PowerPanel® Business Edition
User's Manual

Rev. 27

2017/04

ELECTRONIC END USER LICENSE AGREEMENT FOR CYBERPOWER POWERPANEL BUSINESS EDITION

NOTICE TO USER:

THIS IS A CONTRACT. BY INSTALLING THIS SOFTWARE YOU ACCEPT ALL THE TERMS AND CONDITIONS OF THIS AGREEMENT. The End User License Agreement and copyright of CyberPower PowerPanel® Business Edition product and related explanatory materials ("Software") are owned by its Cyber Power Systems (USA), Inc. The term "Software" also shall include any upgrades, modified versions or updates of the Software licensed to you by Cyber Power Systems (USA), Inc. Please read this Agreement carefully. At the end, you will be asked to accept this agreement and continue to install or, if you do not wish to accept this Agreement, to decline this agreement, in which case you will not be able to use the Software.

Upon your acceptance of this Agreement, The Cyber Power Systems (USA), Inc grants to you a nonexclusive license to use the Software, provided that you agree to the following:

1. Use of the Software. You may install the Software on a hard disk or other storage device; install and use the Software on a file server for use on a network for the purposes of (i) permanent installation onto hard disks or other storage devices or (ii) use of the Software over such network; and make backup copies of the Software.

You may make and distribute unlimited copies of the Software, including copies for commercial distribution, as long as each copy that you make and distribute contains this Agreement, the CyberPower PowerPanel® Business Edition installer, and the same copyright and other proprietary notices pertaining to this Software that appear in the Software. If you download the Software from the Internet or similar on-line source, you must include the copyright notice for the Software with any on-line distribution and on any media you distribute that includes the Software.

2. Copyright and Trademark Rights. The Software is owned by the Cyber Power Systems (USA), Inc and its suppliers, and its structure, organization and code are the valuable trade secrets of its Cyber Power Systems (USA), Inc and its suppliers. The Software also is protected by United States Copyright Law and International Treaty provisions. You may use trademarks only insofar as required to comply with Section 1 of this Agreement and to identify printed output produced by the Software, in accordance with accepted trademark practice, including identification of trademark owner's name. Such use of any trademark does not give you any rights of ownership in that trademark. Except as stated above, this Agreement does not grant you any intellectual property rights in the Software.

3. Restrictions. You agree not to modify, adapt, translate, reverse engineer, decompile, disassemble or otherwise attempt to discover the source code of the Software. Although you may customize the installer for the Software as documented on the CyberPower PowerPanel® Business Edition Disk (e.g., installation of additional plug-in and help files), you may not otherwise alter or modify the installer program or create a new installer for the Software.

4. No Warranty. The Software is being delivered to you AS IS and its supplier makes no warranty as to its use or performance. THE CYBER POWER SYSTEMS (USA), INC. AND ITS SUPPLIERS DO NOT AND CANNOT WARRANT THE PERFORMANCE OR RESULTS YOU MAY OBTAIN BY USING THE SOFTWARE OR DOCUMENTATION. THE CYBER POWER SYSTEMS (USA), INC. AND ITS SUPPLIERS MAKE NO WARRANTIES, EXPRESS OR IMPLIED, AS TO NONINFRINGEMENT OF THIRD PARTY RIGHTS, MERCHANTABILITY, OR FITNESS FOR ANY PARTICULAR PURPOSE. IN NO EVENT WILL THE CYBER POWER SYSTEM, INC. OR ITS SUPPLIERS BE LIABLE TO YOU FOR ANY CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES, INCLUDING ANY LOST PROFITS OR LOST SAVINGS, EVEN IF THE CYBER POWER SYSTEMS (USA), INC. REPRESENTATIVE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR FOR ANY CLAIM BY ANY THIRD PARTY. Some states or jurisdictions do not allow the exclusion or limitation of incidental, consequential or special damages, or the exclusion of implied warranties or limitations on how long an implied warranty may last, so the above limitations may not apply to you.

5. Governing Law and General Provisions. This Agreement will be governed by the laws of the State of Minnesota, U.S.A., excluding the application of its conflicts of law rules. This Agreement will not be governed by the United Nations Convention on Contracts for the International Sale of Goods, the application of which is expressly excluded. If any part of this Agreement is found void and unenforceable, it will not affect the validity of the balance of the Agreement, which shall remain valid and enforceable according to its terms. You agree that the Software will not be shipped, transferred or exported into any country or used in any manner prohibited by the United States Export Administration Act or any other export laws, restrictions or regulations. This Agreement shall automatically terminate upon failure by you to comply with its terms. This Agreement may only be modified in writing signed by an authorized officer of Cyber Power Systems (USA), Inc.

Table of Contents

Introduction **7**

Agent 8
Client 8
Center 8

Getting Started **9**

Prerequisites 9
Hardware Limitation 9
Operating System 9
Web Browser 1
Installation 1
Installation on Windows 1
Installation on Linux 14
Installation on Mac 21
Installation on VMware ESXi and ESX 26
Virtual Appliance Deployment on ESXi 27
Installation on XenServer 31
Installation on Hyper-V Server 32
Accessing PowerPanel® Business Edition 32
Login 33
Quick Configuration 34
Essential Setup 34
Agent 34
Client 34
Center 34

Using PowerPanel Business Edition Agent and Client **35**

System 35
Summary 35
Information 36
UPS 37
Status 37
Information 41
Configuration 43
Diagnostics 49
Load 51
EnergyWise 54
Power 56
Information 56

Configuration 57
Energy Consumption 63
Energy Reporting 63
Energy Settings 64
Event Action 65
Events 65
Notification Recipient 73
Action Settings 77
Logs 82
Event Logs 82
Status Records 84
Settings 86
Schedule 87
Shutdown 87
Security 89
Login 89
Authentication 91
Network 97
Preferences 102
User Experience 102
Power Equipment 103
Profile 103
Help 106
Content 106
About 106
Logout 106

Using PowerPanel Business Edition Center 107

Management 107
Power Equipment 107
IT Equipment 124
Service Infrastructure 133
Energy Consumption 137
Statistics 137
Settings 138
Event Action 140
Events 140
Notification Recipient 142
Settings 142
Logs 143
System Logs 143

Event Logs 144
Settings 145
Security 145
Login 145
Authentication 145
Network 147
Preferences 147
User Experience 147
Help 148
Content 148
About 148
Logout 148

Technical Support 148

Troubleshooting 148
FAQ 162

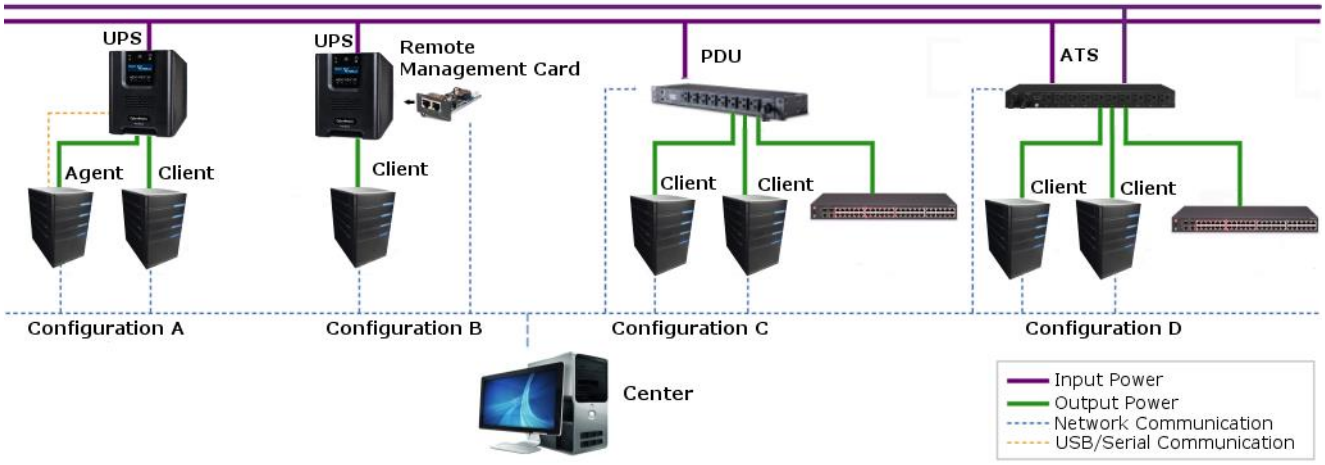
Glossary 171

Introduction

PowerPanel® Business Edition (PPBE) software provides comprehensive advanced power management for UPS/PDU/ATS systems. It controls unattended shutdowns, scheduled shutdowns, and notifications for computers powered by the UPS (Uninterruptible Power Supply), PDU (Power Distribution Unit), or the ATS (Automatic Transfer Switch).

PowerPanel® Business Edition software consists of three different modules; Agent, Client and Center. Agent monitors and configures the UPS through the USB or serial connection, logs UPS status and power events, and generates actions in response to events. Client establishes communication with the Agent, UPS RMCARD, PDU or ATS and generates actions according to notifications from the UPS/PDU/ATS when a power event occurs. Center simultaneously monitors and controls multiple UPS/PDU/ATS units and computers which have Agent or Client installed via the local network. It also logs events and results about commands for power management.

The Agent should be installed on a single computer connected to the UPS with a USB or serial connection. The Agent controls the UPS and establishes communication with the Client **if the UPS has no remote management card**. The Agent relays the UPS state to each Client and the Client performs actions based on the notifications. Each computer powered by the UPS can be protected and controlled using the Client. In the event of power failure, the Agent will shut down the hosted computer and request the Client computers to shut down prior to the UPS shutting down. Refer to **Configuration A** of the PowerPanel® Business Edition structure illustration.



PowerPanel® Business Edition structure

A **UPS with a remote management card** has the ability to communicate with multiple computers which have Client installed and are on the same network and relay the UPS status to each Client. In the event of a power failure, each Client will request the hosted computer to shut down following notifications from the UPS. Refer to **Configuration B** of the PowerPanel® Business Edition structure illustration.

The Client also has the ability to communicate with a PDU. Each computer powered by a PDU can utilize the Client for protection and control. When a PDU outlet supplying power to a computer running Client is going to

be switched off, the Client will perform a shutdown prior to switching off the power. Refer to **Configuration C** of the PowerPanel® Business Edition structure illustration.

Agent

Aside from the primary function of shutting systems down in the event of an outage, the Agent also provides the following functions:

- Unattended shutdown in response to various power conditions.
- User notification of power conditions.
- Flexible configuration of actions for each event and notifications via E-mail, Instant Message, and SMS.
- Run command files for custom applications.
- Historical logs of events and power conditions.
- Detailed load management for all powered equipment.
- Scheduled shutdown and restart.
- Status monitoring of the UPS and utility power.
- UPS configuration.
- Quick view system summary.

Client

The Client provides unattended shutdown for the hosted computer following a notification from the UPS/PDU/ATS. The Client also provides the following functions:

- Unattended shutdown in response to various power conditions.
- User notification of power conditions.
- Flexible configuration of actions for each specific event and notifications via E-mail, Instant Message, and SMS.
- Historical logs of power events.
- Quick view system summary.

Center

The Center provides users the following functions for multiple:

- Simultaneous monitoring of multiple UPS/PDU/ATS units, equipment and computers which have Agent or Client installed.
- Control access to all monitored UPS, PDU, computers and equipment.
- Detailed load management between UPS/PDU/ATS and all powered computers/equipment.
- Equipment groups for easy monitoring or individual access.
- Viewing additional information and status of monitored UPS, PDU, computers and equipment.
- Historical logs for events and results about demands to power management.

Getting Started

Prerequisites

Hardware Limitation

- 733 MHz or higher Pentium-compatible CPU.
- 256 megabytes (MB) of RAM recommended minimum; more memory generally improves responsiveness.
- Minimum of 150 MB of free space of hard disk.
- Serial port or USB port. (Required by the Agent)
- Network interface.

Operating System

PowerPanel® Business Edition software can be installed on the following operation systems:

- **32-Bit Versions:**
  - Windows 10
  - Windows 8
  - Windows 7
  - Windows Server 2008
  - Windows Server 2008 R2
  - Windows Vista
  - Windows Server 2003
  - Windows Server 2003 R2
  - Windows XP
  - Windows 2000
  - Fedora 7 or later
  - Citrix XenServer 5 or later
  - Citrix XenServer 6
  - Red Hat Enterprise 5.7
  - Redhat Enterprise 6.1
  - Redhat Enterprise 6.5
  - Centos 6 or later
  - Centos 7 or later
  - Open SUSE 10.1 or later
  - Open SUSE 11.4 or later
  - Debian 5.1 or later
  - Debian 7 or later
  - Ubuntu 9.10 or later
  - Ubuntu 10.04 or later
  - Ubuntu 11.04 or later
  - Ubuntu 12.10 or later
  - Ubuntu 15.04 or later
  - VMware ESX/ESXi 4 or later
  - VMware ESX/ESXi 5 or later
  - VMware ESX/ESXi 6 or later
  - MAC OS X 10.5
  - MAC OS X 10.6
- **64-Bit Versions:**
  - Windows Server 2012
  - Windows Server 2012 R2
  - Windows Server 2016
  - Windows Hyper-V Server 2012
  - Windows Hyper-V Server 2012 R2
  - Windows 10
  - Windows 8
  - Windows 7
  - Windows Server 2008
  - Windows Server 2008 R2
  - Windows Vista
  - Windows Server 2003
  - Windows Server 2003 R2
  - Windows XP

- Citrix XenServer 5 or later
- Citrix XenServer 6
- Citrix XenServer 7
- Red Hat Enterprise 5.7
- Redhat Enterprise 6.1
- Redhat Enterprise 6.5
- Redhat Enterprise 7
- Centos 6 or later
- Centos 7 or later
- Open SUSE 10.2 or later
- Open SUSE 11.4 or later
- Debian 7 or later
- Ubuntu 10.04 or later
- Ubuntu 11.04 or later
- Ubuntu 12.10 or later
- Ubuntu 15.04 or later
- VMware ESX/ESXi 4 or later
- VMware ESX/ESXi 5 or later
- VMware ESX/ESXi 6 or later
- VMware vMA 4 or later
- VMware vMA 5 or later
- VMware vMA 6 or later
- MAC OS X 10.6
- MAC OS X 10.7
- MAC OS X 10.8
- MAC OS X 10.9
- MAC OS X 10.10
- MAC OS X 10.11

Note: *Because of the abundance of different Linux builds, not all builds are tested with PowerPanel® Business Edition but most builds will be able to run the program.*

Web Browser

PowerPanel® Business Edition software is accessed using a web browser and is compatible with the following browsers:

- Microsoft Internet Explorer 7 or above
- Firefox 2.0 or above
- Google Chrome
- Konqueror

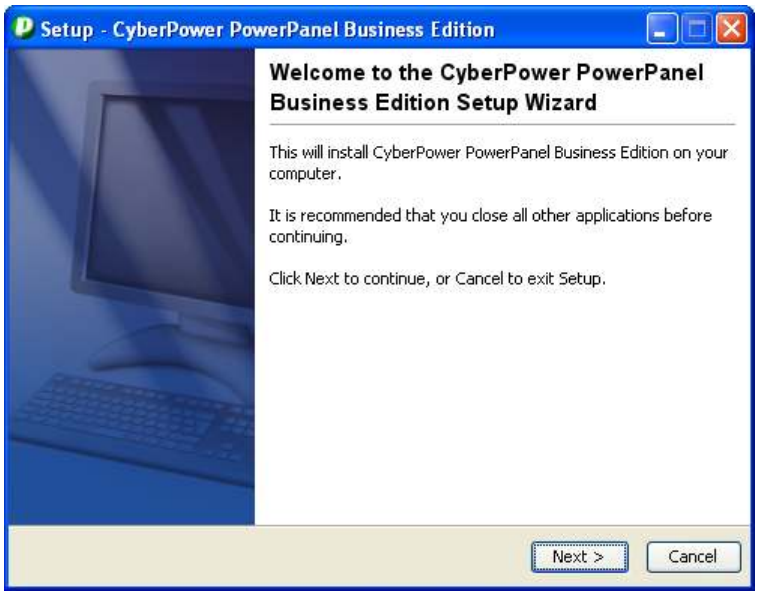
Installation

Installation on Windows

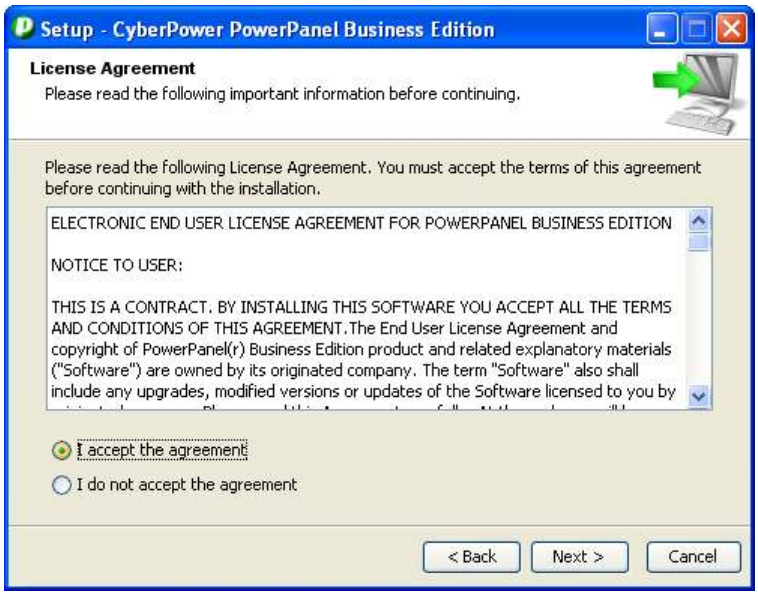
A pop-up window will be displayed automatically when inserting the PowerPanel® Business Edition installation CD. Users can click the **Install PowerPanel Business Edition** shortcut on the pop-up window to initiate the installation procedure. If the pop-up window is not displayed when inserting the CD, browse to the CD drive and open the folder which locates at /**Software**/**Windows**, and then double click the file named **Setup.exe** to start the installation procedure.

Use the PowerPanel® Business Edition installation CD to complete the installation on the target computer. To install follow these steps:

- Click the **Next** button to start an installation.



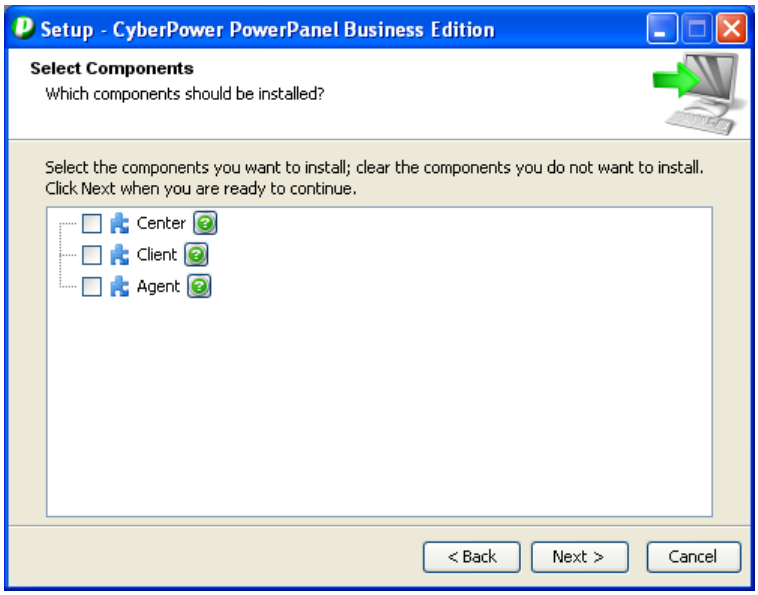
- Accept the license agreement.



- **Choose the component.** If one single computer is connected to the UPS directly via a USB or serial connection, Agent should be installed. If the computer is powered by a UPS already connected to an Agent, has a remote management card installed or is connected to a PDU, Client should be installed. If the administrator requires simultaneous monitoring and access to multiple UPS/PDU/ATSs, equipment and computers on a local network, Center should be installed.

  If a user is unsure of which are the correct components, they can click **Use recommendations** button to launch a wizard for assistance.

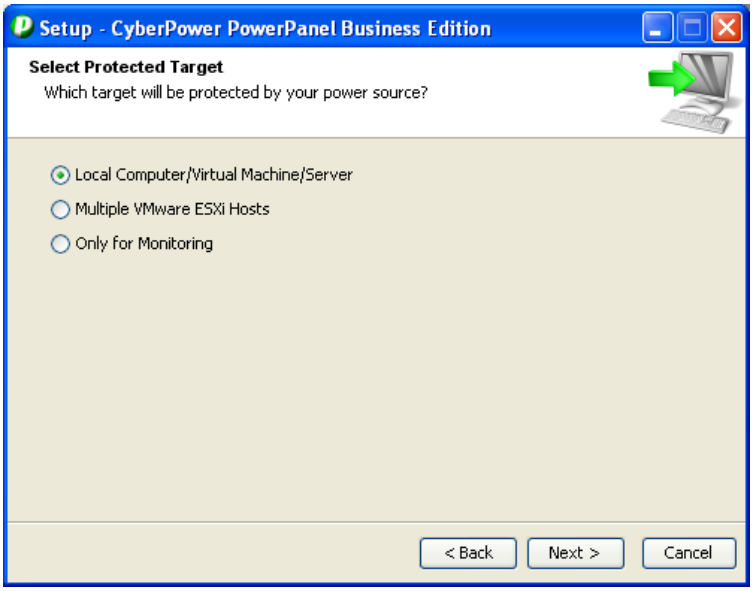
  Note: *Agent, Client and Center cannot be installed on the same computer.*



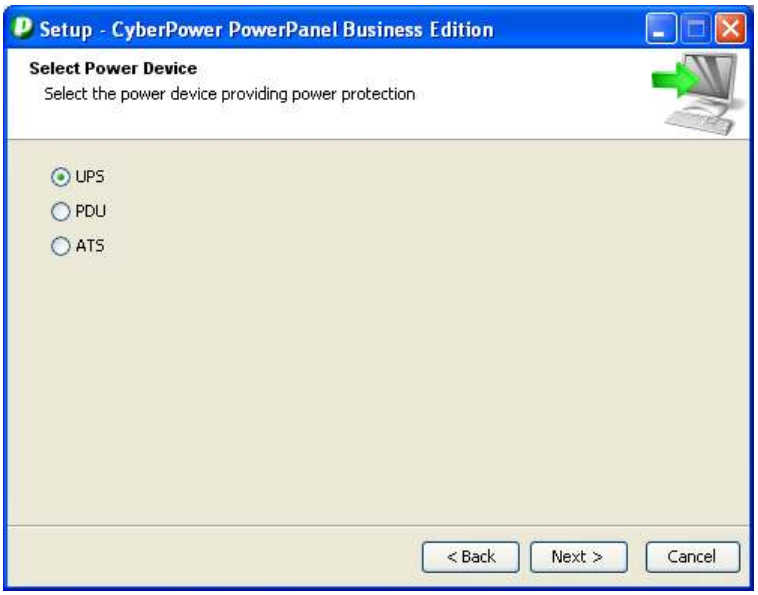
- **Select Protected Target.** If the target computer is powered by a UPS, a PDU or an ATS, the **Local Computer/Virtual Machine/Server** option should be selected.

  If the administrator requires simultaneous management to multiple VMware ESXi host on a local network, the **Multiple VMware ESXi Hosts** option should be selected.

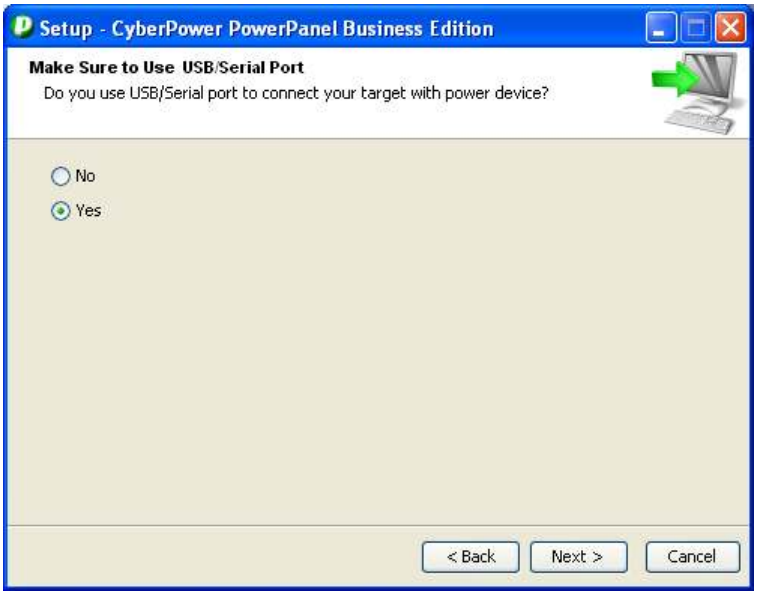
  If the administrator requires simultaneous monitoring and access to multiple UPS/PDU/ATSs, equipment and computers on a local network, the **Only for Monitoring** option should be selected.



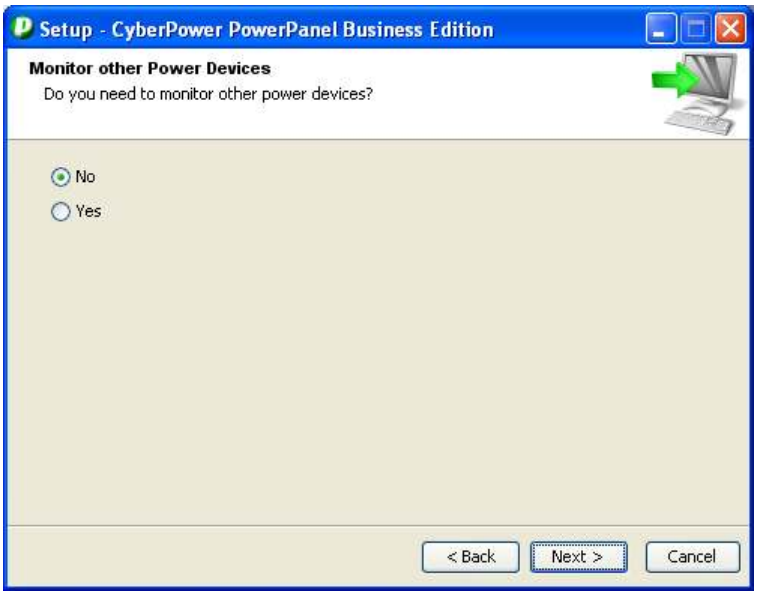
- **Select power devices.** Users must select which power device provides the power protection to the target computer.



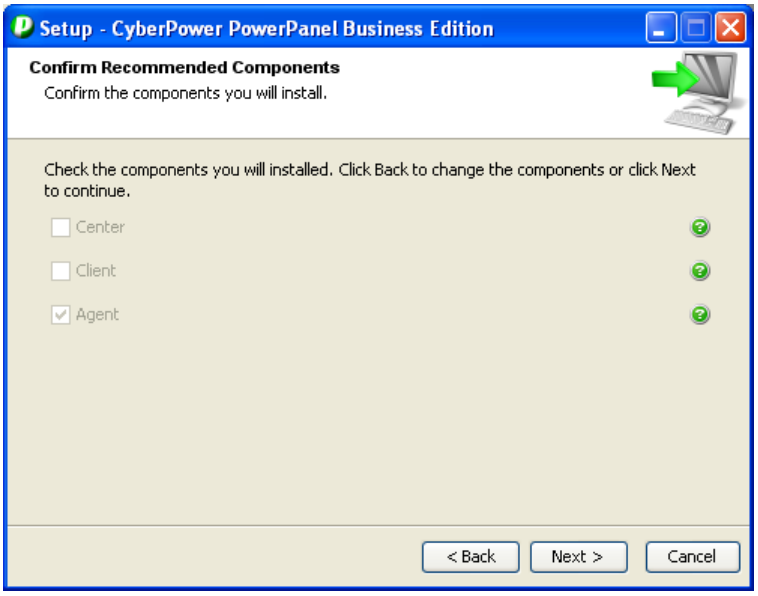
- **Check the USB or serial port.** If the target computer is connected to the UPS directly via a USB or serial connection, the **Yes** option should be selected. If the computer is powered by a UPS already connected to an Agent, has a remote management card installed, or is connected to a PDU/ATS, the **No** option should be selected.



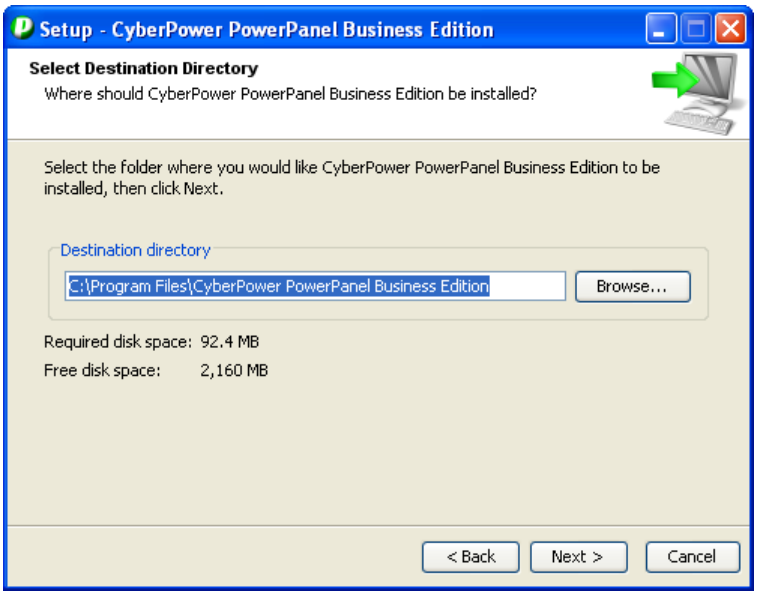
- **Monitor other power devices.** If a user wants to monitor additional UPS, PDU or ATS units from this computer, the **Yes** option should be selected.



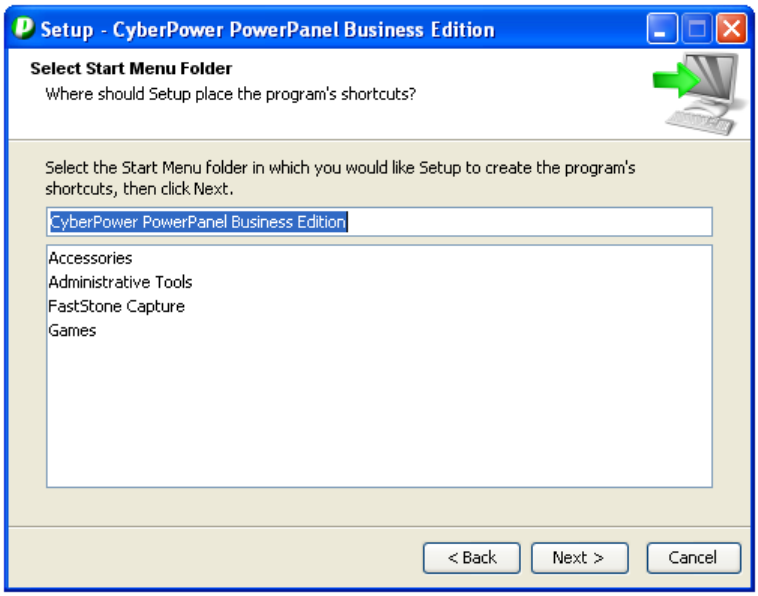
- **Confirm the recommended components.**



- Choose the destination directory.



- Choose the start menu directory.



- Click the **Finish** button to complete the installation.

Setup - CyberPower PowerPanel Business Edition
Completing the CyberPower PowerPanel Business Edition Setup Wizard
Setup has finished installing CyberPower PowerPanel Business Edition on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Login CyberPower PowerPanel Business Edition
Default username and password is "admin".
CyberPower PowerPanel Business Edition has configured Windows Firewall settings.
Finish

Installation on Linux

The installer is used to install the software and requires root permission. The installation wizard will guide users in completing the installation. Browse to the CD drive and find the installer in the **/Software/Linux** folder. Initiate the wizard by running the **./ppbe-linux-x86.sh** command or double clicking **ppbe-linux-x86.sh** on 32-bit systems or by running the **./ppbe-linux-x86_64.sh** command or double clicking **ppbe-linux-x86_64.sh** on 64-bit systems.

Note: *On Linux systems, users may mount the CD by using the mount command. Run* ***mount –t iso9660 /dev/cdrom /mnt/cdrom*** *as a root user.* ***/dev/cdrom*** *is the CD drive and* ***/mnt/cdrom*** *will be the mount point.*

To install follow these steps:

- Click the **Next** button to start an installation.

- Accept the license agreement.

- **Choose the component.** If one single computer is connected to the UPS directly via a USB or serial connection, Agent should be installed. If the computer is powered by a UPS already connected to an Agent, has a remote management card installed or is connected to a PDU, Client should be installed. If the administrator requires simultaneous monitoring and access to multiple UPS/PDU/ATSs, equipment and computers on a local network, Center should be installed.

  If a user is unsure of which are the correct components, they can click the Use recommendations button to launch a wizard for assistance.

  Note: *Agent and Client cannot be installed on the same computer.*

- **Select power devices.** Users must select which power device provides the power protection to the target computer.

- **Check the USB or serial port.** If the target computer is connected to the UPS directly via a USB or serial connection, the **Yes** option should be selected. If the computer is powered by a UPS already connected to an Agent, has a remote management card installed, or is connected to a PDU/ATS, the **No** option should be selected.

- **Monitor other power devices.** If a user wants to monitor additional UPS, PDU or ATS units from this computer, the **Yes** option should be selected.

- **Confirm the recommended components.**

- Choose the destination directory.

- Click the **Finish** button to complete the installation**.**

Installation in Text Mode

When the system does not support graphic mode, the Linux installation needs to be initiated in the terminal by using the **./ppbe-linux-x86.sh -c** command on 32-bit systems or use **./ppbe-linux-x86_64.sh -c** command on 64-bit systems.

The installation procedure will be initiated as following steps:

- Press **Enter** to start an installation.

```
Starting Installer ...
This will install CyberPower PowerPanel Business Edition on your computer.
OK [o, Enter], Cancel [c]
```

- **Accept the license agreement.**

```
YOUR ACCEPTANCE OF THE FOREGOING AGREEMENT WAS INDICATED DURING
INSTALLATION.

I accept the agreement
Yes [1], No [2]
```

- **Choose the component.** If one single computer is connected to the UPS directly via a USB or serial connection, Agent should be installed. If the computer is powered by a UPS already connected to an Agent, has a remote management card installed or is connected to a PDU, Client should be installed. If the administrator requires simultaneous monitoring and access to multiple UPS/PDU/ATSs, equipment and computers on a local network, Center should be installed.

  If users don't realize how to choose the correct components, users can assign **Use recommendations** for assistance.

  Note: *Agent and Client cannot be installed on the same computer.*

```
Select the components you want to install; clear the components you do not
want to install. Click Next when you are ready to continue.
Using recommendations
Yes [y, Enter], No [n]
```

- **Select the protected target**. If the target computer is powered by a UPS, a PDU or an ATS, the **Local Computer/Virtual Machine/Server** option should be set.

  If the administrator requires simultaneous management to multiple VMware ESXi host on a local network, the **Multiple VMware ESXi Hosts** option should be selected.

  If the administrator requires simultaneous monitoring and access to multiple UPS/PDU/ATSs, equipment and computers on a local network, the **Only for Monitoring** option should be set.

```
Which target will be protected by your power source?
Local Computer/Virtual Machine/Server [1, Enter], Multiple VMware ESXi Hosts [2], Only for Monitoring [3]
```

- **Select power devices.** Users must select which power device provides the power protection to the target computer.

```
Select the power device providing power protection
UPS [1, Enter], PDU [2], ATS [3]
```

- **Check the USB or serial port.** If the target computer is connected to the UPS directly via a USB or serial connection, the **Yes** option should be selected. If the computer is powered by a UPS already connected to an Agent, has a remote management card installed, or is connected to a PDU/ATS, the **No** option should be selected.

```
Do you use USB/Serial port to connect your target with power device?
No [1, Enter], Yes [2]
```

- **Monitor other power devices.** If a user wants to monitor additional UPS, PDU or ATS units from this computer, the **Yes** option should be selected.

```
Do you need to monitor other power devices?
No [1, Enter], Yes [2]
```

- **Confirm the recommended components.**

```
Confirm the components you will install.[Agent]
Yes [y, Enter], No [n]
```

- **Choose the destination location.**

```
Where should CyberPower PowerPanel Business Edition be installed?
[/usr/local/ppbe]
```

- Installation procedure starts to process until the installation is complete.

```
Please wait for CyberPower PowerPanel Business Edition configuring
Default username and password is "admin".
CyberPower PowerPanel Business Edition may not do hibernation.
Finishing installation...
```

Installation on Mac

File folder will be displayed automatically when inserting the PowerPanel® Business Edition installation CD. Find the installer in the /**Software**/**Mac** folder, and double click the file named **Setup.dmg**, then in the same way double click the file named **CyberPower PowerPanel Business Edition Installer** to initiate the wizard. The installation wizard will guide users in completing the installation.

Note: Cyberpower PowerPanel® Business Edition *software is a third-party application. At the first time to launch the PPBE installer on the Mac OS X 10.8(or later version), you should do following:*
1.Right-click the Installer and choose "Open".
2. Choose "Open" again at the dialog to open it.

To install follow these steps:

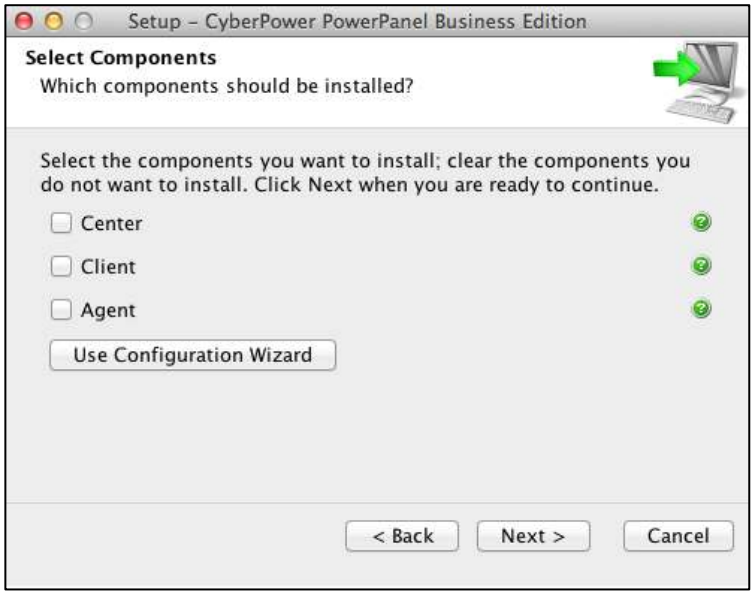
- Click the **Next** button to start an installation.

- Accept the license agreement.

- **Choose the component.** If one single computer is connected to the UPS directly via a USB or serial connection, Agent should be installed. If the computer is powered by a UPS already connected to an Agent, has a remote management card installed or is connected to a PDU, Client should be installed. If the administrator requires simultaneous monitoring and access to multiple UPS/PDU/ATSs, equipment and computers on a local network, Center should be installed.

  If users don't realize how to choose the correct components, users can click **Use recommendations** button to launch a wizard for assistance.

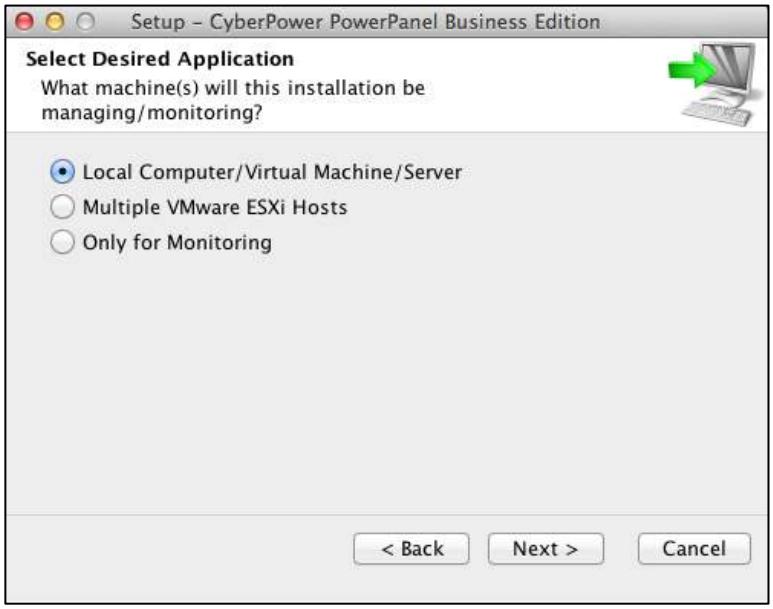
  Note: *Agent, Client and Center cannot be installed on the same computer.*



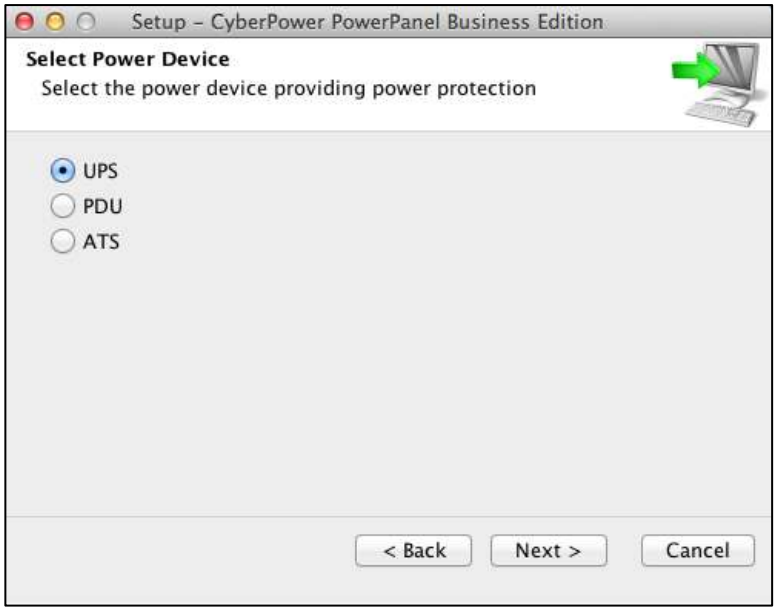
- **Select Protected Target.** If the target computer is powered by a UPS, a PDU or an ATS, the **Local Computer/Virtual Machine/Server** option should be selected.

  If the administrator requires simultaneous management to multiple VMware ESXi host on a local network, the **Multiple VMware ESXi Hosts** option should be selected.

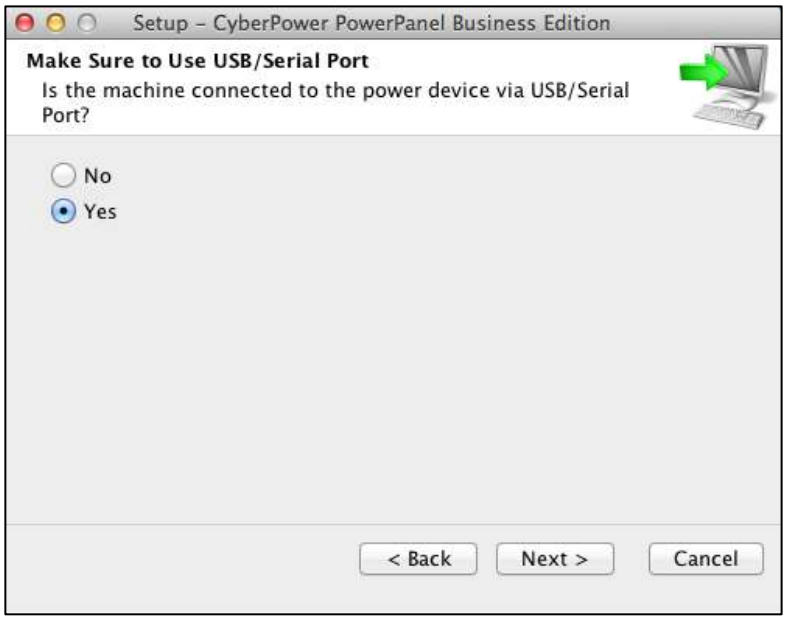
  If the administrator requires simultaneous monitoring and access to multiple UPS/PDU/ATSs, equipment and computers on a local network, the **Only for Monitoring** option should be selected.



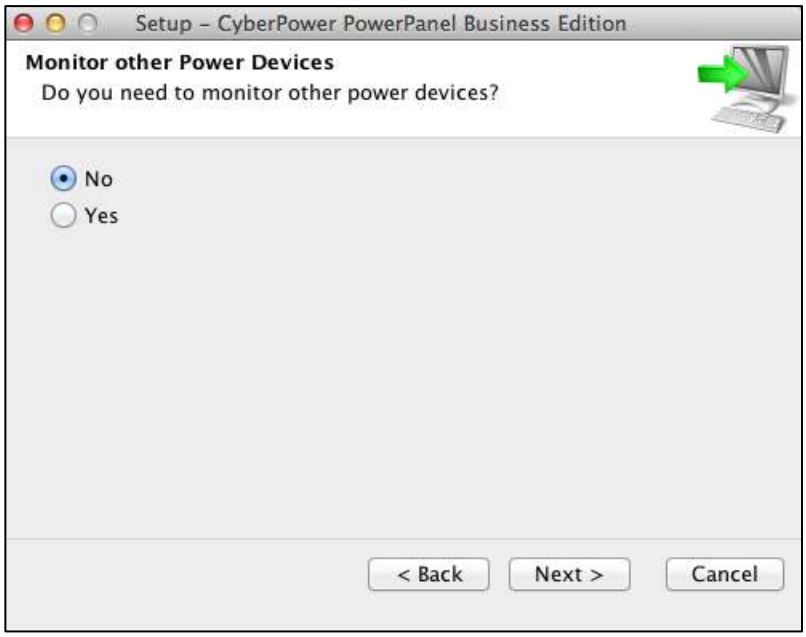
- **Select power devices.** Users must select which power device provides power protection to the target computer.



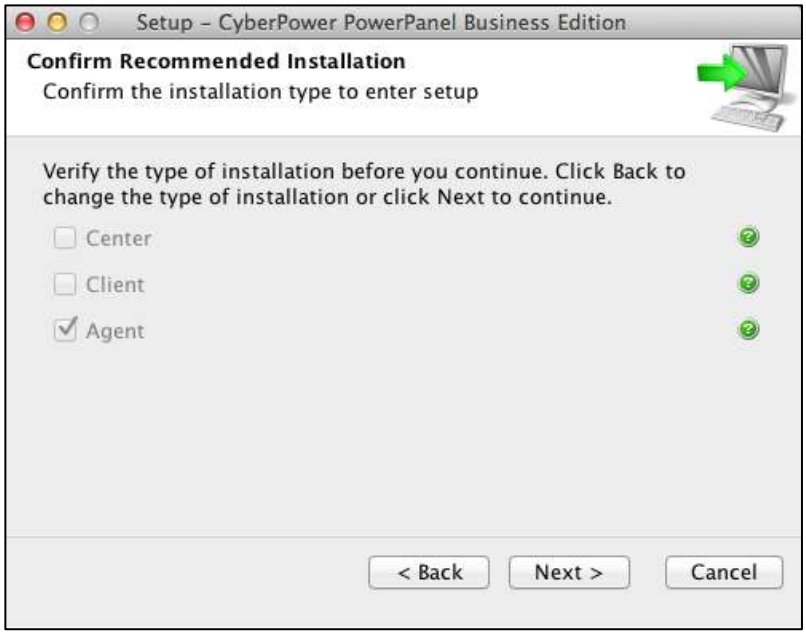
- **Check the USB or serial port.** If the target computer is connected to the UPS directly via a USB or serial connection, the **Yes** option should be selected. If the computer is powered by a UPS already connected to an Agent, has a remote management card installed, or is connected to a PDU/ATS, the **No** option should be selected.



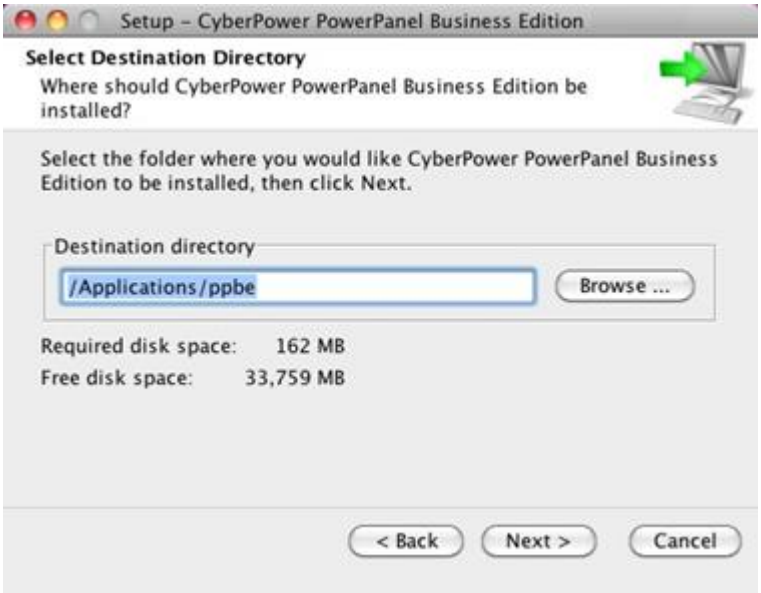
- **Monitor other power devices.** If a user wants to monitor additional UPS/PDU/ATS units from this computer, the **Yes** option should be selected.



- **Confirm the recommended components.**



- Choose the destination directory.



- Click the **Finish** button to complete the installation**.**

Note: *If the PPBE service stops unexpectedly in OS X version is 10.6 or earlier, please update Java to the latest version via* ***Software Update****, then execute* ***restartService.sh*** *to restart PPBE service, the default file path is /****Applications/ppbe/bin/restartService.sh****.*

Installation on VMware ESXi and ESX

Installation on ESXi

Installation must be launched in the **vMA** (**vSphere Management Assistant**) which is also a virtual machine on the ESXi host; Agent should be installed on the vMA of ESXi 4.1 or later versions. In order to deploy vMA on the ESXi host and install PPBE in the vMA, users must install the **vSphere Client** tool on another remote computer first. To download the vSphere Client installer, users can enter the ESXi host IP address to access the web page. Users can visit **VMware** website for ***vSphere Management Assistant Guide document*** about vMA deployment on VMware ESXi.

The installer will guide users in completing the installation. Refer to Installation on Text Mode section to follow the same steps to complete installation. The installer requires root permission to initiate the installation procedure. Mount CD by running **mount –t iso9660 /dev/cdrom /mnt/cdrom** as a root user.(/**dev**/**cdrom** is the CD drive and /**mnt**/**cdrom** will be the mount point.). Browse the CD drive and find the installer in the /**Software**/**Linux** folder. Initiate an installation procedure by running the **./ppbe-linux-x86_64.sh** command.

Before installing Agent with the USB or serial connection, make sure that the platform running the Agent supports USB or serial connection. VMware ESXi 4.1 and later versions support a USB device to be passed through from an ESXi host to vMA.

Note: *In order to make sure that Agent on vMA of the ESXi host can establish communication with UPS through USB connection, you should upgrade virtual hardware to the latest version. Refer to* ***How do I upgrade virtual hardware version of vMA*** *of* ***FAQ*** *chapter from* ***PowerPanel Business Edition User Manual*** *to know how to upgrade.*

Note: *In order to allow the interactions between physical and virtual machines, VMware tools have to be installed on each virtual machine. Refer to VMware ESXi Server documentation for further information about VMware Tools.*

Installation on ESX

Installation must be launched in the **Service Console** (aka **Console Operation System**). To initiate the installation procedure on VMware ESX also requires root permission. Use the same command to mount CD and initiate the installation procedure.

Before installing Agent with the USB connection, make sure the host supports USB connection. ESX 4.1 does support USB devices. Refer to Installation on Text Mode section to complete the installation.

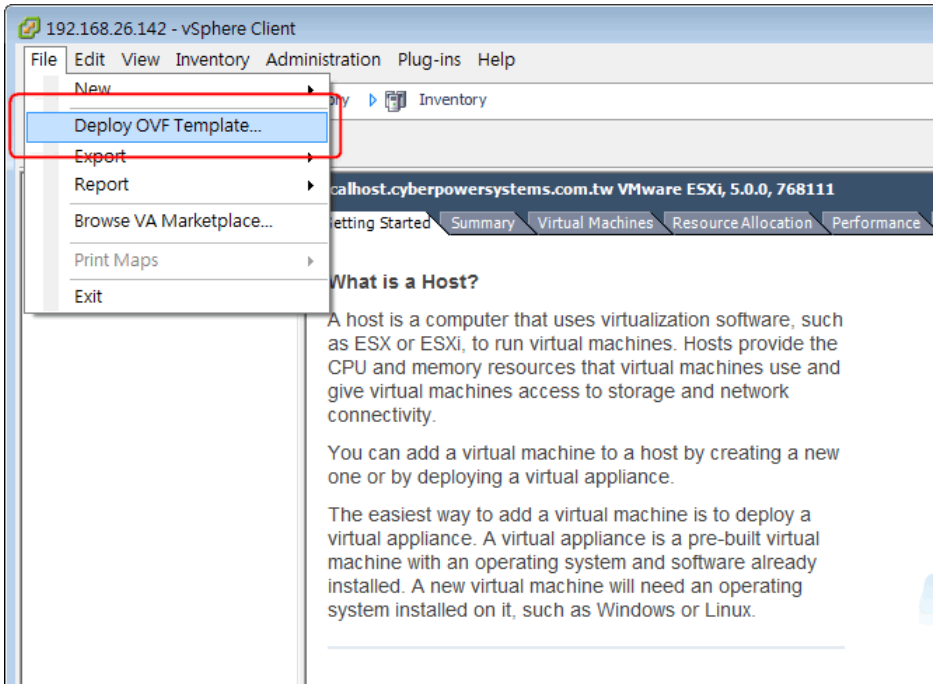
Virtual Appliance Deployment on ESXi

A virtual appliance (VA) is a prebuilt software solution, comprised of one or more virtual machines that is packaged, maintained, updated and managed as a unit. It is fundamentally changing how software is developed, distributed, deployed and managed.

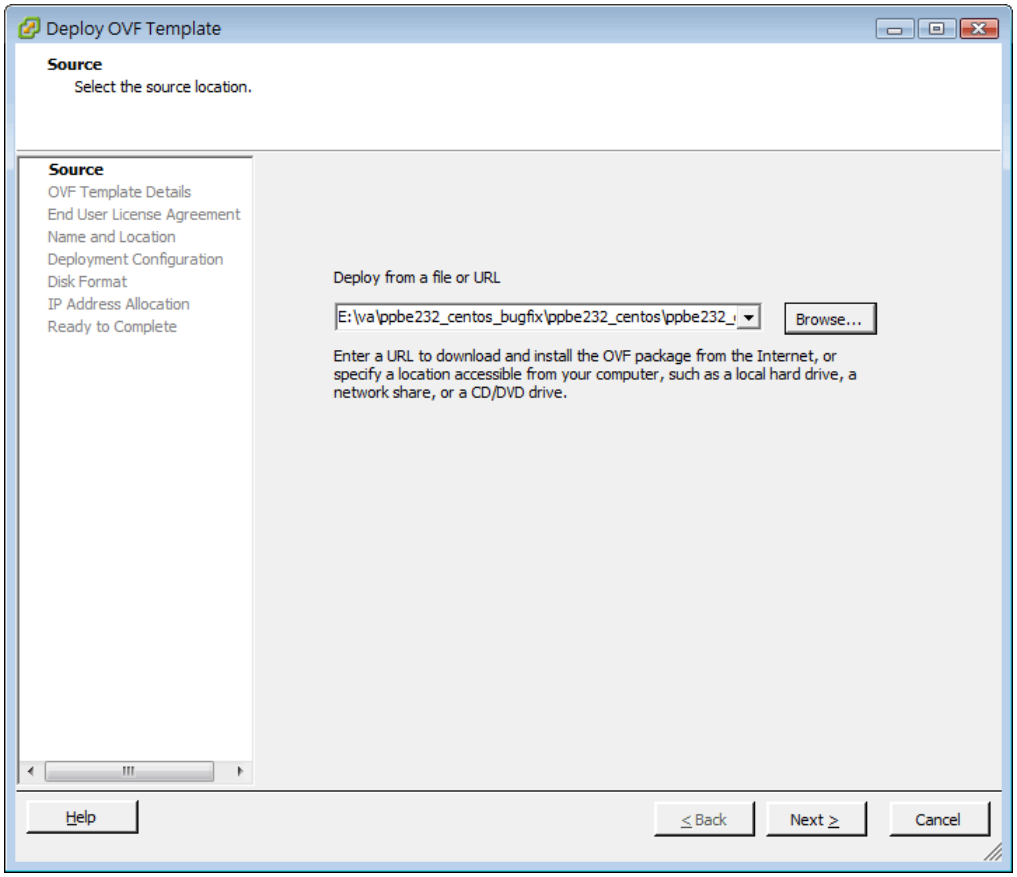
Download the PPBE virtual appliance which is pre-installed Agent and Client from CyberPower. In order to deploy the PPBE virtual appliance on VMware ESXi host, users must install **vSphere Client** tool on another remote computer first. To download **vSphere Client** tool, users can enter the ESXi host IP address to access web page of ESXi host.

The deployment procedure will be initiated as below steps:

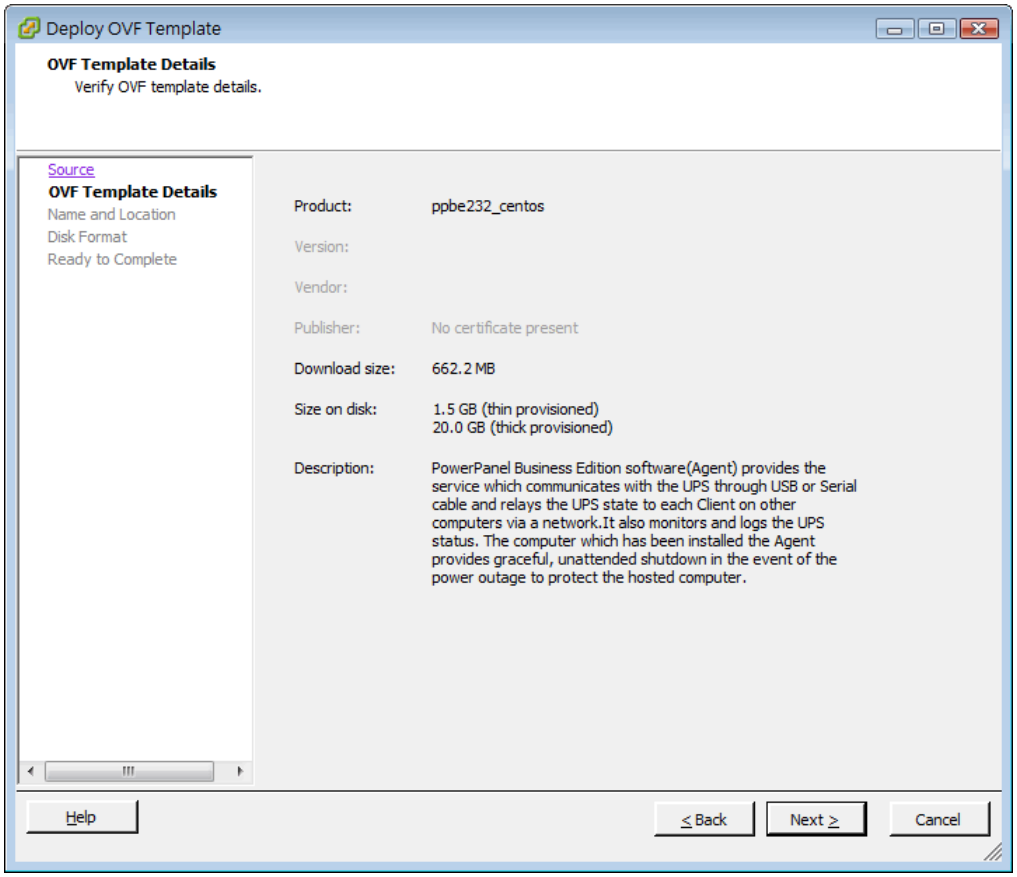
- Launch the vShpere Client. Open the **Deploy OVF Template** window from **File > Deploy OVF Template…** item.



