PROCENTEC

OSIRIS

on Atlas and Mercury
User Manual

Safety Guidelines

This manual contains notices which you should observe to ensure your own personal safety, as well as to protect the product and connected equipment. These notices are highlighted in the manual by a warning sign and are marked as followed according to the level of danger:

Draws your attention to important information on handling the product, a particular part of the documentation or the correct functioning of the product.

Warning

This device and its components may only be used for the applications described in this manual and only in connection with devices or components that comply with Industrial Ethernet interfaces.
This product can only function correctly and safely if it is transported, stored, set up, installed, operated and maintained as recommended. Atlas and/ or Mercury is a CE class A product. In a domestic environment it may cause radio interference in which case the user may be required to take adequate measures.

Warranty

Warranty is void if you open Atlas and/or Mercury.

Qualified Technicians

Only qualified technicians should be allowed to install and work with this equipment. Qualified technicians are defined as persons who are authorized to commission, to ground, to tag circuits and systems in accordance with established safety practices and standards. It is recommended that the technicians carry a Certified PROFINET Installer or Certified PROFINET Engineer certificate.

Disclaimer of Liability

We have checked the contents of this manual as much as possible. Since deviations cannot be precluded entirely, we cannot guarantee full agreement. However, the content in this manual is reviewed regularly and necessary corrections will be included in subsequent editions. Suggestions for improvements are welcome.

Important information

Purpose of the Manual

This user manual provides information how to work with Atlas and/or Mercury.

This manual does not describe the usage of the tablet itself. For the manual of the tablet, refer to the manual of FZ-M1 on the Panasonic website.

Support

In case of a defective product or unanswered questions, please get in contact with the support department:

T: +31 (0)174 671 800
F: +31 (0)174 671 801
E: support@procentec.com

Recycling and Disposal

The parts of the Mercury can be recycled.

 "WARNING, BATTERY INSIDE; Battery may explode if mistreated. Do not disassemble or dispose of in fire. Dispose product according to the instructions"

For further information about environment-friendly recycling and the procedure for the disposing of your old equipment, please contact:

PROCENTEC
Klopperman 16
2292 JD WATERINGEN
The Netherlands

T: +31 (0)174 671 800
F: +31 (0)174 671 801
E: info@procentec.com

Document Updates

You can obtain constantly updated information on PROCENTEC products on the Internet at www.procentec.com

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1. Product description

1.1 Introduction

PROCENTEC's Osiris on Atlas and Mercury is the solution for monitoring and diagnosing Ethernet networks, where innovative simplicity and predictive capabilities are desired. The tool is perfect for preventing unexpected and expensive downtime within PROFIBUS, PROFINET and industrial Ethernet networks.

PROCENTEC's Osiris provides unique insight in your networks health and topology. With PROCENTEC Osiris operators and engineers can easily detect problems and find their causes within your network. This prevents costly down times.

The ease of use and clear overview makes this an ideal solution for the complete understanding of networks, always and anywhere. Atlas is a compact device that can be installed on a DIN rail and plugged in to the network for permanent network monitoring, and Mercury is the portable version. Osiris does not require additional and time-consuming software installations on the PC. You can get all the information using a custom designed web application. All the information Osiris provides can be viewed on the central, customizable dashboard page.

1.2 Your benefits

- Ease of use
- Use of Industrial Ethernet
- Topology
- Standalone device, 24/7 available
- Safe use
- Customizable dashboard
- Resistant to all environmental factors
- No software required

1.3 Product features

- Network Topology
- Customizable dashboard
- Network Quality Factor
- Alarms
- Not vendor or protocol specific

1.4 System requirements

Osiris runs on any browser-enabled computer; the interface is fully web based.
HTML5 and JavaScript must be supported by the browser.

The minimum version requirements for web browsers are:
- Chrome   version 46 or higher
- Edge   version 25 or higher
- Firefox   version 42 or higher
- Safari   version 5 or higher

For optimal experience it is recommended to use Chrome.

Internet Explorer versions are not supported.

2. Atlas

2.1 Quick Start

This checklist describes all the steps to a quick usage of Atlas.

Step: Instructions:

STEP 1   Install the device on a DIN rail.

STEP 2   Connect the Office port to your laptop and the Factory port to the factory network.The factory side should NOT be connected to a mirror port of a switch.

STEP 3   Connect the Atlas to a power supply. Wait until the green RDY LED is on.

STEP 4   Set your laptops IP address to 192.168.1.1 and the netmask to 255.255.255.0.

STEP 5   Open a web browser and go to https://192.168.1.10/. You will receive a warning about the certificate:
- Chrome users should click 'ADVANCED followed by 'Proceed ..'
- Edge users should click 'Continue to this website ..'

STEP 6   Enter user 'admin' and password 'admin' for the first login.

STEP 7   Now complete the Setup Wizard but do not change the settings of Office port yet.

STEP 8   Now setup the Office port in the Settings, unplug your laptop and connect the Office port to the office network.

The Atlas is now operational. From here you can change settings, layout and behavior of the Atlas. If connected to a factory network, it will start scanning and gathering information.

2.2 Atlas installation instructions

2.2.1 Location

Atlas can be installed anywhere in a non-hazardous / non-Ex area that complies with IP 20 (DIN 40 050) and the specified temperature range of -20° to +60° Celsius. Do not install the Atlas in a humid or dusty environment. To comply with UL certification regulations, in ambient temperatures higher than 55ºC or 131ºF it is mandatory

to install the Atlas in an industrial installation cabinet with the "HOT HOUSING" warning label visible during operation.

> **(i)** **"WARNING, HOT HOUSING. When in use at an ambient temperature higher than 55°C or 131°F, the housing of the Atlas will be hot. Do not touch the housing!"**

To comply with UL certification regulations the Atlas is to be used at altitudes not exceeding 2000m and in non-tropical climate regions only.

2.2.2 Position

Atlas can <u>only</u> be installed on a horizontal 35mm DIN rail with the front plates facing forward (see Figure 1 for an example). In this position the generated heat of the module can escape through the grid in the top of the housing. It is also easier to read the status LEDs. Do not install the Atlas in any other position, this could lead to overheating of the device.

2.2.3 Power supply

The Atlas contains a 3-pin screw type power connector on the front.

The layout is as follows:

1 = - (upper pin)

2 = + (middle pin)

3 = SH (lower pin)

The power supply must comply with the following specifications:

- Voltage: 12 .. 24 VDC

- Wire diameter: < 2.5 mm^2

Figure 1 – Atlas mounted on a 35mm DIN

For more information about the power supply see chapter <u>15 Technical specifications</u>.

After the power has been connected, the Atlas will boot up. This process can take up to 90 seconds. When it is booted, the green RDY LED will go on. You will see the Network Status LED blink yellow as long as the Setup Wizard has not been completed and a measurement has not been started.

2.2.4 Ethernet connections

The Atlas has two physical network interfaces named Office and Factory. The networks are not connected with each other one-on-one. The scanning, measuring and reporting of the network does not occur on the Office side, only on the Factory side.

The Atlas may be connected anywhere in the Factory network. Do not connect Atlas to a mirror port, as the Topology will not be accurate.

Please note: the web interface can be reached on the Office and the Factory network IP range. So it does not matter where you are connected, as long as you have set the correct IP range and netmask settings of your laptop/client network card. You will only be able to scan and see the devices connected to the Factory network, not the Office network.

Pointers about the IP-address configuration:
In case your office and factory share the same (sub)network you should NOT connect and configure the Office port. Just make sure that the default Office IP-address does not exist on your network and uses a non-existing subnet. In case your company network does use the 192.168.1.0/24 subnet, please change the IP-address to be part of a non-existing network, for example 192.168.100.10/24.

Office network
Example IP range: 192.168.8.x
Subnetmask: 255.255.252.0

Factory network
Example IP range: 10.0.16.x
Subnetmask: 255.255.254.0
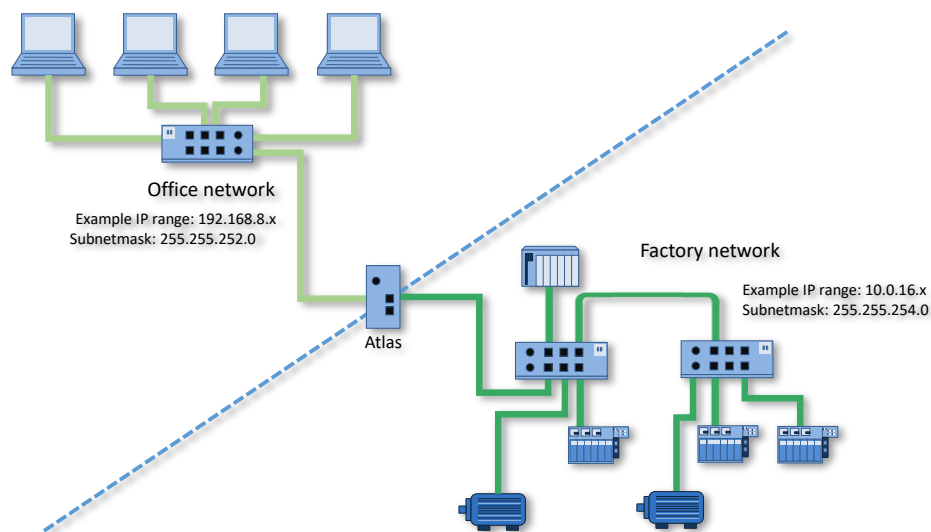
Atlas

For a description on how to use Atlas, read on from chapter 5.

3. Mercury

3.1 Quick Start

Step: Instructions: :

STEP 1   Switch on the Mercury by pressing the power button on the top.

STEP 2   Log in by entering your Windows username and/or password/pincode.

STEP 3   Double-click on the OsirisControl icon on the desktop. When Osiris starts, it
         will show a login window.

STEP 4   Use user 'admin' and password 'admin' for the first login.

STEP 5   Complete the Setup Wizard by entering the requested details.

STEP 6   Connect the RJ45 port of Mercury to an empty port of the factory network
         (do not use a mirror port).

The Mercury is now operational. From here you can change settings, layout and behavior. If connected
to a factory network, it will start scanning and gathering information.

4. Osiris User interface

Osiris displays all information by means of a web page. To access this information, simply open a web browser and type in the IP-address of your device (for Atlas the default address is 192.168.1.10 for the Office side and 192.168.0.10 for the Factory side; for Mercury, simply double-click on the OsirisControl icon on the desktop, Osiris webpage will appear in full screen mode as soon as the system has started).

4.1 Terminology and definitions

In this manual the following terms and definitions are used to refer to items in the web interface.
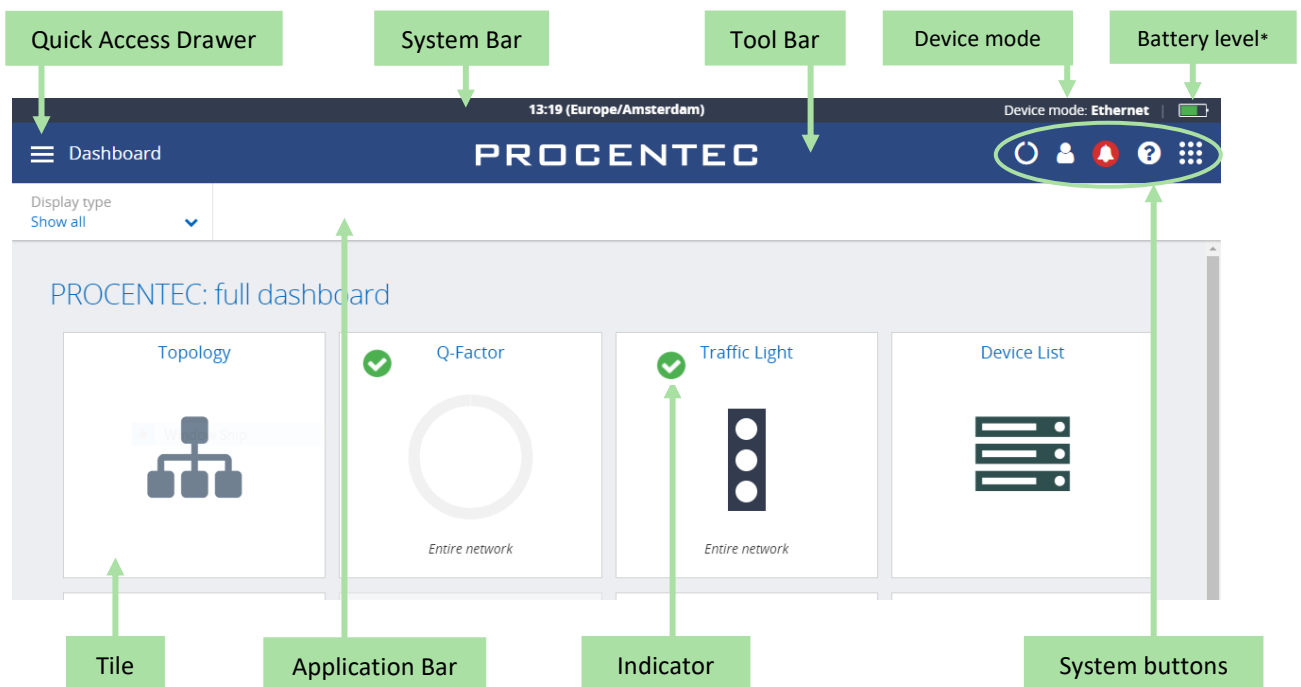

Figure 2 - Terminology used in the web interface

*Note: When using Osiris on a Mercury, a battery indicator icon will be present on the top-right corner of the System Bar. The Atlas does not have this indicator.

Location Icon **Column options** **Table Options**

Name ▲	Ignored	IP address	MAC address	Up time	Status	Protocol	Last response time	Last incoming load	Last outgoing load	Role	
📍 0030DE0CA009.		192.168.13.115	00:30:de:0c:a0:09	36, 01:28:42	Online	ETHERNET/IP	0.378 ms	0.09%	0%		
📍 110-00013A		192.168.13.105	9c:b2:06:1f:40:5d	7, 00:08:42	Online	MODBUS/TCP	4.219 ms	0.08%	0.01%	device	VP
📍 7006-2GC-EIP		192.168.13.202	a8:74:1d:6e:26:4e	1, 05:13:01	Online	ETHERNET/IP	1.257 ms	0.58%	0.6%		
📍 Ap1_scalance		192.168.13.51	20:87:56:2a:8f:82	102, 22:40:08	Online	PROFINET	0.447 ms	0.14%	0.13%	device	SC
📍 Atlas		192.168.12.123	9c:b2:06:2b:42:43	6, 03:55:48	Online	unknown	0.398 ms	0.14%	0.06%		Atl
📍 Baseline		192.168.12.118	9c:b2:06:2b:40:3b	1, 05:27:05	Online	unknown	1.787 ms	0.23%	0.14%		Atl
📍 bias		192.168.12.1	00:0c:29:d7:88:8b	268, 09:06:46	Online	unknown	0.38 ms	8.42%	66.54%		
📍 centos7armbuilder		192.168.12.100	9e:5c:13:bf:b7:d3	51, 05:51:21	Online	unknown	0.377 ms				
📍 centos7armbuilder2		192.168.12.101	9c:b2:06:2b:40:1d	7, 06:31:46	Online	unknown	0.426 ms	0.1%	0%		Atl
📍 Centos7X86-64Builder		192.168.12.4	00:0c:29:13:a6:c4	313, 00:48:54	Online	unknown	0.54 ms				
📍 client-scalance		192.168.13.52	20:87:56:2e:b0:8d	102, 22:39:51	Online	PROFINET	1.638 ms	0.02%	0.12%	device	SC
📍 COMbricks Headstation		192.168.13.238	9c:b2:06:00:09:a4	0, 00:13:48	Lost	unknown	0.762 ms				Co

Figure 3 - Terminology used in the web interface (continued)

4.2 System buttons

The right upper corner of the Application Bar shows five buttons. These are the system buttons. They are all clickable and will give extra information or functionality.

Measurement Status Indicator | Current User | Notifications | Online Help (context sensitive) | Application Menu

Figure 4 – Explanation of system buttons in web interface

4.3 Measurement Button

When clicking the spinning measurement button, a dropdown menu will show. This dropdown shows how long the measurement is running. The Change measurement settings button allows you to quickly change your settings by sending you to the setup wizard. Thirdly there is a button to clear (measurement) data. When the Clear data button is pressed, a popup will ask the user to confirming clearing the measurement data. When pressing "Yes" all errors and notifications will be deleted.
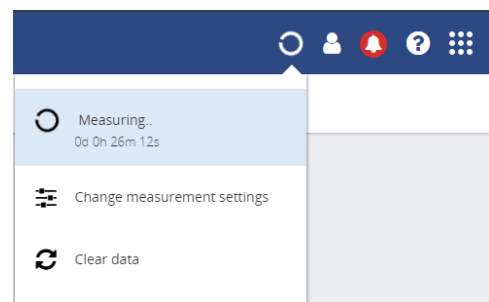This will not affect the trending data related to the current measurement, system settings,
configuration, custom topology views, or the notifications log file which may be exported.

Figure 5 – Measurement button in web interface

4.4 Current User

Clicking the current user button shows the current user and the logout button.
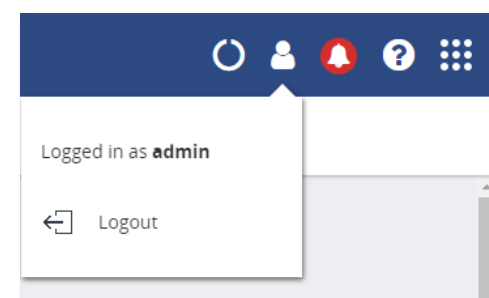

Figure 6 - user in web interface

4.5 Notifications

The notification bell indicates how many notifications are reported. In properly working networks the bell is green. In case there are warning it turns orange. Error conditions on your network lead to a red bell. Clicking the icon will bring up the list of notifications. There are three types of notifications:

Non-critical user information, such as: 'Your factory network is now connected'

Warning notification, such as: 'Ping response time exceeded'

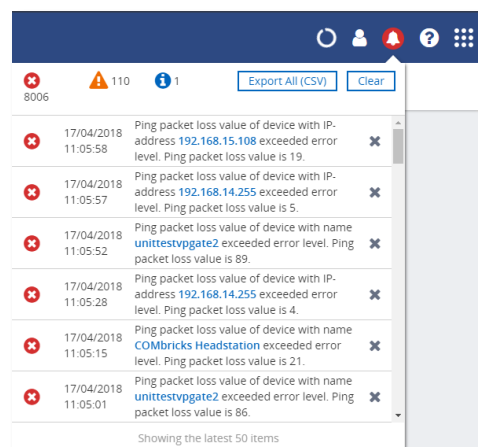Critical errors and warnings, such as: 'Error level for Discards exceeded'

Figure 7 – Notifications in web interface

By clicking ´Clear´ all the notifications from this list are cleared. Internally the notifications aren't removed and are therefore still available for CSV export.
By clicking ´Export All (CSV)´ you can download a full history of all the notifications regardless of any previous clearings of the list. This downloadable file is in CSV format which can be directly opened in spreadsheet software like Microsoft Excel. Errors generated by ignored devices will also be in this list.

4.6 Delphi Help

The Delphi help function provides specific help on the page you are currently viewing. This means that on, for example the dashboard, it will show help information for the dashboard. This is done for the Dashboard, Topology, Q-factor, Traffic light, Device list, Trending and OPC UA page.
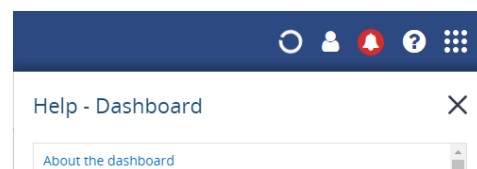
Figure 8 – Help Dashboard in web interface

4.7 Application Menu

Within the Application menu there is a function to generate a Report. See paragraph 7.8 about what the generation of the report includes.

The Report generator can be found in the application menu. The report feature allows you to generate a report with all relevant collected data of the network and general information:

- Osiris information
- Q-Factor
- Device List
- Ignored Devices
- Traffic Light
- Firmware Differences
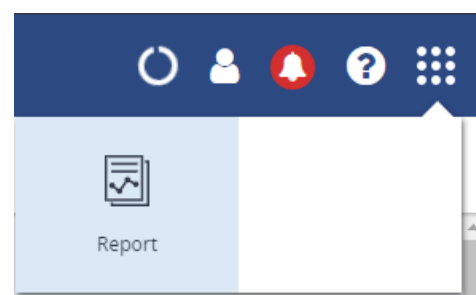- EtherTAP Message Analysis

Figure 9 – Generate report in web interface

Before generating the Report you need to fill in some mandatory details (marked in red). These details will be shown in the Report.

Please note that the Report window is opened in a separate browser tab. Make sure your browser doesn't block opening new tabs. If you use a pop-up blocker, white-list the IP address of your Atlas.

5. Setup Wizard

The Setup Wizard helps you setting up the Osiris software for use in your networks and is automatically started at first use. It can also be accessed after initial setup by clicking the Setup Wizard tile on the Dashboard. Pressing 'Change measurement settings' from the measurement button will also open the Setup Wizard on Step 2.

Step 1
Select the language. Over time, more interface languages will be released and available for download in the 'Download Software' section on www.procentec.com. Setting a language will take effect after the Setup Wizard has been completed.

Set the correct time zone. The time zone will be will be used to show the time in the top of the web interface (system bar) and in the reports. Automatic time (NTP) can only be used when Osiris has internet connectivity or when you manually set local time servers in the settings after the Setup Wizard has completed. See paragraph 11.3 for more information.

Step 2
Next, fill in the name and the location of the network. This name will be used in the web interface and reports. You can also enter optional contact details for colleagues in need of assistance.

Step 3
Then choose an Office and a Factory network IP address. The Office IP address and the Factory IP address must be set to the correct IP ranges with correct Netmasks. If you do not know these, use the DHCP setting or contact your system administrator and/or the machine programmer for correct settings. Note that these two settings are independent of each other and the networks do not 'see' each other. There is no direct connection between the two ports.

Important: it is required that the office IP range and factory IP range are different from each other, and that their subnet masks do not overlap. Gateway and DNS are not mandatory, only enter one gateway, preferably the one for the office interface.

Step 4
The last step asks you to enter one or more IP address scan ranges. It is important to choose scan ranges which include all the devices which you want to monitor. On the other hand, making the scan range unnecessarily large can negatively influence the Topology scan result and scan time. In case there are large gaps between devices on your network, it is advised to separate a large scan range into smaller ranges to exclude these gaps. This will speed up the scanning process.

