User Guide

PowerChute Business Edition v9.5 Agent

For Simple Signaling 990-3773E-001 Publication Date: December 2017



Schneider Electric IT Corporation Legal Disclaimer

The information presented in this manual is not warranted by the Schneider Electric IT Corporation to be authoritative, error free, or complete. This publication is not meant to be a substitute for a detailed operational and site specific development plan. Therefore, Schneider Electric IT Corporation assumes no liability for damages, violations of codes, improper installation, system failures, or any other problems that could arise based on the use of this Publication.

The information contained in this Publication is provided as is and has been prepared solely for the purpose of evaluating data center design and construction. This Publication has been compiled in good faith by Schneider Electric IT Corporation. However, no representation is made or warranty given, either express or implied, as to the completeness or accuracy of the information this Publication contains.

IN NO EVENT SHALL SCHNEIDER ELECTRIC IT CORPORATION, OR ANY PARENT, AFFILIATE OR SUBSIDIARY COMPANY OF SCHNEIDER ELECTRIC IT CORPORATION OR THEIR RESPECTIVE OFFICERS, DIRECTORS, OR EMPLOYEES BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL, OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS, CONTRACT, REVENUE, DATA, INFORMATION, OR BUSINESS INTERRUPTION) RESULTING FROM, ARISING OUT, OR IN CONNECTION WITH THE USE OF, OR INABILITY TO USE THIS PUBLICATION OR THE CONTENT, EVEN IF SCHNEIDER ELECTRIC IT CORPORATION HAS BEEN EXPRESSLY ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SCHNEIDER ELECTRIC IT CORPORATION RESERVES THE RIGHT TO MAKE CHANGES OR UPDATES WITH RESPECT TO OR IN THE CONTENT OF THE PUBLICATION OR THE FORMAT THEREOF AT ANY TIME WITHOUT NOTICE.

Copyright, intellectual, and all other proprietary rights in the content (including but not limited to software, audio, video, text, and photographs) rests with Schneider Electric IT Corporation or its licensors. All rights in the content not expressly granted herein are reserved. No rights of any kind are licensed or assigned or shall otherwise pass to persons accessing this information.

This Publication shall not be for resale in whole or in part.

Table of Contents

Intro	oduction	1
	Simple Signaling	
	Related Documents	
	How to Log On	
Simp	ple Signaling	3
	UPS Status	
Pow	/erChute	5
	Event Configuration 5 Description of events 5	
	E-Mail Settings	
	SNMP Settings 9 SNMP v1 Configuration .9 SNMP v3 Configuration .10 SNMP Trap Configuration .11 SNMP Data Points .12	
Shut	tdown	15
	Initial Setup	
	Shutdown Settings 15 Simple Signaling Limitations 15 Power Outage Configuration 18 Power Outage Configuration and Shutdown on Event 18 Configuration 18 Interactivity in shutdown durations 19	

Logging	21
Event Log	
Log Settings	
Log files taking up disk space 21	
About	23

PowerChute[™] Business Edition (PowerChute) provides UPS management, system shutdown, and energy management for devices connected to the UPS.

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

Simple Signaling

During installation, if you have configured PowerChute Business Edition to use Simple Signaling using the Interface Expander 2 Card (AP9624), you will see a reduced number of options in the PowerChute Business Edition Agent web user interface, when compared with standard Smart Signaling options. This document describes the options available in PowerChute for Simple Signaling only. See **Simple Signaling Limitations**, and the **PowerChute Business Edition Installation Guide** available on www.apc.com for more information on Simple Signaling configuration.

Previous generation accessories such as the UPS Interface Expander 1 (AP9607) and the APC Share-UPS (AP9207) also provided graceful system shutdown for multiple servers, using PowerChute Business Edition. For more information on the operation of the Share-UPS or Interface Expander 1, see their associated user guides available on the APC website, and Knowledge Base article FA156051.

Related Documents

This document describes the PowerChute Agent web user interface:

- For information on installing PowerChute Business Edition, see the **PowerChute Business Edition** Installation Guide, available on the APC website.
- For up-to-date information on the operating systems, JRE, service packs, and processors with which PowerChute Business Edition is compatible, see the latest revision of PowerChute Business Edition Operating System and Processor Compatibility Chart available on the APC website.

