

OPS WATCH

Technical Manual

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1. OpsWatch and OpsWatchEx

Vibration is an important factor of preventive maintenance. Changes in an equipment's vibration pattern can be an early signal of decline in operating functions and a warning for the need of maintenance.

OpsWatch enables real-time monitoring of low-frequency shock and vibration to identify changes in equipment. The system provides alerts when vibration outside of normal functioning range occurs and has the capability to continuously stream vibration data through Wi-Fi communication.

OpsWatchEx is the intrinsically safe version, while maintaining the same core functionalities as OpsWatch, it is approved for Zone 1 atmospheres that can be found in oil drilling operations, chemical factories, etc.

1.2 Opswatch and OpswatchEx unit description and features

The Opswatch (and OpswatchEX) combines advanced tri-axial piezoelectric accelerometer technology, the latest electronic technology and software into a world-class shock and vibration recorder. The OpsWatch monitors shock and vibration based on acceleration or velocity measurements. The comprehensive Windows-based software allows alarm levels, frequency of data collection, setting of the acceleration, warning and critical RMS values, and cut-off frequency of the filter to be programmed by the user. When a user-defined impact or RMS level is exceeded, a visual alarm will alert the user and store the data for future analysis.

Features:

- *Transportation and operation modes*
- *Real-time monitoring of assets*
- *Monitoring for impact and vibration*
- *Adjustable alarm thresholds*
- *Tri-axial accelerometers*
- *Built-in internal temperature sensor*
- *Wi-Fi enabled unit and utilizes existing networks*
- *Configuration of unit can be done from any Wi-Fi enabled device with a web browser*
- *User-selected frequency cut off*
- *LED operation, warning and alarm status indicators*
- *iButton switch for OpsWatch and magnetic switch for OpsWatchEx for Start function*
- *Date and time stamping of data and events*
- *Complete journey profile in transportation mode*
- *Uses standard AA size lithium battery for powered transportation mode (ATEX version will not work on alkaline batteries)*
- *Data stored in non-volatile memory during battery powered OpsWatch (transportation mode)*
- *Up to 18-month battery life for standard OpsWatch, and up to 9 months for the OpsWatchEx*

1.3 Opswatch and OpswatchEx unit operating modes

The Opswatch (and OpswatchEx) units have two (2) modes of operation: External Power Mode and Battery Power Mode

External Power Mode (Static Operation Mode):

While running off an external power supply hardwired into the unit, the OpsWatch is able to capture and transmit real-time information. This data is collected in a database located on the OpsWatch Interface unit and can be interrogated via the OpsWatch browser-based software package. All the data can be reviewed, post-processed and exported from the software.

The OpsWatch unit utilized built in piezo tri-axial accelerometers and continuously samples at a maximum rate of 5120Hz. The hardware filters all incoming signals from the accelerometers with a selectable low pass filter, ensuring relevant information is being recorded. The units report three types of information:

1. Slot Data
2. Event Data
3. Event Warning

- a) Slot Data – A slot is a user defined period of time. It can be set between 10 seconds to 60 minutes. The OpsWatch continuously monitors the accelerometers and at the end of each time slot it transmits the data to the OpsWatch User Software database.

The following information is transmitted and stored:

- Xmax – Maximum g on X axis
- Ymax – Maximum g on Y axis
- Zmax – Maximum g on Z axis
- ModulusMax – Overall Modulus value of the g seen during the time slot period.
- XgRMS – Calculated RMS (Root Mean Squared) value of the X axis
- YgRMS – Calculated RMS (Root Mean Squared) value of the Y axis
- ZgRMS – Calculated RMS (Root Mean Squared) value of the Z axis
- ModulusgRMS – Calculated RMS of the modulus values over all 3 axes during the time slot.
- Internal Temperature
- Slot Date and Time in UTC
- Unit serial number

- b) Event Data – An event is a series of samples taken for one second after a threshold has been exceeded. Users are able to set their own thresholds for X, Y, Z and modulus values. When a threshold is exceeded, the OpsWatch will stream data to the server. *Note: data packets include a CRC to ensure validity.* If a network connection cannot be established, the data will be recorded into the OpsWatch internal memory and sent when a connection is re-established. The OpsWatch unit will transmit the following information to the OpsWatch User Software database:

- Unique Event ID number
- Date & time of the start of the event
- Acceleration range
- Sample rate
- Full uncompressed data at up to 5120 samples per second/axis

The sample by sample modulus and the individual peak acceleration for each of the three axis (X, Y & Z) are calculated on the server.

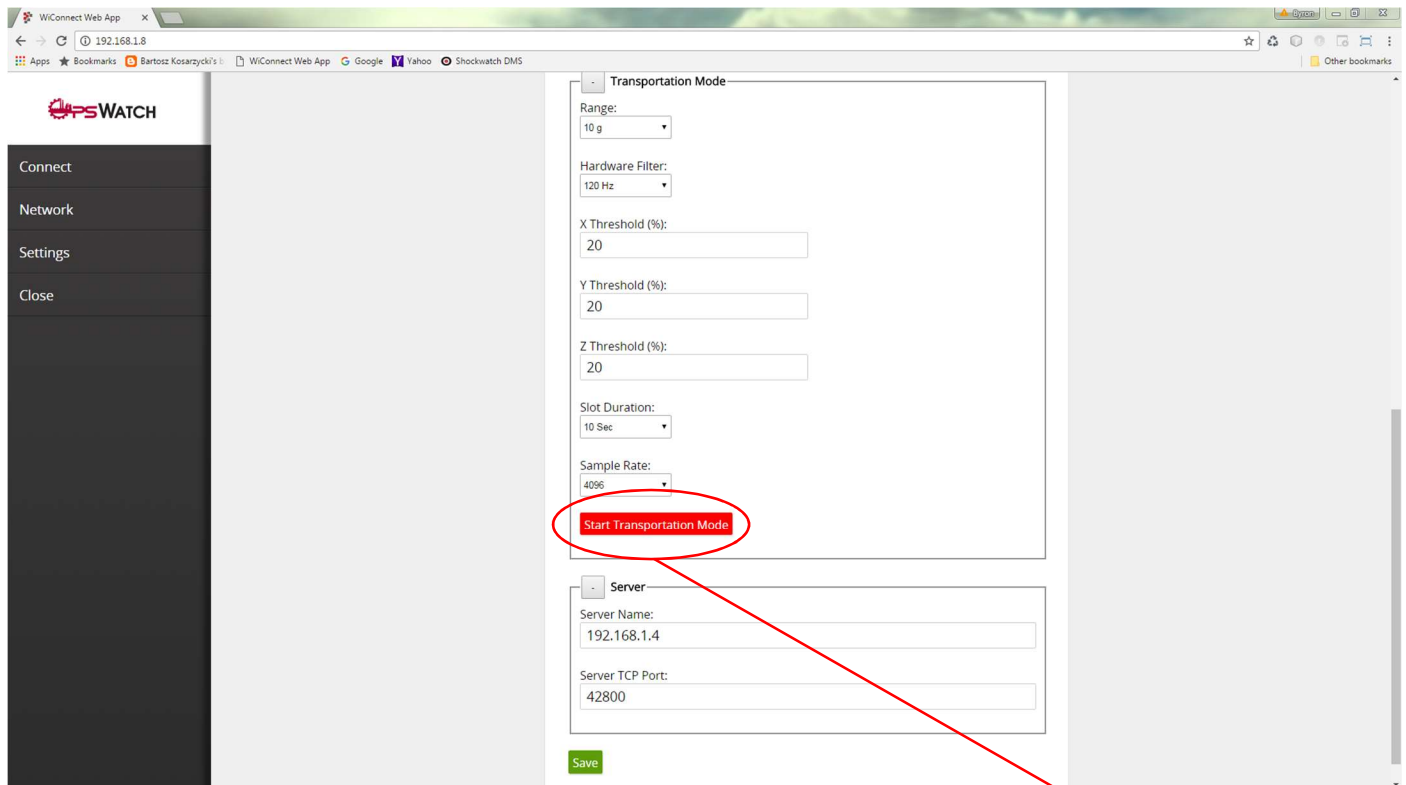
- c) Event Warning –Generated when the acceleration is above a user defined threshold. An email notification is sent in order to provide information as quickly as possible.

Any event or slot data that cannot be buffered in memory (due to network communication interruptions) will be stored in flash memory and automatically inserted into the data stream when communications are re-established. Data will remain in the OpsWatch memory until the reception of this data has been acknowledged as complete.

In the event an external power source failure, the OpsWatch will automatically switch to battery power mode. Data will be recorded to the internal FLASH memory. On re-application of power, the OpsWatch unit will notify the Server Interface unit that stored data is available. The user can request that the data be downloaded or erased by choosing one option on the software when a warning for unit in need of attention is active.

Battery Power Mode (Transportation Mode):

The OpsWatch can be used to monitor good in transit. The unit settings for Transportation mode will be different from the Static Operation mode because the mass of what is being monitored is different when in transport versus when an entire system is installed and operating. Therefore, the user will select the appropriate range, sample rate and thresholds for the two different modes of operation.



The OpsWatch requires a defined command either from the server or its own local web page to switch into Transportation mode; this command can only be issued when the unit is externally powered for operation of the Wi-Fi. After the command to enter Transportation mode is given, the unit will use the battery power mode settings even if external power is still applied. When in transportation mode, the OpsWatch will record all data to internal memory for future downloading.

When in battery power mode, the OpsWatch processor is in sleep mode and only wakes when the acceleration levels exceed the user defined thresholds and for routine housekeeping activities. When in battery power mode, the OpsWatch will record two types of data:

- a. Slot Data
 - b. Event Data
- a) Slot Data – Slot data will be acquired using peak hold circuits. The following information will be recorded by the OpsWatch:
- Xmax – Maximum g seen on X axis
 - Ymax – Maximum g seen on Y axis
 - Zmax – Maximum g seen on Z axis
 - XgRMS – Calculates the RMS (Root Mean Squared) value of the X axis
 - YgRMS – Calculates the RMS (Root Mean Squared) value of the Y axis
 - ZgRMS – Calculates the RMS (Root Mean Squared) value of the Z axis
 - ModulusgRMS – Calculates the RMS of the modulus values over all 3 axes
 - Internal Temperature
 - Slot Date and Time in UTC
- b) Event Data – An event is a series of samples taken for one second after a threshold has been exceeded. Users are able to set thresholds for X, Y, Z and modulus values. As noted earlier, different settings will be used in battery mode vs external power mode. When a threshold is exceeded, the OpsWatch will start recording an event into the unit's memory. The OpsWatch unit will store the following information:
- Unique Event ID number
 - Date & Time of the start of the event
 - Acceleration range
 - Sample rate
 - Compressed acceleration data equivalent to 4096 data points for each axis.
 - Peak Modulus acceleration value of the Event
 - Individual peak acceleration for each of the three axis (X, Y & Z)

When external power is restored to the OpsWatch unit, the power source will automatically switch from the battery power to the external power mode. The recording method and set up values will NOT automatically revert to external power mode. However, the wifi module will turn on, and the unit will search for a related Interface unit in order to make connection.