6. Device mode (Mercury only)

Osiris has two modes; a PROFIBUS network analyzer (note: not available on Atlas), and an Industrial Ethernet analyzer. Tap on one of the options to start the preferred mode:

Figure 10 – Device mode selection in web interface

You can see the currently selected device mode in the upper notification bar on the right side.
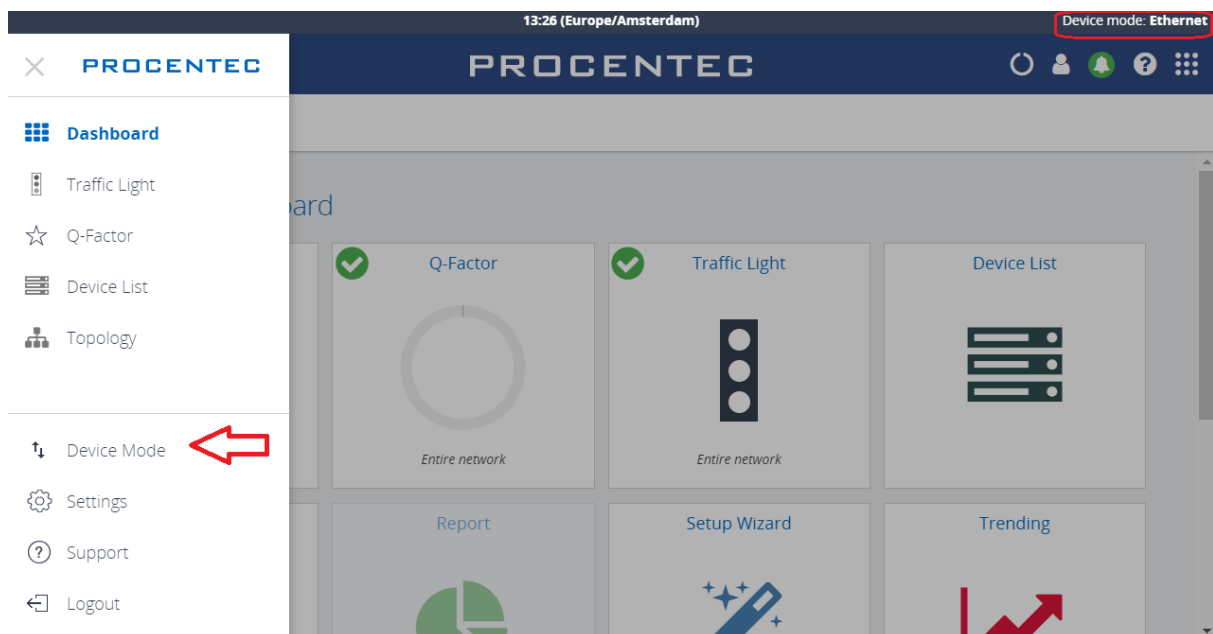

Figure 11 – Device mode in web interface (continued)

If at some point you need to change to another mode, tap the Dashboard button and click 'Device mode'. This will bring you back to the Device Mode selection screen.

For the Industrial Ethernet mode, continue on Chapter 7. For PROFIBUS mode continue on Chapter 10.

7. Device mode: Industrial Ethernet

7.1 Dashboard

The dashboard is a one-stop-shop and overview with access to all available functions through Tiles.
Tiles can be a static picture, but some are also dynamic. These dynamic tiles show an online summary of its information. This way you have a quick and intuitive way to access information. Some tiles also have a general status indication in the upper left corner of the tile (green checkmark, orange exclamation or red cross). This is a uniform way, so you can see quickly if there are problems which need attention.

7.1.1 Dashboard organization

The dashboard is a matrix of tiles and can be organized in 3 different ways:

- Show all: All available tiles are shown in a fixed arrangement
- Show recommended: Only tiles are shown which PROCENTEC deems most important
- Show customized (see paragraph 7.1.2)

7.1.2 Customize Dashboard

To customize the Dashboard, follow the next steps:

- In the Dashboard, go to the upper left corner and click on 'Display type'. Then choose 'Show customized'.
- On the upper right part, select 'Edit dashboard'.
- An empty tile placeholder(s) will appear, marked with a '+' sign.
- By clicking on the '+' sign a popup window will appear.
- Select the tile you would like to place by clicking on it.
- The popup will close and the tile will be placed.
- During edit mode you can drag and drop to a desired grid location.
- By pressing the 'trashcan' icon in the lower right part of the tile you can delete the tile.
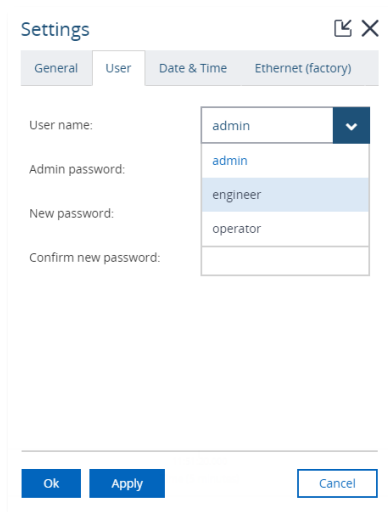- When all changes have been made, select 'Save changes' in the upper right corner

This saved personalized dashboard will remain available after a logout or restart. These settings are stored in a browser session, so this is a personalized setting for a specific user, computer and browser. Opening a customized Dashboard on a different computer or browser will result in a default view.

7.1.3 User administration

Osiris can be protected against unauthorized access or changing of settings. With means of user rights administration you can control the level of authentication a certain user (or group of users) has.

The default password for an account is the same as the username. So the password for the admin account is admin. All letters are lowercase, also for the username.

The default passwords can be changed in the Settings menu. Click on the Quick Drawer Access button ☰ , click 'Settings' or double-click on the System Bar (admin only) and click on the ⚙ icon. Then choose the 'User' tab.

7.1.4 Default users

There are three default usernames: admin, engineer and operator. They have the following rights, restrictions and capabilities for the Ethernet device mode:

Action	admin	engineer	operator
View the Traffic Light	Yes	Yes	Yes
View the Notifications	Yes	Yes	Yes
View the Settings	Yes	Yes	Yes
View/use the Commissioning Wizard	Yes	Yes	Yes
View/use the Email settings	Yes	Yes	Yes
Clear the Traffic Light	Yes	Yes	No
Clear the Notifications	Yes	Yes	No
Clear the Measurement Data	Yes	Yes	No
Customize the Dashboard (add/remove tiles)	Yes	Yes	No
View/use the Trending page	Yes	Yes	No
View/use the OPC UA page	Yes	Yes	No
View/use the Topology page	Yes	Yes	No
View/use the Q-Factor page	Yes	Yes	No
View/use the Device List page	Yes	Yes	No
View/use the VPN page	Yes	Yes	No
View/use the Commissioning Wizard	Yes	Yes	No
View/use the 'Factory Reset' button	Yes	No	No
View/use the System Bar	Yes	No	No
View/use the Setup Wizard	Yes	No	No
Edit the users and passwords	Yes	No	No
Edit Osiris settings	Yes	No	No

All user types have access rights for all the pages inside the PROFIBUS device mode.

7.1.5   Password best practice

We encourage you to change the default Administrator password after purchase.

- Change the password(s) immediately after installation or at the office before it is transported to the final destination.
- Never share passwords with anyone.
- Always use strong passwords. Avoid: *test, 123456, <your company name>, <your first name>, Atlas, PROCENTEC, etc.*
- Change passwords immediately if they may have been compromised.
- If passwords must be written down, store it in a secure place and destroy it when it is no longer needed.
- Be careful about where passwords are saved on computers. Some dialog boxes, such as those for remote access, present an option to save or remember passwords. Selecting this option poses a potential security threat.

7.2   Starting a measurement

When Osiris has been set up and connected, start a new measurement by clicking on the round progress indicator in the System Buttons area, and click 'Start'.

To indicate the measurement is running, you will now see a spinning progress indicator.

When the measurement has collected enough information, the Topology, Q-factor, Traffic Light and Device List will become available.
Note: Atlas is designed to be a permanent monitoring tool, therefore is not necessary to start the measurement, as it's always running.
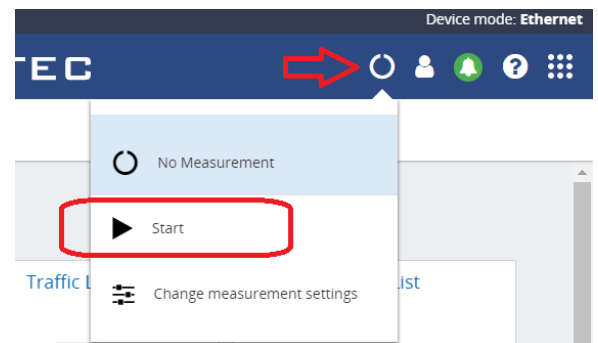
Figure 12 – starting a measurement in web interface

7.3   Topology

The topology is a graphical and hierarchical display of a complete network. This view makes connections between devices become clear very quickly and intuitively. This view also clearly shows dependencies to easily identify/mitigate critical paths in the network, or to identify line-depths.

The underlying mechanism to be able to determine a topology is based on SNMP and, if possible, specific industrial protocol functions (e.g. LLPD for PROFINET) will also be used. Unfortunately, some devices do not (properly) supply topology information. These are connected either to a question mark icon or are placed as stand-alone devices. The devices linked to a question mark icon and then in turn to other devices means the connection information is only partly known. In many of those cases it can also be that non-managed switches are used.

7.3.1   View types

There are two default views to choose from: Galaxy and Tree. Next to the default views it is possible to create custom views.

7.3.2 Galaxy view

The Galaxy view shows a self-organizing network diagram where switches are shown as central devices. In the Galaxy view user devices can be dragged to other positions. When dragging a device to a new place, the topology will automatically be re-arranged.
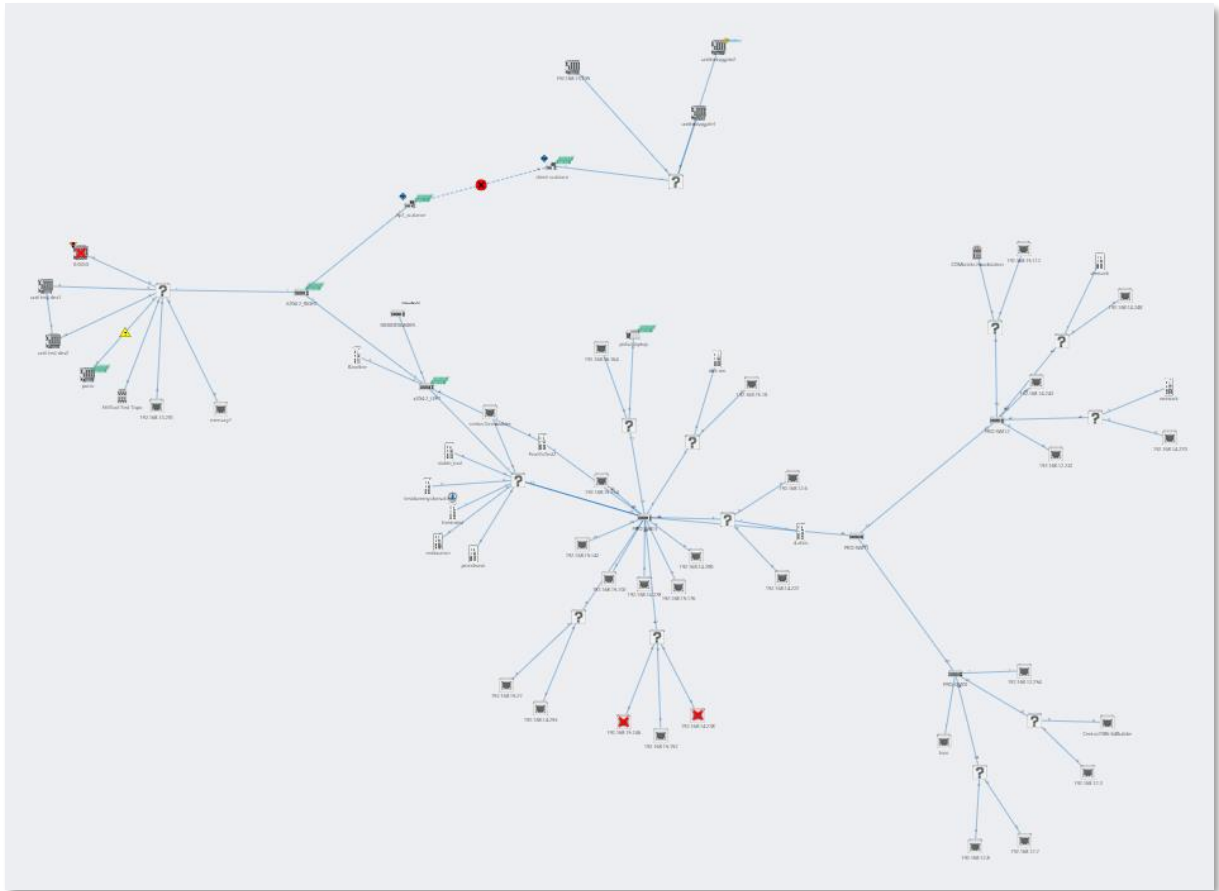

Figure 13 – Galaxy view in web interface

7.3.3 Tree view

The tree view shows a self-organizing layered overview using a top-down organization. In the tree view it is possible to click on a device which will show the device details panel. Within this panel there is an extra button to assign a top node. When setting a device as top node, the tree view will be re-organized with the selected device at the top.
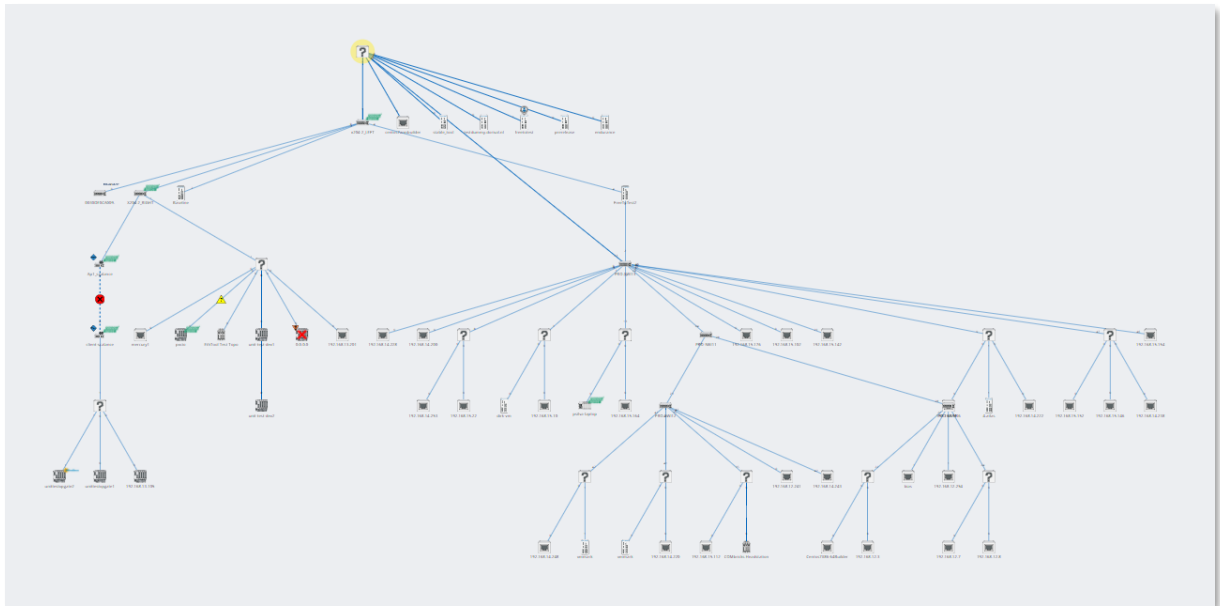
Figure 14 – Tree view in web interface

7.3.4   Custom view

From within the galaxy view it is possible to create custom views. Click 'Create view' and assign a name to the view. A grid appears on the background: now all devices have a fixed position which can be changed by dragging them around. The positions will be saved automatically, can be viewed and edited in multiple browsers and are persistent over a restart. Also it is possible to rename or delete a custom view the Delete and Rename buttons
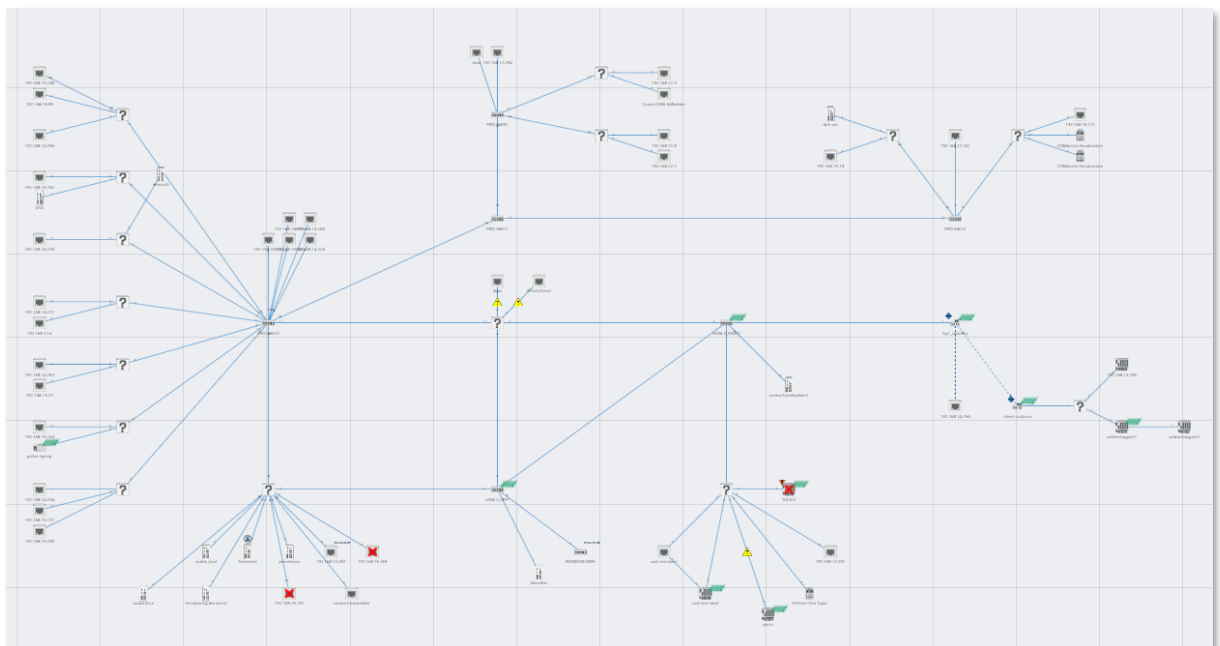
Figure 15 – custom view in web interface

In all views, devices are connected to each other with lines. These connections between devices show how these are connected to each other and how they are co-dependent. In this overview it is much easier to understand that if a device is lost, it will affect the connection to other devices behind it. Lost devices are indicated with a red cross over the device icon.
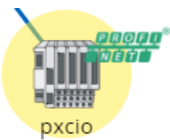
Link problems between devices are indicated with a red cross on that particular link. The two numbers shown on both ends of the link lines, specify the port number used for this link.

7.3.5   Graph search

To easily find devices in the Topology view, click on the magnifier icon in the top left of the Topology view. This will show an input field, where you can enter a name, IP address or MAC address of the desired device. Autocomplete will help you to quickly find the device you're looking for. When clicked on, the topology zooms in on the requested device and opens the device details.

7.3.6   Device types in the Topology view

The following icons are used for devices in the Topology view.

Icon	Meaning
	This is your current Atlas, the one you're currently connected to via your browser.
	The yellow halo indicates the selected node.
	This is another Atlas in the network.
	This is an I/O controller. The label next to the device indicates the supported industrial protocol.
	This is an I/O device. The label next to the device indicates the supported industrial protocol.
	This is a managed switch.
	This is a Wi-Fi access point.

	This is a Wi-Fi group access point, with two or more devices connected to its copper port(s).
	This is a ComBricks Head Station.
	This is a generic Ethernet node, such as a PC or laptop that does not support SNMP.
	The devices in (and connected to) this group cannot be accurately placed in the Topology. This is because the necessary data to do so cannot be obtained. There are multiple explanations for this problem: 1 It is an unmanaged switch. This is a standard switch that does not supply data to determine the topology of the network. 2 It is a device that does not supply correct data. Note: PROFINET devices certified after v2.3 must have all the required data for Topology as defined in the PROFINET standard. This is not mandatory for other Industrial Ethernet devices. 3 It is a device outside of the scan range. The device can be found based on its MAC address but cannot be accessed via an IP address.

7.3.7   Device status indicators in the Topology view

Icon	Meaning
	This indicates that the device is lost. It has been online on the network in the past, but cannot be reached now.
	The IP address of this device is 0.0.0.0. This indicates it needs to be configured.
	There is another device on the network with the same IP address. This could make both devices unusable. You are advised to resolve this issue immediately by changing the IP address of one of the devices. This issue may also prevent the correct visualization of the topology within Osiris.
	This indicates that the device is lost. It has been online on the network in the past, but cannot be reached now.

7.3.8   Link indicators in the Topology view

Icon	Meaning
	• The port load is still acceptable but nearing unacceptable levels of 50% (20% < port load < 50%) • The link speed is not 100 Mbps full duplex (for PROFINET devices)
	• The port load is over 50% (port load > 50%) • The devices report different link speeds • The existence of InDiscards, OutDiscards, InErrors or OutErrors
1..28	The number on the link is the physical switch port of the device that this cable is connected to.

7.3.9   Protocol indicators in the Topology view

Icon	Meaning
PROFINET®	This is shown for devices that support PROFINET.
PROFIBUS®	This is shown for devices that support PROFIBUS.
Modbus	This is shown for devices that support Modbus TCP.
EtherNet/IP™	This is shown for devices that support Ethernet/IP.

Note: if a device supports multiple protocols, the Protocol indicator icon is not displayed. Supported protocols are shown in the Device details.

7.3.10 Device details

By clicking on a device this item will become emphasized and an info panel will appear on the right-hand side. Depending on the type of device, information is shown in groups:

In the Tree view you will find the button in the top to assign a device as 'Top Node'. With this functionality you can set the highest (top) device in the tree. If the selected device is already marked as Top Node, the button will state 'Top Node' and will be inactive. Otherwise it will state 'Assign Top Node' and can be used to move the selected device to the top.

General
General information is shown for the device. For more information on the various items please check the description of the 'overview' section.

Customize: Ignore device errors
In some cases devices generate errors which you, for different reasons, would like to ignore. Such errors can be suppressed by ignoring a device in the device panel. (see Figure 16). Enable this setting to ignore errors generated by this device based on its MAC address. Ignoring a device will be done at a variety of places within Osiris.
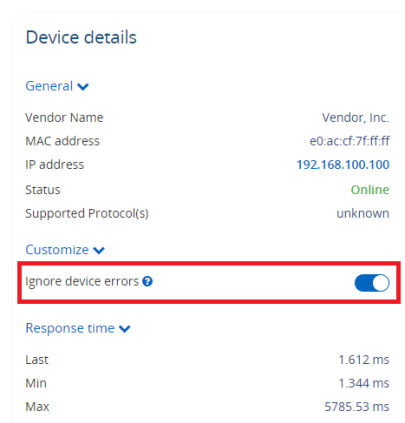

Figure 16 - Ignore device errors

Where	Effects of ignoring device errors
Device details	• Errors are <u>still visible</u> in the device details except for firmware differences.
Device List	• When a device is ignored they receive a check in the Ignore column • All errors and warnings of the device are hidden
Notifications	• New errors will not be shown • Old errors will be removed from the dropdown under the bell. This potentially means that the bell can go back to green • Errors of ignored devices <u>will still show up</u> in CSV export of the Notifications
Q-Factor	• Devices will be marked as ignored • Errors will no longer influence the Q-Factor of the device. The device will always have Q-Factor 5000 and therefore have no influence on the overall Q-Factor of the network
Report	• The device will appear in the Ignored Device list in the report.
Topology	• Lost devices are still visible but the usual the red cross which indicates that the device is lost, will be faded • Double IP-addresses are ignored • Firmware difference are ignored • Link errors and warnings will not be shown if you ignore device errors of the device causing the link errors • A device with IP-address 0.0.0.0 will generate a warning. When ignoring the errors of such a device, it will not generate errors anymore • Devices which don't supply correct SNMP data will show a blue NAMUR icon. When ignoring the errors of a device, this icon will disappear
Traffic Light	• Errors will no longer influence the traffic light (both on the web interface as on the physical Atlas itself).

Device errors will still be visible in this Device Details view but will be hidden from the Device List and Topology, and errors related to this device will not influence the Traffic Light or Q-Factor, or be displayed in the notifications log. Ignored devices are labelled in the Q-Factor. Notifications which are generated by the device are stored and downloadable as CSV but are not shown.

Identification and Maintenance

Information about the device itself: the Product ID, vendor name, software and hardware version, order code and serial number. If two devices of the same ID have been found, using different firmware versions, a warning is displayed (see Figure 17).

Response time

The last, min and max ping response times are shown here.

Port load

- In: for each incoming/ingress port the last, min and max port load is shown.
- Out: for each outgoing/egress port the last, min and max port load is shown.
- Warning: some devices report an incorrect link speed (e.g. 10 Mbps instead of 100 Mbps). Since the link speed is used to calculate the load, the reported load can be incorrect. If the reported load is very high, check the link speed.

