

Edge Intelligence[®] Reference Manual

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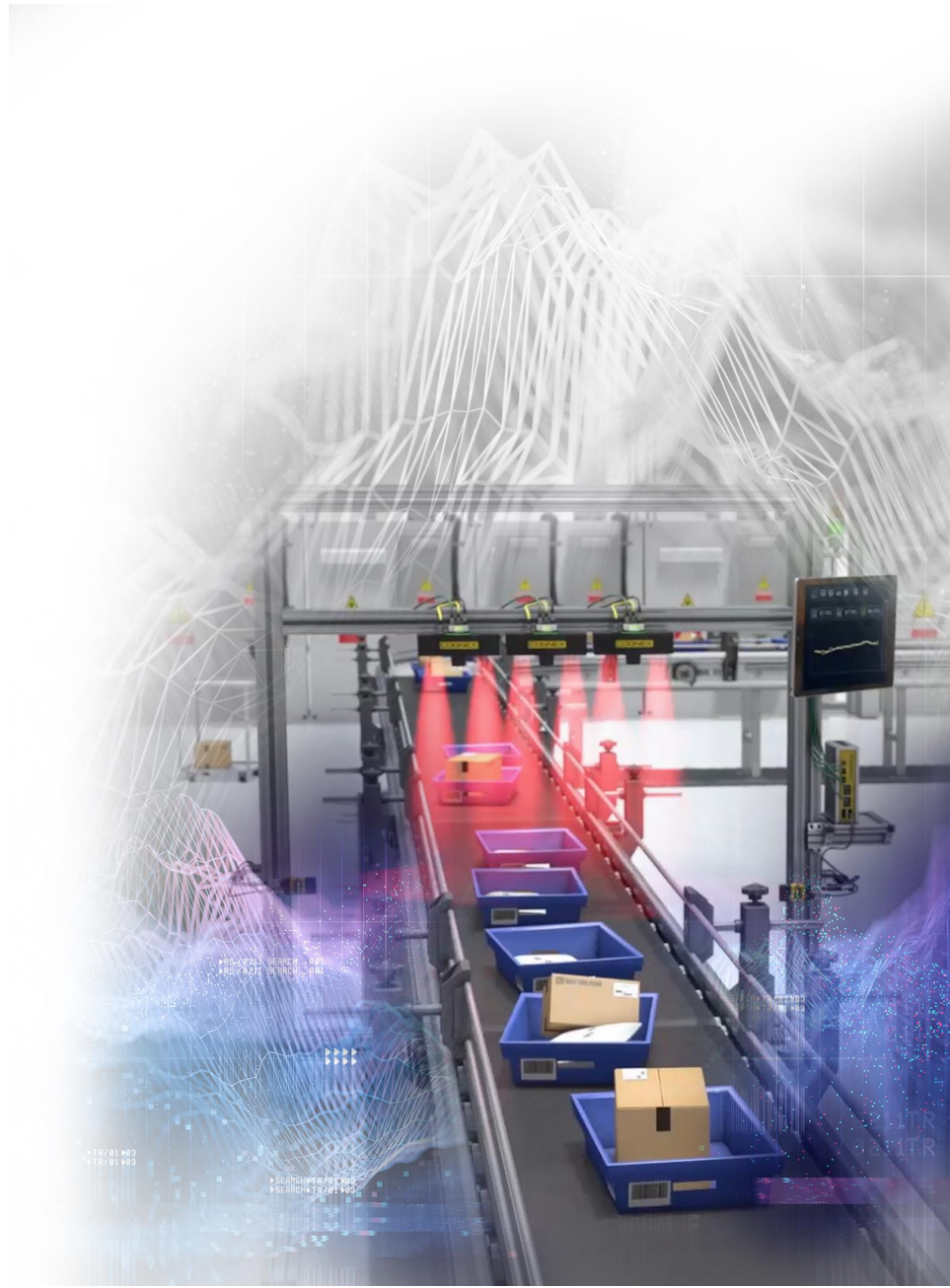


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Precautions


To reduce the risk of injury or equipment damage, observe the following precautions when you install the Cognex product:


- This product is intended for industrial use in automated manufacturing or similar applications.
- The safety of any system incorporating this product is the responsibility of the assembler of the system.
- Do not install Cognex products where they are exposed to environmental hazards such as excessive heat, dust, moisture, humidity, impact, vibration, corrosive substances, flammable substances, or static electricity.
- Route cables and wires away from high-current wiring or high-voltage power sources to reduce the risk of damage or malfunction from the following causes: over-voltage, line noise, electrostatic discharge (ESD), power surges, or other irregularities in the power supply.
- This product does not contain user-serviceable parts. Do not make electrical or mechanical modifications to product components. Unauthorized modifications can void your warranty.
- Changes or modifications not expressly approved by the party responsible for regulatory compliance could void the user's authority to operate the equipment.
- Include service loops with cable connections.
- Ensure that the cable bend radius begins at least six inches from the connector. Cable shielding can be degraded or cables can be damaged or wear out faster if a service loop or bend radius is tighter than 10X the cable diameter.
- This device should be used in accordance with the instructions in this manual.
- All specifications are for reference purposes only and can change without notice.


Symbols

The following symbols indicate safety precautions and supplemental information:

 **WARNING:** This symbol indicates a hazard that could cause death, serious personal injury or electrical shock.

 **CAUTION:** This symbol indicates a hazard that could result in property damage.

 **Note:** This symbol indicates additional information about a subject.

 **Tip:** This symbol indicates suggestions and shortcuts that might not otherwise be apparent.

Getting started

Edge Intelligence improves overall equipment effectiveness (OEE) and increases throughput across a range of industries including logistics, food and beverage, consumer products, packaging, automotive, medical devices, and electronics.

About Edge Intelligence



Edge Intelligence is a performance monitoring tool that collects and analyzes data generated by Cognex devices. Edge Intelligence provides reader statistics, no read images, trigger details, and configuration changes for all connected devices.

The Edge Intelligence solution consists of a physical Edge Intelligence box and a browser-based user interface that provides access to the Edge Intelligence functions.

Edge Intelligence provides the following features through the UI:

- **Real Time Monitoring (RTM)**
 - Live
 - Performance Overview
 - No Read Trigger Review
 - Configuration Change History
 - Settings
- **Performance Analytics**
 - Dashboard
 - Performance Review
 - Results Explorer
- **Validation Failure**
 - Trigger Review
 - Settings
- **Multi-Reader Configuration (MRC)**
 - DataMan
 - Feature Keys
- **Reporting**
 - Generate
- **User Management**
 - Users
 - Roles

- **Settings**

- Edge Device
- MQTT Forwarding
- DataMan WebHMI
- Firmware Upgrade

Supported DataMan readers compatible with Edge Intelligence:

- DM260 Series
- DM280 Series
- DM300 Series
- DM360 Series
- DM370 Series
- DM470 Series
- DM503 Series




Note: Readers must be on firmware 5.7.3 or higher to be compatible with Edge Intelligence.

Edge Intelligence Features

Edge Intelligence collects reader data and tracks reader configuration changes in real time, monitors performance, and provides data analysis to help identify root causes and facilitate quick action. The entire functionality of Edge Intelligence is accessible from a browser. Edge Intelligence has an intuitive user interface, no coding knowledge is required to use.

Main Features	Key elements
Device Management	Large storage for multi-day images/results
	Network, NAT
	Time Synchronization
Compatibility with DataMan Readers	Configurations, Firmware, Feature Keys
	Multi-Reader Sync group setup
	DataMan WebHMI to configure readers
Flexible and scalable solution: Integration with Industrial Analytics	Device results, and metadata
	Built-in MQTT/Sparkplug protocol (Ignition, Cloud providers) and analytics
Powerful Performance Monitoring tools	Real time performance with live dashboard
	Custom performance dashboards
	View and automatic categorization of Good Reads, No Reads, and Failed Validations
	Real time Device Configuration changes
	Daily and multi-day aggregated reports




Edge Intelligence Systems

Edge Intelligence Model	CPU	Processing Power	Number of Data Streams	Power	I/O	Memory	Image Capacity ¹	Image Storage ²
EI-200 	Intel Celeron N3350 1.1 GHz	Dual Core	Up to 5 data streams	12 VDC input jack	Not supported	4 GB LLDDR4 2133 MHz	Up to 1 million images	Up to 244 data days
EI-300 	Intel Atom E3950 1.6 GHz	Quad Core	Up to 10 data streams	9~36 VDC 3-pin terminal block	8-bit Isolated Digital I/O	8 GB LPDDR4	Up to 4 million images	Up to 487 data days
EI-700 	Intel Core i7-8700T 2.4 GHz	Hexa Core	Up to 20 data streams	9~48 VDC 5-pin terminal block	8-bit Isolated Digital I/O	8 GB SO-DIMM DDR4 2666 MHz - Wide Temp	Up to 8 million images	Up to 487 data days

¹ Assuming no-read images are saved at full resolution (3 megapixels) in JPEG format.

² With full resolution JPEG no-read images from all readers, on a system running 24/7 with 1 trigger per second at a performance of 99% read rate.

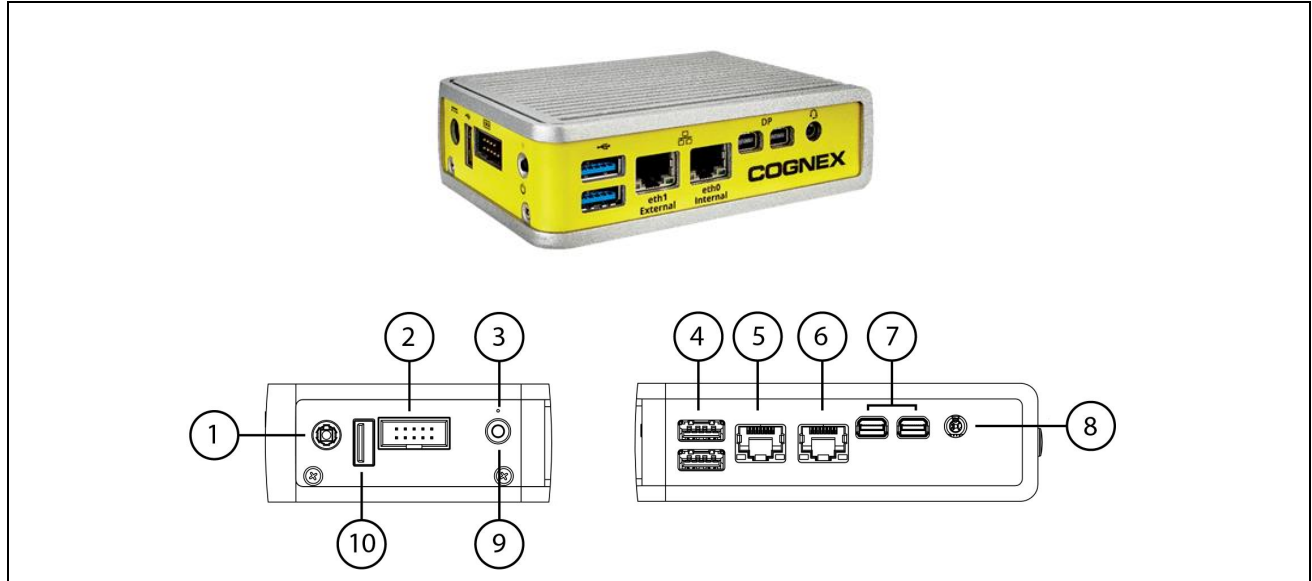
Edge Intelligence Kit

Specifications	EI-200	EI-300	EI-700
Edge Intelligence Model			
Number of Data Streams	Up to 5 data streams	Up to 10 data streams	Up to 20 data streams
EI Kit Component	<p>Mini Display Port-to-VGA male-to-female adapter</p> <p>DIN Rail Mounting Kit</p> <p>Power Adapter DC 12 V, 36 W - with Interchangeable Plug</p> <p>Thermal pads</p>	<p>Display Port-to-VGA male-to-female adapter</p> <p>DIN Rail Mounting Kit</p> <p>Power Adapter 60 W 12 V 5 A</p> <p>Computer Port & Dust Blocking Kit</p> <p>3-pin Power Terminal Block Connector</p> <p>3-pin CAN bus Terminal Block Connector</p> <p>10-pin DIO Terminal Block Connector M.2 and mPCIe expansion card screws</p>	<p>Display Port-to-VGA male-to-female adapter</p> <p>Wall Mounting Bracket with Vibration Isolation</p> <p>Power Adapter 160 W 20 V 8 A</p> <p>Computer Port & Dust Blocking Kit</p> <p>5-pin Power Terminal Block Connector</p> <p>3-pin CAN bus Terminal Block Connector</p> <p>10-pin DIO Terminal Block Connector</p> <p>2-pin Remote Switch Terminal Block</p> <p>5-pin Terminal Block to 6-pin Molex Adapter</p>

Product Overview

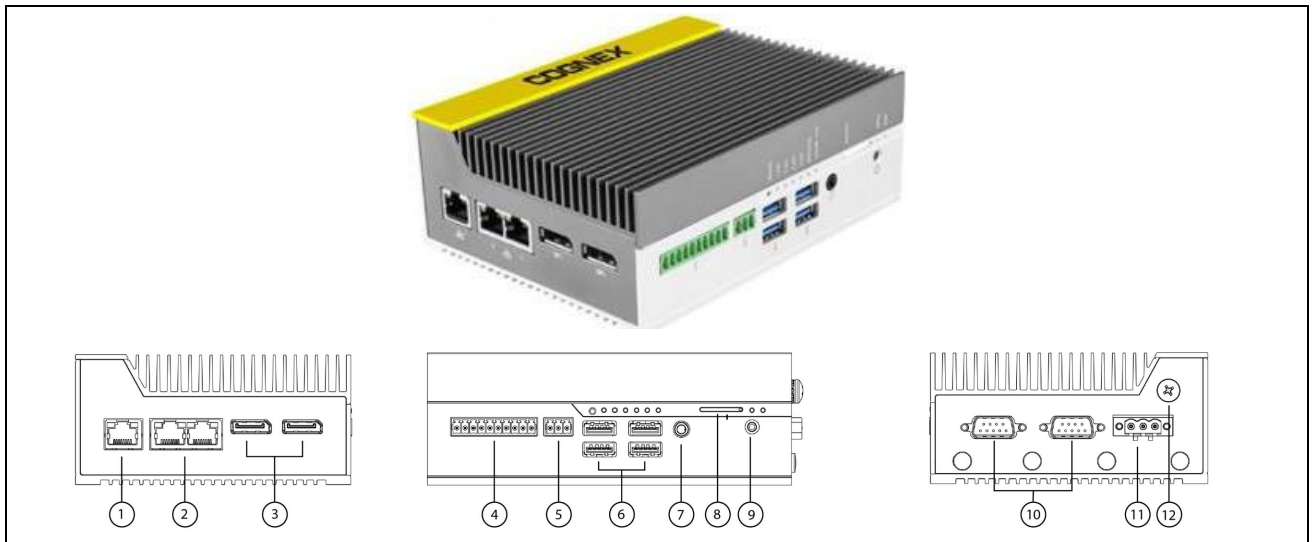
The following table shows the layout of Edge Intelligence Boxes.

EI-200 Layout



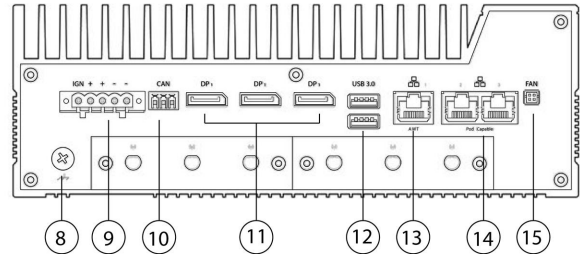
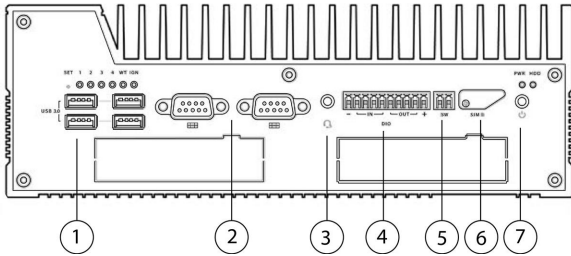
Connector/Button	Function
1	Power Connector (12V DC input jack)
2	COM Port (RS-232)
3	LED for Power
4	USB 3.0 Ports
5	External Port to Network (DHCP)
6	Internal Port to Devices (192.168.1.100)
7	MiniDisplay Ports
8	Audio Jack (Line out; Mic in)
9	Power Button
10	USB 2.0 Port

EI-300 Layout



Connector/Button	Function
1	Port to External Network (DHCP)
2	Ports to Internal Network (Static IP: 192.168.1.100 and DHCP)
3	Video Display Ports
4	8-bit Isolated Digital I/O (4-in, 4-out)
5	3-pin CAN Bus
6	USB 3.0 Ports
7	Audio Jack (Line out; Mic in)
8	Micro-SIM Slot
9	Power Button
10	COM Ports (RS-232)
11	3-Pin Terminal Block Power Input (9 ~ 36 V)
12	Grounding Nut

EI-700 Layout



Connector/Button	Function
1	USB 3.1 Gen 1 Ports ModBay Slots
2	COM Ports (RS-232)
3	Audio Jack (Line out; Mic in)
4	Digital I/O (4-in, 4-out)
5	2-pin Remote Power Switch
6	External Mini-SIM Slot
7	Power Button
8	Grounding Nut
9	5-Pin Terminal Block Power Connector (9 ~ 48 V)
10	3-pin CAN Bus
11	Video Display Ports
12	USB 3.1 Gen 1 Ports
13	Port to External Network (DHCP)
14	Ports to Internal Network (Static IP: 192.168.1.100 and DHCP)
15	External Fan Connection

Edge Intelligence Unit Dimensions

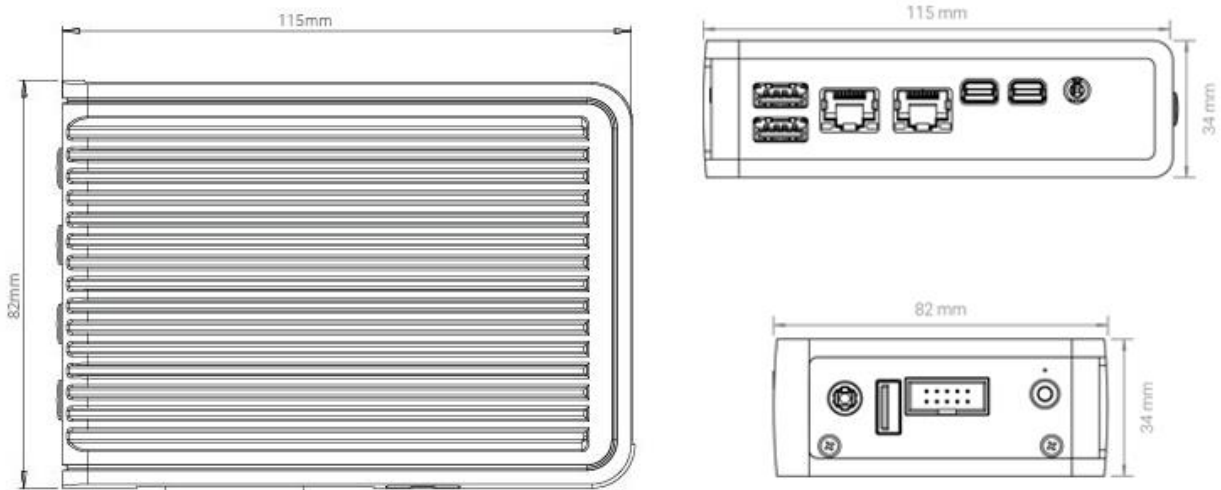
Observe the following dimensions when installing your Edge Intelligence.

Note:

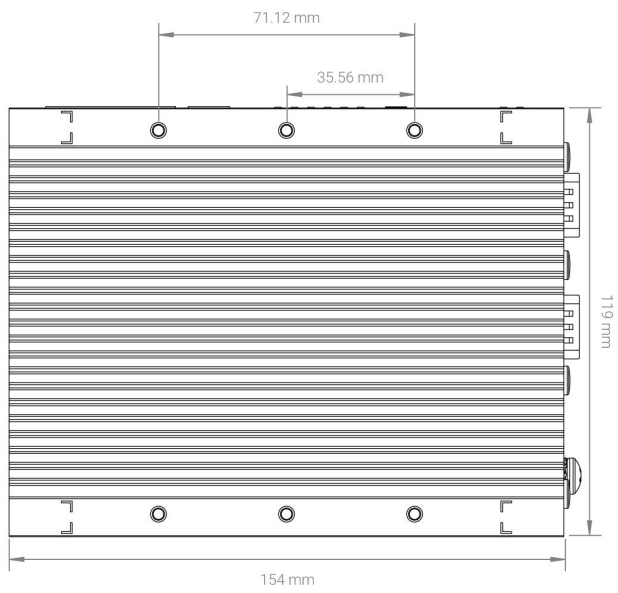
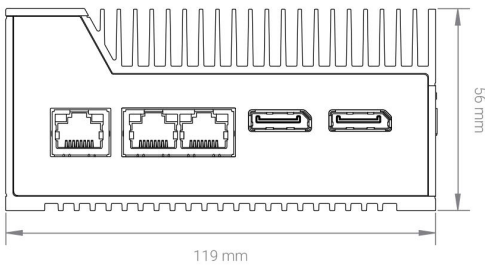
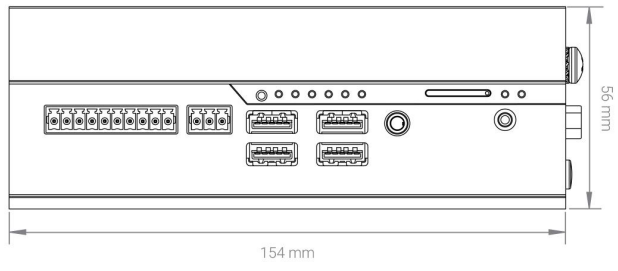
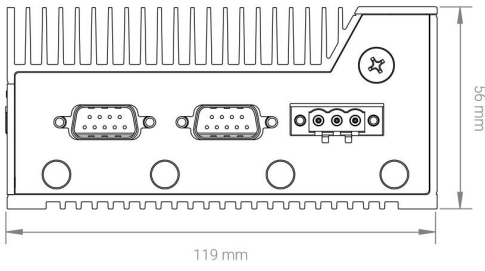
i Dimensions are in millimeters and are for reference purposes only.

All specifications are for reference purposes only and can change without notice.

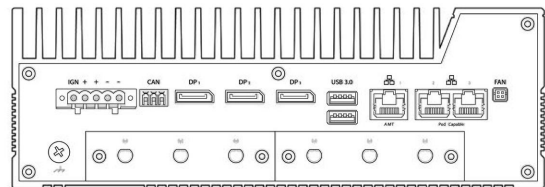
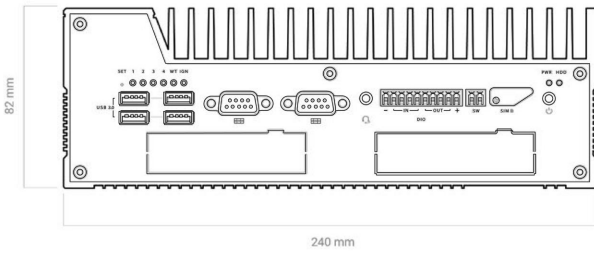
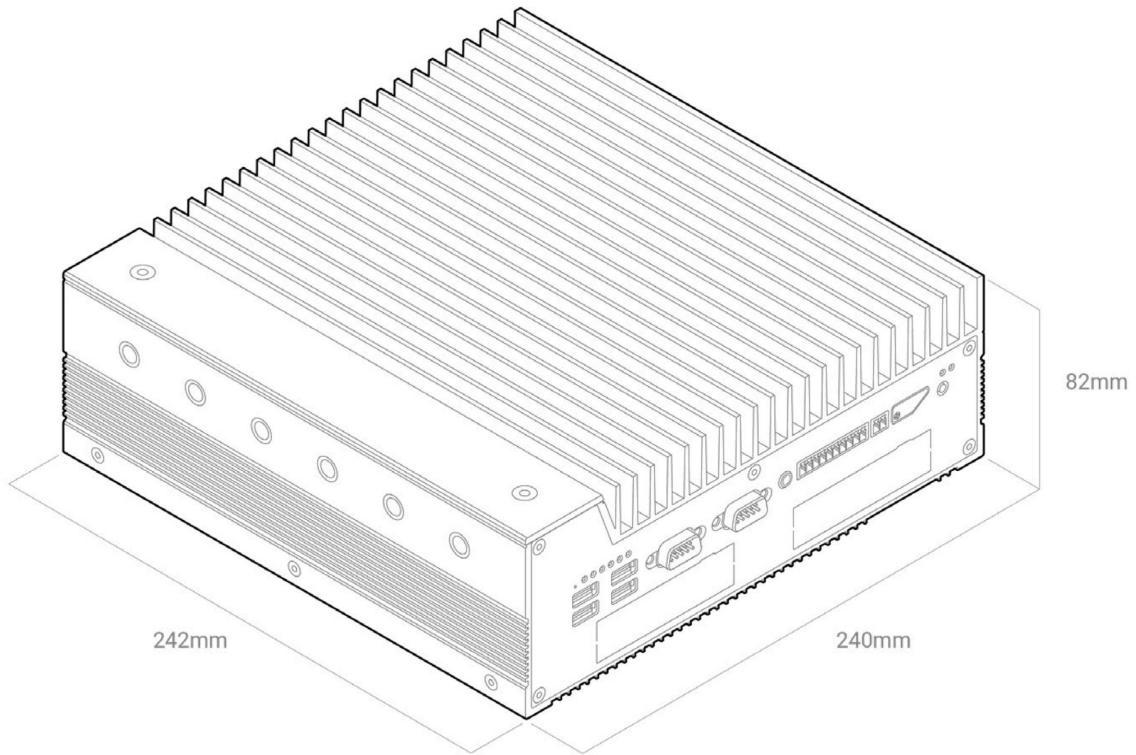
EI-200 Dimensions



EI-300 Dimensions



EI-700 Dimensions



Installation

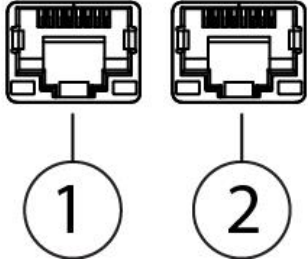
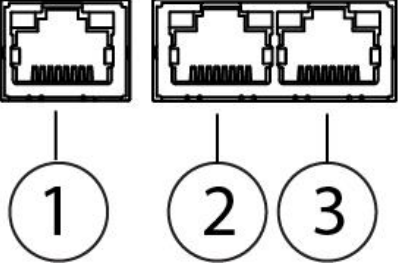
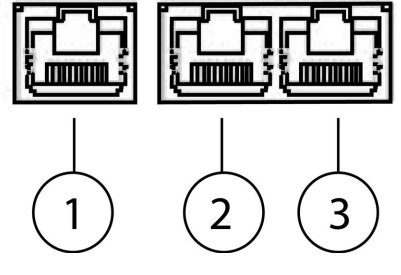
This section describes the installation process.