Once a connection has been made to the Interface Unit, it will be necessary to download the journey information before the unit can switch to a static operation mode. The process of downloading the data will be driven automatically by the system when the OpsWatch unit and the OpsWatch Browser software restore communication. In the event of a power outage during download, the OpsWatch unit will revert to battery power mode, and on next connection, all unacknowledged data in the unit will be transferred to the Interface Unit.

During the process of downloading the data, the OpsWatch Unit will stop recording any activity so that it is only dealing with the download of data as quickly as possible. With a good Wi-Fi connection and a couple of month's data, this download should take no more than a couple of minutes. In extreme cases, the download will take no more than ten (10) minutes. Therefore, the maximum period of time when data will not be recorded is ten minutes. Multiple units could take longer, the time they will take depends on server used and Wi-Fi network speed.

Once the download of data has been completed the OpsWatch will switch over to external power mode and start continuously monitoring and rapid transmission of data.

1.4 Opswatch and OpswatchEx technical specifications

Technical Specification:

Complete instrument	Min	Max	Units
Enclosure IP Rating		IP67	
Operating temperature range	-40	+85	°C
IP Rating			
Operating temperature range (Hazardous area)	-40	+60	°C
Drop test survival	1		m
Size (without connectors & mounting lugs) 150x110x39			mm
Case material aluminium			
Weight TBC		1350	grams
A-D converter resolution		12	bits
Flash memory (for code)	144		k bytes
(for data)	8192		k bytes
Battery 2 x 3.6V lithium thionyl chloride	2.2		Ah
Intrinsically safe environment warning			
Only SAFT LS14500 cells are approved for use with this device. They shall only be replaced when the equipment is in a non-hazardous area or when an explosive atmosphere is shown to be absent.			
Indicators 2 Bi-colour LEDs			
Interfaces Wi-Fi Radio Link	IEEE 802.11		
Model No.: AMW006 Brand Name: ACKme Networks ACKme Networks Inc, California, US.			
Operating Frequency	2.412	2.484	GHz
Data Rate		1,250,000	bps
External power source option (non IS)	6	30	V
Intrinsically Safe environment	Ui = 28V, li= 100mA, Pi=1.2W,Ci= 0, Li= 0		
External power source average current (normal @ 28V)		35	mA
External power source average current (clearing or downloading @28V)		50	mA
EMC CISPR32: Ed 2.0 (2015-03)			
CISPR 24: Ed 2.0 (2015-04)			
ICES-003 Issue 6 (2016-01)			
FCC RULES 47CFR: PARTS 15-B			
Intrinsically safe environment warning			
EMC tested with our approved antenna; it is the only one we certified to use in the Ex environment			
Accelerometers	Min	Max	Units
Sampling rate – externally powered	512	5120	Sample per second
Sampling rate – battery transportation mode.	512	4096	Sample per second
Low frequency cut off (-3dB)	0.1	0.5	Hz
High frequency cut off at maximum filter setting (-3dB 10g range and above)	900	1100	Hz
High frequency cut off at maximum filter setting (-3dB 3g range and above)	480	530	Hz
High frequency cut off at maximum filter setting (-3dB 1g range and above)	180	220	Hz
High frequency cut off at minimum filter setting (-3dB)	20	25	Hz
High Frequency roll off	-9		dBs/Octave
Resolution (% of full scale) 1% for Peaks	0.1		%
Scale factor accuracy at 5g (event record)	-2	+2	%
Additional error other ranges	-2	+2	%

Additional error peak capture	-5	+5	%
Change of scale factor over temperature	-4	+4	%
Acceleration ranges (6 ranges 1, 3, 10, 30 ,100, 200)	±1	±200	g
Wake up threshold (% of range)	5	95	%
Alarm thresholds (% of range)	5	95	%

1.5 Opswatch and OpswatchEx unit led flash patterns

The OPSWATCH (AND OPSWATCHEX)unit utilizes three (3) LEDs to communicate its current state. The guide for interpreting the LED flash patterns is below:

UNIT STATE	LED Label			Flash Rate
	Event Alarm	Info	i-Button	
Start up	OFF	Solid Green	Off	
No Wi-Fi Address	Fast Flashing Red	Fast Flashing Red	I-Button Controlled	5 Flashes Per Second
Entering Soft AP mode	Off	Fast Flashing Red	Fast Flashing Red	5 Flashes Per Second
In Soft AP mode	Fast Flashing Green	Fast Flashing Green	Off	5 Flashes Per Second
Attempting to connect to WIFI	Fast Flashing Amber	Fast Flashing Amber	I-Button Controlled	1 Flash Per Second
Connected to WIFI/Attempting to connect to server	Fast Flashing Red	Fast Flashing Green	I-Button Controlled	1 Flash Per Second
Connected to Server/Running – stored data (may be transportation data or data stored during power outage).	Flashing Red	Flashing Green	I-Button Controlled	1 Flash Per Second
Connected to Server/Running – no stored data	Off	Flashing Green	I-Button Controlled	1 Flash Per Second
Connected to Server/Running – sending data	Off	Flashing Red	I-Button Controlled	1 Flash Per Second
Connected to server but switched to transportation mode.	As below	As below	As below	1 Flash Per Second
Battery Mode Stopped	Flashing Red	Flashing Red	Flashing Red	1 Flash Every 10 Seconds
Battery mode – No data available	Off	Flashing Green	I-Button Controlled	1 Flash Every 5 Seconds
Battery mode – slot data available	Off	Flashing Red	I-Button Controlled	1 Flash Every 5 Seconds
Battery mode – event data available	Flashing Red	Flashing Green	I-Button Controlled	1 Flash Every 5 Seconds
Battery mode – slot & event data available	Flashing Red	Flashing Red	I-Button Controlled	1 Flash Every 5 Seconds
Setup/Clearing memory	No Leds	No Leds	No Leds	No Leds

1.6 Opswatch and OpswatchEx software pre-installation information

OpsWatch units require the Opswatch User Software to operate. If you are installing the software on a local PC, please note that many IT systems prevent individual users from installing software on their machines or users may have restricted rights. Therefore, it is essential that you consult your IT Department to ensure you have sufficient rights to install the software. The Opswatch User Software has been designed to run on a standard PC under Windows XP/Vista/7/8/10. All of these operating systems require administration rights to install the software.

If the Opswatch User Software will be installed on a server, please call ShockWatch Technical Services to setup a conference call with your IT Department to discuss the server requirements and software installation procedure. If you have any issues with the installation, please contact ShockWatch Technical Services at 800-466-0101 or techsupport@shockwatch.com for assistance.

2. Server Software

1.1 Required system specifications

For the OpsWatch User software to run at peak performance, the server must meet or exceed the following specifications

Server Hardware:

Processor – 2x 1.6 GHz, 2 GB RAM MIN, 4 GB recommended (64 bit)

HDD – 20 GB free

Server OS:

Microsoft Windows 7, 8, 10

Client Browser:

Microsoft Internet Explorer 10+, Chrome 27, Firefox 22, Apple Safari 5+

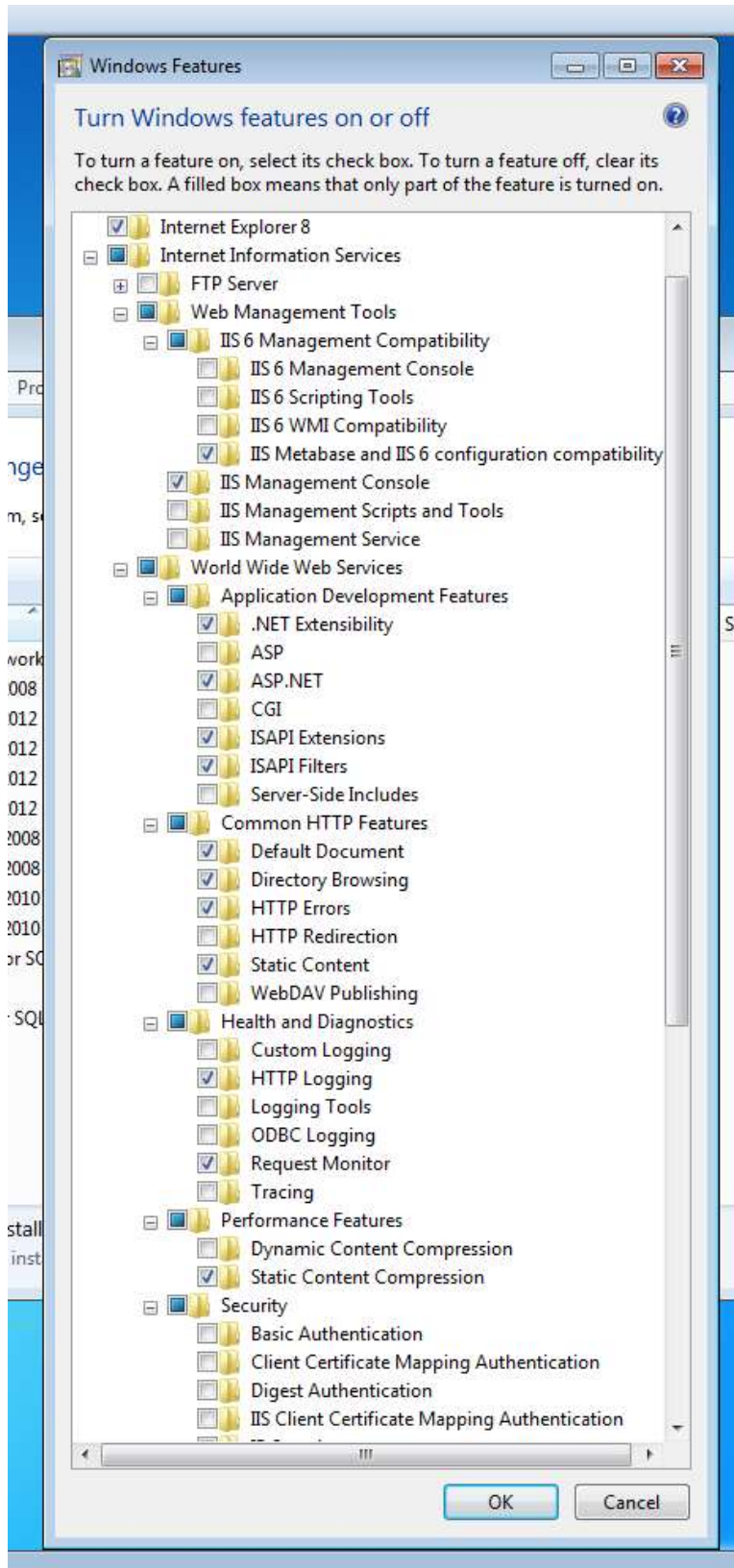
It is highly recommended to update to the most current version of your preferred browser.