Figure 17 - Firmware deviation warning

Link details

By clicking on a link or line between devices an info panel will appear on the right-hand side. Depending on the type of device, information is shown in groups:

Linked devices

Device name, MAC address and port number are shown for both sides of the connection.

Load

For each direction the last and max port load is shown in %.

Warning: some devices report an incorrect link speed (e.g. 10 Mbps instead of 100 Mbps). Since the link speed is used to calculate the load, the reported load can be incorrect. If the reported load is very high, check the link speed.

Link status

- General: the link speed is indicated (10Mbps/100Mbps/1Gbps) together with its operational state (up/down);
- For each direction, in and out, the 'discards', and 'errors' are shown. Discards are the number of telegrams which did not fit in the internal buffer (memory overload) and 'errors' are transmission or CRC errors.

Warning: some devices can report an incorrect link speed (e.g. 10 Mbps instead of 100 Mbps). An indication that this occurs is when two devices in a link report different link speeds. This is not possible in Ethernet connections.

7.4 Q-Factor

The Q-Factor is a number that represents the quality of the network. You can choose if you want to use the 0 to 5000 range, commonly used in the Automotive industry, or a percentage.

A value of 5000 or a percentage of 100 is excellent and 0 is critical or unmeasurable. Additionally, a color coding is used to emphasize the severity. Normally the color should be green, meaning excellent or good. Yellow is subpar but not critical, e.g. attention recommended. Red means a bad, critical or urgent issue.

7.4.1 Multiple Q-Factors

There are multiple Q-Factors in use in the tool:
- A Q-Factor for each network device, which indicates the quality for a single network device. Calculation of this Q-Factor is based on a weight of:
  - Network link load: the bandwidth usage on a certain port of a device, is used to determine the value. In general, the lower the load, the higher the Q-Factor.
  - In/Out errors: the number of errors per port of a device.
  - Ping packet loss: the number of unanswered ping requests.
- A single overall Q-Factor, indicating the quality of a complete network. Currently the overall Q-Factor equals to the lowest Q-Factor of an individual network device.
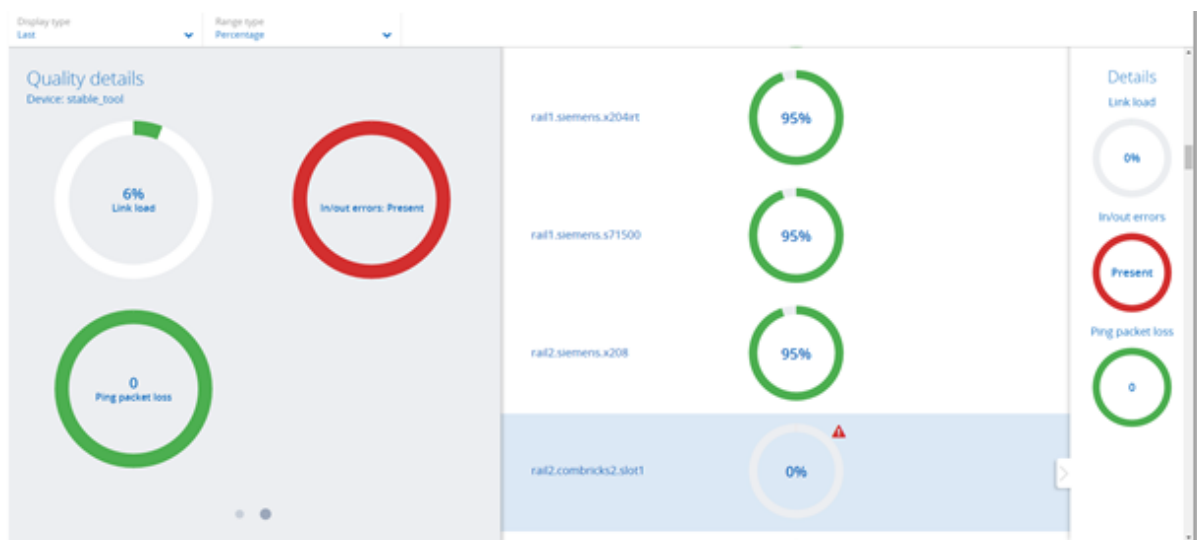

Figure 18 - Multiple Q-Factors: Overall Q-Factor on the left, individual Q-Factors in the middle and on the right

7.5 Traffic Light

The Traffic Light is an overall color coded status to indicate the degree of network status. As it so purposefully describes, the state is in the form of a traffic light. The Network indicator on the front of the Atlas unit (LEDs) corresponds with the traffic light state in the web browser. The traffic light can also be read in the live tile in the Dashboard.
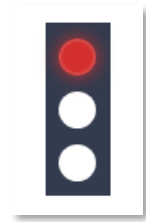
7.5.1 Traffic light state explained

- Red light: a serious problem is present in the network, user attention required.
- Yellow light: a situation is present which is important but not serious, user attention recommended.
- Green light: all seems to be working correctly, no important or critical situation.

7.5.2 Traffic light triggers

The following situations cause the traffic light to turn orange:
- A ping response time between 25 and 50 milliseconds
- The occurrence of PROFINET alarms that are not communication alarms
- PROFINET Jitter higher than 50%
- PROFINET Dropped packets

The following situations cause the traffic light to turn red:
- A ping response time higher than 50 milliseconds
- A device previously seen (e.g. by ping) is not responding anymore
- In or Out discards (the number of telegrams which did not fit in the internal buffer of a switch)
- In or Out Errors (transmission errors or CRC errors)
- The occurrence of PROFINET communication alarms

7.6   Device list

The device list shows a list of all detected network devices. Also, unavailable devices (detected in the past) are listed here. It provides a full overview of all important properties of devices in the network.

The entire list is downloadable as a CSV file which can be directly opened in spreadsheet software like Microsoft Excel.

7.6.1   Table customization

Generally, the table columns can be customized with the following features:
- The left column is pinned, meaning if the scrollbar is horizontally scrolled the leftmost column does not move.
- The list can be sorted by clicking on the column header (ascending, descending or none).
- Columns can be resized by placing the mouse between columns and then selecting/dragging the splitter.
- Columns can be hidden by selecting the ☰ icon on the far right of the table. A list will drop down in which you can select which columns are to be shown/hidden.
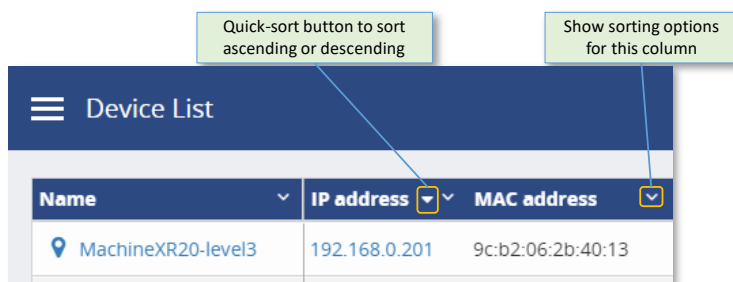
Figure 19 - Sorting

- Certain columns can be filtered (mainly text fields) by clicking on the 'sorting options' button on the right of the column, and then choosing 'Show filter'. Note: these columns can also be optionally pinned left.

- It is also possible to combine two or more filters. Simply enable a filter for each column that you want to filter, for example an IP address filter and a MAC address filter:
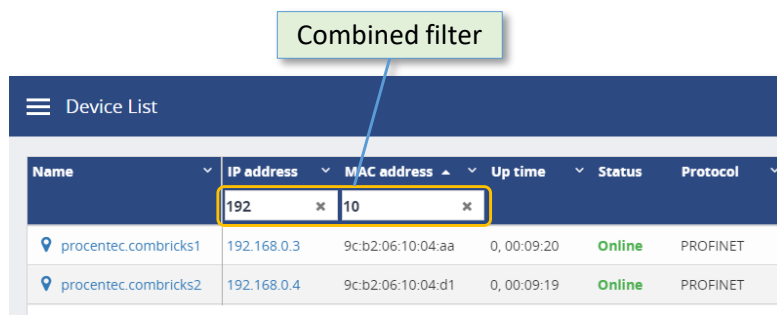

Figure 20 – Combined IP and MAC address filter

7.6.2 Available columns

Column	Description
Name	This name is retrieved from the device if it supports a protocol name identification function (e.g. DCP for PROFINET IO).
IP address	The IP address of the device. It consists of 4 numbers separated by '.' Dots. If no IP protocol is supported, it is left blank. Currently only IPV4 is supported.
MAC address	The unique Media Access Control address for the device. It consists of 6 numbers in hexadecimal format separated by colons.
Status	If a network device has been seen previously and is still being seen it remains Online (green). If it has been seen previously but not anymore lately it changes to 'Lost (red).
Last response time	The most recent reaction time measured by a 'ping' to a device and its response.
Min. response time	The fastest 'ping' reaction time.
Max. response time	The slowest 'ping' reaction time.
Last incoming load	The most recent measured network load (in %) for the incoming/ingress port. If a network device has more than one port the highest load is shown. **See note below**
Min. incoming load	The lowest measured network load (in %) for the incoming/ingress port. If a network device has more than one port the highest load of all the lowest port values is shown. **See note below**
Max. incoming load	The highest measured network load (in %) for the incoming/ingress port. If a network device has more than one port the highest load of all the highest port values is shown. **See note below**
Last outgoing load	The most recent measured network load (in %) for the outgoing/egress port. If a network device has more than one port the highest load is shown. **See note below**
Min. outgoing load	The lowest measured network load (in %) for the outgoing/egress port. If a network device has more than one port the highest load of all the lowest port values is shown. **See note below**
Max. outgoing load	The highest measured network load (in %) for the outgoing/egress port. If a network device has more than one port the highest load of all the highest port values is shown. **See note below**

|	
Netmask	The IP netmask address of the device. It consists of 4 numbers separated by '.' Dots. If no IP protocol is supported, it is left blank. Currently only IPV4 is supported.
Gateway	The IP gateway address of the device. It consists of 4 numbers separated by '.' Dots. If no IP protocol is supported, it is left blank. Currently only IPV4 is supported.
Role	For certain industrial network protocols, a device can have a certain designated role associated with it. For e.g. PROFINET the roles device, controller and supervisor are possible.
Model	For certain industrial network protocols, a device can have a vendor designated model assignment associated with it (e.g. for PROFINET).
Device ID	For certain industrial network protocols, a device can have a certain designated Device ID assignment associated with it (e.g. for PROFINET it helps to define the product code when used in combination with a Vendor ID).
Vendor ID	For certain industrial network protocols, a device can have a certain designated Vendor ID assignment associated with it (e.g. for PROFINET each registered manufacturer has its own number).
Software version	For certain industrial network protocols, the software version can be retrieved (e.g. for PROFINET). This can help to verify that the product has the latest or stable software version.
Hardware version	For certain industrial network protocols, the hardware version can be retrieved (e.g. for PROFINET).
Order ID	For certain industrial network protocols, the order/article number can be retrieved (e.g. for PROFINET). This can help if the product needs to be re-ordered or documented (e.g. when there is a defect, or a spare is needed).
Serial number	For certain industrial network protocols, the serial number can be retrieved (e.g. for PROFINET). A serial number sometimes contains crucial information for a vendor (production date, batch) and for a user as well (tracking/detecting replacements).
Vendor name	The vendor name is either retrieved by looking up de MAC address in a publicly registered MAC/OUI reference list or it can be retrieved by using specific network protocol functions (e.g. I&M0 for PROFINET)
Vendor name (IM0)	Retrieved by using a specific PROFINET IO network protocol function (I&M0 Identification & Maintenance function as defined by PROFIBUS/PROFINET International)
Revision counter	A settings alteration tracking number implemented by some industrial network protocols (e.g. the I&M0 Identification & Maintenance function as defined by PROFIBUS/PROFINET International).

Note: Some devices report an incorrect link speed (e.g. 10 Mbps instead of 100 Mbps). Since the link speed is used to calculate the load, the reported load can be incorrect. If the reported load is very high, check the link speed in the topology overview.

7.7 Trending

The Trending feature visualizes the historical data of the Q-Factor. Every 5 minutes the Q-Factor is recorded. The minimum and maximum values of the Q-Factor during these 5 minutes are also recorded.

When you see a decline in the trend, it is safe to say the quality of the network is going down. The steepness of the trend determines if you could schedule maintenance or if you need to act as soon as possible. The steeper the trend becomes, the quicker you are required to act.
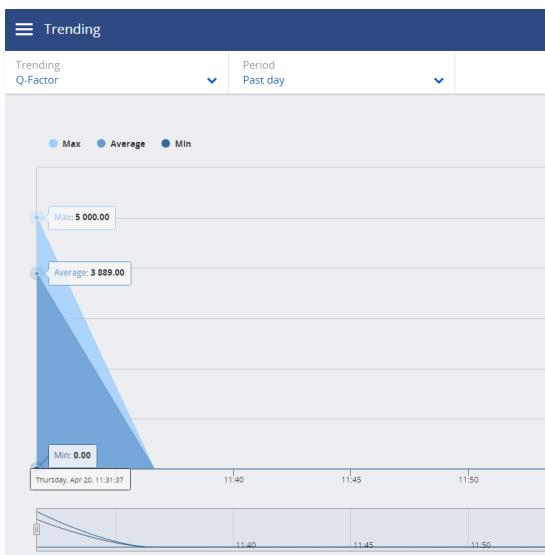
The trend also provides insight into what has happened in the past. This could provide clues on where to look at and what to do next to prevent it from happening again.

The legend of Trending shows the following items:

- Max: The maximum value of Q-Factor of the network found during the chosen period
- Average: The average value of Q-Factor during a period
- Min: The minimum value of Q-Factor of the network found during the chosen period

It is possible to select which of these values you want to have displayed in Trending by clicking on the respective legend items.

7.8 Report

The generation of the report can be found in the application menu. The report feature allows you to generate a report with all relevant collected data of the network and general information:

- Osiris information
- Q-Factor
- Device List
- Ignored Devices
- Traffic Light
- Firmware Differences
- TAP Analysis

Before generating the Report you need to fill in some mandatory details (marked in red). These details will be shown in the Report.

Please note that the Report window is opened in a separate browser tab. Make sure your browser doesn't block opening new tabs. If you use a pop-up blocker, white-list the IP address of your Atlas.

7.9   OPC UA

OPC UA has been selected as the foundation of Industry 4.0 and it allows for integration with SCADA systems.

The OPC UA server functionality is switched off by default.

On the OPC UA page you will see the address you can use to connect from a client to Osiris and the ability to start the server. Once the OPC UA server is started the button will change into 'Stop server'. This means the OPC UA server is active.

When a connection has been established, the following information can be discovered:

- Device information
- Traffic Light – entire network
- Q-Factor – entire network
- Measurement Status

Warning: this connection is currently not encrypted.

7.10 E-mail Notifications

The E-mail Notifications tile is a shortcut to the Email settings.
See paragraph 11.7 for more information.

7.11 IXON VPN service (Atlas only)

A VPN (Virtual Private Network) service makes it possible to connect to a system or network with a secure connection, remotely. As long as both devices are connected to the internet they can securely communicate over the VPN.

PROCENTEC has a partnership with IXON, a secure VPN services provider. You can benefit of the integration of IXON VPN in PROCENTEC products. Currently this service is limited to Atlas only.

Atlas is equipped with IXON VPN Service. This makes it possible to view and use the Atlas web interface from outside the company network. Every function you are used to use in the local network also works via the remote connection of the VPN. A dedicated tile is present by default on the dashboard of Osiris in order to access VPN functionality.

To make the VPN Service available make sure you have:
- An Atlas with firmware 1.1.70 or higher
- An internet connection
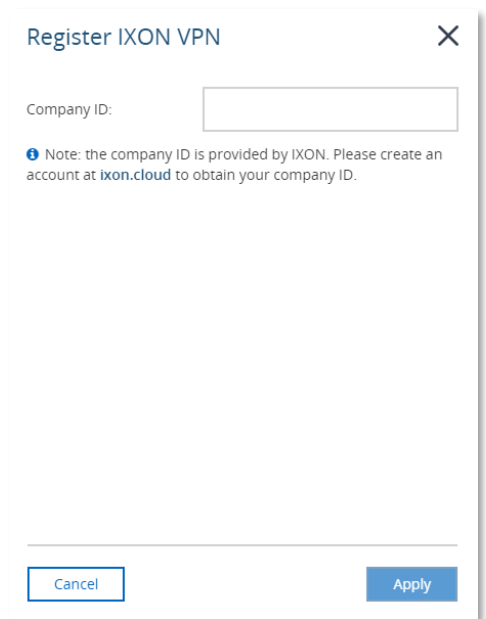- An IXON Cloud account (a one-time fee for each Atlas applies)

You can register a new IXON Cloud account on https://connect.ixon.cloud/.

7.11.1 Configure a VPN Service on your device

These are the steps to follow to configure your Atlas PROCENTEC device (First make sure that your PROCENTEC license allows you to use the IXON VPN in Atlas. If not, proceed to a license change as explained in paragraph 11.11.1):

1. Log in into the Atlas web interface. You should see a tile on the dashboard called "IXON VPN". Click on it.
2. You land on a page where you monitor the VPN functionality. Initially the Atlas is not registered in the IXON Service. Thus you will see your status as : "Not registered".
3. Click on "Register" button and enter the validation Company ID that IXON gave you.

Once you have accepted the terms and conditions, the registration form will open. A representation of the registration form is shown in the image below.

This Company ID is assigned to your IXON Cloud account. This can be found on https://connect.ixon.cloud/ under your company settings (encircled in red).

Enter the Company ID into the registration form on the Atlas and press Apply to create the connection to the VPN Service. This could take up to a minute.

If the connection to IXON has successfully been established, the following view will be shown on the VPN page of the web interface:


This view contains an overview of the current connection to IXON. This overview above contains the following data:
- Agent ID: This is the ID of the device that is visible in the IXON Cloud webpage.
- Company ID: This is the Company ID entered for registration.
- Company Name: This name is your company.
- Status: Shows whether the service is Disconnected, Connected or Connecting to the IXON VPN service.

The two buttons are for controlling the connection to IXON. These actions can also be performed from the IXON Cloud webpage.
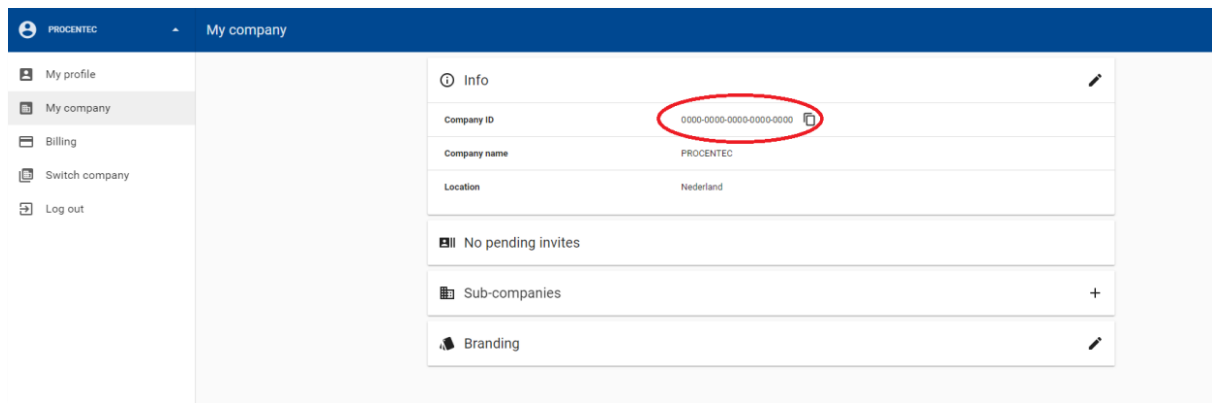
- Disconnect: Disconnects from the VPN service, this will not delete the device in your device list of your IXON Cloud account.
- Connect: Connect to the VPN service.
- Unregister: This will completely remove the device and all its settings in your IXON Cloud account.

7.11.2 How to use IXON VPN

After the configuration of your device, you can access it remotely via internet. From your distant computer, open the browser, go to IXON login page https://connect.ixon.cloud/login and log in.

On the IXON webpage, on the left side is the "Devices" list. You will see the list of devices that you have configured to run IXON VPN. Select the device you want to connect to (which should have a green circle next to his name if the device has been configured and is up and running). You have to specify a name for the device and activate it.

After this device is named and activated, you can select it, and see all its characteristics in a panel on the right.
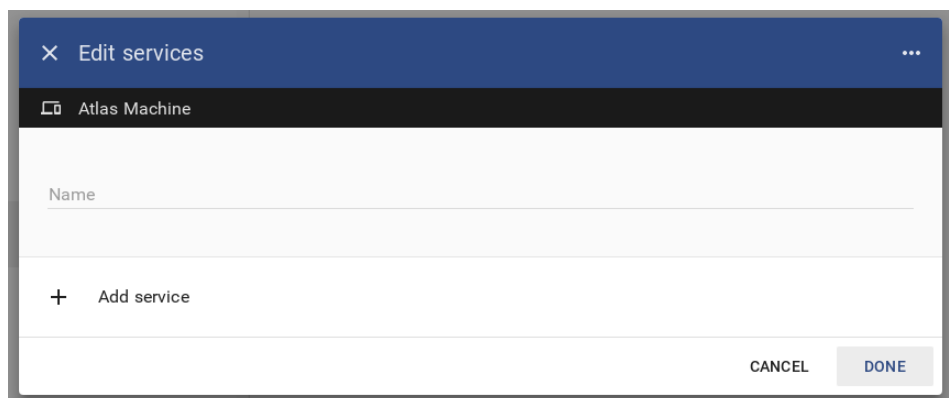
Click the "SERVICES" section.
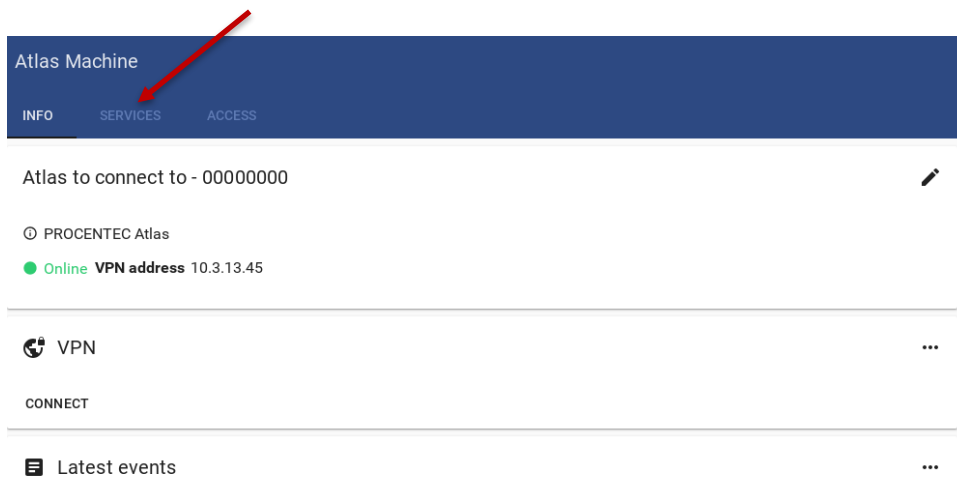
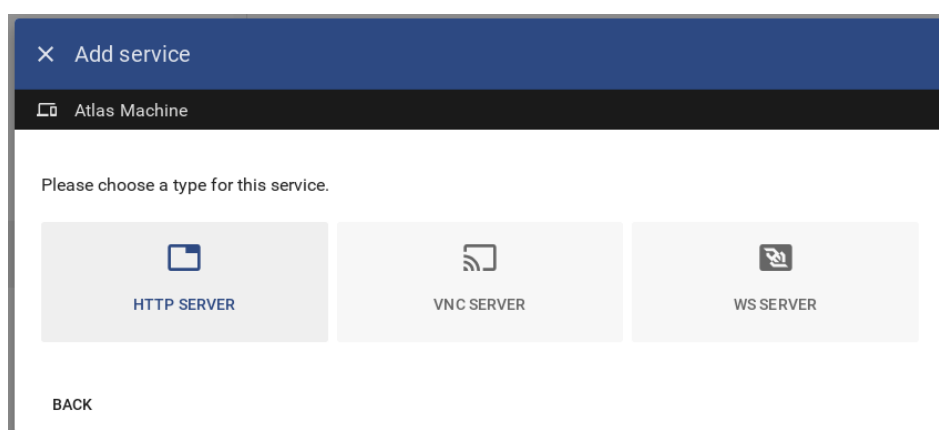Edit a new service, by clicking the pen icon.

