

Enterprise Power Manager

User's Guide

The screenshots illustrate the Enterprise Power Manager interface across three different views:

- Table View:** Displays a list of UPS units with columns for Statut, Nom, Nom appareil, Lieu, Groupe, Charge, and Lien.

Statut	Nom	Nom appareil	Lieu	Groupe	Charge	Lien
🟢	172.16.1.31	MGE Galaxy 7000 UPS 400 kVA	Computer Room	Root	50 %	🔗
🔴	ups6f26	MGE Upsilon STS	Computer Room	Root	0 %	🔗
🔴	ups6f32	GALAXY 5000 40 kVA	Computer Room	Root	0 %	🔗
🔴	ups6f37	Galaxy 3000 15 kVA	Computer Room	Root	0 %	🔗
- Map View:** Shows a world map with several location markers (red and green) indicating the geographical distribution of the power infrastructure.
- Circuit Diagram View:** Provides a detailed schematic of the power system, showing multiple UPS units connected to a central bus and then to various application servers.

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1 Introduction

"Enterprise Power Manager" discovers all MGE UPSs connected to the network (either by means of a card). For the detailed list of compatible solutions, please refer to the paragraph 4.5 (Equipment Compatibility List) hereafter.

This document describes the steps to install and use "Enterprise Power Manager".

Functions of Enterprise Power Manager V2:

- A simple and very powerful representation mode lets you create your [electrical supervision diagram using a web browser](#).
- Enterprise Power manager also allows the [supervision of servers](#) hosting the Network Shutdown Module V3 application.

Supervision using Enterprise Power Manager

- **Easy supervision of a group of UPS systems**

Enterprise Power Manager is a system for managing networked UPSs more easily and at lower cost than the major NMS platforms, and is dedicated to power management functions.

The manager of the UPS group has an overall, consolidated view of the main operating parameters of all the UPS systems. This information is accessible from any workstation using a standard Web browser.

It can easily sort the UPSs according to the most critical parameters (location, system status, etc). Alarms are centralized and transmitted, if required, by e-mail, SMS or broadcast. The log of events and operations helps preventive management of the various UPSs.

- **Simple to deploy, and using industry standards**

When installed, Enterprise Power Manager can carry out a scan for all the MGE UPSs and other suppliers supporting the standard UPS MIB.

The user is then presented with a layout that can be easily configured, as required, according to the type of UPS, location, operating status, etc.

- **An overall view of the UPS network & advanced power management**

Clicking on a UPS in the layout shows detailed information about the operating and configuration parameters in a dedicated window.

Enterprise Power Manager uses Secure Sockets Layer (SSL) and several levels of password (administrator, user, etc) for complete security.

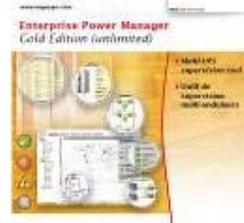
- **Simple, economical and scalable**

A version limited to 5 UPSs is available free of charge on the APC web site. This version can also be used to evaluate the software for a more extensive network before purchasing an Enterprise Power Manager for 50 or more UPS systems.

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This document applies to the 3 commercial versions of Enterprise Power Manager:

	<ul style="list-style-type: none"> • 5-nodes available free of charge on APC web site and on Solution Pac 2 CD-ROM
	<ul style="list-style-type: none"> • 50-nodes available on Management Pac 2 CD-ROM Part number 66923
	<ul style="list-style-type: none"> • Unlimited nodes Available on Enterprise Power Manager Gold Edition CD-ROM. Part number 66924

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2 Installation and Configuration Procedure

2.1 Installation Prerequisites

2.1.1 On the System Hosting « Enterprise Power Manager »

Enterprise Power Manager can be installed on **Windows 2000/XP (Home or Professional) / 2003 / Vista / 7 / 2008**

Notes:

- **Windows_SP2:** We advise you against the use of Windows XP Service Pack 2 that only authorizes 10 simultaneous network connections. The discovery process will be much longer due to this limitation. (cf. [Discovery time paragraph](#))
For Windows XP Service Pack 2, we advise you to use the new [Quick Scan](#) feature
- For Windows XP SP2 you have to configure the network ports 80 and 443 (http & https) on the Windows Firewall
- To avoid network access conflicts, we advise you against installing the Enterprise Power Manager on a machine that also hosts a Network Management System (e.g. HP-Openview, CA Unicenter, ...)
- To avoid access conflicts on Network ports 80 & 443 (Http & Https), we advise you against installing the Enterprise Power Manager on a machine that also hosts a Web server using these ports.
If really necessary, these ports can be changed in
C:\Program Files\...\EnterprisePowerManager\bin\webserver\conf\ssl.conf

2.1.2 On the System that Displays Web-based Graphical User Interface

The Enterprise Power Manager graphical interface can be accessed remotely using a simple Web browser. Access to this interface is secured through SSL connection (default configuration) and can also be [secured through Login & password](#).

The Enterprise Power Manager graphical interface has been tested with:

- Mozilla Firefox 2.0 & 3.0 (recommended for better performance)
- Microsoft Internet Explorer V 7 & 8

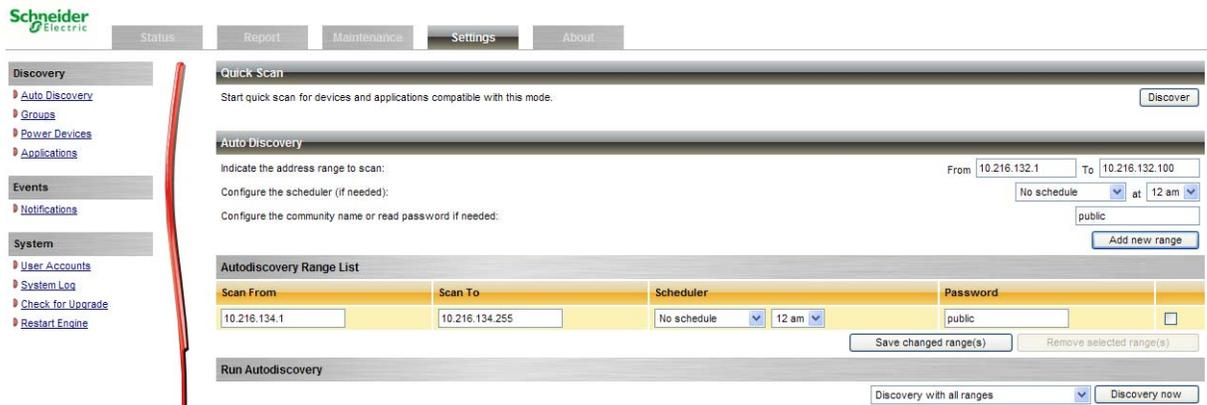
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2.2 Quick Start

To start device supervision in 5 minutes, please perform the following steps:

- Step 1 (Installation)**
 On a Windows 2000/XP (Home or Professional) / 2003 / Vista / 7 / 2008 machine, execute the "Enterprise Power Manager" package under an administrator account.
Note: If you use Windows XP Service Pack 2 or a Network Management System, please refer to the [pre-requisites](#).
- Step 2 (Configuration)**
 From the **Settings** -> **Auto discovery** page, click on the **Discover** button.
 With this quick scan operation, you will discover within a few seconds: Network Management and Network Shutdown Module.
 For the other devices, please perform the discovery based on IP address ranges



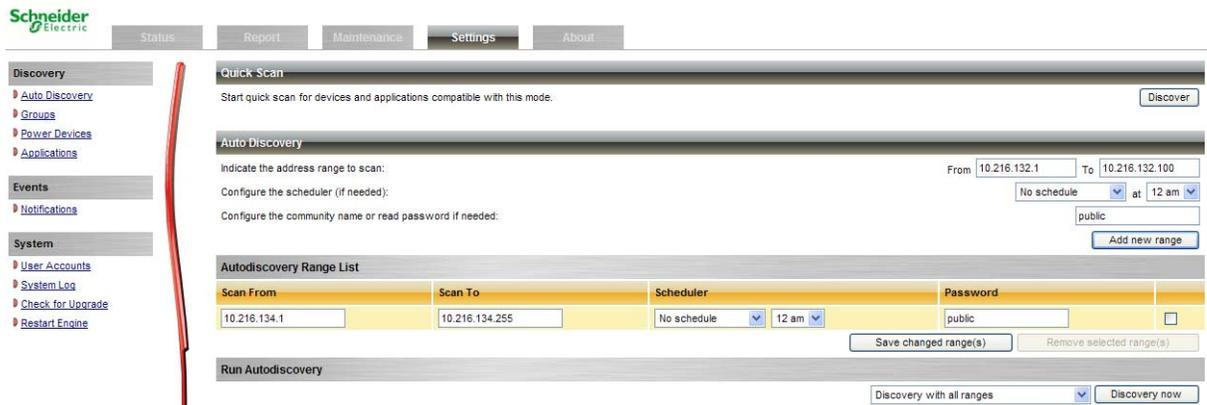
- Step 3 (Optional configuration recommended for large installations)**
 In the **Settings**-> **Groups** page, create one or several [power device groups](#).
 In the **Settings**-> **Power Device** page, [assign the discovered devices](#) to the previously created groups.
 In the **Settings**-> **User Accounts** page, [assign the access rights](#) through "login and password"
- Step 4 (Operation)**
 The **Status** tab allows you to supervise the current state of the [compatible power devices](#).
 The **Report** tab allows you to view the device events.
 For these 2 tabs, the left tree allows you to access information device by device or group by group.

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2.3 Installation Procedure

- Download the package from <http://www.apc.com> (select Download tab, and then Software menu item)
Or execute the software installer from CD-ROM containing the product
- Execute the package and follow the instructions.
At the end of the installation, your Web Browser is started with an HTML page for **Auto discovery** settings.



Auto Discovery window

2.3.1 Autodiscovery

Two possibilities are offered to you for network discovery:

- **First possibility:**
From the **Settings** -> **Auto discovery** page, click on the **Discover** button.
With this quick scan -> operation, you will discover the following devices and applications within a few seconds:
 - > Network Management Card
 - > Network Shutdown Module

Status	Device ID	Description	Location	Link
	10.216.132.69	Network Shutdown Module / Windows / 3.05	-	
	10.216.132.70	Network Shutdown Module / Windows / 3.05	-	
	10.216.135.158	Network Shutdown Module / Windows / 3.04	-	
	10.216.135.37	Network Shutdown Module / Windows / 3.05	-	
	172.16.1.31 [00-06-23-01-0D-AB]	Network Management Card & Modbus/Jbus / AC.build_6_0_3_3	Computer Room	
	hpseb (172.16.1.77)	Network Shutdown Module / Windows / 3.05	-	
	ups6f26 (172.16.1.40) [00-E0-D8-0D-6F-26]	Network Management Card Driver for STS	Computer Room	
	ups6f32 (172.16.1.42) [00-E0-D8-0D-6F-32]	Network Management Card / IA (SN 49ej45015)	Computer Room	
	ups6f37 (172.16.1.58) [00-E0-D8-0D-6F-37]	Network Management Card / IA (SN 49ej45020)	Computer Room	
	wxfrapcmge0115d (10.216.134.237)	//	-	
	wxfrapcmge0600l (10.216.134.229)	//	-	

Stop

Quick Scan window

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For the other devices, please perform the discovery based on IP address ranges (as explained hereafter)

- **Second possibility:**
From the **Auto discovery** page, enter the IP address range concerning the devices you want to monitor:
 - > enter the first IP address of the range in the **first** area
 - > enter the last IP address of the range in the **second** area
 - > click on **Add new range** button
 - > and click on **Discovery now** button (cf [Windows_SP2](#) Note)

Notes:

- A bar will be displayed to inform you about the progress of the discovery process. (cf [Windows_SP2](#) Note)
- You can enter several IP address ranges and start the auto-discovery on the selected range.
- You can assign a different community name to each IP range.

2.3.2 Configuration and Supervision

- Then 2 possibilities are offered to you:
 - > you can [create groups](#) and [assign devices to the group](#) (cf. 4. Settings chapter)
 - > or you can directly view **the "Enterprise Power Manager" main screen**. Click on the **Status** tab, and you will view the discovered devices.