Connecting the Edge Intelligence

Unpack your Edge Intelligence unit and check that the following components have been included: power cable, display port to VGA adapter, and DIN rail mounting kit.

Perform the steps below before connecting to the web user interface:

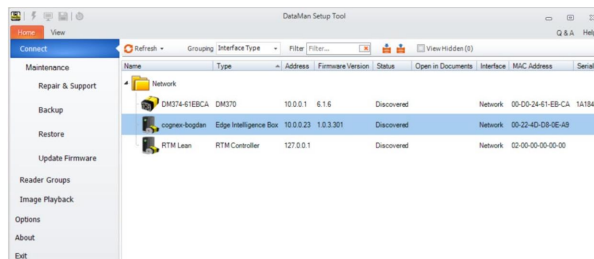
1. Connect Edge Intelligence unit to your Enterprise network using the External Ethernet port.

		
EI-200	EI-300	EI-700
1 External (DHCP)	External (DHCP)	External (DHCP)
2 Internal (192.168.1.100)	Internal (192.168.1.100)	Internal (192.168.1.100)
3 N/A	Internal (DHCP default)	Internal (DHCP default)

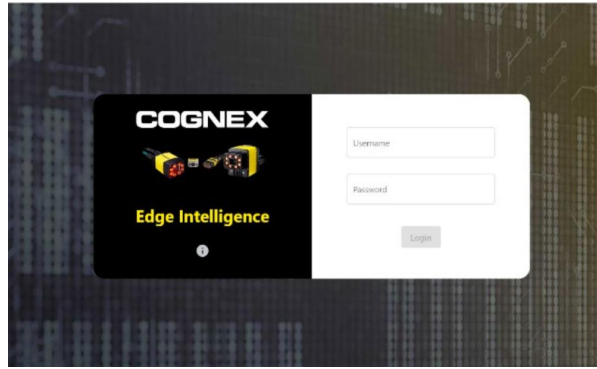
2. Connect Edge Intelligence unit to your reader network LAN using the Internal Ethernet port.
3. Connect any desired peripherals such as monitor, mouse, or keyboard to your Edge Intelligence unit using the USB ports before powering on the device.
4. Connect Edge Intelligence unit to power and start the device.

Accessing the Web Interface and Logging In

After connecting the Edge Intelligence, connect directly to a VGA monitor and peripherals or by using Cognex DataMan Setup Tool (6.1.8 or later) to discover and configure Edge Intelligence to access the Edge Intelligence web interface, which makes it possible to connect remotely via web browser from any device in the network.



Click the discovered device and enter your credentials in the pop-up Login page.



The following predefined users are available by default:

Note: After creating the user profiles, changing the default password of each user profile is necessary to avoid security risks.

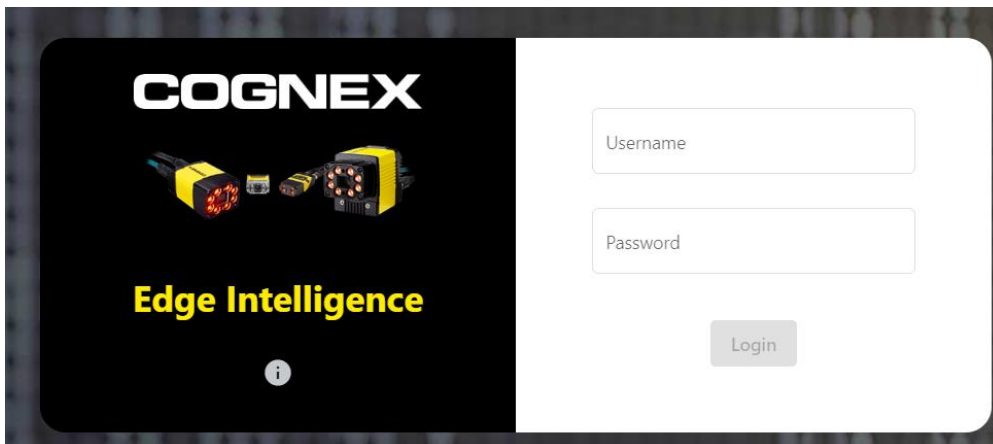
User	Password	Permission
admin	BnthWWSD	Has access to all apps and features.
engineer	TaRDpKVx	Has access to all apps and features.
operator	SxtXGmxs	User with read-only rights. The operator does not have access to the Multi-Reader Configuration app and the Settings.

You can click the information button which opens a pop-up to shows the following device details:

- Documentation – a link that opens the reference manual stored on the box
- Network Interfaces– shows available and connected network ports with their configurations
- Component Versions – highlights different features that run on the platform

Directly Connecting Using a Monitor

1. Connect your Edge Intelligence unit to a monitor using the provided Display Port to VGA adapter, or mini Display Port to VGA adapter when connecting EI-200.
2. The login page appears.



3. Click the information icon to get the external IP address. The internal IP address is **192.168.1.100** by default.



4. Take note of the external IP address, as you will need it to remotely connect to Edge Intelligence.

About EI-DemoUnit

Documentation

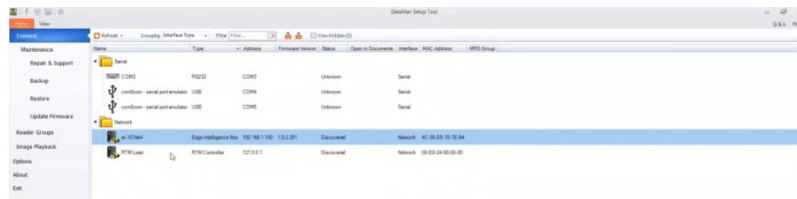
[Click here to open documentation.](#)

Network Interfaces

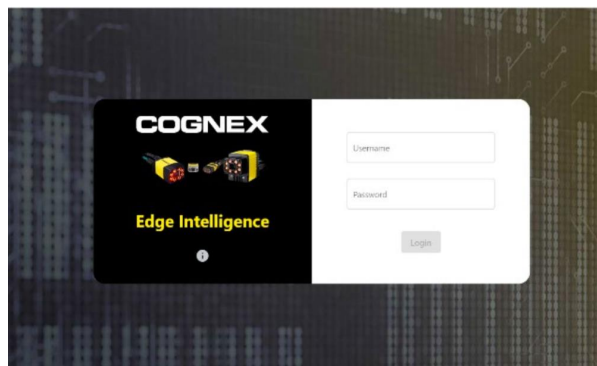
Name	Operational	MAC Address	Address Type	IP Address	Subnet Mask	Gateway	DNS Server	Domain
eth1	✓	4C38D5107E3A	DHCP	10.12.90.27	255.255.255.0	10.12.90.1	127.0.0.53	(none)
eth3	✓	4C38D5107E3B	DHCP	10.15.81.113	255.255.0.0	10.15.205.205	127.0.0.53	(none)
eth2	✓	4C38D5107E3C	Static	192.168.1.100	255.255.0.0			(none)

Remotely Connecting Using DataMan Setup Tool

1. Open Cognex DataMan Setup Tool (6.1.8 or later) to discover and connect to Edge Intelligence device. For more information on Setup Tool and troubleshooting, see ***DataMan Setup Tool Reference Manual***.
2. Double click on the icon of the discovered Edge Intelligence



3. Login to the Edge Intelligence software. For login information, see [Accessing the Web Interface and Logging In on page 17](#).



Discovering Devices on the Network

The default IP address for the Internal Ethernet port of Edge Intelligence is set to 192.168.1.100. All devices on the network are discovered automatically, regardless of the network settings. However, discovered devices are labeled as misconfigured if they are not in the local subnet.

Discover Devices

Upon successfully logging in, the web UI launches, and Edge Intelligence auto-discovers the devices on your network, which appear listed on your home screen.

Click on the **Discover Devices** button in the header of the web interface to force a rediscovery if you have connected a new device after the initial auto-discovery.

Note:

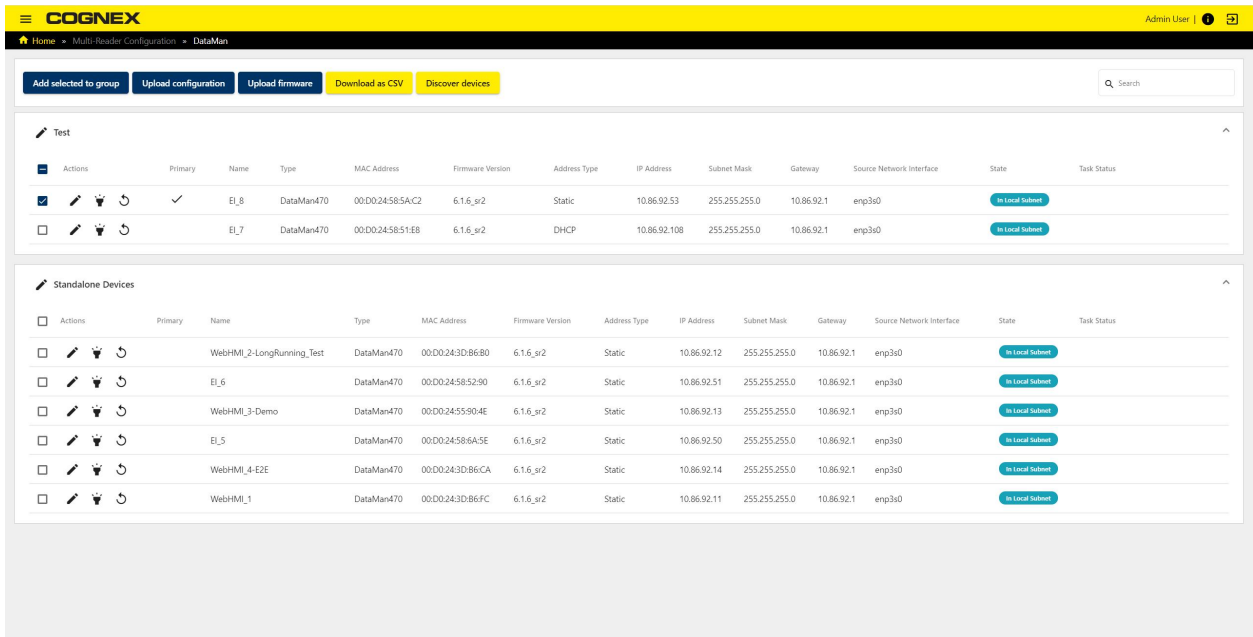
If you need to change your Edge Intelligence's network settings, open the menu and go to the Settings > Edge Device. From there, you can set the network settings.



Network Settings

It is recommended that all Cognex devices be on the same network as Edge Intelligence. In order to make this happen, change the IP address of all readers on the network to be in the same network as 192.168.1.xxx, or change the IP address of the Ethernet port to match those of the readers.

Note: The devices found on the network are listed on the first page of the Multi-reader Configuration Application.



Remote Connection Troubleshooting

This section lists the most common errors and their solutions.

Error	Illustration	Solution
Edge Intelligence is not visible in the Setup Tool or in the browser		Check wire connectons, secure them if necessary.
Failed login error message		Check the credentials and re-enter username and/or password.
Component load error message		Reboot device and wait for services to start.
No data/images available		Check reader availability and setup.

Note: An Ethernet connection to your network is recommended, as Wi-Fi may not allow the connection depending on your network settings.

Note:
The IP address of your device is listed on the login page.



About EI-DemoUnit

Documentation

[Click here to open documentation.](#)

Network Interfaces

Name	Operational	MAC Address	Address Type	IP Address	Subnet Mask	Gateway	DNS Server	Domain
eth1	✓	4C38D5107E3A	DHCP	10.12.90.27	255.255.255.0	10.12.90.1	127.0.0.53	(none)
eth3	✓	4C38D5107E3B	DHCP	10.15.61.113	255.255.0.0	10.15.205.205	127.0.0.53	(none)
eth2	✓	4C38D5107E3C	Static	192.168.1.100	255.255.0.0			(none)

Edge Intelligence User Interface

The Edge Intelligence user interface provides the following applications:

- Real Time Monitoring (RTM)
- Performance Analytics
- Validation Failure
- Multi-Reader Configuration (MRC)
- Reporting
- User Management
- Settings

Real Time Monitoring (RTM)

Real Time Monitoring (RTM) is a software application that collects statistical data including configuration history from readers on the network. RTM pages provide visualization of the collected data real-time, as well as over a longer period. The app provides the user with options of manual classification for no reads to troubleshoot the performance of the readers quickly.

RTM visualizes collected data in counters and trackers on 2 overview pages while users are able to view and change settings on 2 other pages:

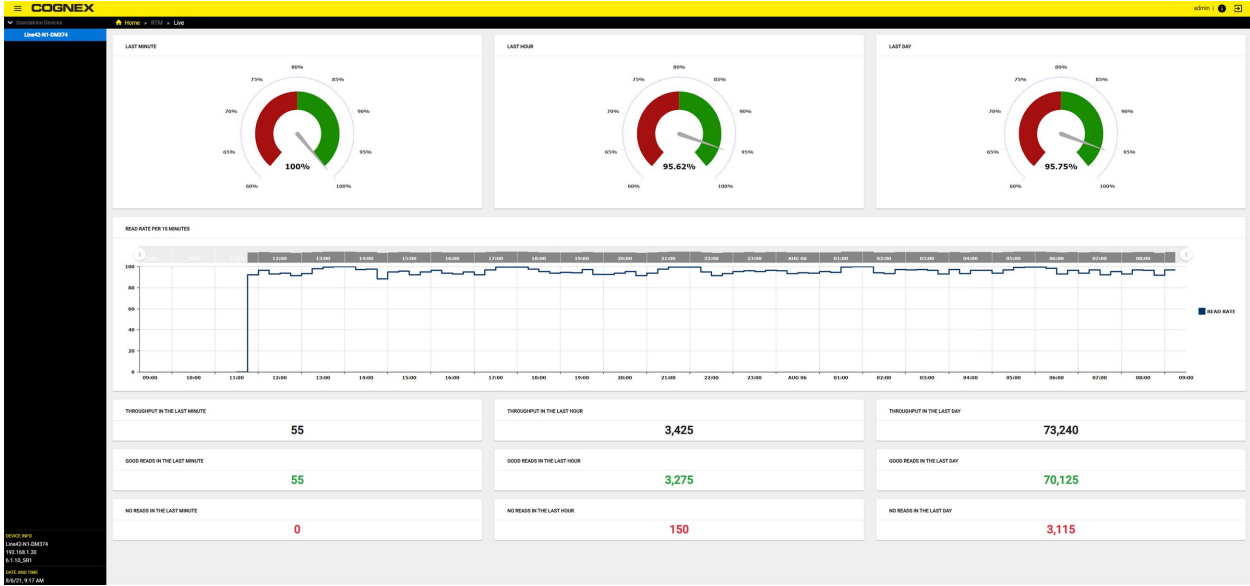
- Live - home page of Edge intelligence, allows the user to assess the activity of the readers on the network in real time, group by group or per reader
- Performance Overview - allows the user to assess the performance of the readers on the network over a period of time
- No Read Trigger Review - provides a list of No reads, allows manual classification of no reads and provides the no read images in the image panel
- Configuration Change History - lists past configuration for a given group or reader, allows the user to compare configurations in a time frame
- Settings - the user can add and discover devices, view reader data like IP address, firmware version, model and change collection settings

RTM provides the user rich data on system performance in different arrangement and detail on the pages. Standalone readers and groups provide RTM with collectable information about:

- Read rate
- Throughput
- Good read
- No read
- Passed validations
- Failed validations
- Trigger overrun
- Buffer overflow
- Missed triggers

Live

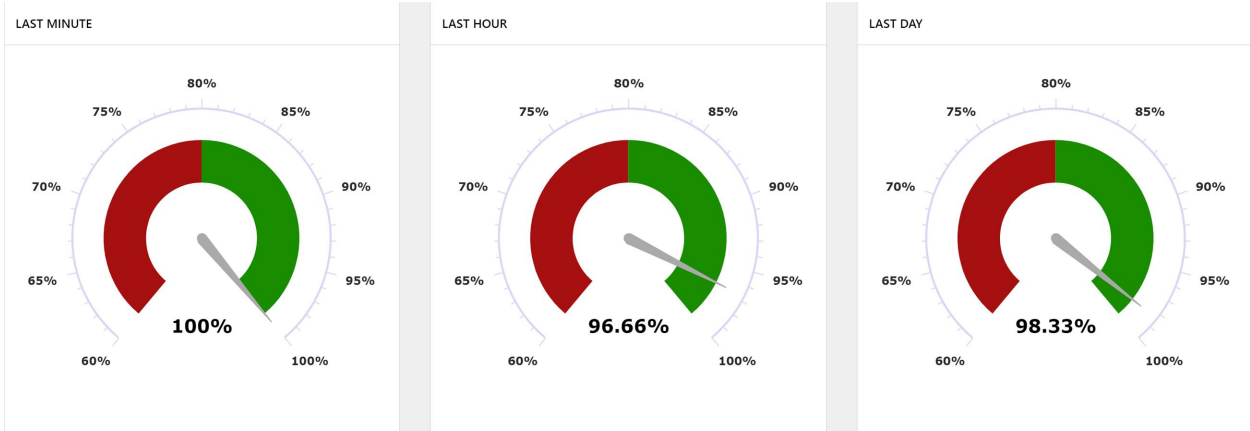
The Live page is the home page of Edge intelligence. It provides real-time information from grouped or standalone devices. The dashboard shows an overview of read rate of the selected group or reader per 15 minute intervals. Above the read rate table a percentage counters for read rates show the percent of good reads per 1 minute, 1 hour and 1 day. Below the read rate table this data is sectioned throughput, good reads, and no reads aligned to the passed minute, hour, and day.



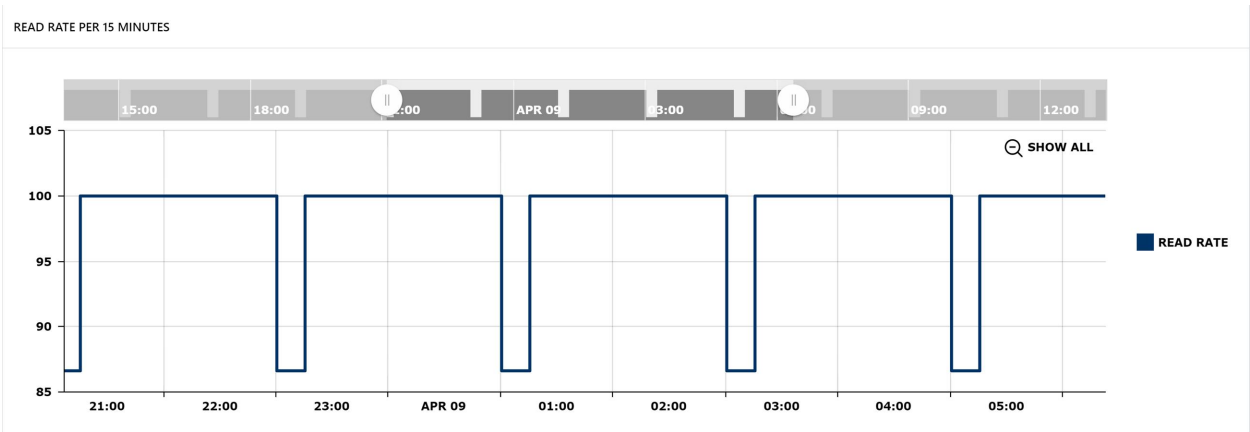
Dashboard

The window arranges the collected data in 3 time-frames:

- Last minute
- Last Hour
- Last Day



The top row indicates the percentage of Good Reads in the time frames. Percentage measurements start from 60% up to 100%. The Good read percentage overview allows you to assess performance of the MRS group or reader at a glance.



The middle section shows a fifteen minute interval read rate tracker. Select the time range of the tracker in the header by dragging the selector nob to view shorter ranges of time in more detail. To return to the maximum value, click on the **Show all** option. It shows detailed data about good and bad reads from the tracker. Hovering over the tracker highlights events and Good Reads or Bad reads bringing up the details of the event like percentage and time stamp.

THROUGHPUT IN THE LAST MINUTE 116	THROUGHPUT IN THE LAST HOUR 7,190	THROUGHPUT IN THE LAST DAY 172,694
GOOD READS IN THE LAST MINUTE 116	GOOD READS IN THE LAST HOUR 6,950	GOOD READS IN THE LAST DAY 169,813
NO READS IN THE LAST MINUTE 0	NO READS IN THE LAST HOUR 240	NO READS IN THE LAST DAY 2,881

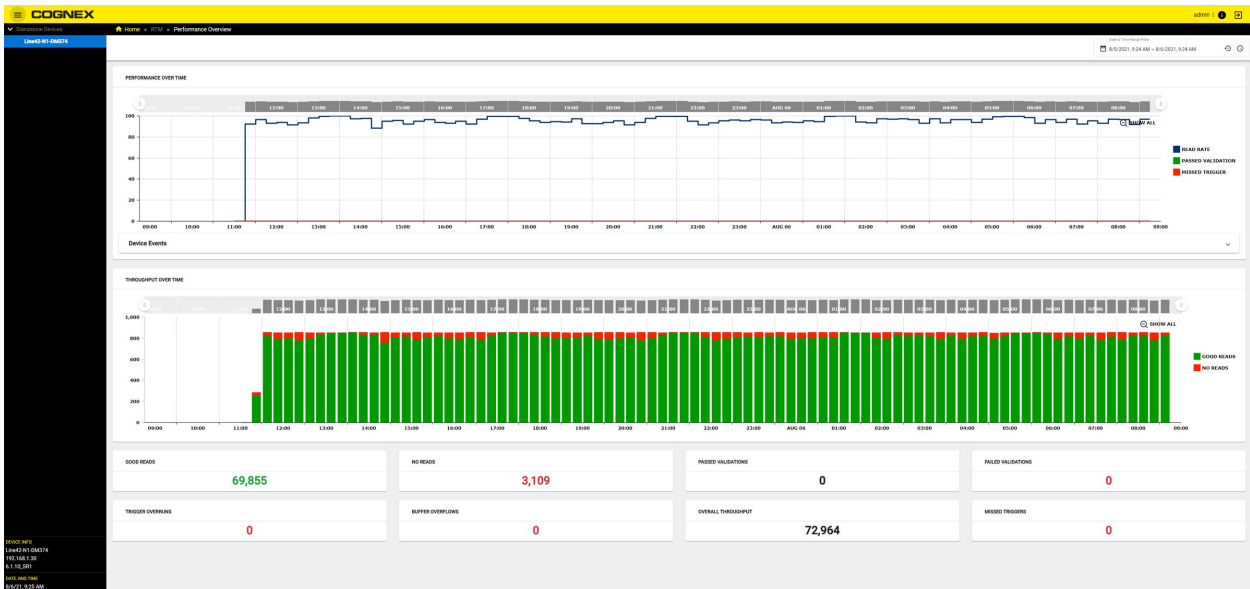
The bottom 3 rows of the dashboard separates the collected read rate date into:

- Throughput count per time frame
- Good Reads count per time frame
- No Reads count per time frame

Note: To navigate to a different RTM page or to a different app, use the Main menu opening from the top left side corner.

Performance Overview

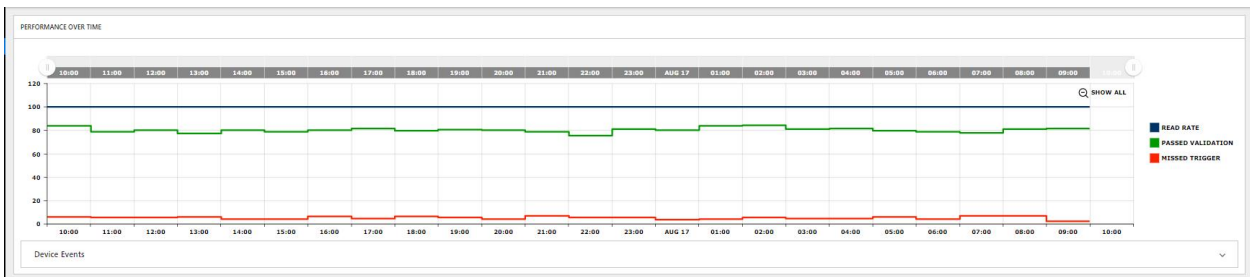
The Performance Overview page of the RTM app provides the performance data from time intervals older than 24 hours. In Performance Overview Edge Intelligence can track a number of trigger statistics from the selected group of DataMan readers, and visualize the data in various ways. It displays the data collected in trackers arranged to performance over time, throughput over time and an adjustable tracker at the bottom of the page. Trackers provide detailed information about each event. To see details of an event, hover the mouse over the tracker. To zoom in, use the slides above the trackers. To returned to the selected time range, click Show all.



To select a standalone reader or group, click on the name in the device tree.

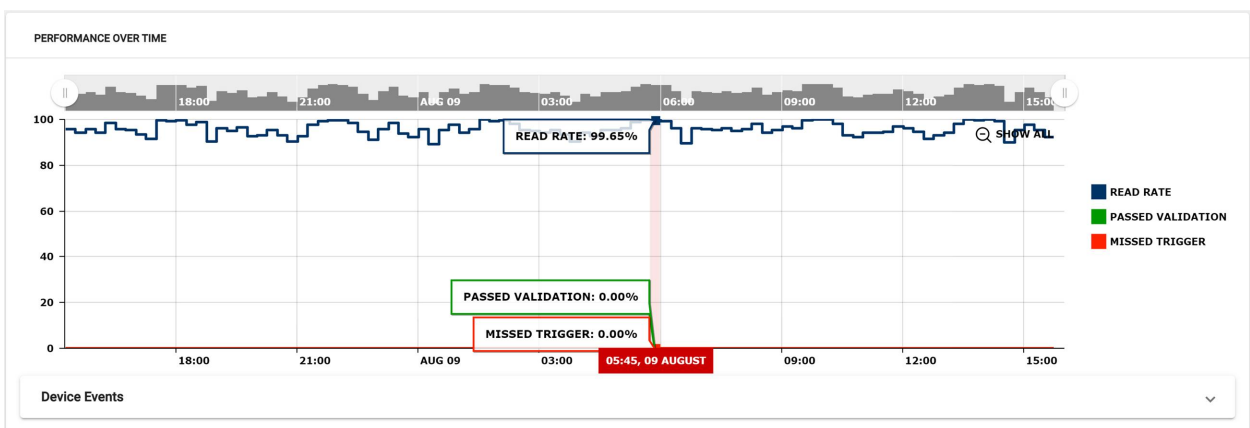
Performance Over Time

The Performance Over Time section shows color coded performance data in the selected range of time.



- Read Rate shows the rate of good reads compared to the number of total triggers.
- Passed Validation shows the rate of passed validations compared to the number of total triggers.
- Missed Trigger shows the rate of missed triggers compared to the number of total triggers.

