USER'S MANUAL

Power Management Software

PowerGuide+

Rev. 1

SAVE THESE INSTRUCTIONS
Please read this manual and follow the instructions for installation and use.

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Overview

PowerGuide+ is designed to work in conjunction with and add features to the Energy Saver options built into macOS X.

The advantages of PowerGuide+ Mac include:

- Monitor the status of the UPS and AC utility power.
- Track energy consumption in terms of kilowatt-hours (kWh) of power used, carbon emissions and electricity costs.
- Integrate with the Energy Saver and turn the UPS off in addition to gracefully shutting down the computer.

1. Getting Started

1.1. Prerequisites

1.1.1. Operating System

PowerGuide+ software is compatible with the following operating systems:

64-Bit Versions:

- macOS 10.11
- macOS 10.12
- macOS 10.13
- macOS 10.14
- macOS 10.15

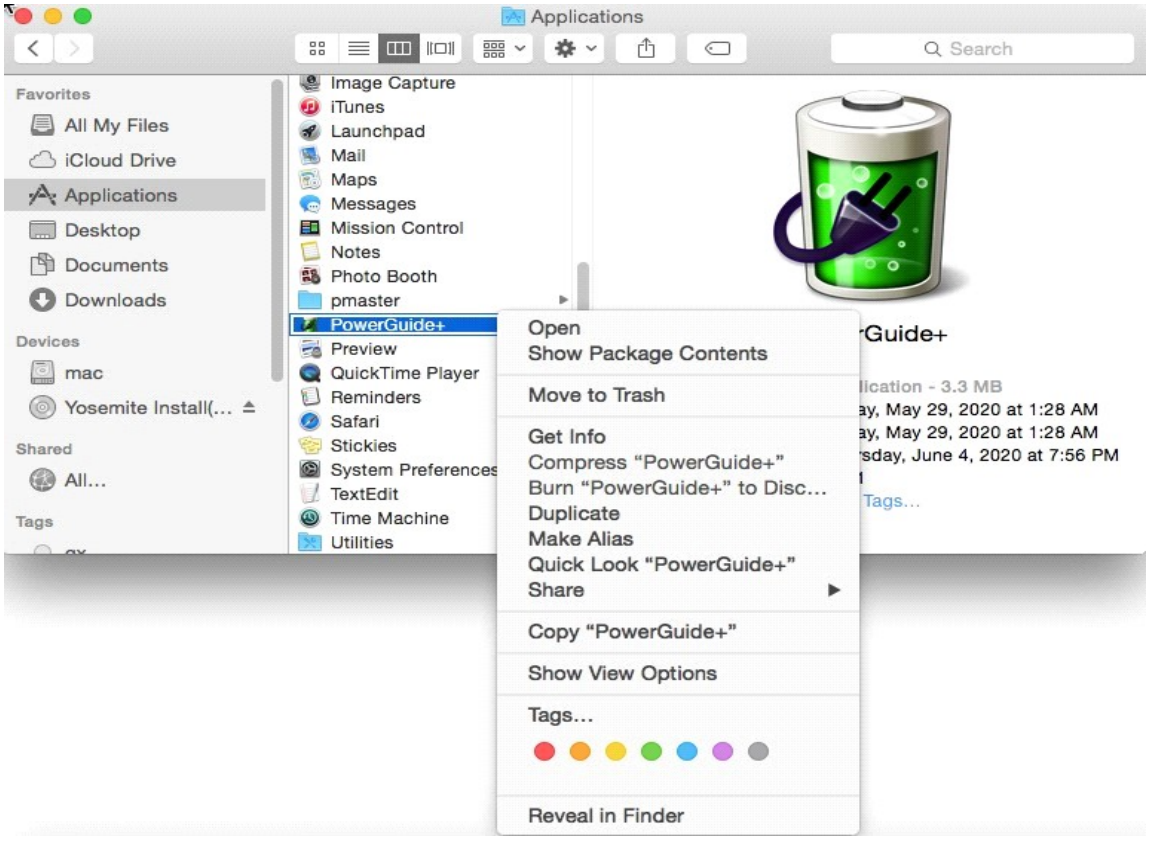
1.1.2. Installation

Please download the software, and then double-click to open the setup.dmg file.

Follow the on-screen prompts to install PowerGuide+ software:

1. Drag the PowerGuide+ icon into the Application folder to install.

2. Right-click the PowerGuide+ icon to open the software in the Application folder



1.2. Opening PowerGuide+

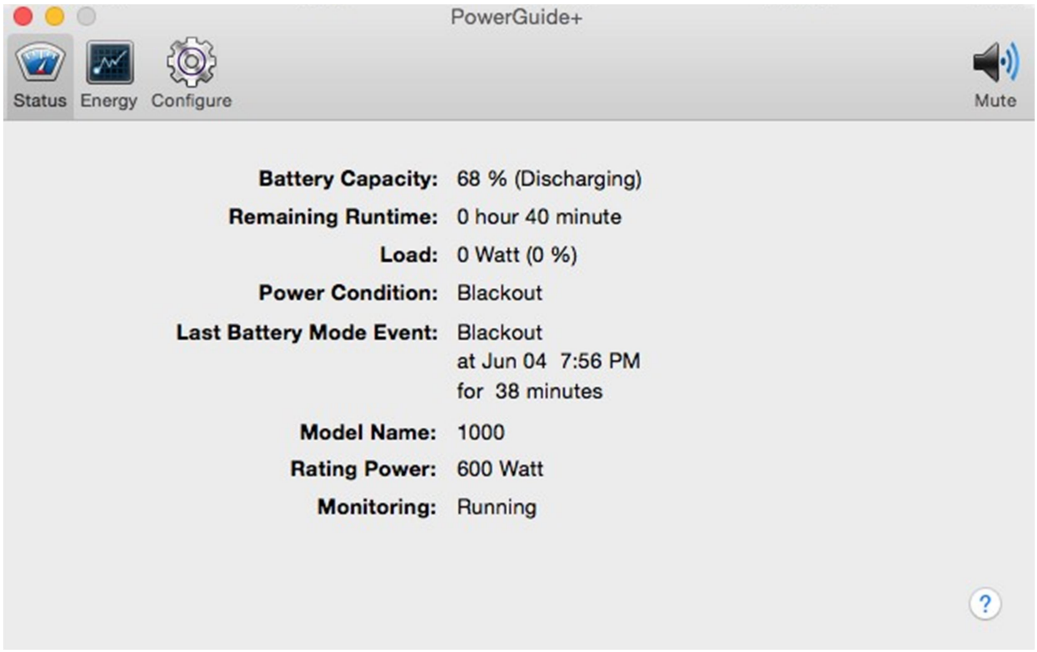
To open PowerGuide+, click Finder>Applications>PowerGuide+.

