User Guide

PowerChute™ Serial Shutdown v1.6 Agent

For Back-UPS

TME10991E-001

Publication Date: June 2026

Schneider Electric

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Table of Contents

Introduction 1

Supported UPS Types 1

Related Documents 1

How to Log On 2

Account Lock-Out 2

Changing Language 2

UPS Device Model 3

UPS Status 3

System Status 3

Power Status 4

Battery Status 4

Battery Management 4

Replacement Battery 5

Diagnostics 5

UPS Settings 6

Power Settings 6

General Settings 7

Alarm Settings 7

. 7

PowerChute 8

Event Configuration 8

Description of events 8

Command file durations and shutdowns 12

E-Mail Settings 14

Adding and removing e-mail recipients 15

Authenticating e-mail 15

Shutdown 16
Initial Setup 16
Shutdown Settings 16
Power Outage Configuration 16
Power Outage Configuration and Shutdown on Event Configuration 17
Interactivity in shutdown durations 17
Logging 19
Event Log 19
Energy Usage Log 19
Reading the Log File 19
Calculating Energy Usage 20
Data Log 20
Log Settings 20
Log files taking up disk space 21
Energy Management 22
Energy Reporting 22
Energy report time span 22
Energy usage reported by the UPS 22
Energy Settings 22
Energy calculation 23
About 24
General 25
PowerChute Configuration File 25
Resetting your Username and Password 25
Java Update 26
Replace Default PowerChute SSL Certificate 26
Third Party Licenses 26

Preferences 27

Customer Experience Improvement Program (CEIP) 27

PowerChute Updates 27

Troubleshooting 28

PowerChute Files ZIP Archive 28

Introduction

PowerChute™ Serial Shutdown (PowerChute) provides UPS management, system shutdown, and energy management for devices connected to the UPS, via UPS interface.

In the case of a UPS critical event, the software performs a graceful system shutdown of connected devices before the UPS battery is exhausted.

Following installation, configure the software using the PowerChute initial setup wizard. This ensures that PowerChute is configured to monitor and manage your system for power events.

This document describes the options available in the PowerChute Serial Shutdown Agent user interface for a **Back-UPS**.

Supported UPS Types

- The UPS model is found on the printed label at the rear of your UPS:
  - Back-UPS

    All Back-UPS models are supported except models with the BP, BF, BG, and BC prefixes.



Visit Knowledge Base article **FA315835** to find out more about UPS model types.

Related Documents

This document describes the PowerChute Agent web user interface:

- For information on installing PowerChute Serial Shutdown, see the **PowerChute Serial Shutdown Installation Guide**.
- For security-related information, see the **PowerChute Serial Shutdown Security Handbook**.
- For up-to-date information on the operating systems, JRE, service packs, and processors with which PowerChute Serial Shutdown is compatible, see the latest revision of **PowerChute Serial Shutdown Operating System and Processor Compatibility Chart.**

How to Log On

You can access the user interface of the PowerChute Serial Shutdown Agent in two ways, locally and remotely.

To access the PowerChute Serial Shutdown Agent on a **local** Windows computer, select the Windows **start** button, then select **PowerChute Serial Shutdown > PowerChute Serial Shutdown**.

To access the PowerChute Agent **remotely**, in a Web browser type the servername or Agent IP address and port:

```
https://servername:6547
```

```
https://agentipaddress:6547
```

For example, if your server is named COMP1, enter:

```
https://COMP1:6547
```

If you have forgotten the username or password created during installation, you can reset the credentials by using the PowerChute configuration file. See **Resetting your Username and Password**.

Account Lock-Out

PowerChute will automatically “lock out” for 2 minutes after three unsuccessful login attempts (incorrect username and/or password) to prevent brute force password cracking.

Changing Language

The PowerChute Agent User Interface (UI) is available in 7 languages: English, Chinese, French, German, Italian, Brazilian Portuguese, and Spanish. To change the UI display language, click on the language selector in the top-right corner of the UI, and select a language from the drop-down list.

UPS Device Model

The model name of your UPS displays at the top level of these menu options, e.g. **Back-UPS NS 650M1**. All of the menu options relate to your UPS.

UPS Status

The UPS Status screen has three sections — **System Status**, **Power Status**, **and Battery Status**.

Each of the sections is collapsible and expandable by clicking the – and + icon to the left of the section name.

System Status

The **Device Status** field under **System Status** indicates the present operating status of the UPS and displays one of the following states listed in the table below. **NOTE:** Possible states depend on the UPS model.

Possible Device Status	Description
On Line	The UPS is running normally on AC utility power.
Initializing	The UPS is attempting to establish communications with the UPS.
On Battery	The UPS is using its battery to provide output power to the load.
Low Battery	The UPS is on battery, and the “Runtime Remaining” reported by the UPS is less than the **At runtime limit** value on the **Shutdown Settings** screen. By default, a **Low Battery** shutdown begins.
Battery Discharged	The UPS is on line, and the “Runtime Remaining” reported by the UPS is less than the **At runtime limit** value on the **Shutdown Settings** screen. If you get a power outage when your battery is discharged, PowerChute immediately begins the process of gracefully shutting down your system. **NOTE:** It is possible to see this status when the “Battery Charge” under Battery Status on this screen is displaying as 100%. This can happen when the “Runtime Remaining” value falls below the **At runtime limit** value set on **Shutdown Settings**.
Replace Battery	The UPS battery has reached the end of its life. See **Battery Management** for more information.
No Batteries Attached	Your UPS cannot detect any batteries.
Overloaded	The UPS cannot support the current load. Unplug some equipment to reduce the load. If the UPS still indicates an overload, see the support services at **www.se.com/support**.
AVR Boost Active	The UPS is using AVR Boost (Automatic Voltage Regulator) to correct a low input voltage without switching to battery power.
AVR Trim Active	The UPS is using AVR Trim to correct a high input voltage without switching to battery power.
Performing Self Test	The UPS is performing a self test, see **Diagnostics**.