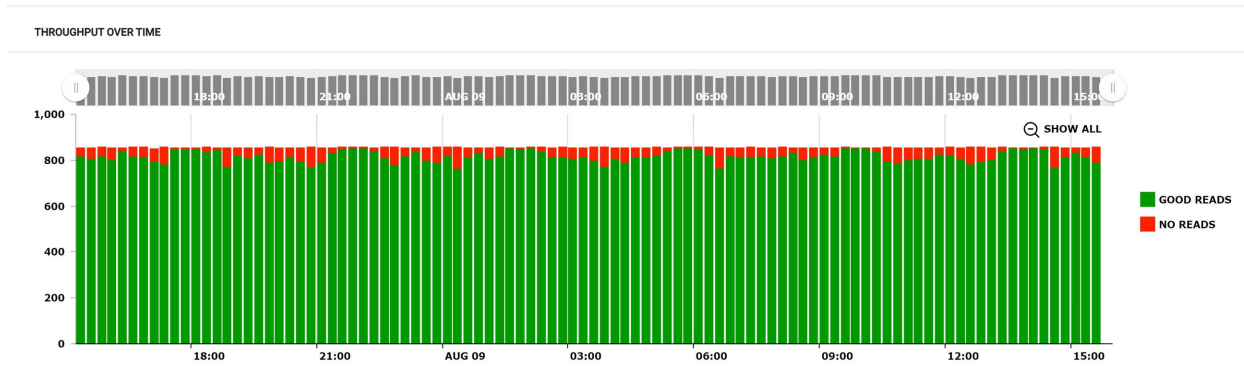
To see the percentage of Read rate, Passed Validation, and Missed Triggers hover the mouse over the tracker. To take a more detailed look over a certain part in the time range given, drag the slides above the tracker. To return to the overview, click on **Show all**.



Throughput Over Time

The tracker is dynamic chart that sums up throughput over the given time range. The data shown in the chart is color coded: GREEN stands for Good reads, and RED for No reads.

To see the number of Good Reads or No reads hover the mouse over the tracker. To take a more detailed look over a certain part in the time range given, drag the slides above the tracker. To return to the overview, click on **Show all**.



Overall reader statistics

Counters provide statistical data separated into categories of the overall read rate pertaining to the given time range. The Counters are color coded to give the user an at-a-glance overview of the performance of the group or standalone reader.

The dashboard also displays counters for:

- Good Reads – The number of triggers where a code was successfully decoded.
- No Reads – The number of triggers where a code was not decoded.
- Passed Validations – The number of good reads whose encoded data passes a specified content, format, or quality standard.
- Failed Validations – The number of good reads whose encoded data does not pass a specified content, format, or quality standard.
- Trigger Overruns – The number of times that the image could not be acquired because the reader was busy (for example, due to an ongoing burst or a long exposure).
- Buffer Overflows – The number of times it was possible to acquire an image, but there is no space left to save it on the reader. In other words, images are acquired faster than they can be processed. One possible situation is when decoding takes longer than what the image/trigger interval is.
- Overall Throughput – The sum of good reads and no reads.
- Missed Triggers – The sum of trigger overruns and buffer overflows.


THROUGHPUT IN THE LAST MINUTE	THROUGHPUT IN THE LAST HOUR	THROUGHPUT IN THE LAST DAY
116	7,190	172,694
GOOD READS IN THE LAST MINUTE	GOOD READS IN THE LAST HOUR	GOOD READS IN THE LAST DAY
116	6,950	169,813
NO READS IN THE LAST MINUTE	NO READS IN THE LAST HOUR	NO READS IN THE LAST DAY
0	240	2,881



Note: To navigate to a different RTM page or to a different app, use the Main menu opening from the top left side corner.




Date & Time Range Filter

Use the time range to define a period of time from which performance data is collected for the charts.

Date & Time Range Filter

8/8/2021, 10:41 AM ~ 8/9/2021, 10:41 AM



Icon	Action
	Date and Time Range Filter
	Reset to Last 24 Hours
	Set 'To' to Current Time

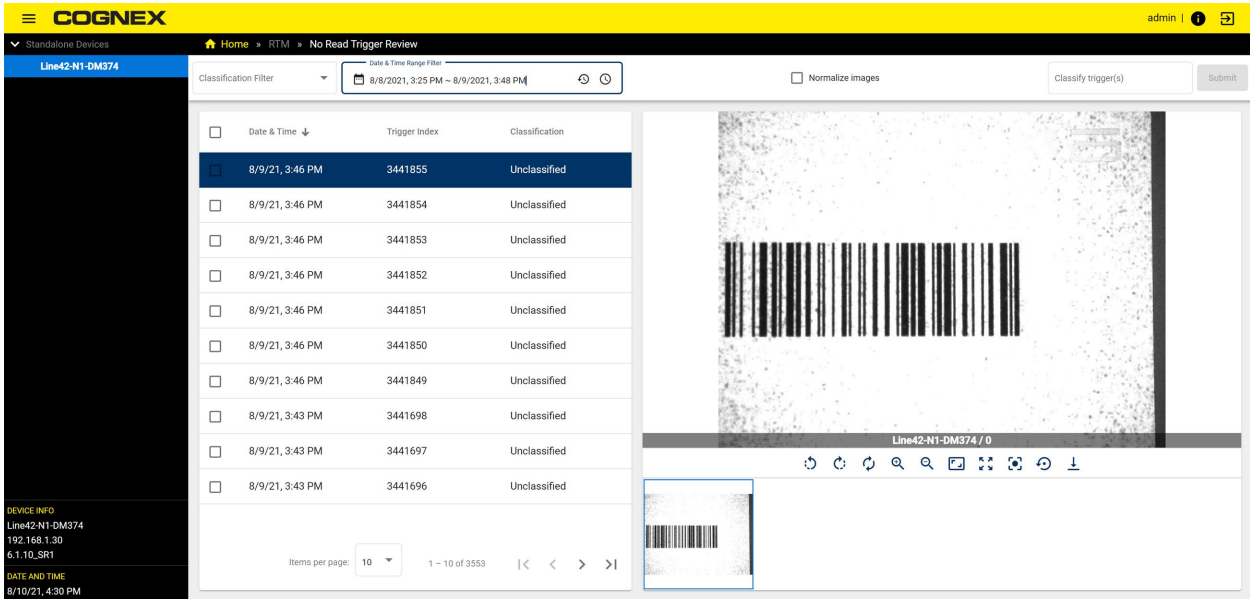
- Click the **Date & Time Range Filter** button or into the input field in the upper right corner to select and set a time range.
- Click the **Reset to Last 24 Hours** button to show the performance results from the last 24 hours.
- Click the **Set 'To' to Current Time** button to set the end of time range to current time.

Note: The date and time range selected on the Performance Monitoring page remains the same when navigating to other RTM app pages, except from the Live page.

No Read Trigger Review

The No Read Trigger Review page gives an overview of images and events when no reads occurred during collection. To set a time frame for overview use classification type to classify the No Read images manually. The maximum number of the No Read events is 100 on a single page.

To view images from a secondary reader (from MRS group), first enable trigger collection on the primary reader on the Settings page.



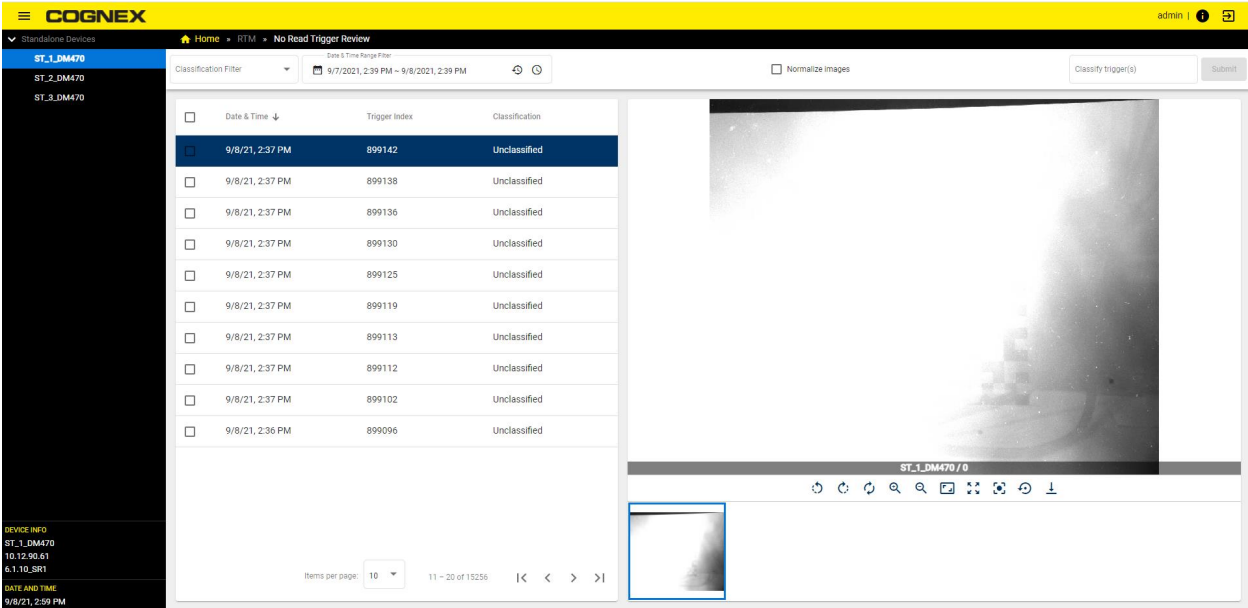
Dashboard Item	Description
Classification Filter	<p>To choose the classification types select from a dropdown menu that the table below will filter for:</p> <ul style="list-style-type: none"> • Damaged Code • Motion blur • No Label • Unclassified • Any other manually entered classification options
Date and Time Range Filter	<p>To define a period of time from which performance data is collected for the charts use the time range app. For more information visit Date & Time Range Filter on page 28</p> <p>Note: The selected range filter stays the same between Performance Overview, Configuration Change History, and No Read Trigger Review pages.</p>
Normalize Image checkbox	<p>To enhance the quality of images check the Normalize Image checkbox. Normalizing improves the contrast by stretching the intensity values of an image.</p>
Classify trigger(s) field	<p>To manually classify No read images enter their own classification or choose from a dropdown menu:</p> <ul style="list-style-type: none"> • Damaged Code • Motion blur • No Label • Unclassified • Any other manually entered classification options.
Submit	<p>The Submit button saves the new classifications you assign in the Classify trigger(s) text field.</p>

<p>No Read Image table</p>	<p>The table shows No Read data in three columns:</p> <ul style="list-style-type: none"> • Date and Time • Trigger index • Classification <p>Each entry in the table represents 1 No read trigger event. To view the No Read image, click on the row of the trigger event and the image is displayed on the right side of the table. To arrange the data click on the headers of the three columns.</p>
<p>Image Display window</p>	<p>This window displays the No read image of the selected row of the No read trigger Image table. To control the image in the display window use the Device Display Controls. For more information see Device Display Controls on page 30.</p>

Note: To navigate to a different RTM page or to a different app, use the Main menu, which opens from the top left corner.











Device Display Controls

Select an item from the trigger list to display the corresponding filmstrip, and select an image from the filmstrip to display in the window. Use the icons directly below the selected image to rotate, reset rotation, zoom in or out or to original size, center, reset all settings, or download.



Device Display Control Icons:

Icon	Action
	Rotate Left 90°

	
Icon	Action
	Rotate Right 90°
	Reset Rotation
	Zoom In
	Zoom Out
	Zoom To Original Size
	Reset Zoom
	Move Center
	Reset All Settings
	Download

Configuration Change History

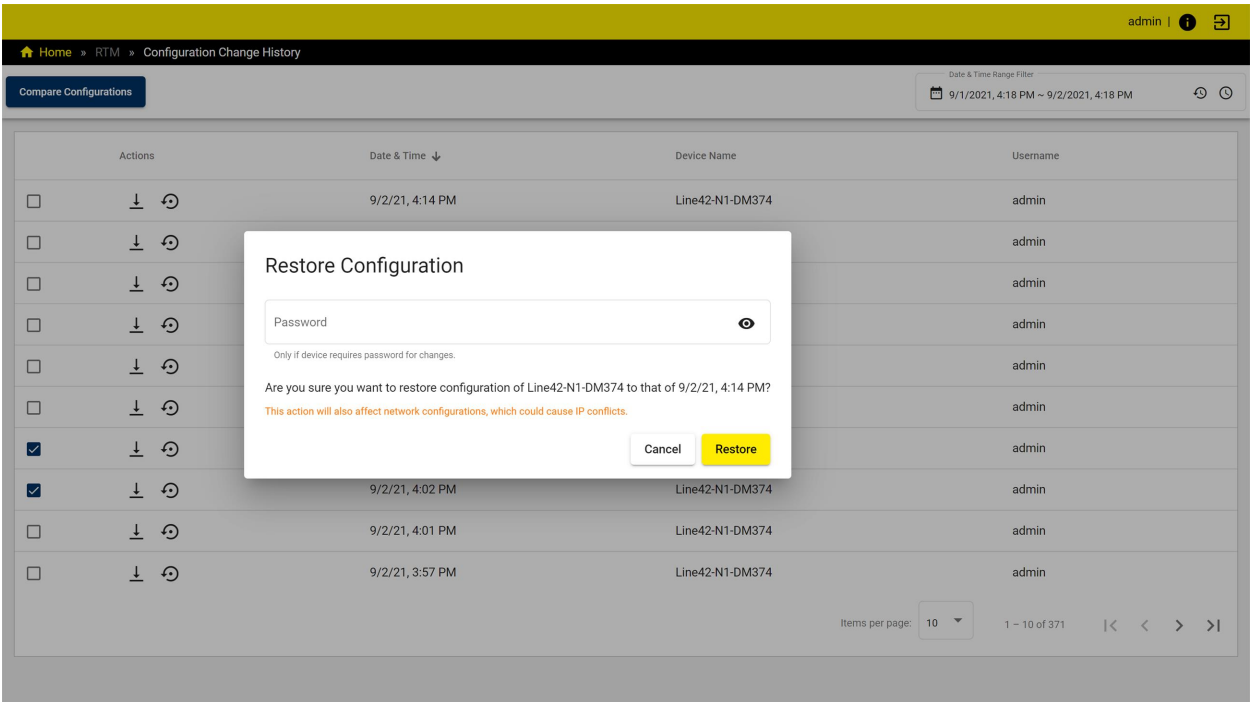
The Configuration Change History page tracks changes made to the configuration of all connected readers and shows changes in a customized fashion. The window displays the Device tree with available grouped and standalone readers. The page automatically links configurations with the respective usernames.

Configuration Change Actions

Icon	Action
	Selected checkbox
	Download Configuration File
	Restore Configuration

- Click the **checkbox** from the list in the left side of the rows to select a configuration.
- Click the **Download Configuration File** to download the selected Configuration files.

- Click **Restore Configuration** to revert to a previous configuration.
 - After clicking **Restore Configuration** enter your password and click **Restore** to revert configuration. Click **Cancel** to leave the popup window without restoring the selected configuration.



Dashboard overview:

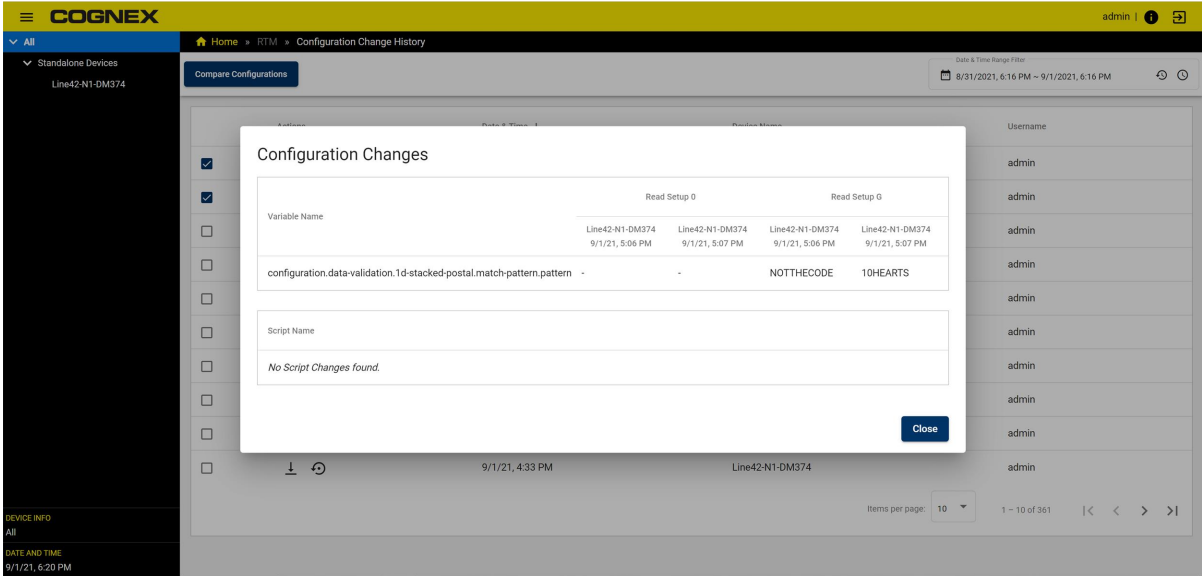
Item	Description
Compare Configurations button	Select 2 checkbox to enable the button. Click the button to see configuration changes in a pop-up window. For more information see
Date & Time Range Filter	Use the time range to define a period of time from which performance data is collected for the charts. For more information see Date & Time Range Filter on page 28
Configuration tables	List of readers and groups available for comparison.

Note: Changes made from Dataman Setup Tool are labeled as admin changes.

Column Name	Description	Display
Date and time	Date and time of the configuration change.	3/3/20, 9:10 AM
Device name	Name of the reader on the network.	
Username	Name and type of the user who made the configuration change.	

Configuration Changes

To compare two configurations, select the readers to compare. Click on the Compare Configurations button. A pop up window appears with a table containing the comparison results.



Item	Description
Configuration Changes	Lists variables which have different values in the compared versions
Variable Name	Name of the variable which has different values in the compared versions
Script Name	Name of the recently modified script
Read Setup	Name of the read setup

Variable changes:

Configuration Changes

Read Setup 0		
Variable Name		
	DM374-EI-Demo-Online 4/9/20, 7:03 AM	DM374-EI-Demo-Online 4/9/20, 7:05 AM
configuration.imager.gain-factor	15.00	5.00

Script Name
<i>No Script Changes found.</i>

Close

Column Name	Description
Variable Name	List of variables that have different values in the compared configuration versions
Read Setups	Display the name of the readers compared, and the difference in values pertaining to the row of the configuration scripts

Script changes:

Configuration Changes

Variable Name
No Variable Changes found.

Script Name	DM474-628156 4/15/20, 1:02 PM	DM474-628156 4/15/20, 2:08 PM
communication.script	<pre>// Comms script that triggers the reader twice/second var timerHandler = null; var trigger_delay = 0.5; // trigger twice/second function CommHandler() { return { onConnect: function (peerName) { // Disable the handler for this connection: if (peerName.indexOf("COM") >= 0) { timerHandler = this; timerHandler.setTimer(trigger_delay); return true; } return false; }, onDisconnect: function () {}, onError: function (errorMsg) {}, onExpectedData: function (inputString) { return true; }, onUnexpectedData: function (inputString) { return true; }, onTimer: function () { dmccCommand("TRIGGER", "ON"); if (timerHandler != null) timerHandler.setTimer(trigger_delay); }, onEncoder: function () {} }; }</pre>	<pre>// Comms script that triggers the reader twice/second function CommHandler() { return { onConnect: function (peerName) { // Disable the handler for this connection: return false; }, onDisconnect: function () {}, onError: function (errorMsg) {}, onExpectedData: function (inputString) { return true; }, onUnexpectedData: function (inputString) { return true; }, onTimer: function () {}, onEncoder: function () {} }; }</pre>
format.script	<pre>// Default script for data formatting function onResult (decodeResults, readerProperties, output) { if (decodeResults[0].decoded) { output.content = decodeResults[0].content; }</pre>	<pre>// Default script for data formatting function onResult (decodeResults, readerProperties, output) { if (decodeResults[0].decoded) { output.content = decodeResults[0].content; } else { output.content = "Not able to decode candidates"; }</pre>

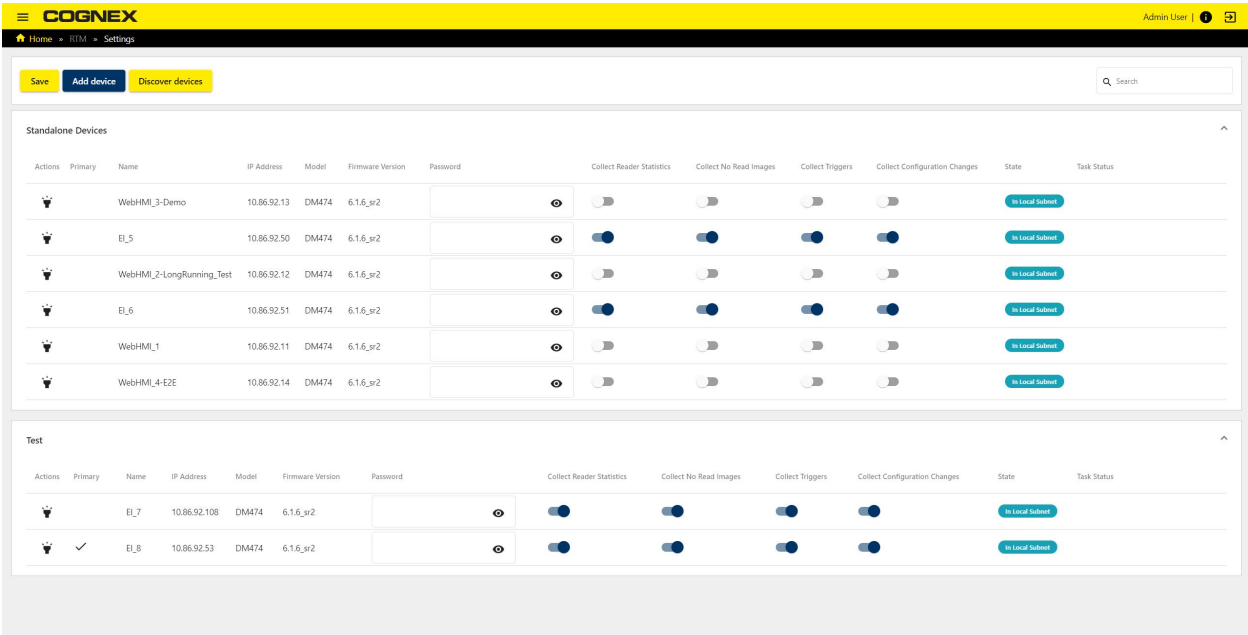
Close

Column Name	Description
Variable Name	List of variables that have different values in the compared configuration versions
Read Setups	Display the name of the readers compared, and the difference in values pertaining to the row of the configuration scripts

Settings

The Settings page of the RTM app lists all discovered devices on the network, provides options to subscribe for various statistical data from a reader or groups of readers. The window consists of a Top ribbon, where the Main Menu, the user info, the About section, and the Log out button resides. The window also consists of the Dashboard which contains information and settings options for all readers, standalone or in a group.

Note: To view images from a slave reader (from MRS group), first enable trigger collection on the master reader.



Item	Description
Action ribbon	Ribbon contains actions that can be performed on this page: Save - To save changes to the settings of a reader Add Device - To manually add a device not automatically recognized by the RTM app Discover devices - To trigger the RTM app to find more devices on the network
Standalone reader list	A table view of the settings of the standalone readers that are discovered on the network with options that can be enabled or disabled for the reader
Grouped reader list	Table views of the readers in a group sorted alphabetically by group name with options that can be enabled or disabled for the individual reader
Search Field	Allows searching for a reader by Name, Model or Firmware version

The table view of the standalone or group readers displays information and allows setting changes to the individual readers.

Column Title	Description
Actions	To flash led, click on the Flash icon
Primary	A check mark signifies the primary reader
Name	A customizable name of the reader
IP address	The IP address of the reader
Model	The type of the reader
Firmware version	The version of firmware installed on the reader
Password field	Password of the user allows making changes to the settings
Collect Reader Statistics	Enable or disable collecting statistics from the reader
Collect No Read images	Enable or disable collecting No Read images from the reader
Collect Triggers	Enable or disable collecting triggers from the reader
Collect Configuration Changes	Enable or disable collecting configuration changes from the reader

State	Displays the state of the reader, which can be: <ul style="list-style-type: none">• In Local Subnet• In Remote Subnet• In Remote Subnet Behind NAT• Waiting For DHCP• Misconfigured• Unknown
Task status	Displays the status of the task

Note: To navigate to a different RTM page or to a different app, use the Main menu, which opens from the top left corner.

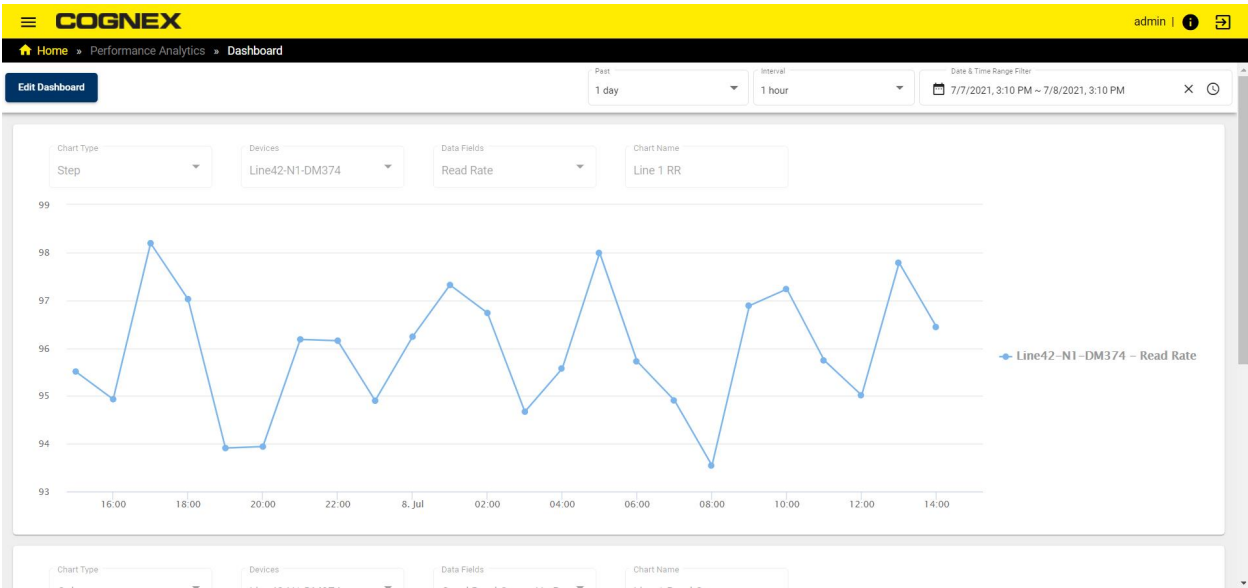
Performance Analytics

The Performance Analytics application of the Edge Intelligence user interface provides additional analytics options over the Performance Monitoring page in the RTM application.

