Installation Guide

PowerChute™ Serial Shutdown v1.3

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Schneider Electric

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Installation Overview

This installation guide serves as an introduction to PowerChute™ Serial Shutdown (PowerChute) and includes a description of the product, the installation procedure, and various troubleshooting resolutions.

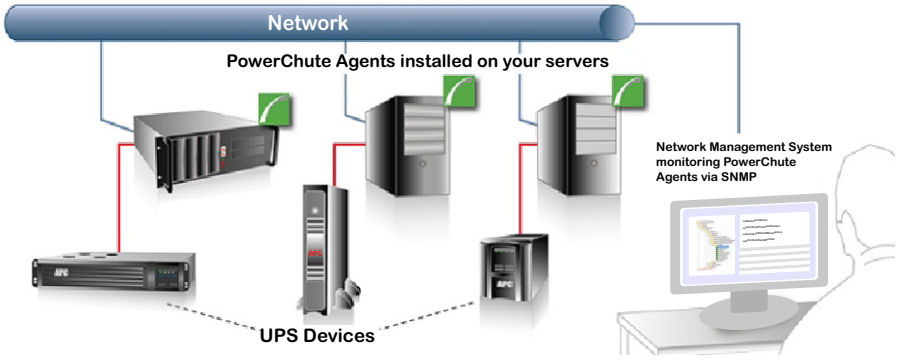
See:

- **PowerChute Serial Shutdown Agent**
- **Operating Systems and UPS Devices**
- **System, UPS, and Cable Requirements**
- **Installing the PowerChute Agent**
- **Troubleshooting**

IMPORTANT:
After installing and configuring PowerChute Serial Shutdown, we strongly recommend that you test your configuration before relying on it in a production environment.

PowerChute Serial Shutdown Agent

PowerChute Agents with Smart-UPS devices protect your servers



The Agent provides UPS status monitoring and, in the event of an extended power outage, system shutdown capabilities for your UPS-connected servers. See **Operating Systems and UPS Devices**.

This software must be installed on each computer that is directly attached to one of the UPS devices mentioned in **Supported UPS Devices and Accessories**.

You can also monitor your PowerChute Agents using a Network Management System (NMS), via SNMP and through **EcoStruxure IT™**.

Operating Systems and UPS Devices

When installing PowerChute, the configuration of the Agent installed will depend on your operating system and UPS device:

- For Windows operating systems, see **Windows Installation**.
- For Linux operation systems, see Linux Installation.
- Manual installation will occur if the automatic detection is unsuccessful, if no UPS is attached, or if you select manual installation. See **Supported UPS Types**, and **Installing the PowerChute Agent**.
- If you are using your UPS with an **Interface Expander 2 card (AP9624)** or a **Share-UPS (AP9207)** to support multiple servers with one UPS, you will need to configure the PowerChute Agents running the devices connected to the card/Share-UPS with Simple Signaling. See **Simple Signaling**.

Supported UPS Types

During manual installation you will be asked to select your UPS from a list of UPS model prefixes:

1. Select the model of your UPS from the list provided. The UPS model is found on the printed label at the rear of your UPS.
2. If your UPS model prefix (e.g. SMT, SMX) is not available in the drop-down list, see the definitions below to find your UPS model **type**:
   - **Type A**

     Smart-UPS models with prefix SMT, SMX, SURTD, SRT, SMTL, SCL, SMC, and SRTL including models SRC2KUXI, SRC3KUXI, and SRC3KUXIX709.
   - **Type B**
     - Smart-UPS models excluding UPS models with prefix SMT, SMX, SURTD, SRT, SMTL, SCL, SMC, SRTL, and models SRC2KUXI, SRC3KUXI, and SRC3KUXIX709.
     - Easy Online UPS models with SRV prefix.
   - **Back-UPS**

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

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

See also: **Compatibility of Different Versions and Components**.

System, UPS, and Cable Requirements

Your computers must meet the requirements listed in the following sections:

- **System Requirements for Installation**
- **UPS Communications Cable Requirements**

For UPS devices with outlet groups, the default outlet group is selected automatically by PowerChute.

If the UPS has Switched Outlet Groups, the default outlet group will be the first Switched Outlet Group. Otherwise, the default outlet group will be the Main Outlet Group if Switched Outlet Groups are not present.

The outlet group can be changed in the **Outlet Setup** screen in the PowerChute Agent and also in the Initial Setup Wizard after installation.

System Requirements for Installation

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** available on the **APC website.**

The computer on which you install PowerChute Serial Shutdown must be a 64-bit operating system and have:

- An active TCP/IP network connection
- Minimum 512MB RAM
- A Pentium® 4 1.3 GHz processor, or higher.