How to Log On

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

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

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

https://servername:6547

For example, if your server is named COMP1, enter: https://COMP1:6547

Resetting your Username and Password

If you have forgotten the username or password created during installation, you can reset the credentials by creating a configuration file:

1. Create a plain text file named pcbeConfig.ini, and save it to the Agent folder in the PowerChute installation folder.

On Windows systems, this folder is located at:

C:\ Program Files\APC\PowerChute Business Edition\Agent **Or** C:\ Program Files (x86)\APC\PowerChute Business Edition\Agent

On Linux systems, this folder is located at:

/opt/APC/PowerChuteBusinessEdition/Agent/



IMPORTANT: Make sure that the file extension of the plain text file is set to .ini, and not .ini.txt. On Windows operating systems, it may be necessary to set the folder options to show the file extensions in Windows Explorer, to make sure that the file extension is .ini.

2. Open the pcbeConfig.ini text 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.
- 3. Save the pcbeConfig.ini file in the Agent installation folder.
- 4. Restart the APC PBE Agent service:

- On Windows

Go into Windows **Services** under **Administrative Tools** in the **Control Panel**. The display name there is **APC PBE Agent**. Restart the service.

- On Linux

Enter the following commands into a command prompt: /etc/init.d/PBEAgent stop /etc/init.d/PBEAgent start

- 5. If the username and password meet the requirements, the pcbeConfig.ini file is deleted from the Agent installation folder, and the new credentials are ready to use.
 - If the credentials entered in pcbeConfig.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.
- 6. Log in to the PowerChute web interface with your new credentials.

UPS Status

The UPS Status screen shows System Status.

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.

Possible Device Status	Description
On Line	The UPS is running normally on AC utility power.
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.
Unknown	The status of the UPS is unknown.
UPS Off	Your UPS is turned off.

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 Business Edition\agent\cmdfiles

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

C:\Program Files\APC\PowerChute Business Edition\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.



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

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
Low Battery	A UPS <i>that is operating on battery power</i> 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. Alternatively, a UPS management accessory (such as a UPS Interface Expander 2 Card) has triggered the Low Battery event in order to request a shutdown.
Time On Battery Threshold Exceeded	The UPS on battery power has reached the number of seconds configured via Shutdown Settings > Power Outage Configuration > "After the UPS has been on battery for".

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.

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 .
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.

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.



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. Copy server.crt to the agent directory in the installed PowerChute directory (e.g. C:\Program Files (x86)\APC\PowerChute Business Edition\agent).
- 2. Open a command prompt with Administrator privileges and navigate to this agent directory.
- 3. Execute the following command:

```
"<PowerChute JRE Path>\bin\keytool.exe" -import -trustcacerts -alias mailserv -file server.crt -keystore cacerts -storepass changeit
```

e.g.

```
"C:\Program Files (x86)\APC\PowerChute Business
Edition\jre1.8.0_144\bin\keytool.exe" -import -trustcacerts -alias
mailserv -file server.crt -keystore cacerts -storepass changeit
```

4. Restart the PowerChute service (display name **APC PBE Agent**) via Windows **Services**.

On Unix/Linux:

- 1. Copy server.crt to the agent directory in the installed PowerChute directory (e.g. opt/APC/ PowerChuteBusinessEdition/Agent).
- 2. Open a Terminal with Administrator privileges and navigate to this agent directory.
- 3. Execute the following command:

```
<PowerChute JRE Path>/bin/keytool -import -trustcacerts -alias mailserv
-file server.crt -keystore cacerts -storepass changeit
```

e.g.

/usr/local/bin/java/jre/1.8.0_144/bin/keytool -import -trustcacerts - alias mailserv -file server.crt -keystore cacerts -storepass changeit

4. Restart the PowerChute service by executing the following commands:

/etc/init.d/PBEAgent stop

/etc/init.d/PBEAgent start

NOTE: In the above examples, mailserv is the alias of the mail server used within the cert file, and server.crt is the self-signed SSL cert of the mail server.