Possible Device Status	Description
Unknown	The status of the UPS is unknown.
UPS Communication Lost	The PowerChute Agent has lost communications with the UPS. Make sure that the UPS cable is securely connected at both ends.
UPS Off	Your UPS is turned off.

System Status also reports the following:

Field	Description
UPS Load	In watts, the power supplied by the UPS as a percentage of its full rating.
Runtime Remaining	The amount of time the UPS — while on battery — could support the present load. The value is shown in minutes.

Power Status

Power Status reports on the power voltage of your UPS.

Battery Status

Battery Status reports the following:

Field	Description
Battery Charge	The present charge of the UPS battery, as a percentage of the total possible capacity.
Battery Voltage	The present voltage of the UPS battery.

Battery Management

Use this screen to view the present status of your UPS batteries. The screen also lists information on your battery packs.

Some fields described in this section do not display for every UPS and configuration.

Field	Description
Battery Status	The possible values here are **Normal**, **Replace Battery**, and **No Batteries Attached**.
Battery Charge	The present charge of the UPS battery, as a percentage of the total possible capacity.
Battery Voltage	The present voltage of your UPS battery (as distinct from AC utility power) in volts DC.
Runtime Remaining	The amount of time the UPS battery could support its load.

Replacement Battery

Field	Description
Battery Installation Date	This displays the date that your UPS battery was installed. For some UPS devices, this information is derived from the UPS itself. For other devices you can input an installation month and year.
Replacement Battery	This part number is essential for re-ordering. Click on the **Re-Order Battery** link to go to a web page where you can buy a new battery for your UPS online. If a part number is not shown for your UPS device, the **Re-Order Battery** link will take you to a web page where you can enter your UPS model number to find the correct replacement battery for your device.

Diagnostics

The Diagnostic screen displays the last diagnostic results, and enables you to initiate tests.

There are two types of diagnostics:

- A **self test** performs internal UPS diagnostics
  NOTE: If the UPS is On Battery, a self test cannot be performed. Restore power to the UPS to run a self test.
- An **alarm test** of your UPS.

You can initiate an immediate self test or a UPS alarm test by selecting an option in the drop-down box under the **Initiate Diagnostics** section and clicking on Apply.

The UPS reports the following values for status:

Test Status	Description
In Progress	The diagnostic test is ongoing.
Passed	The self test passed. This is not relevant for the alarm test.
Failed	Your self test or alarm test did not succeed.
Refused	Your UPS refused the diagnostic test.
Aborted	Your self test or alarm test could not run to completion because something stopped it, for example, a power outage, or it was canceled by a user.
Unknown	The status of your diagnostic test is unknown. This could be caused by a communication issue.

UPS Settings

Use this screen to configure UPS values and thresholds, for example, output voltage.

The options explained below do not display for all UPS devices. Only supported options will be displayed for your UPS model.

Power Settings

Field	Description
High Transfer Voltage	On UPS devices that do NOT support bypass, this is the *highest* voltage the UPS will supply to the connected load. **NOTE:** On UPS devices that support AVR Trim, it will be reported when the Input Voltage is higher than this value.
Low Transfer Voltage	On UPS devices that do NOT support bypass, this is the *lowest* voltage the UPS will supply to the connected load. **NOTE:** On UPS devices that support AVR Boost, it will be reported when the Input Voltage is lower than this value.
Sensitivity	The sensitivity of the UPS to distortions in the line voltage.

General Settings

The options explained below do not display for all UPS devices. Only supported options will be displayed for your UPS model.

Field	Description
Sensitivity	The sensitivity of the UPS to distortions in the line voltage.
UPS Output Load Threshold	Each UPS has a maximum rating, for example, 1500 VA. Use this field to set the preferred highest percentage of this rating used by the load. For example if this threshold is set to 70(%), when the load consumes more then 1050 VA (70% of 1500), the **Output Load Threshold Exceeded** event is generated.

Alarm Settings

Field	Description
Audible Alarm	With this field, you can enable or disable the UPS audible alarm that sounds in response to power problems. On the top right of your screen, one of the following three alarm icons displays:  The alarm is enabled.  The alarm is disabled.  Your system has lost communications with your UPS.
Disable Alarm Each Day	Disable the UPS audible alarm for the time range specified. The UPS alarm will not sound in response to power events during this time.
Disable Alarm when PC is off or hiberating	Select the check box to disable the UPS audible alarm when the connected computer is off or in hibernation mode.

SmartConnect

For more information about connecting your Back-UPS device to EcoStruxure™ IT SmartConnect, visit the **PowerChute Serial Shutdown Help Center on Schneider Electric Community.**

Event Configuration

The **Event Configuration** screen lists the events that can occur and separates them into three categories - critical (severe), warning, and informational. You cannot change an event's category.

By default, the Informational events are hidden, click the **+** icon beside **Informational** to display them. You can also click the **-** sign to hide any of the three categories.

You can configure events to cause certain actions, named in separate columns:

- **Logging**: Records the event in the Event Log when the checkbox is selected.

You can disable all logging, see **Log Settings**.

- **E-Mail**: Sends an e-mail message to users and administrators when an event occurs. The checkbox must be selected to enable this. E-mail must be configured in PowerChute, see **E-Mail Settings**.
- **Shutdown**: Initiates an operating system shutdown sequence in response to an event when the checkbox is selected. See **Shutdown**.