2. Using PowerGuide+

2.1. Understanding the User Interface

2.1.1. Main Interface Feature

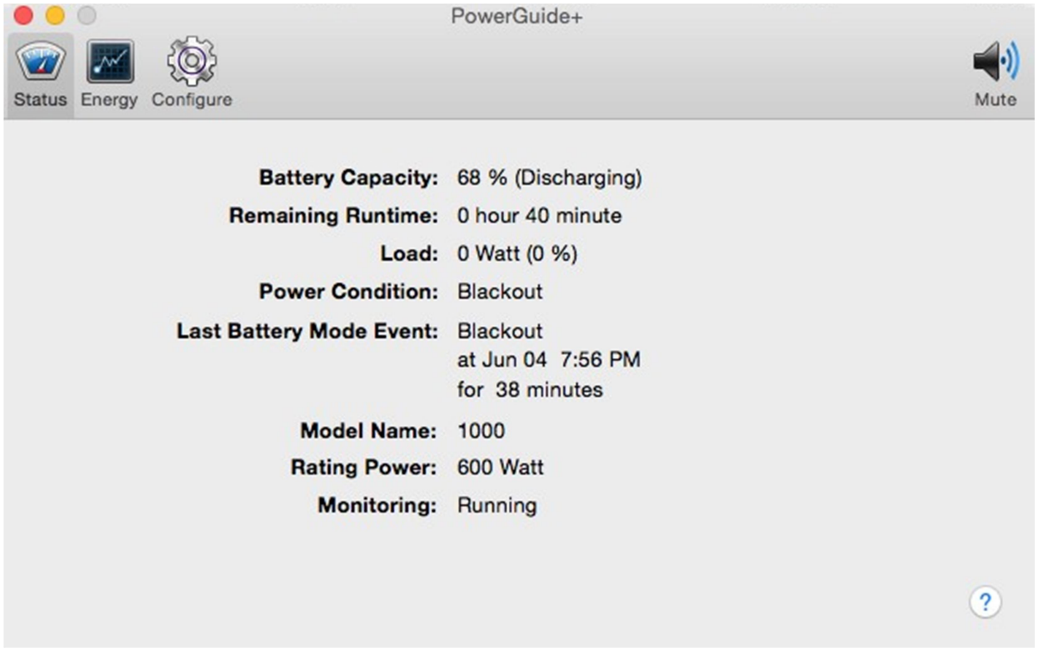
The figure below shows the main user interface of PowerGuide+ application.



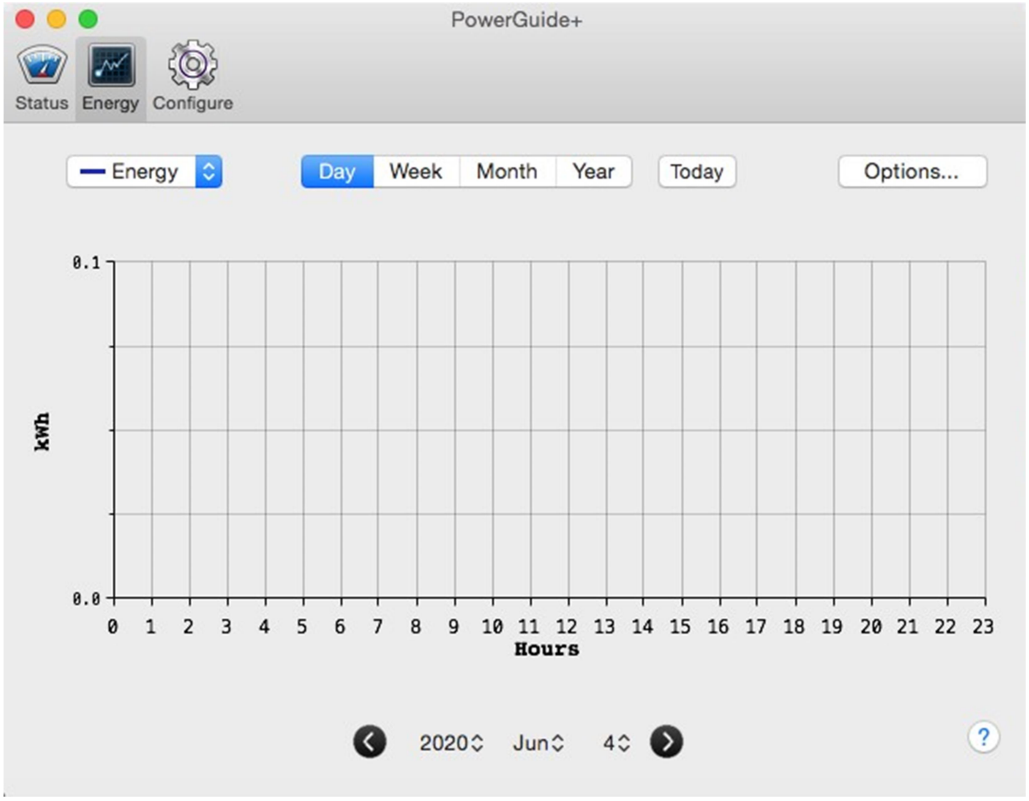
Main Interface

1. Feature Columns

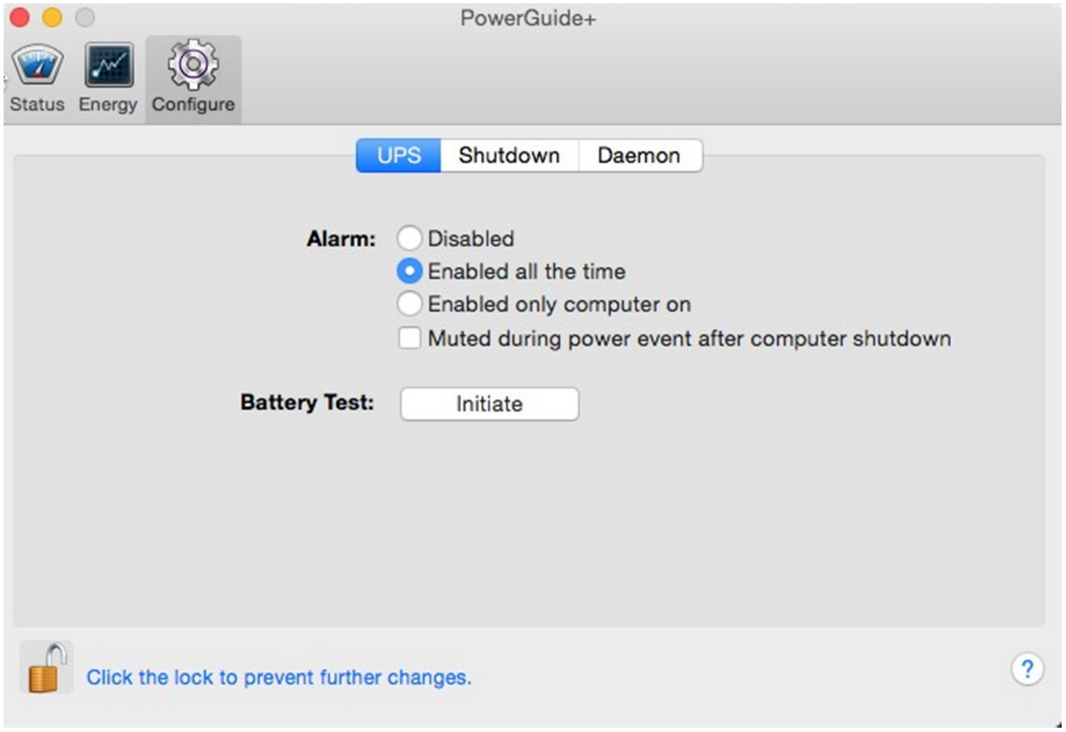
- Status: Click to access the Status page.