Then add a new service:
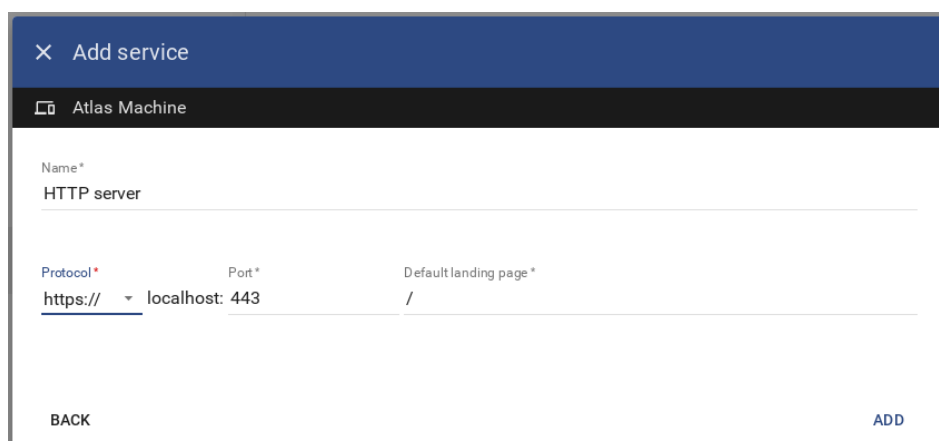
And create a new HTTP connection by selecting HTTP SERVER:

Select the HTTPS secured option:

Add the new service.

Now, below the VPN section in the INFO tab, you can click on the "HTTP SERVER" button and you will be redirected by your browser to your remote device, via the IXON website.

Atlas Machine

INFO SERVICES ACCESS

Atlas to connect to - 00000000 ✏️

ⓘ PROCENTEC Atlas

🟢 Online **VPN address** 10.3.13.45

📡 VPN ···

CONNECT

🗔 HTTP SERVER

📃 Latest events ···
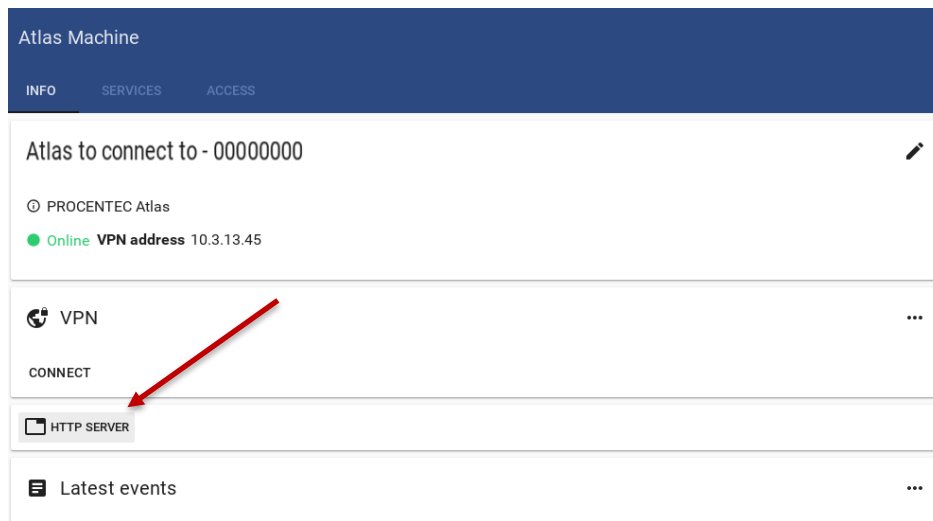
8. Commissioning Wizard

The PROCENTEC Commissioning Wizard is a series of automated checks to see if the network is in compliance with the guidelines of the used protocol. The checks are according to the PROFINET Commissioning Guidelines.

Each item can be confirmed as successful or it can be declined after the checks have been performed. When the wizard has finished, an optional report can be generated.

8.1.1 Starting the Commissioning Wizard

Make sure a measurement is already running before starting the PROCENTEC Commissioning Wizard; the wizard cannot run without a measurement.

When starting the Wizard, there are multiple options:

8.1.2 Quickscan

Quickscan will perform only automatic checks. No user interaction is required. Performed checks:

- Check for double IP addresses
- Discarded messages check
- PROFINET device name check
- Firmware differences between devices of the same type
- DCP broadcasts check
- ARP broadcasts check
- Network load check

8.1.3 Commissioning

Checks the network without the need for an EtherTAP. It will perform all the check of the Quickscan and:

- Topology check
- Device details check
- Device count

At the end of the wizard you can press 'Generate Report' to create an automated report of all checked items. This is an HTML based report and can be directly printed from the browser or exported to PDF (you need to install a PDF generator first). You can also save as an HTML page.

9. EtherTAP

9.1.1 EtherTAP – Message Analysis

The EtherTAP – Message Analysis feature allows you to do deep analysis of PROFINET traffic by placing an EtherTAP between devices exchanging PROFINET traffic (usually between a Controller and the first switch).
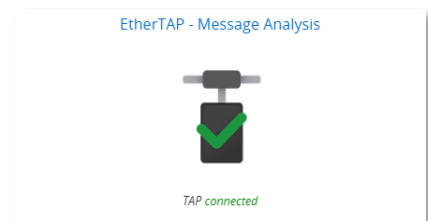
To make tapping available make sure you have:
- A correct license
- An EtherTAP placed between two devices communicating over PROFINET
- A running measurement

9.1.2 Supported EtherTAP types

The supported EtherTAP types are:
- EtherTAP 10/100 (Product code 513-00011A)
- EtherTAP 1G (Product code 513-00021A)

The product number can be found on the back of the EtherTAP as depicted in the image below. Other TAPs cannot be used.

9.1.3 How to start using the EtherTAP

The EtherTAP must be connected with the supplied USB3 cable. A USB2 cable cannot be used. The USB3 cable can be connected to any port of the Atlas or to the USB 3.0 port of Mercury. Note: do not use USB 2.0 port on Mercury

The two RJ45 ports of the EtherTAP must be connected as follows: one cable between the Controller and the EtherTAP, and one cable between the first switch and the EtherTAP. This switch port should not be a mirror port.

Installing the EtherTAP means that you need to disconnect the Controller, and all the network communication will stop! Make sure this is done only with permission.

NOTE: the RJ45 connector of the scanning port of the Atlas or Mercury must also be connected. If this is done correctly, you should see a tile in the Dashboard with the message 'TAP *connected'.* Click the tile to open the EtherTAP information page.

Tapping is divided in PROFINET-specific data, and generic Ethernet data. The top-left drop-down bar lets you choose the two data protocols.

9.2   PROFINET analysis

9.2.1   Network overview and device details

When you click the tile on the Dashboard you can read out four types of data:

1. **The cycle time per device**
    PROFINET devices send data on a very periodic basis, these are called cycle times. Cycle times are defined in milliseconds.

2. **Positive and negative message jitter as a percentage of the cycle time**
    Jitter is the deviation of a message from the intended cycle time. Example: if a device sends a message every 4ms, then a delay of an additional 4ms leads to a jitter of 100%. In case the message is 1ms early then a jitter of 25% is being reported. Both messages which are early and late are reported in absolute percentages.

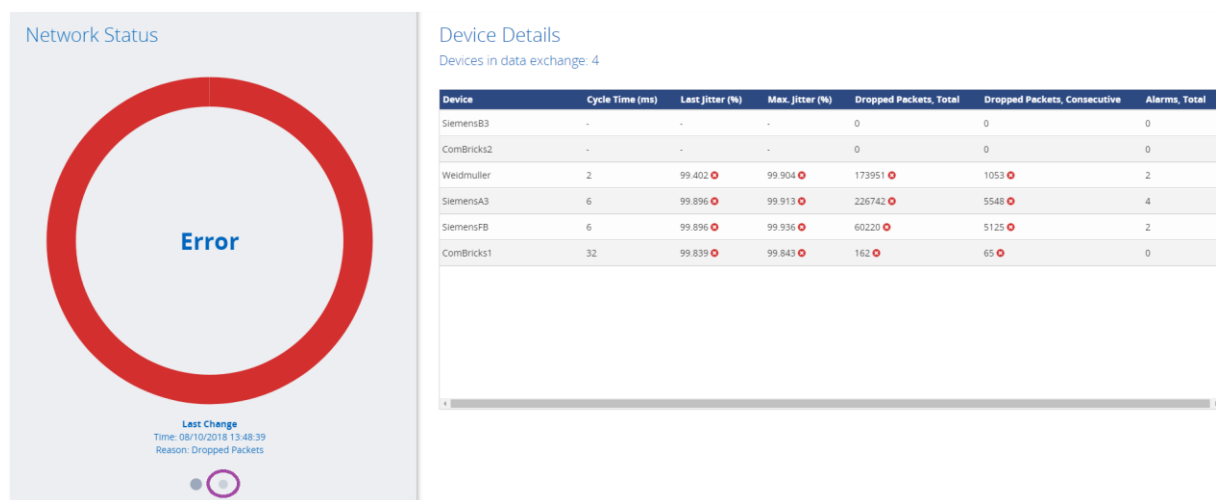3. **The number of Dropped Packets**
    Dropped packets are PROFINET messages which were missing in the communication cycle. Healthy PROFINET networks should never drop messages, too many consecutive dropped packets can cause the stop of the network.

4. **The number of Alarms**
    PROFINET alarms are specific error messages sent by the controller or the devices using the PROFINET protocol.

The image below shows the complete overview of all devices in the network, with the details described above:

Clicking on the tile leads to the following view:

Network Status	Device Details Devices in data exchange: 4						
	Device	Cycle Time (ms)	Last Jitter (%)	Max. Jitter (%)	Dropped Packets, Total	Dropped Packets, Consecutive	Alarms, Total
	SiemensB3	-	-	-	0	0	0
	ComBricks2	-	-	-	0	0	0
Error	Weidmuller	2	99.402 ⊗	99.904 ⊗	173951 ⊗	1053 ⊗	2
	SiemensA3	6	99.896 ⊗	99.913 ⊗	226742 ⊗	5548 ⊗	4
	SiemensFB	6	99.896 ⊗	99.936 ⊗	60220 ⊗	5125 ⊗	2
	ComBricks1	32	99.839 ⊗	99.843 ⊗	162 ⊗	65 ⊗	0
Last Change Time: 08/10/2018 13:48:39 Reason: Dropped Packets							

In case of errors, the large circle turns red as shown in the image. The left pane is a list of PROFINET statistics and errors per device.
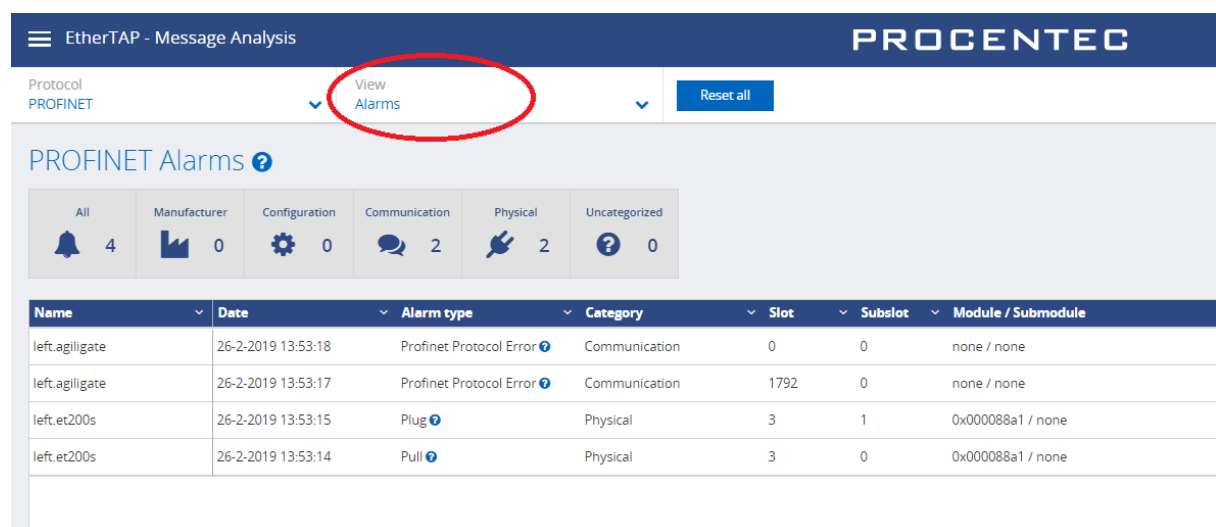
By clicking the gray dot (encircled in purple) the left panel shows more details about the network:
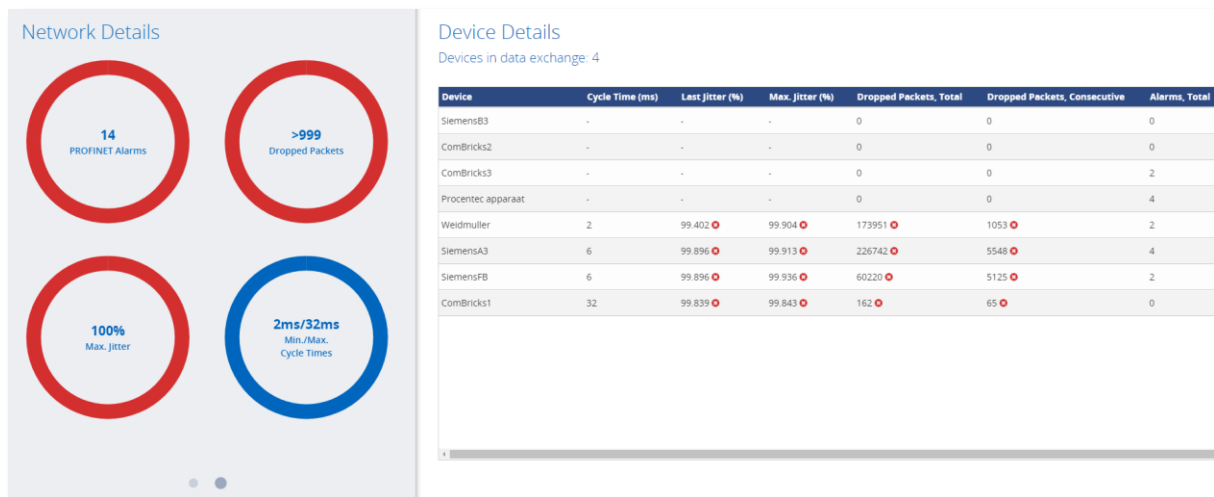
By clicking on one of the circles you can filter which columns are shown in the table on the right.

9.2.2 Alarms

Clicking the 'View' pulldown menu lets you switch to the PROFINET alarms overview:

This view gives specific information about different types of PROFINET Alarms. By clicking the icons in the gray bar you can filter different types of alarms.

9.2.3 Message Recording

Osiris records Ethernet packets when something is wrong in the network. Recording is done in the .pcapng format, which allows easy opening in Wireshark.

Three triggers can be used to record a message file:
- PROFINET Alarms
- Jitter too high
- Dropped PROFINET packets

In this overview you can see that the file has a recorded date and time, what triggered the recording, and you can download or delete the recorded file.

It's possible to store up to 100 .pcapng files in Atlas, after 100 files the recording of messages will stop until the files are deleted.

9.3   Ethernet analysis

9.3.1   Overview

Select 'Ethernet' as the protocol in the top-left drop-down bar to view the Ethernet statistics.
These statistics are collected by the EtherTAP of the link it is currently monitoring.
Here is possible to analyze the amount of Network load and communication errors happening on the Ethernet link with the timestamp of the last change.

The EtherTAP has a Port A and Port B, which are separately listed, each with their individual statistics.

Click the blue Question Mark '?' sign for detailed information about the shown statistics.

9.3.2   Trending

The information displayed in the previous chapter can also be displayed in a trending graph. This makes it clear to see when problems occurred, or when load was abnormally high or low.

The Min, Max and average load can be enabled for each port. Trending is keeping in memory the last 2h of communication, and a new sample is added every second. For detailed information please refer to the Delphi Help, by clicking on the question mark '?' sign.
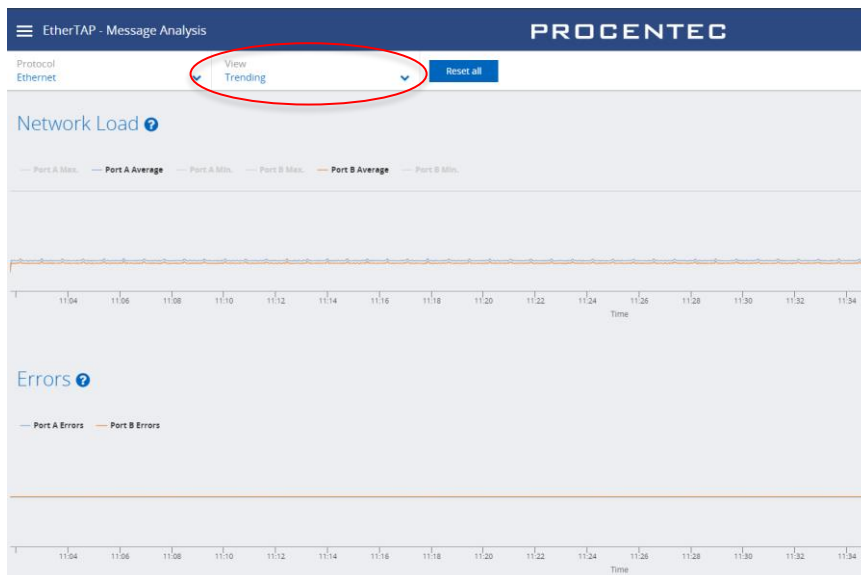
10.   Device mode: PROFIBUS (Mercury only)

To begin using Osiris in PROFIBUS mode, first make sure to connect a ProfiCore Ultra to one of the USB ports of the Mercury. When the Mercury has been set up and connected, start a new measurement by clicking on the round progress indicator in the System Buttons area, and click 'Start'.
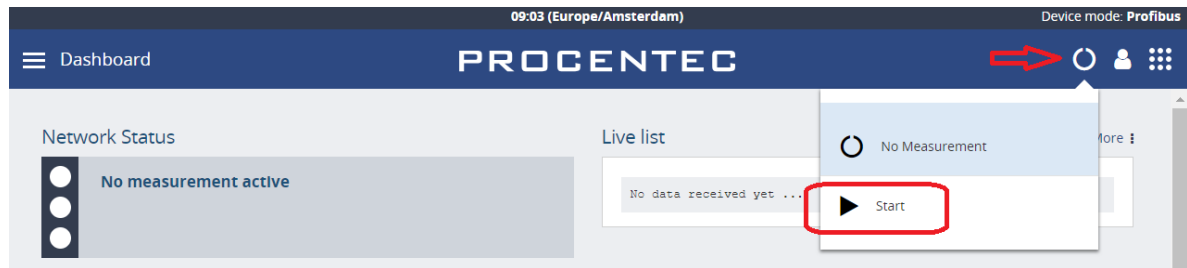
To indicate the measurement is running, you will now see a spinning progress indicator.

10.1 Dashboard

The Dashboard gives a clear overview of the Network status of the network (Traffic Light style), a Live list, and a Network summary of all collected data.

10.1.1 Network status

The Network Status indicator or Traffic Light will turn yellow or red if problems or errors occur. The errors that have occurred can be found in the 'Device errors' tab.

When the PROFIBUS network is running without any problems, the Traffic Light will be green. In the following situations the color of the traffic light will change:

Warning/event	Traffic light **state**
Idle voltage low (0,9 V to 0,3 V)	🟡
Critical diagnosis (Ext-diag)	🟡
Configuration error	🟡
Parameter error	🟡
Risk margin low (60 to 40)	🟡
Slave amplitude low (just above limit 2.5 V)	🟡
Repeats	🟡
Syncs	🟡
Idle voltage below limit (< 0,3 V)	🔴
Risk margin below limit (< 40)	🔴
Slave amplitude below limit (< 2,5 V)	🔴
Slave edge steepness below limit (< 1/16 tBit)	🔴
Illegals	🔴
Slave lost	🔴

10.1.1.1 Network summary

The Network summary gives a clear overview of currently detected network settings, statistics and measurements:

Network summary item	Meaning
Baudrate	The detected bus speed of this PROFIBUS network.
HSA	The Highest Station Address, the highest possible master node in this network.
Masters	Number of detected masters.
Slaves	Number of detected slaves.
In Data Exchange	Number of detected slaves in Data Exchange with a master.
Tslot	The maximum allowed response time for a slave.
MinTSDR	The required waiting time for a slave before it can respond. (only visible when a parameter message has been sent by the master)
MaxTSDR	The maximum time for a slave before it times out.
Tid1	Idle time; the minimum waiting time for the master before it can send a new message.
Watchdog	The safety time-out for a slave. (only visible when a parameter message has been sent by the master)
Actual idle voltage	The voltage on the bus when no node is sending.
Min idle voltage	The lowest recorded idle voltage on the bus when no node is sending.
Max idle voltage	The highest recorded idle voltage on the bus when no node is sending.
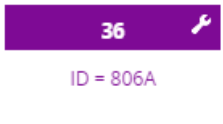
The Live List below the Network Summary is explained in detail in paragraph 10.1.1.2. To get to the LiveList, click upper left menu button.
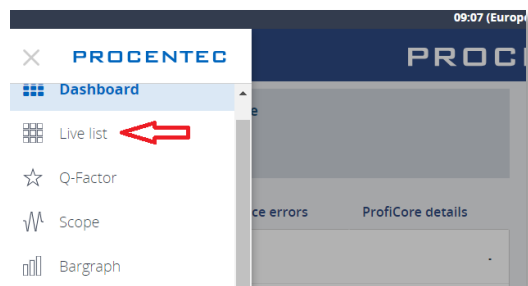
10.1.1.2 Live list

The live List in the Dashboard shows all the nodes that
are present on the bus. Masters have a small crown icon, slaves have colored backgrounds if they are communicating. Below is a full list of possible indications:

Live List indication	Meaning
3 ID = 0	Active master.
46 ID = 0	Slave in data exchange with a master, no ident number captured.

10 ID = 05FB	Slave in data exchange with a master, ident number captured.
5 ID = 0	Idle slave, not assigned to any master.
125 Zz ID = 0	Slave configured, but not reachable by the master.
10 (x) ID = 806A	This slave has been incorrectly parameterized by the master. Possibly a wrong address or a wrong GSD has been used.
36 🔧 ID = 806A	This slave has been incorrectly configured by the master, or the hardware modules in the slave are not correct.

Above the Live List is a button to control the device statistics of the Live List. The Device Statistics button default setting shows the slave model name, if the Ident number has been captured. This only occurs during master or slave startup, or when diagnostic messages are sent from the slave. Another prerequisite is that the GSD file is listed in the library of the Mercury. For more information on this, see paragraph 10.1.6.

The Live List can be 'paused' by switching the 'Auto Update' button to off. No changes will be visible.

