Omni Vaisala Interface

USER INSTRUCTIONS

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Document Management

Document Title: Omni Vaisala Interface User Instructions

Revision History

Version Number	Date	Summary of Changes
1.0	September 2018	Initial Document Release
2.0	March 2019	OmniWeb Vaisala BACnet Controller renamed to Omni Vaisala Interface

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Omni Vaisala Interface

USER INSTRUCTIONS

1 Preliminary Information

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1-1 Overview

This document applies to the following Omni models:

- OMWEB02 - Omni Vaisala Interface

Unless specified, references to "Device" and "OMWEB02" all refer to the Innotech OMWEB02 - Omni Vaisala Interface.

This document provides instructions for the usage of the Omni's browser interface.

Detailed instructions are provided to help you access the embedded web server, and easily configure the OMWEB02 and Vaisala Weather Transmitter. It is recommended that installation personnel familiarise themselves with the information contained in this document.

1-1.1 About this Document

This manual is intended to provide the user with complete and easy-to-follow instructions for the operation of the browser interface. In preparing these instructions, Innotech assumed that the typical operator is not necessarily familiar with the operation of computer systems. For this reason, operating instructions and procedures are presented at a technically basic level and as clearly as possible.

The OMWEB02 is designed to be set-up to its own application requirements and since each customer's application is different, no two units have identical step-by-step operating procedures. However, the Omni Vaisala Interface is user-friendly and operation is simple once the necessary operational information has been explained. The operating procedures in this manual are based on typical operating scenarios.

1-1.2 Scope of this Document

This technical manual has multiple sections:

Table 1-1: Manual Scope

Chapter	Description
Chapter 1 - Preliminary Information	Chapter 1 provides related information of a general nature. This chapter also contains a brief description of the device.
Chapter 2 - Web Server	Chapter 2 provides information about the browser interface.

1-1.3 Information Icons

Throughout this manual, icons are used to illustrate important notes. Examples are shown below.

*These notices provide extra information. It is non-critical information but **should be read**.*

IMPORTANT

*These notices contain information about the software that **must be done** before proceeding further to ensure success.*

1-2 Description of the Omni Vaisala Interface

The Innotech Omni Vaisala Interface is a device used for communicating with Vaisala Weather Transmitters.

The OMWEB02 provides a detailed web browser based interface to allow users to customise the device and connected Vaisala Weather Transmitter.

The device is connected to an Ethernet network and is accessed by entering the IP address into a web browser. Connection to the Vaisala Weather Transmitter is by RS-485.

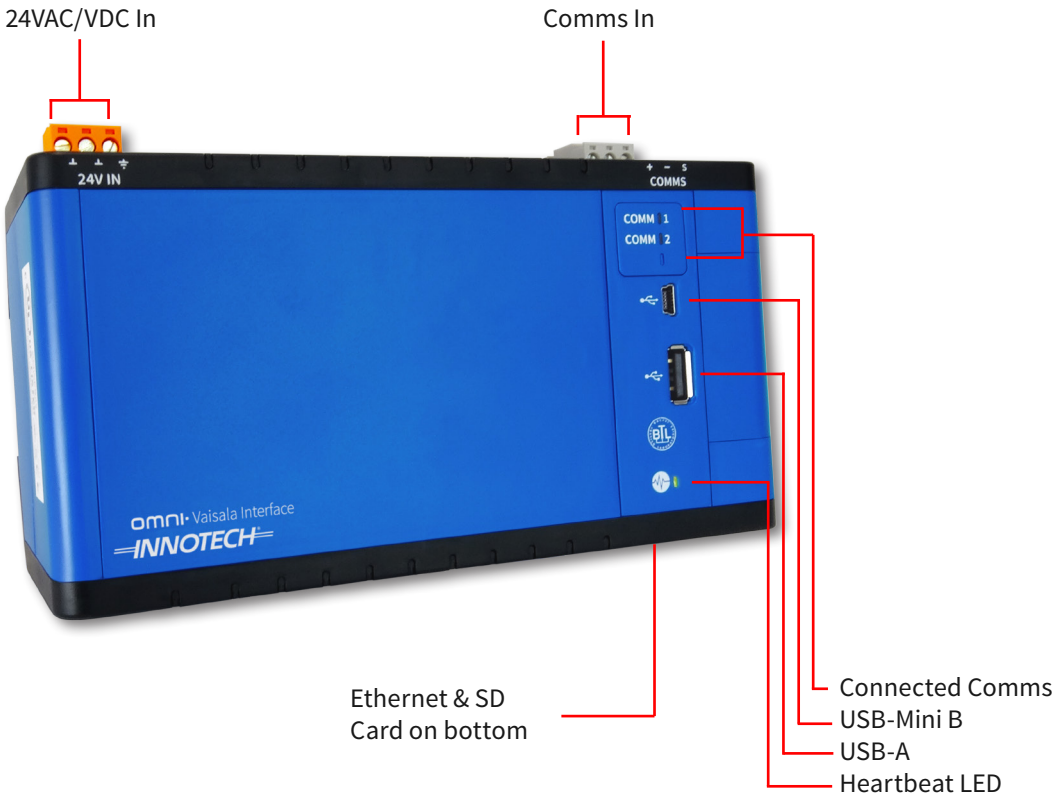

Figure 1-1: Omni Vaisala Interface

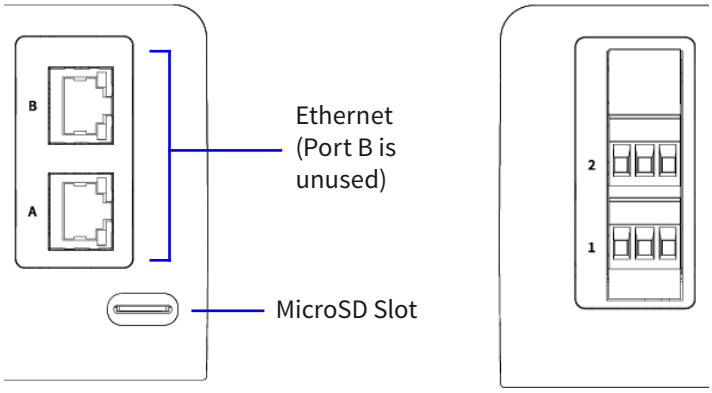

Figure 1-2: Ethernet, Micro SD Card slot and RS-485 Terminals

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Omni Vaisala Interface

USER INSTRUCTIONS

2 Web Server

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2-1 Overview

This section of the document provides detailed information about accessing and using the on-board web server for configuring the Omni Vaisala Interface and a connected Vaisala Weather Transmitter.

Select the section tabs at the top of the screen to enter the category configuration screen. Most sections have sub menus for further configuration.

The web server is cross-platform and is accessed via your selected web browser. Use the IP Address of the OMWEB02 to access the browser interface.

General terminology is used in this section based on using the web server in a Microsoft Windows environment with mouse input. The web server is also compatible with Android and iOS operating systems and notes will appear throughout where required for operation of the interface in different environments.

These notices indicate a piece of useful information which should be read for Android users.

iOS *These notices indicate a piece of useful information which should be read for iOS users.*

2-2 Logging In

In your web browser, type in the IP address of the OMWEB02. After loading the browser interface, click the Login link at the top right of the window, enter your Username & Password and then click Login to log in to the web server.

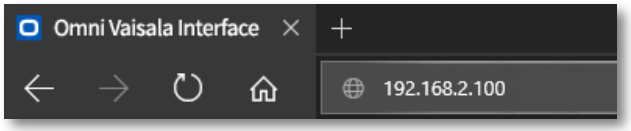


Figure 2-1: Enter IP Address in Browser

The IP used in the image above is an example only. Enter the IP specific to the Omni Vaisala Interface. The default IP is 192.168.2.100.

IMPORTANT

The Username and Password fields are both case sensitive. 'Innotech' is not the same as 'innotech'.

If you have forgotten your password, click the *I've Forgotten My Password* link. Enter your Username and click Reset Password and follow the prompts. Once you receive a temporary password or if you remember your old password, login and reset your password.

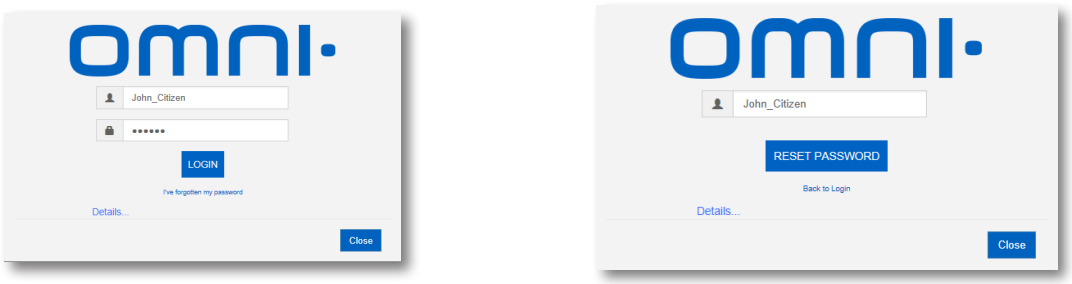


Figure 2-2: Login and Forgot Password Dialog Boxes

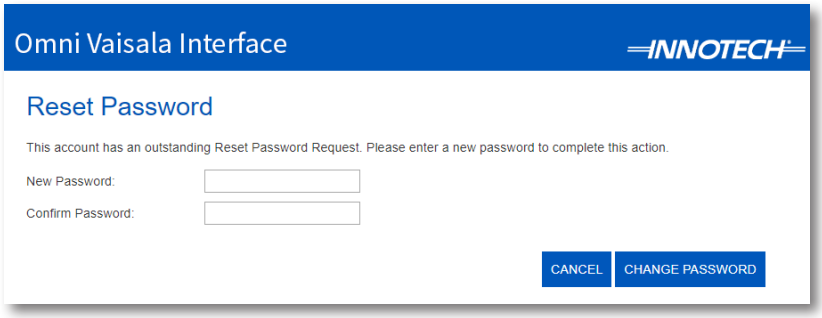


Figure 2-3: Reset Password Screen

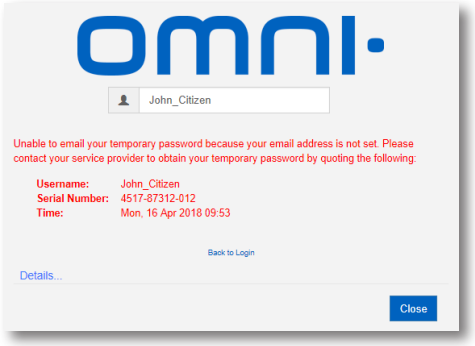


Figure 2-4: Password Reset Error Window

2-3 Omni Vaisala Interface Landing Page

The landing page seen below is shown by default when you browse to the device's IP Address in your web browser. Configuring your OMWEB02 requires a login username and password.
The device is a pre-configured Omni Controller used to convert all Vaisala Weather Transmitter, and programmed data to defined BACnet Objects. Use the settings tab in the device's web page to edit the settings for the device and your Vaisala Weather Transmitter. Only enabled sensors will show on the landing page.

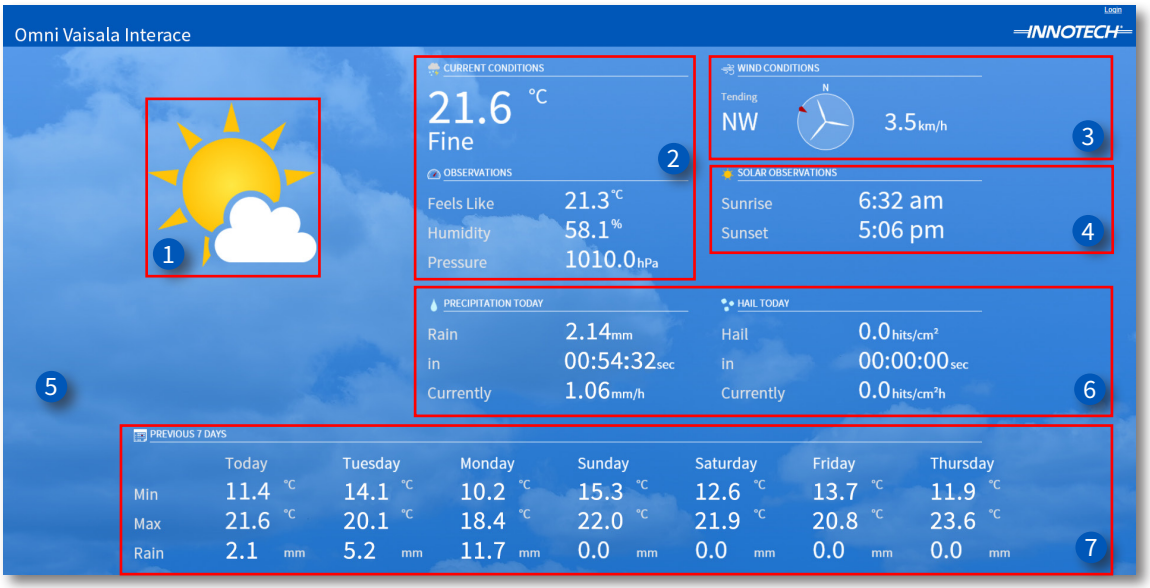
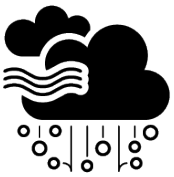


Figure 2-5: Omni Vaisala Interface Landing Page

Table 2-1: Landing Page Description

Index	Item	Description
1	Weather Sprite	The weather sprite shown here changes based on the current conditions. Many different sprites can be shown, some which indicate the intensity of the condition. Eg: light, medium or heavy. See the following pages for an example of the sprites.
2	Current Conditions	This section shows the current conditions with temperature, weather classification, the 'feels like' temperature, humidity and air pressure.
3	Wind Conditions	The current wind speed and tending direction are shown here.
4	Solar Observations	The solar observations section shows the sunrise and sunset based on the location of the Vaisala transmitter.
5	Background Colour	The main gradient background colour of the home screen changes depending on the prevailing weather conditions.
6	Precipitation Details	This section details the precipitation for today. It shows the current rain and hail intensity and how much rain/hail in a timed period.
7	7 Day History	The previous 7 days section gives a 7 day history at a glance of weather conditions over the last week.

2-3.1 Weather Sprites

 Sunny, Partly Cloudy	 Light Rain	 Medium Rain	 Heavy Rain
 Light Hail	 Medium Hail	 Heavy Hail	 Light Snow
 Medium Snow	 Heavy Snow	 Sleet	 Sunny, Light Winds
 Light Rain & Wind	 Medium Rain, Light Winds	 Heavy Rain, Light Winds	 Light Hail & Wind
 Medium Hail, Light Winds	 Heavy Hail, Light Winds	 Light Snow & Wind	 Medium Snow, Light Winds
 Heavy Snow, Light Winds	 Sleet, Light Winds	 Sunny, Gusty Winds	 Light Rain, Gusty Winds

 Medium Rain, Gusty Winds	 Heavy Rain, Gusty Winds	 Light Hail, Gusty Winds	 Medium Hail, Gusty Winds
 Heavy Hail, Gusty Winds	 Light Snow, Gusty Winds	 Medium Snow, Gusty Winds	 Heavy Snow, Gusty Winds
 Sleet, Gusty Winds	 Sunny, Gusty Winds	 Light Rain, Gusty Winds	 Medium Rain, Gusty Winds
 Heavy Rain, Gusty Winds	 Light Hail, Gusty Winds	 Medium Hail, Gusty Winds	 Heavy Hail, Gusty Winds
 Light Snow, Gusty Winds	 Medium Snow, Gusty Winds	 Heavy Snow, Gusty Winds	 Sleet, Gust Winds
 Evening, Cloudy	 Evening, Light Winds	 Evening, Light Wind Gusts	 Evening, Strong Wind Gusts

2-4 Web Server

2-4.1 Watches

The Watches tab contains data to be monitored by the user (hence the term Watch Page). The level of access for individual users can be changed.

Click the graph button at the start of the line for each item to display a data graph for the selected item. The individual items displayed on the Watches page are fixed and cannot be added, deleted or edited.

The watch page shows individual metrics and their live data and graphs. It also states if a particular sensor is on or off. This page is dependent on the devices connected and which devices are enabled or disabled in the Settings Tab.

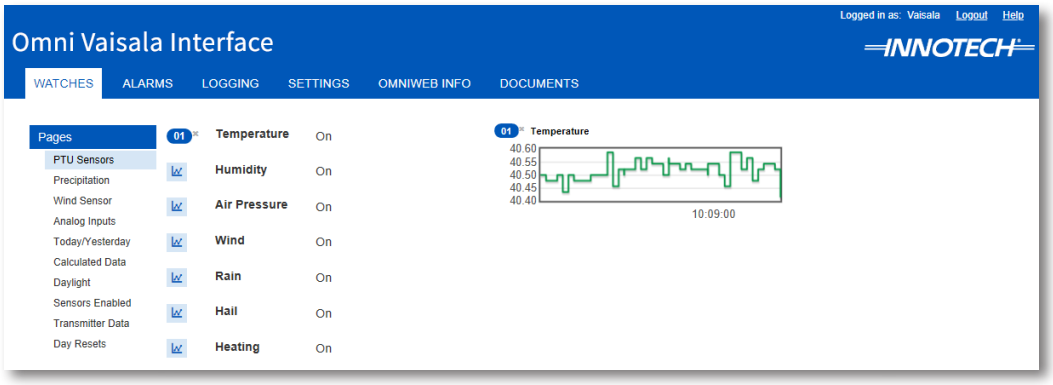


Figure 2-6: Watches Tab - Active PTU Sensors

When logged in as a Commissioner you have the ability to Reset each Days values on the Home Page to start from new. This is helpful when changing various Sensor settings.

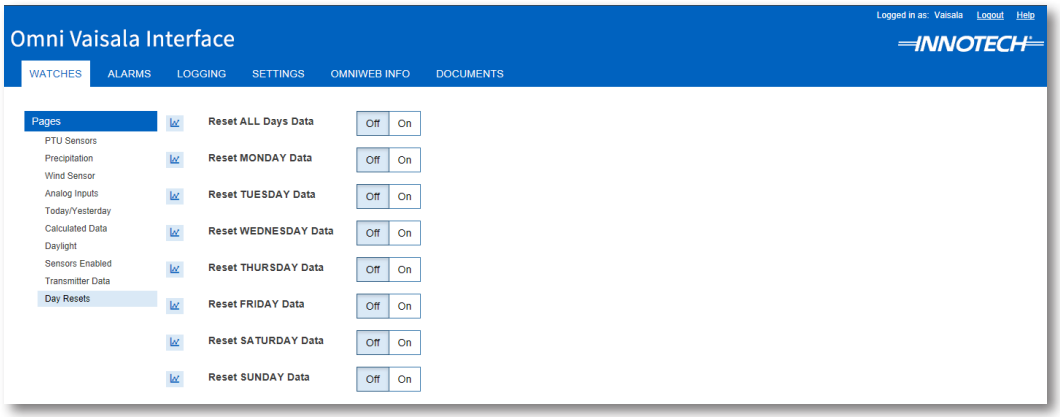


Figure 2-7: Watches Tab - Day Resets

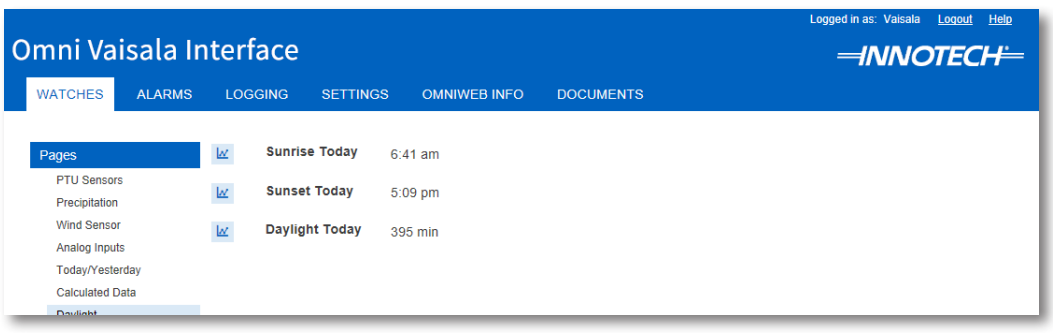


Figure 2-8: Watches Tab - Daylight

2-4.2 Alarms

The Alarms Tab will show the details of any Alarms that have been activated in the system. Clicking any alarm will show the history of the alarm. The Alarms tab button will flash red when the tab is not being viewed to alert the user that there are active alarms.

Alarms have three distinct states as shown below. Click an alarm to view the history.

Table 2-2: Alarm States

Alarm Colour	Description
White Background	Alarm is not active.
Orange Background	Alarm is active but has been acknowledged.
Red Background	Alarm is active.