- Energy: Click to access the Energy page.



- Configuration: Click to access the Configuration page.



2. Workspace

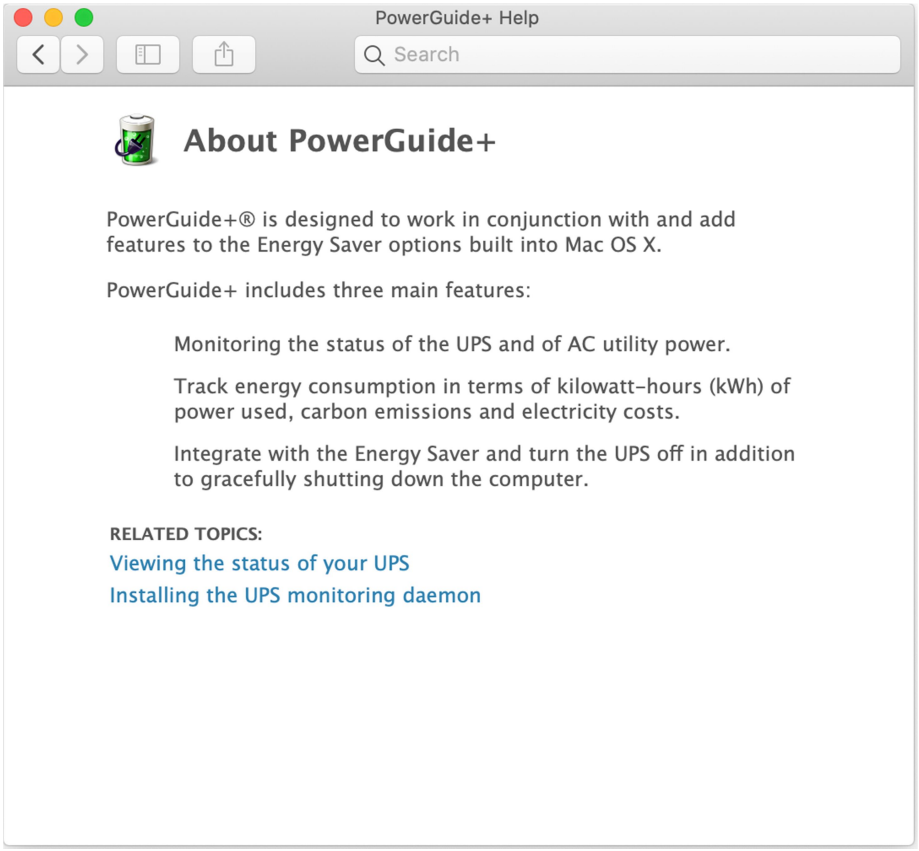
   Display the information or settings specific to the selected feature.

2.1.2. Monitoring Daemon

The daemon will continue to monitor the UPS all the time regardless of whether PowerGuide+ is open or not. It is recommended that the daemon be installed as it will allow the use of more advanced features, such as Energy Consumed statistics and additional Shutdown Options. PowerGuide+ will ask to install that daemon the first time it is launched.

2.1.3. Context Help

Click the icon to open the context help web page for the current page. The help web page provides detailed information on the current page of PowerGuide+ as shown below.

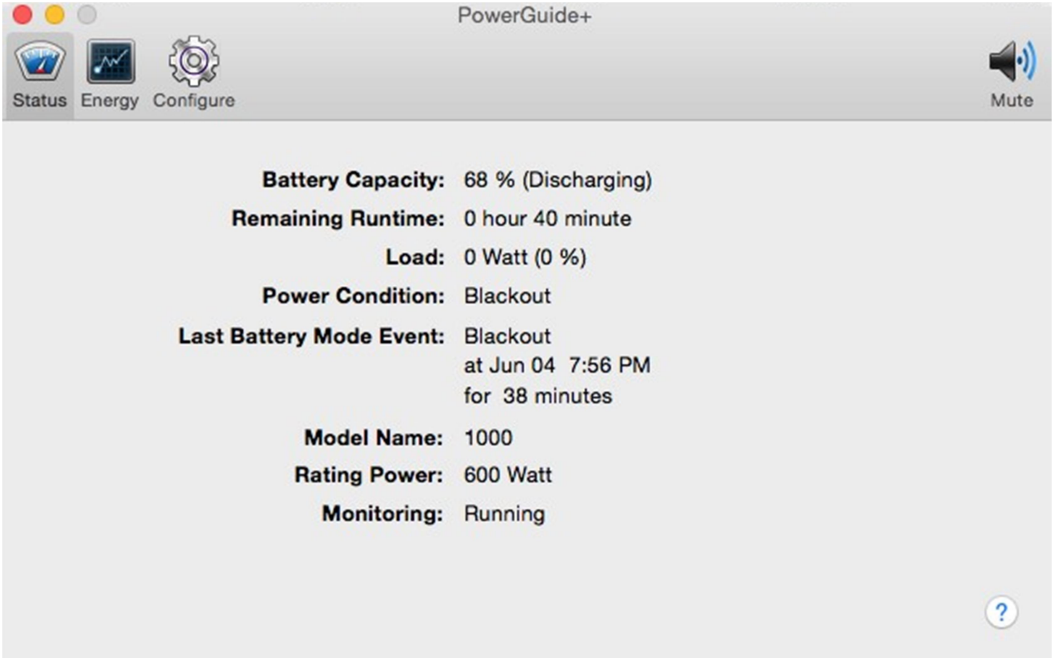


Context help window for Monitor feature

2.2. Monitor the UPS

The Status page provides details of the UPS status.

PowerGuide+ provides 24/7 UPS monitoring. The Status page displays the current UPS status and the information of the UPS.