1.2 Installation guide

Server setup is an intricate process and should be performed your IT department. Depending on your Windows OS version, some items might be different.

1. On target system (Server computer)
 - A. Disable anti-virus
 - B. Setup IIS

- a. Start Menu/Control Panel/Programs and Features
 - b. Left side of window click “Turn Windows features on or off” (use graphic below for reference)
 - c. Select “Internet Information Services”. (IIS), then expand tree item.
 - d. Select “Web Management Tools”, then expand.
 - e. Select “IIS 6 Management Compatibility”, then expand
 - f. Select “IIS Metabase and IIS6 configuration compatibility”.
 - g. Un-expand “IIS 6 Management Compatibility” as you are done with it.
 - h. Select IIS Management Console
 - i. Un-expand “Web Management Tools” as you are done with it.
 - j. Select “World Wide Web Services”, then expand. (all items should be blue already)
 - k. Select “Application Development Features”, if not already, then expand
 - l. Select “ASP.NET”. (might be ASP.NET 4.6) That should also select “.Net Extensibility”, “ISAPI Extensions”, “ISAPI Filters”. If not select them.
 - m. You should be done setting up IIS, Click OK.
 - n. Leave this open as we will need to come back to set the App Pool idle time out to 0. If you know what it is now go ahead and set it to 0 and save.
- C. Install OpsWatch Web Server and dependencies
- a. Copy “Setup.exe” and “OpsWatch.msi” to target computer.
 - b. Right click “Setup.exe” and select “Run as administrator”
 - c. If Microsoft .NET Framework 4.5 doesn’t exist, you will be prompted to “Accept”
 - d. If SQL Server Express doesn’t exist, you will be prompted to “Accept”
 - e. On “Select Installation Address” choose
 1. Default Web Site
 2. Leave Virtual directory empty
 3. Application Pool – Select “ASP.NET 4.0”
 4. Click Next
 - f. Click Next
 - g. Click Close
 - h. Create folder c:\temp
 - i. Move the provided folder “MoveToTarget” to c:\temp
 - j. Run “RUN_ME_AS_ADMIN1”
 - k. Run “RUN_ME_AS_ADMIN2”
 1. You might have to edit “ShockmonitorGrant.sql” to reflect the correct pool name is reflected in that file.



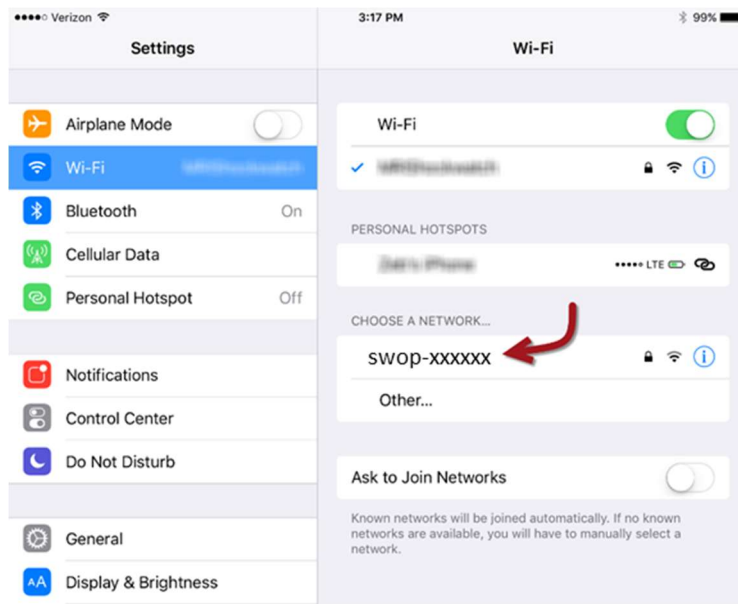
3. Unit Hardware Setup

To setup the OpsWatch hardware, you will need a Wi-Fi enabled device with a web browser such as a laptop, smart phone, or tablet. The first step in setting up the OpsWatch is to power the unit with an external power source. Once the unit has powered, touch the Start i-Button to the i-Button port on the unit the LED lights up and then it goes out, signaling that the ibutton has been read.

With an OpswatchEx unit the magnet will be used instead of the i-Button.

For both units, it takes approximately 1 minute for the unit to become scannable as a WiFi host.

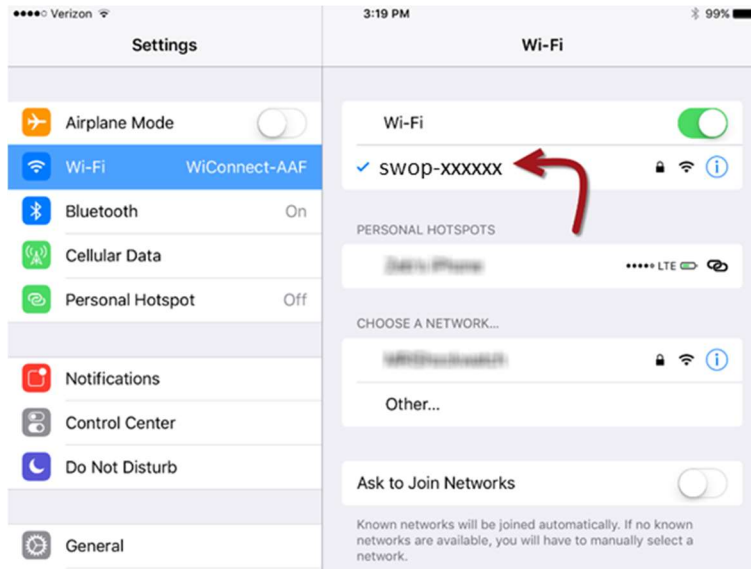
Next, go to the Wi-Fi settings in your device and search for available networks. Look for the network named “swop-xxxxxx” (xxxxxx- serial number) and connect to it. **This network is the internal network created by the OpsWatch unit.**



When prompted for the network password, enter the password and join the network.

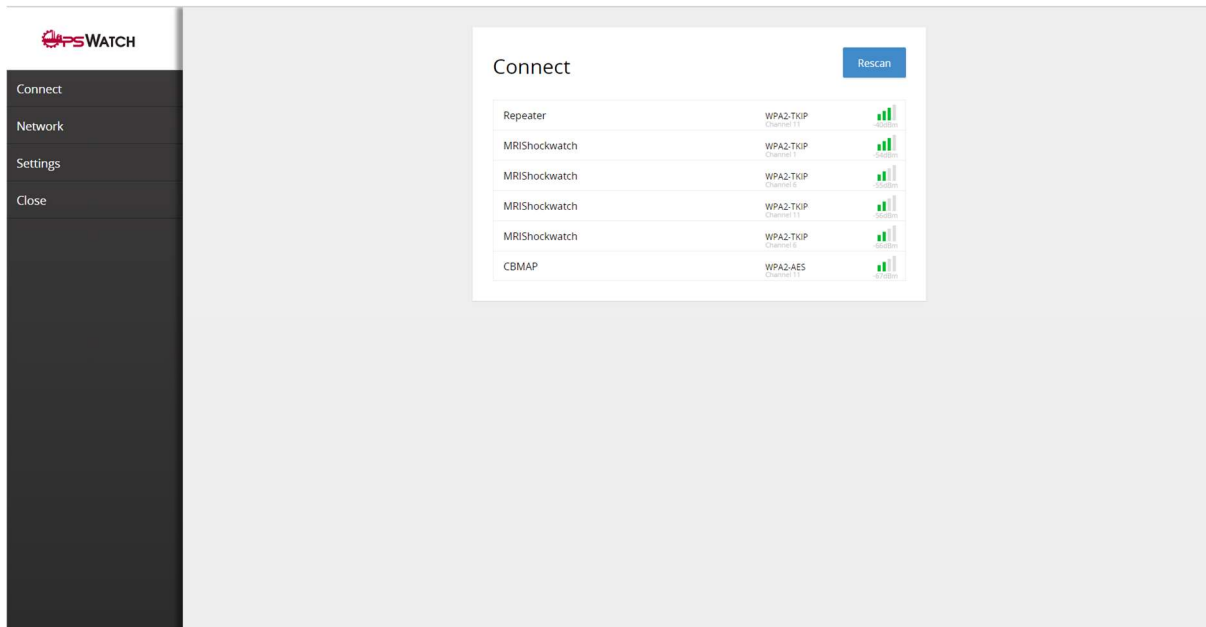
The default password is “password”.

