

# Power Monitoring and Control Software



**UPSwatch**

**SOLAHD™**

  
**EMERSON™**

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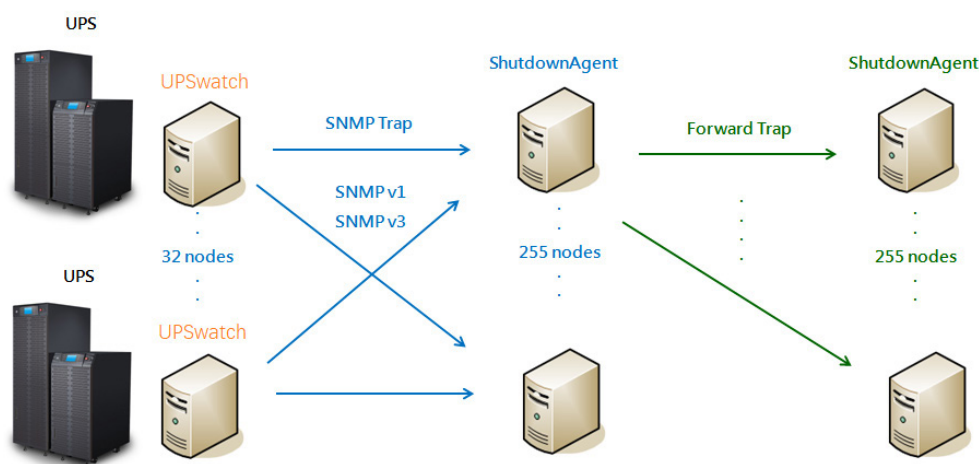
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# 1. Overview

The UPSwatch is a power monitoring and control software that communicates with a UPS to retrieve the UPS information and protects the operating system which is supplied power by the UPS during power events (Such as input power fail). Using a Web Browser, you can easily obtain the current UPS status, configure your shutdown strategy and view the countdown to shutdown information. UPSwatch also has the ability to notify the device managers through e-mail and SMS.

UPSwatch works with multiple ShutdownAgent 2012 to protect a large number of hosts which are powered by the UPS.



## 1.1 Features

1. Work with ShutdownAgent 2012 to protect a large number of hosts:  
Each UPSwatch can connect up to 255 ShutdownAgent 2012. Each ShutdownAgent 2012 can forward the received SNMP trap to up to 255 ShutdownAgent 2012.
2. Support RS232 protocol to monitor and control the connected UPS.
3. Support USB to monitor and control the connected UPS.
4. Support SNMPv1, v2c and v3 trap.
5. Support SMS for mobile notification.
6. Support SNMPv1, v3 server access for monitoring UPSwatch status and configure shutdown parameters.
7. Provide web interface through HTTP and HTTPS.
8. Has the ability to send e-mail and SMS to notify the user and device manager.
9. Support scheduling shutdown, restart and battery test.
10. Provide the batch configuration to deploy settings at a finger click.
11. Support console configuration for basic system parameters setup.
12. Support 32/64 bit software programs.

## 1.2 OS Support

- Windows 7, 8, 10
- Windows 2003, 2008, 2012, 2016
- Windows 2008/2012 Server Core, Hyper-V 2008/2012
- Linux OpenSUSE 11.4
- Linux ubuntu 10.04
- Linux Fedora 3.1.9
- CentOS 5.8
- Citrix XenServer 6.0.0
- Linux KVM

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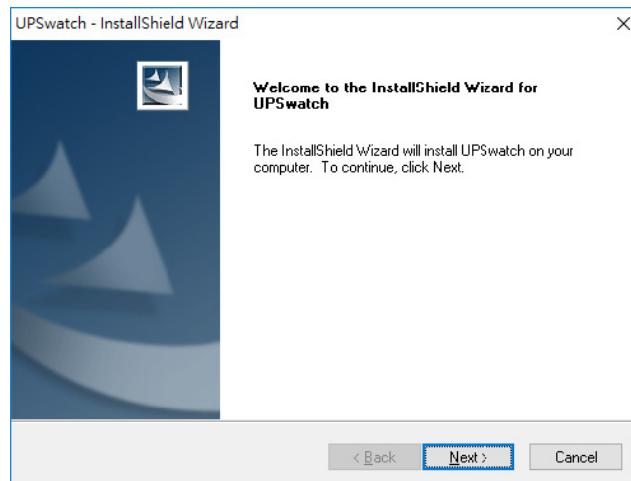
## 2. Installation/ Uninstallation

### 2.1 For Windows System

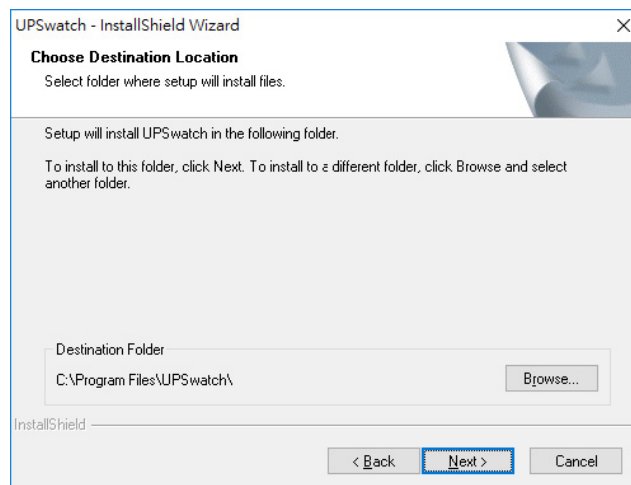
There are two setup programs: **UPSwatch-Setup(win32).exe** and **UPSwatch-Setup(x64).exe**. One setup program is for 32 bit Windows operating system and the other is for 64 bit Windows operating system.

#### 2.1.1 Installation Process

1. Execute the UPSwatch-Setup(xxx).exe to run the setup program.
2. Press the “Next” button to continue the installation or press the “Cancel” to stop the installation.

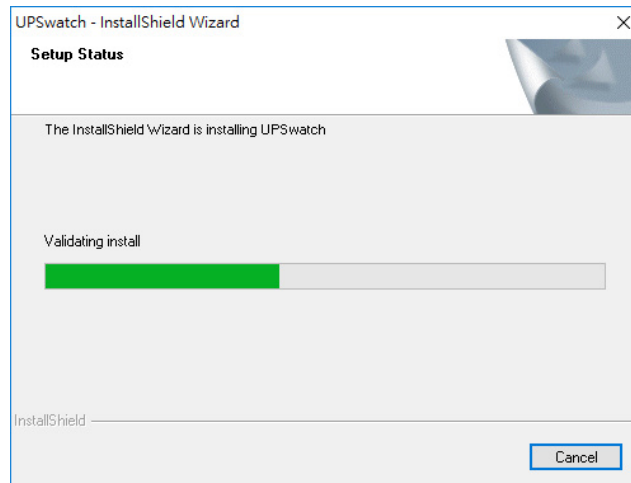


3. At this stage you can change the destination location by pressing the “Browse” button or just press the “Next” to install the software in the default location.

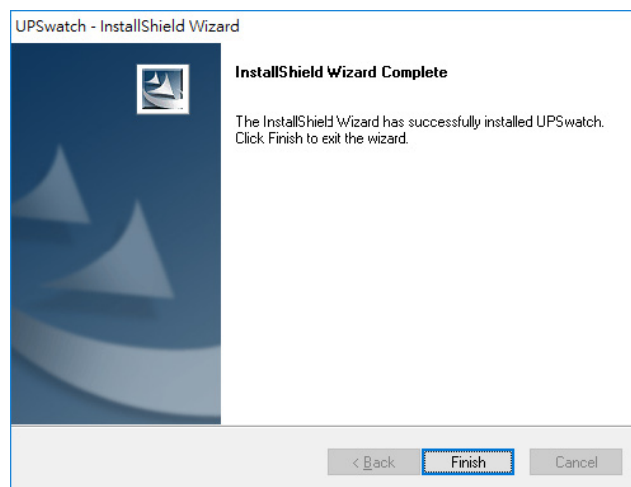


4. Now the setup program is ready for your confirmation to start copying the related program files. Press the “Install” button to install the software to the destination location in your hard drive.

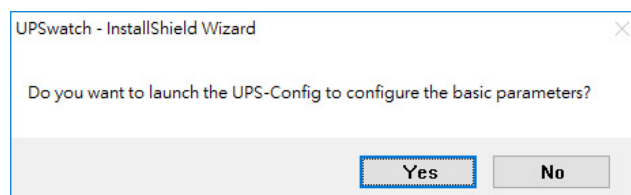
5. Now the setup program is copying the files and showing the progress.



6. After the installation is complete, press the “Finish” button to exit the installation process.



7. Once the installation is complete, UPSwatch will automatically start the service program and add an icon to the task bar. A dialog box will pop up to ask if you want to configure the basic parameters via console. If you are not operate a Windows server core operating system then you can ignore this. Just press “No” to finish the installation. Press “Yes” to launch the console configuration in the shell mode. See chapter 3 for more details.



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The UPSwatch software is comprised of two modules:

A **Service** module (**UPS Service: UPS-Service.exe**), which runs in the background as a Service and communicate with the UPS through the assigned port.

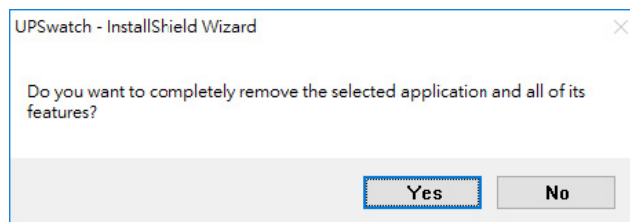
A **Status** module (**UPS-Status.exe**), which enables you to control and configure the software through drop down menus and dialog boxes. It also allows you to launch the web browser and login automatically to monitor, configure and control the software.

After finishing the installation, the setup program will create a UPSwatch association with the following shortcuts:

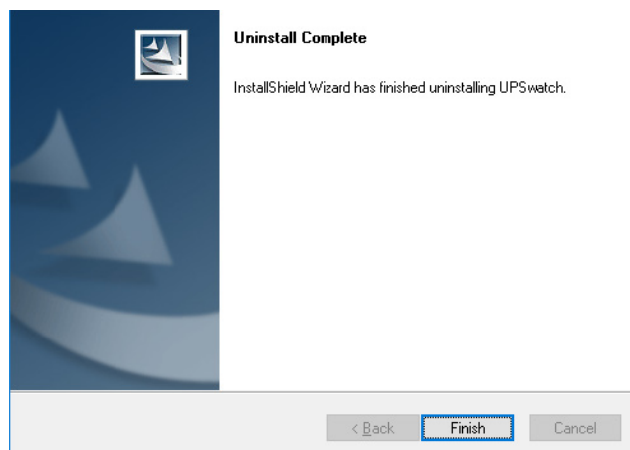
- **Console Configure:** To launch the UPS-Config.exe for you to quickly configure the basic communication parameters.
- **Uninstall:** To remove the UPSwatch from your hard disk, the configuration data will still be kept in the installed directory.
- **User Manual:** The user manual in PDF format.
- **Web Monitor:** The major user interface of UPSwatch, used to monitor and configure the software.

### 2.1.2 Uninstall Process

1. Select Uninstall from the UPSwatch program folder to start the un-install process. Or Use the Add/ Remove Program in the Control Panel.
2. Press the “Yes” button to confirm removing all of the application from the hard drive or the “No” button to cancel the uninstall process.