Dashboard

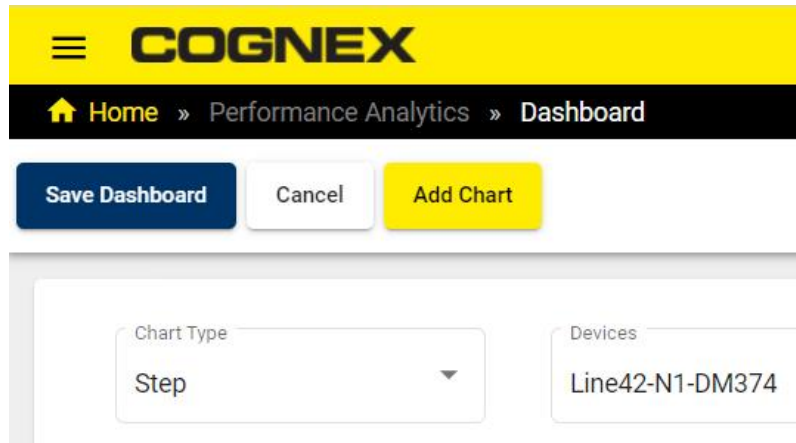
The **Dashboard** page of the Performance Analytics application provides a configurable set of saved charts that visualize the performance data of connected devices. The Dashboard allows you to create and save new charts, and edit existing ones, with multiple chart type display options and a wide array of data sets. You can also set the date and time range, and the charts on the Dashboard update accordingly.

The **Dashboard** page:



Edit Dashboard

Click **Edit Dashboard** in the top left corner of the page to enable creating, editing, moving, and deleting charts on the Dashboard.



To create a new chart at the top of the Dashboard:

1. Click **Add Chart** to create an empty chart.
2. Set the **Chart Type**, **Devices**, or **Data Fields** properties of the chart by clicking on the property box and selecting the desired settings from the dropdown. For a list of available Chart Types and Data Fields, see [Performance Review on page 39](#).
3. Fill in the **Chart Name** text box to give the chart a name.

To edit an existing chart, click on its properties and change the settings. The chart updates automatically to reflect the new settings.

To move a chart up or down on the Dashboard, click on the arrow icons in the top right corner of the chart.

To delete a chart, click on the trash icon in the top right corner of the chart.

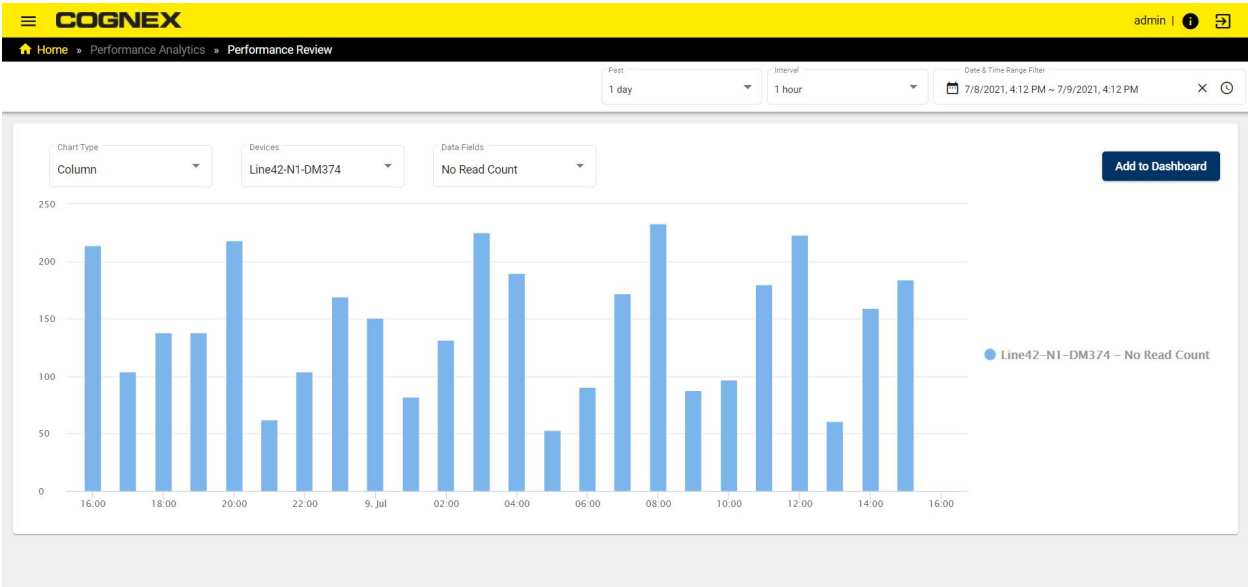
Once you are done editing the Dashboard, click **Save Dashboard** to save your changes, or **Cancel** to discard your changes.

You can zoom into areas of interest on the charts by clicking and dragging the cursor. Click **Reset Zoom** to return to the full time range.

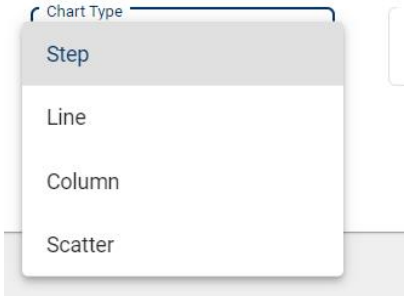
Performance Review

The **Performance Review** page of the Performance Analytics application allows you to configure a chart that visualizes the performance data of connected devices with multiple chart type display options and a wide array of data sets. You can also set the date and time range, and the chart updates accordingly.

The **Performance Review** page:



Click on a chart property to open a dropdown with the available configuration options.

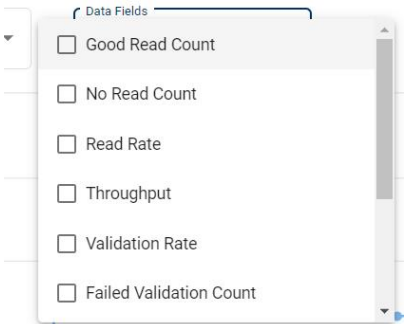


Select one of the available **Chart Types**:

- Step
- Line (default)
- Column
- Scatter



The **Devices** property provides a list of all connected devices. Check the checkbox of one or more devices to add their data to the chart.



Select one or more of the available **Data Fields**:

- Good Read Count
- No Read Count
- Read Rate
- Throughput
- Validation Rate
- Failed Validation Count
- Passed Validation Percent
- Missed Trigger Percent
- Buffer Overflow Count
- Trigger Overrun Count

You can zoom into areas of interest on the chart by clicking and dragging the cursor. Click **Reset Zoom** to return to the full time range.

If you want to keep your chart configuration, you can also save it as a chart on the **Dashboard** page. Click **Add to Dashboard** in the top right corner of the chart.

Results Explorer

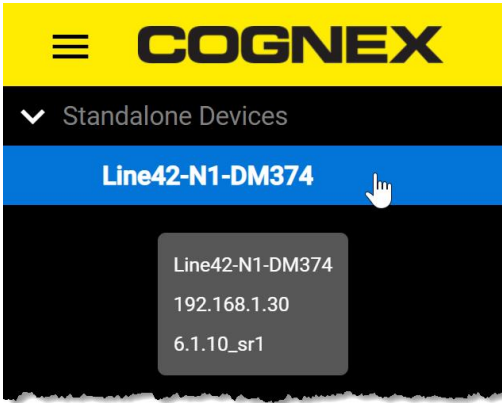
With Results Explorer you can filter the results collected by Cognex devices and find the data that is most important to you.

The screenshot displays the Cognex Results Explorer interface. At the top, there is a yellow header with the Cognex logo and user information (admin). Below the header, the breadcrumb navigation shows 'Home > Performance Analytics > Results Explorer'. The main interface is divided into several sections:

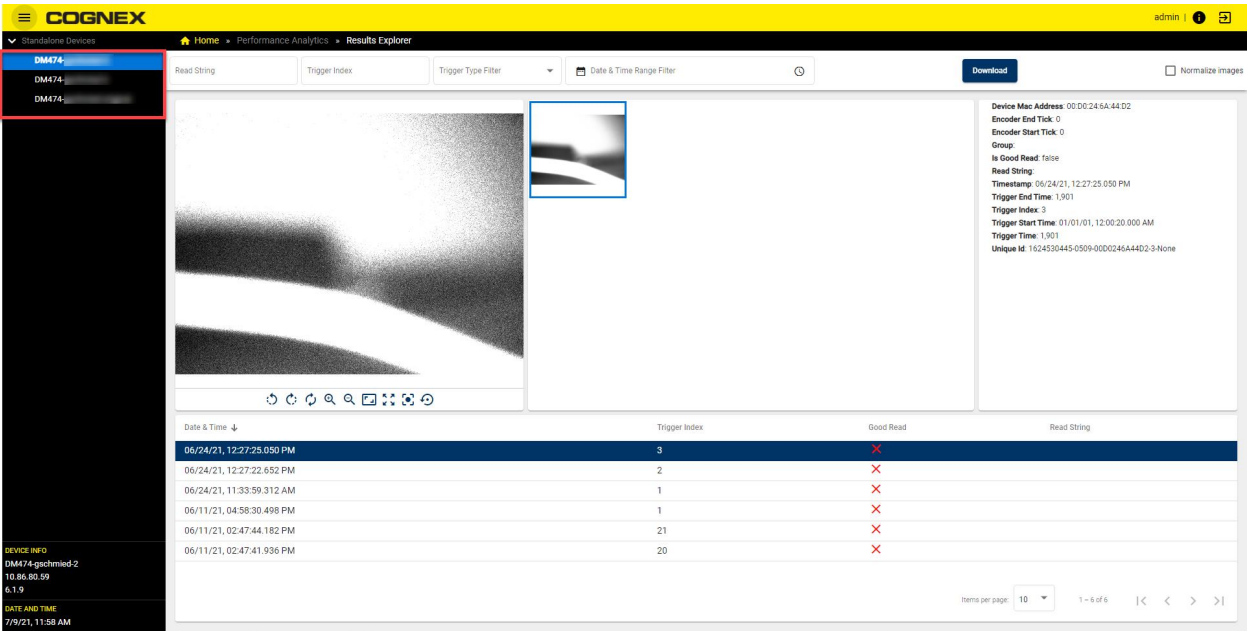
- Device Tree (Left):** Shows a tree view with 'Line42-N1-DM374' selected.
- Image Processing (Center):** Features a large image of a barcode with a zoomed-in view to its right. Below the image are icons for refresh, zoom, and other image manipulation tools.
- Filters (Top Center):** Includes fields for 'Read String', 'Trigger Index', 'Trigger Type Filter', and 'Date & Time Range Filter', along with a 'Download' button and a 'Normalize images' checkbox.
- Results Table (Bottom Center):** A table with columns: 'Date & Time', 'Trigger Index', 'Good Read', and 'Read String'.

Date & Time	Trigger Index	Good Read	Read String
07/08/21, 06:13:02.036 PM	815125	✗	10HEARTS
07/08/21, 06:13:00.994 PM	815124	✓	10HEARTS
07/08/21, 06:12:59.949 PM	815123	✓	10HEARTS
07/08/21, 06:12:58.889 PM	815122	✓	10HEARTS
- Decode Results (Right Sidebar):** A sidebar showing detailed metrics for the selected result, including 'Decode Time', 'Image Index', 'Is Good Read', 'Module Size', 'Process Control Metrics', 'Grades', 'Metrics', and 'Contrast: 0.869'.

On the device tree select the reader you wish to use with Results Explorer.



Double-clicking the selected device automatically brings you to the Results Explorer window, which provides a list of all trigger acquisitions on thereader and further information about each.

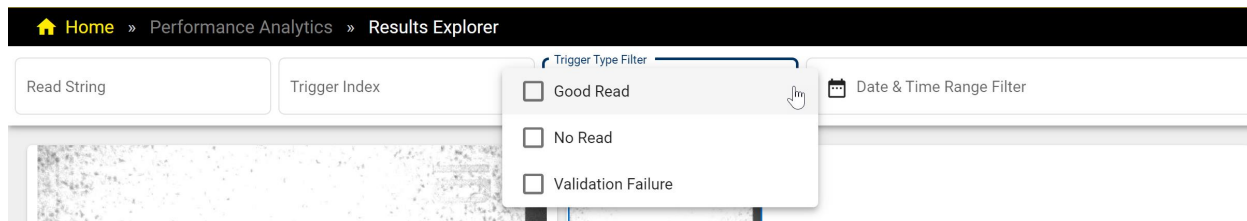


To filter acquisition details for the selected device, fill in the entry fields on the top of the Results Explorer window:

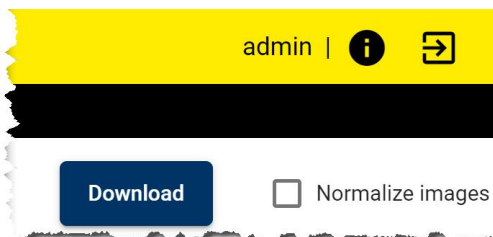


- In **Read string** entry field, you can look over the triggers that contain a specific character string.
- In **Trigger Index** entry field, you can filter trigger acquisitions by typing in or copy the number of the trigger Index.

- In the **Trigger Type Filter** drop-down menu, you can choose from the options:
 - Good Read
 - No Read
 - Validation Failure

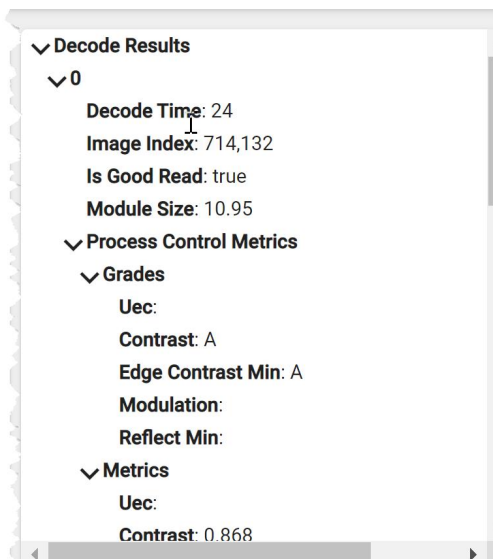


- Use the **Date & Time Range Filter** to specify the time range of the results. For more information see [Date & Time Range Filter on page 28](#)
- Click the **Download** button to download the captured images to your computer.
- Select the **Normalize images** checkbox, to increase image contrast. Unselect the checkbox to set the images back to default.



You can change the view of the selected image in the image pane with the Device Display Controls. For more information see [Device Display Controls on page 30](#).

In the sidebar on the right, you can see more in-depth decode results for each of the trigger acquisitions on the list.

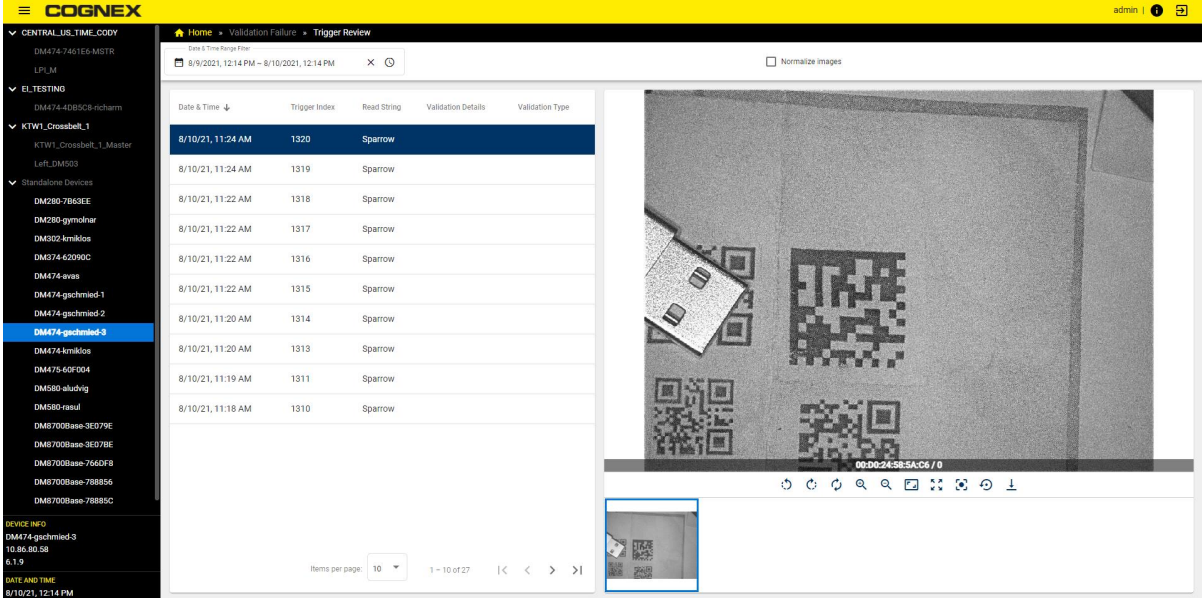


Validation Failure

The Validation Failure application of the Edge Intelligence user interface provides additional information about failed validation triggers.

Trigger Review

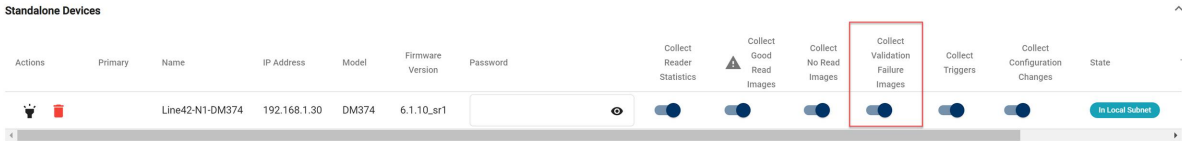
You can access **Trigger Review** under **Validation Failure>Trigger Review**.



Obtaining Data for Trigger Review

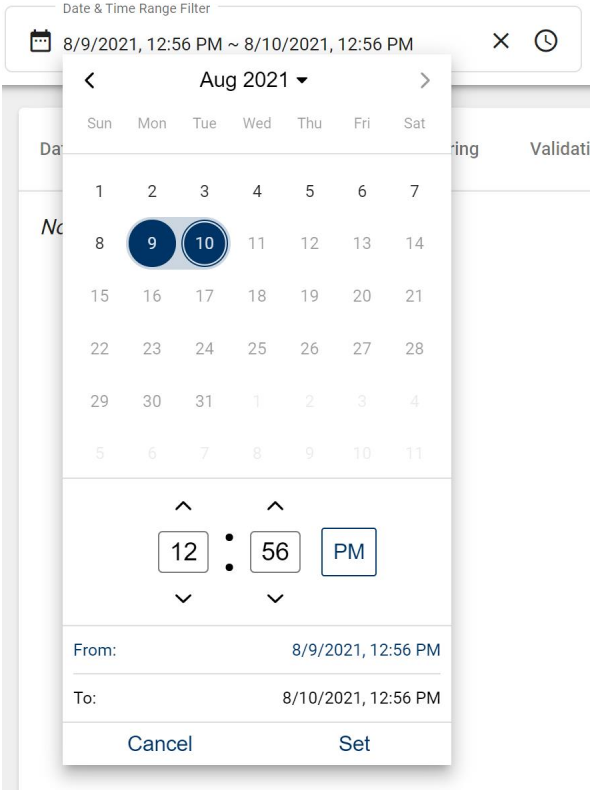
To obtain trigger review data:

- In **RTM > Settings**, check the **Collect Validation Failure Images** option.



- Set **Data Validation** for the DataMan device in **DataMan Setup Tool > Settings > Data Validation** and trigger the device to receive trigger results. See *DataMan Setup Tool Reference Manual* for details.

Elements of the Trigger Review window



Date and Time Range Filter lets you select the date and time range in which you want to review the obtained triggers. Click on the range filter cell for the date selector dropdown. Click **From** and **To** to specify the range. Click **Set** if ready.

Date & Time ↓	Trigger Index	Read String	Validation Details	Validation Type
8/10/21, 11:24 AM	1320	Sparrow		
8/10/21, 11:24 AM	1319	Sparrow		
8/10/21, 11:22 AM	1318	Sparrow		
8/10/21, 11:22 AM	1317	Sparrow		
8/10/21, 11:22 AM	1316	Sparrow		
8/10/21, 11:22 AM	1315	Sparrow		
8/10/21, 11:20 AM	1314	Sparrow		
8/10/21, 11:20 AM	1313	Sparrow		
8/10/21, 11:19 AM	1311	Sparrow		
8/10/21, 11:18 AM	1310	Sparrow		

Items per page: 10 1 - 10 of 27 |< < > >|

On the **list of available triggers**, you can examine the trigger index, the read string, the validation details and validation types, if there are any. On the bottom of the list, you can browse the triggers, if there are more which can be listed on a single page.



Trigger Image shows the triggered image or images of the corresponding trigger.

If there are more than one trigger images, you can select an image from the preview filmstrip on the bottom.

With the image viewer tools, you can rotate, zoom in and out and set the image to full screen. For more information see [Device Display Controls on page 30](#).

Settings

In **Settings**, you can configure the settings of string matching.

To configure a setting, you have to enable the corresponding match string configuration.

Match String Configurations

Data Matrix

QR Code / MaxiCode / Aztec Code

1D / Postal / Stacked

VeriCode
Feature key is missing or this symbology is not supported by the selected device(s).

DotCode

Save

Available options are:

- Data Matrix
- QR Code / Maxi Code / Aztec Code
- 1D / Postal /Stacked
- VeriCode
- DotCode

To add a name for the enabled match string configuration, click into the description line of the corresponding code

Data Matrix
ECC 200

Click **Save** to record the changes.

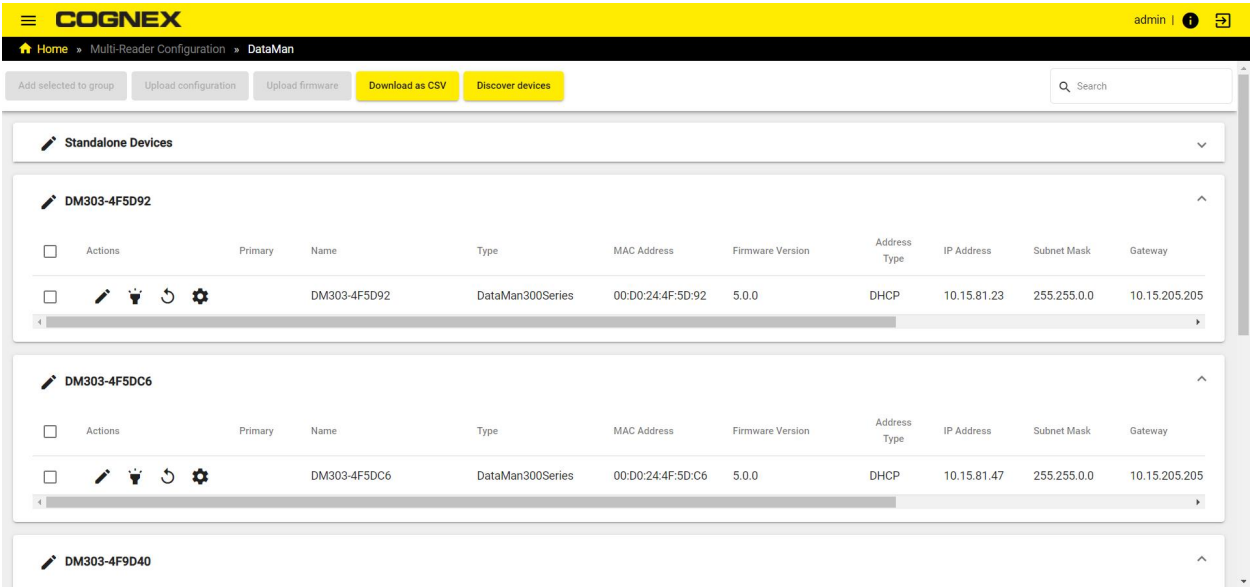
Multi-Reader Configuration (MRC)

The Multi-Reader Configuration application of the Edge Intelligence user interface provides a list of standalone devices and device groups, shows device information, and allows you to modify settings on individual devices as well as multiple devices simultaneously. You can also save entire tables of device configuration data to your local machine.

DataMan

The DataMan page of the Multi-Reader Configuration application provides a list of standalone devices, as well as device groups, including device data. You can edit the configuration, flash the LED, reboot, or access the DataMan WebHMI of individual devices from the DataMan page. You can perform mass configuration or firmware updates for device groups.

The DataMan page:











To refresh the list of connected devices click **Discover devices** in the header.

To save the device information for the connected devices in CSV format click **Download as CSV** in the header .

Individual Device Actions

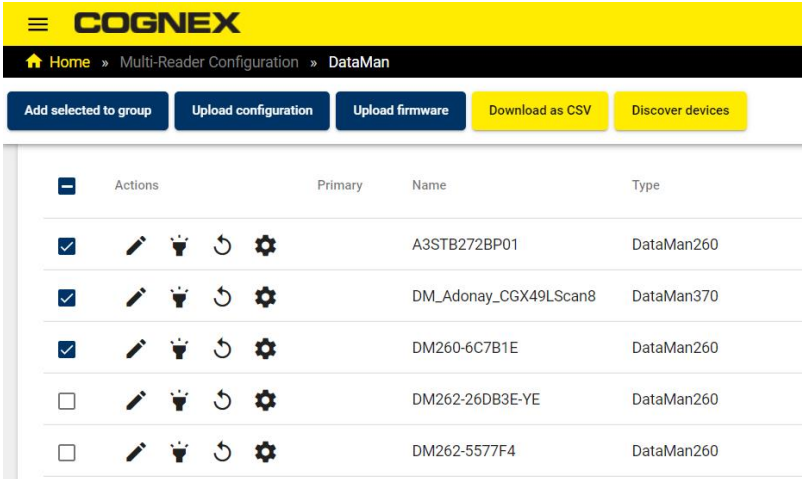
You can perform actions on an individual device by clicking on the icons in the **Actions** column of the row for the selected device:

Actions	
	
	
Icon	Action
	Single Device Edit
	Flash LED
	Reboot
	Open DataMan WebHMI

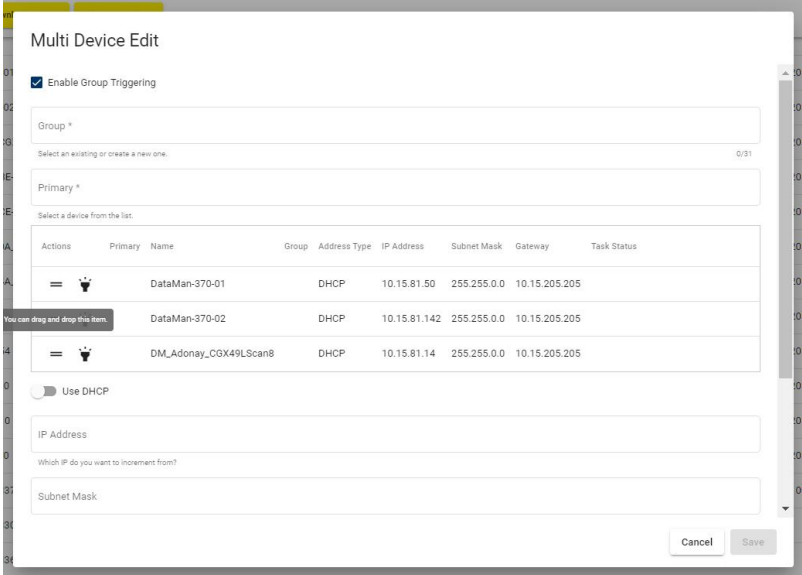
- Click the **Single Device Edit** button to modify the name, IP address, Subnet Mask, and Default Gateway of the device. Enter the device password if required.
- Click the **Flash LED** button to remotely trigger the LED of the device for easy identification.
- Click the **Reboot** button to initiate a reboot on the device.
- Click the **Open DataMan WebHMI** button to open the DataMan WebHMI in a new tab. For more information on the DataMan WebHMI, see [DataMan WebHMI on page 50](#).

