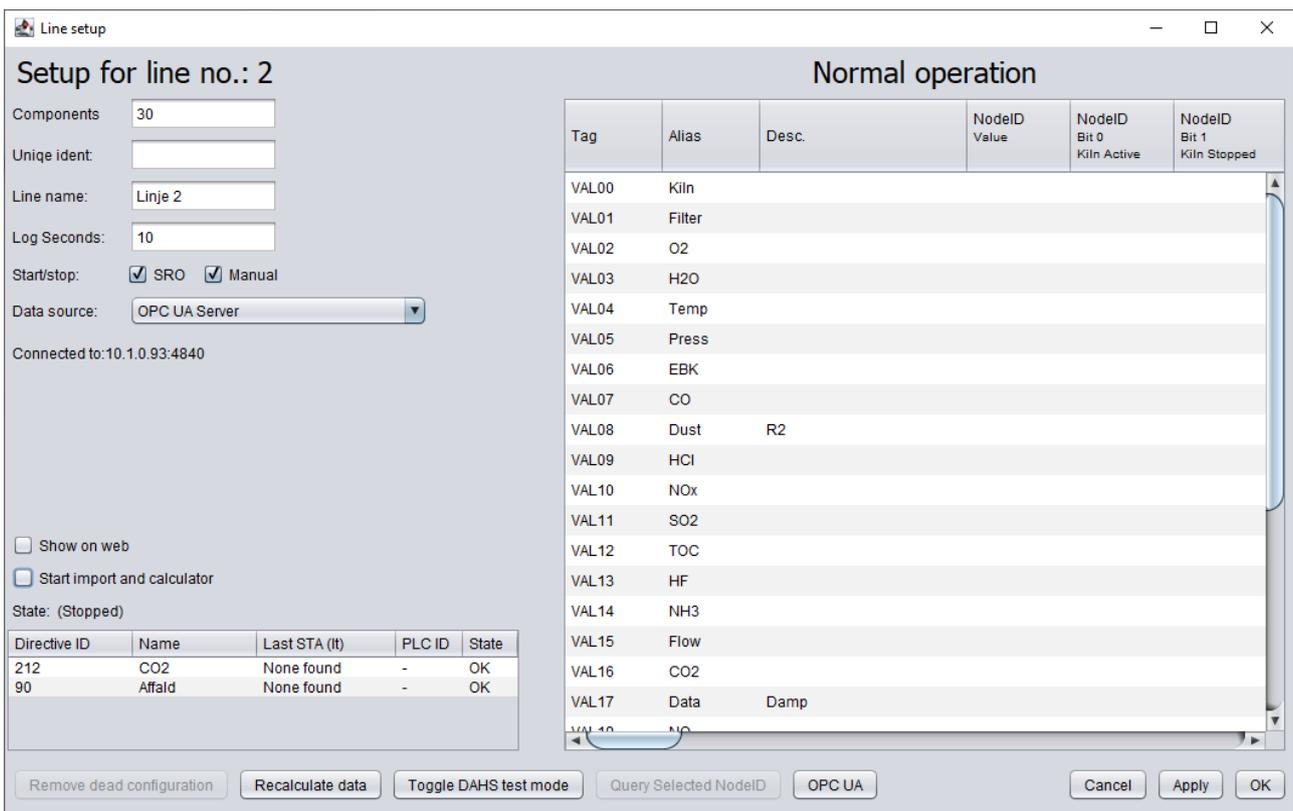
Line setup

The entry point to importing data to ReportLoq is in the “Setup line” option of Figure 1 – Main window. Opening this is possible only after selecting an existing line. An example window is displayed on Figure 2 - Line setup. This example logs 22 components every 10 seconds using OPC UA.

The window presents several configuration options. These are explained in the following section:

- Components
The number of components you would like to log. Please note that changing this will require a new configuration.
- Unique ident
Only used for ReportLoq+ Cloud customers.
- Line name
The name of the line/stack

- Log Seconds
How often to log. Please note that this MUST add up to one minute and not be more often than every 10 seconds. Valid values are 10,20,30,60.
- Start/stop
How should ReportLoq handle operation? *SRO* means the command to start/stop reporting is transmitted from the control system. *Manual* means the user will handle start/stop in the user interface. Selecting both will allow the user to disregard the signal from the control system. Selecting none is not allowed.
- Show on web
Displays this line in the web-interface. The line can collect and calculate without being visible for the end user, as long as this option is deselected.
- Start import and calculator
Selection this option will initiate import from the selected data source and begin calculating environmental data, such as STA and LTA averages and check for exceedances.