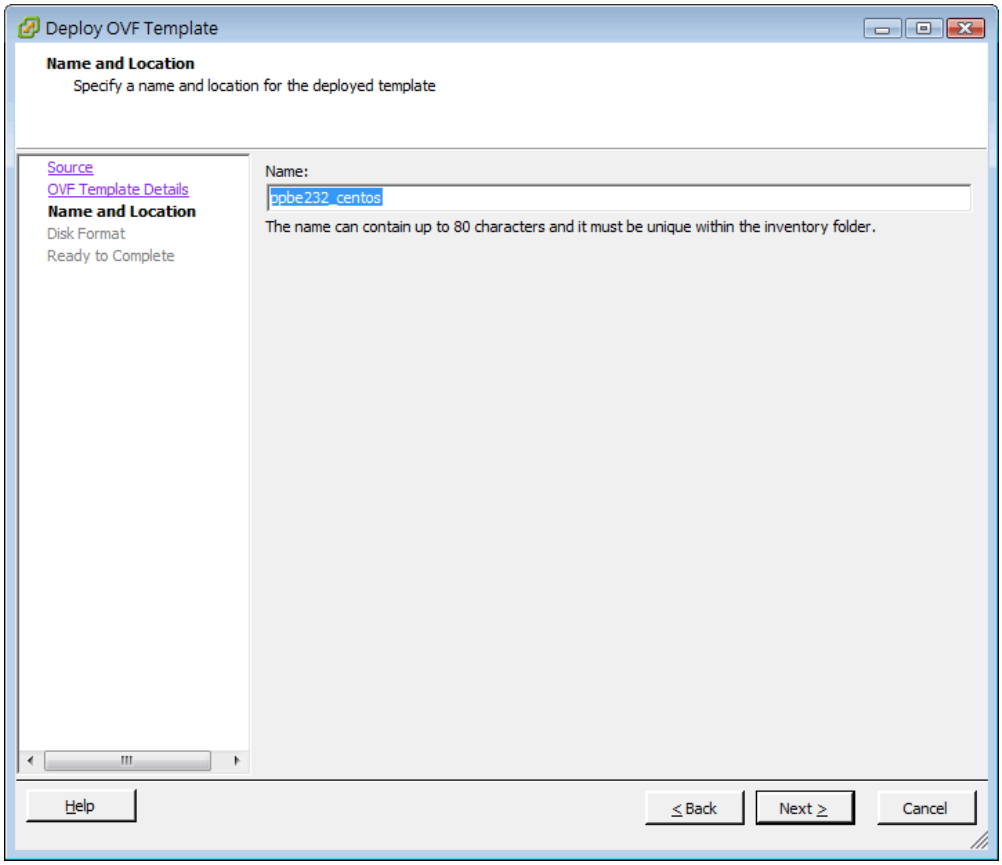
- Click **Browse** to import the **ppbeXXX_centos.ovf** extracted from the downloaded zip file. Click **Next** to start a deployment task.



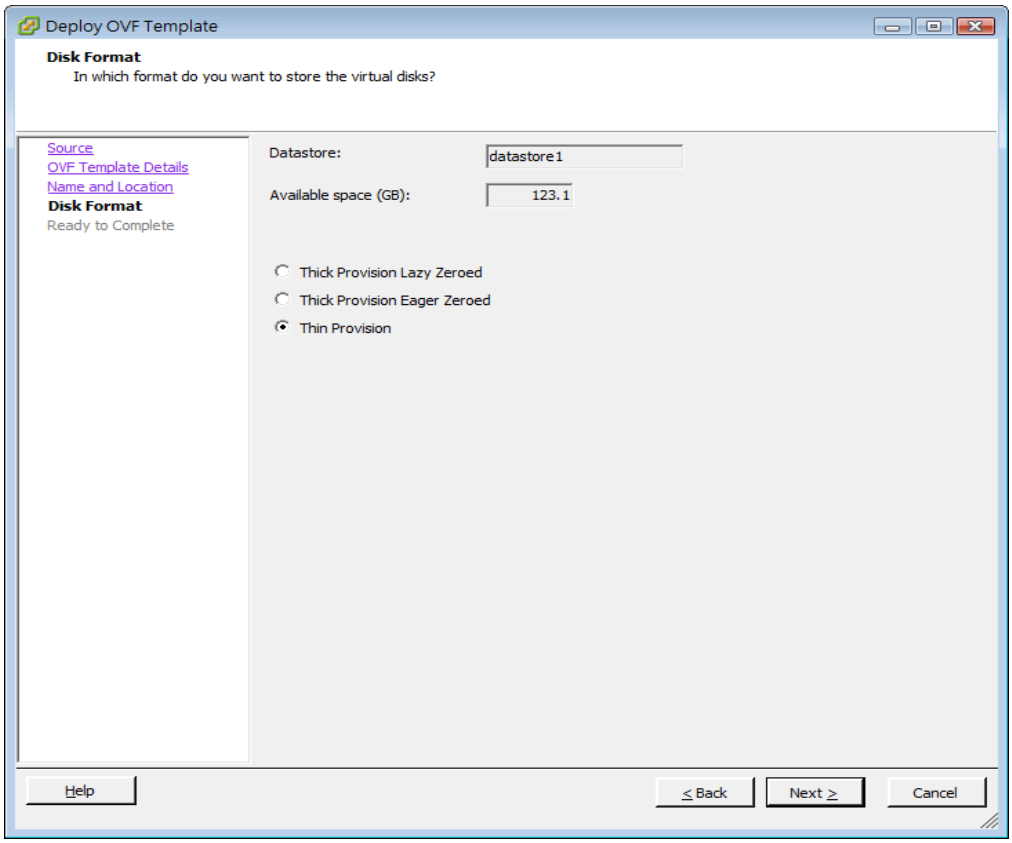
- The OVF template detail is displayed. Click **Next** to continue.



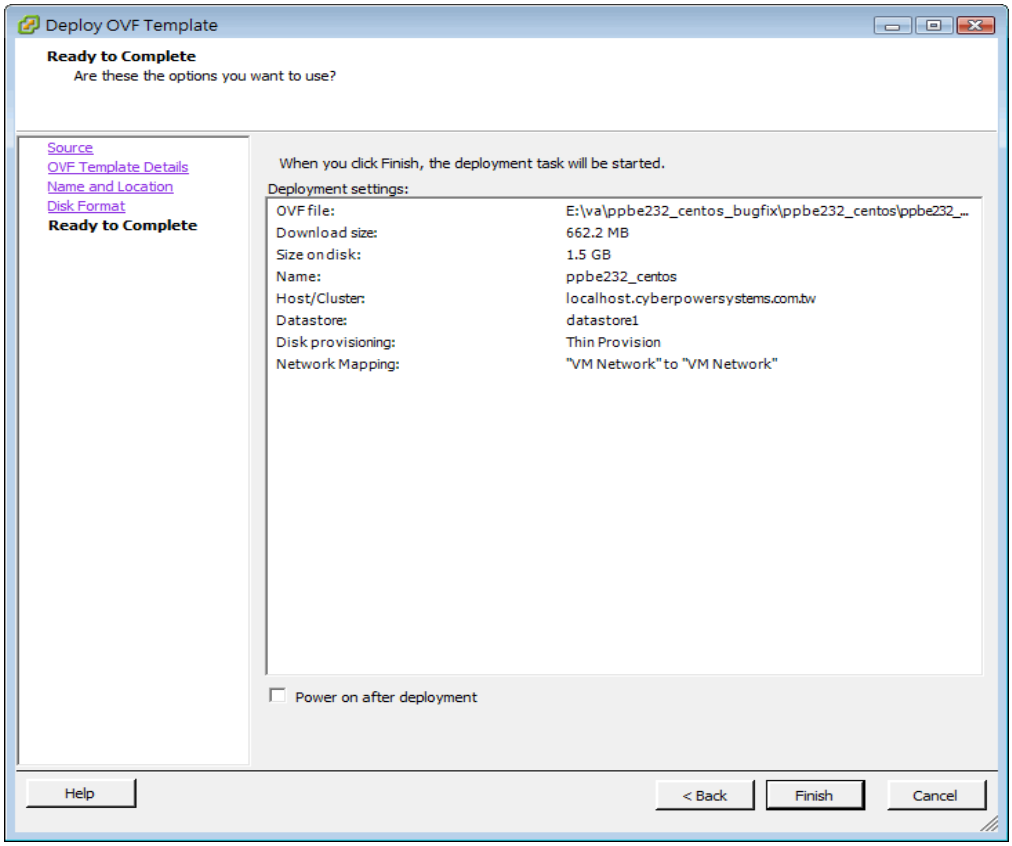
- Enter the name for the deployed virtual appliance. This name should be unique within the inventory.



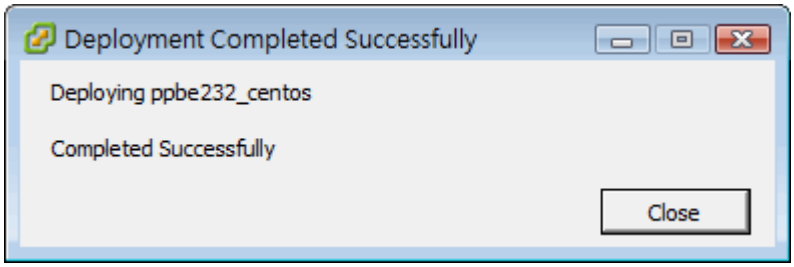
- Select the virtual disk format for the PPBE virtual appliance. The default option is **Thin Provision**. Refer to About Virtual Disk Provision Disk Policies for further information about how to select virtual disk format.



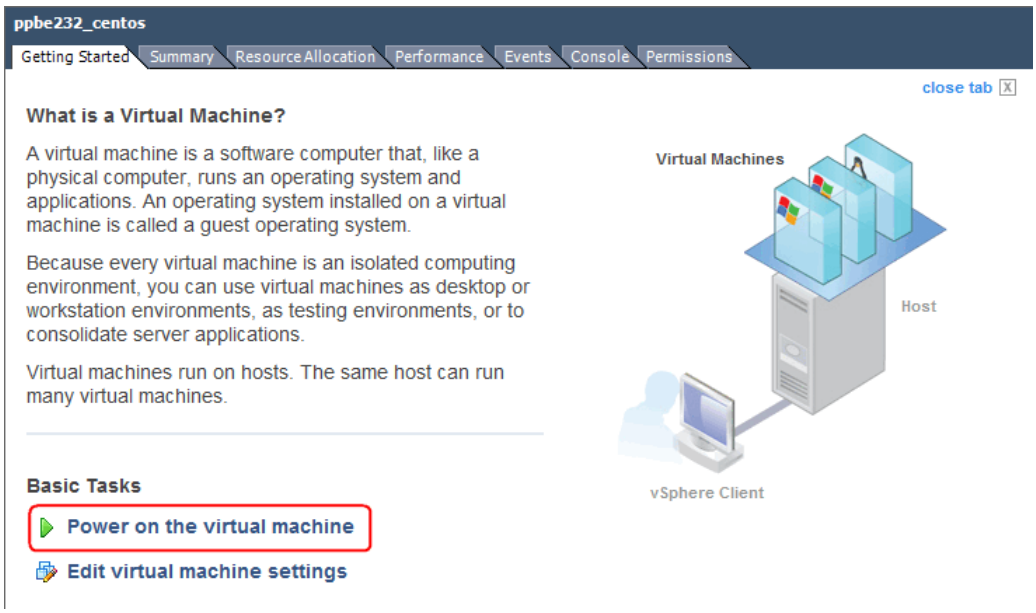
- A deployment detail is displayed. Click **Finish** to start the deployment task.



- After the deployment task is complete, the PPBE virtual appliance will be added into the inventory.



- Click **Power on the virtual machine** to power on the virtual appliance.



- Login the virtual appliance. The default username and password are **admin.** In order to perform shutdown accurately, you must change the time zone settings of the virtual appliance.
  This can be a direct copy of the time zone file from the **/usr/share/zoneinfo** folder. We assume that the host is located under the Chicago CST zone in Chicago, and the time zone can be changed by running the command **cp /usr/share/zoneinfo/America/Chicago /etc/localtime**.

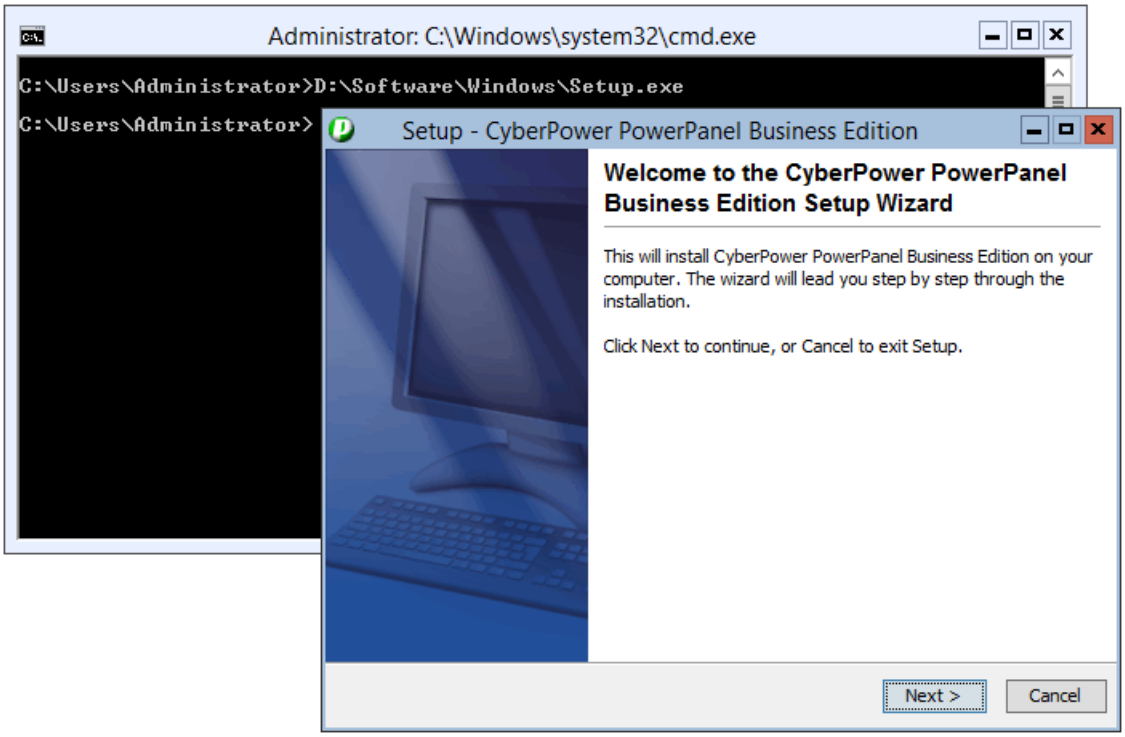
Installation on XenServer

The installer requires root permission to install the PowerPanel® Business Edition. Mount CD by running **mount –t iso9660 /dev/cdrom /mnt/cdrom** as a root user (**/dev/cdrom** is the CD drive and **/mnt/cdrom** will be the mount point.). Browse the CD drive and run **./ppbe-linux-x86.sh** command to initiate an installation procedure.

Installation must be launched on the **Dom0**. Refer to Installation on Text Mode section to complete the installation. Agent should be installed on the Dom 0 of XenServer 5 or later versions. Citrix XenServer 5.0 and later versions support USB device. Before installing Agent with the USB or serial connection, make sure that the platform running the Agent supports USB or serial connection.

Installation on Hyper-V Server

Use the PowerPanel® Business Edition installation CD to complete the installation on the target computer. Run the ***<CD_Drive>\Software\Windows\setup.exe*** of the command prompt such as below illustration to start the installation procedure (***CD_Drive*** *is a CD drive formatted as* ***D:*** *or* ***E:***). A popup window will be displayed when the installation is launched. Refer to Installation on Windows section to follow the same steps to complete installation.



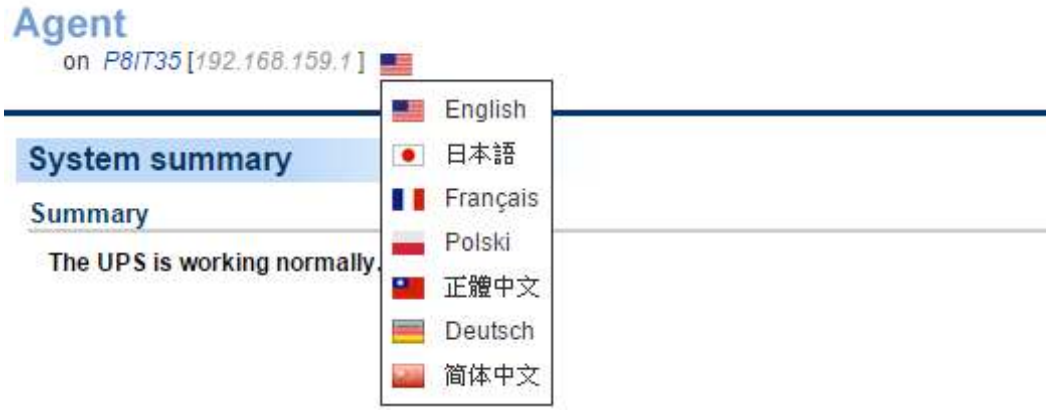
Accessing PowerPanel® Business Edition

The PowerPanel® Business Edition web interface can be accessed following the directions below. To access the web interface on a local computer, select **Start > All Programs > CyberPower PowerPanel Business Edition > PowerPanel Business Edition Agent, PowerPanel Business Edition Client** or **PowerPanel Business Edition Center** in the Windows Desktop or enter the **http://localhost:3052** as the URL in the browser.

Launching PowerPanel® Business Edition software on a local computer

On Linux, users can enter **http://localhost:3052/** in the address of the web browser to access the interface. Users can also enter the URL, **http://localhost:3052/** in the local computer or **http://hosted_computer_ip_address:3052/** in the remote computer, to the address field of the web browser to access the PowerPanel® Business Edition software web interface. **hosted_computer_ip_address** is the IP address of the computer which has the PowerPanel® Business Edition software installed. For vMA on the ESX or ESXi, **hosted_computer_ip_address** is the IP address of the vMA (**Note**: **hosted_computer_ip_address** is the IP address of the host computer on ESX).

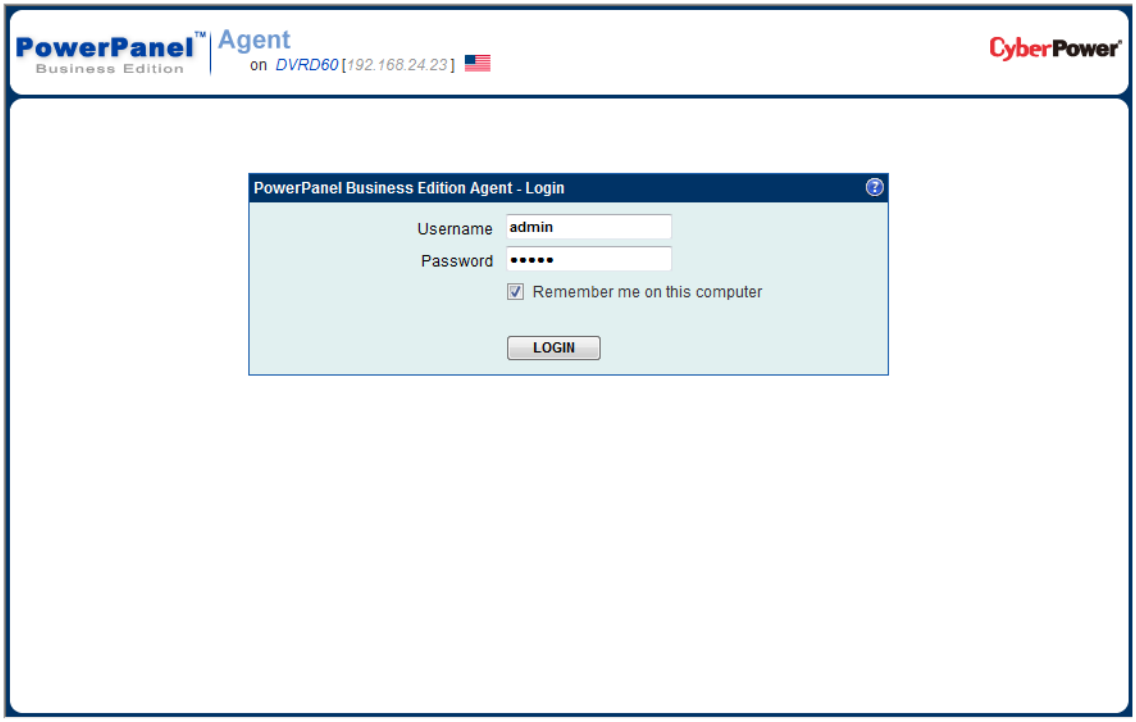
PowerPanel® Business Edition supports multiple-language function and allows users to change language. It will choose the suitable language as the default one to display at the initial access. Users can change the language from the banner. After the language is changed, the page will refresh automatically and choose the assigned language as the default one to display.



Change language

Login

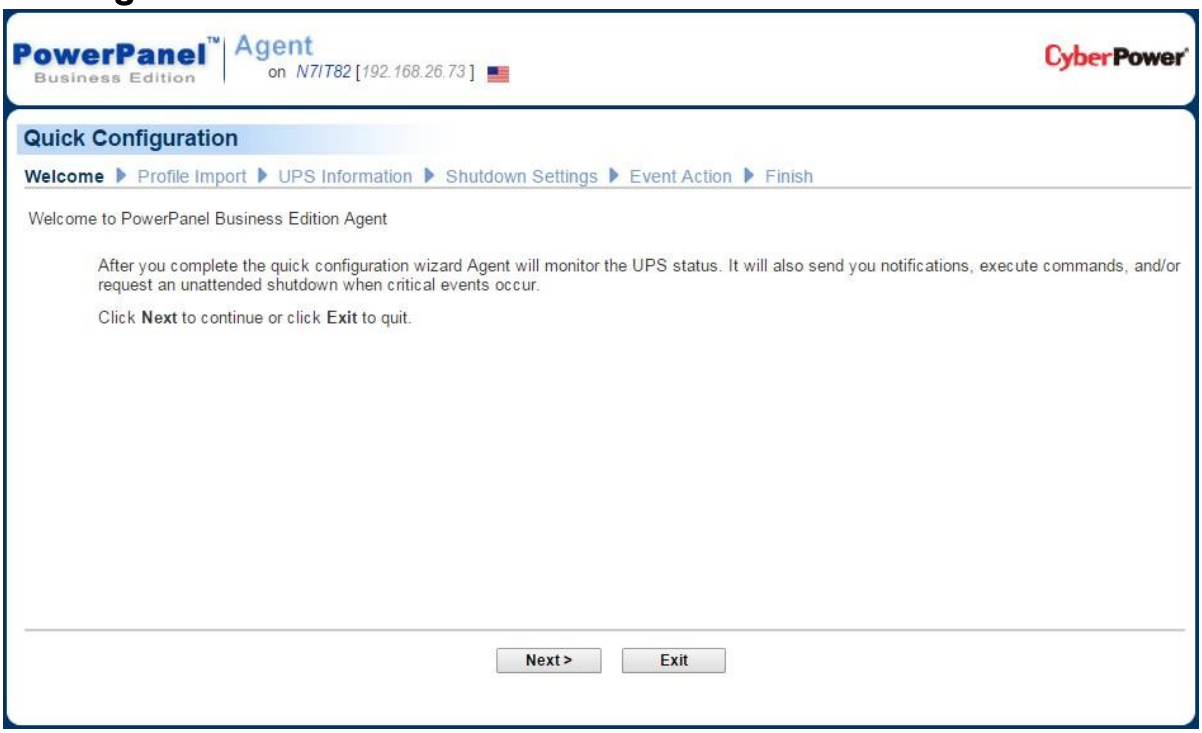
The default username is **admin** and the password is **admin**. For security, it is recommended to change the username and password on the **Security**/**Login** page after the initial login.



The local and remote login pages are the same.

Selecting the *Remember me on this computer* option on the login page allow the credentials to be remembered for automatic logon at the next session. To terminate the session, click the **Logout** button on the **Logout** page. The session will timeout and you will be logged out if no activity takes place during the time of **Session Timeout.** The **Session Timeout** can be configured on the **Security**/**Login** page.

Quick Configuration



A **Welcome** screen will display at the first time to use Agent and Client. The welcome screen will lead you to complete the quick configuration. You can decide whether to continue or ignore it. It is strongly recommended to complete the quick configuration. Inability to complete the quick configuration may put your computer in the extreme risk when power events occur. If you decide to ignore the quick configuration, click the **Exit** button. A popup confirm dialog will display and click the **Yes** button to ignore the quick configuration. Refer to the installation guide accordingly for more details to complete the quick configuration.

Essential Setup

In order to ensure the PowerPanel® Business Edition software functions properly, make sure that the Agent, Client and Center have been configured correctly.

Agent

- Perform a battery test to verify the UPS can supply battery power to the connected equipment and the equipment operates properly. See the **UPS**/**Diagnostics** section for more details.

Client

- Set the port used by Client on the **Security**/**Network** page to match the port used by the Agent's port.

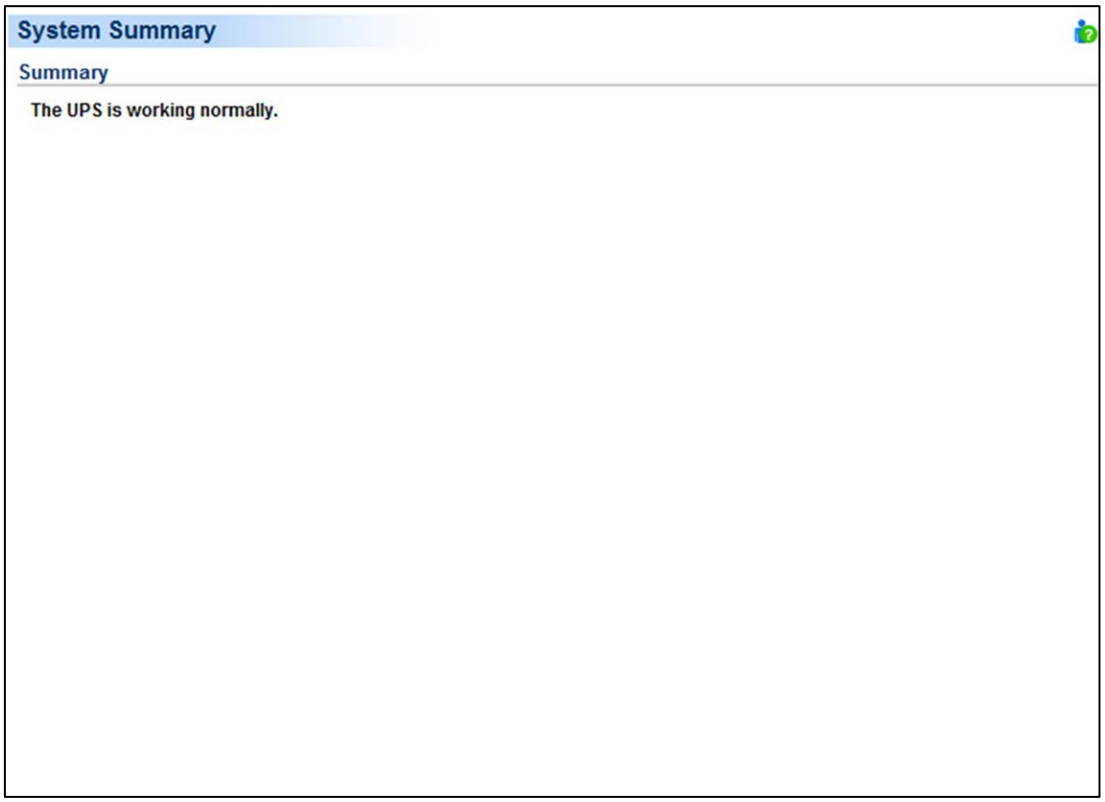
Center

- In order to establish communication with the UPS, PDU, Agent or Client. Set the SNMP Community to the same one used in the UPS/PDU/ATS, or the Secret Phrase used by the remote card of UPS, PDU, Agent or Client on the **Security**/**Authentication** page.
- Setup that the port used by the Center on the **Security**/**Network** page to match the port used by the Agent or Client.

Using PowerPanel Business Edition Agent and Client

System

Summary



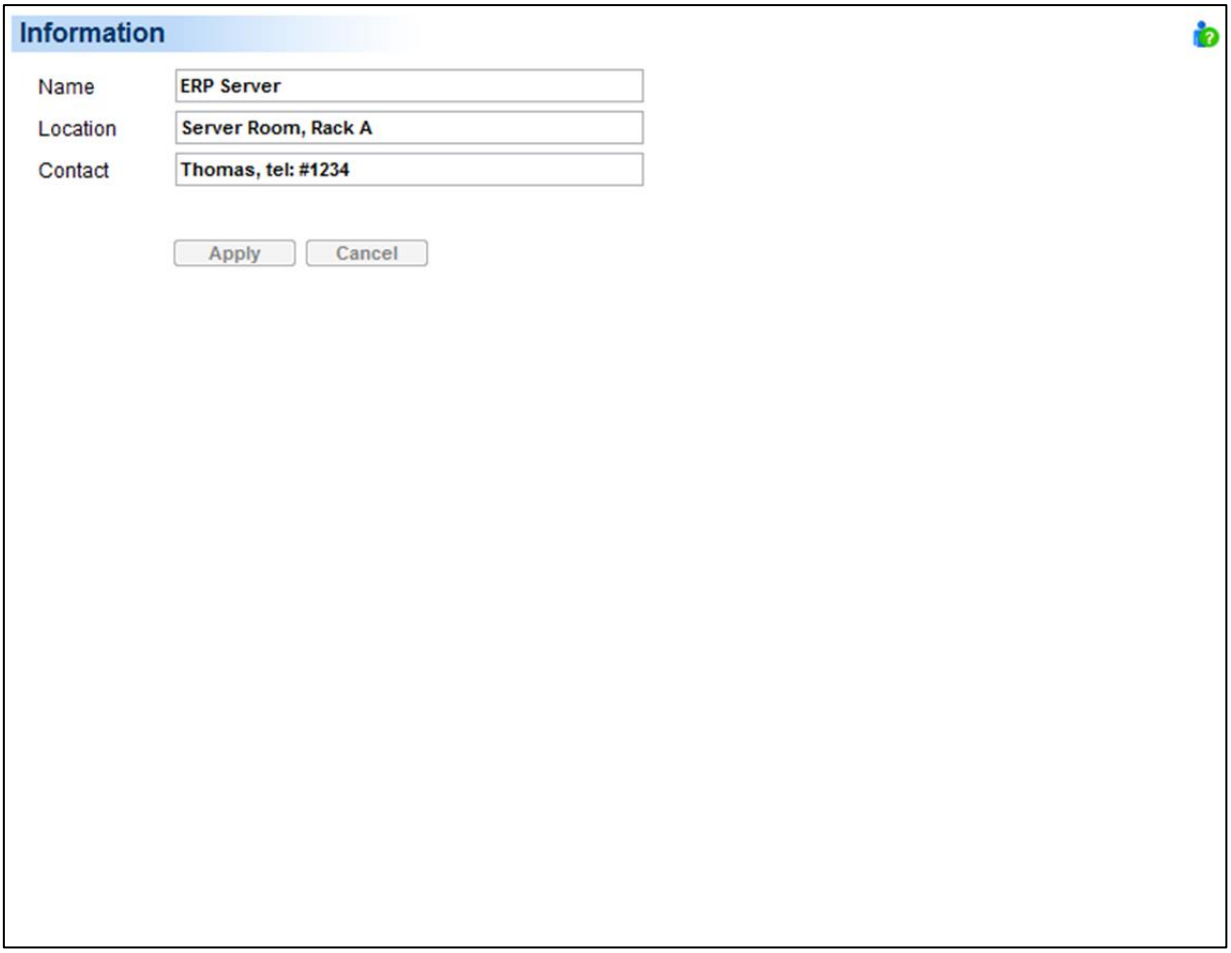
System/Summary page in Agent

In Agent, the **System**/**Summary** page provides an overview of the system operation. This includes the utility power status, operating status of the UPS, issues with the system and items requiring user attention.

In Client, the **System**/**Summary** page provides an overview of the system, including the communication status with the UPS/PDU/ATS, issues with the system and items requiring user attention.

Information

(The content in this section is only applicable to the Client.)



System/Information page

The **System/Information** page shows detailed information about the Client as follows.

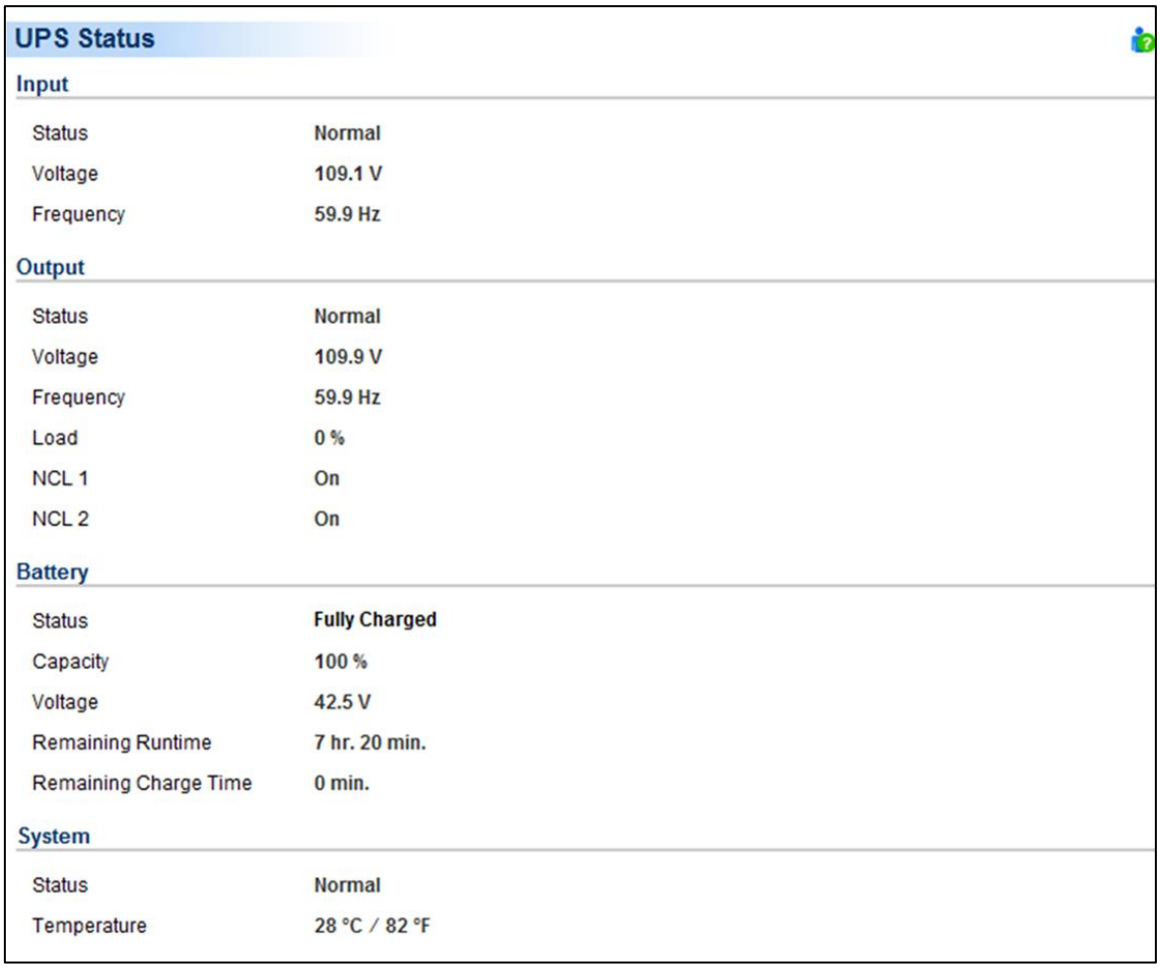
- **Name:** The name of the hosted computer, e.g. Web Server or Bill's Computer.
- **Location:** Where the hosted computer is located, e.g. Server room or Rack A.
- **Contact:** Who to contact about this hosted computer, e.g. someone's name, E-mail or phone number.

UPS

(The content in this section is only applicable to the Agent.)

Status

The **UPS**/**Status** page displays detailed status on the **UPS power conditions, batteries, and system**.



UPS Status

Input	
Status	Normal
Voltage	109.1 V
Frequency	59.9 Hz
Output	
Status	Normal
Voltage	109.9 V
Frequency	59.9 Hz
Load	0 %
NCL 1	On
NCL 2	On
Battery	
Status	Fully Charged
Capacity	100 %
Voltage	42.5 V
Remaining Runtime	7 hr. 20 min.
Remaining Charge Time	0 min.
System	
Status	Normal
Temperature	28 °C / 82 °F

UPS/Status page of a PR1000LCDRTXL2Ua

Input

- **Status**: Displays the present status of the utility power supplied to the UPS.
  - **Normal**: The voltage and frequency of the utility power is normal.
  - **Blackout**: There is no utility power being supplied to the UPS and it is supplying battery power to connected equipment.
  - **Over Voltage**: The utility voltage is higher than the high voltage threshold and the UPS is using the battery to supply power.
  - **Under Voltage**: The utility voltage is lower than the low voltage threshold and the UPS is using the battery to supply power.
  - **Frequency Failure**: The frequency of the utility power is out of tolerance and the UPS is supplying battery power with a fixed frequency.

- **Wiring Fault**: The UPS has detected a wiring fault in the outlet it is plugged into.
- **No Neutral**: The neutral wire is not connected properly.
- **Generator Detected**: UPS is being supplying power by generator.
- **Power Failure**: The utility power being supplied to the UPS is not within spec due to other power noise and distorted conditions.

- **Voltage**: The voltage of the utility power supplied to the UPS.
- **Frequency**: The frequency of the utility power supplied to the UPS.
- **Current:** The current of the utility power supplied to the UPS.
- **Power Factor:** The ratio of the real power flowing to the UPS, to the apparent power of utility power. In an UPS system, a UPS with a low power factor draws more current than a UPS with a high power factor for the same amount of useful power transferred.

Bypass

- **Status:** Displays the present status of bypass circuit. In bypass mode, the UPS will provide the power from bypass input to the connected equipment directly.
  - **Normal:** The power quality of bypass circuit is normal.
  - **Blackout:** There is no input power being supplied in bypass circuit.
  - **Over Voltage:** The input voltage of bypass is higher than an acceptable threshold.
  - **Under Voltage:** The input voltage of bypass is lower than an acceptable threshold.
  - **Frequency Failure:** The frequency of bypass is out of tolerance.
  - **Power Failure:** The power of bypass is not qualify due to other power noise and distorted conditions.
  - **Wrong Phase Sequence:** The phase sequence of the bypass circuit is different from utility power.
  - **Overload:** Output power consumption exceeds the power rating of UPS.
  - **Extended Overload:** The duration of the overload is too long, UPS will shut down soon..
- **Voltage:** The voltage of the bypass supplied to the UPS.
- **Current:** The current of the bypass supplied to the UPS.
- **Frequency:** The frequency of the bypass supplied to the UPS.
- **Power Factor:** The ratio of the real power flowing to the bypass, to the apparent power of bypass. In an UPS system, a load with a low power factor draws more current than a load with a high power factor for the same amount of useful power transferred.

Output

- **Status**: Displays the present status of the output power the UPS is supplying to connected equipment.
  - **Normal**: The output power is normal.
  - **Bypass**: The UPS has switched to bypass mode and the utility power is being supplied directly to the connected equipment bypassing the UPS circuitry.
    *Note: Bypass mode is only applicable in **Online Series** UPS units.*
  - **No Output**: There is no output from the UPS. The UPS is switched off.
  - **Short Circuit**: There is a short circuit on the UPS output. This causes the UPS to stop supplying output power.
  - **Boost**: The utility voltage is below the regular voltage range. The UPS is increasing the output voltage closer to normal.

- **Buck**: The utility voltage is beyond the regular voltage range. The UPS is decreasing the output voltage closer to normal.

  Note: *The Boost and Buck function are only available on a UPS with AVR; only high-end units with AVR have a Buck feature. The UPS uses the AVR function to improve the utility voltage and supplies the power to its connected equipment within a narrow range.*
- **Overload**: The present load exceeds the load threshold of the UPS. Remove some equipment from the UPS to reduce the load.
- **ECO Mode**: On-line UPS enters Economy mode. The UPS will enter bypass mode according to thresholds for input voltage. Once the utility voltage exceeds thresholds, the UPS will supply battery power to its loads. Users can configure *exclusive days* and *exclusive time* to for UPS when to not enter ECO mode.
- **Manual Bypass**: The Online UPS enters Manual Bypass mode due the *Manual* option being enabled. The UPS will be forced to provide utility power to its equipment.
- **Insufficient Inverter Power**: There is no enough capacity of the inverter's power. UPS cannot back to line mode from bypass mode.
- **Redundancy Lost**：The quantity of UPS modules has no enough power to be complete redundancy; UPS has no complete fault-tolerant ability.
- **EPO:** The function of **EPO** (**E**mergency **P**ower **O**ff) has been activated; UPS output power was turned off.

- **Voltage**: The output voltage that the UPS is supplying to the connected equipment.
- **Frequency**: The output frequency that the UPS is supplying to the connected equipment.
- **Load**: The power draw of the connected equipment expressed as a percentage of the total load capacity. This is displayed as watts on some UPS models.
- **Current**: The output current of the UPS which is supplying to connected equipment.
- **Active Power**: The capacity of the circuit for performing work in a particular time.
- **Reactive Power:** Reactive power is needed in an alternating-current transmission system to support the transfer of real power over the network. In alternating current circuits, energy is stored temporarily in inductive and capacitive elements, which can result in the periodic reversal of the direction of energy flow. The portion of power flow remaining, after being averaged over a complete AC waveform, is the real power; that is, energy that can be used to do work. On the other hand, the portion of power flow that is temporarily stored in the form of magnetic or electric fields, due to inductive and capacitive network elements, and then returned to source, is known as *reactive power.*
- **Apparent Power:** The product of the current and voltage of the circuit.
- **Power Factor**: The radio of the active power flowing to the load, to the apparent power in the circuit. In an electric power systems, a load with a low power factor draws more current than a load with a high power factor for the same amount of useful power transferred.
- **NCL Outlet**: Displays the present status of the NCL outlet.
  - **On**: This outlet is turned on and supplying power to the connected equipment.
  - **Off**: This outlet is turned off and is not supplying power to the connected equipment.
  - **Pending On**: This outlet is going to turn on following an action such as a scheduled turn on.
  - **Pending Off**: This outlet is going to turn off following an action such as a scheduled turn off.

Battery

- **Status**: Displays the present status of the battery packs.
  - **Fully Charged**: The batteries are at 100% capacity.
  - **Discharging**: The UPS is supplying battery power to support the load. This is caused by a utility power failure or battery test.
  - **Charging**: The batteries are charging.
  - **Boost Charging:** Boost charging involves a high current for a short period of time to charge the battery. Boost charger enables the quick charging of depleted batteries.
  - **Float Charging**: The float charger starts charging the battery by exerting a charging voltage. As the battery is charged, its charging current reduces gradually. The float charger senses the reduction in charging current and reduces the charging voltage.
  - **Exhausted**: Batteries are exhausted; UPS stops the output power.
  - **Reversed Connection**：Connection between UPS and batteries is wrong on electrical polarity.
  - **Capacity Critically Low**: The battery capacity is too low and the UPS may shut down immediately.
  - **Not Present**: There are no batteries present in the UPS.
  - **Testing**: The UPS is performing a battery diagnostic test. See the **UPS/Diagnostics** page for more details about the test results.
  - **Normal**: The batteries are working normally.
- **Voltage**: The present voltage supplied by the batteries.
- **Remaining Runtime**: The amount of time that the UPS can supply power to its load.
- **Remaining Charge Time**: The remaining time the batteries required to be fully charged.
- **Capacity**: The present capacity of the batteries expressed as a percentage of full charge.

System

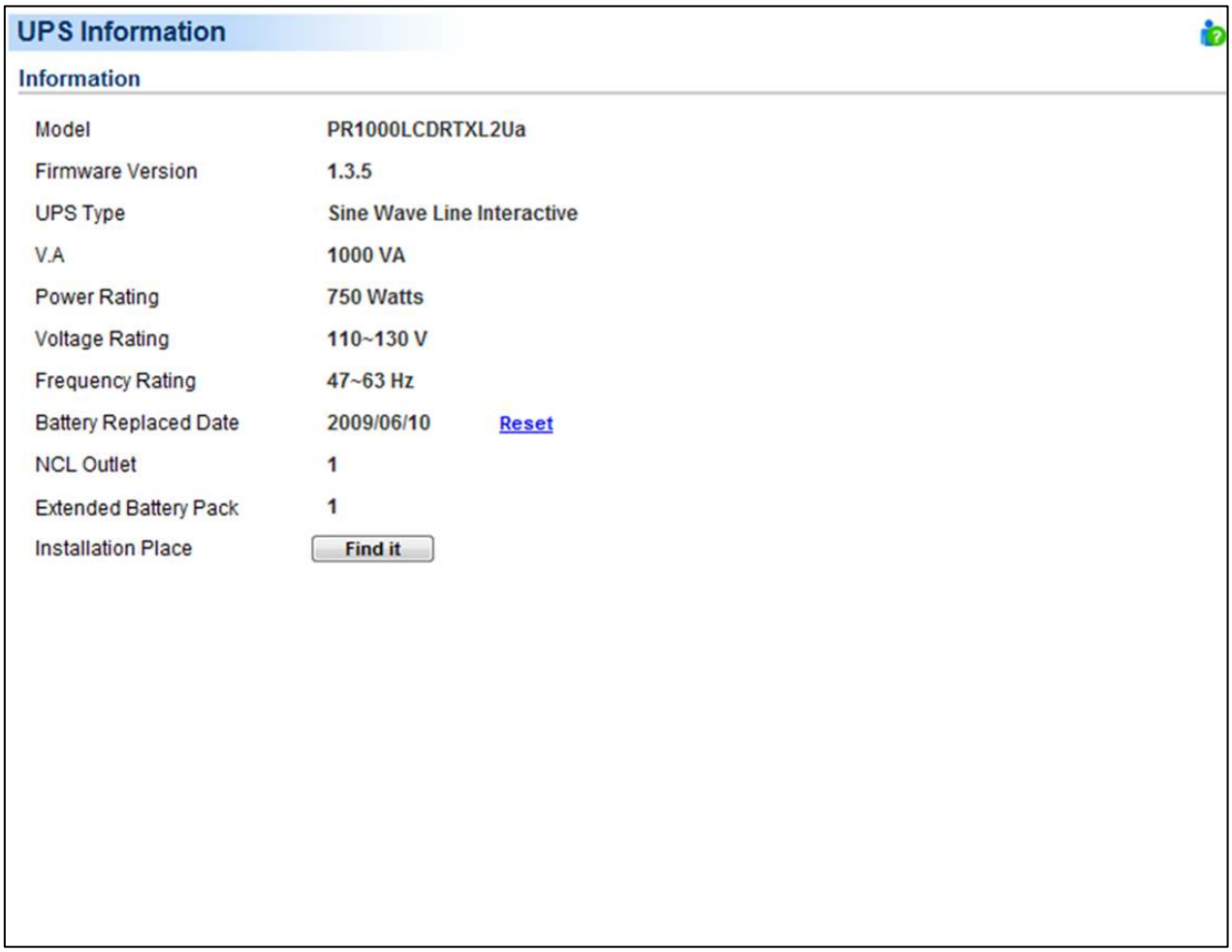
- **Status**: Displays the present operating status of the UPS.
  - **Normal**: The operating status is normal.
  - **Fault**: The UPS is in fault state due to an internal malfunction.
  - **Overheat**: The temperature exceeds the normal temperature threshold.
  - **Bypass Fault**: The bypass module of UPS has been malfunctioned.
  - **Bypass Fan Fault**: The fan of the bypass module has been malfunctioned.
  - **Module Failure**: One of UPS modules is no more normal and offline.
  - **Unable Recover**: UPS fails to recover to line mode from bypass on occurred overload condition in past one hour.
- **Temperature**: The present internal temperature of the UPS. It is displayed in both Celsius (°C) and Fahrenheit (°F).
- **Maintenance Break**: Displays the present operating status of maintenance break.

  Note: *When the UPS needs maintenance or repair, the load can be transferred to maintenance bypass without interruption and the power module can be removed for maintenance.*
  - **Opened:** The UPS is in maintenance bypass mode.
  - **Closed:** The UPS is not in maintenance bypass mode.

- **Module Status**: Displays the present operating status of each UPS module.
  - **Normal:** The module is operating normally.
  - **Offline:** The module is not installed.
  - **Rectifier Fault:** The module rectifier is faulty and stops output power.
  - **Inverter Fault:** The module inverter is faulty and stops output power.
  - **Inverter Protected:** The module inverter has been protected and stops operating.
  - **Rectifier Overheat:** The internal temperature of module rectifier exceeds the normal rating.
  - **Inverter Overheat:** The internal temperature of module inverter exceeds the normal rating.
  - **Inverter Overload:** The module inverter is overloaded.
  - **Inverter Extended Overload:** The module's inverter has been overloaded for intolerable duration; the UPS will stop output power soon.
  - **Fan Fault:** The module fan is faulty. It may cause overheat in module.
  - **Shutdown:** The module has been shut down and stopped its output power.

Note: *Not all models provide the same information. The information displayed will vary by model.*

Information



UPS/Information page of a PR1000LCDRTXL2Ua

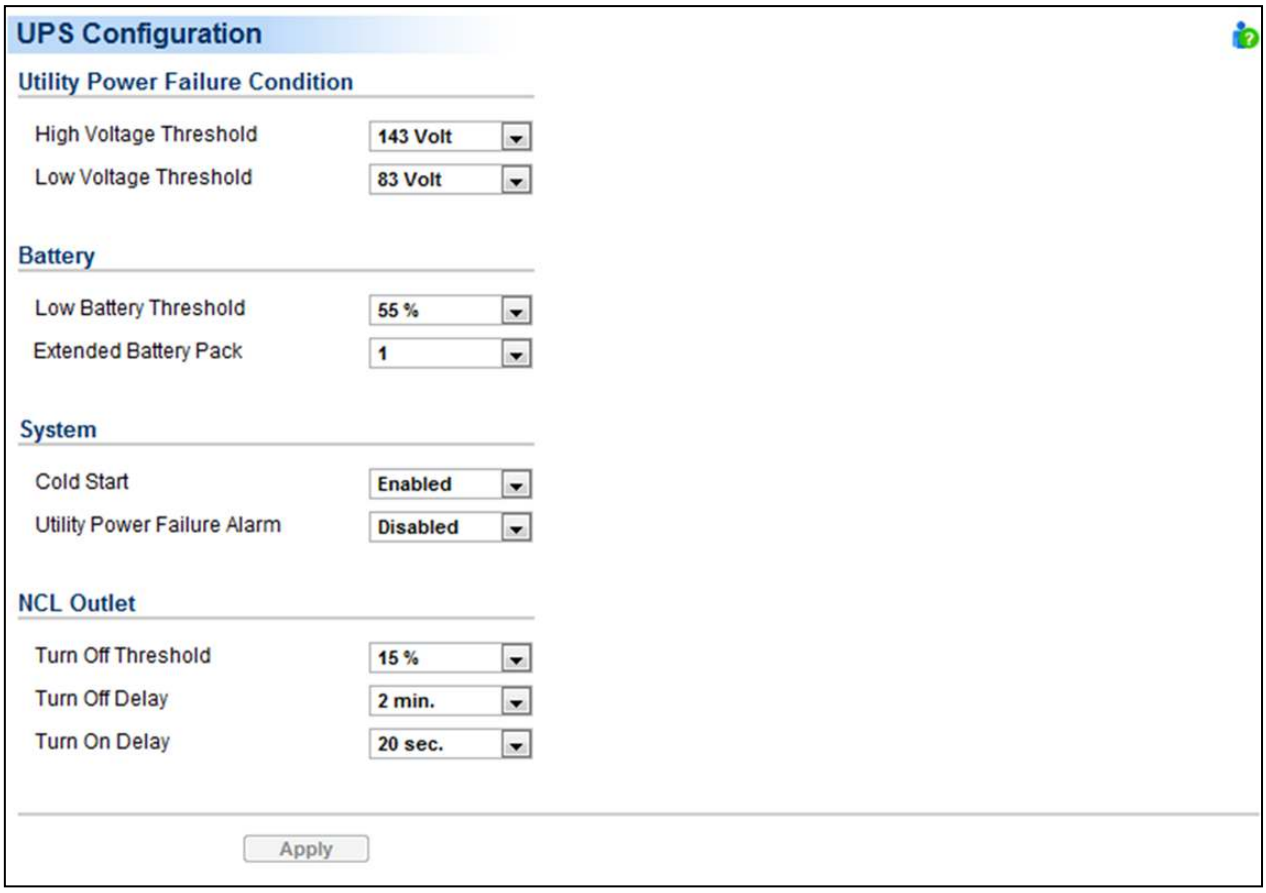
The **UPS/Information** page shows information about the UPS:

- **Model**: The model name of the UPS.
- **Firmware Version**: The firmware version of the UPS.
- **Serial Number**: The serial number of the UPS.
- **UPS Type**: The type of the UPS. e.g. *On-Line*, *Line Interactive* or *Sine wave Line Interactive*.
- **Power Rating**: The Volt-Amp rating and power rating (Watts) of the UPS.
- **Current Rating**: The output current rating (Amps) of the UPS.
- **Voltage Rating**: The input voltage range (Volts) of the UPS.
- **Frequency Rating**: The input frequency range (Hz) of the UPS.
- **Next Battery Replacement Date**: The next date that the batteries should be replaced. This date only changes based on the Battery Replacement Date.
  Battery Replacement Date is the date that batteries have been replaced. This date should be changed immediately after the battery replacement or when the unit is first purchased. The battery lifetime varies by UPS models. Once battery replacement date is changed, the software will alert the customer when the battery age has reached the lifetime.
- **NCL Outlet**: The amount of the Non-Critical Load outlets.
- **LCD Firmware Version**: The firmware version of the LCD screen on the UPS.
- **USB Version**: The version of the USB chipset on the UPS.
- **Extended Battery Pack**: The amount of extended battery packs connected to the UPS.
- **Installation Place**: Clicking the **Find it** button will ask alarm to beep or indicators to blind in order to inform users of the location. This helps users to identify the specific UPS at installation sites with multiple UPS units.

Note: *Not all models provide the same information. The information displayed will vary by model.*

Configuration

The **UPS**/**Configuration** page allows for customized UPS configurations to meet specific operational requirements.



UPS/Configuration page of a PR1000LCDRTXL2Ua

Supplied Power

- **Voltage:** Sets the output voltage which is supplied to the connected equipment.
  Note: *On some models belonging to the* ***Smart App Online Tower series****, this setting becomes configurable in bypass mode and the changes require a restart to activate.*
- **Frequency Working Mode: Smart App Online** series supports two frequency modes: **Follow-up** and **Fixed**. In the *Follow-up* mode, the UPS supplies power based off of the utility frequency. If utility frequency varies and is out of tolerance, the UPS supplies battery power with a fixed frequency to avoid supplying the connected equipment an improper frequency. The fixed frequency depends on the utility frequency detected as the UPS is powering up. In *Fixed* mode, the UPS supplies power at a fixed frequency with no regard to utility frequency. When the input frequency is unstable such as with power supplied by generators, set the UPS to fixed mode to supply power with a stable frequency.
  The UPS can be set to fixed mode if the equipment needs a different frequency from the utility power. For example, the equipment is rated at 50 Hz but utility frequency is at 60 Hz.
- **Follow-up Tolerance:** Sets the acceptable range of the output frequency on the **Follow-up** mode.

- **Fixed Frequency:** Sets the fixed value of the output frequency on the **Fixed** mode.

  Caution: *The wrong frequency settings may damage the connected equipment. Make sure the selected frequency is correct for the connected equipment. An alert warning message will remind you of the following conditions:*

  - *The frequency mode has changed from the **Follow-up** mode to the **Fixed** mode, and the fixed frequency is not equal to the utility frequency.*
  - *The frequency mode is **Fixed** mode and the fixed frequency is going to be changed.*

- **ECO Mode:** The UPS will enter bypass mode according to the utility voltage if it is in range of thresholds or the utility frequency is within 3Hz of the utility frequency. If the utility voltage or the utility frequency exceeds thresholds, the UPS will supply battery power to its loads.

  If this threshold is set to 10% and the current utility voltage is 120 V, the UPS will enter bypass mode as long as the utility voltage within the range of 108 V ~ 132 V. Once the voltage threshold is exceeded, the UPS will supply battery power to its loads.

  Caution: *Once the UPS is made to enter **Fixed** mode, **Generator** Mode or **Manual Bypass** when the UPS is in the ECO mode**, the UPS will leave ECO mode.***

  Users can configure *exclusive days* and *exclusive time* to tell the UPS when not to enter ECO mode.

  - **Exclusive Days:** Sets the days for UPS not to enter ECO mode.
  - **Exclusive Time:** Sets the time period for UPS not to enter ECO mode.

Power Failure Condition

When the utility power exceeds specific thresholds, the UPS will supply battery power to the connected equipment.

- **Utility Voltage Upper/Lower Bound:** Before utility power is provided to the UPS, the UPS will detect whether utility voltage exceeds the threshold. If utility voltage exceeds the threshold, the UPS will supply battery power to the connected equipment.
- **Output Voltage Upper/Lower Bound:** Before the UPS uses utility power as its output power, the UPS will detect whether utility voltage exceeds the threshold. If the utility voltage exceeds the threshold, the UPS will supply battery power to connected equipment.

  Note: High/Low Utility Voltage Threshold & High/Low Output Voltage Threshold *settings only come into effect after a restart of the UPS.*
- **Frequency Upper/Lower Bound:** When the utility frequency exceeds the threshold, the UPS will supply battery power at a fixed frequency to the connected equipment.
- **Detected Sensitivity:** When the UPS detects that utility voltage is out of range, the UPS will switch to battery mode to protect the equipment plugged into the UPS. Low sensitivity has a wider voltage range and the supplied power may vary more. The UPS switches to battery mode rarely and also saves more battery power. The power from a fuel generator may cause the UPS to switch to battery mode more frequently, and low sensitivity is recommended. High sensitivity allows the UPS to supply more stable power to equipment but switches to battery mode frequently.

Power Restore

When a utility power failure occurs, PowerPanel® Business Edition software may order the computer to shut down and power off after the specified remaining runtime is met or if the battery capacity is low. After the utility power is restored the UPS turns on automatically and supplies power to the computer. If the computer BIOS is set to boot when power is restored the computer will automatically restart.

The following settings are used to configure the UPS restore behavior:

- **Automatic Restore:** When this option is enabled, the UPS will restore output immediately when the utility power is restored. When this option is disabled, the UPS will not restore output at that moment and users have to turn it on manually.
- **Mandatory Power Cycle:** When a shutdown sequence is initiated due to a power failure, the connected computers may be ordered to shut down and the UPS will be also ordered to turn off after a time delay. If the utility power is restored prior to the UPS shutting off, the UPS will still turn itself off. In this circumstance, the utility power has restored, but the connected computers have shut down and the UPS has turned off.
  If the *Mandatory Power Cycle* option is enabled, the UPS will also turn off after a time delay, but it will turn on again about 10 seconds later. The UPS has restarted and then all connected computers will boot.
  Note: *Most computers have the ability to boot when utility power is restored. Make sure this function is supported and enabled in the system BIOS.*
- **Recharged Delay:** When the utility power is restored, the UPS will start to recharge until the specified delay is expired before restoring output power.
- **Recharged Capacity:** When the utility power is restored, the UPS will start to recharge until the specified battery capacity is met before restoring output power.
- **Startup Delay:** When the utility power is restored, the UPS will delay the restoration of output power. This option can be used to stagger the startup time of multiple UPS to avoid overloading the utility power circuit or power source. The *Startup Delay* option will take effect every time when the UPS is about to restore power. This also includes the scheduling task.
- **Stable Utility Delay:** When the utility power is restored, the UPS will delay switching to normal operation from using battery power. If the battery capacity is lower than the Low Battery Threshold as power is restored, the UPS will switch to normal operation immediately. This option can be used to prevent frequent outage due to unstable utility power.
- **Restore Action:** Sets the operating mode after utility power restores. If the *Bypass* option is selected, the UPS will enter to bypass mode and supply power from the bypass module to connected equipment when utility power restores. If the *Online* option is selected, the UPS will supply power from the UPS modules to connected equipment when utility power restores. If the *Standby* option is selected, the UPS will be off when utility power restores.

Bypass Condition

The **Online UPS series** supports the bypass function. When the UPS is in bypass mode, the utility power is supplied directly to the connected equipment. To configure whether the UPS is allowed to enter or remain in bypass mode in select from the following:

- **Qualification:** This configures the qualifications the UPS uses to determine if it will enter bypass mode when a UPS fault or overload occurs.
  - **Valid Volt. & Freq.**: If the utility voltage is in range of the voltage thresholds and the utility frequency is in range of the frequency tolerance, the UPS will enter bypass mode. Otherwise the UPS will stop supplying output power.
  - **Valid Voltage:** If the utility voltage is in range of the voltage thresholds, the UPS will enter bypass mode. Otherwise the UPS will stop supplying output power.
  - **Never Bypass:** If this option is selected, the UPS will not enter bypass mode and will stop supplying output power.
- **Mandatory:** If this option is enabled, the UPS will enter bypass mode due to a fault or overload, even if the utility voltage is outside of the normal range. Otherwise the UPS will stop supplying output power.
  Caution: *Bad utility voltage while in bypass mode may damage the connected equipment.*
- **Manually Execution:** Determines whether to allow the UPS to enter Manual Bypass mode. If this *Start* option is selected, the UPS will be forced to enter bypass mode.
  Caution: *Make sure that the UPS is not using generator power or converted power. When the UPS enters bypass mode, the UPS will use input power to supply to equipment. The unstable frequency of the input power may damage connected equipment.*
  Caution: *If this option is enabled, the UPS can't function in Generator mode.*
- **Voltage Upper/Lower Bound:** When a UPS fault or overload occurs, the UPS will determine whether to enter bypass mode according to the utility power threshold range. If the utility voltage exceeds thresholds, the UPS will be forbidden to enter bypass mode and will stop supplying output power.
- **Overload:** This configures the ability of the UPS to switch to bypass mode and supply utility power when the output is overloaded. Without this enabled the UPS will stop supplying power when overloaded.
- **Bypass at Power Off:** This determines whether the UPS will switch to bypass mode and supply utility power when the UPS is switched off.
- **Bypass Frequency Tolerance:** If the UPS tries entering bypass mode due to an overload or fault, the UPS will compare the frequency with the Bypass Frequency Tolerance. If the frequency is out of range, the UPS will stop supplying output power.