See also: Authenticating e-mail.

• To E-Mail Address: See Adding and removing e-mail recipients.

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.

SNMP Settings

PowerChute Business Edition can be configured to communicate via Simple Network Management Protocol (SNMP), and can be discovered via SNMP by a Network Management System (NMS). Using SNMP and the PowerNet MIB, you can query and configure PowerChute settings, and generate SNMP traps to automatically notify you of UPS shutdown events and lost communication events.

SNMPv1 and SNMPv3 are supported by PowerChute Business Edition, and are enabled via the Agent web interface. The SNMP Agent is not discoverable via SNMP until SNMPv1 or SNMPv3 is enabled, and one user profile is configured.



SNMPv1 is less secure than SNMPv3. SNMPv1 does not provide encryption or authentication, and the Community Name is sent over the network in plain text. To use encryption and authentication with SNMP, configure SNMPv3 settings.

See:

- SNMP v1 Configuration
- SNMP v3 Configuration
- SNMP Trap Configuration
- SNMP Data Points

SNMP v1 Configuration

Select **Enable SNMPv1 access** to configure the User Profiles required to communicate via SNMPv1. Select **Add Profile** or edit the default profile (PCBEUser) and configure:

- 1. **Community Name**: The Community Name is sent with each SNMP request to obtain access to a device. The maximum length is 15 ASCII characters.
- NMS IP/Host Name: The IP address, Host Name or Fully Qualified Domain Name of the Network Management System (NMS). An NMS is software that is used to manage software and hardware components on the network. It can be used to manage PowerChute via SNMP by issuing SNMP GET and SET commands. The default value of 0.0.0.0 permits access from any NMS.
- 3. Access Type:
 - **Disable**: No SNMP GET or SET requests are permitted.
 - Read: Only SNMP GET requests are permitted.
 - Read/Write: SNMP GET and SET requests are permitted.

To edit an existing SNMPv1 user profile, click the 📝 button. To delete an SNMPv1 user profile, click the 🝺 button.

Click **Apply** to save the SNMPv1 configuration.



Certain Network Management Systems require the SNMP Engine ID to communicate via SNMP. The SNMP Engine ID is displayed under the Miscellaneous section of the SNMP Settings page.



See also: SNMP Data Points

SNMP v3 Configuration

Select Enable SNMPv3 access to configure the SNMPv3 settings. Select Add Profile and configure:

- 1. **User Name**: In SNMPv3, all GET and SET requests and SNMP Traps are matched to a user profile by the User Name. Enter a user name of a length less than or equal to 32 ASCII characters.
- 2. **Authentication Protocol**: Select MD5, SHA-1 or SHA-2 (SHA256 or SHA512) protocol. It is recommended to use an SHA-2 protocol, if the NMS supports it.
- 3. **Authentication Passphrase**: Enter an authentication password for the protocol selected, of 8-32 ASCII characters.
- 4. **Privacy Protocol**: Select AES-128, AES-192*, AES-192 Ex†, AES-256*, AES-256 Ex[†], or DES. It is recommended to use the AES-256 protocol, if the NMS and PowerChute JRE support it:

^{*}Due to US Export restrictions, the Java JRE used by PowerChute may require an Unlimited Strength Jurisdiction Policy to be installed before long encryption keys (such as AES-192 or AES-256) can be successfully used. See http://www.oracle.com/technetwork/java/javase/ downloads/index.html for details of the latest Java Cryptography Extension (JCE). For more information, see Knowledge Base article FA290630.

[†] **NOTE:** Certain SNMP Network Management Systems use a non-standard AES key extension algorithm for 192 and 256 bit key lengths. This non-standard implementation or "Key extension algorithm" is specified by the IETF.

If your NMS requires the use of the Key Extension algorithm, select Privacy Protocol options AES-192 Ex or AES-256 Ex.

