eco Sensors
eco PDU Power Management Software
V1.3.1
User Manual

www.aten.com

User Information

Online Registration

Be sure to register your product at our online support center:

International	http://eservice.aten.com

Telephone Support

For telephone support, call this number:

International	886-2-8692-6959
China	86-10-5255-0110
Japan	81-3-5615-5811
Korea	82-2-467-6789
North America	1-888-999-ATEN ext 4988
United Kingdom	44-8-4481-58923

User Notice

All information, documentation, and specifications contained in this manual are subject to change without prior notification by the manufacturer. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the manufacturer's software described in this manual is sold or licensed *as is*. Should the programs prove defective following their purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any defect in the software.

The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

PE Device Safety Notice

- Set the maximum permissible breaker protection in the building circuitry to the current rating specified on the rating plate. Observe all national regulations and safety codes as well as deviations for breakers.
- Only connect the PE Device to a grounded power outlet or a grounded system!
- Make sure that the total current input of the connected systems does not exceed the current rating specified on the rating plate of the PE Device.
- There is a risk of explosion if the battery is replaced with an incorrect type. Dispose of used batteries according to the relevant instructions.

Contents

Chapter 1
Introduction

Overview

NRGence eco Sensors software has been developed to work with ATEN's new generation of NRGence PE series green energy power distribution units (PDUs) to effectively increase the efficiency of data center power usage. With the use of dynamic Rack Cooling Index (RCI) and Return Temperature Index (RTI) by zone, NRGence eco Sensors software, in conjunction with sensor-enabled eco PDUs*, gives you the means to assess, diagnose and estimate how much energy you can save. Following the suggestions generated by the sensor-enabled system allows you to optimize energy usage to save energy without harming your IT equipment's reliability. The NRGence eco Sensors utility provides single portal, single login, secure, centralized, access, administration and management of up to 1000 PE devices over the network – local and worldwide – anywhere and anytime.

Because NRGence eco Sensors offers a single, integrated window-based application program to manage all your devices, users no longer need to learn the interface for each individual device or remember every device's IP addresses, making system management easier and more efficient.

By consolidating the management of your NRGence devices, NRGence eco Sensors allows every NRGence device to be accessed and controlled by means of a single IP address. All outlets in different NRGence devices are integrated into a single tree view, making eco Sensors ideal for the power management of large data centers and branch office server rooms located in several remote locations within the same intranet.

NRGence eco Sensors is able to automatically discover all NRGence devices within the same intranet and has the ability to monitor/manage these devices. This software provides monitoring/managing of PE device outlet power ON/OFF/Reboot, sequential ON/OFF of outlet, current / kWH / environmental monitoring at PDU/outlet level, name of outlet, current / kWH / environment sensor threshold setting/alert, etc. through SNMP. Threshold exceed alert through Syslog/SMTP.

***** See *Supported NRGence Devices*, page 4, for a list of compatible NRGence sensor-enabled eco PDUs.

Features

- Automatic discovery of all NRGence devices within the same intranet
- Remote real-time power measurement and monitoring
  - PDU level current / voltage / power dissipation / power consumption
  - Outlet ON / OFF / Recycle status
  - Circuit breaker status monitoring
- Remote real-time power outlet management*
  - Power outlet ON / OFF / Cycle switching by outlet
  - User-defined outlet level delays for sequential power up
  - Current / Voltage / Power Dissipation / Power Consumption threshold level setting
  - User access assignment for every outlet
  - Name assignment to individual outlets
- Remote real-time environment sensor monitoring
  - Temperature / Temperature + Humidity reading
  - Temperature and Humidity threshold level setting
- Plotting/Monitoring of all NRGence devices
  - Add data center server racks
  - Add NRGence devices for each server rack
  - Manage device/device outlet status for each plot
- Exceed threshold alert through SMTP and Syslog
- Supports VMWare ESXi 5.1
- 10240 line event log provision
- Syslog provision

Note: Not all functions are supported by all NRGence eco PDU PE models. Please see *Supported NRGence Devices*, page 4, and your eco PDU PE User Manual for further details.

Requirements

Systems that the eco Sensors software will be installed on should meet the following requirements:

- Hardware Requirements
  - CPU: Dual Core 2GHz or higher
  - Memory: 2GB
  - Hard drive: 300GB or more free space
  - Ethernet: At least 1 Ethernet adapter (100Mbps or higher) – Giga LAN recommended
- Operating System Requirements
  - Windows 7, 2000, XP, 2000 Server, Server 2003, Server 2008, or Windows Vista (with the latest service package for each installed)
  - Microsoft .NET Framework 4.0 SP1 or later must be installed

Sensors

For complete energy management of an instrumented data center with the use of the NRGence eco PDU and eco Sensors software, you should install 4 sensors for each of the racks in your data center in order to generate a complete energy-efficient data chart. Higher sensor installation density is helpful to generate more accurate data. 8-port models have 2 sensor ports. In this case, Sensor 1 needs to be installed at the intake of the rack (EA1140 or EA1240) and sensor 2 needs to be placed at the exhaust of the IT equipment of the rack (EA1140 or EA1240) or the floor (EA1340). Higher sensor installation density is helpful to generate more accurate data.

To get the most complete eco Sensors Dashboard data, the recommended 2 eco PDU unit per rack sensor setup is show in the table, below:

eco PDU	Port	Location	Part Number	Sensor
eco PDU 1	Sensor 1	Intake	EA1240	Temperature / Humidity
	Sensor 2	Floor	EA1340	Differential Pressure / Temperature
eco PDU 2	Sensor 1	Intake	EA1240	Temperature / Humidity
	Sensor 2	Exhaust	EA1240	Temperature / Humidity

Supported NRGence Devices

Model	Outlets	Metering Level
PE1108A / B / G	NEMA 5-15R / IEC C13	PDU
PE1208A / B / G	NEMA 5-20R / IEC C13 / C19	
PE3108A / B / G	NEMA 5-15R / IEC C13	Outlet
PE3208A / B / G	NEMA 5-20R / IEC C13 / C19	
PE52220sA / B / G	NEMA 5-15R / IEC C13	Bank
PE5312sGR / GL	UK BS1363	Bank
PE5340sB / J / G	IEC 320 C13	Bank
PE6108A / B / G	NEMA 5-15R / IEC C13	PDU
PE6208A / B / G	NEMA 5-20R / IEC C13 / C19	
PE8108A / B / G	NEMA 5-15R / IEC C13	Outlet
PE8208A / B / G	NEMA 5-20R / IEC C13 / C19	
PE5216 / 6216	IEC 320 C19 + IEC 320 C13	Bank x 1
PE5324 / 6324		Bank x 2
PE7216 / 8216 / 9216		Outlet
PE7324 / 8324 / 9324		Outlet
PE7328B / J / G	IEC 60320 C13 / IEC 60320 C19	PDU / 2 x Bank / Outlet
PE5324kJA	NEMA 5-15R Twist Lock	Bank
PE7324kJA	NEMA 5-15R Twist Lock	PDU / 2 x Bank / Outlet
PE8121kJ	IEC 320 C13 with lock	PDU / 1 x Bank / Outlet
PE8316G	IEC 320 C19 + IEC 320 C13	PDU / 2 x Bank Outlet
PE8324A / JA	NEMA 5-15R	PDU / 2 x Bank Outlet
PE9222B / G	IEC320 C13 / IEC320 C19	Outlet
PE9330B / J / G	IEC 60320 C13 / IEC 60320 C19	PDU / 2 x Bank / Outlet
EC1000 / EC2004	Depends on PDU models attached – PE1216 / PE1324	Bank x 1/2

Note: For detailed outlet information as well as the complete specifications of an individual model, please reference the respective user manual.

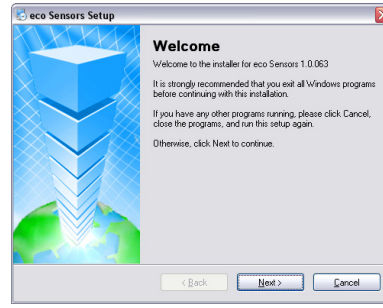
Chapter 2
Installation

Before You Begin

NRGence eco Sensors software that can be downloaded from the ATEN website. The download link can be found on the software CD provided with the NRGence eco PDU package. Once you have downloaded the software and saved the file to a convenient location, follow the instructions, below:

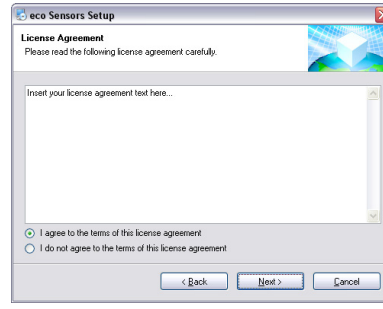
Installing eco Sensors

1. Double click on the eco Sensors exe file to open the installer. The Welcome window appears:



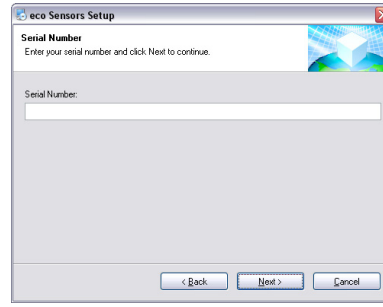
   Click **Next** to continue.

2. The License Agreement Windows appears:



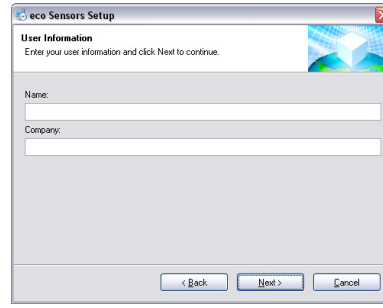
   Enable the “I agree to the terms of this license agreement” button, and then click **Next** to continue.

3. The Serial Number window appears:



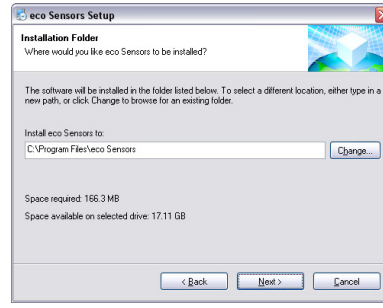
Enter your serial number (which can be found on the cover of the bundled CD-ROM) and click **Next** to continue.

4. The User Information page appears:



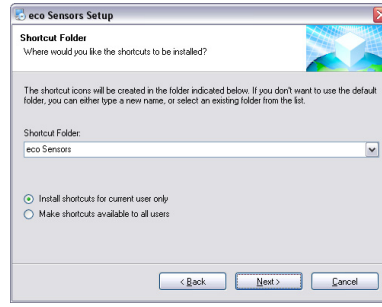
Enter your user information and click **Next** to continue.

5. The Installation Folder window appears.



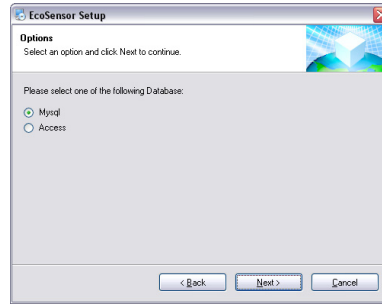
Choose the folder where you would like eco Sensors to be installed, and click **Next** to continue.

6. The Shortcut Folder window appears:



Choose the folder where you would like eco Sensors shortcuts to be installed, and click **Next** to continue.

7. The Database Option window appears:



Make your database selection (options are Access or MySQL) and click **Next** to continue.

Note: We strongly recommend you choose MySQL for formal data center operation. See *Database Considerations*, page 8, for details.

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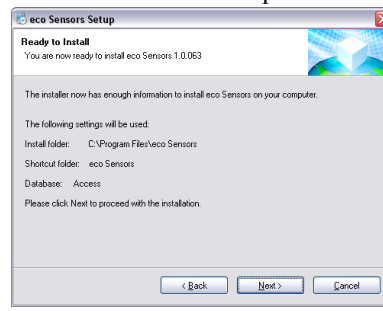
8. The Ready to Install window appears:

   Check the information and click **Next** to proceed with the installation.



9. When the installation is complete, the eco Sensors icon appears on your desktop (or wherever you specified).

Note: For Windows 7 use, it is recommended to run eco Sensors with administrator privileges.

Database Considerations

If your data center is small (10 or less eco PDU units) and you only require the system to store and access approximately 3 months of data history (c. 1 million data records; 200 MB file size), Access will provide a reasonable performance under these conditions.

For large data centers, and for complete storage of all data history, we strongly recommend you select MySQL.

Note: If you want to select MySQL, please ensure that you have MySQL Database 5.5 installed before you install eco Sensors. Visit the MySQL website for installation information.

Chapter 3
First-time Setup

Logging In

Open the eco Sensors program and the Login screen appears:

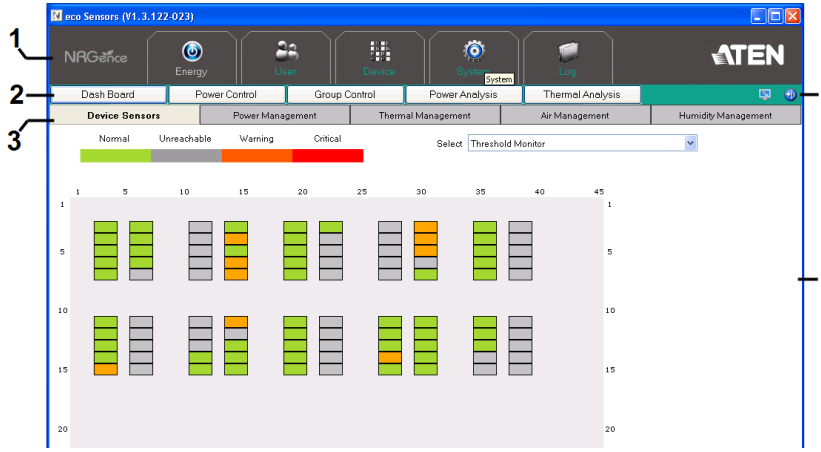
1. Provide a valid User ID and Password.

> **Note:** Since this is the first time you are logging in, use the default User ID: *administrator*; and the default Password: *password*. For security purposes we recommend changing them to something unique.

2. Select your language. (Options are: English [default]; Traditional Chinese; Simplified Chinese; Japanese; German; Italian; French).
3. Then Click **Login** to bring up the interface's Main Page.