Battery

- **Prevent Excessive Discharge:** When the UPS uses the battery to supply power for output, a deep discharge with a low load can shorten the battery life. If this option is enabled, the UPS will stop supplying power after discharging for 4 hours to avoid a deep battery discharge.
- **Energy Saving:** When the utility power fails, the batteries will start discharging. If this option is enabled and there is no output load, the UPS will shut down to save battery power after discharging for 5 minutes. The UPS will restart automatically and restore output after the utility power is restored.
- **Low Battery Threshold:** When the UPS supplies battery power and the remaining capacity is lower than this threshold, the UPS will sound an alarm.
- **Battery Pack Type:** Sets the type of extended battery packs. When the UPS is installed with standard battery packs, Agent has capability of measurement the runtime according to the capacity of the battery packs. The option should be set *Standard*. When the UPS is installed with customized battery packs, the option should be set *Customization.*
- **Periodical Battery Test:** The UPS will periodically perform the battery test to ensure the batteries are fully functional.

  Note: *Only online double conversion UPS models (OL series) support the Smart Battery Management (SBM) feature. SBM carries out battery tests when certain operating conditions are met in order to verify the batteries are healthy. This occurs regardless of the Periodical Battery Test setting, even if it is disabled. To disable the SBM setting, please refer to the respective UPS User Manual for details.*
- **Extended Battery Pack:** Sets the amount of extended battery packs. This allows for an accurate runtime estimate based upon the total number of batteries.
- **Boost Charge Period:** Sets the period for UPS batteries being boost charged automatically and periodically.
- **Discharge Duration Limit:** Sets the duration to limit the battery discharging to avoid a deep discharge excessively.

System

- **Cold Start:** Sets the ability of the UPS to start in the absence of input power. When this option is enabled the UPS can be turned on without having input power.
- **Short Circuit Recovery Detect:** When the output of the UPS causes a short circuit, the output will turn off immediately. If this option is enabled, the UPS will inspect the circumstance of the short circuit 3 times in 30 seconds. If the short circuit is no longer present, the UPS will restore power. If the circumstances of the short circuit still remain, the UPS will not supply power.
- **Utility Power Failure Alarm:** If this option is enabled, the UPS will issue an audible alarm when the utility power fails.
- **Overload Alarm Threshold:** When the output load exceeds this threshold, the UPS will issue an audible alarm.
- **Generator Mode:** If the UPS is using a generator for its input power, this option should be enabled for UPS to function normally. If this option is enabled, the UPS will be forbidden to enter bypass mode to protect the powered equipment.

  Caution: *If this option is enabled, the UPS can't function in the Manual Bypass mode*.

- **LCD Back-light Saving:** When no UPS button is pressed or no power event occurs during this delay, the LCD screen will be turned off.
- **Wiring Fault Detecting:** If this option is enabled, the UPS will detect if the UPS wiring is not grounded or reversed. It is recommended to assure the UPS wiring has ground connection first. This option should be enabled if the UPS wiring has ground connection.
- **Dry Relay Function:** This configures the power condition for the UPS dry relay to function when the selected condition occurs. Refer to UPS manual for further information about advanced UPS dry relay utilization. The *Dry Relay Function* provides the following power conditions:
  - **Utility Failure:** The utility power fails and the UPS is using the battery power.
  - **Low Battery:** The battery capacity is low and cannot support the connected computers if they require a shutdown.
  - **Alarm:** The UPS is issuing an audible alarm due to a warning event, such as *Overload*
  - **Bypass:** The UPS has switched to bypass mode due to an overload or UPS fault.
  - **UPS Fault:** The UPS may be malfunctioning due to an internal problem, such as an inverter fault, bus fault or overheating.
- **Redundant Quantity:** Sets the quantity of UPS modules to be power redundancy. This power redundancy can provide the fault-tolerant protection against failures of equivalent UPS modules. UPS should avoid exceeding output load from whom deducted the power redundancy; otherwise UPS cannot afford the equivalent fault-tolerant protection as user's desire.

NCL Outlet

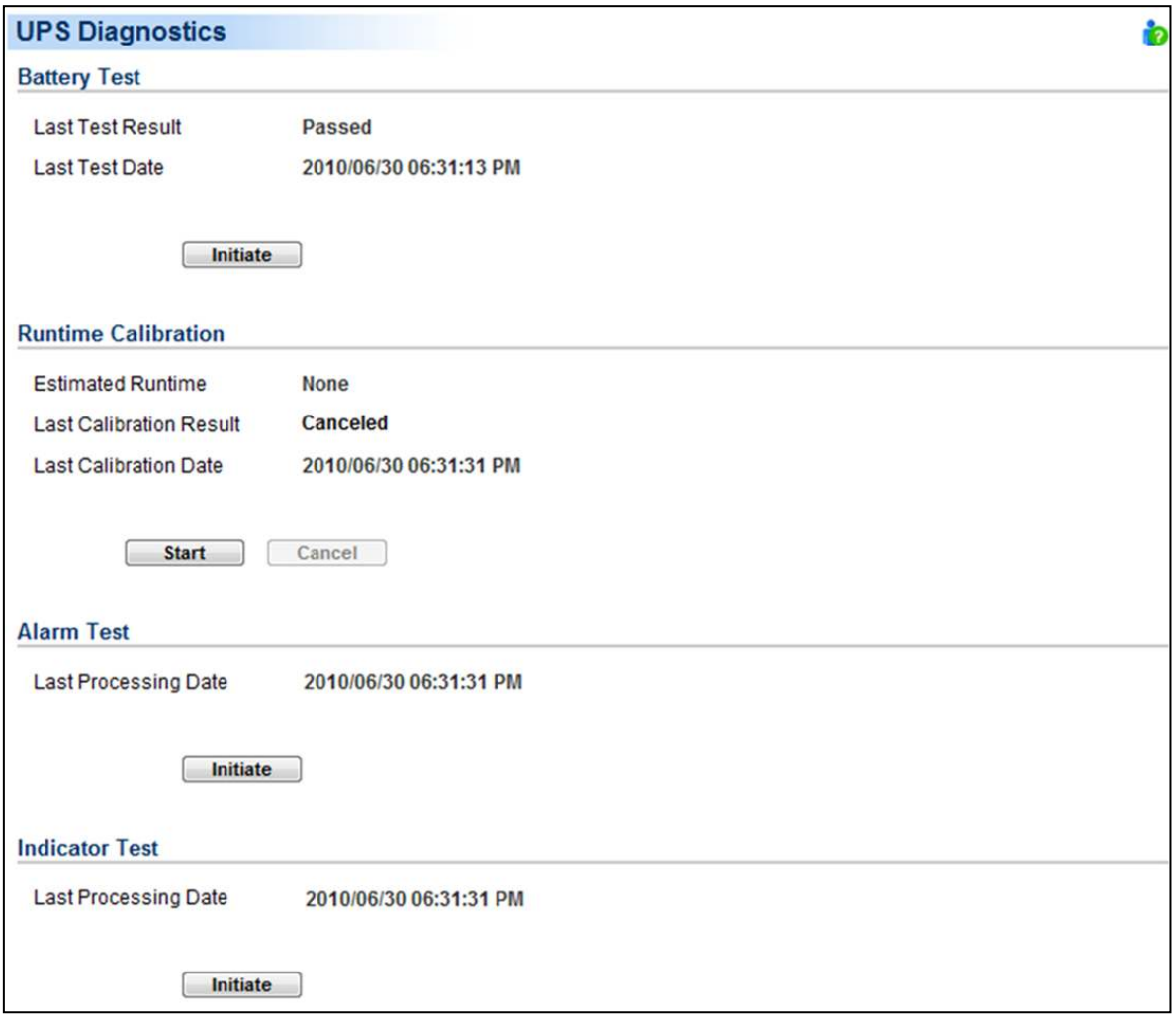
NCL stands for Non-Critical Load. Under the following conditions, the UPS will turn off the NCL outlet to conserve battery power and maximize battery runtime for the remaining outlets:

- **Turn Off Threshold:** When supplying battery power, the UPS will power off this NCL outlet if the remaining battery capacity is lower than this threshold.
- **Turn Off Delay:** When supplying battery power, the UPS will power off this NCL outlet after this delay time is met.
- **Turn On Delay:** When the utility power is restored, the UPS will restore the output of this NCL outlet after the delay time is met. This prevents excessive power consumption caused by all the connected equipment starting at the same time.

Note: *Not all models provide the same configurations. These configurations will vary by model.*

Diagnostics

The **UPS/Diagnostics** page provides the ability to verify that the UPS can supply adequate battery runtime for the connected computers to shutdown properly. Perform a complete runtime calibration to ensure an accurate estimate of the runtime for the connected load. The buzzer can be tested to ensure that the UPS can issue an alarm and that the indicator lights will display properly if requested by the UPS.



UPS/Diagnostics page

Battery Test

The **Battery Test** performs a battery test to verify that the batteries are good, and shows information including the result and the date of the last battery test. Click the **Initiate** button to begin a battery test. Performing a battery test is prohibited when the **Frequency Working Mode** option is set to ***fixed***.

The results will be reported after a battery test completes:

- **Last Test Date**: The date the last battery test was performed.
- **Last Test Result**: The result of the last battery test:
  - **Passed**: The battery performed normally during the test.
  - **None**: The UPS has never performed the battery test.

- **Failed**: The battery test resulted in failure.

Follow the steps below if the battery test fails:

- Repeat the battery test and replace the batteries if the test fails again.
- Contact **CyberPower** for assistance if the battery test fails after the batteries have been replaced.

Runtime Calibration

The **Runtime Calibration** ensures the runtime estimate is accurate with the current load. The results show the runtime, the result, and the date of the last calibration. When a runtime calibration is initiated, the connected equipment will be run on battery power until the batteries are completely discharged. The batteries will be then automatically recharged following the calibration.

Users can click the **Start** button to initiate a runtime calibration. Click the **Cancel** button to interrupt the runtime calibration. The result will be reported after a calibration is finished or canceled:

- **Estimated Runtime**: The estimated runtime of the batteries.
- **Last Calibration Result**: The result of the last runtime calibration.
  - **Passed**: The runtime calibration completed and the batteries are good.
  - **None**: The UPS has never performed a runtime calibration.
  - **Failed**: The UPS failed during the runtime calibration.
  - **Canceled**: The calibration was interrupted.
- **Last Calibration Date**: The date the last runtime calibration was performed.

Note: *It is recommended to perform at least one calibration every 3 months.*
Note: *A complete calibration causes the battery capacity to deplete, Ensure the UPS is recharged completely after performing a calibration.*

Alarm Test

The **Alarm Test** allows users to verify that the alarm can beep normally and shows the date of the last test. Click the **Initiate** button to begin an alarm test.

The details will be reported after an alarm test is complete:

- **Last Processing Date**: The date the last alarm test was performed.

Indicator Test

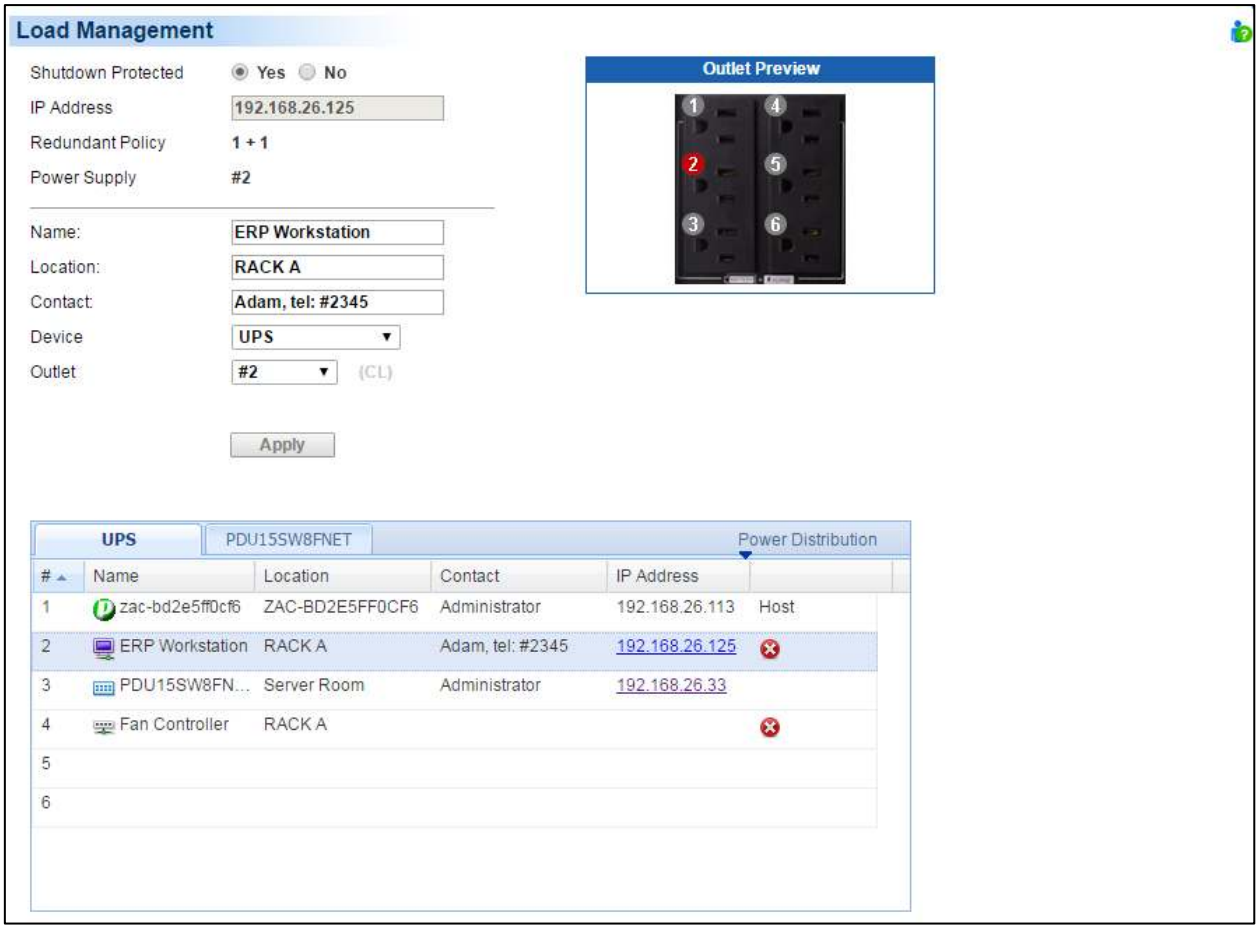
Indicators on the front panel or on the LCD screen are used to present the UPS status. Once the indicators are malfunctioning, users won't know the current UPS status. The **Indicator Test** allows users to ensure whether indicators blink normally. Click **Initiate** button to begin an indicator test.

The details will be reported after an indicator test is complete:

- **Last Processing Date**: The date the last indicator test was performed.

Load

The UPS supplies power to generic equipment and shutdown-protected computers that connect to native outlet sockets of UPS or extended PDU. The **UPS/Load** page provides detailed information about connected loads and the extended PDU.



PowerPanel Business Edition Agent: UPS/Load page

Manage Loads

Users can manage connected loads that include generic equipment and computers from the **Load Management** page. A UPS and named PDU tabs whose lists contain connected loads. All connected loads can be listed with detailed information including the name, location, contact, and what type of outlet the equipment is plugged in from the list.

- **Plug a load on UPS or PDU.** Select the UPS or one of the named PDU tabs, click the target outlet from the list, and ensure the outlet from the **Outlet Preview** is correct, then click the **Setup** button on the target outlet to open the **Load Setup** wizard, and follow the following steps to plug a load:
    - If you want to plug-in a computer that has PowerPanel Business Edition Client software installed, choose **Computer Equipment with installed PPBE Client software**, and enter the IP address of the computer or select it from the drop-down list. Otherwise, choose **Generic Equipment Without installed PPBE Client software**. Click **Next** to continue.

- Enter the **Name**, **Location** and **Contact** of the load, if the load is a Client computer and has more than one power supply, choose the power supply which is actually supplied power by the target outlet. Click Finish to close the **Load Setup** wizard.
- The **Load Management** page will show the information about the load, click **Apply** to complete.

A drop-down list next to the IP address field shows the IP address search result of available computers that have PowerPanel Business Edition Client software installed. The refresh button (circular arrow) will start a new search to update the search result. If the target Client is not available in the Client list, change the scanning range on the **Preferences**/**User Experience** page by clicking **Do not find the target Client?** shortcut.

- **Change the load information.** Click the target load you wish to change from the list. Update the data and then click **Apply** to complete.
- **Move load's plug to another outlet.** Click the target load you want to move from the list. If you want to move the load's plug from one outlet to another one, assign the target outlet in the *Outlet* option; if you want to move the load's plug from UPS to PDU, from PDU to UPS or between PDUs, assign the target UPS or PDU in the *Device* option, and then click **Apply** to complete.
- **Unplug the load from UPS or PDU**. Click the target load you wish to unplug from the list. Click to open the **Uninstall Equipment** wizard, and then click **Yes** to complete.

The PowerPanel Business Edition Client software can be installed on computers to benefit shutdown protection in order to ensure a proper shutdown in the extended power outage event and control demands in UPS and extended PDU.

Assigning a correct outlet is important. The *Outlet* option must be configured to match the actual equipment plugged into the UPS outlet. Depending on the UPS configuration of specific models with NCL outlets, these outlets will lose power before the entire UPS is shutdown. The Agent will request Client computers powered by these outlets to perform a shutdown to avoid data loss because of the power outage.

Note: *The Client computer name will be displayed in gray if communication with the Client computer is not established*.

Manage PDU and ATS

When the PDU or ATS is connected to a UPS as additional outlets, users can manage these PDU/ATS in the list on this page. A named PDU or ATS tab (i.e. PDU15SW8FNET, the tab will have the model name of the PDU/ATS) containing connected generic equipment and computers will be created when a connection is made with a PDU/ATS from UPS, and removed when disconnected.

- **Install a PDU on UPS.** Select **Install PDU** from the dropdown menu by clicking the **Power Distribution** shortcut on the list. If the PDU has network functionality, select *Network* from the *PDU Type* option, enter the network address of PDU and assign the target UPS outlet where the PDU is plugged in; if the PDU does not have network functionality, select *Generic* from the *PDU Type* options, select a PDU model from the *Model* options and enter a name for the PDU. Click **Apply** to complete.
- **Install an ATS on UPS.** Select **Install ATS** from the dropdown menu by clicking the **Power Distribution** shortcut on the list. Assign the target UPS outlet where the ATS is plugged in, select the preferred input source of the ATS to connect with the UPS and enter the network address of ATS. Click **Apply** to complete.

- **Move PDU/ATS's plug to another UPS outlet.** Select the target PDU/ATS tab you want to move. Select **Configure PDU/ATS** from the drop-down menu by clicking the **Power Distribution** shortcut on the list and select another UPS outlet on *UPS outlet* option. Click **Apply** to complete.
- **Uninstall the PDU/ATS from UPS.** Select the target PDU/ATS tab you want to uninstall. Select **Configure PDU/ATS** from the dropdown menu by clicking the **Power Distribution** shortcut on the list. Select *Disconnect PDU/ATS with UPS* option and click **Apply** to complete.
  Note: *When a PDU/ATS is uninstalled from the UPS, all loads include generic equipment and computers on this PDU/ATS will be removed; computers will also no longer retain communication with the UPS.*

Note. *PDU or ATS may be configured in the* ***Power/Configuration*** *page of PPBE Client's web interface. A named PDU/ATS tab with the tip "Does PDU/ATS connect to UPS?" will appear automatically for users to confirm it.*
Note. *PPBE does not allow ATS to connect two input sources to one single UPS.*

#	Name	Location	Contact	IP Address	
1	DVRD60	Rack A	Torre, Tel: #4321	192.168.24.59	Hosted computer.
2	ERP Server	Rack A	Ray, Tel: #3412	192.168.24.64	
3	Backup Server	Rack A	Madson, Tel: #5566	192.168.24.240	
4	Rounter A	Rack A	Billy, Tel: #1205		
5	Fan Controller	Rack A	Thomas, Tel: #1234		
6					
7					
8					

Client computer is printed in gray when the communication is not established

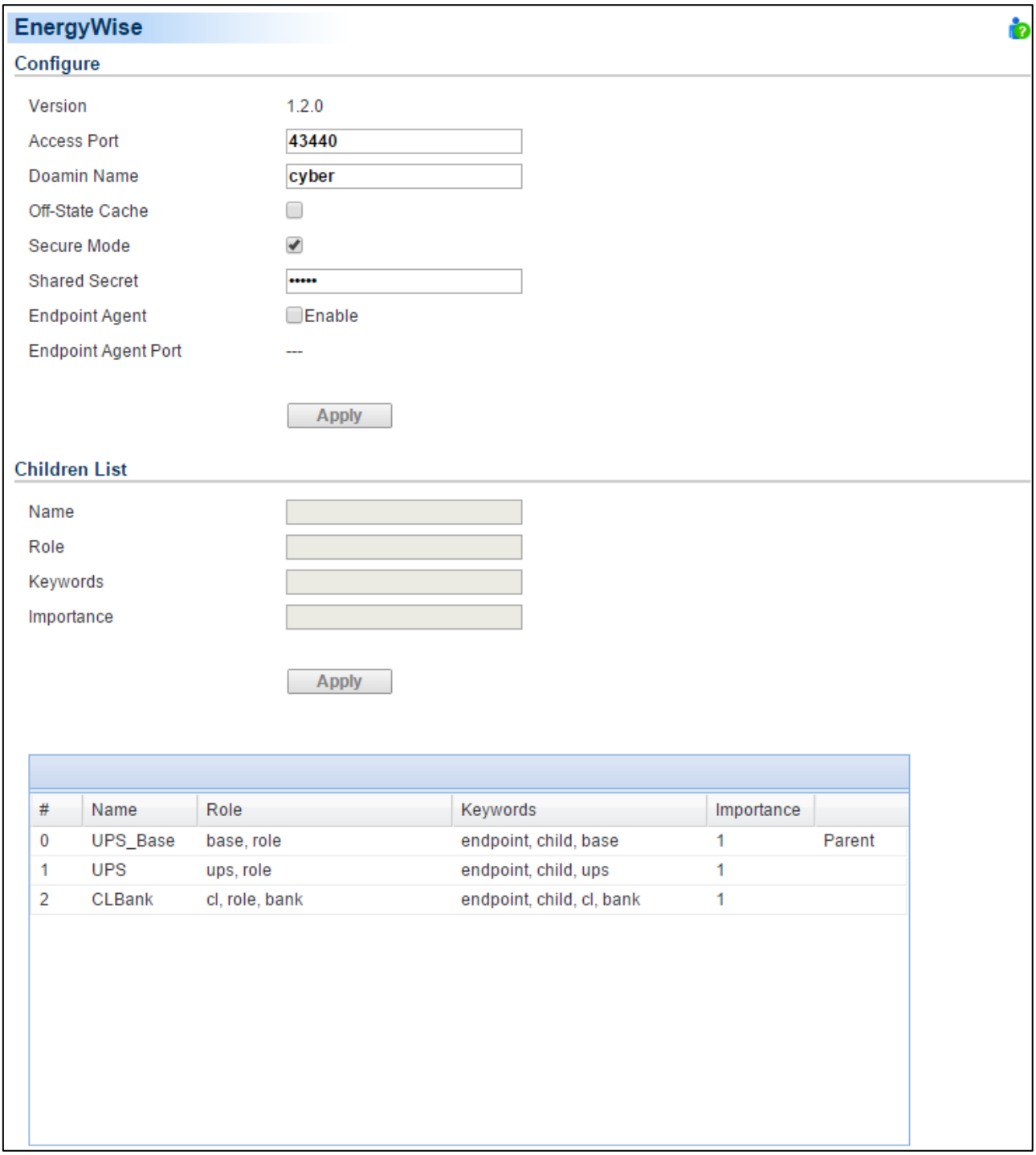
The details in list are described as following:

- **#**: Indicates which power outlet of the UPS or PDU is supplying power to the connected equipment.
- **Bank**: The bank type of the power outlet on the UPS, e.g. *NCL, CL* or *Surge.*
- **Name**: The name of the power equipment.
- **Location**: Where the power equipment is located.
- **Contact**: Who to contact about this power equipment.
- **IP Address**: The IP address of the computer that installed PowerPanel Business edition Client software. In UPS tab, a PDU with network function also shows its own IP address.

Agent searches all Clients on local network.

EnergyWise

Cisco EnergyWise technology allows Cisco switches to discover Cisco EnergyWise-controllable devices, keep track of the power use and take actions to reduce the power consumption. The **EnergyWise** page allows users to configure the connection details for Cisco switch and manipulate the device as endpoints in the children list.



Connect with Cisco Switch

Users can enter all required data and click **Apply** to establish connection with the Cisco switch.

- **Access Port:** Sets the port for Agent interaction with the Cisco switch. The default port is 43440.
- **Domain Name:** Sets the domain name for Agent interaction with the Cisco switch. The default domain name is **cyber.**
- **Off-State Cache:** If this option is enabled, Client will allow its own endpoint data to be cached on the Cisco switch when it becomes non-operational.
- **Secure Mode:** Determines whether to use the shared secret to interact with Cisco switch.
- **Shared Secret:** Sets the secret for Agent interactions with the Cisco switch. The default secret is **cyber.**
- **Endpoint Agent:** Determines whether to establish communication with Cisco switch.
- **Endpoint Agent Port:** Displays the port between the Agent and EnergyWise service. Agent will interact with the Cisco switch through the EnergyWise service.

Start EnergyWise Service

In order for Agent to establish the connection with a Cisco switch, users must enter the required data and verify that the data are matched. After *Endpoint Agent* option is enabled, click **Apply** to establish the connection.

Children List

The Agent that has joined into the EnergyWise network will become the endpoint member and can be divided into several nodes in children list. Each node has individual attributes for Cisco switches to manage the power usage.

These attributes describes as following:

- **Name:** Defines the device identity for which query results are filtered.
- **Role:** Defines the function which is based on the business or deployment context.
- **Keywords:** Defines the description for this device for which query results are filtered.
- **Importance:** The device rating which is based on the business or deployment context.

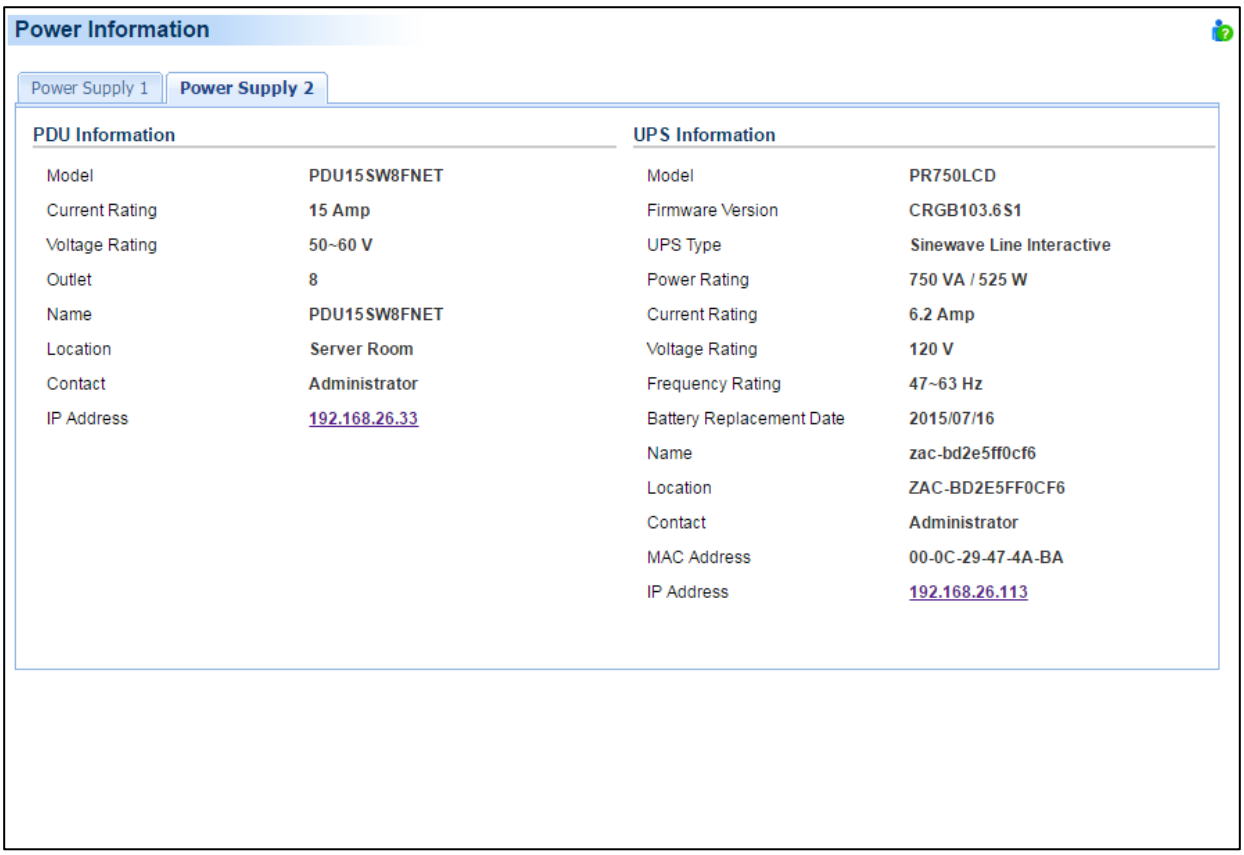
Agent is annotated as the *UPS_Base* node and *UPS* node indicates the UPS unit. According to the outlet function of the UPS, the outlet bank will be managed as *CLBank* node and *NCLBank* node. Due to limitation of the UPS, Cisco switches can only turn on or turn off an *NCLBank* node.

Power

(The content in this section is only applicable to the Client.)

The Client can interact with a UPS or a PDU through a network interface. If the UPS has no remote management card, the Agent can be installed on a single computer which is using a USB or a serial connection directly to the UPS in order to establish the network connection to the Client.

Information



Power/Information page

The **Power/Information** page shows information about the UPS/PDU/ATS which supplies power to the Client computer. When the Client establishes communication with a PDU which is connected to a UPS, the **Information** page displays the information about the PDU and the UPS individually. If the Client computer has redundant power supplies, show the information of specific power supply by click the tab.

- **Device Type**: The type of the UPS/PDU/ATS, e.g. *UPS/PDU/ATS*.
- **Model**: The model name of the UPS/PDU/ATS.
- **Serial Number**: The serial number of the UPS/PDU/ATS.
- **Firmware Version**: The firmware version of the UPS/PDU/ATS.
- **UPS Type**: The type of the UPS. e.g. *On-Line* or *Line Interactive*.
- **PDU Type**: The type of the PDU. e.g. *Monitored* or *Switched.*
- **ATS Type**: The type of the ATS. e.g. *Monitored* or *Switched.*
- **Power Rating**: The Volt-Amp rating and power rating (Watts) of the UPS.

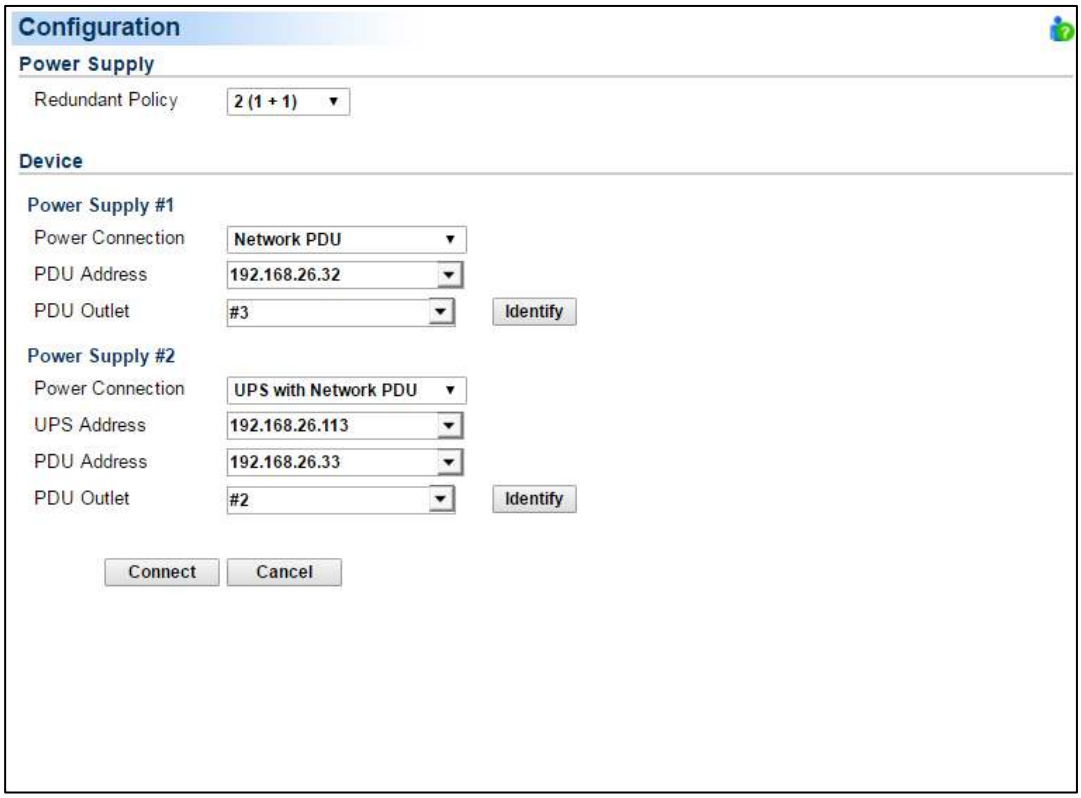
- **Current Rating**: The output current rating (Amps) of the UPS/PDU/ATS.
- **Voltage Rating**: The output voltage rating (Volts) of the UPS/PDU/ATS.
- **Frequency Rating**: The output frequency rating (Hz) of the UPS.
- **Battery Replacement Date**: The date that the batteries were last replaced.
- **NCL Outlet**: The amount of NCL (Non-Critical Load) outlets in the UPS.
- **Extended Battery Pack**: The number of extended battery packs connected to the UPS.
- **Name**: The name of the UPS/PDU/ATS.
- **Location**: Where the UPS/PDU/ATS is located.
- **Contact**: Who to contact about the UPS/PDU/ATS.
- **MAC Address**: The MAC address of the UPS RMCARD, PDU or Agent's network interface.
- **IP Address**: The IP address of the UPS RMCARD, PDU or Agent's network interface. Click the hyperlink to open the web interface of the UPS RMCARD, PDU or Agent.
- **UPS on Source A**: Indicates which UPS connects to input source A of ATS.
- **UPS on Source B**: Indicates which UPS connects to input source B of ATS.
- **Environment Sensor**: Indicates whether the environment sensor has been installed on the UPS/PDU/ATS. **Note:** When the sensor cannot be detected anymore, it will be annotated *No Response.* Users must click the **Uninstall** option if the sensor has been physically removed from the UPS/PDU/ATS.

Note: *Not all models provide the same information. The information displayed will vary by model.*

Configuration

In order for computers which have the PowerPanel Business Edition Client software installed to be aware of the UPS state and get shutdown protection from power events, the correct connection type, address and connected outlet must be assigned properly in the **Power**/**Configuration** page.

Note: *If the Client computer has redundant power supplies, please make sure that configuration of all the power supplies must be assigned properly.*



Power/Configuration page

Network communication between a computer and UPS or PDU can be established by assigning the correct power connection, address of UPS or PDU, and a computer connected outlet of UPS or PDU. The details are described as following:

- **Redundant Policy**: Configure the computer's power supply redundancy policy. Supported policies are described below:
  - **1**: Indicates the computer only has one power supply, this is the most common case.
  - **2 (1 + 1)**: Indicates the computer has two power supplies, one for redundancy. The computer needs at least one power supply to operate.
  - **3 (2 + 1)**: Indicates the computer has three power supplies, one for redundancy. The computer needs at least two power supplies to operate.
  - **4 (3 + 1)**: Indicates the computer has four power supplies, one for redundancy. The computer needs at least three power supplies to operate.
  - **4 (2 + 2)**: Indicates the computer has four power supplies, two for redundancy. The computer needs at least two power supplies to operate.

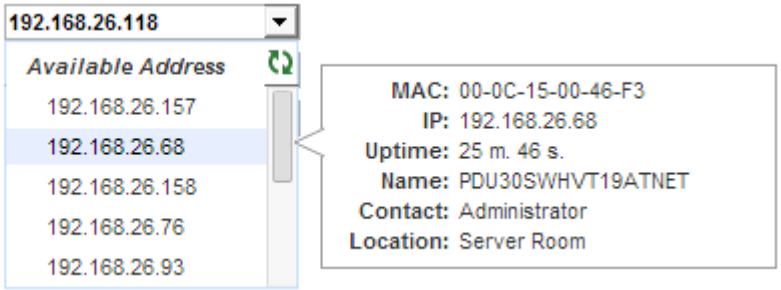
  Note: *If the Client computer has redundant power supplies, events about power supply status will only be triggered when redundant power supplies are lost. Please refer to* ***Events*** *section for details.*

- **Power Connection**: Assign the actual UPS or PDU power connection supporting the computer. Power connection options are:
  - **UPS**: Indicates the computer is plugged directly into a UPS.

- **ATS**: Indicates the computer is plugged into an ATS PDU.
- **Network PDU**: Indicates the computer is plugged into a PDU with network connection.
- **UPS with Network PDU**: Indicates the computer is plugged into a network PDU, which is a powered by a UPS.
- **UPS with Generic PDU**: Indicates the computer is plugged into a generic PDU, which has no network connection and is powered by a UPS.

- **UPS Address**: Assigns the network address of the UPS. Enter the IP address or use the drop down menu to show the device list and select a device address from the list. Clicking the refresh button causes to search the network to update the results. If a UPS communicates with a computer that has PowerPanel Business Edition Agent installed, assign the IP address of the computer as the UPS network address. This option appears when the **Power Connection** is set with the **UPS** option.

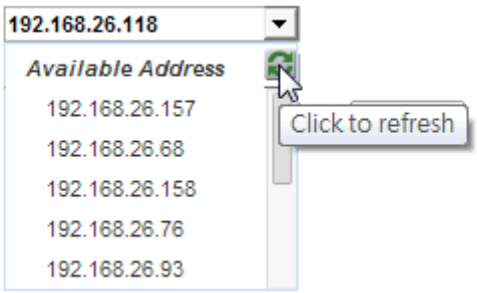
  When the **Power Connection** is set with the **ATS** option, two UPS addresses will appear to be assigned. If an input source for the ATS is a UPS, the network address of that UPS should be assigned to that field. A UPS address field which is left blank, indicates that the ATS does not use a UPS as an input power source.



Move the cursor over the target address to display details about the device

The computer searches the network and uses the device with the least uptime as the default device after an installation. One available outlet will automatically be assigned as powering the connected computer. If no outlet is available, the first critical-load outlet will be assigned as being used by the computer.
The uptime of the devices indicates the length of time that the device has been functioning without interruption. When the computer scans the network, the device with shortest uptime will be marked a yellow star icon. You can press the **Reset** button for 1 second to reset the uptime of device. This will make the device have the top priority. Do not press the reset button for more than 4 seconds. Otherwise, it will be recognized as a complete configuration reset demand.

If the target device is not available in the device list, change scanning range on the **Preferences**/**User Experience** page by clicking **Change scan range** shortcut.



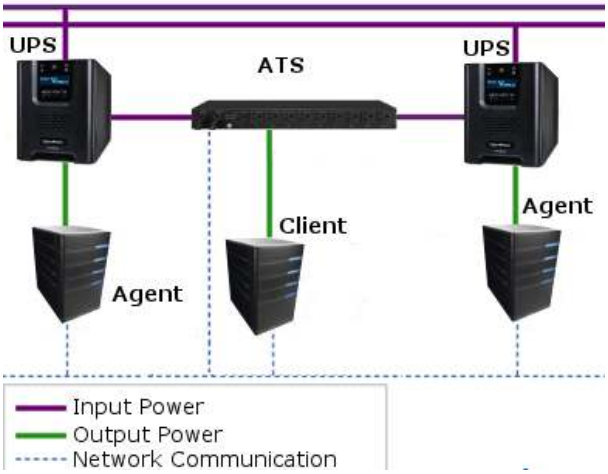
Clicking the refresh button to search all devices again on the local network

- **PDU Address**: Assigns the network address of the PDU. Enter the IP address or use the drop down menu to show the device list and select a device address from the list. Clicking the refresh button causes to search the network to update the results. This option appears when **Power Connection** is set with the **Network PDU** option.
- **ATS Address**: This option appears when **Power Connection** is set with the **ATS** option.
- **PDU Name**: Select the target generic PDU from list. When the ***UPS with Generic PDU*** option for the ***Power Connection*** setting is used and a UPS address is entered, the computer will fetch the list of installed PDUs from the UPS. If the list is empty, then users must first install the PDU in the **UPS**/**Load** page of PowerPanel Business Edition Agent.
- **UPS Outlet**, **PDU Outlet and ATS Outlet**: Indicates which power outlet of the UPS/PDU/ATS is supplying power to the computer that has PowerPanel Business Edition Client software installed. The outlet list will be updated after entering the network address of the UPS/PDU/ATS. An outlet preview will be shown with the selected outlet so users may verify whether the computer is connected to the proper outlet.
  The **Identify** button is only visible after the Client has established communication with the network PDU; the identification function helps to identify which outlet has the connected equipment. The PDU will blink the outlet number on the LCD screen to verify the actual connection on the PDU matches when the **Identify** button is pressed.

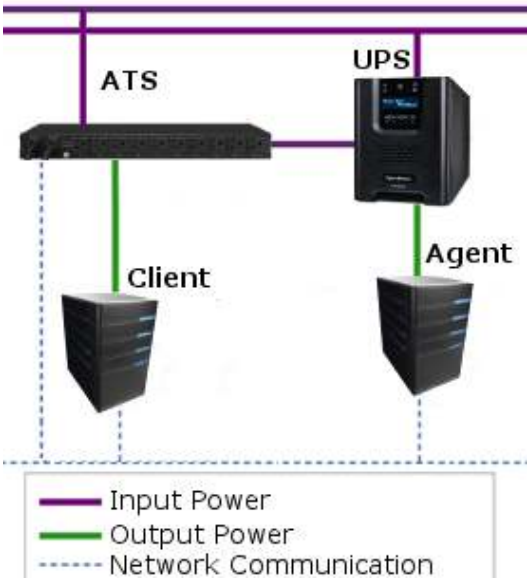
How to Configure Proper Power Connection

- If Client **only connects with a single UPS or single PDU**, the ***Power Connection*** should be set ***UPS*** or ***PDU***. Enter the required IP address and assign the correct outlet. Click **OK** to establish communication. **Note:** The UPS must have an RMCARD installed or be controlled by a computer which has Agent installed; the PDU must have network functionality.
- If Client **connects with a network PDU that is plugged into a UPS**, the ***Power Connection*** should be set ***UPS with network PDU***. Enter the IP address of UPS. Enter the IP address of the PDU and assign the correct PDU outlet. Click **OK** to establish the communication.
- If Client **connects with a generic PDU that is plugged into a UPS**, the ***Power Connection*** should be set as ***UPS with generic PDU***. Enter the IP address of UPS, choose the according PDU model and assign the correct PDU outlet. Click **OK** to establish communication. Note: A generic PDU is a PDU that has no network functionality.
- If a **computer with Client installed is connected to an ATS**, the ***Power Connection*** should be set to ***ATS***. Enter the IP address of the ATS and assign the outlet. Users should know whether or not the ATS is using a UPS as an input power source before the following configuration:

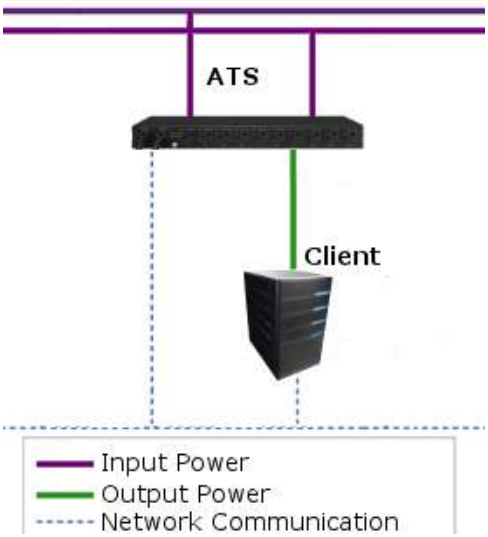
- If **the ATS is using a UPS for both input power sources**, enter the IP address of UPS individually. Click **OK** to establish the communication.



- If **the ATS is using a UPS as one of the input power sources**, enter the IP address of UPS for one power source while the other power source should be set to ***None***. Click **OK** to establish the communication.



- If the **ATS not connected to any UPS**, the IP address of UPS for two power sources should be set to ***None***. Click **OK** to establish the communication.



Troubleshooting Communication Problems

If Client is unable to communicate with the power devices, the following steps can help users troubleshoot the issue:

- Verify the network address is correct.
- Verify the network configuration for the UPS or PDU is correct. The **Power Device Network Utility** tool can be used to configure the network configuration. The tool can be installed from the **tools** folder on the installation CD or downloaded from www.cyberpower.com.
- Verify that the settings in the **Security**/**Authentication** page are correct and match the settings of the device. See **Security**/**Authentication** for more details.
- Verify the port in the **Security**/**Network** page is matched with the settings for PowerPanel Business Edition Agent.
- Check that the network status of computer and devices.
- Verify firewall settings. Port 3052(UDP/TCP), port 53568(TCP), port 161(UDP), port 162(UDP) and port 53566(UDP) should be unblocked. The computer communicates with the power device on these ports. The PowerPanel software installer will automatically configure the Windows firewall to allow PowerPanel® Applications access.
- Verify that the SSL certificate from the Client has been added into the trust list of Agent. If the Client applies a new SSL certificate and is not in the trust list, communication will be lost.

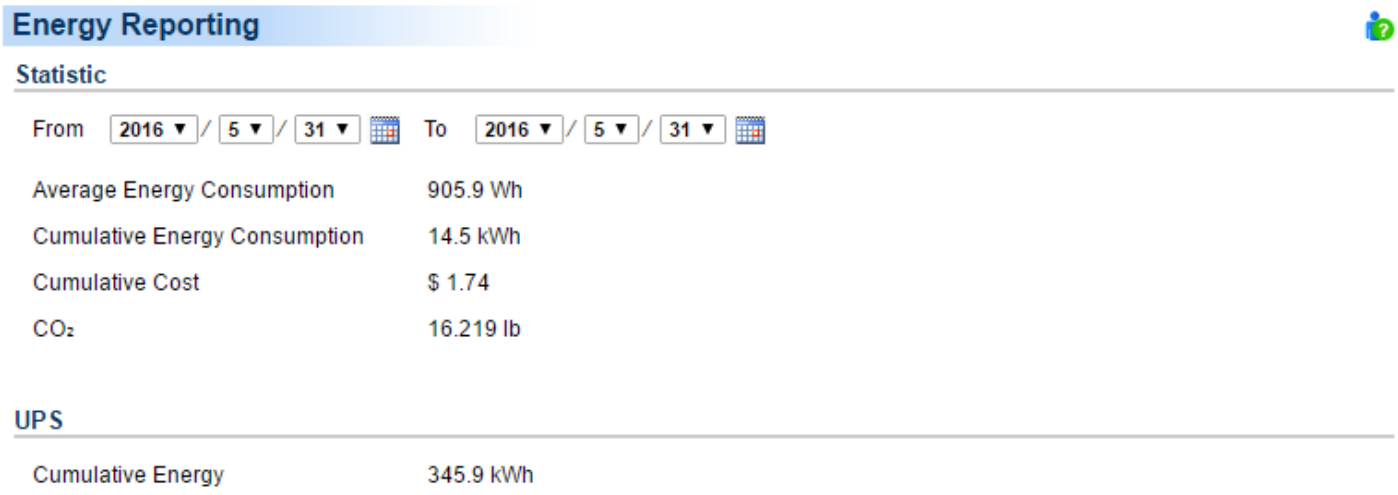
Energy Consumption

*(The content in this section is only applicable to PowerPanel Business Edition **Agent**.)*

Energy Reporting

This page presents the information such as the amount of power, cost and equivalent carbon emission that the UPS system consumes in a period of time. The cumulative amount of power consumed by a UPS system in a period of time is denoted as Pm. Users can setup the cost per kWh, denoted as Rp, in the Settings Page. Carbon emission per kWh, denoted as Rc, is also shown in the Settings Page. Finally, the system calculates and presents the power consumption cost denoted as Cp and the equivalent carbon emission, denoted as Ec, based on the following formulas:

Cp = Pm * Rp and Ec = Pm * Rc



Statistic

- From Start Date To End Date : Set the time consumption period to read
- Average Energy Consumption : Displays the average energy consumption according to the selected time period
- Cumulative Energy Consumption : Displays the cumulative energy consumption according to the selected time period
- Cumulative Cost : Displays the cumulative cost according to the selected time period
- CO_2 : Displays the equivalent carbon emission according to the selected time period.

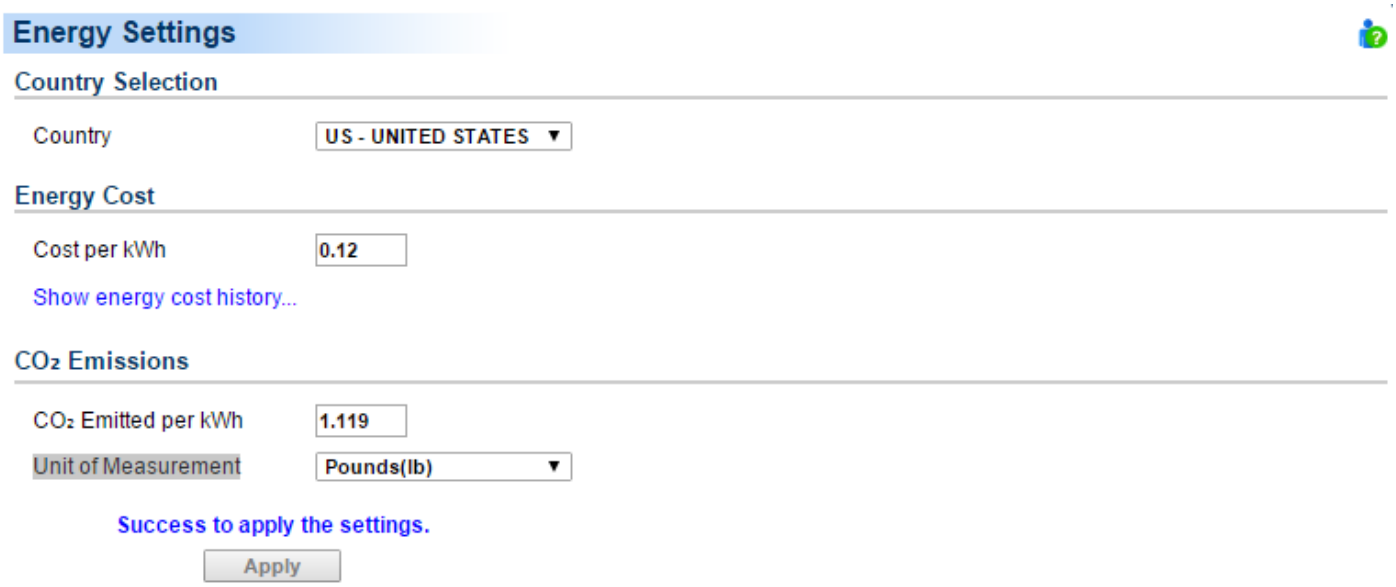
UPS

This section will only appear when Power Panel Business Edition software is linked with a UPS that supports cumulative energy in the LCD screen.

- Cumulative Energy: Present the cumulative energy data stored in the UPS.

Energy Settings

In this page, we can set the average rate of power consumption and carbon emission by selecting the country, or assign and apply a customized rate. When rates are updated, the information displayed in the energy reporting page will also be updated.



Country Selection

Power costs vary by country, therefore the Energy Cost and equivalent carbon emission are different. By selecting country, users can set up the average rate of power consumption and carbon emission.

- Country: Select the country the UPS is located in.

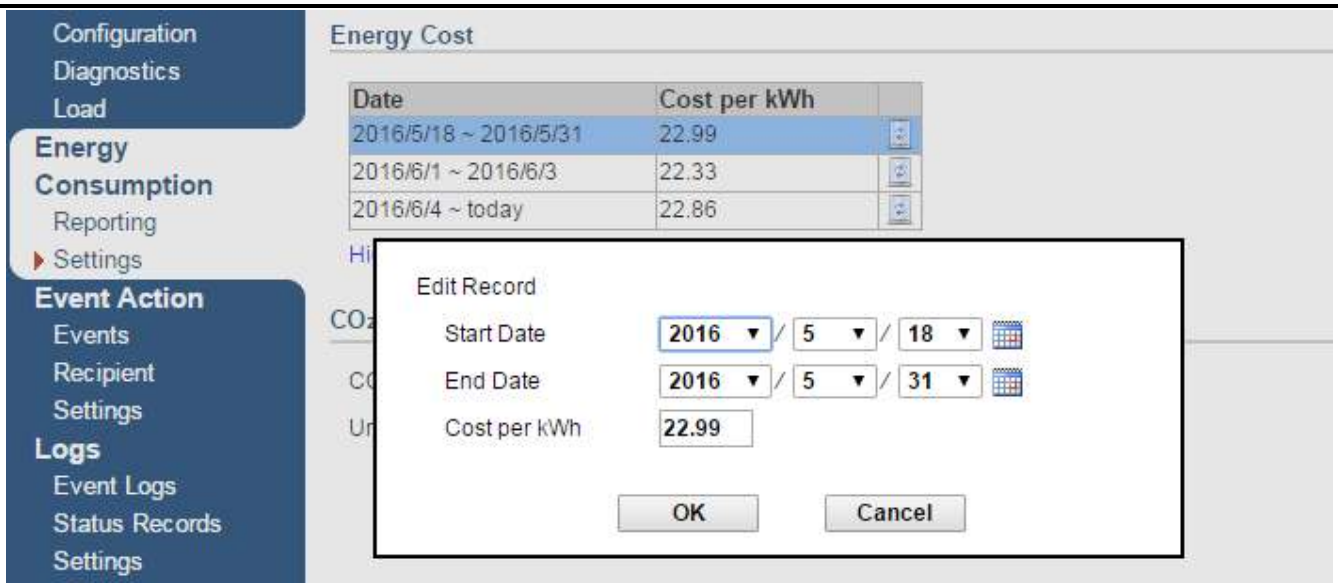
Energy Cost

Because the rate of power consumption can vary over time, users can assign rates for different periods of time.

- Cost per kWh: Assign and apply the rate as of today, inclusive.
- Show energy cost history: Display and setup the associated costs of historical periods. When the historical period of energy cost is shown, users can double click on any period to add or change the period and rate. See below.

Date	Cost per kWh	
2016/5/18 ~ 2016/5/31	22.99	
2016/6/1 ~ 2016/6/3	22.33	
2016/6/4 ~ today	22.86	

Hide energy cost history...



CO_2 Emissions

Because the rate of carbon emissions also changes by time, users can update the carbon emission per kWh.

- CO_2 Emitted per kWh: The weight of equivalent emitted carbon when one kWh power is consumed.
- Unit of Measurement: kilogram or pound

Event Action

An event is generated when the UPS/PDU/ATS encounters specific power conditions. The PowerPanel® Business Edition software can be configured to respond to specific events and perform actions based on the event. These actions include notification, command execution and computer shutdown.

If a Client establishes communication with a PDU which is connected to a UPS, the Client can generate actions in response to events from the PDU or the UPS.

Events

When an event occurs, PowerPanel® Business Edition software can notify administrators, execute a command and initiate a computer shutdown sequence. The **Event Action**/**Events** page lists events and the action settings for the events. The severity of each event is marked by a symbol. Severe level ( ) indicates users must be alerted and the computer shut down to avoid an improper shutdown. Warning level (!) indicates a warning and users should be notified when it occurs. If a warning condition persists, a system shutdown may be imminent. Information level (i) indicates the state of the UPS or that the utility power condition has changed.

Events

No.	Event	Notify		Command			Shutdown	As
		Initiated	Repeat	Initiated	Duration	File	Initiated	
1	UPS is faulty	Instant	Inactive	Inactive	< 1 sec.		5 min.	
2	Local communication lost in a power event	Instant	Inactive	Inactive	< 1 sec.		1 min.	
3	Remaining runtime will be exhausted	Instant	Inactive	Inactive	< 1 sec.		10 sec.	
4	System is overheated	Instant	Inactive	Inactive	< 1 sec.		5 min.	
5	Utility power failure	Instant	Inactive	Inactive	< 1 sec.		Inactive	
6	Output is overloaded	Instant	Inactive	Inactive	< 1 sec.		Inactive	
7	Batteries are not present	Instant	Inactive	Inactive	< 1 sec.		Inactive	
8	Local communication lost	Instant	Inactive	Inactive	< 1 sec.		Inactive	
9	Communication cannot establish	Instant	Inactive	Inactive	< 1 sec.		Inactive	
10	Available runtime is insufficient	Instant	Inactive	Inactive	< 1 sec.		Inactive	
11	Shutdown initiated	Instant		Inactive	< 1 sec.			
12	A schedule has initiated	Instant		Inactive	< 1 sec.			
13	Battery test is processing	Instant		Inactive	< 1 sec.			
14	Calibration initiated	Instant		Inactive	< 1 sec.			
15	Output voltage is being boosted	Instant		Inactive	< 1 sec.			
16	Output voltage is being bucked	Instant		Inactive	< 1 sec.			
17	Battery is fully charged	Instant		Inactive	< 1 sec.			

Apply

Event Action/Events page in the Agent

After selecting an event, the event will become configurable. Configure all of the action settings for the selected event and apply to save the settings.

5	Output is overloaded	Instant	Inactive	Inactive	< 1 sec.		Inactive	
6	Bypass is overloaded	Instant	Inactive	Inactive	< 1 sec		Inactive	
7	Batteries are not present	Instant	Inactive	Inactive	< 1 sec.		Inactive	

The clicked event item will be configurable.

Use these parameters to configure actions for individual events:

Notify

The administrator can be notified when an event occurs. See **Event Action/Notification Recipient** page for more details about the notification methods and recipient assignment.

- **Initiated:** Determines whether to send a notification or not and sets the notification delay. If the event is cleared within the notification delay, the notification of the occurrence and the event cleared notification will not be sent.
- **Repeat:** Determines whether to send one additional notification after the initial notification. Only events which are of severe-level and warning-level type support a repeat notification.

Command

A command will be executed when an event occurs.

- **Initiated:** Determines whether to execute a command and sets the delay for the command execution. If the event is cleared within the command execution delay, the command for this event and the corresponding event will not be executed.
- **Duration:** Sets the estimated time for the command to complete. If the event requires the computer to shut down, this delay provides time for commands and scripted actions to complete before the shutdown is initiated.
- **File:** Sets a command file to be executed when an event occurs. Shell scripts for the command file uses "cmd" as the filename extension. For more information about shell scripts read the detailed description in the "default.cmd" file in the "extcmd" folder in the PowerPanel® Business Edition installation directory. Customized shell scripts must be saved in the "extcmd" folder in the PowerPanel® Business Edition installation directory. The command file will be listed on the *Command/File* list and can be executed when the power event occurs.

  ***Note**: The command file name will be displayed in italics if the command file which had used cannot be found in the "extcmd" folder.*

The following environment variables can be placed in external commands to identify which event and which stage to be executed.

- **%EVENT_STAGE%:** Indicates what stage of firing event to execute the commands. When an event first happens, it enters the **OCCUR** stage and the assigned commands will be executed. When an event is ended, the variable will be **FINISH** and the assigned commands will be executed.
- **%EVENT%:** Indicates which event is fired to execute the commands.
- **%EVENT_CONDITION%:** Indicates which the detailed event condition of a firing event.
- **%MODULE_NO%:** Indicates which UPS module on a firing event. This variable is used on Modular UPS models.

The following table lists all details of **%EVENT%** and **%EVENT_CONDITION%** variables.