2.3.3 Installation Result

- If you install a new EPM version without uninstalling the old one you will keep your database and your product information (number of nodes, ...)
- At the end of the installation, the following shortcuts are created in the Start/Programme menu.

Name	Description
 Enterprise Power Manager	Starts the main "Enterprise Power Manager" graphical interface
 Uninstall Enterprise Power Manager	Uninstalls the Program

- A service called « Acquisition engine» is also created for the Database Acquisition Engine. This program continuously polls the status of the devices connected on the network. This service automatically starts on machine bootup.
If for any reason this service is stopped, a Warning message (« Acquisition engine is stopped ») is displayed at the bottom of the main graphical interface. You can restart it from the Windows services or from the "Settings -> Restart Engine" window.
- A service called « Web Server» is also created and started.

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2.4 Uninstalling the Product

- From the **Add/Remove** programs item of the control panel, execute the "Enterprise Power Manager" package.
- You can also uninstall from the shortcuts:
Start -> Programs -> Enterprise Power Manager -> Uninstall
This will remove the database.

2.5 Upgrading the Product

Please refer to the [Checking for Upgrades](#) Paragraph.

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3 Settings

3.1 Configure Network Management Cards.

Each Network Management Card must have a valid IP address (or a DNS name) in the range that you have entered for auto-discovery. Refer to the list of [compatible power devices](#). "Enterprise Power Manager" automatically receives the alarms (through polling) without specific configuration on the cards or proxies.

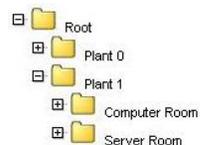
3.2 Enterprise Power Manager Settings

Start the "Enterprise Power Manager" main graphical interface from the previously created shortcut, then click on the **Settings** Tab.

3.2.1 Discover the Power Devices Connected on the Network

Please refer to the [Installation procedure](#)

3.2.2 Define Power Device Groups



When you have to monitor large configurations, it is interesting to define several device groups and then to assign the devices to these groups.

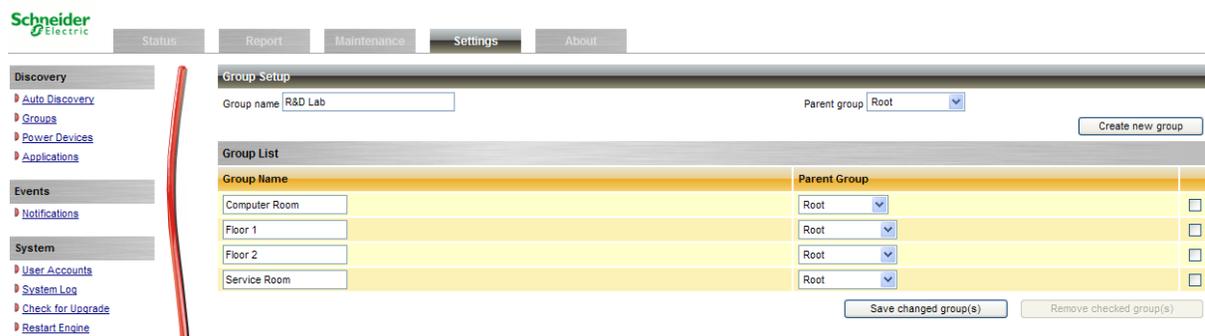
You can select any criteria you want in order to organize your devices (i.e. geographical, organizational, ..)

When you have to monitor large configurations, it is interesting to define several device groups and then to assign the devices to these groups.

You can select any criteria you want in order to organize your devices (i.e. geographical, organizational, ..)

From the **Settings** tab, select the **Groups** menu item, then perform these steps:

- in this page, enter any group name: e.g. "Server Room" ;
- select the parent group if you want a multi-level organization
- then click on "Create new group" ;
- Note: the created groups appear in this page, so that you can modify or remove them.

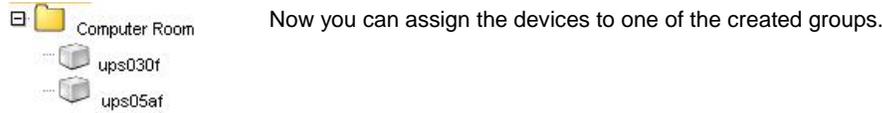


Groups window

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3.2.3 Assign the Power Devices to the Groups



From the **Settings** tab, select the **Devices** menu item, then perform these steps:

- assign each device of the **Device List** to one of the previously created groups;
- click on the **Save Changed Items** button to apply the modifications.



Power Devices window

Now if you go back to the **Status** Tab, you will notice that the left tree takes into account your configuration. Under **Root**, select "DataCenter" (only the DataCenter devices will be displayed).

Notes:

- From this screen, you can also modify the **Name** of the device and its **Location**. The modified values will be internal to the Enterprise Power Manager and will not be uploaded on the device.
- You have the possibility to remove the devices you don't want to monitor through the Enterprise Power Manager.
- A web link to the device is suggested.

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3.2.4 Applications



With "Enterprise Power Manager", the servers (or other computers) hosting a "Network Shutdown Module" application can be supervised.

- From this screen, application names (**Name**) can be changed. The new values will be internal to the Enterprise Power Manager software.
- Applications you do not wish to supervise with Enterprise Power Manager can be removed.
- A Web link to the equipment is proposed.
- Click on the **Save changed application(s)** button to save the changes.

The screenshot shows the 'Supervised Application List' window in the Enterprise Power Manager software. The window has a navigation menu on the left and a table of applications. A red arrow points to the 'Name' column of the table.

Status	Application ID	Name	Location	Powered by	Link	All
	10.216.132.89	NSM1	-	sswcard		<input type="checkbox"/>
	10.216.132.70	NSM2	-	172.16.2.103		<input type="checkbox"/>
	10.216.135.158	NSM3	-	172.17.34.34		<input type="checkbox"/>
	10.216.135.37	NSM4	-			<input type="checkbox"/>
	hpseb [172.16.1.77]	hpseb	-			<input type="checkbox"/>
	wxfrapcmge0115d [10.216.134.237]	wxfrapcmge0115d	-	10.216.134.33		<input type="checkbox"/>
	wxfrapcmge0600l [10.216.134.229]	wxfrapcmge0600l	-	10.216.134.33		<input type="checkbox"/>

Buttons at the bottom: **Save changed application(s)** and **Remove checked application(s)**

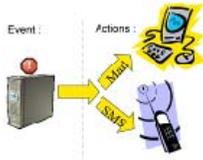
Application management window

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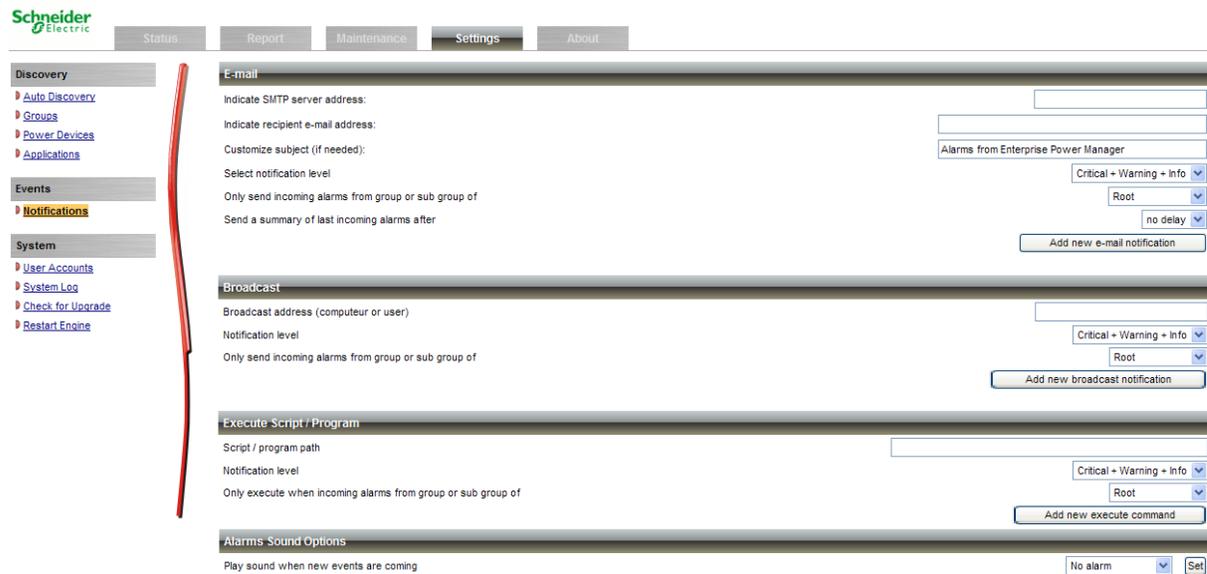
3.2.5 Configure Notifications

You can define the way users will be notified when device events happen.



From the **Settings** tab, select the **Notifications** item; the following channels are available:

- E-mail
- Broadcast
- Execute script/program
- Alarms Sound Options



Notifications window

Note on Notification Level parameter:

With this parameter, you can filter the notification according to the event level. Refer to the [event list provided hereafter](#). Note that if you select “Critical” as filter you will also receive the associated “Normal” event informing that the device status changes from “Critical” to “Normal”.

E-mail:

To receive emails on UPS events:

- you have to indicate the **SMTP server address** and **recipient e-mail address**;
- you can filter the email notification according to:
 - > the event level.
 - > the device group (the sub groups are also included);
- then you have to click on **Add new e-mail notification**.

For advanced use:

- you can **Customize subject** if you have to translate e-mail into SMS for example,
- you can specify that you want to receive a consolidation of the alarms that occurred during a delay that you can choose (if you specify **no delay**, each alarm will generate an e-mail)

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Broadcast:

To receive broadcast on UPS events (through Netsend command):

- you have to indicate the **recipient** (It can be either a Windows machine name or a user account);
- you can filter the broadcast notification according to:
 - > the event level
 - > the device group (the sub groups are also included);
- then click on **Add new broadcast notification**.

Note: Check that “Windows Messenger service” is started on the local and on the remote Windows machines. On Windows XP, Vista and 2003 it is not started by default.

Execute script/program:

To execute a program upon UPS events:

- you should firstly indicate its path;
- you can filter the program execution according to:
 - > the event level
 - > the device group (the sub groups are also included);
- then click on **Add new execute command**.

Note: The program is executed under SYSTEM account.

Alarms Sound Options:

To execute a sound alarm upon UPS events:

- you can filter the sound alarm according to the event level;
- then you have to click on **Set** button.

Note: These alarms are executed in the Web Browser context, so the Web browser has to be opened and pointing to a Web page of the Enterprise Power Manager.

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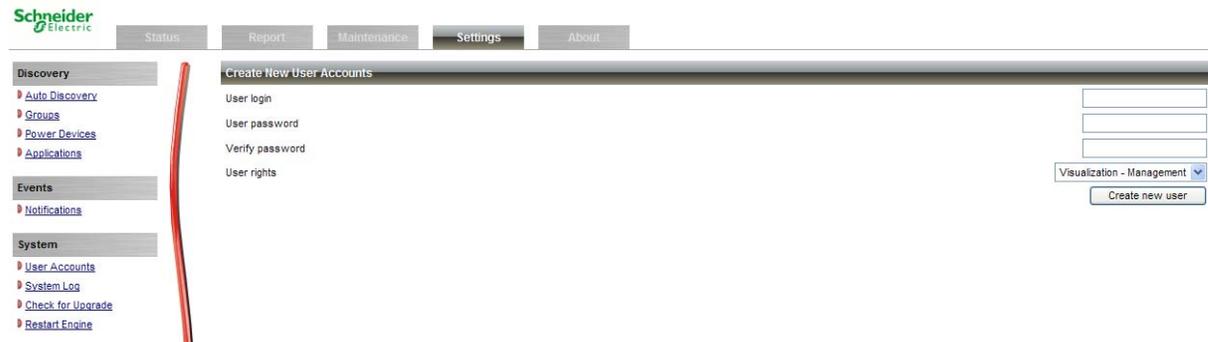
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3.2.6 Configure User Accounts

You can configure several user accounts.