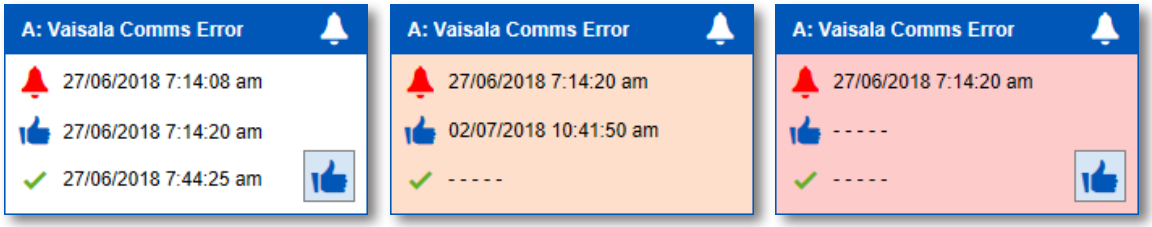


Figure 2-9: Alarm States

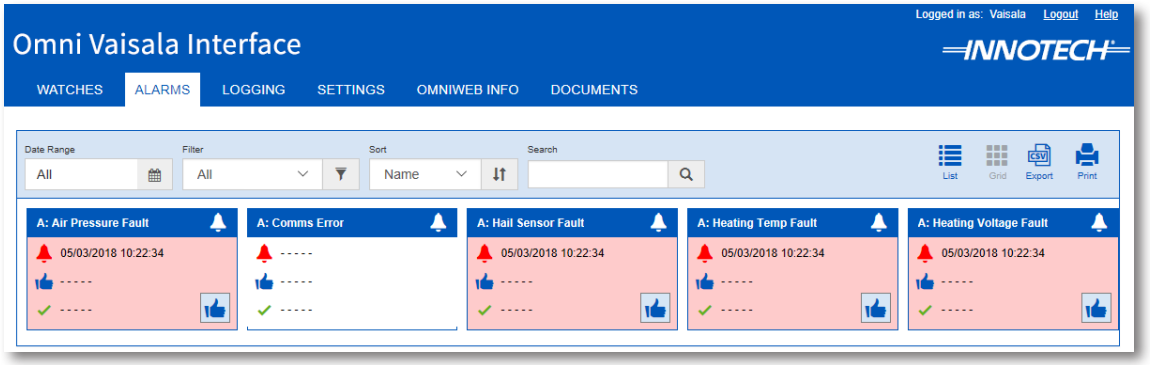


Figure 2-10: Alarm Tab

2-4.2.1 Acknowledging Alarms

Acknowledge the alarm by clicking the hand icon on the alarm.

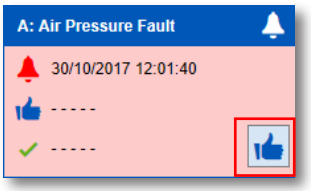


Figure 2-11: Acknowledgement Icon

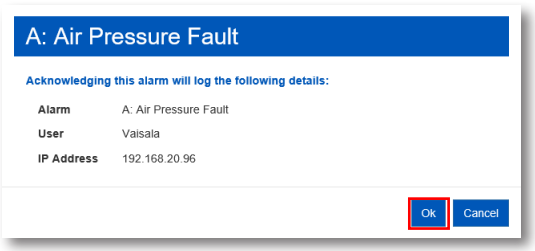


Figure 2-12: Acknowledge Alarm Browser Message

After clicking OK, the alarm will change to orange and the time of acknowledgement noted in the alarm history. When the alarm is acknowledged, it is still active. Remedy the problem and when the alarm is reset, the alarm will change to white.

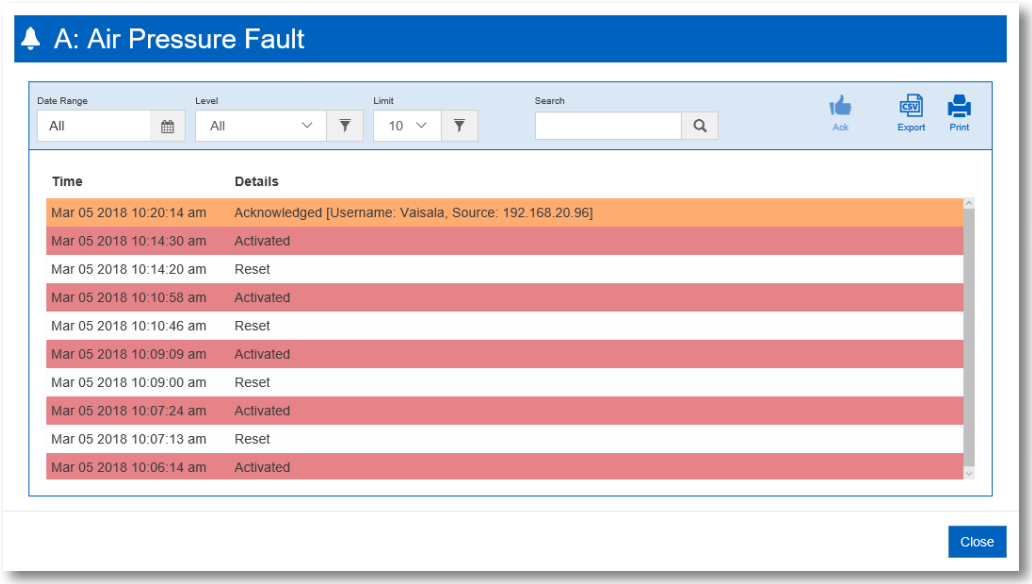


Figure 2-13: Alarm History

If a MicroSD card is not installed, no alarm history will be shown.

2-4.2.2 Alarm Filtering

Click in the Search field and start typing the name of the alarm. As you type the list of alarms will be filtered to show only those specified by the filter.

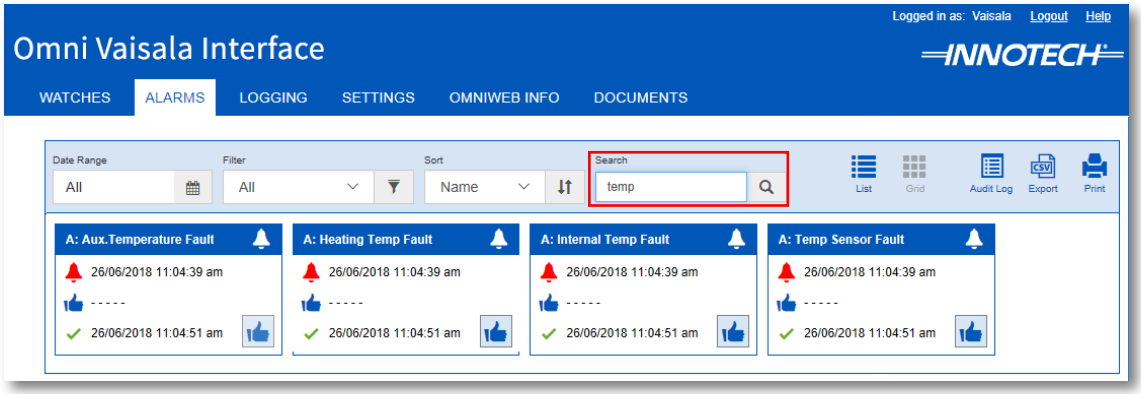


Figure 2-14: Alarm Filter

2-4.3 Logging

The Logging Tab is used to view custom data logs of a selected item. Both sensor logs and alarm logs can be viewed and extracted.

2-4.3.1 Downloading a Log Graph

1. Specify the time period for the downloaded logs from the Date Range combo box. Hover the cursor over the combo box to see the log range.

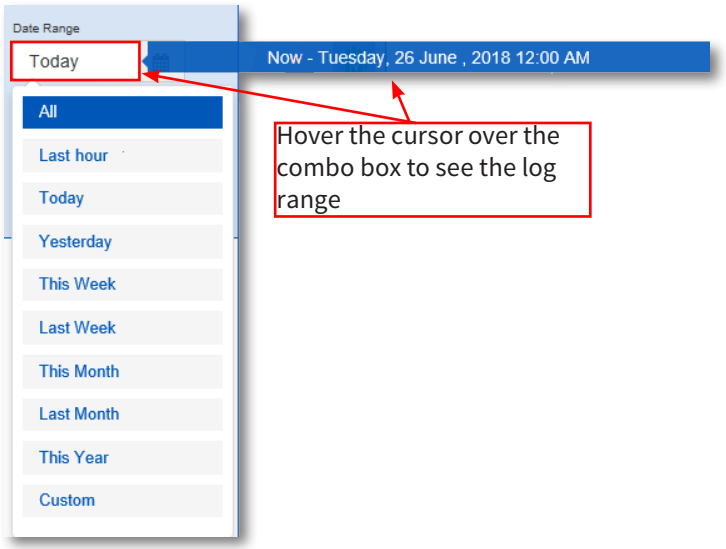


Figure 2-15: Logging - Log Extraction Duration

2. Click one or more items to download.
3. Click Extract to download the log data and view the graph. You can stop downloading data at any time by clicking the Stop button. After download, moving the cursor on the graph shows the logged value. You can zoom the graph by using the mouse wheel and CTRL and SHIFT keys in combination with the mouse wheel.

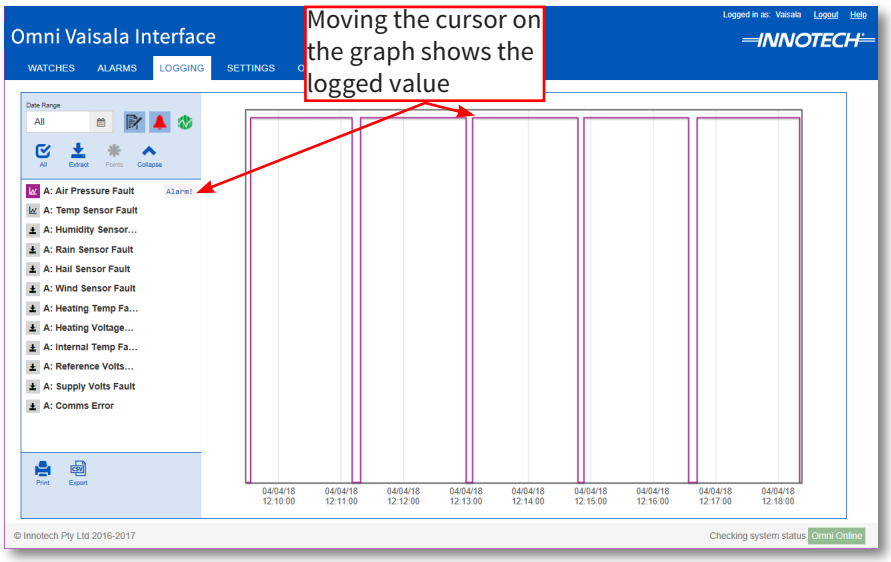


Figure 2-16: Logging - Graph Downloaded

2-4.3.2 Printing a Log Graph

1. Click the Print button to print the current log view.
2. A Print window will open for specifying your printer and printing options.
3. Click OK or Print to print the graph.

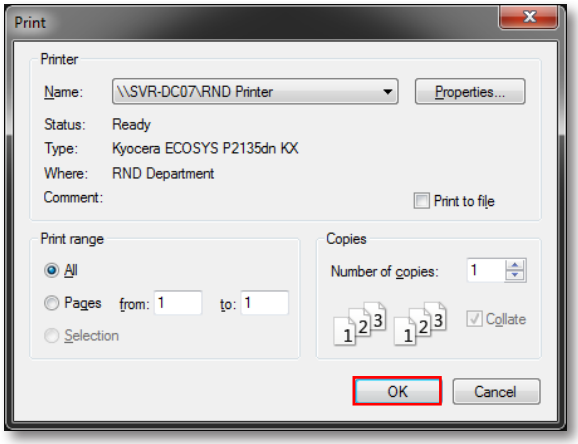


Figure 2-17: Logging - Print Window

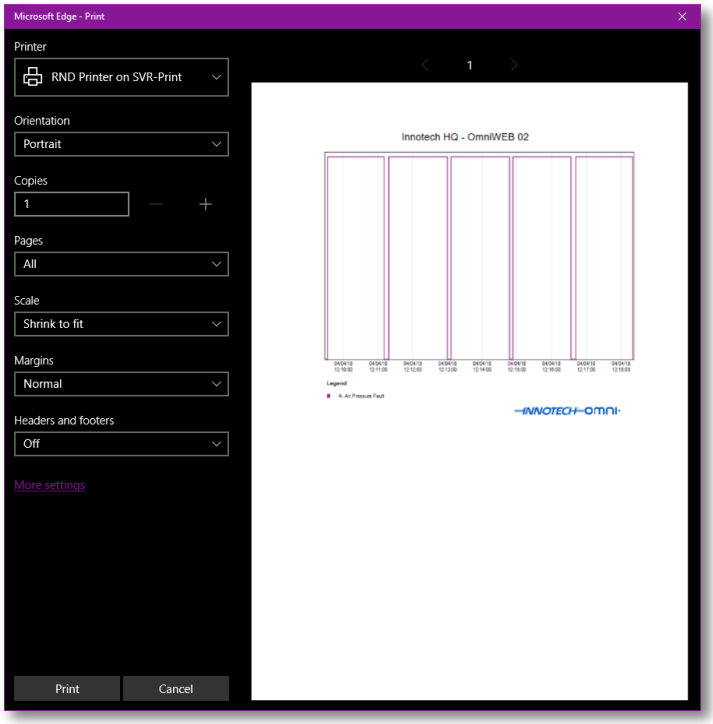


Figure 2-18: Logging - Print Preview

Chrome: Press on the Menu and select 'Print...'. Press and select 'Save as PDF' or 'All Printers...' to select a printer. Change the page size and copies if required.

iOS *Chrome for iPad: At the top right tap More Share, select Print, select printer options and settings, tap Print. Safari for iPad: Tap the settings icon, tap Print, tap Select Printer..., tap Print.*

2-4.3.3 Exporting to CSV

1. After downloading your log, click the Export to CSV button.
2. You will be prompted by your browser to save the file. Save the file to your device, taking note of the save location.
3. Open the CSV file using a spreadsheet program to view the results.

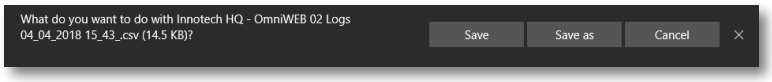


Figure 2-19: Logging - Save CSV Message

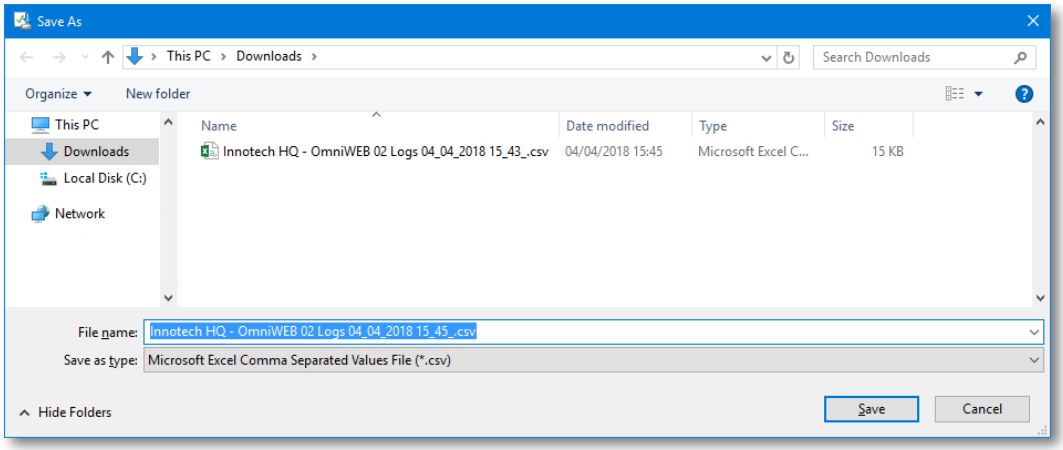


Figure 2-20: Logging - Select File Location

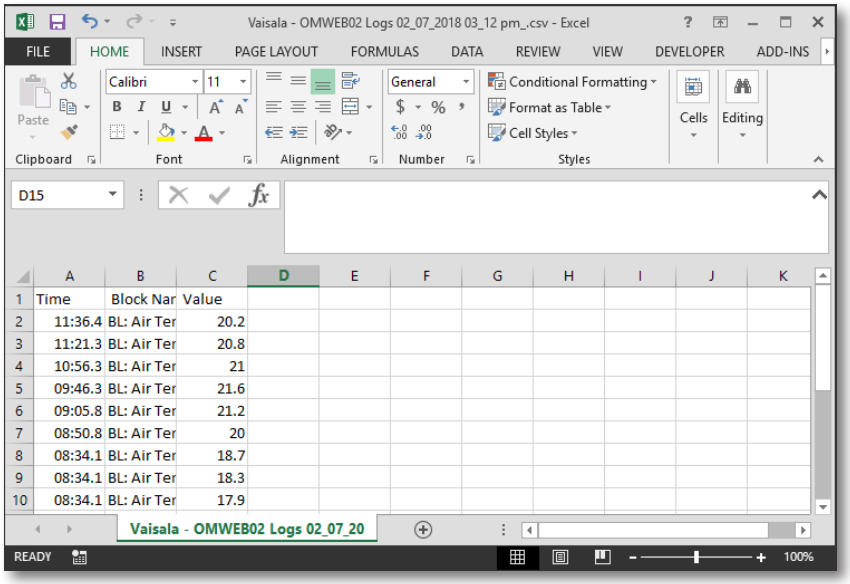


Figure 2-21: Logging - Exported CSV File

Chrome: Press on Export to CSV, follow the onscreen prompts.

iOS *Chrome for iPad: Press on Export to CSV, follow the onscreen prompts.*
Safari for iPad: Press on Export to CSV, follow the onscreen prompts.

2-4.3.4 Formatting the Time Field

If you are viewing your CSV file in Microsoft Excel, the Time field will not be formatted correctly. Follow these steps to reformat your Time field.

1. Click the Row Header to select the column.

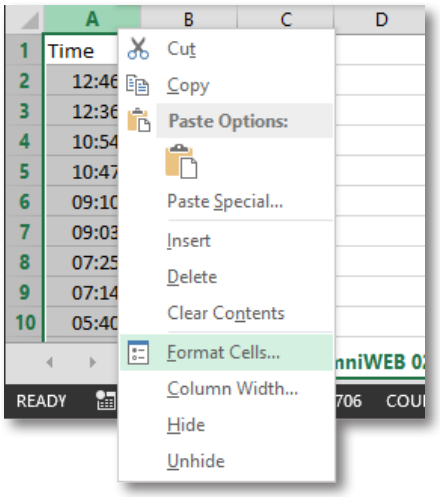


Figure 2-22: Cell Context Menu

2. Right click a cell and select Format Cells
3. Choose the **Custom** - **dd/mm/yyyy hh:mm** format and click ok.

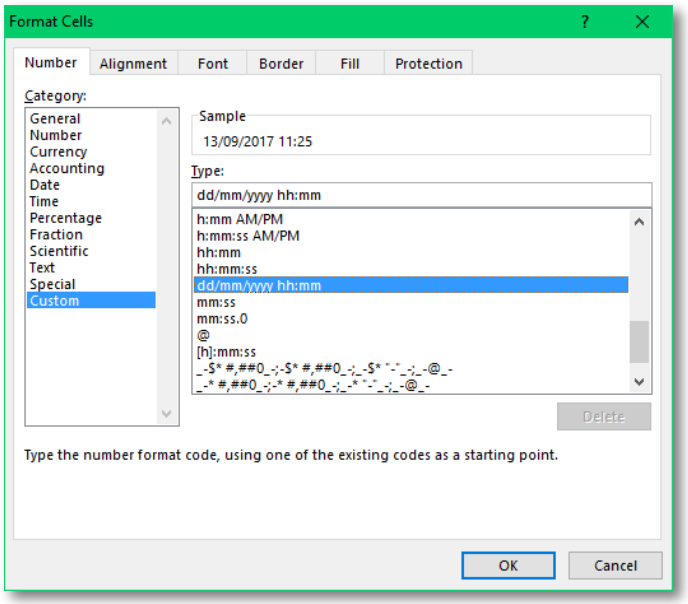


Figure 2-23: Format Cells Window

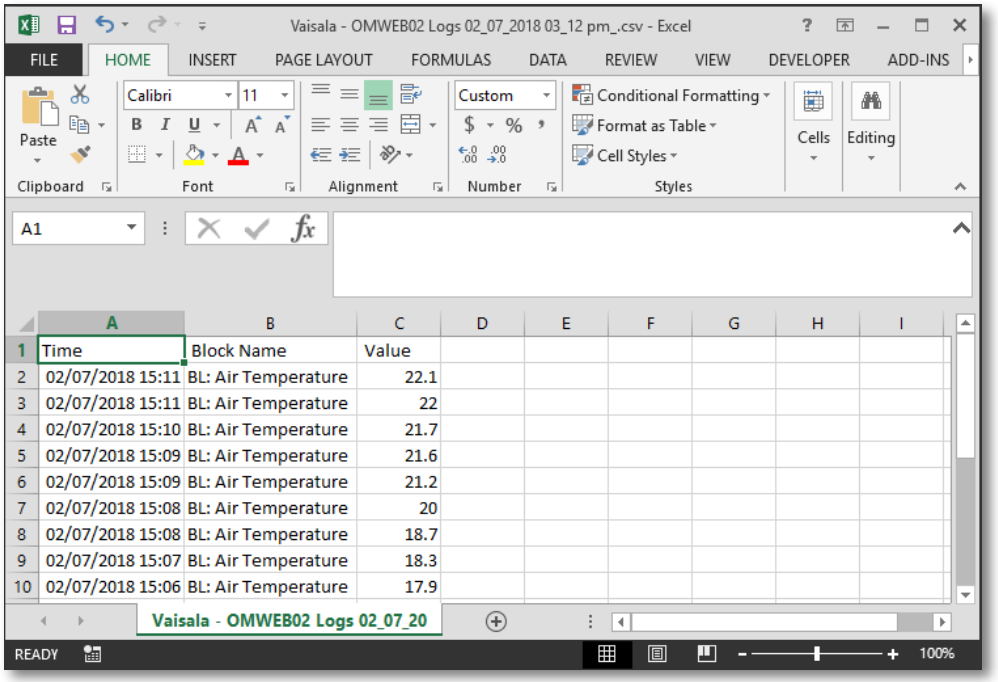


Figure 2-24: Column 'A' Reformatted

2-4.4 Settings

The Settings Tab has many categories for configuring your device. Different Settings are available depending on your level of access.