Setup for line no.: 2 Normal operation

Components: 30
 Unique ident:
 Line name: Linje 2
 Log Seconds: 10
 Start/stop: SRO Manual
 Data source: OPC UA Server
 Connected to: 10.1.0.93:4840

Show on web
 Start import and calculator
 State: (Stopped)

Directive ID	Name	Last STA (It)	PLC ID	State
212	CO2	None found	-	OK
90	Affald	None found	-	OK

Tag	Alias	Desc.	NodeID Value	NodeID Bit 0 KiIn Active	NodeID Bit 1 KiIn Stopped
VAL00	Kiln				
VAL01	Filter				
VAL02	O2				
VAL03	H2O				
VAL04	Temp				
VAL05	Press				
VAL06	EBK				
VAL07	CO				
VAL08	Dust	R2			
VAL09	HCl				
VAL10	NOx				
VAL11	SO2				
VAL12	TOC				
VAL13	HF				
VAL14	NH3				
VAL15	Flow				
VAL16	CO2				
VAL17	Data	Damp			
VAL18	NO				

Buttons: Remove dead configuration, Recalculate data, Toggle DAHS test mode, Query Selected NodeID, OPC UA, Cancel, Apply, OK

Figure 2 - Line setup

Data source

There are several available data sources, where “Value generator” and “OPC UA Server” are the most common choices.

Selecting the “Value generator” will allow you to start up the system with test-data, which can be ramping, static or linear drops. Note that all data generated in this mode is marked as test-data and can therefore not be used for average value calculations and comparison towards limit values.

ReportLoq contains a OPC UA Client, which can be used by selecting the “OPC UA Server” as data source. This will connect ReportLoq to the OPC UA server, where it will frequently poll data. Note that OPC UA data sources does not support catch-up and needs therefore to be connected and running in order for reporting to work.

The “ReportLoq DataLogger” options can only be used if you have purchased a ReportLoq DataLogger.

The table with directive information

The table displaying Conf. ID, Name, Last interval LT, PLC ID and State is populated whenever a new configuration is imported.

- Directive ID
The ID of the imported configuration. This is provided from Olicem and is unique. Every directive has its own set of environmental parameters.
- Name
The data set from an imported line can have one to many directives. This makes it possible to import data once, and to calculate separate environmental directives which is derived from the same data set.
- Last STA (lt)
This displays the local time for the last calculated STA value in the directive.
- PLC ID
Output data for the control system depends on the PLC ID.
Directives with “-“ will NOT generate any output.
 - o OPC UA Server data sources will write data from any found directive not marked with “-“
 - o ReportLoq DataLogger data sources can write more than one directive to the control system. The prefix written in the PLC ID field are used as PLC suffix.
- State
OK = This directive is present in the database and can calculate values.
DEAD = This directive is no longer present in the database and can be removed.

Connecting tags using OPC UA

Connections to OPC UA servers are carried out by specifying [IP]:[PORT]. OPC UA servers usually run on port 4840, meaning the connection string will like something like: 10.10.1.2:4840. Connections support but does not require SSL. Username/password is not supported.

Successful connections will cause ReportLoq to display “Connected to: 10.10.1.2:4840”. This will not start data collection, but it will allow signal setup and verification for all tags.

A tag in ReportLoq should be thought of as a single measurement point. Every tag is saved along with a 32-bit Integer, containing information regarding the tag. This means tags must be fetched along with the status information for the tag from which the tag's value is validated. This could be the invalidation of the measurement caused by malfunction or calibration on the analyser. This setup is handled in the graphical interface from the table displaying all tags in the first column.

The reserved columns cannot be used and are reserved for future usage.

Each tag and bit must be matched from the signal clarification Excel sheet.

The fields in the table can be double-clicked, and their content changed. Fields should contain the tag in the OPC server which should be recorded. Tags in the table can be verified for their contents on the OPC UA server by selecting a cell and clicking the button “Query Selected NodeID”. This will open a window as displayed in Figure 3 - Node watch. The node watch window is auto-updated every 500ms and can be used to verify whether the cell is connected to the correct tag in the OPC server.