Port Requirements

See Knowledge Base article **FA159597** on the **APC website** for more information on the ports used by PowerChute Serial Shutdown.

Browser Requirements

Supported browsers

- Mozilla Firefox
- Google Chrome
- Microsoft Edge

To use the Agent Web user interface:

- Enable JavaScript™ in your browser settings.
- Enable cookies in your browser settings.
- To access the Agent web interface using HTTPS, enable either TLS 1.2, 1.3, or higher in your browser settings. (No other versions are currently supported).

When you view the Agent, the browser will give an error saying the security certificate is not trusted. See **Accessing the PowerChute Serial Shutdown Agent Interface** to manage this.

UPS Communications Cable Requirements

You can connect your UPS to a server using the communications cable that is included in the box with your UPS:

- The PowerChute Agent communicates with the UPS through the communications cable that connects the UPS to the communications port on the server running the PowerChute Agent.
- PowerChute supports the connection of only one type of communications cable (USB or Serial interface) from the UPS to the server at once. **NOTE:** PowerChute was not tested for usage with serial-to-USB or USB-to-serial adapters.
- **IMPORTANT:** Do not connect your UPS to the server with more than one communications cable at once (e.g. Serial and USB cable), as it may lead to unexpected shutdown behavior.
- See your UPS operation manual on the **APC website** for more information on the communications cable that is included with your UPS. Further information is also available in Knowledge Base article **FA163632** on the **APC website**.

IMPORTANT: If you use an unsupported UPS, or an incorrect UPS communications cable to connect the UPS and server, you may not be able to complete the PowerChute Agent installation, because the PowerChute Agent will not be able to communicate with the UPS.

PowerChute installation cannot detect a device connected by a simple-signaling cable. Therefore, during installation, choose manual installation when your UPS is connected through the basic port of an Interface Expander 2 Card or a Share-UPS, and specify the port and UPS type.

See **Communications Help – Troubleshooting Automatic and Manual UPS Detection**.

NOTE: A UPS can only protect one computer running a PowerChute Agent at a time, unless an **Interface Expander 2 card (AP9624)** or a **Share-UPS (AP9207)** is used.

Supported UPS Devices and Accessories

PowerChute Serial Shutdown Agent can manage any UPS that is shipped with the software, including most Smart-UPS™ devices (3kVA and below) communicating using serial or USB connections and Back-UPS communicating using USB connection. Depending on the cable and accessory used, both Smart and **Simple Signaling** are supported. See also: **Supported UPS Types**.

NOTE: For UPS devices with outlet groups, see the **Choosing which individual outlet groups to turn off in a shutdown** section of the Shutdown chapter in the PowerChute Agent help. This details how outlet groups work in shutdowns.

Installing the PowerChute Agent

See the following sections:

- Before you Install PowerChute Serial Shutdown
- Windows Installation
  - Starting and Stopping the PowerChute Agent on Windows
- Linux Installation
  - Starting and Stopping the PowerChute Agent on Linux.
- Simple Signaling

Before you Install PowerChute Serial Shutdown

Make sure the date and time on your operating system is accurate before you begin installation.

Before you perform the installation, note the following information about the installation process.

- Compatibility of Different Versions and Components
- Upgrading PowerChute Serial Shutdown
- IPv6 Compatibility
- Username and Password Requirements

Compatibility of Different Versions and Components

PowerChute Serial Shutdown v1.3 is a 64-bit only application and cannot be installed on a 32-bit operating system.

Upgrading PowerChute Serial Shutdown

PowerChute Serial Shutdown v1.3 supports upgrades from your existing PowerChute version. The upgrade process does not uninstall your existing PowerChute version, but installs a newer version over your older version, retaining your configuration settings.

PowerChute v1.3 is a 64-bit only application and cannot be installed on a 32-bit operating system. If you have a 32-bit operating system, you cannot upgrade to v1.3.

Upgrade Notes

- See Operating Systems and UPS Devices.
- Following an upgrade, clear your browser cache before accessing the Agent web interface to see the latest changes.
- The **Initial Setup Wizard** does not show following an upgrade as your configuration settings are carried forward.

If you are unsure whether you can upgrade or not, please contact APC Worldwide Customer Support (https://www.apc.com/support/).

When the upgrade is completed, check your configuration settings to ensure that they have carried over as expected.