From the **Settings** tab, select the **User accounts** item, then perform the following steps:

- enter the **User Login** and the **User password**:
- select the **User's Rights** level. The following levels are available:
 - > **Visualization – Management** (the user will be able to access all the tabs)
 - > **Visualization** (the user will only access the Status, Reports, Maintenance and About tabs)
- click on **Create new user** button



User Accounts window

Note: When you create user accounts with this interface, a “Logout” link appears in the right top section of the window. Use this link to exit from the application.

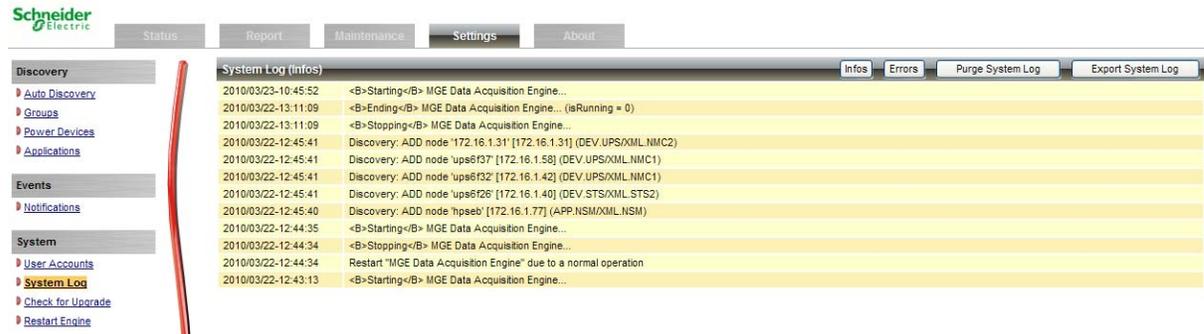
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3.2.7 Consult System Log

You can have access to the **Enterprise Power Manager** internal log to explain some unexpected behavior. With the **Export system log**, you can save this log data as a file (csv is a file format useable with Microsoft Excel).

From the **System** menu, select **System Log** to access the information:



System Log window

- **Advanced trace:**
We warn you against the use of disk space for this Trace mode.

To validate verbose mode :

- > in the **bin/dae** directory of the application, rename the file called **debugMode.off** into **debugMode.on**,
- > view the trace in the file called **traceDebug.txt** in the same directory.

To stop verbose mode :

- > in the **bin** directory of the application, rename the file called **debugMode.off** into **debugMode.on**,
- > restart the service Enterprise Power Manager - Acquisition engine.

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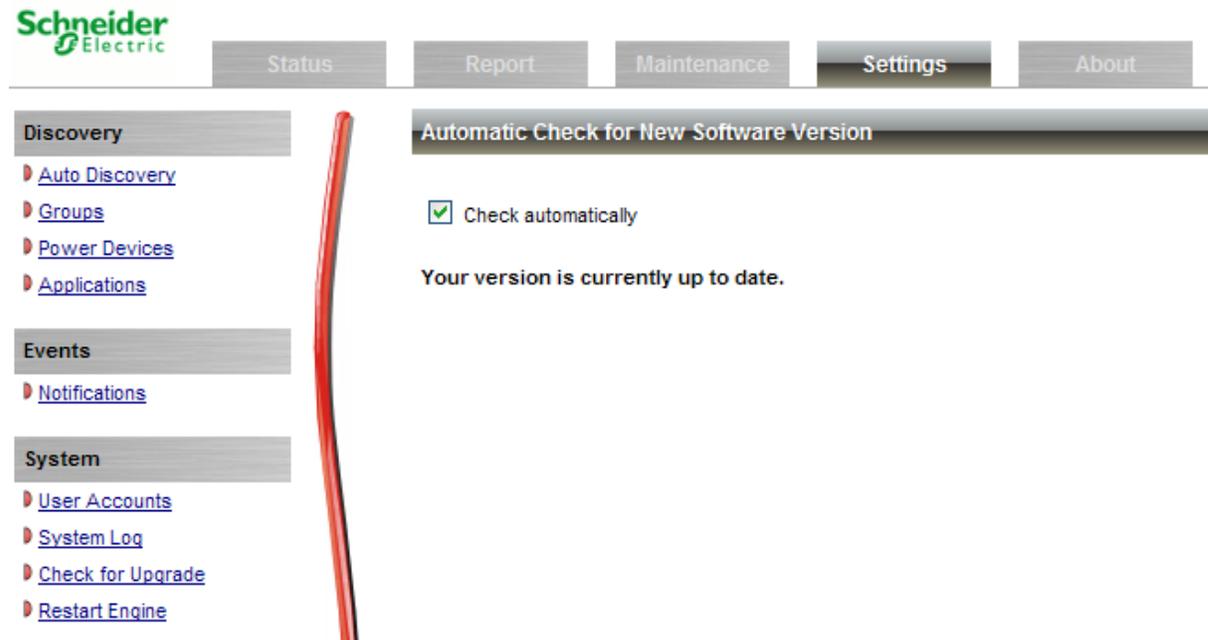
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3.2.8 Checking for Upgrades

This function gives you access to software updates.

Your Enterprise Power Manager will always be up to date if you select the **Check automatically** option. When a new software version is detected on APC Web Site, just follow the wizard instructions.

Note: You will keep database information with this operation



Check for upgrade window

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3.2.9 Restart Engine

With this function, you can remotely restart the Enterprise Power Manager acquisition engine. This function can be useful to detect device configuration changes or to reboot the acquisition Engine in case of any unexpected stop.



Restart Engine window.

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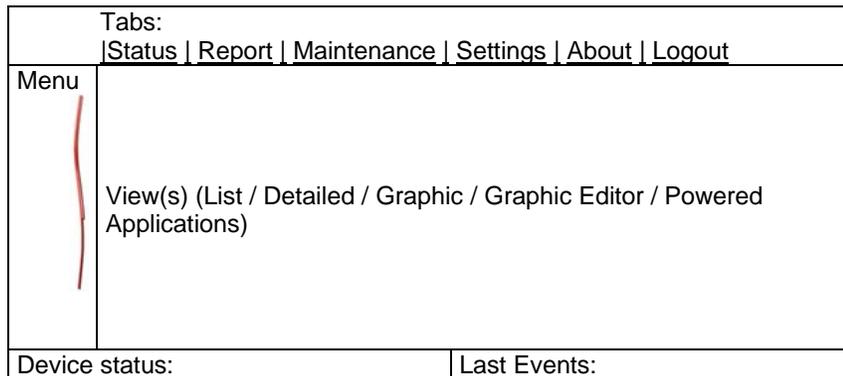
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4 Operation

4.1 Standard Supervision

4.1.1 Panel Organization

The supervision window is made of several areas as displayed below:



Menu area:

This menu is a tree with **Root** as base group that provides the following features to manage large configurations:

- from this area, you can filter the information access (should you have previously created groups and assigned the devices to these groups).

For example, if you select a specific group, only the devices assigned to this group (and sub groups) will appear in the **List View**; if you select a specific device, only the information relative to the selected device will appear in the **Detailed View**.

Note: once you have selected a device or a group in the Menu area, you can switch from tab to tab to view the Status, the Reports, the Maintenance information concerning the selected item. E.g. You can check the alarm list for a specific device group.

- the status severity is propagated to the parent group.
- if an icon is blinking, this means that new events have appeared that are not yet acknowledged. Once these events have been acknowledged, blinking stops.
Note: On some browsers, the animated pictures are disabled by default. You have to change this setting to view the icons blinking.

Devices status area: (always visible)

From this area, you have access to the following information:

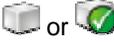
- status breakdown of the devices;
- clicking on one of the icons will change it (the  symbol is added). This means that we filter the access to the devices from this category. A device list view will be displayed when clicking on the icon.
The filter function disappears by clicking again on the  icon (the icon will disappear).

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Device icon severity:

The icon in the different views represents the severity status of the managed device.

Icon	device status
 or 	Normal. The status of the device is normal.
	Warning. A problem is active on the device. Your application is still protected.
	Critical. A serious problem occurs on the device. This problem requires an urgent action. Your application is NO LONGER protected.
	Communication lost between the card/proxy agent and Enterprise Power Manager . Or communication lost between the device and the Card.
	Not managed. Due to license limitation this device is not supervised (possible for 5 nodes or 50 nodes versions)

Last events area: (always visible)

From this area, you have access to the following information:

- breakdown of recorded events according to their severity;
- list of events with the same severity level when clicking on the icon.
- clicking on one of the icons will change it (the  symbol is added). This means that access to the events from this category is filtered. An Events list view will be displayed when clicking on the icon.
- The filter function disappears by clicking again on  icon (the icon will disappear).

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4.1.2 UPS Events list

The icons in the different views represent the event severity.

Icon	Event status
	<p>Normal. With this event, the device is coming back to a normal status.</p> <p>Event list:</p> <ul style="list-style-type: none"> • Communication with "Management Card Proxy" is restored • Maintenance task is done • The system is powered by the utility • The UPS output is on • Communication restored with UPS • Battery OK • UPS returns to normal load • UPS OK • Bypass : Return on UPS • End of low battery alarm • Communication failure with environment sensor • Communication restored with environment sensor • Humidity is in normal range • Temperature is in normal range • Input #1 closed • Input #1 opened • Input #2 closed • Input #2 opened
	<p>Warning. A problem occurred on the device. Your application is still protected.</p> <p>Event list:</p> <ul style="list-style-type: none"> • Maintenance operation is needed" • The system is powered by the UPS battery" • Output on automatic bypass • Output on manual bypass • Humidity is below low threshold" • Humidity is above high threshold" • Temperature is below low threshold" • Temperature is above high threshold"
	<p>Critical. A serious problem occurred on the device. This problem requires an urgent action. Your application might NOT BE powered anymore.</p> <p>Event list:</p> <ul style="list-style-type: none"> • UPS output is off • Battery fault • UPS overload • UPS fault • Low battery alarm • System shutdown in progress...
	<p>Communication lost between the card agent and the Enterprise Power Manager.</p> <p>Or communication lost between the device and the Card.</p> <p>Event list:</p> <ul style="list-style-type: none"> • Communication with "Management Card" has failed (Warning) • Communication failure with UPS (Warning)

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4.1.3 Access to the monitoring interface

To monitor devices already discovered on the network, start the main “Enterprise Power Manager” interface. You can access locally or remotely the same interface.

4.1.3.1 Local access

- From the system where the supervisor is installed, you can use the following shortcut:
Start -> Programs -> Enterprise Power Manager ->Enterprise Power Manager

4.1.3.2 Remote access

- From a remote machine, you can type the following URL in a Web browser
https://<name or IP address of computer hosting EPM>/PowerManager/
or
http://<name or IP address of computer hosting EPM>/PowerManager/

Note: The Web server is “case sensitive” for the URL

- In SSL mode, accept the certificate (by clicking on Yes)



Accepting the SSL Certificate

To install the certificate on IE7 for Vista, you need to perform the following steps:

- > Run IE as an administrator (Right-click the desktop icon)
- > Visit the EPM site.
- > Click through the certificate error
- > Click the "Certificate Error" button in the address bar.
- > Click View Certificate
- > Click Install Certificate
- > Unlike on XP, you must click the “Place all certificates in the following store” radio button, and choose the “Trusted Root Certification Authorities” store. If you don’t do this, the certificate goes in your personal store, and it isn’t trusted by IE.

- Enter the Login and Password (optional)
- Select the **Status** tab, and the following page appears:
(If you select in the menu a group icon, a list view appears. If you select in the menu a device Icon, a detailed view appears)

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4.1.4 List view



Status	Name	Power Device Name	Location	Group	Load level	Link
UPS	UPS	MGE Galaxy 7000 UPS 400 kVA	Computer Room	Computer Room	50 %	
ups6f26	ups6f26	MGE Upslon STS	Computer Room	Floor 1	0 %	
ups6f32	ups6f32	GALAXY 5000 40 kVA	Computer Room	Floor 2	0 %	
ups6f37	ups6f37	Galaxy 3000 15 kVA	Computer Room	Root	0 %	

The following UPS information is displayed in this page:

- Status this icon represents the severity of the monitored device;
- Name the IP address (or the DNS name)
- Product name the device product name
- Location the device location (value of syslocation object or value configured in Device page)
- Group the group assigned to the device
- Load Level the output level of the device
- Link link to the device Web site (if available)

Note: You can sort your device list by clicking on the column titles (Status / Name / Product Name/ Location / Group / Load Level)

A second click will reverse the sorting order.