10.1.1.3   Info Panel

Under the Live List is the Info Panel. This does not show any information if the network is running without problems. You can click on an address to see the details and any recorded problems, divided over four tabs; General, Diagnostics, Parameter and Configuration. These are shown on the following pages.
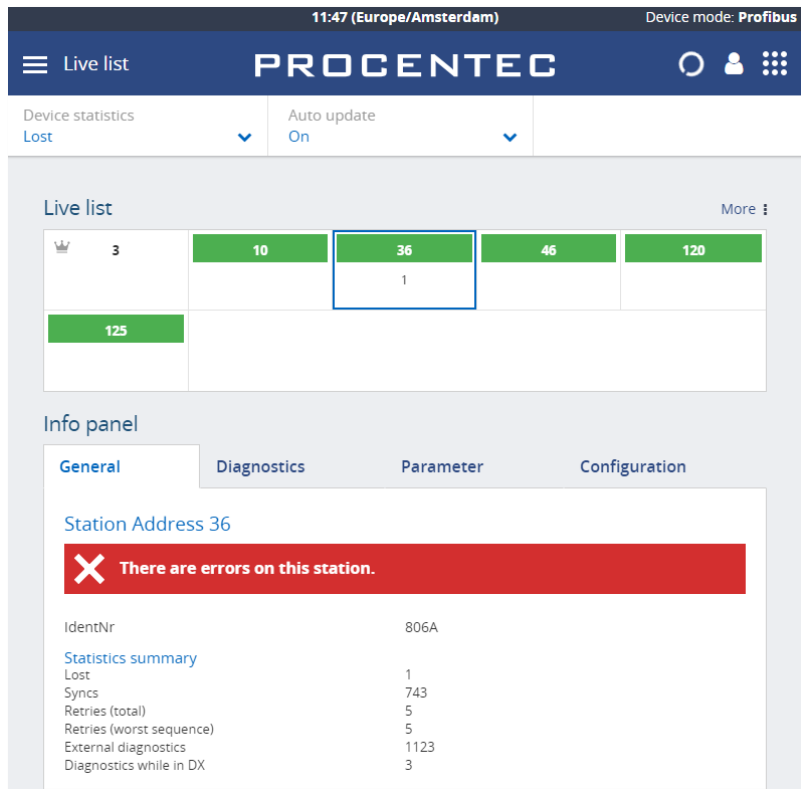
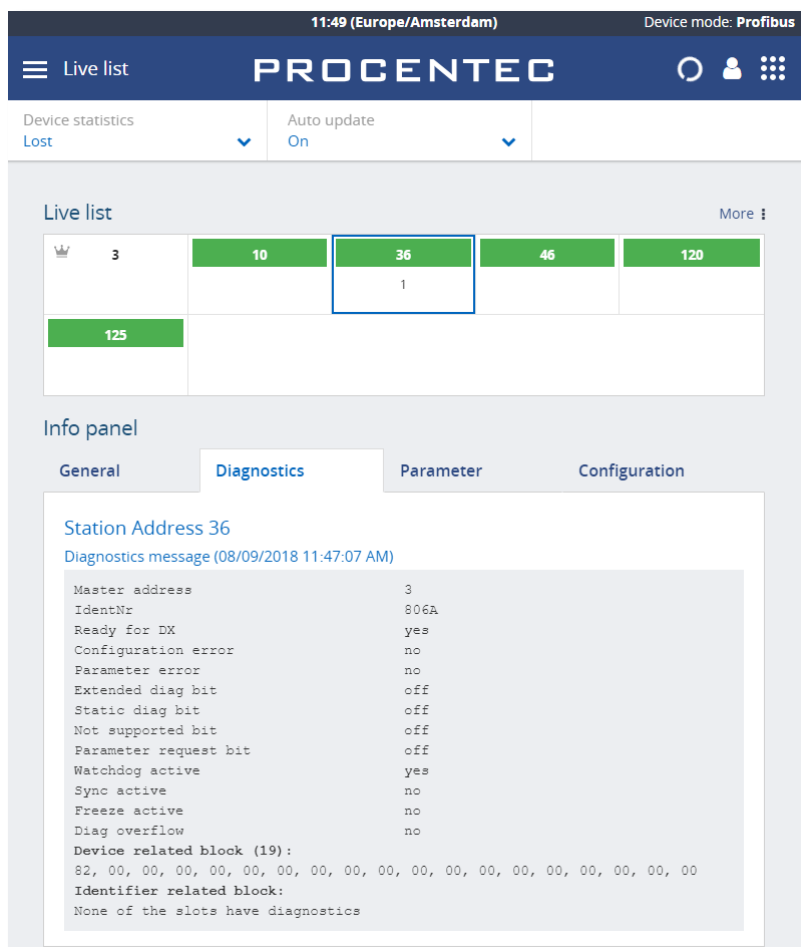Figure 21 - General errors of the selected station.

Figure 22 - Diagnostic information from the selected station.

Figure 23 - Parameter information from the selected slave.

Figure 24 - Configuration of the selected slave.

10.1.2 Q-Factor

The Q-Factor is a number that represents the quality of the network.

A value of 5000 is excellent and 0 is critical or unmeasurable. Additionally, a color coding is used to emphasize the severity. Normally the color should be green, meaning excellent or good. Orange is below average but not critical, e.g. attention recommended. Red means a bad, critical or urgent issue.

There are multiple Q-Factors in use in the tool:
- A Q-Factor for each network device, which indicates the quality for a single device. Calculation of this Q-Factor is based on a weight of:
    - Measured voltage, or amplitude
    - Edge steepness
    - Risk margin
- A single overall Q-Factor, indicating the quality of a complete network. Currently the overall Q-Factor equals to the lowest Q-Factor of an individual network device.
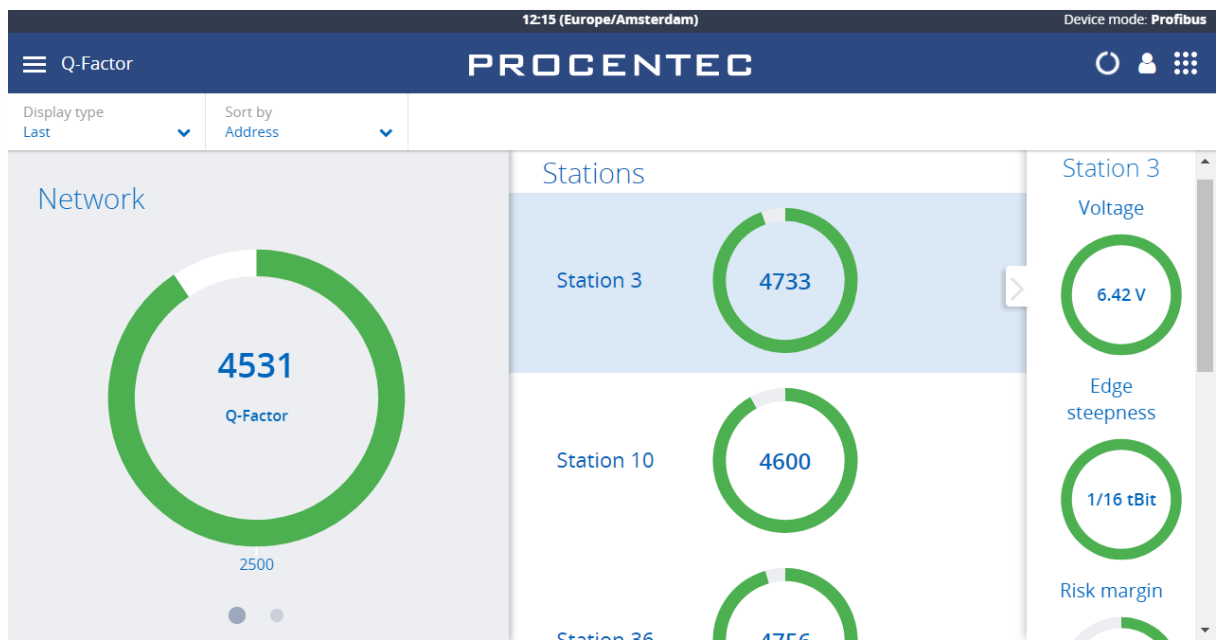

Figure 25 – The Q-Factor

The buttons on top can be used to view the last, best or worst values. Swiping the main Q-factor to the left shows a more detailed Q-factor. Clicking a station Q-factor brings up a detailed measurement column on the right.

10.1.3 Scope

The Scope view shows a detailed live oscilloscope waveform of a specific device, and is one of the most important items to check during commissioning or troubleshooting because it gives an accurate view of the health of the network.
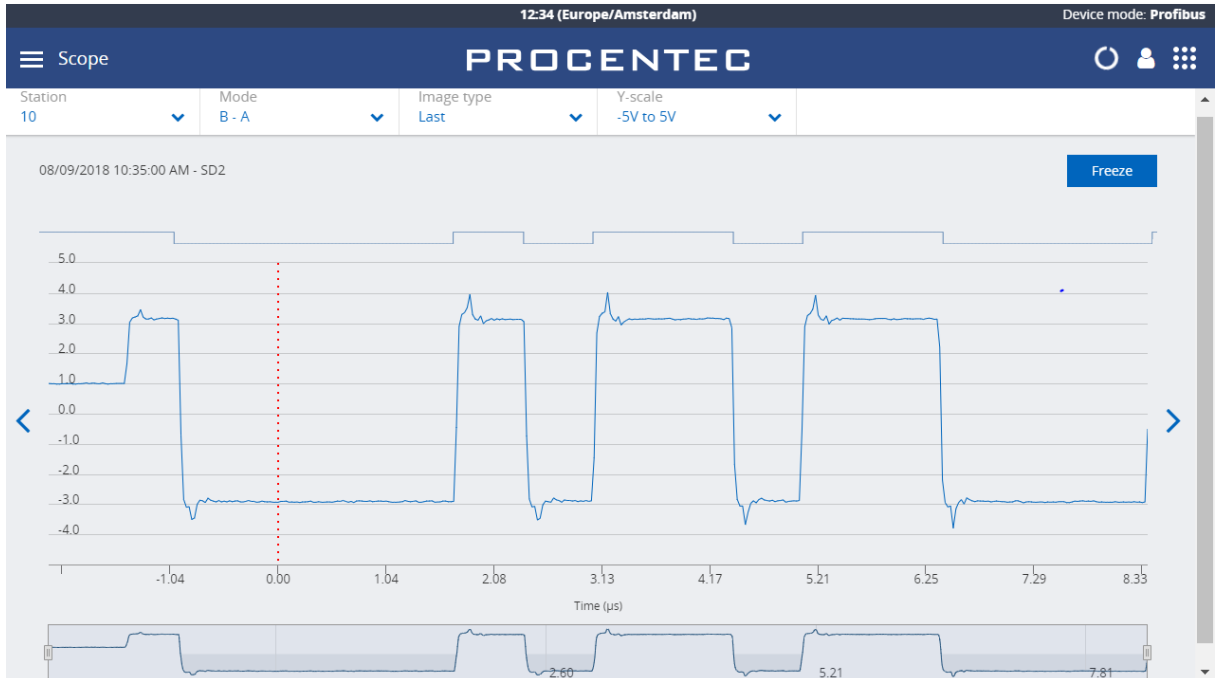
Figure 26 – Normal oscilloscope image of device 10

Use the Station selector in the top left to choose another device or use the '<' and '>' on the left and right to easily cycle through all available addresses.

The 'Mode' button lets you switch between B-A differential mode, the A or B line separately, or both A and B simultaneously. This is useful when troubleshooting a wire break, short circuit with shield or poor connection of one of the wires.

The 'Image type' button allows you to see the last, lowest (minimum) or highest (maximum) measured value. These values are stored in memory from the beginning of the measurement. Leaving the Mercury running for a longer period of time gives a good indication of the lowest / worst oscilloscope signal.
There is also an 'Error' image, this shows the last detected corrupt frame. This only works if the mode is set to 'Error' at the time of the error, so it cannot detect error signals in the background.

Above the oscilloscope image there is a digital representation of the measured signal. This can help determining if there are actual problems with the signal.

Below the oscilloscope image there is a timeline that can be used to scroll left and right in a scope image. Use two fingers to 'pinch' the screen on the oscilloscope line, which zooms in or out. Move the timeline with one finger to scroll.

There is a 'Freeze' button on the top right to stop the screen, to be able to analyze a specific signal.

10.1.4 Bargraph

The Bar graph illustrates the average signal strength from all available devices. It is a helpful utility to get an impression of the overall signal quality of the network.

Figure 27 - Good bargraph levels

The average amplitude should be around 5 V. When there are bus problems the Bar graph will display different voltage levels and the color of the bars will change.

Each bar has a Min and Max level, indicated with blue lines on the bars. These indicate the highest and lowest measured amplitudes, corresponding with the Min and Max levels in the oscilloscope images.
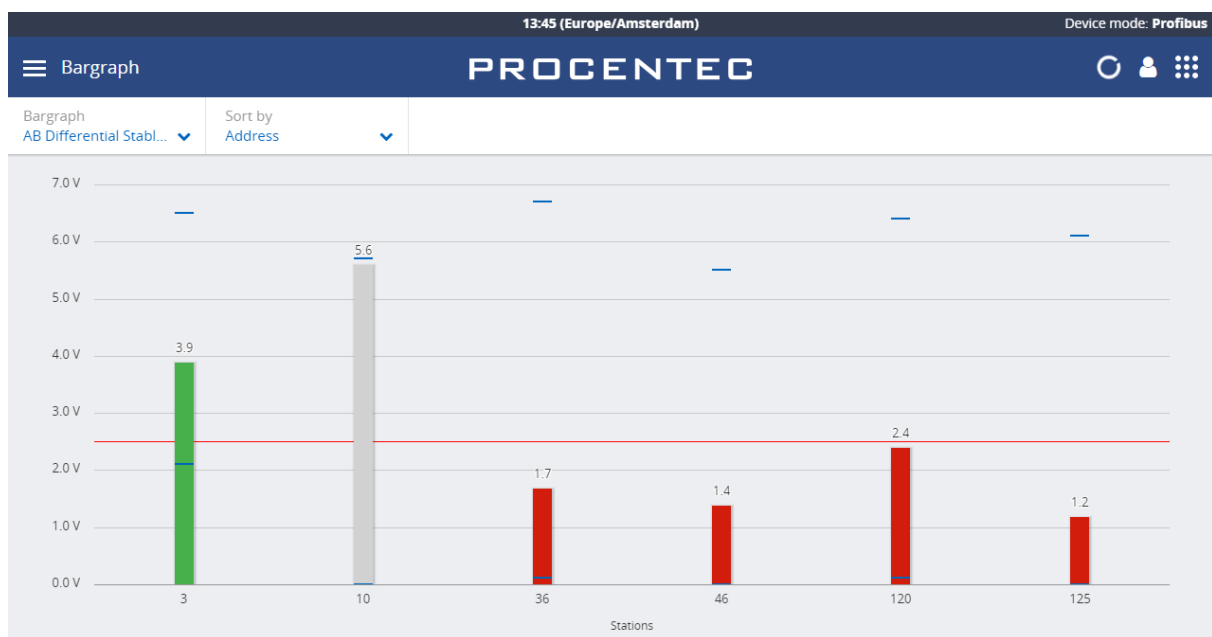

Figure 28 - Inactive and low bars

If a station is not active during the defined time-out (5 seconds), the bar of that station will become grey to indicate inactivity. This can also happen when the signal of this station is so bad that Mercury cannot decode the message.

The bars turn orange when the measured amplitude is between 2.5 V and 3 V. Below 2.5 V the bar turns red. These threshold values can be changed in the settings.

10.1.5 Messages

Message recording lets you record the actual data that is sent over the bus.
Simply press 'Record', and it will record 20000 messages and then stops recording, or press 'Stop' before the 20000 messages are recorded.

The columns have the following meaning:

Column	Description	Units
Nr.	The Nr. header specifies the line number in the respective view. This line number is independent of settings, filtering and such.	
Attention	The Attention header gives more information on the message or possible reason for a disturbance or error in the recorded message. (Messages with an "attention" message are tagged with a cross red icon).	
Idle time	The Idle Time is the inactivity between 2 messages. It refers to the time that has elapsed between the end of the previous message and the start of the current message . If the current message is a response, it is called the slave Tsdr (slave response time).	Bit Time
Delta time	This is the time from the first start-bit of the previous message to the first start-bit of the current message.	Bit Time
Address	The 'Address' column specifies the source and destination address of the message. Requests: Source -> Destination Responses: Destination <- Source An ACK message does not contain addresses, so this field will be	Decimal

Column	Description	Units
	empty.	
Msg Type	The Msg Type column specifies the higher level DP, DP-V1 and DP-V2 messages.	
Service	The Service column specifies the type of service of a message. The information is extracted from the FC byte when available (only valid for SD1,SD2 or SD3 messages).	
Type	The Type column indicates a request or response message.	• Req • Res
Frame	The 'Frame' specifies the frame type of the message.	• SD1 • SD2 • SD3 • SD4 • ACK
FC	Frame Control byte of the message.	Hex
Timestamp	The timestamp is calculated on the basis of a starting moment the user has defined and subsequent messages add to a delta-bittime to this beginning. This means that the timestamp internally consists of 2 parts: the time/date and the delta-bittimes that have passed.	
SAPs	The SAPs column specifies the source and destination SAP of the message. Requests: Source SAP -> Destination SAP Responses: Destination SAP <- Source SAP	Decimal
Length	The Length column specifies length of the user data of a message (only valid for SD2 and SD3 messages and does not include SAPs).	Decimal
Data	The Data column contains the USER DATA or Outputs and Inputs of messages.	Hex
Station	Model name of the device. Can only be displayed if the ident number was captured and the GSD is known (paragraph 10.1.6)	

10.1.6 GSD Management

Mercury features a GSD library with all relevant information from PROFIBUS slaves, such as the device capabilities, device name, manufacturer, version, diagnostic information and possible configurations. This information is used in other parts of the Mercury.

Press the Upload button to select a folder containing GSD files.
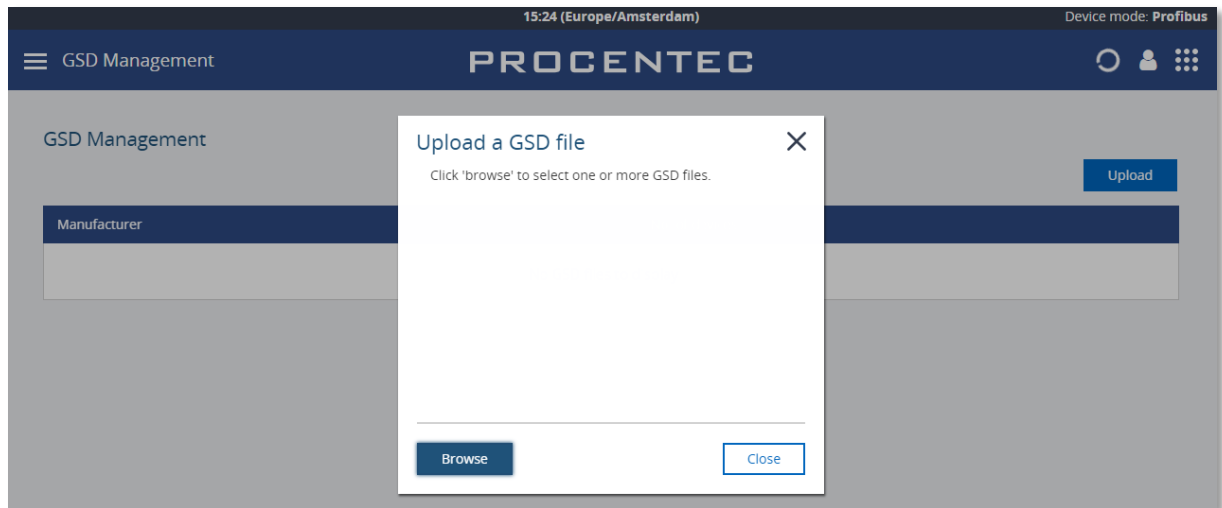
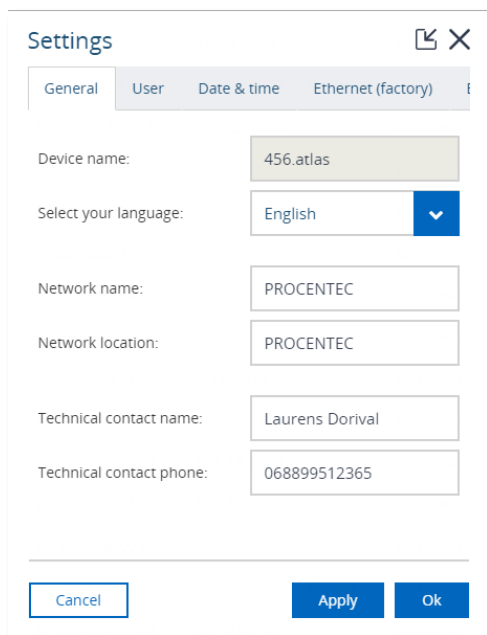Figure 29 - Click Browse to select a folder containing GSD files..

Then click 'Upload' to copy all the selected GSD files to the Mercury. Depending on the number of files, this can take some time. The Mercury automatically makes a library of all GSD files.

The GSD files are then sorted on Manufacturer name and the information in the GSDs is available in the other features of Mercury.

11. Settings

Some of the Osiris settings can be changed manually instead of using the Setup Wizard. Click the Settings tile on the Dashboard, or use the Menu button and select 'Settings'. A window pops up with the following settings (each in their specific tab):

11.1 General tab

In the General settings features the following:
- The Device name: this is the hostname of device.
- Select your language: the interface language.
- The Network name, Network location, Technical contact name and Technical contact phone all show up in the Report

The generation of the report can be found in the application menu. The report feature allows you to generate a report with all relevant collected data of the network and general information:
- Osiris information
- Q-Factor
- Device List
- Ignored Devices
- Traffic Light
- Firmware Differences
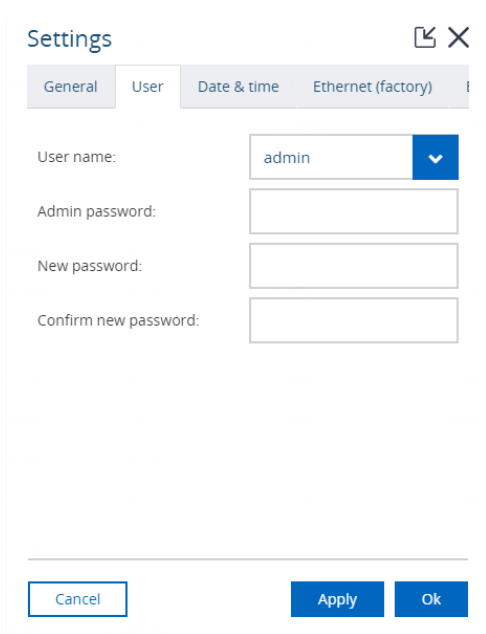
TAP Analysis

Before generating the Report you need to fill in some mandatory details (marked in red). These details will be shown in the Report.

Please note that the Report window is opened in a separate browser tab. Make sure your browser doesn't block opening new tabs. If you use a pop-up blocker, white-list the IP address of your Atlas.

- . The Network name also shows up on the dashboard.

11.2 User tab
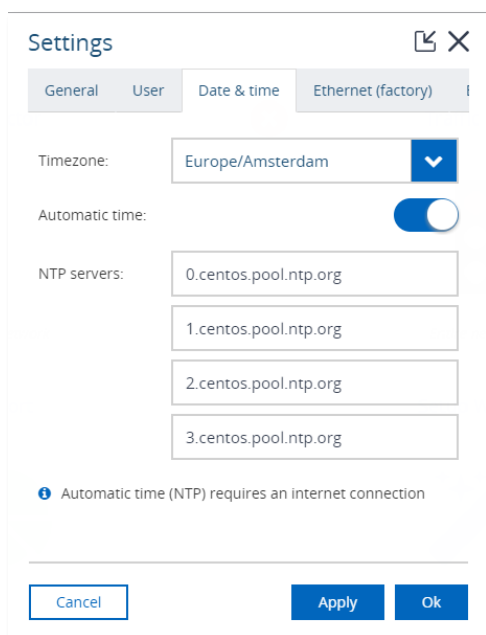
The User tab allows Administrators to assign new passwords to the three standard users (administrator, engineer, operator). Before assigning a new password the administrator first needs to enter his own current password, and subsequently the new password and a confirmation of the new password. More information can be found in paragraph 7.1.3.**Error! Reference source not found.**

11.3 Date & time

The Time zone selection field allows the user to select the time zone of the physical location.