%EVENT%	%EVENT_CONDITION%	Event Name
BATTERY_CRITICAL_LOW		Battery capacity is critically low.
ENTER_BYPASS		Enters bypass mode.
BATTERY_EXHAUSTED		Battery has been depleted.
EMERGENCY_OFF		EPO is active.
BATTERY_FULL		Battery is fully charged.
SHUTDOWN		Shutdown initiated.
BYPASS_FAILURE		Bypass power source has failed.
CAPACITY_INSUFFICIENT		Insufficient inverter capacity.
LOSS_REDUNDANT		Not enough power redundancy modules.
ABNORMAL		UPS input abnormality.
	NO_NEUTRAL	No neutral input.
	WIRING_FAULT	Site wiring fault.
FATAL_ABNORMAL[4]		UPS fatal internal abnormality.
	OUTPUT_OVERLOAD	Output is overloaded.
	BYPASS_OVERLOAD	Bypass is overloaded.
	MODULE_OVERLOAD	Module is overloaded.
	SHORT_CIRCUIT	Output circuit-short.
	MODULE_RECTIFIER_OVERHEAT[1]	Module rectifier is overheated.
	MODULE_INVERTER_OVERHEAT[1]	Module inverter is overheated.

	MODULE_INVERTER_PROTECTED[1]	Module inverter is protected.
	BATTERY_REVERSED	The polarity of battery is reversed.
	BYPASS_SEQUENCE_ERROR	The phase sequence of bypass is wrong.
COMMUNICATION_FAILURE[4]		
	LOST_IN_LOCAL	Local communication lost.
	LOST_IN_NETWORK[3]	Network communication lost.
FAULT[4]		
	GENERIC_FAULT	UPS is faulty.
	BYPASS_FAN_FAULT	Bypass fan is faulty.
	BYPASS_FAULT	Bypass is faulty.
	MODULE_RECTIFIER_FAULT[1]	Module rectifier is faulty.
	MODULE_INVERTER_FAULT[1]	Module inverter is faulty.
	MODULE_FAN_FAULT[1]	Module fan is faulty.
NO_BATTERY		Batteries are not present.
RUNTIME_INSUFFICIENT		Available runtime is insufficient.
UTILITY_FAILURE		Utility power failure.
URGENT_COMMUNICATION_FAILURE[4]		
	LOST_IN_LOCAL	Local communication lost in a power event.
	LOST_IN_NETWORK	Network communication lost in a power event.
RUNTIME_WILL_EXHAUST		Remaining runtime will be exhausted.
OUTPUT_WILL_STOP		The output power is going to stop soon.
INPUT_NEAR_OVERLOAD[2]		Input is near overload.
INPUT_OVERLOAD[2]		Input is overloaded.
SHUTDOWN_TIME_INSUFFICIENT[2]		Shutdown time is in insufficient.
ATS FAULT[5]		ATS is faulty.
ALL_SOURCE_FAILURE[5]		Both input sources have power loss, ATS will not change input source
CURRENT_SOURCE_FAILURE[5]		ATS has automatically switched to redundant power source.
REDUNDANT_SOURCE_FAILURE[5]		ATS redundant power source has experienced a power failure.
ENV_SENSOR_LOST[6]		Environmental sensor is not responsive.
ENV_SENSOR_OVERHEAT[6]		Temperature is over the high threshold.
ENV_SENSOR_UNDERCOOL[6]		Temperature is under the low threshold.
ENV_SENSOR_OVERWET[6]		Humidity is over the high threshold.
ENV_SENSOR_OVERDRY[6]		Humidity is under the low threshold.
POWER_LOST		Power supply redundancy has been lost.
MBO_OUTLET_OVERLOAD[7]		A PDU outlet is overloaded.
MBO_OUTLET_NEAR_OVERLOAD[7]		A PDU outlet is near overload.

[1]: *This event only occurs for the Modular UPS in Agent.*

[2]: *This event only occurs for the PDU in Client.*

[3]: *This event only occurs in Client.*

[4]: *This %**EVENT**% variable must come with a %**EVENT_CONDITION**% variable.*

[5]: *This event only occurs for the ATS in Client.*

[6]: *This event only occurs for the environmental sensor for UPS/PDU/ATS in Client.*

[7]: *This event only occurs for the Metered by Outlet PDU in Client.*

Shutdown

Initiate a shutdown sequence when an event occurs. A shutdown sequence is only initiated by events which are of severe-level and warning-level type.

- **Initiated:** Determines whether to request that the computer be shut down based on the delay before initiating the shutdown sequence. The shutdown will be canceled if the event is cleared during this delay time. The minimum delay time to initiate shut down is based on the time set for the execution of the other actions to complete. This includes the notify delay time, command delay time and command execution time.

As

This feature is used to apply identical settings to the particular event within the same category (Severe, Warning, and Information). Once the *As* field of one event have been assigned, the settings of this event will use the assigned event's settings. The settings of this event will match with an assigned event's.

No.	Event	Notify		Command			Shutdown	As
		Initiated	Repeat	Initiated	Duration	File	Initiated	
1	UPS is faulty	Instant	Inactive	Inactive	< 1 sec.		5 min.	
2	Local communication lost in a power event	**Instant**	**Inactive**	**Inactive**	**< 1 sec.**		**5 min.**	**#1**
3	Remaining runtime will be exhausted	Instant	Inactive	Inactive	< 1 sec.		10 sec.	
4	System is overheated	Instant	Inactive	Inactive	< 1 sec.		5 min.	

*The setting for the **Local communication lost** event would be copied from the settings of the **UPS is faulty** event*

Event List

The **Event List** displays power events. The events displayed vary depending on whether they are listed in Agent or Client and which UPS/PDU/ATS is providing the events.

***Note:** If a Client computer has redundant power supplies, the events related to power supply will only be triggered when power supply redundancy is lost. Please refer to "Remaining runtime will be exhausted" event for example.*

- **Battery capacity is critically low.** *Battery capacity is critically low; power could be lost immediately.*
- **Local communication lost in a power event.** *Communication with device has been lost during a power event.* Communication between the Agent and the UPS using the USB or serial cable has been lost during a power failure.
- **Batteries are not present.** *Batteries are not present; the UPS cannot provide battery power in this condition.*

- **Available runtime is insufficient.** *There is not sufficient runtime for PPBE to perform a complete shutdown based on current configuration even if the battery is 100% charged.*
  An excessive load or long shutdown time may cause this event. Reduce some UPS load or set a more accurate shutdown time to avoid this event.
- **Enters bypass mode.** *Entering bypass mode, battery power protection will no longer be provided.*
- **Utility power failure.** *Utility power failure, battery power will be supplied.*
- **Remaining runtime will be exhausted.** *Based on current configuration settings, the remaining battery runtime will be insufficient unless a shutdown of the connected computer(s) is affected immediately. Please save your work and power down immediately.*
  When the UPS switches to battery mode due to a power event, the battery power will be supplied to Agent computer and all Client computers in order to shut down completely. If battery power consumption continues, the remaining runtime will be exhausted. Agent and all Client computers should start a shutdown procedure immediately.
  The Agent postpones the shutdown until the Clients computers completes the shutdowns; if the remaining runtime is insufficient for Agent to perform a complete shutdown prior to the UPS turning off, the Clients will shut down first to ensure sufficient time for Agent to shut down completely.
  Note: *This event usually indicates that the Agent and Client risk losing battery power, they will have a shutdown window of 2 minutes to avoid crashing due to a UPS turning off.*
  Note: *If the Client computer has redundant power, this event will only be triggered after the computer loses all redundant power supplies and is running on non-redundant power. For example, if a Client computer has a redundant power policy of 1+1, then this event will only happen when only one power supply is operating and its remaining runtime will be exhausted.*
- **Battery test is processing.** *A battery test is active in order to verify that battery power can be provided normally.*
- **Output voltage is being boosted.** *Output voltage is being boosted from a lower level.*
  The UPS is receiving utility power with low voltage and raising the voltage to a proper level for operating the connected equipment.
- **Output voltage is being bucked.** *Output voltage is being bucked from a higher level***.**
  The UPS is receiving utility power with high voltage and is lowering the voltage to a proper level for operating the connected equipment.
- **Calibration initiated.** *Calibration was initiated, the battery runtime will be evaluated. This process will last until battery power is exhausted.*
- **A schedule has initiated.** *A schedule has been initiated, the system may be shutdown.*
- **Battery is fully charged.** *Battery is fully charged.*
- **Shutdown initiated.** *Shutdown process initiated, the system will shut down or hibernate soon.*
- **ECO Mode is active.** *The UPS has entered ECO mode.*
  The UPS switches to bypass and starts to monitor whether the utility voltage and utility frequency is in range of the thresholds.
- **Battery has been depleted.** *Battery charge is depleted, output power will stop.*
- **EPO is active.** *EPO was activated; the UPS output power was turned off immediately.*
  EPO (**E**mergency **p**ower **o**ff) is intended to allow the administrator to have a method of immediately turning off output power from the UPS.

- **Bypass power source has failed.** *Power input from the bypass source is out of regular range or is experiencing a black out. UPS will shut down, Bypass mode will not be activated.*
- **Insufficient inverter capacity.** *There was not enough capacity in the inverter for the UPS to switch from bypass mode to line mode.*
- **Not enough power redundancy modules.** *The internal modules used for redundancy in this UPS have either exceeded their capacity or have failed. The fault-tolerance of this UPS has been reduced or eliminated.*
  Power redundancy provides additional protection against failures of UPS modules. If one module has a fault, the other module will take over. This event will occur when the load consumption are exceeded to use extra power that belong to redundant power, some UPS modules are faulty or manual shutdown.
- **UPS input abnormality.** *UPS is working abnormally due to one or more power conditions below:*
  - **No neutral input.** There is no neutral wire connected.
  - **Site wiring fault.** The wiring is reversed or not grounded.
- **UPS fatal internal abnormality.** *The UPS is experiencing one or more of the following fatal abnormalities; UPS may shut down or stop output power unexpectedly.*
  - **Output overload.** *Power consumption exceeds the power rating of UPS. If the overload is sustained, the UPS will shut off.*
  - **Bypass overload.** *Output is overloaded in bypass mode.*
  - **Module overload.** *One of the UPS modules has overloaded. If the UPS module overload is sustained, the UPS module will be shut down for protection.*
  - **Output short circuit.** *Output has short circuited, the UPS will stop supplying power.*
  - **Module rectifier overheating.** *The internal temperature of one rectifier module has exceeded the normal rating.*
  - **Module inverter overheating.** *The internal temperature of one inverter module has exceeded the normal rating.*
  - **Module inverter protected.** *A module inverter has been stopped for protection. The module inverter may be faulty or abnormal.*
  - **Reversed battery connection.** *The connection between UPS and battery has a reversed connection.*
  - **Bypass phase sequence error.** *The sequence of phases is different between utility and bypass.*
- **Communication lost.** *Communication between the UPS and computer has been lost:*
  - **Local communication lost.** *Communication between the UPS and computer via USB or serial cable cannot be established or was lost.*
  - **Network communication Lost.** *Software cannot establish communication with UPS or PDU on the network or established network communication has been interrupted.*
- **UPS is faulty.** *UPS has an internal malfunction. The UPS may not be operating properly and will not be able to affect a proper shutdown. Causes include:*
  - **Bypass Fan fault.**
  - **Bypass Fault.**
  - **Module Rectifier Fault.** *A rectifier module is faulty; this module will stop supplying output power.*
  - **Module Inverter Fault.** *An inverter module is faulty; this module will stop supplying output power.*
  - **Module Fan Fault.** *A fan module has malfunctioned.*

***Note**: **Batteries are not present** and **A schedule has initiated** events are only available in Agent.*

*More events are available for **Client**:*

- **The output power is going to stop soon.** *Output power will stop due to power event or user command. The Client will shut down the host computer.*
- **Cannot establish network communication with Power Device.** *Communication with the Power Device has been lost.*
  The Client cannot establish communication with the UPS/PDU/ATS on the network or established communication has been interrupted.
- **Network communication lost with UPS in a power event.** *Communication with the UPS has been lost during a power event.*
  When the utility power becomes abnormal and the UPS is using the battery to supply power, loss of network communication between the Client and the UPS causes the Client to generate a critical priority event because it cannot respond to changes in the status of utility and battery power.
- **Power supply redundancy lost.** *Power supply has been lost; computer can't be protected by redundant power.*
  The Client computer has redundant power supplies and all the redundant power supplies have become abnormal or network communication with the Client has been lost.

*More events are available for a **PDU** in Client:*

- **Input is near overload.** *A PDU is near an overload condition.*
  The load level is near the maximum safe load for the PDU.
- **Input is overloaded.** *A PDU is in an overload condition.*
  The maximum safe load has been exceeded and the PDU is in an overload condition.
- **Shutdown time is insufficient.** *System shutdown time is insufficient based on the shutdown delay time as configured in the 'output power is going to stop soon' event.*
  After communication with the PDU is established and the outlet assignment is set up, the Client will detect whether the connected outlet has sufficient time to allow for a shutdown. A sufficient shutdown time for the Client computer requires at least the sum of the *Necessary shutdown time* option and shutdown delay time as configured in the *"output power is going to stop soon"* event.
- **A PDU outlet is overloaded.** *An outlet of Metered by Outlet PDU is in overload condition.*
  The maximum safe load has been exceeded and the outlet is in an overload condition.
- **A PDU outlet is near overload.** *An outlet of Metered by Outlet PDU is near overload condition.*
  The load level is near the maximum safe load for the PDU outlet.

*More events are available for an **ATS** in Client:*

- **Both input sources have power loss, ATS will not change input source.** *ATS will not switch from one input source to another because both are experiencing power failures.*
  When the current source of ATS is power failure, ATS attempts to switch to another source which is functioning well. If both sources of ATS are power failure at the same time, the ATS cannot switch to another source.

- **ATS has automatically switched to redundant power source.** *The primary power source has failed or is experiencing a power event, the ATS has automatically switched to the redundant power source.*
- **ATS redundant power source has experienced a power failure.** *The primary ATS power source is functioning but the redundant source is experiencing a power failure or power event. If the primary power source fails, the ATS will not switch to the redundant power source.*
- **ATS is faulty.** *ATS has an internal malfunction and may not operate properly.*

*More events are available for the **environment sensor** within UPS/PDU/ATS in Client:*

- **Environmental sensor is not responsive.** *Environmental sensor of the UPS/PDU/ATS is not responding. The sensor may be malfunctioning or has been removed from the UPS/PDU/ATS.*
- **Temperature is over the high threshold.** *The temperature measured by the sensor has crossed the high threshold.*
- **Temperature is under the low threshold.** *The temperature measured by the sensor has crossed the low threshold.*
- **Humidity is over the high threshold.** *The relative humidity measured by the sensor has crossed the high threshold.*
- **Humidity is under the low threshold.** *The relative humidity measured by the sensor has crossed the low threshold.*

Principles for Client Firing Events

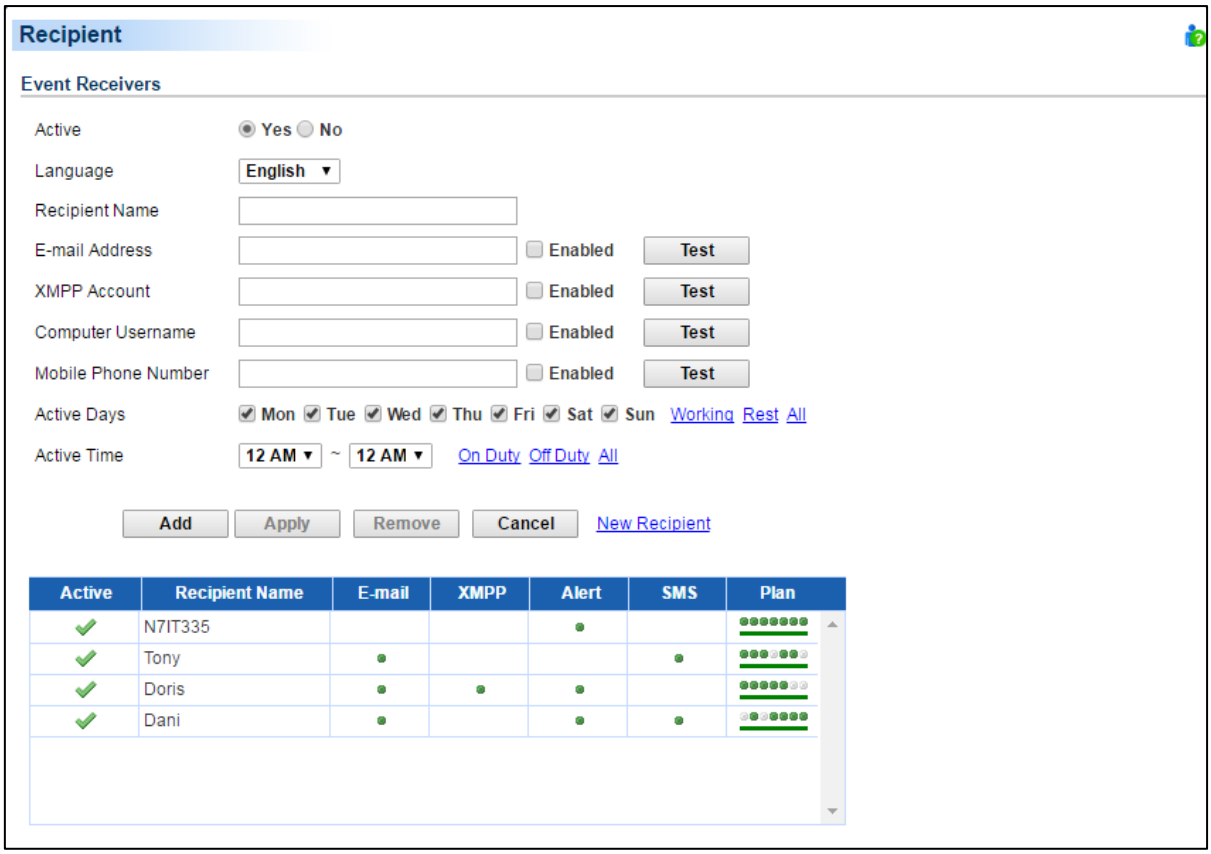
If both input power sources for the ATS are UPS units, failure events will only fire if both UPS units are affected. If there is a single UPS as an input power source (or no UPS), failure events will fire in the case of a power failure.

Note: *In Client, events will be divided into categories according to its power connection. Each event has individual settings for each category.*

Notification Recipient

Event Receivers

PowerPanel Business Edition Agent and Client can send notifications to multiple recipients in various ways, including Windows Alert Messages, Instant Messages and mobile phone text messages (SMS). The **Notification Recipient** page lists all recipients in the recipient list and displays all defined notifications and whether the notification is active.



Event Action/Recipient page

Recipients can be managed as follows:

- **Add a new recipient:** Click the **New Recipient** to have the blank notification recipient fields or use the data from a selected recipient. Enter all required data and click the **Add** button to add a new recipient to the list.
- **Modify the recipient:** Select the recipient you wish to modify. After entering in the new data, click the **Apply** button to complete.
- **Remove the recipient:** Select the recipient to remove from the recipient list, and then click **Remove** to complete the recipient deletion.

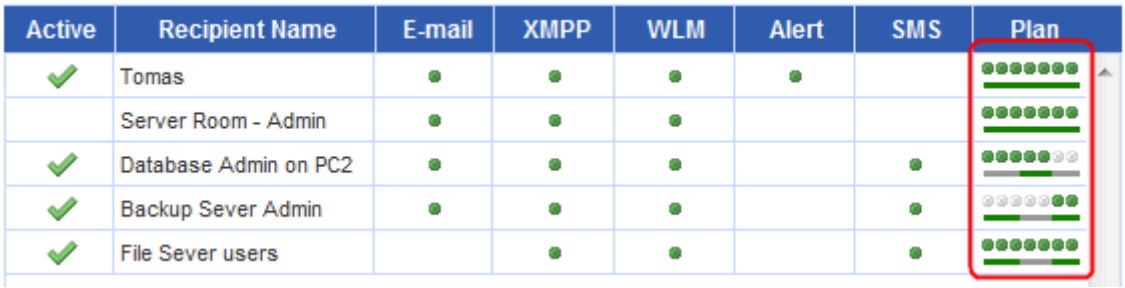
The recipient detail settings and descriptions are explained below:

- **Active:** States if the recipient is active.
- **Language:** The language to which the recipient prefers. The notification sent to this recipient uses this language to display content.
- **Recipient Name:** The name of the recipient. The recipient name must be unique.
- **E-mail Address:** The E-mail address of the recipient.
- **XMPP Account:** The XMPP Instant Messaging account of the recipient. See **Event Action/Settings** for more details about XMPP.
- **Computer Username:** The computer user account name which is used to receive the windows alert messages. Due differences in the Messenger Service of different versions of Windows, please refer to the descriptions below:
  - If PowerPanel® Business Edition and the recipients are on **Windows 2000**, **Windows 2003** or **Windows XP** and or on a different computer, the service will work normally. The recipient on the remote computer should be formatted as **Server name/Users name**.

- If PowerPanel® Business Edition and the recipients are on **Windows Vista**, **Windows Server 2008**, **Windows 7, Windows Server 2012** or **Windows 8**, and then the alert messages will only be sent to a local user account on the computer running PowerPanel® Business Edition.

__Note__: Computer Name filed and Alert column are only available on the PowerPanel® Business Edition which installed on Windows. On Linux, if Linux Message service is activated, the message will be sent to all users on the computer.

- **Mobile Phone Number:** The mobile number of the recipient to receive the mobile text message. It must contain the country code.
- **Activation Day:** Configures the days on which recipients can receive the notification. Users can define the specific ways to notify the assigned administrators on different days.
- **Activation Time:** Configures the time which recipients will receive the notification. Users can define the specific ways to notify the assigned administrators during different times.
- **Device Sources:** Selects the device sources for each recipient to receive the notification. In case of power events from these selected device sources, the recipient will receive the notification. **Note:** This field is only available in Center.
- **Enabled:** Displays which notification(s) are active for the recipient.
- **Test:** Sends the notification in accordance with current settings in order to verify the function. The service can be tested only when the corresponding service on the Event Action/Settings page is configured as activated.
- **Plan:** The dots and line indicates the specific days and time to send a defined notification to the recipient. When an event occurs at the activated time of the activated days, the notification will be sent to recipients.

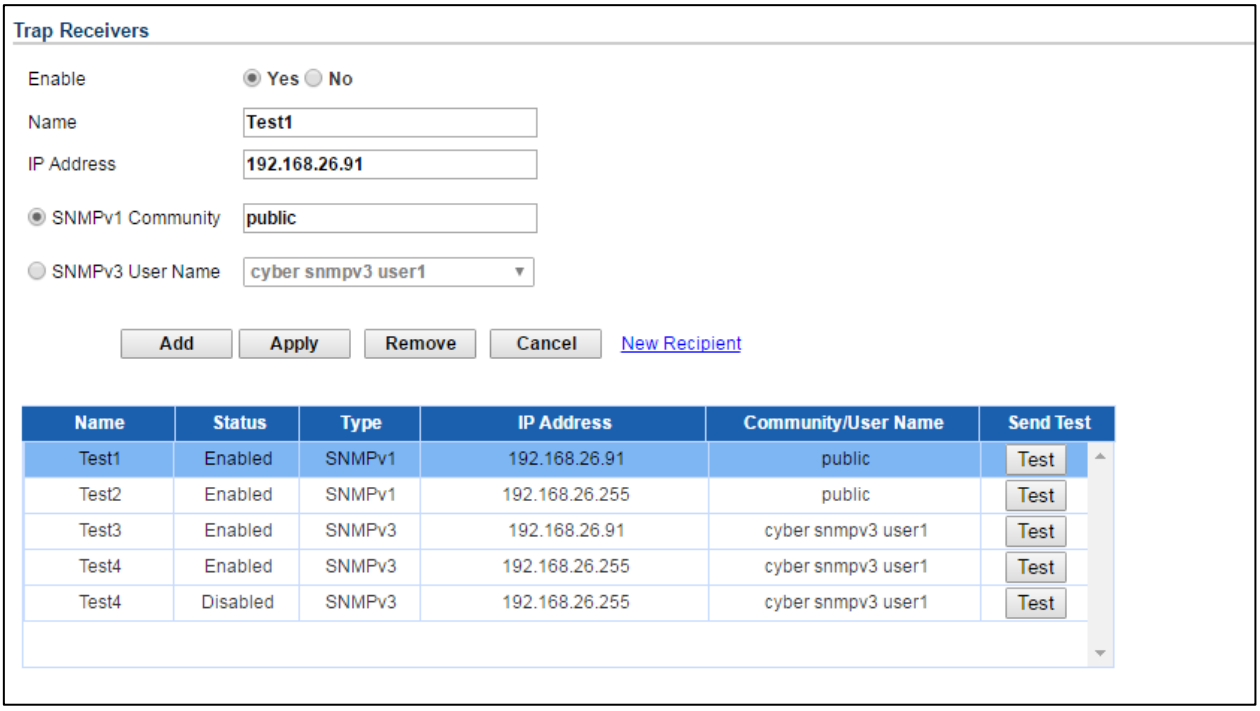


Active	Recipient Name	E-mail	XMPP	WLM	Alert	SMS	Plan
✓	Tomas	●	●	●	●		
	Server Room - Admin	●	●	●			
✓	Database Admin on PC2	●	●	●		●	
✓	Backup Sever Admin	●	●	●		●	
✓	File Sever users		●	●		●	

The dots and the line indicate the specific time and day of the week to notify the recipient of the event

Trap Receivers

PowerPanel Business Edition Agent supports SNMP traps. Users can set a maximum of 10 receivers to receive trap messages. Both SNMPv1 and v3 are supported. The listed TRAP receivers will be notified when configured Events occur.



Trap Receivers settings in Agent

Trap Receivers can be managed as follows:

- **Add a new receiver:** Click the **New Recipient** link to open the blank notification recipient fields or use the data from a selected recipient. Enter all required data and click the **Add** button to add a new recipient to the list.
- **Modify the receiver:** Select the recipient you wish to modify from the recipient list. After entering in the new data, click the **Apply** button to complete.
- **Remove the recipient:** Select the recipient to remove from the recipient list, and then click **Remove** to delete the recipient selected.

The receiver detail settings and descriptions are explained below:

- **Enable:** States if the recipient is enabled.
- **Name:** The name of the recipient.
- **IP Address:** The IP address of the recipient. If the IP is set as 255.255.255.255, the trap message will be a broadcast message.
- **SNMPv1 Community:** The community of SNMPv1.
- **SNMPv3 User Name:** The user name of SNMPv3.
- **Send Test:** Sends the trap message in accordance with current settings in order to verify the function.

Action Settings

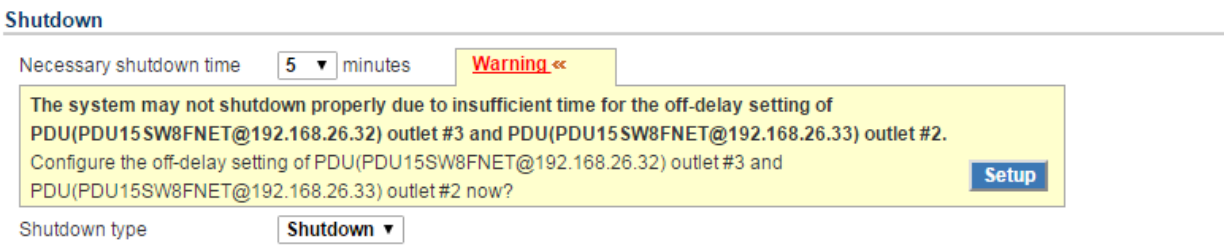
Settings page allows for configuration of various event actions, including the necessary shutdown time of the hosted computer.

After configuring all of the action parameters, and applying the settings, the **Verify** button can be used to verify whether the user's configurations are correct. To test whether a notification is configured properly and a recipient can receive the notification successfully, use the **Test** function on the **Event Action/Notification Recipient** page.

Each action has its own **Activate** option to specify whether to use the service to send a notification. If **No** is checked, the **Verify** button and the corresponding **Test** function will be disabled. The column displayed in the recipient list will be marked gray to indicate that action is disabled.

Shutdown

- **Necessary shutdown time:** This setting will set the amount of time which Agent and Client computers will take to shut down. The host computer will initiate the shutdown before power is stopped from the PDU or UPS in order to avoid a sudden blackout. This setting should be configured to allow for the normal shutdown time of the computer. When Client connects to a PDU outlet, the shutdown time must be set properly to avoid the off-delay time of the connected inability to support a complete shutdown. When a PDU performs a sequenced off/reboot action, each outlet has a specified delay time (off-delay) before it is turned off. This delay time must be greater than the Necessary shutdown time required by a Client computer. The Client will communicate with the PDU to verify whether this delay time is sufficient. If the delay time is insufficient a warning message will display. The user can expand it and configure the outlet off-delay of the PDU or configure it in the PDU web interface manually. The warning message will be visible until these options are setup properly.
  Note: *If the Client computer has redundant power supplies. This function will configure all the PDUs whose outlet off-delay are insufficient.*
  Note: *This function must have write permission. See Security/Authentication for more details. If the Client is given write permission on the PDU it can setup the PDU directly.*



The Client will warn users there is insufficient time for a complete shutdown in the PDU.

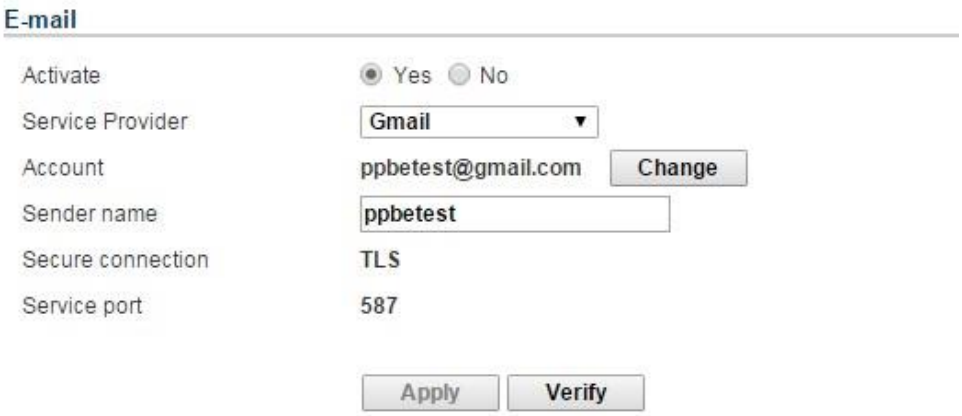
- **Shutdown type:** This setting will specify the manner in which the Agent/Client computer is shutdown. The options are **Shutdown** or **Hibernation**. The Hibernation option is only visible on operating systems and hardware that support hibernation. When the Agent/Client shuts down the hosted computer using a Shutdown, any unnamed files will be saved automatically in a folder named **Auto Saved** in the **My Documents** folder.
- **Save opened file & log off:** When a power event occurs, the computer will shut down in minutes. This setting is used to determine whether to save open files on desktop and then log off before the computer is shutdown.

- **Also turn off UPS:** This setting is used for Agent to determine whether to turn off the UPS after the Agent and all Client computers are shut down completely. If **Yes** is checked, the UPS will be turned off after the Agent computer shutdown. The output power supplied to all equipment will also be turned off. If users wish that all equipment can continue being supplying power by the UPS after the Agent computer shutdown, this setting should be checked **No**.
- **VM Host:** In VMware ESXi host, root permission is required and a host address must be specified in order to initiate a shutdown.
  - **Host Address:** This is the address of the VMware ESXi host that will be shut down by the software in the event of a power outage.
  - **Account:** This is the account name for VMware ESXi host used by PowerPanel® Business Edition. The account must have root access.
  - **Password:** This is the password for the aforementioned account.

E-mail

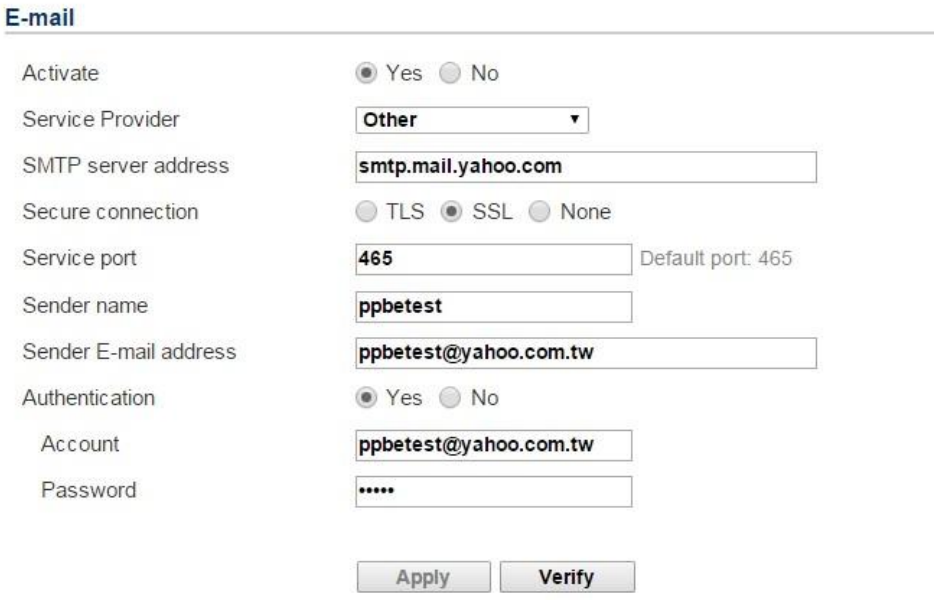
- **Service provider is *Gmail*:**

Select the **Gmail** option at the *Service Provider* field. Click the **Authorize** button to ask Google to authorize the Gmail account for an authorization to send a mail notification. Fill the sender name and click Apply to save the settings.



- **Service provider is *Other*:**

Select the **Other** option at the *Service Provider* field. Complete all details of E-mail account, and fields are explained below:

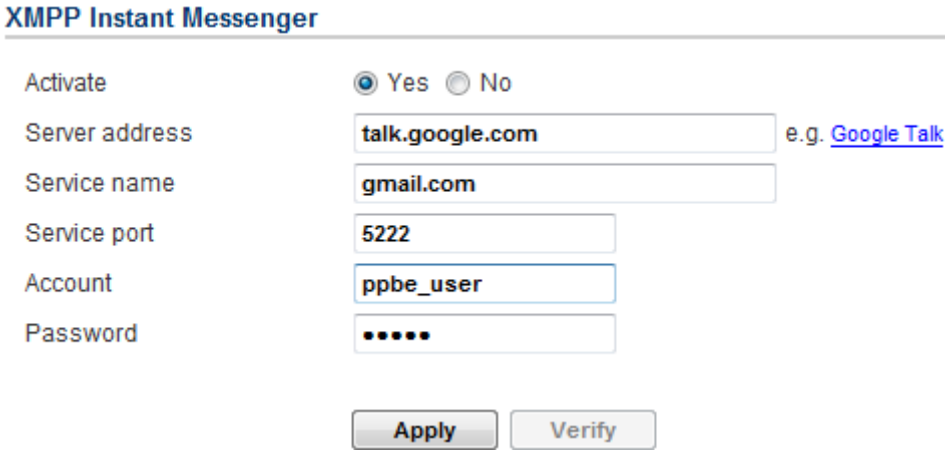


Email service

- **Activate:** Specify whether the Agent/Client can use E-mail to send an email notification to recipients.
- **Service Provider:** Select the service provider of E-mail account.
- **SMTP server address:** Configure the SMTP server that will be used to send E-mail to a recipient's mailbox.
- **Secure connection:** Sets which secure connection for the SMTP service to sent the E-mail.
- **Service port:** Sets the port number for the SMTP service to use.
- **Sender name & Sender E-mail address:** Configure the sender information for the E-mail.
- **Authentication:** Configure whether the SMTP server requires authentication or not. If authentication is required complete the necessary account and password field.
- **Account:** Sets the account to access the SMTP server.
- **Password:** Sets the password for the account.

XMPP Instant Messaging

The XMPP (Extensible Messaging and Presence Protocol) is an open protocol for instant messaging. Users can setup the configuration to receive instant messages when an event has occurred. Users may contact a network administrator to verify if there is a XMPP Instant Messaging server in the network. If there is no XMPP Instant Messaging server, Google talk service can be used. Google Talk software can be downloaded and installed or Gmail can be used to receive event notifications via Google Talk. A local network XMPP Instant Messenger server can be setup by downloading open source XMPP Instant Messenger server software, such as **Openfire**. More server software information can be found on **XMPP server software list**.



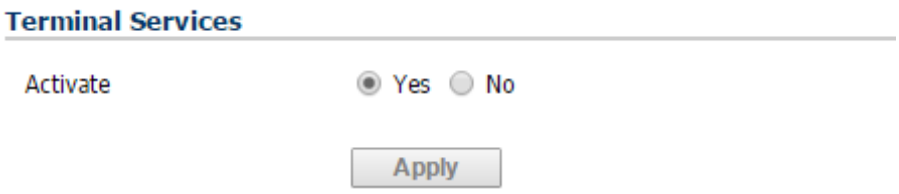
XMPP Instant Messaging service

To use XMPP Instant Messaging, users must provide a unique XMPP Instant Messaging Service account as a sender and assign different account as a receiver on **Event Action/Notification Recipient** page.

- **Activate:** Specifies whether the Agent/Client XMPP Instant Messaging service to notification is active or inactive.
- **Service address:** Sets the XMPP server address according to your XMPP Server configuration. Select **Google Talk** to use predefined settings for Google Talk service.
- **Service name:** Sets the service name on an XMPP Instant Messaging server. This option is usually not required. Contact the systems administrator of the server for the service name if required.
- **Service port:** The port number which the XMPP Instant Messaging server will use.
- **Account:** Sets the account to access the XMPP Instant Messaging server.
- **Password:** Sets the password for the account.

Note: *In order to make sure that the sender can send the XMPP notification to recipients, recipients should accept the invitation from sender.*

Messenger Service/Terminal Services/Remote Desktop Services



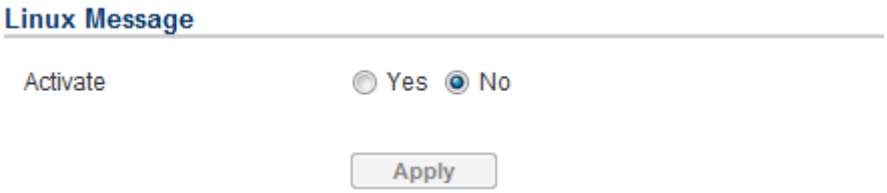
Messenger service

Messenger Service/Terminal Services/Remote Desktop Service only works on Windows platforms. Options are explained below:

- **Activate:** Specify whether to use this service to send a notification to recipients. If the service is not started, clicking **Yes** option will also start the service.

Note: Messenger *service is available on Windows XP, 2000 and Server 2003,* ***Terminal Services*** *is available on Windows Vista and Server 2008, and* ***Remote Desktop Services*** *is available on Windows 7 and Server 2008 R2.*

Linux Message



Linux Message

- **Activate:** Specify whether the Agent and Client can use this service to send a notification to all users accessing to this hosted computer.

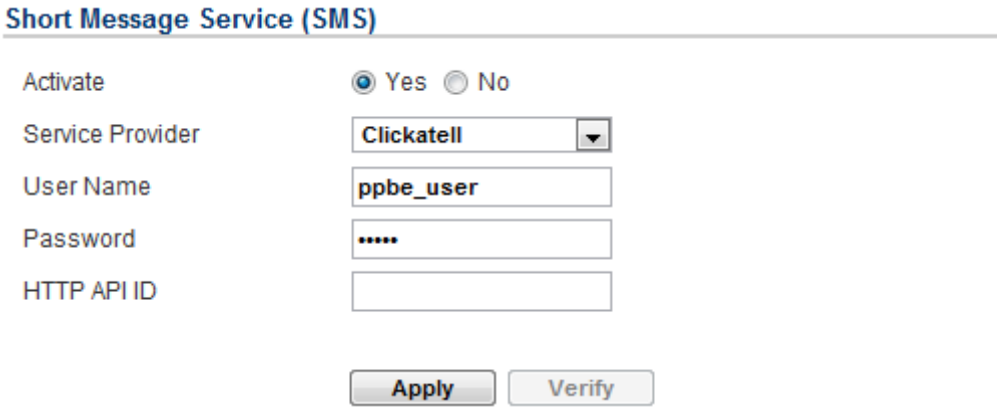
  Note: *Linux Message service is only available of the Linux.*

Short Message Service (SMS)

Short Message Service (SMS) is a communication service used by mobile communication systems, using standardized communications protocols allowing the interchange of short text messages between mobile devices.

The Agent/Client sends mobile text messages to a receiver's mobile phone using an online SMS service. Users can choose **Clickatell** as a platform to send SMS or any SMS provider which sends a message via E-mail or HTTP. All account information and E-mail/HTTP specification must be acquired from the service provider before using SMS. The different SMS providers are described below:

- **Service provider is *Clickatell*:**
  Select the **Clickatell** option at the *Service Provider* field. Complete all the account details from Clickatell with the *Username*, *Password* and *HTTP API ID* fields. The **Verify** function can be used once the *Activate>YES* option is checked and this option is selected and parameters are applied.



SMS (Short Message Service) service

- **Service provider accepts *HTTP POST* to send messages:**
  This specification from an SMS provider is required before using the HTTP POST method to deliver messages to SMS providers. Select the Using HTTP POST option at the *Service Provider* field. Insert **EVENT_ACTION_PHONE_NUMBER** as recipient's mobile phone number and **EVENT_ACTION_MESSAGE** as the event message content described in the specification, and fill in the *URL* and *POST BODY* fields. The

expressions will be replaced by the relevant content before the Agent/Client sends a notification to the SMS provider.

e.g.

URL: *http://send-sms-company.com/sms*
POST Body: *user=xxxxxx&password=xxxxxx &to=*EVENT_ACTION_PHONE_NUMBER *&text=*EVENT_ACTION_MESSAGE

- **Service provider accepts *HTTP GET* to sends messages:**
  This specification from the SMS provider is required before using the HTTP GET method. Select the **Using HTTP GET** option at the Service Provider field. Insert the **EVENT_ACTION_PHONE_NUMBER** as recipient's mobile phone number and the **EVENT_ACTION_MESSAGE** as event message's content described in the specification, and fill in the *URL* field. The expressions will be replaced by relevant content before the Agent/Client sends a notification to SMS provider.

  e.g.

  URL: *http://send-sms-company.com/sms?user=xxxxxx&password=xxxxxx &to=*EVENT_ACTION_PHONE_NUMBER*&text=*EVENT_ACTION_MESSAGE

- **Service provider accepts *E-mail* to send messages:**
  This specification from an SMS provider is required before using the E-mail to deliver the messages to SMS providers. Select the **Using E-mail** option at the *Service Provider* field. Insert **EVENT_ACTION_PHONE_NUMBER** as recipient's mobile phone number and the **EVENT_ACTION_MESSAGE** as event message content described in the specification. Fill in the *Address*, *Subject* and *Content* fields. The expressions will be replaced with relevant content before the Agent/Client sends a notification to the SMS provider.

  e.g.

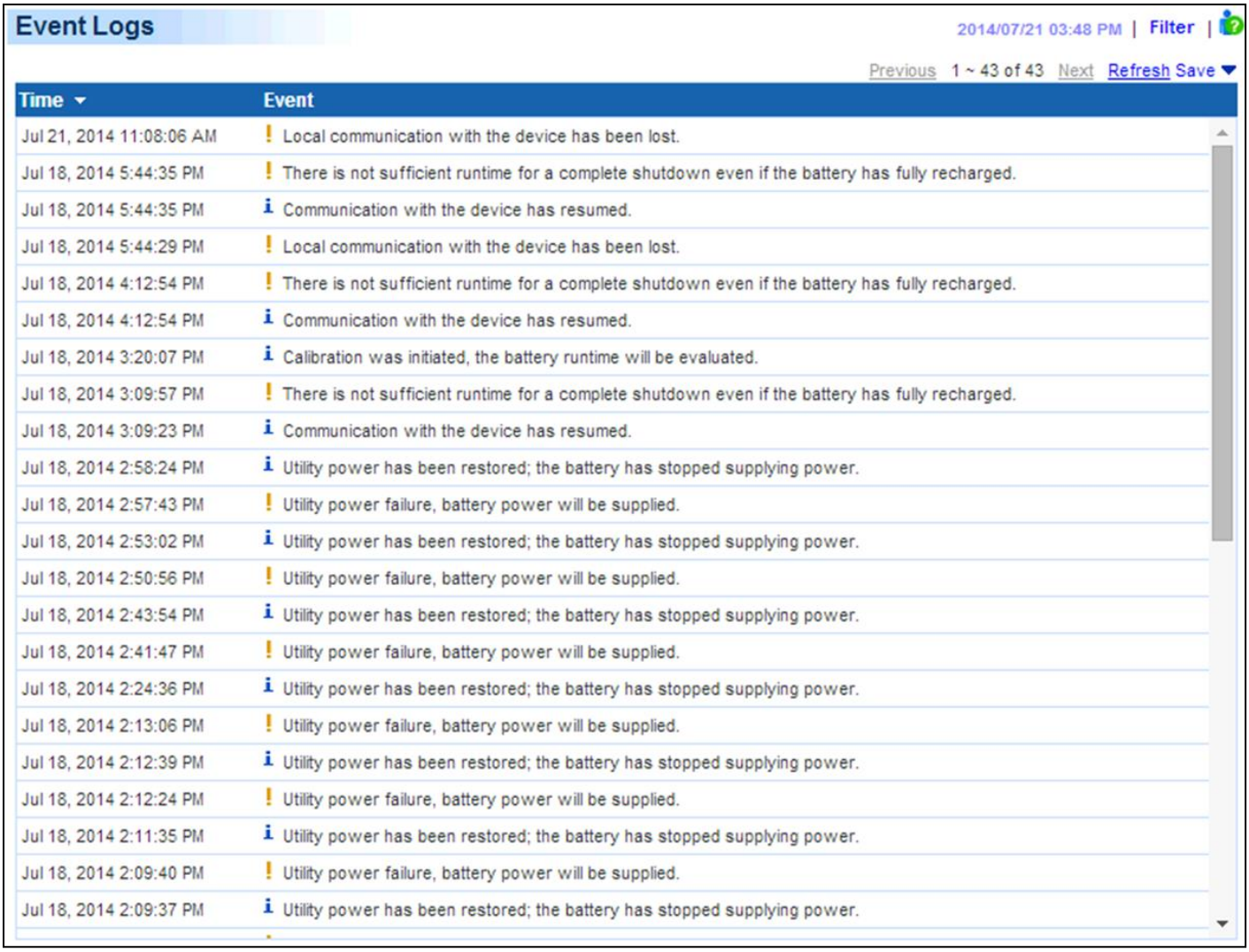
  Address: *sms@send-sms-company.com*
  Subject: *xxxxxx*
  Content: *user:xxxxxx*
  password:xxxxxx
  *to:*EVENT_ACTION_PHONE_NUMBER
  *text:*EVENT_ACTION_MESSAGE

Note: *Each message sent by the SMS system through the SMS provider will be subject to the SMS provider fee.*

Logs

Event Logs

Logs/**Event Logs** page lets you view logs that record power event details in the Agent or the Client. The logs can be analyzed to determine whether the system and the power device are operating correctly.

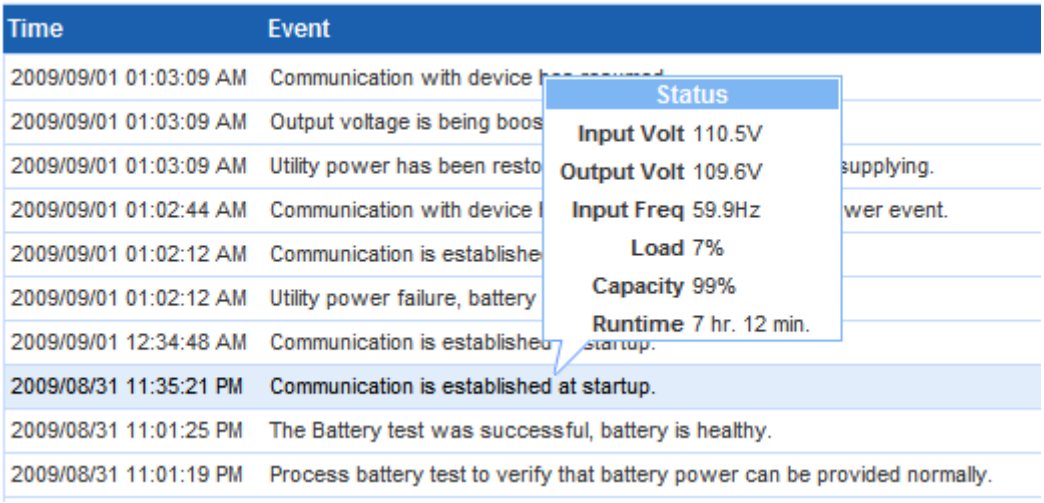


Logs/Event Logs page

Using the **Previous** and **Next** at the upper right corner of the event log list helps users to view the other range of filtered log result backward or forward. Clicking **Refresh** will update the log result to display in the list according to the current filter options and paging settings.

The time displayed at the upper corner displays the local time of the hosted computer. This time may be different from the time on your computer.

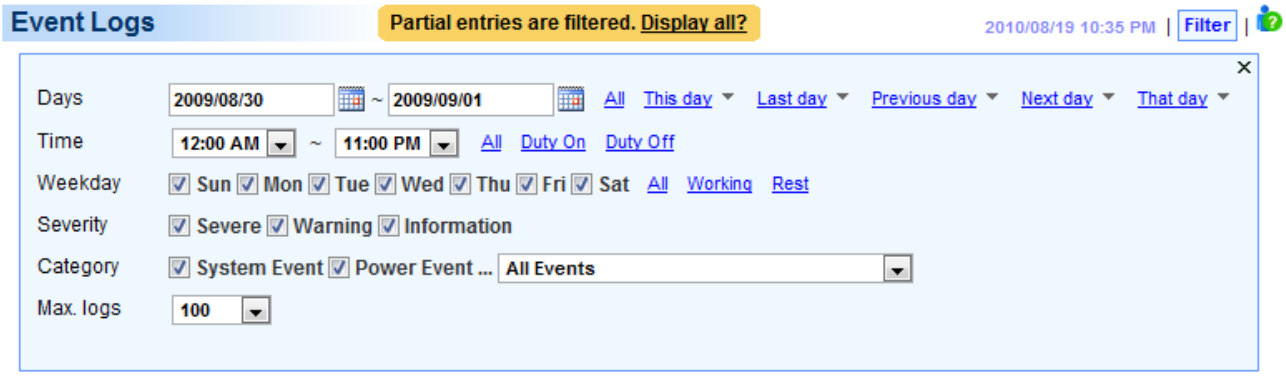
Detailed power status from the time of the event can be viewed in a pop up window when moving the mouse over a selected event.



A pop-up status window is displayed from the selected event.

Filter

The following filter options can be utilized by selecting **Filter** in the upper right corner. Once the configuration of the filter pane is configured; the logs will be requested and displayed.



Filter pane on Logs/Event page in Agent

- **Days:** Selects the day(s) for the events to be displayed. The dropdown menus next to the **Days** setting can be used for additional preconfigured filters.
- **Time:** Selects the time range for the events.
- **Weekday:** Choose the days of the event occurrence.
- **Severity & Category:** The events can be filtered by category and severity. The events can be further divided by **Power Event** and **System Event** categories, and choosing the specific event. Even the events can be also filtered out by the specific device type in Client. When any event option is selected from the event list, the logs only related to this event will be displayed.
- **Max. logs:** Indicates the maximum number of events that will be displayed.

Export

Click the **Save** shortcut at the right upper corner of the event log table and select **CSV** or **PDF** file as the export file format. The exported file will be saved in the default download directory of your web browser.

Status Records

The **Logs/Status Records** page is used to view the logs of the UPS status. This page is only available for the Agent.

Status Records

2014/07/21 03:51 PM | Filter |

Previous 1 ~ 40 of 40 Next Refresh Save

Time	Input Volt(V)	Output Volt(V)	Input Freq(Hz)	Output Freq(Hz)	Load(%)	Capacity(%)	Runtime
Jul 18, 2014 6:04:29 PM	218.0	218.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 5:54:29 PM	218.0	218.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 5:42:55 PM	220.0	220.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 5:32:55 PM	220.0	220.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 5:22:55 PM	220.0	220.0	N/A	59.8	0	100	0 hr. 0 min.
Jul 18, 2014 5:12:55 PM	220.0	220.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 5:02:55 PM	218.0	218.0	N/A	59.9	0	100	0 hr. 0 min.
Jul 18, 2014 4:52:54 PM	220.0	220.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 4:42:54 PM	218.0	218.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 4:32:54 PM	218.0	218.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 4:22:54 PM	218.0	218.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 4:12:54 PM	218.0	218.0	N/A	60.2	0	100	0 hr. 0 min.
Jul 18, 2014 4:10:53 PM	218.0	218.0	N/A	60.2	0	100	0 hr. 0 min.
Jul 18, 2014 4:00:53 PM	218.0	218.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 3:50:53 PM	218.0	218.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 3:40:53 PM	218.0	218.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 3:30:53 PM	218.0	218.0	N/A	59.8	0	100	0 hr. 0 min.
Jul 18, 2014 3:20:53 PM	218.0	220.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 3:10:53 PM	218.0	218.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 3:09:02 PM	218.0	218.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 2:57:43 PM	0	220.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 2:47:27 PM	219.0	219.0	N/A	60.0	0	100	0 hr. 0 min.
Jul 18, 2014 2:37:27 PM	216.0	216.0	N/A	59.9	0	100	0 hr. 0 min.
Jul 18, 2014 2:27:27 PM	216.0	216.0	N/A	59.9	0	100	0 hr. 0 min.
Jul 18, 2014 2:17:27 PM	0	220.0	N/A	60.0	0	100	0 hr. 0 min.

Logs/Status page

Additional log pages can be accessed by selecting **Previous** and **Next** in the upper right corner of the **Status Records** page. Clicking **Refresh** will update the log result to display in the list according to the current filter options and paging settings

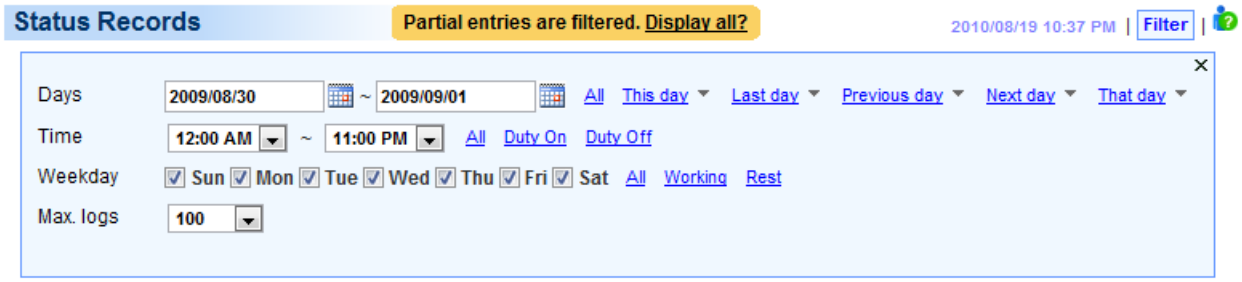
The time displayed at the upper corner displays the local time of the hosted computer. This time may be different from the time on your computer.

Export

Click the **Save** shortcut at the right upper corner of the status record table and select **CSV** or **PDF** file as the export file format. The exported file will be saved in the default download directory of your web browser.

Filter

Users can use the following filter options by clicking **Filter** in the right corner. Once the configuration of the filter panel is changed, the filtered logs will be displayed.

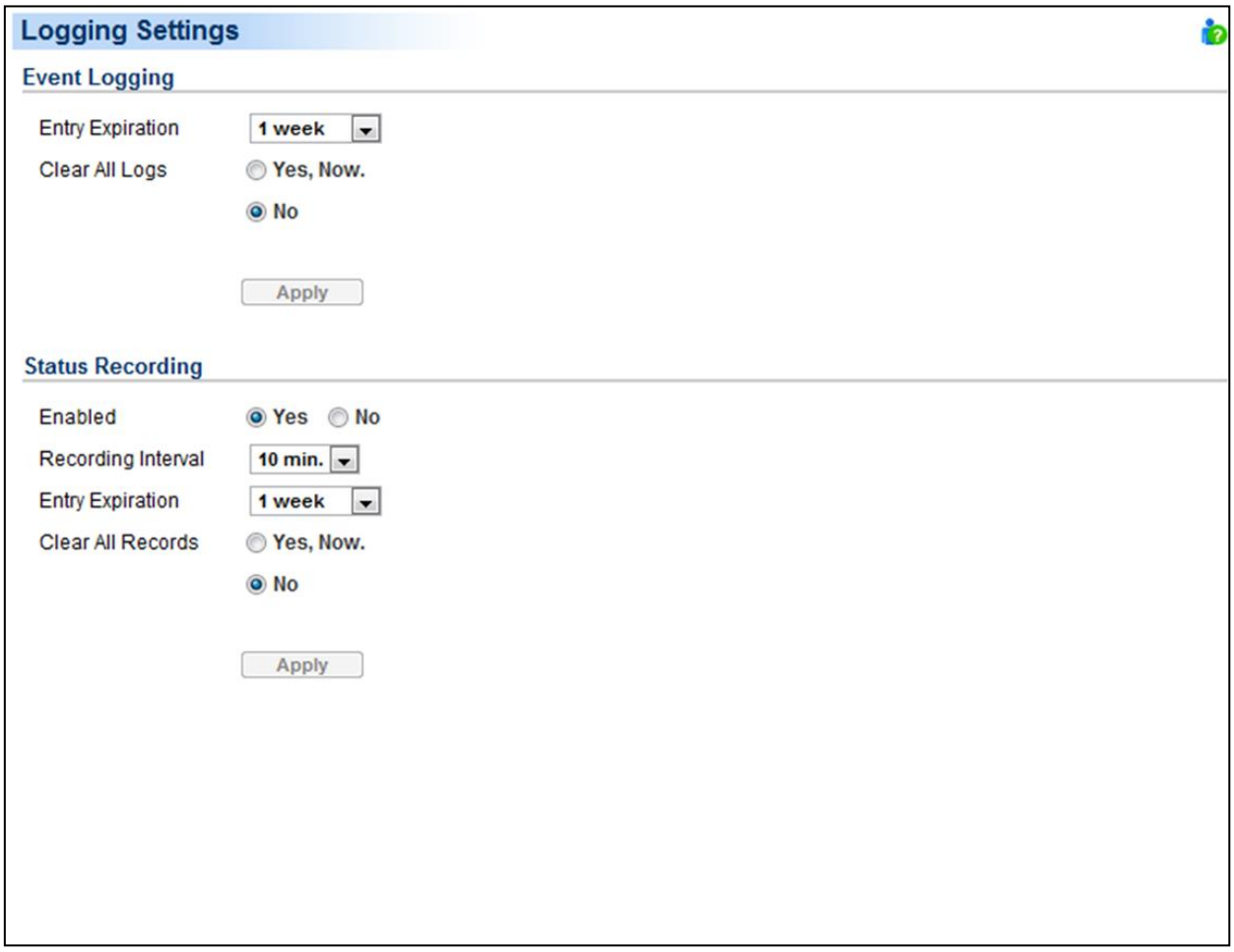


Filter pane on Logs/Status page

- **Days:** Selects the day(s) for the status records to be displayed. The dropdown menus next to the **Days** setting can be used for additional preconfigured filters.
- **Time:** Selects the time range of the status records.
- **Weekday:** Choose the days of the status records.
- **Max. Logs:** Indicates the maximum number of status records that will be displayed.

Settings

The **Logs/Settings** page allows for the ability to configure the log options. Click the **Apply** button to save the settings or remove all logs.



Logs/Settings page in the Agent

Event Logging

- **Entry Expiration:** This option specifies how long the log files will be retained. .
- **Clear All Logs:** When this option selected with **Yes, Now**, all event logs will be removed immediately after clicking **Apply**. The log clearing is permanent and once applied the log files cannot be recovered.
- **Log to Event Viewer:** Determines to log events to Event Viewer additionally. Users can launch the ***Control Panel > Administration Tools > Event Viewer*** to review all events in the **Application** category of the **Windows Logs** directory.

  Note: *Event Viewer is only function on the Windows platforms. If this option is not activated, you can activate this option by installing the PowerShell through Windows Update.*

Status Recording

- **Enable:** If this option is enabled, the Agent will start to record the UPS status.
- **Entry Expiration:** This option specifies how long the log files will be retained.
- **Recording Interval:** The Agent will record the UPS status at the specified intervals.
- **Clear All Records:** When this option selected with **Yes, Now**, all record status logs will be removed immediately after clicking **Apply**. The log clearing is permanent and once applied the log files cannot be recovered.