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4.1.5 Detailed view:

- Select one of the device in the left menu and the following “detailed view” page appears:

The screenshot shows the Enterprise Power Manager interface. On the left is a tree view of the device hierarchy. The 'UPS' device is selected under 'Computer Room'. The main area displays a photograph of the UPS unit and a table of its configuration and status. A red line highlights the 'UPS' device in the left menu.

Power Device	MGE Galaxy 7000 UPS 400 kVA
IP address	172.16.1.31
Link	Link
Location	Computer Room
Contact	Computer Room Manager
Group	Computer Room
Serial Number	1YG13023
Status	
Communication	OK
Power source	AC power
Battery	Charging
Output	Master: On
Values	
Output load level	<div style="width: 50%;"><div style="background-color: green; width: 100%; height: 10px;"></div></div> 50 %
Battery capacity	<div style="width: 97%;"><div style="background-color: green; width: 100%; height: 10px;"></div></div> 97 %
Remaining backup time	00 h 30 min 00 s

Power Device status: 1 0 3 0 Last events: 3

UPS Detailed View.

The following device information is displayed in this page:

- the DNS name (or IP address) is displayed near this icon
- Device the commercial product name
- IP address the IP address of the device
- Link link to the device Web site (if available)
- Location the device location (value of syslocation object or can also be configured in the Device page)
- Contact the device contact (value of syscontact object or can also be configured in the Device page)
- Group the group assigned to the device (Clicking on the Icon will display the group list view)
- Serial Number The device Serial Number (if available)

Status

- Communication Device communication status (OK / Network Communication Failure / device Communication Failure)
- Power source AC Power / Battery
- Battery Charging / Discharging / Need Replacement
- Output Main output status (ON/OFF/Internal Failure/On Automatic Bypass/Manual By Pass/Overload)

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Values

- Output Load Level the output load level of the device
- Battery capacity Battery capacity of the device
- Remaining backup time the device remaining backup time

Environment: Environment Sensor (optional)

- Temperature Sensor temperature (in °C)
- Humidity Humidity level
- Input #1 Status of first contact (open / closed)
- Input #2 Status of second contact (open / closed)

Note that this view is impacted when any device status is affected,

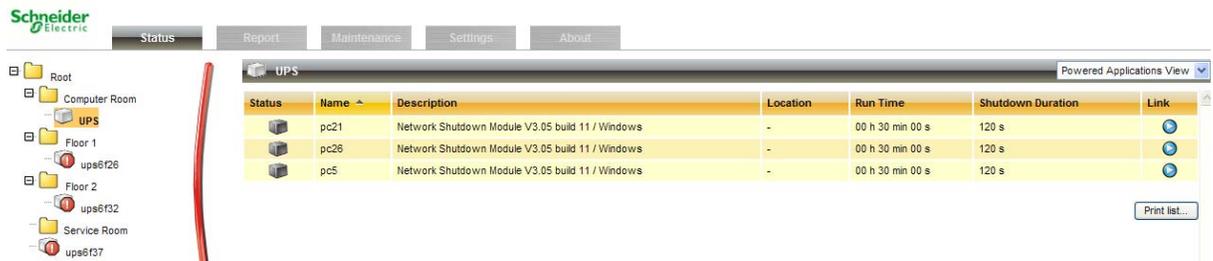
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4.1.6 Powered Applications View

Selecting **Powered Applications View** from the scroll down list at the top right of the screen displays a list of computer servers:

- powered by a UPS of the selected group
- and hosting a Network Shutdown Module module



The following information appears in this page:

- **Status** This icon represents the [status criticality](#) of the server.
- **Name** Value configured in the [Applications](#) screen (by default this is an IP address or a DNS name).
- **Description** Machine operating system.
- **Run time** Operating time in the event of a utility supply loss.
- **Shutdown duration** Duration, in seconds, needed by the system to carry out its shutdown procedure.
- **Link** Link to the Web supervision interface of the Network Shutdown Module module.

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4.2 Customized Graphic View

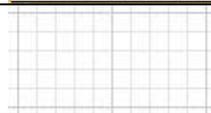
4.2.1 Introduction

This simple and very powerful representation mode lets you create electrical supervision diagrams using a Web browser. Here you will find [graphic view examples](#).

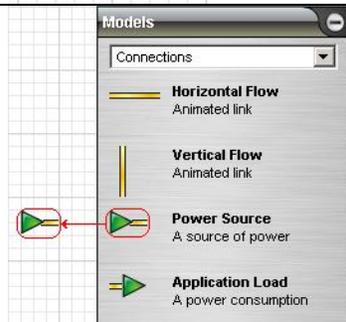
4.2.2 Steps for creating a "first" Graphic View



- Select a UPS group from the menu in the left zone of the screen.
- From the scroll down list (at the top right of the screen) change from **List View** to **Graphic View Editor**.



When in [Graphic View Editor](#) mode, a grid appears on the screen background to help you position the graphic objects.

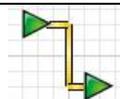


From the **Models** tool box, select a category of graphic objects. e.g. select the **Connections** objects.

In this section there are:

- horizontal electrical flows
- vertical electrical flows
- power sources
- application loads

From the tool box, use the mouse to select the graphic objects (one after the other) and drag and drop them onto the grid.



You are now able to create the following first diagram:
"A source electrically powers a load."



To remove objects from the diagram:

- select the graphic objects using the mouse (one after the other)
- drag them into the **Garbage** tool box
- the object is deleted as soon as it is dropped

Note: Double-clicking on the garbage-can deletes the entire view.

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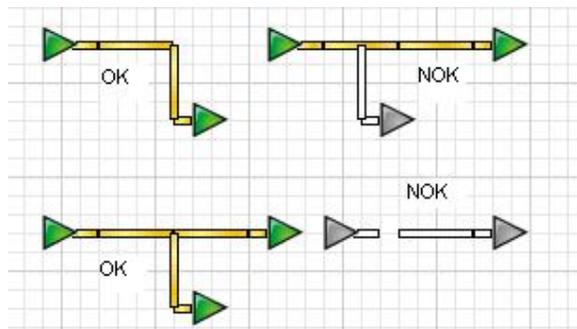
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4.2.3 Connecting and moving Flows

In **Graphic View Editor** mode, the mouse cursor changes shape depending on where it is positioned on the flow:

	The flows (horizontal or vertical) can be moved when picked-up in the middle. Cursor shape for a "Move" operation.
	The flows (horizontal or vertical) can be stretched when picked-up at their ends. Cursor shape for a "Stretch" operation.

Important Note: Flows can only be connected together at their ends. To help in detecting incorrect connections, a segment that is only connected at one end is white (instead of yellow).



Examples of correct and incorrect connections

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4.2.4 Build and use a supervision diagram

- The **Graphic View** supervision mode allows the diagram to be used (in **Graphic View Editor** mode).
- The **Graphic View Editor** mode allows an electrical supervision diagram to be built, changed or customised:



To go to "Graphic View Editor" mode:

From the scroll down list (at the top right of the screen) change from **List View** to **Graphic View Editor**.



In the **Graphic View Editor mode**, this grid appears on the screen background to help you position the graphic objects:

The positions of objects on the diagram are saved as it is built-up (warning: it is not possible to return to a previously saved version of your diagram).



To quit "Graphic View Editor" mode:

From the scroll down list (at the top right of the screen) change from **Graphic View Editor** to **Graphic View**.

In **Graphic View Editor** mode, the three tool boxes (**Models**, **Properties** and **Garbage**) appear. In **Graphic View Editor** mode, you can:

- create new objects in the Graphic View by dragging-dropping from the [Models tool box](#)
- [Allocate a "Name" \(or IP address\)](#) to a device using the Properties tool box
- [Insert a background image](#) using the Properties tool box
- move graphic objects (to [connect electrical flow objects](#) for example)
- [Remove graphic objects](#) from the card

Notes:

- By using the mouse, the three tool boxes (Models, Properties and Garbage) can be moved to a zone of your choice (drop & drag operation).
- The size of these boxes can be minimized and maximized by clicking in the -/+ zone of the title bar.

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4.2.5 Graphic objects in the Models tool box



The following graphic objects are available in the Models tool box:

- **Power Devices icons:**



Generic icon for a power device contained in the Enterprise Power Manager [compatibility list](#) (UPS, Static Transfer Switch, Switch PDU, Midspan, etc).

This macroscopic icon provides:

- device status and name
- access to the last view selected for the equipment (Detailed View or Graphic View)



Graphic icon (small size) for a power device (UPS only). This representation provides:

- device status and name
- device graphic
- the electrical connections
- access to the last view selected for the equipment (Detailed View or Graphic View)



Graphic icon (large size) for a power device (UPS only). This representation provides the same information as the icon above.

- **Applications:**



Graphic icon for a computer server with single-input power supply.

This representation provides:

- the name and [status of the server](#) hosting a Network Shutdown Module
- server graphic (**)
- the electrical connections (power supply)
- a link to the supervision interface



Graphic icon for a computer server with dual input power supplies.

This representation provides:

- the name and [status of the server](#) hosting a Network Shutdown Module V3

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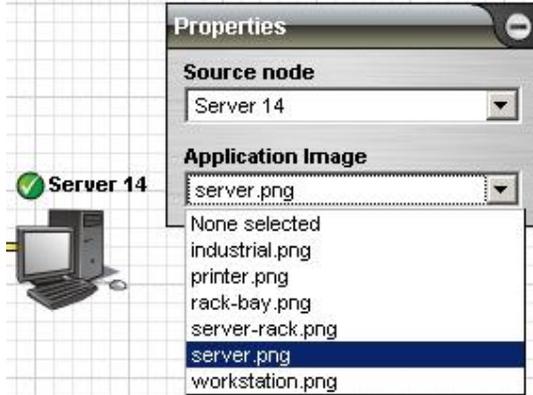
- server graphic (**)
- the electrical connections (**two** power supplies)
- a link to the supervision interface



Graphic icon for an "industrial process" type critical application
This representation provides:

- a representation of a "Network Shutdown Module" type application **without** communication module
- the possibility of customizing the application name or application graphic (**) using the **Properties** tool box

Note ():** The graphic representation of one of these applications can be changed by selecting the application and then choosing another image from the **Properties** tool box.



Changing server graphic representation

- Electrical **Connections:**



Electrical flow icon (horizontal or vertical).
This object can have [different status](#).



Electrical power source. This object can have [different status](#).



Electrical load. This object can have [different status](#).

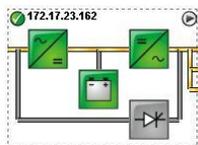
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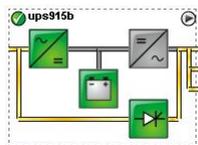
- **Block diagrams for single-phase products:**

This representation allows the following to be displayed:

- current flow in the device
- the [different status](#) of each module (by colour code)
- single-phase [electrical measurements](#) associated with each module



Block diagram of a single-phase On-Line UPS with 1 incoming supply.



Block diagram of a Line Interactive or Off-Line UPS with 1 incoming supply.

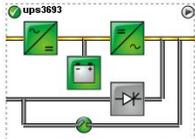
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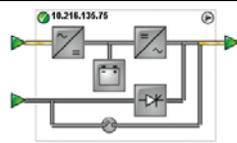
- **Block diagrams for three-phase products** (UPS and Static Transfer Switch):

This representation allows the following to be displayed:

- current flow in the device
- the [different status](#) of each module (by colour code)
- three-phase [electrical measurements](#) associated with each module (except for STS)



Block diagram of a three-phase UPS with 2 incoming supplies.