When choosing automatic time, Osiris will try to connect to one of the given NTP servers which require internet connectivity. In case you have a local NTP server(s) then you can remove and replace these defaults servers.

In case you do not want to use automatic time, you can turn it off and manually set the time.

11.4 Ethernet (office) & Ethernet (factory) (Atlas only)

The Factory and Office interface can be configured manually or automatically using DHCP.

In case you configure the interface manually and you would like to make use of automatic time (via the internet) you should enter the Gateway and DNS servers. Make sure to only enter one Gateway; do not use gateways in both interfaces.

In case you are using a Mercury, the 'Office' interface is not available.

11.5 Network monitoring

On this tab you can specify up to ten IP address ranges of devices you would like to scan. Each scan range must be given a name. The order of scan ranges is irrelevant.

In case there are large gaps between devices on your network it is advised to separate a large scan range into smaller ranges to these gaps. This will speed up the scanning process.

The network monitoring is performed on the Factory network interface so it is important that the entire specified IP address ranges are reachable by Osiris through its Factory interface. To do this make sure your scan ranges falls within the subnet of the Factory interface.
If your IP/subnet configuration is not correct for the specified scan ranges, a notification pop-up will appear.

You can delete or edit a scan range by clicking it first and then click Delete or Edit respectively.

You can exclude devices which are not within the scan range from appearing in the Device list, Topology, Commissioning Wizard and EtherTAP by enabling the slider. These devices are typically PROFINET devices that respond to DCP broadcasts, even when they are outside the scan range.

11.6 SNMP Communities

The SNMP Community String is similar to a user ID or password that allows access to the statistics of a switch or device. If the correct community string is provided, the device responds with the requested information. If the community string is incorrect, the device will discard the request and does not respond. This results in missing information and a wrong Topology where devices are centered around a ❓ .

If the Community String in the switch(es) is not 'public', you can change it to another string here.

11.7 Email

Osiris allows you to be alerted by e-mail about changes in the following properties of your network and/or devices:
- Traffic light
- Devices which are slow to respond
- Devices which are lost
- Devices with InErrors
- Devices with InDiscards
- Devices which have lost ping packets

The e-mail settings tab allows you to specify an SMTPS (secure) or SMTP (not secure) server, login credentials and a list of recipients which will be used for the delivery of the alerts. The interval is the minimum number of minutes between two e-mail alerts.

Before you save your settings, you are advised to test them first by clicking the **Send test email** button. All the recipients will receive this test e-mail.

11.8 System
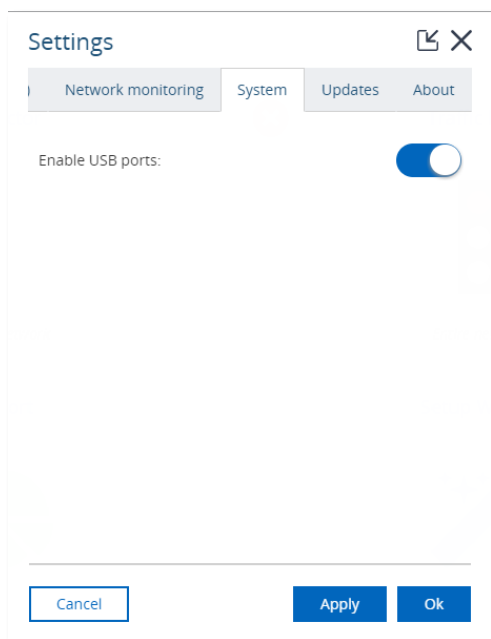
The System tab allows you to disable the USB ports for security reasons or company policy compliance.

Note: This tab is not available in the Mercury.

11.9 Updates
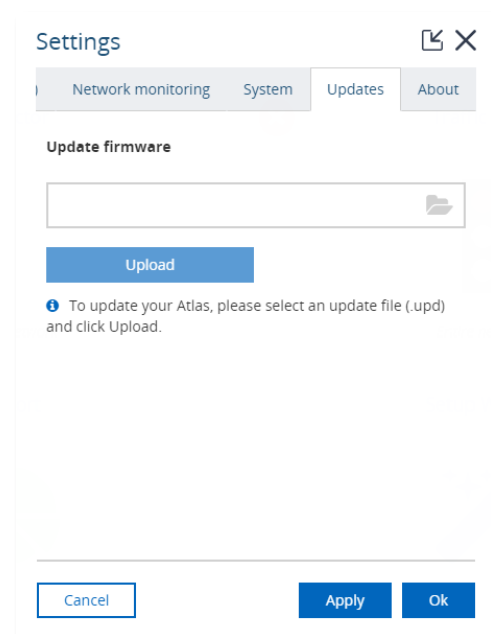
New firmware can be downloaded from the PROCENTEC website and uploaded in the Updates tab. More instructions about updating can be found in chapter 12.

11.10 About
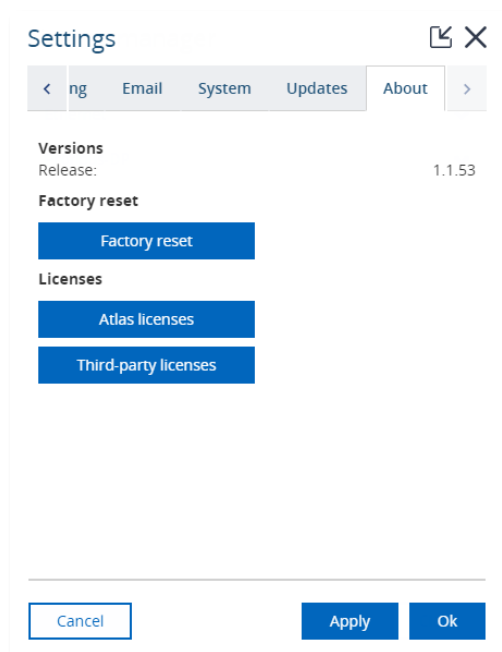
The About tab features the following:
- The current version
- Factory reset
- Licenses: an overview of the current licenses for specific features.
- Third-party licenses: a list of third party open source licenses.

11.11 License Manager

Features of the Osiris are license based. There is a license manager to see which features are enabled, or to upload a new license. The license manager can be reached via the 'Atlas/Mercury licenses' button within the about tab on the settings page. Another way of opening the license manager is to double click or drag down the dark blue bar on top. In the right upper corner there is an icon of a key which opens the license manager.
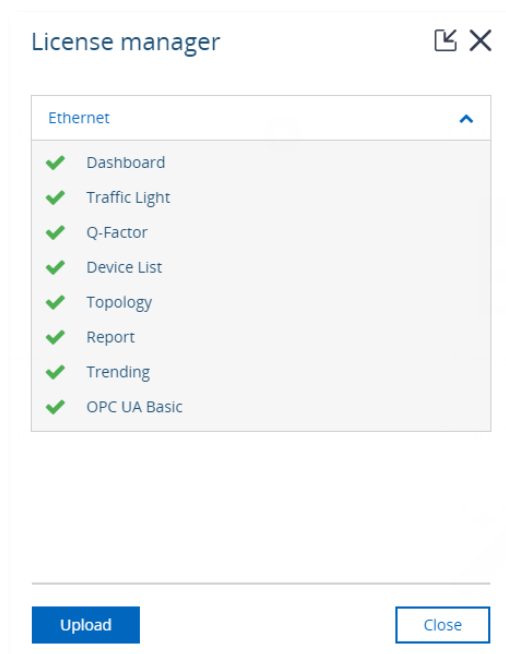
The upload license button will enable to select a new license file. During the upload of a new license file, the file is checked. If the file is not valid the old license will be restored and an error will be shown.

11.11.1 How to upload a new license file

Before you can upload a new license, please make sure you obtain one. To do this please get in contact with your local distributor where you purchased the device, and keep your serial number ready. The serial number can be found at the side of your Atlas, or check the "device name" of the "general" tab of the settings.

- Open the License manager, this can be done in two ways:
  - ○ Double click or drag down the dark blue top bar containing the time. Click on the key icon located at the right side.

  - ○ From within the settings screen go to the "About" (most right) tab. Click on the "Licenses" button
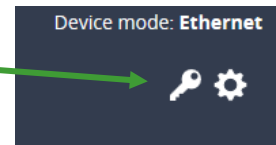
- Click the "Upload" button
- Click the folder icon
- Browse to and open your new license file
- Click the "Upload" button
- When you press the Upload button the system will check if your license is valid. If this check fails then please make sure you upload the license to the correct device (check the serial number). If this keeps failing, please contact PROCENTEC.
- When the correct license is uploaded you will be automatically logged out. After logging in again, your new license will take effect.
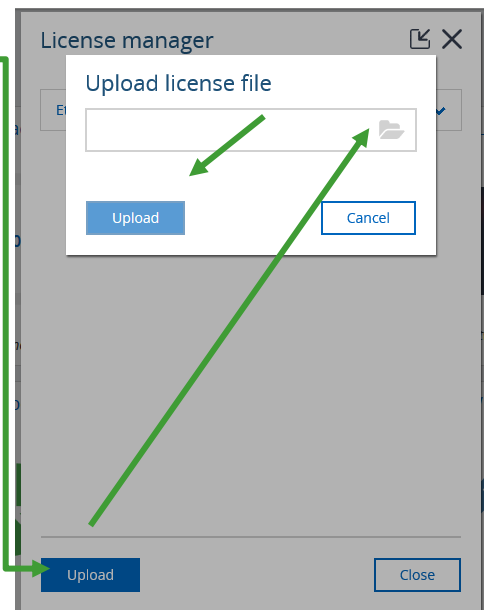
In the License manager you can now check which new features are enabled.

12. Updating the firmware

Osiris, the application running on Atlas/Mercury will be regularly updated by PROCENTEC. Such an update may include the addition of new valuable features for users, fixes for issues encountered in the field or updates to the underlying operating system.

Whenever an update becomes available it will be announced on the website of PROCENTEC and by means of our newsletter. PROCENTEC will provide details regarding the update and indicate whether or not the update is regarded as being a critical update.

Before reporting a bug, please update your Atlas/Mercury to the latest version and check if the problem is still happening.

To start with the update process its first important to see what the current version is and if it can be updated.

WARNING: IT IS IMPORTANT TO FOLLOW THE UPDATE PROCEDURE STEP BY STEP. A WRONG UPDATE PROCEDURE CAN LEAD TO A NON-FUNCTIONING DEVICE.

Administrators can update the firmware by uploading it using the Updates tab in the Settings. The process of updating the firmware is detailed in the following steps.

12.1 How to find your current version

To find the current Osiris version, check the login screen:

On the bottom of the screen you should see the name PROCENTEC. Underneath it you will find the current version number. You can ignore the fourth number.
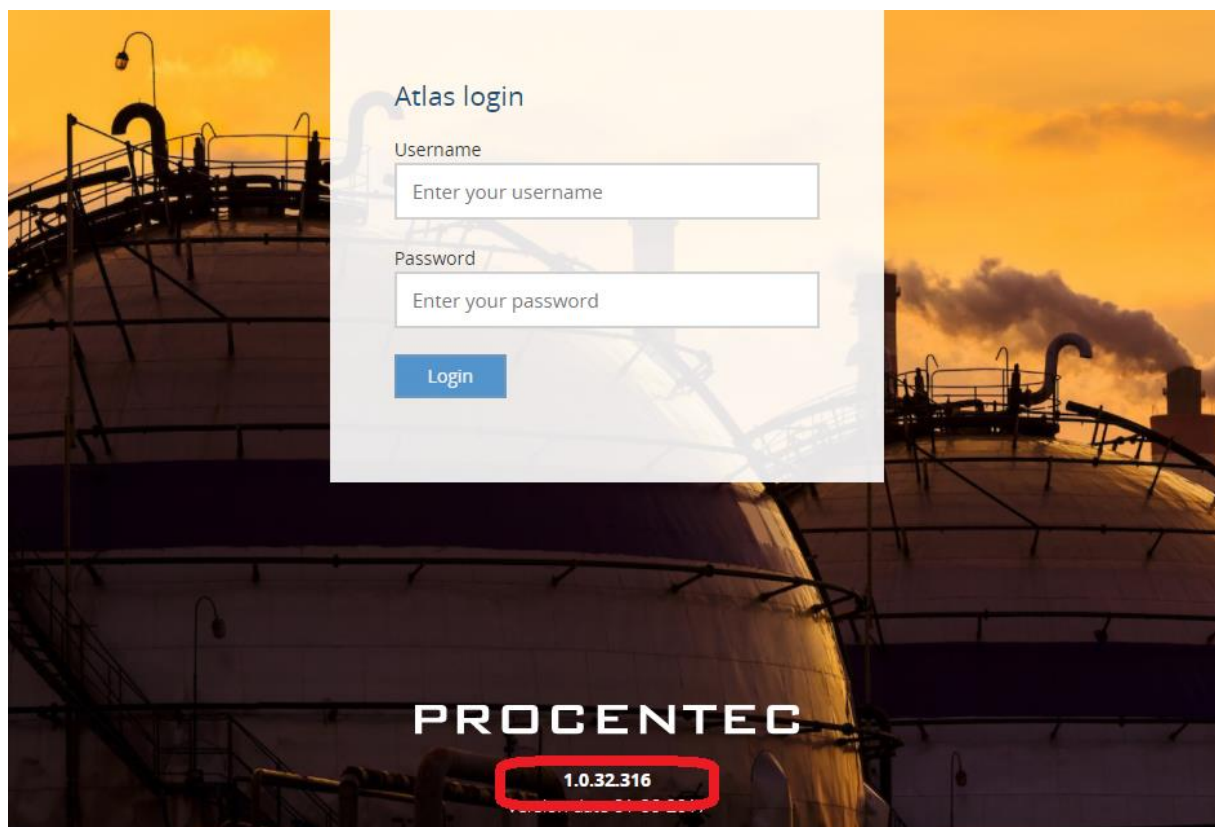
12.2 How to update

For Atlas version newer than 1.0.32, follow instructions at paragraph **Updating Atlas(> 1.0.32)**.
For Mercury, follow instructions at paragraph **Updating Mercury.**
For Atlas version 1.0.32: follow instructions at paragraph **Updating Atlas Version 1.0.32.**

12.3 Updating Atlas(> 1.0.32)

Update via web interface:
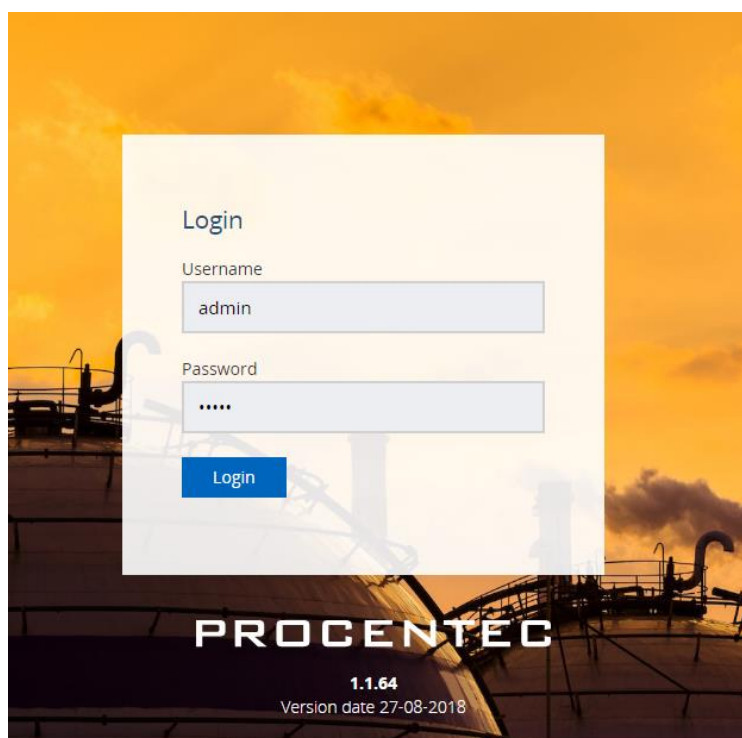
1. Log-in in Osiris with the Admin account (only admin can update the firmware).

2. Go to Setitngs > Updates
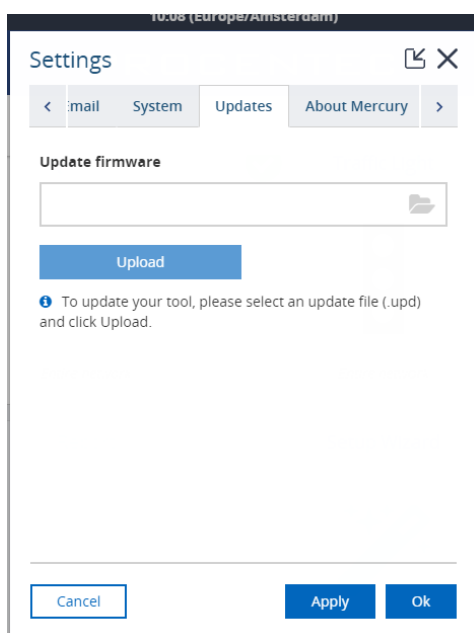
3. Select the update file .upd

   Atlas and Mercury updates have different .upd files, use the specific Atlas update file!

4. Press upload

5. Wait until the file is uploaded – this usually takes about 10 minutes. If it is still loading after an hour please try again.

6. When the update is loaded, a green message will appear, press OK
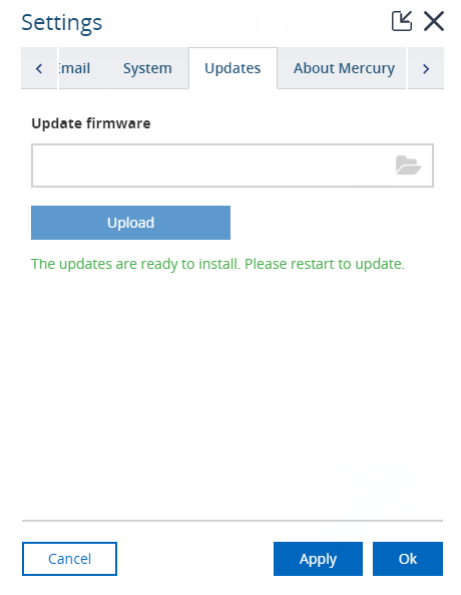
7. A reboot button on the system clock will appear. Click on **Restart to Update** and click on yes on the popup
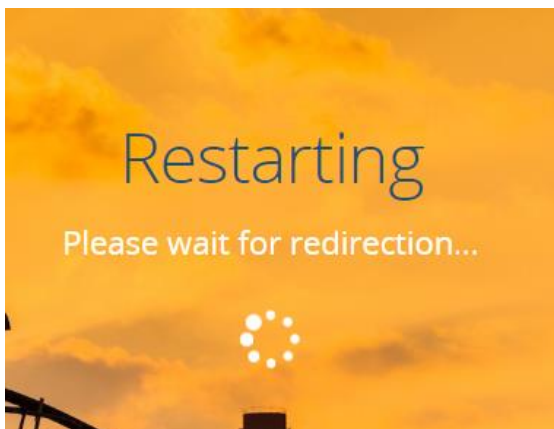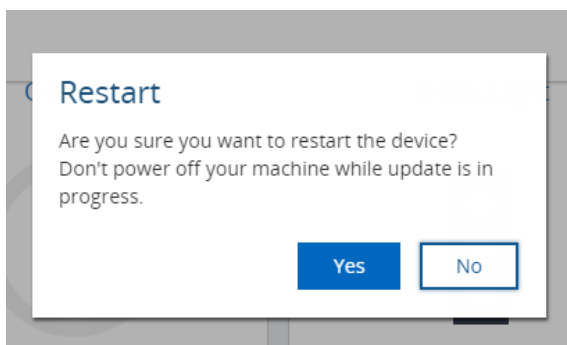
8. Wait until Osiris code is back online! This can take up to one hour, the entire OS and the software will be updated. **DO NOT POWER OFF THE ATLAS. POWERING OFF WILL DAMAGE THE UPDATE AND THE ATLAS.**

9. Once the update is done you will see the login page. Log in and go to settings, where you should see the newest version. If it still shows the previous version, try to refresh the page:
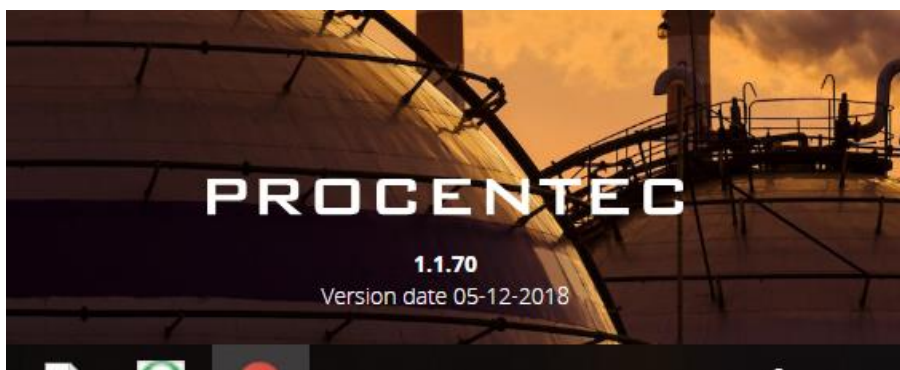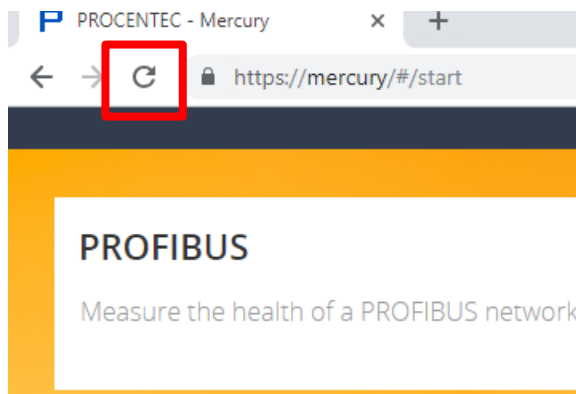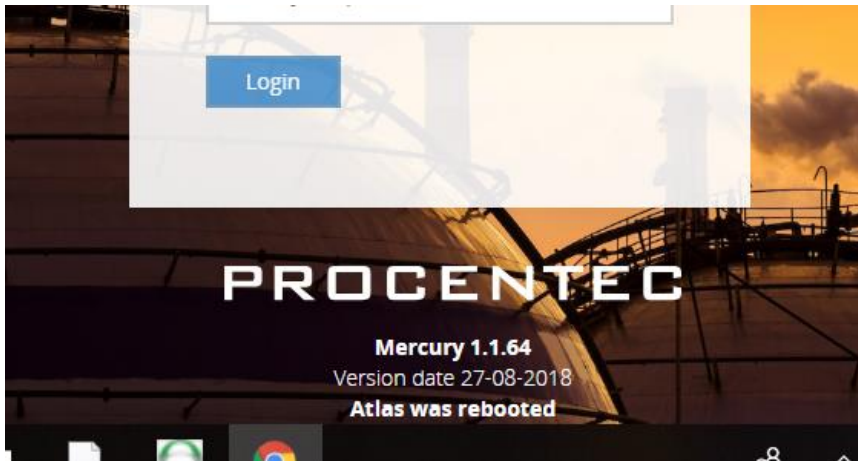
Your Atlas is now updated, enjoy the new functionalities!

12.4 Updating Mercury

For these versions of Mercury the update of the firmware is done via software.

Note: it is important to update the OsirisControl application before updating Osiris.