Username and Password Requirements

- The username must be between 6 and 128 characters in length.
- The password requires:
  - Minimum 8 and maximum 128 characters in length.
  - One upper and lower case letter.
  - One number or special character (#?!@$%^*-).
- The username cannot be part of the password.
- The username and password can only contain US-ASCII characters. It is not supported to include whitespace.

It is possible to reset your username and password following installation. See topic **Resetting your Username and Password** in the PowerChute Serial Shutdown Agent User Guide, available in the Agent web interface, and on the **APC website**.

IPv6 Compatibility

The IPv6 address must be in one of these formats:

IPv6 Format	Description
fe80:0000:0000:0000:0204:61ff:fe9d:f156	full form of IPv6
fe80:0:0:0:204:61ff:fe9d:f156	drop leading zeroes
fe80::204:61ff:fe9d:f156	collapse multiple zeroes to :: in the IPv6 address
fe80:0000:0000:0000:0204:61ff:254.157.241.86	IPv4 dotted quad at the end
fe80:0:0:0:0204:61ff:254.157.241.86	drop leading zeroes, IPv4 dotted quad at the end
fe80::204:61ff:254.157.241.86	dotted quad at the end, multiple zeroes collapsed
::1	localhost
fe80::	link-local prefix
2001::	global unicast prefix

Windows Installation

Follow the steps below to install PowerChute Serial Shutdown on Microsoft® Windows™.

See also:

- **Silent Installation of a Windows Agent**
- **Windows Server 2012/2016/2019/2022 Server Core: Installing and Uninstalling PowerChute**

NOTE:
You must uninstall other types of PowerChute applications before trying to install PowerChute Serial Shutdown. These applications include PowerChute plus, PowerChute Personal Edition, PowerChute Business Edition, and PowerChute Network Shutdown.

PowerChute Serial Shutdown v1.3 supports upgrades from PowerChute Business Edition v10.x, and the installer will uninstall PowerChute Personal Edition v3.1 if it is installed on your PC. Earlier versions of PowerChute Business Edition and PowerChute Personal Edition must be manually uninstalled before attempting to install PowerChute Serial Shutdown.

Install the PowerChute Serial Shutdown Agent on Windows

Install the PowerChute Agent on each of your UPS-connected computers. See **UPS Communications Cable Requirements**.

You can install the Agent on Windows and Linux operating systems, see also Linux Installation.

Download the PowerChute pcss.zip file from the APC website, unzip the contents, and double-click the pcsssetup.exe file to start the installation.

Follow the steps below:

1. Run the Nullsoft Scriptable Install System (NSIS) Setup Launcher (`pcsssetup.exe`). A wizard guides you through the installation process. Select the required language from the language selector pop up. Click **OK** to proceed.
2. Accept the license agreement.
3. At “Would you like to automatically search all communications ports for a UPS,” we recommend clicking **Yes** to allow the installation to automatically detect your connected UPS. If you select **No**, see **Manual UPS Detection** below.

   NOTE:

   – A USB driver is required for Easy Online SRV UPS devices to communicate with PowerChute over USB. For more information, please refer to Knowledge Base article **FAQ000223363**.

   –If you want to use simple signaling with your UPS, click **No** to use manual UPS detection. See **Simple Signaling**.

   – You are not asked to select a UPS during an upgrade installation. The UPS identified during the original installation is used.

   – If the installation program cannot detect a UPS connected to your computer, it will ask you to manually select your UPS model. See **Manual UPS Detection** below.
4. PowerChute will ask you if you want to automatically detect a connected UPS. If PowerChute cannot detect a UPS, click **Run Auto Detect** to attempt to detect your UPS again, or click **Next** to proceed with the installation without detecting a UPS.
5. Choose the destination location for the PowerChute Agent files. You are not asked for a location during an upgrade installation. The previous location is used by default.

Manual UPS Detection

a. To manually detect your UPS, you are asked to select your UPS model from a list. See **Supported UPS Types**.

b. You are asked to select the Communications Port to which your UPS is connected. If you are not sure, check the cable connecting the UPS to the server.
See: **Communications Help – Troubleshooting Automatic and Manual UPS Detection**.

6. Enter a username and password. See **Username and Password Requirements**.
7. If a Windows firewall is detected by PowerChute, you can automatically enable the Agent Service in the Windows firewall exception list. Click **Yes** to enable this.
8. PowerChute installs. Click **Next** when the installation is complete.
9. Click Finish to close the installer. You have the option to automatically open the PowerChute Serial Shutdown user interface (UI) in a web browser.

For each new UPS added to your network, repeat steps 1-9 on the computer connected to the new UPS.