Device Group Actions

To perform group actions, check the checkbox of the selected devices, enabling the group action buttons in the header:



Click the **Add to selected group** button to open the **Multi Device Edit** window:



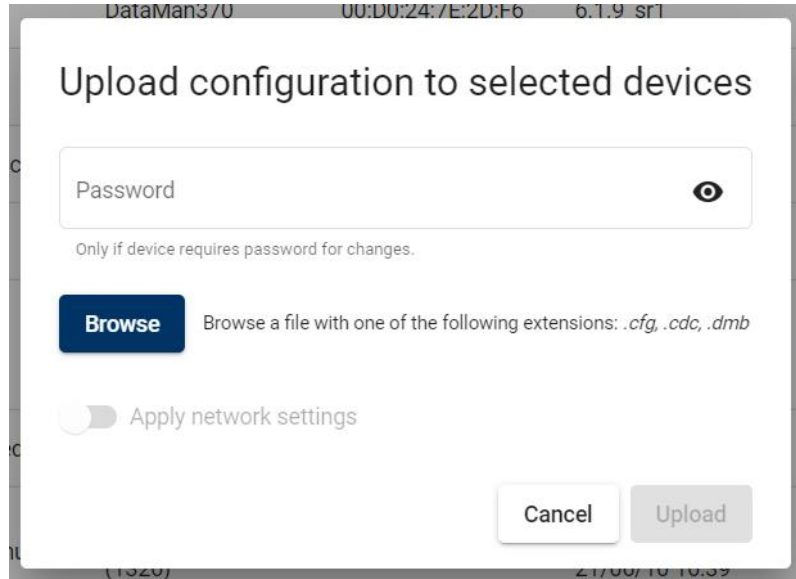
In the **Multi Device Edit** window, you can:

- add the selected devices to an existing group
- create a new group with the selected devices
- define a primary device in the group
- reorder the devices

- flash the LEDs of the individual devices for easy identification
- manually configure the IP Address, Subnet Mask, and Default Gateway

Enter the device password if the device is set up to require it. Click **Save** to apply any changes.

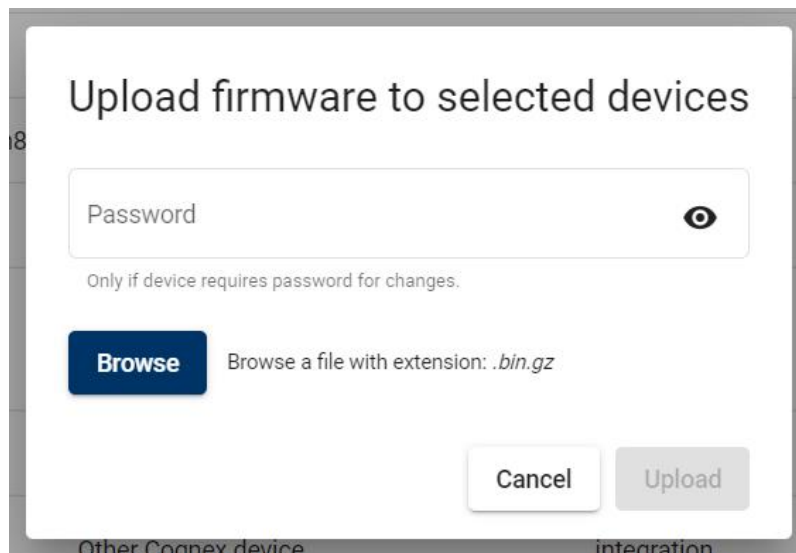
To upload a saved configuration file to selected devices, click the **Upload configuration** button, opening the **Upload configuration to selected devices** window:



The screenshot shows a dialog box titled "Upload configuration to selected devices". At the top, it displays device information: "DataMan370", "00:00:24:7E:2D:F6", and "6.1.9 sr1". Below the title is a "Password" input field with an eye icon on the right. Underneath the password field is the text "Only if device requires password for changes." Below that is a blue "Browse" button followed by the text "Browse a file with one of the following extensions: .cfg, .cdc, .dmb". At the bottom left, there is a toggle switch labeled "Apply network settings" which is currently turned off. At the bottom right, there are two buttons: "Cancel" and "Upload".

Click **Browse** to select the configuration file for upload. Enable **Apply network settings** to apply network settings. Enter the device password if the device is set up to require it, and click **Upload**.

To update the firmware on selected devices, click the **Upload firmware** button, opening the **Upload firmware to selected devices** window:



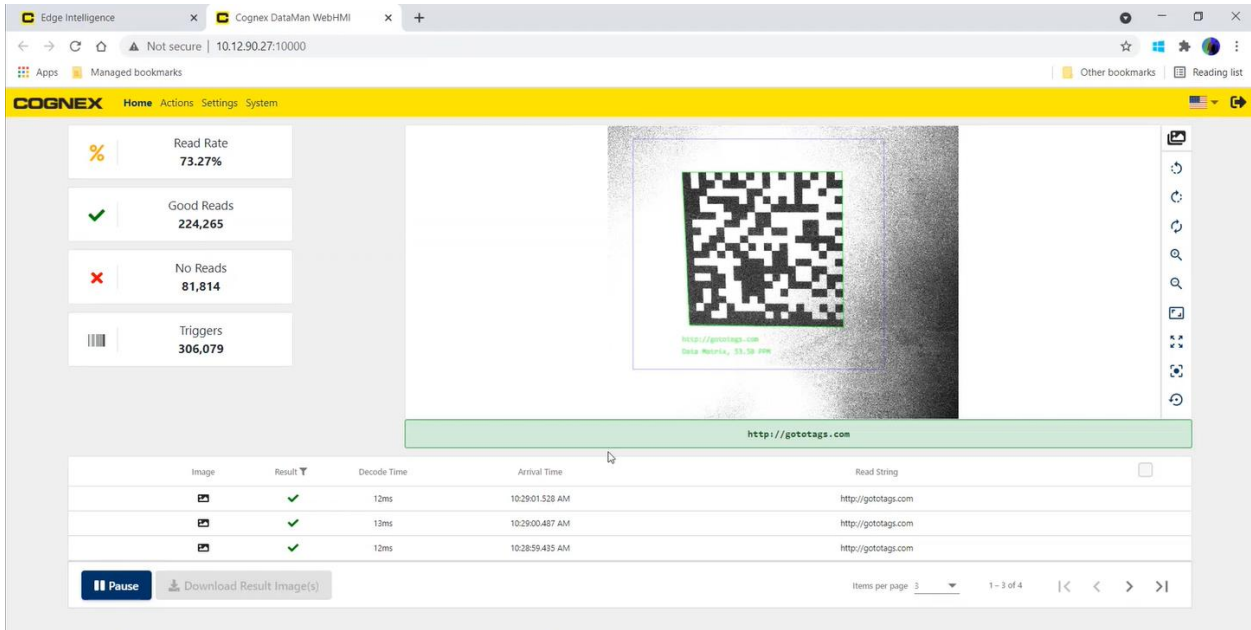
The screenshot shows a dialog box titled "Upload firmware to selected devices". At the top, it displays device information: "Other Coanex device" and "integration". Below the title is a "Password" input field with an eye icon on the right. Underneath the password field is the text "Only if device requires password for changes." Below that is a blue "Browse" button followed by the text "Browse a file with extension: .bin.gz". At the bottom right, there are two buttons: "Cancel" and "Upload".

Click **Browse** to select the firmware file for upload. Enable **Apply network settings** to apply network settings. Enter the device password if required, and click **Upload**.

DataMan WebHMI

The DataMan WebHMI application provides a live view of device reads, results and statistics, and allows you to pause the feed and scroll back to analyze or download individual result images. You can manually trigger or tune devices and

adjust device settings from the DataMan WebHMI.



You can access the DataMan WebHMI for a connected DataMan device from the DataMan page of the Edge Intelligence user interface by clicking on the gear icon labeled **Open DataMan WebHMI** in the **Actions** column of the selected device.

Home







The DataMan WebHMI **Home** page displays a live feed of the device with statistics and result logs.

On the left side, the DataMan WebHMI home page shows statistics for:

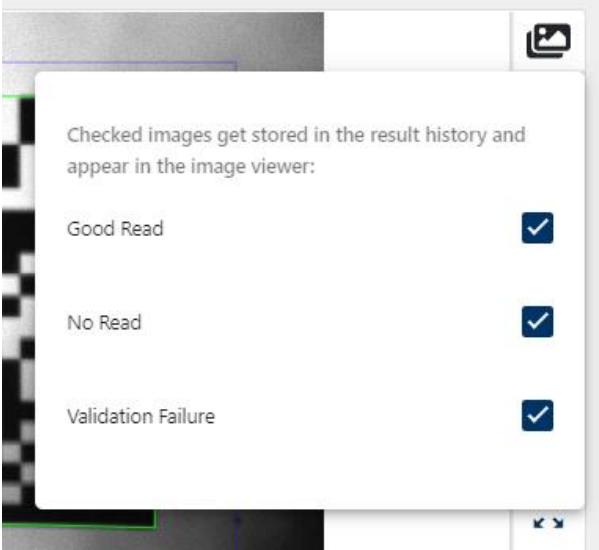
- **Read Rate** percentage
- Number of **Good Reads**
- Number of **No Reads**
- Number of **Triggers**

The display on the right side of the page provides a live feed of the device view with additional controls on the right side of the display for changing orientation and zoom:

Icon	Action
	Rotate Left 90°
	Rotate Right 90°
	Reset Rotation

Icon	Action
	Zoom In
	Zoom Out
	Zoom To Original Size
	Reset Zoom
	Move Center
	Reset All Settings

You can also filter the feed to display only **Good Read**, **No Read**, or **Validation Failure** results by clicking on the **Images** icon in the top right corner of the display.



The result logs of the last 50 captures are listed on the bottom of the page. You can browse the list using the navigation buttons in the bottom right corner of the pane.

Image	Result	Decode Time	Arrival Time	Read String
	✓	13ms	12:03:18.947 PM	12
	✓	12ms	12:03:17.783 PM	http://www.google.com
	✗	13ms	12:03:16.586 PM	

Items per page 3 1 - 3 of 50

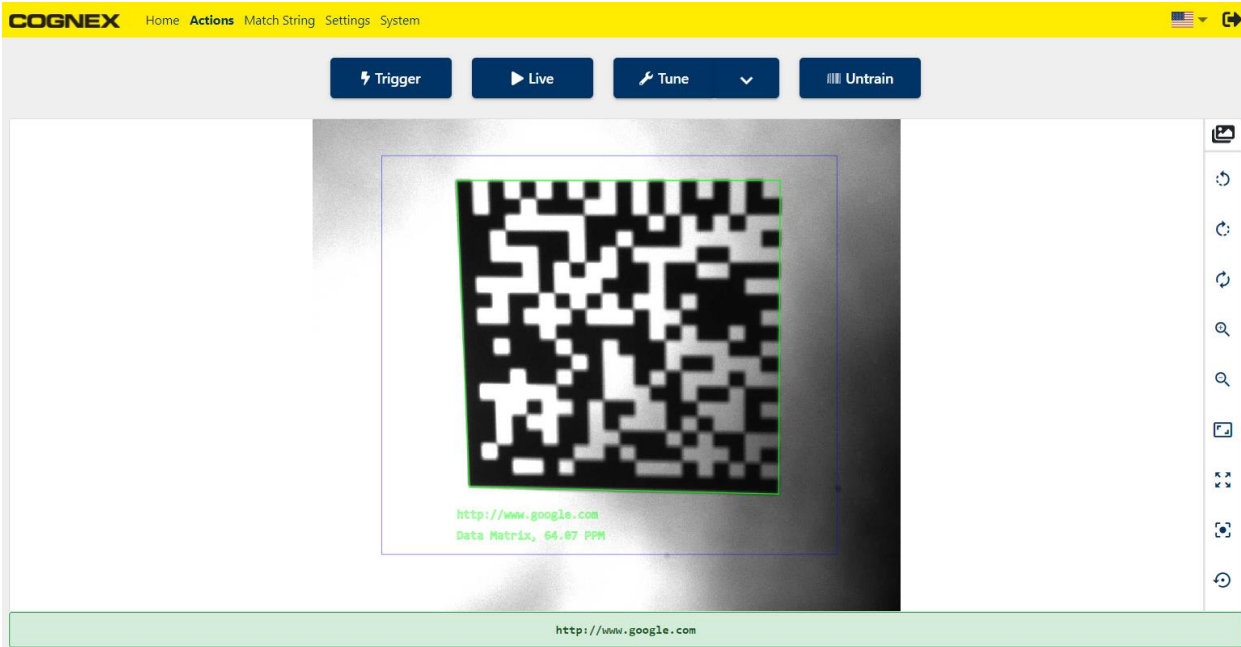
Click on the **Pause** button in the bottom left corner to pause the live feed. Pausing the feed allows you to select and download result images. Click on a log to put the result image on the display.

To download the image currently on the display, click on the **Download Result Image(s)** button without selecting any images from the result logs.

Check the checkboxes in the rightmost column of the result logs to select images for download, or check the checkbox in the table header to select all images. Click on **Download Result Image(s)** while multiple images are selected to download a ZIP file containing the selected result images.

Actions

The **Actions** page of the DataMan WebHMI allows you to manually trigger, start or stop, tune, or untrain the device.



Click **Trigger** to trigger the device manually.

Click **Live** to show the live feed of the device camera.

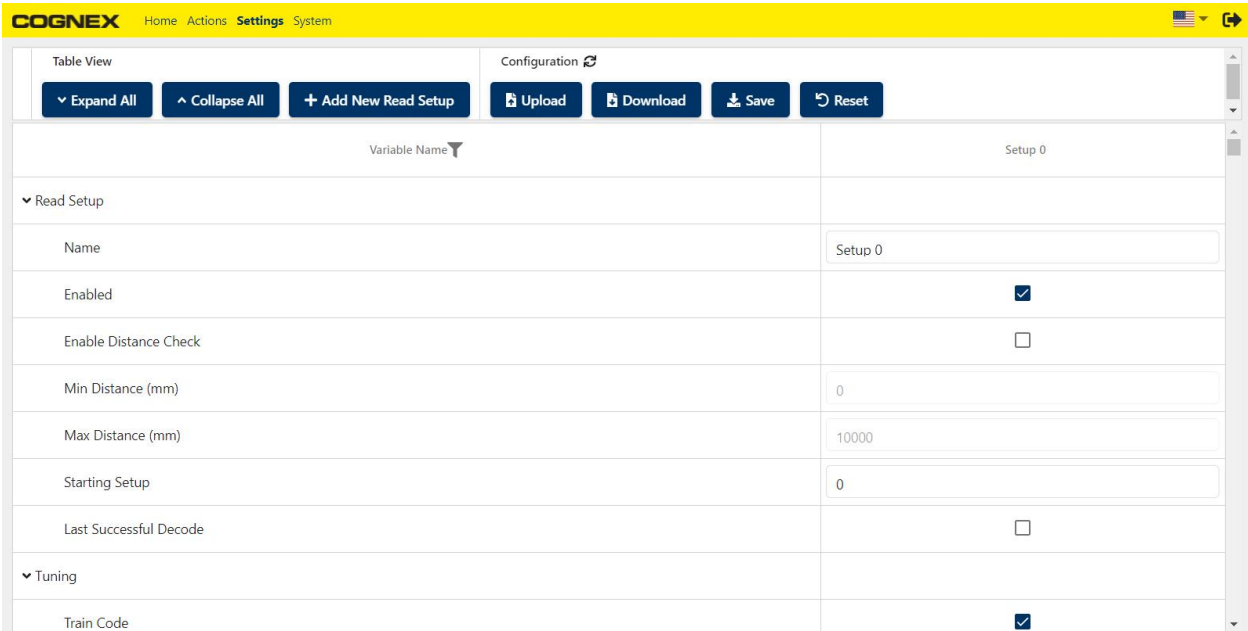
Click **Tune** to initiate an automatic recalibration. Open the Tune dropdown to optimize brightness or focus individually.

Note: When you tune a device, the device stops triggering.

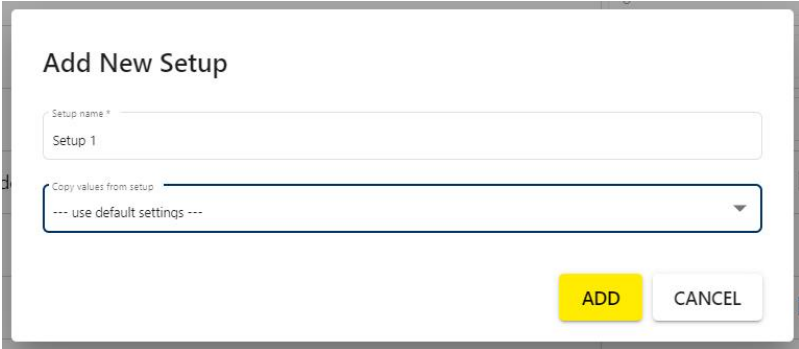
Click **Untrain** to untrain the device.

Settings

The **Settings** page of the DataMan WebHMI allows you to manually change the device configuration, upload, download, or save the current configuration, or reset the device to a previously saved configuration.



- Click **Expand All** or **Collapse All** at the top of the page to expand or collapse the setting categories in the settings table.
- Click **Add New Read Setup** to create a new setup using default settings or an existing setup as a template.



- Click **Upload** to upload a local configuration file to the device.
- Click **Download** to save the device configuration locally.
- Click **Save** to save the configuration on the device flash memory.
- Click **Reset** to reset the device configuration to default or a saved configuration.

The settings table provides you with detailed and in-depth configuration options for all device functionality. For a detailed description of the available settings, see [Device Settings in DataMan WebHMI on page 55](#).

System

The **System** page of the DataMan WebHMI displays detailed device information, reader statistics, feature keys, and device time.

COGNEX Home Actions Settings System 🇺🇸 ↩

Device Information

Device Model: DM374	Firmware Version: 6.1.10_sr1
Serial Number: 1A1806XN002064	Installed Hardware: LiquidLens, Custom
Device Name: Line42-N1-DM374	Bootloader Version: 2017.11-45-g87f355f
MAC Address: 00-D0-24-3D-BB-38	OS Version: 6.1.10_sr1
IP Address: 192.168.1.30	

Feature Keys

1DCodeQuality, 1DDataStitching, 1DExtendedRes, 2DCode, 2DCodeQuality, BarCode, DotCode, IDMax, FullSpeed, IDQuick, ImageDownload, ImageFiltering, ImageFoV_Full, IntImageBuffer, LadderAndPicket, MST, Omnidirectional, PostalCode, PowerGrid, Scripting, SignopticSig, Validation

Device Time

Local Time:
Jan 26, 2019, 2:36:11 AM

Uptime:
601h 36m 13s

Reader Statistics 🔄 Clear

Total Triggers: 1,376,159	Missed Triggers: 0
Total Reads: 1,225,743	Passed Validations: 0
Read Rate: 89.07%	Failed Validations: 0
Total No-Reads: 150,416	Buffer Overflows: 0
No-Read Rate: 10.93%	Trigger Overruns: 0
	Item Count: 0

**Device Settings in DataMan WebHMI
Read Setup Settings**

Variable	Type	Description
Name	string	
Enabled	boolean	
Enable Distance Check	boolean	
Min Distance (mm)	integer	
Max Distance (mm)	integer	
Starting Setup	integer	
Last Successful Decode	boolean	

Tuning Settings

Variable	Type	Description
Train Code	boolean	
Tune Light Banks	boolean	
Force Exhaustive Tuning	boolean	
Optimize Focus	boolean	
Exclude Ambient Light Results	boolean	

Image Settings

Variable		Type	Description
HDR		array	
Image Size (Region of Interest)	Decoder ROI	string	
	Imager FOV	Enabled	boolean
		Imager FOV	string

Variable		Type	Description
Filtering	Image Filtering		string
	Image to Use	Data Matrix	array
		QR Code / MaxiCode / AztecCode	array
		DotCode	array
		1D / Stacked / Postal	array
		NoRead Image	array
Focus	Optimize Focus Feedback Enabled		boolean
	Focus Settle Mode		array
	Focus Steps		array
	Focus Range	Low	integer
		High	integer
	Focus Range	Low	integer
High		integer	
Display	Result	Size	array
		Format	array
		Quality	integer
	Live	Size	array
		Quality	integer
Image Transfer Settings	Transfer and Display Images		boolean
	Transfer All Images		boolean

Test Mode Settings

Variable	Type	Description
Automatic Triggering	boolean	
Trigger On [μ s]	integer	
Trigger Off [μ s]	integer	
Enable Inputs	boolean	
Enable Outputs	boolean	
Number of Triggers to be Accepted	integer	

Trigger Settings

Variable	Type	Description
Type	array	
Timeout	integer	
Interval	integer	
Burst Length	integer	

Variable		Type	Description
Delay	Type	array	
	Time	Start	integer
		End	integer
	Distance	Start	integer
End		integer	
Motion Detection	Enabled	boolean	
	Motion Detection Sensitivity	array	
	Timeout	integer	

Imager Settings

Variable		Type	Description
Automatic Exposure		boolean	
Maximum Exposure (μ s)		integer	
Maximum Gain Factor		integer	
Exposure		integer	
Gain Factor		integer	
Image Mirroring	Flip Horizontal	boolean	
	Flip Vertical	boolean	

Illumination Settings

Variable		Type	Description
Internal	Aimer Enabled	boolean	
	Brightfield Inside North	boolean	
	Brightfield Inside East	boolean	
	Brightfield Inside South	boolean	
	Brightfield Inside West	boolean	
	Brightfield Outside North	boolean	
	Brightfield Outside East	boolean	
	Brightfield Outside South	boolean	
	Brightfield Outside West	boolean	
External	Enabled	boolean	
	Intensity	integer	
	Polarity	array	
	Light Type	array	
	Precharge Time (μ s)	integer	
High Frequency Lights	Enabled	boolean	
	"Always On" Enabled	boolean	
	Timeout	integer	

Symbology Settings

Symbology Settings

Variable	Type	Description
Target Decoding	boolean	

2D Symbology Settings

Variable	Type	Description
Algorithm	array	
Data Matrix	boolean	
QR Code	boolean	
MaxiCode	boolean	
Aztec Code	boolean	
DotCode	boolean	
Data Matrix Properties	IDQuick Usage Type	array
	Print Deformation	array
	Symbol Damage	array
	Ignore Polarity	boolean
	Flexible Grid Size	boolean
QR Code Properties	Model 1	boolean
	Model 2	boolean
	Micro QR Code	boolean
	Maximum Grid Size	integer
	Ignore Polarity	boolean
	Flexible Grid Size	boolean
DotCode Properties	Minimum Number of Data Rows	integer
	Maximum Number of Data Rows	integer
	Minimum Number of Data Columns	integer
	Maximum Number of Data Columns	integer
	Polarity	array

1D Symbology Settings

Variable	Type	Description
Code 128	boolean	
Code 39	boolean	
Interleaved 2 of 5	boolean	
Code 25	boolean	
UPC/EAN	boolean	
Code 93	boolean	
Codabar	boolean	

Variable		Type	Description
MSI		boolean	
PDF417		boolean	
POSTNET		boolean	
PLANET		boolean	
Japan Post		boolean	
Australia Post		boolean	
UPU		boolean	
Intelligent Mail Barcode		boolean	
1D Symbology Properties	Enable HOTBARS™	boolean	
	Short Quiet Zone	boolean	
	Short Height Codes	boolean	
	Enable Extended Resolution	boolean	
	Minimum Decodes Before Output	integer	
	Code Orientation	array	
	Usage Type	array	
	Custom	boolean	
Code 128 Properties	Any	boolean	
	Code Size Min	integer	
	Code Size Max	integer	
Code 39 Properties	Any	boolean	
	Code Size Min	integer	
	Code Size Max	integer	
	Check Character	boolean	
	Transmit Check Character	boolean	
	Full ASCII	boolean	
	Convert to Code 32	boolean	
Interleaved 2 of 5 Properties	Any	boolean	
	Code Size Min	integer	
	Code Size Max	integer	
	Check Character	boolean	
	Transmit Check Character	boolean	
Code 25 Properties	Any	boolean	
	Code Size Min	integer	
	Code Size Max	integer	
	Check Character	boolean	
	Transmit Check Character	boolean	

Variable		Type	Description
UPC/EAN Properties	Expanded	boolean	
	Supplementals	array	
	Delete Leading Zero	boolean	
	Allow EAN8 Supplementals	boolean	
	UPCE1 Enabled	boolean	
Code 93 Properties	Any	boolean	
	Code Size Min	integer	
	Code Size Max	integer	
Codabar Properties	Any	boolean	
	Code Size Min	integer	
	Code Size Max	integer	
	Check Character	boolean	
	Transmit Check Character	boolean	
	Transmit Start and Stop Characters	boolean	
MSI Properties	Any	boolean	
	Code Size Min	integer	
	Code Size Max	integer	
	Check Character	boolean	
	Transmit Check Character	boolean	
	Checksum Calculating Method	array	
POSTAL Properties	POSTNET > Transmit Check Character	boolean	
	PLANET > Transmit Check Character	boolean	

Multicode Symbology Settings

Variable		Type	Description
Number of Codes		integer	
Allow Partial Results		boolean	
Allow Identical 1D Symbols		boolean	
Sorting Priority		string	
Max. Number of Codes	Data Matrix	integer	
	QR Code / MaxiCode / Aztec Code	integer	
	DotCode	integer	
	1D / Stacked / Postal	integer	

Train Symbology Settings

Variable		Type	Description
Disable Untrained Symbologies		boolean	
Incremental Training		boolean	

Variable		Type	Description	
Data Matrix	Training	boolean		
	Manual Code Training	Number of Rows	integer	
		Number of Columns	integer	
		Module Size	integer	
		Polarity	array	
		Mirrored	boolean	
		Is Valid	boolean	
QR Code / MaxiCode / Aztec Code	Training	boolean		
	Manual Code Training	Learned Symbology	array	
		Grid Size	integer	
		Module Size	integer	
		Model	array	
		Polarity	array	
		Mirrored	boolean	
		Is Valid	boolean	
1D / Stacked / Postal	Training	boolean		
	Train Orientation	boolean		
DotCode		boolean		

Data Validation Settings

Data Matrix Validation Settings

Variable		Type	Description
Validation Type		array	
Validation Failure Action		array	
Append CR/LF		boolean	
DoD UID Validation	Construct	array	
	Enabled	boolean	
	Expected EID	string	
	Enabled	boolean	
	Expected PN	string	
	Enabled	boolean	
	Expected BN	string	
ISO Validation	Construct	array	
GS1 Validation	Application Identifiers	string	