When altering settings you will be asked whether you want to restart Now or Later. Select Later until you are making your final change, then select Now. (If you forget, simply recycle power or change another setting, select Later and then change it back and select Now)

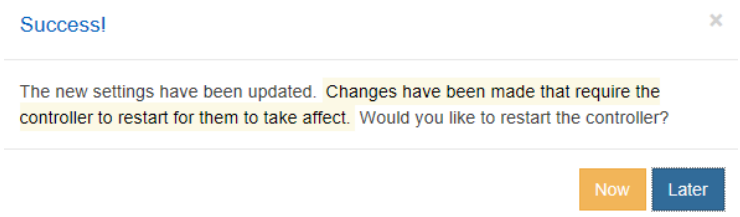


Figure 2-25: Changes Successful Notification

Images used in this section represent what will be shown when logged in with Commissioner Access Level. Some settings and screens will not be accessible when logged in with a user with a lower Access Level.

2-4.4.1 OmniWeb

These settings are simply for entering location details for your device.

1. Enter Location and Site Details for the device.
2. Click Update.

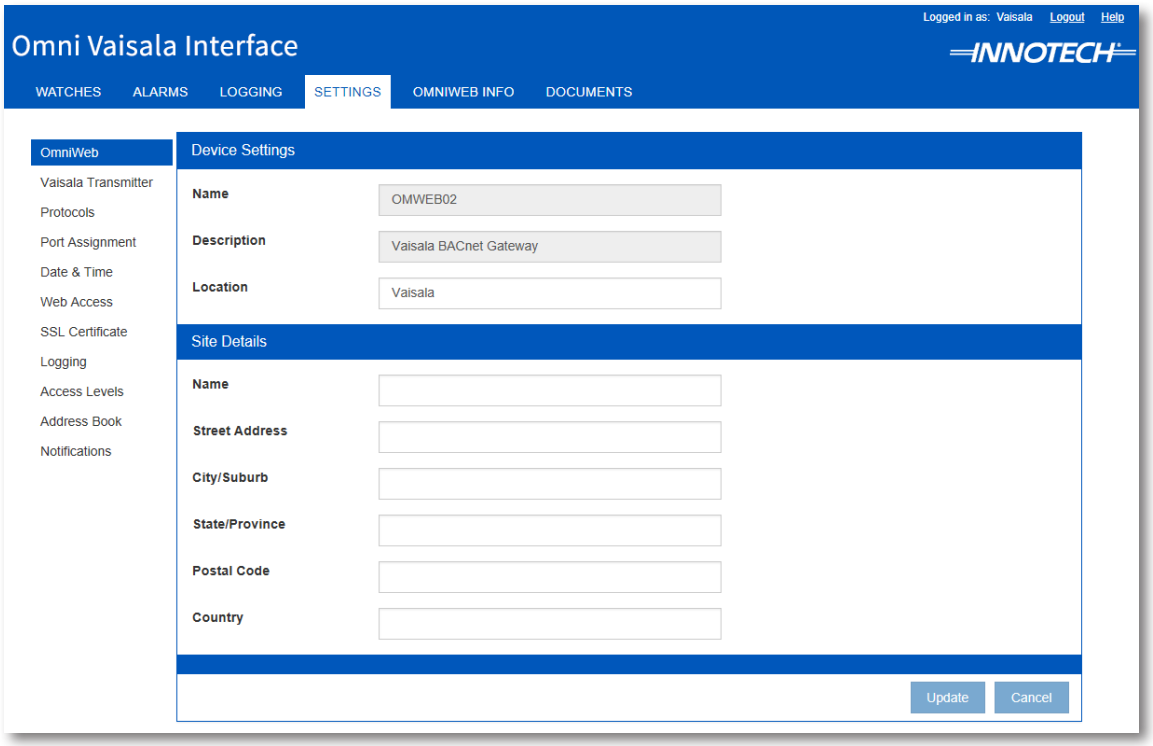


Figure 2-26: Settings - OmniWeb

2-4.4.2 Vaisala Transmitter

The Vaisala Transmitter Settings screen is used for configuring your Vaisala Weather Transmitter. Configure the Comms Settings, Device Settings and External Inputs. Click the Sensor submenu item to adjust the sensors and units.

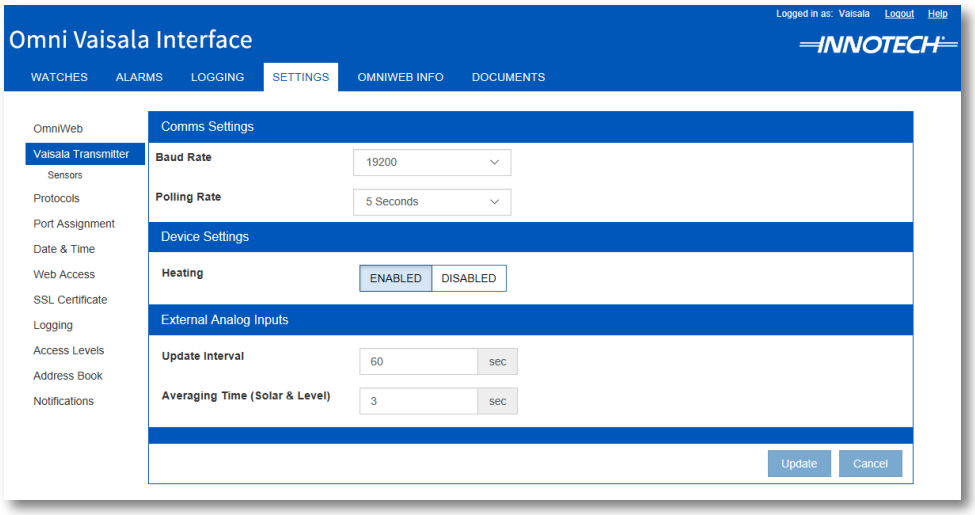


Figure 2-27: Settings - Vaisala Transmitter

IMPORTANT

These settings below should not be adjusted if you have ordered your Vaisala Transmitter appropriately. If not you may need to use Vaisala Software to match the required OmniWeb default settings.

Table 2-3: Vaisala Transmitter Settings

Setting	Description
Comms Settings	**Baud Rate** - Select a Baud rate from between 1200 and 115,200. **Polling Rate** - Select a polling rate of 1 second, 5 seconds, 30 seconds or 1 minute.
Device Settings	**Heating** - Click to Enable or Disable Heating.
External Analog Inputs	**Update Interval** - The measurement interval in seconds for the analog inputs. **Averaging Time (Solar & Level Sensor)** - The input averaging time in seconds. Ensure that the averaging time is smaller than the update interval. The smallest value of 0.25 means a single measurement. A longer averaging time can decrease noise. A shorter averaging time slightly decreases current consumption.

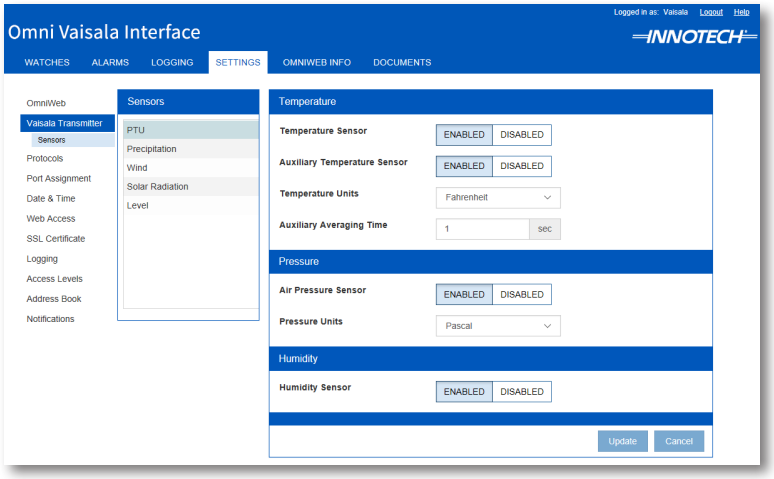


Figure 2-28: Settings - Vaisala Transmitter (Sensor Settings)

Table 2-4: Vaisala Transmitter Sensor Settings

Setting	Description
PTU	**Temperature Sensor** - Click to Enable or Disable the Temperature Sensor. **Auxiliary Temperature Sensor** - Click to Enable or Disable the Auxiliary Temperature Sensor. This will override the on-board sensor. **Temperature Units** - Select either Celsius or Fahrenheit. **Auxiliary Averaging Time** - The Averaging Time in seconds, resolution 0.5sec. **Air Pressure Sensor** - Click to Enable or Disable the Air Pressure Sensor. **Pressure Units** - Select pressure units from: HPa, Pascal, Bar, mmHg, inHg. **Humidity Sensor** - Click to Enable or Disable the Humidity Sensor.
Precipitation	**Rain Sensor** - Click to Enable or Disable the Rain Sensor. **Auxiliary Rain Sensor** - Click to Enable or Disable the Auxiliary Rain Sensor. This will override the on-board sensor. **Auxiliary Gain** - Enter a gain value. **Rain Units** - Select either Metric or Imperial. **Hail Sensor** - Click to Enable or Disable the Hail Sensor. **Hail Units** - Select Metric, Imperial or Hits.
Wind	**Wind Sensor** - Click to Enable or Disable the Wind Sensor. **Wind Units** - Select from either km/h, mph, m/s or knots. **Averaging Method** - Select the averaging method used. Select from either Max/Min or Gust/Lull. **Sampling Frequency** - Select the sampling frequency from either 1Hz, 2Hz or 4Hz. **Direction Correction** - Enter a value in degrees to make a correction to the wind direction values shown.

(Continued Over Page)

- ***Auxiliary Gain*** *(Precipitation) - Gain defines the pulses per rain unit, for example in mm. If the Aux sensor has 10 pulses per millimetre of rain and the user sets the gain to 1/10, the transmitter reports the rain value in mm. The range: 0.000 000 001 ... 1 000 000 For example, you can set aux rain gain for Young Model 52202/52203 Tipping Bucket Rain Gauge. The resolution is 0.1 mm per tip. Set the gain to 0.1 * 2 = 0.2 so that the Ra rain amount WXT reports is in millimetres. The multiplier 2 means that the tipping bucket sends one pulse per two tips.*

Source: Vaisala

Table 2-4 continued

Setting	Description
Solar Radiation	**Solar Radiation Sensor** - Click to Enable or Disable the Solar Radiation Sensor. **Gain** - Enter a gain value. This value converts the value received from the transmitter to Watts per m^2.
Level	**Level Sensor** - Click to Enable or Disable the Level Sensor. **Input Range** - Select from either 0-2.5V, 0-5V or 0-10V. **Gain** - Enter a Gain value. This value converts the value received from the transmitter to metres. **Offset** - The value entered here offsets the Level sensor's reported value.

- ***Solar Radiation*** *- Gain defines the volts / user unit, for example, µV/W/m2. WXT reports the voltage at solar radiation input multiplied with gain. For example, if the solar radiation sensor has sensitivity 5 µV/W/m2 and you set the gain to 1/ µV = 200 000, the solar radiation value reported by WXT is in W/m2. WXT reports the value always with six decimals.*
- ***Level*** *- Gain defines the volts / user unit, for example, V/m. WXT reports the voltage at input multiplied with the gain. For example, if the sensor has gain 2 V/meter and the user sets the gain to 0.5, the value reported by WXT is in meters. WXT reports the value with six decimals.*

Source: Vaisala

2-4.4.3 Protocols

On the settings screen, select a protocol from the list in the menu at the left. Follow the steps below to change the Protocol Settings for the OmniWeb device.

BACnet Settings

Click BACnet at the left to select the BACnet settings. Enable the protocol to modify the settings.

1. After enabling, enter settings as required.
2. Click Update to update your Omni device.

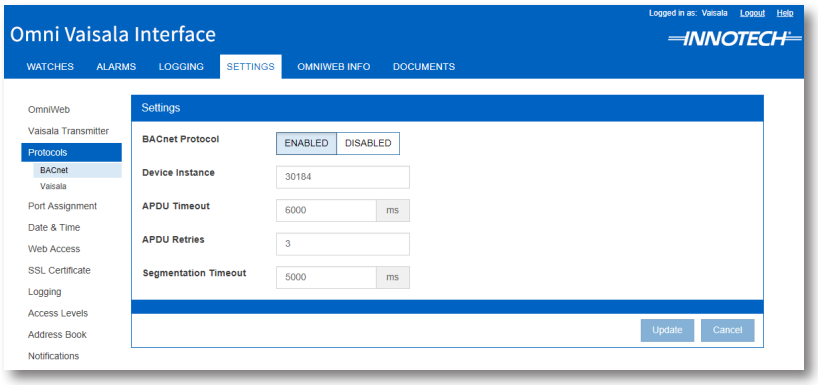


Figure 2-29: Settings - Protocols (BACnet Settings)

Vaisala NMEAProtocol

- The Vaisala NMEA protocol is enabled by default and cannot be changed.

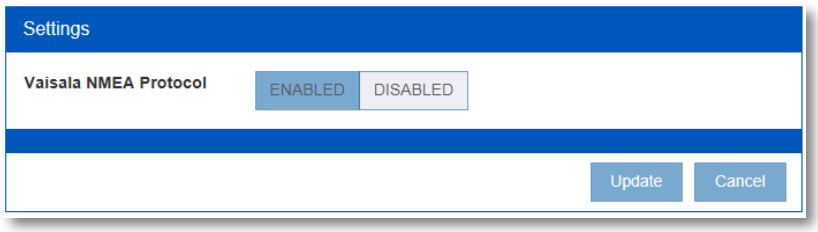


Figure 2-30: Settings - Protocols (Vaisala NMEA Protocol)

2-4.4.4 Port Assignment

Clicking Port Assignment will select the first item (Ethernet) by default. Follow the steps below to change the Port Assignment for the OMWEB02.

Ethernet

1. Switch will be selected by default and should not be changed.
2. Click Port A to configure the TCP/IP settings and then click Update.

IMPORTANT

The Ethernet mode should only be set to Switch. This setting should not be changed.

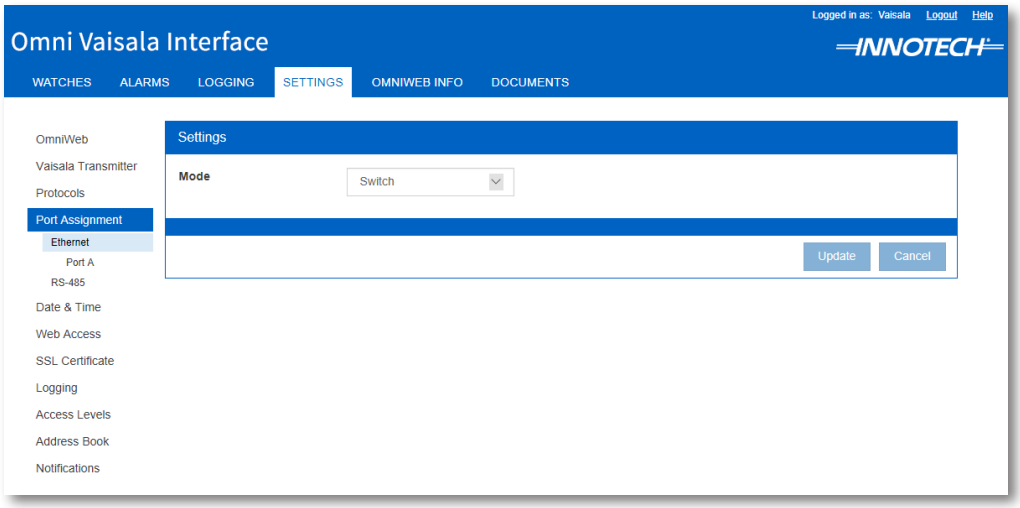


Figure 2-31: Settings - Port Assignment (Switch Mode)

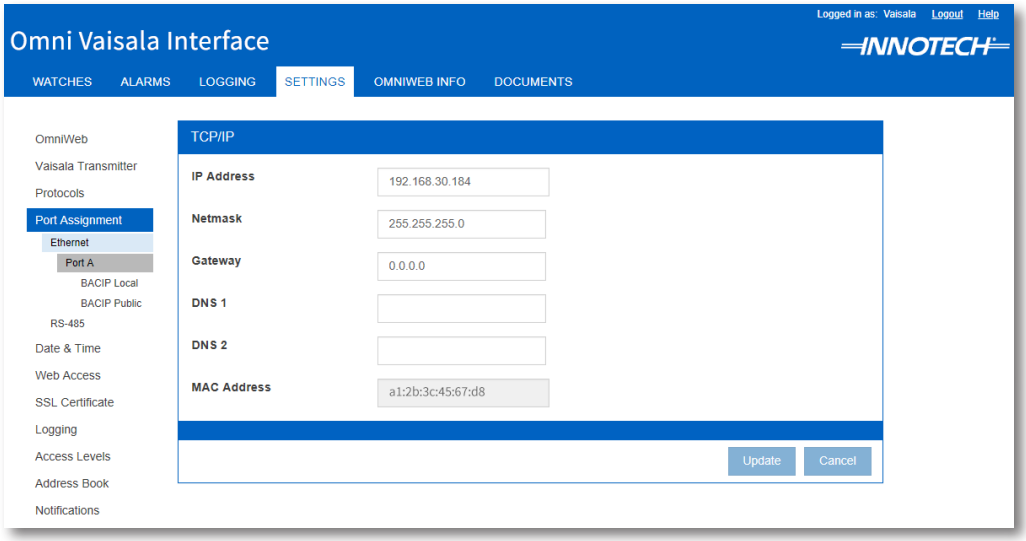


Figure 2-32: Settings - Port Assignment (Port A)

BACnet IP

BACnet IP Local Settings - Device Mode

1. Enable BACIP Local.
2. Enter the Network Number and UDP Port to match the site's BACnet/IP network.
3. Click Update to update your device.

If using BACnet MS/TP only, disable the BACIP Local Setting.

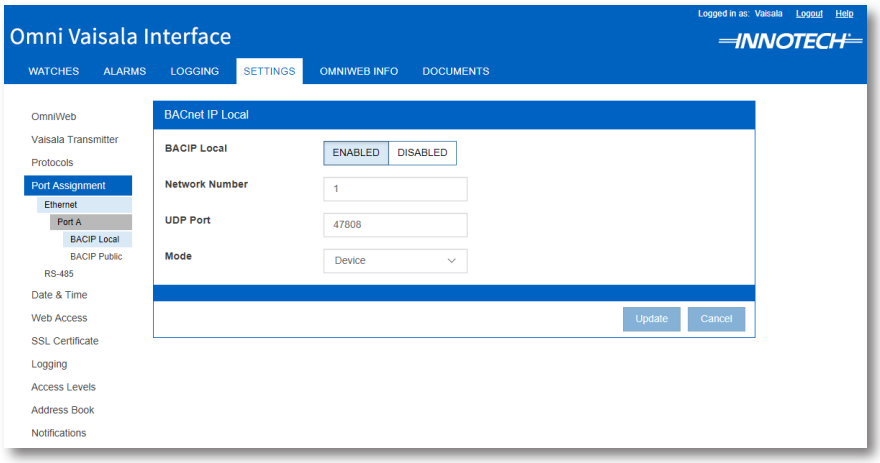


Figure 2-33: Settings - Protocols (BACnet IP Local Device Mode Settings)

BACnet IP Local Settings - Foreign Device Mode (for advanced users only)

1. Enable BACIP Local.
2. Change the mode to Foreign Device.
3. Enter the Network Number and UDP Port (or accept the default settings).
4. Enter the Foreign Device settings.
5. Click Update to update your device.