Silent Installation of a Windows Agent

With a normal, non-silent installation it is usually necessary to respond to prompts during the installation. Silent installations do not prompt for input, as the configuration is already defined in the answer file. If you are applying the same configuration to multiple copies of PowerChute, you can use the configuration file.

If you are performing an upgrade, see important information in **Upgrading PowerChute Serial Shutdown**.

NOTE: If you are installing using a download, unzip `pcss.zip` and extract the `pcsssetup.exe` file before continuing.

1. Edit the silent installation file to set the required parameters. See **Editing Your Silent Installation File**.
2. Enter the following command in Administrator Command Prompt:

```
pcsssetup.exe /S /F silentInstall.ini
```

If silent installation is unsuccessful, an error code will be written to the PCSSInstall.log file. See **Error Codes for Silent Installation**.

It is recommended to delete the silentInstall.ini file after successful installation as it contains the PowerChute Serial Shutdown credentials in plain text. The installer does not modify the INI file during installation.

NOTES:

- Silent upgrade from PowerChute Business Edition v10.x is not supported.
- Silent uninstall of PowerChute Personal Edition v3.1 is not supported.
- Silent install of required Visual C++ Redistributable is not supported.

Silent Uninstall

To uninstall in silent mode, enter the following command in Administrator Command Prompt:

```
"C:\Program Files\APC\PowerChute Serial Shutdown\Uninstall.exe" /S
```

Editing Your Silent Installation File

On Windows operating systems, the file that guides silent installations is named silentInstall.ini.

The file is a plain text file and can be edited with a standard text editor. Each field or line has a value that the installer needs in order to carry out the installation. The table below explains the fields available in the silent installation file.

Field Name	Description	Default Value
`Upgrade yes | no`	Enable or disable Silent Upgrade of PowerChute Serial Shutdown. If enabled, the installer will check if upgrade from existing version to new version is supported. During upgrade installation the existing PowerChute configuration and data will be preserved. The upgrade will fail if no existing installation is found, or if upgrade from installed version to new version is not supported. It is possible to upgrade to the same version (repair install). **NOTE:** During Silent Upgrade only the 'Upgrade' and 'AcceptEULA' fields are processed. All other fields and their values are ignored.	
`ApplicationDirectory`	The directory in which to install PowerChute. This must be the absolute path, including the drive letter. **NOTE:** If the path does not contain “PowerChute Serial Shutdown”, then “\APC\PowerChute Serial Shutdown” will be appended to the path.	C:\Program Files\APC\PowerChute Serial Shutdown
`AcceptEULA yes | no`	Yes signifies acceptance of software license agreement. The installation will not proceed unless `yes` is specified here.	Yes
`AutoDetect yes | no`	Enable or disable auto-detection. If auto-detection is enabled, the installer will scan all communication ports for a supported UPS. The installer will abort if no supported UPS is detected.	Yes

Field Name	Description	Default Value
`UPSModel`	The UPS model to use for this installation. This can be found on a printed label at the rear of your UPS. Enter a numeric value matching your UPS from the below list. If your UPS is not available in below listed UPS models, then choose either “Other Type-A” or “Other Type-B” depending on below definitions. **Type A:** • Smart-UPS models with prefix SMT, SMX, SURTD, SRT, SMTL, SCL, SMC, and SRTL, and models SRC2KUXI, SRC3KUXI, and SRC3KUXIX709. **Type B:** • Smart-UPS models excluding UPS models with prefix SMT, SMX, SURTD, SRT, SMTL, SCL, SMC, and SRTL, and models SRC2KUXI, SRC3KUXI, and SRC3KUXIX709. • Easy Online UPS models with SRV prefix. **NOTE:** The `UPSModel` value will be ignored if `AutoDetect` is specified as `yes`. **UPS Models:** 0 = SMT, 1 = SMC, 2 = SRT, 3 = SRTL, 4 = SU, 5 = SUA, 6 = SURT, 7 = SY, 8 = SC, 9 = SURTA, 10 = SURTD, 11 = SU4G, 12 = SRV, 13 = SMX, 14 = Back-UPS, 15 = Other Type-A, 16 = Other Type-B	0