IMPORTANT: Changing the shutdown and command file options for events has a direct effect on the configuration you specify on the **Shutdown Settings** page. See **Power Outage Configuration and Shutdown on Event Configuration**.

- **Command File**: Runs a user-specified command file when an event occurs.

Command files are often used to shut down open applications in order to avoid loss of data. They have to be placed in this folder:

```
<Installation folder>\APC\PowerChute Serial Shutdown\agent\cmdfiles
```

which for example is, by default on Windows, this folder:

```
C:\Program Files\APC\PowerChute Serial Shutdown\agent\cmdfiles
```

Click on the Command File icon to enable it, and choose a file to run and a duration.

All command file types are supported.

IMPORTANT: PowerChute does not check the contents of a command file before executing it.

When you have enabled a command file for an event, the icon color changes from grey, , to green,  .

See also **Power Outage Configuration and Shutdown on Event Configuration**.

Some events cannot be configured to trigger certain actions and have no checkbox for that action. For example, most informational events cannot cause a shutdown so the checkbox is missing in the Shutdown column for those events.

Description of events

For descriptions of individual events, see:

- **Critical events**
- **Warning events**
- **Informational events**

The events that display depend on your UPS, some events described below might not display for your UPS.

Critical events

Critical (severe) events can cause the UPS to stop supplying power to its supported equipment. These events require your immediate attention.

Event Name	Description
Communication Lost While on Battery	A problem occurred causing PowerChute to lose communication with the UPS while the UPS was operating on battery power. Make sure that the proper communications cable is being used and that it is connected correctly.
Low Battery	A UPS *that is operating on battery power* has reached the low runtime threshold - the **Runtime Remaining** reported by the UPS is less than the **At runtime limit** value on the **Shutdown Settings** screen.

Warning events

Warning events alert you to situations that should be monitored

Event Name	Description
On Battery	The UPS has switched to battery operation due to a power outage or poor power quality.
Battery Discharged	An On Line UPS has reached the low runtime threshold. If a power outage occurs, a shutdown will begin immediately. The low runtime threshold indicates that the **Runtime Remaining** reported by the UPS is less than the **At runtime limit** value on the **Shutdown Settings** screen.
Overload	The UPS cannot support the current load. It is at 105% or more of its maximum capacity. (This percentage varies between UPS devices and can be as high as 110%). If the overload was not caused by adding new load equipment, do the following: 1. Run a UPS self test to see if the problem clears. 2. If the problem persists, disconnect all equipment from the UPS and reboot the UPS. 3. If the problem is cleared, reconnect and turn on the load equipment, one piece at a time, to determine which piece of equipment causes the overload. If the overload still exists, the UPS needs to be repaired or replaced. For further information, see the support services at **www.se.com/support**.
Self Test Failed	The UPS did not pass its last self test. It might have a bad battery. If the system is reporting an **Insufficient Runtime Available** or an **Overload** condition, clear the event and test the UPS again. If the self test fails again, see the support services at **www.se.com/support**.

Event Name	Description
Communication Lost	Communication between PowerChute and the UPS has been lost while the UPS was On Line. Make sure that the proper communications cable is being used and that it is connected correctly. See also **Communication Lost While on Battery**.
Time on Battery Threshold Exceeded	The UPS is on battery and has breached the user-configured threshold. Specifically, the time that the UPS has been on battery exceeds the **After UPS has been on battery for** value on the **Shutdown Settings** screen.
Output Load Threshold Exceeded	The UPS has exceeded the user-defined load threshold. See **UPS Output Load Threshold** on **UPS Settings**. This threshold event can be seen as a warning. The UPS itself determines when the UPS is actually overloaded and this generates another more serious event, see **Overload**.
Insufficient Runtime Available	The UPS is On Line and is below the low runtime threshold - the **Runtime Remaining** reported by the UPS is less than the total turn-off delays for the outlet group supplying power to the Agent. In a forced shutdown, the UPS might not have enough runtime available to perform a graceful shutdown.
Low Runtime Available	The UPS is on battery and is below the low runtime threshold - the **Runtime Remaining** reported by the UPS is less than the total turn-off delays for the outlet group supplying power to the Agent. In a forced shutdown, the UPS will NOT have enough runtime available to perform a graceful shutdown.
Battery Needs Replacing	One or more UPS batteries need to be replaced. See **Battery Management**.
AVR Boost Enabled	The UPS began using AVR Boost to correct a low voltage condition.
AVR Trim Enabled	The UPS began using AVR Trim to correct a high voltage condition.
Battery Disconnected	The battery in your UPS has been disconnected or removed. Reconnect the battery. If this does not clear the problem, see the support services at **www.se.com/support**.
Frequent Overvoltage	The UPS has been using its AVR Trim feature to decrease a high input voltage more than five times during the last 24 hours, or more than fifteen times during the last seven days. This may indicate that the quality of the input voltage provided to the UPS needs to be improved. This event will resolve when the input voltage returns to normal, or the input voltage becomes too high to be gracefully decreased (**On Battery** event). If the devices connected to the UPS can accept a less sensitive input power quality, configure the UPS to use the AVR Trim feature less frequently, by setting **High Transfer Voltage** to its highest setting, and the **Sensitivity** to **Low.**