- 5. **Privacy Passphrase**: Enter a privacy password for the encryption protocol selected, of 8-32 ASCII characters.
- 6. Access Type:
 - Disable: No SNMP GET or SET requests are permitted.
 - Read: Only SNMP GET requests are permitted.
 - Read/Write: SNMP GET and SET requests are permitted.

To edit an existing SNMPv3 user profile, click the *button*. To delete an SNMPv3 user profile, click the *button*.

Click **Apply** to save the SNMPv3 configuration.



Certain Network Management Systems require the SNMP Engine ID to communicate via SNMP. The SNMP Engine ID is displayed under the Miscellaneous section of the SNMP Settings page.

See also: SNMP Data Points

SNMP Trap Configuration

You can specify the device(s) that receive the SNMP traps generated by PowerChute for UPS critical and lost communication events.

To configure a Trap Receiver, select Add Trap Receiver and configure:

- 1. **Enable**: Select the checkbox to enable the Trap Receiver.
- 2. NMS IP/Host Name: The IP address, Host Name or Fully Qualified Domain Name of the NMS.
- 3. Port: The port on which the NMS will listen for incoming traps. The default port number is 162.
- 4. **SNMPv1**: Select this if you want to send the traps via SNMPv1.
 - Community Name: Enter the Community Name of the SNMPv1 user profile to be used as an identifier when SNMPv1 traps are sent to this receiver.
- 5. SNMPv3: Select this if you want to send the traps via SNMPv3.
 - User Name: Select the user name of the SNMPv3 user profile to be used as an identifier when SNMPv3 traps are sent to this receiver.

Click the **SNMP Trap Receiver Test** to send a test trap to the configured Trap Receiver. Check the Trap Receiver to ensure that the test trap was received.

To edit an existing SNMP Trap Receiver, click the *button*. To delete an SNMP Trap Receiver, click the *button*.

UPS Critical Events

PowerChute sends SNMP traps to the configured Trap Receiver(s) upon the following events:

PowerChute Critical Event triggers a Shutdown

When a critical event (see **Critical events**) occurs and a Shutdown is triggered, PowerChute sends an SNMP trap to the configured Trap Receiver detailing the Event Name.

PowerChute Critical Event Resolved

If the option to Send Trap when condition is cleared is enabled, when a the Critical Event which triggered a Shutdown is resolved, PowerChute sends an SNMP trap to the configured NMS.

Lost Communication Events

PowerChute sends SNMP traps to the configured Trap Receiver(s) when the **Communication Lost** event occurs.

If the option to **Send Trap when condition is cleared** is enabled, a Communications Established trap is sent when the communications lost event is resolved.

Other Events

Software Update Available Trap

When the PowerChute Auto Update functionality detects that there is a new update available; a trap is sent to the configured Trap Receiver.

PowerChute Test Trap

When configuring a Trap Receiver, a test trap can be sent to determine if the Trap Receiver is receiving the traps. See **SNMP Trap Configuration**.

Configuring SNMP Trap Notification Settings

To configure the settings for UPS Critical Event or Lost Communication traps:

- 1. Go to SNMP Settings > SNMP Traps
- 2. Click on the icon next to UPS Critical Events or Lost Communication Events
- 3. Select the Enable checkbox to enable traps for those events.
- 4. **Delay**: Specify the length of time that Event must persist before a trap is sent. If the Event is cleared before this time, no trap is sent.
- 5. Repeat Interval: Specify the time interval in seconds that the trap is re-sent.
- 6. Select:
 - Repeat until condition clears if you want the trap to be sent at the repeat interval until the Event is cleared.
 - Repeat X times to specify the number of times the trap will be sent when the Event occurs.
- 7. Select Send Trap when condition is cleared to be notified when the Event is cleared.

NOTE: If the PowerChute Business Edition Agent is shutdown due to a UPS Critical Event, no clearing Trap will be sent to the NMS.

See also: SNMP Data Points > SNMP Traps

SNMP Data Points

The following table lists the SNMP Object Identifiers (OIDs) supported by PowerChute Business Edition.

NOTE: Your UPS may not support all SNMP OIDs listed.



Refer to the PowerNet MIB available on the **APC website** for detailed descriptions of each OID, including parameters for SET and GET operations.