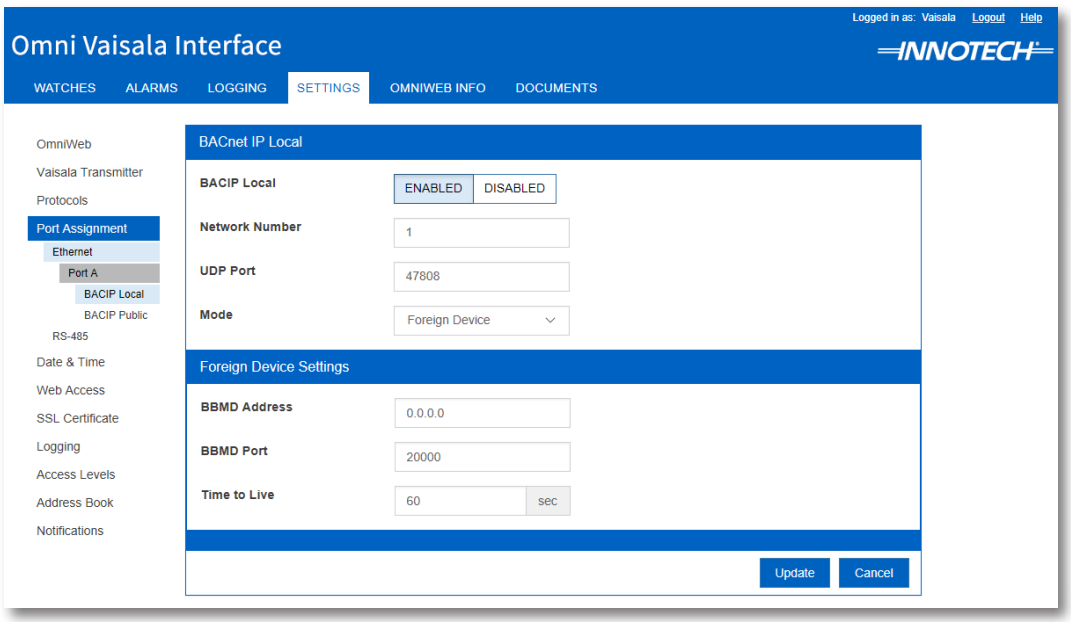


Figure 2-34: Settings - Protocols (BACnet IP Local Foreign Device Mode Settings)

BACnet IP Local Settings - BBMD Mode

1. Enable BACIP Local.
2. Change the mode to BBMD.
3. Enter the Network Number and UDP Port (or accept the default settings).
4. Edit the BBMD Maximum Foreign Device settings.
5. Enter an IP and UDP Port and click the green add button to add an IP to the Distribution Table.
6. Click Update to update your device.

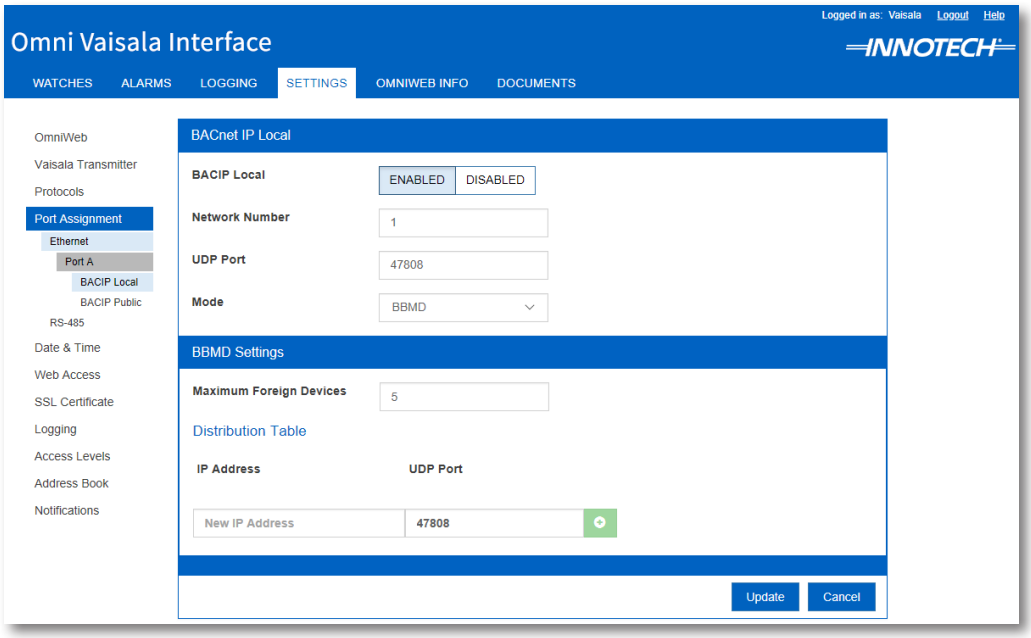


Figure 2-35: Settings - Protocols (BACnet IP Local BBMD Mode Settings)

BACnet IP Public Settings

1. Enable BACnet IP Public.
2. Enter a Network number, maximum foreign devices, UDP port and Public IP Address.
3. Enter an IP and UDP Port and click the green add button to add an IP to the Distribution Table.
4. Click Update to update your device.

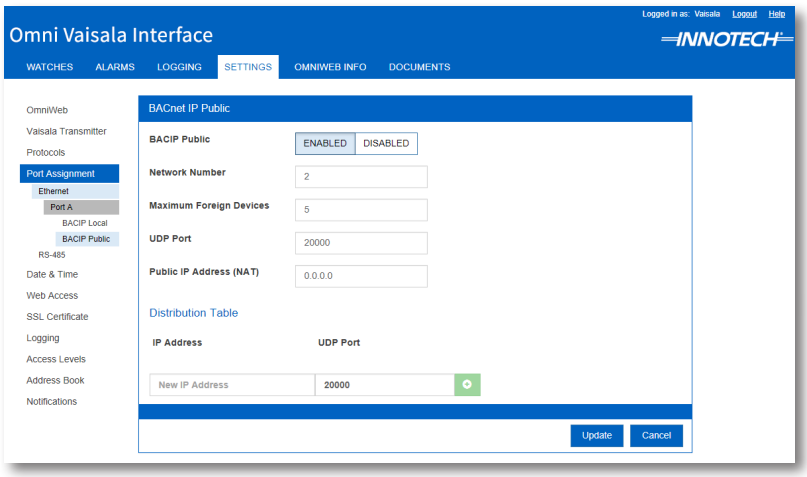


Figure 2-36: Settings - Protocols (BACnet IP Public Settings)

RS-485 Port 1

Click RS-485 Port 1 at the left to configure the settings. Vaisala NMEA protocol is pre-selected and cannot be changed.

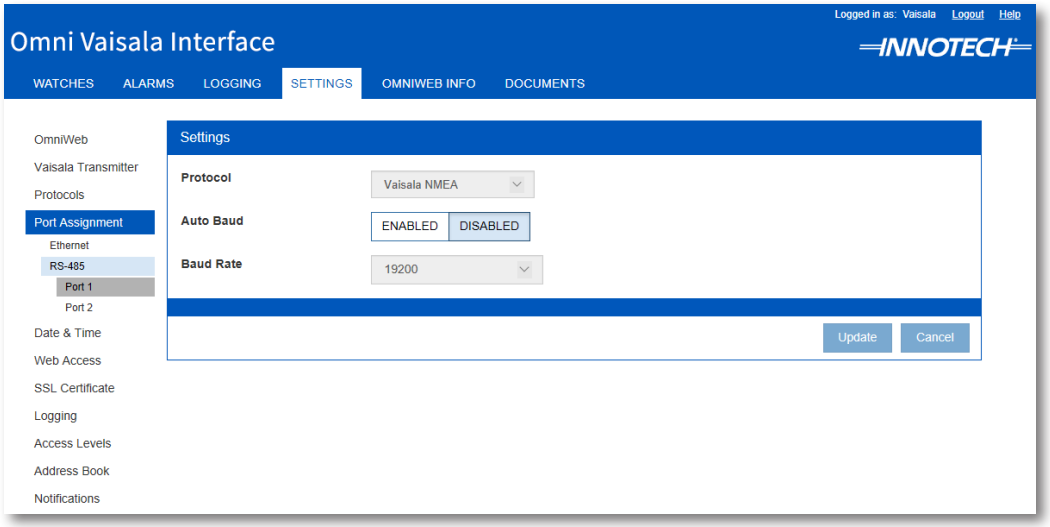


Figure 2-37: Settings - Port Assignment (RS-485 Port 1 - Vaisala NMEA)

RS-485 Port 2

Click RS-485 Port 2 at the left to configure the settings. Only BACnet MS/TP protocol or None can be selected.

BACnet MS/TP

1. Enter/Select details as required.
2. Click Update to update your device.

If the OMWEB02 is being used as an MS/TP device, disable the BACIP settings. Otherwise the OMWEB02 will automatically route all BACnet MS/TP devices to BACnet/IP. This can cause issues if another router is used on the same MS/TP network.

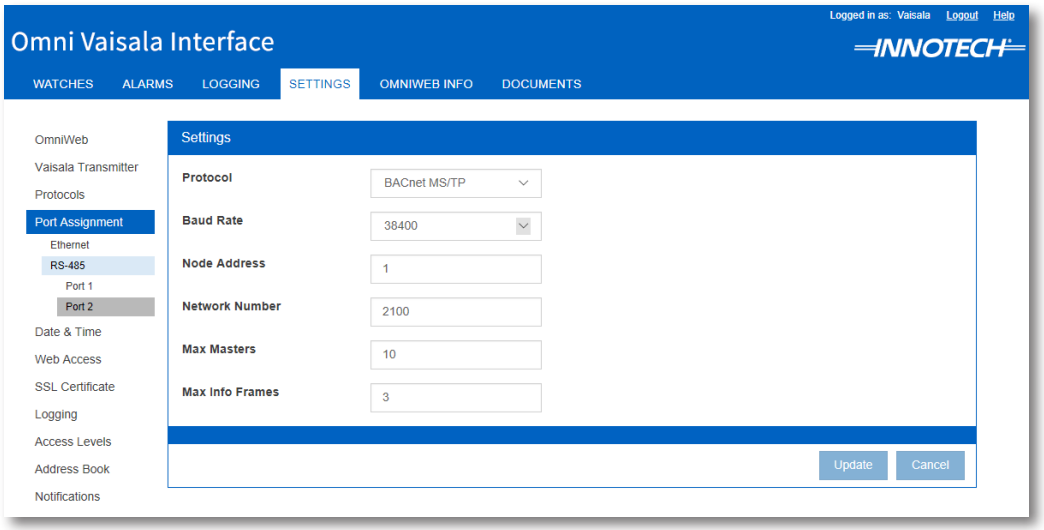


Figure 2-38: Settings - Port Assignment (RS-485 Port 2 - BACnet MS/TP)

2-4.4.5 Date & Time - Local Settings

When you select Date & Time, the Local Settings will be shown.

- Select your country, province and city or select your location on the map.
- Specify the current time, current date and select the time and date display format for the device.
- Click the Use Local button to acquire the computer system's current date and time. Note: This does not update the time zone as well.
- Click Update to update the device when complete.

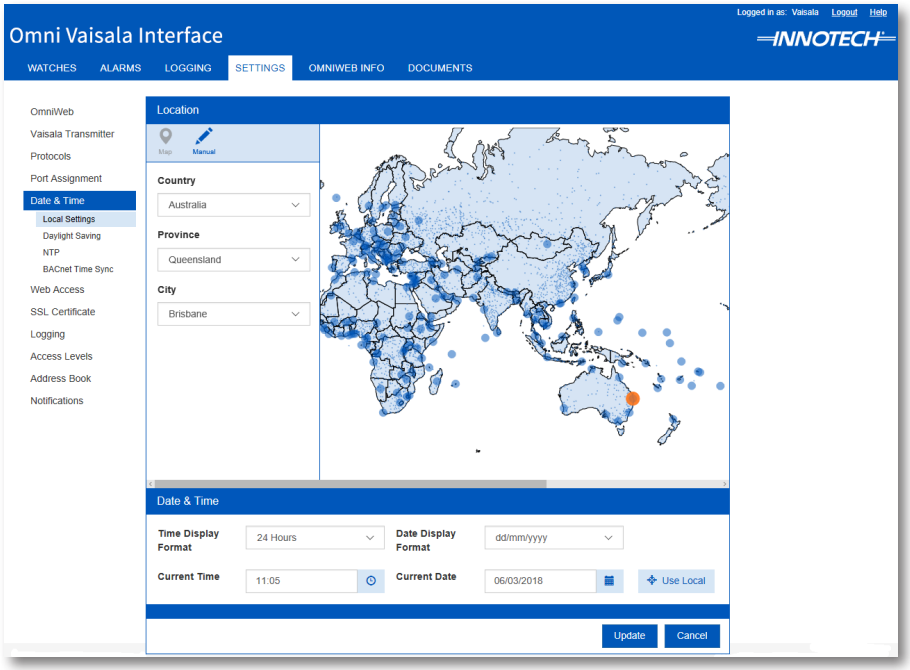


Figure 2-39: Settings - Date and Time Local Settings

2-4.4.6 Date & Time - Daylight Savings

Click Daylight Saving to view Daylight Savings details for your selected timezone. If the selected Timezone does not have Daylight Savings, no information will be available.

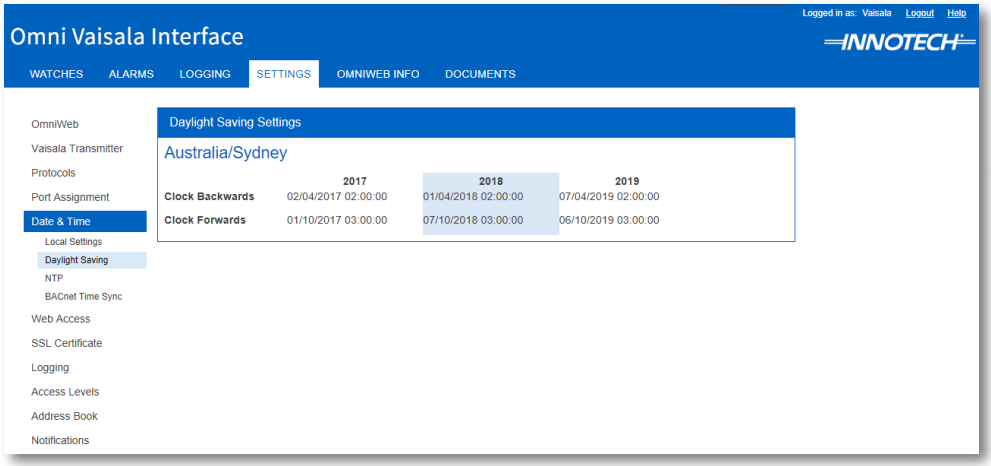


Figure 2-40: Settings - Date and Time - Daylight Saving

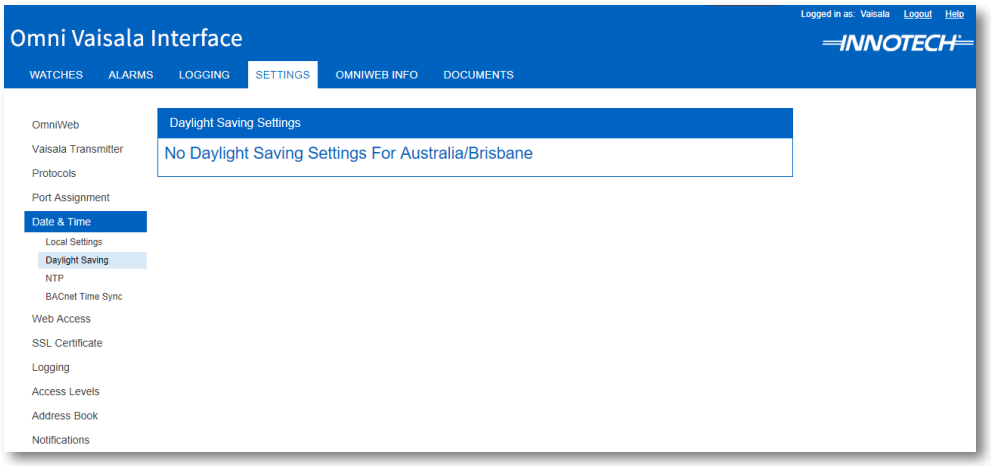


Figure 2-41: Settings - Date and Time - Daylight Saving Unavailable

2-4.4.7 Date & Time - Network Time Protocol

Click NTP to set the Network Time Protocol (NTP) settings for the device.

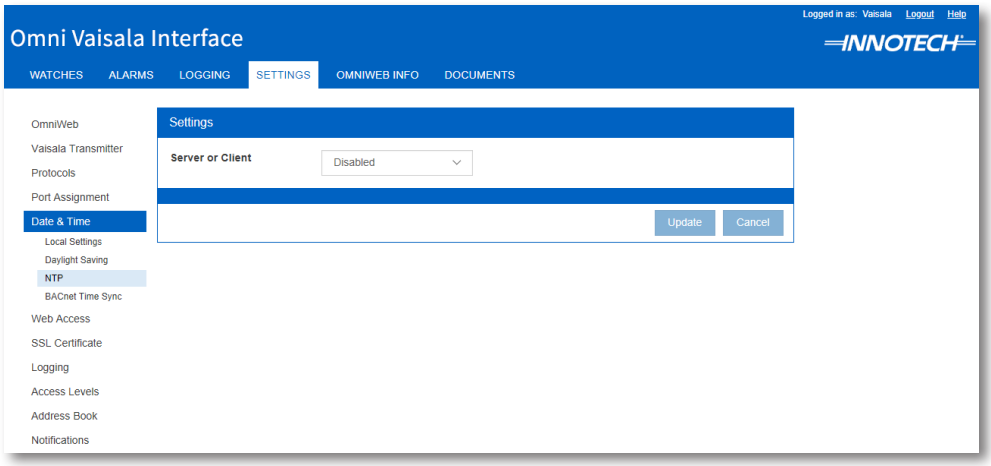


Figure 2-42: Settings - Date and Time - NTP Settings

Server

Select Server from the combo box to set the device as the server for other devices on the network.

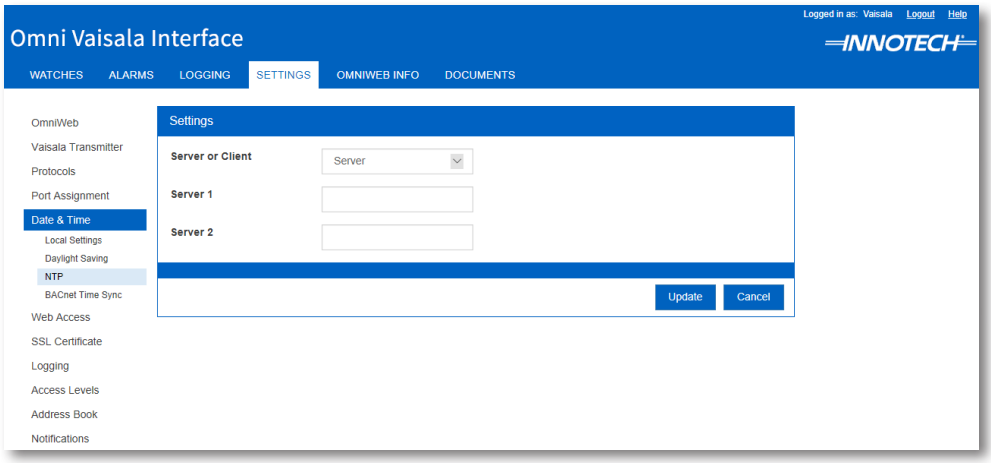


Figure 2-43: Settings - Date and Time - NTP Server Settings

The Network Time Protocol is used to set this device's Time and Date via an NTP server. The configured device can then time sync any locally connected Innotech devices and BACnet devices, as described elsewhere, if required via the configurable options.

Client

Select Client from the combo box to enable the device to sync its time settings from a specified server. The server specified is an IP address. Two servers can be specified for a backup. The IP can be a Server specified device or other time server available on your network.

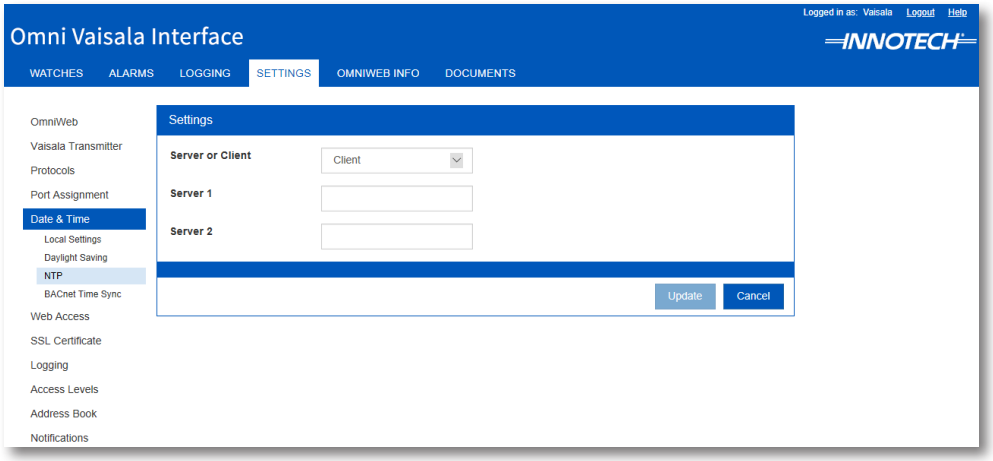


Figure 2-44: Settings - Date and Time - NTP Client Settings

2-4.4.8 BACnet Time Sync

Make a selection from the Time Sync Accepted combo box and then click the Transmit Time Sync Enabled button to show the settings. The interval settings specifies the interval at which Time sync messages are transmitted.

After editing your settings, click Update to update your device.