Once you have successfully joined the network, confirm that you are connected to “swop-xxxxxx” (xxxxxx- serial number)

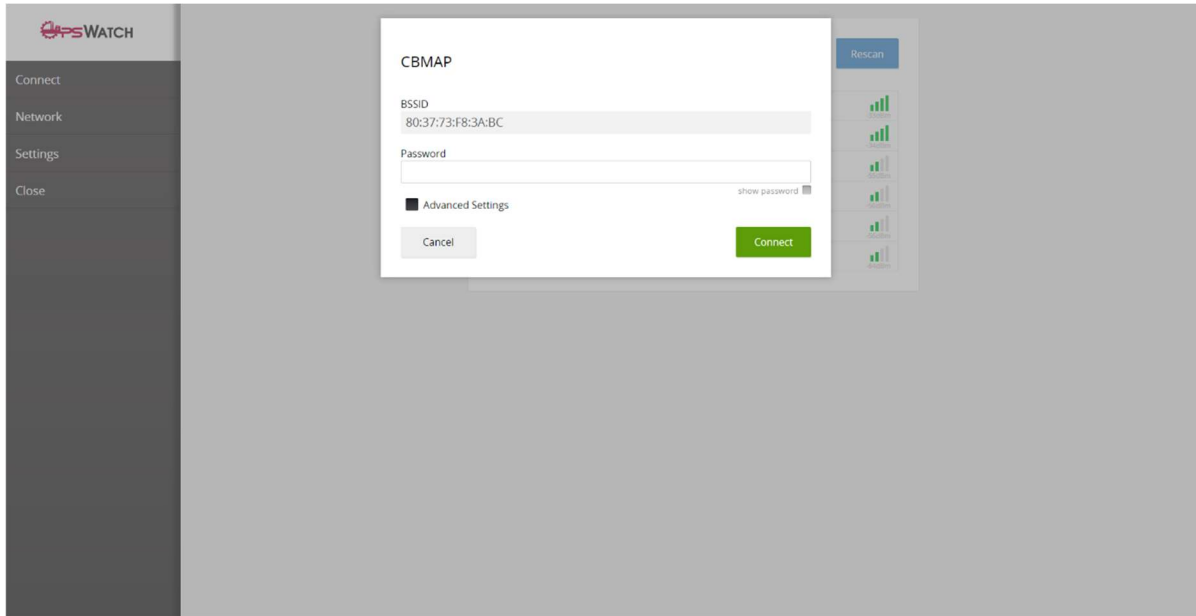


Next open your web browser and go to setup.com

This web page will open the unit setup information. The first page will allow you to connect the unit to your company's Wi-Fi network. The page will display all of the Wi-Fi networks within range. Click on the appropriate network to connect.



When prompted, enter the password to access your network and click on the Connect button. If it fails to connect, check your password and try again.



While you are connected to the unit, you can also make changes to the settings in the unit. The unit functions in Static Operation mode when connected to external power and in Transportation mode when powered by batteries. Settings for each of these modes is configurable through this menu item. The settings are defined below.

Range – Scale range that the unit can record. Setting to 30g will allow it to record from 0g to 30g.

Hardware Filter –Configurable hardware filter to filter out higher frequency impacts which may not be relevant.

X Threshold (%) –Level of impact on the X-axis that is considered an alarm event. This is a percentage of the overall scale range.

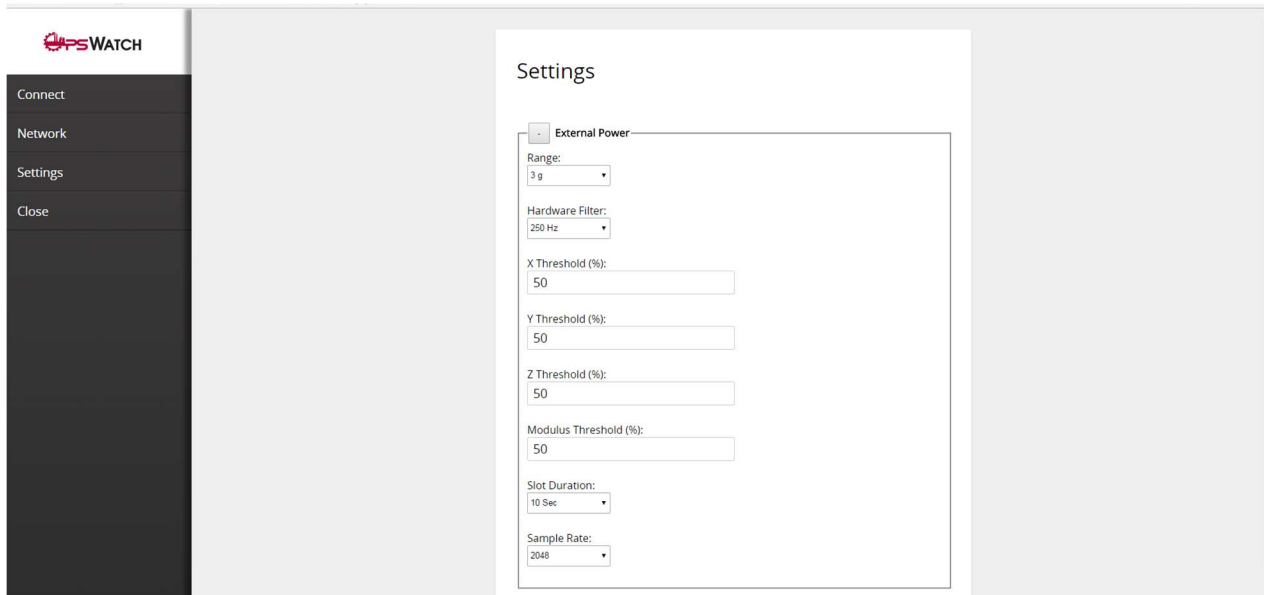
Y Threshold (%) –Level of impact on the Y-axis that is considered an alarm event. This is a percentage of the overall scale range.

Z Threshold (%) –Level of impact on the Z-axis that is considered an alarm event. This is a percentage of the overall scale range.

Modulus Threshold (%) –Level of impact for the modulus that is considered an alarm event. This is a percentage of the overall scale range.

Slot Duration – Determines the time period of a slot reading. The peak g is recorded over this period.

Sample Rate –Sampling rate at which the OpsWatch will record data.



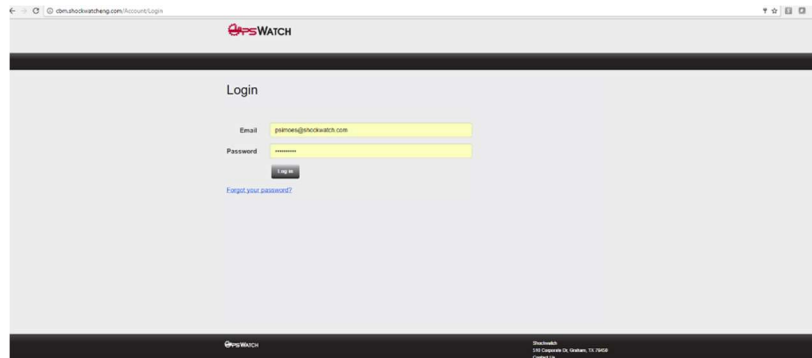
Server Name –Server name or IP Address of the server running the OpsWatch software.

Server TCP Port –TCP port that the software uses on the server to communicate with the devices.

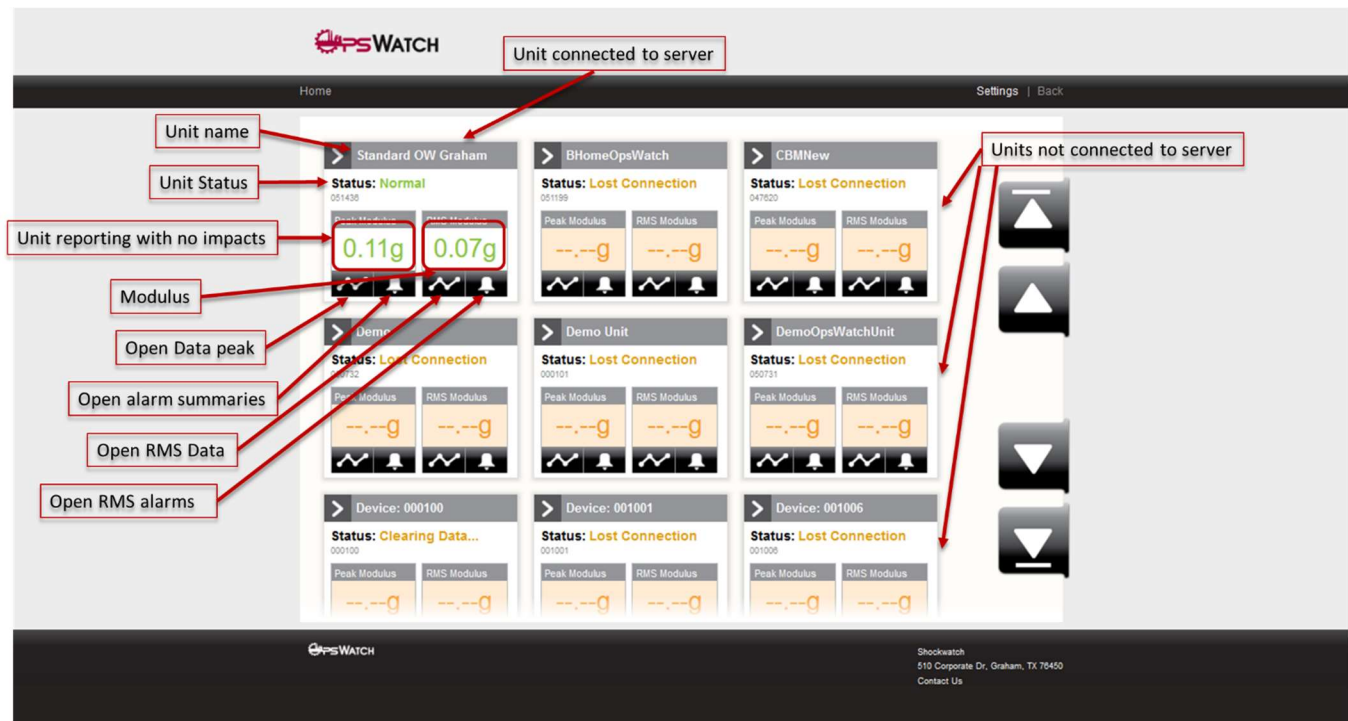
Still in the settings you can set the server the unit should connect too. Which could be the IP or the DNS of the server, this can be done in the Server Name field.

4. Navigating the OpsWatch Software

Once you have your unit(s) configured to report to the software on your server, you can open the software to view the units. Open a web browser and type in your server address for the software. If you are accessing the web based software you should go to <http://cbm.shockwatcheng.com/> and type your user and password.