UPS Information

SNMP OID Name	Access	Description
upsBasicBatteryStatus	read-only	The status of the UPS batteries.
upsBasicOutputStatus	read-only	The current state of the UPS (e.g. On Line, On Battery, etc.).
upsAdvConfigAllowedSetTable	read-only	Read this OID to get the UPS data points for which you set values, using an SNMP SET.
		Querying this table returns the following OIDs: • upsAdvConfigRatedOutputVoltage • upsAdvConfigHighTransferVolt • upsAdvConfigLowTransferVolt • upsAdvConfigLowBatteryRunTime
		The query also returns the acceptable range of values you can set for each OID. If your UPS does not support an OID, the query will return null.
upsAdvControlBypassSwitch	read-write	Write to this OID to control the UPS bypass mode.
upsAdvTestDiagnostics	read-write	Write to this OID to command the UPS to perform a diagnostic self test.
upsAdvTestDiagnosticsResults	read-only	The results of the last diagnostic UPS Self Test.

upsAdvTestRuntimeCalibration	read-write	Writing to this OID provides options to perform a Runtime Calibration Test.
upsAdvTestCalibrationResults	read-only	The results of the last Runtime Calibration test.
upsCommStatus	read-only	The status of the SNMP Agent's communication with the UPS.

PowerChute Business Edition Identity Information

SNMP OID Name	Access	Description
pcbehostname	read-only	The hostname of the PowerChute Business Edition Agent.
pcbeVersion	read-only	The PowerChute Business Edition version number, in the format x.x.x.x.
pcbeOS	read-only	The operating system and version on which the PowerChute Business Edition is installed.
pcbeJavaVersion	read-only	The version of Java installed with PowerChute Business Edition.
pcbeUIProtocol	read-only	The protocol used to connect to the PowerChute Agent web interface (http/ https).
pcbeHttpsPort	read-only	The port used for the PowerChute https web interface.

PowerChute Business Edition Alarm Information

SNMP OID Name	Access	Description
pcbeCriticalFlag	read-only	This OID indicates that PowerChute Business Edition has begun a graceful shutdown of the host.
pcbeCriticalCause	read-only	This OID provides the reason that PowerChute Business Edition has begun a graceful shutdown of the host.
pcbeComsLostFlag	read-only	This OID indicates that PowerChute cannot communicate with the UPS.
pcbeUpdateAvailableFlag	read-only	This OID indicates that a new version of PowerChute is available.
pcbeUpdateDesc	read-only	This OID provides the description of the new version of PowerChute that is available.

SNMP Traps

The tables below details the OID names of the SNMP traps sent by PowerChute for critical and lost communication events.

UPS Critical Events

SNMP OID Name	Level	Description
pcbeCriticalEventActive	Severe	PowerChute Business Edition has begun a graceful shutdown of the host due to a critical event.
pcbeCriticalEventResolved	Informational	The PowerChute critical event has been resolved, and a graceful shutdown of the host continues.

Lost Communication Events

SNMP OID Name	Level	Description
pcbeComsLost	Severe	PowerChute cannot communicate with the UPS.
pcbeComsLostResolved	Informational	PowerChute has re-established communications with the UPS.

Other Events

SNMP OID Name	Level	Description
pcbeTest	Informational	PowerChute has sent a test trap to the NMS.
pcbeUpdateAvailable	Informational	PowerChute has detected that an update is available.

In PowerChute Business Edition, shutdowns can be initiated:

- Through an event occurring, see Event Configuration.
- When the UPS signals the Low Battery event in a Simple Signaling configuration.

Shutdowns can also be initiated manually through the UPS LCD, or from "outside" PowerChute, e.g. from the Network Management Card (NMC). However, using the NMC in conjunction with PowerChute Business Edition is not supported.

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.

Shutdown Settings



You can exit the shutdown configuration on any of the screens. When you click the Next or Advanced Setup button, your changes are saved and are retained even if you cancel out of the Initial Setup sequence before the end.