1. Download the latest firmware for Mercury from the PROCENTEC website.
   https://procentec.nl/service-support/software-firmware/
   Please note: the firmware update file for Mercury it is a different file than Atlas.
2. Connect Mercury to the power supply and turn it on
3. Make sure that the battery is fully charged and the sleep mode of Windows is completely disabled. If Windows is switched off or goes in sleep mode during update the entire device can be compromised.
4. Check that you don't have any pending Windows update. **Note: pending Windows updates can cause Osiris to not start.**
5. Launch the OsirisControl installer. A new version of OsirisControl will be installed on the Mercury.
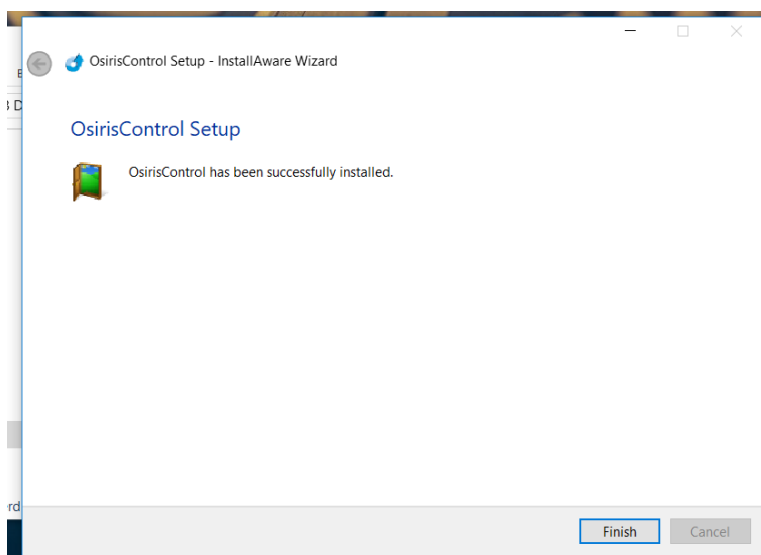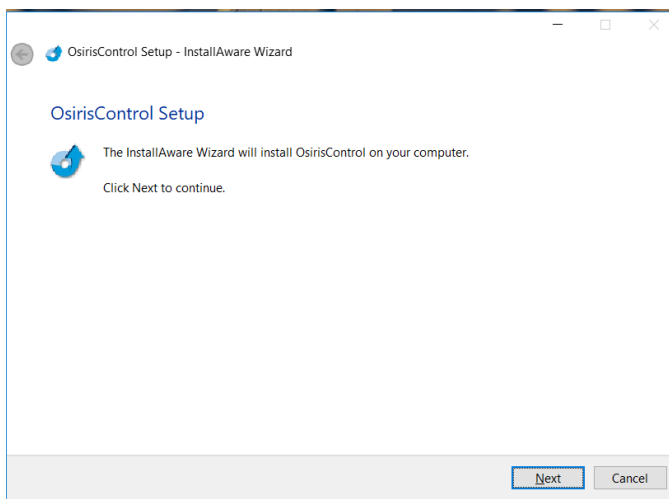
6. Launch OsirisControl, on the top left corner you should see V1.05 or higher.
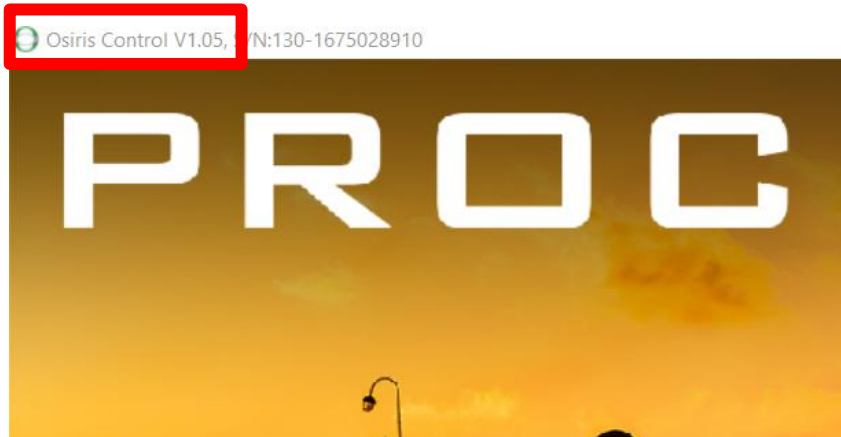
If you get a Timeout error then press retry and wait again.
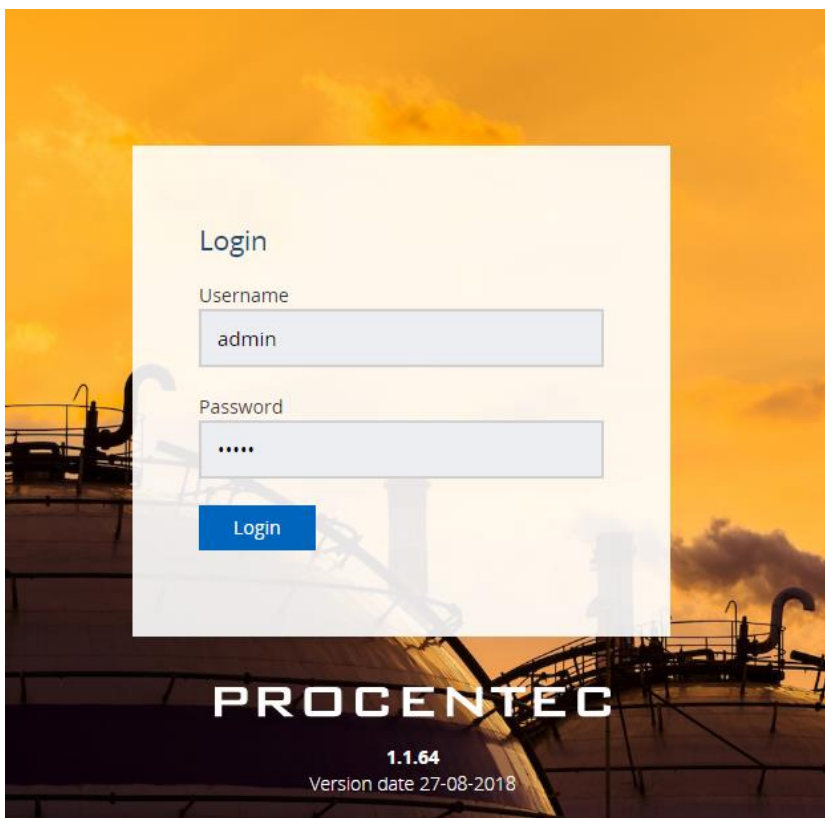
7. Log in in Osiris with the Admin account (only admin can update the firmware).

8. Go to Ethernet Measurement > Setitngs > Updates
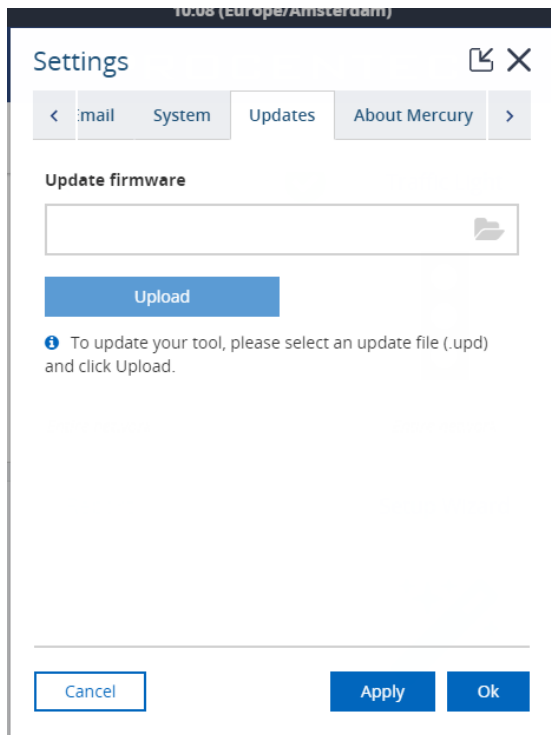
9. Select the update file .upd
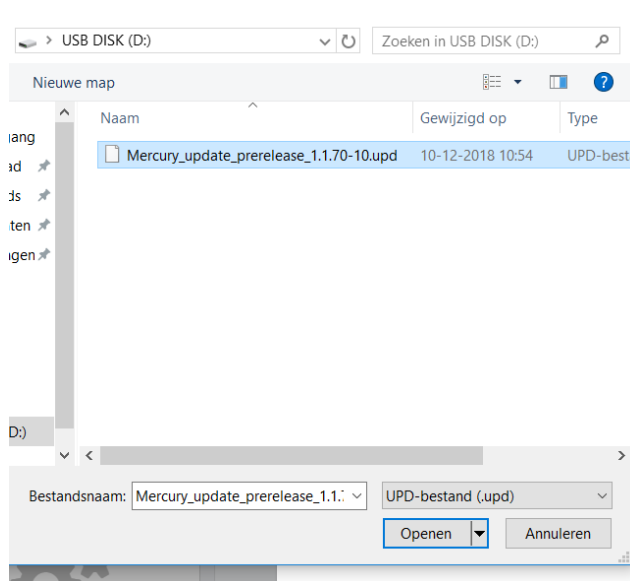
10. Press upload.

11. Wait until the file is uploaded – this usually takes about 10 minutes. If it is still loading after an hour please try again.

12. When the update is loaded, a green message will appear. Press OK.
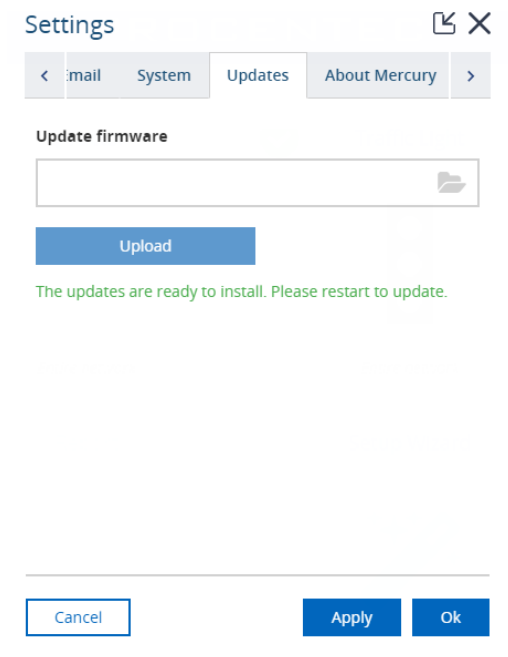
Settings

Email | System | **Updates** | About Mercury

Update firmware

[Upload]

The updates are ready to install. Please restart to update.

[Cancel]   [Apply]   [Ok]

13. A reboot button on the system clock will appear. Click on **Restart to Update** and click on yes on the popup.

Restart

Are you sure you want to restart the device?
Don't power off your machine while update is in progress.

[Yes]   [No]
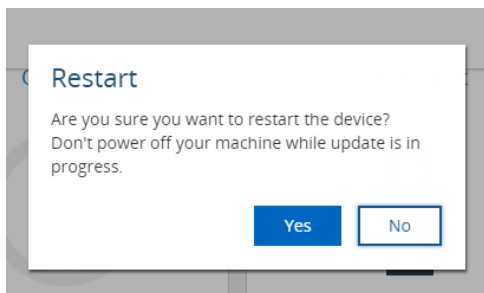
14. Wait until Osiris code is back online. This can take up to one hour, the entire OS and the software will be updated. **DO NOT STOP OSIRIS OR SHUT DOWN WINDOWS**.

Restarting

Please wait for redirection...

PROCENTEC

Mercury 1.1.64
Version date 27-08-2018
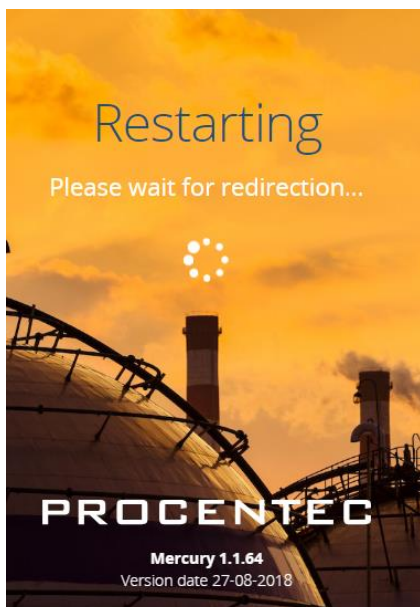
15. Once the update is done you will see the login page. Log in and go to settings, where you should see the newest version. If it still shows the previous version, try to refresh the page.
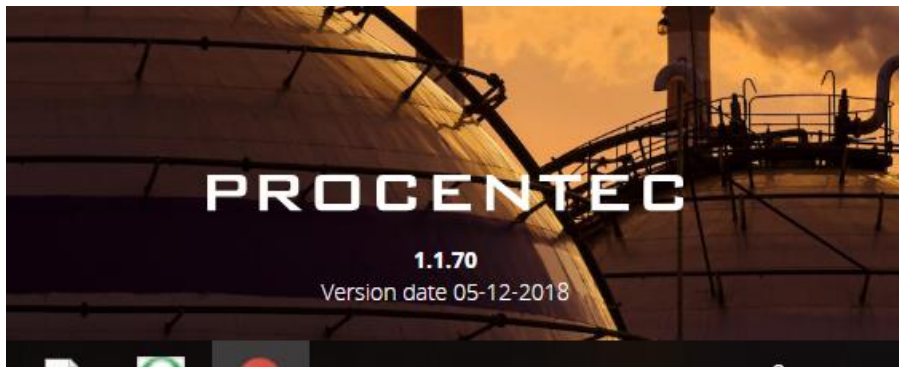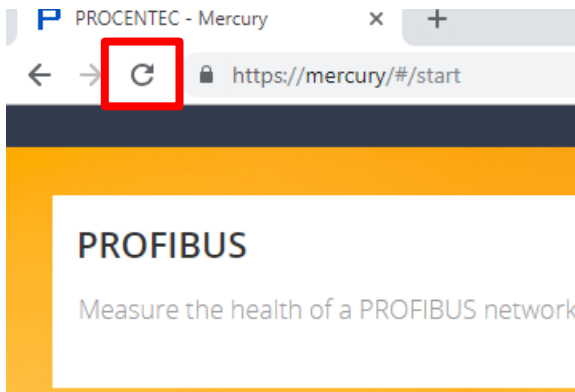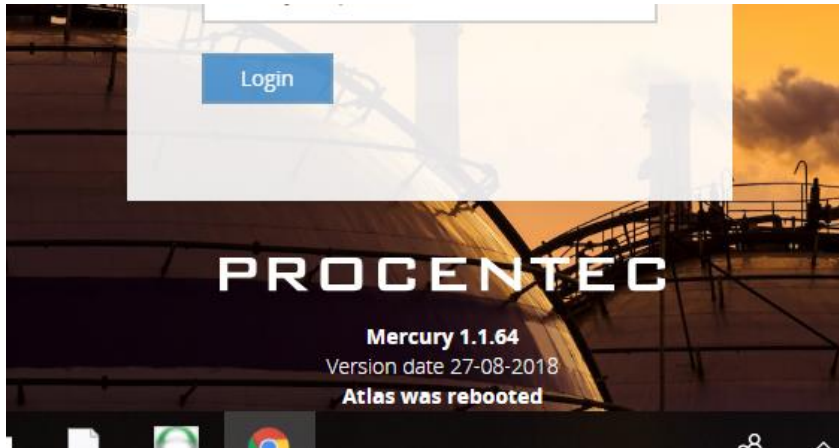
Your Mercury is now updated, enjoy the new functionalities!

12.5 Updating Atlas Version 1.0.32

For this version of Atlas the update of the firmware is only possible by means of a USB-stick. The process of updating the firmware is detailed in the following steps:
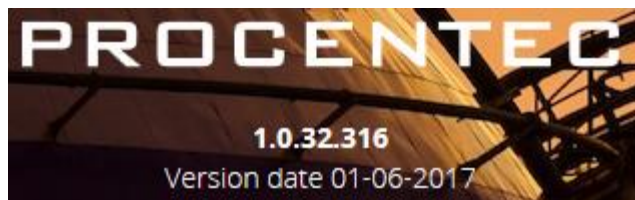
1. Download the latest firmware for Atlas from the PROCENTEC website.
   https://procentec.nl/service-support/software-firmware/

2. Copy the downloaded firmware package onto a USB-stick.
   Note: make sure the USB-stick is formatted according the FAT filesystem.

3. Insert the USB-stick into a USB port of Atlas.

4. Wait at least 20 seconds and then remove the USB-stick.

5. Wait 10 seconds and then insert the USB-stick again into the same USB port of Atlas as used at step 3.

6. Wait 3 minutes and then remove the USB-stick.

7. Log in as administrator, double click the top bar and then press the restart button.

8. Now wait until the RDY led turns on.
   !!! IT WILL TAKE ±60 MINUTES TO COMPLETE THE UPDATE PROCESS. DO NOT UNPLUG THE POWER SUPPLY DURING THE UPDATE PROCESS !!!

9. Check the version number again.
   Note: for version 1.0.35 it will show the number 1.0.34.417

13. Resetting Osiris to factory defaults

If Osiris becomes unreachable due to any reason, you can reset the device to factory settings.

Warning: this will reset all settings, clear all measurement data and will restore both the network interfaces to their initial IP address (Factory: 192.168.0.10; Office: 192.168.1.10)

Figure 30 - Factory reset button

13.1 On Atlas

The Atlas has a reset button at the front, as shown in Figure 30 . You can use a small object, such as an unfolded paperclip, to reach the button behind the small hole in the front. Press it for 10 seconds during operation and then release it. Do NOT press too hard; the button requires little pressure. After 10 seconds, the device will start a factory reset which will take approximately 2 minutes.

After the reset, it will reboot and be reachable on the default IP addresses again. You need to fill out the Setup Wizard before the Atlas can continue normal operation again. Until that time, the yellow traffic light and the green RDY LED will blink.

13.2 On Mercury

Osiris on Mercury can be reset to factory defaults. First, make sure the OsirisControl application is running. Then press the Windows logo button below the screen. This will bring up the Windows taskbar and system tray.

Click the UP arrow in the system tray once, then press on the Osiris icon for about 1 second. A small menu appears, then click 'Factory Reset'.
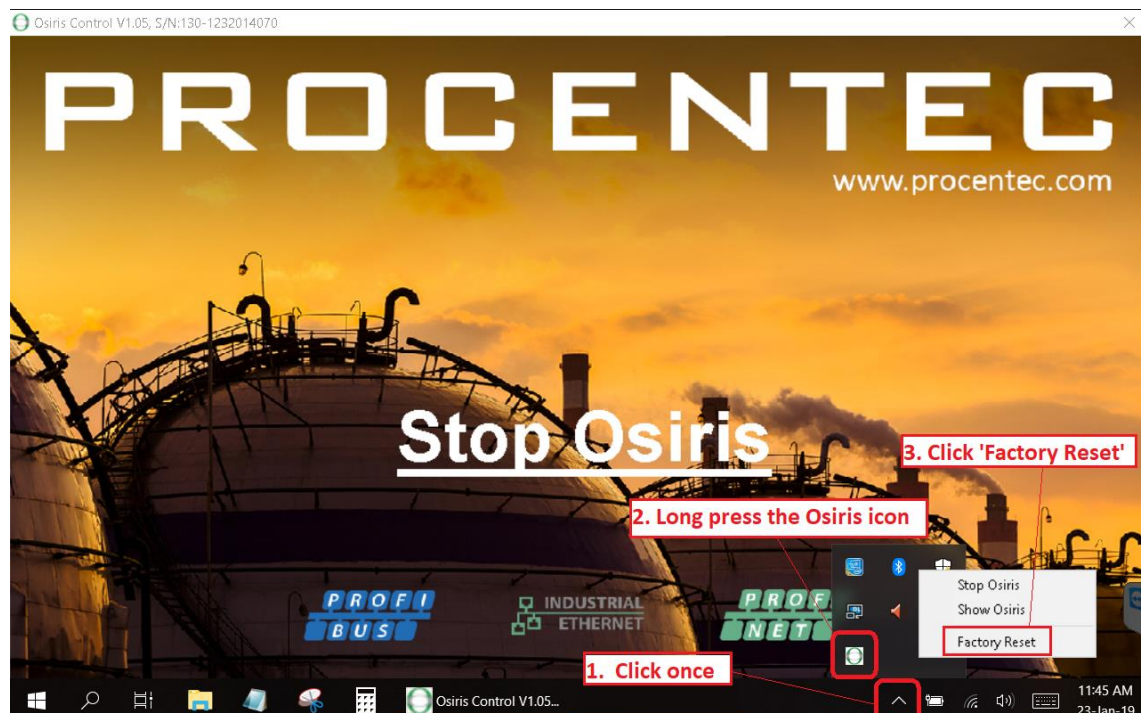
13.3 Using the Settings in the web interface

The other way to factory reset the device is through the web interface. Under the 'Settings' tile, go to the last tab 'About'. In this tab, you can find a button 'Factory reset'. Clicking this button will bring up a confirmation window, where you can confirm the factory reset. The device will start a reload procedure that will take approximately 2 minutes.
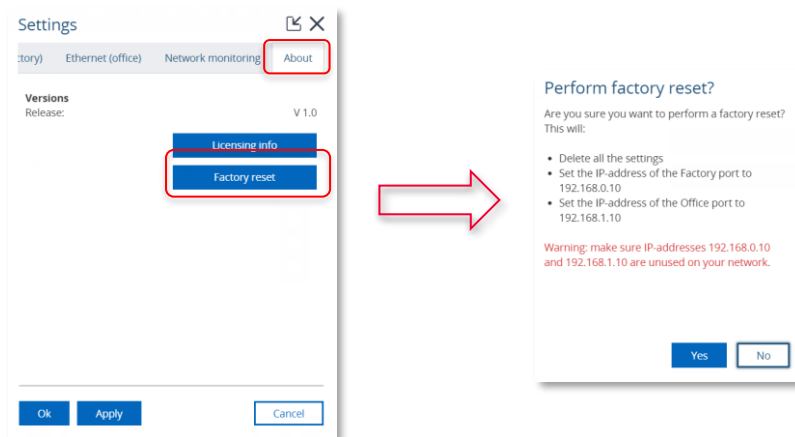
After the reset, it will reboot and be reachable on the default IP addresses again. You need to fill out the Setup Wizard before Osiris can continue normal operation again. Until that time, the yellow traffic light and the green RDY LED will blink on Atlas.

14. Firewall settings

Osiris uses the following network ports.

Port number/protocol	Description	Office interface (Atlas only)	Factory interface
80/TCP	HTTP	Used to redirect to HTTPS.	
137/UDP	NetBIOS	To report the hostname to Windows machines.	
161/UDP	SNMP	To report status information to external devices.	To collect topology data from the devices on the factory network.
443/TCP	HTTPS	Used for the web interface.	
502/TCP (OUT)	ModBus/TCP	Closed	Used to find devices supporting Modbus/TCP.
4840/TCP	OPC UA	Only used when the OPC UA service is started.	
5353/UDP	MDNS/Avahi	To report the hostname to Apple machines.	
34964/UDP (OUT)	PROFINET-I&M/RPC	Closed	Used to collect PROFINET specific information.
44819/UDP (OUT)	EtherNet/IP	Closed	Used to find devices supporting EtherNet/IP.