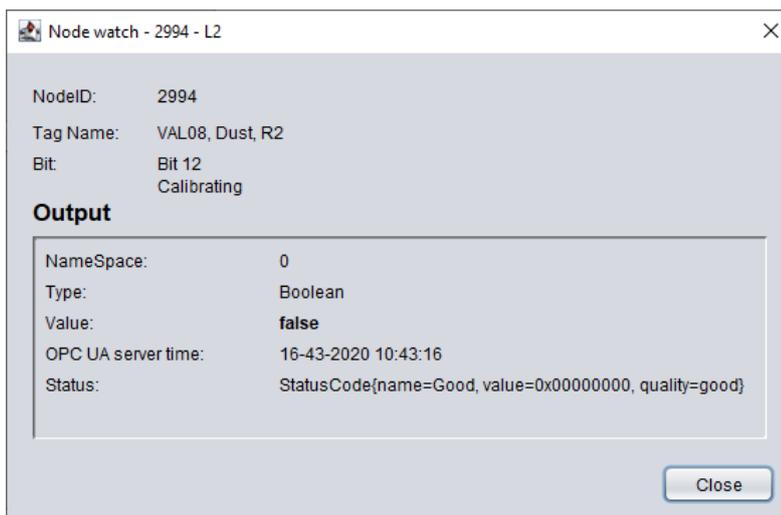


Figure 3 - Node watch

Columns 1-3 (Descriptive columns)

Note that it is not recommended to change the values in the first three columns (Tag, Alias, Description). These are all auto-generated during import of a configuration and changing them may lead to unexpected behaviour.

Columns 4-36 (Input columns)

These are all data collection columns. The first column (value) can be a Real. The rest of the columns should preferably be Booleans which evaluate to 0 or 1 (low or high). Other data types are supported but are only evaluated to 1 if the value is exactly 1.

NodeID, Value

The only tag in the input series which can be Real. The value will be stored with 3 decimals in precision.

NodeID, Bit 0 to Bit 3, Kiln signals + Bit 20 Kiln in SCADA

The four bits 0, 1, 2, 3 are only needed for the Kiln or Active tag (whichever is present). Setting these bits on other tags has no effect.

Only one of these should be high at any given time. At no time, must they all be low. Not complying with this rule will cause calculations to be erroneous.

- Bit 0 will evaluate emission limits and do mass emission calculations
- Bit 1 will not do emission calculations nor mass emission calculations
- Bit 2 will do mass emission calculations but not evaluate emission limits
- Bit 3 will do mass emission calculations but not evaluate emission limits

Setting bit 20, Kiln in SCADA high will cause ReportLoq's UI to display that the active signal is controlled by the control system.

Note: The correct configuration for OPC UA setups is always to set this to high, and to deselect Start/Stop "Manual". This configuration makes sure the user cannot select any other operation status than the one coming from the control system

NodeID, Bit 5-10, Malfunction

Setting any of these bits high will set the measurement in malfunction and cause it not to be used for environmental calculations.

NodeID, Bit 11, Testing

Setting this bit high indicates that the value is recorded during test. This allows collected test data to be disregarded from calculated values. Note that the value will appear to be valid in the user interface which allows makes it possible to see that the setup is working as expected although in test.

NodeID, Bit 12, Calibration

Setting this bit high will cause data taken during calibration not to be used for environmental calculations. It will however be possible for the user to see the value, and that the measurement was taken during a calibration.

NodeID, Bit 16-18, Manual overrides

Setting any of these bits indicates that an operator has decided to override the normal signal coming from the analyser. Setting these bits are possible from ReportLoq's user interface and is therefore normally not configured.

NodeID, Bit 21, Wire break

Setting this high will cause the measurement not to be used for environmental calculations, and should be used whenever the control system detects a wire break on the measured value

NodeID, Bit 24-31, Available bits

These bits can be used for additional events which can be displayed for the user. These can be alarms or events but will not cause the measured value to be discarded.

Columns 37-45 (Output columns)

Data can be transferred back for the control system using these columns. Note that the input data needs to be calculated before it can be written back to the control system. This means there is a minor delay from the time the data is collected to the time it is written.