The eco Sensors Main Page

After you have successfully logged in, the eco Sensors Main Page comes up with the Energy Management *Dashboard* page displayed:



Page Components

The screen components are described in the table, below:

No.	Item	Description
1	Tab Bar	The tab bar contains the eco Sensor's main operation categories.
2	Menu Bar	The menu bar contains operational sub-categories that pertain to the item selected in the tab bar.
3	Dashboard Alert Bar	The Dashboard Alert bar is a special feature of the Dashboard page. Similar to the Menu Bar, it contains operational sub-categories that pertain to the item selected in the tab bar, but it also has an extra color-coded function that allows you to instantly see the category status: RED: Critical ORANGE: Warning GRAY: Offline GREEN: Normal
4	Logout / Monitor	Click the far right button to log out of your eco Sensors session. Click on the Monitor icon to start the real-time Energy Performance Indicator.
5	Interactive Display Panel	This is your main work area. The screens that appear reflect your menu choices.

Quick View Step-by-Step Setup

Once you have logged in, you need to define your data center and configure various parameters before you can begin to use eco Sensors to monitor and manage your devices. The steps below provide a quick reference to the sections of the user manual you should refer to in order to do this smoothly.

1. Plot the position of the individual racks in your data center. See *Rack Install*, page 36.
2. Establish the threshold settings and other parameters for your NRGence devices at the device and outlet level. See *Device Setup*, page 37.

   Note: Not all PE models support outlet level monitoring (see *Supported NRGence Devices*, page 4, and your eco PDU User Manual for details
3. Group the racks in your data center into zones. See *Zone Define*, page 34.
4. Establish your System parameters, event notification and database preferences (see *System Management*, page 47).
5. Set your Log preferences (see *Log*, page 65).

Once you have completed these basic setup steps, please proceed to *Energy Management*, page 12.

Chapter 4
Energy Management

Overview

The Energy Management section displays the real-time power measurements and environment monitoring information of your data center in a variety of formats, at the zone, rack, device, and outlet level. You can also generate customized reports about your data center's status that include energy saving suggestions.

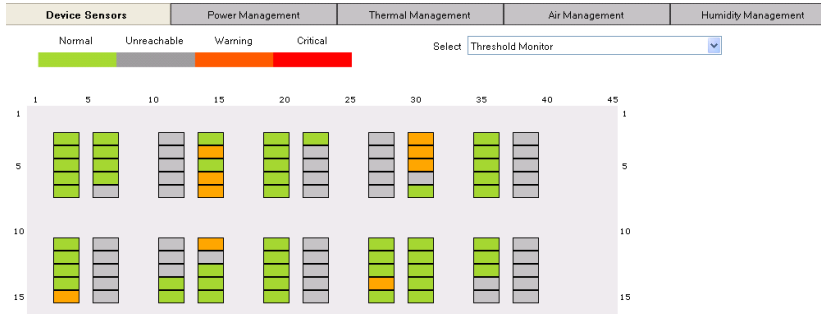
Dashboard

The Dashboard Alert bar is a special feature of the Dashboard page that features color-coded tabs that allows you to instantly see a category's status: RED: Critical; ORANGE: Warning; GRAY: Offline; GREEN: Normal.

Device Sensors

The PDU Sensors tab displays collated data in formats that provide an overall view of the various levels being monitored by your sensors. In combination with the four-color dashboard scheme (outlined above), you can easily assess the overall status of the groups/devices at a glance.

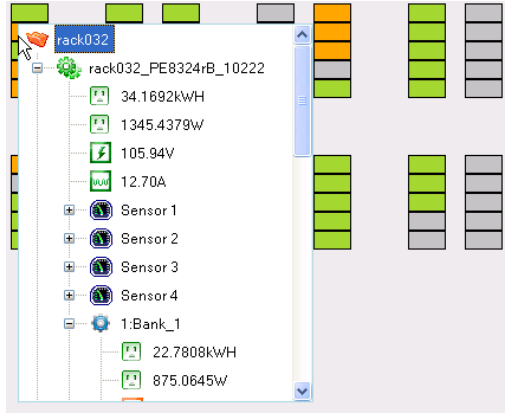
Threshold Monitor



This displays the overall threshold monitoring information. See *Device Setup*, page 37, for information on setting the thresholds.

- **Real-time Measurements**

Hover your mouse over a rack in the display for real-time power measurement and monitoring information, as below:

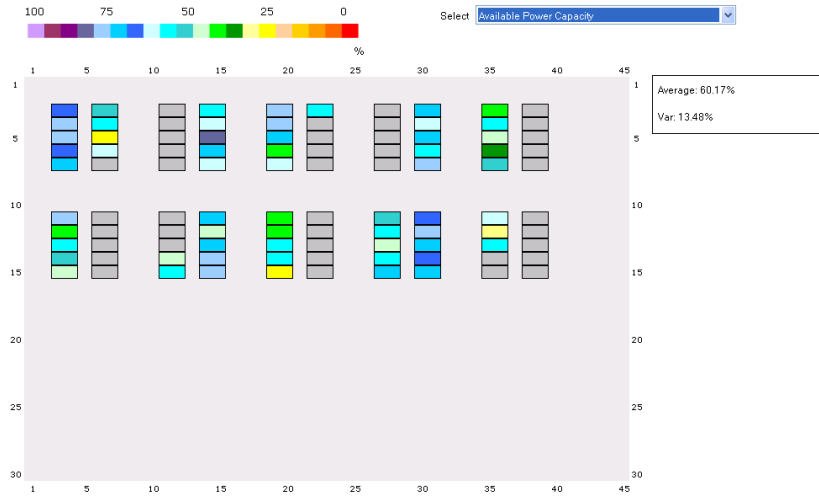


The meanings of the icons are show in the table, below:

Icon	Device	Icon	Reading	Unit
	PDU		Power Dissipation	KWh (Kilowatt-Hour)
			Power	W (Watt)
	Bank		Voltage	V (Volt)
			Current	A (Ampere)
	Sensor		Humidity	% RH (Relative Humidity)
			Temperature	°C / °F (Celsius / Fahrenheit)
			Pressure	Pa (Pascal) 1 Pa = 1 N/m2

Note: The icons are color-coded so you can instantly see a category's status: RED: Critical; ORANGE: Warning; GREEN: Normal; GRAY: Offline

Available Power Capacity

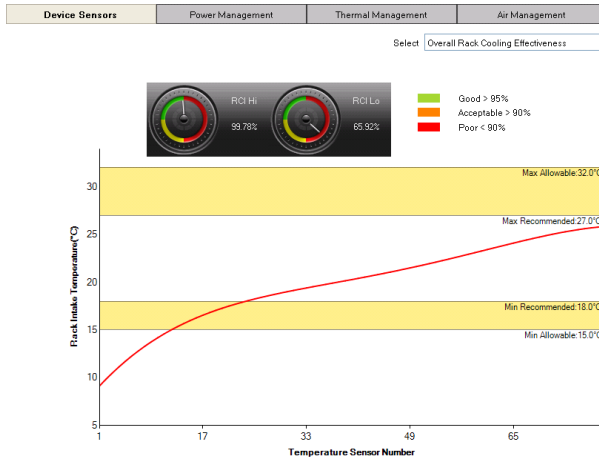


The *Available Power Capacity* displays the available power using a standard formula for rack devices:

Total Power Capacity (KWh) - Power in Use (KWh) = Available Power Capacity (KWh).

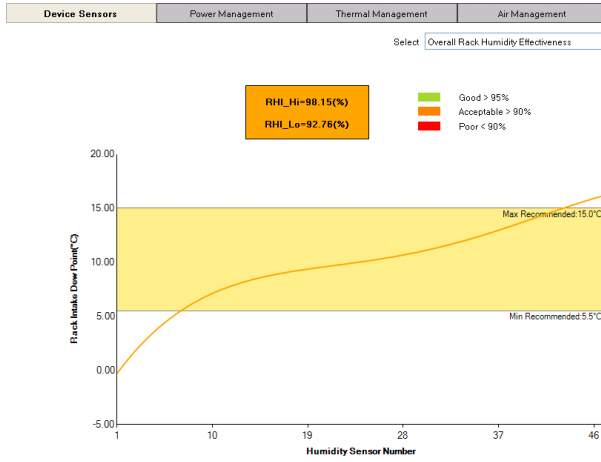
The box at the top right corner of the page displays the Average % of available power for all the racks. The Var % uses the formula: Var(X) = E [(X-μ)2] to calculate the variance value of all devices. You can move the mouse over each rack to display the percentage of available power for that rack. The colors represent the available power capacity for each rack displayed in 5% increments.

Overall Rack Cooling Effectiveness



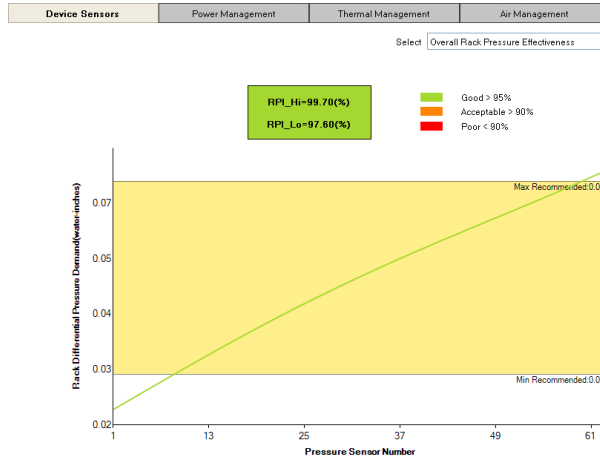
This displays the Rack Cooling Index (RCI). RCI is a measure of how effectively equipment racks are cooled and maintained within industry temperature guidelines and standards, and functions as a useful cooling performance metric. In addition to a graphical representation, this page also provides you a ‘Hi” and a “Lo” for quick reference.

Overall Rack Humidity Effectiveness



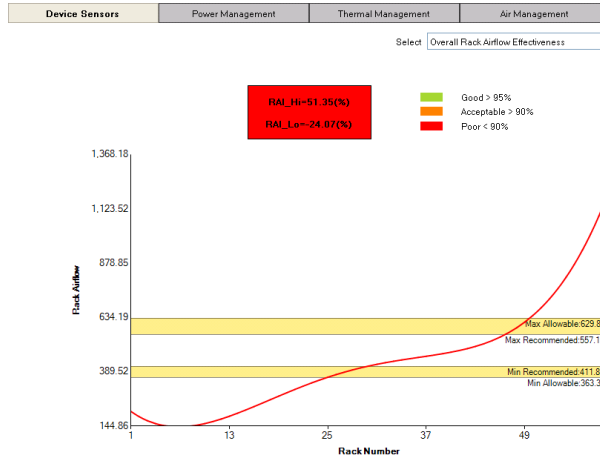
This displays the Return Temperature Index (RTI). RTI is a measure of the performance of the air-management system, and functions as a useful airflow performance metric.

Overall Rack Pressure Effectiveness



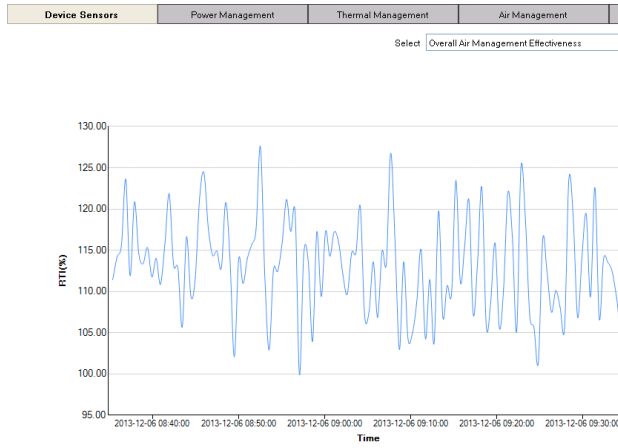
This displays the RPI.

Overall Rack Airflow Effectiveness



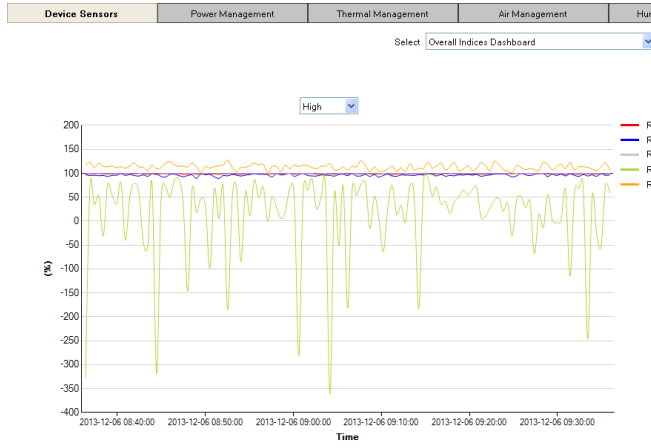
This displays the RAI.

Overall Air Management Effectiveness



This displays the RTI.

Overall Indices Dashboard

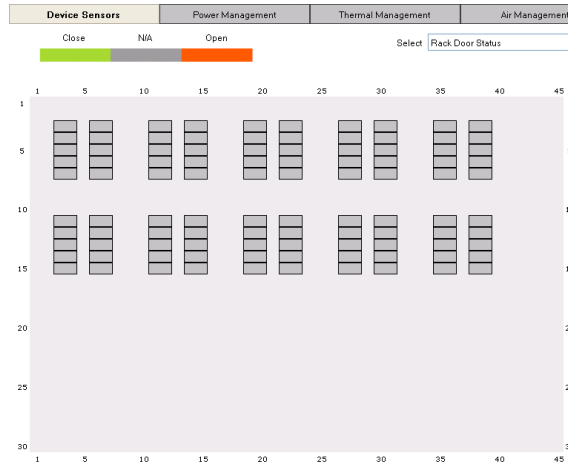


This displays all five indices (RCI, RHI, RPI, RAI, RTI) for the last hour.

Energy Saving Estimation

This displays energy savings estimates for Fan Energy (measured/potential) and Chiller Energy (measured/potential/aggressive).

Rack Door Status



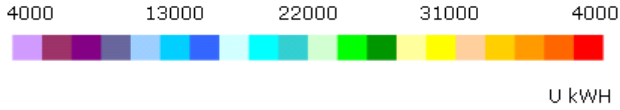
The *Rack Door Status* displays the open/close status of each cabinet door installed with an eco Sensors door sensor (EA1440, EA1441, or EA1442).