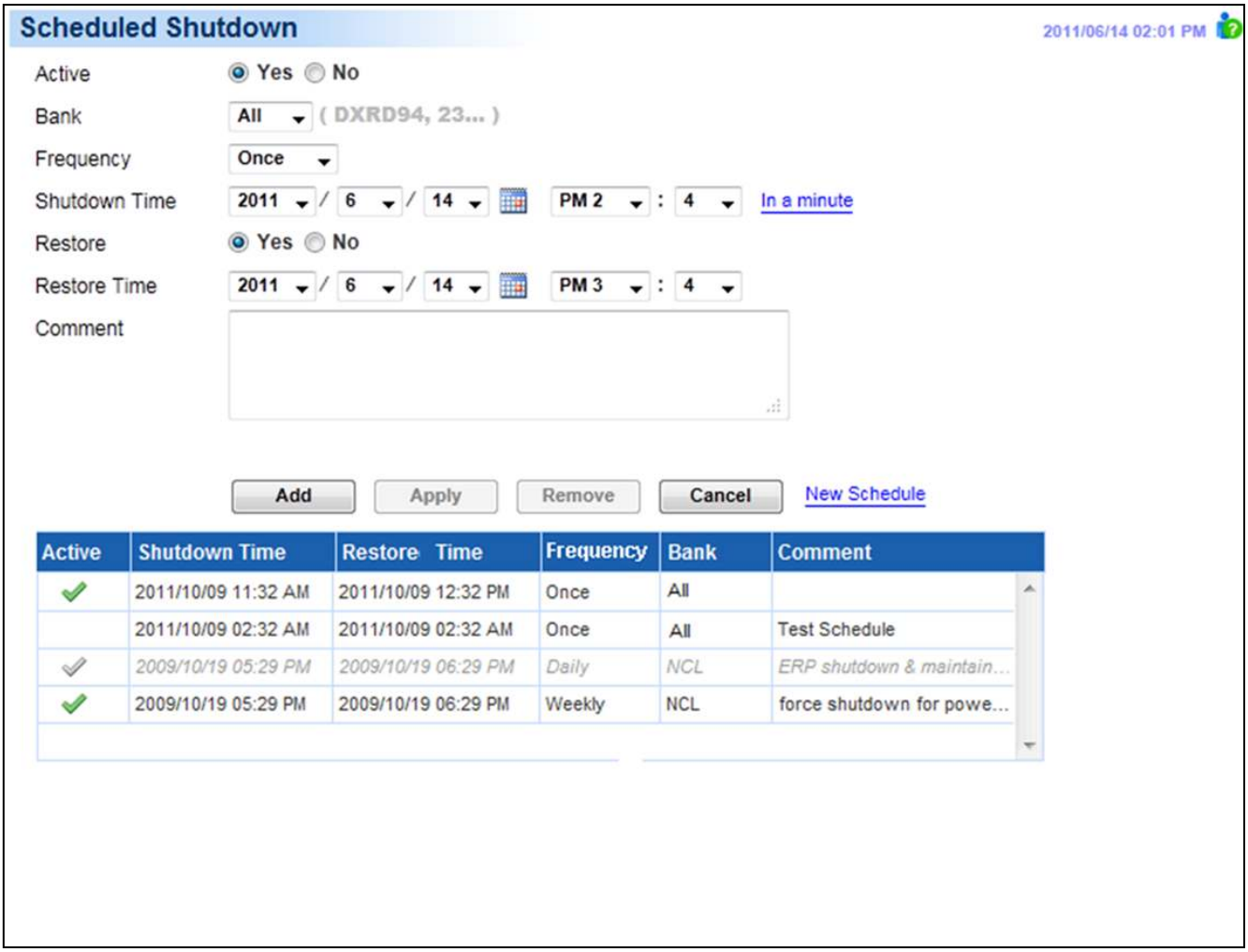
Schedule

Shutdown

In the Agent, an active schedule will cause the computer to shut down or hibernate, and then ask the UPS to completely power off the output or turn the specific outlets off at a specified date and time. It also allows users to specify the date and the time to turn on output or turn the specific outlets on. The UPS will turn on the specific outlets and begin supplying power which causes the computer to restart or wake from the hibernation.

Before the Agent shuts down because of a schedule shutdown, Client computers running PowerPanel® Business Edition Client will be shut down or hibernated to prevent data loss.

The **Schedule**/**Shutdown** page manages scheduled shutdowns and lists all configured schedules. Each schedule row displays the details of when the schedule will take effect and when to perform it. The time displayed at the upper right corner is the local time of the hosted computer. If you are connected to a remote Agent this time may be different from the time on your computer.



Schedule page

- **Create schedule:** Select the **New Schedule** shortcut to have the blank fields or use the data of the selected schedule. Enter all required data and click **Add** to add a new schedule.
- **Modify the schedule:** Select the schedule you wish to modify. After entering the new data, click the **Apply** button to apply the schedule modification.
- **Remove the schedule:** Select the schedule to remove from the schedule list, and click the **Remove** button to complete the schedule deletion.

The schedule detailed settings are explained below:

- **Active:** Choose **Yes** to activate this schedule effective. If **No** is selected, the schedule will be ignored.
- **Bank:** There are two conditions for this option.
  - **Power off the output completely.** When users choose the **Master Power** option, all equipment connected to the outlets labeled both **SURGE** and **BATTERY**, or all the outlets on the UPS includes labeled **CL**, **NCL**, **NCL 1**, **NCL 2** will be turned off. Only the UPS with NCL support the **NCL** outlets are available, and if there are two NCL outlets on the UPS, the **NCL 1**, **NCL 2** outlets are available.
    ***Caution: Surge** protected outlets provides surge protection to the equipment but does not provide battery power once a power outage occurs. When utility power fails, computers on the surge outlets will shut down immediately due to power loss.*

- **Turn off the NCL outlet.** If the **NCL** option is chosen, users can assign a scheduled shutdown to particular outlets on the UPS with NCL support. If there are two NCL outlets on the UPS, the NCL 1 and NCL 2 outlet can be assigned individual schedules.

- **Frequency:** There are three frequencies that can be assigned **Once**, **Daily** and **Weekly**. **Daily** and **Weekly** schedules will be repeated. If a **Once** schedule has been performed or expired, the schedule will display a gray active icon in the schedule list.

Active	Shutdown Time	Restore Time	Frequency	Bank	Comment
	2011/06/14 05:25 PM	2011/06/14 06:25 PM	Once	NCL	
	2011/06/15 04:15 AM	2011/06/15 05:15 AM	Daily	All	Force shutdown for power s
	2011/06/16 04:15 AM	2011/06/16 05:15 AM	Weekly	All	Server backup & Maintain
	2011/06/19 02:15 AM	2011/06/19 03:15 AM	Once	NCL	Test Schedule
	2011/06/20 02:15 PM	2011/06/20 03:15 PM	Once	NCL	Test Schedule

A once schedule with a gray active icon indicates it has been performed or expired.

- **Shutdown Time:** Configures when to perform the schedule and when to shut down computers.
- **Restore:** Configures whether to restore the controlled outlet power. If the **Yes** option is selected, the UPS will restore the power or power on the NCL outlet at the time specified in the *Restore Time* option. Otherwise the UPS output will stay powered off.
- **Restore Time:** The time to restore the output or to turn on the NCL outlet. This shutdown time must occur prior to the restore time. The maximum duration between the turn off and turn on must depends on UPS model. *Returned Delay* in the **UPS**/**Configuration** page will affects Restore Time. If a schedule is set to restore power at 6:00 PM and the *Returned Delay* is set 5 minutes, the schedule will actually restore power at 6:05 PM.
- **Comment:** Sets the user-defined comments for this schedule.

Note: *If the computer bios is set to boot when power restores, the computer will automatically restart when the power is restored. Consult your motherboard documentation or PC/Server supplier for additional details.*

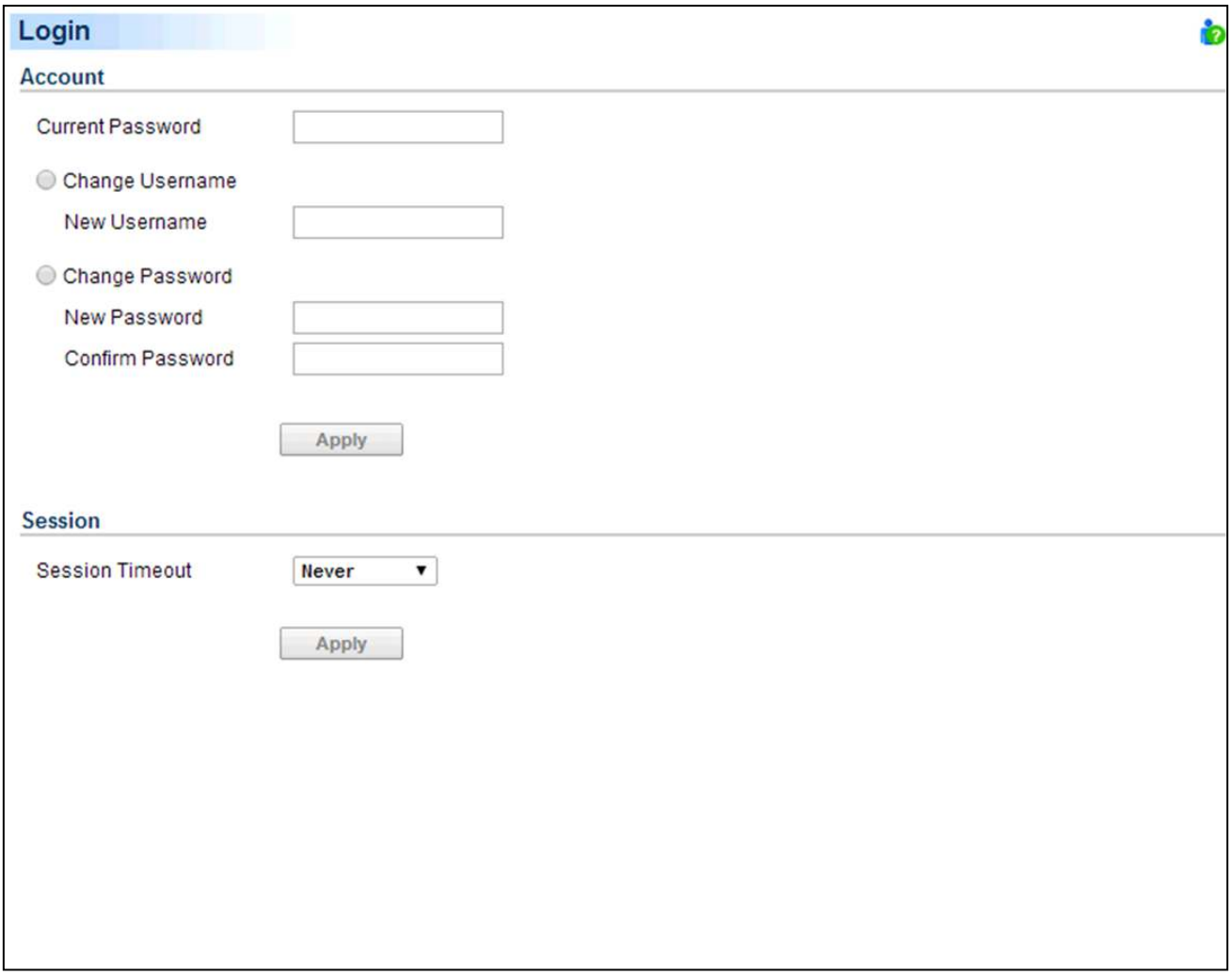
Note: *An active schedule may have an insufficient duration to support a complete shutdown. If the active schedule has insufficient shutdown duration, the active schedule will be set inactive.*

Note: *The scheduled shutdown is functioned only for Agent with UPS.*

Security

Login

The **Security**/**Login** page is used to change the PowerPanel® Business Edition login account information, including user account, password, and the duration of login session.



Security/Login page

Account

Change Username

- Enter the password in the *Current Password* field.
- Select the *Change Username* option and enter a new username in the *New Username* field. Username must be alphanumeric (0-9, A-Z and a-z).
- Click **Apply** to complete the change.

Change Password

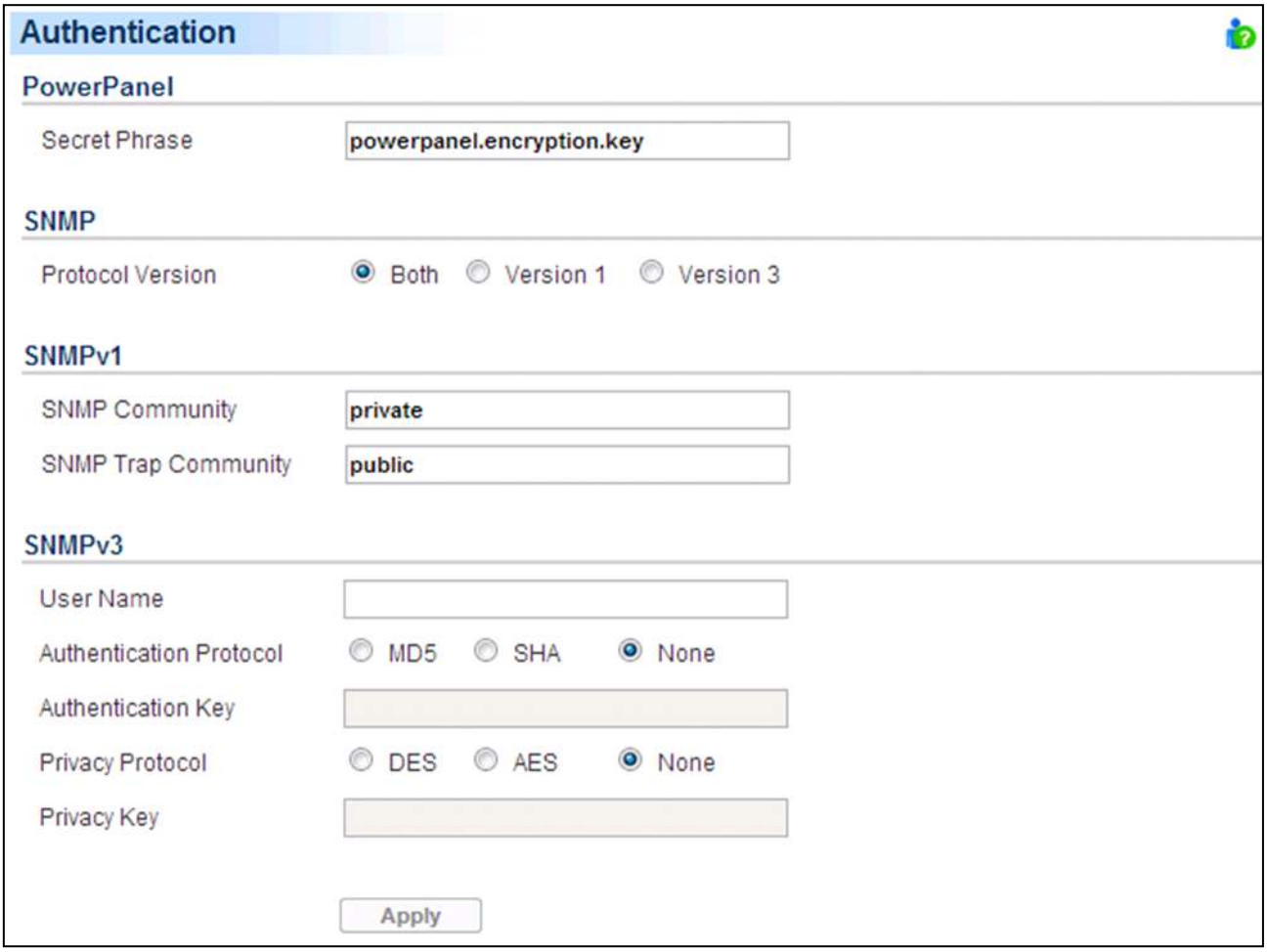
- Enter the password in the *Current Password* field.
- Select the *Change Password* option and enter a new password in the *New Password* and *Confirm Password* fields.
- Click **Apply** to complete the change.

Session

Session Timeout is the option which determines the duration of the session after the login. If the page isn't accessed during this period and remains inactive, users will be logged out automatically. Users will need to login again on the **Login** page.

Authentication

To secure and protect network communication between the PowerPanel® applications and the devices, security settings must be configured in the **Security**/**Authentication** page. The Secret Phrase and SNMP settings (in Client) are configured and used for authenticating network communication between the PowerPanel® applications and devices such as PDU or UPS.



Security/Authentication page in Client

If the Client establishes communication with below devices, refer to **PowerPanel** section for further details:

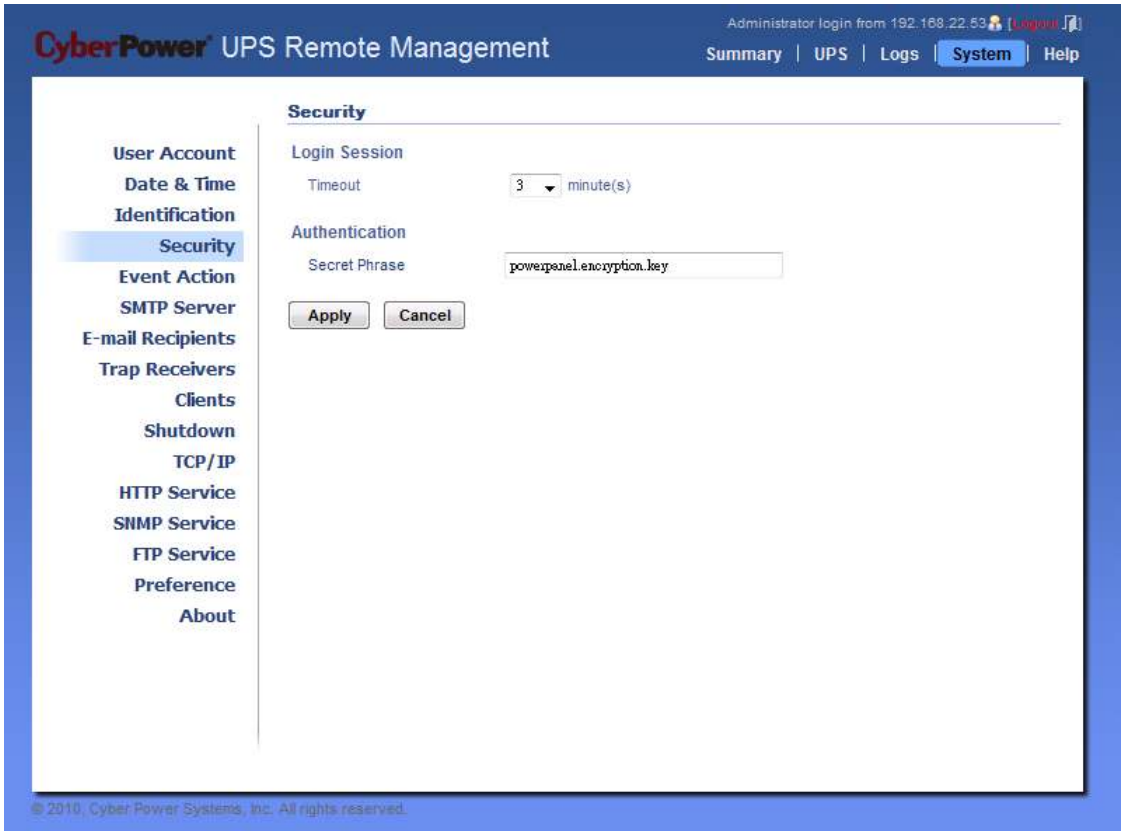
- PowerPanel applications such as Agent or Center.
- RMCARD whose model name is **RMCARD302**, **RMCARD203**. **RMCARD202, RMCARD305 or RMCARD205**.
- PDU whose model name is anything except **PDU20SW8RNET** or **PDU15SW8RNET**.

If the Client doesn't establish communication with the aforementioned UPS and PDU, refer to **SNMP, SNMPv1** and **SNMPv3** sections for further details.

PowerPanel

Secret Phrase. The Secret Phrase is used to create secure network communications between PowerPanel® Applications such as Client and Agent, Client and UPS RMCARD, or Client and PDU. The default phrase is **powerpanel.encryption.key**. The Secret Phrase can be configured on the **Security**/**Authentication** page in the

Agent and Client, or on the **System/Security** page in the PDU and UPS RMCARD web. The Secret Phrase which is used in the Client and devices must match.



Secret Phrase on the System/Security page in the UPS RMCARD202 web

Note: *If the firmware version on the RMCARD202 is earlier than 1.1 (excluding 1.1), you should refer to* ***SNMP****,* ***SNMPv1*** *and* ***SNMPv3*** *sections for the correct configurations.*

SNMP

The Client establishes communication and access device information via SNMPv1 and SNMPv3. Early UPS and PDU models only support SNMPv1 protocol, and some newer models have supported SNMPv3 protocol. User can choose the proper SNMP protocol according to the device.

SNMP Protocol. User can determines which SNMP protocol to use over the network communication between Client and devices. It is recommended to choose **Both** option because Client attempts on the correct SNMP protocol for device to interact.

SNMPv1

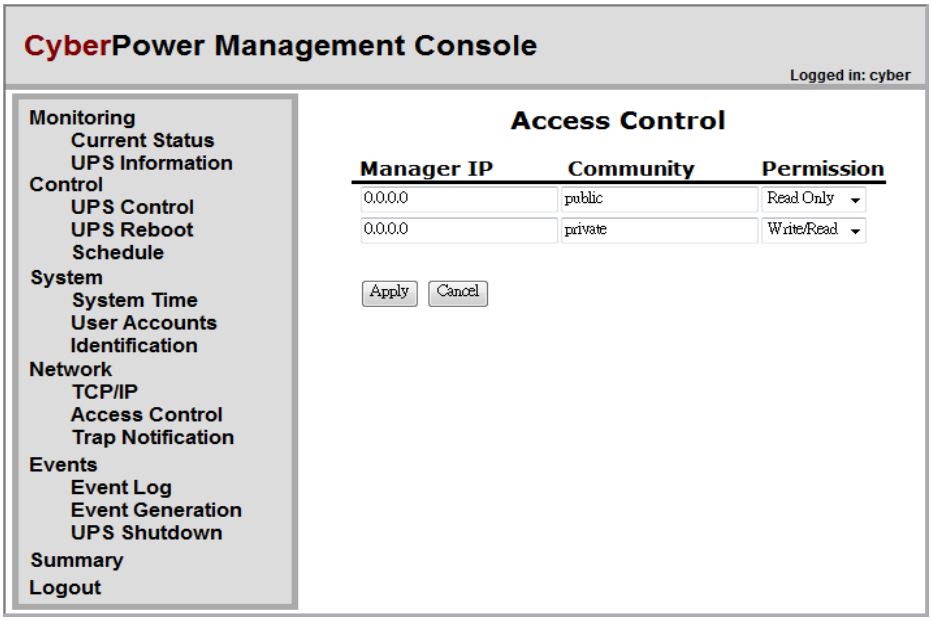
SNMP Community. The Client uses this community to authenticate communication between the PDU and UPS in order to access their information. The default community is **private**. By default, the UPS/PDU/ATS use **private** as the community with write permission, and **public** with read only permission. The community used by the Client to access

the UPS RMCARD/PDU/ATS must have a minimum of read permission for basic operation. If the community has write permission, the Client can complete some configuration tasks automatically.

If the Client cannot complete these tasks due to a permission limitation, the following settings must be configured manually in the UPS RMCARD web or in the PDU web:

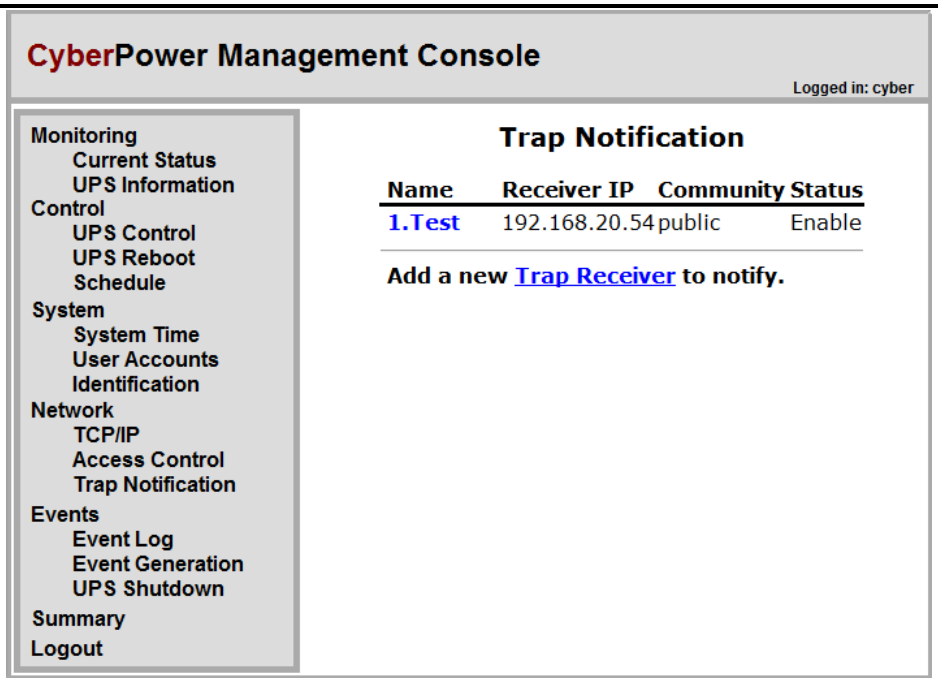
Note: *The community can be configured on the* ***Network/Access Control*** *(or* ***Network Service/SNMPv1 Service)*** *page in the UPS remote management card (RMCARD) web or on the* ***Network/SNMP Settings*** *(or* ***Network Service/SNMPv1 Service)*** *page in the PDU web.*

- Outlet Off Delay Setting - Specify the necessary time for the Client to shut down the computer on the **Outlet/Outlet Configuration** page in the PDU web.
- Add the IP address of the Client computer to the Trap Receiver list of the UPS RMCARD/PDU/ATS on the **Network/Trap Notification** page in the UPS RMCARD web or in the PDU web.



Network/Access Control page in the UPS RMCARD201 web

SNMP Trap Community: The Client uses the community to authenticate the SNMP trap from a secure device. The community default is **public**. The IP address of the Client computer must be added to the Trap Receiver list on the **Network/Trap Notification** page of the UPS RMCARD and the PDU to ensure the community is matched.



Network/Trap Notification page in the UPS RMCARD201 web

Note: *SNMP community is limited to 15 characters in the PDU and UPS RMCARD.*

Note: *If you have firewall software installed, configure the settings to allow access through port 3052 (UDP/TCP), port 53568 (TCP), port 162 (UDP) and port 53566(UDP). The communication between the UPS RMCARD, PDU and PowerPanel® Applications as Agent and Client can only be established when those ports are open.*

SNMPv3

The Client uses the below SNMPv3 settings to interact with a secure device. These settings can be configured on the **Security**/**Authentication** page in Client and on the **Network Service**/**SNMPv3 Service** page of the UPS RMCARD/PDU/ATS web. These settings must be matched.

- **User Name**: Specifies a username match for protocol.
- **Authentication Protocol**: Sets the protocol to be used for authenticating the network communication between the Client and devices.
- **Authentication Key**: Sets the authentication key which is used for the aforementioned authentication protocol.
- **Privacy Protocol**: Sets the privacy protocol to be used for encrypting data during transmission between the Client and devices.
- **Privacy Key**: Sets the privacy key to encrypt data for the aforementioned privacy protocol.

SNMP Agent

PowerPanel® Business Edition Agent supports SNMP. Users can use settings to select the NMS (Network Management Station).

Authentication

Power Panel

Secret Phrase: powerpanel.encryption.key

Apply

SNMP Settings

SNMP Agent Port: 161

Apply

SNMPv1 Service

Allow Access ☑

Apply

Community

IP Address

Access Type: Read Only

Apply Cancel

Community	IP Address	Access Type
public	0.0.0.0	Read Only
private	0.0.0.0	Read/Write
public2	0.0.0.0	Disable
public3	0.0.0.0	Disable

SNMPv3 Service

Allow Access ☑

Apply

Access

User Name

Authentication Key

Privacy Key

IP Address

Authentication Protocol: None

Privacy Protocol: None

Apply Cancel

User Name	Status	IP Address	Authentication	Privacy
cyber snmpv3 user1	Disable	0.0.0.0	None	None
cyber snmpv3 user2	Disable	0.0.0.0	None	None
cyber snmpv3 user3	Disable	0.0.0.0	None	None
cyber snmpv3 user4	Disable	0.0.0.0	None	None

Security/Authentication page in Agent

SNMP Settings

PowerPanel® Business Edition Agent allows users to change the port of SNMP Agent.

- **SNMP Agent Port**: Determines which port to be used for SNMP Agent. The default port is 161.

SNMPv1 Service

The Agent uses the SNMPv1 Service settings below to communicate with the NMS. These settings can be configured on the **Security**/**Authentication** page in Agent.

- **Allow Access**: Set the SNMPv1 service to either Enable or Disable.
- **Community**: The name used to access this community from a Network Management System (NMS).The field must be 1 to 15 characters in length.
- **IP Address**: The IP address or IP address mask that can be accessed by the NMS. A specific IP address allows access only by the NMS with the specified IP Address. A 255 address is regarded as the mask and the applicable rules are as follows:
  - 192.168.20.255: Access only by an NMS on the 192.168.20 segment.
  - 192.255.255.255: Access only by an NMS on the 192 segment.
  - 0.0.0.0 or 255.255.255.255: Access by any NMS on any segment.
- **Access Type**: The allowable action for the NMS through the community and IP. The permission types include Read Only, Read/Write and Disable.

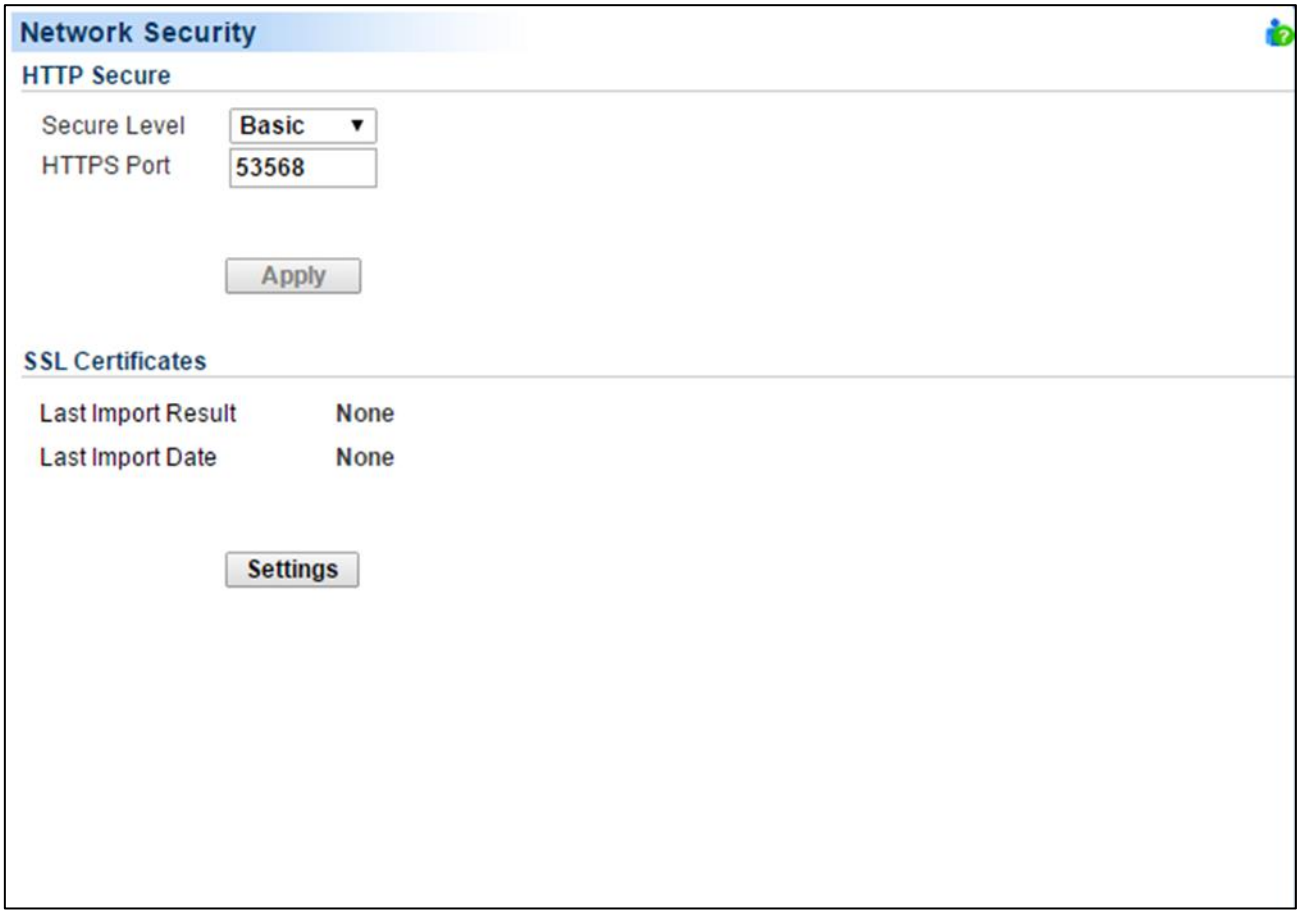
SNMPv3 Service

The Agent uses the SNMPv3 Service settings below to communicate with the NMS. These settings can be configured on the **Security**/**Authentication** page in Agent.

- **Allow Access**: Set the SNMPv3 service to either Enable or Disable.
- **User Name**: The name to identify the SNMPv3 user. The field must be 1 to 31 characters in length.
- **Authentication Password**: The password used to generate the key used for authentication. The field must be 16 to 31 characters in length.
- **Privacy Password**: The password used to generate the key used for encryption. The field must be 16 to 31 characters in length.
- **IP Address**: The IP address or IP address mask that can be accessed by the NMS. A specific IP address allows access only by the NMS with the specified IP Address. A 255 address is regarded as the mask and the applicable rules are as follows:
  - 192.168.20.255: Access only by an NMS on the 192.168.20 segment.
  - 192.255.255.255: Access only by an NMS on the 192 segment.
  - 0.0.0.0 or 255.255.255.255: Access by any NMS on any segment.
- **Authentication Protocol**: The hash type for authentication. Supported types include MD5, SHA or None.
- **Privacy Protocol**: The type of data encryption and decryption. Supported types include DES, AES or None.

Network

Data may be eavesdropped upon or falsified due to eavesdroppers or unknown network attacks when using the PowerPanel® Business Edition. HTTP is insecure and subject to eavesdroppers or other network attacks which can obtain the sensitive information such as website accounts or passwords. HTTPS provides secure identification and encryption. HTTPS is usually used for sensitive transactions and PowerPanel® Business Edition also provides HTTPS connections to access the web remotely.



Network page

HTTP Secure

PowerPanel® Business Edition allows users to change the secure level and port explained below:

- **Secure Level**: Determines which security level to be used to access web interface.
  - **Basic:** Web access is not protected by HTTPS. This indicates that the sensitive information may not be protected on the network.
  - **Sensitive:** Only web access including the sensitive information, such as password or secret phrase, will be protected by HTTPS. The **Login**, **Event Action/Settings**, **Security/Login**, **Security/Authentication** and **Security/Network** pages contain the sensitive information.
  - **Complete:** All web access will be over the HTTPS connections.
- **HTTPS Port**: Determines which port to be used over the HTTPS connections. The default port is 53568.

Once the secure level is changed, the new secure level will be taken effect. All pages can't be displayed during the duration to restart server. After the new security has been changed, users will be logged out by Agent and Client automatically. Users must login again on the **Login** page.

When the secure level has been changed from **Basic** to **Sensitive**/**Complete**, the browser warning will be presented after the new level is taken effect. This indicates that the user's browser considers the connection is risky. Users can ignore the warning page and continue the web access, or provide a SSL certificate which is produced by the commercial certificate providers or any trusted certificate authority.

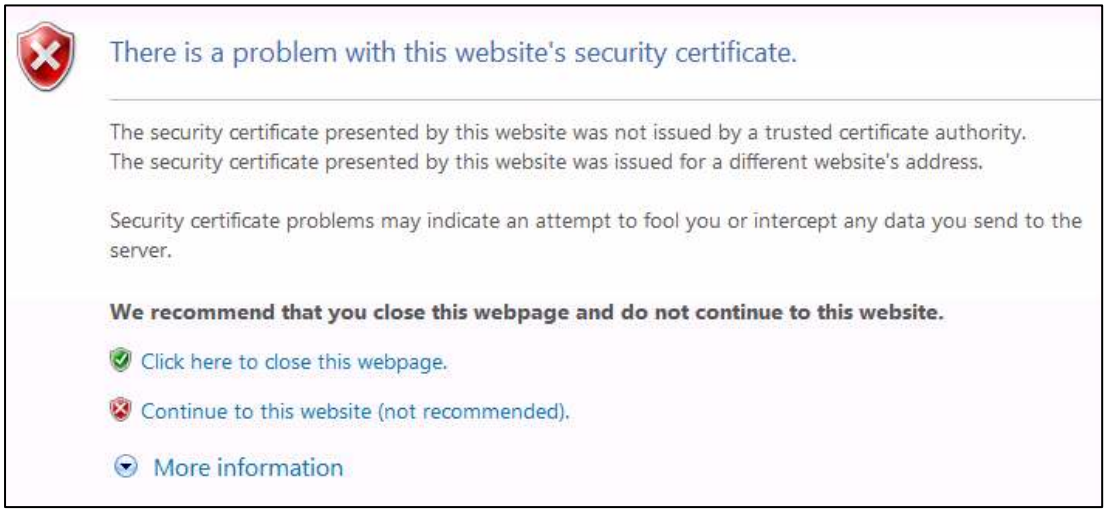
If the user would like ignore the warning page, refer to the **Ignore Warning Messages** section to continue web access; If the user has his own SSL certificate, refer to **Import SSL Certificates** section for further details how to import the new certificate.

Ignore Warning Messages

Users that plan not to import the SSL certificate may have to ignore these warning and continue the web access. Below illustration are the warning pages displayed on popular browsers. Follow the steps according to your browser to continue the web access:

Internet Explorer

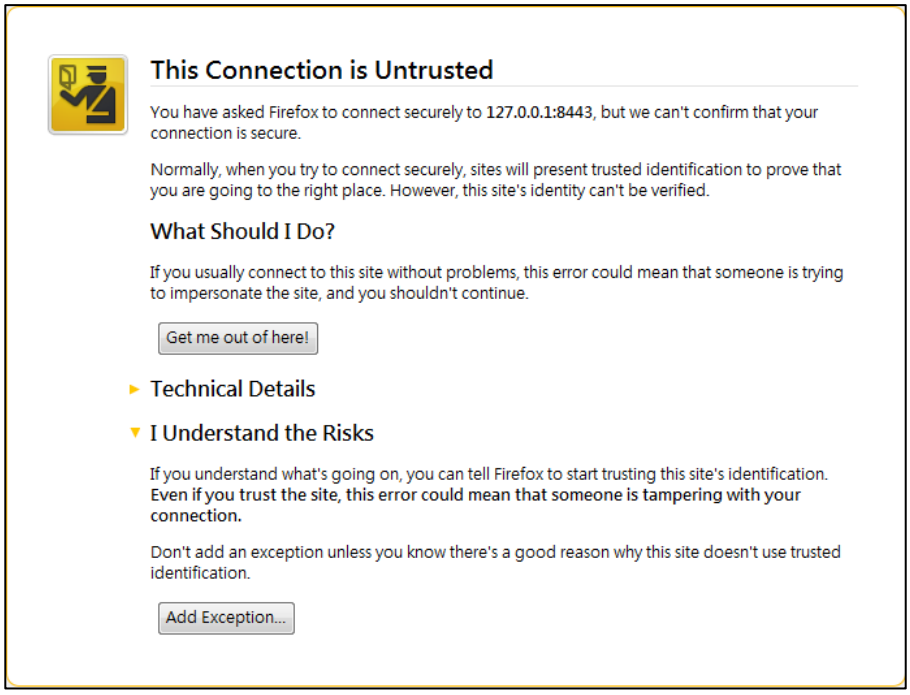
Click ***Continue to this website (not recommended)*** in order to proceed.



Internet Explorer displays that the security certification is not trusted.

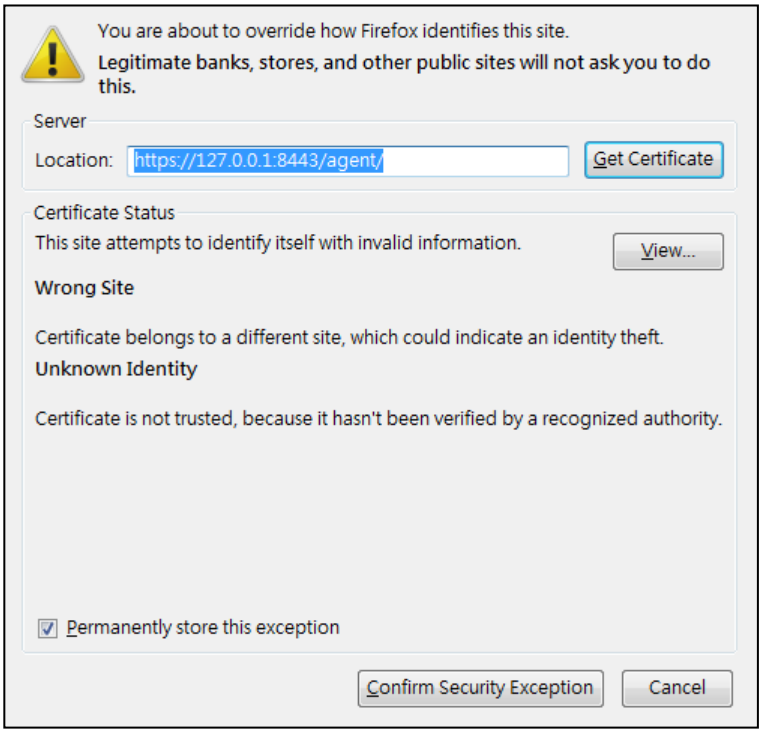
Mozilla Firefox

At first, click ***I Understand the Risks*** item to expand the content and click ***Add Exception*** button to continue the next step.



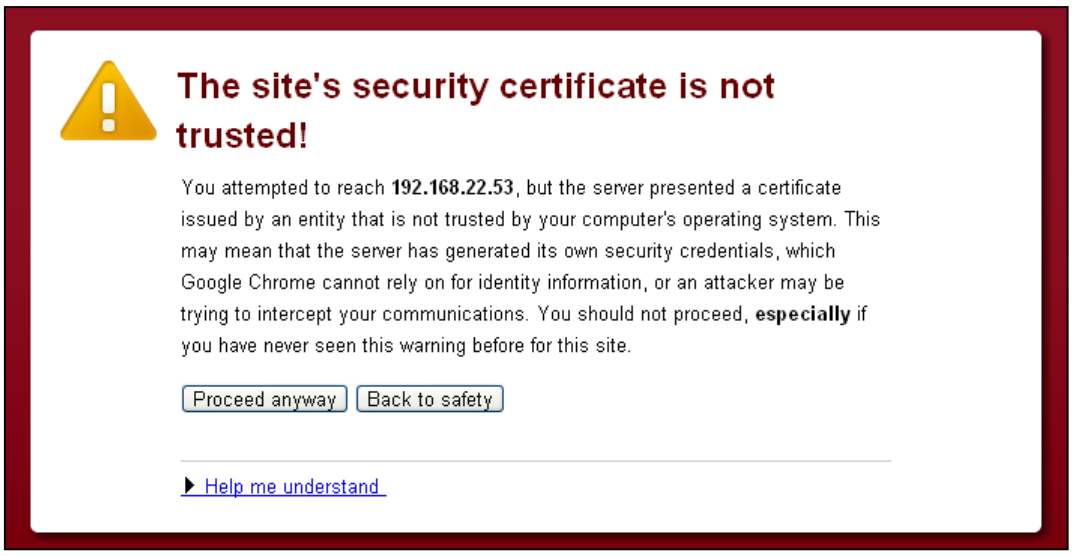
Firefox displays that the security certification is not trusted.

Second, select ***Permanently store this exception*** option and click ***Confirm Security Exception*** button to continue the web access.



Google Chrome:

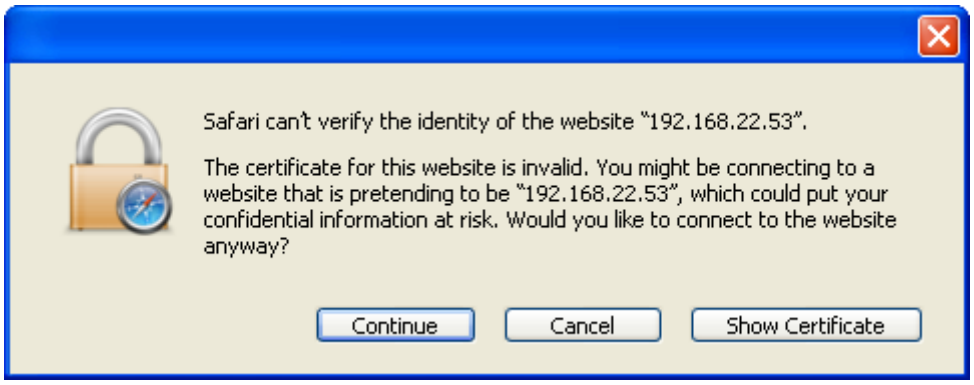
Click ***Proceed anyway*** button to continue the web access.



Google Chrome displays that the security certification is not trusted.

Safari

Click the **Continue** button to continue the web access.



Safari displays the security certification alert.

Note: *The performance will be lower once accessing to the website over the HTTPS connection.*

SSL Certificate

Import SSL Certificates

The user's browser that connects with the PowerPanel Business Edition web interface will serve the SSL certificate. The certificate proves to the browser that the provider believes that it has issued a certificate to the owner of the PowerPanel® Business Edition. The **Security**/**Network** page allows users to import your own SSL certificate and *SSL Certificate* displays the date and result for the last time to import SSL certificates. Users can import the certificates as following steps:

- Click the **Settings** button to switch the *SSL Certificates Wizard*.
- Click the **Import** button to upload the SSL certificate file.

- Enter the *Key Passphrase* field and the *Keystore Password* field. Click the **Continue** button to import the SSL certificates.

Note: *Applying for a certificate from the commercial certificate provider will be subject to the provider fee.*

Add SSL Certificate into Trust List

A certificate trust list is a pre-defined list of SSL certificates that have been signed by a trusted entity. A certificate trust list of PowerPanel Business Edition is used to identify the certificate authority of another one with whom interacts. When importing a new SSL certificate, this will result in communication loss between the Agent, Client and Center.

As an example, when the Client that has been connected with the Agent imports a new SSL certificate, the Clint cannot interact with the Agent. Users must to add the certificate of Client into the trust list of the Agent manually and thus the Agent considers the Client's SSL certificate valid.

Users can follow the steps to add the certificate into the trust list – Client and Agent, for example:

- Place the SSL certificate of the Client as file extension of **.crt** in the *<agent_installation_directory>/jre/lib/security.*
- Switch to the *<agent_installation_directory>/jre/lib/security* directory in the command prompt.
  cd <agent_installation_directory>/jre/lib/security
- Run the below command to add the certificate to the trust list.
  <agent_installation_directory>/jre/bin/keytool.exe –import –trustcacerts –file <cert_name>.crt –alias <alias_name> –keystore cacerts.
- Enter "*changeit*" as the password for the certificate addition.
- Enter "y" to apply the certificate addition.
- Restart the Agent service to reload the trust list and take effect. Refer to **How to restart PowerPanel Business Edition service** of **FAQ** chapter for further details about how to restart PowerPanel Business Edition service.

Note: agent_installation_diretory *is the directory where the PowerPanel Business Edition Agent installation locates;* ***cert_name*** *is the filename of the certificate file and* ***alias_name*** *is the alias for the certificate available in the trust list.*

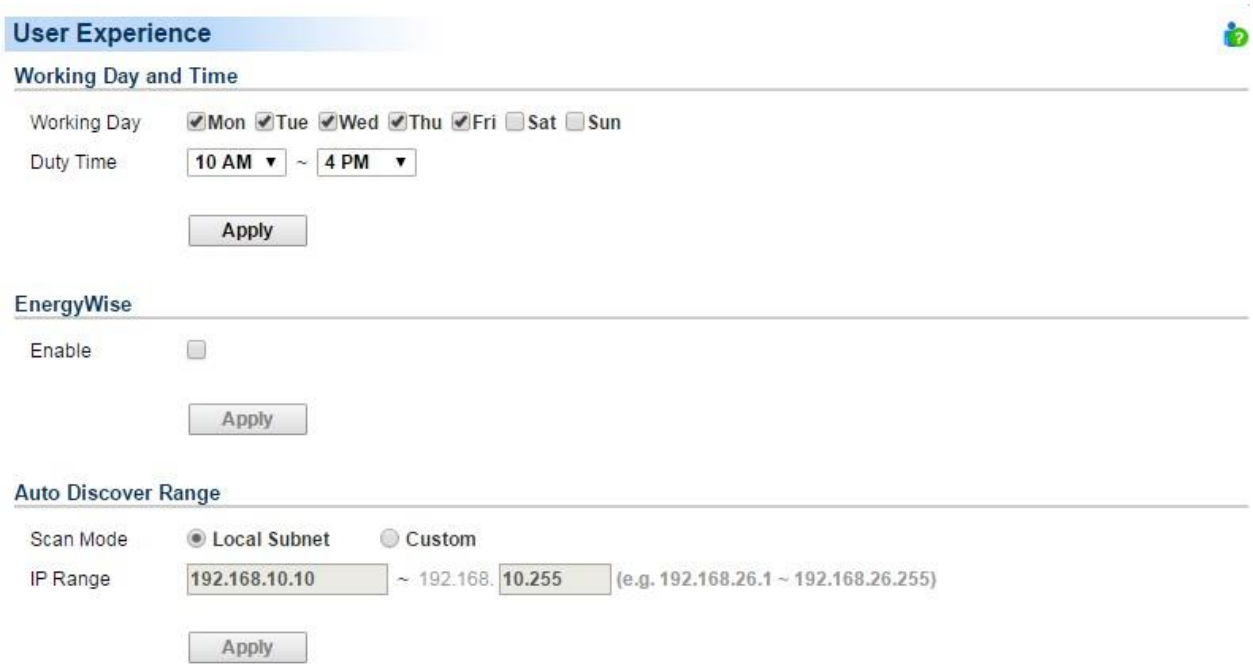
Note: *The aforementioned steps are applicable to the interactions between PowerPanel Business Edition software.*

Note: *Due to security reasons, user may have to change the password to access the trust list. Refer to* ***How to change the password to access the trust list*** *of* ***FAQ*** *chapter for more details.*

Preferences

User Experience

The **User Experience** page is used to configure common settings for the user's experience. The settings configured here will be used on the **Event Action**/**Recipient**, **Logs**/**Event Logs** and **Logs**/**Status Records** pages.



Preferences/User Experience page

Working Day and Time

- **Working Day:** Set the days users normally work.
- **Duty Time:** Set the work hours for users.

EnergyWise

- **Enable**: Sets to activate the EnergyWise function. This function is only supported in Agent and is not activated. After this option is activated, the **EnergyWise** item will appear in the UPS category. If the Agent never connects with any UPS, this function is disallowed to be activated.

Auto Discover Range

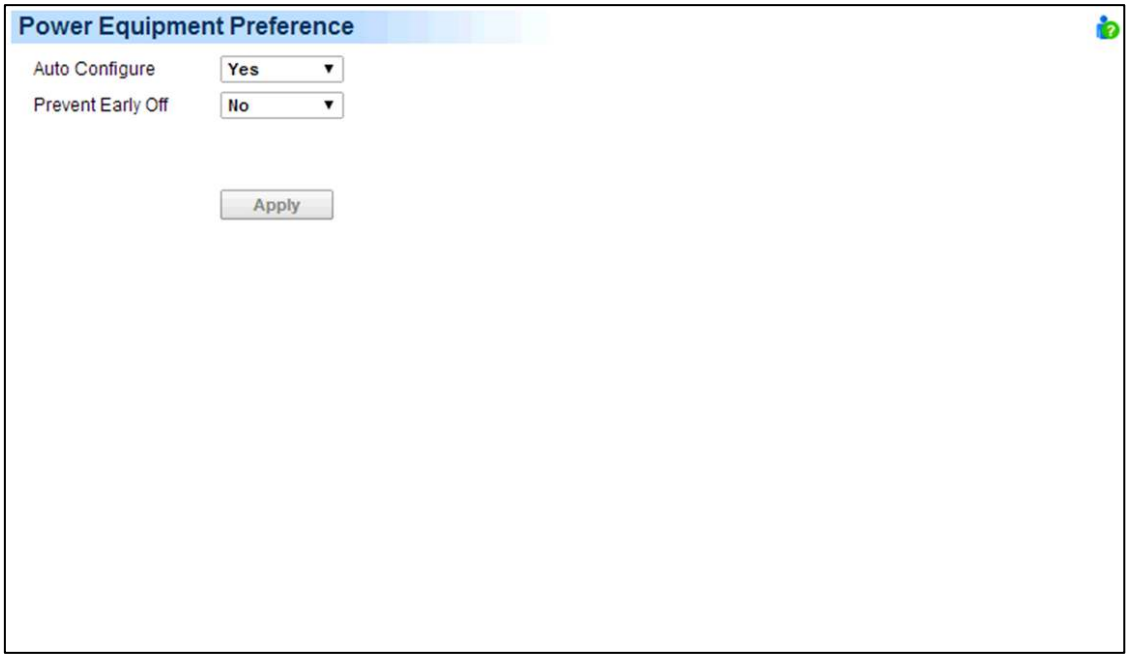
In order to search devices and computers in different segments or a specific range, users can set IP range on this page. The settings will be used on the **UPS**/**Load** and **Power**/**Configuration** pages.

The IP range detail settings and descriptions are explained below:

- **Scan Mode:** If the **Local Subnet** option is selected, the scanning will scan devices or computer in the same segment. If the **Custom** option is selected, the scanning will scan a specific range which configured in IP range field.

- **IP Range:** Set the range which used in devices and computers scanning.

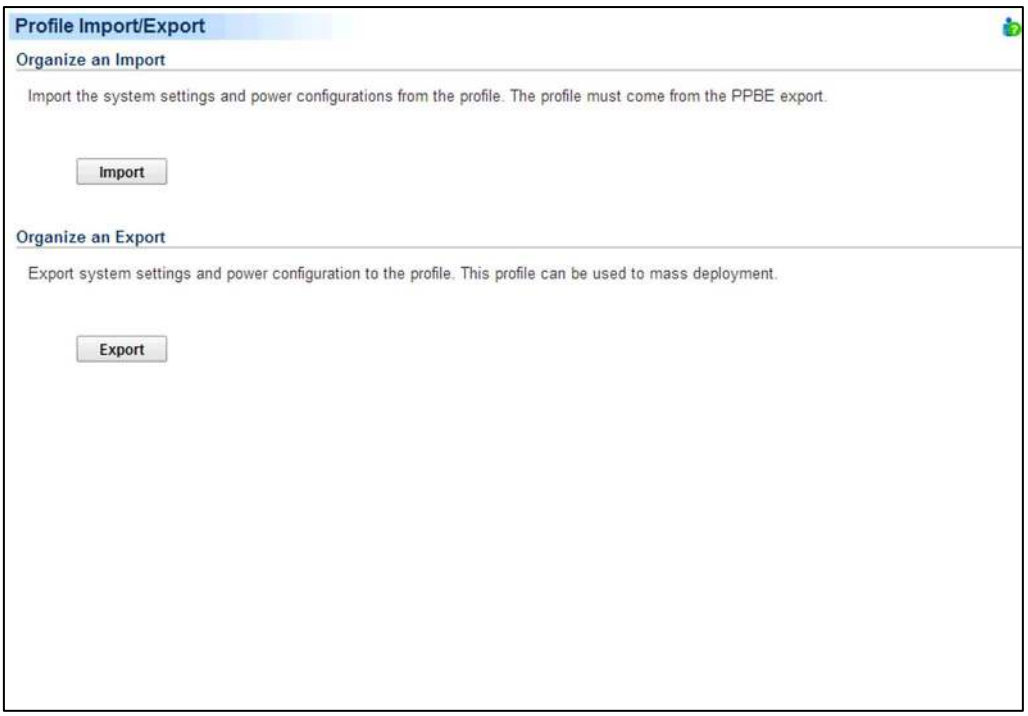
Power Equipment



In order for Client to operate properly with the power device, device options can be configured in Client:

- **Auto Configure**：Any time the IP address of the power device is changed, the Client will lose communication with the power device. If this option is checked, the Client will scan the network and automatically acquire the new IP address of the power device.
- **Prevent Early Off**：When the Client detects that the PDU outlet which is powering the Client computer, is going to be shut off, the Client will prepare to shut down the hosted computer. If the necessary shutdown time of the Client computer is more than the delay off time of the outlet, the Client will stop the computer shutdown and signal the PDU to cancel to outlet turn off.

Profile



In order for administrators to do mass deployment, **Profile** page allows users to export all power configuration and system settings from the target computer. Each computer running PowerPanel Business Edition can import this profile to apply the same power configuration and system settings.

Organize an Export

Users can click the Export button to export the current configuration to the profile. The profile will be exported as a zip file and save to the assigned location.

Agent will export the following power configuration and system settings to the profile:

- Detailed configuration for UPS.
- Detailed settings of each event, recipient and action.
- Preferences and security settings.

Client will export the following power configuration and system settings to the profile:

- Detailed configuration with power device.
- Detailed settings of each event, recipient and action.
- Preferences and security settings.

Note. *To avoid the profile being unzipped automatically by using Safari on Mac, the 'Open "safe" files after downloading' option in* ***Safari > Preferences > General*** *should not be checked.*

Organize an Import

Importing the profile will reduce the duplicate steps during mass deployment. For each computer running Agent or Client, users click the **Import** button to apply the same profile.

When a profile is imported, the content will be verified to determine whether it can be applied. One profile cannot be applied to every computer because not all settings and configuration are applicable for both Agent or Client. For example, when Agent attempts to import the profile exported by Client or another Agent which is connecting with different UPS, the imported profile cannot be applied completely.

Import Profile on Installation

PowerPanel Business Edition installer has the capability to import a profile in unattended installation mode. In order to reduce the interaction with users, the installation will be launched in unattended mode.

Copy the below example code and save as the new file named **setup.varfile**.

```
installModule=agent_or_client
installationDir=ppbe_installation_directory
profilePath=exported_zip_location
programGroupName=CyberPower PowerPanel Business Edition
```

Users can assign the installation module, installation directory and the located folder of the profile:

- **installModule.** Sets which module wish to install. This should be **agent** or **client**.
  Note. *If the installation module is* ***Center*** *and* ***Agent****, this should be* ***agent&center****; if the installation module is* ***Center*** *and* ***Client****, this should be* ***client&center****.*
- **installationDir.** Assigns the absolute path of the installation directory of PowerPanel Business Edition, e.g. *C:/Programs/CyberPower PowerPanel Business Edition/PowerPanel Business Edition* or */opt/ppbe*.
- **profilePath.** Assigns the absolute and complete path of the profile which is located, e.g. *C:/Import/profile.zip* or */import/profile.zip*.
- **programGroupName.** Assigns the program group name which is used the folder name in the start menu to PowerPanel Business Edition software, the default name is *CyberPower PowerPanel Business Edition*.

Place the **setup.varfile** and installer in the same directory and make sure that filename must be the same, e.g. **setup.exe** and **setup.following**. Different filename will result in unknown fault during installation.

For Windows, run the below command to launch the installation in the command prompt:

```
setup.exe –q –console –Dinstall4j.detailStdout=true
```

For most Linux distributions, run the following command to launch the installation in terminal:

```
sudo setup.sh –q –console –Dinstall4j.detailStdout=true
```

After the installation is complete, the profile will be imported and all settings will be applied successfully.

Note. *When you would like to upgrade the pre-installed Agent or Client during the unattended installation, set the* ***installationDir*** *parameter blank. The installer will automatically detect where preinstallation PPBE directory locates and attempt to complete the upgrade installation.*

Computers which never installed Agent or Client can be installed the PPBE by assigning a valid path. Assigning a blank path to the ***installationDir*** *parameter during the unattended installation will allow the installer to use the default path as the installation directory.* ***C:/Program Files/CyberPower PowerPanel Business Edition****/ will be the default*

*installation directory in Windows systems. /**opt**/**ppbe** or /**usr**/**local**/**ppbe** will be the default installation directory in most Linux distributions,*

Help

Content

The **Content** page provides an overview which introduces the brief functions of what Agent, Client and Center to do and indicates how to get related online-help content for current function page. It indicates a button to access to online-help directly.

About

The **About** page is an overview which includes the PowerPanel® Business Edition and host operating system. It also provides resources to contact website for assistances and the EnergyWise version that is using.

Logout

The **Logout** page allows users to log the user out of the web interface. The user will be asked if they are sure that they want log out, and users can then log out by clicking the **Logout** button.