3. Press the “Finish” button to complete the uninstall process.



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## 2.2 For Linux System

### 2.2.1 Installation Process

1. Please login to the Linux system and change to the root account:

```
su root
```

2. Copy the upswatch-linux.tar.gz to the /tmp directory:

```
cp upswatch-linux.tar.gz /tmp
```

3. Change your working directory to /tmp:

```
cd /tmp
```

4. Uncompress the upswatch-linux.tar.gz:

```
gunzip upswatch-linux.tar.gz
```

5. Extract the upswatch-linux.tar:

```
tar xvf upswatch-linux.tar
```

6. Run the install script:

```
./install
```

```
+-----+
| UPSwatch for Linux |
+-----+

Do you want to install the UPSwatch? [y/n]
```

7. Press 'y' to start the installation process:

```
+-----+
| UPSwatch for Linux |
+-----+

The destination directory is /usr/local/upswatch.

Copying files .....
Install service link.

UPSwatch          0:off 1:off 2:off 3:on 4:off 5:on 6:off

Starting UPSwatch ... done

Do you want to configure the UPSwatch right now? [y/n]
```

8. Now the UPSwatch has been installed in the following directory `/usr/local/upswatch/` and the service program starts up automatically. Press 'y' to launch the `/usr/local/upswatch/configure` program to configure the basic networking parameters for UPSwatch or press 'n' to finish the install process. Please see chapter 3 for more information if you want to configure the basic networking parameters.

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### 2.2.2 Uninstall Process

1. Please login to the Linux system and change to the root account:

```
su root
```

2. Change your working directory to `/usr/local/upswatch`:

```
cd /usr/local/upswatch
```

3. Run the `uninstall` script to remove UPSwatch:

```
./uninstall
```

4. Press 'y' to start the uninstall process.



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## 3. Console Configuration

The configuration program is design to do the basic configuration for UPSwatch in the shell mode. The software can be launched at the end of the installation process or you can go to the installed directory to launch it manually.

For Windows it is located in “C:\Program Files\UPSwatch\UPS-Config.exe”

For Linux it is installed in “/usr/local/upswatch/configure”







### 3.1 Console Menu

No.	Function	Description	Default
1.	SNMP Server Port	The UDP port for replying SNMP get/set commands	161
2.	HTTP	Enable or disable the HTTP protocol	Enable
3.	HTTPS	Enable or disable the HTTPS protocol	Enable
4.	HTTP Port	The TCP port for HTTP	80
5.	HTTPS Port	The TCP port for HTTPS	443
6.	Manageable	Allow the management software to manage UPSwatch	Enable
7.	Save	Save the configured parameters to config.ini	
8.	Set Firewall	Insert or remove the firewall rule for the UPSwatch. This option is provided for quickly testing the network communication. The firewall settings may be recovered after the OS reboots.	
9.	Restart UPSwatch Service	Restart service program to apply the changes	
0.	Exit	Exit the configuration program	

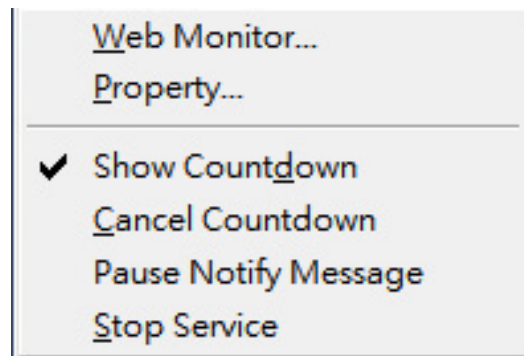
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## 4. Operation in Windows

After the installation, UPSwatch places an icon in the task bar to indicate the status of the monitored UPS.

Icon	Description
	Normal
	Service stop
	UPS on battery mode
	UPS battery low
	UPS on bypass mode
	UPS disconnect

To show the pop up menu, please move the cursor over the UPSwatch icon and then click the mouse button:



### 4.1 Web Monitor

UPSwatch implemented a web engine to provide the web interface to interact with the end customers. You can monitor and configure the software through the web interface.

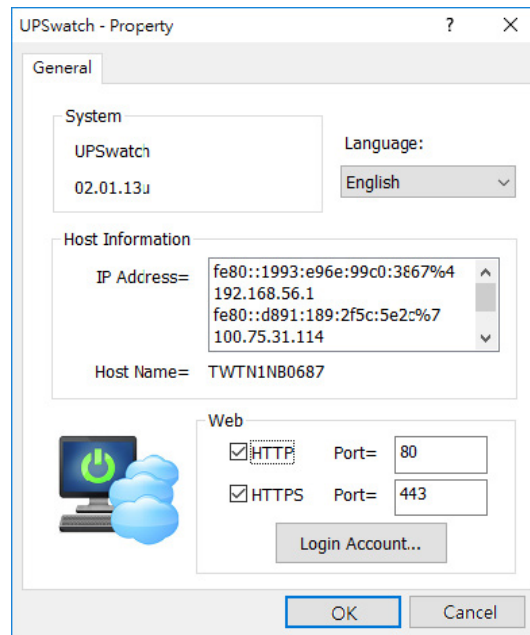
Select the **Web Monitor** menu from the menu to launch the default web browser, if your login account in the Windows system belongs to the local Administrators group then UPSwatch will login to its web engine automatically as the administrator privilege. If you connect a web browser from a remote PC then you have to login with the proper account and password.

For more detailed information about the web operation, please refer to chapter 5.

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## 4.2 Property

Selecting the Property menu provides another way to configure the basic parameters of UPSwatch. From the General page you can observe the software version number, IP addresses and host name.



### 4.2.1 Language:

Select the supported language from this option.

### 4.2.2 HTTP:

The HTTP port can be enabled/ disabled and assigned a different number. The default value is enabled and port 80.

If you have changed the HTTP port number from 80 then you have to key in the URL as the following:

```
http://192.168.1.100:8001
```

where 192.168.1.100 is the ip address of the PC which UPSwatch was installed and the 8001 is the port number which you assigned.

**NOTE:** Please check the Windows firewall setting if the HTTP connection is refused.

### 4.2.3 HTTPS:

The HTTPS port can be enable/ disabled and assigned a different number. The default value is enabled and port 443.

If you have changed the HTTPS port number from 443 then you have to key in the URL as the following:

```
https://192.168.1.100:4430
```

where 192.168.1.100 is the ip address of the PC which UPSwatch installed and the 4430 is the port number which you assigned.

**NOTE:** Please check the Windows firewall setting if the HTTPS connection is refused.

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#### 4.2.4 Login Account:

UPSwatch implements three (3) levels of authentication for the web login as follows.

##### **Administrator:**

Has sole right to modify the UPSwatch system settings.

##### **Device Manager:**

Does not permit to change the system settings but has the ability to modify the device-related settings.

##### **Read Only User:**

Does not have the rights to change any of the system or device-related settings. The Read-Only User is only permitted to observe the UPSwatch status.

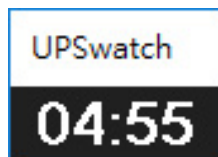
The following is the default account and password list, please note that they are case-sensitive.

	<b>Account</b>	<b>Password</b>
Administrator	admin	password
Device Manager	device	password
Read Only User	user	password

The screenshot shows a web browser window titled "Web Login Account". It contains three distinct sections for user configuration. Each section has a label (Administrator, Device Manager, Read Only User), an "Account:" label with a text input field, and a "Password:" label with a masked password input field. The "Administrator" section shows "admin" in the account field and masked password. The "Device Manager" section shows "device" in the account field and masked password. The "Read Only User" section shows "user" in the account field and masked password. A "Save" button is positioned at the bottom right of the configuration area.

#### 4.3 Show Countdown

Select the Show Countdown menu to display the countdown windows when UPSwatch starts counting down the OS shutdown delay.



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#### **4.4 Cancel Countdown**

Select the Cancel Countdown menu during the counting down to stop the shutdown process. To resume the shutdown process, please de-select the Cancel Countdown menu item to continue counting down the OS shutdown delay.

In addition to de-select the Cancel Countdown menu to continue the countdown process, when the shutdown event changes the software will start a new countdown process.

#### **4.5 Pause Notify Message**

Selecting the Pause Notify Message will stop the next pop-up notification message. The notification will resume the next time the status changes.

#### **4.6 Stop Service**

Selecting the Stop Service menu will stop the UPSwatch service module. To restart the service, uncheck the Stop Service menu.

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# 5. Web Interface

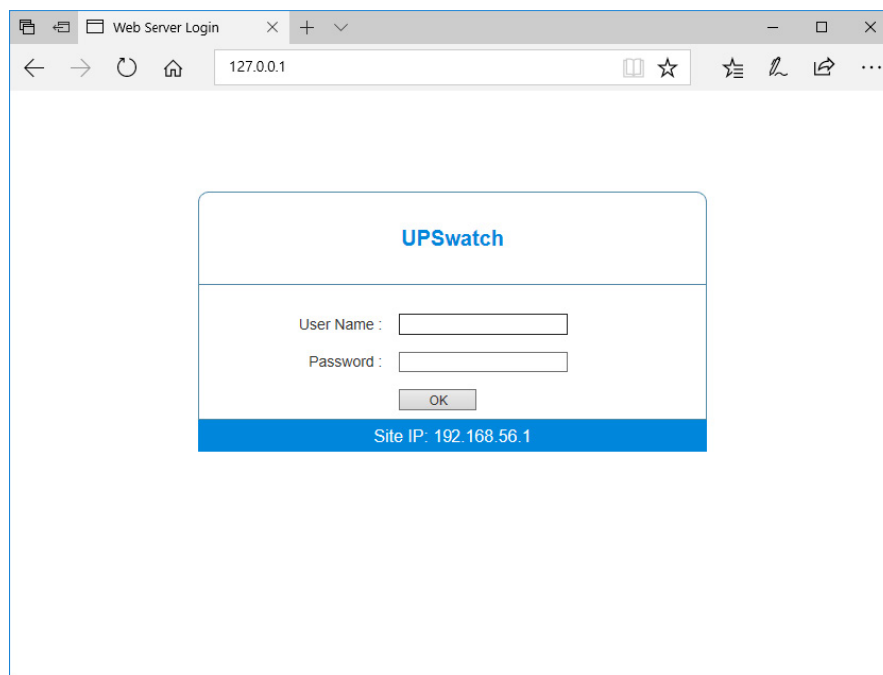
## 5.1 Run a Web Browser

To connect to UPSwatch from the same PC where UPSwatch is installed, select the Web Monitor from the task bar menu. UPSwatch will open your default web browser and if you are the Administrator you will be automatically logged in.

UPSwatch allows a maximum of 16 users to be logged in at the same time.

You can also connect a web browser from a remote PC. Follow these steps:

- Start your Web Browser.
- Enter `http://host_name` or `http://ip_address` in the address bar for the plain text web transmission or `https://host_name` or `https://ip_address` for the encrypted web transmission.
- If you have changed the port number of HTTP or HTTPS then please enter `http://host_name:port_number` or `http://ip_address:port_number` in the address bar for the plain text web transmission or `https://host_name:port_number` or `https://ip_address:port_number` for the encrypted web transmission
- UPSwatch will then ask your account and password.
- After keying in the correct account and password, the UPSwatch Home Page will appear on the screen.



**Note:** UPSwatch will logout the user automatically if there is no any data transmission through HTTP/HTTPS for more than 30 minutes.

## 5.2 Monitor >> Information >> Summary

This web page includes the information of identification, shutdown status, UPS status and the last 5 event logs.