Status Screen

The detailed UPS status is described below:

Field	Status		Description
Battery capacity	The battery level as a percentage of full charge		Shows the current percentage of remaining battery power and battery status.
	Battery status	Fully Charged	
		Charging	
		Discharging	
Remaining Runtime	The estimated battery runtime in hours and minutes		Shows an estimate of how long the UPS can provide battery power when it switches to battery mode due to power failure.
Load	The wattage of the load		Shows the current output power of the UPS in watts and the percentage of total capacity.
Power Condition	Normal Voltage		Indicates that the input voltage is within the normal range.
	Low Voltage		Indicates that the input voltage is below the normal voltage and the UPS is using battery power.
	High Voltage		Indicates that the input voltage is above the normal voltage and the UPS is using battery power.
	Blackout		Indicates the AC utility power is lost.
	Voltage Boosted		Indicates that the input voltage is low and the UPS is boosting the voltage closer to normal.
	Voltage Bucked		Indicates that the input voltage is high and the UPS is reducing the voltage closer to normal.

Field	Status	Description
Last Battery Mode Event	Event, Time, Duration	Displays the last power condition that caused the UPS to switch to battery mode, and the time it occurred. (Also including battery tests)
Model Name		Displays the UPS model name.
Rating Power		Indicates the Volt-Amp rating and power rating in watts of the UPS.
Monitoring	Running	Indicates that the daemon is monitoring the UPS.
	Not Running	Indicates that the daemon is not active.
	Not Installed	Indicates that the daemon is not installed.
	Communication Lost	Indicates that the daemon has lost communication with the UPS.

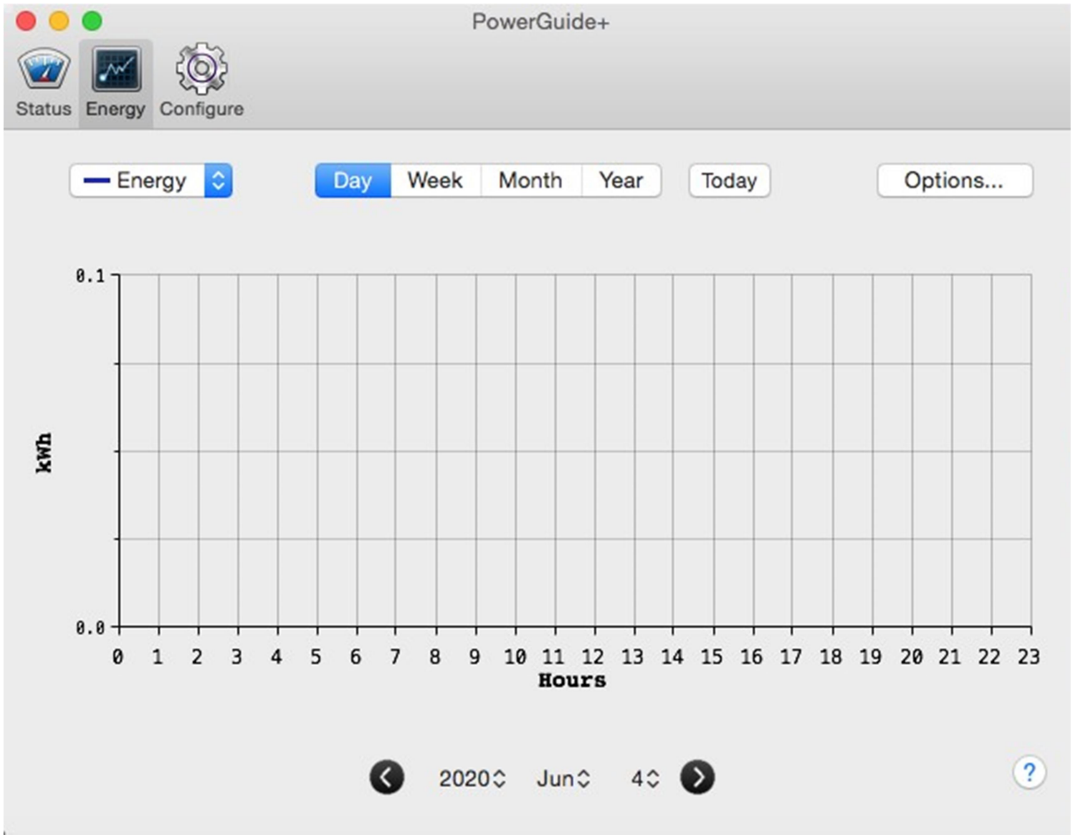
NOTE: Make sure that the USB cable has been securely connected to the computer and the UPS. Do not connect the USB cable through a USB hub.

NOTE: The Voltage Boosted and Voltage Bucked power conditions are only available on certain UPS models.

NOTE: The Last Battery Mode Event is not available if the daemon is not installed.

2.3. Energy

The Energy page displays a chart showing various statistics such as energy consumed, carbon emitted and electricity cost.



Energy Screen

- Choose data to display in the chart

  Select Energy, Carbon, or Cost option to display the data in the chart.

- Choose different time period to display the data

  1. Select Day, Week, Month, or Year at the upper center.
  2. If you select a previous Day, Week, Month or Year, click Today to return to the current one quickly.