15. Technical specifications Atlas

Technical Data - Atlas in general	
Dimensions, weight and mounting	
Dimensions D x W x H (mm) **Weight** **DIN-rail**	120 x 65 x 120 (width without side cover: 58 mm) 680 grams 35 mm (minimal 65 mm wide)
Ambient conditions	
Operating temperature	-20º .. +60º Celsius ⚠ "WARNING, HOT HOUSING. When in use at an ambient temperature higher than 55ºC or 131ºF, the housing of the Atlas will be hot. Do not touch the housing!"
Storage temperature **Relative air humidity** **Ingress protection**	-20° .. +85° Celsius Maximum 98% IP 20 (DIN 40 050)
Power supply	
Pluggable power supply connector	Pin - : 0 V Pin + : +24 VDC Pin SH : Shield
Nominal power supply voltage **Absolute maximum rated voltage** **Nominal power use** **Maximum power use** **Current consumption (12VDC)** **Reverse polarity protection** **Redundant power supply** **Wire diameter**	12 .. 24 VDC 9 .. 32 VDC 4.5 W 20 W Max. 1.4A Yes No <2.5 mm^2 Installation notes: The device shall be powered with a correct power supply: • For North America the power supply shall be listed and meet the requirements for class 2 • For the rest of the world the power supply shall meet the requirements for limited power sources as defined in IEC/EN 60950-1 cl. 2.5 Possible power supplies: Phoenix STEP-PS series Traco power TCL series XP-power DNR120-480 series
Ethernet	
Connector (Factory and Office) **Maximum cable length** **Link speed** **MAC address** **Supported protocols** **Protocols used**	RJ-45 100 m 10/100/1000 Mbps Range: 9C:B2:06:2B:40:00 - 9C:B2:06:2D:3F:FF OPC UA, PROFINET (detect only), PROFINET I&M0, Modbus TCP (detect only), Ethernet/IP (detect only) ARP, ICMP, DCP, SNMP, PROFINET I&M0

Default IP address after reset/purchase	Factory: 192.168.0.10
	Office: 192.168.1.10
Default login / password	admin / admin
Connections	Up to 20 concurrent web clients

Relay contact	
Resistance	100 .. 150 mΩ (including plug)
UL maximum contact rating	max. 10W
	24VDC, 400mA

SD card	
Supported types	SD and SDHC
Size	Maximum 32 GB

USB ports	
Type	USB 2.0
Maximum output power	500 mA per port

Others	
MTBF	To be defined

16. Technical specifications Mercury

Technical Data - Mercury in general	
Mobile Computing Platform	
Manufacturer, type	Panasonic FZ-M1
Processor	Intel® Core™ i5-7Y57 vPro™ processor
Operating System	Windows 10 Pro
RAM	4 GB (Max. 8 GB)
Graphic Chip	Intel® HD Graphics 615
Camera	Front: 2 MPixel
	Rear: 8 Mpixel with autofocus and LED flash
Storage	128 GB Solid State Drive (Serial ATA)
LCD	7" sunlight-viewable WXGA Active Matrix (TFT) IPS LCD
Touchscreen	10 finger capacitive multi-touchscreen
Bluetooth	Version 4.1 + EDR Class 1
WLAN	Intel® Dual Band Wireless-AC 8265
USB ports	USB 3.0 (1x)
	USB 2.0 (1x)
Expansion slot	Micro SD/SDXC Memory Card
Dimensions, weight and mounting	
Dimensions D x W x H (mm)	203 x 18 x 132 mm
Weight	540 grams
DIN-rail	No, handheld (handstrap and stylus supplied)
Ambient conditions	
Operating temperature	-29º .. +60º Celsius
Storage temperature	‐51° .. +71° Celsius
Relative air humidity	Maximum 98%
Ingress protection	IP 65 (MIL STD 810G and IEC 60529)
Gravity drop resistance test	180 cm
Power supply	
Power supply	Supplied in box. Rated IP 20
Input	100 – 240 VAC
	1.5 A – 0.8 A
Output	16 VDC
	3.75 A
	3.76
Plug	Middle = +
	Outer ring = -
Battery	Lithium-Ion (7.2 V, 3220 mAh)
Ethernet	
Connector	RJ-45
Maximum cable length	100 m
Link speed	10/100/1000 Mbps

Supported protocols	OPC UA, PROFINET (detect only), PROFINET I&M0, Modbus TCP (detect only), Ethernet/IP (detect only)
Protocols used	ARP, ICMP, DCP, SNMP, PROFINET I&M0
Default IP address after reset/purchase	Factory: 192.168.0.10
Default login / password	admin / admin

17. Order codes

Component	Order code	Remarks
Atlas	101-800110	Atlas main unit including mounting materials
ATLAS: PROFINET Permanent Monitoring Kit 100	101-800210	1 x Atlas (101-800110), 1 x EtherTAP: PROFINET Analysis License, (101-700204) , 1 x EtherTAP 10/100 (513-00011A), 1 x TAP Din Rail Mount (UTA 107)
Mercury IE Reliability Solution FZ-M1	101-820220	Panasonic ToughPAD FZ-M1 with Intel Core 5 Processor 4GB of RAM - 128GB SSD, Wifi ONLY, Bluetooth, 1x USB 3.0, 1 X USB 2.0, 1 X RJ45 LAN Port, 1 X SD Card, Front & Rear Camera with stylus pen & standard. Windows 10. Handstrap- 3 year warranty including 5 day pick up and return repair service. WITH OSIRIS STANDARD LICENSE (101-700100)
Mercury IE Reliability Solution FZ-M1	101-821220	PROCENTEC Mercury Standard Kit Includes 1 x Mercury Rugged Tablet (101-820220) , 1 x 360 degree strap (101-820221) , 1 x Carrying Case (101-820222) , 1 x RJ45 to RJ45 3 Meter Cable (123-637GRR3) , 1 x RJ45 to M12 3 Meter Cable (123-642EMR3) , 1 x PROFICORE USB Cable (60010003) OSIRIS Software Standard Package (101-700100) pre-installed and tested.
Mercury IE Reliability Solution FZ-M1	101-822220	PROCENTEC Mercury Plus Kit Includes 1 x Mercury Rugged Tablet (101-820220) , 1 x 360 degree strap (101-820221) , 1 x Carrying Case (101-820222) , 1 x RJ45 to RJ45 3 Meter Cable (123-637GRR3) , 1 x RJ45 to M12 3 Meter Cable (123-642EMR3) , 1 x PROFICORE USB Cable (60010003), 1 X ProfiCore Ultra 2 (10020), 1 X ProfiCore TAP Connectors (13020)

		OSIRIS Software Standard Package (101-700100) pre-installed and tested.
Mercury IE Reliability Solution FZ-M1	101-823220	PROCENTEC Mercury PRO Kit Includes 1 x Mercury Rugged Tablet (101-820220) , 1 x 360 degree strap (101-820221) , 1 x Carrying Case (101-820222) , 1 x RJ45 to RJ45 3 Meter Cable (123-637GRR3) , 1 x RJ45 to M12 3 Meter Cable (123-642EMR3) , 1 x PROFICORE USB Cable (60010003), 1 X ProfiCore Ultra 2 (10020), 1 X ProfiCore TAP Connectors (13020), 1 X ProfiTrace 2 Software (22020), 1 x ProfiTrace SCOPE ware (23010), 1 X ProfiCaptain (22020), 1 x Netilities (39020) OSIRIS Software Standard Package (101-700100) pre-installed and tested.
Mercury: PROFINET Troubleshooting Kit 100	101-824220	1 x Mercury (101-800110), 1 x PN Commissioning Wizard (101-700201), 1 x EtherTAP: PROFINET Analysis License (101-700204) , 1 x EtherTAP 10/100 (513-00011A), 1 x Netilities (39020), 1 x TAP Din Rail Mount (uta 107), 1 x RJ45 to RJ45 3 meter Cable (123-637GRR3), 1 x RJ45 to M12 3 meter Cable (123-642EMR3), 1 x 360 degree hand strap (101-820221), 1 x Carrying Case (101- 820222), 1 x Osiris Software (101-700100) OSIRIS Software Standard Package (101-700100) pre-installed and tested.
Accessories	**Order code**	**Remarks**
Mercury: Optional Panasonic DC Car Charger 12V-32V / 80W	101-820321	Mercury Optional DC powered Car Charing unit for Panasonic Tough PAD 12V-32V/80W
Mercury: Optional Desktop Cradle: Full Version	101-820322	Mercury Optional Desktop Cradle Full Version with: 2 x USB 2.0, 1 x VGA, 1 x HDMI, 1 x LAN RJ45, 1 x Serial

Mercury: Optional Desktop Cradle: Lite Version	101-820323	Mercury Optional Desktop Cradle Lite Version with: 2 x USB 2.0 & 1 x LAN RJ45
Mercury: Optional 4 Bay Battery Charger	101-820324	Mercury Optional 4-Bay Battery Charger (ac adapter is not included. CF-AA5713AG or CF-AA6502A2 is required)
Mercury: Optional EU Plug: AC Charger 220V	101-820325	Mercury Optional Cable for AC Charger that has 220V EU Plug
Mercury: Optional 2-Cell Li-ION Battery	101-820326	Mercury Opional Cell Li-ION Battery for FZ-M1
Mercury: Optional Capacative Stylus PEN FZ-M1	101-820327	Mercur Optional Capacaive stylus pen for FZ-M1
Mercury: Optional Cleaning Cloths	101-820328	Mercury Optiona Cloths (tissue) to clean Touchscreen MOQ
Mercury: Optional Protective Screen Films	101-820329	Mercury Optional Protective Film for FZ-M1
Mercury: Power Plug: Australian	101-820330	Mercury Optional replacement power plug: Australian
Mercury: Power Plug: China	101-820331	Mercury Optional replacement power plug: China
Mercury: Power Plug: India/South Africa	101-820332	Mercury Optional replacement power plug: India/South Africa
Mercury: Power Plug: Brazil	101-820333	Mercury Optional replacement power plug: Brazil
Mercury: Power Plug: Italian	101-820334	Mercury Optional replacement power plug: Italian
Mercury: Power Plug: U.K.	101-820335	Mercury Optional replacement power plug: U.K

Mercury: Power Plug: US	101-820336	Mercury Optional replacement power plug: US

18. Certificates

QualityMasters
Certificering

QualityMasters hereby declares that

Procentec B.V.
Wateringen

has a management system that meets the requirements of the standard
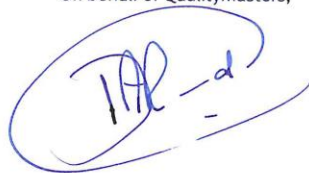
NEN-EN-ISO 9001:2015

for the scope

Providing training courses, technical support, product development, product sales and the exploitation of the test laboratory.

Date of original approval	10-02-2003
Date of issue	14-12-2018
Valid until	10-02-2022
Certificate number	NL 6957-uk

On behalf of QualityMasters,

N.B. The failure to meet the conditions as set forth in the certification agreement, or non-compliance with the given standard and/or guidelines, may lead to the suspension or cancellation of the certificate.
This certificate remains the property of QualityMasters Certificering B.V., Nieuwland Parc 157, 3351 LJ Papendrecht.

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COMMISSIE WAARBORGING ONPARTIJDIGHEID
573324

Iso9001 certificate

19. Sales offices and distributors

HEADQUARTERS

PROCENTEC
Klopperman 16
2292 JD WATERINGEN
Netherlands

T: +31 (0)174 671 800
F: +31 (0)174 671 801
E: info@procentec.com
W: www.procentec.com

ARGENTINA

eFALCOM
Alcorta 2411
B1744 - Moreno
Buenos Aires
Argentina

T: +54 237 46 31 151
F: +54 237 46 31 150
E: santiago.falcomer@efalcom.com
W: www.efalcom.com

AUSTRIA

RELISTE
Enzersdorfer Straße 8-10
A-2345 Brunn am Gebirge
Austria

T: +43 2236 315 25-25
F: +43 2236 315 25-60
E: office@reliste.at
W: www.relise.at

AUSTRALIA

IS Systems Pty Limited
14 Laverick Ave.,
Tomago
NSW, Australia, 2322

T: +61 2 4964 8548
F: +61 2 4964 8877
E: fritz.woller@issystems.com.au
W: www.issystems.com.au

Pentair Flow Control Pacific
1 Percival Road
Smithfield
NSW, Australia, 2164

T: +61 2 4448 0466
F: +61 2 4423 3232
E: sharee.hazell@pentair.com.au
W: www.PROFIBUScentre.com.au

BELGIUM and LUXEMBOURG

Bintz Technics N.V.
Brixtonlaan 23
B-1930 Zaventem
Belgium

T: +32 2 720 49 16
F: +32 2 720 37 50
E: bloemen@bintz.be
W: www.bintz.be

BRAZIL

Westcon Instrument. Indl Ltda
Rual Alvaro Rodrigues, 257
São Paulo – SP
Brazil - CEP 04582-000

T: +55 11 5561-7488
F: +55 11 5093-2592
E: paolo@wii.com.br
W: www.wii.com.br

CANADA

Streamline Process Management Inc.
#3, 4351 – 104 Ave SE
Calgary, Alberta T2C 5C6
Canada

T: +1 403 225 1986
F: +1 587 585 2828
E: admin@streamlinepm.com
W: www.streamlinepm.com

CHILE

RP Ingenieria Limitada
Tucapel 92 oficina 52
Concepción
Chile

T: +56 41 246 93 50
F: +56 41 252 25 92
E: rodrigopinto@rpingenieria.cl
W: www.rpingenieria.cl

CHINA

PROCENTEC Beijing
Room E-1115 WangJingYuan YouLeHui
ChaoYang
Beijing
China

T: +86 (10)847 669 11 / +86 (10) 847 873 11
F: +86 (10)847 667 22
E: info@procentec.net
W: www.procentec.net

CZECH REPUBLIC

FOXON s.r.o.
Polní 367
460 01 Liberec 12
Czech Republic

T: +420 484 845 555
F: +420 484 845 556
E: foxon@foxon.cz
W: www.foxon.cz

DENMARK

ProSaiCon
Jernbanegade 23B
DK 4000 Roskilde
Denmark

T: +45 70 20 52 01
F: +45 70 20 52 02
E: hfj@prosaicon.dk
W: www.prosaicon.dk

EGYPT

Mas Trading
37, 105 Street
Al-Etihad Square
Egypt

T: +2 02 2524 2842
F: +2 02 2524 2843
E: aya.elshafei@masautomation.com
W: www.masautomation.com

ESTONIA

Saksa Automaatika OU
Peterburi Tee 49
Tailinn
EE-11415 Estonia

T: +372 605 2526
F: +372 605 2524
E: info@saksa-automaatika.ee
W: www.saksa-automaatika.ee

FINLAND

Hantekno Oy
Kalliotie 2
04360 Tuusula
Finland

T: +358 40 8222 014
E: info@hantekno.com
W: www.hantekno.fi

FRANCE

AGILiCOM
Bâtiment B
1, rue de la Briaudière
Z.A. La Châtaigneraie
37510 BALLAN-MIRE
France

T: +33 247 76 10 20
F: +33 247 37 95 54
E: jy.bois@agilicom.fr
W: www.agilicom.fr

GERMANY

PROCENTEC GmbH
Benzstrasse 15
D-76185 Karlsruhe
Germany

T: +49 721 831 663-0
F: +49 721 831 663-29
E: info@procentec.de
W: www.procentec.de

INDIA

UL Engineering Services & Software Pvt Ltd
Nirman Classic,
Katraj-Kondhwa Road,
Katraj, Pune-411046
India

T: +91 202 696 0050
F: +91 202 696 2079
E: dileep.miskin@ulepl.com
W: www.ulepl.com

Automation Combine
B.R. House 4th Floor,
Hennur Main Road
Bangalore 560043
India

T: +98 452 84 550 / +98 452 030 47
F: +93 421 375 34 / +93 425 002 90
E: info@automationcombine.com
W: www.automationcombine.in

IRELAND

PROFIBUS Ireland
Automation Research Centre
University of Limerick
National Technology Park, Plassey
Limerick
Ireland

T: +353 61 202 107 or +353 61 240 240
F: +353 61 202 582
E: info@PROFIBUS.ie
W: www.PROFIBUS.ie

ISRAEL

Instrumetrics Industrial Control
8 Hamlacha St.
New Industrial Zone
Netanya, 42170
Israel

T: +972 9 835 70 90
F: +972 9 835 06 19
E: info@instrumetrics-ic.co.il
W: www.inst-ic.co.il

ITALY

PROCENTEC Italy
Via Branze n. 43/45
25123 Brescia
Italy

T: +39 030 200 8610
F: +39 030 238 0059
E: www.procentec.it
W: www.procentec.it

JAPAN

TJ Group
C/O Japanese PROFIBUS Organisation
West World Building 4F
3-1-6 Higashi-Gotanda,
Shinagawa-ku,
Tokyo, 141-0022
Japan

T: +81 3 6450 3739
F: +81 3 6450 3739
E: info@PROFIBUS.jp

KOREA

Hi-PRO Tech. Co., Ltd.
#2802, U-Tower, 1029
Youngduk-dong, Giheung-gu
Yongin-Si, Kyunggi-do,
446-908 Korea

T: +82 82 31 216 2640
F: +82 82 31 216 2644
E: chays@hiprotech.co.kr
W: www.PROFIBUS.co.kr

LEBANON

Industrial Technologies S.A.L. (ITEC)
Point Center, Boulevard Fouad Chehab
Sin El Fil
Beirut
Lebanon

T: +961 1 491161
F: +961 1 491162
E: sales@iteclb.com
W: www.iteclb.com

MEXICO

Grid Connect Inc.

T: +1 530 219 2565 (Spanish)
E: tomf@gridconnect.com
W: www.gridconnect.com

NETHERLANDS

PROCENTEC B.V.
Klopperman 16
2292 JD Wateringen
Netherlands

T: +31 (0)174 671 800
F: +31 (0)174 671 801
E: info@procentec.com
W: www.procentec.com

NORWAY

Nortelco Automation AS
Johan Scharffenbergs vei 95
N-0694 Oslo
Norway

T: +47 22 57 61 00
E: post@nortelcoautomation.no
I: www.nortelcoautomation.no

PERU

ControlWare
Jr. Los Silicios 5409
Los Olivos - L39
Peru

T: +51 163 737 35
F: +51 152 804 54
E: info@controlware.com.pe
W: www.controlware.com.pe

POLAND

INTEX Sp. z o.o.
ul. Portowa 4
44-102 Gliwice
Poland

T: +48 32 230 75 16
F: +48 32 230 75 17
E: intex@intex.com.pl
W: www.intex.com.pl

PORTUGAL

IndustrialSys
Rua Alexandre Herculano 25
Mangualde, 3530-144
Portugal

T: +351 96 716 16 05
E: info@industrialsys.pt
W: www.industrialsys.pt

ROMANIA

S.C. SVT Electronics S.R.L.
Brăila 7
540331 Tg-Mure
Romania

T: + 40 744 383 666
F: +40 365 809 305
E: sajgo.tibor@svt.ro
W: www.svt.ro

SAUDI ARABIA

ASM Process Automation
Al-Zahra Dist. – Attas st.
cross section with helmy Kutby St.
Villa no.25
Jeddah-21553
Saudi Arabia

T: +966 2 691 27 41
F: +966 2 682 89 43
E: info@asmestablishment.com
W: www.asmestablishment.com

SINGAPORE / SOUTH EAST ASIA

Allegro Electronics
236 Serangoon Avenue 3 07-98
Singapore 550236

T: +65 628 780 63
E: sales@allegro.com.sg
W: www.allegro.com.sg

SLOVAKIA

ControlSystem s.r.o.
Stúrova 4
977 01 BREZNO
Slovakia

T: +421 486 115 900
F: +421 486 111 891
E: jan.snopko@controlsystem.sk
W: www.controlsystem.sk

SOUTH AFRICA

IDX ONLINE CC
1 Weaver Street
Fourways
Johannesburg
South Africa - 2191

T: +27 (11) 548 9960
F: +27 (11) 465 8890
E: sales@idxonline.com
W: www.idxonline.com

SPAIN

LOGITEK, S.A
Ctra. de Sant Cugat, 63 Esc. B Planta 1ª
Rubí (BARCELONA), 08191
Spain

T: +34 93 588 67 67
E: xavier.cardena@logitek.es
W: www.logitek.es

SWEDEN

P&L Nordic AB
Box 252
S-281 23 Hässleholm
Sweden

T: +46 451 74 44 00
E: hans.maunsbach@pol.se
W: www.pol.se/PROFIBUS

SWITZERLAND

Berner Fachhochschule
PROFIBUS Kompetenzzentrum
Jlcoweg 1
CH-3400 Burgdorf
Switzerland

T: +41 (0) 34 426 68 32
F: +41 (0) 34 426 68 13
E: max.felser@bfh.ch
W: www.profitrace.ch

TAIWAN

Full Data Technology
6F., No.200, Gangqian Rd.
Neihu District, Taipei City
114, Taiwan

T: +886 2 8751 99 41/90 97
F: +886 2 8751 95 33
E: sales@fulldata.com.tw
W: www.fulldata.com.tw

TURKEY

Emikon Otomasyon
DES Sanayi sitesi 103 sokak
B-7 blok No:16 Yukari Dudullu / Umraniye
Istanbul 34776
Turkey

T: +90 216 420 83 47
F: +90 216 420 83 48
E: tolgaturunz@emikonotomasyon.com
W: www.emikonotomasyon.com

UNITED ARAB EMIRATES

Synergy Controls
907, IT Plaza Silicon Oasis :
Dubail
United Arab Emirates

T: +971 4 326 26 92
F: +971 4 326 26 93
E: sales@synergycontrols.ae

UNITED KINGDOM and N. Ireland

Verwer Training & Consultancy
5 Barclay Road
Poynton, Stockport
Cheshire SK12 1YY
United Kingdom

T: +44 (0)1625 871 199
E: andy@verwertraining.com
I: www.verwertraining.com

Hi-Port Controls
The Hub 2 Martin Close
Lee-on-Solent
Hampshire PO13 8LG
United Kingdom

T: +44 (0)8452 902 030
F: +44 (0)2392 552 880
E: sales@hiport.co.uk
W: www.hiport.co.uk

iTech
Unit 1
Dukes Road
Troon
Ayrshire KA10 6QR
United Kingdom

T: +44 (0)1292 311 613
F: +44 (0)1292 311 578
E: sales@itech-troon.co.uk
W: www.itech-troon.co.uk

Parkelect Ltd.
84 Dargan Road
Belfast
BT3 9JU
N. Ireland

T: +44 2890 777 743
F: +44 2890 777 794
E: jgillan@parkelect.co.uk
W: www.parkelect.co.uk

UNITED STATES

Grid Connect Inc.
1630 W. Diehl Road
Naperville, Illinois 60563
USA

T: +1 630 245 14 45
F: +1 630 245 17 17
E: sales@gridconnect.com
W: www.gridconnect.com/procentec.html

VIETNAM

Bavitech Corporation
42 Truong Son Street
Ward 2, Tan Binh District
Ho Chi Minh City
Vietnam

T: +84-8-3547 09 76
F: +84-8-3547 09 77
E: hai.hoang@bavitech.com
W: www.bavitech.com

For the complete list of our Sales Offices and Distributors see www.procentec.com/company/distributors.

If your country or region is not listed, please contact us. We are still searching for distributors who can cover complete areas or countries.

20. About PROCENTEC

PROCENTEC is a specialist in PROFIBUS and PROFINET technology and develops products to optimize the production processes of end users. Our innovative solutions ensure that our customers successfully operate in the world of industrial automation and enjoy maximum results from their process.

PROCENTEC globally supplies all the components required to install a measurable and steerable network. We develop and produce all products in the Netherlands and they are exported through our worldwide distribution network. At PROCENTEC, we have a professional team of qualified support engineers who provide technical support on-site and online. Our professionals have more than 20 years of experience with PROFIBUS and PROFINET technology. They provide the necessary support to end users during implementation procedures, certification processes, audits and malfunctions. PROCENTEC also is an international accredited Competence and Training center for PROFIBUS and PROFINET. We provide training courses that help employees using those techniques optimally for their business objectives

Products

- Atlas and Mercury
- ComBricks
- ProfiHub
- ProfiTrace
- VPSwitch
- VPGate
- PROFINET tools
- Cables & Connectors

Services

- On-site & Online Support
- Network Audit
- Network Certification
- Consultancy
- Testlab & Democenter
- Competence Center

Training

- PROFIBUS training courses
- PROFINET training courses
- Product training courses

21. Notes