Field Name	Description	Default Value
ShareUPSMode	The ShareUPSMode value should be set to a value greater than 0 if you are using your UPS with an Interface Expander 2 card (AP9624) or a Share-UPS (AP9207) to support multiple servers with one UPS. **NOTES:** • The ShareUPSMode value will be ignored if AutoDetect value is specified as yes. Auto-detection of Interface Expander 2 and Share-UPS is not supported. • If UPSModel value is either 12 (SRV) or 14 (Back-UPS), then ShareUPSMode value must be 0. Are you connected to a Share-UPS, Interface Expander 2, or Simple Signaling mode? 0 = No - Connected to the UPS port 1 = Yes - Interface Expander 2 port 2 = Yes - Share-UPS advanced port 3 = Yes - Share-UPS basic port	0
UPSPort	The communications port the UPS is connected to. This can either be a USB port or a serial (COM) port. **NOTES:** • The UPSPort value will be ignored if AutoDetect value is specified as yes, • If you specify USB, ensure the UPS is connected to a USB port during installation. If no UPS is connected, then the required driver cannot be installed, and installation will be unsuccessful. • If UPSModel value is 12 (SRV), only COM port values are allowed. • If UPSModel value is 14 (Back-UPS), only USB port value (0) is allowed. • If ShareUPSMode value is greater than 0, only COM port values are allowed. **Port Values** 0 = USB 1 = COM1 2 = COM2 <n>=COM<n>	0

Field Name	Description	Default Value
`Username`	The username to use for PowerChute Serial Shutdown. **Username requirements:** • The username must be between 6 and 128 characters in length. • The username cannot be part of the password. • The username can only contain US-ASCII characters. It is not supported to include whitespace.	
`Password`	The password to use for PowerChute Serial Shutdown. **Password requirements:** • The password requires: -Minimum 8 and maximum 128 characters in length. -One upper and lower case letter. -One number or special character (#?!@$%^*-). • The password can only contain US-ASCII characters. It is not supported to include whitespace.	
`AddToFirewall yes | no`	Add exception to the Windows Firewall. If value is specified as `yes`, and the Windows Firewall is enabled on the system, the installer will add an exception for the PowerChute Agent in the Windows Firewall. This will allow remote monitoring and management of PowerChute.	Yes

Starting and Stopping the PowerChute Agent on Windows

On Windows, after the installation process is completed, the PowerChute Serial Shutdown Agent begins running automatically. The Agent runs automatically each time the operating system is started.

To start the PowerChute Serial Shutdown Agent manually after it has been deliberately stopped, go into Windows **Services** under **Administrative Tools** in the **Control Panel**. The display name there is **PowerChute Serial Shutdown**.

The PowerChute Agent can also be stopped under **Services**.

Uninstalling the PowerChute Serial Shutdown Agent on Windows

1. On Windows, visit **Control Panel > Programs and Features**
2. From the **Uninstall or change a program** list, select **PowerChute Serial Shutdown Agent**.
3. Click **Uninstall**.
4. When prompted to completely remove the application, select **OK**.

Windows Server 2012/2016/2019/2022 Server Core: Installing and Uninstalling PowerChute

PowerChute Agent and Windows Server Core

The PowerChute Agent can be installed to Windows Server 2012 Server Core, 2016 Server Core, 2019 Server Core, or 2022 Server Core (all 64-bit operating systems).

Installing

From the APC website, download `pcsssetup.exe` to a non-Server Core version of Windows. Copy the file to a temporary directory on the Server Core machine, 2012, 2016, 2019, or 2022.

In the command prompt window, go to the temporary directory and run `pcsssetup.exe` by typing its name and pressing Enter.

For example,

```
cd \temp
pcsssetup.exe
```

Uninstalling

Open Command Prompt, and enter “C:\Program Files\APC\PowerChute Serial Shutdown” Uninstall.exe

For example,

```
cd "\Program Files\APC\PowerChute Serial Shutdown"
Uninstall.exe
```

Linux Installation

For prerequisites, see **Before you Install PowerChute Serial Shutdown**, **System, UPS, and Cable Requirements**, and **Operating Systems and UPS Devices**.

If your Linux operating does not use one of the **Supported browsers** by default, upgrade your browser to meet the required version before installing PowerChute Serial Shutdown.

For up-to-date information on the PowerChute Serial Shutdown compatibility with various Linux distributions, see the latest revision of **PowerChute Serial Shutdown Operating System, Processor, JRE and Browser Compatibility Chart.**

To install PowerChute Serial Shutdown, you must have root privileges on the Linux computer.

Install the PowerChute Serial Shutdown Agent on Linux

Install the PowerChute Agent on each of your UPS-connected computers. See **UPS Communications Cable Requirements**.

If your system supports IPv6 but not IPv4, then you must read the UPS hardware descriptions that are presented during the installation.