GREEN: Rack Door is Closed. GRAY: No Door Sensor Installed. ORANGE: Rack Door is Open.

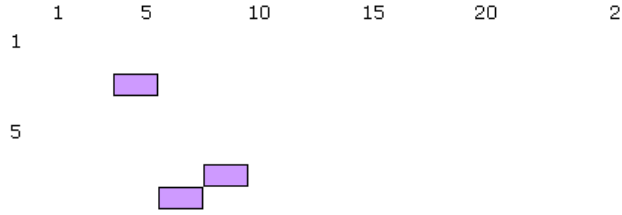
Quick View Color Scale

The **Power Management**, **Thermal Management**, **Air Management**, and **Humidity Management** tabs use the same color scale, but with different units for each reading.

For example, the *Heat Load Dissipation* page, under the **Power Management** tab, displays a scale from 4000–40000 kWh, as shown below:



For quick view purposes, the racks in the data center are displayed in a color related to their status on the various scales. For example, the racks below are currently registering in the region of 4000 kWh for Heat Load Dissipation:



Power Management

This tab provides detailed real-time information related to Power Management, as outlined in the following sections.

Heat Load Dissipation

The page displays the real-time Heat Load Dissipation values, the current average, and the variance [in kWh]. Detailed readings for Heat Load Dissipation can also be viewed in daily, weekly, monthly, quarterly, or yearly formats. The color scale displays a range from 4000–40000 kWh.

Heat Load Density

This page displays the real-time Heat Load Density values, the current average, and the variance [in W]. The color scale displays a range from 500–4500 W.

Thermal Management

This tab provides detailed real-time information related to Thermal Management, as outlined in the following sections.

Cold Intake Temperature

This page displays the real-time Cold Intake Temperature values, the current average, and the variance [in °C]. The color scale displays a range from 10–45 °C.

Intake Differential Temperature

This page displays the real-time Intake Differential Temperature values, the current average, and the variance [in °C]. The color scale displays a range from 2–20 °C.

Hot Exhaust Temperature

This page displays the real-time Hot Exhaust Temperature values, the current average, and the variance [in °C]. The color scale displays a range from 2–20 °C.

Exhaust Differential Temperature

This page displays the real-time Exhaust Differential Temperature values, the current average, and the variance [in °C]. The color scale displays a range from 10–45 °C.

Cold-Hot Across Temperature Rise

This page displays the real-time Cold-Hot Across Temperature Rise values, the current average, and the variance [in °C]. The color scale displays a range from 5–55 °C.

Air Management

This tab provides detailed real-time information related to Air Management, as outlined in the following sections.

Intake Differential Pressure Distribution

This page displays the real-time Intake Differential Pressure Distribution values, the current average, and the variance [in Pa]. The color scale displays a range from 10–200 Pa.

Heat Load Airflow Across Distribution

This page displays the real-time Heat Load Airflow Across Distribution values, the current average, and the variance [in v_equip (cfm)]. The color scale displays a range from 10–200 cfm.

Floor Plenum Airflow Supply Distribution

This page displays the real-time Floor Plenum Airflow Supply Distribution values, the current average, and the variance [in Q_floor (cfm)]. The color scale displays a range from 500–2500 cfm.

Heat Load Airflow Supply Distribution

This page displays the real-time Heat Load Airflow Supply Distribution values, the current average, and the variance [in Q (cfm)]. The color scale displays a range from 500–2500 cfm.

Hot Recirculation/Airflow w Distribution

This page displays the real-time Hot Recirculation/Airflow w Distribution values, the current average, and the variance [in ΔA_circk (%)]. The color scale displays a range from 10–50 %.

Cold Bypass/Airflow Distribution

This page displays the real-time Cold Bypass/Airflow Distribution values, the current average, and the variance [in ΔA_bypas (%)]. The color scale displays a range from 10–50 %.

Humidity Management

This tab provides detailed real-time information related to Humidity Management, as outlined in the following sections.

Cold Intake Relative Humidity

This page displays the real-time Cold Intake Relative Humidity values, the current average, and the variance [in h_rel (%)]. The color scale displays a range from 10–90 %

Cold Intake Dew Point Temperature

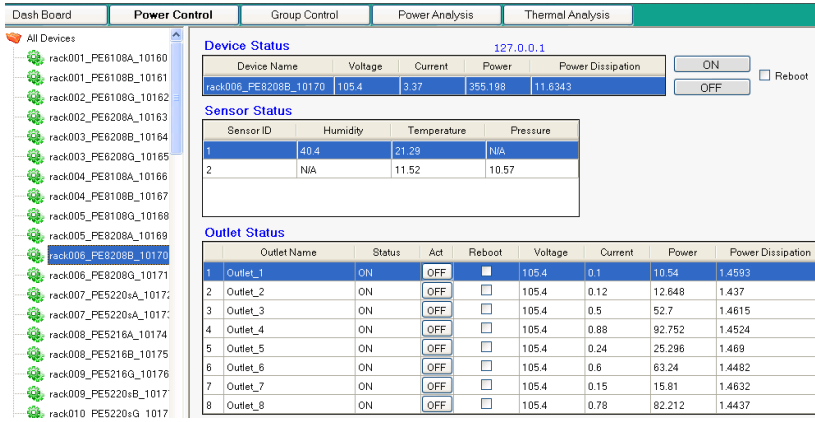
This page displays the real-time Cold Intake Dew Point Temperature values, the current average, and the variance [in t_dew (C)]. The color scale displays a range from 0–15 °C

Power Control

The Power Control tab allows you to perform manual power management at the device or outlet level.

Note: Not all NRGence eco PDU PE models support outlet level power management. Please see *Supported NRGence Devices*, page 4, and your User Manual for further details.

Click on the device in the side bar and its page appears, as below:



Device Status

Use the ON, OFF and Reboot options to manually power manage the device

Sensor Status

This section is view only and provides status information about the sensors.

Outlet Status

Use the ON, OFF and Reboot options to manually power manage the individual outlet.

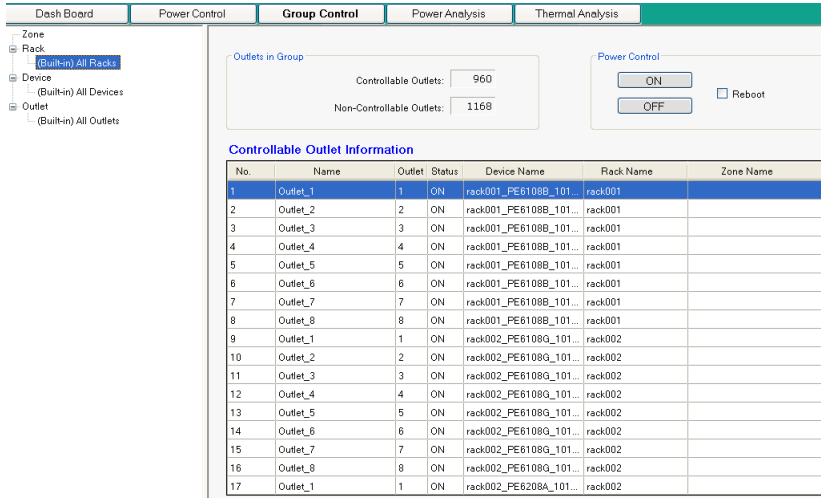
Group Control

The Group Control tab allows you to perform simultaneous manual power management at the outlet level on data groups that you have already created.

Note: 1. See *Define Data Group*, page 45, for details about creating groups for power management control.

2. Not all NRGence models support outlet level power management. Please see *Supported NRGence Devices*, page 4, and your User Manual for further details.

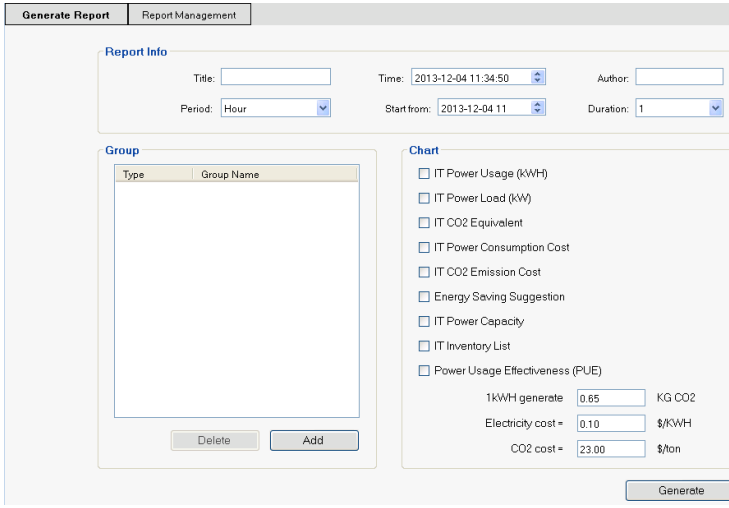
Click on a group in the side bar and its page appears, as below:



- The **Outlets in Group** section displays information about how many outlets in the group are controllable or non-controllable.
- The **Power Control** section allows to power on, off or reboot all of the controllable outlets in the group simultaneously.
- The **Controllable Outlet Information** section displays information about the outlets in the group, such as their power status, device/rack/zone location.

Power Analysis

Generate Report

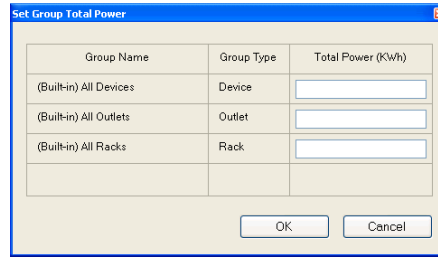


The **Generate Report** section allows you to establish the parameters and schedule for your reports. The fields are explained in detail in the following table:

Field	Explanation
Report Info	Fill in the report name and the writer in the *Title* and *Author* fields. Enter the *Time* and *Start from* (when you want the report to begin), and then enter the *Period* (options are hour, day, week, month, or quarter) and the *Duration* (1–24). **Note:** How far back the system stores data depends on your database type. See *Database Considerations*, page 8, for details.
Group	In this field, select the date group that is the subject of the report. See *Report Management*, page 29, for details.
Chart	In this field, check the analysis that components that you want to be included in the report and enter values for CO2/KG, /1KWH, and 1KG.

After filling in the information, click **Generate** and the *Set Group Total Power* window will appear, as shown on the next page.

Set Group Total Power

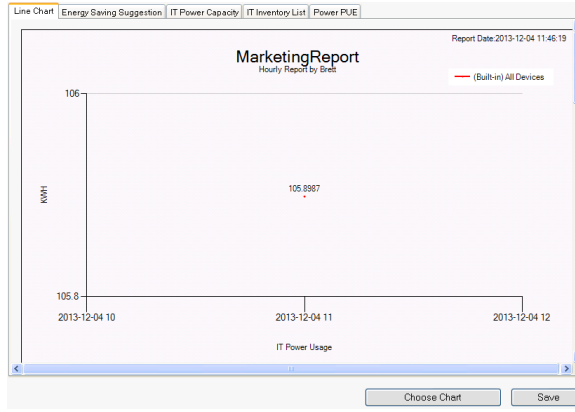


Enter the Total Power (KWh) use of the data center. This information will be used to calculate the Power Usage Effectiveness (PUE) of IT equipment in the data center by subtracting the IT energy use from the Total Power (KWh) use.

Note: eco Sensors automatically loads the current system time as report time. To generate a report based on the current status / latest available analysis, leave the *Report Period*, *Begin Report*, and *Duration* fields as default, complete the *Group* and *Chart* fields, and click **Generate**

Report Result

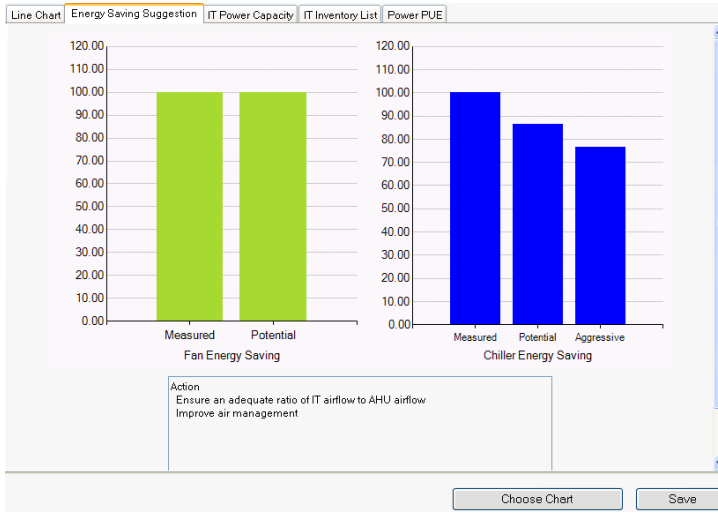
After you **Generate** the report it appears in a tabbed format in four parts – *Line Chart*, *Energy Saving Suggestion*, *IT Power Capacity*, *IT Inventory List*, and *Power PUE* as shown below. If chosen, the **Line Chart** is the first to appear:



Note: In any of the tabs, click **Save** to save the report in your desired location (see *Report Management*, page 29, for specifying the location); or click **Choose Chart** to return to the Generate Report page to adjust parameters or exit.