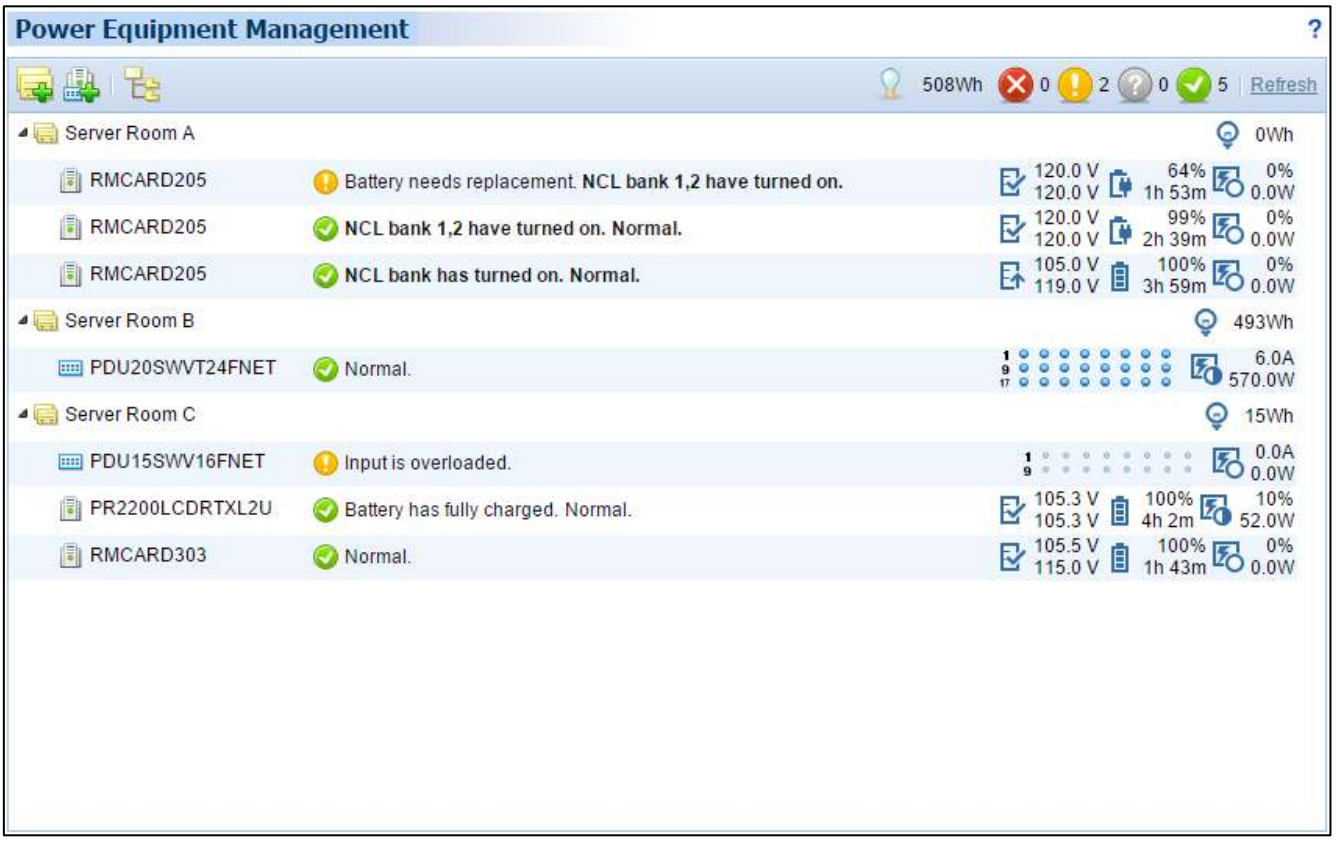
Using PowerPanel Business Edition Center

Management

Power Equipment

Power Equipment page has the following capabilities in Center:

- Monitor status and events from a connected UPS/PDU/ATS.
- Issue commands to the UPS/PDU/ATSs such as a power off, power cycle or power restore.
- Request that the UPS perform a battery test, sound its alarm or mute the audible alarms.
- Manage equipment and computers which are powered by UPS units and PDUs, and order connected computers to shut down or a reboot.
- Manage grouped UPS/PDU/ATSs.



Power Equipment page

Toolbar

The Toolbar provides information about the status of monitored devices and options to expand, add group or device.

Toolbar of Power Equipment page

These three buttons will allow users to add groups, add devices or expand all groups.

	Add Group. Click this button and the *Add Group* dialogue box will appear.
	Add Device. Click this button and the *Add Device* dialogue box will appear.
	Expand All. This button will expand all groups.

The other four icons indicate the amount of monitored devices that have had severe-level or warning-level events occur, the numbers of devices that have lost communication with Center and the number of devices that are normal.

	Indicates severe-level power events such as *Runtime is insufficient.*
	Indicates warning-level power events such as *Utility power failure.*
	Indicates the devices which have lost communication with Center. Center cannot monitor or control computers and equipment when communication is lost.
	Indicates that there are no problems with these devices.

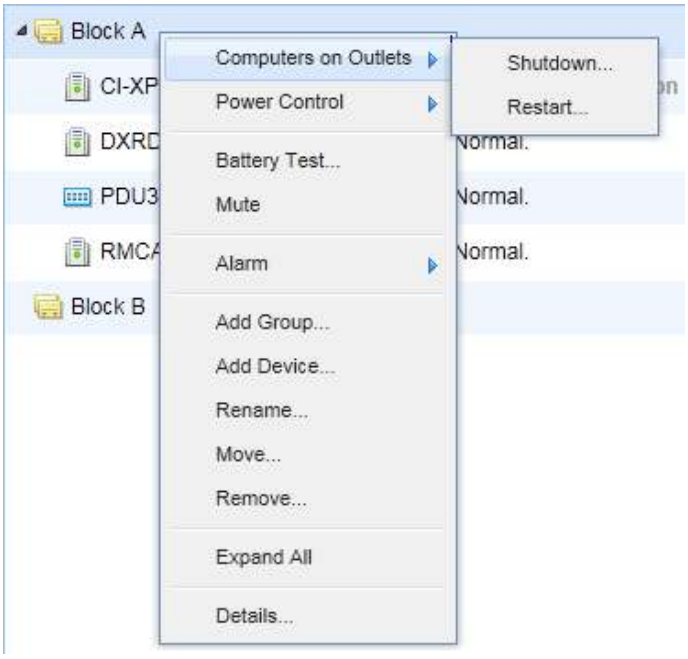
System will change the state according to the current power consumption of the entire system in past hour.

	Indicates the total power consumption of the entire system falls in a normal range.
	Indicates the total power consumption of the entire system exceeds the high threshold.
	Indicates the total power consumption of the entire system violates the low threshold.

Node Components

Each node has a name and an icon indicating what type it is. A UPS/PDU/ATS node provides detailed information about what power events have occurred and what the current status is.

A context menu for each node is available by clicking " ▽ " icon. This allows users to view detailed information such as *Summary* or *Status,* and request operations such as *Shutdown* or *Restart.* A menu item becomes disabled when this operation is in progress or is not supported.



A context menu appears by accessing a device node.

Each node can be one of the following types:

	A **UPS**. This UPS may have an RMCARD or is connected to a computer which is controlled by Agent.
	A **UPS**. A VMware vCenter server or VMware ESXi host is connected with this UPS.
	A **PDU**. This PDU may be set to connect to a monitored UPS.
	A **PDU**. A VMware vCenter server or VMware ESXi host is connected with this PDU.
	An **ATS**. This ATS may be set to connect with the UPS which could be monitored by Center.
	An **ATS**. A VMware vCenter server or VMware ESXi host is connected with this ATS.
	IT Equipment. A computer which has Agent installed.
	IT Equipment. A computer which has Client installed.
	IT Equipment. Equipment which may be a computer or powered equipment.
	A **Group**.
	Indicates the computer connected with the UPS is a VMware vCenter server.
	Indicates the computer connected with the UPS is a VMware ESXi host.
	Indicates that this outlet is not being using by any IT equipment.

Each node also has a column that indicates what the current state is and what power events have occurred. The column in a UPS node displays power events such as *Utility power failure* or *Runtime is insufficient* event while the column in a PDU node displays power events such as *Input is low load* or *Input is overload.*

The UPS/PDU/ATS nodes display a brief operating status consisting of schedules, utility power, batteries, support load and outlets. The brief status column displays in gray when local or network communication has failed.

A UPS can have the following states:

	Normal. The UPS is working normally.
	Power Failure. There is no utility power supplied to UPS.
	Bypass. The UPS has switched to bypass mode and is supplying direct utility power.
	Boost. The utility voltage is below the regular voltage and UPS is increasing the utility voltage.
	Buck. The utility voltage is beyond the regular voltage and UPS is decreasing the utility voltage.
	Test. A battery test is processing.

Batteries can have the following states when UPS is operating:

	Normal. Batteries are not being using.
	Not Present. Batteries are absent and there is no battery power.
	Charging. Batteries stops discharging due to a power event and are being charged.
	Discharging. The UPS is supplying battery power to its load.
	Fully Charged. Batteries are at 100% capacity.

UPS/PDU/ATSs have the following states according to their current load:

	No Load. There is no output load.
	Low Load. The PDU is in a low load condition.
	Normal. The output power is normal.
	Near Overload. The PDU is near the overload condition.
	Overload. Output consumption of equipment exceeds the rating load on UPS or the PDU is in an overload condition.

PDU also have a state to indicate whether outlet is turned on or off:

	Indicates this outlet is turned on.
	Indicates this outlet is turned off.

ATS have the following states on functioning:

	ATS uses this input source as current source, and this source is normal.
	ATS uses this input source as redundant source, but this source is normal.
	ATS uses this input source as current source, and this source is power failure.
	ATS uses this input source as redundant source, but this source is power failure.

The sensor on the UPS/PDU/ATS has the following states according to the environment temperature:

	Normal. Indicates the temperature measured by the sensor is in a predefined normal range.
	Overheated. Indicates the current temperature exceeds the high temperature threshold.
	Undercooled. Indicates the current temperature violates the low temperature threshold.

The sensor on the UPS/PDU/ATS has the following states according to the relative humidity:

	Normal. Indicates the humidity as a percentage measured by the sensor is in a predefined normal range.
	Over wet. Indicates the current humidity exceeds the high humidity threshold.
	Overdried. Indicates the current humidity violates the low humidity threshold.

A group has the following states according to the total power consumption:

	Indicates the total power consumption of the group falls in the normal range.
	Indicates the total power consumption of the group exceeds the high threshold.
	Indicates the total power consumption of the group violates the low threshold.

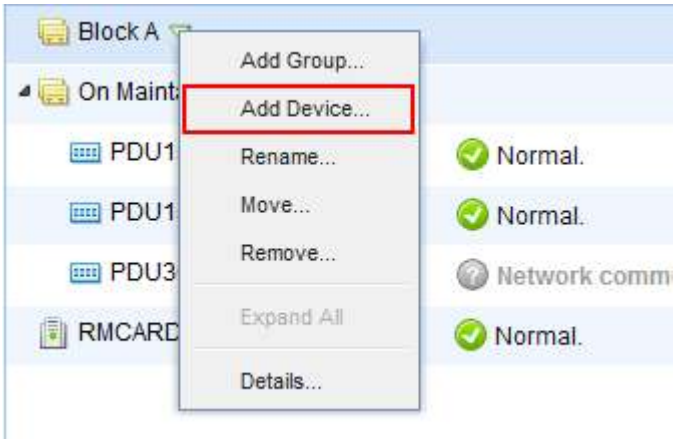
Device Management

Add Device

In order to monitor and control UPS/PDU/ATS it first must be added to the Center by clicking **Add Device** button on the toolbar.

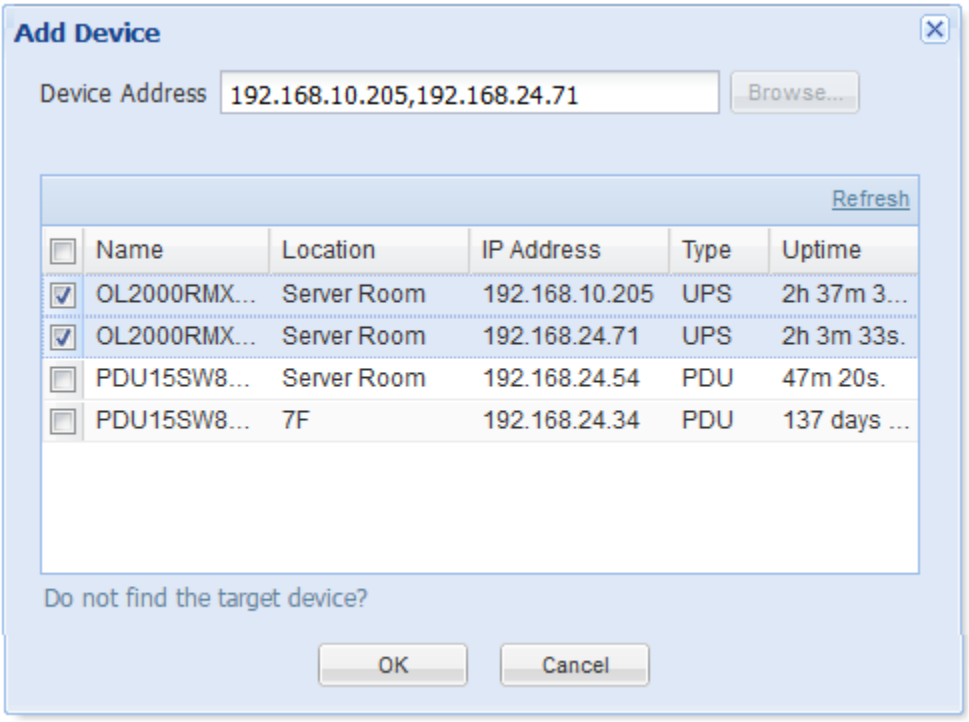
Add Device button on toolbar

Or it can be added directly to a group by selecting the *Add Device* item in the context menu for the selected group.



Add Device item in the context menu of target group

Enter the comma-separated IP addresses in the Device Address field or select the IP addresses by clicking **Browse**. The **OK** button will attempt to establish communication with the device at the specified IP address. If the target device is not available in the device list, change scanning range on the **Preferences**/**User Experience** page by clicking the **Do not find the target device?** shortcut.



Select IP address by clicking Browse button

Move Device

Highlight the device you wish to move and select **Move** in the context menu. A **Move** window will display and select the target group from the list. After selecting the target group, click **OK** to move the group.

Remove Device

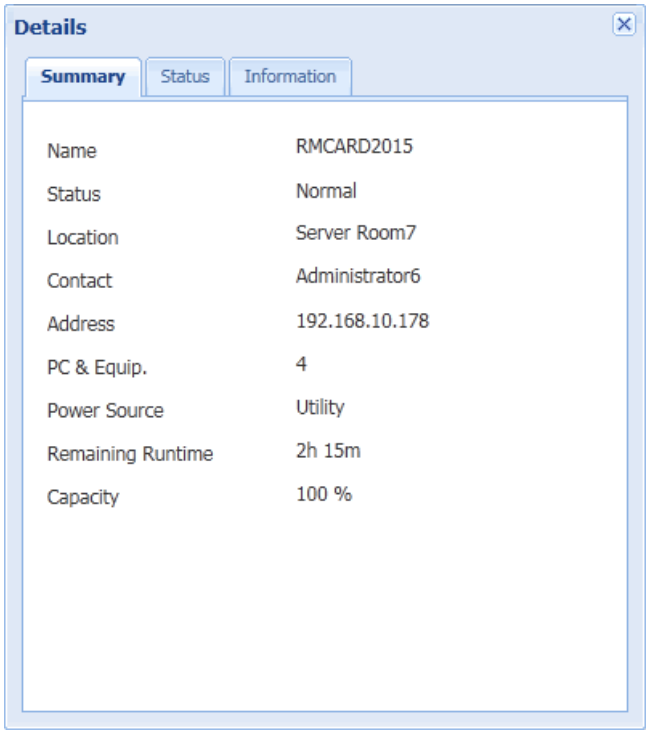
Highlight the device to remove or click **Remove** in the context menu. Click **OK** to remove the device. When a device is removed, its powered computers and equipment will also be removed.

Rename Device

Highlight the device node you wish to rename and select **Rename** in the context menu. The **Rename Device** window will display. After entering the new device name, click **OK** to apply the modification.

Device Details

Each UPS/PDU/ATS provides further information from **Details** in the context menu. This includes summary, status, and information. When local communication or network communication is lost, only the *Summary* tab can be accessed.



Details of UPS RMCARD

Summary

The **Summary** tab provides an overview of the system information:

- **Name**: The name of the selected device.
- **Status**: Displays the present status of the selected UPS/PDU/ATS.
- **Location**: Where the UPS/PDU/ATS is located.
- **Contact**: Who to contact about the UPS/PDU/ATS.
- **Address**: The IP address of the UPS RMCARD, PDU or Agent computer's network interface.
- **PC & Equip**: The number of the powered computers and equipment.
- **Outlets**: The amount of outlets on the UPS/PDU/ATS.
- **Outlet On**: The outlets which are supplying power.

- **Outlet Off**: The outlets which are not supplying power.
- **Power Source**: The power source of the UPS, e.g. *Utility* or *Battery*.
- **Remaining Runtime**: The estimated amount of time remaining that the UPS can supply power, given its current load.
- **Capacity**: The capacity of the batteries expressed as a percentage of full charge.
- **Statistics**: Indicates the state of the device as *Normal*, *Severe*, *Warning* or *Lost*.
  - **Severe**: Devices with severe-level events such as *Overheat or Output is off*.
  - **Warning**: Devices with warning-level events such as *Utility power failure or Battery need replacement.*
  - **Lost**: Devices which have lost communication with Center.
- **Type**: The type of software the selected device is running, e.g. *Agent*, *Client* or *Equipment*.
- **Current Source**: Indicates which input source is being using and will be also annotated preferred or redundant source.
- **Environment Sensor**: Indicates whether the environment sensor has been installed on the UPS/PDU/ATS. Note: When the sensor cannot be detected anymore, it will be annotated *No Response.* Users can click the **Uninstall** to reflect it if it had been removed physically from the UPS/PDU/ATS.

Status

The **Status** tab displays details about the UPS/PDU/ATS.

- **Current**: The output current in Amps.
- **Outlets**: The status of each outlet on the UPS/PDU/ATS and the name of the connected computer or equipment.
- **Input**: Displays the status of the utility power supplied to the UPS.
- **Voltage**: The voltage of the utility power supplied to the UPS.
- **Frequency**: The frequency of the utility power supplied to the UPS in Hertz.
- **Output**: Displays the status of the output power that is being supplied to connected equipment.
- **Load Consumption**: The power draw of the connected equipment expressed as a percentage of the total load capacity. This displays as watts on some UPS models.
- **Battery**: Displays the status of the battery packs.
- **Capacity**: The capacity of the batteries, expressed as a percentage of full charge.
- **Remaining Runtime**: The estimated amount of time that the UPS can supply power to its load.
- **System**: Displays the operating status of the UPS.
- **Environment Temperature**: Indicates the measured temperature from the environment sensor.
- **Environment Humidity**: Indicates the measured humidity from the environment sensor.
- **Contact**: Indicates generic equipment connects to this sensor. Users can define the name and state in RMCARD web for each contact and monitor the state is normal.
- **Source A Voltage:** The voltage of the input power supplied to the source A of ATS.
- **Source B Voltage:** The voltage of the input power supplied to the source B of ATS.
- **Load:** The power draw of PDU/ATS supplying power to connected equipment.
- **Bank # Load:** The power of the PDU/ATS bank supplied power to the connected equipment.

Information

Information tab shows information about the UPS/PDU/ATS.

- **Type:** The type of the device, such as *On-Line*, *Line Interactive* or *Sinewave Line Interactive* for UPS; or *Monitored* or *Switched* for PDU/ATS.
- **Model Name**: The model name of the UPS/PDU/ATS.
- **Firmware Version**: The firmware version of the UPS/PDU/ATS**.**
- **MAC address**: The MAC address of the UPS RMCARD, PDU or Agent computer's network interface**.**
- **Serial Number**: The serial number of the UPS**.**
  Note: *This will give the internal serial number on some models.*
- **Power Rating**: The Volt-Amp rating (VA) and power rating (Watts) of the UPS**.**
- **Voltage Rating**: The output voltage rating (Volts) of the UPS**.**
- **Frequency Rating**: The output frequency rating (Hz) of the UPS**.**
- **Battery Replacement Date**: The date that the batteries were last replaced. This should be set at the time of battery replacement. If this date has not been set, it is recommended that this date should be set immediately**.**
- **External Batteries**: The amount of external battery packs connected to the UPS.
- **Outlets**: The amount of outlets on the PDU/ATS**.**

UPS

The **UPS** tab allows you to set up to connect the PDU with the monitored UPS in the Center. Select the *Connect to UPS* option. Enter UPS IP address and assign the connected outlet. Click **OK** button to initiate a negotiation to connect PDU with a UPS. When the PDU connects to the UPS successfully, this PDU connects to the assigned outlet. All Clients which have communicated with this PDU will also establish the communication with UPS.

The **UPS** tab also allows you to set to connect the ATS with the UPS in Center. Select the *Source A connect to UPS* (or *Source B connect to UPS*) option. Enter UPS IP address and assign the connected outlet for according input source of ATS. Click **OK** button to initiate a negotiation to connect ATS with the UPS. When ATS connects to the UPS successfully, all Clients which have communicated with ATS will also establish the communication with UPS.

Do not connect both sources to one single UPS. An ATS whose sources come from the same UPS cannot protect connected computers and equipment from the power outage.

When one or more Clients are detected not to establish the communication with the UPS, the Center will show a warning to inform users of this condition.

Energy

The **Energy** tab shows the chart how to spend the energy in a specified period and also shows the energy statistics of the current target node and entire system.

Each UPS, PDU, ATS and outlet of Metered by Outlet PDU whose consumption will be logged per hour and each group which contains these UPS/PDU/ATS will work accumulating the consumption of data. These data which logged the consumption in the past can be gathered to render a chart in a past day, a past month, a past year and a past

decade accordingly. Administrators will realize how much energy has been spent in a past period. Energy can be spent more efficiently and reduce the waste.

For PDU and outlets of Metered by Outlet PDU, the Peak Load value will also be recorded. Center will show the Peak Load value, the time when this value happens and the time when the Peak Value is reset.

The **Energy** tab allows administrators to configure the proper thresholds to aware of violating consumption thresholds. Once the power consumption violates thresholds, Center will warn administrators of the violation. The thresholds are only applicable to current group or power equipment. When the thresholds are set blank, Center will use the thresholds of the **Default Energy** in **Energy Consumption/Settings** page instead of thresholds in **Energy** tab.

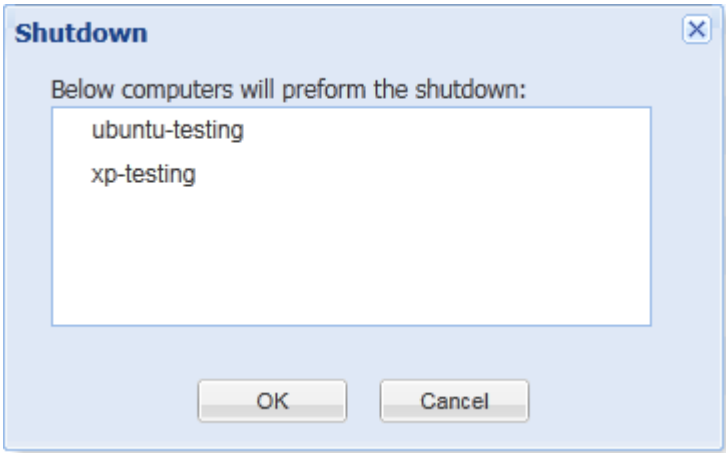
Note: *Internet explorer 6 and lower versions cannot support the graphic chart. The Internet explorer should be upgraded to the higher version which is capable of rendering the graphic charts.*

Device Operations

Center provides management functions for a UPS/PDU/ATS.

Computers on Outlets

- **Shutdown/Restart:** A shutdown or restart can be initiated on a computer with either Agent or Client installed by going to **Shutdown/Restart** in *Computers on Outlets.* A window will list the computers which can be shutdown or restarted. Clicking "X" will remove that computer from the list and they will not be shutdown/restart.
  Note: *If a PDU is connected to a UPS, shutting down computers on UPS outlets will result in shutdown computers in the PDU.*



A confirmation window lists computers able to be shutdown

Power Control

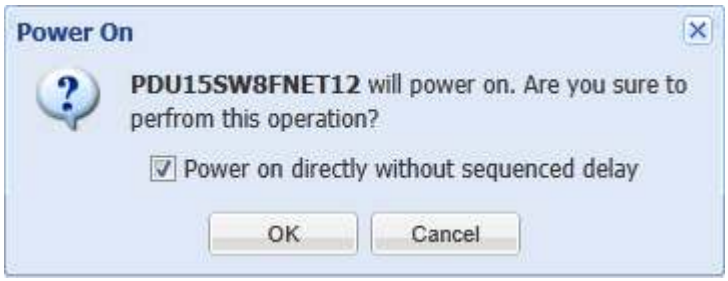
- **Power Off:** Click **Power Off** and a confirmation window will appear. Decide whether to perform an immediate or a sequenced power off then click **OK** to begin. When a UPS or a PDU initiates a sequenced power off, computers connected to the UPS/PDU/ATS that have Agent or Client installed will initiate shutdown prior to the sequenced power off.

  Note: *An immediate power off will likely result in connected computers losing power.*

A confirmation window of a PDU power off operation

- **Power On:** Click **Power On** to have the UPS/PDU/ATS turn on output power. Decide whether to turn on output power immediately or after a delay in the confirmation window. Click **OK** to begin.

  Note: *Some computers require manual booting when a UPS or a PDU powers on. To change this, set the computers BIOS to boot when power is restored.*



A confirmation window of a PDU power on operation

- **Power Cycle:** Initiates a **Power Cycle** on the UPS/PDU/ATS. This will turn the UPS/PDU/ATS off then back on or vice versa. Decide whether to initiate an immediate or a sequenced power cycle and click **OK** to begin. A sequenced power cycle will cause computers connected to the UPS/PDU/ATS that have Agent or Client installed to shut down prior to the power cycle.

  Note: *An immediate power cycle off will likely result in connected computers losing power.*

A confirmation window of a PDU power cycle operation

Note: *If a PDU is connected to a UPS, a power off or a power cycle to the UPS may also cause all computers on this PDU to shutdown.*

Battery Test

Click **Battery Test** from the context menu and the UPS will initiate a battery test.

Mute

Click **Mute** from the context menu to mute the alarm.

Alarm

Click **Alarm** from the context menu to enable or disable the UPS alarm.

Preferred Source

Click **Preferred Source** from the context menu to select which input source to be preferred to use.

Group Management

UPS/PDU/ATSs can be grouped for easy management. Orders can then be issued to multiple devices in a group.

Add Group

Click **Add Group** on the toolbar to create a new group.

Add Group button on toolbar

You can also add sub-groups in the context menu of a selected group. Enter the new group name and click **OK** button to add a new group.

Move Group

Select the group you wish to move and select **Move** in the context menu. Select the target group from the list in the **Move Group** window. After selecting the target group, click **OK** to move the group.

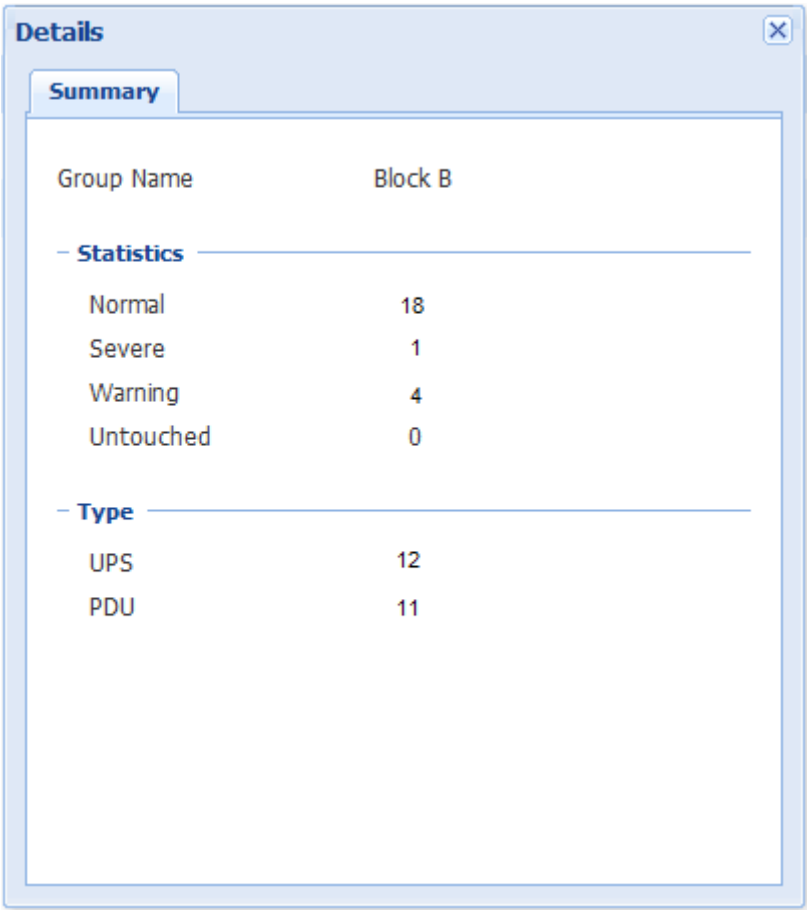
Remove Group

Choose a group and select **Remove** from the context menu. The **Remove** window will open; click **OK** to remove this group. Removing a group will not remove the sub-groups or the UPS/PDU/ATSs belonging to this group. These items will be moved to the main group.

Rename Group

Choose group and select **Rename** from the context menu. The **Rename Group** window will appear and requires new group name to replace origin one. Enter the new group name and click. When a group has been deleted, the sub-groups and devices will be moved to main group. Note that a duplicate group name is not allowed.

Group Details



Summary tab of Details

Each group provides the statistics of all UPS/PDU/ATS from the **Summary** tab of **Details** and includes the following summary information:

- **Group Name:** A name of the selected group.
- **Statistics:** Indicates statistics about the operating conditions of the UPS/PDU/ATS:
  - **Normal**: Indicates a UPS/PDU/ATS which is normal.
  - **Severe:** Indicates a UPS/PDU/ATS with severe-level power events such as *Runtime is insufficient.*
  - **Warning:** Indicates a UPS/PDU/ATS with warning-level power events such as *Utility power failure.*
  - **Lost:** Indicates a UPS/PDU/ATS which has lost communication with Center.
- **Type**: Indicates the statistics of UPS/PDU/ATS.

Group Operations

Some or all devices in a group can have the following commands issued to them:

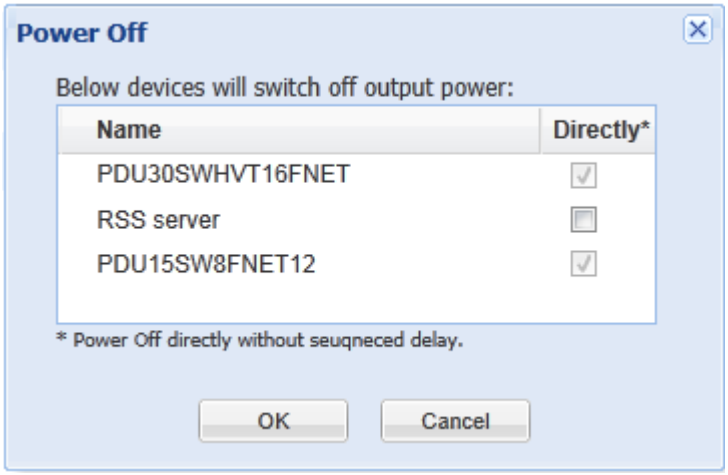
Computers on Outlets

- **Shutdown/Restart:** Select **Shutdown** or **Restart** from the context menu of the selected group and a pop-up window will appear. Pick the computers to shut down or restart and click "**X**" on those you wish to remove from the list. Click **OK** to initiate the shutdown or restart.

Note: *If a group contains the UPS systems which have connected with PDU units, shutting down the selected group may cause the computers shutdown on these PDU units.*

Power Control

- **Power Off:** Click **Power Off** and a confirmation window will appear. Pick the UPS/PDU/ATS from the list and decide whether to perform an immediate or a sequenced power off. Click **OK** to begin. When the UPS/PDU/ATS initiates a sequenced power off, computers with Agent or Client installed will initiate a shutdown prior to the sequenced power off. An immediate power off will likely cause those lose power.



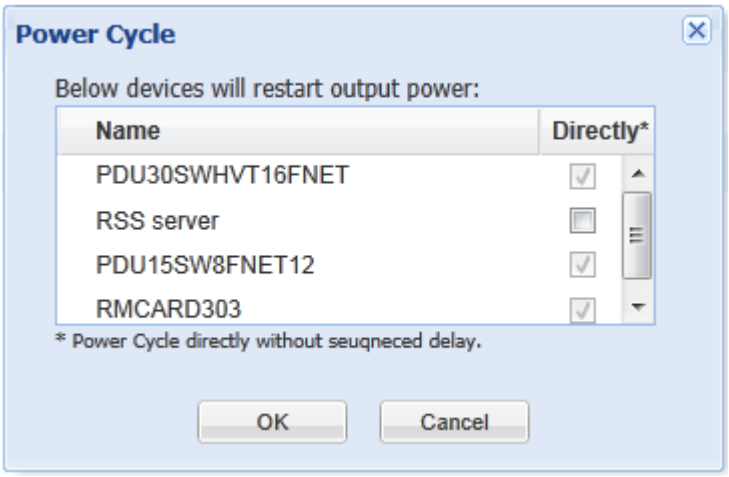
A confirmation window of a bulk power off operation

- **Power On:** Click **Power On** and a popup window appear. Pick the UPS/PDU/ATS from the list and determine whether to perform an immediate or a sequenced power on. Click **OK** to begin.

  Note: *Some computers require manual booting when a UPS or a PDU powers on. To change this, set the computers BIOS to boot when power is restored.*

A confirmation window of a bulk power on operation

- **Power Cycle:** Click **Power Cycle** and a popup window appear. Pick the UPS/PDU/ATS from the list and determine whether to perform an immediate or a sequenced power cycle. Click **OK** to begin.



A confirmation window of a bulk power cycle operation

Note: *If a group contains the UPS systems which has connected with PDU units, a power cycle or a power off to the selected group will result in computers shutdown on the PDU units.*

Battery Test

Only UPS units can perform a battery test. Click **Battery Test** from the context menu of the selected group. All UPS units in that group will be listed in the confirmation window. Click **OK** to initiate the battery test on all selected UPS units.

Mute

Click **Mute** from the context menu to mute the alarm.

Alarm

Click **Alarm** from the context menu to enable or disable the UPS alarm.

IT Equipment Management

IT equipment is computers that have PowerPanel® Business Edition Agent or Client installed, or generic equipment that is powered by a UPS/PDU/ATS. Center provides the following options to attach new equipment to an outlet, attach existing equipment from another outlet or another device, detach unused equipment and rename equipment

Attach New Computer

When a new computer running Agent or Client is plugged into a UPS/PDU/ATS, it should be assigned to the correct outlet. Example: A computer running Client connects to outlet #1 on a PDU. The Client should be assigned to an outlet by following these steps:

- Select **Show Outlets** item from the context menu of the PDU to expand all outlets.

- Select **Install** from the context menu of the correct outlet to open the **Load Setup** wizard.
- Choose **Computer Equipment with installed PPBE Client software**, and enter the IP address of computer or select it from the drop-down list. Click **Next** to continue.
- Enter the **Name**, **Location** and **Contact** of the Client, if the Client computer has more than one power supply, choose the power supply which is actually connected by the target outlet. Click Finish to close the **Load Setup** wizard and attempt to establish communication.

Attach New Generic Equipment

Example: New generic equipment such as a *printer* or *LCD monitor* has been connected to UPS outlet #2. Use the following steps to attach this new generic equipment:

- Select **Show Outlets** from the context menu of the UPS to expand all outlets.
- Select **Install** from the context menu of the correct outlet to open the **Load Setup** wizard.
- Choose **Generic Equipment Without installed PPBE Client software**, and click **Next** to continue.
- Enter the **Name**, **Location** and **Contact** of the equipment, and click Finish to close the **Load Setup** wizard and attach the generic equipment.

Move the Equipment

If you reconnect existing equipment to another outlet or another device, you should assign the equipment to the correct outlet following these steps:

- Select **Move** from the context menu of this equipment.
- Choose the correct outlet and target device in the **Move** window.
- Click **OK** to complete the operation.

Note: *A computer running Agent is only allowed to move to outlets on a single UPS. In order for Agent to have sufficient time to complete a shutdown, an Agent cannot be moved to NCL outlets.*

Detach the Equipment

When you unplug equipment from the UPS/PDU/ATS, this equipment should be detached. Select the **Uninstall** item from the context menu to open the **Uninstall Equipment** wizard, and click **Yes** to finfish.

Modify the Equipment

You can modify the *Name, Location* and *Contact* fields of the equipment. Enter the new data and click **OK**.

Rename the Equipment

Select the **Rename** item from the context menu and a rename window will appear. Click **OK** to rename the equipment. Users can also rename the equipment by modifying the *Name* field in the **Settings** tab of the **Details** window.

IT Equipment Details

Summary

The **Summary** tab provides an overview of the equipment information, the operating status of the UPS/PDU/ATS and which outlet it is plugged into.

IT Equipment

- **Name:** The name of this computer or equipment.
- **Status:** The operating status of this computer or equipment.
- **Type:** Either computer or equipment. Computers will either display *Agent* or *Client* depending on which use case of PowerPanel Business Edition is installed. *Equipment* is displayed for generic equipment.
- **Address:** Indicates the address of this computer or equipment.
- **Location:** Indicates where this computer or equipment is located.
- **Contact:** Indicates who to contact about this computer or equipment.
- **Redundant Policy:** Indicates what type of power supply redundancy is installed on the Client computer.
- **Power Supply:** Indicates the power supply source(s) of the Client computer.

UPS/PDU/ATS

- **Name:** The name of the UPS/PDU/ATS.
- **Status:** The operating status of the UPS/PDU/ATS.
- **Outlet:** Indicates the outlet number being used by the current equipment. It also indicates whether the outlet type is *NCL, Battery* or *CL.*

Settings

The **Settings** tab allows you to configure powered equipment.

- **IP Address:** The IP address of the Agent computer, Client computer or the equipment on this outlet. When the *Installed PPBE Client* option is checked, the Client IP address is necessary to search for the Client computer.
- **Name:** The name of the computer or equipment.
- **Location:** Where the computer or equipment is located.
- **Contact:** Who to contact about this computer or equipment.

Power

The **Power** tab shows the power connection details of all the power supplies of the Client computer. The information includes:

- The name and address of the device that supplies power to the power supply.
- The number, state and bank of the outlet that power supply is connected to.

***Note**: If the device is not monitored by Center, it will not be shown in the power tab. The detail of the power connection displays **unknown** instead.*

IT Equipment Operations

Shutdown/Restart

Select **Shutdown** or **Restart** from the context menu and a confirmation window will appear. Click **OK** to initiate the shutdown or restart. This is only valid for a computer with Agent or Client installed.

Power Control

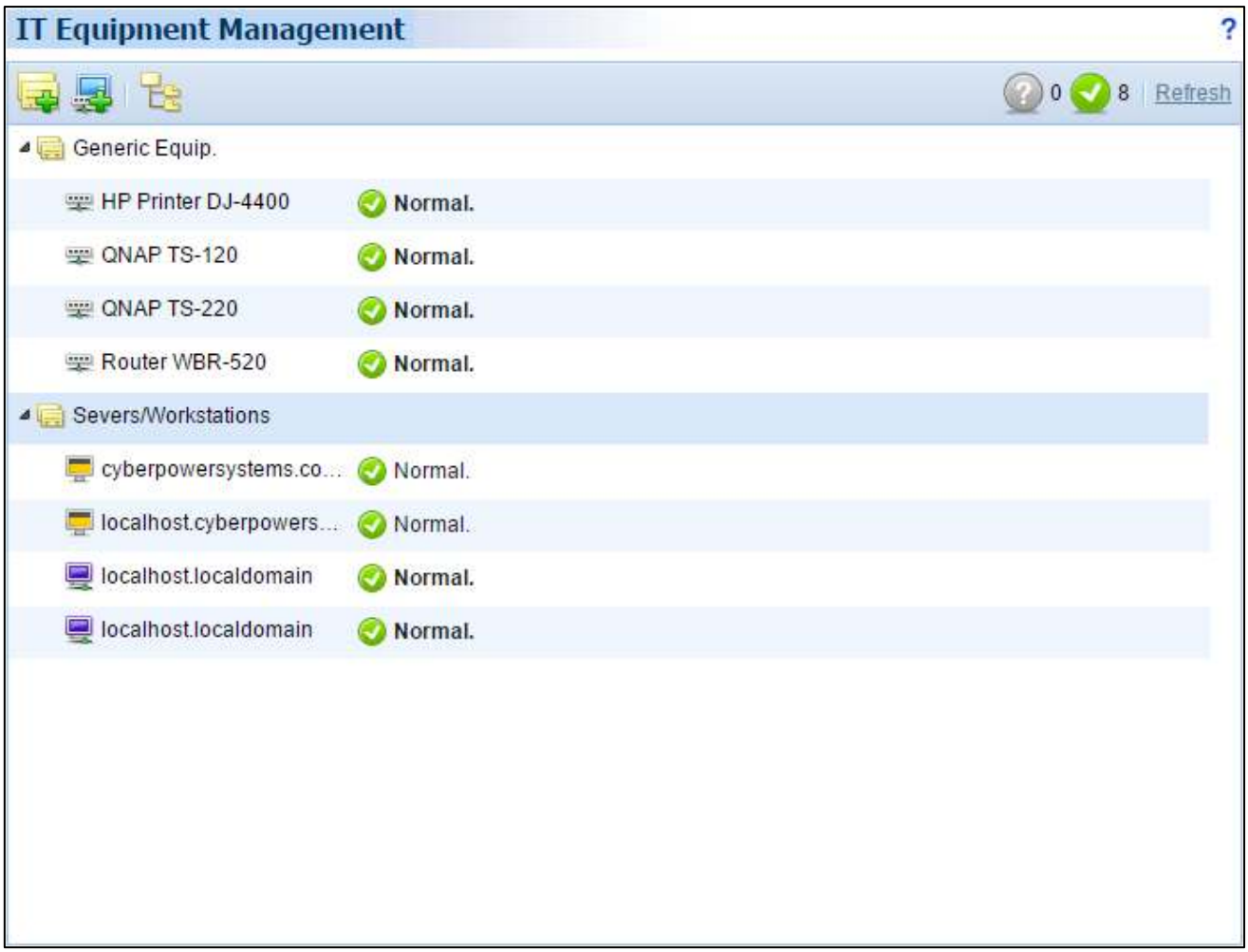
- **Power Off:** Select **Power Off** from the context menu. Decide whether to turn off the outlet immediately or in sequence. Click **OK** to begin. A computer which has Agent or Client installed will initiate a graceful shutdown prior to turning off the outlet.
  On specified modes, turning off or restarting one outlet of the bank will also turn off other outlets of this bank. This may cause other computers on this bank to be shut down unexpectedly.
- **Power On:** Select **Power On** from the context menu. Decide whether to turn on the outlet immediately or in sequence. Click **OK** to turn on the outlet.
- **Power Cycle:** Select **Power Cycle** from the context menu. Decide whether to restart the outlet. Click **OK** to restart the outlet. A computer which has Agent or Client installed will also initiate a shutdown prior to the power cycling. Turning off the outlet of a bank or restarting the outlet of the bank will also cause other computers on other outlets to be shut down.

Locate

Select **Locate** from the context menu. The computer uses speakers to generate the audible sounds.

IT Equipment

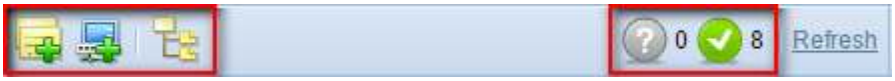
- Monitor the status of computers and equipment connected to the UPS/PDU/ATS.
- Issue orders such as shutdown or restart when the connected outlet is being turned off or turned on.
- Request computers perform a shutdown or a reboot.
- Manage computers and equipment in a group, and issue orders to grouped computers or equipment.



IT Equipment page

Toolbar

The Toolbar provides equipment states and buttons to expand, add group or equipment.



Toolbar of the IT Equipment page

	Add Group. Click this button and *Add Group* will appear.
	Add Computer/Equipment. Click this button and the *Add Computer/Equipment* window will appear.
	Expand All. All computers and equipment will be visible by clicking this button.

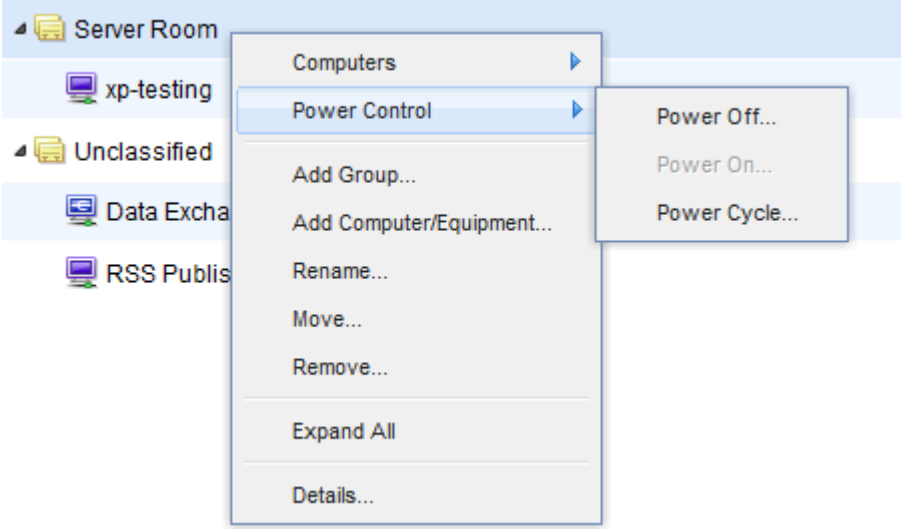
The **Toolbar** also displays the amount of times monitored equipment have had severe-level or warning-level events occur, which devices have lost communication with Center and which devices are normal.

	Center cannot monitor or control computers and equipment when communication is lost.
	Indicates that there are no problems with this computers or equipment.

Node Components

Each node is named and indicates what type it is. A computer or generic node provides more information.

A context menu for each node can be accessed by clicking " " icon. This allows you to view detailed information such as *Summary* and request operations such as *Shutdown* or *Restart.* A menu item becomes disabled when this operation is in progress or is not supported.



A context menu appears by accessing a computer node.

Each node can be one of the following types:

	Computer. A computer which has Agent installed and is supplied power by the UPS.
	Computer. A computer which has Client installed.
	Generic Equipment. Equipment which may be a computer or powered equipment.
	A **Group**.
	Computer. This computer is the VMware vCenter host.
	Computer. This computer is the VMware ESXi server.

A node also provides a column to indicate what the current state is and what power events have occurred. A UPS node column can display power events such as *Utility power failure* or *Runtime is insufficient*, and a PDU node column can display power events such as *Input is low load* or *Input is overload.*

Each node provides a column to describe what the current status is and what operation is processing. A computer node displays whether it is going to be shut down and a generic equipment node displays whether it is going to be powered off in event of the device it is plugged into turning off.

Group Management

Multiple computers and generic equipment can be managed by grouping them. All computers and generic equipment can be added to a group and moved between groups.

Add Group

Users can click **Add Group** on the toolbar to create a new group.

Add Group button on toolbar

Or click the **Add Group** item to create a new sub-group from the context menu of a selected group. Enter the new group name and click **OK** to add a new group. You may have sub-groups but a duplicate name is not allowed.

Move Group

Select the group you wish to move and select **Move** in the context menu. The **Move Group** window will display; select the target group from the list. After selecting the target group, click **OK** to move the group.

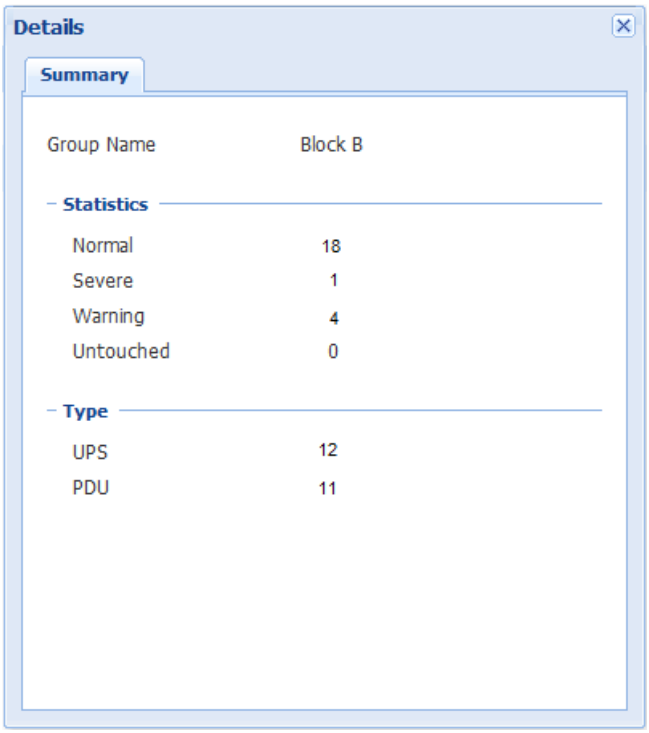
Remove Group

Select a target group and select **Remove** from the context menu. A pop-up window will open. Click **OK** to remove this group. Removing a group will not remove sub-groups groups or computers and equipment belonging to this group. These items will be moved to the main group.

Rename Group

Choose a group and select **Rename** from the context menu. A **Rename Group** window will appear and requires new group name to replace origin one. Enter the new group name and click **OK.** Note that a duplicate group name is not allowed.

Group Details



Summary tab of Details

Each group provides information about the communication state or the computer type from the **Summary** tab of **Details**:

- **Group Name:** The name of the selected group.
- **Statistics:** Indicates statistics about the operating conditions of the equipment belong this group:
  - **Normal**: Indicates computers and equipment being monitored by Center.
  - **Lost:** Indicates computers and equipment which have lost communication with Center.
- **Type**: Indicates computers that have Agent or Client installed, or other equipment which are only being supplied power.

Group Operations

Computers

Shutdown/Restart: Select **Shutdown** or **Restart** from the context menu of the selected group and a pop-up window will appear. Pick the computers to shutdown or restart and click "**X**" prevent a computer to shutdown or restart at this operation. Click **OK** to begin.

Power Control

- **Power Off:** Click **Power Off** in *Power Control* from the context menu and a pop-up window will appear. Click "X" to exclude a computer or equipment and decide whether to do this operation immediately or in sequence. Click **OK** to turn off output power. On specific UPS models, turning off one outlet of a bank indicates turning off the

whole outlets of this bank. An immediate power off operation will result in data loss or system crash on computers due to an unexpected shutdown.

- **Power On:** Click **Power On** from *Power Control* in the context menu and a pop-up window will appear. Click "X" to exclude a computer or equipment and decide whether to do this operation immediately or in sequence. Click **OK** to turn on output power.
- **Power Cycle:** Click **Power Cycle** in *Power Control* from the context menu and a pop-up window will appear. Click "X" to exclude a computer or equipment and decide whether to do this operation immediately or in sequence. Click **OK** to start the power cycle. A power cycle operation may cause other computers to be shutdown on this bank.

IT Equipment Management

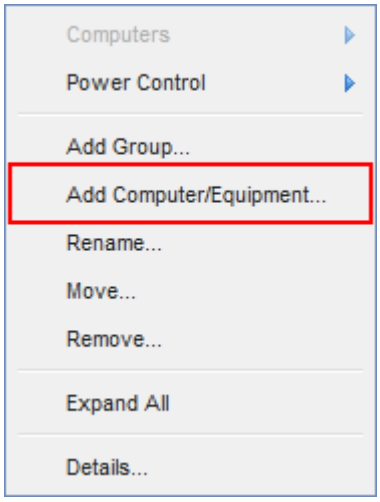
IT equipment can be a computer which has Agent or Client installed, or generic equipment which is only being provided power. Only computers and equipment whose power devices are monitored by Center have the following options:

Add Computer/Equipment

Click **Add Computer/Equipment** button on the toolbar to display the **Add Computer/Equipment** window.

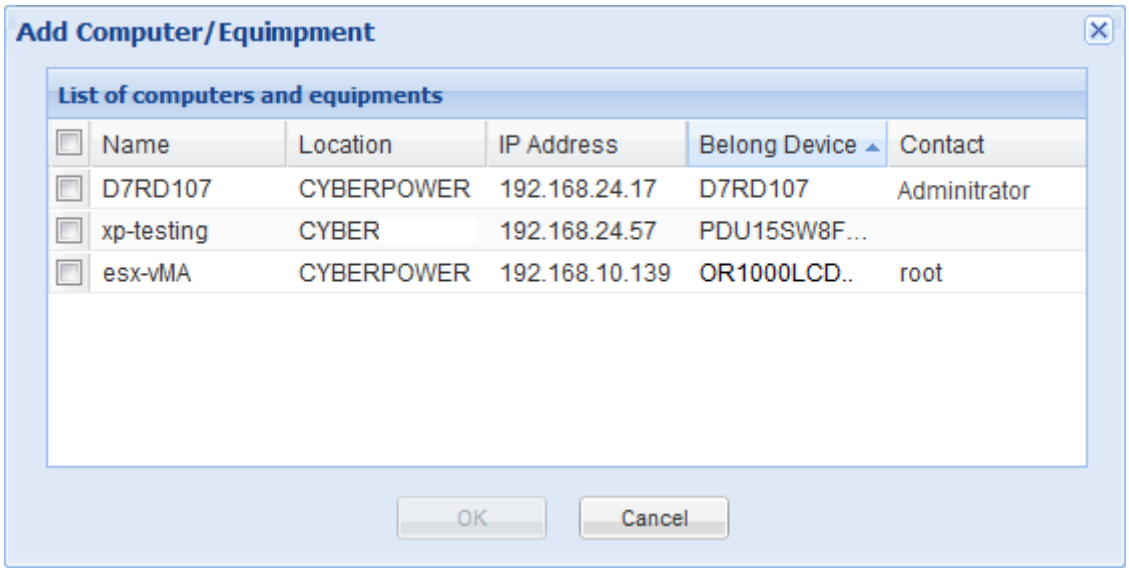
Add Computer/Equipment button on toolbar

Select the **Add Computer/Equipment** item from the context menu of any group to display the **Add Computer/Equipment** window.



Add Computer/Equipment item on the context menu

Select the computers or equipment you wish to add and click **OK**.



Add Computer/Equipment window

Move IT Equipment

Select **Move** from the context menu. A pop-up window will appear and you will have to assign a target group. Click **OK** to move to the target group.

Rename IT Equipment

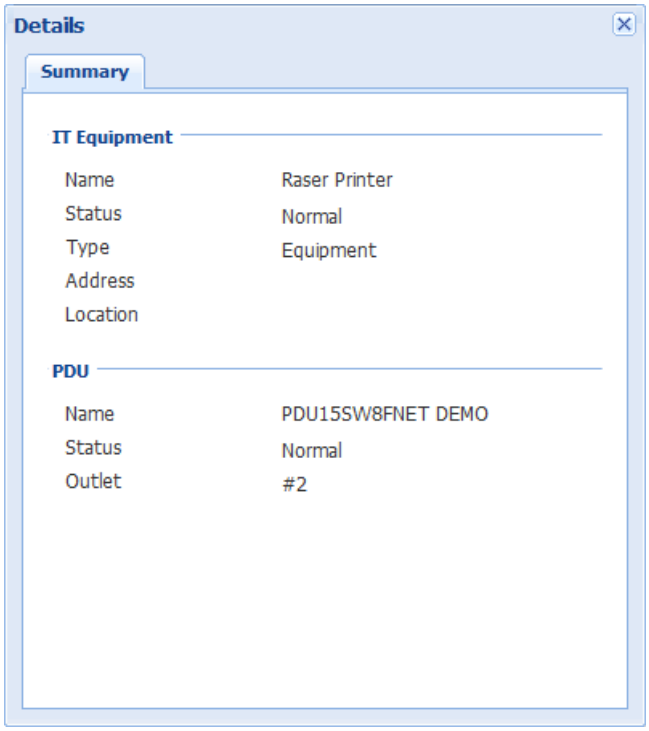
Select **Rename** in the context menu. A pop-up window will appear and you must enter a new group name to replace the original one. Click **OK** to apply.

Remove IT Equipment

Select **Remove** in the context menu. A pop-up window will appear. Click **OK** to delete the selected item.

Note*: If a computer/equipment is detached from the UPS/PDU/ATS on the* ***Power Equipment*** *page, this computer/equipment will be also removed from the* ***IT Equipment*** *page. If a computer/equipment is removed from the* ***IT Equipment*** *page, this computer/equipment will remain on the* ***Power Equipment*** *page.*

IT Equipment Details



Summary tab of Details window of printer

IT Equipment

- **Name:** The name of this computer or equipment.
- **Status:** The operating status of this computer or equipment.
- **Type:** Which type this computer or equipment is. Either *Agent* or *Client* depending on which the computer has installed. *Equipment* if it is generic equipment such as fan cooler.
- **Address:** Indicates the address of this computer or equipment.
- **Location:** Indicates where this computer or equipment is located.

UPS/PDU/ATS

- **Name:** The name of this UPS/PDU/ATS which supplies power to this computer or equipment.
- **Status:** The operating status of this UPS/PDU/ATS.
- **Outlet:** Indicates the current outlet which supplies power to this computer or equipment.

IT Equipment Operations

Users can order all computers and equipment to do the following:

Shutdown/Restart

Select **Shutdown** or **Restart** item from the context menu and the confirmation window will appear. Click **OK** to initiate the shutdown or restart. This is only available for a computer with Agent or Client installed.

Power Control

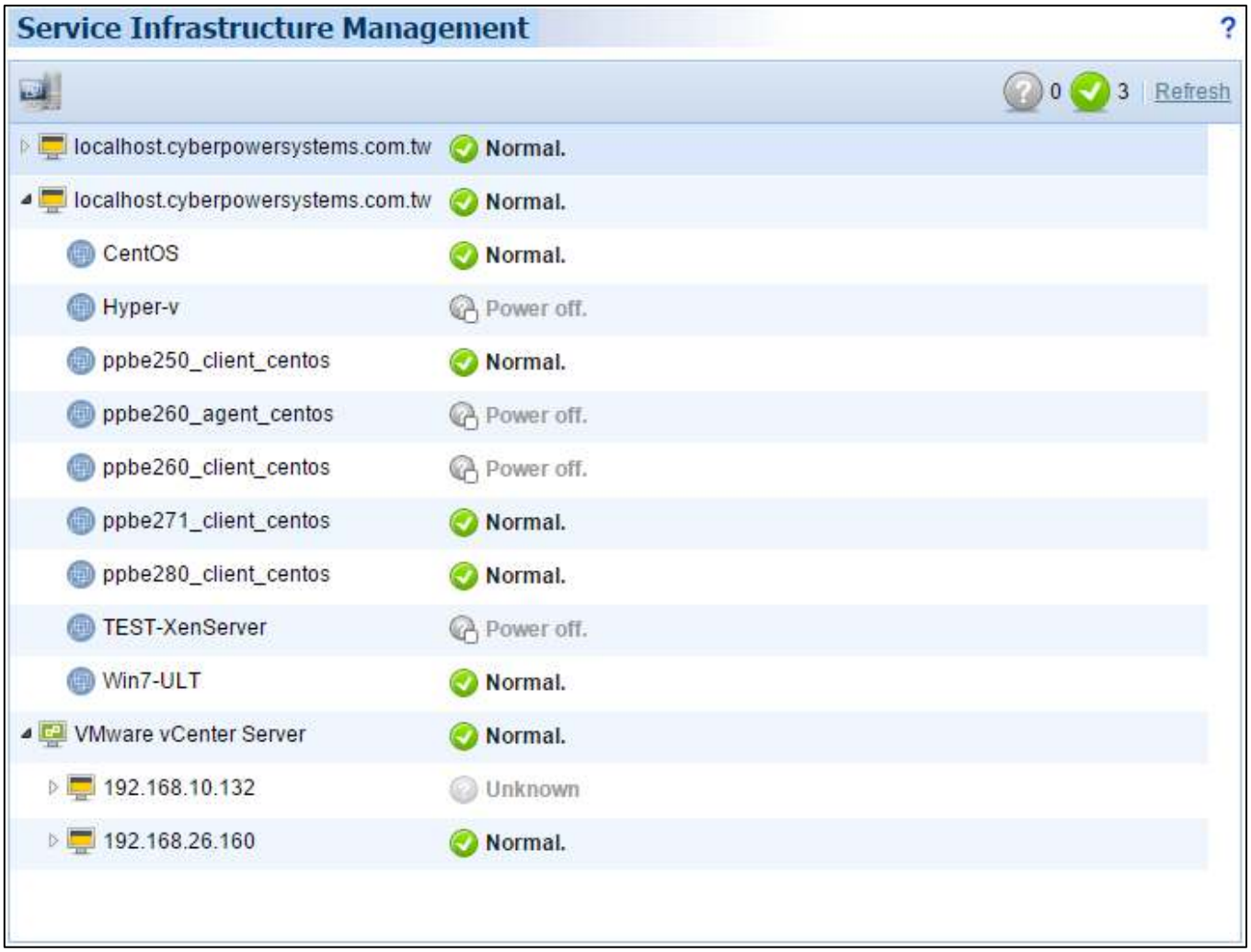
- **Power Off:** Select **Power Off** from the context menu. Decide whether to turn off the outlet immediately or in sequence. Click **OK** to turn off the outlets. A computer which has Agent or Client installed will initiate a graceful shutdown prior to turning off the outlet.
  On specified modes, turning off or restarting one outlet of the bank will also turn off other outlets of this bank. This may cause other computers on this bank to be shut down unexpectedly.
- **Power On:** Select **Power On** from the context menu. Decide whether to turn on the outlet immediately or in sequence. Click **OK** to turn on the outlet.
- **Power Cycle:** Select **Power Cycle** item from the context menu. Determine whether to restart the outlet. Click **OK** to proceed. A computer which has Agent or Client installed will also initiate a shutdown prior to restarting outlet. Turning off the outlet of a bank, restarting the outlet of the bank will also cause other computers on other outlets to be shut down.