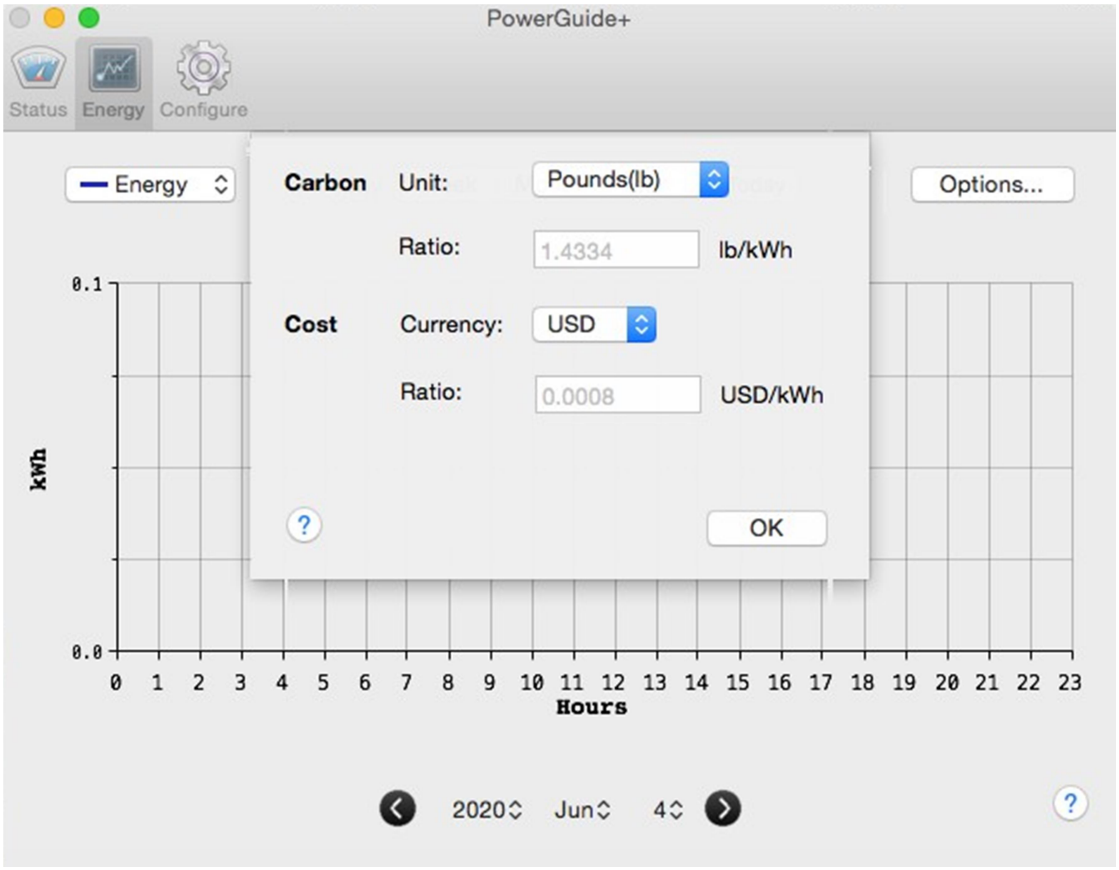
- Choose different date to display

  At the lower center, click year, month, and day to select a specific date. Click the left or right arrow to select the previous or next day.

2.3.1. Options

Users can specify the parameters used to calculate the results displayed in Carbon emitted and Cost according to users' region.

- Configuring the parameters of the chart for Carbon Emitted
  1. Edit the weight Unit and Ratio in the Carbon column.
  2. Click OK.
- Configuring the parameters of the chart for Cost
  1. Edit Currency and Ratio in the Cost column.
  2. Click OK.



Option Sheet

- Carbon

  Carbon emitted displays an estimate of how much carbon was emitted during the given time period. The displayed Unit can be either Pounds (lb) or Kilograms (kg). The Ratio is a ratio of carbon emission per kWh (Kilo watt hours).

  The carbon emissions reported by PowerGuide+ are calculated from the ratio between the emissions of carbon and kWh of energy consumption. These calculations are based on the information from the International Energy Agency (IEA) (http://www.iea.org/co2highlights/). The default ratio is in accordance with the language on the computer. If the ratio is not preferred, users can change it manually.

  The amount of emissions PowerGuide+ reports is an estimate and may vary depending on the type of power generated in users' area. This data is not to be used for official reports or as energy conservation data.

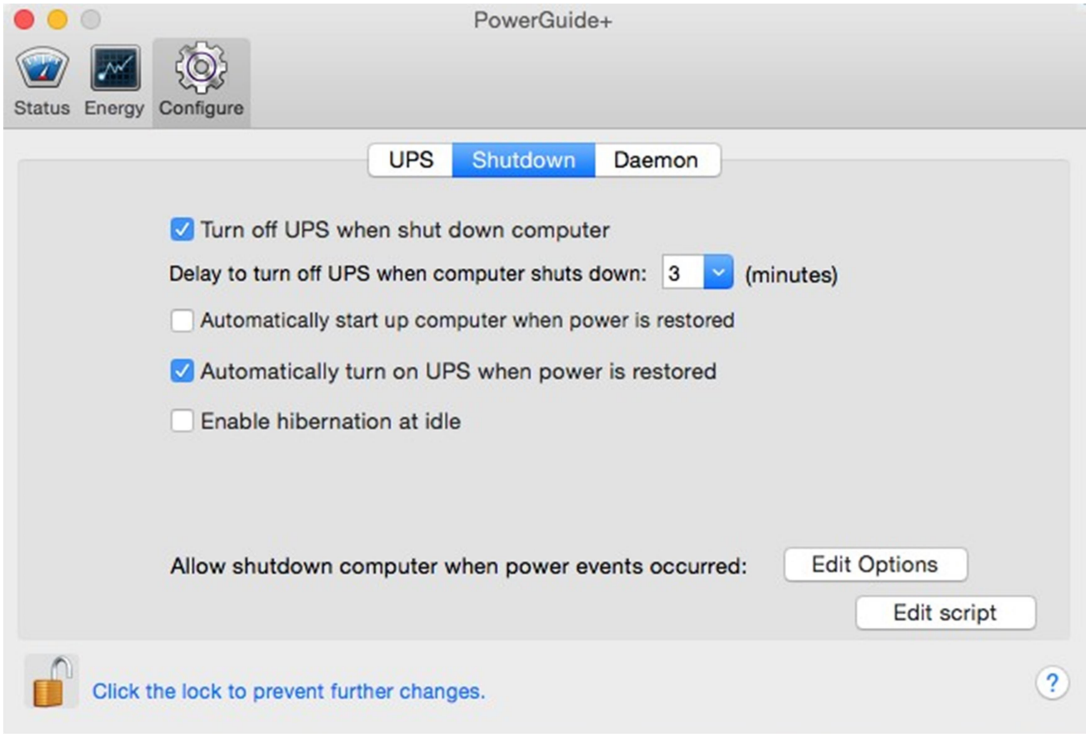
- Cost

  Cost indicates the cost for the electricity consumption in the given time period. Currency is the monetary unit and varies from country to country. Ratio is a ratio of cost per kWh of energy and varies from country to country.

NOTE: Energy consumed, Carbon emitted and Cost will be accumulated only when the computer is running. When the computer has been shutdown, power supplied to other pieces of connected equipment can result in inaccurate calculations.

2.4. Configure the UPS

The Configure page provides an interface to configure settings and customize the use of the UPS.