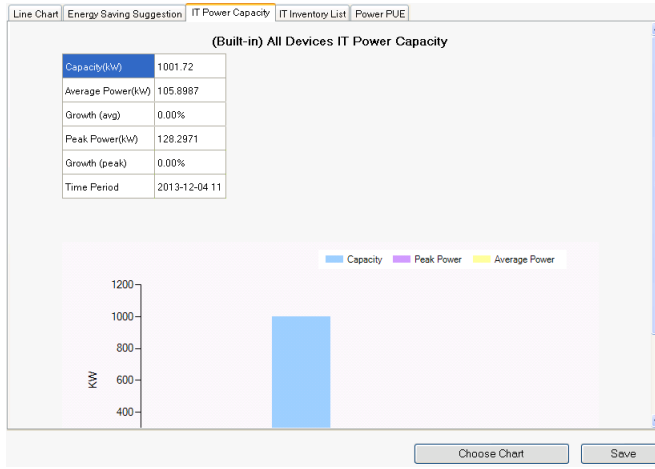
Energy Saving Suggestion

This report tab provides energy saving suggestions in the form of charts displaying measured and potential savings for fan energy and chiller energy, and a list of actions that you can undertake to improve your data center's energy efficiency, as shown below:



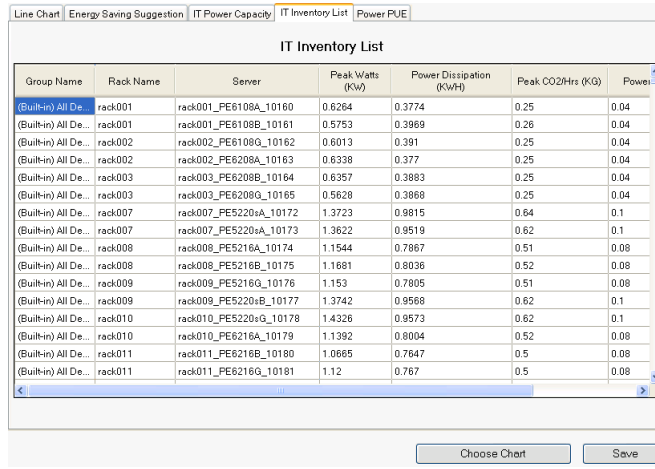
IT Power Capacity

This report tab provides information about the IT capacity of your data center (or specified areas in the data center) in the form of tables and charts, as shown in the following illustrations:



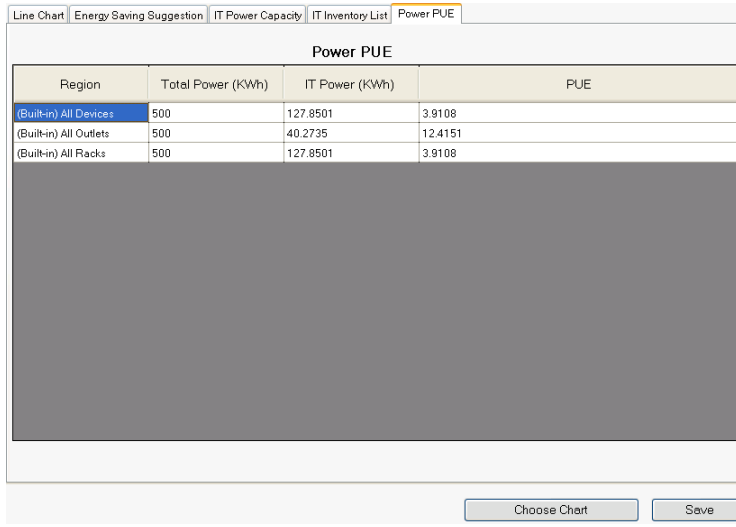
IT Inventory List

This report tab provides a breakdown of all power usage and cost data for each piece of IT inventory that you have listed in groups and/or individual servers, as shown below:

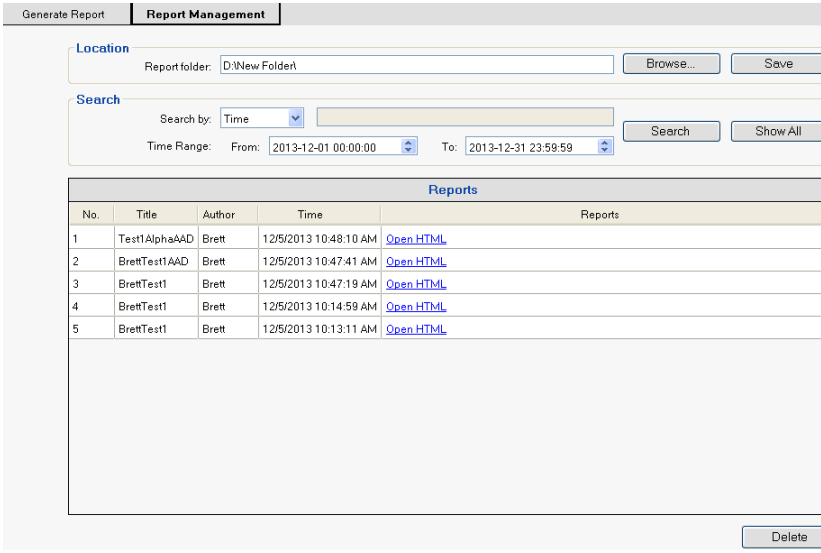


Power PUE

This report tab provides the Power Usage Effectiveness (PUE), which calculates how much energy is used by IT equipment in the data center. It subtracts *IT Power* from *Total Power* to give you the **PUE**, as shown below:



Report Management



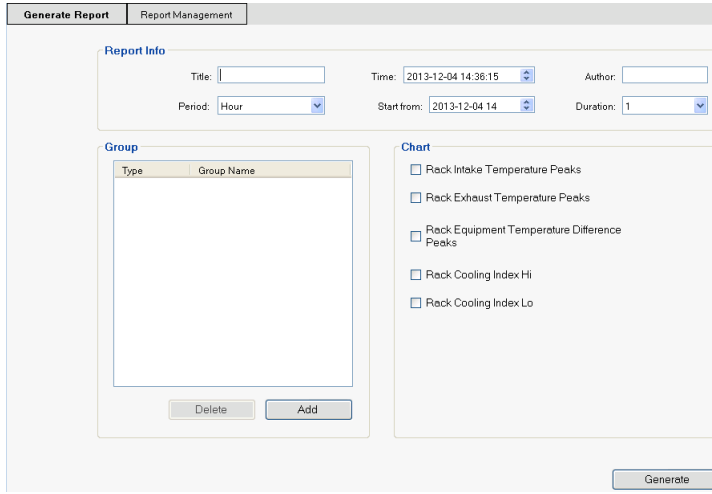
This page allows you to select the **Location** where you want to save reports, and also provides various **Search** options, as detailed in the following table:

Field	Explanation
Report Folder	Use this field to specify the folder where the reports are saved. Use **Browse** to locate a folder; click **Save** to save the location.
Search By	Search parameters in the drop-down menu allow you search for reports using Time, Title, or Author. Enter the Title or Author in the field on the right.
Time Range	Enter a time range for your report search and click **Search**.
Reports	The main window displays the reports. Here, you can select to **Show All** or **Delete** reports.

After clicking **Search**, a list of Reports are displayed. Click **Open HTML** to open the report in a browser to display it on a single page. You can also go to the Report folder and open the individual CSV and PDF report files.

Thermal Analysis

Generate Report



The **Generate Report** section allows you to establish the parameters and schedule for your Thermal Analysis reports. The fields are explained in detail in the following table:

Field	Explanation
Report Info	Fill in the report name and the writer in the *Title* and *Author* fields. Enter the *Time* and *Start from* (when you want the report to begin), and then enter the *Period* (options are hour, day, week, month, or quarter) and the *Duration* (1–24). **Note:** How far back the system stores data depends on your database type. See *Database Considerations*, page 8, for details.
Group	In this field, select the date group that is the subject of the report. See *Report Management*, page 29, for details.
Chart	In this field, check the analysis that components that you want to be included in the report\.

Report Result and Report Management

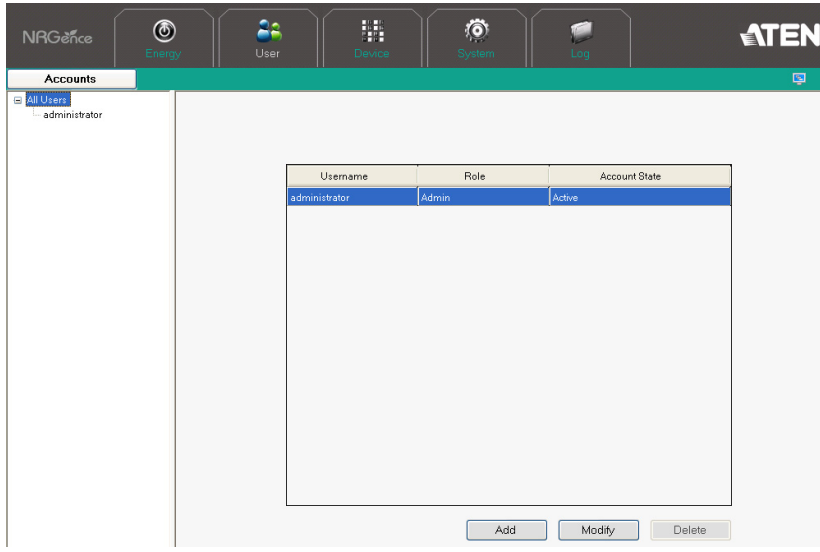
The report results can be managed in exactly the same way as those generated in the **Power Analysis** tab. Please reference sections *Report Result*, page 26, and *Report Management*, page 29, for details.

Chapter 5
User Management

Overview

When you select the *User Management* tab the screen comes up with *Accounts* and *All Users* displayed in the main panel. eco Sensors supports up to eight local user accounts with administrator.

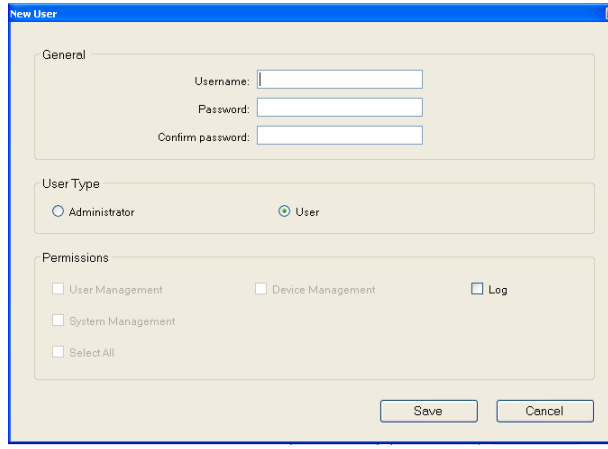
Note: eco Sensors does not support concurrent login sessions.



User Information

To add a user, do the following:

1. Click **Add**. The New User page appears:



2. In the *General* section, key in a name and password in the User and Password fields, and confirm the password.

> **Note:** The default username and password length is six characters; this is configurable to from 1–16 characters.

3. In the *User Type* section, select the user type. Options are Administrator and User.

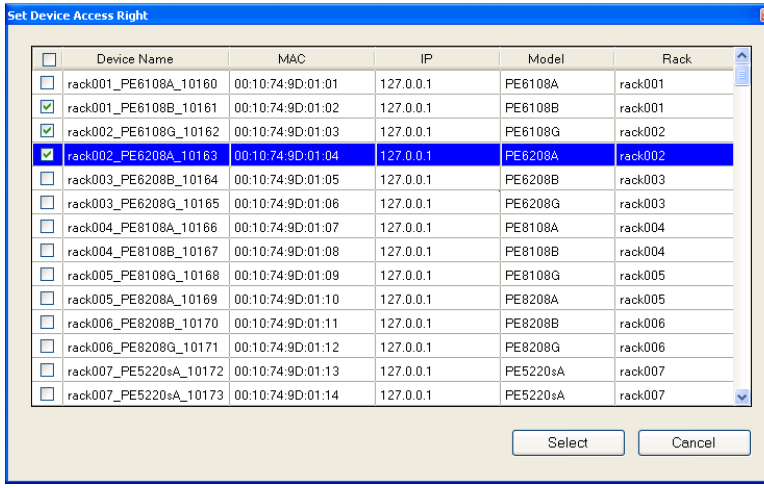
> **Note:** Administrators have full access rights by default; users have no access rights by default.

4. In the *Permissions* section, set the broad permissions of the user. To set the device-by-device permissions for a User account, see *Device Access Rights*, below.
5. Click *Save* to save your settings.

Device Access Rights

Click on the *Device Access Rights* button to bring up a list of all the NRGence devices in the installation. The list displays Device Name, MAC and IP address, Model type and Rack information.

Use this page to set which individual NRGence devices the user has access to. Put a checkmark in the box next to the device name to enable access, and then click **Save** to save your settings.



Chapter 6
Device Management

Overview

The **Device Management** tab allows you to define your data center layout by rack and zone grouping for customized power analysis. You can also define detailed parameters, such as Device Threshold Settings, at the PDU and outlet level. See the following sections for more detailed information.

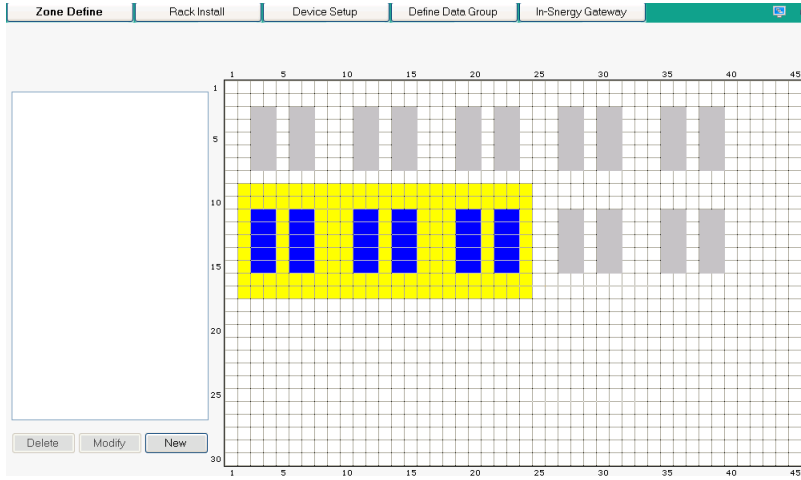
Note: 1. Defining zones is optional; but at least one rack must be installed and defined for eco Sensors to work.

2. Not all functions (such as outlet level monitoring) are supported by all NRGence models. Please see *Supported NRGence Devices*, page 4, and your eco PDU User Manual for details

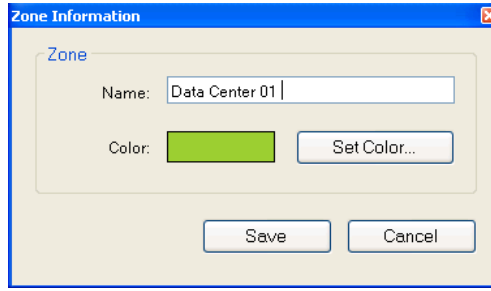
Zone Define

The **Zone Define** section allows you to group racks in your data center into zones, or define areas that you wish to get readings for.