1. Download the PowerChute Serial Shutdown installer for Linux from the APC website.
2. Download the installation package suitable for your system: `pcssagent-1.X.X-301-EN.x86_64.tar.gz`

IMPORTANT: To install PowerChute on a Chinese system, you must configure the LANG" and "LC_ALL" system variables.

a. Open the profile file using the following command: `vi /etc/profile`
b. Add the following to the end of the profile file:

```
#Chinese
export LC_ALL=zh_CN.utf8
export LANG=zh_CN.utf8
export LANGUAGE=zh_CN.utf8
#English
export LC_ALL=en_US.utf8
export LANG=en_US.utf8
export LANGUAGE=en_US.utf8
```

c. Remove any lines in the profile file that contain "export LANG=C.utf8".
d. Save the file and reboot your system.
e. Confirm that your system locale successfully changed by executing the `locale` command.

3. Use the `tar` command to extract and decompress the contents of the file: `pcssagent-1.X.X-301-EN.x86_64.tar.gz`
4. If you are not logged on as the root user, you need to run the installer using sudo, or switch to root user context using the su command and then run the installer: `./install_pcssagent_linux.sh`

After a web download you need to grant execute permissions: `chmod +x install_pcssagent_linux.sh`

5. Accept the license agreement.

6. The `config.sh` script will run automatically.

   - Enter a username and password.
   - Select the UPS model.
   - Select the cable type and port used to connect the computer running PowerChute to the UPS.

Red Hat Enterprise Linux (RHEL) versions 6.3 and earlier do not support USB communication with PowerChute v9.5+. PowerChute v9.5+ does not provide USB communication to Type B UPS devices on Linux machines.

Once all requested configuration parameters are provided, the PowerChute Agent service starts.

To troubleshoot Linux communications, see Knowledge Base article **FA163608**.

Starting and Stopping the PowerChute Agent on Linux

The PowerChute Serial Shutdown Agent runs automatically each time the operating system is started. To manually start the Agent, enter one of the following commands in a command prompt:

```
/etc/init.d/PBEAgent start
service pbeagent start
systemctl start PBEAgent
```

To manually stop the Agent, enter:

```
/etc/init.d/PBEAgent stop
service pbeagent stop
systemctl stop PBEAgent
```

Accessing the PowerChute Serial Shutdown Agent behind a firewall

To access the Agent web user interface remotely, use the following port:

- HTTPS: 6547

Uninstalling the PowerChute Serial Shutdown Agent on Linux

Use the erase rpm option `(-e)` to uninstall the Agent:

```
rpm -e pcssagent
```

Using the Sample Script for Linux

A `default.sh` file is included in the installation at `<PowerChute folder>/Agent/cmdfiles/`

This file has basic information on running a command file on Linux.

Hardware Abstraction Layer (HAL) disabled

A HAL policy file is automatically installed on Linux systems to disable the `hald-addon-hid-ups module` as it may conflict with the PowerChute Agent's control of the UPS over USB.

This policy file is automatically removed when the Agent is uninstalled.

RPM Package Signing

The RPM package for PowerChute Serial Shutdown is signed by the GNU Privacy Guard (GPG). The public key details are listed below which can be used to verify this RPM package.

Download Public Key

1. Download the public key from the **APC website**.
2. Import the public key to your operating system by using the following command: `gpg --import /path/to/SE_GPG.key`
3. Execute one of the following commands to retrieve the fingerprint from the downloaded public key:

   ```
   gpg --quiet --with-fingerprint SE_GPG.key
   gpg --show-keys SE_GPG.key
   gpg SE_GPG.key
   ```

   NOTE: The correct command will differ depending on your operating system and operating system version.

   The output of this command is:

   `pub` rsa2048 2020-04-16 [SC]

   `0762DEF64373A1BBEC65EE65258A486C7AD50E69`

   `uid Schneider Electric GPG Code Signing`

   Where `0762DEF64373A1BBEC65EE65258A486C7AD50E69` matches the fingerprint.

Verify RPM Package

The Linux web download contains both an RPM file `<filename>.rpm` and a signature file `<filename>.rpm.sig`.

1. Execute the following command to verify the RPM package: `gpg –verify <filename>.rpm.sig <filename>.rpm`

   For example: `gpg –verify pcssagent-1.1.0-301-EN.x86_64.rpm.sig pcssagent-1.1.0-301-EN.x86_64.rpm`

   Example output of this command is:

   ```
   gpg: Signature made Mon 15 May 2023 02:51:46 PM CEST
   gpg:                using RSA key 258A486C7AD50E69
   gpg: Good signature from "Schneider Electric GPG Code Signing" [unknown]
   gpg: WARNING: This key is not certified with a trusted signature!
   gpg:          There is no indication that the signature belongs to the owner.
   Primary key fingerprint: 0762 DEF6 4373 A1BB EC65  EE65 258A 486C 7AD5 0E69
   ```

   The warning in the output can safely be ignored. This warning is displayed because the GPG private key is not imported to your operating system. The RPM signature file matching the downloaded public key (good signature) is sufficient trust.