The screenshot shows the EMERSON SOLAHD UPSwatch web interface. The main content area is titled "Monitor » Information » Summary". It is divided into several sections:

- Identification:** Model: SPS850, Type: Off line, Rating VA: 850 VA.
- UPS Properties:** UPS Communication: Normal, UPS Health: Normal, Output Source: Normal, Output Load: 0%, Battery Status: Normal, Battery Capacity: 100%.
- Shutdown:** Shutdown Type: Shutdown, OS Countdown: 00:00.
- Schedule:** Next Shutdown Time, Next Restart Time, Next Test Time, Next Deep Batt. Test Time.
- Last 5 Event Log:** A table with columns Date/Time, Event Level, and Event Description.

	Date/Time	Event Level	Event Description
1	03/20/2019 15:25:02	System	Account admin login from 127.0.0.1
2	03/20/2019 15:23:19	Information	Stop countdown shutdown
3	03/20/2019 15:23:19	Warning	No longer discharging from battery
4	03/20/2019 15:23:19	Warning	No longer on battery mode
5	03/20/2019 15:23:19	Warning	Power restore

### Identification

Display the UPS model, serial number, UPS type and rating VA.

### Shutdown

Display the shutdown type (Shutdown, Power Off, Hibernate) and the countdown time to shutdown the OS in second.

### UPS Properties

List the major UPS properties for monitoring the UPS health, output and battery status.

### Schedule

Calculate the nearest time to shutdown, restart, do the 10 seconds test and deep battery test in 1 month from weekly schedule and specific schedule.

### Last 5 Event Log

Show the last 5 event logs, if you want to see more event log please visit the Event Log page.

### 5.3 Monitor >> Information >> Battery

Go to **Monitor >> Information >> Battery** to view the information of Battery Status, Battery Measurement, Battery Cabinet and Replacement Date.

The screenshot displays the EMERSON SOLAHD UPSwatch web interface. The top navigation bar includes 'Monitor', 'Device', and 'System' tabs, with 'Monitor' selected. The left sidebar contains a menu with 'Battery' highlighted. The main content area shows the 'Battery' status page with the following data:

Status	
Status:	Normal
Charger:	Rest
Test Result:	No Test Performed
On Battery Time:	0 Second(s)

Measurement	
Battery Capacity:	100%
Voltage:	13.6 V
Temperature:	22 °C

Replacement Date	
Last Battery Replacement Date:	
Next: Battery Replacement Date:	03/19/2019 (MM/DD/YYYY)
	03/19/2022 (MM/DD/YYYY)

### 5.4 Monitor >> Information >> In/Out/Bypass

Go to **Monitor >> Information >> In/ Out Parameters** to view the information of Input Measurement, Bypass Measurement and Output Measurement.

The screenshot displays the EMERSON SOLAHD UPSwatch web interface for the 'In/Out/Bypass' section. The left sidebar has 'In/Out/Bypass' selected. The main content area shows the following data:

Input	
Frequency:	60.0 Hz
Voltage:	121.3 V

Bypass	

Output Measurement	
Output Source:	Normal
Frequency:	60.0 Hz
Voltage:	118.3 V
Current:	0.0 A
Power:	0 Watt
Loading:	0 %



## 5.5 Monitor >> Information >> Identification

Go to **Monitor >> Information >> Identification** to view the information of Identification and UPS Rating.

The screenshot displays the EMERSON SOLAHD UPSwatch web interface. The top navigation bar includes 'Monitor', 'Device', and 'System' tabs, with 'Monitor' selected. The 'Information' sub-tab is active, showing a breadcrumb trail: 'Monitor > Information > Identification'. The left sidebar contains a menu with 'Identification' selected. The main content area is divided into two panels: 'Identification' and 'UPS Rating'. The 'Identification' panel shows: Model: SPS850, Type: Off line, UPS Firmware: 00, and Web Software: 02.01.13u. The 'UPS Rating' panel shows: VA: 850 vA, Input Voltage: 120 v, Frequency: 60.0 Hz, Battery Voltage: 12 v, High Transfer Voltage: 144 v, and Low Transfer Voltage: 90 v. The system time is Wed 03/20/2019 PM 03:29:23.

## 5.6 Monitor >> Information >> Status Indication

Go to **Monitor >> Information >> Identification** to view the information of Identification and UPS Rating.

The screenshot displays the EMERSON SOLAHD UPSwatch web interface. The top navigation bar includes 'Monitor', 'Device', and 'System' tabs, with 'Monitor' selected. The 'Information' sub-tab is active, showing a breadcrumb trail: 'Monitor > Information > Status Indication'. The left sidebar contains a menu with 'Status Indication' selected. The main content area shows the 'Status Indication' section with a list of indicators, each with a radio button. The 'Buzzer Alarm' indicator is selected and highlighted in green. The system time is Wed 03/20/2019 AM 11:29:45.

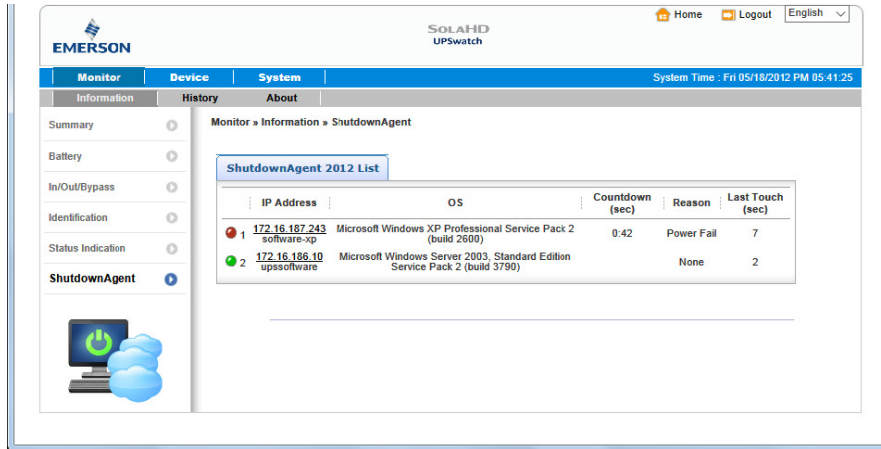
Indicator	Status
Economy Mode	<input type="radio"/>
Buzzer Enabled	<input type="radio"/>
Buzzer Alarm	<input checked="" type="radio"/>
UPS Disconnect	<input type="radio"/>
Input Out Of Range	<input type="radio"/>
Battery Low	<input type="radio"/>
Battery Depleted	<input type="radio"/>
Battery Need Replace	<input type="radio"/>
Battery Ground Fault	<input type="radio"/>
Test In Progress	<input type="radio"/>
Test Fail	<input type="radio"/>
Output Off	<input type="radio"/>
On Bypass	<input type="radio"/>
UPS System Off	<input type="radio"/>
UPS Shutdown	<input type="radio"/>
Output Over Voltage	<input type="radio"/>
Output Under Voltage	<input type="radio"/>
Overload	<input type="radio"/>
Temperature Out Of Range	<input type="radio"/>
Other Warning	<input type="radio"/>
Fan Abnormal	<input type="radio"/>
Fuse Abnormal	<input type="radio"/>
Inverter Abnormal	<input type="radio"/>
Charger Abnormal	<input type="radio"/>
Bypass Out Of Range	<input type="radio"/>
Emergency Power Off	<input type="radio"/>
Phase Asynchronous	<input type="radio"/>
Rectifier Abnormal	<input type="radio"/>

## 5.7 Monitor >> Information >> Power Module

Go to **Monitor >> Information >> Power Module** to view the information of Power Module Bypass and Power Module ID1/ 2/ 3/ 4. Please note that this page only appears when your UPS has designated power modules.

## 5.8 Monitor >> Information >> ShutdownAgent

This web page collects all of the ShutdownAgent 2012 which you assigned to work with UPSwatch to protect a group of servers.

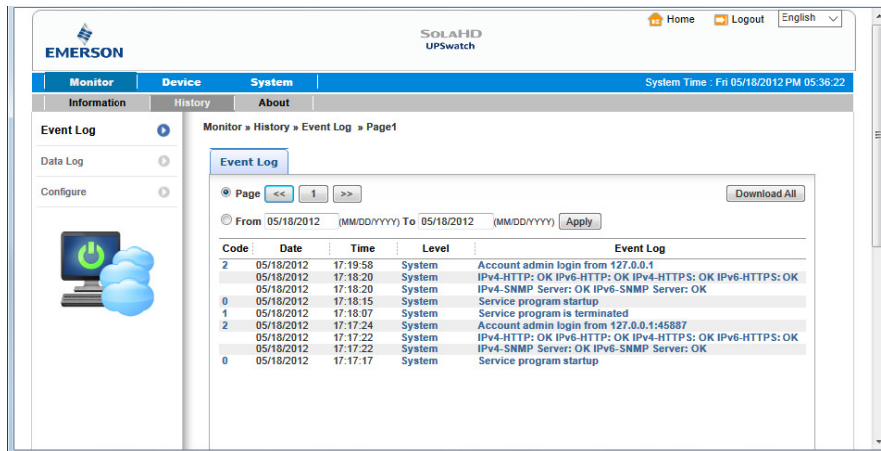


The screenshot shows the EMERSON UPSwatch web interface. The top navigation bar includes 'Monitor', 'Device', and 'System'. The main content area is titled 'Monitor > Information > ShutdownAgent'. A table titled 'ShutdownAgent 2012 List' displays the following data:

	IP Address	OS	Countdown (sec)	Reason	Last Touch (sec)
1	172.16.187.243 software-xp	Microsoft Windows XP Professional Service Pack 2 (build 2600)	0:42	Power Fail	7
2	172.16.186.10 upssoftware	Microsoft Windows Server 2003, Standard Edition Service Pack 2 (build 3790)		None	2

## 5.9 Monitor >> History >> Event Log

Go to **Monitor >> History >> Event Log >> Page 1/2/3/4** to see events that occur. The existing ones are overwritten when the maximum number of entries (10,000) is reached. You can also download the entire event log archive (event\_log.csv) recorded during an assigned period of time on your computer.



The screenshot shows the EMERSON UPSwatch web interface with the 'Event Log' selected. The main content area is titled 'Monitor > History > Event Log > Page1'. A table titled 'Event Log' displays the following data:

Code	Date	Time	Level	Event Log
2	05/18/2012	17:19:58	System	Account admin login from 127.0.0.1
0	05/18/2012	17:18:20	System	IPV4-HTTP: OK IPV6-HTTP: OK IPV4-HTTPS: OK IPV6-HTTPS: OK
0	05/18/2012	17:18:20	System	IPV4-SNMP Server: OK IPV6-SNMP Server: OK
0	05/18/2012	17:18:15	System	Service program startup
1	05/18/2012	17:18:07	System	Service program is terminated
2	05/18/2012	17:17:24	System	Account admin login from 127.0.0.1:45887
0	05/18/2012	17:17:22	System	IPV4-HTTP: OK IPV6-HTTP: OK IPV4-HTTPS: OK IPV6-HTTPS: OK
0	05/18/2012	17:17:22	System	IPV4-SNMP Server: OK IPV6-SNMP Server: OK
0	05/18/2012	17:17:17	System	Service program startup

**Date:** The date when the event occurred.

**Time:** The time when the event occurred.

**Level:** The Event Level of the event occurred.

**Event Log:** The description of the event log that occurred.

### Download Event Log from UPS

The UPSwatch sends a request to the UPS, collects the event logs saved in the UPS, and replies to the user through network. Please note that this option only appears when the UPS supports this function, and the event logs saved in the UPS may be different from the event logs saved in the UPSwatch.

## 5.10 Monitor >> History >> Data Log

This web page lets you observe the history values by the a single date, a month, a year and a user defined period of time. You can also download the history data by clicking the “Download” button.

### 5.10.1 Observe by Day

Click on the top **Day** tab to observe the history values by a specified date.