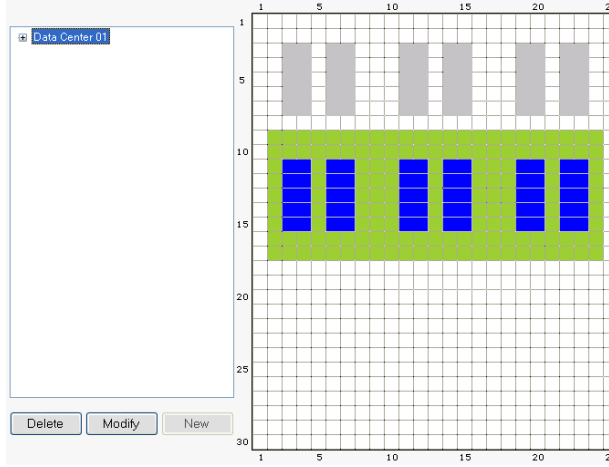
1. To define a zone, use your mouse to highlight a rack, group of racks, or any area in your data center – the highlighted area will display yellow – and then click **New**.



2. In the window that appears, give the group a name and set a color, and click **Save**:



3. The group appears as a Zone in the data center layout and its name appears in the sidebar.

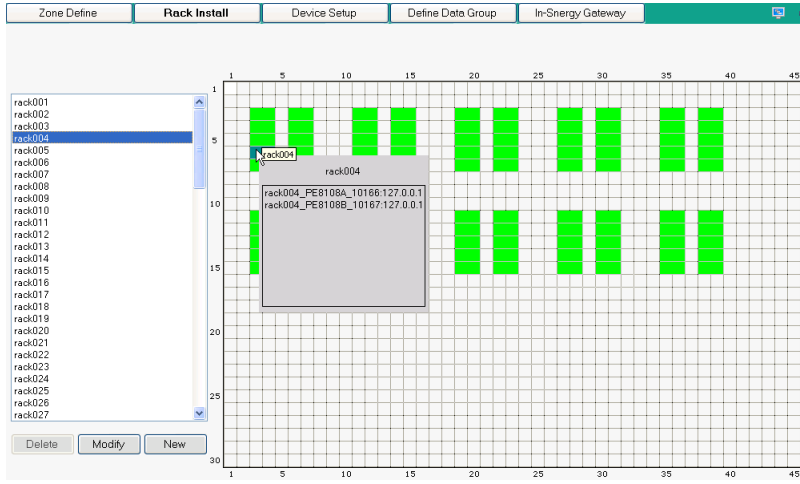


Note: 1. Once a zone has been defined in the data center layout, you cannot modify its position or move it (you can only modify its name or color). You must delete the zone by selecting it in the sidebar and clicking **Delete**. Then, define a new zone.

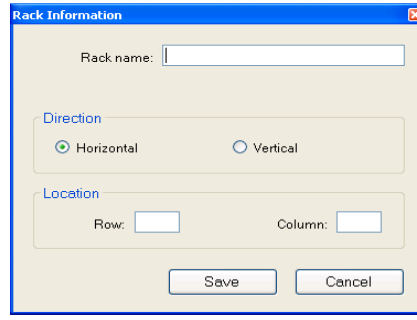
2. For easy reference when there are multiple zones, when an individual zone is selected in the list, the zone area flashes in the diagram.

Rack Install

The **Rack Install** section allows you to plot the position of the individual racks in your data center:



1. Click **New** to add a rack.
2. Give the rack a name and plot its position using the parameters, as shown below:



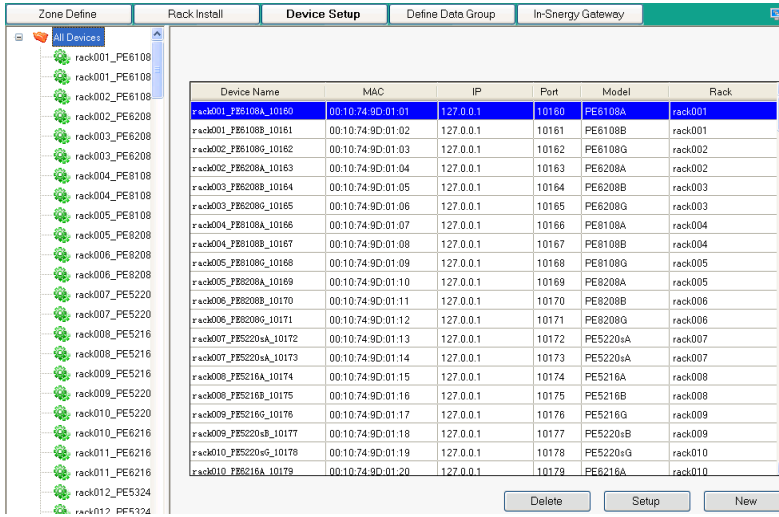
3. Click **Save**. The rack appears in the data center layout and its name appears in the sidebar.

Note: 1. Once a rack has been defined in the data center layout, highlight its name and click **Modify** to change its position or orientation.

2. You can also move it by clicking on it and dragging it to its new position.

Device Setup

The **Device Setup** section displays a list of the NRGence devices on your installation and allows you to set detailed parameters for all the NRGence devices – at the device, bank, outlet and sensor levels.

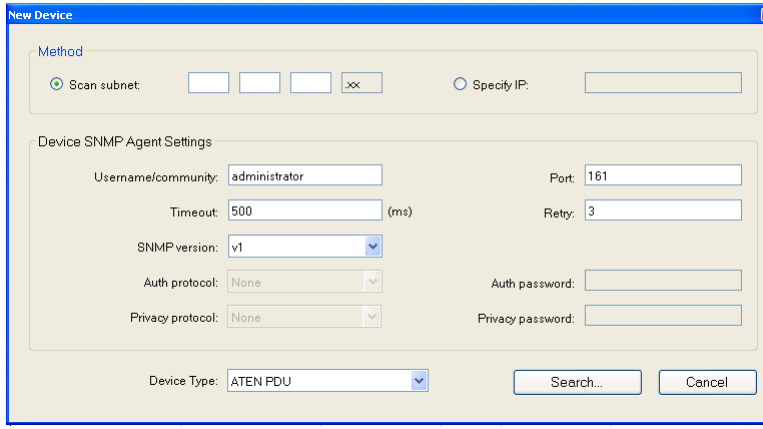


Note: 1. Click on the + sign next to *All Devices* in the side bar to expand the tree.

2. Double click on a device in the side bar tree or main page list to go directly to the device's *Device Settings* page.

Adding New Devices

eco Sensors software can automatically discover all NRGence devices located on the same intranet. Click **New** to bring up the *New Device* window:



Method

Setup the subnet to be scanned or specific the IP address, and click *Search*. The devices will then be displayed in a list.

Device SNMP Agent

This section allows you to set up your SNMP and system parameters so that eco Sensors can connect to the NRGence devices in your installation:

1. Enter a Username/Community, Port ID and Trap Port for the events.
2. Set the timeout and retry values.
3. Select the SNMP version, Privacy, and Authentication protocols from the drop-down menus.
4. Key in the Privacy and Authentication passwords.

> **Note:** Certain parameters in this section must match those of all the eco PDU devices in the installation. See *Synchronizing SNMP Parameters*, page 51.

5. Select the *Device type* and Click *Search*. The devices will then be displayed in a list.

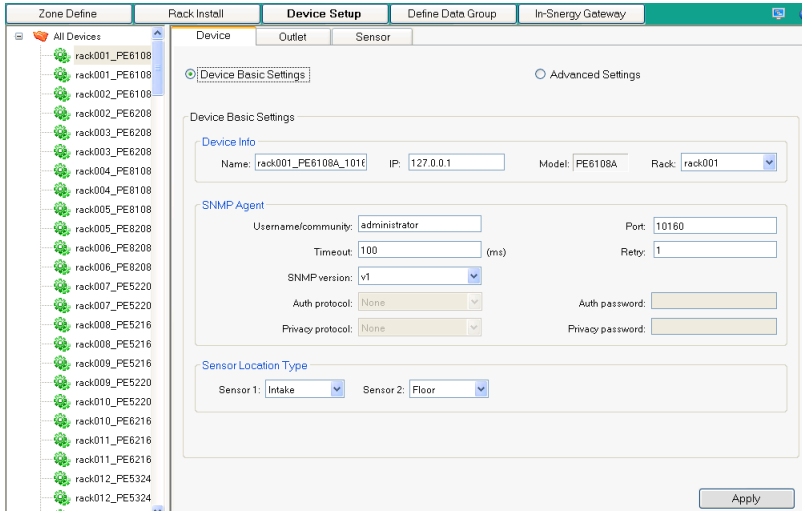
Configuration Levels

Once a device is selected, available tabs are *Device*, *Bank*, *Outlet*, and *Sensor*, depending on the device's features and level of configuration. See the following sections for details.

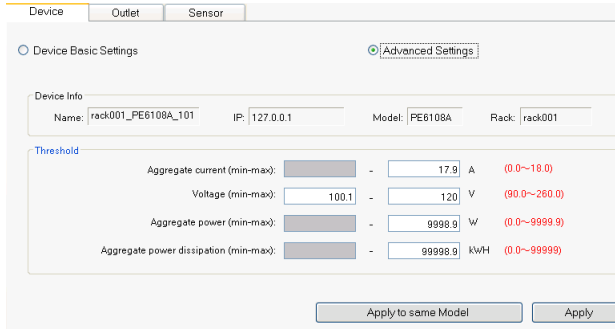
Device Level

1. Highlight the device you want to configure, and click **Setup**.
2. In the window that appears with the *Device* tab open, enter the *Device Settings* (Basic/Advanced), as in the diagram and table below:

Device Basic Settings:



Advanced Settings:

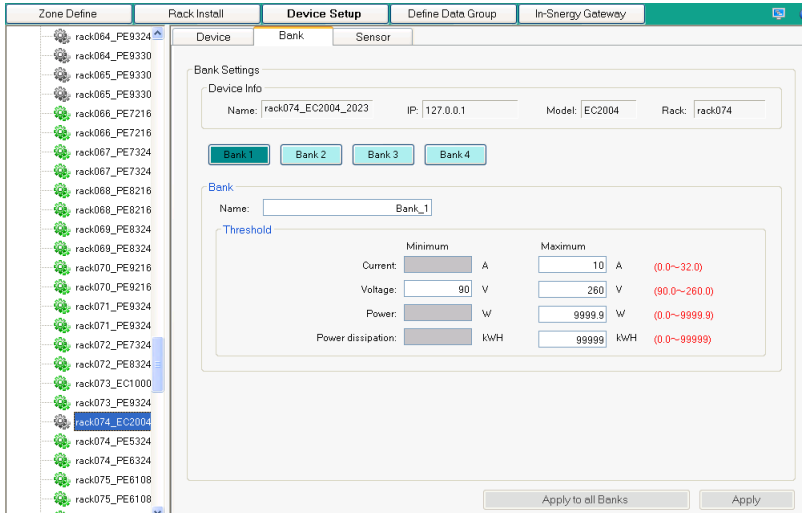


Device Info	This section displays the *Name*, *IP*, *Model* and *Rack* information for configuration.
SNMP Agent	Configure the SNMP Agent here (see *Device SNMP Agent*, page 38, for further details).
Sensor Location Type	Select the sensors' locations from the drop-down menus.
Threshold	Set the device threshold settings (min.–max), using the parameters provided, for: ◆ Aggregate Current ◆ Voltage ◆ Aggregate Power ◆ Aggregate Power Dissipation Note: For these settings to appear click the **Advanced Settings** radio button.

3. There are two save options: Click **Apply** to save these settings for the specified device; or click **Apply to same Model** (*Advanced Settings*) to save and apply these settings to all devices of the same model as the specified device.

Bank Level

1. Highlight the device you want to configure, and click **Setup**.
2. In the window that appears with the *Device* tab open, enter the *Device Settings* and other parameters, as in the diagram and table below:



Device Info	This section displays the device *Name*, *IP*, *Model* and *Rack* information.
Bank	Select an individual bank by clicking on the bank icon, and then proceed to configure its parameters, as below.
Name	Give the bank a name (optional)
Threshold	Set the outlet threshold settings (min.–max), using the parameters provided, for: ◆ Current ◆ Voltage ◆ Power ◆ Power Dissipation **Note:** Depending on your NRGence device, not all these options may be available.

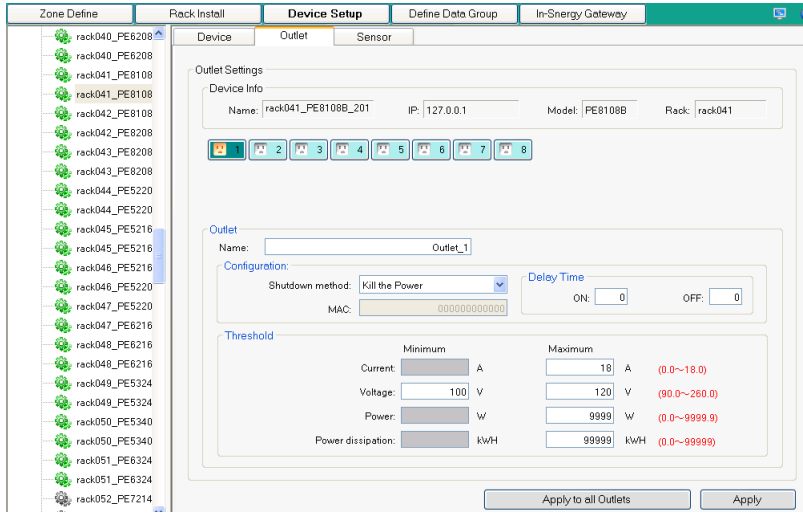
3. There are two save options: Click **Apply** to save these settings for the specified device; or click **Save Apply to All Banks** to save and apply these settings to all banks on the same model as the specified device.

Outlet Level

If your device supports outlet level monitoring (see *Supported NRGence Devices*, page 4, and your User Manual for details), you can also set detailed parameters for all the devices in your installation at the outlet level.

1. Click on the *Outlet* tab, highlight the device/outlet you want to configure, and click **Setup**.

2. In the window that appears, enter the *Outlet Settings*, as below:



Device Info	This section displays the device *Name*, *IP*, *Model* and *Rack* information.
Outlet	Select an individual outlet by clicking on the outlet icon, and then proceed to configure its parameters, as below.
Name	Give the outlet a name (optional)
Configuration	◆ Select one of the three choices for the *Shutdown Method* from the drop-down menu – see *Shutdown Methods*, page 43, for details. ◆ Set MAC address and Delay Time On/Off for the selected method.
Threshold	Set the outlet threshold settings (min.–max), using the parameters provided, for: ◆ Aggregate Current ◆ Voltage ◆ Aggregate Power ◆ Aggregate Power Dissipation

3. There are two save options: Click **Save** to save these settings for the specified outlet; or click **Apply to all Outlets** to save and apply these settings to all outlets of the specified device.