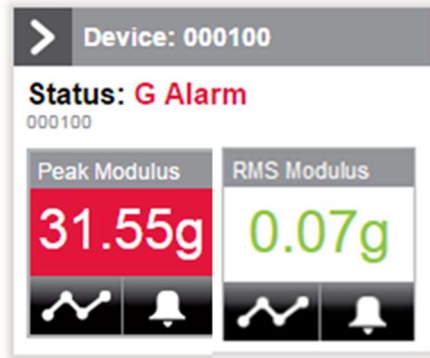


The homepage of the software displays all the units that are setup and reporting to the software. Units that are currently connected and reporting with no alarms will appear green. Units that are connected and reporting that have alarms will appear red. Units that are not connected to the software will appear yellow. Under each unit will be options to review the different data on the unit.

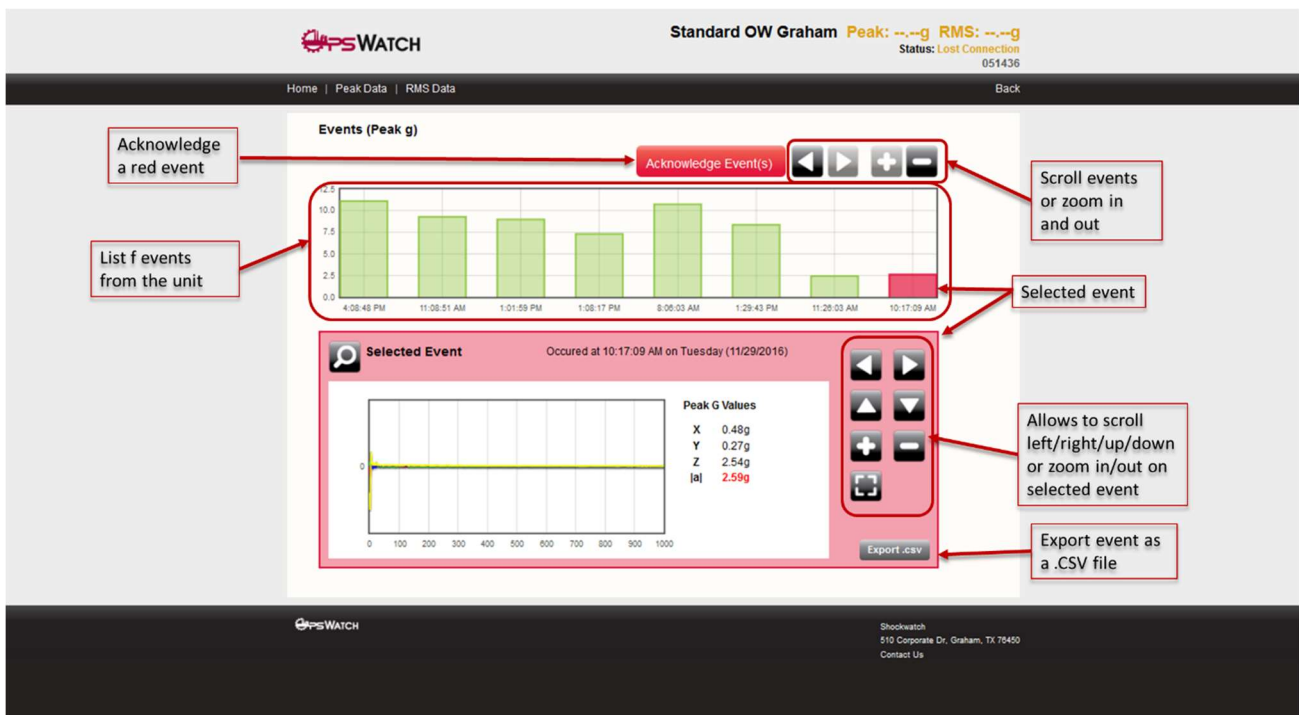


4.1 Alarm events

A unit with an Alarm Event will show Alarm status and Peak Modulus in RED. See example below:



To view the Alarm Events for the unit, click on the Alarm icon associated with the unit of interest. The Alarm Events screen will open.



4.2 Peak data

To view the Peak Data readings for a connected unit, click on the graph icon under the peak readings associated with the unit of interest. The Peak Data page will open. *Note: Depending on your monitor resolution, you may not see the entire screen all at once. Use the scroll bar on the right side of the page to navigate the screen.*

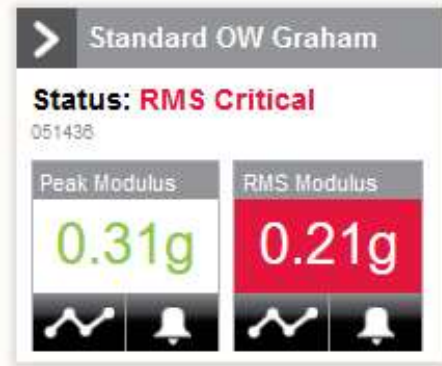
This page shows the peak readings broken down by slots, and it has a live refresh rate. If Slots are set for 10 seconds, the graph will refresh every 10 seconds to add another peak reading. The page is divided into 4 charts, Modulus, X-Axis, Y-Axis, & Z-Axis.



The date and time ranges can be utilized to view a specific time period of data. In addition, the live refresh can be paused with the Pause button. To resume the live data updates, click Resume. To reset and clear the graphs, click on the Reset button. To scroll data and zoom in/out of the graph, use the navigation arrow and +/- buttons at the top of the page. A .csv of the data can be exported by clicking on the Export .csv button in the upper right of the screen.

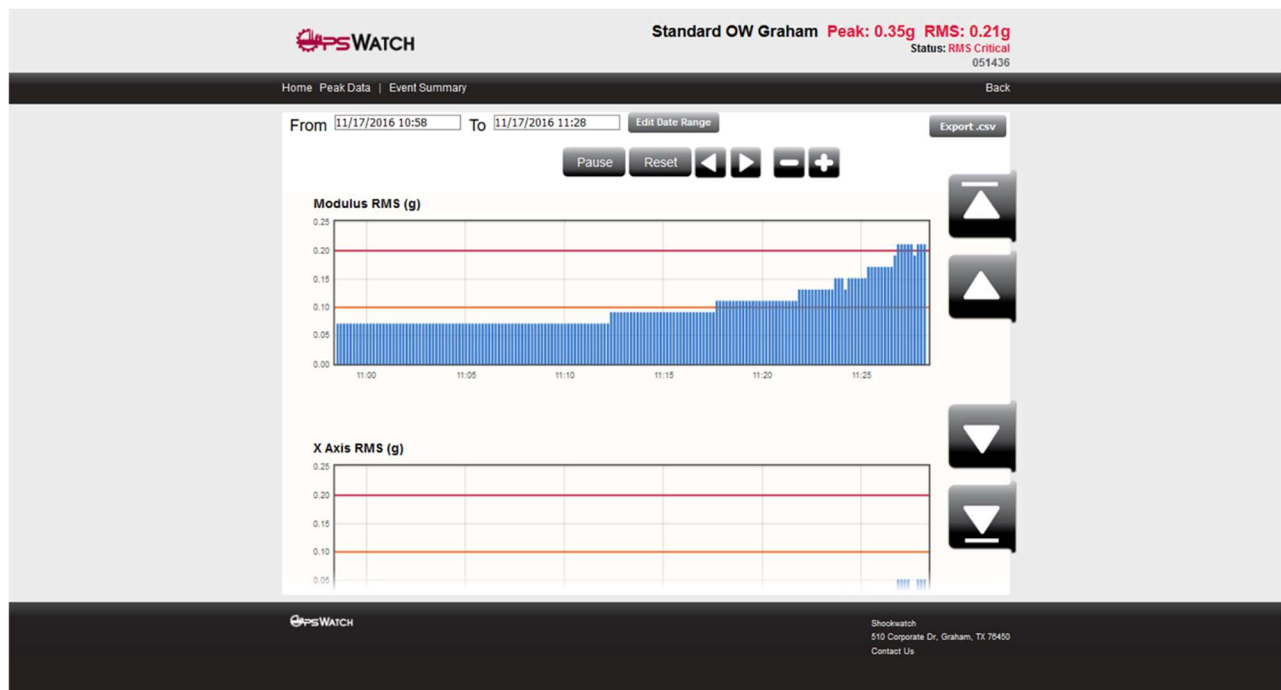
4.3 RMS data

The Root Mean Square (RMS) is the square root of the average of the squared values of the vibration waveform. Unit with active RMS event:



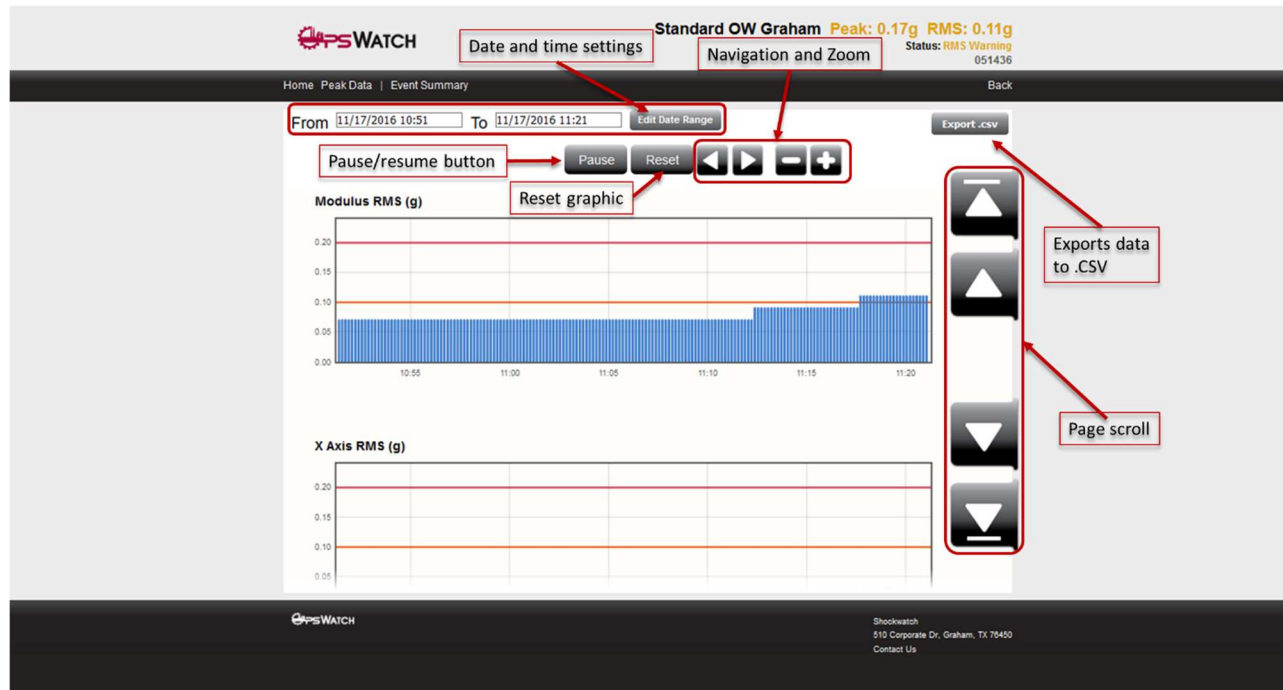
To view the RMS Data readings for a connected unit, click on the graph icon under the RMS readings associated with the unit of interest. The RMS Data page will open. *Note: Depending on your monitor resolution, you may not see the entire screen all at once. Use the arrows on the right side of the page to navigate this screen.*

This page shows the RMS readings broken down by slot interval and it has a live refresh rate. If Slots are set for 10 seconds, the graph will refresh every 10 seconds to add another peak reading. The page is divided into 4 charts: Modulus, X-Axis, Y-Axis, & Z-Axis.