Block diagram for MGE Galaxy 7000 with 2 incoming supplies:
Only when UPS is in "Power Saving mode (PSM) in progress" (standby redundant UPS)

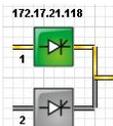
This representation allows the display:

- ⊖ current flow in the UPS
- ⊖ electrical measurements (three phase) associated with each module

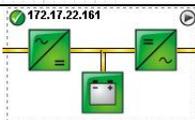
Labels EPM:

- ⊖ "UPS running in Power Saving Mode"
- ⊖ "End of Power Saving Mode"

Note: Contact Software support to get PSM compatibility



Block diagram of a three-phase source changeover device - "Static Transfer Switch".



Block diagram of a three-phase UPS with 1 incoming supply



Block diagram for MGE Galaxy 7000 with 1 incoming supply:
Only when UPS is in "Power Saving mode (PSM) in progress" (standby redundant UPS)

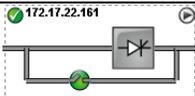
This representation allows the display:

- ⊖ current flow in the UPS
- ⊖ electrical measurements (three phase) associated with each module

Labels EPM:

- ⊖ "UPS running in Power Saving Mode"
- ⊖ "End of Power Saving Mode"

Note: Contact Software support to get PSM compatibility

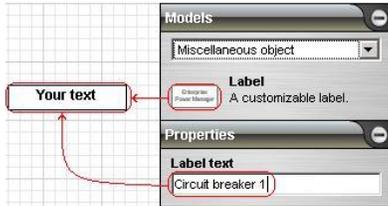


Block diagram of a Static Switch Cabinet

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Miscellaneous objects:



To add customized labels to your graphic view, proceed as follows:

- take the graphic object **Label** and drag it to the graphic view
- select the object
- select the text using the **Properties** tool box
- this text is updated in the box when the "Enter" key is pressed or when another object is selected
- Note: the box can be re-sized

Note: In **Graphic View** supervision mode, two types of Web links are proposed:



External link to the power device or application Web server

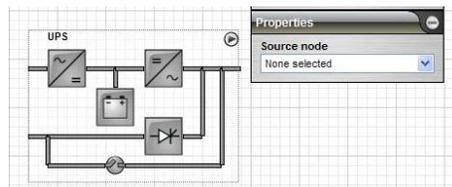
Link in the supervisor to the last selected equipment view (Detailed View or Graphic View)

4.2.6 Allocating a "name" to a "Power Device" or an "Application"

When in [Graphic View Editor](#) mode for a card, a "Name" must be allocated to each graphic object representing a Power Device or an Application (computer server hosting a Network Shutdown Module).

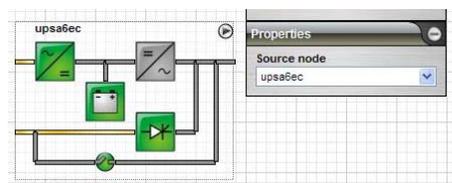
Note: this "Name" is the value configured in the [Power devices](#) or [Applications](#) screens (by default this is an IP address or DNS name).

Proceed as follows:

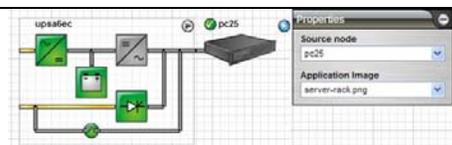


In the **Models** tool box:

- select a category, and then a graphic
- using the mouse, drag and drop the object onto the grid



- click on the graphic object
- the **Properties** tool box is refreshed with the object properties
- select a name from the scroll down list
- the object is updated with the object's real properties (Status, Device Name, etc)



To finalize the diagram:

- from the **Models** tool box, select **Applications**
- drag a server object onto the card and connect it electrically to the UPS
- allocate a "name" to the computer server
- insert a [background image](#)
- go to [Graphic View Supervision](#) mode

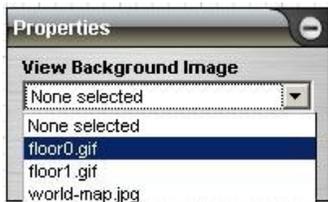
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4.2.7 Inserting a background image

When in [Graphic View Editor mode](#) on the card, you are able to import a background image.

Proceed as follows:



- click on the screen background grid
 - the **Properties** tool box is refreshed with the object properties
 - select an image from the scroll down list
 - the result is displayed on the screen background
-



- use a design software to create your own background image (gif, jpg, etc format) suitably sized for your supervision screen
For a 1280x1024 screen (**recommended**), image size is 1000x700
For 1280x1024 => image 760x460
 - click on the **Upload** button and add the new image file to the list using the selection box
 - select this new image from the scroll down list
-

- Go to [Graphic View Supervision](#) mode
-

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4.2.8 Examples of Graphic Views

You can make up your own supervision interface using the following graphics tools:

- [graphic objects](#) to represent UPSs, applications, flows, etc
- [background image](#)

Here are several examples of customized representations ranging from a macroscopic view of UPSs to a detailed electrical view.

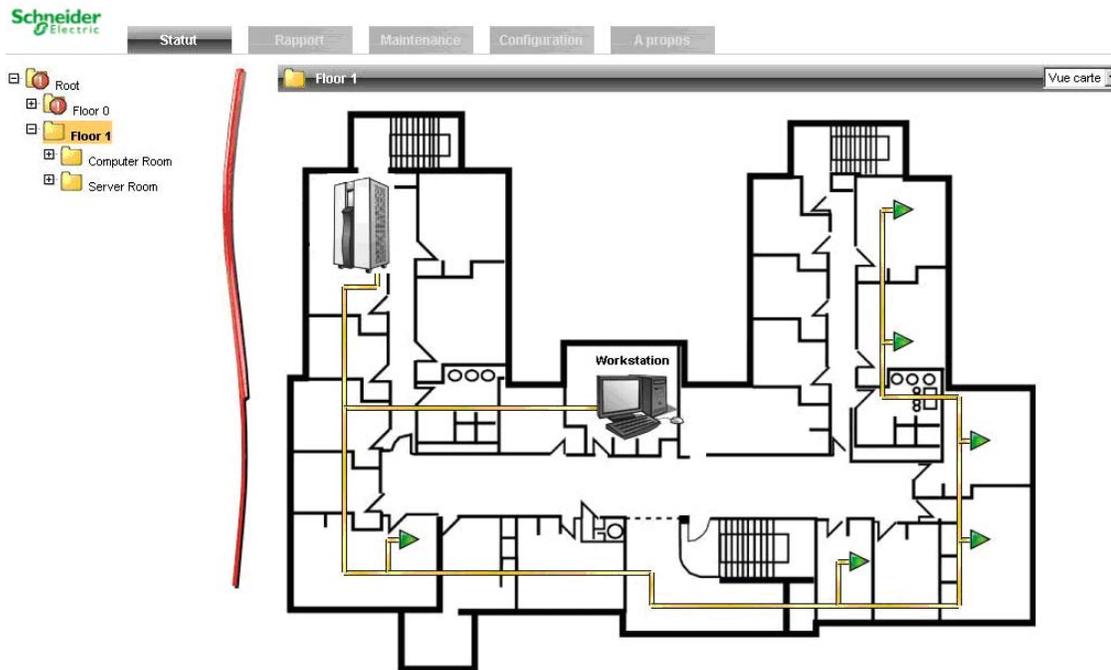


Example 1: UPS "Macroscopic" view

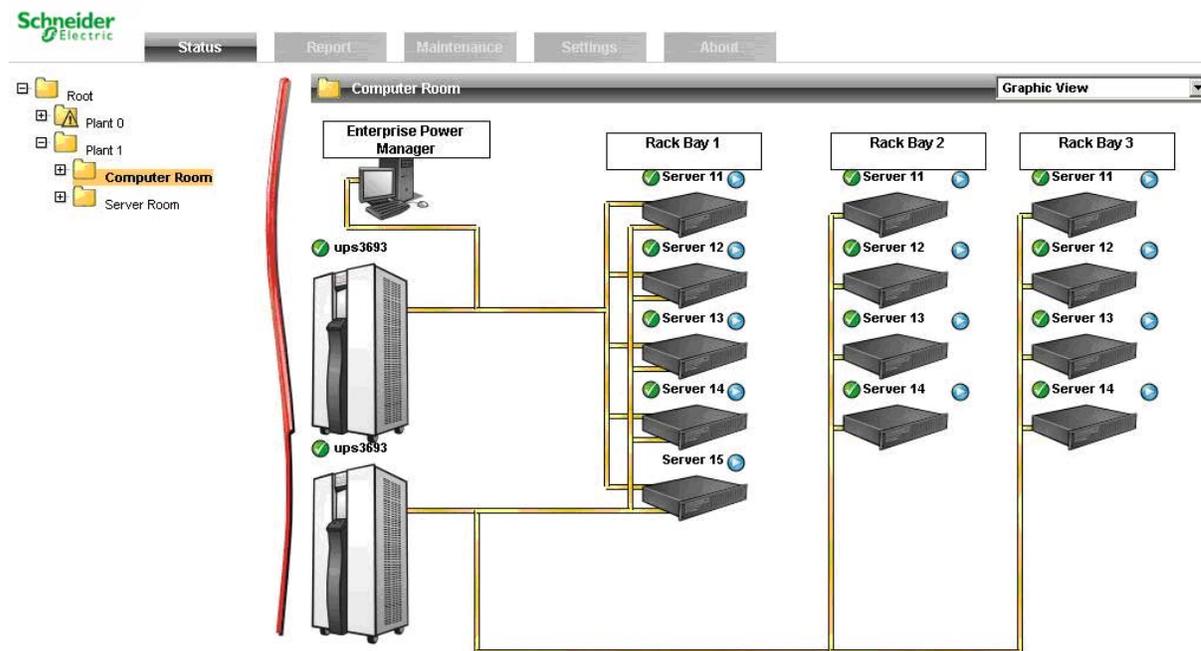
Note: A "macroscopic" view can be created in the "root" group. In a lower level group, a more detailed view can be created with the same UPSs, as shown in the following examples:

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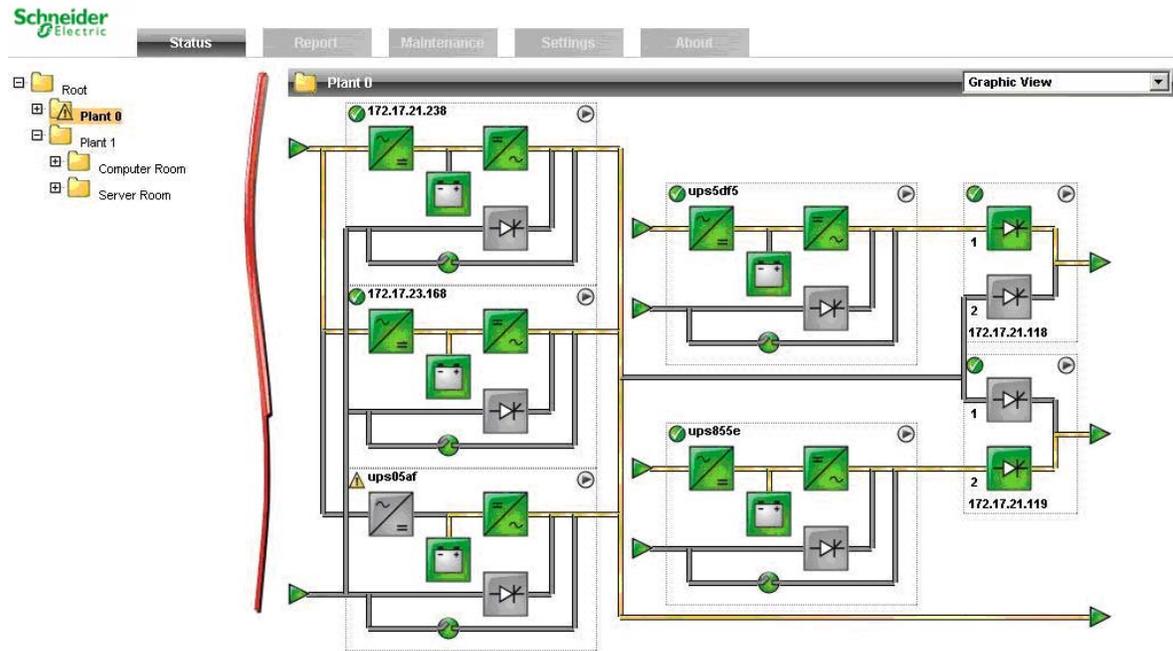
Example 2: Intermediary customized view (floor drawing with building electrical distribution diagram)