Shutdown Methods

The three available shutdown methods are explained in detail below:

- **Kill the Power** – If this option is selected, the NRGence device waits for the amount time set in the *Power Off Delay* field, and then turns the Outlet's power Off. Turning the power off performs a cold (non-safe) shutdown.
- **Wake on LAN** – This is a Safe Shutdown and Restart option. If this is selected, when an Outlet is turned Off, the NRGence device first sends a message to the computer telling it to prepare for a shutdown; it then waits for the amount time set in the *Power Off Delay field* to give the OS time to close down before the computer is powered down to standby mode.

  Likewise, when the Outlet is turned On, the NRGence device waits for the amount time set in the *Power On Delay* field, then sends an Ethernet message to the computer connected to the Outlet telling the computer to turn itself On.

  Note: For Safe Shutdown and Restart, the computer must be running Windows (Windows 98 or higher), and the *Safe Shutdown* program (available by download from our website), must be installed and running on the computer.

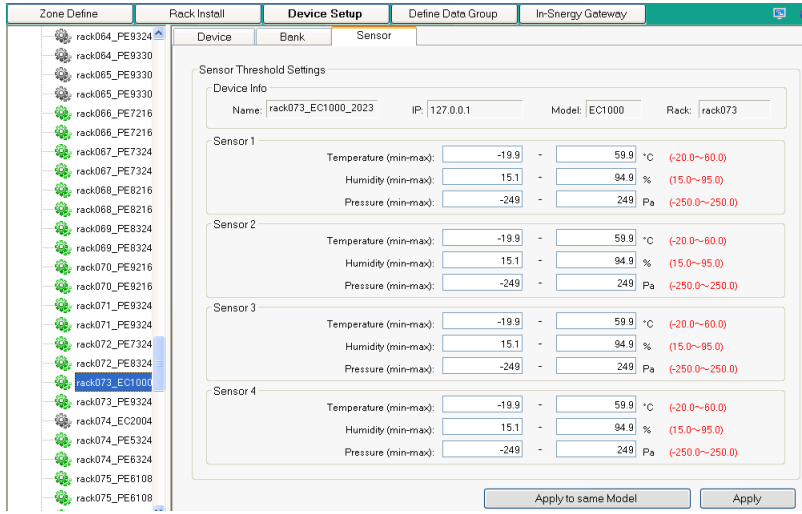
- **System after AC Back** – This is a Safe Shutdown and Restart option. If this is selected, when an Outlet is turned Off, the NRGence Device first sends a message to the computer telling it to prepare for a shutdown; it then waits for the amount time set in the *Power Off Delay* field to give the OS time to close down before the computer is powered down.

  When the Outlet is turned On, the NRGence device waits for the amount time set in the *Power On Delay* field, then sends power to the server. When the server receives the power, it turns itself on.

  Note: For Safe Shutdown and Reboot, the computer must be running Windows (Windows 98 or higher), and the *Safe Shutdown* program (available by download from our website), must be installed and running on the computer.

Sensor Level

1. Highlight the device with the sensors you want to configure, and click **Setup**.
2. In the window that appears with the *Device* tab open, enter the *Device Settings* and other parameters, as in the diagram and table below:

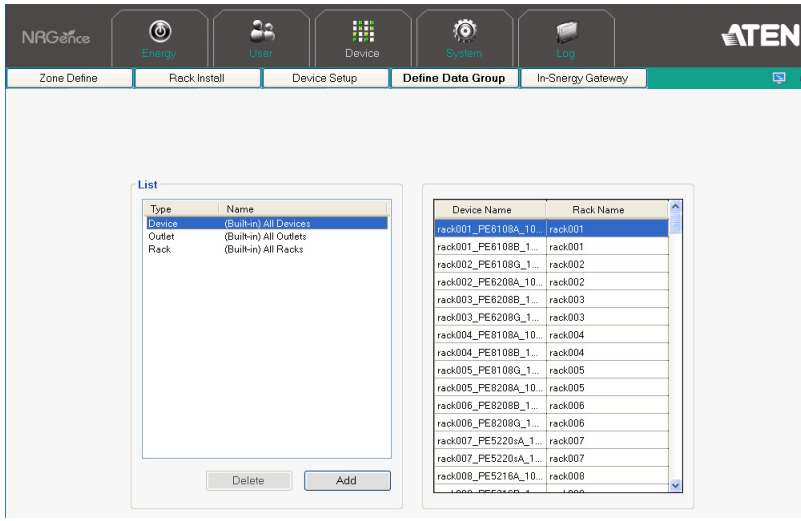


Device Info	This section displays the device *Name*, *IP*, *Model* and *Rack* information for configuration.
Sensor 1, 2, 3, 4	Set the sensor threshold settings (min.–max), using the parameters provided, for: ◆ Temperature ◆ Humidity ◆ Pressure

3. There are two save options: Click **Apply** to save these settings for the specified device; or click **Save Apply to same Model** to save and apply these settings to all devices' sensors of the same model as the specified device.

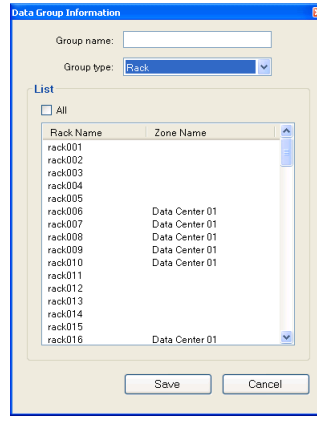
Define Data Group

The **Define Data Group** section allows you to create groups of zones, racks, devices or outlets for power management control. The *List* section displays the *Type* of group (zone, rack, device, or outlet) and its *Name*, and the *Members* section displays the individual zones, racks, devices or outlets that are in that group.



To define a group, do the following:

1. Click **Add** to bring up the Data Group Information window, as below:



2. Give the group a name in the Group Name field.

3. Select the type of group from the options in the drop-down menu. Options are *Zone*, *Rack*, *Device* and *Outlet*.

   Note: Zones must be defined before they appear in the List. See *Zone Define*, page 34, for details.

4. Select the members of the group by clicking on them, or select everything in the list by putting a check in the All checkbox.
5. Click **Save** to create the group. It now appears in the List on the main opening page.

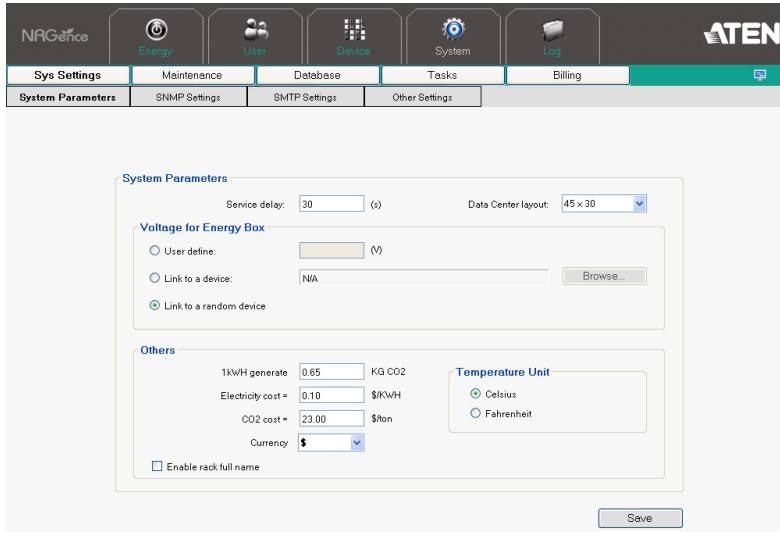
Chapter 7
System Management

Overview

The Sys Management tab allows you to set up the parameters for eco Sensors software System settings and to use the SNMP protocol to connect to the NRGence devices in your installation, as well as perform other maintenance, database and task related functions.

Sys Settings

This section allows you to set up the eco Sensors software system parameters:



System Parameters

- Enter the *Service Delay* time in seconds that the software will wait before it requests new data from the Energy Box.
- Enter the total size for the *Data Center Layout*, this will set the maximum parameters for the devices in your eco Sensors software installation, as displayed on the **Energy** and **Device** tabs.

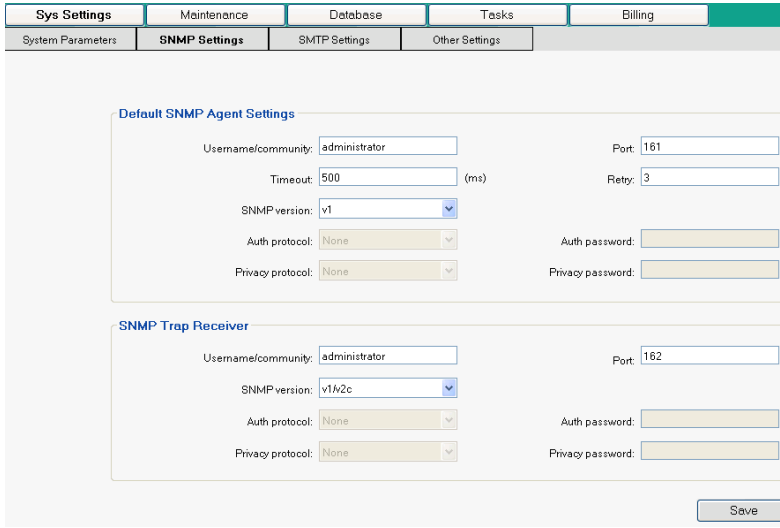
- Enter a *User Defined* or *Link to a (random) Device* to set a Voltage value for the Energy Box.

Note: The EC1000 measures current only. Enter a reference voltage value here to calculate power and power dissipation in EC installations.

- In the *Others* section you can set the default values that the eco Sensors software will use for generating data.
- The *Currency* drop-down menu allows you to select the type of currency symbol to use.
- Select the Temperature Unit: *Celsius* or *Fahrenheit*, to use for all environmental calculations.
- Check *Enable rack full name* to enable multi-language rack names. For example, this feature allows you to use Chinese, Japanese, and other characters when creating a rack's name.

SNMP Settings

This section allows you to set up your SNMP and system parameters so that eco Senors can connect to the eco PDUs in your installation:



Default SNMP Agent Settings

This section allows you to set up your default SNMP and system parameters so that eco Senors can connect to the NRGence devices in your installation:

1. Enter a Username/Community, Port ID and Trap Port for the events.
2. Set the timeout and retry values.
3. Select the SNMP version, Privacy, and Authentication protocols from the drop-down menus.
4. Key in the Privacy and Authentication passwords.

> **Note:** Certain parameters in this section must match those of all the NRGence devices in the installation. See *Synchronizing SNMP Parameters*, page 51.

5. Click *Search*. The devices will then be displayed in a list.

SNMP Trap Receiver

To be notified of SNMP trap events, do the following:

1. Enter a Username, Port ID and Trap Port for the events.
2. Set the timeout and retry values.
3. Select the SNMP version, Privacy, and Authentication type from the drop-down menus.
4. Key in the Privacy and Authentication passwords.

Note: Certain parameters in this section must match those of all the eco PDU devices in the installation. See *Synchronizing SNMP Parameters*, page 51.

Synchronizing SNMP Parameters

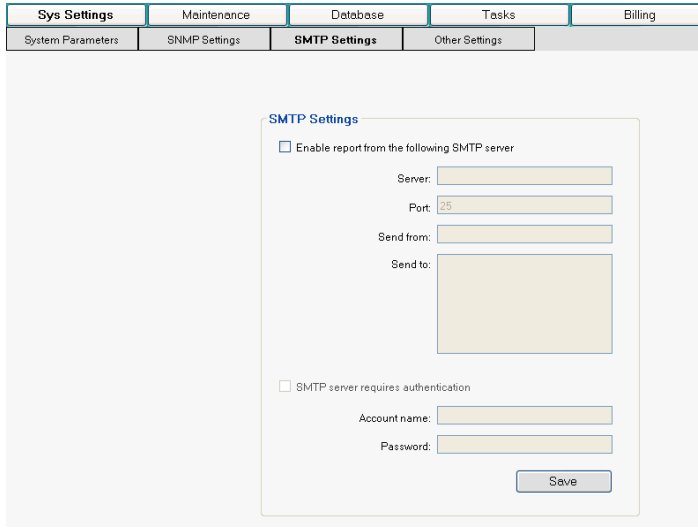
In order for eco Senors to access the NRGence devices on the installation, it is essential that three of the SNMP parameters are the same. These parameters are *Username*, *Privacy PW*, and *Authen PW*. The default values, which are the same for eco Sensors and eco PDU units, are shown in the following table:

Parameter	Default	Web UI
Username	*administrator*	Administrator Account ID
Privacy PW	*privacypwd*	SNMP Privacy PW
Authen PW	*password*	Administrator Account Password

If any of these parameters are modified on the Web GUI of the eco PDU device(s), the same parameters in eco Sensors must also be modified.

Note: eco Sensors will only access eco PDUs with the same parameters, so it is essential that these parameters are synchronized for all eco PDUs in your installation. Reference the **Browser Operation** chapter of your eco PDU User Manual for further information.

SMTP



To have eco Sensors email reports from the SMTP server, do the following:

1. Enable the *Enable report from the following SMTP server*, and key in the IP address and port number of your SMTP server.
2. Key in the email address of where the report is being sent from in the *Send From* field.

Note: 1. Only one email address is allowed in the *From* field, and it cannot exceed 64 Bytes.

2. 1 Byte = 1 English alphanumeric character.

---

3. Key in the email address (addresses) of where you want the SMTP reports sent to in the *Email List* field.

Note: 1. If you are sending the report to more than one email address, separate the addresses with a semicolon. The total cannot exceed 256 Bytes.

2. 1 Byte = 1 English alphanumeric character.