#### Date Text Box:

Click on the **Date** text box to pop-up a calendar to pick up a date to observe the history values for the connected UPS.

#### Line Chart:

Each color of line indicates the choose value item. Move your mouse over the line to display the time and associated value.

#### Color Boxes:

Click on the color boxes of items to disable drawing the line, click them again to enable drawing the line.

#### Download:

To export the energy data to a .csv file.



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### 5.10.2 Observe by Month

Click on the top **Month** tab to observe the history values by a specified month.

#### **Date Text Box:**

Click on the **Month** text box to pop-up a calendar to pick up a month to observe the history values for the connected UPS.

#### **Line Chart:**

Each color of line indicates the choose value item. Move your mouse over the line to display the time and associated value.

#### **Color Boxes:**

Click on the color boxes of items to disable drawing the line, click them again to enable drawing the line.

#### **Download:**

To export the energy data to a .csv file.

### 5.10.3 Observe by Year

Click on the top **Year** tab to observe the history values by a specified year.

#### **Year Text Box:**

Click on the **Year** text box to pop-up a calendar to pick up a year to observe the history values for the connected UPS.

#### **Line Chart:**

Each color of line indicates the choose value item. Move your mouse over the line to display the time and associated value.

#### **Color Boxes:**

Click on the color boxes of items to disable drawing the line, click them again to enable drawing the line.

#### **Download:**

To export the energy data to a .csv file.

### 5.10.4 Observe by User Defined

Click on the top **Specific** tab to observe the history values by a period of time.

#### Date Text Box:

Click on the **Date** text box to pop-up a calendar to pick up a range of date then press the Apply button to observe the value items.

#### Line Chart:

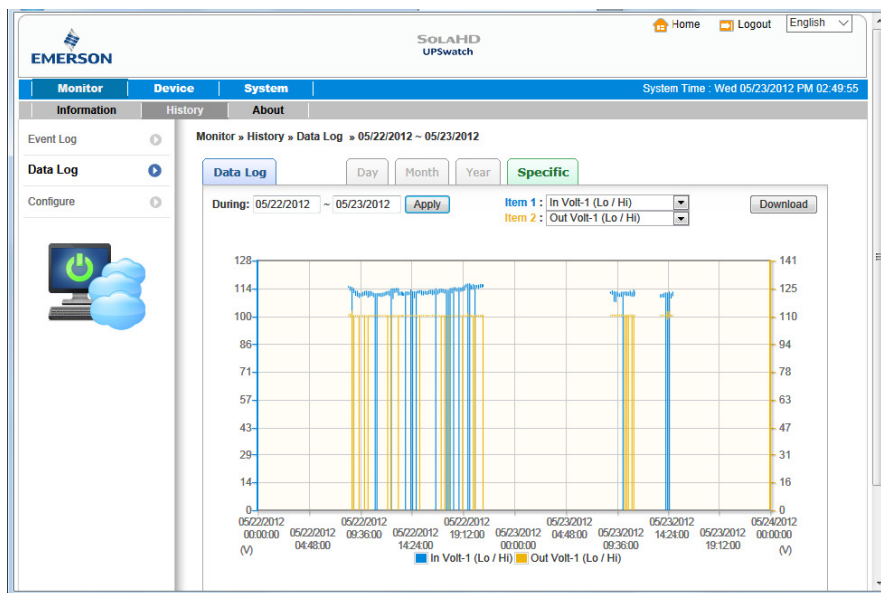
Each color of line indicates the choose value item. Move your mouse over the line to display the time and associated value.

#### Color Boxes:

Click on the color boxes of items to disable drawing the line, click them again to enable drawing the line.

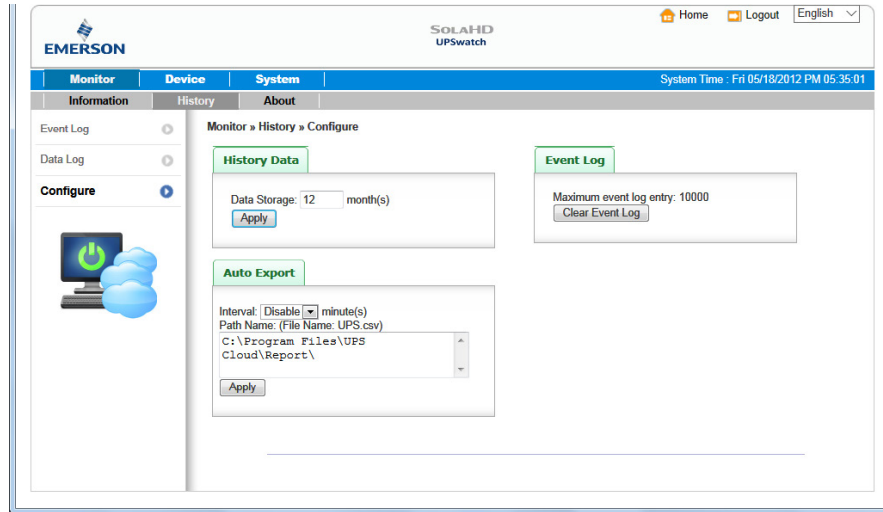
#### Download:

To export the energy data to a .csv file.



## 5.11 Monitor >> History >> Configure

Go to **Monitor >> History >> Configure** to clear the history data logs and event logs. You can also assign the Save Data Interval.



**Clear Event Log:** To clear the whole data log.

**Data Storage:** To assign the months to save data log.

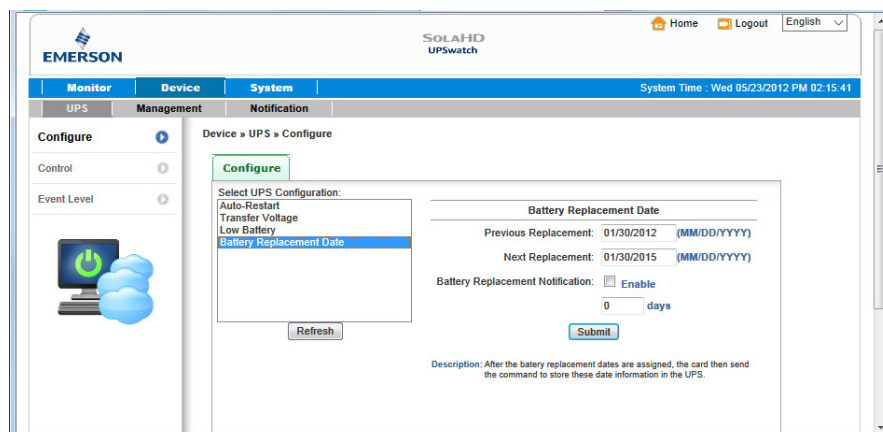
**Auto Export:** To save the UPS data in the specified directory by the assigned interval. The software creates the “UPS.csv” to export the inverter data.

**Interval:** The interval to append the UPS data to the file.

**Path Name:** The directory for UPSwatch to create the related file.

## 5.12 Device >> UPS >> Configure

Go to **Device >> Management >> Configure** to configure the UPS. The configuration values are saved in the UPS or in the UPSwatch and these values change UPS operation. The configuration items include the following.



Please note that different UPSs may support different configuration options.

---

### **Auto Restart**

After you click Submit to confirm your auto restart setup, the UPSwatch will send the command to the UPS to enable auto restart.

### **UPS Buzzer**

After you click Submit to confirm your buzzer setup, the UPSwatch will send the command to the UPS to enable buzzer.

### **Voltage Sensitivity**

After you set up your voltage sensitivity (there are Normal, Reduced, and Low selections) and click Submit, the UPSwatch will send the command to the UPS to enable the UPS's voltage sensitivity function.

### **Transfer Voltage**

After you click Submit to confirm your transfer voltage setup, the UPSwatch will send the command to the UPS to enable the relevant functions.

### **Low Battery**

This configuration saves the setup values in the UPSwatch and compares with the values received from the UPS. If the received battery level is lower than the assigned one, the UPSwatch will trigger a low-battery alarm.

### **Battery Replacement Date**

After you set up battery replacement dates, the UPSwatch will send the command to the UPS and save the information in the UPS.

### **External Battery Pack**

After you click Submit to confirm your external battery pack setup, the UPSwatch will send the command to the UPS and save the external battery pack quantity in the UPS.

### **Bypass Transfer Frequency**

After you set a tolerance of bypass transfer frequency and confirm your setup, the UPSwatch will send the command to the UPS. If the UPS transfers to bypass mode and the bypass frequency is out of the tolerance, output will be turned off and critical loads will be protected.

### **Bypass Transfer Voltage**

After you set a tolerance of bypass transfer voltage and confirm your setup, the UPSwatch will send the command to the UPS. If the UPS transfers to bypass mode and the bypass voltage is out of the tolerance, output will be turned off and critical loads will be protected.

### **Periodic Auto Test**

This configuration is used to set up battery test time. After you confirm your setup, the UPSwatch will send the command to the UPS and save the setup in the UPS. When the test time is due, the UPS will automatically perform the battery test.

### **Output Dry Contacts**

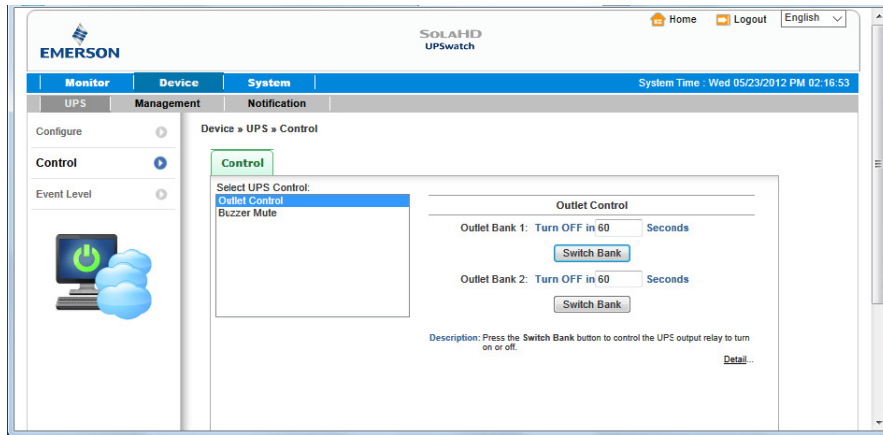
After you click Submit to confirm your setup of output dry contacts, the UPSwatch will send the command to the UPS, save the values in the UPS, and report the current UPS's status.

### **Custom Battery Test**

This configuration lets you set the battery voltage and test time to check the battery. If the battery can sustain the assigned test time during discharge and the battery voltage is higher than the assigned value then the test is passed.

### 5.13 Device >> UPS >> Control

Go to **Device >> Management >> Control** to configure relevant control commands. After you click **Submit**, the UPSwatch will send the according commands to the UPS to enable relevant functions. The control items include the following.



### Battery Test

After you select the battery test type and click Submit, the UPSwatch will send the command to the UPS to enable the battery test accordingly.