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

Simple Signaling Limitations

The PowerChute Business Edition supported configuration for Simple Signaling is described in the **PowerChute Business Edition Installation Guide** available on the **APC website**. In this configuration, an Interface Expander 2 Card (IE2) can be used to provide a graceful system shutdown for up to three network servers (or other devices) during a power outage, by using only one UPS and simple signaling. In the event of a power outage, all connected servers shut down at the same time.

In the supported configuration, a Master Server is connected directly to the smart computer interface of the UPS, and up to two Slave Servers can be connected to the UPS via the IE2 card basic ports.

NOTE: Some Type B UPS devices with the prefix SRC do not support simple signaling. For example: SRC1KI, SRC2KI, SRC1KI-IN and SRC1KUXI.



Visit Knowledge Base article **FA315835** on the **APC website** to find out more about UPS model types.

Supported Configuration for **Type A** UPS devices:





You can use PowerChute to configure when a shutdown should occur through the Shutdown Settings page. Due to the nature of simple signaling, there are limitations to the shutdown features available, when compared with a standard configuration:

- **IMPORTANT:** You must make sure that all PowerChute Agents running on the servers in a Simple Signaling configuration have the same settings to ensure a graceful shutdown:
 - The Power Outage Configuration must be the same for each Agent.
 - Event Configuration must be the same for each Agent see Power Outage Configuration and Shutdown on Event Configuration.
 - Different command files may be used on each Agent, but they must use the same Time required for command file to run.
- If you disconnect a communication cable in an active simple signaling configuration, PowerChute
 will not detect the disconnected cable, and you will experience unexpected shutdown behavior.
 Disconnecting communication cables during simple signaling is not supported. If you need to
 disconnect a simple signaling cable, manually shut down the connected server first.

Installation and Configuration with Simple Signaling and Type A UPS devices

Provide a high delay in the **Time for operating systems to shut down** field in the **Shutdown Settings** screen in the Master Server. Setting a high value here will give the operating system more time to shut down.

Connect all servers, including the simple clients, to a PowerChute outlet group. Doing this will ensure that the servers turn off in accordance with the **Outlet Sequence** screen in the Master Server.

Shutdown Functionality with Simple Signaling and Type B UPS devices

After the Interface Expander 2 card issues a shutdown command to simple clients, a turn off command is also issues to turn off the UPS. To ensure graceful shutdown, the delay of this turn off command is forced to be equal to the values set for **Time for operating systems to shut down** and **At runtime limit** in the **Shutdown Settings** screen of the Master Server.

Set the **At runtime limit** value in the Master Server appropriately, as this decides the turn off delay of the UPS.

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. See Time on Battery Threshold Exceeded on the Event Configuration screen.
- 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.
- When the UPS signals the Low Battery event initiates a shutdown when the UPS signals that the Low Battery event has occurred. In a Simple Signaling configuration, this can impact a slave server when the Master Server connected to the UPS signals to all slave servers connected to the Interface Expander 2 Card that it is shutting down. For more information on Simple Signaling configuration, see the PowerChute Business Edition Installation Guide available on the APC website. This is the default power outage configuration in a simple signaling configuration.
 NOTE: For Type B UPS devices, the value set for At runtime limit in the Shutdown Settings screen is also added to the UPS turn off delay.
- 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.

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	
When the UPS signals the Low Battery event	Yes	No	No	
Do not shut down in the event of a power outage	Νο	No	No	

This table summarizes the interaction:

* 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

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.





 (\mathcal{V})

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 Program Files\APC\PowerChute Business Edition\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.

Log Settings

Log Settings enables you to configure the recording parameters of the Event Log. 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. Use **Event 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.
- If you choose **Do Not Delete Entries**, the files might get very large after a period of time.

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

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
Version	The version number of the PowerChute Business Edition Agent running on the server.

APC by Schneider Electric Worldwide Customer Support

Customer support for this or any other product is available at no charge in any of the following ways:

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

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

As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this publication. © 2017 APC by Schneider Electric. All Rights Reserved.

APC, and the APC logo are owned by Schneider Electric Industries S.A.S., or their affiliated companies. All other trademarks are property of their respective owners.