The date and time ranges can be utilized to view a specific time period of data. In addition, you can pause the live refresh with the Pause button, then resume by clicking Resume. To reset and clear the graphs, click on the Reset button. To scroll data and zoom

in/out of the graph, use the navigation arrow and +/- buttons at the top of the page. A .csv of the data can be exported by clicking on the Export .csv button in the upper right of the screen.



4.4 RMS alarm thresholds

The RMS value is calculated for the slot time period. Example; if slots are set to 10 seconds then RMS value delivered is for that 10 second period.

Two alarm levels are provided for RMS: warning and critical.

OpsWatch offers the ability to set a Warning level independently on the x, y and z axis and well as the modulus. If any of these warning levels are exceeded, indication will be given by turning the numbers in the RMS modulus window orange.

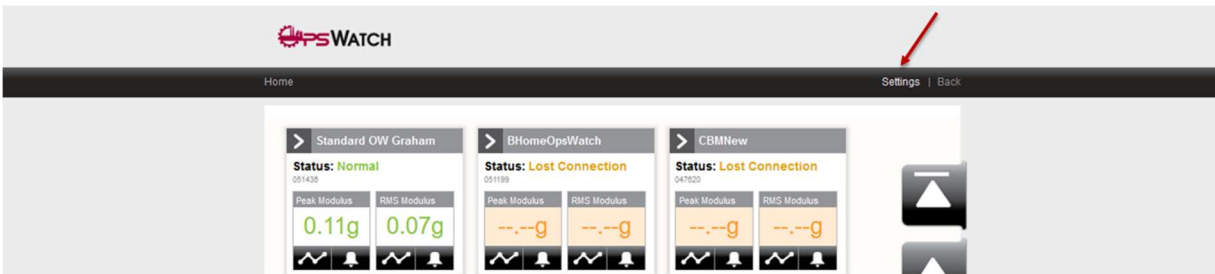
The user has the ability to set a Critical level independently on the x, y and z axis and well as the modulus. If any of these critical levels are exceeded, indication will be given by turning the numbers in the RMS modulus window red. If a critical alarm is triggered the application will send out notifications via email.

If the RMS levels have triggered a warning or a critical alarm and have dropped back down below the alarm levels, the alarm values will continue to be displayed until the user has acknowledged them in order to avoid alarms going unseen.

To acknowledge a warning alarm, click on the 3 bar segment located below the RMS displayed value and click Reset. To acknowledge a critical alarm, click on the bell shape located below the RMS displayed value and click Reset.

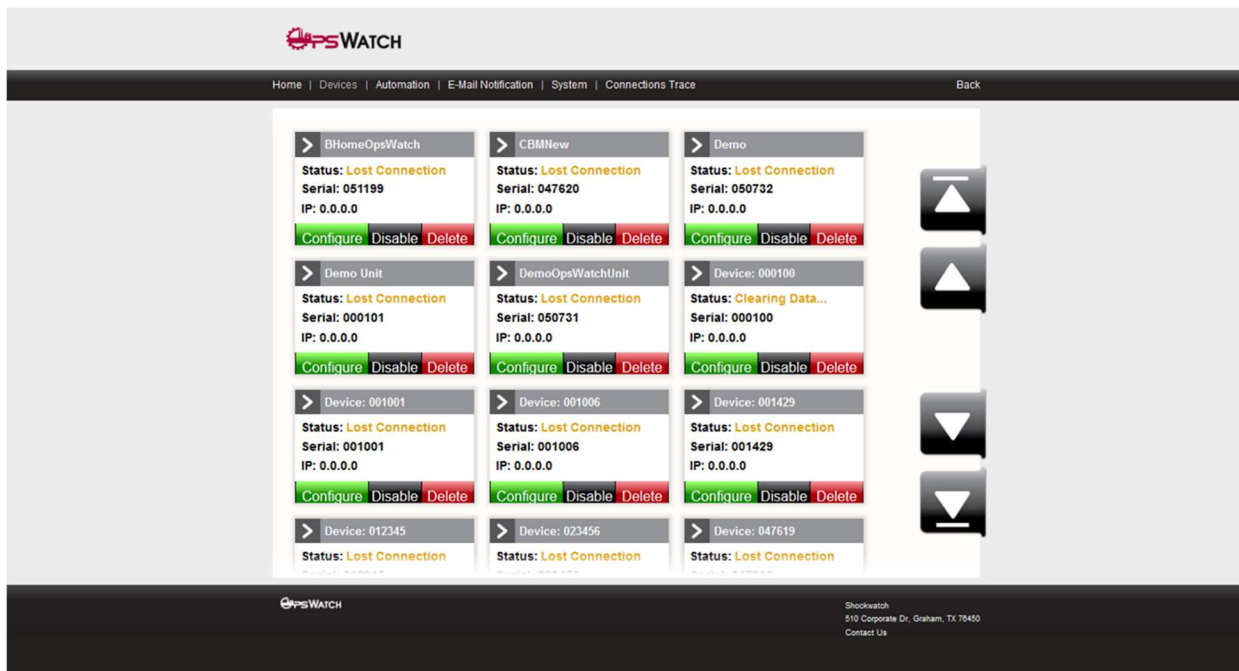
5. Software Settings, Configuration, and Monitoring

In addition to monitoring and reading the data from the units, there are other settings and advanced monitoring that can be configured within the software. These are found by clicking on Settings from the homepage.



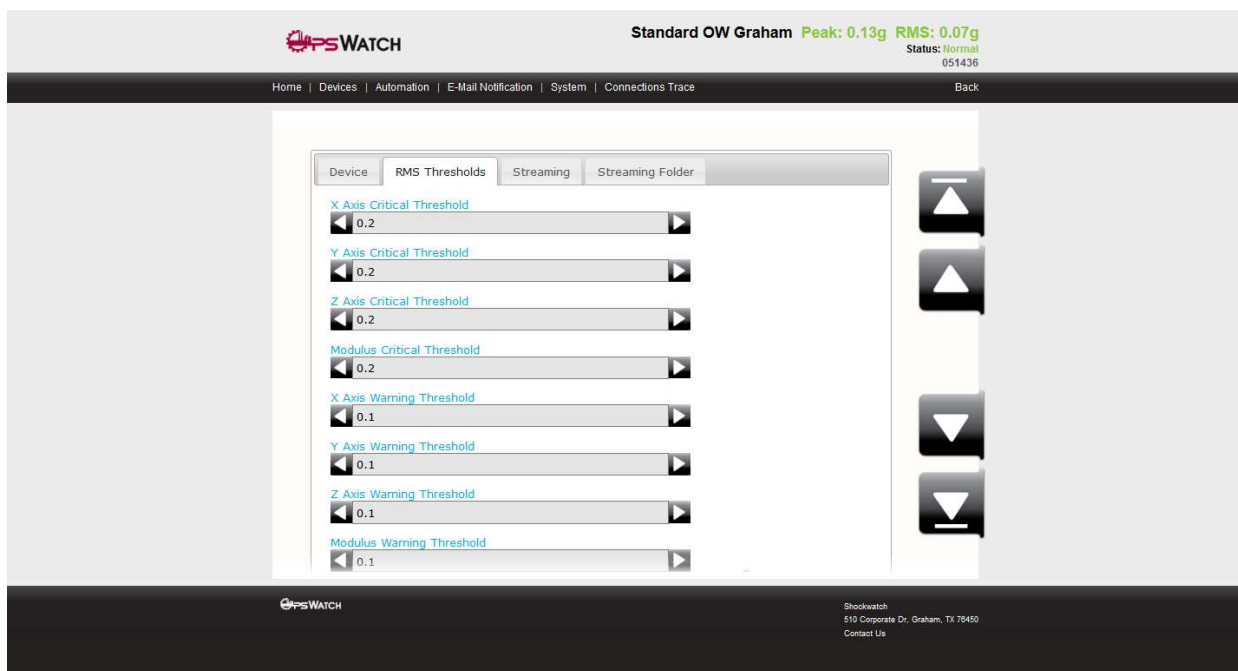
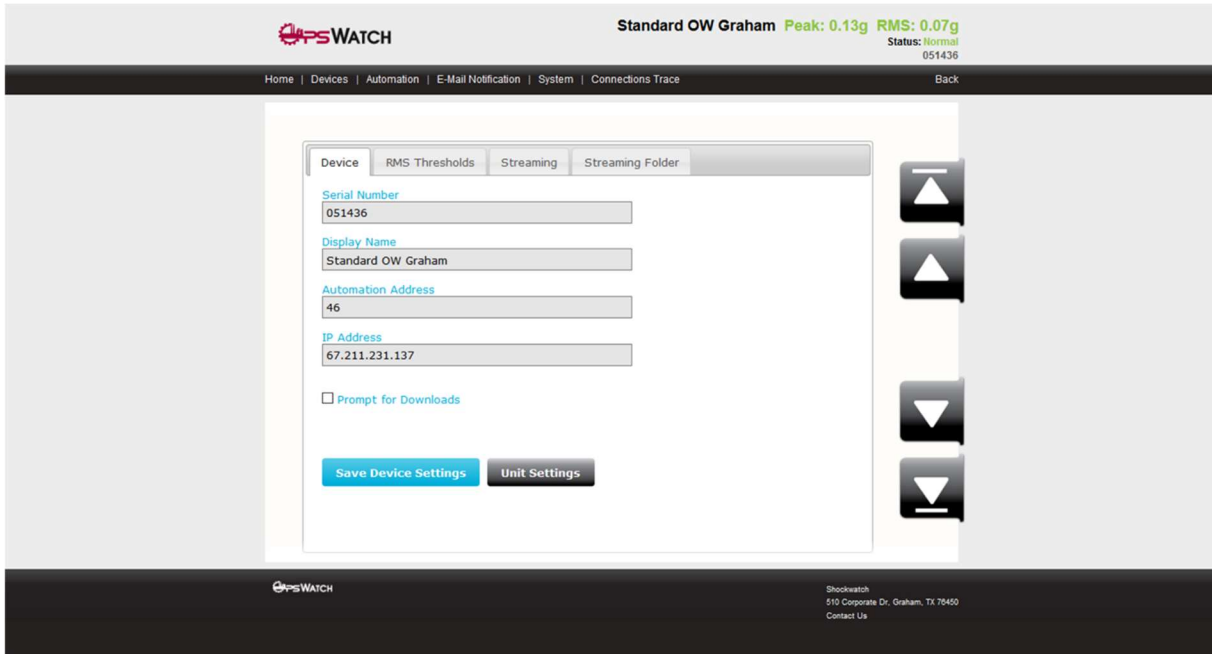
5.1 Devices & device settings