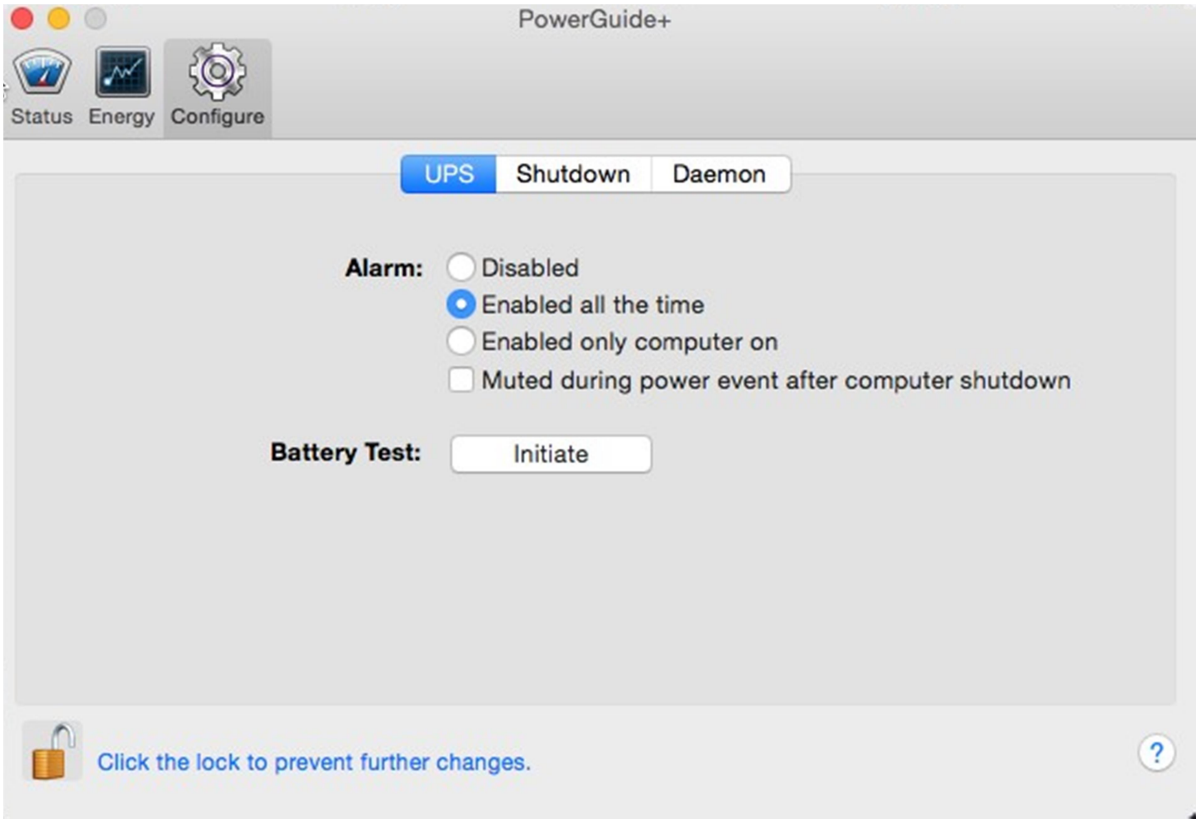


Configure Screen

On the Configure page, please click icon to allow changes to be made to the system.

Enter the user password of the macOS to enable the function.

2.4.1. UPS



Configure-UPS Screen

Alarm

The UPS will give an alarm when a power event occurs. Users can configure the alarm with the following settings.

- Mute alarm temporarily when a power failure occurs

  The Mute icon will appear in the toolbar on the right side when a power failure occurs.

- Disable alarm

  Select Disabled in the Alarm column.

- Enable alarm

  Select Enabled all the time in the Alarm column.

- Enable alarm only when computer is running

  Select Enabled only computer on in the Alarm column.

  NOTE: This option is not available if the daemon is not installed.

- Mute alarm after computer shutdown

  Select Muted during power event after computer shutdown in the Alarm column.

NOTE: This option is not available if the daemon is not installed.

Battery Test

Users can ensure whether the battery is in good condition through clicking Initiate.

Voltage Sensitivity

Users can set up the voltage sensitivity according to the needs of the equipment and the quality of the AC power. Once the UPS detects that the utility voltage is out of the specified range, the UPS will switch to battery power.

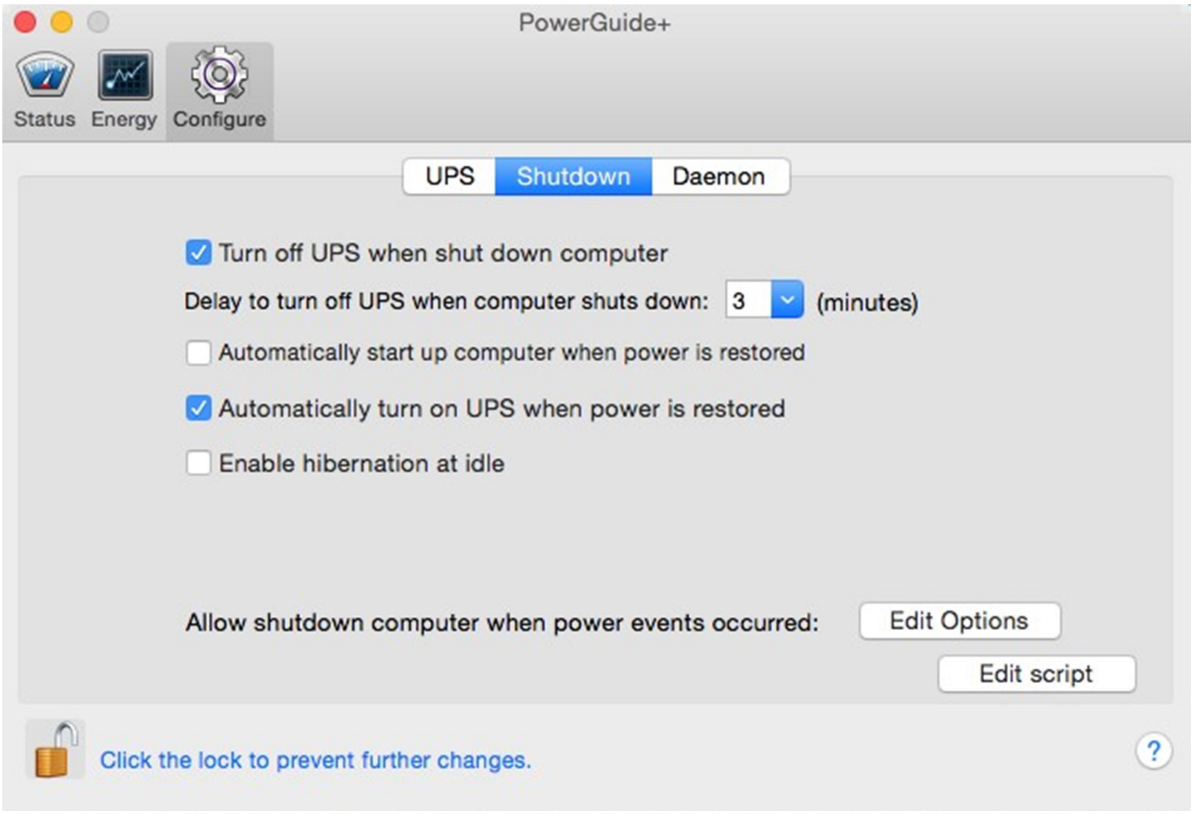
The Voltage Sensitivity can be set to High, Medium and Low modes. Medium sensitivity is the default. The power from a source such as a generator may cause the UPS to switch to battery mode more frequently. Low sensitivity is recommended in these situations in order to save battery power. High sensitivity is recommended for equipment requiring high-quality power but may result in frequent discharging of the battery.

- Configuring the voltage sensitivity

  Select sensitivity level in the Voltage Sensitivity column.

NOTE: Voltage Sensitivity adjustments are only available on certain UPS models.