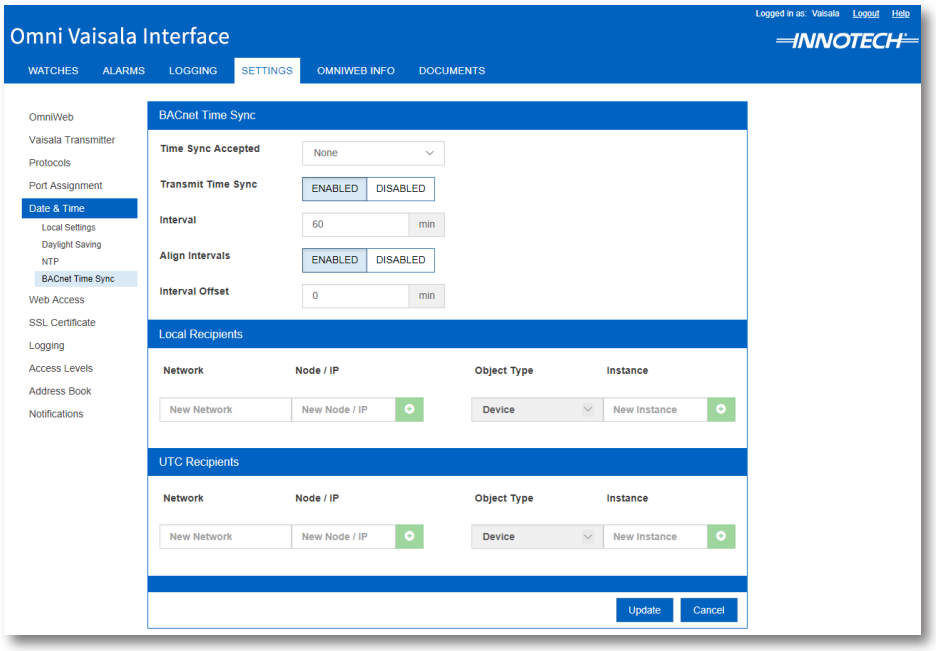


Figure 2-45: Settings - Date and Time - BACnet Time Sync Settings

BACnet time sync is used to synchronise the date and time across a BACnet network. When the Transmit Time Sync is enabled the device is responsible for synchronising the recipient's date and time to match its own. The Recipient must be configured to accept Time Sync messages. For Omni devices this is done via the Time Sync settings, for other BACnet devices this would have to be configured as per their own settings.

Once configured the Omni device will transmit Time Sync messages based on the Interval and other settings selected. Both Local Time sync messages or UTC Time sync messages can be transmitted. Local Time syncs will set the Recipients date and time to exactly match the Master device. This is useful in situations where BACnet devices do not support Timezones. UTC Time syncs will cause the Recipients date and time to synchronise to the Masters but it will apply it's own timezone offset. This is useful in situations where the BACnet device support timezones and the BACnet network may be connected across multiple zones.

Best practice for Omni devices is to use UTC time syncs and have the Timezone set correctly.

Table 2-5: BACnet Time Sync Settings

Setting	Description
Time Sync Accepted	Can be set to None, Local, UTC or Both. This setting means that the device will accept Time Sync requests from other BACnet devices on the network. *Local* - The Local Time is uses to synchronise the recipient's date and time. This is best used when the recipient does not support timezones. *UTC* - The Global UTC Time is used to synchronise the recipient's date and time. This is best used when the recipient supports timezones. **Note**: The timezone needs to be correctly set on all devices.
Transit Time Sync	Enable this device as a Time Sync Master - this option will send time sync messages to the network.
Interval	Interval at which the time sync occurs.
Align Intervals	When enabled and the Interval is a factor of (divides without remainder) an hour or day, then the beginning of the period specified for time synchronisation shall be aligned to the hour or day, respectively.
Interval Offset	Allows the time sync to be offset by a number of minutes from the alignment with the hour or day. The offset used shall be the value of [Interval Offset] modulo [the value of Interval]. For example if Interval_Offset has the value 31 and Interval is 30, the offset used shall be 1 minute.
Recipient Lists	This table lists the Local and UTC recipients to be time synced with this device. You can enter information for Network devices, BACnet objects or both. All items listed will be synced.

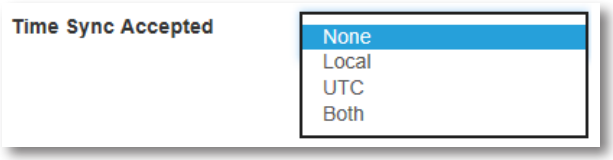


Figure 2-46: Settings - Date and Time - BACnet Time Sync Accepted

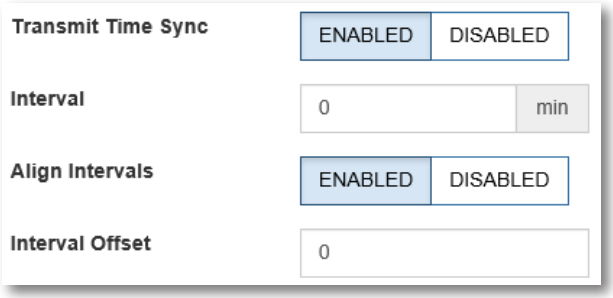


Figure 2-47: Settings - Date and Time - BACnet Transmit Time Sync

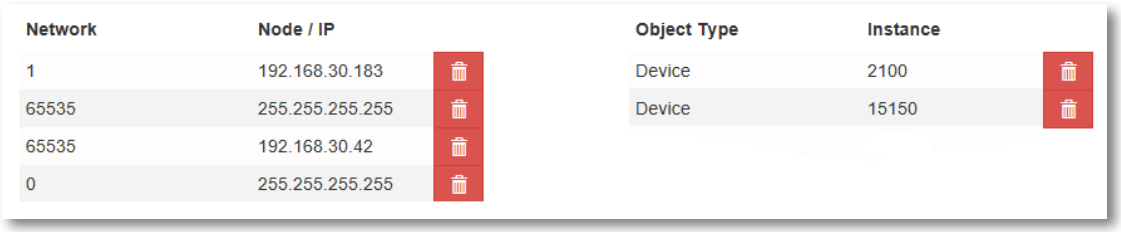


Figure 2-48: Settings - Date and Time - BACnet Time Sync Recipients

Table 2-6: Recipient Settings via BACnet Address

Network	Address	Network			Address		
	Node/IP	Specific	Local	Global	IP	MS/TP Node	Broadcast
1	192.168.x.x	✓	×	×	✓	×	×
1	255.255.255.255	✓	×	×	×	×	✓
1	110	✓	×	×	×	✓	×
0	192.168.x.x	×	✓	×	✓	×	×
0	255.255.255.255	×	✓	×	×	×	✓
0	110	×	✓	×	×	✓	×
65535	192.168.x.x	×	×	✓	✓	×	×
65535	255.255.255.255	×	×	✓	×	×	✓
65535	110	×	×	✓	×	✓	×

Network Number values in the table relate to the following: 1-65534 (a specific Network on the BACnet Internetwork), 0 (Local Broadcast), 65535 (Global Broadcast).

To send a Time sync to a specific BACnet MS/TP device then specify the MSTP Node Addresses of the device (0-255). To broadcast to all MSTP devices then use the Broadcast Address of 255.255.255.255.

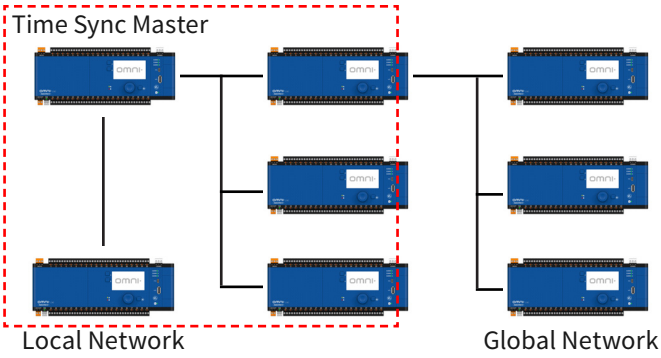


Figure 2-49: Settings - Date and Time - Indicative Network Layout

Local BACnet Network devices are connected to the Time Sync Master. Global BACnet network devices are connected via devices connected to the Time Sync Master.

2-4.4.9 Web Access Settings

The Web Access Settings page is for changing the general access settings for the device. After changing the settings, click Update to update the device.

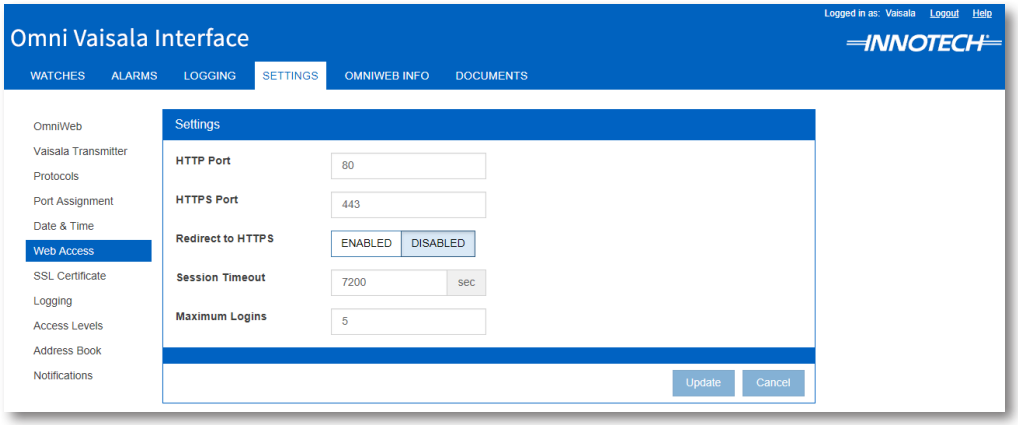


Figure 2-50: Settings - Web Access

2-4.4.10 HTTPS Information

Introduction

HTTPS connection is a protocol for secure communication over a computer network which is widely used on the Internet.

HTTPS provides two main benefits to the user.

1. Trust
   It provides authentication that the web server you want to communicate to is actually the one you think it is. This protects against man-in-the-middle attacks.
2. Encryption
   It provides bi-directional encryption of communications between a client and server, which protects against eavesdropping and tampering with or forging the contents of the communication.

From the page (shown on the previous page) you have the ability to specify a secure HTTPS port. Enabling Redirect to HTTPS will ensure that if the IP is entered in the browser without HTTPS, it will automatically redirect the browser to the secure page.

On sites that the device is port forwarded to an external IP and you want to use HTTPS, you will also need to port forward the HTTPS port as well as the HTTP port.

By default HTTPS is always available it you want to use it. To use HTTPS, simply enter in a browser *https://IPAddress* as seen below.

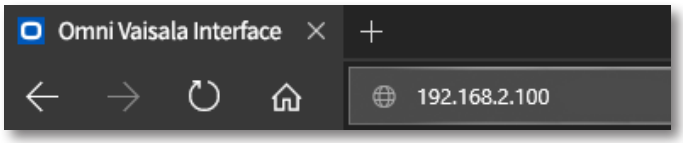


Figure 2-51: Settings - Web Access - HTTPS Address In Browser

2-4.4.11 Certificate Information & Installation

By installing a certificate on your computer or tablet, your connection will become a trusted connection. Browsers can give you information about the HTTPS connection. Normally by the colour of the HTTPS lock will let you know if the connection is secure. For example: in Chrome (computer) you can get more information by clicking on the HTTPS lock and get access to the following information by clicking on the Details link.

If a certificate is not installed, you may see a screen like below.

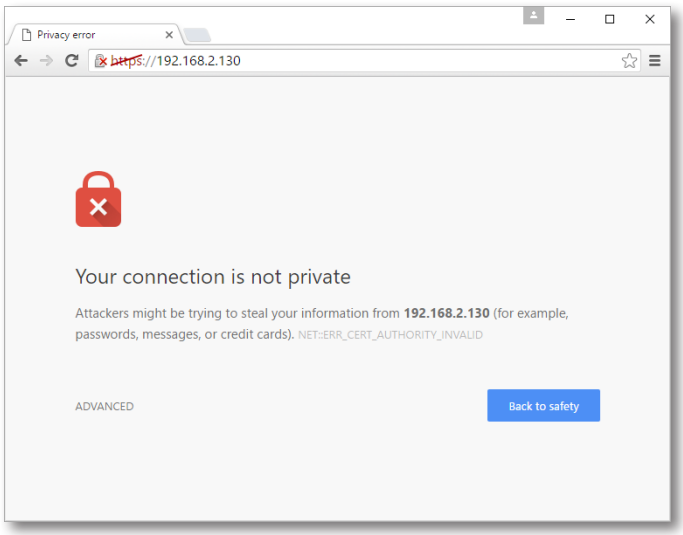


Figure 2-52: Settings - Web Access - Untrusted Connection (Chrome)

This error means that the browser cannot verify the trust component of HTTPS. If the user continues the connection is still secure, but the Omni certificate is unknown to the browser. The browser doesn't know if the certificate is really who it says it is and therefore tells the user that there might be an issue.

You can continue on from this error by clicking advanced and the connection will still be secure, however it will always have a red line through HTTPS whenever you go to this device.

Browsers base trust on if the certificate is chained or derived from a "Trusted Root Certificate Authority" certificate that is installed into the browser's certificate store by default. There are many places you can get or purchase certificates from. The free certificates expire after about 60 days, and the longest one you can purchase works for about 3 years.

As such we are unable to install a trusted certificate into the Omni by default as eventually they will expire and also you have to purchase them for a particular domain the site will be using.

We have made and Innotech "Trusted Root Certificate Authority" certificate which the user can import to their computer or device and when they access any Omni device anywhere, the browser will trust it and you will not get any warnings or red lock symbols etc.

For a business with a managed IT network, the IT department would be able to include our certificate to be automatically installed into the machines they manage. However, you can also manually do it various ways. The certificate must be installed into the "Trusted Root Certificate Authorities" certificate store on your computer.

Certification Installation - Computer

1. Double click the certificate file and click Install Certificate.

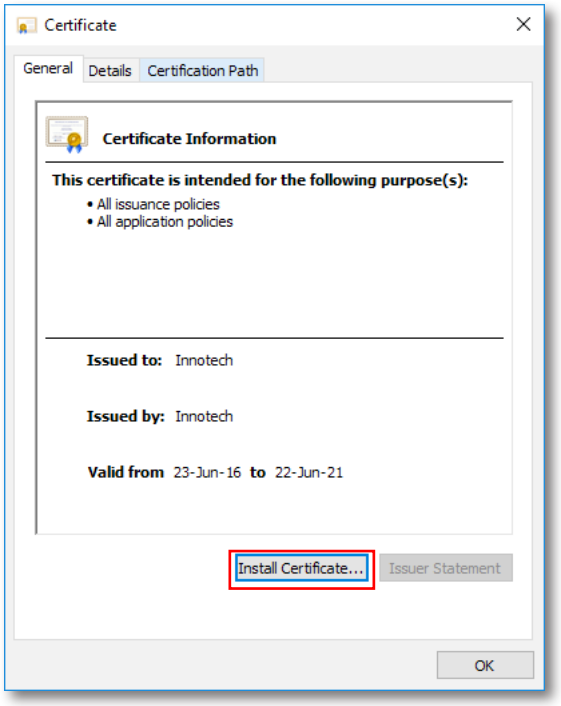


Figure 2-53: Settings - Install Certificate Window

The Innotech Certificate is available for free by contacting your Innotech representative.

2. Select Current User or Local Machine (depending on your preference) and click Next.

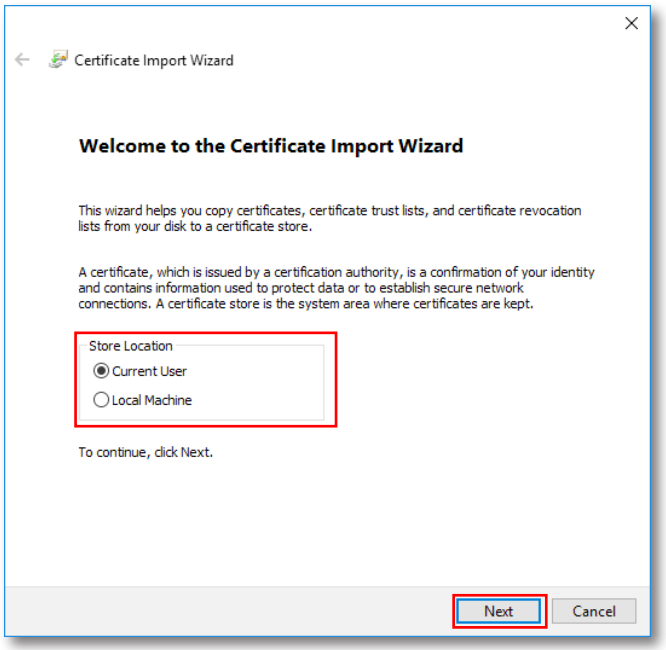


Figure 2-54: Settings - Certificate Import Wizard

3. Select "Place all certificates in the following store" and click Browse. In the window, select "Trusted Root Certification Authorities" and click OK. Click Next and OK to finish installing the certificate.

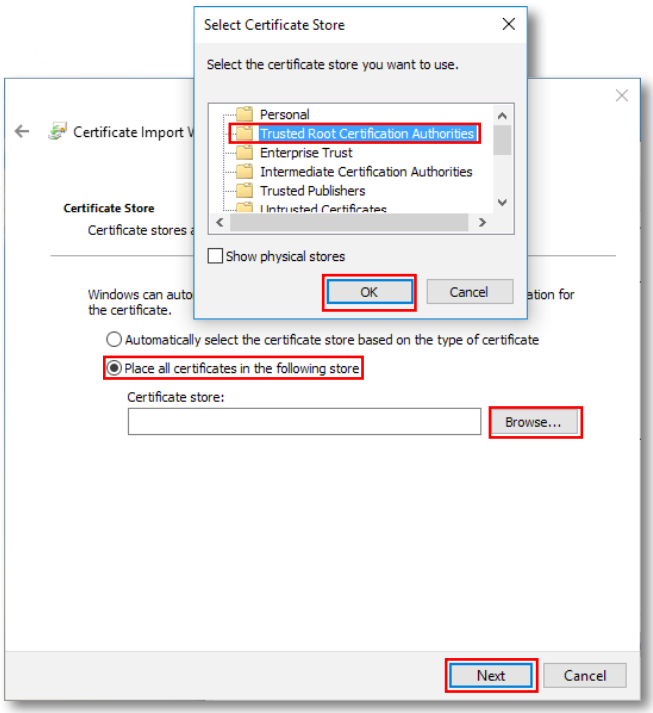


Figure 2-55: Settings - Select Certificate Store

Certification Installation - Android
This procedure provides details on installing HTTPS Certificates on the most common Android tablet types.

Installation of the security certificate on an Android device requires that a secure pin, password or security pattern be set on the device.

1. Connect your Android tablet to your computer via a USB cable. You may be asked if you wish to allow access via USB, if so select Yes.

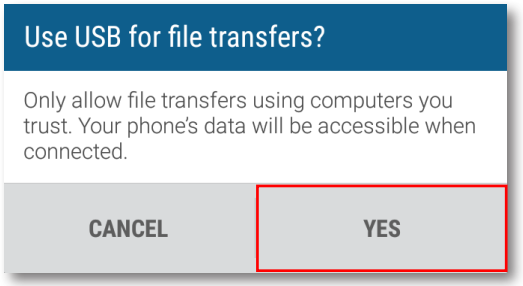


Figure 2-56: Settings - Android Certificates (USB Confirmation)

2. Copy the innotech-omni-CA.crt file to your Android device.
3. Find the file on your Android device and press on the .crt file to open.
4. Press OK.
   If you do not have security setup on your device, a popup appears which says "To use credential storage, set the screen lock type pattern, PIN or password". Set a code or pattern.

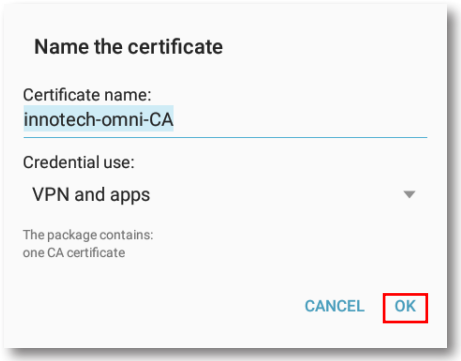


Figure 2-57: Settings - Android Certificates (Name the Certificate)

5. After installation, "innotech-omni-CA installed" will appear on the screen.

Figure 2-58: Settings - Android Certificates (Install Confirmation)

To view the certificate:
Samsung Tab A (v6.0.1): Go to Settings > Lock Screen and Security > Other Security Settings > View Security Certificates. Tap on Users. Tap Innotech Pty Ltd to view the details of the security certificate.

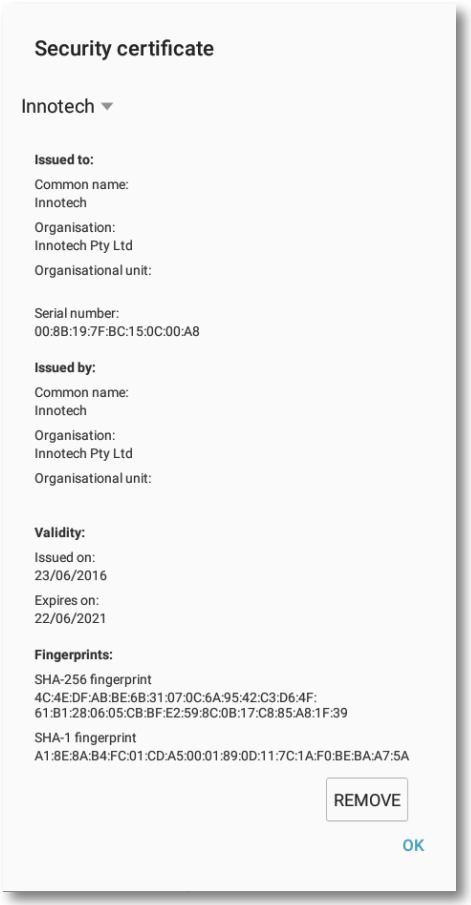


Figure 2-59: Settings - Android Certificates (View Certificate)

The Android procedure was tested with Android v6.0.1 using a Samsung Galaxy Tab A.