Event Name	Description
Frequent Undervoltage	The UPS has been using its AVR Boost feature to increase a low input voltage more than five times during the last 24 hours, or more than fifteen times during the last seven days. This may indicate that the quality of the input voltage provided to the UPS needs to be improved. This event will resolve when the input voltage returns to normal, or the input voltage becomes too low to be gracefully increased (**On Battery** event). If the devices connected to the UPS can accept a less sensitive input power quality, configure the UPS to use the AVR Boost feature less frequently, by setting the **Low Transfer Voltage** to its lowest setting, and the **Sensitivity** to **Low**.
Extended Overvoltage	The UPS has been using its AVR Trim feature to decrease a high input voltage continuously for at least one hour. This may indicate that the quality of the input voltage provided to the UPS needs to be improved. This event will resolve when the input voltage returns to normal, or the input voltage becomes too high to be gracefully decreased (**On Battery** event). If the devices connected to the UPS can accept a less sensitive input power quality, configure the UPS to use the AVR Trim feature less frequently, by setting the **High Transfer Voltage** to its highest setting, and the **Sensitivity** to **Low**. Contact **Schneider Electric Support** for information on how to improve the quality of UPS input power.
Extended Undervoltage	The UPS has been using its AVR Boost feature to increase a low input voltage continuously for at least one hour. This may indicate that the quality of the input voltage provided to the UPS needs to be improved. This event will resolve when the input voltage returns to normal, or the input voltage becomes too low to be gracefully increased (**On Battery** event). If the devices connected to the UPS can accept a less sensitive input power quality, configure the UPS to use the AVR Boost feature less frequently, by setting the **Low Transfer Voltage** to its lowest setting, and the **Sensitivity** to **Low**. Contact **Schneider Electric Support** for information on how to improve the quality of UPS input power.
Invalid Configuration File	The contents of the `pcssconfig.ini` file are invalid. Open the `pcssconfig.ini` file using a text editor (e.g. Notepad) to view and resolve the errors.
Invalid User Login	A user has unsuccessfully attempted to log in to the PowerChute user interface. **NOTE:** PowerChute will automatically “lock out” for 2 minutes after three unsuccessful login attempts (incorrect username and/or password) to prevent brute force password cracking.

Informational events

Informational events report data about the operation of the UPS device.

Event Name	Description
No Longer On Battery	AC utility power has been restored; the UPS is no longer running on battery power. This event follows **On Battery**.
Overload Solved	The overload condition has been corrected. See **Overload**.
Output Load in Range	The UPS load out-of-range condition has been corrected. See **Output Load Threshold Exceeded**.
Shutdown Starting **Shutdown in Progress**	Various stages of the shutdown procedure.
Communication Established	PowerChute has established communication with the UPS.
Monitoring Started **Monitoring Stopped**	PowerChute has started or stopped monitoring the UPS.
Sufficient Runtime Available	This event follows **Insufficient Runtime Available**. Your UPS now has enough runtime available to perform a graceful shutdown.
Self Test Initiated **Self Test Passed**	The UPS has started or passed its internal diagnostic self test. See **Diagnostics** for details of the date and status of the self test.
AVR Boost No Longer Active	The UPS no longer needs to use AVR Boost to correct a low voltage condition. This event follows **AVR Boost Enabled**.
AVR Trim No Longer Active	The UPS no longer needs to use AVR Trim to correct a high voltage condition. This event follows **AVR Trim Enabled**.
Battery Reconnected	The battery in your UPS had previously been disconnected and is now reconnected.
Battery Replaced	Various states relating to the battery.
Configuration File Changed	The `pcssconfig.ini` file has been edited directly.
User Logged On	A user has successfully logged into the PowerChute user interface.
User Logged Off	A user has successfully logged out of the PowerChute user interface or the PowerChute session has expired. By default, the PowerChute session times out after 15 minutes of inactivity and users will be automatically logged out of the PowerChute UI.

Command file durations and shutdowns

The longest command file duration configured for any event that has shutdown enabled will be used in the shutdown sequence.

For example, the Battery Discharged and On Battery events are both configured to shutdown. If you configure the command file associated with the Battery Discharged event to have a duration of 3 minutes, and the On Battery command file duration to 4 minutes, **Operating System Shutdown** will not start for 4 minutes



You can view how command file durations will impact the shutdown sequence on the **Shutdown Settings** screen. Expand the **Shutdown Summary** and select **When a Power Outage Occurs**. The time delay between the Command File Execution starting and the Operating System Shutdown starting will be the longest command file duration for any event that has shutdown enabled.

E-Mail Settings

The **E-Mail Settings** screen lists the e-mail addresses of users configured to be notified when an event occurs. In order to receive e-mail notifications when an event occurs, the e-mail address must be set up here. See **Event Configuration** for information on configuring an event to send an e-mail when it occurs.

The following five fields must be defined to enable PowerChute to send e-mail messages when events occur. (This includes messages to pagers that accept e-mail).

- **SMTP Server (Hostname, IPv4, or IPv6)** identifies the SMTP server by one of the three methods mentioned: its name, its IPv4 address, or its IPv6 address. An example hostname is mail.server.com.
- **From E-Mail Address** specifies the e-mail that the recipient gets the mail from. It is the e-mail account to be used to send notifications.
- **Port** specifies the port number from which e-mail is sent via SMTP. Port numbers can have a maximum of five digits and can be set to 25, 465, 587, or any number ranging from 5000 to 32768. If you do not enter a port number, the default of 25 is used.
- **Use SSL/TLS** defines the e-mail encryption protocol that will be used when e-mail is sent. There are three options available:
  - **None selected** – if authentication is disabled, no e-mail encryption protocol will be used and e-mail will be sent unencrypted. If authentication is enabled, e-mail will be encrypted using the SMTPS protocol.
  - **SSL** – e-mail will be encrypted using the SSL encryption protocol. You must select port 465 or the port your email administrator has assigned for SSL communications.
  - **TLS** – e-mail will be encrypted using the TLS encryption protocol. You must select port 587 or the port your email administrator has assigned for TLS communications.