Variable		Type	Description
Match String	Enabled	boolean	
	Match String	string	
	Increment/Decrement Numerical Component	boolean	
	Start Position	integer	
	Length	array	
	Step Size	integer	
	Update on NoRead	boolean	
	Update on Validation Failure	boolean	
Match Pattern	Pattern	string	

QR Code / MaxiCode / Aztec Code Validation Settings

Variable		Type	Description
Validation Type		array	
Validation Failure Action		array	
Append CR/LF		boolean	
ISO Validation	Construct	array	
GS1 Validation	Application Identifiers	string	
Match String	Enabled	boolean	
	Match String	string	
	Increment/Decrement Numerical Component	boolean	
	Start Position	integer	
	Length	array	
	Step Size	integer	
	Update on NoRead	boolean	
	Update on Validation Failure	boolean	
Match Pattern	Pattern	string	

DotCode

Variable		Type	Description
Validation Type		array	
Validation Failure Action		array	
Append CR/LF		boolean	
ISO Validation	Construct	array	

Variable		Type	Description
Match String	Enabled	boolean	
	Match String	string	
	Increment/Decrement Numerical Component	boolean	
	Start Position	integer	
	Length	array	
	Step Size	integer	
	Update on NoRead	boolean	
	Update on Validation Failure	boolean	
Match Pattern	Pattern	string	

1D / Stacked / Postal

Variable		Type	Description
Validation Type		array	
Validation Failure Action		array	
Append CR/LF		boolean	
ISO Validation	Construct	array	
GS1 Validation	Application Identifiers	string	
Match String	Enabled	boolean	
	Match String	string	
	Increment/Decrement Numerical Component	boolean	
	Start Position	integer	
	Length	array	
	Step Size	integer	
	Update on NoRead	boolean	
	Update on Validation Failure	boolean	
Match Pattern	Pattern	string	

Code Quality Settings**Code Quality Settings**

Variable	Type	Description
Enabled	boolean	
Data Matrix Code Quality	array	
QR Code Quality	array	
1D Code Quality	array	

AIM-DPM Code Quality Settings

Variable	Type	Description
Minimum Pass Grade	array	
Use Custom Thresholds	boolean	

Variable		Type	Description
Custom Thresholds	Cell Contrast	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Axial Non-Uniformity	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Print Growth	Include in Report	boolean
	Unused Error Correction	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Modulation	Include in Overall Guide	boolean
		Include in Report	boolean
	Fixed Pattern Damage	Include in Overall Guide	boolean
		Include in Report	boolean
	Grid Non-Uniformity	Threshold Values	string
Include in Overall Guide		boolean	
Include in Report		boolean	

ISO-IEC 15415 Code Quality Settings

Variable	Type	Description
Minimum Pass Grade	array	
Use Custom Thresholds	boolean	

Variable		Type	Description
Custom Thresholds	Symbol Contrast	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Axial Non-Uniformity	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Print Growth	Include in Report	boolean
	Unused Error Correction	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Modulation	Include in Overall Guide	boolean
		Include in Report	boolean
	Fixed Pattern Damage	Include in Overall Guide	boolean
		Include in Report	boolean
	Grid Non-Uniformity	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Extreme Reflectance	Include in Overall Guide	boolean
Include in Report		boolean	
Contrast Uniformity	Include in Report	boolean	
Reflectance Margin	Include in Overall Guide	boolean	
	Include in Report	boolean	

ANSI-ISO-IEC 15416 Code Quality Settings

Variable	Type	Description
Minimum Pass Grade	array	
Use Custom Thresholds	boolean	

Variable		Type	Description
Custom Thresholds	Symbol Contrast	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Modulation	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Minimum Reflectance	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Minimum Edge Contrast	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Edge Determination	Include in Overall Guide	boolean
		Include in Report	boolean
	Defects	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Reference Decode	Include in Overall Guide	boolean
		Include in Report	boolean
	Decodability	Threshold Values	string
		Include in Overall Guide	boolean
Include in Report		boolean	

SemiT10 Code Quality Settings

			Type	Description
Use Custom Thresholds			boolean	
Custom Thresholds	Symbol Contrast	Include in Report	boolean	
	Unused Error Correction	Include in Report	boolean	
	Signal to Noise Ratio	Include in Report	boolean	
	Horizontal Mark Growth	Include in Report	boolean	
	Vertical Mark Growth	Include in Report	boolean	
	Data Matrix Cell Growth	Include in Report	boolean	
	Data Matrix Cell Width	Include in Report	boolean	
	Data Matrix Cell Height	Include in Report	boolean	
	Horizontal Mark Displacement	Include in Report	boolean	
	Vertical Mark Displacement	Include in Report	boolean	
	Cell Defects	Include in Report	boolean	
	Finder Pattern Defects	Include in Report	boolean	

1D Code Quality Settings

Variable		Type	Description
Minimum Pass Grade		array	
Use Custom Thresholds		boolean	
Custom Thresholds	Symbol Contrast	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Print Growth	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Minimum Reflectance	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Minimum Edge Contrast	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Single Scan Integrity	Include in Overall Guide	boolean
		Include in Report	boolean
	Minimum Scan Integrity	Threshold Values	string
Include in Overall Guide		boolean	
Include in Report		boolean	

DotCode Quality Settings

Variable		Type	Description
Minimum Pass Grade		array	
Use Custom Thresholds		boolean	

Variable		Type	Description
Custom Thresholds	Symbol Contrast	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Axial Non-Uniformity	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Print Growth	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
	Unused Error Correction	Threshold Values	string
		Include in Overall Guide	boolean
		Include in Report	boolean
Grid Non-Uniformity	Threshold Values	string	
	Include in Overall Guide	boolean	
	Include in Report	boolean	

Report FTP Transfer Settings

Variable		Type	Description
Enabled		boolean	
Customize File Name		boolean	
File Name		string	
Max Append Value		integer	
Max Append Start Value		integer	
Path		string	
Use Script-Based Formatting		boolean	
FTP Server Settings	Address	string	
	Port	integer	
	Username	string	
	Password	string	
	Type	array	
	Enable Idle Timeout	boolean	
	Idle Timeout [s]	integer	

Result String Settings

Variable		Type	Description
Output Overall Guide		boolean	
Reported Data		array	
Prefix For Data		array	

Variable	Type	Description
Separator Before First PCM Value	string	
Separator Between PCM Values	string	
Code Quality Report Custom Description	string	

Data Formatting Settings

Data Formatting Settings

Variable	Type	Description
Data Formatting	array	

Basic Data Formatting Settings

Variable		Type	Description	
Universal	Standard	boolean		
	Perl Style	boolean		
	Standard Formatting	Leading Text	string	
		Universal	string	
		Terminating Text	string	
		CR/LF	boolean	
		Delimiter	array	
		Multicode Delimiter	array	
	Perl-Style Regular Expression Formatting	Regular Expression	string	
Discard unmatched data		boolean		
Data Matrix	Standard	boolean		
	Perl Style	boolean		
	Standard Formatting	Leading Text	string	
		Data Matrix	string	
		Terminating Text	string	
		CR/LF	boolean	
		Delimiter	array	
		Perl-Style Regular Expression Formatting	Regular Expression	string
	Discard unmatched data	boolean		

Variable		Type	Description	
QR Code / MaxiCode / Aztec Code	Standard	boolean		
	Perl Style	boolean		
	Standard Formatting	Leading Text	string	
		QR Code / MaxiCode / Aztec Code	string	
		Terminating Text	string	
		CR/LF	boolean	
		Delimiter	array	
	Perl-Style Regular Expression Formatting	Regular Expression	string	
Discard unmatched data		boolean		
1D / Stacked / Postal	Standard	boolean		
	Perl Style	boolean		
	Standard Formatting	Leading Text	string	
		1D / Stacked / Postal	string	
		Terminating Text	string	
		CR/LF	boolean	
		Delimiter	array	
	Perl-Style Regular Expression Formatting	Regular Expression	string	
Discard unmatched data		boolean		
DotCode	Standard	boolean		
	Perl Style	boolean		
	Standard Formatting	Leading Text	string	
		DotCode	string	
		Terminating Text	string	
		CR/LF	boolean	
		Delimiter	array	
	Perl-Style Regular Expression Formatting	Regular Expression	string	
Discard unmatched data		boolean		

Script Data Formatting Settings

Variable	Type	Description
Script	string	

Image Buffering Settings

Variable	Type	Description
What Results to Buffer	array	
What Images to Buffer for a Result	array	
Images per Result Limit	integer	

Variable		Type	Description
Image Buffer Maximum Size		integer	
Available for Setup Tool / DMCC		integer	
Auto prefer region center		boolean	
NoRead Image Mode		array	
NoRead Image Period		integer	
NoRead Image Number		integer	
NoRead Image Rate		integer	
NoRead Image Rate Time		array	
NoRead Image Rate Burst		integer	
Good Read Image Mode		array	
Good Read Image Rate		integer	
Good Read Image Rate Time		array	
Good Read Image Rate Burst		integer	
Allow Buffer Overwrite		boolean	
Image	Size	array	
	Format	array	
	Quality	integer	
	Overlay Graphics	boolean	
Image Transfer Settings	Delete After Transfer		boolean
	Image PC Transfer	Prefix	string
		Format	array
	Image FTP Transfer	File Name Generation Method	array
		File Name	string
		Max Append Value	integer
		Path	string
		Transfer Mode	array
		Ftp Name Generation Script	string
		FTP Server Settings > Address	string
		FTP Server Settings > Port	integer
		FTP Server Settings > Username	string
		FTP Server Settings > Password	string
		FTP Server Settings > Type	array
		FTP Server Settings > Enable Timeout	boolean
FTP Server Settings > Idle Timeout [s]		integer	

Result FTP Transfer Settings

Variable		Type	Description
Enabled		boolean	
File Name		string	
Append		boolean	
FTP Server Settings	Address	string	
	Port	integer	
	Username	string	
	Password	string	
	Type	array	
	Enable Idle Timeout	boolean	
	Idle Timeout [s]	integer	

Communication Settings**Serial Communication Settings**

Variable		Type	Description
Used Communication Channel		array	
Enable Multi-Port (RS-232 Sharing)		boolean	
Speed		array	
Parity		array	
Data Bits		integer	
Stop Bits		integer	
Rs232 Inter Character Delay		integer	

Ethernet Communication Settings

Variable		Type	Description
Use DHCP Server		boolean	
Subnet Mask		string	
Default Gateway		string	
DNS Server		string	
Domain Name		string	

Custom Command Settings

Variable		Type	Description
Serial Trigger	Enabled	boolean	
	Trigger On	string	
	Trigger Off	string	
Echo Commands	Enabled	boolean	
	Command Header	string	
	Command Footer	string	

Network Communication Settings

Variable		Type	Description
Telnet Port		integer	
Authentication	Enabled	boolean	
	Username	string	
	Password	string	
Network Client	Enabled	boolean	
	Host Address	string	
	Host Port	integer	
	Client Port	integer	
	Protocol	array	
	Connection Timeout (ms)	integer	
	Reconnect Delay (ms)	integer	
	Open Connection	array	
	Close Connection	array	
Disconnect Delay (ms)	integer		

Industrial Protocol Communication Settings

Variable		Type	Description
Ethernet/IP		boolean	
PROFINET	Enabled	boolean	
	Use Name of Station	boolean	
	Name of Station	string	

Variable		Type	Description	
SLMP	Enabled	boolean		
	IP Address	string		
	Host Port [hex]	integer		
	Timeout	integer		
	Poll Interval [ms]	integer		
	PLC Series	array		
	Network Number	integer		
	PC Number [hex]	integer		
	Destination Module	array		
	Control	Selected Device	array	
		Number of Devices	integer	
		Offset	integer	
	Status	Selected Device	array	
		Number of Devices	integer	
		Offset	integer	
	PLC Input	Selected Device	array	
		Number of Devices	integer	
		Offset	integer	
	PLC Output	Selected Device	array	
		Number of Devices	integer	
		Offset	integer	
	Command	Selected Device	array	
		Number of Devices	integer	
		Offset	integer	
Command Result	Selected Device	array		
	Number of Devices	integer		
	Offset	integer		

Variable		Type	Description	
Modbus TCP	Enabled	boolean		
	Port	integer		
	Maximum Connections	integer		
	Idle Timeout [s]	integer		
	String Byte Swap	boolean		
	Holding Register Only Mode	boolean		
	Control	Address Space	array	
		Offset	integer	
		Quantity	integer	
	Status	Address Space	array	
		Offset	integer	
		Quantity	integer	
	PLC Input	Address Space	array	
		Offset	integer	
		Quantity	integer	
	PLC Output	Address Space	array	
		Offset	integer	
		Quantity	integer	
	Command	Address Space	array	
		Offset	integer	
		Quantity	integer	
Command Result	Address Space	array		
	Offset	integer		
	Quantity	integer		
Cc Link		boolean		
Iq Ss	Enabled	boolean		
	Language	array		

Other Communication Settings

Variable	Type	Description
Script	string	
Script Enabled	boolean	
Translate Unprintable Chars	boolean	
Wake-up Message	boolean	

System Settings

Variable	Type	Description
Device Name	string	

Variable		Type	Description
Device Description		string	
Device Time Settings	Time Zone	string	
	Enable NTP	boolean	
	NTP Server 1	string	
	NTP Server 2	string	

Multi-Reader Sync Settings

Variable		Type	Description
Timeout [ms]		integer	
Reader Synchronization	Enable PTP	boolean	
	Secondary Camera Only	boolean	
	Status	array	
	Enable MRS Synchronized by PTP	boolean	
	Time Between Trigger Start and the Synchronized Acquisition Timestamp [μs]	integer	
	Local Offset Added to the Synchronized Acquisition Timestamp [μs]	integer	

I/O Settings

I/O Direction Settings

Variable	Type	Description
I/O Line 2 Direction	array	
I/O Line 3 Direction	array	

Input Settings

Variable		Type	Description
In 0	Trigger On	boolean	
	Trigger Off	boolean	
	Encoder	boolean	
	Encoder Direction	boolean	
	Train Code	boolean	
	Optimize Brightness	boolean	
	Train Match String	boolean	
	Optimize Focus	boolean	
	Read Configuration Code	boolean	
	Tune	boolean	
	Allow Buffered NoRead Images	boolean	
	Clear Outputs	boolean	
	Polarity	array	
	Debounce Delay	integer	

Variable		Type	Description
In 1	Trigger On	boolean	
	Trigger Off	boolean	
	Encoder	boolean	
	Encoder Direction	boolean	
	Train Code	boolean	
	Optimize Brightness	boolean	
	Train Match String	boolean	
	Optimize Focus	boolean	
	Read Configuration Code	boolean	
	Tune	boolean	
	Allow Buffered NoRead Images	boolean	
	Clear Outputs	boolean	
	Polarity	array	
	Debounce Delay	integer	
In 2	Trigger On	boolean	
	Trigger Off	boolean	
	Encoder	boolean	
	Encoder Direction	boolean	
	Train Code	boolean	
	Optimize Brightness	boolean	
	Train Match String	boolean	
	Optimize Focus	boolean	
	Read Configuration Code	boolean	
	Tune	boolean	
	Allow Buffered NoRead Images	boolean	
	Clear Outputs	boolean	
	Polarity	array	
	Debounce Delay	integer	

Variable		Type	Description	
In 3	Trigger On	boolean		
	Trigger Off	boolean		
	Encoder	boolean		
	Encoder Direction	boolean		
	Train Code	boolean		
	Optimize Brightness	boolean		
	Train Match String	boolean		
	Optimize Focus	boolean		
	Read Configuration Code	boolean		
	Tune	boolean		
	Allow Buffered NoRead Images	boolean		
	Clear Outputs	boolean		
	Polarity	array		
	Debounce Delay	integer		
Trigger Buttons	3 second button press action	Optimize Brightness	boolean	
		Optimize Focus	boolean	
		Read Configuration Code	boolean	
		Train Code	boolean	
		Set Match String	boolean	
		Test Mode	boolean	
	Disable Reader Button	boolean		
TUNE Button	Disable Reader Button	boolean		
Pulse Encoder	Resolution (μm)	integer		
	Encoder Direction Options	array		
	Double Rate	boolean		

Output Settings

Variable		Type	Description
Out 0	Strobe	boolean	
	Read	boolean	
	NoRead	boolean	
	Validation Failure	boolean	
	Trigger Overrun	boolean	
	Buffer Overflow	boolean	
	User Event 1	boolean	
	User Event 2	boolean	
	Action	array	
	Pulse Width [ms]	integer	
Out 1	Strobe	boolean	
	Read	boolean	
	NoRead	boolean	
	Validation Failure	boolean	
	Trigger Overrun	boolean	
	Buffer Overflow	boolean	
	User Event 1	boolean	
	User Event 2	boolean	
	Action	array	
	Pulse Width [ms]	integer	
Out 2	Strobe	boolean	
	Read	boolean	
	NoRead	boolean	
	Validation Failure	boolean	
	Trigger Overrun	boolean	
	Buffer Overflow	boolean	
	User Event 1	boolean	
	User Event 2	boolean	
	Action	array	
	Pulse Width [ms]	integer	

Variable		Type	Description
Out 3	Strobe	boolean	
	Read	boolean	
	NoRead	boolean	
	Validation Failure	boolean	
	Trigger Overrun	boolean	
	Buffer Overflow	boolean	
	User Event 1	boolean	
	User Event 2	boolean	
	Action	array	
	Pulse Width [ms]	integer	
Enable Beeper on Good Read		boolean	
Beep Length (ms)		integer	
Light Ring Pulse Duration [ms]		integer	
Error LED Pulse Duration [ms]		integer	
NoRead Output String		string	

Variable		Type	Description
Actions	NoRead	Sound Level	array
		Number of Tones	integer
		LED Color	array
	Read	Sound Level	array
		Number of Tones	integer
		LED Color	array
	Validation Failure	Sound Level	array
		Number of Tones	integer
		LED Color	array
	User Event 1	Sound Level	array
		Number of Tones	integer
		LED Color	array
		Special Tone	array
	User Event 2	Sound Level	array
		Number of Tones	integer
		LED Color	array
		Special Tone	array
	Verification Failure	Sound Level	array
		Number of Tones	integer
		LED Color	array
Special Tone		array	
Verification Success	Sound Level	array	
	Number of Tones	integer	
	LED Color	array	
	Special Tone	array	
Output Delay	Delay Type	array	
	Relative to	array	
	Delay time (ms)	integer	
	Distance to output (mm)	integer	

Decode Settings

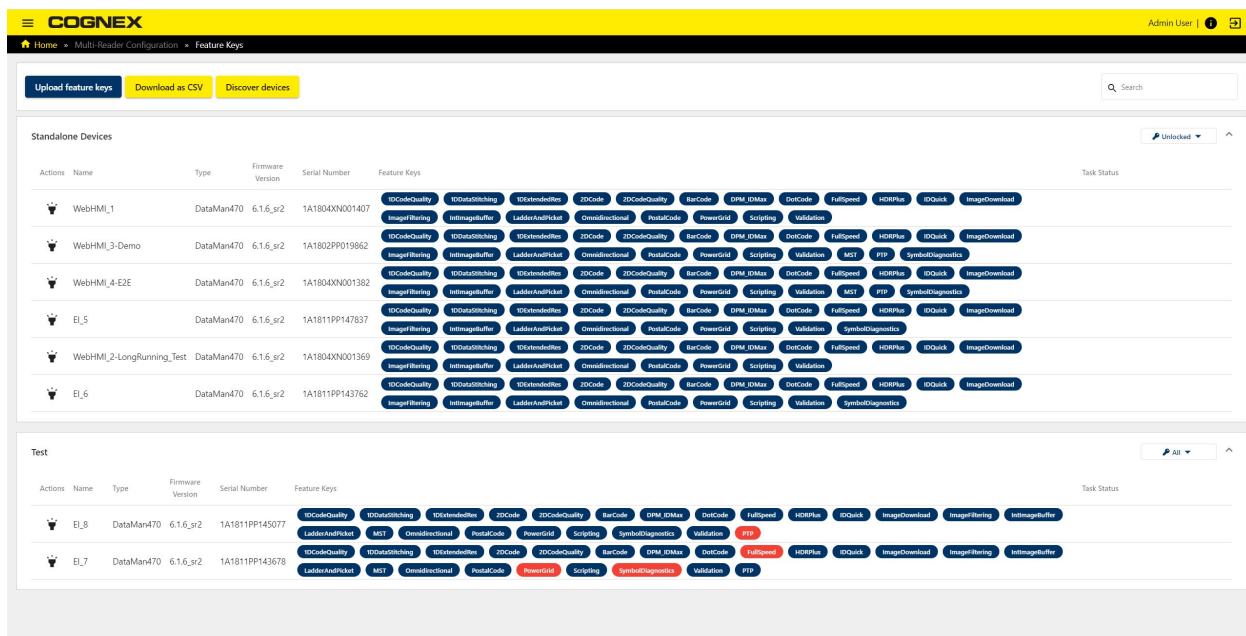
Variable	Type	Description
Never Read Same Code Twice	boolean	
Don't Reread Last N Codes	integer	
Delay Mode	array	
Distance to output (mm)	integer	

Configuration Backup Settings

Variable	Type	Description
Enable Automatic Configuration Backup via FTP	boolean	
Use SD Card for Backup	boolean	
FTP Server Settings	Address	string
	Port	integer
	Username	string
	Password	string
	Type	array

Feature Keys

The Feature Keys page shows the feature keys applied on each discovered reader.





The following actions are available:

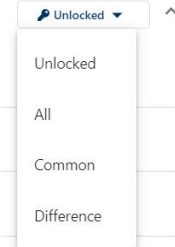
- Uploading feature key files
- Downloading Feature Keys page information in CSV
- Discovering devices

Button	Description
Upload feature keys	Upload feature key files.
Download as CSV	Download device list with all data in CSV format.
Discover devices	Discover connected devices.

The Feature Keys page also allows comparing uploaded feature keys between readers in a group:

Feature Key Color	Description
	The feature is unlocked for the device.
	The feature is unlocked for some devices in the group, but not for the respective device.

Click the **Difference** dropdown menu to select the following menu items for comparison:



Item	Description
Unlocked	Show unlocked feature keys for all devices.
All	Show unlocked and locked feature keys for all devices.
Common	Show feature keys which are unlocked for all devices.
Difference	Show feature keys which have a different status among the devices.

Click the **Upload feature keys** button to upload a feature key file from your computer:

Upload feature key files

👁

Only if device requires password for changes.

Browse files with extension .xml

Verification	File Name	Device Name	Serial Number	Feature Keys In File
✓	COGNEX000010_DMFK_1...	DM475-FocusStacking	1A1818PP255718	PTP MST

Item	Description
Password	Password is only needed if the device requires a password.
Browse	Browse files with .xml extension on your computer.
Verification	Shows verified status.
File Name	Name of the feature key files.
Device Name	Name of the device which gets the new feature key file.
Serial Number	Serial number of the device.
Feature Keys in File	Feature keys contained in the file.

Reporting

The Reporting application contains the Generate page which allows you to generate reports.

Generate

The Generate page of the Reporting application allows you to create new reports and manage existing ones.

Home Reporting Generate

Refresh Delete selected

Generate new report

Title * demo File Name
Eg: Cognex1_Report 0/30

Template * Customer Name

Site Name Scan Point Name

Reporting Range * [X] [Clock Icon] [Refresh Icon]

Reset Generate

Actions	Title	Scan Point Name	Site Name	Customer Name	Username	Request Date & Time	From Date & Time	To Date & Time	Template	File Name	Autogenerated
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test_repo	Ayshan Yariyeva	Unknown	8/5/21, 1:06 PM	8/4/21, 1:04 PM	8/5/21, 1:04 PM	Daily	test_repo
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test	Unknown	Unknown	7/29/21, 10:23 PM	7/27/21, 10:23 PM	7/29/21, 10:23 PM	Daily	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L42N1 N1 L42	Cognex	Unknown	6/30/21, 8:14 PM	6/29/21, 6:00 PM	6/30/21, 6:00 PM	Daily	Report

Items per page: 10 1 - 3 of 3 < > >|

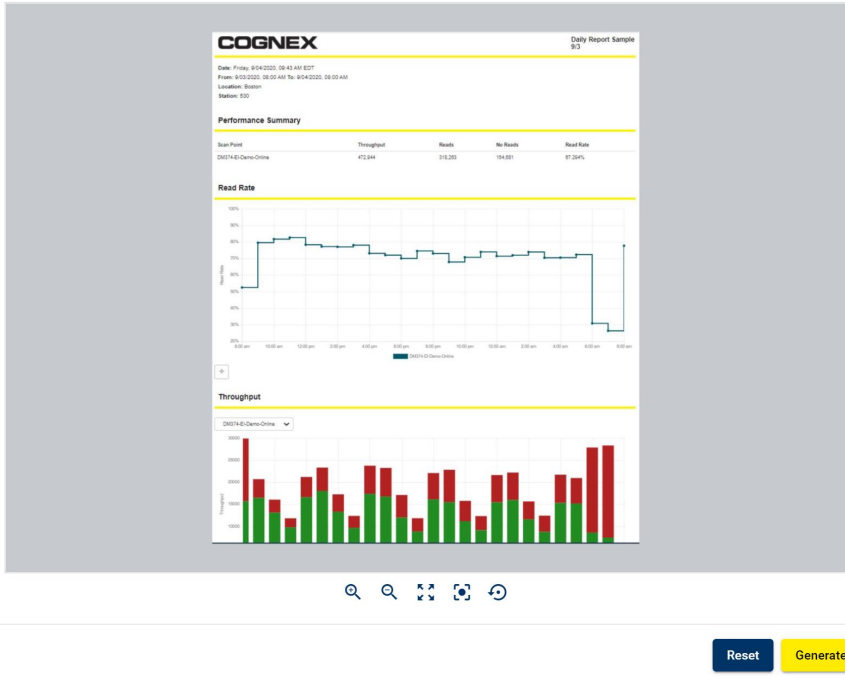
To generate a new report, fill in the fields under the **Generate new report**. Click on the **Generate** button on the bottom right of the section to generate the report. You can find your generated report in the list on the bottom of the Generate page.

When you fill in the necessary fields, you are provided with a Template preview of the report. Click **Generate** again to create the report.

The Template field on the Generate page has a drop down bar which has two options: Daily and Weekly.

Template Preview: Daily

The Daily Report summarizes the performance of all your DataMan assets. The report contains a table outlining the performance statistics, a multi-line chart comparing the read rate data of each asset over time, and a stacked bar chart to view the hourly throughput for each asset. This template was designed to ideally summarize a day of asset performance containing data points captured with a granularity of 1 hour. It is recommended you select a reporting range of around 24 hours.



Template Preview: Weekly

The Weekly Report summarizes the performance of all your DataMan assets. The report contains a table for each asset with the performance statistics summarized for each day included in your reporting range. This template was designed to ideally summarize a week of asset performance containing data points captured with a granularity of 1 day. It is recommended you select a reporting range of around 7 days.