### Outlet Control

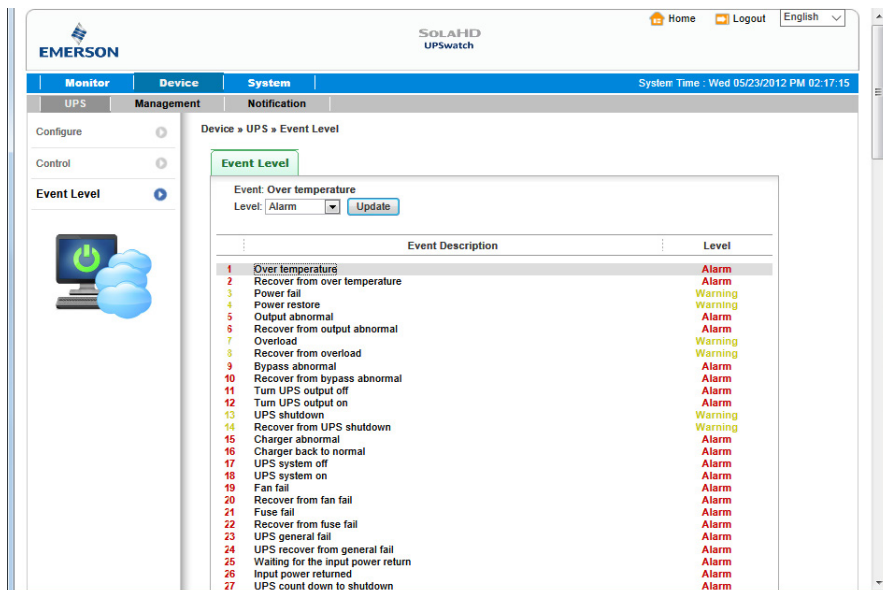
Press the Switch Bank button to control the UPS output relay (on or off).

### Buzzer Mute

Provide an interface for you to mute the UPS buzzer during alarming, the buzzer will resume to alarm next time when the power event occurs.

### 5.14 Device >> UPS >> Event Level

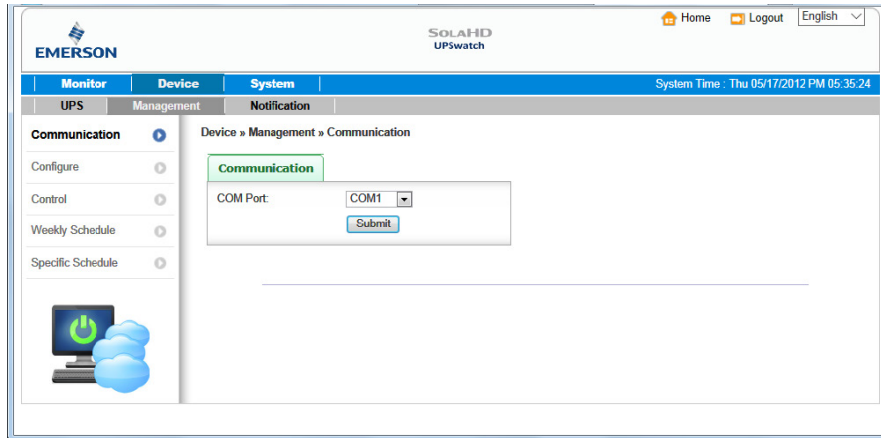
Go to **Device >> UPS >> Event Level** to set up a level for an event. If you want to receive an event notification, please refer to **5.22 Notification - SNMP Trap** and **5.23 Notification - Mail Server**.





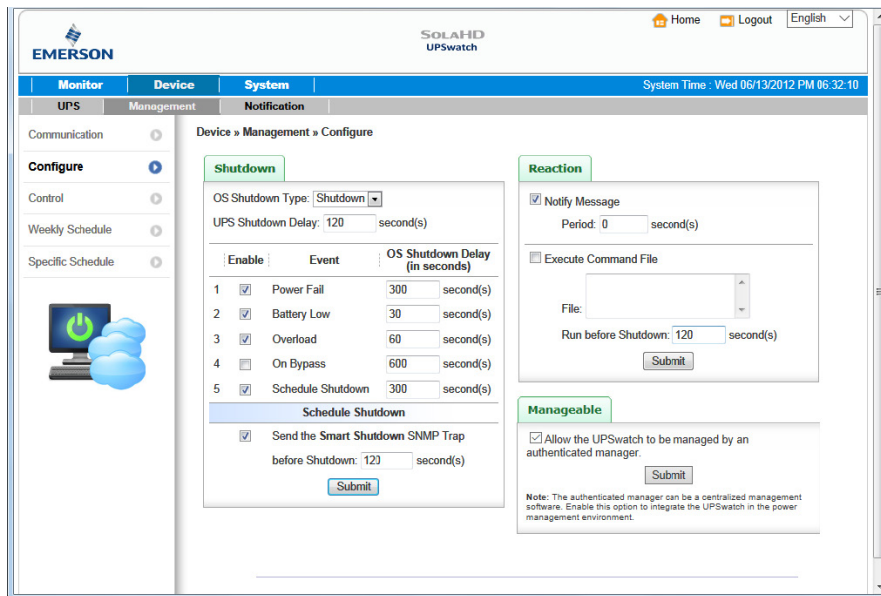
## 5.15 Device >> Management >> Communication

Select a serial interface from this web page to communicate with the UPS. The default value is Auto-Scan, UPSwatch will detect the connected UPS automatically and keep the searched port in the configuration file.



## 5.16 Device >> Management >> Configure

This page is used to configure the major functions, they are: Shutdown, message notify, Run external command and manageable.



### Shutdown

Select the **Shutdown Type** to determine the way to shut down the operating system. There are **Shutdown**, **Power Off** and **Hibernate** types and the default value is Shutdown.

Now we should continue to determine the shutdown delay time for the following 5 power events: Power Fail, Battery Low, Overload, On Bypass and Schedule Shutdown. If the power events recover during countdown then the operating system will cancel the shutdown process, the host will not be shutdown.

## Reaction

Enable the **Notify Message** to pop up a message box once UPSwatch detects there is an UPS event change. Assign the period value to report the message periodically, set a 0 to the Period will show the message only once.

Enable the **Execute Command File** to run an assigned external file before shutdown. Set a value to the Run Before Shutdown to inform UPSwatch when to launch the assigned executable file.

## Manageable

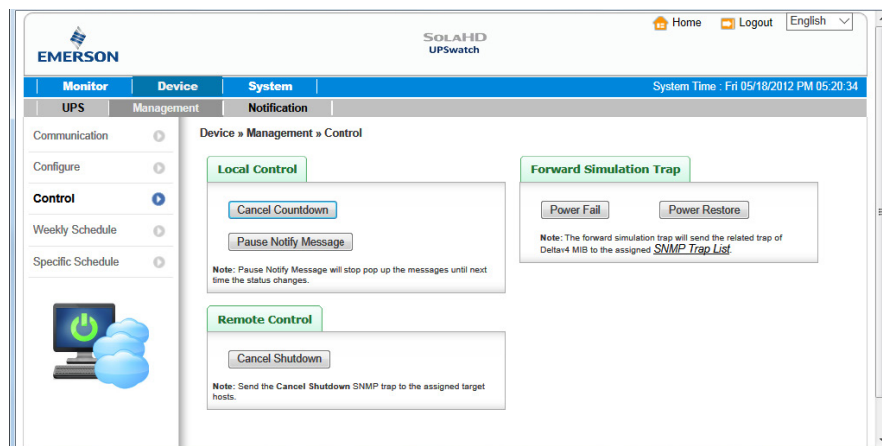
Select the **Allow the UPSwatch to be managed by an authenticated manager option** to let the UPSwatch reply the query from any authenticated manager. The authenticated manager can be a centralized management software. After collecting the UPSwatch and ShutdownAgent information, the authenticated manager can provide a comprehensive list of all of the UPSwatch and ShutdownAgent.

In fact, the authenticated manager communicate with the UPSwatch through SNMPv3 with the first default account in the SNMPv3 USM list. If the Allow the UPSwatch to be managed by an authenticated manager option is enabled then the permission of “manager” account changes to “Read/Write”, otherwise the permission is “Disable”.

The default setting of Allow the UPSwatch to be managed by an authenticated manager option is “enabled”

## 5.17 Device >> Management >> Control

This page is used to configure the major functions, they are: Shutdown, message notify, Run external command and manageable.



### Local Control

Press the “Cancel Countdown” button during the countdown shutdown process to stop counting down. Press the button again to resume the shutdown process.

In addition to select the Resume Countdown menu item to continue the countdown process, when the shutdown event changes will start a new countdown process.

Press the “Pause Notify Message” to pause the notification message. The message will resume again when the UPS status changes.

### Remote Control

Press the “Cancel Shutdown” button to send the Cancel Shutdown trap to all of the SNMP Trap target hosts to stop the shutdown process.

## Forward Simulation Trap

Press the “Power Fail” button to send the simulated power fail SNMP trap to the assigned Trap target IP addresses.

Press the “Power Restore” button to send the simulated power restore SNMP trap to the assigned Trap target IP addresses.

## 5.18 Device >> Management >> Weekly Schedule

Go to Device >> Management >> Weekly Schedule to arrange a weekly schedule for the UPS. You can select No Action, Shutdown, Restart, 10-Second Test, and set up what day and what time you want the action to be executed.

Note: The priority of a specific schedule is higher than the weekly schedule.

Action	SUN	MON	TUE	WED	THR	FRI	SAT	Time
1 Shutdown	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21:00
2 Restart	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	07:00
3 10 Seconds Test	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12:00
4 No Action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:00
5 No Action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:00
6 No Action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:00
7 No Action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:00
8 No Action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:00

## 5.19 Device >> Management >> Specific Schedule

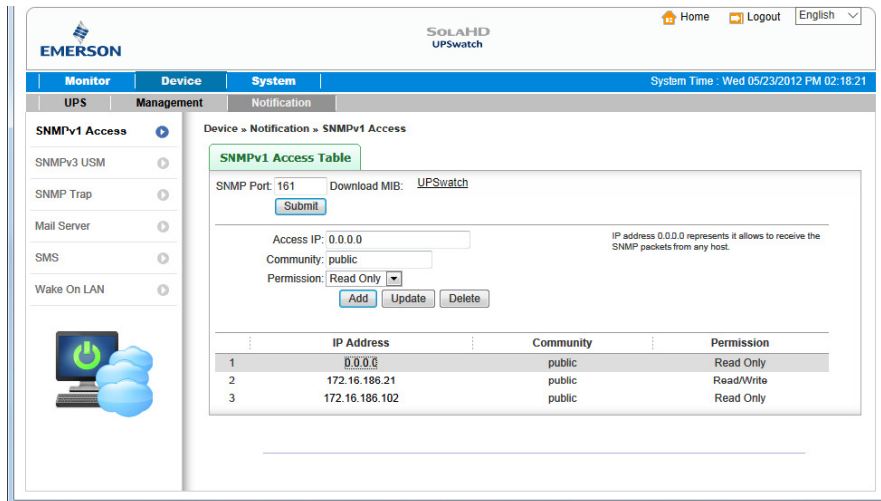
Go to Device >> Management >> Specific Schedule to arrange a specific schedule for the UPS. You can set up a specific date (MM/ DD/ YYYY) and time (hh:mm) for a specific action (Stop Action, Shutdown, Restart, 10-Second Test, Deep Battery Test).

Note: The priority of a specific schedule is higher than the weekly schedule.

Date(MM/DD/YYYY)	Time(hh:mm)	Action
1 06/01/2012	12:00	Deep Battery Test
2 00/00/2000	00:00	Stop Action
3 00/00/2000	00:00	Stop Action
4 00/00/2000	00:00	Stop Action
5 00/00/2000	00:00	Stop Action
6 00/00/2000	00:00	Stop Action
7 00/00/2000	00:00	Stop Action
8 00/00/2000	00:00	Stop Action
9 00/00/2000	00:00	Stop Action
10 00/00/2000	00:00	Stop Action
11 00/00/2000	00:00	Stop Action

## 5.20 Device >> Notification >> SNMPv1 Access

The UPSwatch supports SNMP protocol and SNMP NMS (Network Management System), which are commonly used to monitor network devices for conditions that call for administrative attention. To prevent unauthorized access, you can specify the NMS IP addresses that are allowed to access, their community strings and access levels. The maximum number of IP entries is 255.