2. Verify that the output of this command matches the fingerprint of the downloaded public key.

Simple Signaling

Supported UPS Devices and Accessories

The UPS Interface Expander 2 (AP9624) card provides two additional computer interface ports for a UPS equipped with a SmartSlot™ accessory slot. By using the Interface Expander 2 with PowerChute Serial Shutdown, you can 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.

This guide details simple signaling using the Interface Expander 2 card only. 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 a single **Type B** UPS and PowerChute Serial Shutdown. 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**.

NOTES:

- Some **Type B** UPS devices with the prefix SRC do not support simple signaling. For example: SRC1KI, SRC2KI, SRC1KI-IN and SRC1KUXI.
- UPS devices with the SRTL prefix do not support simple signaling with Interface Expander cards.
- UPS devices with SRV prefix do not support simple signaling.
- BackUPS devices do not support simple signaling.

Simple Signaling Cables

Use:	Part Number
DB9-DB9 connection	940-0020
Type A UPS	940-0128D
Interface Expander Card	940-0020

Smart Signaling Cables

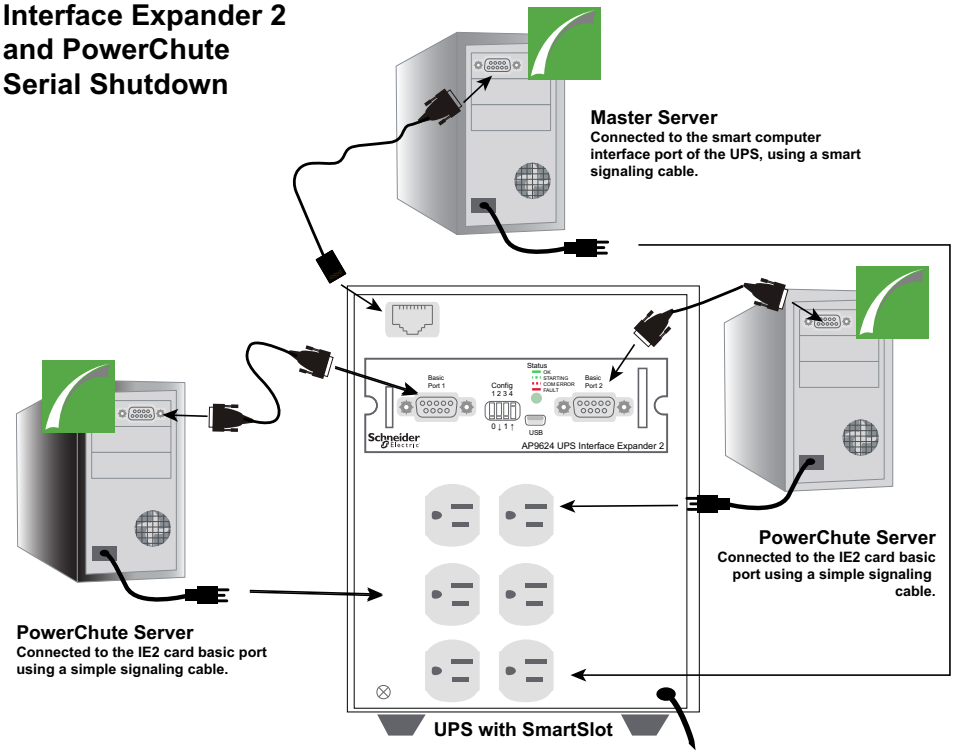
Use:	Part Number
DB9-DB9 connection	940-0024
RJ45-DB9 connection	940-0625A or 940-1525A
USB connection: **Type A** UPS **Type B** UPS	 940-0117B 940-0273A

NOTE: The smart signaling cable used will depend on your UPS. Use the cable that is included in the box with your UPS. For more information on the communication cables used with PowerChute, see Knowledge Base article **FA163632**.