The **Enable Server Identity Check** checkbox, if selected, verifies that the provided SMTP Server has a valid certificate to ensure you are connected to the correct server. This setting reduces the risk of man-in-the-middle attacks and should be selected if SSL/TLS is selected.

Click the **Test** button to send a test e-mail to all configured recipients. This button is only enabled when valid e-mail settings and e-mail recipients are provided. If you do not receive a test e-mail, check the pcss.log file for errors. Common reasons for the test e-mail not being received are incorrect credentials, server identity mismatch, proxy issues, the SMTP server is unreachable, or the chosen protocol is not supported.



If you are using SSL/TLS and your SMTP Server uses a self-signed certificate, the certificate must be added to the trusted certificate store of the bundled Java JRE.

On Windows:

1. Stop the PowerChute service via the services console – PowerChute Serial Shutdown – or using the command `net stop APCPBEAgent`
2. Copy `server.crt` (or `server.cer`) to the security directory in the installed PowerChute directory (e.g. `C:\Program Files\APC\PowerChute Serial Shutdown\jre\lib\security`).
3. Open a command prompt with Administrator privileges and navigate to this security directory.
4. Execute the following command to import the email certificate into the JRE trusted certificate store:

   ```
   ..\..\bin\keytool -import -alias mailserv -file server.crt -keystore cacerts -storepass changeit
   ```

5. Accept the certificate when prompted.
6. Start the PowerChute service via the services console – PowerChute Serial Shutdown – or using the command `net start APCPBEAgent`

For more information, see **Replace Default PowerChute SSL Certificate**.

See also: **Authenticating e-mail**.

Adding and removing e-mail recipients

To add an e-mail, under the **Add/Remove E-Mail Recipients** section, type an e-mail address and click the Apply button.

To remove an e-mail, select the checkbox to the right of the address, and click Apply.

Filling in the **Contact Name** and **System Location** under **Contact Information** is optional. If present, the information is included in e-mails. The name is intended to represent the person responsible for the maintenance of the UPS. The location is the physical location of the server hosting the PowerChute Agent.

See also: **Authenticating e-mail**



We advise testing your e-mail settings after configuration. You can do this by selecting an E-Mail checkbox for an event with **Event Configuration**, and then create that event.

Authenticating e-mail

Authenticating e-mail is optional. You can enable it by selecting the **Basic E-Mail for Authentication** checkbox. Contact your e-mail administrator if you're not sure about authentication.

If you are going to use authentication, you can specify a server username and password in the respective fields, but you do not have to do so. If you don't specify a server username and password, PowerChute uses the **SMTP Server (Hostname, IPv4, or IPv6)** to obtain a list of IP Addresses that are allowed to send authenticated e-mails.

Shutdown

In PowerChute Serial Shutdown, shutdowns can be initiated:

- Through an event occurring, see **Event Configuration**.

Initial Setup

This option guides you through a series of screens that enable you to complete your shutdown configuration.

The configuration screens are listed below in their display order. You can also access these screens individually at any time.

- **Preferences**
- **Shutdown Settings**

Shutdown Settings

This screen summarizes your shutdown configuration and also enables you to configure some steps of the shutdown sequence.



The summary includes timing and delays, with the “base time” being the occurrence of the On Battery event. The options chosen on this screen can affect the configuration of events, set up in **Event Configuration**. This can include which events are selected to cause a shutdown. Read the other sections below for further information.

See also:

- **Power Outage Configuration**
- **Power Outage Configuration and Shutdown on Event Configuration**
- **Interactivity in shutdown durations**

Power Outage Configuration

The **Power Outage Configuration** options define the response when a power problem causes the UPS to switch to battery operation.

- **Immediately** initiates a shutdown as soon as a **On Battery** event indicates that the UPS switched to battery power.
- **After UPS has been on battery for** initiates a shutdown when the UPS has been operating on battery power for the period of time configured here.
- **At runtime limit** configures the **Low Battery** event to shut down; this is viewable on the **Event Configuration** screen.
  The Low Battery event is generated when the UPS is on battery and the battery runtime falls below the number of seconds you set here.
  The Battery Discharged event is generated when the UPS is on line and the battery runtime falls below the number of seconds you set here.
- **Do not shut down during a power outage** relies on the **Low Runtime Warning** event to cause a shutdown.

The Low Runtime Warning event is generated when battery runtime falls below the combined time configured for Application and Operating System shutdown: see the **Operating System and Application Shutdown** section of this screen.

NOTE: This Low Runtime Warning event does not display on the **Event Configuration** screen as it is not configurable (because it *always* causes a shutdown).

When you select different radio button options here, the displayed summary information on this screen (under the **Shutdown Summary** heading) changes.

Power Outage Configuration and Shutdown on Event Configuration

Choosing one of the four **Power Outage Configuration** options on Shutdown Settings (discussed above) works interactively with the Event Configuration **Shutdown** checkboxes for different events.

You can see this by selecting a radio button option here, pressing Apply, and going to the **Event Configuration** screen to note the differences.

This is also true in reverse: changing a **Shutdown** checkbox for an event in Event Configuration can change which radio button option is selected here on Shutdown Settings.

If the check box is selected, a warning appears on the screen to inform you of this.