2.4.2. Shutdown



Configure-Shutdown Screen

Users can decide whether to shutdown the UPS after the computer shuts down in order to turn off other connected equipment. The delay time must be longer than what it takes for the computer to shutdown to prevent the UPS from turning off before a graceful shutdown is completed

- Turn off UPS when computer shuts down
    1. Select the Turn off UPS when computer shuts down.
    2. Choose the delay time to shut down the UPS after the computer shutdown is finished.

NOTE: Avoid booting the computer during the UPS shutdown to prevent damaging the system files.

After the computer was shut down due to a utility power failure, the UPS can automatically start up and wake up the computer when utility power is restored.

- Wake up computer when power is restored
    1. Select Automatically turn on UPS when power is restored.
    2. Select Automatically start up computer when power is restored.

NOTE: If users want the UPS to turn on but not the computer, do not select Automatically start up computer when power is restored.

NOTE: Clicking Energy Saver will open the Energy Saver utility to allow users to change system preferences.

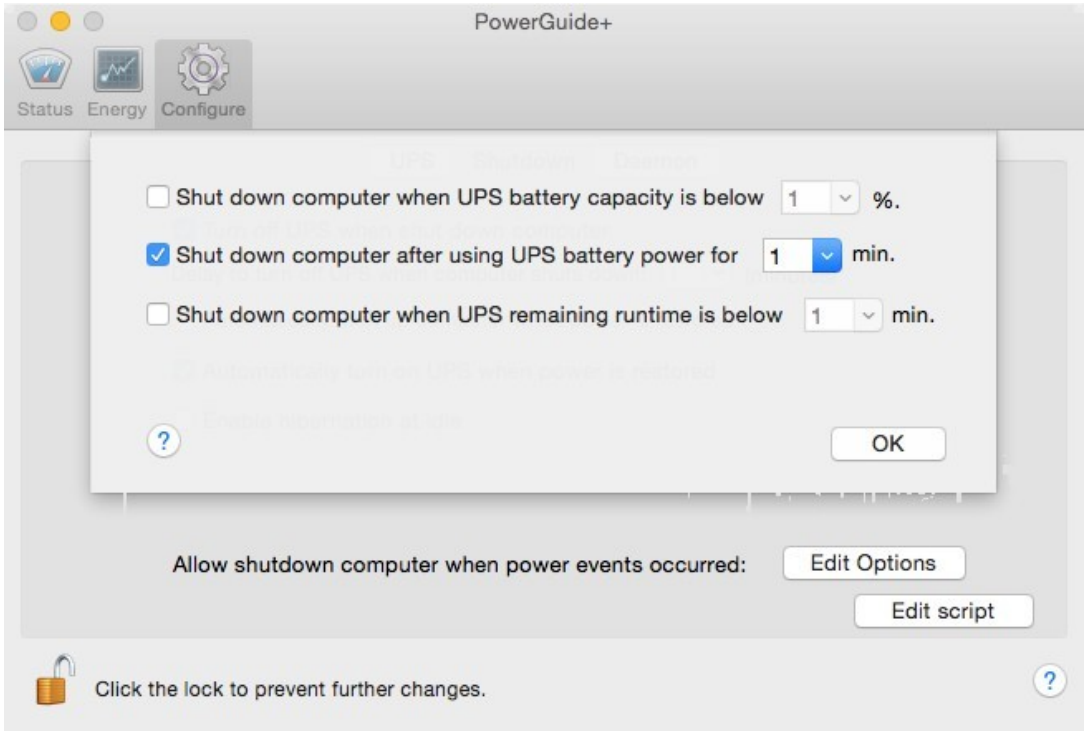
By default, the computer will be put into sleep when the computer idles. It is recommended to use hibernation instead of sleep because power failure can cause unsaved data loss if the computer is in sleep mode. Using hibernation, users' computer will save all open files and running programs to the hard drive. When users wake the computer from hibernation, all open files and running programs should be restored.

- Using hibernation

  Select the Enable hibernation at idle.

Edit Options

There are three options for controlling computer shutdown when UPS power events occurred. Users can decide when to shutdown the computer according to power event options.



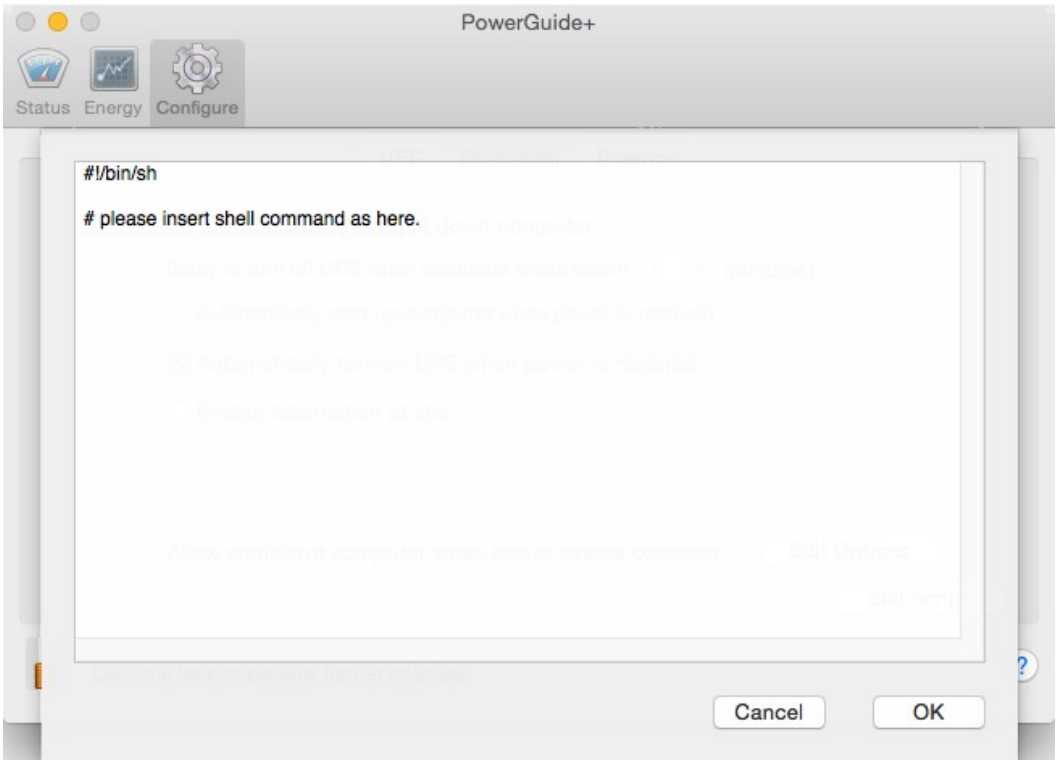
Edit Options Sheet

- Shut down computer when UPS battery capacity is below a threshold
  1. Select the Shut down computer when UPS battery capacity is below.
  2. Choose a threshold of battery capacity for computer shutdown.
- Shut down computer after using UPS battery power for a specific period of time
  1. Select the Shut down computer after using UPS battery power for.
  2. Choose a time of using battery power for computer shutdown.
- Shut down computer when UPS remaining runtime is below a threshold
  1. Select the Shut down computer when UPS remaining runtime is below.
  2. Choose a threshold of remaining runtime for computer shutdown.