The OPC UA server must accept data of type Real for data to be written. Note that

- QAL3 FLD = First Level Data. Measurements collected every x seconds corrected for QAL3 entries.
- QAL2 FLD = QAL3 FLD corrected for QAL2 entries.
- SFLD = Standardised First Level Data. QAL2 entries corrected for peripheral parameters.
- VFLD = Validated First Level Data. SFLD entries deducted confidence interval.
- SSTA = Standardised Short Term Average. This is the running average corrected for peripheral parameters and will be reset whenever the average starts over.
- VSTA = Validated Short Term Average. This is the SSTA value deducted confidence interval.
- LTA Day = Long Term average, Daily. This is the running average made from VSTA values during the day. It will be reset at midnight.
- LTA Month = Long Term average, Daily. This is the running average made from VSTA values during the month. It will be reset at every 1st day of month.
- Set point = This is the value the customer should hold the VFLD at to avoid exceeding A-limit values on STA daily limit values. Note that this does not take monthly limit values into account.

General output

ReportLoq can generate summarised alerts and has a watchdog which can be used to monitor if ReportLoq is collecting data as expected. This can be accessed using the "OPC UA Output" button.

Recalculating data

It is possible to delete calculated data and mark exceedances found as deleted. This will force the system to rerun all calculations and can come in handy if e.g. a configuration has been imported with data that lies before the current date. Exceedances which are found again at the same time as before the recalculations are unmarked as deleted and updated with the exceeded value if necessary. Comments are preserved for unmarked exceedances.

Please be aware that data recalculation may cause heavy CPU usage, and lead to delays in data logging on small systems.

Starting data collection

Selecting "Start import and calculator" will cause ReportLoq to begin data collection of all parameters. Any parameters not connected will be recorded with the value -1 and marked with bit 5 (malfunction). This is because ReportLoq needs all values to be present for calculations to run.

Collected data is stored in the embedded Mongo database.

Webserver

ReportLoq comes with an embedded Jetty webserver, which serves as ReportLoqs user interface. This can be accessed by end-users on port 80¹. ReportLoq Soft is not intended to run on public IP addresses, and does not support SSL. Using ReportLoq on the world wide web, should only be done using ReportLoq+ Cloud from www.reportloq.com.

The webserver is stopped as a default. This default setting can be changed², and the webserver can manually be toggled in File→Webserver

User administration

The technical user interface provides an easy user administration interface where new users can be spawned. The 'Default user' provides a quick way to create the first user with the username/password reportloq/reportloq. It goes without saying that this user should be changed or deleted once the system is ready to run.

The web interface has a similar structure for user creation and can be used by regular users after commissioning. The technical interface does however provide a safe "backdoor" for creating new users, if the current users are all unable to login.

Backup

ReportLoq can automate a daily backup and to upload this to an FTP server. This does however require that the server has enough resources to carry out the backup in a timely manner. Small machines can have difficulties carrying out a large backup over time.

The backup created is a "all on a bundle" backup, which can be restored from a fresh installation of ReportLoq (in the same version). Do however note that restoring a backup on another server can cause license validation errors.

Automating backup is done in the Settings dialog by configuring backup.directory and optionally by setting ftp.* if upload of the backup to FTP is desired.

Time synchronization

EN 17255 stipulates that time must be synchronized on servers running a DAHS system. This can be done using regular Windows NTP. This can however be risky if the server suddenly synchronizes time over longer periods, as data loss may occur. ReportLoq does for this reason offer an alternative NTP option. Setting AutoSyncTime in Settings to true and setting timeserver.ip to a company NTP server will sync time slowly in place. ReportLoq synchronizes time with 1 second per hour meaning there will not be any large gaps with missing data.

The setup can be verified in File→Console, and running the command "synctime"

¹ Can be changed to another port in Settings → webserver.port

² Can be changed to autostart in Settings → webserver.autostart by setting value = true

Console

It is possible to use advanced commands using the console. It is recommended to backup the system if you are unsure how the console is working.

Combined views

Building combined view is a great feature for displaying values from more company lines on the same webpage. It will display only the most important information to the user, and in addition to this, allow an extended alarm list to be displayed next to the real-time values. This feature is often used on big surveillance monitors.

Configured combined views will automatically appear to users of the webserver.

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