This table summarizes the interaction:

With this On Battery option selected:	...the Shutdown checkbox of these events is selected		
	Low Battery	On Battery	Time on Battery Threshold Exceeded
Immediately	No	**Yes**	No
After UPS has been on battery for	No	No	**Yes**
At runtime limit	**Yes**	No	No
Do not shut down in the event of a power outage	No	No	No

* The **Low Runtime Remaining** event is always configured to shutdown for these **Power Outage Configuration** options. This event is only displayed in the **Event Log**, and is not configurable on the **Event Configuration** page.

For example, if you choose **Immediately** here and apply it, you will see in the **On Battery** row of **Event Configuration** that the **Shutdown** checkbox has been selected automatically.

And if you then clear the **Shutdown** checkbox for the **On Battery** event of Event Configuration, apply it, and return here to **Shutdown Settings**, the **Immediate** option will NOT be the selected option.

Interactivity in shutdown durations

Upon installation, the value for time for operating system to shut down is set to a value specific to your UPS model, usually 60 or 120 seconds.

Another field on this **Shutdown Settings** screen, **Time required for command file to run** under Operating System and Application Shutdown, interacts with the **Command File Execution Duration** field for the **Shutdown Starting** event on **Event Configuration**. When they are changed, these fields automatically update each other.



Shutdown Starting command file duration (Event Configuration)

Time required for command file to run

(Note that the **Time required for command file to run** field only displays on **Shutdown Settings** when you have chosen a command file).

Logging

Event Log

A PowerChute event can be critical, warning, or informational. An example of a critical event is a low battery, and a warning event could be when power to the UPS has been interrupted. Informational events are everyday occurrences such as the monitoring of your system has started, or a self test has passed.

The **View Event Log** screen lists and classifies the recent UPS events and the date and time each event occurred. The list starts with the most recent events. See **Event Configuration** for descriptions of events.

To export the log to a text file, `EventLog.txt`, click the **Export** button. View this file in `C:\Program Files\APC\PowerChute Serial Shutdown\agent` (or wherever it is installed).

To delete the contents of the event log, click the **Clear Log** button at the bottom of the screen.

Click **Refresh** to view events that might have occurred after you first displayed this screen.

Energy Usage Log

PowerChute stores the connected UPS device's energy usage in a log file, located in the `C:\Program Files\APC\PowerChute Serial Shutdown\agent\energylog` directory (or wherever it is installed).

The energy usage logs have the following structure:

`2010timestamp;realLoad(watts);relativeLoad(percentage);calculatedLoad(watts)`

For example: `368633153;200.0;200.0;200.0`

Reading the Log File

Timestamp: To interpret the timestamp:

1. Calculate the difference between the UNIX timestamp starting point (01/01/1970) and the `2010timestamp` value from the log (01/01/2010), which is 1262304000.
2. Add the timestamp value from the log file (for example `368633153`) to 1262304000, which equals 1,630,937,153.
3. Using a third-party tool such as **Epoch Converter**, enter the value calculated in step 2 into the text box and click **Timestamp to Human date**. The output will reveal the timestamp:

   Converting 1630937153:

   Assuming that this timestamp is in seconds:

   GMT: Monday, September 6, 2021 2:05:53 PM

   Your time zone: Monday, September 6, 2021 3:05:53 PM GMT+01:00 DST

   Relative: 2 days ago

Load Entries: Each entry in the log file captures the UPS device's energy usage in Watts over a 5-minute period. If the `realLoad` column has a value other than null, it will be used. If the `realLoad` value is null, the `calculatedLoad` is used instead. If both values are null, the line is skipped. For example: `368633153;200.0;200.0;200.0` equals 200.0 Watts.

Calculating Energy Usage

To convert the load value in Watts used in 5 minutes into kilowatt hours (kWh), divide the load value by 12,000. For example: 200.0 Watts used in 5 minutes equals 0.01666667 kWh. This 12,000 value is calculated using the following formula:

1. Multiply the load value by 300,000 to convert the interval from 5 minutes into milliseconds (5 x 60 x 1000).
2. Divide the value by 3,600,000,000 to convert the interval into seconds, then hours, and then from Watts to Kilowatts (3600 x 1000 x 1000).

Data Log

The View Data Log screen logs are sorted by date, then time, with the most recent data appearing at the top of each screen. This table gives a brief description of the fields:

Field	Description
Input Line Voltage (VAC)	The AC voltage being provided to the UPS at the time that the entry is made in the data log.
Battery Voltage (VDC)	The voltage, in volts DC, on the UPS device's battery.
Battery Charge (%)	The percentage charge of the UPS battery capacity.
UPS Load (%)	The percentage of the possible UPS load that your equipment used during the recording interval.

Use the **Show / Hide Columns** button to hide any of the displayed columns, other than date and time which cannot be hidden.

Click the button to display the column checkboxes and clear any checkbox to hide that column. This feature affects the display only; all data is still recorded.

By clicking and dragging on a column heading, e.g. Output Frequency (Hz), you can move and re-arrange columns. To return to the original, default arrangement, click on the **Reset Columns** button.

To delete all records in the data log, click **Clear Log** at the bottom of the screen.

Click **Refresh** to view new data since you first displayed this screen.

Log Settings

Log Settings enables you to configure the recording parameters of both the Event and Data Logs. This includes disabling logging. If event logging is disabled, the options relating to logging in **Event Configuration** are also disabled.

The Event Log records individual event occurrences. The Data Log, by contrast, provides you with a snapshot of your system by recording values at regular time intervals.

Use **Event Log Entry Expiration** and **Data Log Entry Expiration** to choose a time interval for deleting log entries. For example, if you choose a month, then entries are deleted when they are a month old.