Android is a registered trademark of Google Inc.

Certification Installation - iPad
This procedure provides details on installing HTTPS Certificates on the iPad.

The easiest way to install a HTTPS Certificate on an iPad is by sending the certificate to the iPad via email.

1. Once the file is downloaded, press on the file.
2. After pressing on the file, the iPad will show some notices about being a trusted file and the verified Innotech security certificate is ready for use.
3. The certificate can be found in:
   Settings > General > Profile > Innotech > Certificate

After installation a secure connection should be seen when connecting to your device.

If email is unavailable on your device, you can copy the certificate to your device using iTunes.

Viewing the Certificate

1. In the settings select General and press Profile.

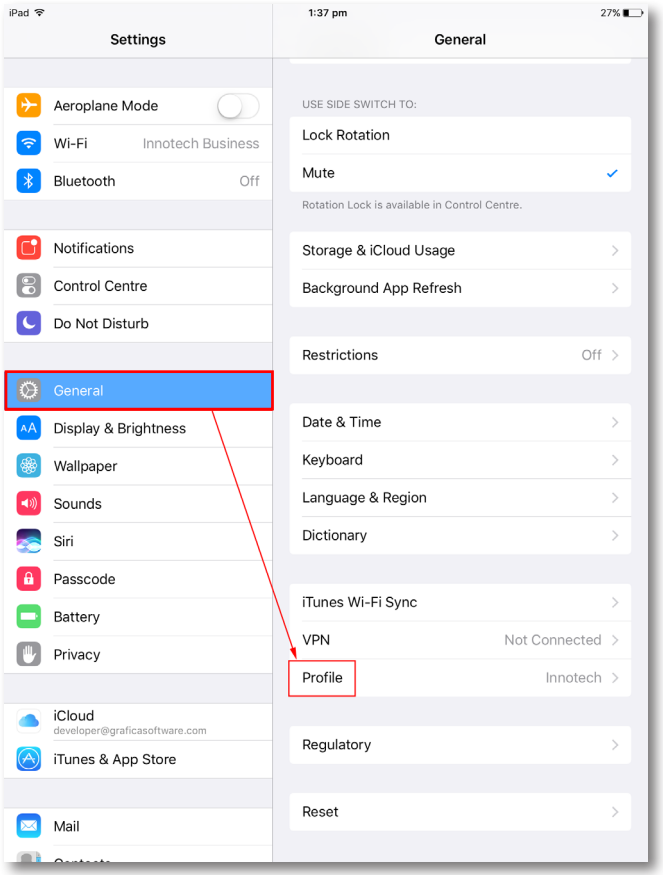


Figure 2-60: Settings - iPad Certificates (General Settings)

2. Press the Innotech Profile.

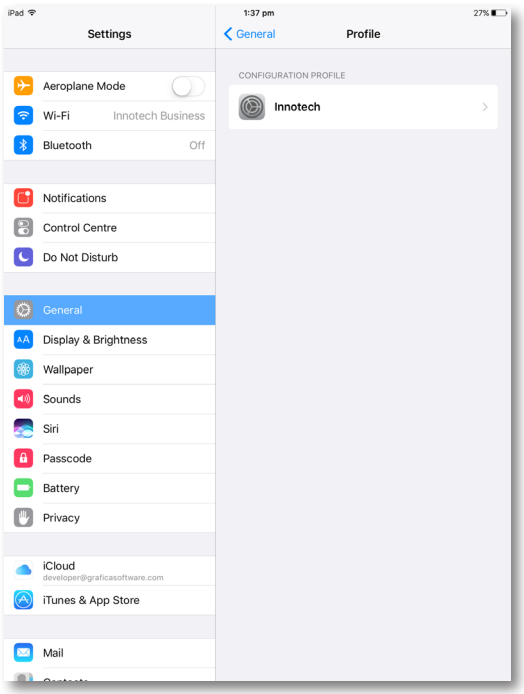


Figure 2-61: Settings - iPad Certificates (Available Profiles)

3. The certificate will be shown.

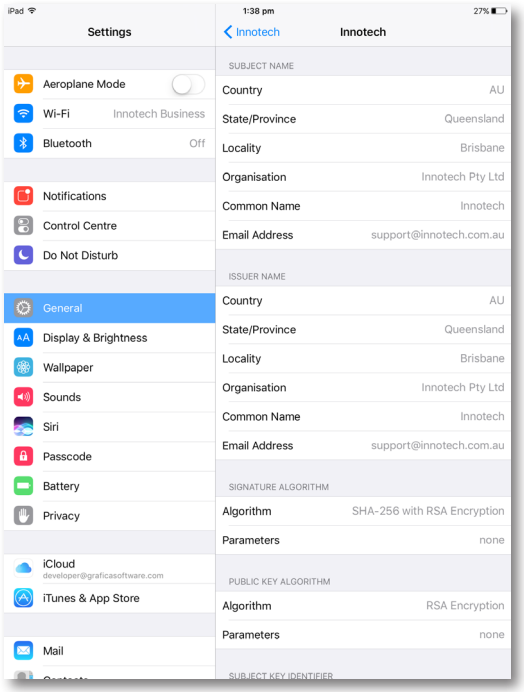


Figure 2-62: Settings - iPad Certificates (Profile Details)

iOS *The iPad procedure was tested with an iPad Mini 2 using iOS® 10.*
IOS® is a registered trademark of Cisco Inc., licensed to Apple Inc.

2-4.4.12 SSL Certificate

The Omni Vaisala Interface can generate security certificates for connecting to your device using HTTPS. In this section, choose to either use the Omni generated security certificate or a 3rd party certificate. Add an Alternative Name (DNS) if required and click Update, then click Regenerate Certificate to create a new Security Certificate.

IMPORTANT

Regenerating a new certificate will erase the existing certificate.

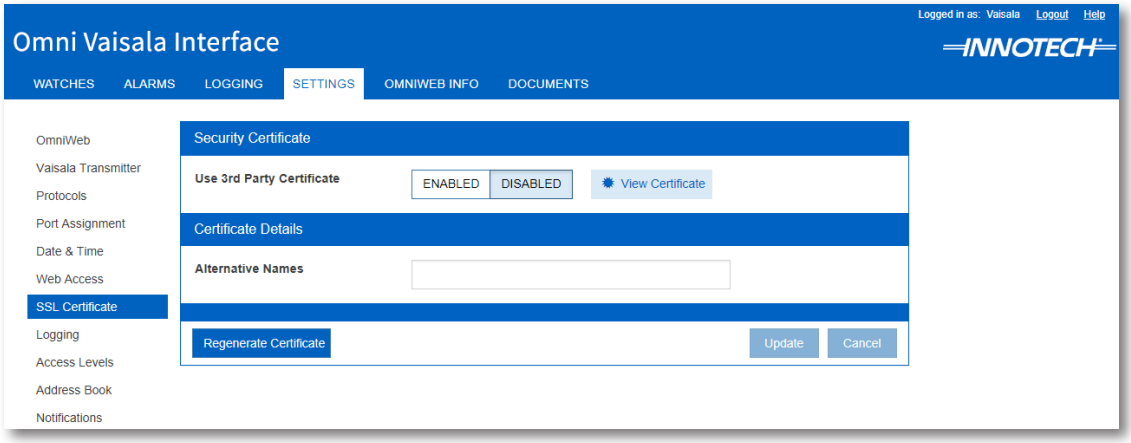


Figure 2-63: Settings - SSL Certificate - Use Omni Certificate

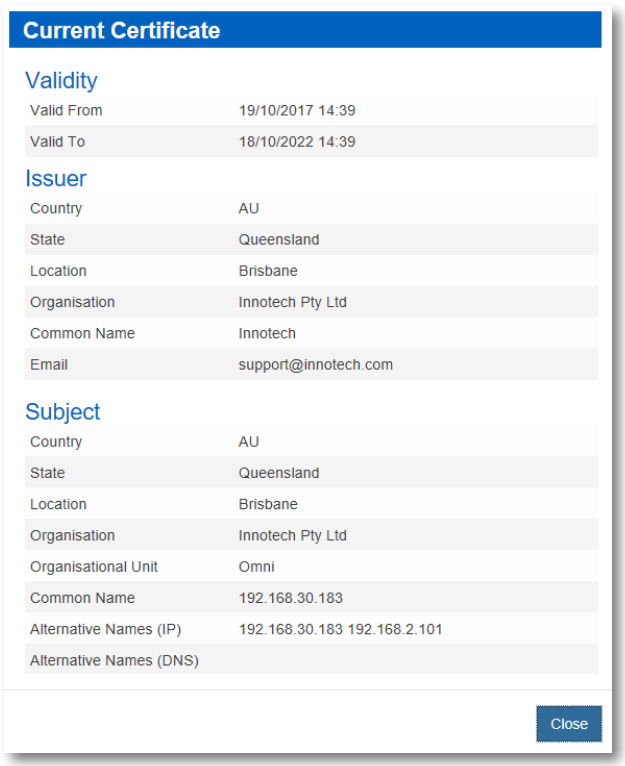


Figure 2-64: Settings - SSL Certificate - View Current Certificate

3rd Party Certificates

Click the Enabled button to prepare a Certificate Signing Request for your 3rd party certificate provider or to upload your certificate.

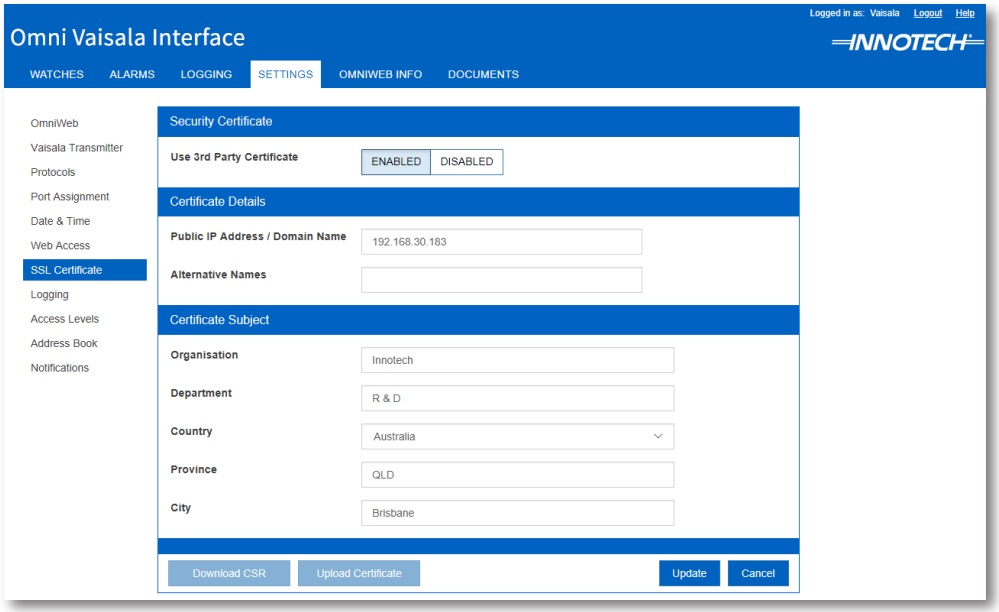


Figure 2-65: Settings - SSL Certificate - Use 3rd Party Certificate

IMPORTANT

Use with caution, downloading a new CSR will invalidate any previous CSR's that you have not uploaded certificates for.

Before uploading a 3rd party certificate you need to send your CSR (Certificate Sigining Request) file to the 3rd party certificate supplier.

1. Fill in the Certificate Details and Certificate Subject section.
2. Click Update.
3. Click Download CSR, read the warning, click Continue and save the file to your computer.
4. The CSR needs to be provided to the certificate supplier. Once approved, they will send you back a .crt or .cert file.

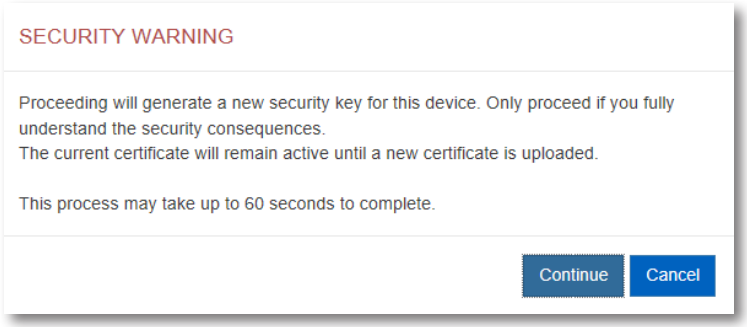


Figure 2-66: Settings - SSL Certificate - Download CSR Warning

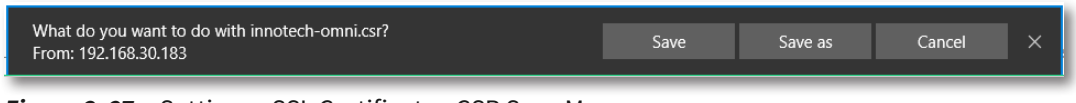


Figure 2-67: Settings - SSL Certificate - CSR Save Message

5. Click Upload Certificate, read the security warning and click Continue.
6. Use the Upload Window to select your certificate file to upload to the device.

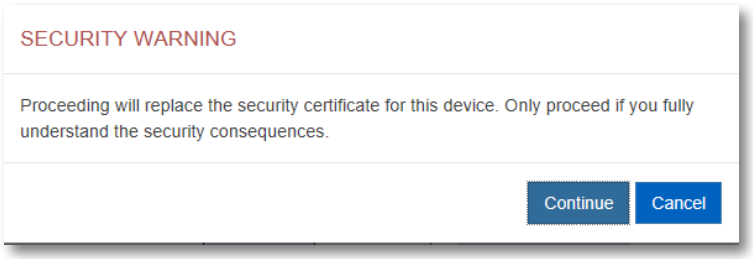


Figure 2-68: Settings - SSL Certificate - Upload Certificate Warning

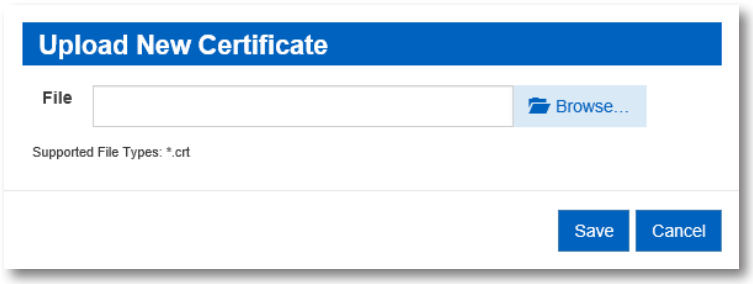


Figure 2-69: Settings - SSL Certificate - Upload Certificate Window

2-4.4.13 Logging

The Logging settings are for specifying the default diagnostic log interval and the system log level.

1. Change the settings as required.
2. Click Update to update the device.

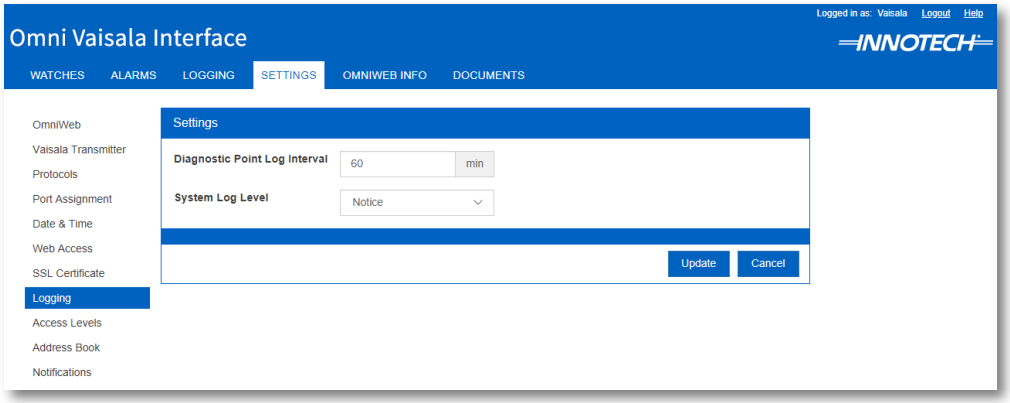


Figure 2-70: Settings - Data Logging

System Log Level

The System Log Level combo specifies what data is logged.

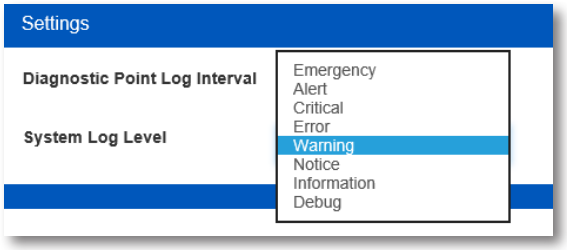


Figure 2-71: Settings - System Log Levels

Table 2-7: System Log Levels

Log Level	Description
Emergency	Severe error events, system unusable.
Alert	Severe error events that would require immediate action.
Critical	Severe error events, critical condition.
Error	Error event that might still allow the system to continue running.
Warning	Message about potentially harmful situations.
Notice	Messages that highlight the progress of the system at the highest level.
Information	Messages that highlight the progress of the system at a course-grained level.
Debug	Events that are most useful to debug an application, contains detailed info per operation.

2-4.4.14 Access Levels

This section is used to view access level groups. There are 4 access levels: Commissioner, Client, Administrator and No Access. Each level has different access allowed to the web server. Access levels cannot be edited.

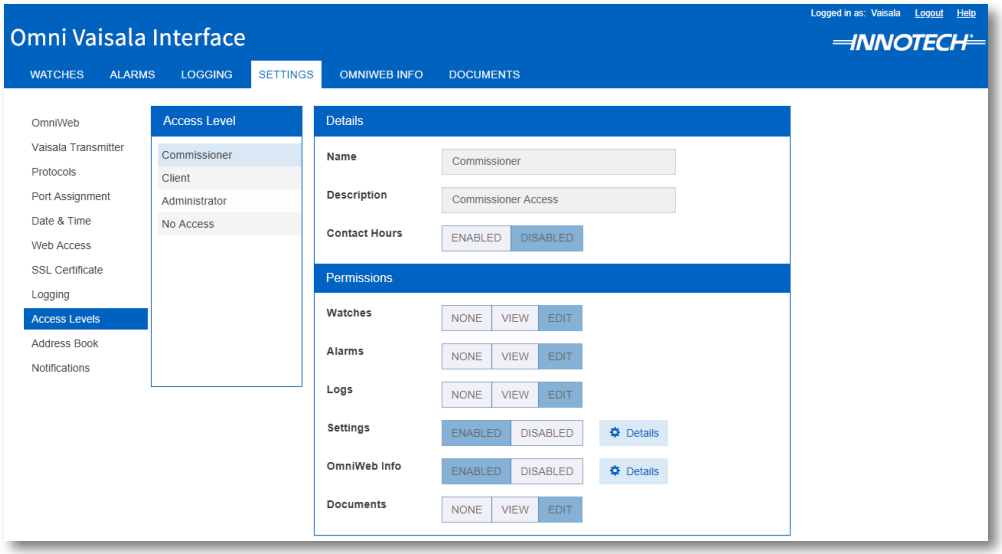


Figure 2-72: Settings - Access Levels

Table 2-8: Access Levels

Access Level	Permissions					
	①	②	③	④	⑤	⑥
Commissioner	Edit	Edit	Edit	Enabled	Enabled	Edit
Client	Edit	Edit	Edit	Enabled	Enabled	View
Administrator	None	None	None	Enabled	Enabled	None
No Access	None	None	None	Disabled	Disabled	None

① Watches
② Alarms
③ Logs
④ Settings
⑤ OmniWeb Info
⑥ Documents

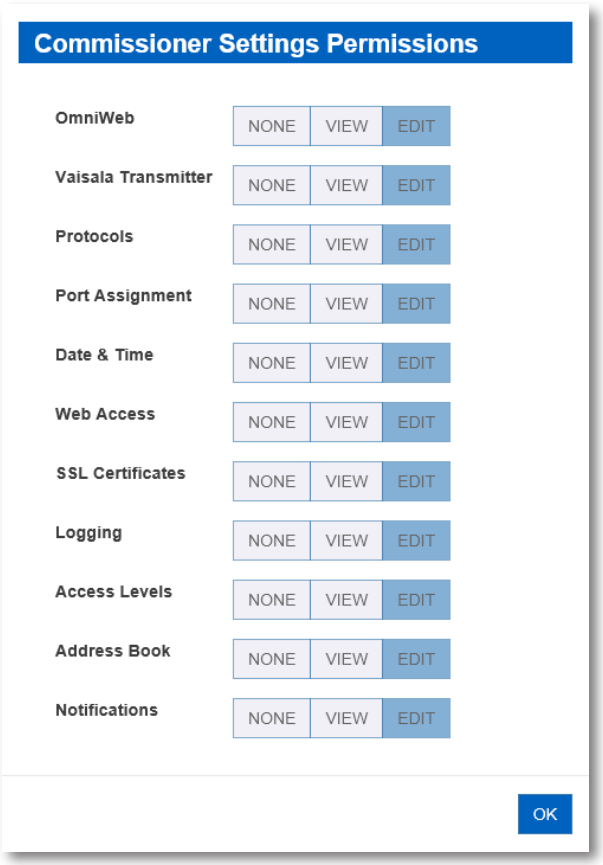


Figure 2-73: Settings - Access Levels Settings Permissions

Table 2-9: Access Levels - Settings Permissions

Access Level	Permissions										
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
Commissioner	Edit	Edit	Edit	Edit	Edit	Edit	Edit	Edit	Edit	Edit	Edit
Client	None	None	None	None	Edit	None	None	None	None	None	None
Administrator	None	None	None	Edit	Edit	None	Edit	None	Edit	Edit	Edit
No Access	-	-	-	-	-	-	-	-	-	-	-

1. OmniWeb
2. Vaisala Transmitter
3. Protocols
4. Port Assignment
5. Date & Time
6. Web Access
7. SSL Certificate
8. Logging
9. Access Levels
10. Address Book
11. Notifications

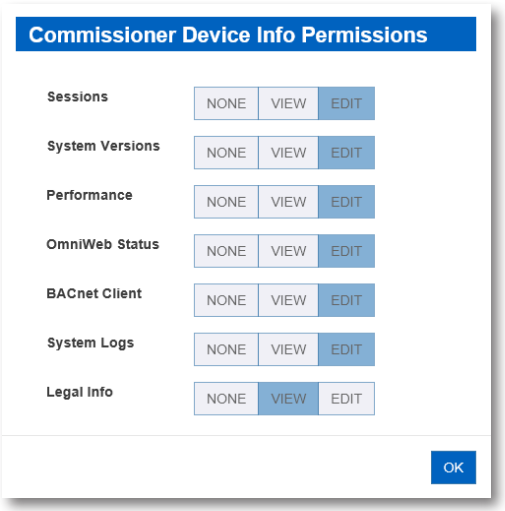


Figure 2-74: Settings - Access Levels Device Info Permissions

Table 2-10: Access Levels - Device Info Permissions

Access Level	Permissions						
	①	②	③	④	⑤	⑥	⑦
Commissioner	Edit	Edit	Edit	Edit	Edit	Edit	View
Client	View	View	View	View	None	View	View
Administrator	Edit	View	View	View	None	View	View
No Access	-	-	-	-	-	-	-

1. Sessions
2. System Versions
3. Performance
4. OmniWeb Status
5. BACnet Client
6. System Logs
7. Legal Info

2-4.4.15 Address Book

Use the Address Book to add new user access to the device. You must have sufficient access to be able to add new users. Only Commissioner and Administrator level users can access the Address Book to add a user.