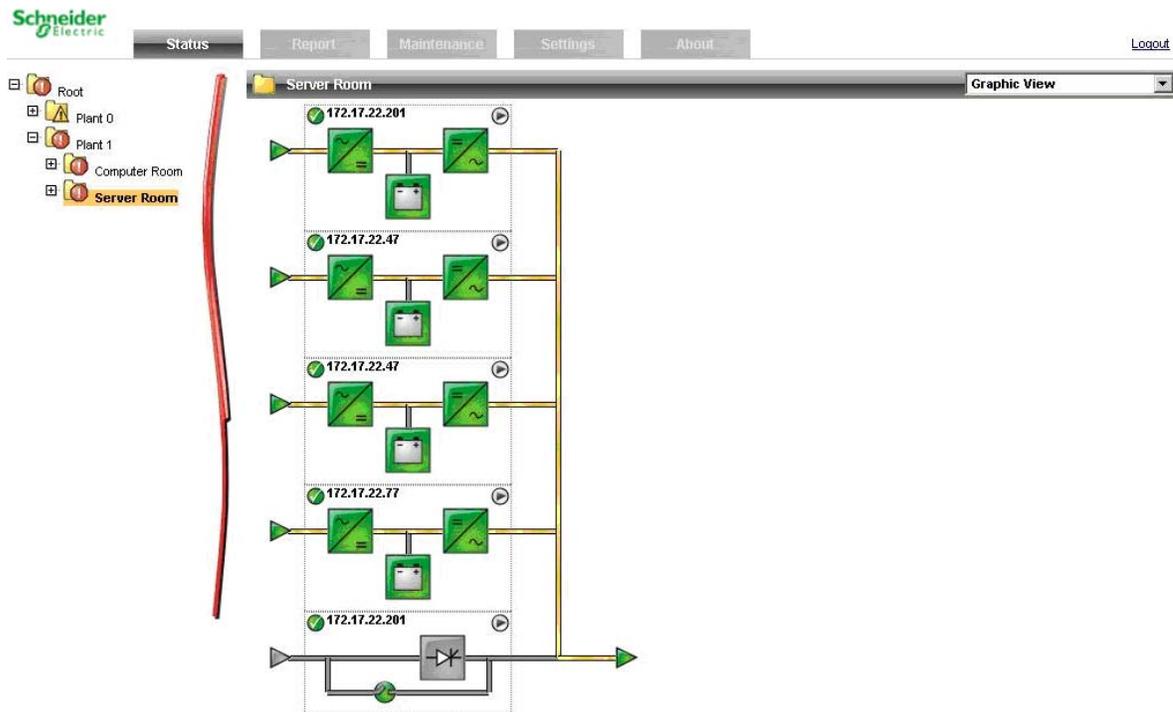
Example 3: Customized view of a computer room

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Example4: Customized detailed electrical view



Example5: Customized detailed electrical view

This screen allows the following to be displayed:

- status of device modules using [colour codes](#)
- current flows in the electrical diagram
- [electrical measurements](#) of each module

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4.2.9 Electrical measurements of each module

When the mouse passes over a UPS module, the following contextual window appears. It automatically disappears when the mouse is moved to another area. By double-clicking on a module, the window is permanently displayed and its background colour changes. By double-clicking again on the module in question, the window returns to its original status (displayed as the mouse passes over it).

For three-phase UPSs, the following measurements are available for:

- The Normal AC input module

Normal AC Measures on 'ups5df5'			
Voltage	399.0 V	400.0 V	401.0 V
Current	0.0 A	0.0 A	0.0 A
Frequency			50.0 Hz

- The output module

Output Measures on 'ups5df5'			
Output load level			84 %
Active Power			18 kW
Apparent Power			24 kVA
Power Factor			0.77
Voltage	400.0 V	401.0 V	402.0 V
Current	30.0 A	31.0 A	32.0 A
Frequency			51.0 Hz

- The battery

Battery Measures on 'ups5df5'			
Remaining capacity			100 %
Remaining time		00 h 15 min 15 s	
Voltage			321.0 V
Temperature			23 °C

- The By-Pass AC module

Bypass AC Measures on 'ups5df5'			
Voltage	402 V	403 V	404 V
Current	2.9 A	3.0 A	3.1 A
Frequency			52.0 Hz

For single-phase UPSs, the above measurements are only available for a single phase.

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4.2.10 Server supervised data

When the mouse passes over the icon of a server hosting a Network Shutdown Module, the following contextual window appears. It automatically disappears when the mouse is moved to another area. By double-clicking on the server icon, the window is permanently displayed and its background colour changes. By double-clicking again on this server, the window returns to its original status (displayed as the mouse passes over it).

Status	Application is protected Protected sources: 1 + 1 redundant(s)
Description	Windows
Software	Shutdown Module
<hr/>	
Autonomy	00 h 24 min 42 s
Source	ups049e ups2853

Supervised data of a Network Shutdown Module

The **Status** can have the following values:

Icon	Signification
	Application protected (normal status)
	Application Not Protected (e.g. the UPSs feeding the application are in By-Pass mode)
	Loss of redundancy (e.g. the number of redundant UPSs is less than the desired one)
	Loss of communication (between the "Enterprise Power Manager" and the "Network Shutdown Module")

4.2.11 Colour codes for each module

- UPS modules:

AC/DC	DC/AC	By-Pass or STS module	Colour	Description
			Green	Status OK & Active
			Red	Internal fault & Inactive
			Grey	Status OK & Inactive or Unknown

- Battery module:

Symbol	Colour	Description
	Green	Status OK
	Orange	Battery charge is less than 50%
	Red	Battery fault or End-of-backup or End-of-battery-service-life pre-alarm
	Grey	Battery status unknown

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- Electrical flows:

Symbol	Colour	Description
	Yellow	Current flow through the cable Note: the object animation gives the direction of current flow
	Grey	No current flow through the cable (voltage may be present)
	White	Object not connected at one of its ends This "abnormal" status provides help to detect connection errors in the electrical diagram.

- Electrical power source at UPS input:

Symbol	Colour	Description
	Green	Source powered. Status OK
	Grey	Source not powered or status unknown

Examples of combinations between flow status and power source status:

	Green/ Yellow	The electrical power source is powered and provides electrical flow
	Green/ Grey	The electrical power source is powered and does not provide electrical flow
	Grey/ White	Power source not powered or status unknown and electrical flow not connected.

- Load at UPS output: (its status is linked to that of the UPS output status)

Symbol	Colour	Description
	Green	Load powered and protected. Status OK
	Red	Load not powered
	Grey	Load status unknown

Examples of combinations between flow status and load status:

	Yellow/ Green	Load powered and protected
	Grey/ Red	Load not powered
	White/ Grey	Load not powered or status unknown and electrical flow not connected

- Switches:

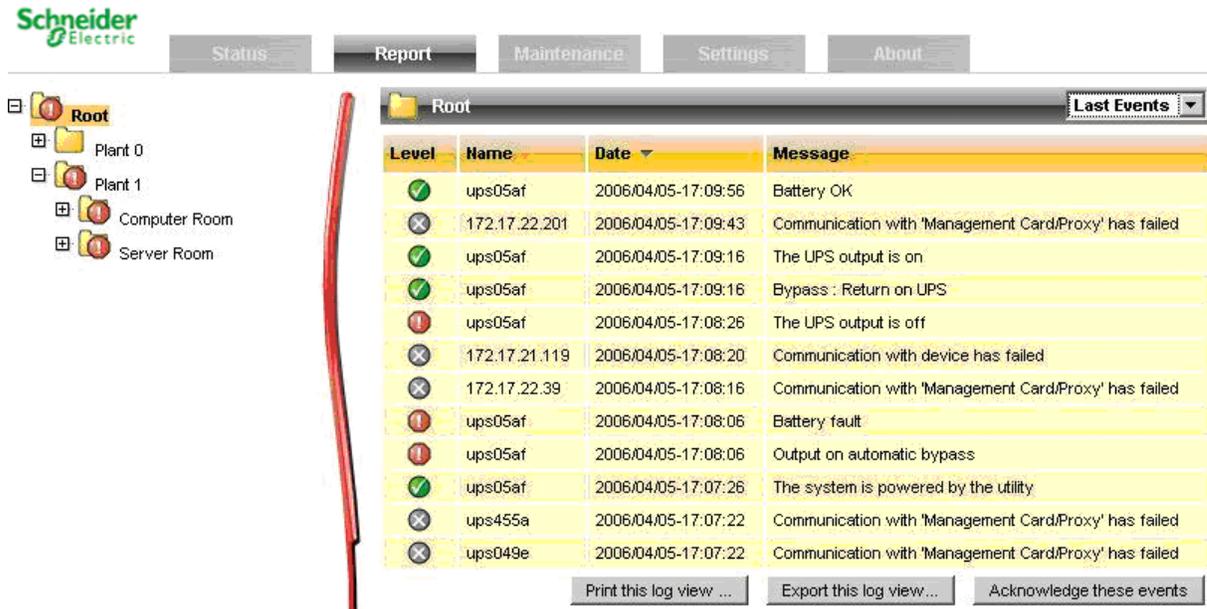
Symbol	Colour	Description
	Green/ Yellow	Closed with current flowing through it (Status "normally closed")
	Green/ Grey	Closed with no current flowing through it (Status "normally closed")
	Red/Grey	Open with no current flowing through it (Status "normally closed")
	Green/ Grey	Open with no current flowing through it (Status "normally open")
	Red/ Yellow	Closed with current flowing through it (Status "normally open")
	Red/Grey	Closed with no current flowing through it (Status "normally open")
	Grey/Grey	Unknown

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4.3 Last Events / History / Statistics

Select the **Report** tab, then **Last Events Log** and the following page appears:



Level	Name	Date	Message
✓	ups05af	2006/04/05-17:09:56	Battery OK
✗	172.17.22.201	2006/04/05-17:09:43	Communication with 'Management Card/Proxy' has failed
✓	ups05af	2006/04/05-17:09:16	The UPS output is on
✓	ups05af	2006/04/05-17:09:16	Bypass : Return on UPS
!	ups05af	2006/04/05-17:08:26	The UPS output is off
✗	172.17.21.119	2006/04/05-17:08:20	Communication with device has failed
✗	172.17.22.39	2006/04/05-17:08:16	Communication with 'Management Card/Proxy' has failed
!	ups05af	2006/04/05-17:08:06	Battery fault
!	ups05af	2006/04/05-17:08:06	Output on automatic bypass
✓	ups05af	2006/04/05-17:07:26	The system is powered by the utility
✗	ups455a	2006/04/05-17:07:22	Communication with 'Management Card/Proxy' has failed
✗	ups049e	2006/04/05-17:07:22	Communication with 'Management Card/Proxy' has failed

Last Alarm list for the devices of your network area.

You can supervise following events:

- the [UPSs](#)
- the [Network Shutdown Module](#)
- the [Static Transfer Switch](#)
- the [Midspan & PowerDsine](#)
- the [Switch PDU](#)
- the [Rack Monitoring Systems](#)

All the new alarms recorded for the selected device or for the selected group are stored in this log.

You can sort out the alarms according to the **Level**, the **Name**, the **Date** or the **Message**.

You have access to these 3 functions:

- **Print this log view ...** prints this information
- **Export this log view ...** saves this log data in a file (csv is a file format useable with Microsoft Excel).
- **Acknowledge event(s)** removes events displayed on this view. This operation updates the **Last events** count; now these events can be viewed from the History view

Note:

- "Print" and "Acknowledge" functions will be performed on the 1000 last events
- If more than 1000 Non-Acknowledged events are stored, the "Acknowledge all Events" additional button appears. This button is used to acknowledge non-displayed events.