Log files taking up disk space

The log files can take a lot of disk space on your server. Be aware of this when you configure the options on this screen:

- With the **Expiration** fields (Event Log Entry Expiration), choosing *a long time interval* could mean that your log eventually takes up a lot of disk space.
- The **Data Recording Interval** field specifies how often the data is recorded to the Data Log. The *smaller the interval*, the more times the data is recorded and the larger the log file.
- If you choose **Do Not Delete Entries**, the files might get very large after a period of time.

Energy Management

Energy Management enables you to monitor the energy consumption of equipment attached to your UPS. This includes carbon dioxide consumption and your energy costs.

Energy Management accesses data on Schneider Electric servers by using the Internet.

Energy Reporting

The energy report gives you information on **Energy** consumed in kilowatts per hour and the **Cost** incurred in your local currency.

On installation, PowerChute references your operating system and determines your system locale. From the locale, PowerChute determines average prices and emissions for your country. (See **Energy Settings**).

CO2: The carbon dioxide that was emitted in generating this energy. This is measured over the chosen time period in kilograms or pounds.

Carbon dioxide is a greenhouse gas — it traps heat radiation that would otherwise escape from Earth — and is a primary cause of climate change.

Energy report time span

The energy report period is by default from the PowerChute Serial Shutdown installation date today.

You cannot enter a date prior to the PowerChute installation date in the **From** field. You cannot enter a date after today's date in the **To** field.

If you change the From date, this new date becomes the default, whereas the To date is always today's date.

(If you have performed a PowerChute upgrade, the **From** date is still the *original* installation date).

Energy usage reported by the UPS

For some UPS devices, cumulative energy from your UPS is displayed in the **Cumulative energy from your UPS** field at the bottom of the screen. This will always correspond to the kWh on the UPS LCD. It is the total energy usage of the UPS, so will also include any energy used prior to the PowerChute installation.

If you replace the UPS supporting your server with another UPS, the existing energy report values are not deleted.

Energy Settings

With this screen, you can change the country used in energy calculations, the cost of your energy, and your CO2 emissions calculation.

If you change your country here, ALL historical values, including CO2 emissions, are deleted. This is because energy costs vary between countries, so the historical costs would be very likely inaccurate.

The country selected is used to calculate average costs. However, if you know your energy costs from your electricity bill, then you can use the **Cost per < Kilowatt/Pounds>Hour** column to input a different value.

Click on the **plus symbol** at the foot of the **Energy Cost History** table to add another row.

Click on the **pen icon** to edit a row and the **bin icon** to delete a row.

If you delete a row, it will not be used in any future energy calculation.

Energy calculation

The costs and dates on display here combine to generate the report on **Energy Reporting**.

For example, suppose your screen by default displays 04/25/2017 with a cost of 0.1. You add a row with a date of 10/30/2017 and a cost of 0.15.

For the example, let’s say today’s date is January 3, 2018 (displayed as 01/03/2018).

In calculating the total cost, the Energy Reporting screen uses the 0.1 cost per hour for the dates 04/25 to 10/29 in 2017, and the 0.15 cost per hour for the period from 10/30/2017 to 01/03/2018.

About

The About dialog provides information about the UPS, and the system connected to the UPS.

UPS Information Parameters

Parameter	Description
UPS Model	The model name of the UPS, e.g. Back-UPS NS 650M1.
Firmware Revision	The revision of the UPS firmware. **NOTE:** This value does not display for all UPS devices.
Manufacture Date	The date that the UPS was manufactured.
Serial Number	The serial number of the UPS. This number is also printed on the label of the UPS.
Battery Installation Date	The date the UPS battery was installed.
UPS Name	The UPS name, as defined on the **UPS Settings**page.

Protected System Information

Parameter	Description
Server Name	The name of the server connected to the UPS on which the PowerChute Agent is running.
IP Address	The IP address(es) of the server connected to the UPS.
Operating System	The operating system running on the server connected to the UPS.
UPS Communication Port	The communication port on the server to which the PowerChute Agent is connected.
Contact Name	The contact name assigned to the server connected to the UPS.
System Location	The location of the server connected to the UPS.

Product Version

Parameter	Description
PowerChute Serial Shutdown Agent Version	The version number of the PowerChute Serial Shutdown Agent running on the server.
Java Version	The version number of Java running on the server. To update the Java version used with PowerChute, see **Java Update**.

General

PowerChute Configuration File

PowerChute stores some configuration settings in a file called `pcssconfig.ini`, located in the Agent directory in the installed PowerChute directory. If the default location was chosen during installation, the `pcssconfig.ini` file can be found at:

`C:\Program Files\APC\PowerChute Serial Shutdown\agent` for Windows systems

It is not recommended to edit the `pcssconfig.ini` file directly as this may lead to invalid configurations.

It is also not recommended to delete the `pcssconfig.ini` or `pcssconfig_backup.ini` files from the installation directory. Deleting these files will result in the PowerChute service not starting, and PowerChute must be uninstalled and re-installed.

After you have configured one installation of PowerChute, you can use the `pcssconfig.ini` file to apply the same configuration to another copy of PowerChute on a different machine.

To apply the settings on the target machine:

1. Stop the PowerChute service. For more information, see Knowledge Base article **FA360654.**
2. Replace the existing copy of `pcssconfig.ini` in the Agent directory.
3. Start the PowerChute service.

Resetting your Username and Password

If you have forgotten the username or password created during installation, you can reset the credentials by using the `pcssconfig.ini` file:

1. Open the `pcssconfig.ini` file with a text editor (e.g. Notepad) and add the following:

   ```
   [Credentials]
   username=
   password=
   ```

   Enter the new username and password directly after the equals sign.
   - The username must be between 6 and 128 characters in length.
   - The password requires:
     - Minimum 8 and maximum 128 characters in length
     - 1 upper and lower case letter
     - 1 number or special character
     - The username cannot be part of the password.