The screenshot shows the EMERSON SOLAHD UPSwatch web interface. The main content area is titled "SNMPv1 Access Table" and contains the following configuration options:

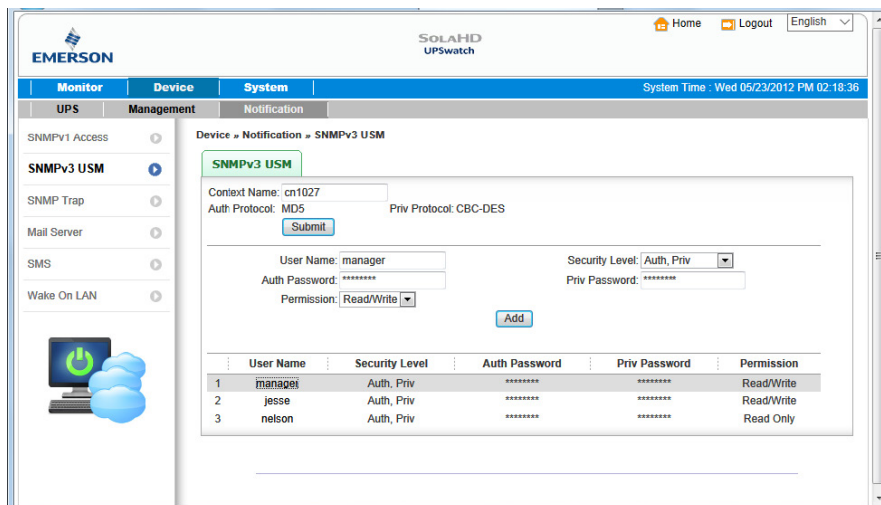
- SNMP Port: 161
- Download MIB: UPSwatch
- Submit button
- Access IP: 0.0.0.0 (Note: IP address 0.0.0.0 represents it allows to receive the SNMP packets from any host.)
- Community: public
- Permission: Read Only
- Buttons: Add, Update, Delete

	IP Address	Community	Permission
1	0.0.0.0	public	Read Only
2	172.16.186.21	public	Read/Write
3	172.16.186.102	public	Read Only

## 5.21 Device >> Notification >> SNMPv3 USM

SNMPv3 offers features such as the encryption of packets and authentication to improve security. The SNMPv3 USM (User Session Management) allows you to assign 32 User Names whose access is granted via SNMPv3 protocol. You can also define their respective Security Levels, Auth Passwords, Priv Passwords and Permission.

The first one account cannot be deleted, to disable it please go to the **Device >> Management >> Configure** web page then uncheck the manageable option.



The screenshot shows the EMERSON SOLAHD UPSwatch web interface. The main content area is titled "SNMPv3 USM" and contains the following configuration options:

- Context Name: cn1027
- Auth Protocol: MD5
- Priv Protocol: CBC-DES
- Submit button
- User Name: manager
- Security Level: Auth\_Priv
- Auth Password: \*\*\*\*\*
- Priv Password: \*\*\*\*\*
- Permission: Read/Write
- Add button

	User Name	Security Level	Auth Password	Priv Password	Permission
1	manager	Auth_Priv	*****	*****	Read/Write
2	jesse	Auth_Priv	*****	*****	Read/Write
3	nelson	Auth_Priv	*****	*****	Read Only

## 5.22 Device >> Notification >> SNMP Trap

SNMP Trap alerts users to event occurrences in your monitored environment. To enable SNMP Trap, you must add Target IP addresses to the Target IP list. Specify the Community String, Trap Type, MIB, SNMPv3 User Name (If the Trap Type is SNMPv3), UDP port, and Event Level, and click Add. If you wish to update or delete a Target IP address, specify the IP address in the Target IP list, and click Update or Delete. You can add up to 255 SNMP trap target hosts in the list.

The screenshot shows the EMERSON SOLAHD UPSwatch web interface. The main content area is titled "Device » Management » Weekly Schedule". It features a "Weekly Schedule" table with columns for Action, SUN, MON, TUE, WED, THR, FRI, SAT, and Time. The table contains 8 rows of configuration items. A "Submit" button is located at the bottom of the table.

	Action	SUN	MON	TUE	WED	THR	FRI	SAT	Time
1	Shutdown	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21:00
2	Restart	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	07:00
3	10 Seconds Test	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12:00
4	No Action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:00
5	No Action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:00
6	No Action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:00
7	No Action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:00
8	No Action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	00:00

**Note:** The UPSwatch provides SNMPv1, v2c and v3 traps to satisfy most of customers' environments. If you use the SNMPv3 trap, please provide one of the user names in the SNMPv3 USM table.

You can determine what event notifications should be sent to the Target IP(s) from **Event Level**. Three Event Levels are listed as follows:

**Information:** All event notifications are sent to the target address.

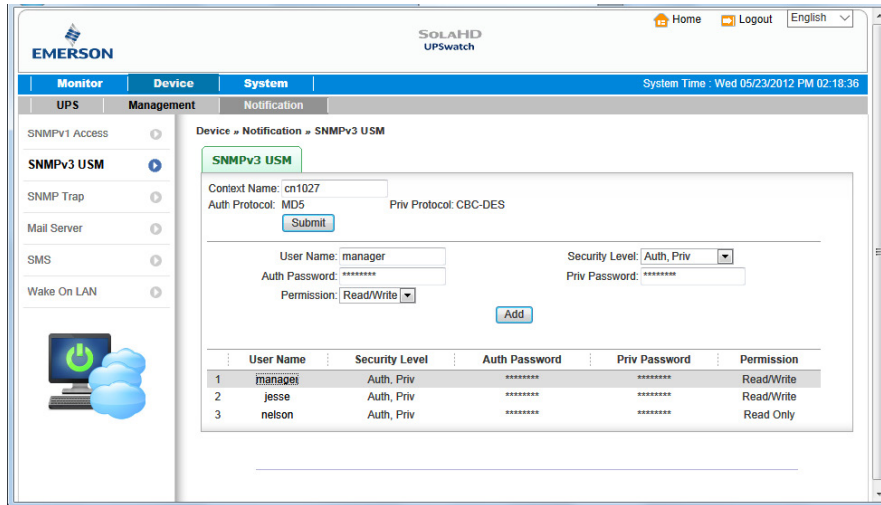
**Warning:** Both Warning and Alarm event notifications are sent to the target address.

**Alarm:** Only Alarm event notifications are sent to the target address. You can go to Device >> Management >> Event Level to change the event level.

**ShutdownAgent 2012:** All of the power events will be sent to the assigned ShutdownAgent to inform the complete current UPS status and state. Meanwhile, UPSwatch collect all of the ShutdownAgent 2012 information through the SNMPv3 "manager" account then display them in the Monitor >> Information >> ShutdownAgent web page.

## 5.23 Device >> Notification >> Mail Server

The user can set up the SMTP Server and the e-mail receiver so the designated recipient can receive the e-mail notification from the UPSwatch whenever a power event occurs.



The screenshot shows the EMERSON SOLAHD UPSwatch web interface. The main content area is titled "Device » Notification » SNMPv3 USM". Below this, there is a "SNMPv3 USM" section with a "Submit" button. The configuration fields are as follows:

- Context Name: cn1027
- Auth Protocol: MD5
- Priv Protocol: CBC-DES
- User Name: manager
- Auth Password: \*\*\*\*\*
- Security Level: Auth\_Priv
- Priv Password: \*\*\*\*\*
- Permission: Read/Write

Below the configuration fields is an "Add" button. At the bottom of the page, there is a table listing existing mail server configurations:

	User Name	Security Level	Auth Password	Priv Password	Permission
1	manager	Auth_Priv	*****	*****	Read/Write
2	jesse	Auth_Priv	*****	*****	Read/Write
3	nelson	Auth_Priv	*****	*****	Read Only

**SMTP Server:** This is the hostname of a SMTP Mail Server used to send the email message from the UPSwatch.

**Account:** The SMTP server login account.

**Password:** The Mail Server's login password belong to the assigned account.

**Add, Update, Delete:** Add, edit or remove the email address that you wish the UPSwatch to send an e-mail to.

## 5.24 Device >> Notification >> SMS

To send the SMS message to your mobile phone, you have to connect a GSM modem to your computer through a RS232 COM port. UPSwatch send the SMS through AT command by PDU format. Any GSM modem that support the following 3 AT commands will be able to work with UPSwatch:

AT  
AT+CMGF  
AT+CMGS

**GSM Modem:** You have to assign a COM port which is physically connect to the GSM modem.

**Mobile Phone Number:** Add, edit or delete the mobile phone numbers in the list.

	Mobile Phone Number	Event Level
1	0939371715	Information
2	0982790372	Alarm

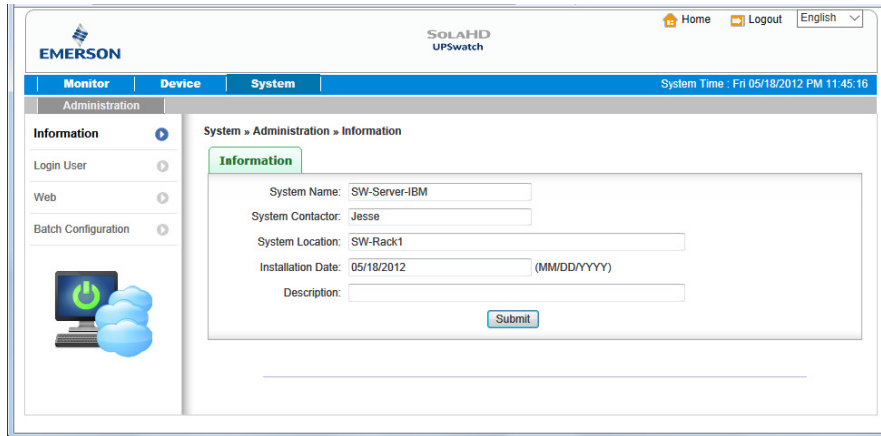
## 5.25 Device >> Notification >> Wake On LAN

Wake On LAN function can start up clients' PCs from network with MAC address, and you can set up at maximum 256 MAC addresses. The configuration can wake up clients' PCs after power restores or the UPSwatch starts up

	Title	MAC	Delay	Restore	Startup
1	SW-IBM-DB	00-20-A5-07-C4-32	3	Yes	Yes
2	3F-DHCP	21-3A-09-4C-83-77	0	Yes	Yes
3	Eng-HP-Web	02-83-45-CB-8A-91	3	Yes	Yes

## 5.26 System >> Administration >> Information

Here to assign the system information for the UPSwatch, including Installation Date, Location and Description.



The screenshot shows the EMERSON SOLAHD UPSwatch web interface. The top navigation bar includes 'Monitor', 'Device', and 'System' tabs. The 'System' tab is active, and the breadcrumb trail is 'System > Administration > Information'. The left sidebar has 'Information' selected. The main content area is titled 'System > Administration > Information' and contains a form with the following fields:

- System Name: SW-Server-IBM
- System Contactor: Jesse
- System Location: SW-Rack1
- Installation Date: 05/18/2012 (MM/DD/YYYY)
- Description: (empty)

A 'Submit' button is located at the bottom right of the form.