Add a new User

1. Add a new user by clicking the Add button.
2. Fill in the fields and click Update to add the user.

Figure 2-75: Settings - Add User Button

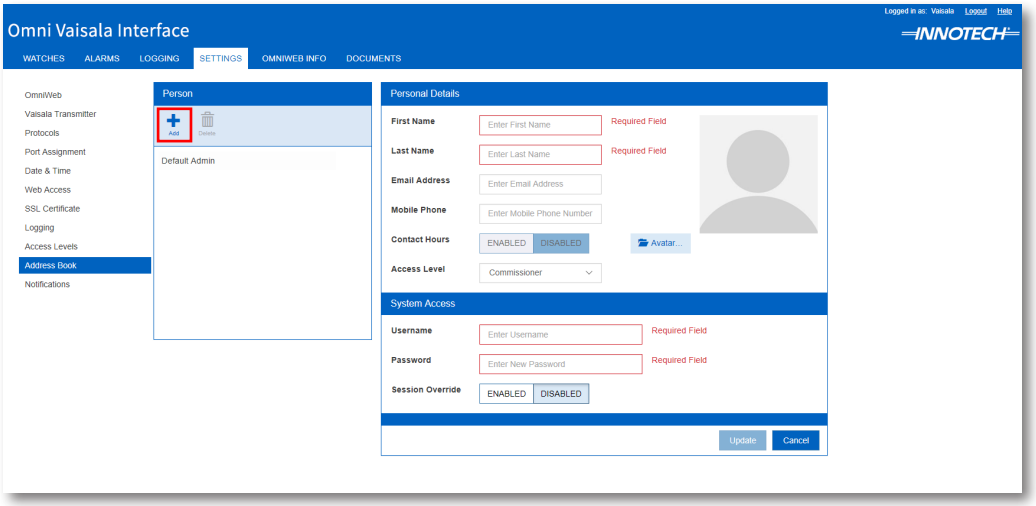


Figure 2-76: Settings - Add User Details

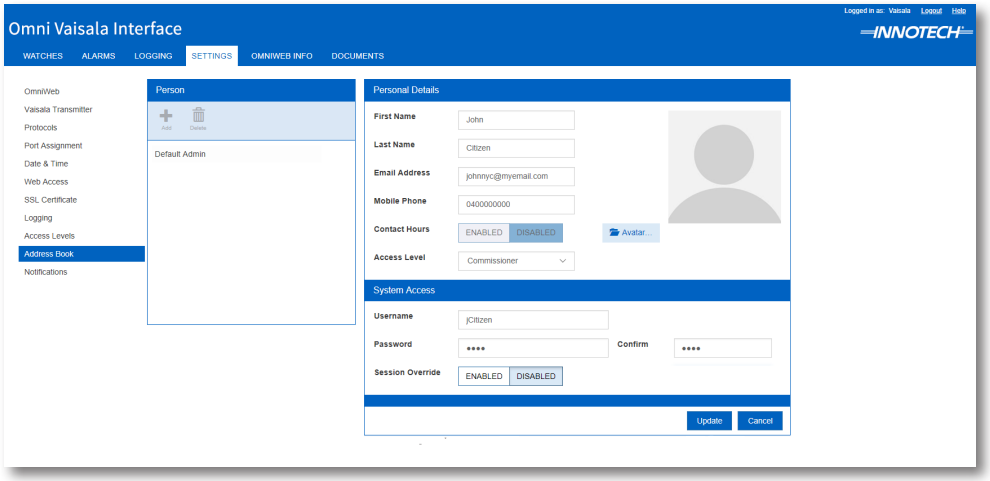


Figure 2-77: Settings - New User Details

Delete a User

1. Select the user from the list.
2. Click the Delete button.

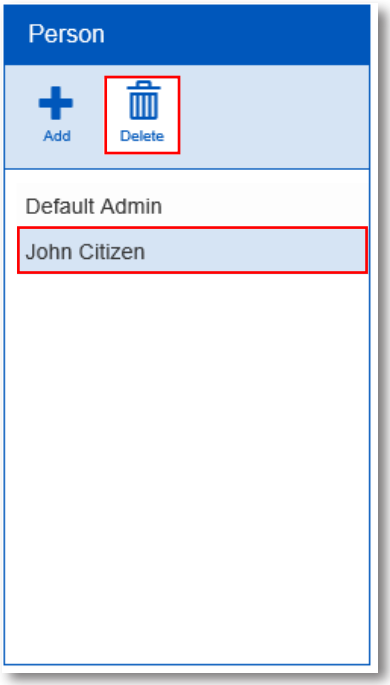


Figure 2-78: Settings - Select User for Deletion

IMPORTANT

When deleting, ensure at least one user is left. If all users are deleted, you will not be able to login to your device and will need to Contact Innotech for assistance.

You must also consider when removing users that at least one remaining user should have Commissioner or Administrator Level Access.

2-4.4.16 Notifications Type

The Notifications screen is for setting up Email and or Text Message alerts. System Email and Text messages are provided by default for Omni System Alert messages.

Email Notifications

1. Click Enabled to enable Email alerts.
2. Fill in the required details.
3. Click Update to update the device when done.

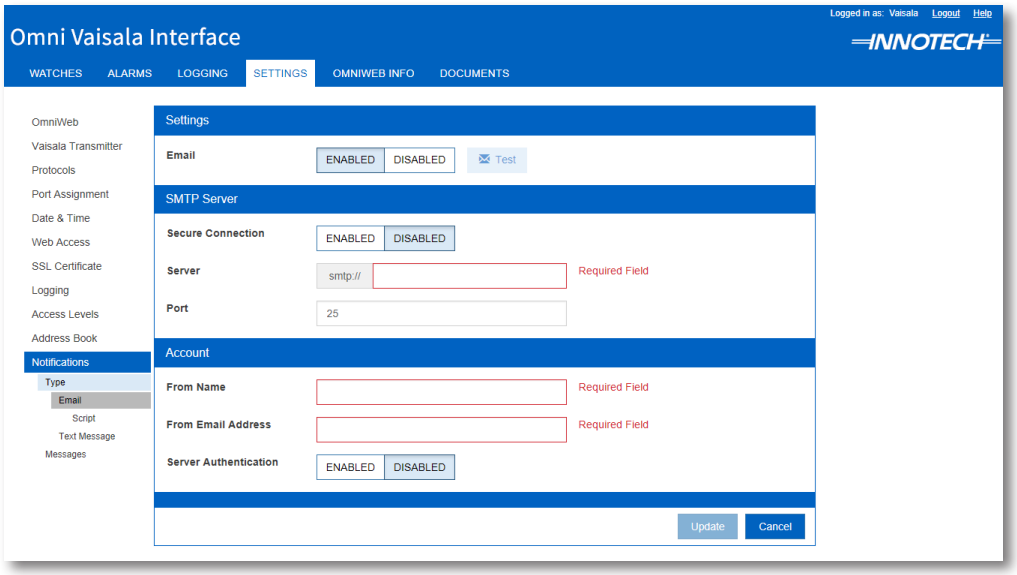


Figure 2-79: Settings - Notifications (Email)

Email Script

- Select the active email script - Default or Custom. You will not be able to change this setting if Email Notifications are not enabled.
- When Custom is selected, you can click the copy button to copy a script for editing.

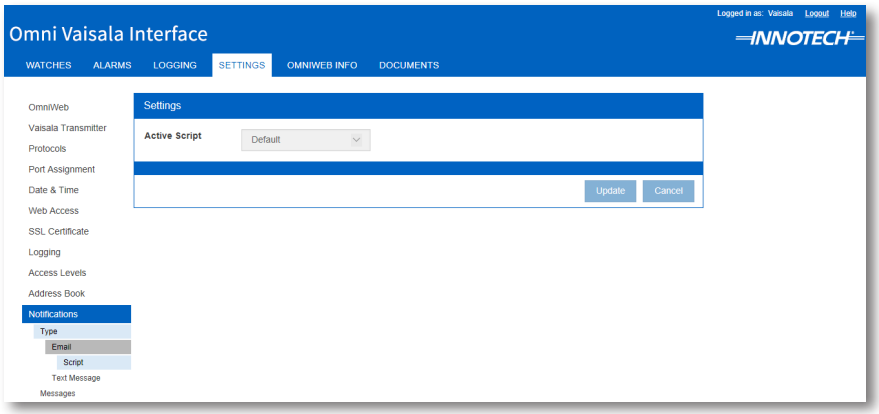


Figure 2-80: Settings - Notifications (Email Script Settings)

Text Message Notifications

1. Click Enabled to enable Text Message alerts.
2. Fill in the Server Phone Number details.
3. Click Update to update the device when done.

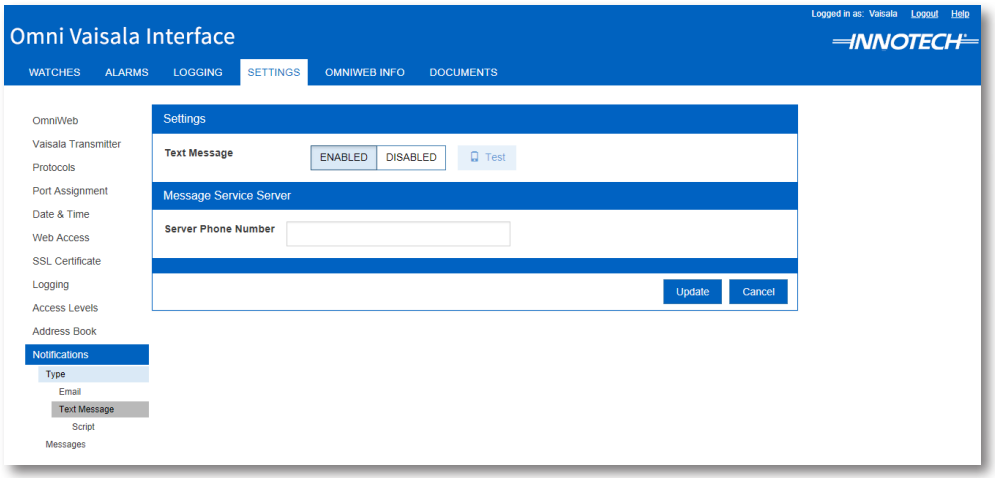


Figure 2-81: Settings - Notifications (Text Message)

Text Message Script

- Select the active script - Text-SAM2W, Text-SAM3GQ-USB or Custom. You will not be able to change this setting if Text Message Notifications are not enabled.
- When Custom is selected, you can click the copy button to copy a script for editing.

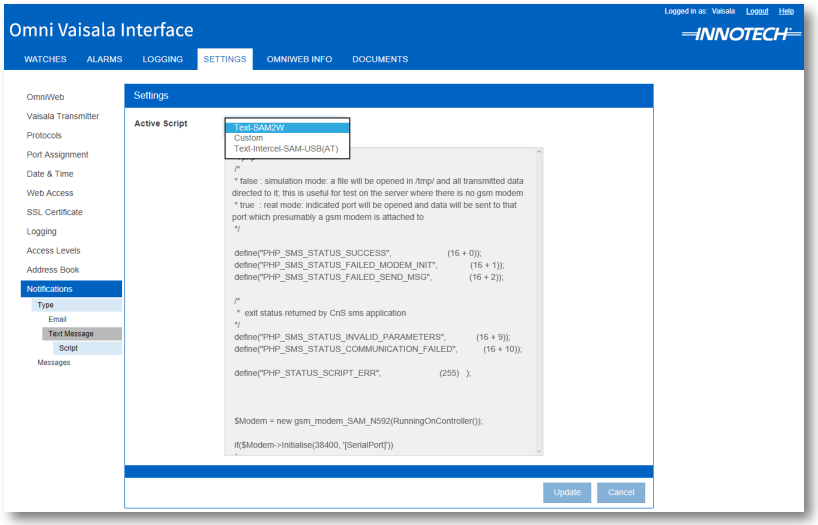


Figure 2-82: Settings - Notifications (Text Message Script)

2-4.4.17 Notifications Messages

The Notifications Messages screen is for setting up Email and or Text Message messages. You can create custom email and text messages. System Email and Text messages are provided by default for Omni System Alert messages.

IMPORTANT

Text Messages are suited to smaller alert messages.
Text messages may be truncated at 160 characters due to the limitations of the text messaging system.
If you require a message with multiple alarms, email would be more suitable.

Creating a new Message

1. Click the Add Button to create a new message.
2. Fill in Name and select Message Type.

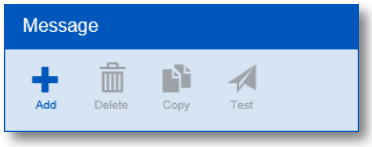


Figure 2-83: Settings - Notifications (Action Buttons)

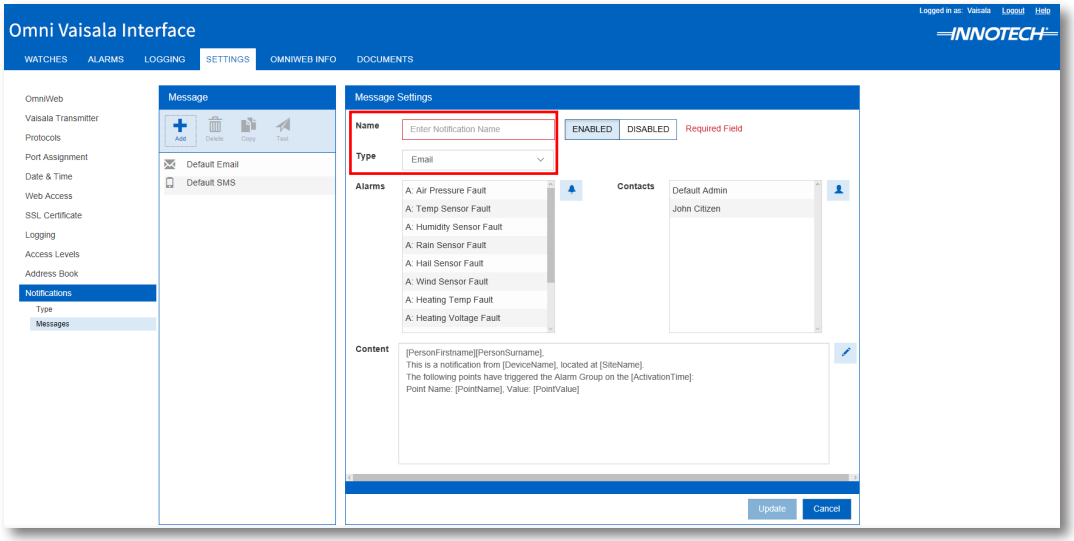


Figure 2-84: Settings - Notifications (Message Settings)

3. Click the Alarm button to select an alarm or alarms from the list.
4. Click an Alarm to select or deselect and click Update to update the list.

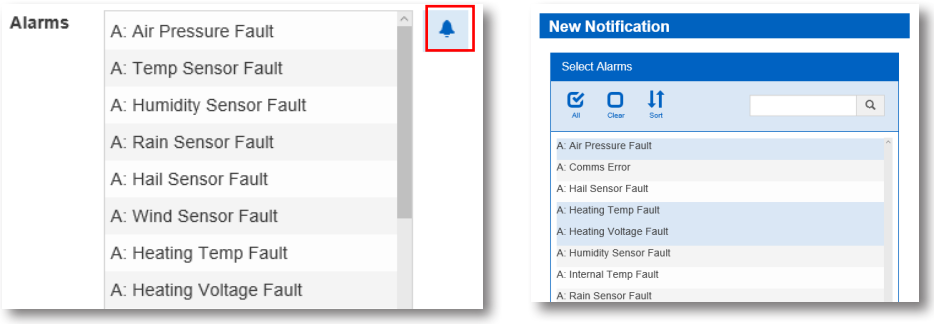


Figure 2-85: Settings - Notifications (Select Alarms)

5. Enter a message or customise the message by clicking the Customise button.
6. Type text and use fields to build your message, click Update when done.