The first screen to load under the Settings options is Devices. This screen shows a list of all of the devices that have reported into your software. From this screen, devices can be enabled or disabled. When units are disabled, they remain available in the database but do not record data. This screen also allows the user to edit the device settings for each unit.

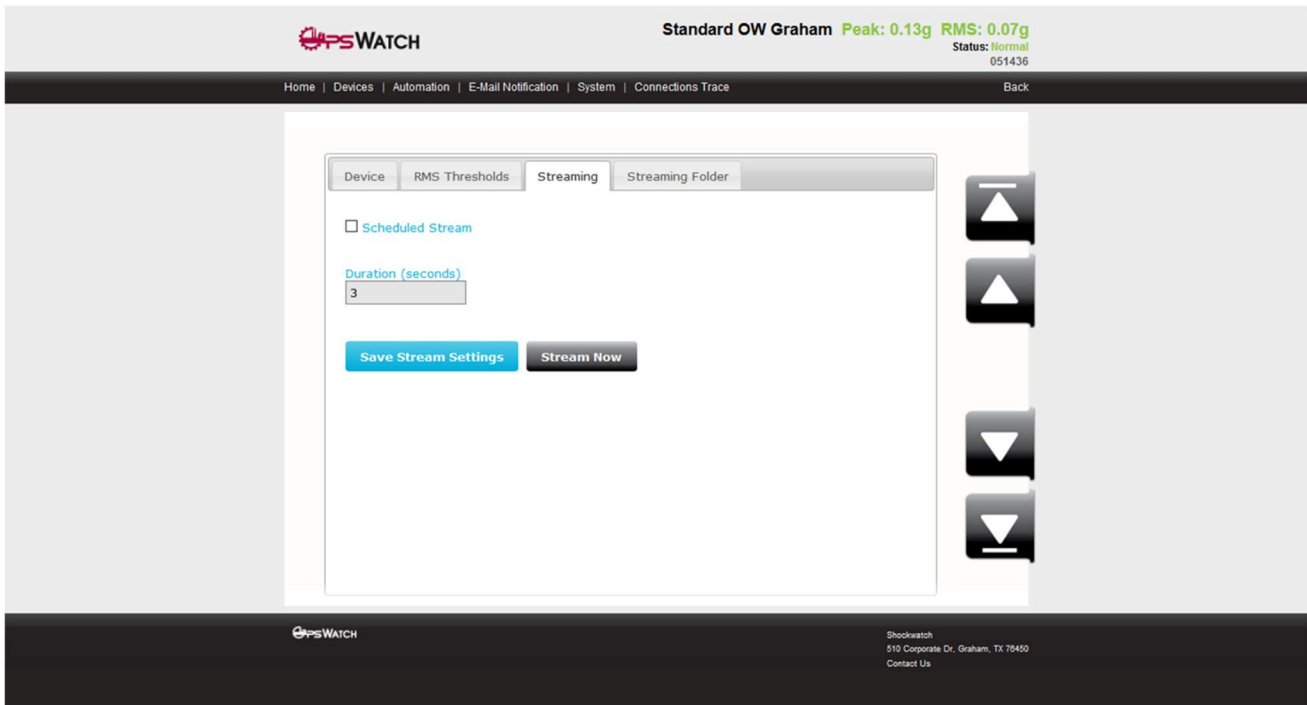


To change the device settings, click on the Configuration button associated with the unit you wish to modify. The basic device settings which includes the Serial Number, Display Name of the device, Automation Address, and IP Address will be displayed. The Serial Number cannot be changed. The Display Name is the name for the device that will be displayed in the software. The IP Address will be automatically assigned by your network if using DHCP. To get to the unit's settings for impacts, click on the Unit

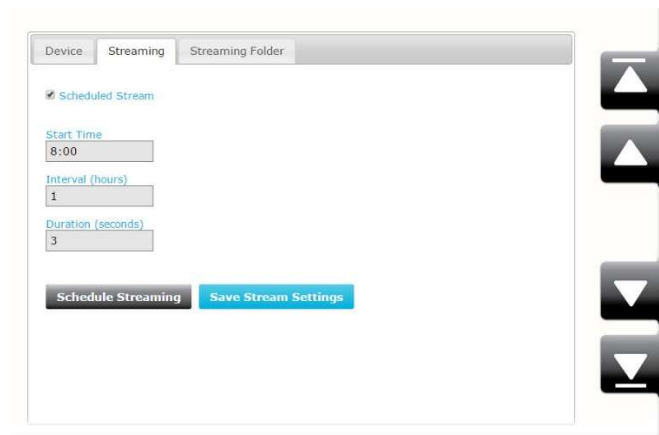
Settings button and it will open the unit in a new browser window. These will be the same settings from the initial unit setup in Section 3.0.



If there is the need to analyze or just export data to an external source, clicking on the Streaming tab opens the settings for streaming accelerometer data to an output file.



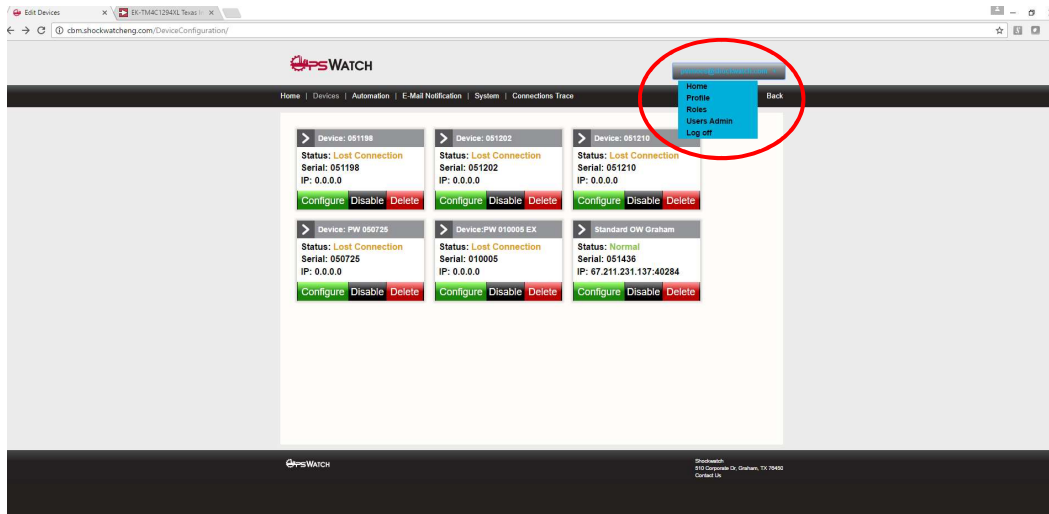
Checking the Scheduled Stream option brings up the settings to configure the unit to stream accelerometer data at a certain time.



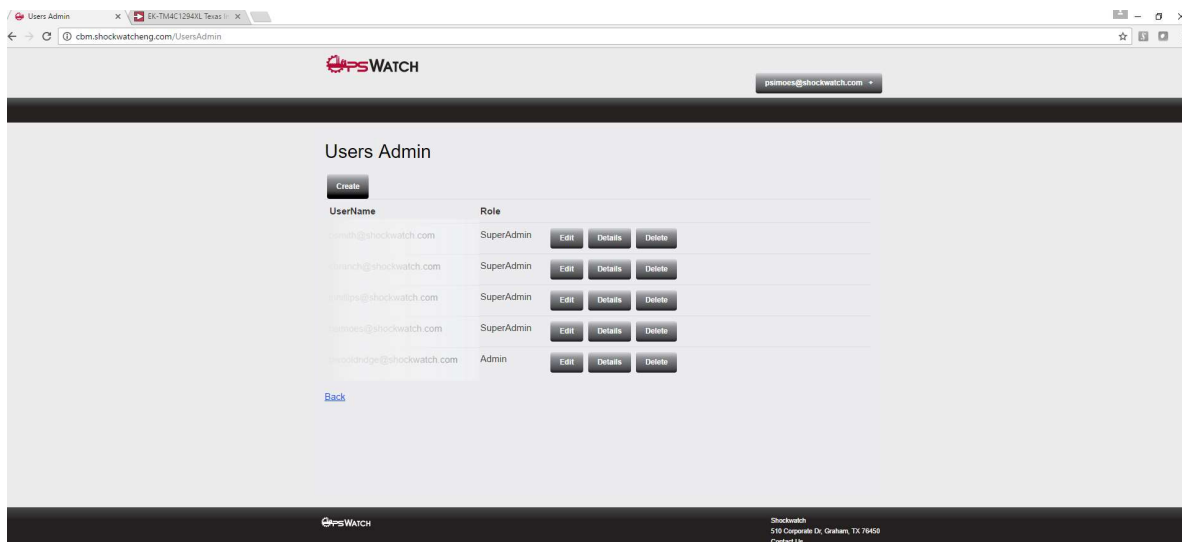
In this screen you have the option to setup what time the unit will start streaming, the duration that it will stream for, and then the interval in hours that it should repeat. After setting this up, click on Schedule Streaming to set the schedule. The Streaming Folder will allow you to open the streamed data files.