## 5.27 System >> Administration >> Login User

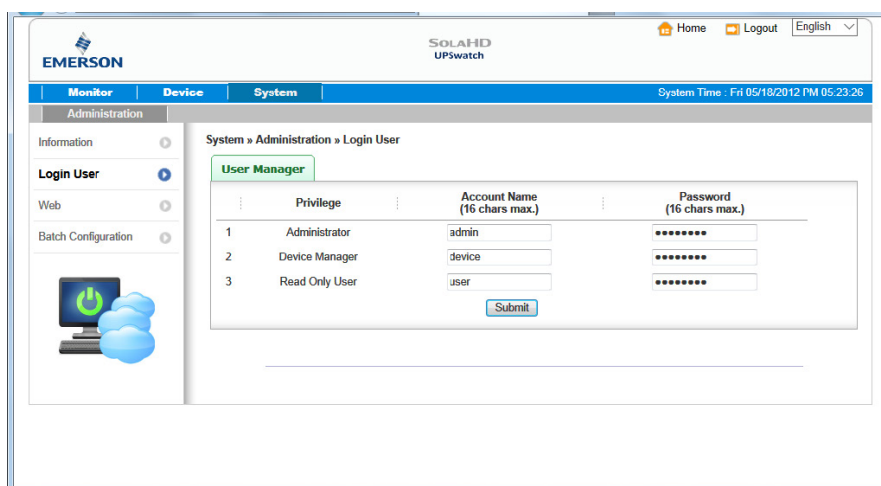
You can manage the login authentication for web interface by assigning 3 different level of users' account and password.

The access permission for the account types are listed as follows:

**Administrator:** Permitted to modify all settings.

**Device Manager:** Permitted to modify device-related settings.

**Read Only User:** Only permitted to observe UPSwatch status.



The screenshot shows the EMERSON SOLAHD UPSwatch web interface. The top navigation bar includes 'Monitor', 'Device', and 'System' tabs. The 'System' tab is active, and the breadcrumb trail is 'System > Administration > Login User'. The left sidebar has 'Login User' selected. The main content area is titled 'System > Administration > Login User' and contains a 'User Manager' form with a table of user accounts:

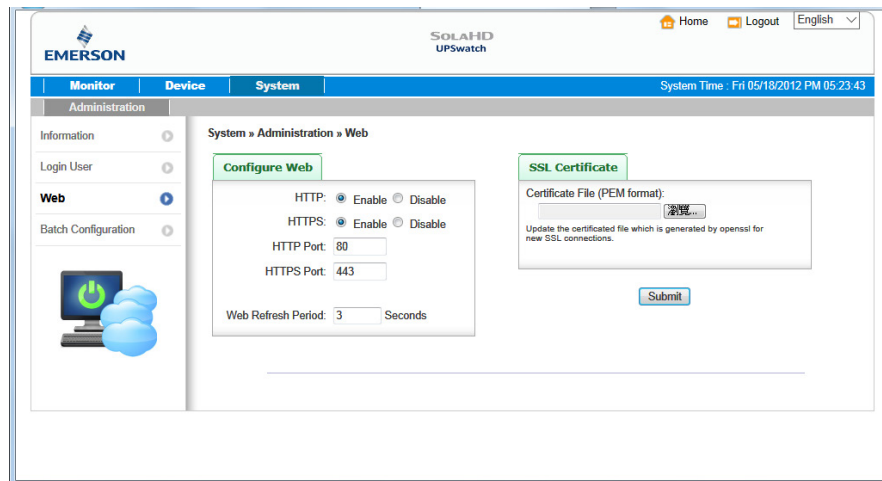
	Privilege	Account Name (16 chars max.)	Password (16 chars max.)
1	Administrator	admin	*****
2	Device Manager	device	*****
3	Read Only User	user	*****

A 'Submit' button is located at the bottom right of the form.



## 5.28 System >> Administration >> Web

This menu lets the administrator enable or disable the HTTP/HTTPS communication protocols available in the UPSwatch.



### HTTP:

Enabling or disabling the HTTP connection with the UPSwatch.

### HTTPS:

Enabling or disabling the HTTPS connection with the UPSwatch.

### HTTP Port:

The user may configure HTTP protocol to use a port number other than standard HTTP port (80).

### HTTPS Port:

The user may configure HTTPS protocol to use a port number other than standard HTTPS port (443).

### Web Refresh Period:

The period of time to update the monitoring web pages. The range is 1 ~ 9999 seconds.

### SSL Certificate:

To ensure connection security between the UPSwatch and the connecting workstation, SSL certificate can be used to encrypt and secure the integrity of transmitting data.

### Certificate File:

This allows you to replace your own SSL certificate file. The UPSwatch supports PEM format which is generated by OpenSSL. Click **Choose File** to upload a certificate file.

## 5.29 System >> Administration >> Batch Configuration

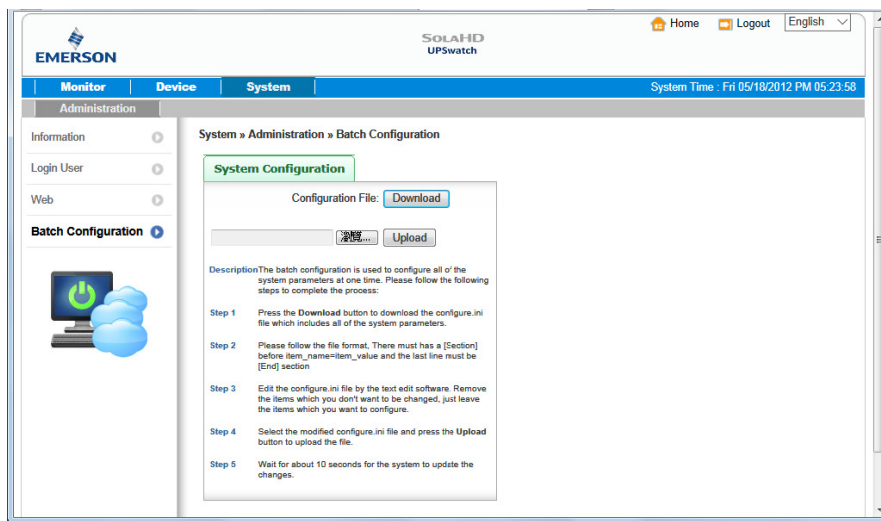
The UPSwatch provides batch configuration to allow quick and effortless setup on multiple UPSwatch hosts. You can duplicate settings by downloading the configuration file from the UPSwatch that you have successfully configured, and upload the configuration files on other hosts.

### Download:

Download the config.ini for you to store or edit the configuration file.

### Upload:

Upload the configuration file to UPSwatch to apply the change immediately.



---

## 6. 2008 Server Core Setup for UPSwatch

While installation the UPSwatch in the 2008 server core, it requires the following commands to transfer the file and add some rules for firewall.

**1. Disable firewall:**

```
netsh advfirewall set allprofiles state off
```

**2. Enable firewall:**

```
netsh advfirewall set allprofiles state on
```

**3. Add a remotely shared directory:**

```
net use e: \\<ip address>\e
```

**4. Open the SNMP Trap UDP 162**

```
netsh advfirewall firewall add rule name="SNMPTrap" protocol=UDP  
dir=out localport=162 action = allow
```

**5. Open SNMP Server UDP 161**

```
netsh advfirewall firewall add rule name="SNMPServer"  
protocol=UDP dir=in localport=161 action = allow
```

**6. Open the HTTP TCP 80**

```
netsh advfirewall firewall add rule name="HTTP" protocol=TCP  
dir=in localport=80 action = allow
```

**7. Open HTTPS TCP 443**

```
netsh advfirewall firewall add rule name="HTTPS" protocol=TCP  
dir=in localport=443 action = allow
```

First, put the UPSwatch-Setup(x64).exe setup file in the 2008 server directory. If there is no CD-ROM you can set the "Disable firewall" command, "Add a remotely shared directory" command then copy the file from your PC to the 2008 server. Don't forget to set the "Enable firewall" command when complete.

Second, follow the chapter 2 to install the UPSwatch in the 2008 server. The last step is use the open HTTP/HTTPS, SNMP Trap/Server port commands to open the necessary which you want.

---

You can easily run the UPS-Config.exe to configure the basic networking parameters for the web and SNMP network protocols after installation.

```
+-----+
|       |
| UPSwatch |
|       |
+-----+
[1].SNMP Server Port: 161
[2].HTTP: Enable
[3].HTTPS: Enable
[4].HTTP Port: 80
[5].HTTPS Port: 443
[6].Manageable: Enable
[7].Save
[8].Set Firewall
[9].Restart UPSwatch Service
[0].Exit
Please Enter Your Choice =>
```

Select [8] to help you to insert or remove a firewall rule for the UPSwatch.

```
+-----+
|       |
| UPSwatch |
|       |
+-----+
[1].SNMP Server Port: 161
[2].HTTP: Enable
[3].HTTPS: Enable
[4].HTTP Port: 80
[5].HTTPS Port: 443
[6].Manageable: Enable
[7].Save
[8].Set Firewall
[9].Restart UPSwatch Service
[0].Exit
Please Enter Your Choice => 8
We'll help to insert or remove the firewall rules of UPSwatch for you,
Do you want to insert or remove the firewall? [I]nset, [R]emove
Please Enter Your Choice =>
```

# 7. XenServer Setup for UPSwatch

To install the UPSwatch in the Citrix XenServer, please see **2.2 For Linux System** in **Chapter 2 Installation/ Uninstallation**. To configure the basic networking parameters including the Xen firewall, please see **Chapter 3 Console Configuration**.

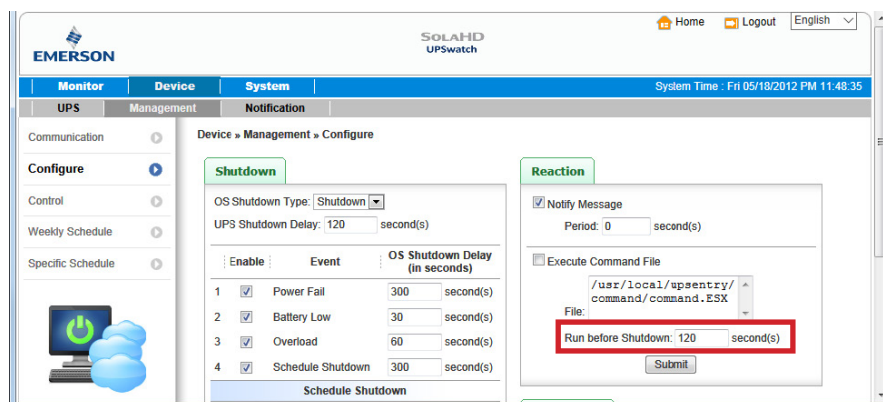
## 7.1 Install PV driver for Guest OS

To shutdown the guest OS from XenServer, you need to install the PV driver for all of them so as to inform the guest OSes shutdown smoothly.

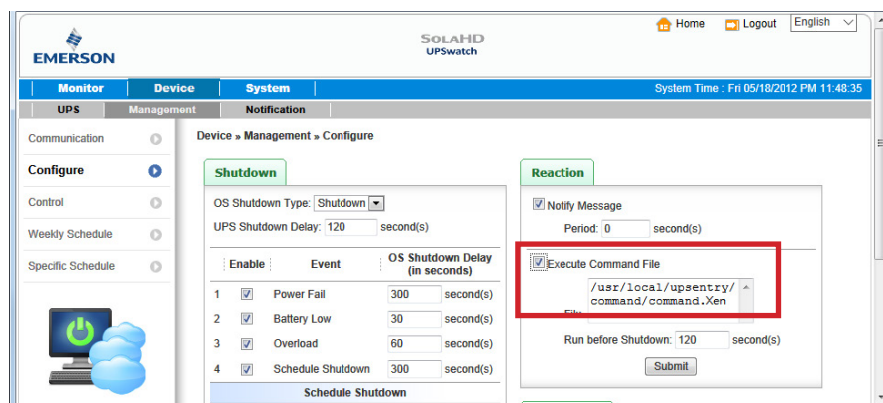
## 7.2 Configure UPSwatch for Xen

The only thing that you need to do is to estimate the period of time during shutdown all of the guest operating systems which run in the XenServer. Then

1. Login to the web interface of UPSwatch and the account level should be greater than or equal to device manager.
2. Go to the **Device >> Management >> Configure** web page and fill the estimated time in the **Run Before Shutdown** field of the **Reaction** group.