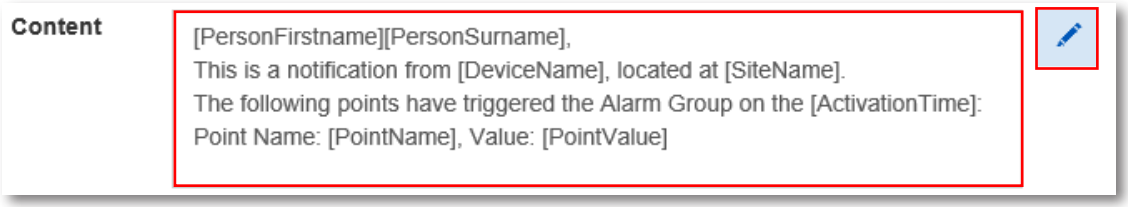


Figure 2-86: Settings - Notifications (Message Content)

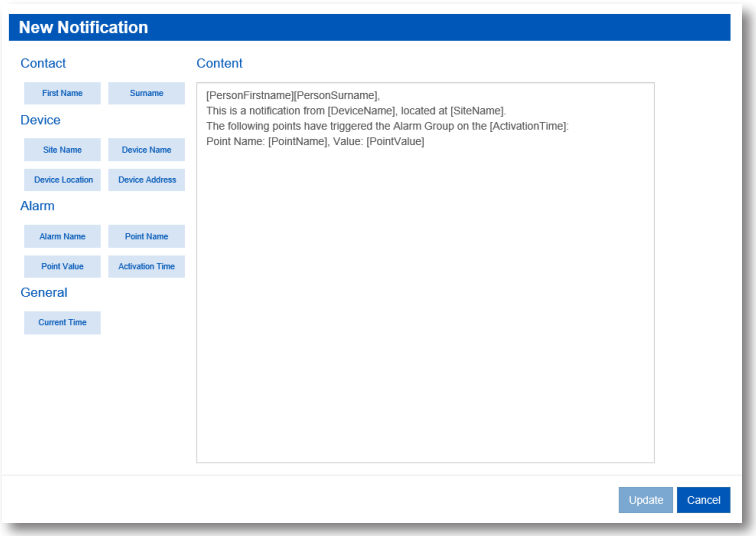


Figure 2-87: Settings - Notifications (Customise Message)

7. Click the Contacts button to select contact(s) from the list.

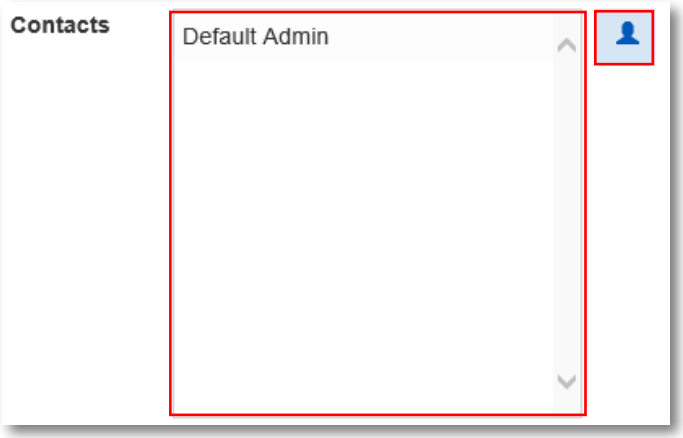


Figure 2-88: Settings - Notifications (Contacts Selected)

Figure 2-89: Settings - Notifications (Select Contacts Button)

8. Select or deselect contacts from the list.
9. Click Update when done.

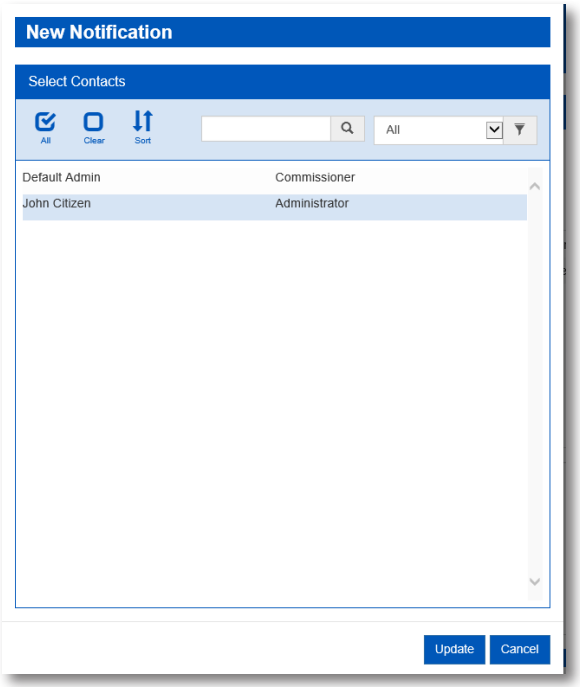


Figure 2-90: Settings - Notifications (Select Contacts)

10. Click Update to complete the message.

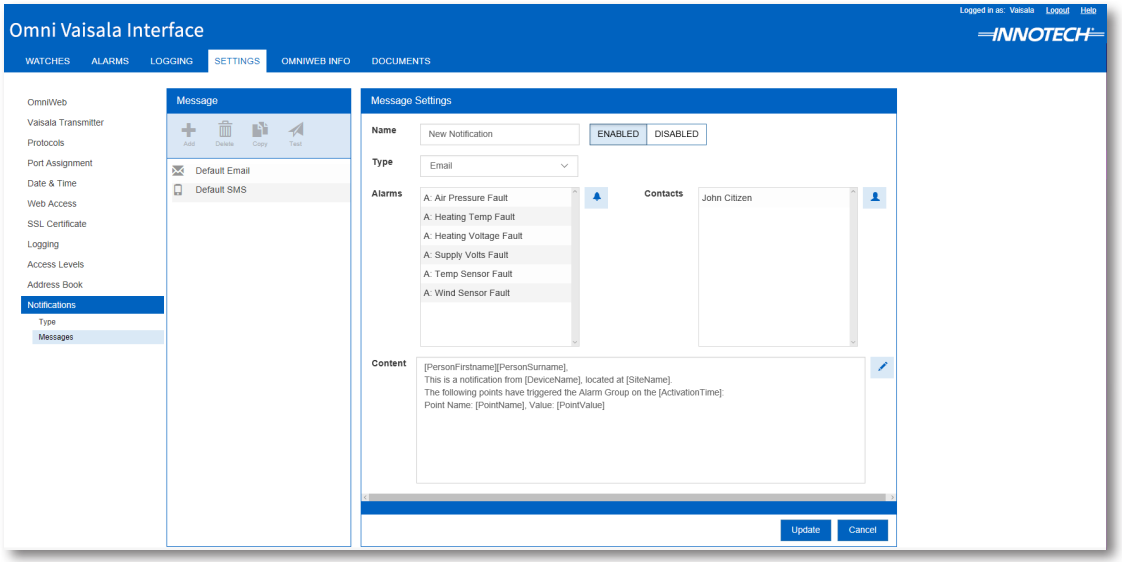


Figure 2-91: Settings - Notifications (Completed Message)

2-4.5 OmniWeb Info

This tab shows information about the connected OMWEB02 device. Select a category at the left to view device information.

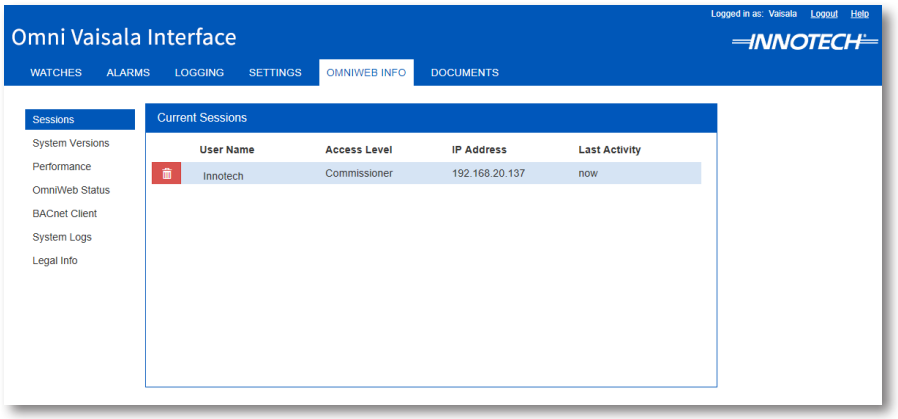


Figure 2-92: OmniWeb Info - Session Information

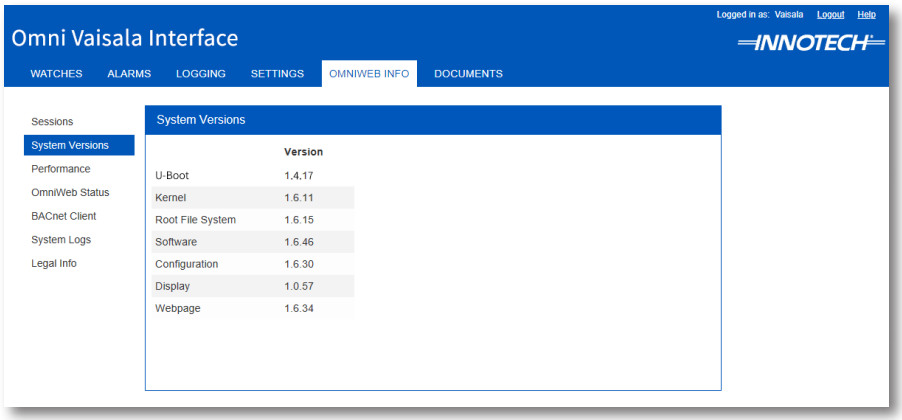


Figure 2-93: OmniWeb Info - System Versions

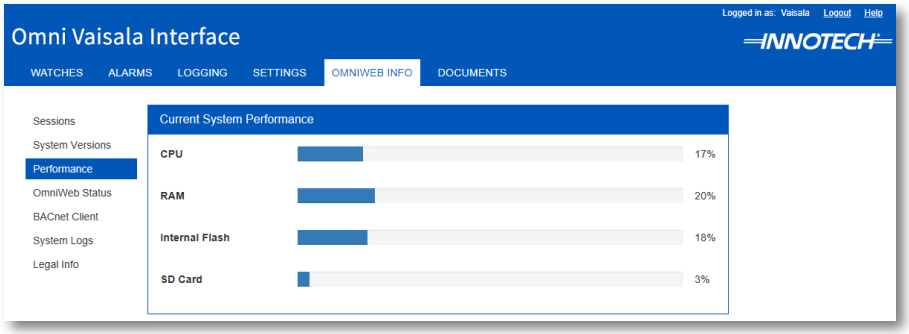


Figure 2-94: OmniWeb Info - Performance

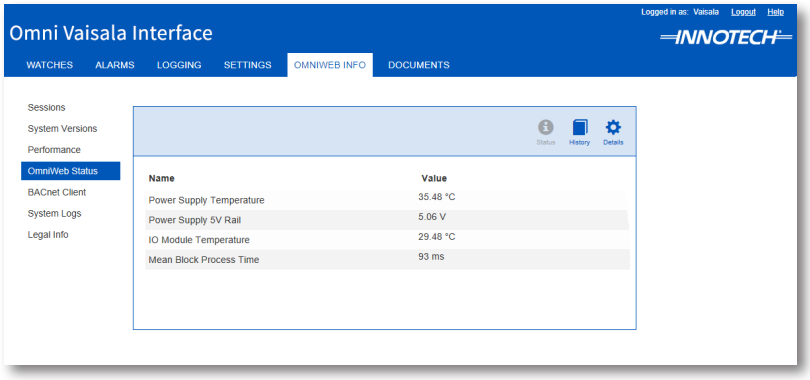


Figure 2-95: OmniWeb Info - OmniWeb Status

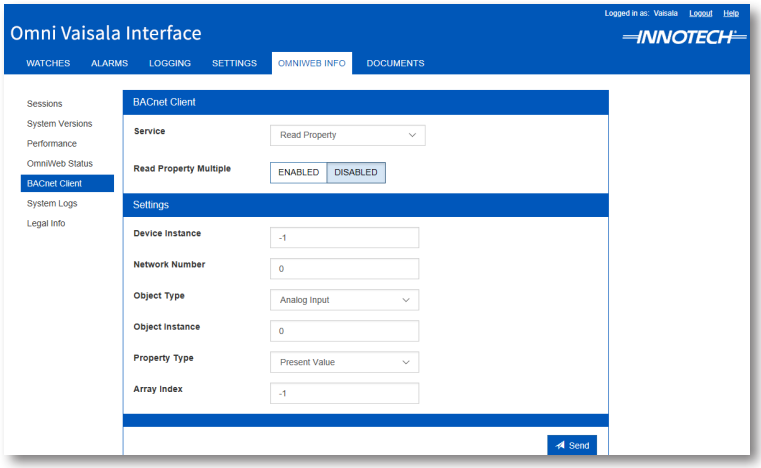


Figure 2-96: OmniWeb Info - BACnet Client

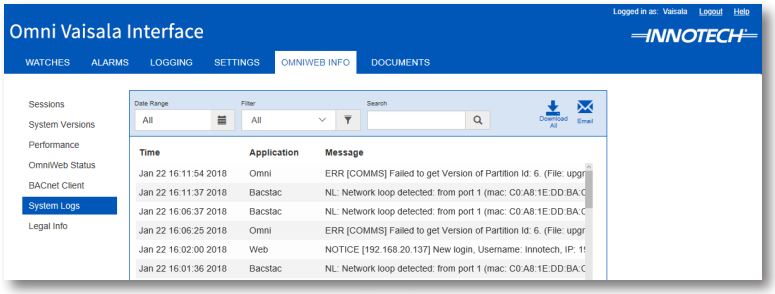


Figure 2-97: OmniWeb Info - System Logs

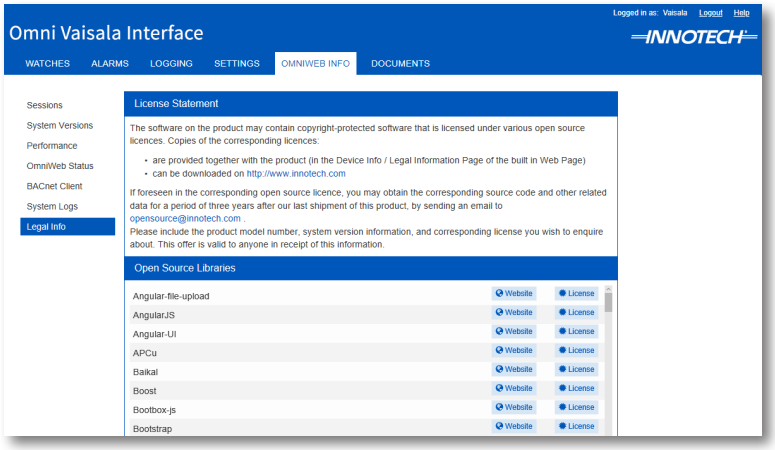


Figure 2-98: OmniWeb Info - Legal Info

2-4.6 Documents

The Documents tab contains factory supplied Product Documents. The Product Documents may be updated when the firmware is updated.

In the Product Documents section, click the file to download the file.

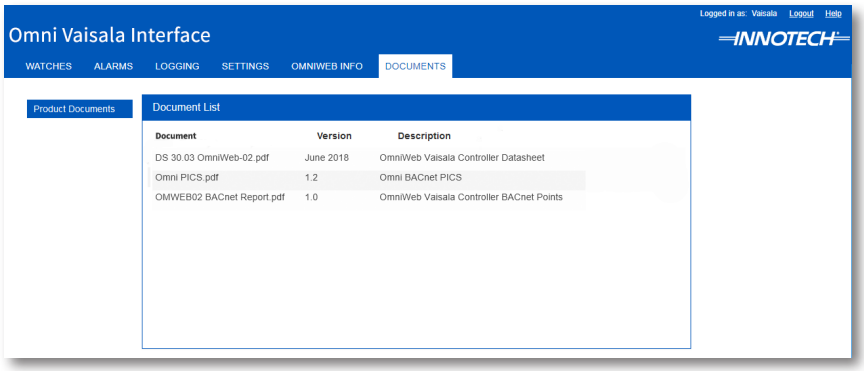


Figure 2-99: Documents - Product Documents

2-4.7 Logging Out

Log out from the web server by clicking the Logout link at the top of the screen at any time. After clicking Logout, the web server will return to the Log In screen.

2-4.8 OmniWeb Help

Click the Help link at the top of the screen to access the help information for Omni Vaisala Interface. The help will provide basic information about the web server.

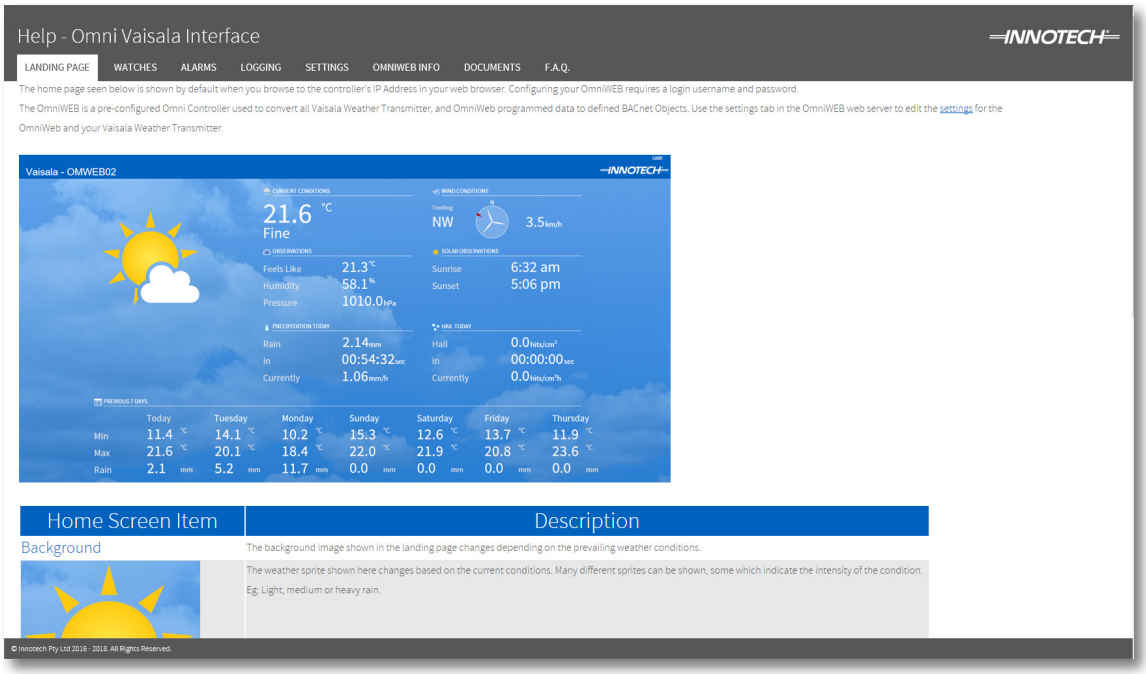


Figure 2-100: Web Server Help Window

2-4.9 Initial Settings Setup Overview

1. Connect your WXT53x and Omni Vaisala Interface as per the OMWEB02 datasheet. *Check your wiring carefully* (Power and communications) and then power the devices.

2. Connect to the OMWEB02 TCP/IP address via Ethernet Port A.
   Preferred Method: ensure your computer is on the same Subnet as the OMWEB02. The default address is **http://192.168.2.100**.
   Alternate Method: connect a USB-Mini B cable from your computer to your OMWEB02 and enter the pre-configured IP address of **http://169.254.2.100** into your web-browser. (This is a virtual address that allows you to connect without modifying your settings.)

3. When the OMWEB02 Home Page is displayed, click **Login** at the top right of the page.
   a. Enter the User **Vaisala**, with the Password **1111**.

   b. For security purposes, on initial login you will be required to alter the OMWEB02 Password. (Ensure you record your password carefully as bypassing this will require investigation with the client, time, and a cost.)

   c. You are logged in with Commissioner Level Permissions, which allows you to change OMWEB02 Network Addresses, Location, Time and Date Settings, Vaisala Weather Transmitter Settings, and Access Control to add other users.

When altering settings you will be asked whether you want to restart Now or Later. Select Later until you are making your final change, then select Now. (If you forget, simply recycle power or change another setting, select Later and then change it back and select Now)

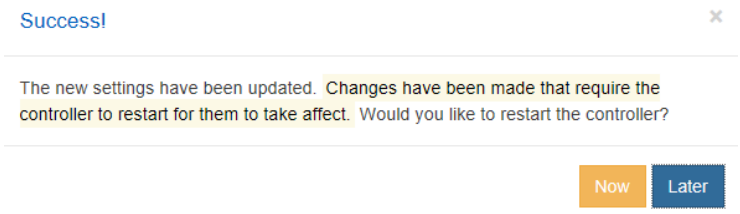


Figure 2-101: Changes Successful

4. Go to the **Settings** Tab:
   a. OmniWeb - Change the **Location** to display the Clients name in the web server.

   b. Vaisala Transmitter / Sensors:

   i) Enable and Disable Sensors. (Only if required as this will reprogram the Transmitter)

   ii) Set units for enabled sensors.

   c. Protocols:

   i) *BACnet / Device Instance* - Ensure this is unique across the entire project

d. Port Assignment:

i) **Ethernet** / *Port A*:

- *IP Address* - Ensure this is unique
- *Subnet Mask* - Match to the connected network
- *Gateway* - Match to the connected network

BACIP Local:

- *Network Number* - This must match the site BACnet/IP Network Number
- *UDP Port* - This must match the Local BACnet/IP UDP Port
- *Mode* - Leave setting as **Device** as this should only be changed by experienced technicians for enhanced functionality

ii) **RS-485**

Port 1 / *Vaisala NMEA Comms* (leave unchanged if the order code is used.)

Port 2 / *BACnet MS/TP*:

- *Baud Rate* - This needs to match the BACnet MS/TP baud rate of the connected network
- *Node Address* - This must be unique on the BACnet MS/TP Network
- *Network Number* - This must match the BACnet MS/TP Network Number. Every BACnet Network requires a unique Network Number.
- *Max. Masters* - Set this to match the total number of BACnet MS/TP Masters attached to this network. This will optimise communications performance between all attached devices.

e. Date and Time:

i) **Local Settings**:

- *Location* - Set this region as this will provide accurate Sunrise, Sunset and Daylight Calculations.
- *Date and Time* - Update to the time where the OMWEB02 is located.
- *NTP / Client* - Enable if required, and then set a Time-Server to sync with.
- *BACnet Time Sync* - Enable if required, and then set Time Sync Accepted to receive Local, UTC or both.

f. Web Access:

i) *HTTP* - Change if required.

ii) *HTTPS* - Change if required.

iii) *Redirect to HTTPS* - **Disabled** (change if required)

iv) *Maximum Logins* - This is only for logins into the OMWEB02, not the Home Page access.

g. **SSL Certificate** / *Use 3rd Party Certificate* - Only a factor when using HTTPS, however the Innotech certificate is included. To add your own certificate, enable this mode, set your details and add your certificate.

h. **Address Book**:

i) On the Settings Tab > Address Book, click the **Add** button.
ii) Enter the personal details of the new user.
iii) Select the Access Level as "**Client**".
iv) Enter the System Access details - **Username** & **Password**.
v) Click **Update** to add the new user.

Personal Details - if a password is lost it may be reset by email, but only if the Email Settings have been configured and a valid email address provided.

IMPORTANT

New users should be added with **Client Access** Level only. *For more information about the Access Levels, refer to the OmniWeb User Instructions.*

Once you have set your last Settings change, Update Now or Re-cycle the Power to accept all changes.

Refer to the OMWEB02 Installation Instructions for a comprehensive list of all available settings.

Sunrise *displays in BACnet as the number of seconds from midnight until Sunrise, where 5:30am = 19,835.5214 secs.*
Sunset *displays in BACnet as the number of seconds from midnight until Sunset, where 6:42pm = 67,375.4921 secs.*
Daylight*:*
- *Shows in the web interface as the amount of minutes until Daylight (a negative value counting up to 0) and until Sunset (a positive value counting down to 0).*
- *Displays in BACnet as the number of minutes until daylight and the number of minutes of daylight left.*

Innotech Support

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