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History selection in the Combo box displays the Acknowledged and the non-Acknowledged events (see next Window);

All the events recorded for the selected device or for the selected group are stored in this log.

The screenshot shows the 'History' view for 'Plant 0'. The table below represents the data shown in the interface:

Level	Name	Date	Message	Checkmark
✓	ups05af	2006.04/05-17:09:56	Battery OK	
✓	172.17.21.238	2006.04/05-17:09:18	Battery OK	☑
✓	172.17.21.238	2006.04/05-17:09:18	The UPS output is on	☑
✓	172.17.21.238	2006.04/05-17:09:18	Bypass : Return on UPS	☑
✓	ups05af	2006.04/05-17:09:16	The UPS output is on	
✓	ups05af	2006.04/05-17:09:16	Bypass : Return on UPS	
⊘	172.17.21.238	2006.04/05-17:08:28	Output on automatic bypass	☑
⊘	ups05af	2006.04/05-17:08:26	The UPS output is off	
⊘	172.17.21.119	2006.04/05-17:08:20	Communication with device has failed	
⊘	172.17.21.238	2006.04/05-17:08:08	Battery fault	☑
⊘	172.17.21.238	2006.04/05-17:08:08	The UPS output is off	☑
⊘	ups05af	2006.04/05-17:08:06	Battery fault	
⊘	ups05af	2006.04/05-17:08:06	Output on automatic bypass	
✓	ups05af	2006.04/05-17:07:26	The system is powered by the utility	
⊘	ups5df5	2006.04/05-17:07:22	Communication with 'Management CardProxy' has failed	☑
⊘	172.17.21.118	2006.04/05-17:06:54	#reports.sts.events/STS.PowerSummary.PresentStatus.Good.0#/	☑

History view for the selected devices of your network area.

The **Statistics** selection in the Combo box displays power event statistics (see next screen); The statistics view applies to the selected device or to the selected group.

The screenshot shows the 'Statistics' view for 'Root'. The table below represents the data shown in the interface:

Power analysis		Last day	Last week	Last month	Last year
Power failure		365	2242	2242	2242
UPS overloads		0	0	0	0
UPS output off		1103	6693	6693	6693
UPS output on automatic bypass		1102	6688	6688	6688
Fault		Last day	Last week	Last month	Last year
Battery fault		1100	6691	6691	6691
UPS fault		0	1	1	1
Network communication fault		8	22	22	22
UPS communication fault		4	13	13	13

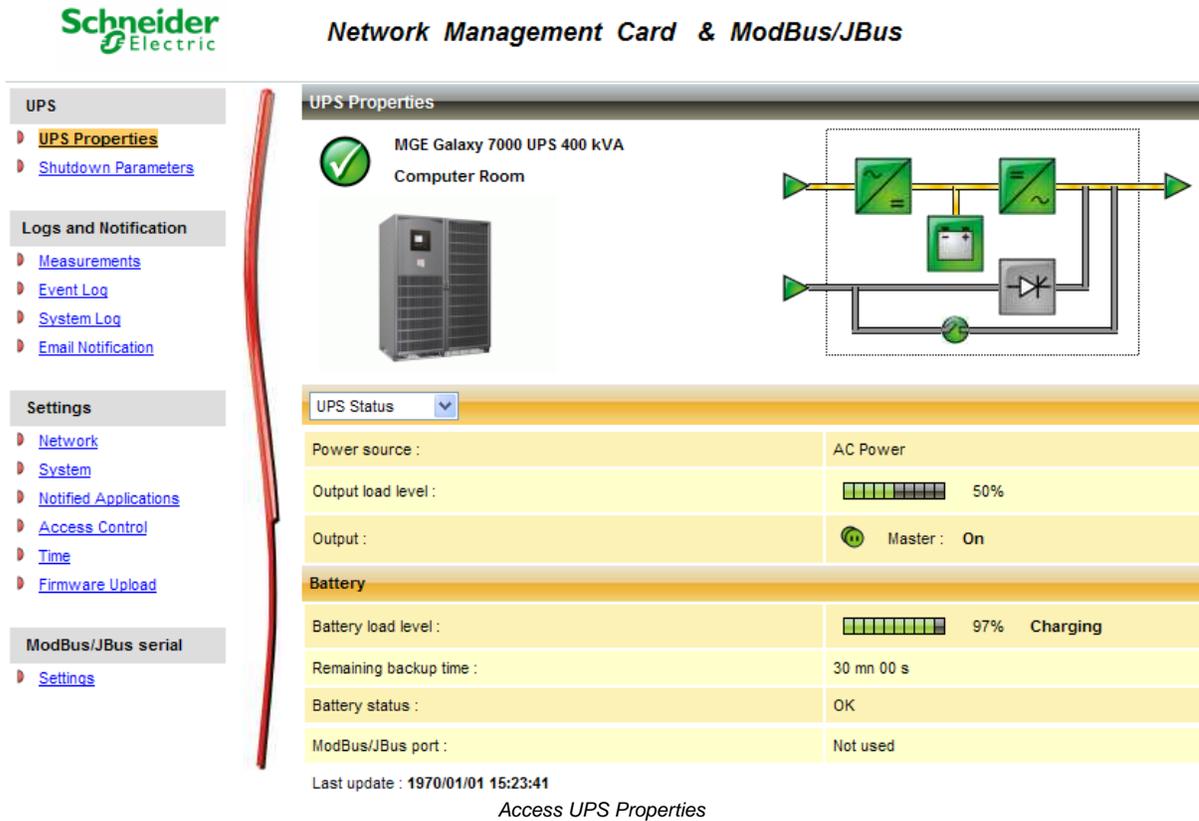
Statistics view for the selected devices of your network area.

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4.4 Launching UPS Properties from “Enterprise Power Manager”

From the **Status** tab (list or detail), you can access the UPS properties Web Page for NMC cards including an on-board web server (see detailed list in the following paragraph). Click on the web Link associated to this icon .



Schneider Electric

Network Management Card & ModBus/JBus

UPS Properties

MGE Galaxy 7000 UPS 400 kVA
Computer Room

UPS Status:

Power source :	AC Power
Output load level :	 50%
Output :	 Master : On

Battery

Battery load level :	 97% Charging
Remaining backup time :	30 mn 00 s
Battery status :	OK
ModBus/JBus port :	Not used

Last update : 1970/01/01 15:23:41
Access UPS Properties

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4.5 Devices Compatibility List

4.5.1 Compatible Products

See on APC Web site; Software / Firmware download area "Software Upgrades – MGE Accessories".

4.5.2 Computers

See on APC Web site; Software / Firmware download area "Software Upgrades – MGE Accessories".

4.5.3 Other Devices

See on APC Web site; Software / Firmware download area "Software Upgrades – MGE Accessories".

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4.5.4 Other devices supervision

4.5.4.1 Static Transfer Switch

Detailed view:

- Select one of the STSs in the left menu and the following “detailed view” page appears:



STS Detailed View.

Icon Event status



Normal. With this event, the device is coming back to a normal status:

- Communication with device is restored
- Maintenance operation is done
- Source transfer allowed
- The STS output is on



Warning. A problem occurred on the device:

- Maintenance operation is needed



Critical. A serious problem occurred on the device:

- Source transfer forbidden
- The STS output is off



Communication lost between the STS and the Enterprise Power Manager:

- Communication with device has failed

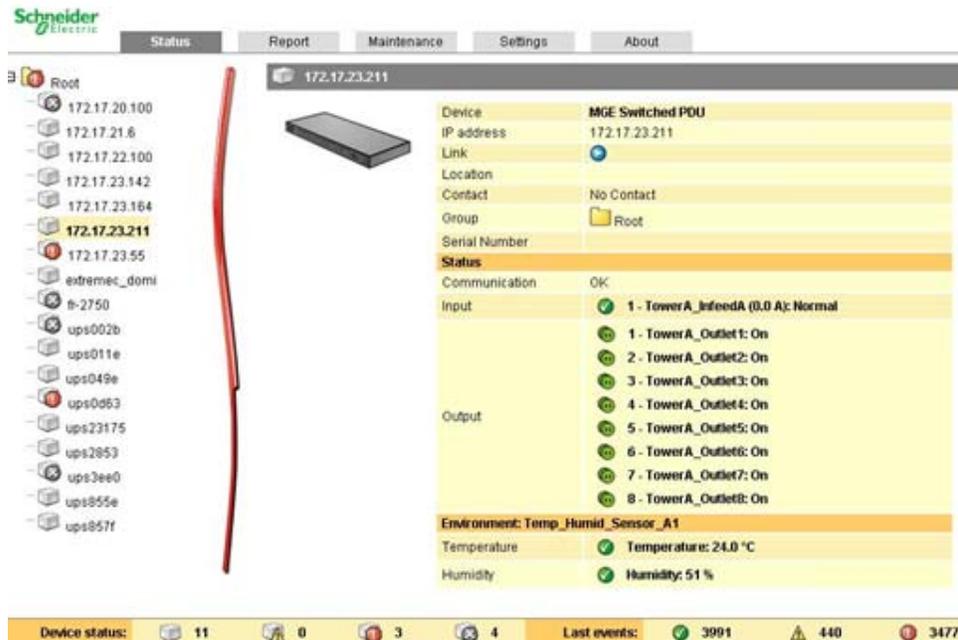
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4.5.4.2 Switched PDU & Ampmeter PDU

Detailed view:

- Select one of the PDUs in the left menu and the following “detailed view” page appears:



Switched PDU Detailed View.

Events list:

Icon	Event status
	<p>Normal. With this event, the device is coming back to a normal status:</p> <ul style="list-style-type: none"> Communication with “PDU” is restored Maintenance operation is done The input X returns to normal load Temperature on sensor X is in normal range Humidity on sensor X is in normal range
	<p>Warning. A problem occurred on the device:</p> <ul style="list-style-type: none"> Maintenance operation is needed The input X load is above high threshold Temperature on sensor X is below low threshold Temperature on sensor X is above high threshold Humidity on sensor X is below low threshold Humidity on sensor X is above high threshold
	<p>Critical. A serious problem occurred on the device:</p> <ul style="list-style-type: none"> The input X overload
	<p>Communication lost between the PDU and the Enterprise Power Manager:</p> <ul style="list-style-type: none"> Communication with “PDU” has failed

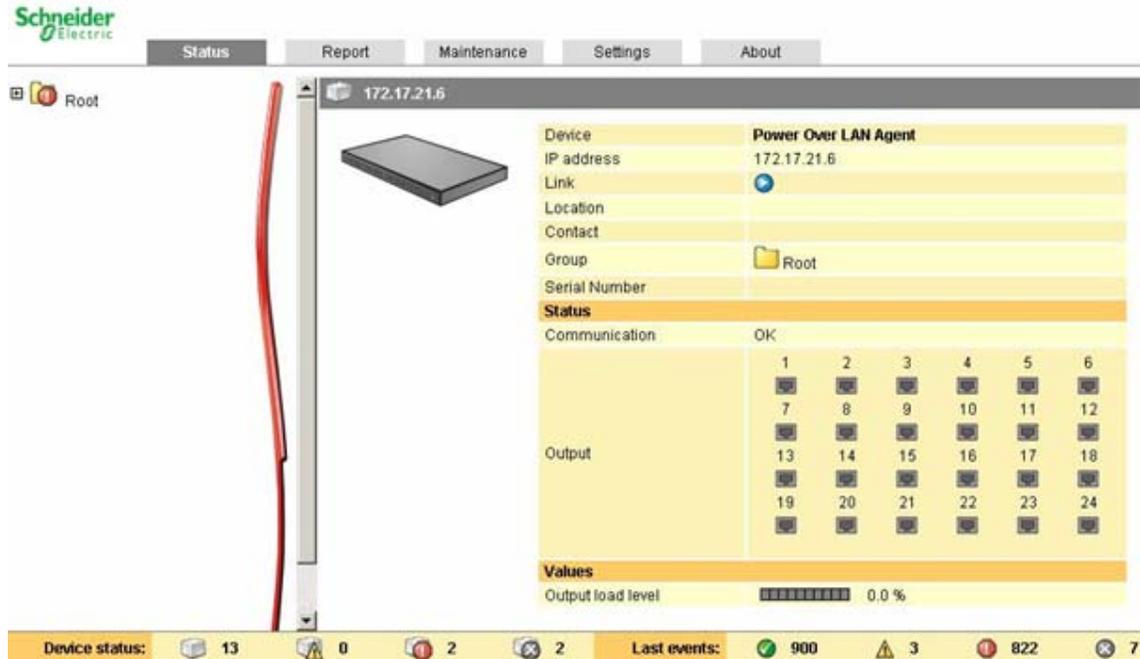
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4.5.4.3 Midspan & PowerDsine

Detailed view:

- Select one of the Midspans in the left menu and the following “detailed view” page appears:
- A color code and a context-sensitive help define the output status.