3. We have built the **command.Xen** script file to shutdown the guest OSes, so you have to change the file name from **command.ESX** to **command.Xen** in the Execute Command File. Please then check the **Execute Command File** checkbox to enable shutdown the guest OSes.



4. Press **Submit** button to update your changes.

# 8. Linux KVM Setup for UPSwatch

To install the UPSwatch in the Linux server, please see **2.2 For Linux System in Chapter 2 Installation/ Uninstallation**. To configure the basic networking parameters including the firewall, please see **Chapter 3 Console Configuration**.

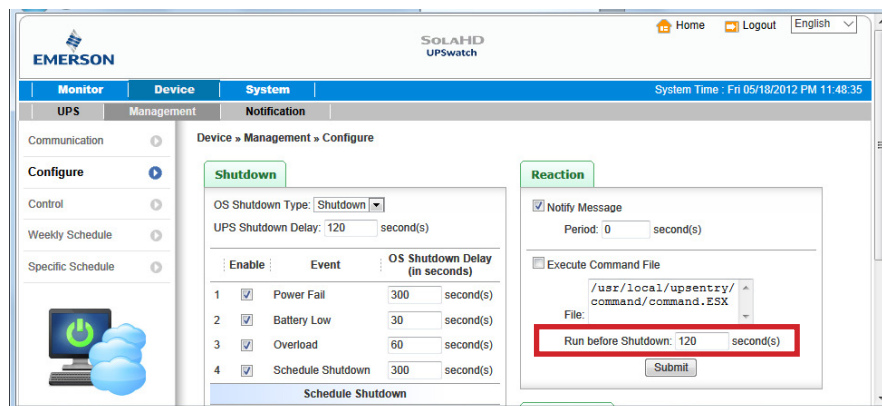
## 8.1 Install libvirt Tools for KVM

To shut down the guest OS from Linux server, you have to install the libvirt. UPSwatch calls the virsh to shut down the running guest OSes.

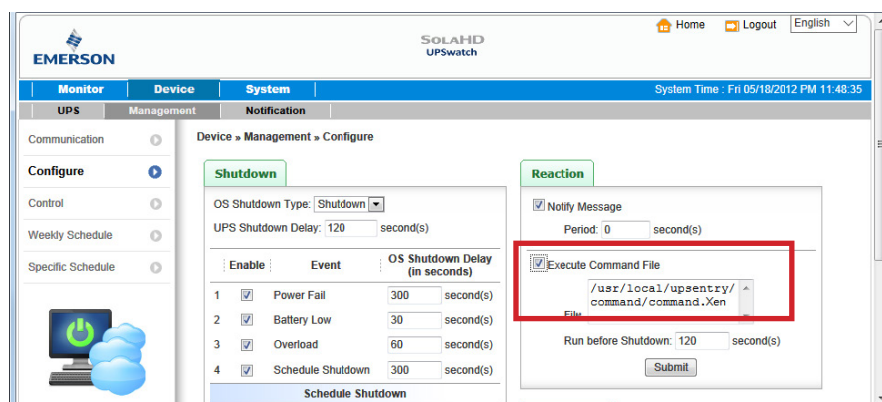
## 8.2 Configure UPSwatch for KVM

The only thing that you need to do is to estimate the period of time during shutdown all of the guest operating systems which run in the KVM server. Then:

1. Login to the web interface of UPSwatch and the account level should greater than or equal to device manager.
2. Go to the **Device >> Management >> Configure** web page and fill the estimated time in the **Run Before Shutdown** field of the **Reaction** group.



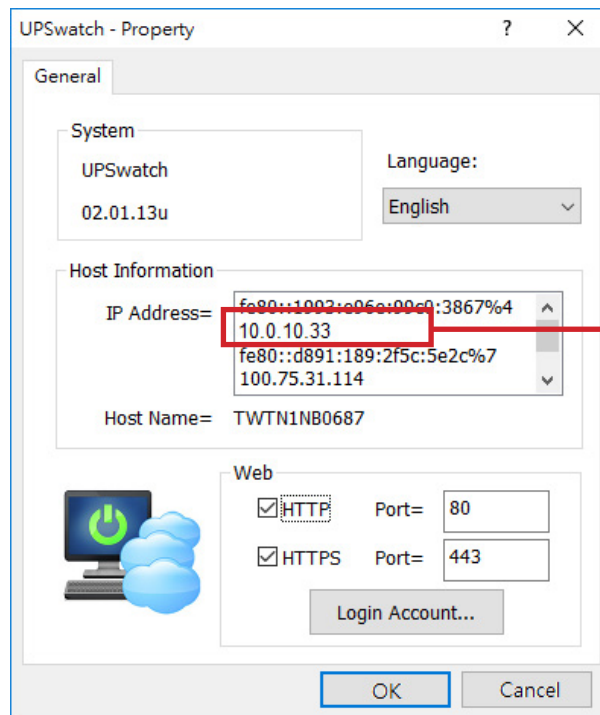
3. We have built the **command.KVM** script file to shut down the guest OSes, so you have to change the file name from **command.ESX** to **command.KVM** in the **Execute Command File**. Please then check the **Execute Command File** checkbox to enable shutdown the guest OSes.



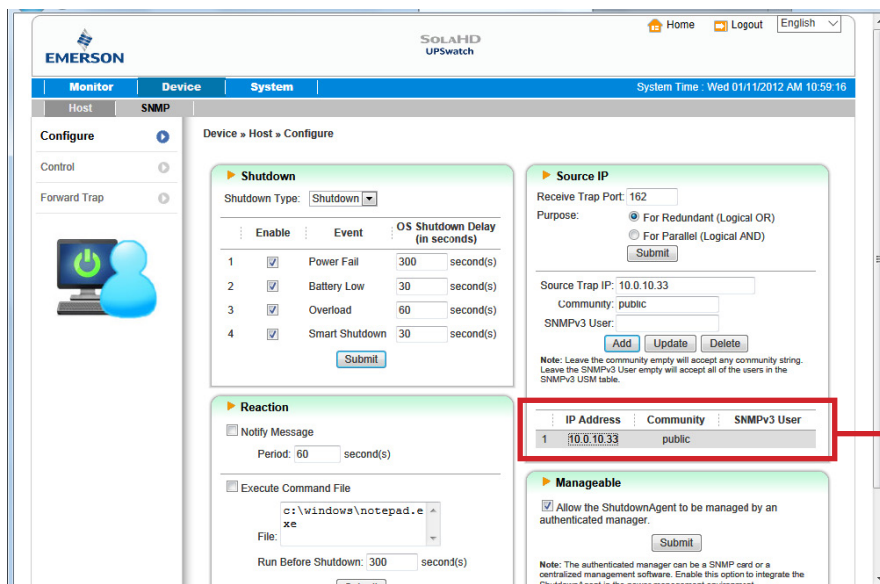
4. Press **Submit** button to update your changes.

# 9. Work with the ShutdownAgent 2012

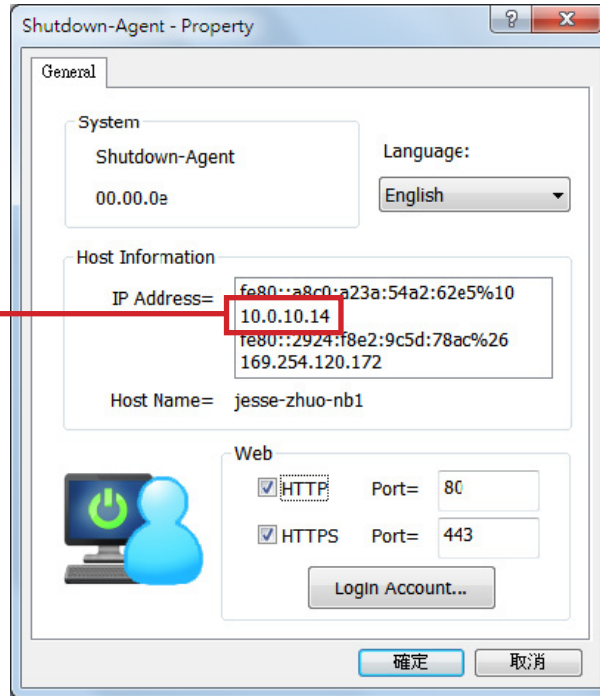
1. Open the **UPSwatch** property from the Windows task bar to get the IP address of the server.



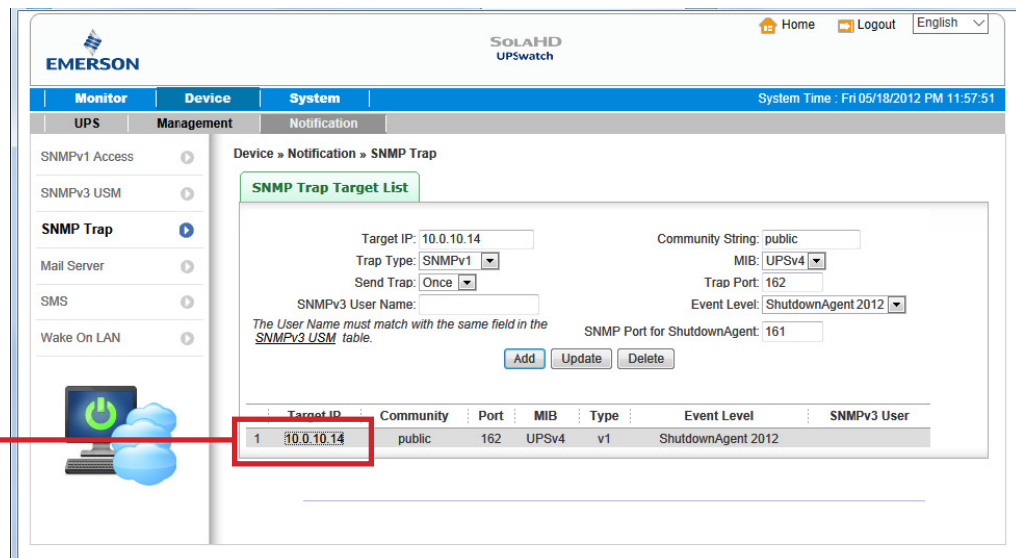
2. Login to the ShutdownAgent 2012 web and add the SNMP IP address and the trap port as the following to receive the SNMP trap from the UPSwatch.



3. Open the ShutdownAgent 2012 property from Windows task bar to get the IP address of the server.



4. Go back to the UPSwatch web page, add the IP address of ShutdownAgent 2012 to the SNMP Trap table. Please select “**ShutdownAgent 2012**” for the Event Level and UPSV4 or UPSv5 as the Trap MIB.
5. If you enable the manageable option in the ShutdownAgent then you can observe all of the shutdown status, countdown timer and shutdown reason from the UPSwatch. The web page is on the **Monitor >> Information >> ShutdownAgent**.





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The information in this manual is provided as a guide for installation, operation, and maintenance. It does not affect or exceed our obligations under the Terms and Conditions of Sale.

Note that unit specifications are subject to change without notice.

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## Warranty

Please see the “Terms & Conditions of Sale” document within the UPS packaging.

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