COGNEX					Weekly Report Sample 9/4
Date: Friday, 9/04/2020, 09:47 AM EDT					
From: 8/28/2020, 08:00 AM To: 9/04/2020, 08:00 AM					
Location: Boston					
Station: 530					
DM374-EI-Demo-Online					
Date	Throughput	Reads	No Reads	Read Rate	
8/27/2020	44,507	0	44,507	0.000%	
8/28/2020	124,570	0	124,570	0.000%	
8/29/2020	135,788	0	135,788	0.000%	
8/30/2020	719,122	579,574	139,548	80.595%	
8/31/2020	1,498,149	1,240,128	228,021	84.499%	
9/1/2020	1,241,151	1,078,366	162,785	86.884%	
9/2/2020	478,074	386,033	92,041	80.748%	
9/3/2020	244,080	150,422	93,658	61.628%	
DM474-EI-Demo					
Date	Throughput	Reads	No Reads	Read Rate	
8/27/2020	44,507	0	44,507	0.000%	
8/28/2020	124,570	0	124,570	0.000%	
8/29/2020	135,788	0	135,788	0.000%	
8/30/2020	719,122	579,574	139,548	80.595%	
8/31/2020	1,498,149	1,240,128	228,021	84.499%	
9/1/2020	1,241,151	1,078,366	162,785	86.884%	
9/2/2020	478,074	386,033	92,041	80.748%	
9/3/2020	244,080	150,422	93,658	61.628%	

To reset the fields in the **Generate new report** section, click on the **Reset** button.

The list at the bottom of the page lists the existing reports and their properties. To open, download, delete, or duplicate existing reports, use the icons in the **Actions** column of the list.

Individual Report Actions

You can perform actions on an individual report by clicking on the icons in the **Actions** column for the selected report:

<input type="checkbox"/> Actions	
Icon	Action
	Open
	Download
	Bin
	Duplicate

- To open a report, click on **Open** next to the checkbox in the **Actions** column.
- To download a report, click on **Download**.

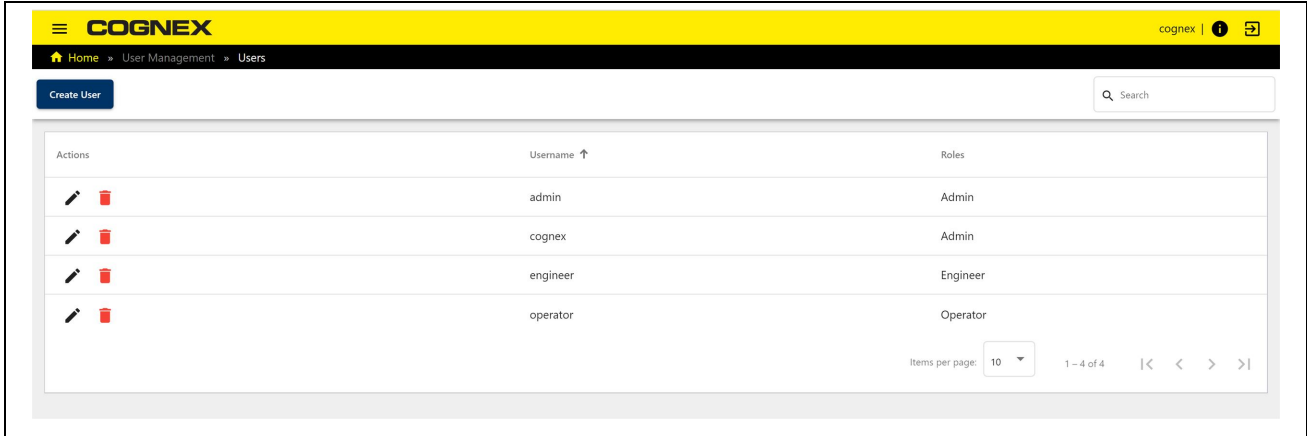
- To delete a report, check the checkbox on the left of the report you want to delete, and click on red **Bin**.
- To copy data from a previously created report into the form, click on **Duplicate**.

User Management

The **Roles** page allows an admin level user to create roles and define which EI features those roles have access to. The **User** page allows an admin level user to create users and assign them roles.

Users

The Users page allows creating new users and assigning Roles to them.



Item	Description
Create User	Brings up the pop-up window to add a new user.
User management table	Table listing the existing users, the assigned Username and roles.

The Create user action is available on the top ribbon. Set the following options for each user:

Create User

Username *

Role *

Password *

Confirm Password *

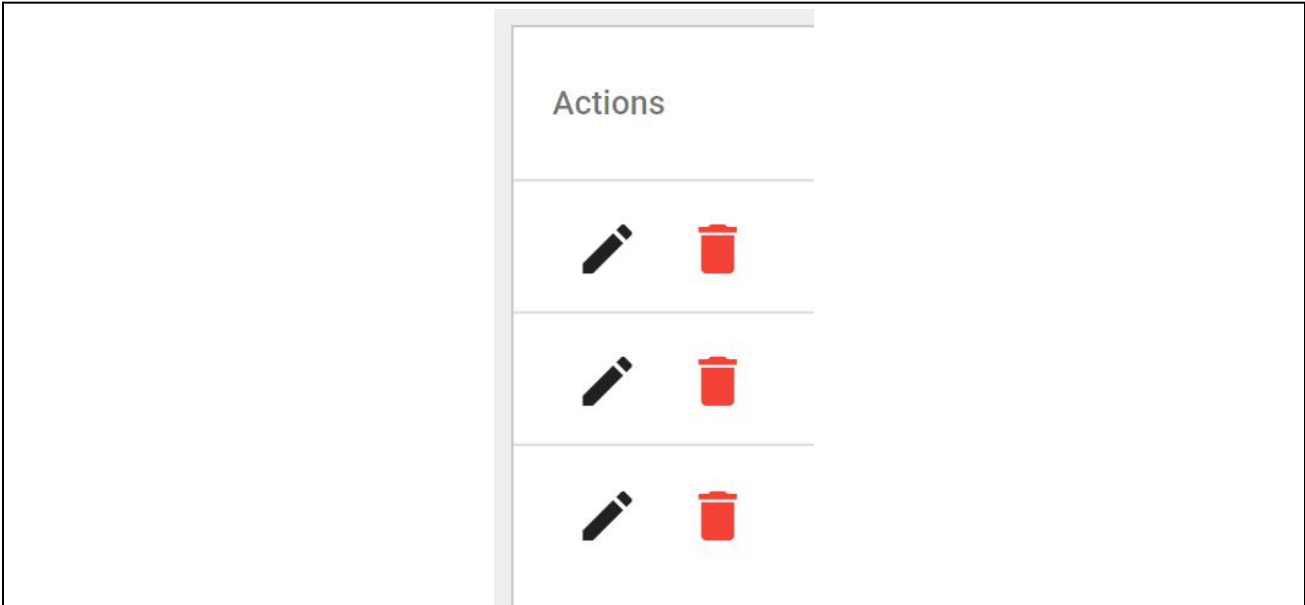
Item	Description
Username	The username of the user for logging in.

Create User

Item	Description
Role	The role of the user: <ul style="list-style-type: none">• Admin• Engineer• Operator
Password	The password of the user for logging in.
Confirm Password	Reenter the password.

Note: A user with admin rights can also edit the same options for each user by clicking the **Edit** button.

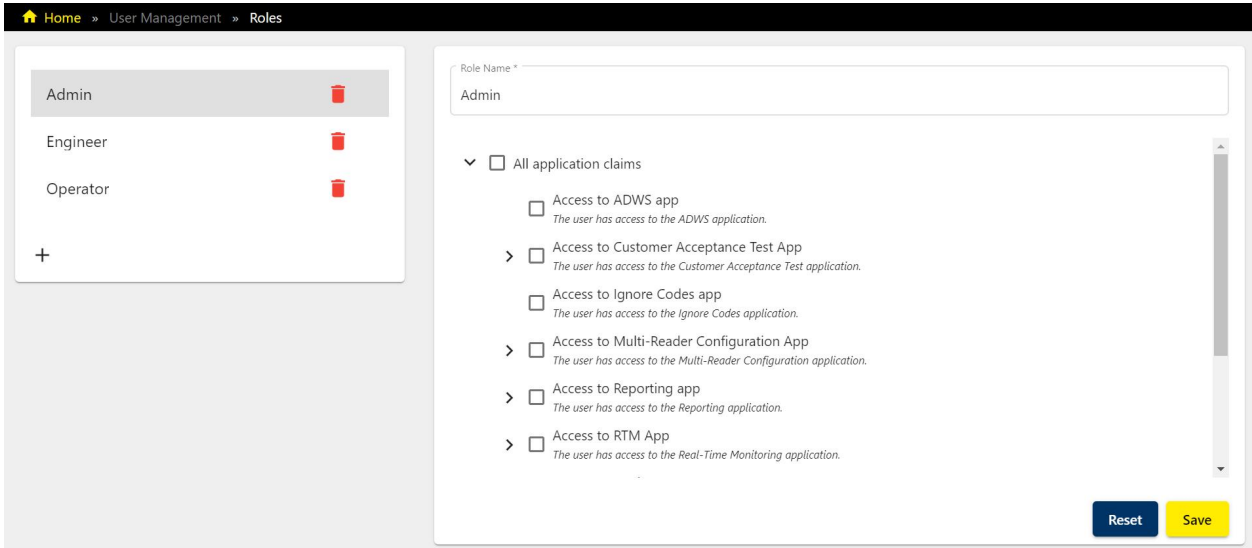
The Users page lists the existing users. Edit or delete an existing user by clicking the appropriate icon.



Icon	Description
	Click Edit to edit the settings of a user.
	Click Delete to delete a user.

Roles

This page allows admin level users to create new roles and grant access to certain applications.



Item	Description
Roles	List of roles.
Accesses	List of accesses for the specified role.

The following predefined users are available by default:

Note: After creating the user profiles, always change the default password to avoid security risks.

User	Password	Permission
admin	BnthWWSD	Has access to all apps and features.
engineer	TaRDpKVx	Has access to all apps and features.
operator	SxtXGmxs	User with read-only rights. The operator does not have access to the Multi-Reader Configuration app and the Settings.

Settings

The Settings application allows you to configure your Edge Device, set up MQTT and other IoT connections, enable or disable the DataMan WebHMI pages of your connected devices, and upgrade your device firmware.

Edge Device

The Edge Device page shows the network configuration and allows editing and saving the network settings of the Edge Intelligence device.

The screenshot displays the COGNEX Edge Intelligence User Interface. At the top, there is a yellow header with the COGNEX logo and a user profile 'admin'. Below the header is a breadcrumb trail: Home » Settings » Edge Device. The main content area is divided into several panels:

- Network Configuration:** Contains fields for Device Name (EI-DemoUnit), Network Interface (eth1), Enable DHCP (disabled), IP Address (10.12.90.27), Subnet Mask (255.255.255.224), Gateway (10.12.90.1), and DNS Server (10.10.160.1). Below this, it shows Network Interface (eth3), Enable DHCP (enabled), and IP Address (10.15.81.113).
- Clear Databases:** A panel with a 'Clear All' button.
- Reboot Edge Device:** A panel with a 'Reboot' button.
- Network Time Protocol:** Shows 'No NTP Servers found.' and a '+' button. A 'Save' button is at the bottom right.
- Date & Time:** Features a 'Set Date & Time Manually' toggle (enabled), a date/time field (8/10/2021, 11:21 AM), a time zone dropdown (America/New_York), and a 'Save' button.

Section	Item	Description
Network configuration	Device Name	The name of the Edge Intelligence device.
	Enable DHCP	To enable using DHCP protocols instead of static protocols toggle the switch.
	IP Address	The IP Address of the Edge Intelligence device.
	Subnet Mask	The Subnet Mask of the Edge Intelligence device. Note: Do not set more than one network port to the same subnet mask.
	Gateway	The Gateway of the Edge Intelligence device.
Clear databases	You can clear the device lists, data, and images from the Edge Intelligence device, and create a new state. Note: Clear database option is only available with Admin level clearance.	
Reboot Edge device	You can reboot the Edge device with the Reboot Edge device option.	

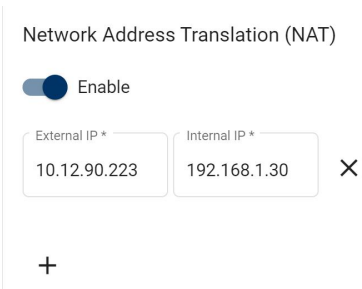
Section	Item	Description
Network time protocol	<p>You can sync the time between the Edge Intelligence device and an NTP server. To Add New Address enter IP address of the NTP Server then click Save.</p> <div style="text-align: center;"> </div>	<p>You can sync the time between the Edge Intelligence device and an NTP server. To Add New Address enter IP address of the NTP Server then click Save.</p>
Date and time		<p>Toggle Set Date and Time manually to specify the date, time and the time zone. For more information see Date & Time Range Filter on page 28.</p>

Setting up the NAT

Network address translation (NAT) remaps IP address spaces into other IP address spaces by modifying network address information in the IP header of information packets. Scroll down for the NAT option.

To set up the NAT:

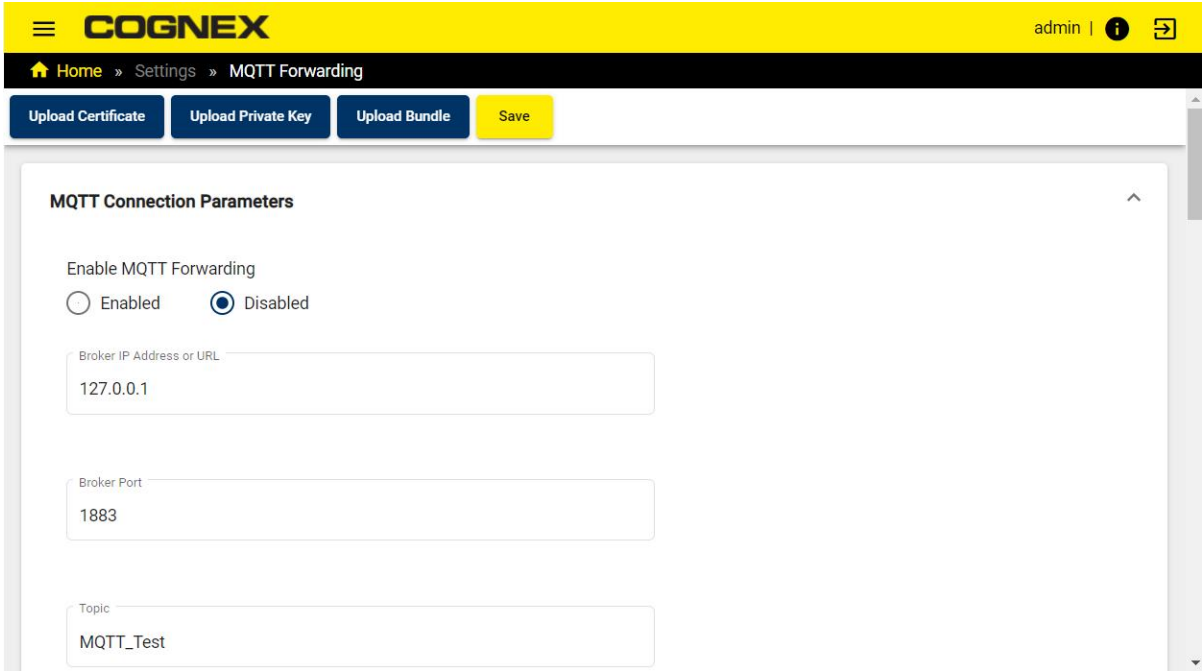
- 1. Make sure that the Default Gateway of the DataMan readers is the IP address of the EI network port they are connected to.
- 2. Set the switch to enable NAT Settings.



- 3. Click the + symbol to Add New Mapping.
- 4. Set the reader IP address as the Internal IP.
- 5. For the External IP, enter an available IP address you want to map to the reader.
- 6. Click Save.

MQTT Forwarding

The **MQTT Forwarding** page of the **Settings** application allows you to set up network connections for forwarding to IoT devices. You can configure MQTT, SSL/TLS, Sparkplug, and AWS settings on the **MQTT Forwarding** page.



You can also upload certificates, private keys, or bundles using the buttons at the top. Upload a *.crt*, *.csr*, *.pem*, or *.key* file.

Click **Save** to apply any changes.

MQTT Connection Parameters

The **MQTT Connection Parameters** section of the page allows you to configure MQTT forwarding.

MQTT Connection Parameters

Enable MQTT Forwarding

 Enabled Disabled

Broker IP Address or URL

127.0.0.1

Broker Port

1883

Topic

MQTT_Test

Username

Cognex

Password (Optional)

Keepalive Interval (s)

10

QoS Level

 0 - at most once 1 - at least once 2 - exactly once

To enable MQTT forwarding, click **Enable**.

Provide the

- **Broker IP Address or URL**,
- **Broker Port**,
- **Topic** name,
- **Username**,
- the optional **Password**,
- **Keepalive Interval (s)**

Define the QoS Level you want, then click on **Save** at the top of the page to apply your changes.

SSL/TLS

The **SSL/TLS** section of the page allows you to configure SSL/TLS connections.

SSL/TLS

Enable SSL/TLS

 Enabled Disabled

Certificate Authority (CA) Endpoint

www.ssl.com

Certificate File Path

ei-cet/mqttCert.pem

Private Key File Path

ei-cet/mqttCert.key

To enable SSL/TLS forwarding, click **Enable**.

Provide the **Certificate Authority (CA) Endpoint**, **Certificate File Path**, and **Private Key File Path**, then click on **Save** at the top of the page to apply your changes.

Sparkplug Settings

The **Sparkplug Settings** section of the page allows you to configure Sparkplug formatting.

Sparkplug Settings

Enable Sparkplug Formatting

 Enabled Disabled

Group ID

Cognex

Custom Node ID (Optional)

To enable Sparkplug formatting, click **Enable**.

Provide the **Group ID** and **Custom Node ID**, then click on **Save** at the top of the page to apply your changes.

AWS IOT Settings

The **AWS IOT Settings** section of the page allows you to configure AWS forwarding.

AWS IOT Settings

Enable AWS Forwarding

 Enabled Disabled

AWS Client ID

EI-AWS-MQTT-Client

To enable AWS formatting, click **Enable**.

Provide the **AWS Client ID**, then click on **Save** at the top of the page to apply your changes.

The **Devices** section of the page allows you to select the **Result Input Source** and the readers you want to apply your changes to.

Devices

Result Input Source

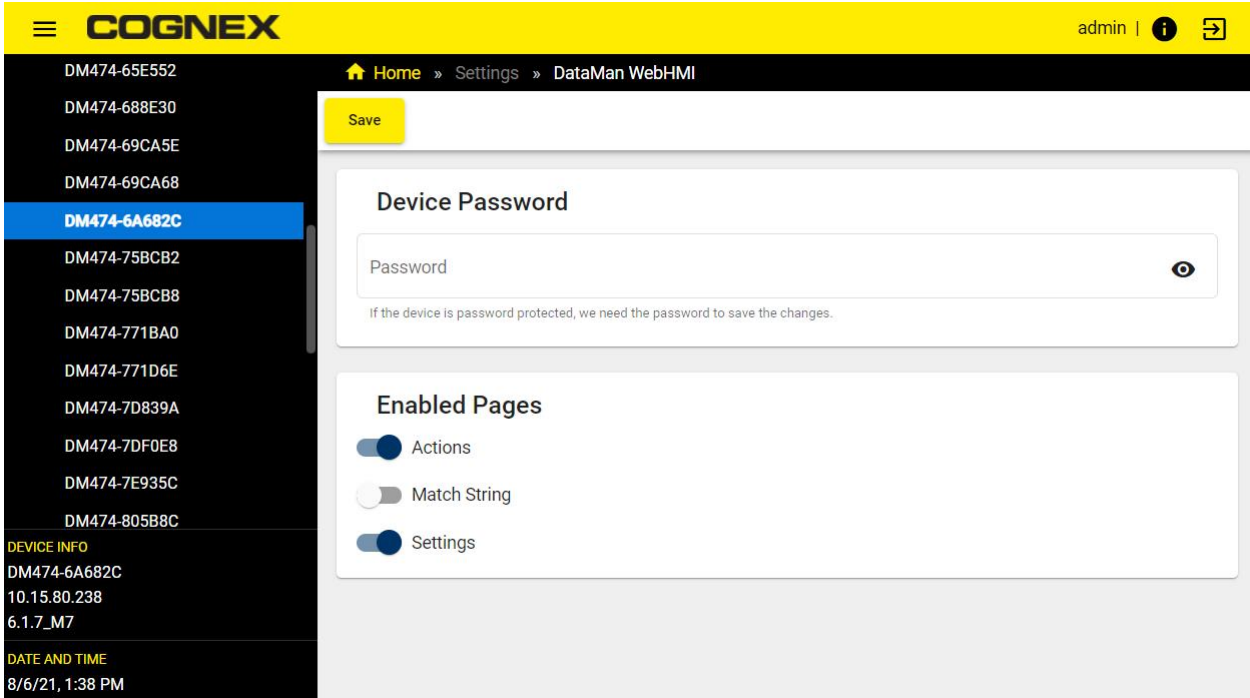
- Standard DataMan result
- Scripted DataMan result (requires JSON format v2.1)

DataMan Readers

- DM474-65E552
- DM474-688E30
- DM474-69CA5E
- DM474-69CA68
- DM474-6A682C
- DM474-75BCB2
- DM474-75BCB8
- DM474-771BA0
- DM474-771D6E
- DM474-7D839A
- DM474-7DF0E8
- DM474-7E935C
- DM474-805B8C

DataMan WebHMI

The **DataMan WebHMI** page of the **Settings** application allows you to enable or disable the pages displayed on the individual device DataMan WebHMI interfaces that are accessible through the **DataMan** page of the **Multi-Reader Configuration** application.



Select the device for which you want to change the displayed DataMan WebHMI pages from the device list on the left side of the page. The device information for the selected device appears under the list.

If the selected device is password protected, provide the password in the **Device Password** section of the page, otherwise you will not be able to save your changes.

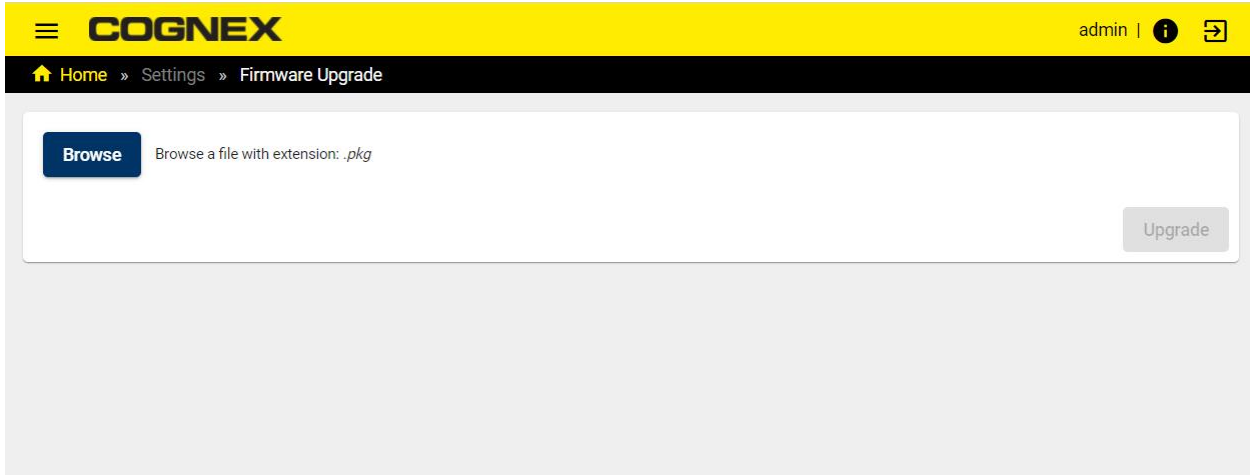
You can enable or disable the following DataMan WebHMI pages for the selected device in the **Enabled Pages** section of the page:

- **Actions**
- **Match String**
- **Settings**

Click **Save** at the top of the page to apply your changes.

Firmware Upgrade

The **Firmware Upgrade** page of the **Settings** application allows you to upload new firmware packages for upgrading device firmware.



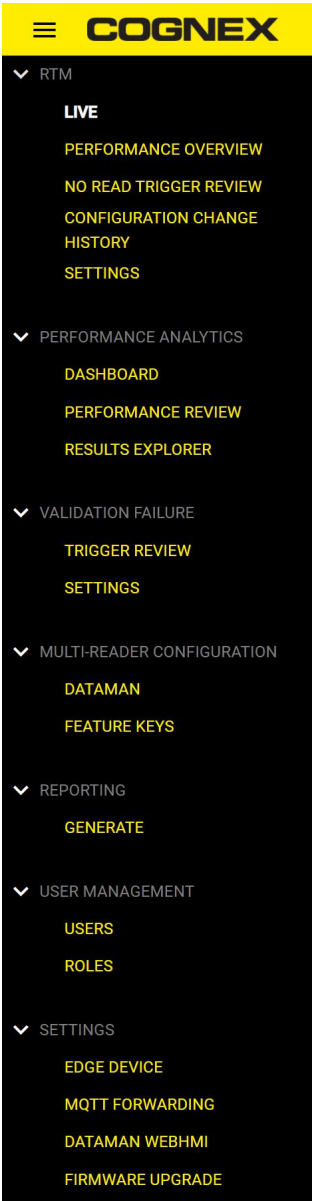
To upgrade the device firmware, click **Browse** and select the firmware *.pkg* file, then click **Upgrade**.

Main Elements of the User Interface

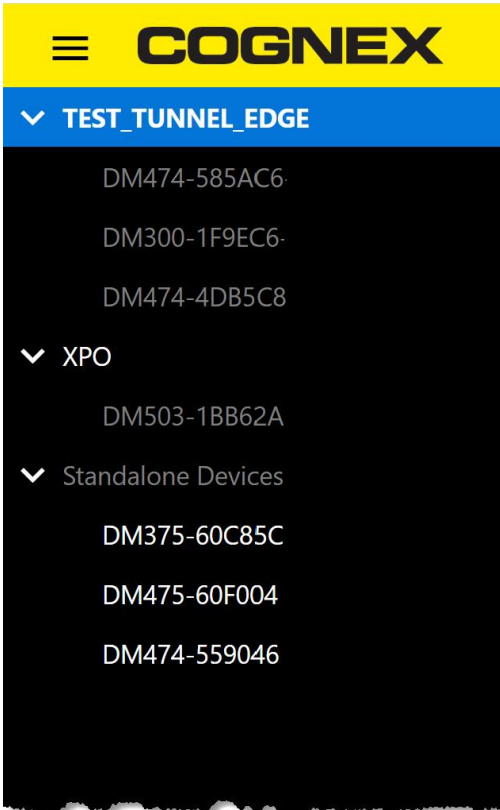
The yellow top ribbon appears on all pages, and provides the following features:

Main menu: Click on the **Menu icon** in the upper left corner to open the navigation pane. Use the tree to navigate between the available apps and their pages.