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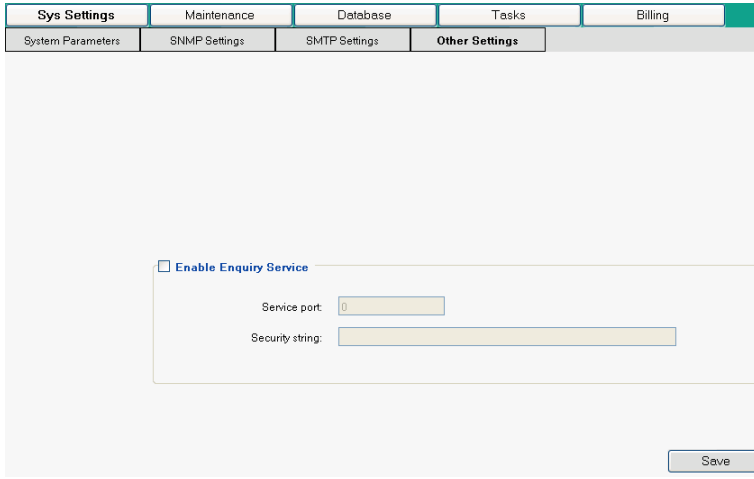
4. If your server requires authentication, put a check in the *Server requires authentication* checkbox, and key in the appropriate account information in the Account Name and Password fields.

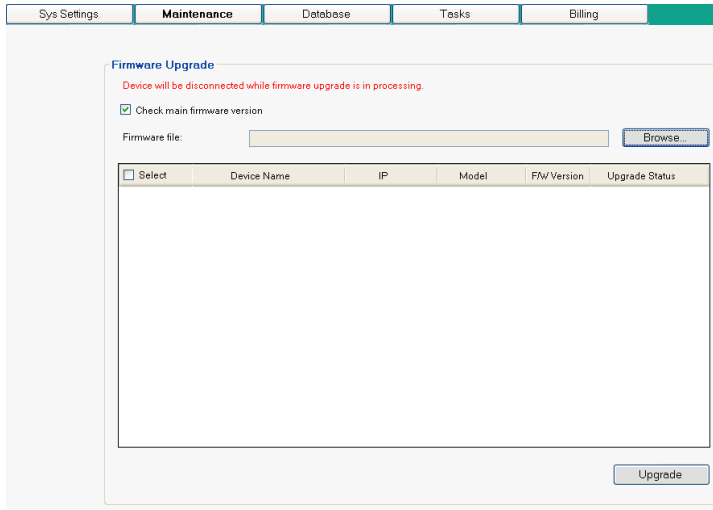
Other Settings

The Other Settings page allows you to enable the *Enquiry Service*, and set the Service port and Security string. This page is used to establish a connection to a third party software's billing service.



Maintenance

The *Maintenance* function allows you to use eco Sensors to upgrade the firmware of the connected NRGence device's firmware. When you click the Maintenance tab, the display opens with *Firmware Upgrade* page, as below:



The Main Panel

A description of the items shown in this panel are given in the table, below:

Item	Description
Check Main Firmware Version	If you enable *Check Main Firmware Version*, the device's current firmware level is compared with that of the upgrade file. If the current version is equal to or higher than the upgrade version, a popup message appears, to inform you of the situation and stops the upgrade procedure.
Firmware File	As new versions of the firmware become available, they are posted on our website and can be downloaded to a convenient location on your computer. Click the *Browse* button to select the downloaded upgrade file.
Device Name	Lists all of the NRGence devices. In the *Select* column, select the device's whose firmware you want to upgrade.
Firmware Version	Displays the device's current firmware version.
IP Address	Displays the IP address of the selected NRGence device.
Upgrade Status	Displays the upgrade status of the selected devices.
Upgrade	Click this button to perform the upgrade on the selected devices.

Upgrading the Firmware

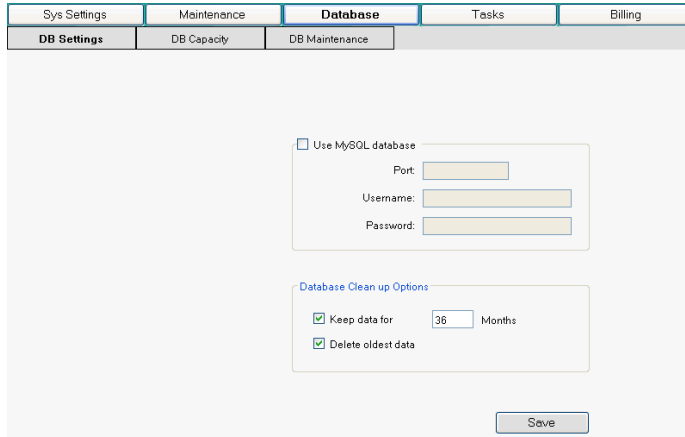
To upgrade the firmware refer to the screenshot on the preceding page, and do the following:

1. Go to our website and download the new firmware file to a convenient location on your computer.
2. Click the *Browse* button; navigate to where the firmware file is located and select it.
3. Click **Upgrade** to start the upgrade procedure.
   - If you enabled *Check Main Firmware Version* the current firmware level is compared with that of the upgrade file. If the current version is equal to or higher than the upgrade version, a popup message appears, to inform you of the situation and stops the upgrade procedure.
   - If you didn't enable *Check Main Firmware Version*, the upgrade file is installed without checking what its level is.
   - Once the upgrade completes successfully, the switch resets itself.
4. Log in again, and check the firmware version to be sure it is the new one.

Database

Database Settings

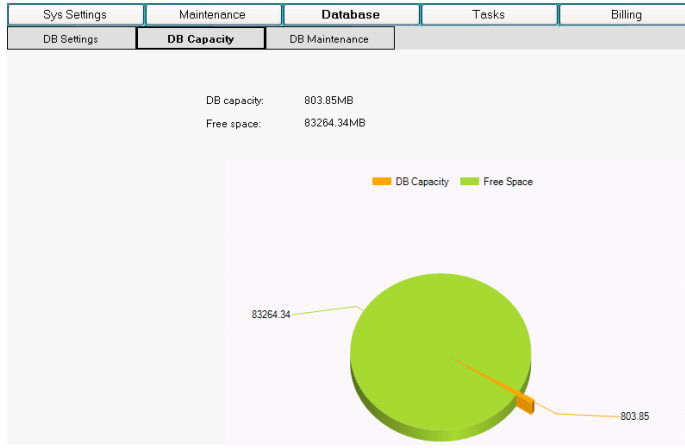
This section allows you to set *MySQL database* and *Database Clean up Options*:



Use the **Database Clean up Options** to maintain your database size. Check *Keep data for* and enter the number of months for the system to log data before it begins to purge files. Check *Delete oldest data* to delete older data files first.

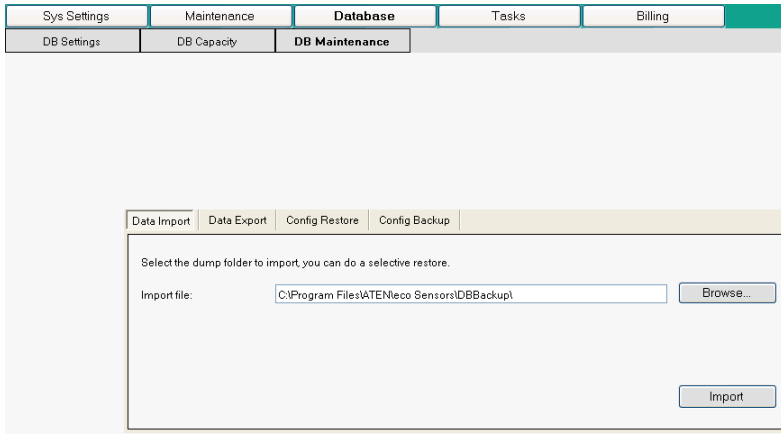
Database Capacity

This section gives you information about your current database capacity:



Database Maintenance

This section allows you to backup and restore the systems database and configuration information.



Data Import / Export

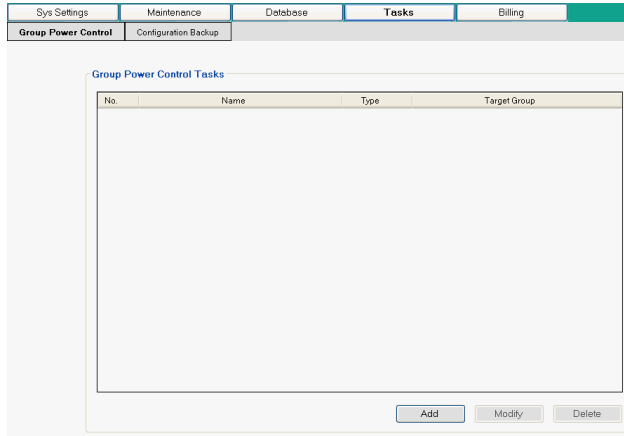
The *Data Import* and *Data Export* tabs allow you to import and export data tables related to the Power Analysis, Thermal Analysis, and Billing information.

Config Restore / Backup

The *Config Restore* and *Config Backup* tabs allow you to restore and backup configuration data related to the eco Sensors software settings found in the **User** and **Device** tabs, which include user account and device information.

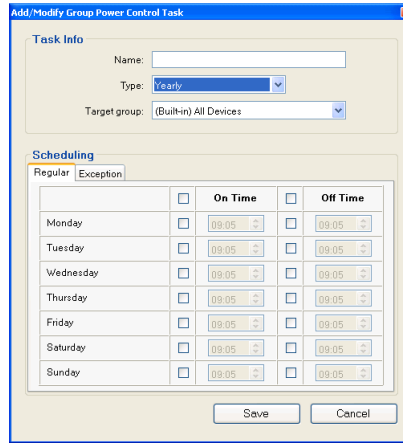
Tasks

This section allows you to schedule Group Power Control tasks (On/Off) using built-in group parameters and schedule Configuration Backup tasks, which automatically backup configuration data.



Group Power Control

These tasks can be performed on all devices, all racks, or all outlets. On the main page, click **Add** to open the *Add/Modify Task* window, as shown below:



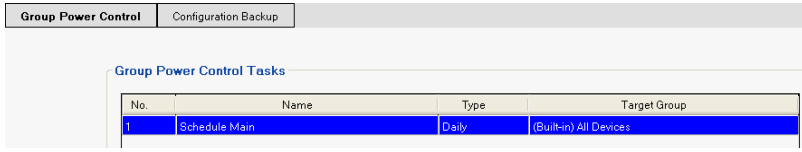
To schedule a group power control task, do the following:

1. Key in a *Name* for the task.
2. Select the task *Type* from the drop-down menu (Daily, Weekly, or Yearly).

3. Select the *Target Group* from the drop-down menu.
4. Use the *Scheduling* section to set the power on and power off times, and to add *Exceptions* to Yearly tasks.

   Note: *Exceptions* will override all scheduling parameters.

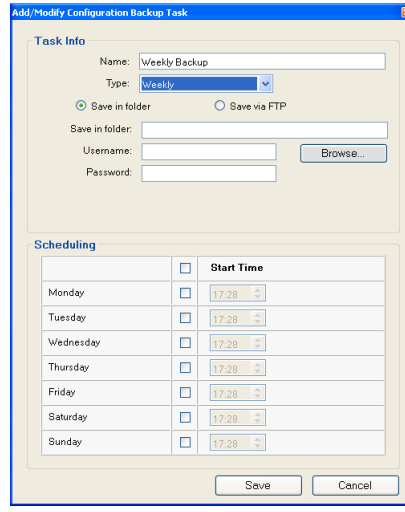
5. Click **Save** to save the task. It now appears on the main page:



Select a task in *Group Power Control Tasks* main page and use the buttons to **Modify** or **Delete**.

Configuration Backup

These tasks are set on a daily or weekly basis to automatically backup the eco Sensors configuration data. On the main page, click **Add** to open the *Add/ Modify Configuration Backup Task* window, as shown below:



To schedule a configuration backup task, do the following:

1. Key in a *Name* for the task.
2. Select the task *Type* from the drop-down menu (Daily, or Weekly).
3. Select *Save in folder* or *Save via FTP*, and fill in the related information:

- **Save in folder**: Browse to select a location where backup is saved. Provide the Username and Password for the folder if it is set with security that requires authentication*.
- **Save via FTP**: Enter the FTP Server, Port number, FTP Directory and check the box to Log on anonymously. Provide the Username and Password for the folder if it is set with security that requires authentication*.

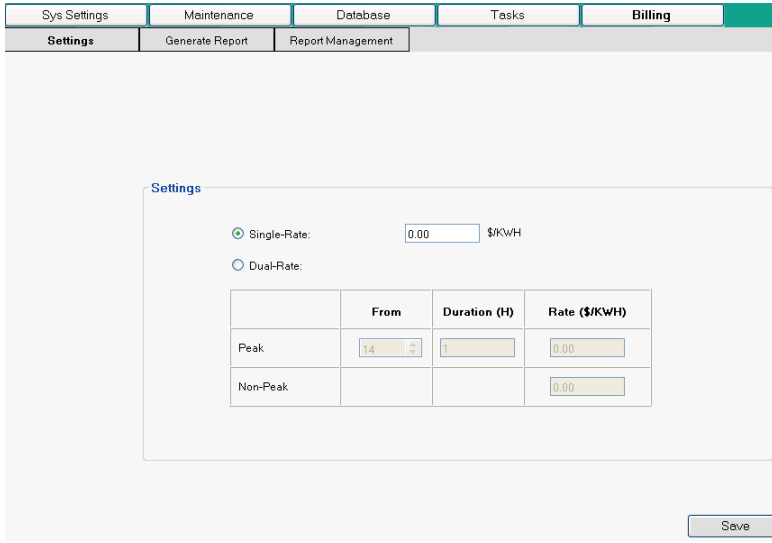
  Note: If you provide a Username/Password for the folder, and the folder is not set with username/password security, the Configuration Backup task will not save the data.

4. Use the *Scheduling* section to set the days of the week (Weekly) and time of day (Weekly/Daily) for the configuration backup task to begin.
5. Click **Save** to save the task.