5.2 User management

Users can access the Users Admin via the pop up under the user name:



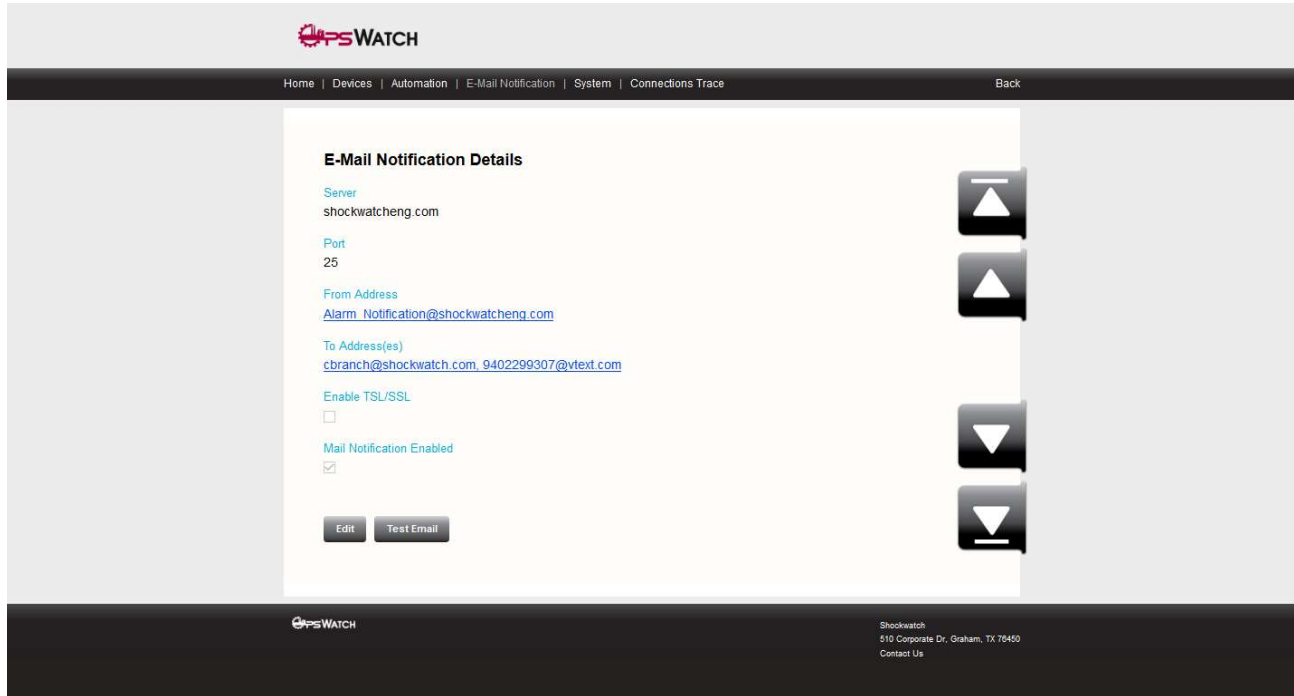
By clicking Users Admin you will access the page where users can be created or edited:



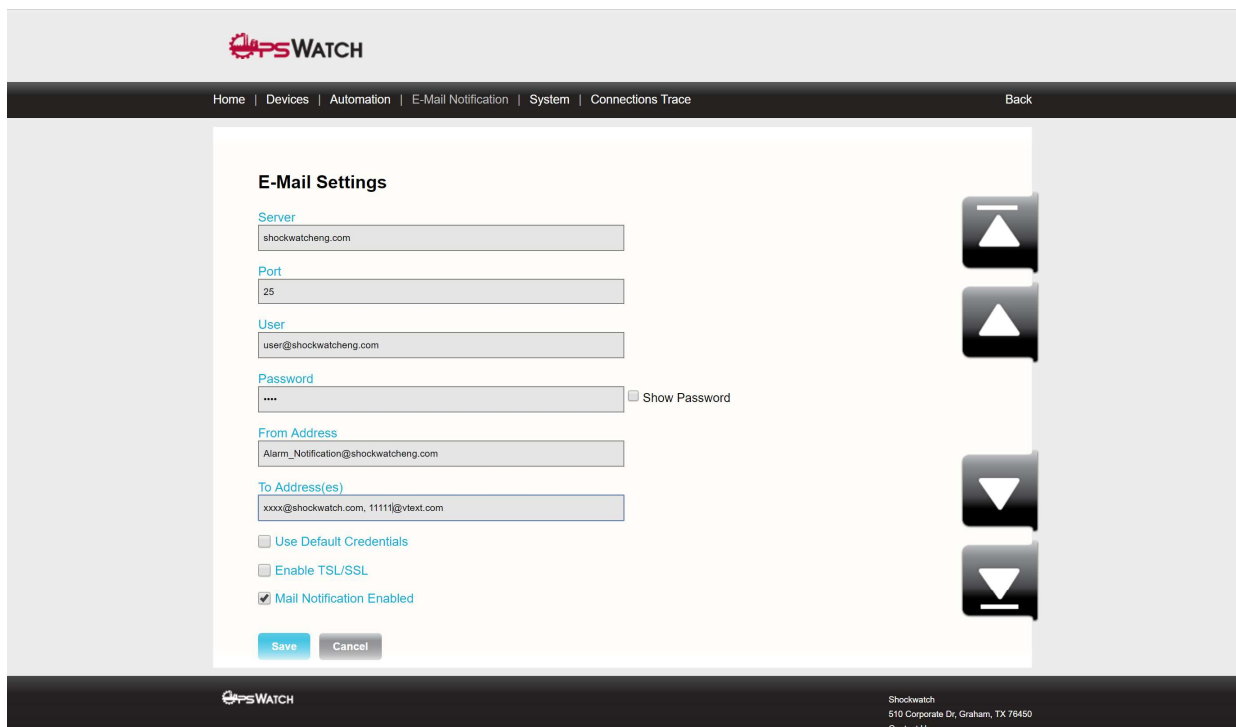
Only the SuperAdmin role can create and edit users.

5.3 e-Mail notification

Under the E-Mail Notification tab, you will find the settings for receiving e-mail notifications when the unit records an Alarm event or critical RMS value.



Clicking on the Edit button will open the window to more settings and allow you to input your e-mail server settings in order to receive the alerts.



Server –E-mail server’s name or IP address.

Port –Port the e-mail server uses for outbound emails.

User – Account on the e-mail server that the emails will send from.

Password –Password for the User account.

From Address –Address the alerts will show they are coming from.

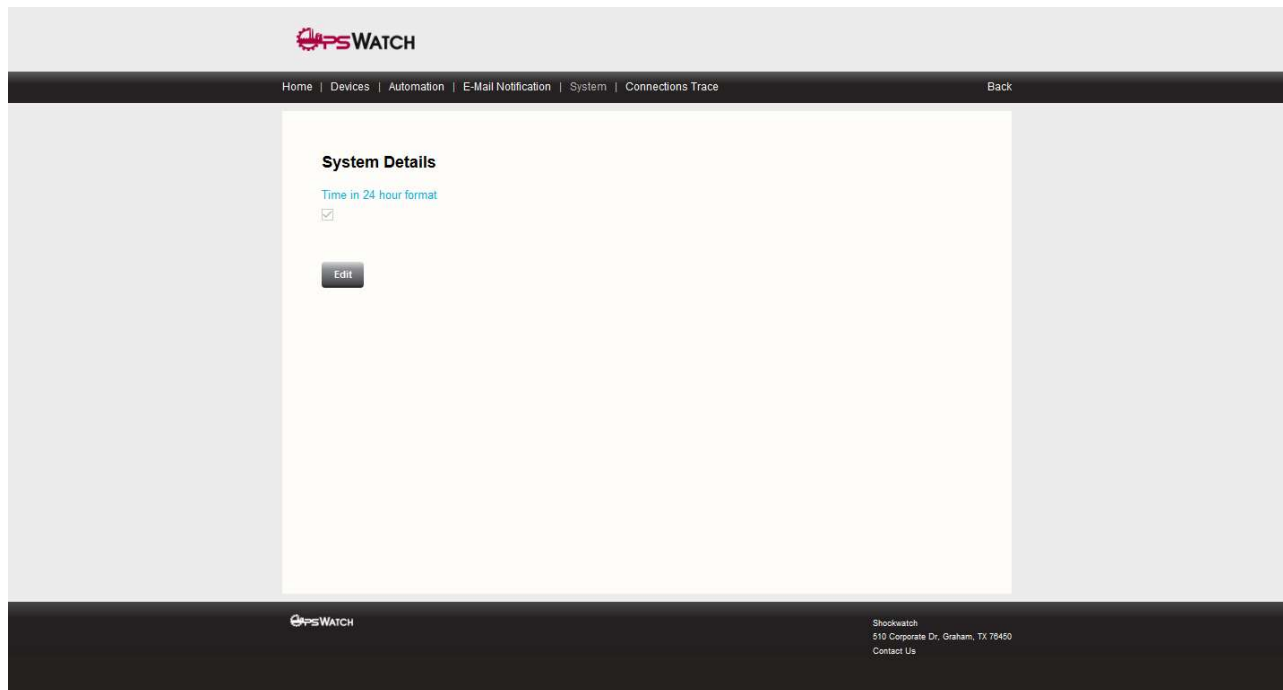
To Address(es) –Address or addresses that will receive the alerts. Multiple addresses must be separated by a semicolon.

Enable TSL/SSL –Enables TLS/SSL if the server uses these security protocols.

Mail Notification Enabled – When this box is checked, the e-mail notifications will be active.

5.4 System

Under the System tab you will be able to edit the options for the system. These include the clock time format and the location to store the streaming files.



Regulatory Compliance

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

U.S./Canada Regulatory Compliance Information

To satisfy FCC RF exposure requirements for mobile and base station transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada Statements

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.