NOTE: The username and password cannot contain double-byte characters.

2. Save the `pcssconfig.ini` file.
3. Restart the APC PBE Agent service. See Knowledge Base article **FA360654.**
4. If the username and password meet the requirements, the `[Credentials]` section is deleted from the `pcssconfig.ini` file, and the new credentials are ready to use.
   – If the credentials entered in `pcssconfig.ini` do not meet the requirements, an error is written to the file. Check the file for the error, adjust the credentials accordingly, and restart the Agent service.
5. Log in to the PowerChute web interface with your new credentials.

Java Update

The Java Update feature enables you to change the Java Development Kit (JDK) used by PowerChute to any other JDK already installed on your system. Follow the steps below to update the Java version used by PowerChute:

1. Download a valid JDK on your system. JDKs can be downloaded from the **Adoptium OpenJDK website**.



PowerChute v1.6 ships with latest version of Adoptium OpenJDK release. You can only update the Java version used with PowerChute to a 64-bit JDK. The Java versions supported by PowerChute are available in the **OS Compatibility Chart**.

2. Navigate to the PowerChute installation directory, and create a new folder called “Updates”. If the default installation directory was chosen during installation, this location will be:
   – `C:\Program Files\APC\PowerChute Serial Shutdown\Updates` for Windows systems
3. Copy the Java file (tar.gz or zip) downloaded in Step 1 above to the Updates directory.
4. Navigate to the **About** dialog in the PowerChute UI. Under **Software Updates**, the downloaded Java file will be listed in a drop-down box in the **Java Update Available** field.
5. Select the Java version you want to update PowerChute to use from the drop-down box, and click **Update Java**.
6. An authentication dialog will appear asking for your PowerChute credentials if you are upgrading the Java version used for the first time. Enter your credentials and click **Sign In**. Upon successful authentication, the Java upgrade process begins.
7. PowerChute restarts automatically during the Java upgrade process. Wait 3-5 minutes for the Java version to successfully update.
8. When the PowerChute service restarts, refresh your browser and navigate to the **About** dialog. The **Java Version** field will be updated to show the new Java used by PowerChute.

Replace Default PowerChute SSL Certificate



For more information on how to replace the default PowerChute SSL certificate, see the **PowerChute Serial Shutdown Security Handbook**.

Third Party Licenses

Third party licenses used in PowerChute Serial Shutdown are available to view in the THIRDPARTYLICENSEREADME.txt file in the Agent directory. If the default location was chosen during installation, this text file can be found at:

- `C:\Program Files\APC\PowerChute Serial Shutdown\agent` for Windows systems

Preferences

Customer Experience Improvement Program (CEIP)

PowerChute's Customer Experience Improvement Program (CEIP) provides us with the information that enables us to improve our product and services, and helps us to advise you on how best to deploy and configure PowerChute.

As part of the CEIP, we will collect certain information about how you configure and use PowerChute Serial Shutdown in your environment. This information is completely anonymous, and cannot be used to personally identity any individual. For more information, please refer to the **CEIP Frequency Asked Questions**.

By default, you are participating in the PowerChute CEIP. If you prefer not to participate, unselect the **Join PowerChute Customer Experience Improvement Program ("CEIP")** checkbox in the PowerChute Customer Experience Improvement Program page. You can join or leave the CEIP at any time.

PowerChute Updates

PowerChute automatically checks for updates and informs you if a new version of the software is available to download. This update check sends anonymous PowerChute environment data to the Schneider Electric update server.

The **Enable PowerChute Updates** checkbox is selected by default. If you prefer to opt-out of checking for updates, unselect this checkbox.

Troubleshooting

PowerChute Files ZIP Archive

To help the PowerChute team resolve customer issues, the PowerChute files ZIP archive feature creates a ZIP archive of the necessary PowerChute configuration files for troubleshooting. This feature can be found in the **Troubleshooting** section in the **About** dialog. This ZIP archive will be saved in the Agent directory in the installed PowerChute directory. If the default location was chosen during installation, the `PcssFiles-<TimeStamp>.zip` file can be found at:

- `C:\Program Files\APC\PowerChute Serial Shutdown\agent` for Windows systems

The PowerChute configuration files exported to the ZIP archive are:

energylog directory	DataLog file
etc directory	EventLog.txt file
EventLog_Eng.txt	cmdfile.log file
log directory	pcssconfig.ini file
comps.m11 file	PCSS-Summary.json file
critical.cfg file	proclog.txt file
data.dat file	

If you have a PowerChute customer issue, contact your regional **Technical Support team**, and provide the `PcssFiles-<TimeStamp>.zip` file to help resolve your issue.

Worldwide Customer Support

Access to customer support terms may vary by product. Customer support is available in the following ways:

- Visit the Schneider Electric web site, to access documents in the Schneider Electric Knowledge Base and to submit customer support requests.
  - **www.se.com** (Corporate Headquarters)
    Connect to localized Schneider Electric web site for specific countries, each of which provides customer support information.
  - **www.se.com/support/**
    Global support searching Schneider Electric Knowledge Base and using e-support.
- Contact the Schneider Electric Customer Support Center by telephone or e-mail.
  - Local, country-specific centers: go to **www.se.com/support** for contact information.

For information on how to obtain local customer support, contact the Schneider Electric representative or other distributor from whom you purchased your Schneider Electric product.

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TME10991E-001 **06/2026**