NOTE:This feature is only supported on MacBook series models.

Edit Scripts

This option allows users to create a shell script to execute commands prior to a complete computer shutdown during a power failure.



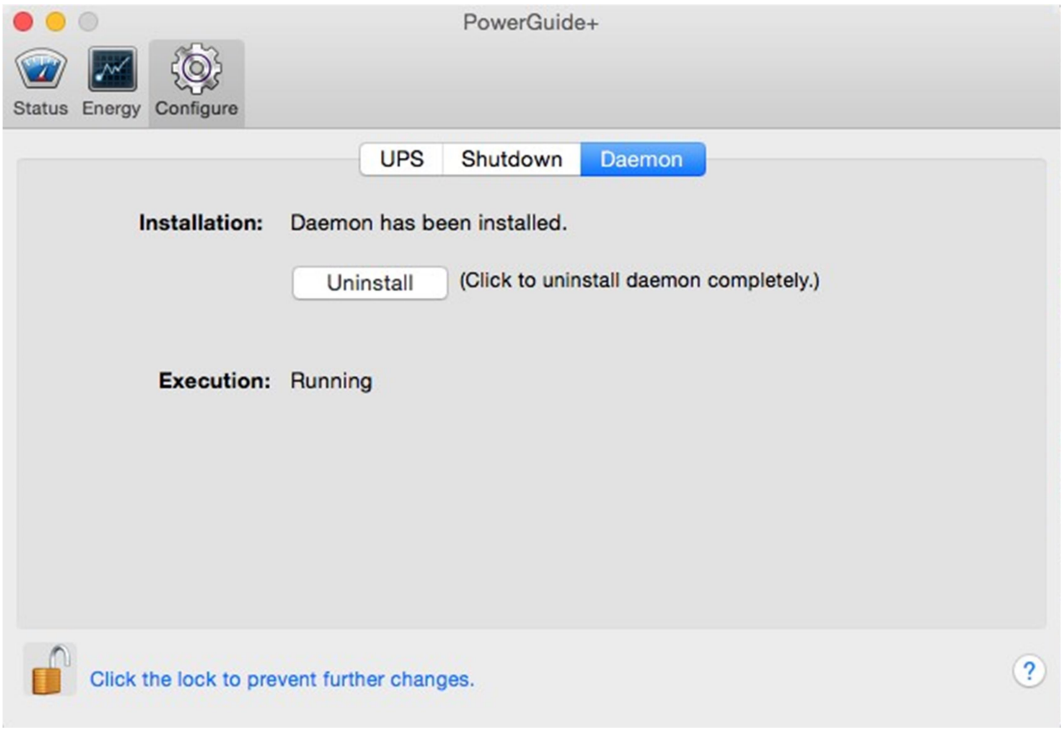
Edit Script Sheet

- Editing scripts
    1. Click the Edit script to open text editor.
    2. Edit the script content.
    3. Click OK to finish.

NOTE: 40kb is the maximum file size for a script used with PowerGuide+.

NOTE: The shell script will run as root account.

2.4.3. Daemon



Daemon Screen

It is recommended to install the daemon the first time that the PowerGuide+ application is launched. The daemon can monitor the UPS and will provide advanced features such as energy consumed and shutdown options.

Installation

- Select to Install, Uninstall or Upgrade the daemon

NOTE: The daemon may need to be upgraded if PowerGuide+ application detects an older version. Some features may not be available if the daemon is out of date.

NOTE: If PowerGuide+ application is not up to date, it may not function properly. Please update the PowerGuide+ application directly by uninstalling then downloading and installing the latest version.

Execution

- Shows the daemon status such as Running, Not Running, Not Installed and Communication Lost.

3. Technical Support

3.1. Troubleshooting

I have installed PowerGuide+ on my computer, but it cannot establish communication with the UPS.

Perform the procedures below to solve the problem:

- Make sure the UPS is powered on.
- Make sure there is no other application using the UPS' USB port or serial port.
- Make sure the serial or USB cable is securely and properly connected to the UPS and computer.

The Self-Test failed.

1. Replace the battery if the battery test fails.
2. Contact manufacturer for assistance if the battery test fails after the battery is replaced.

The PowerGuide+ installation failed.

If the installation file was downloaded from website, it may have become corrupt during the download. Please download the file again.

The installation may have failed due to a previous installation. Make sure there is no previous installation or a previous version installed on your computer.

3.2. FAQ

How do I uninstall PowerGuide+?

Go to Application**>**PowerGuide+. Click the Move to Trash button on PowerGuide+ to uninstall the program.

How do I verify that my computer will be gracefully shutdown in the event of power outage?

Follow the steps below to test the graceful shutdown function:

1. Go to Configuration>Shutdown > Edit Option.
2. Select the Shut down computer after using UPS battery power for option and specify the delay time.
3. Unplug the UPS so it switches to battery mode and wait for the delay time to run out.
4. Click OK on the pop-up dialog to allow PowerGuide+ to shut down your computer.
5. Your computer will be shut down by PowerGuide+. This verifies that PowerGuide+ can successfully shutdown the computer in the event of a power outage.

Why does the shutdown occur earlier than the configured time?

The load is too high. High loads on a UPS will deplete capacity quickly and the remaining runtime will also decrease fast.

1. Reduce the load on the UPS to increase the runtime.
2. Check the battery capacity. Make sure the battery is fully charged.

4. Glossary

- AC Utility Power: The power supplied through a standard wall outlet. Alternating Current (AC) is the common form of electricity.
- Automatic Voltage Regulation (AVR): Provides clean, consistent AC power by automatically regulating under and over voltages, within defined tolerances, when incoming utility power has minor fluctuations.
- Boost: The AVR function of a UPS which increases voltage when the utility power approaches the low voltage threshold.
- Buck: The AVR function of a UPS which reduces voltage when the utility power approaches the high voltage threshold.
- Capacity: The current battery charge expressed as a percentage of a full charge.
- Hibernation: A state in which a computer will save data to the hard disk and turn off the monitor and hard disk. When the computer wakes from hibernation, all open files and running programs are restored from the hard disk.
- Lost communication/Loss of communication: A condition that occurs when a serial or USB cable is not connected securely. PowerGuide+ cannot monitor and configure the UPS until communication is established.
- Power failure/Power lost: An interruption in AC utility power such as a blackout.
- Voltage Sensitivity: A function that allows users to select the sensitivity mode according to the power quality and the equipment.