Locate

Select **Locate** from the context menu. The computer uses speakers to generate the audible sounds.

Service Infrastructure

Service Infrastructure page provides the management for infrastructures such as VMware virtualization:



Service Infrastructure view

- Monitor the operating status from the infrastructures.
- Define detailed action setting for each event of the infrastructure's power source.
- Manage the service infrastructures.

Toolbar

The **Toolbar** provides information about the status of the entire infrastructures and the option to add infrastructures. The button allows users to add an infrastructure such as VMware vCenter server or ESXi host.

	Add Infrastructure. Click this button and the *Add an Infrastructure* dialog will appear.

The other two icons indicate the amount of infrastructures that have lost communication with Center and the number of infrastructures that are normal.

	Indicates the devices which have lost communication with Center. Center cannot monitor or control the VMware vCenter servers or VMware ESXi hosts when communication is lost.
	Indicates that there are no problems with the VMware vCenter servers or VMware ESXi hosts.

Node Components

Each node has a name and an icon indicating what type it is. Each node provides detailed information about what power events have occurred and what the current status is.

A context menu for each node is available by clicking " " icon. This allows users to view detailed information such as *Summary.* A menu item becomes disabled when this function is not supported.

Each node can be one of the following types:

	Indicates that is a VMware vCenter server.
	Indicates that is a VMware ESXi host. The ESXi host may be included by a vCenter server.
	Indicates that is a virtual machine running on the VMware ESXi server.

Service Infrastructure Management

Add an Infrastructure

In order to monitor and control the VMware infrastructures, users can click the **Add Infrastructure** button on the toolbar. An **Add an Infrastructure** dialog will appear for users to add an infrastructure.

Add an infrastructure on the toolbar.

The detailed data describes as below:

- **Product**: Specifies whether to add a vCenter server or an ESXi host.
- **IP Address/Name**: Configures the IP address or hostname for the vCenter server or the ESXi host.
- **Port**: Sets the port number for Center to access the vCenter host.
- **Username**: Sets the user name to access the vCenter server or ESXi host.
- **Password**: Sets the password for the username.
- **Attach plugin to vCenter Server**: Decides whether to attach a vCenter server plug-in. If this option is enabled, Center will install a plugin which expands the capability of vCenter server to present the Center web interface during establishing connection. After the plugin is installed, the vSphere Client interface will attach a new tab which displays Center web page.

Specify the product type and enter the necessary data. Press the **OK** button to add the infrastructure.

Remove an Infrastructure

Highlight the topmost vCenter server or ESXi host you wish to remove and select **Remove** in the context menu. The **Rename an Infrastructure** window will display. Click **OK** to apply the removal.

If the plugin has been installed in vCenter server, the plugin will also be uninstalled during removal. If the infrastructure has been connected with the power device, the power source will also detach the infrastructure.

Service Infrastructure Details

Summary

The **Summary** tab provides an overview of the infrastructure information:

- **Virtual Machine:** Indicates the selected infrastructure is virtual machines.
  - **Name**: The name of the selected virtual machine.
  - **Status**: Displays the present status of the selected virtual machine.
  - **Address**: The IP address of the virtual machine when the virtual machine is running.
- **VMware ESXi Host**: Indicates the selected infrastructure is an ESXi host. It may be the ESXi host to which the selected virtual machine belongs.
  - **Name**: The name of the selected ESXi host.
  - **Address**: The IP address of the ESXi host.
  - **Status**: Displays the present status of the ESXi host.
  - **Type**: Specifies the node is ESX or ESXi host.
  - **VM Amount**: The amount of virtual machines on the target ESXi host.
- **VMware vCenter Server**: Indicates the selected infrastructure is a vCenter server. It may be the vCenter server to which the selected ESXi host or selected virtual machine belongs.
  - **Name**: The name of the selected vCenter server.
  - **Address**: The IP address of the vCenter server.
  - **Status**: Displays the present status of the vCenter server.
  - **ESXi Host Amount**: The amount of the ESXi hosts of the target vCenter server.
- **UPS**: Displays detailed information of the UPS which is supplying power to the selected infrastructure.
  - **Name**: The name of the UPS.
  - **Address**: The IP address of the UPS.
  - **Outlet**: Indicates the outlet number and what the bank type of connected outlet.
  - **Status**: Displays the present status of the UPS.

Note: *Not each infrastructure provides the same information. The information will vary by each infrastructure.*

Settings

The **Settings** tab allows you to configure the connection settings.

- **Port**: Sets the port number for Center to access the vCenter server.
- **Username**: Sets the user name to access the vCenter server or ESXi host.
- **Password**: Sets the password for the user name.
- **Attach plugin to vCenter Server**: Decides whether to attach a vCenter server plug-in.

Note*: Changing the port, user name or password may cause communication loss with Center.*

Power Source of Service Infrastructure

Settings

The **Settings** tab allows you to connect or disconnect the infrastructure with the target UPS. The infrastructure will be moved to another outlet or another UPS.

Only ESXi hosts can be set power protection. In order to make sure that the infrastructure can be protected, you should connect the infrastructure to the target UPS by assigning the UPS outlet. When the *Device* setting is set blank, this indicates that the infrastructure will be disconnected the power from the target UPS outlet.

In order to make sure that vCenter servers can be protected, you should do following steps by the according deployment:

- If the vCenter server is a virtual appliance which has been deployed on the ESXi host, the ESXi host should be also added to the **Service Infrastructure** page. Connect the ESXi host with the UPS.
- If the vCenter server is running on a standalone Windows system, it is recommended to install Agent or Client to get the power protection.

***Note**: The infrastructure can be only allowed to set its power to UPS.*

Event Action

When an ESXi host has been configured the power source properly in the aforementioned section, Center can send the notification to the administrator and initiate a shutdown sequence if the event occurs.

The **Event Action** tab lists all events and allows users to configure the shutdown delay time for each event. Each event in the **Event Action** tab will use the identical *Shutdown for Infrastructure* setting to the according event in the **Event Action**/**Events** page. When users change the shutdown delay time, the identical setting of the according event will be also changed.

After the *Custom* option is enabled, the selected event will be configurable. Users can change the shutdown delay time for each event and click **OK** to apply the setting. When the event occurs, Center will take the new shutdown delay time instead of the default one that can be configured in the **Event Action**/**Events** page.

Alarms for vCenter Server and ESXi Host

The vSphere includes the user-configurable events and alarms system. The alarm system logs the events happening throughout the vSphere and allows users to specify the conditions under which alarms are triggered. Alarms are notifications which are activated in response to events.

The Center will specify the alarm definitions for the vCenter servers and ESXi hosts selected in the inventory after the power source has been configured properly. When the power event occurs, the alarms will be issued from the **Triggered Alarms** view under the **Alarm** tab.

The Center defines the below alarms and issues the alarm when its related events are triggered:

Alarm Definition	Description	Triggered Event	Trigger Level
PPBE UPS Communication Event	Alarm is triggered when PPBE lost communication with UPS.	Communication lost with UPS in battery mode.	Alert
		Communication lost with UPS.	Warning
		Communication established.	Normal
PPBE UPS Critical Event	Alarm is triggered when a critical UPS event occurs.	UPS Low battery.	Alert
		UPS Remaining runtime exhausted.	Alert
		UPS Utility power failure.	Warning
		UPS Power restored.	Normal

For example, when the utility power fails, a warning-level alarm whose name is **PPBE UPS Critical Event** will be issued in the **Triggered Alarms** view under the **Alarm** tab. A related event will be logged in the **Events** view of the **Tasks & Events** tab.

***Note**: Triggered alarms are visible through the vSphere Client or vSphere Web Client connected to a vCenter server.*

Energy Consumption

Statistics

The **Statistics** page shows a chart of how energy is spent in a specified period of time and also shows the energy statistics of the current target node and entire system.

Energy Consumption/Statistics page

The consumption of each UPS, PDU, ATS and outlet of Metered by Outlet PDU is logged on an hourly basis and each group that contains these UPS, PDU and ATS will accumulate the consumption data. Data logged can be used to

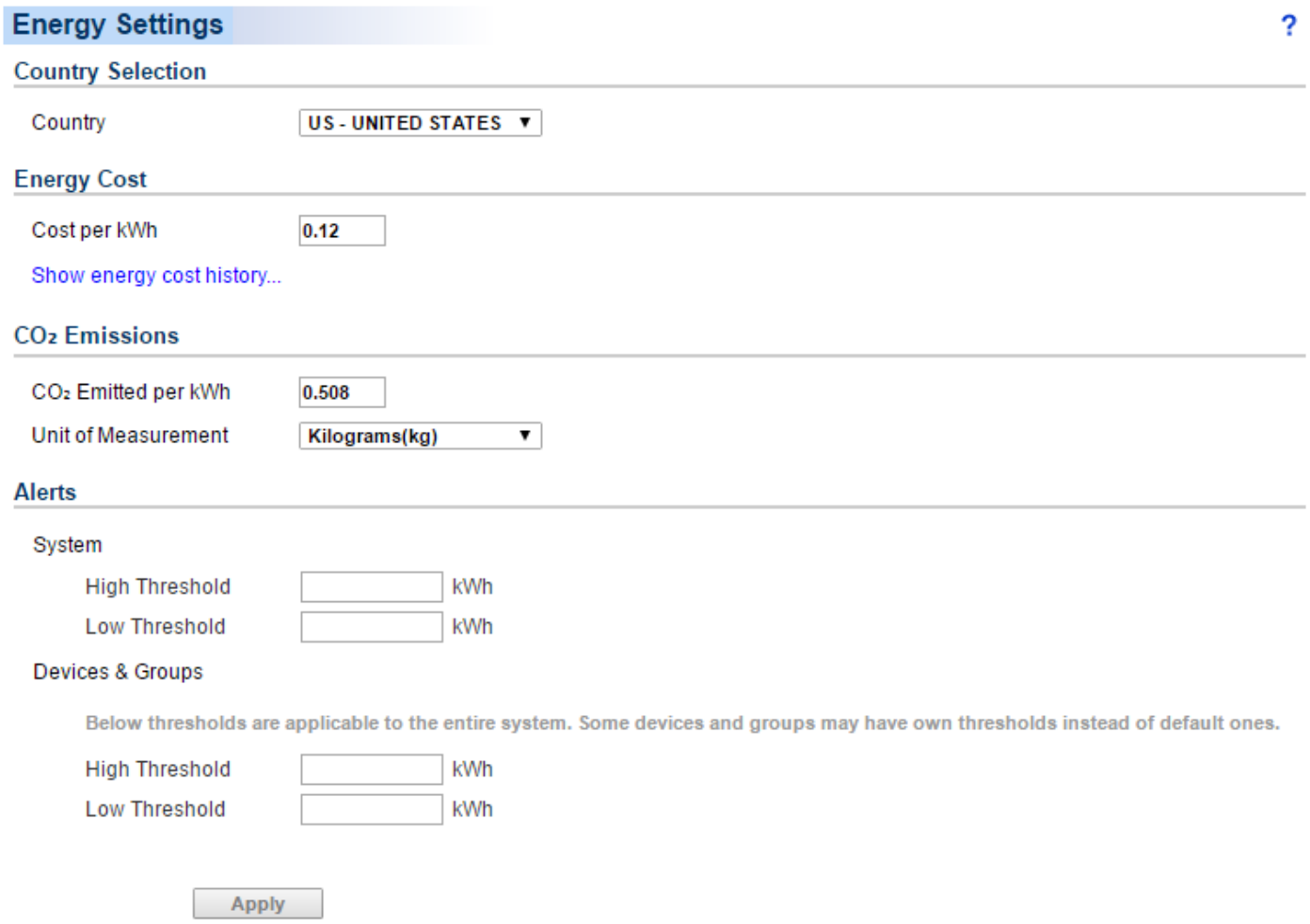
render a chart over the past day, past month, past year and all past information accordingly. Users can see how much energy has been spent in a historical period of time.

The total and average power consumption of each selected group that contains UPS, PDU and ATS will be shown according to current chart. Center will also show the statistics on the total power consumption of today, this month, this year and entire system in the *System Energy* block.

Note: *Internet Explorer 6 and lower versions cannot support the graphic chart. Windows Internet Explorer should be upgraded to a version later than 6 that is capable of rendering the graphic charts.*

Settings

In this page, users can assign the rate of power consumption and carbon emission, or update the customized rate. When the rates are updated, the information presented in the Statistics page will also be updated.



Energy Consumption/Settings page

Center has the capability of reminding users of power consumption violations. The **Setting** page allows users to configure thresholds. When power consumption thresholds are violated, Center will notify the user.

Country Selection

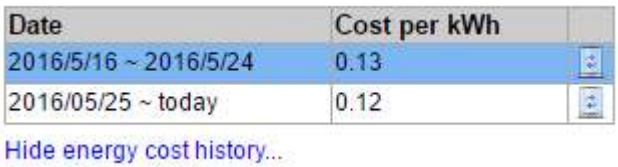
Power costs vary by country, therefore the Energy Cost and equivalent carbon emission are different. By selecting country, users can set up the average rate of power consumption and carbon emission.

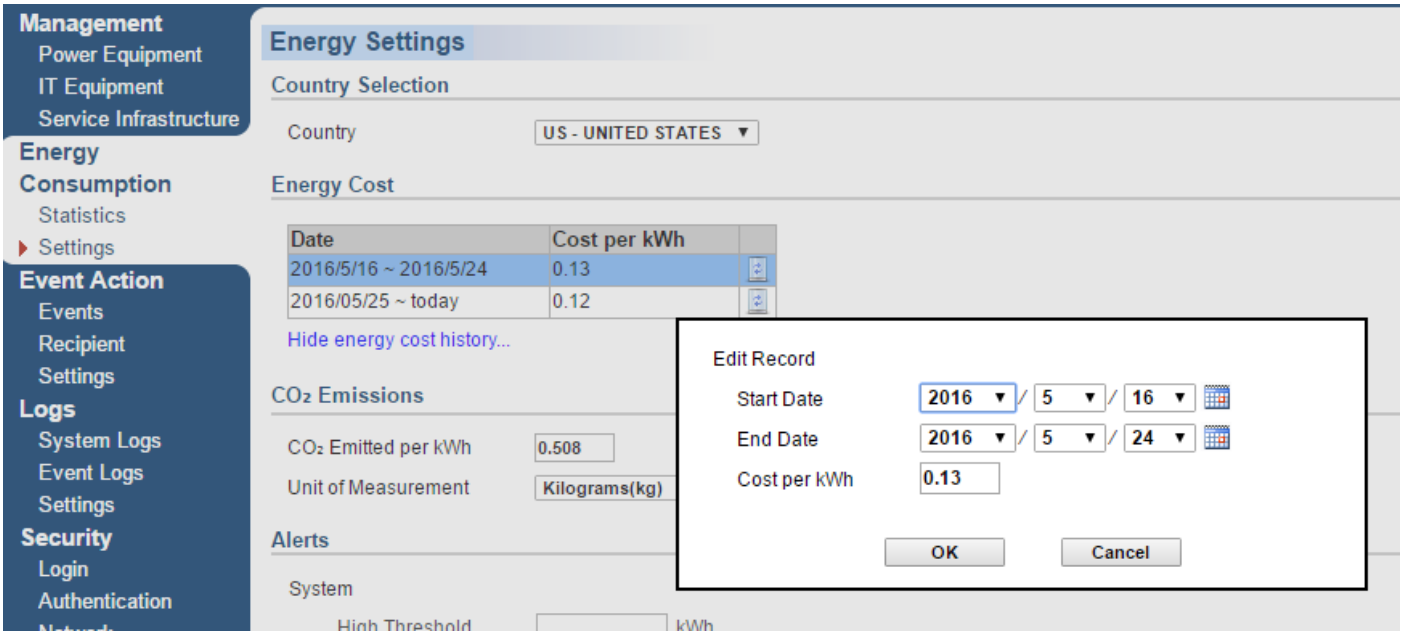
- **Country:** Selecting which country the UPS is located.

Energy Cost

Because the rate of power consumption can vary over time, users can assign rates for different periods of time.

- **Cost per kWh:** Assign and apply the rate as of today, inclusive.
- **Show energy cost history:** Display and setup the associated costs of historical periods. When the historical period of energy cost is shown, users can double click on any period to add or change the period and rate. See below.





CO_2 Emissions

Because the rate of carbon emission will be changed by time, so the functionality the user can update the carbon emission per kWh is implemented.

- **CO_2 Emitted per kWh:** The weight of emitted carbon when one kWh power is consumed.
- **Unit of Measurement:** kilogram or pound

Alerts

- **System Energy**

  Set the notifications thresholds for PowerPanel Business Edition Center.

  - **High Threshold**. When the power consumption of the entire system exceeds this threshold, the tip "**System consumption is too high.**" will display on the banner of the **Power Equipment** page.
  - **Low Threshold**. When the power consumption of the entire system violates this threshold, the tip "**System consumption is too low.**" will display on the banner of the **Power Equipment** page.
- **Devices & Groups**

  Set the default thresholds for each group or power equipment. When the thresholds of *Excess Consumption Alert* have never been set, Center will use these thresholds as the default settings.

  - **High Threshold.** When the power consumption of the group or power equipment exceeds the threshold, the **High power consumption** event will occur.
  - **Low Threshold.** When the power consumption of the group or power equipment violates the threshold, the **Low power consumption** event will occur.

Event Action

An event is generated when the UPS/PDU/ATS encounters specific power conditions. The Center can monitor multiple power devices and computers and can be configured to respond to specific events and notify users based on the event. In the event of power devices and computers, the Center can send the notification in response to events from the devices and computers.

Events

When an event occurs, Center can notify administrators which device occurred event. The **Event Action**/**Events** page lists events and divides these events into several categories. Each event is allowed to configure the individual notification settings. The severity of each event is marked by a symbol.

After selecting an event, the event will become configurable. Configure all of the action settings for the selected event and apply to save the settings.

Use these parameters to configure actions for individual events:

Notify

The administrator can be notified when an event occurs. See **Event Action**/**Notification Recipient** page for more details about the notification methods and recipient assignment.

- **Initiated:** Determines whether to send a notification or not and sets the notification delay. If the event is cleared within the notification delay, the notification of the occurrence and the event cleared notification will not be sent.
- **Repeat:** Determines whether to send one additional notification after the initial notification. Only events which are of severe-level and warning-level type support a repeat notification.

Shutdown for Infrastructures

Initiate a shutdown sequence when an event occurs. A shutdown sequence is only initiated by events specific for the target ESXi host.

- **Initiated:** Determines whether to request the target ESXi host to be shut down and the delay before initiating the shutdown sequence. The shutdown will be canceled if the event is cleared during this delay time. The minimum delay time to initiate shut down is based on the time set for the execution of the notification to complete. This includes the notify delay time.

Note: *The Center will use the* ***Shutdown for Infrastructure*** *setting of each event as the default shutdown delay time for each according event listed on the* ***Event Action*** *tab of the* ***Power Source*** *dialog in the* ***Service Infrastructure*** *page. Refer to* ***Event Action*** *section for further details.*

Event List

The **Event List** displays power events. The events are divided into below categories:

System

- **Power consumption is too high.** *System power consumption has gone above the high threshold.*
- **Power consumption is too low.** *System power consumption has gone below the low threshold.*

Group

- **Power consumption is too high.** *Device group power consumption has gone above the high threshold.*
- **Power consumption is too low.** *Device group power consumption has gone below the low threshold.*

UPS

- **System is overheated.** *Internal UPS temperature is too high.*
- **Network communication lost.** *Center cannot establish communication with UPS on the network or established network communication has been interrupted.*
- **UPS is faulty.** *UPS has an internal malfunction. The UPS may not be operating properly and will not be able to affect a proper shutdown.*
- **Utility power failure.** *Utility power failure, battery power will be supplied.*
- **Battery is not present.** *Batteries are not present; the UPS cannot provide battery power in this condition.*
- **Available runtime is too low.** *There is not sufficient runtime for PPBE to perform a complete shutdown based on current configuration even if the battery is 100% charged.*
  An excessive load or long shutdown time may cause this event. Reduce some UPS load or set a more accurate shutdown time to avoid this event.
- **UPS fatal internal abnormality.** *The UPS is experiencing one or more of the following fatal abnormalities; UPS may shut down or stop output power unexpectedly.*
- **Power consumption is too high.** *UPS power consumption has gone above the high threshold.*
- **Power consumption is too low.** *UPS power consumption has gone below the low threshold.*

- **Shutdown initiated.** *A computer which connects with UPS initiated the shutdown process. The computer will shut down or enter hibernation.*
- **Battery has fully charged.** *Battery has fully charged. The capacity of battery is full***.**
- **Battery capacity is critically low**. *Battery capacity is critically low; power could be lost immediately.*
- **An outlet on a UPS has turned on**. *A UPS outlet has been turned on. The outlet can afford the power to its connected equipment.*

PDU

- **Network communication lost.** *Center cannot establish communication with PDU on the network or established network communication has been interrupted.*
- **Input is near overload.** *A PDU is near an overload condition***.** *The load level is near the safe load threshold for the PDU.*
- **Input is overloaded** *A PDU is in an overload condition. The safe load threshold has been exceeded.*
- **Power consumption is too high.** *Power the specific PDU consumes has been exceeded the high threshold.*
- **Power consumption is too low.** *Power the specific PDU consumes has been violated the low threshold.*
- **Shutdown initiated.** *A computer connected to the UPS has initiated the shutdown process. The computer will shut down or enter hibernation soon.*
- **A PDU outlet is overloaded.** *An outlet of Metered by Outlet PDU is in an overload condition. The safe load threshold has been exceeded.*
- **A PDU outlet is near overload.** *An outlet of Metered by Outlet PDU is near an overload condition***.** *The load level is near the safe load threshold for the outlet.*

ATS

- **Network communication lost.** *Center cannot establish communication with a ATS on the network or established network communication has been interrupted.*
- **ATS is faulty.** *ATS has an internal malfunction and may not operate properly.*
- **Both input sources have power loss, ATS will not change input source.** *ATS will not switch from one input source to another because both are experiencing power failures.*
- **Input is near overload.** *An ATS is near an overload condition. The load level is near the safe max load threshold for the ATS.*
- **Input is overloaded.** *An ATS is in an overload condition. The safe max load threshold for the ATS has been exceeded.*
- **Power consumption is too high.** *ATS power consumption has gone above the high threshold.*
- **Power consumption is too low.** *ATS power consumption has gone below the low threshold.*
- **Shutdown initiated.** *A computer connected to the ATS has initiated the shutdown process. The computer will shut down or enter hibernation soon.*

Notification Recipient

Please refer to **Event Action/Recipient** section about how to define notifications,

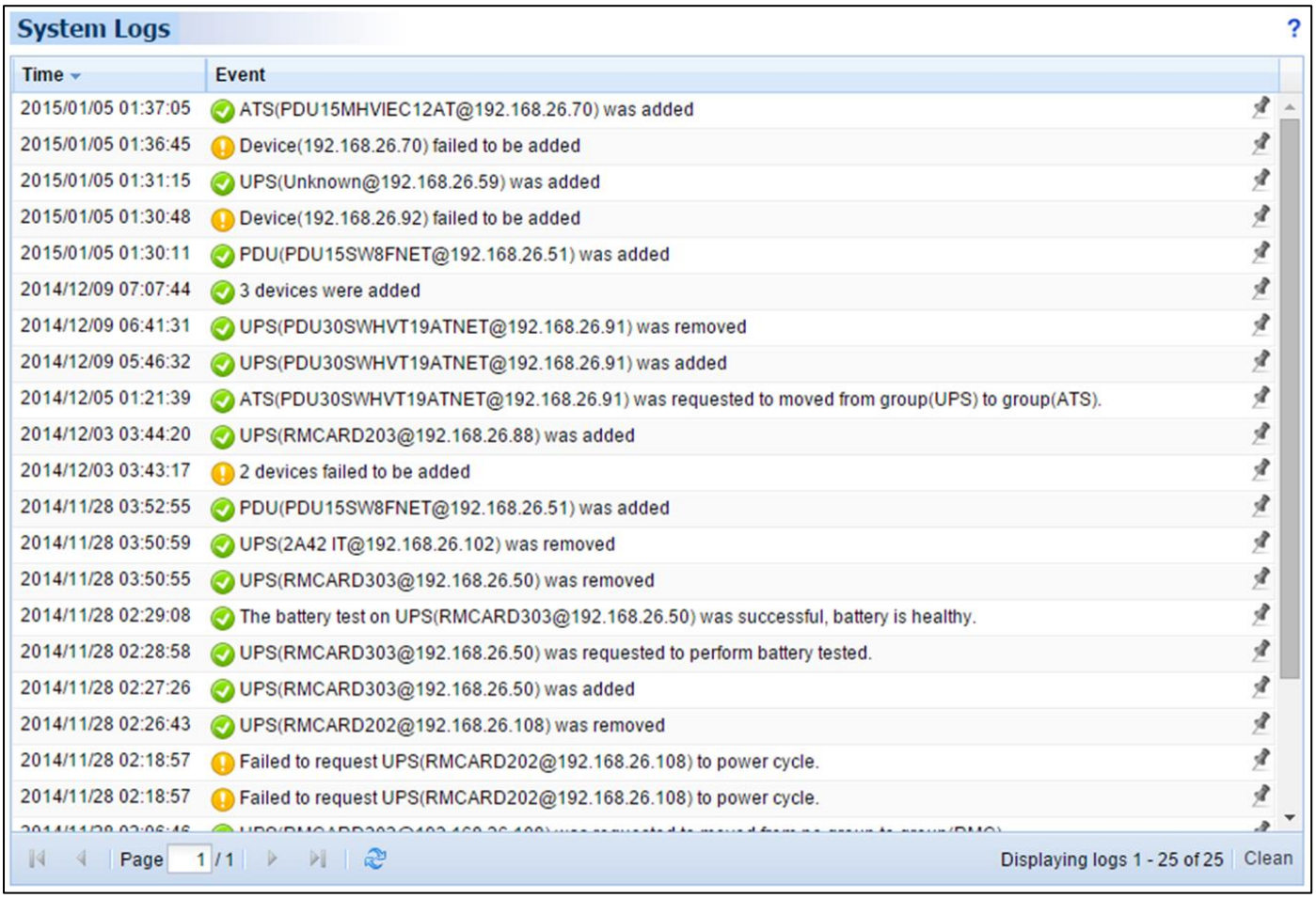
Settings

Please refer to **Event Action/Settings** section about how to configure the detail settings of event actions.

Logs

System Logs

The **System Logs** page in Center provides users logs of recorded details from operations performed in Center. The logs can be used for analysis or to determine whether operations have been performed correctly.



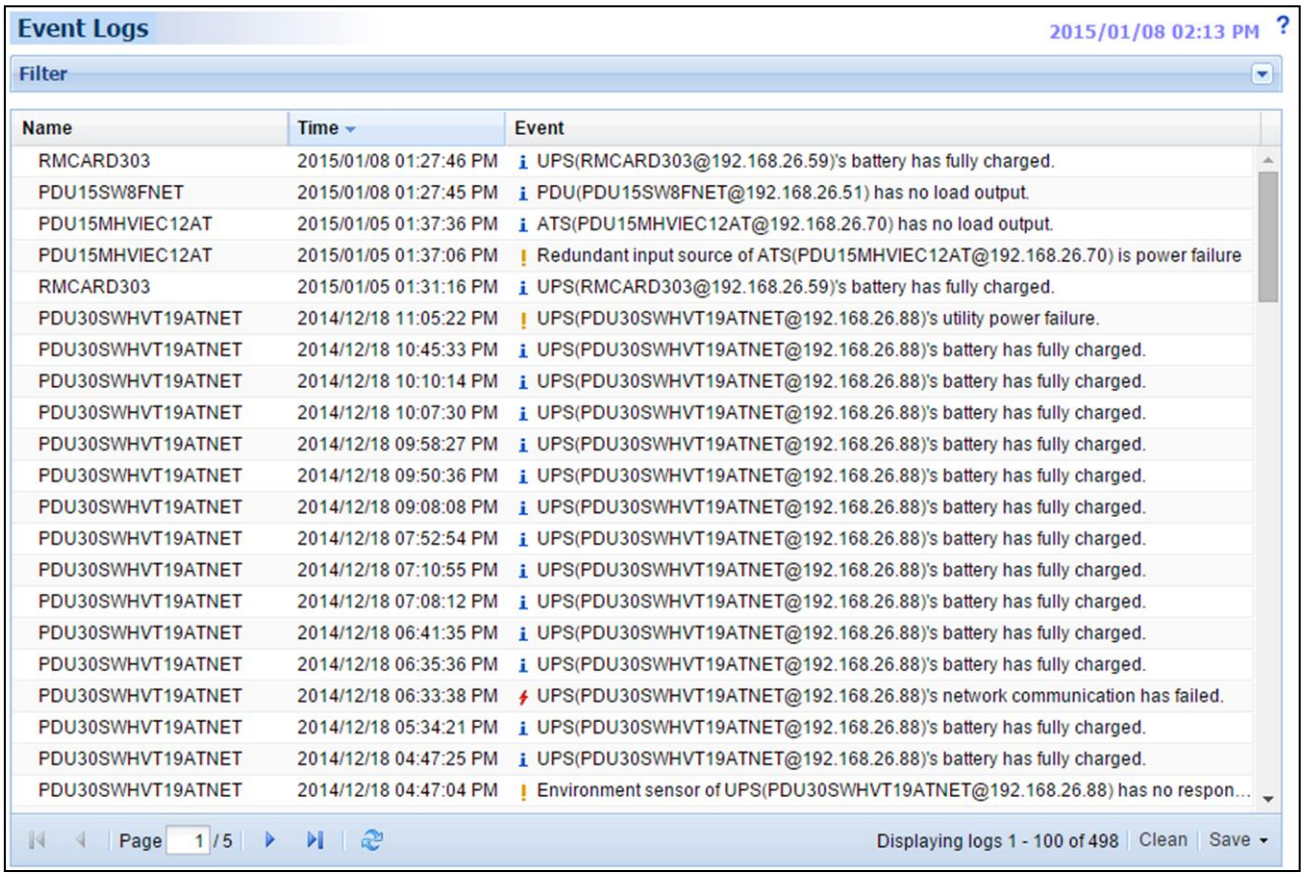
Logs page

Each log has details which can be viewed by clicking the icon next the each log. Using the paging toolbar at the bottom of the log list allows users to view older logs by changing the page displayed; clicking the refresh icon updates the logs displayed in the list.

Event Logs

Logs/**Event Logs** page records the event logs that can be analyzed whether the devices and the system are functioning well. Each log records what event occurred of the device.

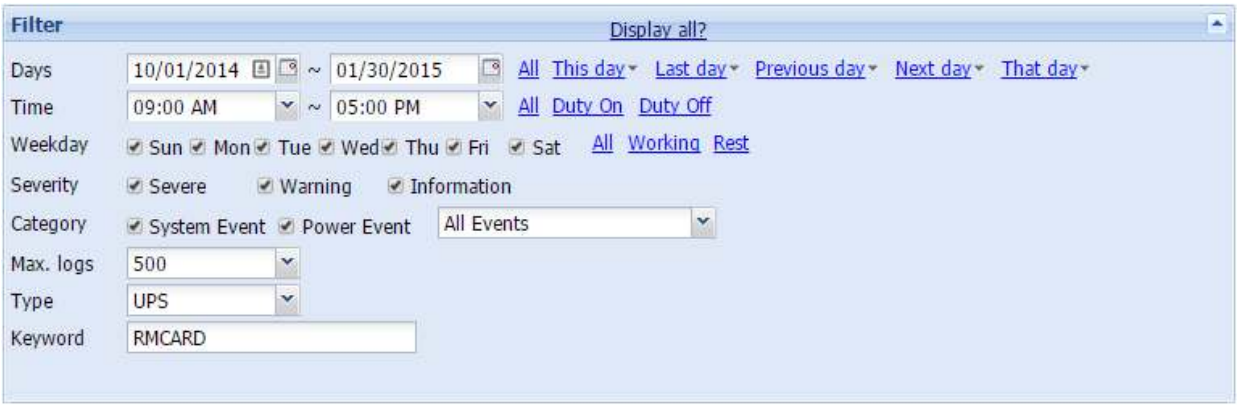
Using the paging toolbar helps users to view the other range of the filtered logs backward or forward, and update the result according to current filter options. Click the **Save** shortcut at the paging toolbar of the event log table and select **CSV** or **PDF** file as the export file format. The exported file will be saved in the default download directory of your web browser.



Logs/Event Logs page

Filter

The following filter options can be utilized by expanding **Filter** panel. Once the configuration of the filter pane is configured; the logs will be requested and displayed.



Filter pane on Logs/Event page

- **Days:** Selects the day(s) for the events to be displayed. The dropdown menus next to the **Days** setting can be used for additional preconfigured filters.
- **Time:** Selects the time range for the events.
- **Weekday:** Choose the days of the event occurrence.
- **Severity & Category:** The events can be filtered by category and severity. The events can be further divided by **Power Event** and **System Event** categories, and choosing the specific event. When any event option is selected from the event list, the logs only related to this event will be displayed.
- **Max. logs:** Indicates the maximum number of events that will be displayed.
- **Type:** Selects the event log whose type is system, group or device.
- **Keywords:** Each event log whose detail contains this keyword will be filtered out.

Settings

Please refer to **Logs/Settings** section about how to configure Event Viewer settings.

Security

Login

Please refer to **Security/Login** section about how to configure *Account* and *Session* settings.

Authentication

The Center uses the secret phrase and SNMP protocol to secure and protect network communication between Agent, Client and the devices. The security settings on **Security/Authentication** page in the Center must be configured.

If the Center establishes the communications with below devices, refer to **Secret Phrase** section.

- A computer running Agent and Client.
- UPS RMCARD202 and higher version.
- PDU whose mode is not **PDU20SW8RNET** or **PDU15SW8RNET**

If the Center doesn't interact with aforementioned application and devices, refer to **SNMP, SNMPv1** and **SNMPv3** sections for further details.

PowerPanel

Secret Phrase. Center can interact with Agent, Client, UPS RMCARD and PDU by using the secret phrase to create secure communication. The default phrase is **powerpanel.encryption.key**. The Secret Phrase can be configured on the **Security**/**Authentication** page in the PowerPanel® Applications, or on the **System**/**Security** page in the PDU and UPS RMCARD web. The Secret Phrase which is used in the PowerPanel® Applications, PDU and UPS must match.

Note: *If the firmware version on the RMCARD202 is earlier than 1.1, you should refer to* ***SNMP Community*** *and* ***SNMP Trap Community*** *sections for the correct configurations.*

SNMP

The Center can interact and access device information via SNMPv1 and SNMPv3. Fewer early UPS and PDU models which only accept SNMPv1 demands and newer models which support SNMPv3 can be controlled by Center.

SNMP Protocol: User can determine which SNMP protocol to use over the network communication between Client and devices. It is recommended to choose **Both** option because Client attempts on the correct SNMP protocol for device to interact.

SNMPv1

SNMP Community. The Center uses this community to authenticate communication between the PDU and UPS in order to access their information. The default community is **private**. By default, the UPS/PDU/ATS uses **private** as the community with write permission, and **public** with read only permission. The community used by the Center to access the UPS/PDU/ATS must have write permission for an administrative power control.

SNMP Trap Community. The Center uses the community to authenticate the SNMP trap from the monitored PDU and UPS RMCARD. The community default is **public**. The IP address of the Center computer must be added to the Trap Receiver list on the **Network**/**Trap Notification** page of the UPS RMCARD and the PDU to ensure that the community must match.

Note: *The community can be configured on the* ***Network/Access Control*** *(or* ***Network Service/SNMPv1 Service)*** *page in the UPS remote management card (RMCARD) web or on the* ***Network/SNMP Settings*** *(or* ***Network Service/SNMPv1 Service)*** *page in the PDU web.*

Note: *The SNMP community is limited to 15 characters in the PDU and UPS RMCARD.*
Note: *If you have firewall software installed, configure the settings to allow access through port 3052 (UDP/TCP), port*

53568 (TCP), port 162 (UDP) and port 53566(UDP). These ports must open because the Center uses them to establish the communication with PDU and UPS RMCARD.

SNMPv3

The Center will use the below SNMPv3 settings to interact with a secure device. These settings can be configured on the **Security**/**Authentication** page of Center and on the **Network Service**/**SNMPv3 Service** page of the UPS RMCARD/PDU/ATS web. These settings must be matched one.

- **User Name**: Specifies a username match for protocol.
- **Authentication Protocol**: Sets the protocol to be used for authenticating the network communication between the Client and devices.
- **Authentication Key**: Sets the authentication key which is used for the aforementioned authentication protocol.
- **Privacy Protocol**: Sets the privacy protocol to be used for encrypting data during transmission between the Client and devices.
- **Privacy Key**: Sets the privacy key to encrypt data for the aforementioned privacy protocol.

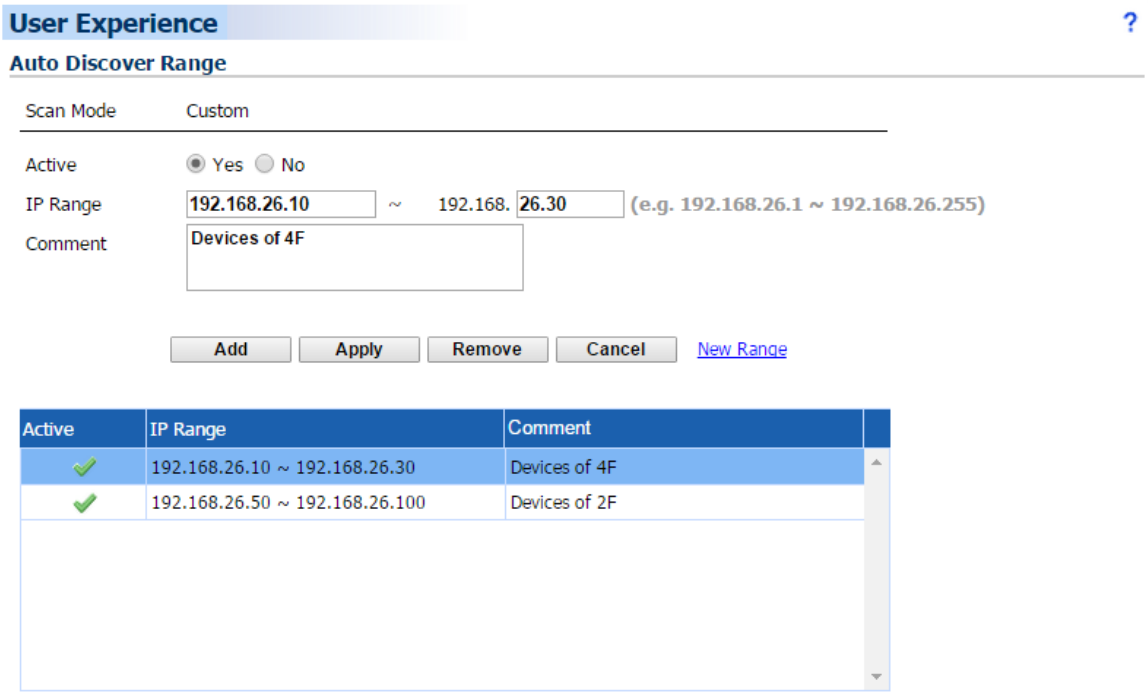
Network

Please refer to **Security/Network** section about how to configure *Network* settings.

Preferences

User Experience

Auto Discover Range



In order to search devices and computers in different segments or a specific range, users can set IP range on this page. The settings will be used on the **Management**/**Power Equipment** page.

IP ranges can be managed as follows:

- **Add a new IP range:** Click the **New Range** to have the blank IP range fields or use the data from a selected IP range. Enter all required data and click the **Add** button to add a new IP range to the list.
- **Modify the IP range:** Select the IP range you wish to modify. After entering in the new data, click the **Apply** button to complete.
- **Remove the IP range:** Select the IP range to remove from the IP range list, and then click **Remove** to complete the IP range deletion.

The IP range detail settings and descriptions are explained below:

- **Scan Mode:** If any IP range is active in the list, the scan mode will be changed to **Custom**, the scanning will scan a specific range which configured in IP range field. Otherwise, the scan mode is **Local Subnet**, the scanning will scan devices and computers in the same segment.
- **Active:** States if the IP range is active.
- **IP Range:** Set the range which used in devices and computers scanning.
- **Comment:** Sets the user-defined comments for this IP range.

Help

Content

Please refer to **Help**/**Content** section about further details.

About

Please refer to **Help**/**About** section about further details.

Logout

The **Logout** page allows users to log the user out of the web interface. The user will be asked to assure whether to log out, and users can log out web by clicking the **Logout** button.

Technical Support

Troubleshooting

1. **I cannot access the PowerPanel® Business Edition web interface after complete installation.**

   Please follow the below steps resolve the problem:

- Make sure that there is no other application utilizing port 3052 (UDP/TCP) and port 53568 (TCP). Use a command prompt with the command “netstat -o” to obtain information about which ports are used by which programs.
- Ensure the **PowerPanel® Business Edition** service is running on the hosted computer. If the service is stopped, restart the service and then try again in the same way.
- Make sure the port 3052 (UDP/TCP) and port 53568 (TCP) on the hosted computer are not blocked by a firewall.
- Make sure the URL in the address filed of the browser for a remote computer is correct.

2. **I have installed the PowerPanel® Business Edition Agent on my computer, but the Agent cannot establish communication with the UPS.**

- Make sure that no other application is using the serial port if the UPS is connected with a serial cable.
- Make sure the serial or USB cable is securely and properly connected to the UPS and computer.

3. **The Client cannot establish communication with the UPS/PDU/ATS.**

The lack of communication may be caused by the following conditions:

- The network communication between the Client computer and the UPS/PDU/ATS is down.
- The device network address is configured improperly.
- The authentication settings are configured improperly.

Follow the steps below to resolve the problem:

- Verify the device network address is correct.
- Verify the network configuration in the device is correct. Use the **Power Device Network Utility** tool to configure the device network configuration.
- Verify the settings on the **Security**/**Authentication** page are correct and match the settings of the UPS/PDU/ATS. See **Security/Authentication** for more details.
- Verify the port on the **Security**/**Network** page is matched if establishing communication with Agent.
- Check the network status of the UPS/PDU/ATS and Clients.
- Verify firewall settings. Port 3052(UDP/TCP), port 53568(TCP), port 161(UDP), port 162(UDP) and port 53566(UDP) should be unblocked. The Client communicates with UPS/PDU/ATS and Agents using these ports.

4. **The battery test failed.**

- Replace the batteries if the batteries have used over 3 years.
- Contact **CyberPower** for assistance and replace the batteries if the battery test still fails.

5. **The PowerPanel® Business Edition installation failed.**

If the installation file is from CyberPower web site, it may have downloaded incompletely or become corrupt. Download the installation file again.

6. **I failed to extend the off-delay time of Necessary shutdown time option.**
   - The communities on the **Security**/**Authentication** page in the Client and on the **Network**/**Access of Control** page in the PDU may be not matched. Confirm that the communities with the write permission are matched.
   - The Client may use the community without write permission to access the PDU. Please promote the permission of the community which is used by the Client to access the PDU.

7. **The web interface is displayed abnormally due to large or tiny size on Google Chrome 3.**

   It is caused by the default settings for minimum font size on the Google Chrome. Verify the below steps to improve the web pages due to font size:

   - Close the Chrome first. Find the preference file located at ***Documents and Settings\Users_Name\Local Settings\Application Data\Google\Chrome\User Data\Default\Preferences*** in Windows XP and ***Users\User_Name \AppData\Local\Google\Chrome\User Data\Default\Preferences*** in Windows Vista.

   - Use the text editor to open preference file. You will find the keyword *"webkit:"* in the file and insert *minimum_font_size* and *minimum_logic_font_size* in the below example:

```
"webkit":{
    "webprefs": {
            "default_fixed_font_size":  13,
            "default_font_size": 16,
            "fixed_font_family": "Courier New",
            "minimum_font_size": 10 ,
            "minimum_logical_font_size": 10
            ……..(skipped)
    }
}
```

   Set both *minimum_font_size* and *minimum_logic_font_size* to *10* in order to display the pages normally. Save the preference file and launch the Chrome again to access PPBE software.

8. **The shutdown occurs earlier than expected time.**

   It may be caused by the following conditions:

   - When batteries have been used for a long time, they are unable to reach a full charge. Check to see if the output load is too high. A high load on the UPS will cause the batteries to discharge faster and the remaining runtime quickly decrease. Disconnect some load from the UPS to reduce the load in order to extend the runtime.
   - Verify that the batteries are fully-charged. If the capacity is too low, please charge the batteries to full capacity.

9. **Pages cannot be displayed after I set up another port number in the Security/Network page.**

The port that was set up in the **Security**/**Network** page may be occupied by other applications or services. This indicates that the pages can't be accessed through the assigned port. Follow below steps to continue accessing the Agent/Client/Center web:

- Find the **webserver.xml** file located at ***<Installation_directory>/etc/agent*** folder on the Agent computer or ***<Installation_directory>/etc/client*** folder on the Client computer.
- Use the text editor to open the **webserver.xml** and you can find the **<httsPort>** tag in the file as below example:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
 <webServer>
   <httpsMode>ENABLE</httpsMode>
   <httpsPort>port_number</httpsPort>
 </webServer>
</webServer>
```

  Change the port of the ***<httpsPort>*** and make sure that the port is not occupied by other services or applications. Save the webserver.xml file. (***httpsNumber*** is numeric from 1 - 65535)

  Note: *The default port number is 53568.*

- Find the PowerPanel® Business Edition service at the **Control Panel**/**Administrator Tools**/**Services** and restart the service in order to access through this new setting.

10. The host name and IP address at the Agent's banner on the vMA of the VMware ESXi host displays *Unknown*.

Follow below steps to correct this condition:

- Run the command *'sudo vi /etc/hosts'* with root permission.
- Add the below snippet with the IP address and hostname.

  192.168.1.1 hostname

  Note: *IP address and host name can be inquired using the commands 'ifconfig' and 'hostname'.*
- Restart the service using the commands '*sudo service ppbed stop'* and '*sudo ppbed service start'*
- Login the page again. The host name and IP address will be correct.

11. My Client computer always shuts down/ hibernates on each time my system starts.

It may be caused by the following conditions:

- Due to too short shutdown time or an unresolved problem, a power event which causes system shutdown may occur incessantly on each time system starts. For example, if a network communication lost event final results in system shutdown, Client will be aware of communication loss and shutdown system soon.
- Make sure that Client computer is assigned to match the actual outlet connection. Computers on NCL outlets will shutdown prior to ones on CL outlets when a power event occurs.

Follow below steps to avoid the Client shutdown/hibernation on each time system boots.

*For **Windows** Users.*

- Press ***F8*** when your computer boots. Your system will go to *Windows Advanced Options Menu* and select **Safe Mode** option to enter the safe mode.
- Log on to your computer as an administrator.

  Note: *When your computer is in safe mode, you'll see the words Safe Mode in the corners of your monitor.*
- Edit the preferences.xml file located at ***<Installation_directory>/etc/client*** folder on the Client computer and search the *<shutdown_pause>* tag as below example:

```
<?xml version="1.0" encoding="UTF-8"?>
 <preference>
  ……
   <action>
    ……
     <shutdown>
      <shutdown_pause>false</shutdown_pause>
     </shutdown>
   </action>
 </preference>
```

  Change *<shutdown_pause>* value from **false** to true. Save the preferences.xml file and restart your computer.
- Login the PPBE page to check the setting.

  Note: *All shutdown or hibernation in safe mode will not take effect by events evoked currently.*
- Restart the service to apply new setting from the PowerPanel® Business Edition service of the **Control Panel**/**Administrator Tools**/**Services**.

*For **Linux** Users (Example for Ubuntu)*

- Press and hold the **Shift** key as your computer reboot to enter the GRUB screen. Press "***e***" key to edit the GRUB command.
- Lookup the commands similar to below examples. Append *single* parameter following the command as '*root=UUIS=67f1e90f-d48b-40a3-9559-612cd821e4d1 ro quiet splash **single***'

```
linux /boot/vmlinuz-3.2.0-27-generic
root=UUIS=67f1e90f-d48b-40a3-9559-612cd821e4d1 ro quiet splash
$vt_handoff (skip…)
```

- Press the ***Ctrl + x*** key or ***F10*** key to restart the boot up process of your Linux Core in the **runlevel1 mode**. (single user mode)

  Note: *These changes are not persistent. Any change to the kernel boot options made this way will only affect the next boot and only if you start that boot by pressing either "**Ctrl + x**" or "**F10**" while still in GRUB edit mode.*
- Edit the preferences.xml file located at ***<Installation_directory>/etc/client*** folder on the Client computer and search the *<shutdown_pause>* tag as below example:

```
<?xml version="1.0" encoding="UTF-8"?>
 <preference>
  ……
```

```
  <action>
  ……
   <shutdown>
      <shutdown_pause>false</shutdown_pause>
   </shutdown>
  </action>
</preference>
```

Change <shutdown_pause> value from ***false*** to ***true***. Save the preference.xml file file and restart your computer.

- Restart your computer to access the page to check the settings.

12. **I install the Client on one single virtual machine and then make amounts duplicates. The Agent only interacts with one of them.**

    Please follow below steps:

    - When multiple virtual machines start, this may result in duplicating network names. Please contact the administrator to resolve this condition first.
    - Stop the PPBE service. For **Windows** users, stop the service from **Start > Control Panel > Administrative Tools > Services > PowerPanel Business Edition Service**. For **Linux** users, use the command "**service ppbed stop**" to stop the service.
    - Open the **preference.xml** file located at ***<Installation_directory>/etc/client.*** Delete the **<uid>** tag as below example:

      <uid>2c779a9a-818a-4949-a8b9-50535bf2f6c1</uid>
    - Start the PPBE service. For **Windows** users, start the service from **Start > Control Panel > Administrative Tools > Services > PowerPanel Business Edition Service**. For **Linux** users, use the command "**service ppbed start**" to start the service.

13. **I have downloaded the installer on the Linux from the website. The installer cannot be launched.**

    Before launching the PPBE installer, you must change its access permission on the installer. You must have executable permission on the PPBE installer; otherwise the message "**Permission Denied**" will be displayed.

    Run the below example command to change its permission of the 32-bit installer on 32-bit Linux platform.

    sudo chmod u+x ppbe-XXX-linux-x86.sh (XXX is the version number of PPBE.)

    Run the below example command to change its permission of the 64-bit installer on 64-bit Linux platform.

    sudo chmod u+x ppbe-XXX-linux-x86_64.sh (XXX is the version number of PPBE.)

    After the permission of the PPBE installer is changed, the installation procedure will be allowed to launch.

14. **Inability to Shutdown NAS during Power Failure.**

    When using sshpass tool cannot shut the NAS down during power failure, the version of the sshpass tool may be 1.04.

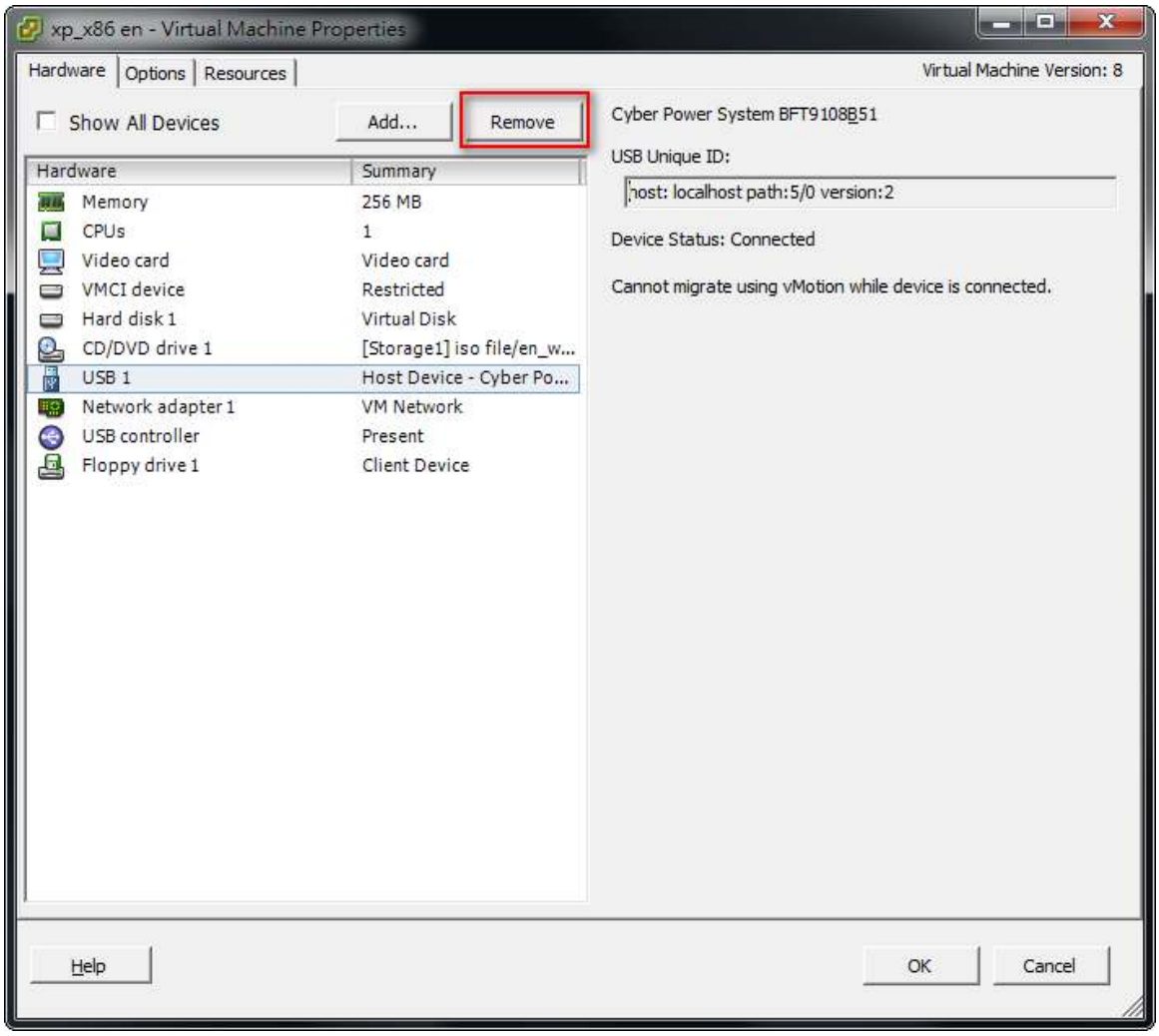
    The sshpass tool whose version is 1.04 will result in inabiltiy to shutdown NAS. You must check whether the version of the sshpass tool is 1.04. If the version is 1.04, you must change another version..

15. **The Agent UPS/Status page does not display the correct UPS status.**

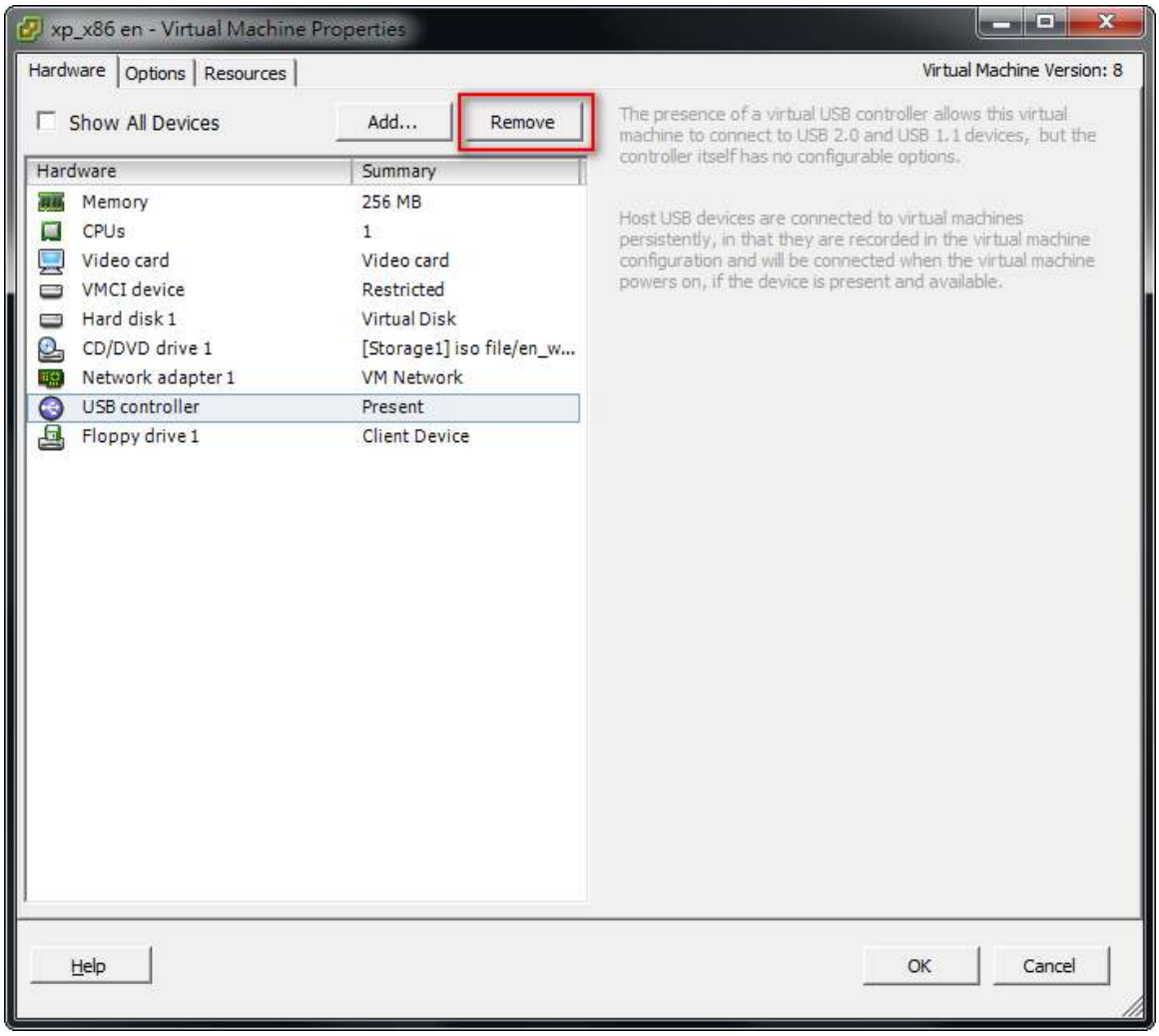
    It may be caused when Agent is installed on Linux which is a virtual machine on VMware ESXi. To resolve the problem, please follow the steps below to change the USB controller type of the virtual machine from **EHCI+UHCI** to **xHCI**:

- Launch **vSphere Client** to click **edit virtual machine settings** to the target Linux.

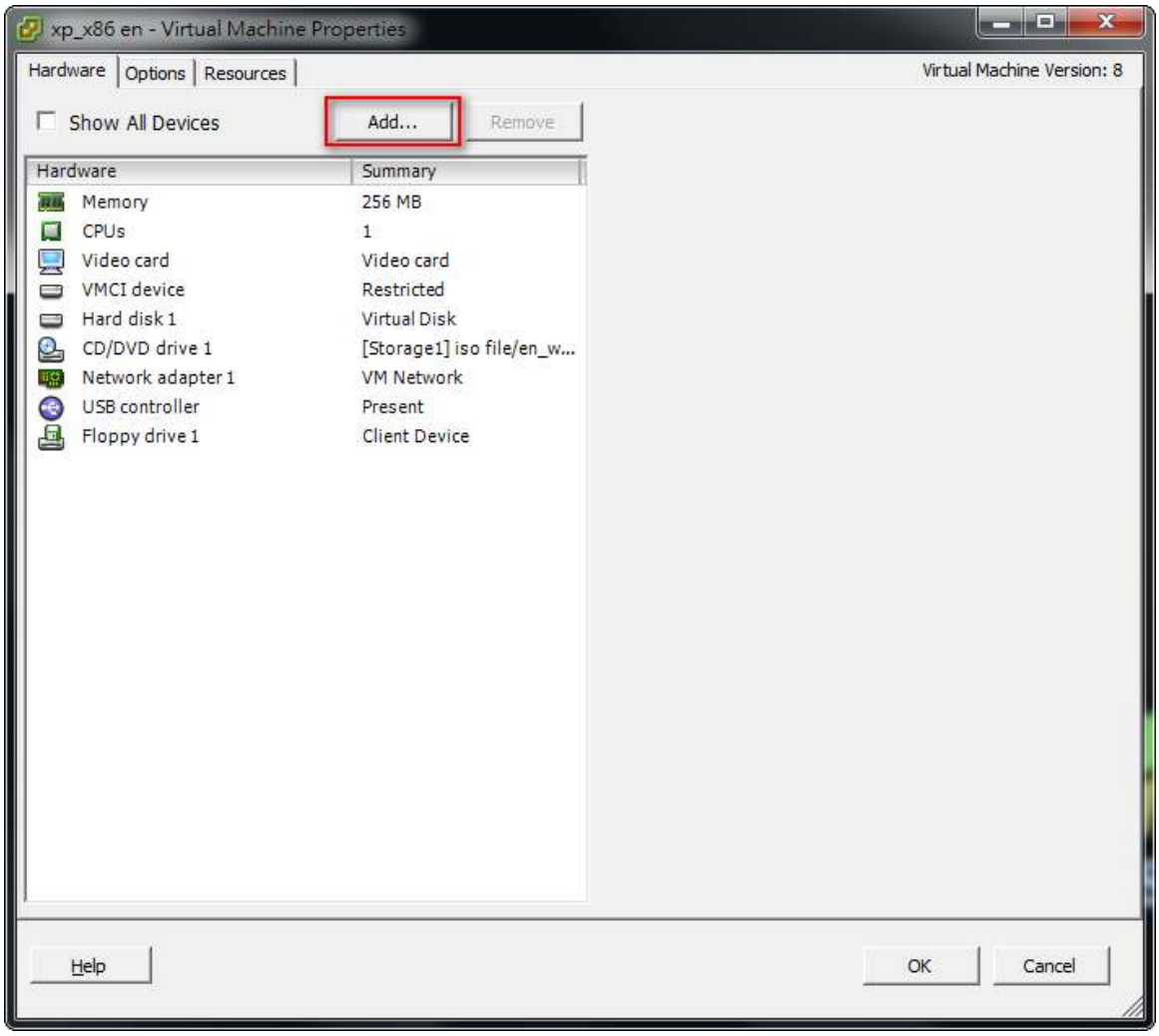
- Click **Remove** button of the **VMware Machine Properties** to remove the existing USB device.



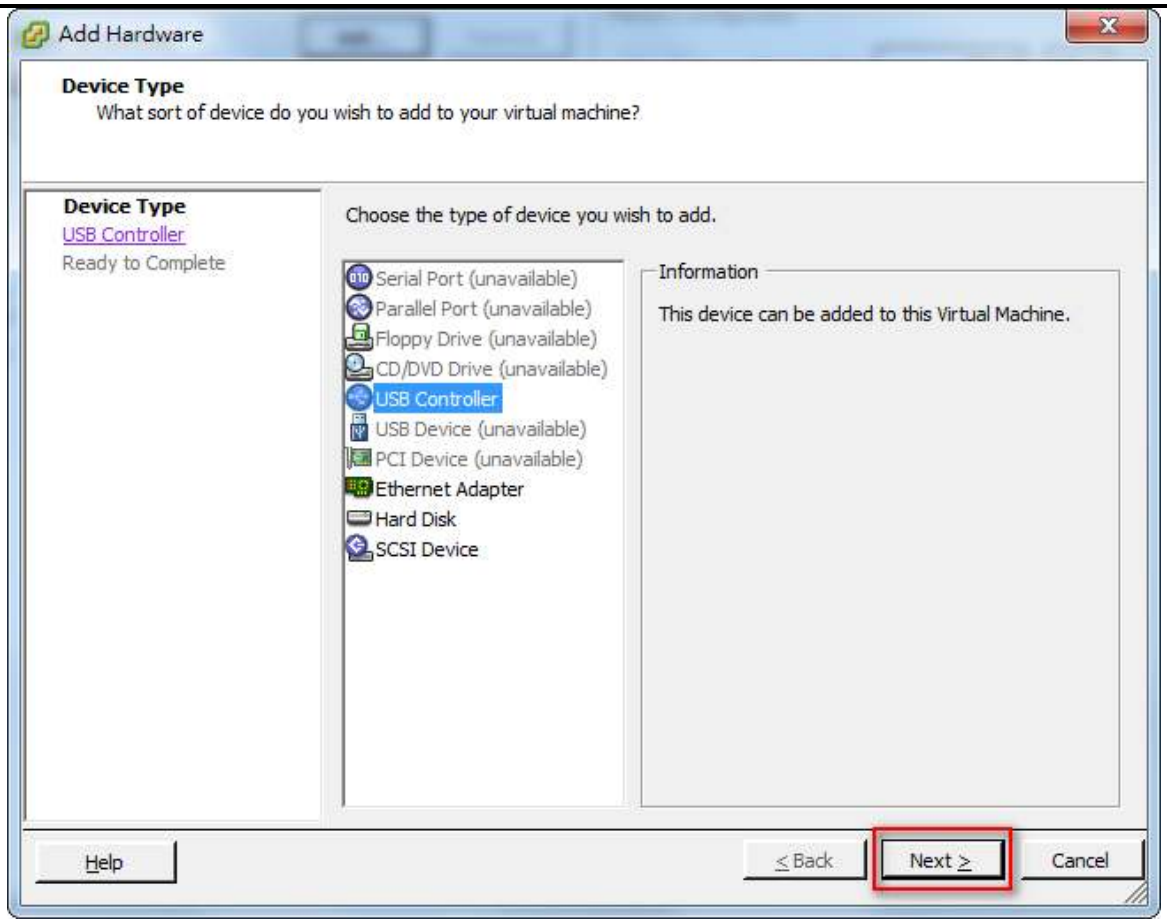
- Click **Remove** button of the **VMware Machine Properties** to remove the present USB controller.



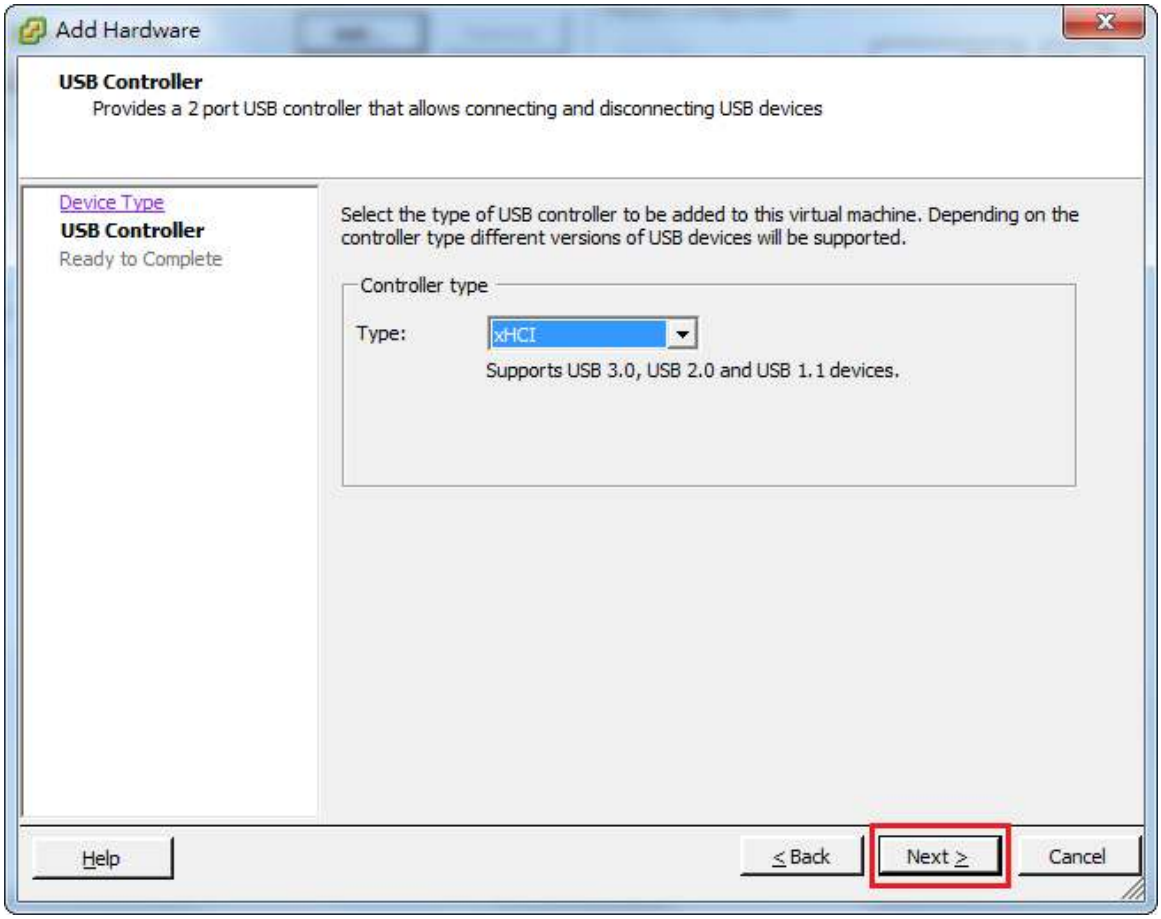
- Click **Add** button of the **VMware Machine Properties** to add a USB controller.



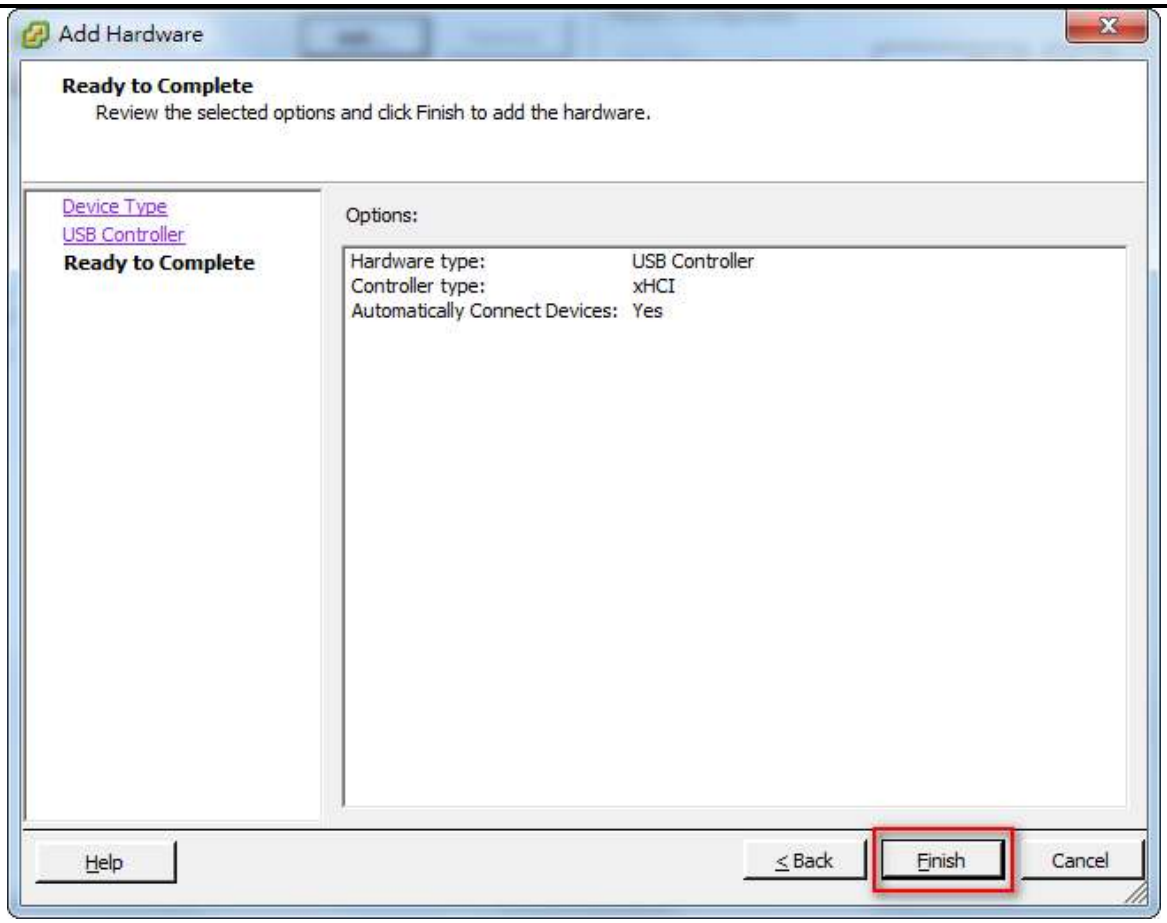
- Select **USB Controller** from the list and click the **Next**.



- Select **xHCI** of the USB Controller type and click the **Next**.



- Click **Finish** to complete add USB Controller.



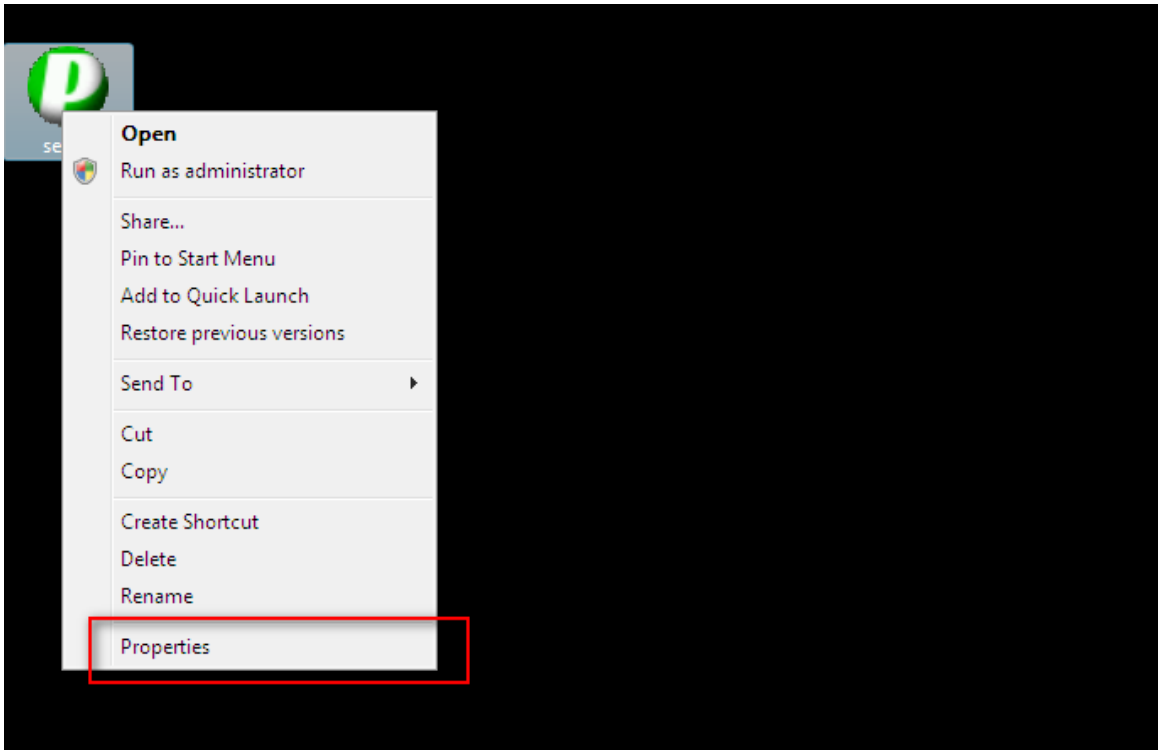
16. **Communication cannot be established between Agent, Client and Center.**

    The SSL certificate changed in PPBE 3.1.2, so PPBE versions earlier than 3.1.2 cannot interact with PPBE 3.1.2 or later. For example, Client version 3.1.1 cannot interact with the Agent version is 3.1.2. To resolve this problem, please update PPBE to the latest version. Otherwise, contact **CyberPower** for assistance.

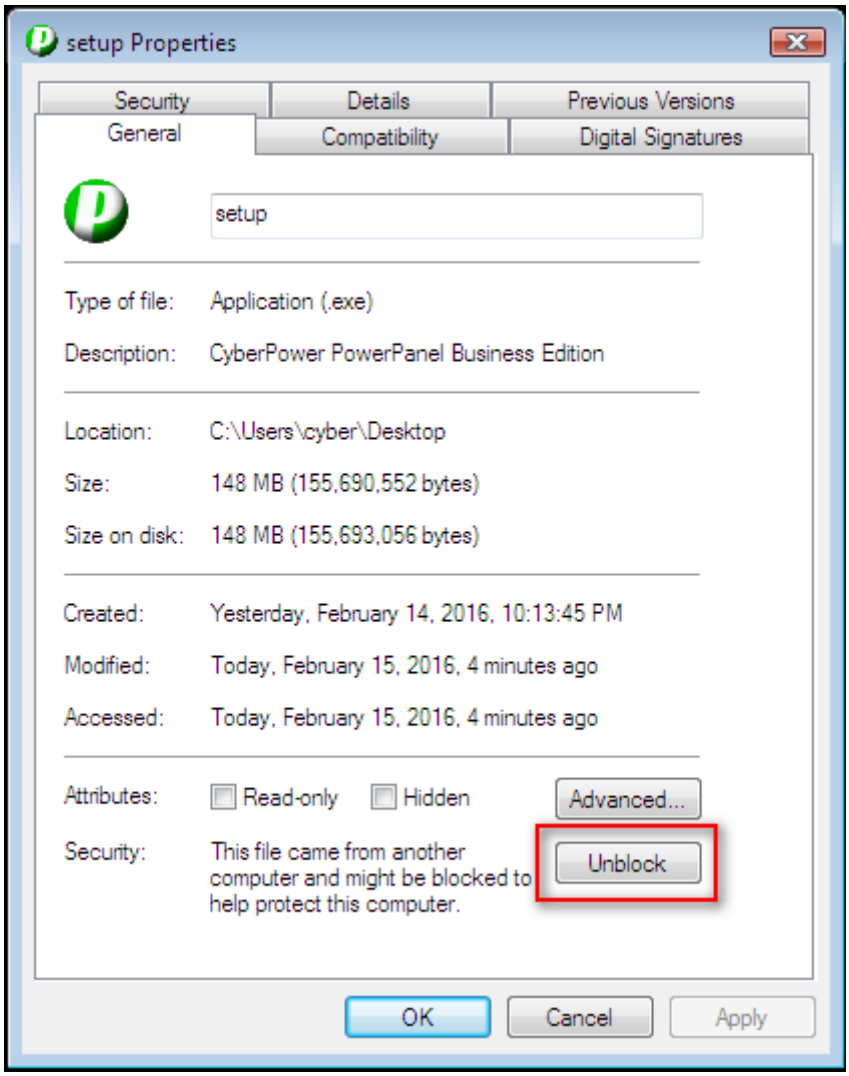
17. **I cannot open the PowerPanel® Business Edition installation file.**

    Please follow the below steps to resolve the problem:

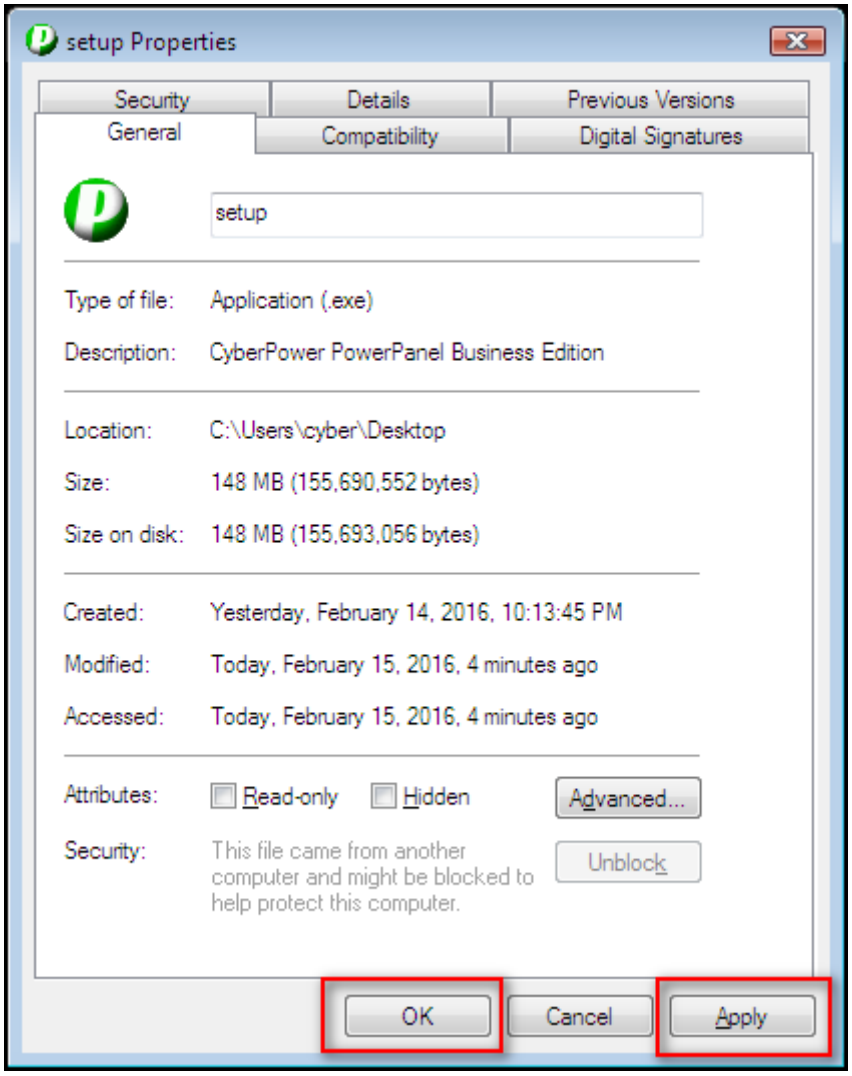
    - Right click the installation file and click **Properties** to open Properties window.



- Click **Unblock** button to unblock the installation file.



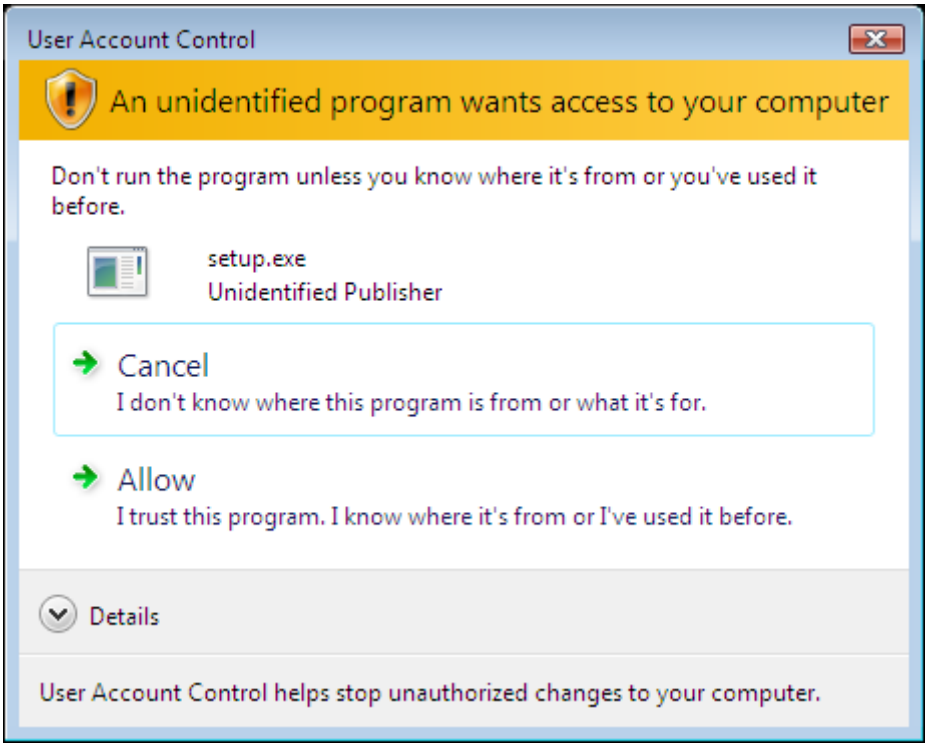
- Click **Apply** to save the change and click **Ok** to close Properties window.



18. **The PowerPanel® Business Edition installation file's digital signature is not valid.**

It is caused because the operating system does not support the SHA-256 signature the installation file uses. Please follow the solutions below to resolve the problem for different versions of Windows:

- On **Windows 8.1**, **Windows 8**, **Windows 7**, **Windows Server 2012** or **Windows Server 2008 R2**, please update the Windows via **Windows Update** to support SHA-256 signatures.
- On the version is earlier than **Windows 7** or **Windows Server 2008 R2**, please click **Allow** or **Run** when security warning dialog appeared after the installation file is opened.



FAQ

1. **If multiple computers are connected to a single UPS, how do I determine which computer to install the Agent or the Client on to ensure each computer can be shut down gracefully in event of power outage?**

   The computer that is connected to the UPS with a serial or USB cable should install the Agent, and the remaining ones should install the Client.

2. **After the PowerPanel® Business Edition installation is complete, how do I access the web interface?**

   On Windows, you can select the **Start > All programs >PowerPanel Business Edition >PowerPanel Business Edition Agent** (or **PowerPanel Business Edition Client/ PowerPanel Business Edition Center**) for local use.

You can also enter the URL, **http://*hosted_computer_IP_address:3052***, in the address filed of the web browser from a remote computer.

On Linux, you only enter the URL, **http://localhost:3052**, the address field of the web browser from a remote computer for a local access. You can also enter the URL, **http://hosted_computer_IP_address:3052**, in the address filed of the web browser from a remote computer.

3. **Which operation systems are supported by PowerPanel® Business Edition software? And which browser supports them?**

   Refer to the **Getting Started/Prerequisites** for more details.

4. **My Client computer connects to a PDU. How do I ensure the IP address assigned on the Power/Configuration page matches the actual PDU IP address? How do I ensure the outlet configured on the Power/Configuration page matches with the actual connection?**

   Click the **Identify** button at the **Outlet** block screen. The PDU LCD screen will blink the outlet number on the connected PDU. The PDU IP address can be verified by pressing the select button on the PDU until the IP address displays on the LCD.

5. **What is the difference of the NCL (Non-Critical Load) outlet and CL (Critical Load) outlet? Which equipment should connect to NCL outlet or CL outlets?**

   The NCL outlets are only available on specific UPS models and are designed to be powered off early to maximize the battery runtime for the CL outlets. Non-critical equipment such as redundant equipment ,monitors, or other non-critical equipment should be connect to the NCL outlets to be powered off early. This will maximize the battery runtime for critical equipment such as servers on the CL outlets.

6. **The UPS/Load page allows users to establish communication with the Client by assigning the Client's IP address. Are there other ways to establish communication?**

   Communication can be established by assigning the Agent's IP address on the **Device Network Address** section on the **Power/Configuration** page in the Client. See the **Power/Configuration** for more details about how to establish the communication with the Agent.

7. **How can I make PowerPanel® Business Edition run a program when a particular event has occurred?**

   Create a .cmd file and save it into the **extcmd** folder of PowerPanel® Business Edition installation folder. Then write a command to run your own programs into this script file. Please refer to the **default.cmd** in the **extcmd** folder to write your own script.

8. **I am not sure what the IP address of the UPS/PDU/ATS is. How can I obtain the correct IP address?**

   Use the **Power Device Network Utility** tool to help you to find the correct IP address of UPS/PDU/ATS. This device list will list the all CyberPower device's IP address on the local network.

9. **How do I uninstall PowerPanel® Business Edition?**

On Windows, go to **Start > Control Panel > Add or Remove Programs.** Click the **Change/Remove** button of **PowerPanel® Business Edition** to uninstall the program.

On Linux and VMware ESXi, only PowerPanel® Business Edition Client can be installed. The default installation directory is **/usr/local/ppbe** on the Linux platforms and **/opt/ppbe** on VMware ESXi. Execute the **uninstall.sh** command in the installation directory to uninstall the program.

10. How can I get a notice when a power condition has cleared?

When a power condition is clear, it will broadcast a notification and also run the command file. A custom script can be created for events. The script can utilize the environment variable **EVENT_STAGE** to compare the key **OCCUR** to identify an event that has occurred or **FINISH** to identify an event that has cleared.

11. What network protocol is used in PowerPanel® Business Edition?

SNMP is used on communications between Client, Center, PDU or UPS with remote management card. **HTTP** and **HTTPS** are used between the Agent and the Client.

12. What the network ports are used by PowerPanel® Business Edition?

Port 3052 (UDP/TCP), port 53568 (TCP), port 161(UDP), port 162 (UDP) and port 53566(UDP)

13. I try to set the Client to establish to communication with one of PDUs. How do I identify the targeted device IP?

Refer to the **Easy-to-Setup Device IP** for details.

14. How do I ensure that the SNMP settings between the Client and UPS/PDU/ATS are properly setup?

To receive the trap notification from the UPS/PDU/ATS all the time, follow steps to verify the SNMP settings:

- Open the **Network/Trap Notification** page on the UPS/PDU/ATS web and the **Security/Authentication** page on the Client.
- Confirm that the IP address of the Client can be found on the **Network/Trap Notification** page of the UPS/PDU/ATS web. If the IP address can be searched, skip the step 3.
- If the IP address of the Client could not be found, click the **Trap Receiver** shortcut of the **Network/Trap Notification** page to enter the **Trap Configuration** page. Enter the required data to add a new trap receiver.
- If the IP address of the Client could be found, verify the SNMP settings are matched.

15. How do I determine that if my computer is using hibernation or not?

If the operating system is **Windows 2000**, **Windows XP** or **Windows Server 2003**, please follow the below steps to enable the hibernation:

- Open Power Options in the Control Panel. (Go to **Start > Control Panel > Power Options**.)
- Click the Hibernate tab, and then select the Enable hibernate support option. Click the **OK** button to close the **Power Options** dialog box. The hibernation has been enabled. If the tab is not available, your computer doesn't support this hibernation.

If the operating system is **Windows Vista, Windows 7, Windows Server 2008**, **Windows 8** or **Windows Server 2012** please follow the below steps to enable the hibernation.

- Open the **Command Prompt** dialog box.
- Use the command **powercfg.exe -hibernate on** to enable the hibernation.

16. Which series does my UPS model belong to?

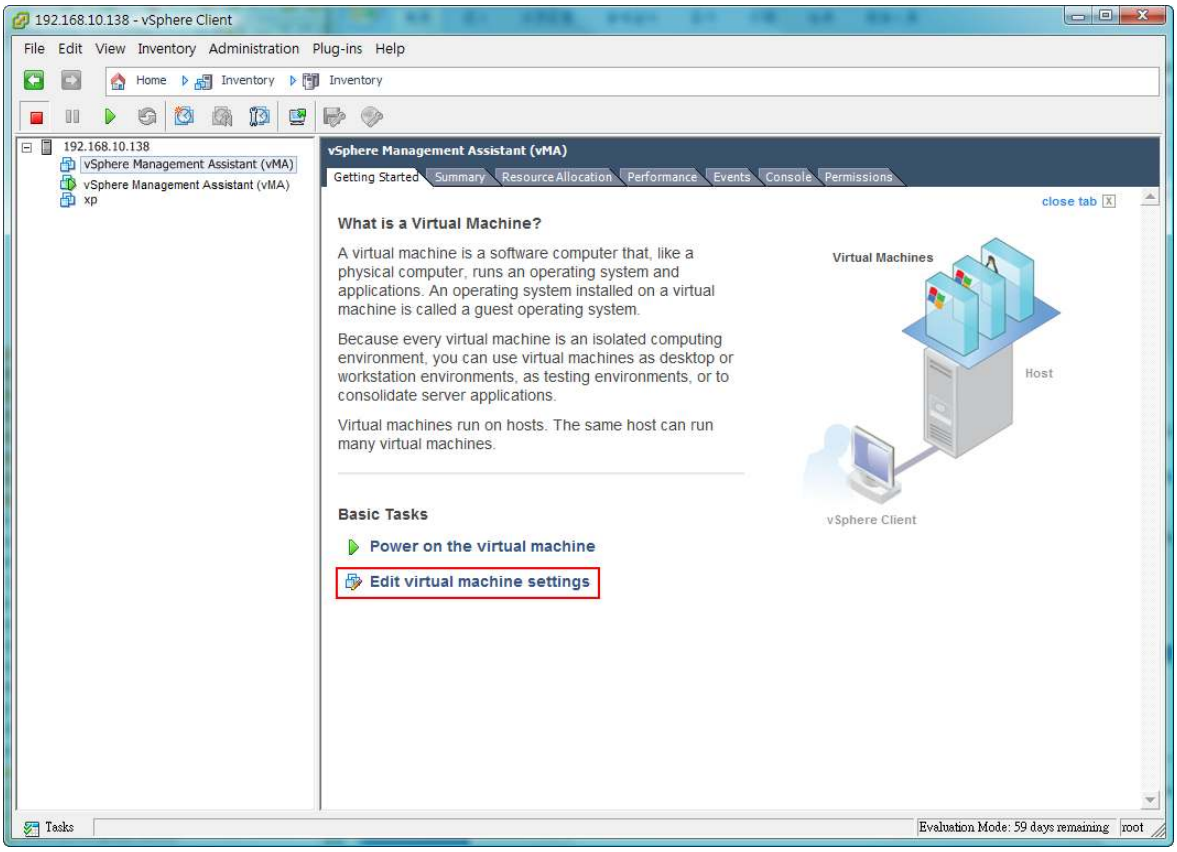
Check the UPS model and determine to which series your UPS belongs:

- If the model name conforms to the format of "OLxxxxRMXL", "OLxxxx", it belongs to **Smart App Online** series.
- If the model name conforms to the format of "PRxxxxLCDRM", "PRxxxxLCDRT", "PPxxxxSWRM" or "PPxxxxSW", it belongs to **Smart App Sinewave** series.
- If the model name conforms to the format of "ORxxxxLCDRM" or "ORxxxxLCDRT", it belongs to **Smart App Intelligent LCD** series.
- If the model name conforms to the format of "OPxxxx" or "CPSxxxxAVR", it belongs to **Smart App AVR** series.
- If the model name conforms to the format of "OLxxxxTEXL" or "OLxxxxEXL-M", it belongs to **Paragon Tower** series.
- If the model name conforms to the format of "PRxxxxELCDRT" or "PRxxxxELCDRTXL", it belongs to **Professional Rack Mount LCD** series.
- If the model name conforms to the format of "PRxxxxE", it belongs to **Professional Rack Mount** series.
- If the model name conforms to the format of "PPxxxxE", it belongs to **Professional Tower** series.
- If the model name conforms to the format of "ORxxxxELCD", it belongs to **Office Rack Mount** series.
- If the model name conforms to the format of "OPxxxxE", "OPxxxxTE", "OPxxxxUE" and "OPxxxxUTE", it belongs to **Office Tower** series.

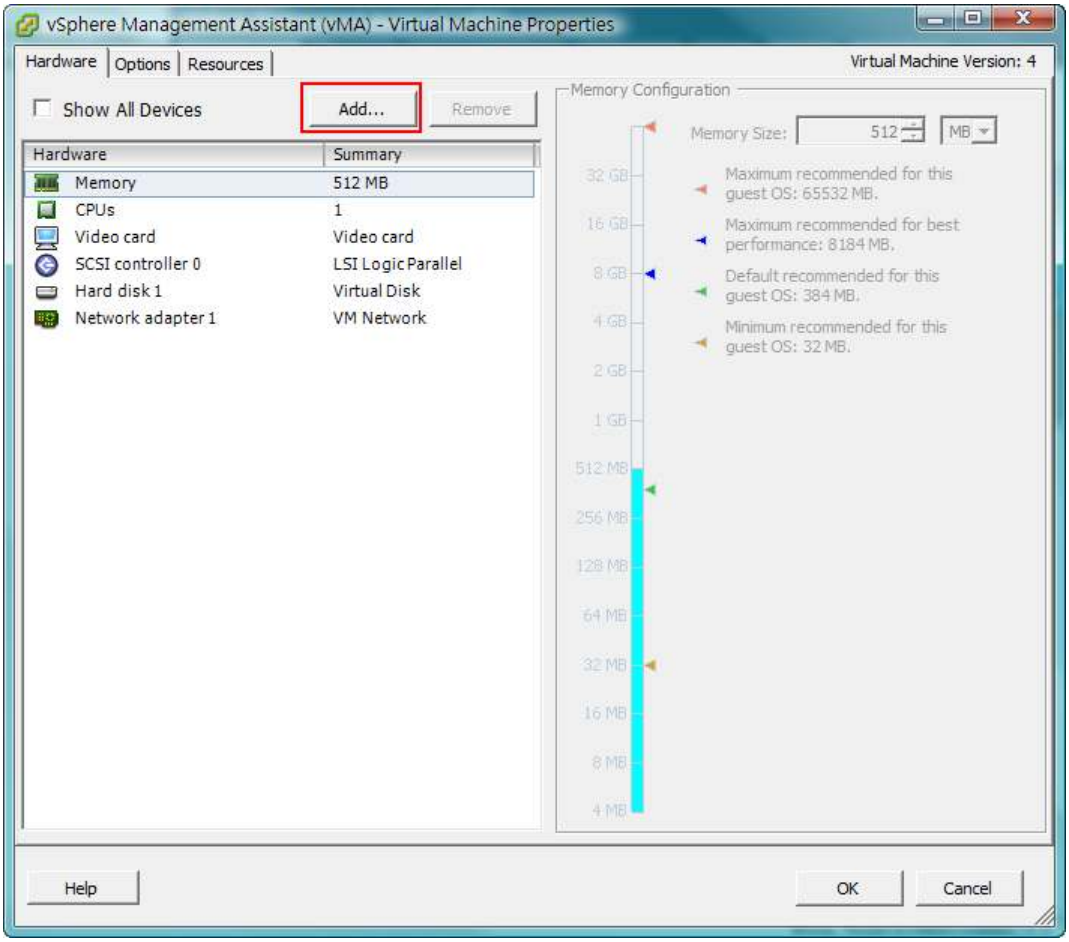
17. How do I add USB connection to vMA (vSphere Management Assistant) on VMware ESXi for Agent to establish communication?

Follow these steps to add a USB connection:

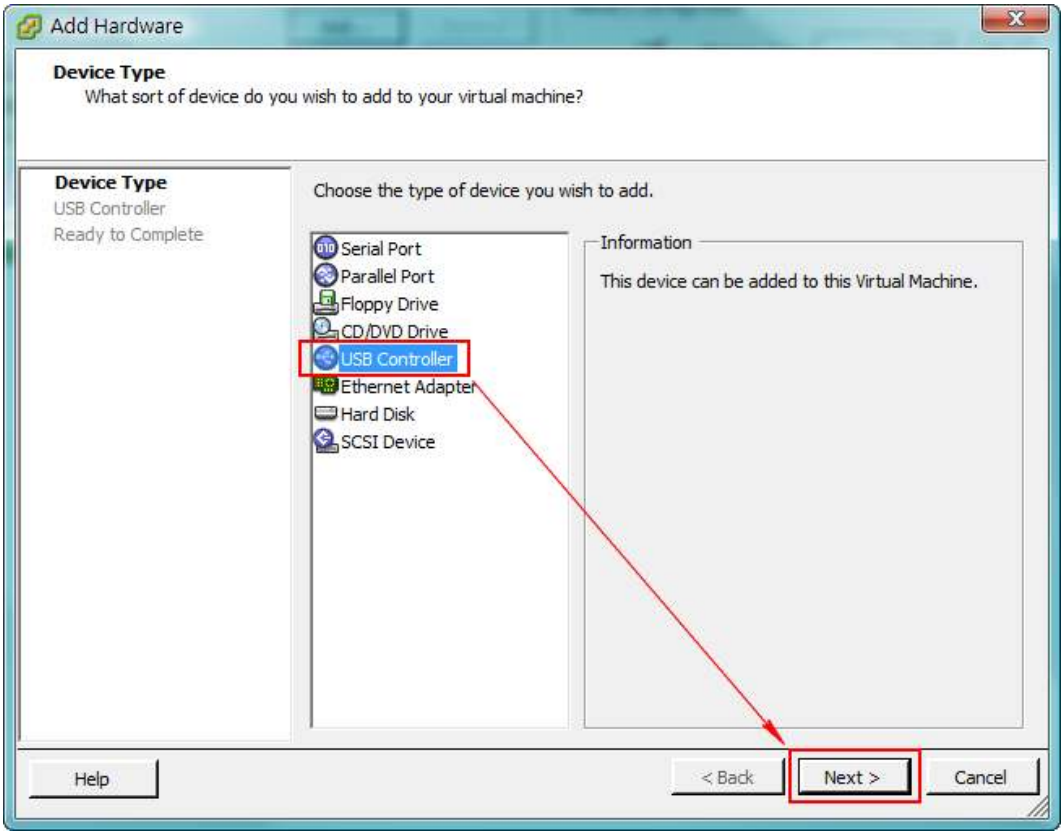
- Launch **vSphere Client** to click **edit virtual machine settings** to the target vMA.



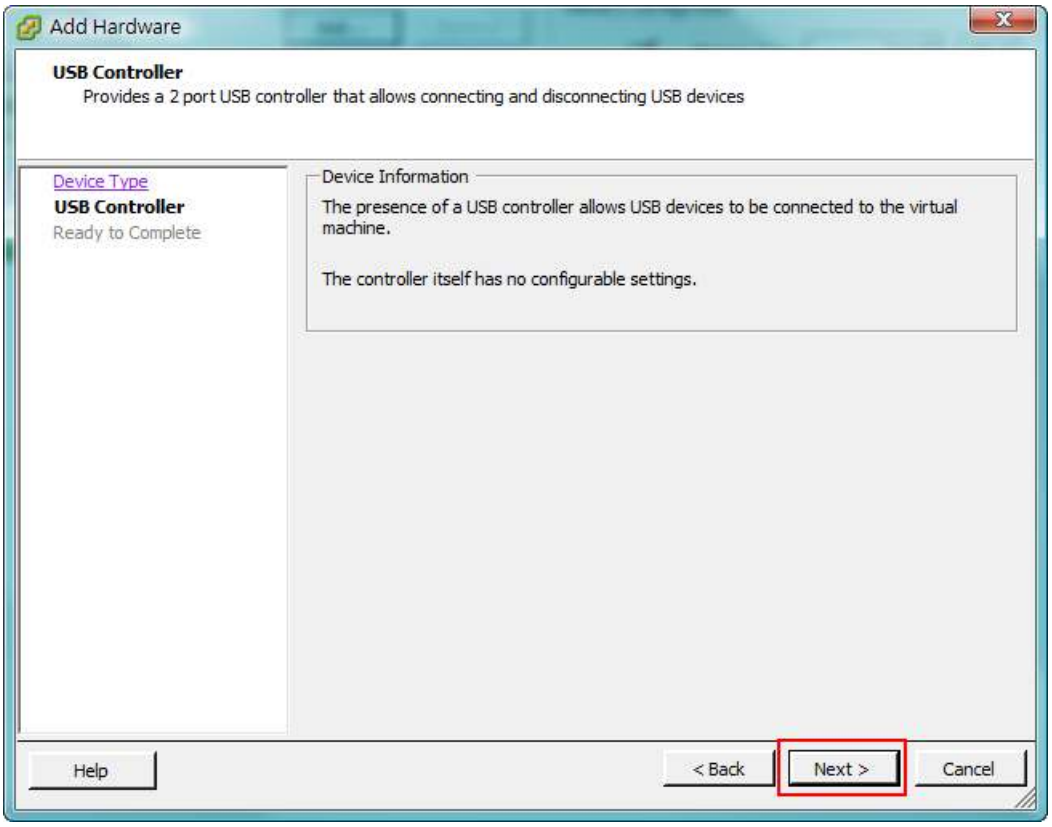
- Click **Add** button of the **VMware Machine Properties** to add a USB controller.



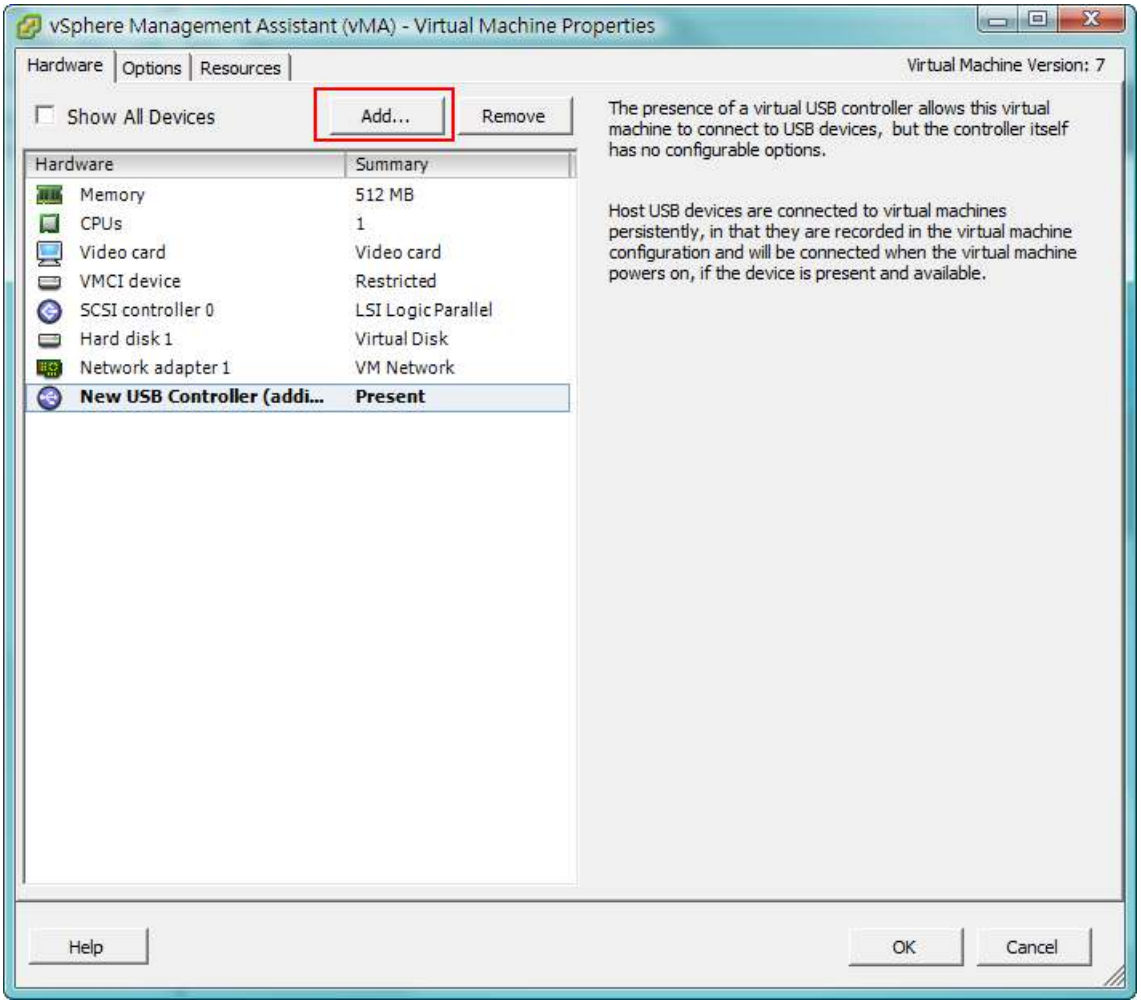
- Select **USB Controller** from the list and click the **Next**. (Select **Serial Port** if using serial connection.)



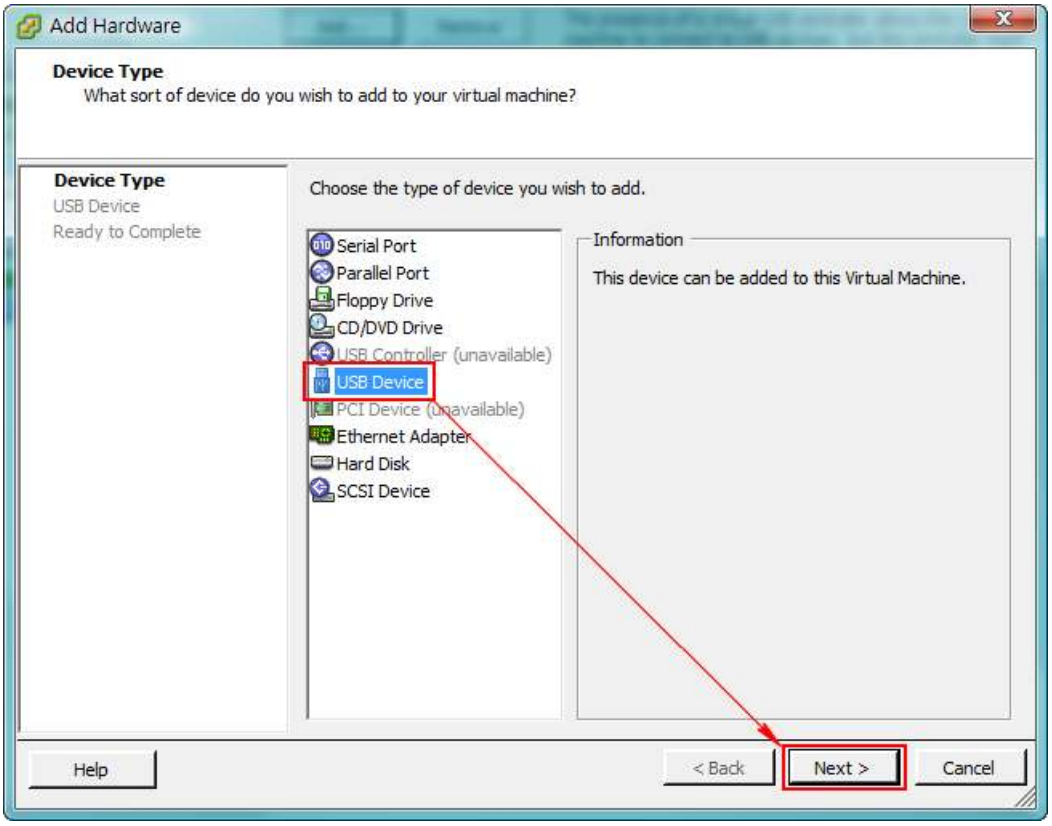
- This will add a **USB Controller**, click **Next** to add a **USB Device**.



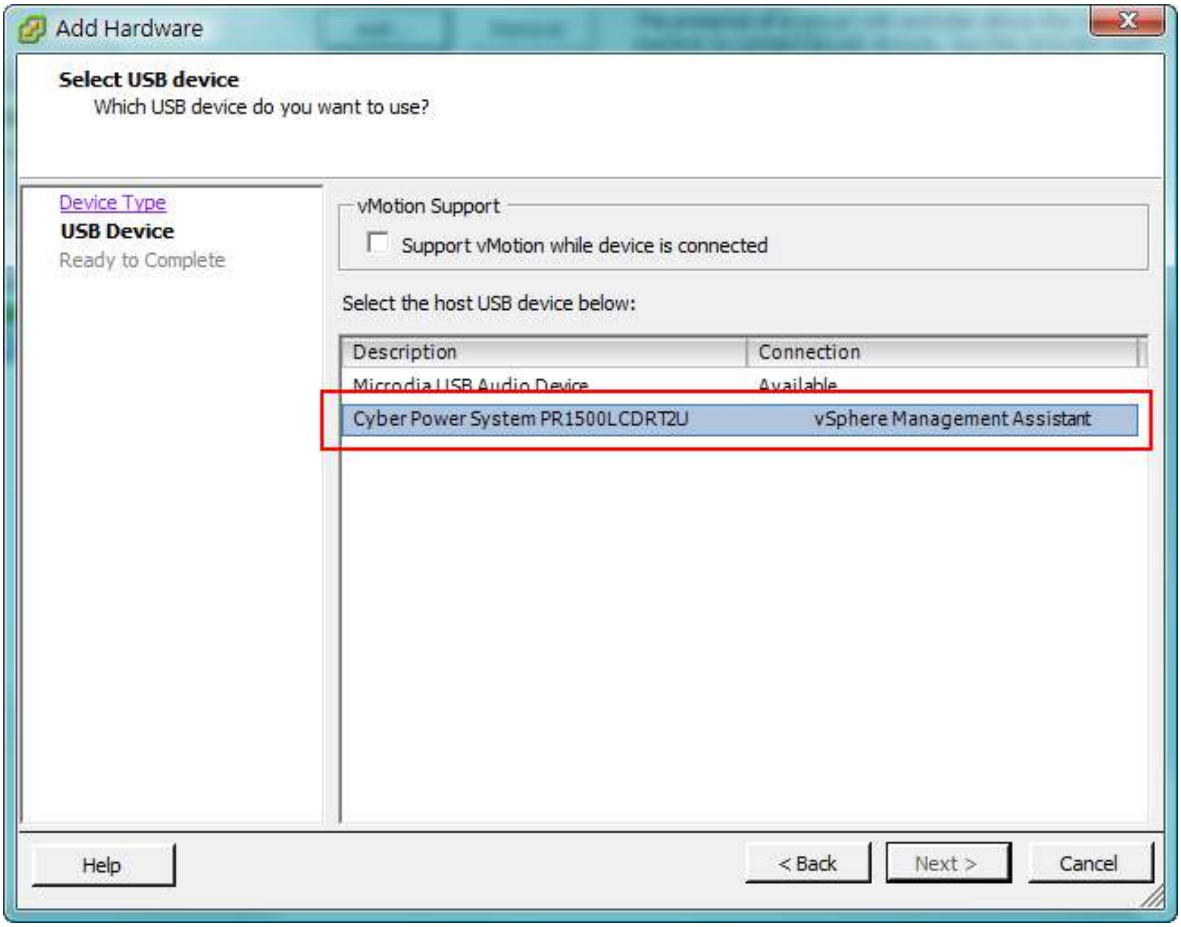
- Select **New USB Controller** and click **Add** to add a USB device.



- Select **USB Device** item and click **Next** to proceed.



- Select the USB Device of the target UPS which is connected with vMA. Click the **Next** button to finish.



Note: *In order to make sure that USB device of the target UPS can connect to vMA after a USB controller is added, it is strongly recommended to upgrade the virtual hardware to the latest version prior to adding a USB controller and a USB device. See How do I upgrade the virtual hardware version of vMA for details.*

18. How do I upload the installer to vMA?

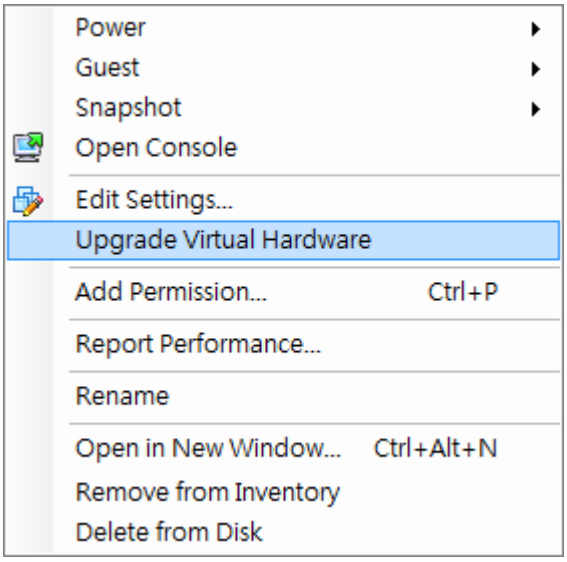
- Login the **vSphere Client**.
- Select the VMware host.
- Click **Configuration**
- Select the target datastore from the right hand side.
- Right click the target datastore and click **Browse Datastore.**
- Click **Upload** button on the toolbar and select the file you want to upload.
- Click **OK** button to continue with the upload files into the target datastore.

19. How do I upgrade the virtual hardware version of vMA?

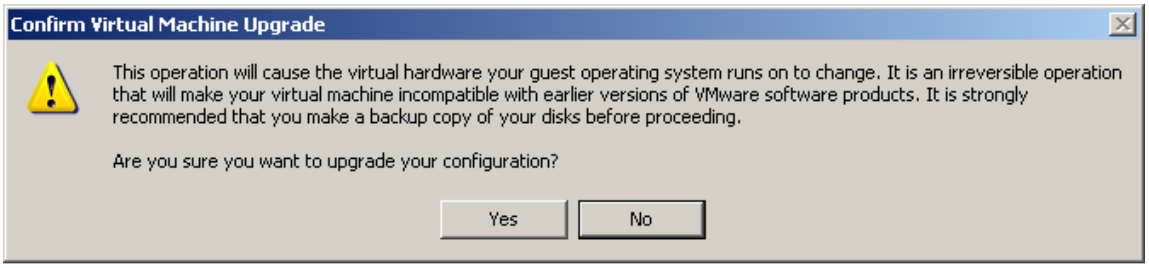
For vMA running on ESXi 5.x, it is recommended to upgrade the virtual hardware to version 8. To upgrade the virtual hardware version of VMA as below steps:

- Start the vSphere Client and power off the target vMA.

- Right-click the virtual machine and select the **Upgrade Virtual Hardwar**e menu option to upgrade virtual hardware.



- Click **Yes** to continue with the vMA upgrade.



- Power on the vMA to make the changes take effect.

20. **How do I restart the PowerPanel Business Edition service?**

    For windows, restart the service from the ***PowerPanel Business Edition Service > Services > Administrative Tools > Control Panel***.

    For Linux, run the commands in order to restart the service: *sudo service ppbed stop* and *sudo service ppbed start*.

21. **How do I change the password to access the trust list of PowerPanel Business Edition?**

    The default password is "*changeit*". User can edit *<PPBE_installation_directory>/web/etc/cacertpd* in the text editor to replace the default password with the default one. *PPBE_installation_directory* is the directory to install the PowerPanel Business Edition.

22. I cannot add the new SSL certificate into the trust list.

Due the duplicate alias name is available in the trust list, the certificate cannot be added. In order to add the new certificate into the list, the certificate which has the duplicate alias name should be removed from the list. Follow the steps to remove the certificate:

- Switch to the *<agent_installation_directory>/jre/lib/security* directory in the command prompt.

  cd <agent_installation_directory>/jre/lib/security

- Run the below command to remove the certificate from the trust list.

  <agent_installation_directory>/jre/bin/keytool.exe –delete –alias <alias_name> -keystore cacerts

- Enter "*changeit*" as the password for the certificate removal.

- Enter “y” to apply the certificate removal.
- Restart the Agent service to reload the trust list and take effect. Refer to **How to restart PowerPanel Business Edition service** of **FAQ** chapter for more details.

Glossary

- **Citrix XenServer:** A virtual-machine monitor allows several guest operating systems to execute on the same computer hardware concurrently. XenServer is supported by Citrix systems, Inc.
- **IP address:** An **IP address** is a series of numbers that identifies a particular computer or NIC on a network. **IP** is an abbreviation for **Internet Protocol.**
- **HTTPS:** Abbreviation for HTTP Secure. It provides encryption and secure identification of servers by using HTTP with SSL/TLS protocol. HTTPS connection is usually used for the sensitive transaction.
- **Power Device Network Utility:** Is an easy to use tool to setup network configurations of the UPS RMCARD/PDU/ATS. This includes setting the IP address, subnet mask, or gateway of UPS RMCARD/PDU/ATS.
- **PDU:** A PDU is a device which provides power output controls for individual outlets and connected equipment. **PDU** is an abbreviation for **Power Distribution Unit.**
- **SNMP:** The simple network management protocol. It is used by network management systems for monitoring network-attached devices for conditions that warrant administrative attention.
- **SSL:** Abbreviation for **Secure Sockets Layer**. SSL is a transaction security standard that provides data encryption, server authentication, and message integrity.
- **TCP/UDP:** Family of protocols for the transport and network layers.
- **TLS:** Abbreviation for **Transport Layer Security**. TLS is a cryptographic protocol which provides communication security over the internet. TLS and SSL provide data encryption and server authentication for message reliability.
- **vMA:** Abbreviation for **vSphere Management Assistant**. A virtual machine that includes prepackaged software and supported by the VMware, Inc. allows administrators to run scripts and agents to manage ESXi hosts.
- **VMware ESXi:** An enterprise-level computer virtualization product offered by VMware, Inc. It is a component of VMware’s larger offering, VMware Infrastructure, and adds management and reliability services to the core server products.
- **Virtual Appliance:** A virtual machine image is designed to run on a virtualization platform developed by VMware, Inc. It is intended to eliminate the installation, configuration and maintenance costs associated with running complex stacks of software.
- **VMware vCenter:** A vSphere’s centralized tool that allows for the management of multiple ESXi servers and virtual machines from different ESXi servers through a single console application.
- **Microsoft Hyper-V Server:** A native hypervisor-based server virtualization product being offered by Microsoft Corporation.
- **ATS:** ATS is an electrical switch that switches a load between two sources. It can switches power automatically to a generator or other standby power source after a power outage. **ATS** is an abbreviation for **Automatic Transfer Switch.**
- **Environment Sensor:** A sensor accessory that can be installed on UPS/PDU/ATS for monitoring environment condition and obtaining information about the temperature and humidity.