Midspan Detailed View.

Events list:

Icon	Event status
	Normal. With this event, the device is coming back to a normal status: <ul style="list-style-type: none"> • Communication with “Card” is restored • Maintenance operation is done
	Warning. A problem occurred on the device: <ul style="list-style-type: none"> • Maintenance operation is needed
	Communication lost between the Mispan and the Enterprise Power Manager : <ul style="list-style-type: none"> • Communication with “Card” has failed

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4.5.4.4 Rack Monitoring Systems (Knuerr & Sinetica)

Important note:

To be able to supervise the Knuerr RMS box, from the Enterprise Power Manager supervisor, you first have to configure each RMS box.

Proceed as follows:

- Enter the "NMS Setup" menu of the RMS box,
- Authorize the read access for the IP address of the machine hosting Enterprise Power Manager.

Detailed view:

- Select one of the RMS device in the left menu and the following "detailed view" page appears:

The screenshot displays the 'Detailed View' of a Knuerr RMS Compact ver 0.1.13 device. The interface includes a navigation menu on the left with 'Root' selected. The top navigation bar contains tabs for 'Status', 'Report', 'Maintenance', 'Settings', and 'About'. The main content area shows the following details:

Device	Knuerr RMS Compact ver 0.1.13
IP address	172.17.23.55
Link	Link
Location	Bureau Luc
Contact	
Group	Root
Serial Number	
Status	
Communication	OK
Environment: sensor 1	
Temperature (Temperature dehors)	23.7 °C
Humidity (Dehors)	53.8 %
Environment: sensor 2	
Temperature (Dedans)	23.5 °C
Input contacts	
Test 1	<input checked="" type="checkbox"/> off
Test 2	<input checked="" type="checkbox"/> off
Input 3	<input checked="" type="checkbox"/> on
Input 4	<input checked="" type="checkbox"/> on
Input 5	<input checked="" type="checkbox"/> on
Input 6	<input checked="" type="checkbox"/> on
Input 7	<input checked="" type="checkbox"/> on
Input 8	<input checked="" type="checkbox"/> on
Output	
OUTPUT 1	<input checked="" type="checkbox"/> off
COUCOU	<input checked="" type="checkbox"/> off
OUTPUT 3	<input checked="" type="checkbox"/> off

The bottom status bar shows: Device status: 10, 0, 4, 4. Last events: 3879, 428, 3381, 27.

RMS Detailed View.

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Events list:

Icon	Event status
	<p>Normal. With this event, the device is coming back to a normal status:</p> <ul style="list-style-type: none"> • Communication with "RMS" is restored • Maintenance operation is done • Temperature sensor X is in normal range • Humidity sensor X is in normal range • Input X off • Output X off
	<p>Warning. A problem occurred on the device:</p> <ul style="list-style-type: none"> • Maintenance operation is needed • Temperature sensor X is above upper warning limit"; • Temperature sensor X is below lower warning limit • Humidity sensor X is above upper warning limit • Humidity sensor X is below lower warning limit
	<p>Critical. A serious problem occurred on the device:</p> <ul style="list-style-type: none"> • Input X on • Output X on • Temperature sensor X is above upper control limit • Temperature sensor X is below lower control limit • Humidity sensor X is above upper control limit • Humidity sensor X is below lower control limit
	<p>Communication lost between the RMS and the Enterprise Power Manager:</p> <ul style="list-style-type: none"> • Communication with "RMS" has failed

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4.6 Performances for Enterprise Power Manager

4.6.1 Gold Edition

The **Enterprise Power Manager (Gold Edition)** doesn't have any limitation concerning the number of devices to be supervised. It has been tested on a dedicated server with 1000 devices.

Network Performances (out of discovery process):

- On a 100 Mbits/sec Ethernet network , the measured load is 10 %. (for 1000 devices), it means around 1Kb/s per device.
- On a 100 Mbits/sec Ethernet network , the measured load is 1 %. (for 1000 devices)

CPU resources:

On the servers running for test, the application processes are using 5% of CPU resource

Recommended configuration for 1000 devices:

- Minimal configuration: 512 Mb RAM + CPU 2.6 GHz
- Recommended configuration: **1 Gb RAM + CPU 2.6 GHz**

Notes:

- These measures have been carried out on Windows XP Service Pack 1 (We do not recommend XP Service Pack 2 that only authorizes 10 simultaneous network connections).
- We also do not recommend using Internet Explorer continuously with the main EPM page opened, because the browser uses a lot of system resources.
- These measures are applicable for Network Management Card (>FA) or Network Management Proxy.

4.6.2 Discovery time:

We measured an EPM typical discovery time for several network ranges.

Note that the new Quick Scan feature improves drastically the discovery time with the compatible devices. RAM or CPU parameters of the computer hosting EPM influence very little this discovery time.

The key parameter is the number of simultaneous network connections (limited to 10 on XP Service Pack 2). To verify this, we experienced the "xp-Antispy" utility that can configure the number of simultaneous network connections. The Patch "No-Limit" for TCP-IP of Service Pack 2 (sp2TcPIPatch) can also perform the same configuration.

With 2000 simultaneous connections the "XP Service Pac 2" discovery time can be compared with the one on Win 2000/ Win XP SP1/ Win 2003/Vista

Discovery Time measured on a machine with minimal configuration 512 Mb :

	From 172.17.1.1 To 172.17.1.10 10 IPs	From 172.17.1.1 To 172.17.4.255 1020 IPs	From 172.17.1.1 To 172.17.40.255 10 200 IPs	From 172.17.1.1 To 172.17.255.255 65 025 IPs
Win 2000/ Win XP SP1/ Win 2003/Vista	1 min	2 min	17 min	1h 50 min
XP Service Pac 2 (limited to 10 connections)	1 min	1h 10 min	Not Recommended (use Quick Scan feature)	Not Recommended (use Quick Scan feature)

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4.7 Maintenance

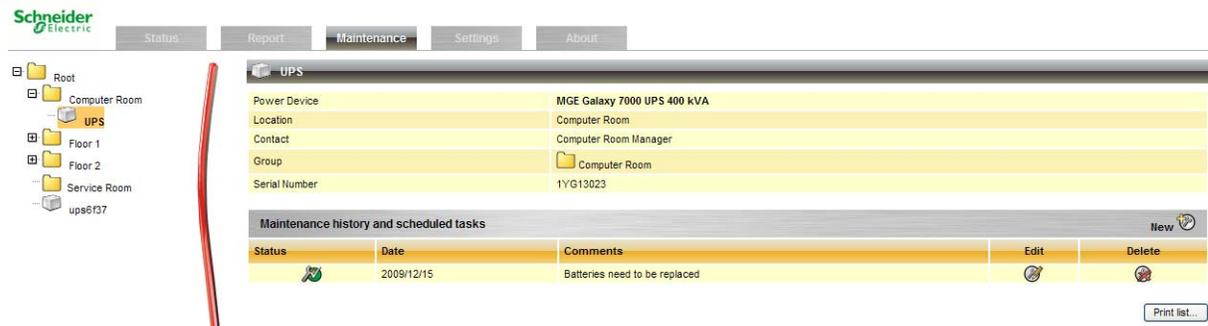
A dedicated view has been created to display UPS maintenance information.

The icons highlight the status of the maintenance tasks.

Icon	Maintenance status
	Normal. A maintenance task has been scheduled and has been carried out.
	Warning. A maintenance task has been scheduled and the task date has exceeded.
	Normal. A maintenance task has been scheduled and the date has not been exceeded.

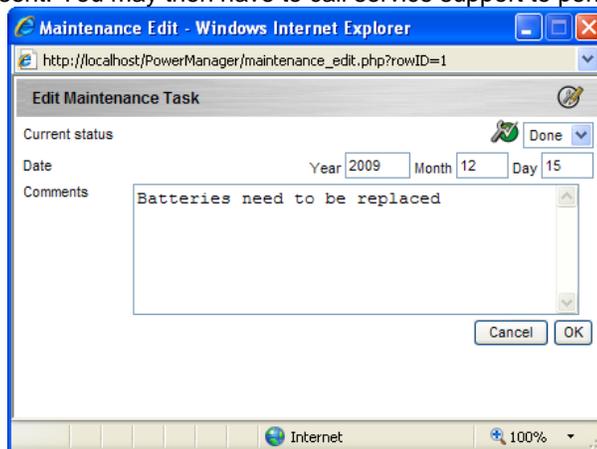
Two types of display are possible for the maintenance tasks. On the Maintenance Tab, if in the left menu you select:

- a group, a list view will be displayed,
- a device, a view with detailed maintenance information for that device will be displayed.



Detailed maintenance view for the selected device of your network area.

From this view, you can define the maintenance tasks by clicking on the **Edit** button. You can also schedule a new maintenance task by clicking on the **New task** button. When the task date has expired, a warning alert is sent. You may then have to call service support to perform the task.



Editing a maintenance task

Note: When the maintenance task has been performed, you have to change its **Current Status** from **To do** to **Done**.

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5 FAQ and Error messages

In the HTML pages.

In the page "Configuration -> Autodiscovery", when I click on the "Discover" button the expected page is not displayed

Solution: Check if an anti popup filter is activated on your web browser and configure this filter to accept the page.

Check you don't have the highest security level on IE

Cannot display the UPS properties page. HTTP 404 error with IE.

Solution: Check the URL entered.

> https://Computer Name or IP address/PowerManager/

or

> http://Computer Name or IP address/PowerManager/

Note: The Web server is case sensitive

When you attempt to view the properties or configuration pages, the browser requests a user name and password.

Solution: The system administrator has protected access to the pages. You must request a user name and password from your administrator.

With IE7, some parts of HTML pages are not displayed:
Automatic Updates, Device status, ...

Solution: turnaround to this IE7 problem in EPM 2.06.

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6 Glossary

IP address

When TCP/IP is installed on a computer, an address is assigned to the system. Each address is unique and is made up of four numbers, each between 0 and 256 (e.g. 168.8.156.210).

Network Management Proxy

Network Management Proxy is used to control a UPS and connect it to the TCP/IP network.

NMS (Network Management System)

The NMS supervises SNMP devices connected to the TCP-IP Network.

Network Shutdown Module

The Network Shutdown Module is a software module that uses the information transmitted by the Network Management Card/Proxy to inform computer users on the current status of the electrical power supplied to the computer.

If the supply of the electrical power from the MGE UPS is at risk, the Network Shutdown Module initiates an orderly shutdown of the computer under the most secure conditions possible.

SSL (Secure Socket Layer, created by Netscape)

A solution for securing transactions over the internet. SSL is a communication protocol that authenticates the data exchanged, as well as ensuring its confidentiality and integrity. The protocol uses a recognized encryption method, the **RSA algorithm with a public key** (where RSA means Rivest, Shamir and Adleman, the inventors). An RSA key is the result of operations involving prime numbers. SSL is built into the Internet browsers on the market. The padlock in the bottom of your browser screen is automatically displayed if the server sending information uses SSL.

TCP/IP (Transmission Control Protocol / Internet Protocol)

Family of protocols for the transport and network layers.

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7 Acknowledgements

SQLite

Huge thanks from software development team to the SQLite Project <http://www.sqlite.org/>. Their generous donation of the source code to the public domain helped us for this project.

Pi3Web

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