Device tree

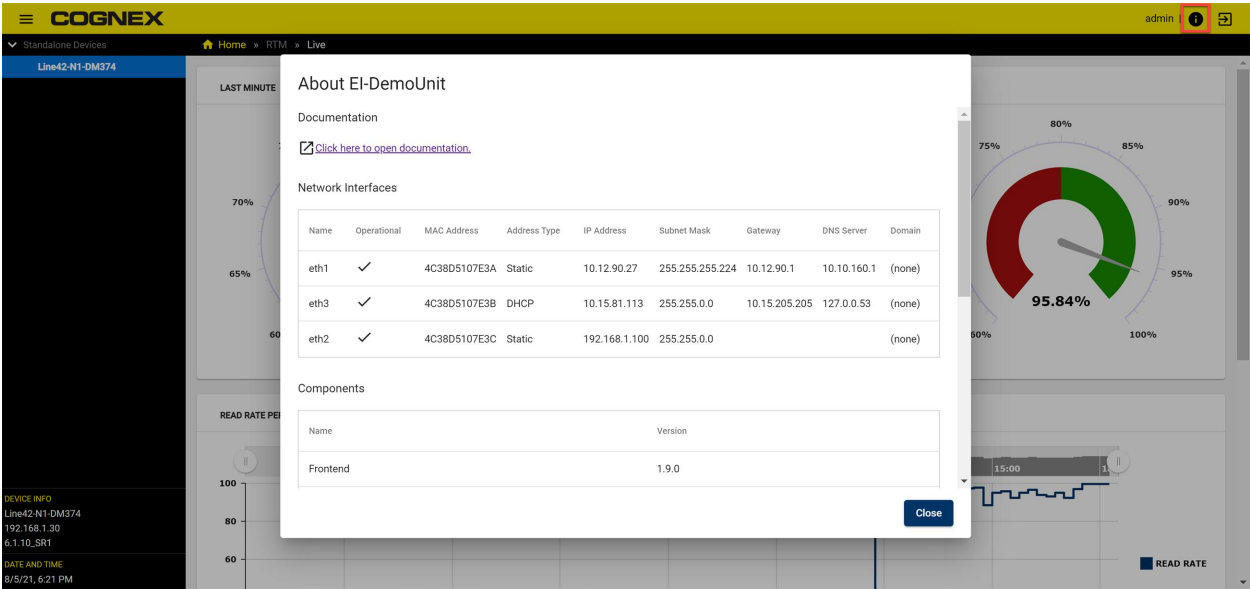


The device tree shows you what devices, readers, and reader groups are on the network. Click on the group or standalone reader to view the live data collected from it. IDs of the individual readers within a group appear grey, but the individual readers can not collect data separately within a group. The bottom of the pane displays information about the selected group and the date and time.

The ribbon displays the type of the user signed in.



To reach the Documentation of Edge Intelligence, Network Interfaces, and Components, click the **i (info) icon** to open the **About section pop-up window**.



The Log out button is in the upper right corner:

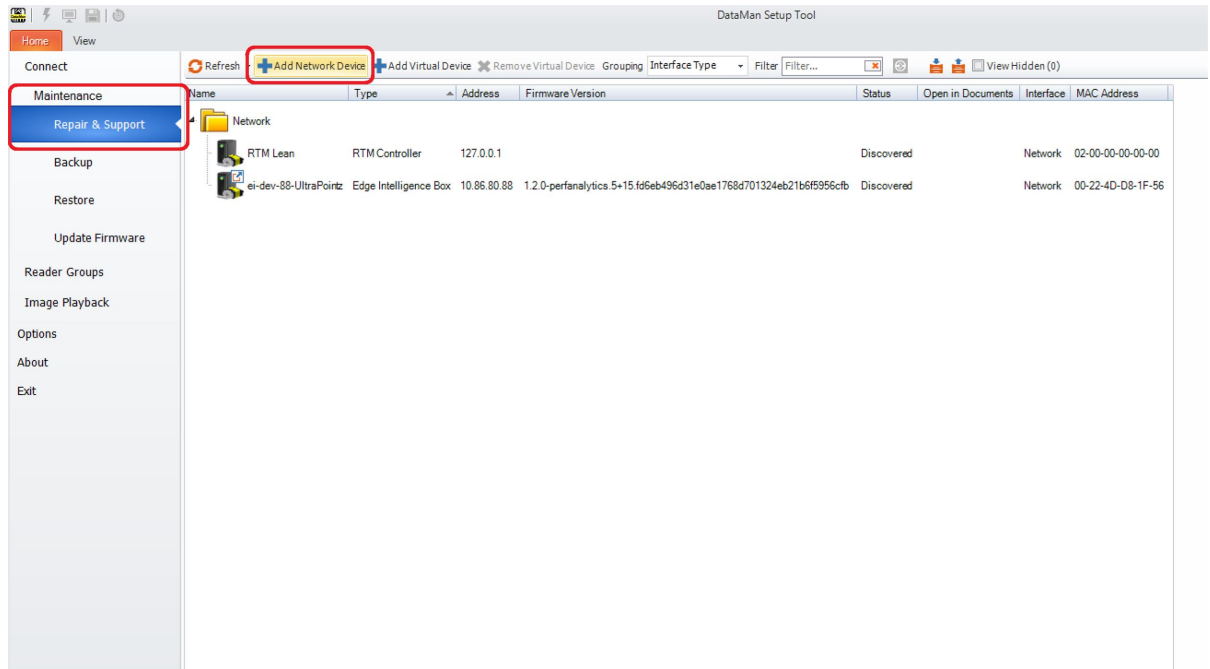


Software Update

Perform the Edge Intelligence software update through the DataMan Setup Tool. Make sure that you have installed the latest available version of the DataMan Setup Tool.

1. Make sure that the DataMan Setup Tool identifies the Edge Intelligence system as an accessible network device. If the DataMan Setup Tool has not yet identified the Edge Intelligence system, navigate to the **Maintenance: Repair and Support** menu and click **Add Network Device**.

Note: If the DataMan Setup Tool already recognizes and lists the Edge Intelligence system as an accessible device, skip **Step 1** and **Step 2**.



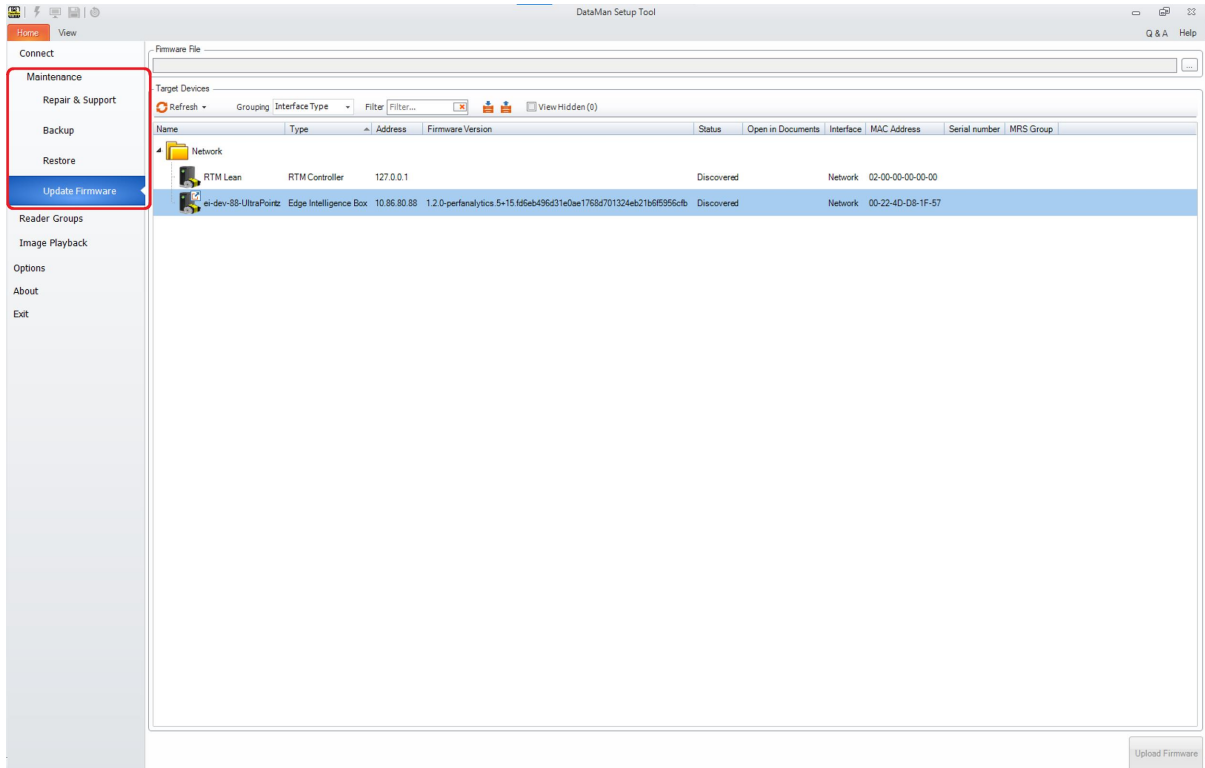
2. Specify the Edge Intelligence system by entering the IP address then click **OK**.

Add Network Device

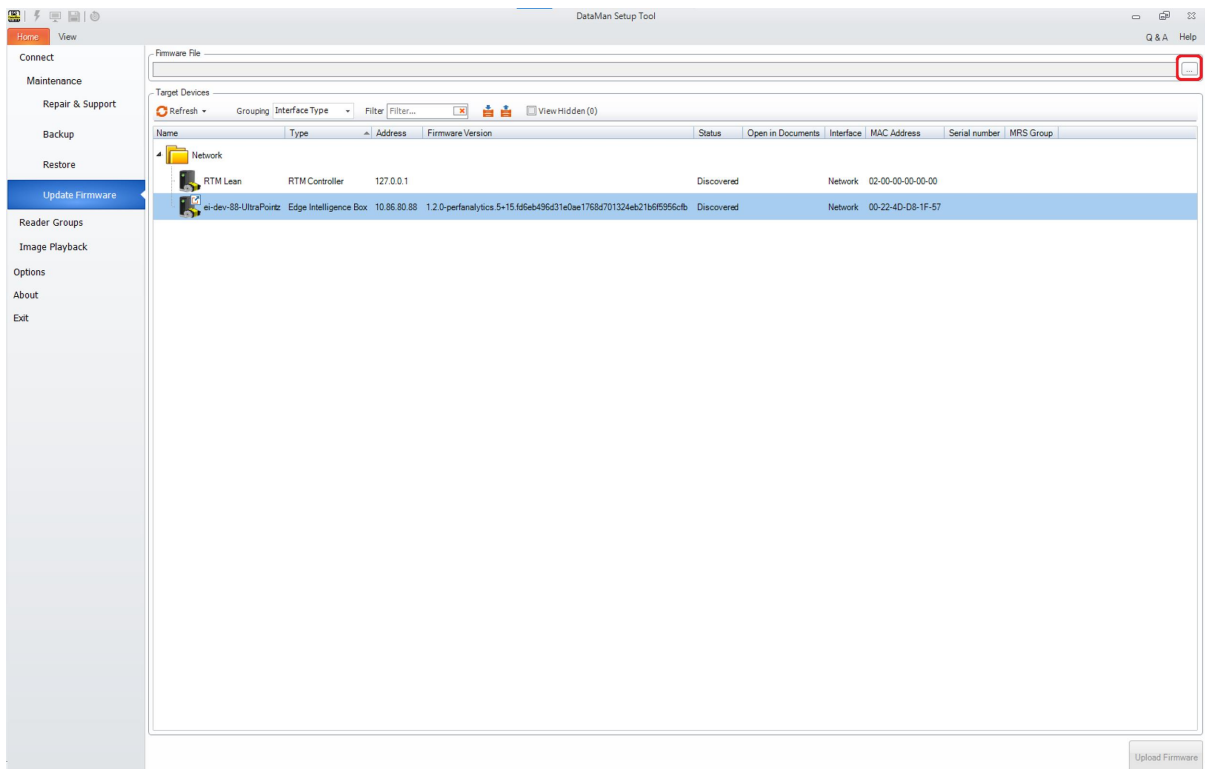
IP Address:

Note: Click the **Pen Symbol** to enable pasting a copied address. Clicking the **Pen Symbol** alternates between an automatically segmented and a manually segmented address format.

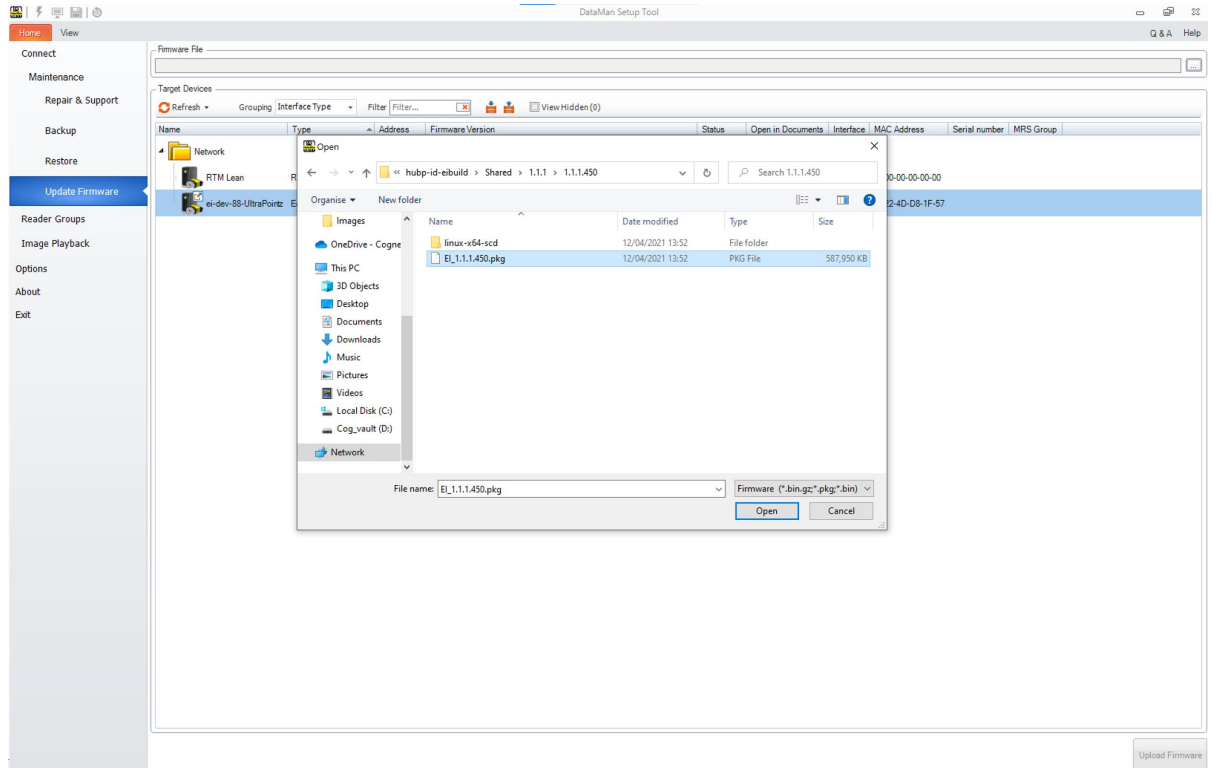
3. Navigate to the **Maintenance: Update Firmware** menu.



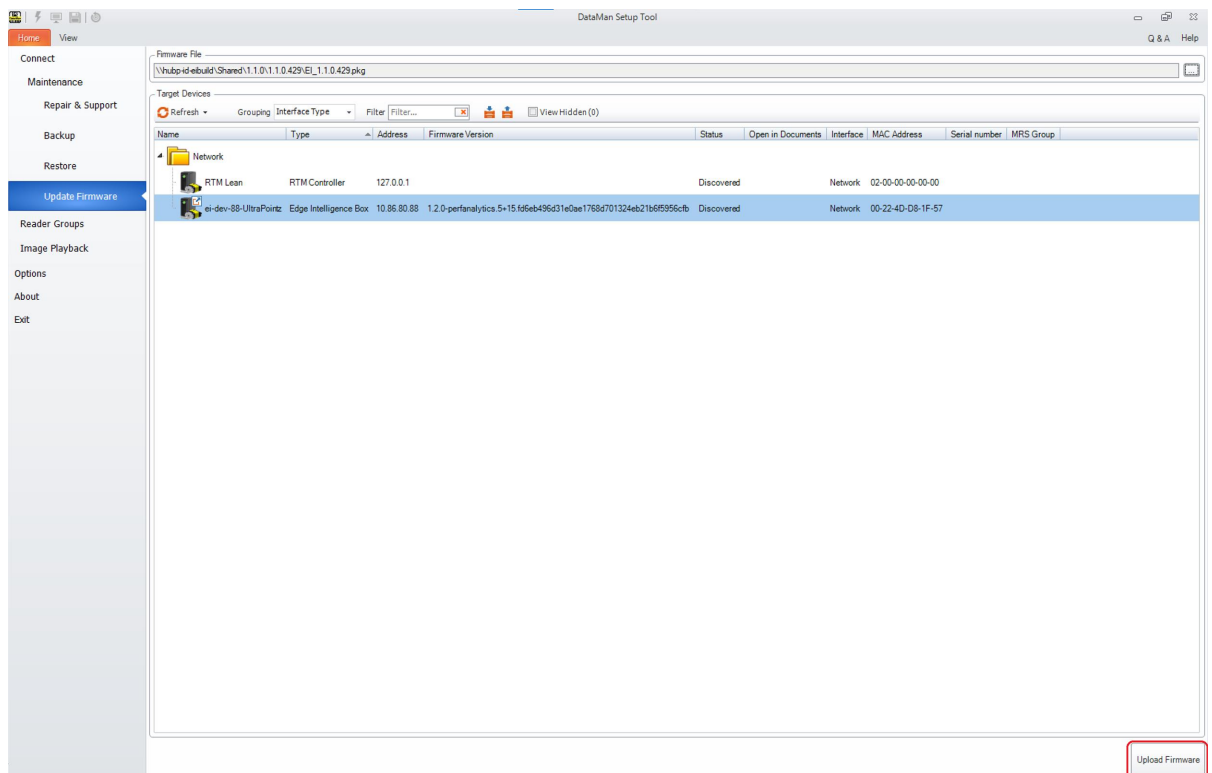
4. Select your Edge Intelligence device and browse the appropriate **.pkg** file from the Cognex network or local directories by clicking the ellipsis icon.



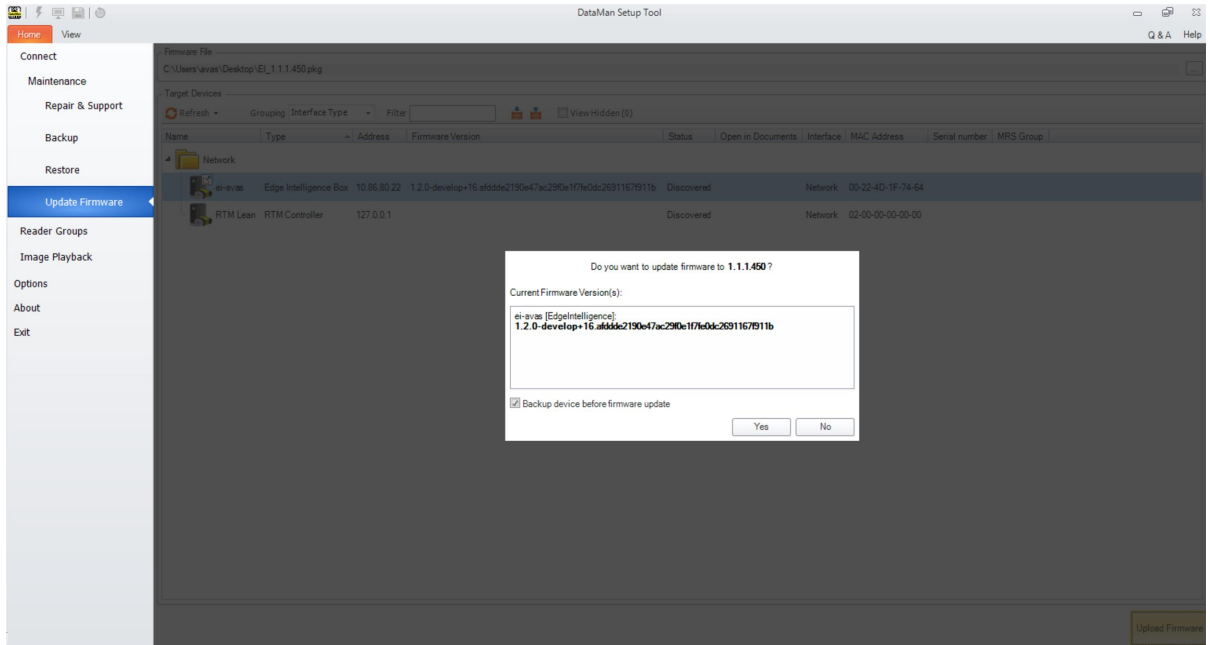
5. Select the .pkg file and click **Open**.



6. Click the **Upload Firmware** button.

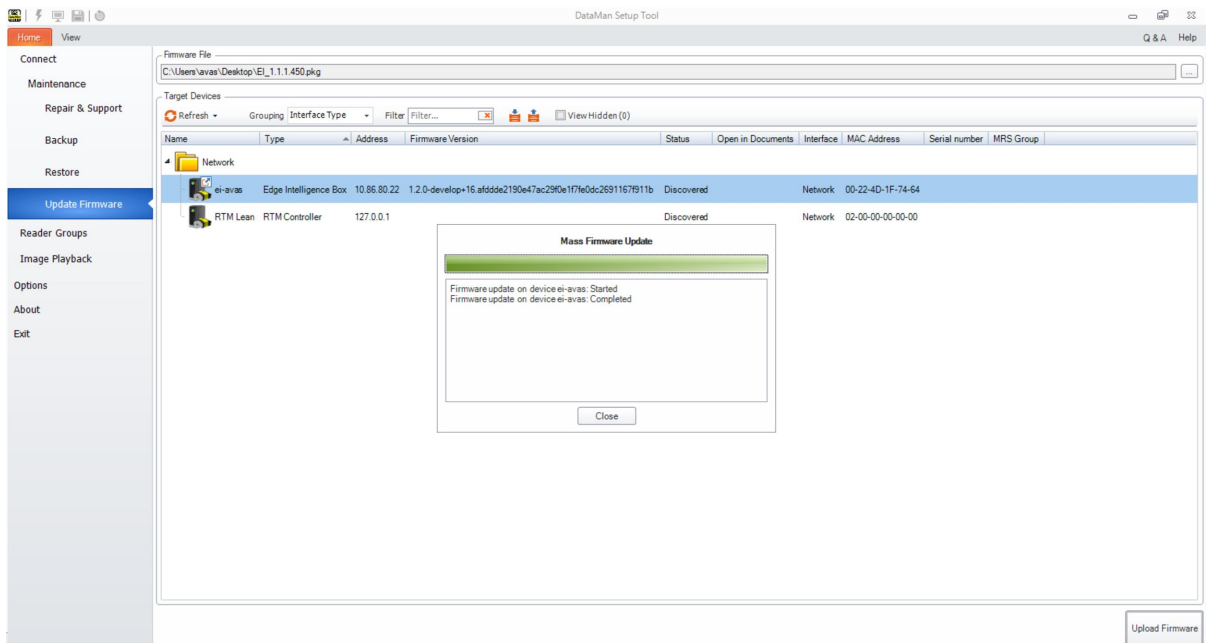


7. Confirm the firmware update by clicking **Yes**.



Note: Creating a backup by selecting the checkbox is optional.

8. Wait until the update procedure is complete then click **Close**.



Edge Intelligence Specifications


Specification category	EI-200	EI-300	EI-700
Weight	453 g (15.98 oz)	1360 g (47.97 oz)	5851 g (206.38 oz)
Housing	Fanless cast aluminum, steel	Fanless aluminum extrusion, steel	Fanless aluminum extrusion, steel
Power Input	12 VDC input jack	9~36 VDC 3-pin terminal block	9~48 VDC 5-pin terminal block
Power Consumption	9.2 W	19.04 W	80.64 W
Operating Temperature	0-40°C (32-104°F)	-25-70°C (-11-158°F)	-40-70°C (-40-158°F)
Storage Temperature	0-60°C (32-140°F)	-40-85°C (-40-185°F)	
Environmental Protection	IP50		
Image Storage ¹	Up to 1 million images	Up to 4 million images	Up to 8 million images
Image Storage ²	Up to 244 data days	Up to 487 data days	Up to 487 data days


¹ Assuming no-read images are saved at full resolution (3 megapixels) in JPEG format.

² With full resolution JPEG no-read images from all readers, on a system running 24/7 with 1 trigger per second at a performance of 99% read rate.

Cleaning and Maintenance

To clean the outside of the chassis, use a dry cleaning cloth.

 **CAUTION:** Do not clean Edge Intelligence products with liquids.

 **CAUTION:** Do not attempt to clean any Edge Intelligence product with harsh or corrosive solvents, including lye, methyl ethyl ketone (MEK) or gasoline.

Regulations/Conformity

Note: For the most current CE declaration and regulatory and conformity information see OnLogic support site: onlogic.com/support.

Safety and Regulatory			
Variants	EI-200	EI-300	EI-700
Certifications	2002/96/EC (WEEE Directive) 2011/65/EU (RoHS 2 Directive) Additional Safety and EMC certifications pending CB scheme CE EN 55024 EN 55032 EN 62368-1 FCC 47 CFR Part 15 IEC 62368-1 UL Listed	UL Listed configurations available CB Scheme FCC 47 CFR Part 15 Low-Voltage (2014/35/EU) Electromagnetic Compatibility (2014/30/EU) Radio Equipment (2014/53/EU) - Only applicable for configurations with wireless transmitters EN 55032 EN 55035 RoHS 3 (2015/863/EU) WEEE Directive (2012/19/EU) Power Immunity According to E-Mark 7637-2 & 16750-2 EN 50121 EN 62368-1 IEC 62368-1 UL 62368-1	FCC 47 CFR Part 15 Low-Voltage (2014/35/EU) Electromagnetic Compatibility (2014/30/EU) Radio Equipment (2014/53/EU) - Only applicable for configurations with wireless transmitters EN 55032 EN 55035 RoHS 3 (2015/863/EU) WEEE Directive (2012/19/EU) Power Immunity According to E-Mark 7637-2 & 16750-2 EN 50121 Additional Safety and EMC certifications pending. Some certifications configuration dependent.
Manufacturer	USA: OnLogic 35 Thompson Street South Burlington, VT 05403 USA Europe: OnLogic De Boedingen 39 4906 BA Oosterhout The Netherlands		

Open Source Licences

The table below shows the open source licences used by Edge Intelligence:

angular-resize-event	MIT
angular2-moment	MIT
core-js	MIT
dateformat	MIT
daterangepicker	MIT
fullscreen	MIT
moment	MIT
ngx-daterangepicker-material	MIT
ngx-spinner	MIT
primeicons	MIT
rxjs	Apache-2.0
rxjs-compat	Apache-2.0
screenfull	MIT
socket.io	MIT
socket.io-client	MIT
zone.js	MIT
@amcharts/amcharts3-angular	Paid