Billing

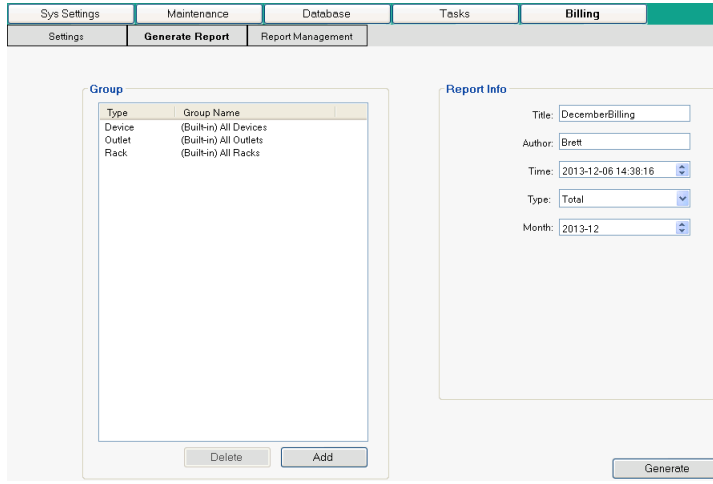
The Billing section allows you to calculate energy costs using actual usage to create data and generate billing reports.

Settings



- **Single Rate:** Enter the KW/per hour rate that you wish to use to calculate your data center's billing costs.
- **Dual-Rate:** Use this option if your energy costs are split into *peak* and *non-peak* hours. **Peak**: Enter the time of day (*From*) that the peak-rate begins, how many hours (*Duration*) the peak-rate occurs, and the *Rate ($/KWH)* per hour. **Non-Peak:** Enter the non-peak *Rate ($/KWH)* per hour.
- Click **Save**.

Generate Report

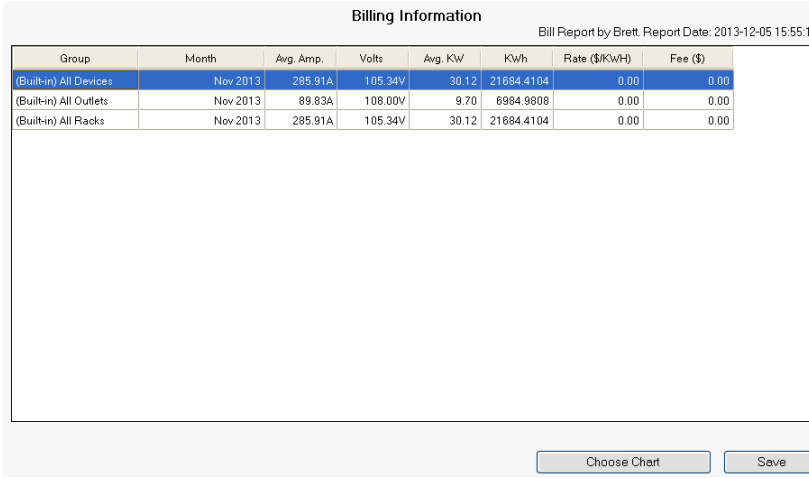


The **Generate Report** section allows you to establish the parameters for your billing reports. The fields are explained in detail in the following table:

Field	Explanation
Report Info	Fill in the report name and the creator in the *Title* and *Author* fields. Enter the *Time* which will represent when the report was created. Enter the *Type: Total:* will give you a report that is an accumulation of all the energy costs for all the racks. *Rack:* will give you a break down of the energy costs accumulated by each rack. Select a *Month* for which you wish to calculate the billing data for. **Note:** Rack reports will take longer to generate as much more data is required to provide the detailed billing information.
Group	In this field, click **Add** to select the data group(s) that is the subject of the billing report.

After filling in the information, click **Generate** and a new window will appear with the Total or Rack Billing Information, as shown on the next page.

Total Report



Billing Information

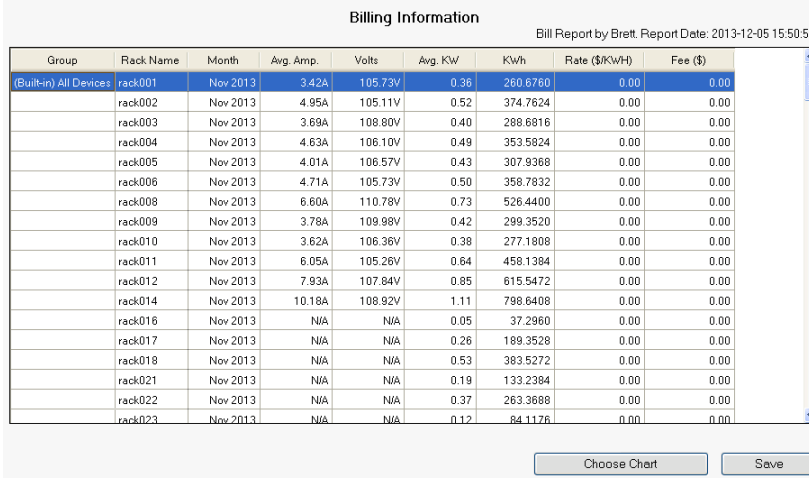
Bill Report by Brett. Report Date: 2013-12-05 15:55:11

Group	Month	Avg. Amp.	Volts	Avg. KW	KWh	Rate ($/KWH)	Fee ($)
(Built-in) All Devices	Nov 2013	285.91A	105.34V	30.12	21684.4104	0.00	0.00
(Built-in) All Outlets	Nov 2013	89.83A	108.00V	9.70	6984.9808	0.00	0.00
(Built-in) All Racks	Nov 2013	285.91A	105.34V	30.12	21684.4104	0.00	0.00

Choose Chart | Save

From this page click **Save** to save the billing information, or **Choose Chart** to return to the previous page and reconfigure the parameters for your billing report.

Rack Report



Billing Information

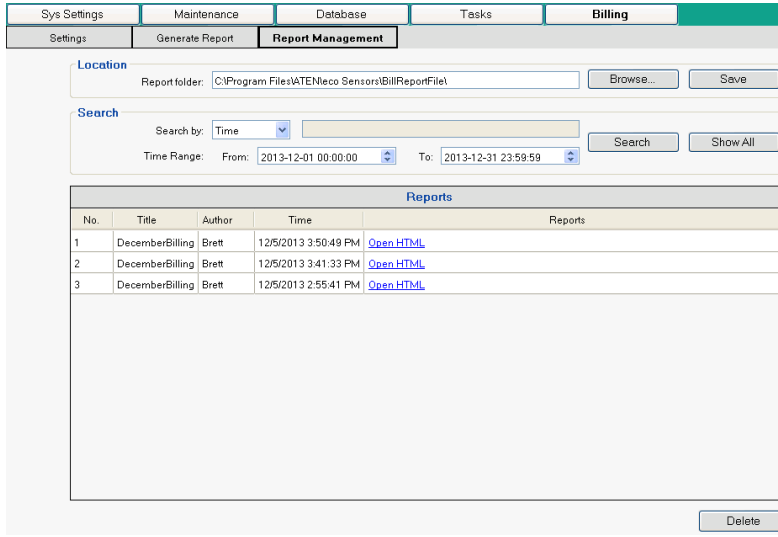
Bill Report by Brett. Report Date: 2013-12-05 15:50:51

Group	Rack Name	Month	Avg. Amp.	Volts	Avg. KW	KWh	Rate ($/KWH)	Fee ($)
(Built-in) All Devices	rack001	Nov 2013	3.42A	105.73V	0.36	260.6760	0.00	0.00
	rack002	Nov 2013	4.95A	105.11V	0.52	374.7624	0.00	0.00
	rack003	Nov 2013	3.69A	108.80V	0.40	288.6816	0.00	0.00
	rack004	Nov 2013	4.63A	106.10V	0.49	353.5824	0.00	0.00
	rack005	Nov 2013	4.01A	106.57V	0.43	307.9368	0.00	0.00
	rack006	Nov 2013	4.71A	105.73V	0.50	358.7832	0.00	0.00
	rack008	Nov 2013	6.60A	110.78V	0.73	526.4400	0.00	0.00
	rack009	Nov 2013	3.78A	109.98V	0.42	299.3520	0.00	0.00
	rack010	Nov 2013	3.62A	106.36V	0.38	277.1808	0.00	0.00
	rack011	Nov 2013	6.05A	105.26V	0.64	458.1384	0.00	0.00
	rack012	Nov 2013	7.93A	107.84V	0.85	615.5472	0.00	0.00
	rack014	Nov 2013	10.18A	108.92V	1.11	798.6408	0.00	0.00
	rack016	Nov 2013	N/A	N/A	0.05	37.2960	0.00	0.00
	rack017	Nov 2013	N/A	N/A	0.26	189.3528	0.00	0.00
	rack018	Nov 2013	N/A	N/A	0.53	383.5272	0.00	0.00
	rack021	Nov 2013	N/A	N/A	0.19	133.2384	0.00	0.00
	rack022	Nov 2013	N/A	N/A	0.37	263.3688	0.00	0.00
	rack023	Nov 2013	N/A	N/A	0.12	84.1176	0.00	0.00

Choose Chart | Save

From this page click **Save** to save the billing information, or **Choose Chart** to return to the previous page and reconfigure the parameters for your billing report.

Report Management



This page allows you to select the **Location** where you want to save reports, and also provides various **Search** options, as detailed in the following table:

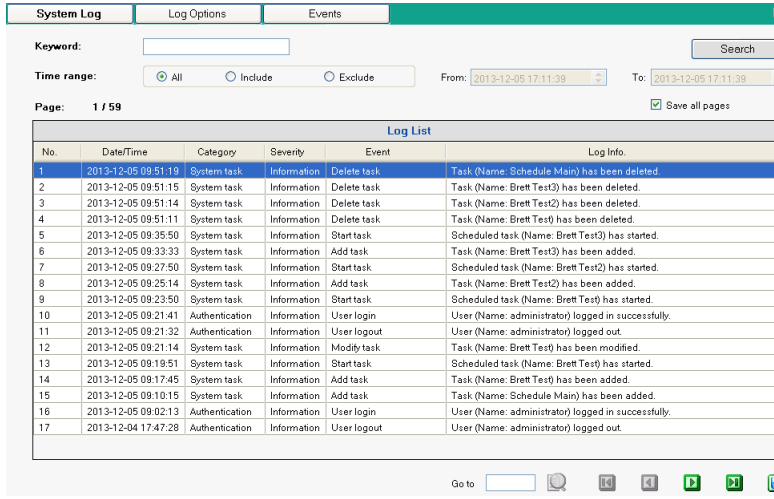
Field	Explanation
Report Folder	Use this field to specify the folder where the reports are saved. Use **Browse** to locate a folder; click **Save** to save the location.
Search By	Search parameters in the drop-down menu allow you search for reports using Time, Title, or Author. Enter the Title or Author in the field on the right.
Time Range	Enter a time range for your report search and click **Search**.
Reports	The main window displays the reports. Here, you can select to **Show All** or **Delete** reports.

After clicking **Search**, a list of Reports are displayed. Click **Open HTML** to open the billing report in a browser and display it on a single page. You can also go to the Report folder and open the individual CSV and PDF report files.

Chapter 8
Log

Overview

eco Sensors keeps a record of transactions that take place on its installation, and stores up to 128 events at one time. The *System Log* page provides a powerful array of filters and functions that allow you to view and export the log file data, as well as be informed by email of specified events as they occur.



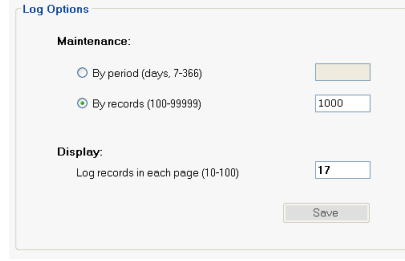
System Log

- Clicking on a device in the Sidebar displays its log events in the main panel's log event list.
- Clicking the **Refresh** button brings the log list up to date with the latest events.
- The entry box to the right of the Refresh button lets you set the number of events to display per page. Simply key in the number of your choice.
- The top right of the main panel shows the total number of pages in the log file, and what page you are currently viewing.
- The buttons on the bottom row function as follows:
  - **Clear** – click to erase the contents of the log event list
  - **First Page** – click to go to the first page of the log event list

- **Previous Page** – click to move to the previous page of the log event list
- **Next Page** – click to move to the next page of the log event list
- **Last Page** – click to move to the last page of the log event list
- **Export Log** – click to save the contents of the log event list to file

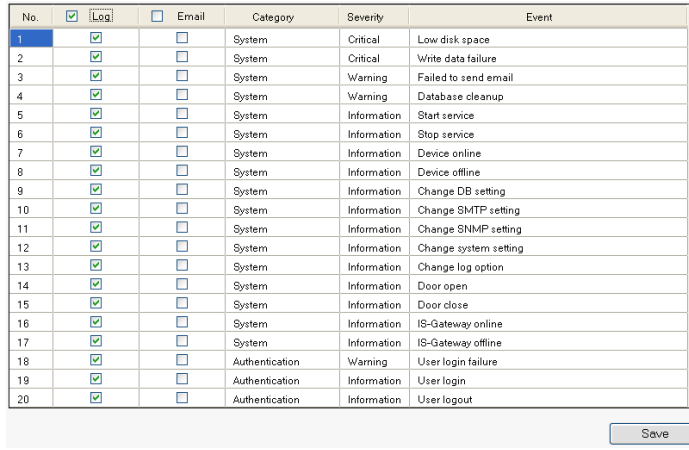
Log Options

Use this tab to set your log *Maintenance* and *Display* options:



Events

Use this tab to set the Events that you want the system to log locally and/or be sent out by email via SMTP. Check the events to *Log* or *Email*. For events to be sent via email you must configure the SMTP settings (see *SNMP Settings*, page 49).



No.	Log	Email	Category	Severity	Event
1	☑	☐	System	Critical	Low disk space
2	☑	☐	System	Critical	Write data failure
3	☑	☐	System	Warning	Failed to send email
4	☑	☐	System	Warning	Database cleanup
5	☑	☐	System	Information	Start service
6	☑	☐	System	Information	Stop service
7	☑	☐	System	Information	Device online
8	☑	☐	System	Information	Device offline
9	☑	☐	System	Information	Change DB setting
10	☑	☐	System	Information	Change SMTP setting
11	☑	☐	System	Information	Change SNMP setting
12	☑	☐	System	Information	Change system setting
13	☑	☐	System	Information	Change log option
14	☑	☐	System	Information	Door open
15	☑	☐	System	Information	Door close
16	☑	☐	System	Information	IS-Gateway online
17	☑	☐	System	Information	IS-Gateway offline
18	☑	☐	Authentication	Warning	User login failure
19	☑	☐	Authentication	Information	User login
20	☑	☐	Authentication	Information	User logout

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