Supported Configuration

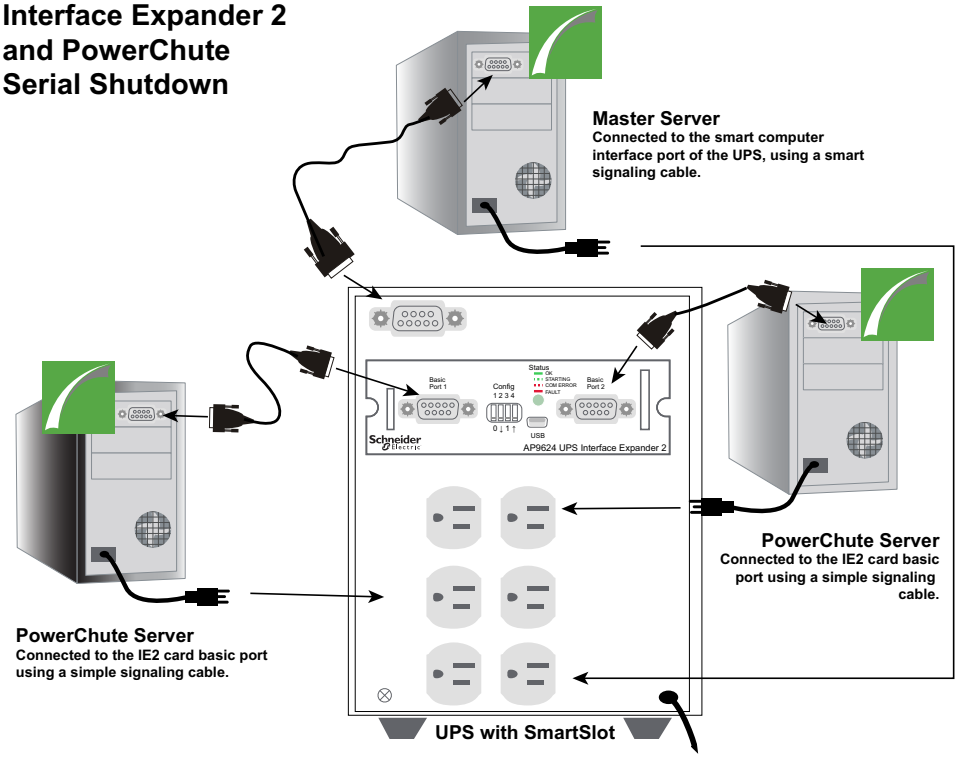
For **Type A** UPS devices:

Interface Expander 2 and PowerChute Serial Shutdown



For **Type B** UPS devices:

Interface Expander 2 and PowerChute Serial Shutdown



To use PowerChute simple signaling with an Interface Expander 2 (IE2) card, install the IE2 card in your UPS following the Installation and Configuration steps in the **User's Guide** available on the **APC website**, then:

- Connect the power cable of the UPS directly to a wall outlet.
- Connect the power cable of each server to the outlets at the back of the UPS.
- Connect one server to the UPS directly to the smart computer interface port of the UPS, using the appropriate cable provided for your UPS model (see **Simple Signaling Cables** above). This server connected to the smart port is defined as the **Master Server**.

  NOTE: UPS models with the prefix SURTD or SRC do not have a USB port. In this case, the server must be connected to the smart computer interface port of the UPS using a simple signaling cable.
- Connect the other two **Slave Servers** to the IE2 card, using the simple signaling cables provided with the card.

NOTE: If you disconnect a communication cable in an active simple signaling configuration, PowerChute will not detect the disconnected cable, and you may experience unexpected shutdown behavior. Disconnecting communication cables during simple signaling is not supported.

See Knowledge Base article **FA176957** available on the **APC website** for information on the valid configurations of the IE2 card with Simple Signaling.

Installing PowerChute Serial Shutdown for Simple Signaling

Each server connected to the UPS must have a PowerChute Serial Shutdown Agent installed. Read **Installation Overview** for more information on **Operating Systems and UPS Devices** and **System, UPS, and Cable Requirements** before you begin.

Install the PowerChute Agent on each connected server, following the initial steps for **Windows Installation** or **Linux Installation** as appropriate.

During the **Windows** installation, you are prompted to select the type of connection to the UPS:

- **Connected to the UPS Port** - select this option when installing PowerChute on the **Master Server** that is connected directly to the smart communications port of the UPS using a smart-signaling cable.
- **Interface Expander Port** - select this option when installing on a **Slave Server** connected to the basic port of the IE2 card using a simple-signaling cable.
- **Share-UPS Advanced Port** - this option is available for a Master Server connected to the advanced port in a Share-UPS using a smart-signaling cable.
- **Share-UPS Basic Port** - this option is available for a Slave Server connected to any basic port in a Share-UPS using a simple-signaling cable.

  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**.

Select the connection to the UPS and complete the installation for your operating system.

Shutdown Configuration

In a simple signaling configuration, multiple servers are supported by one UPS, and all are provided with graceful shutdown in the event of a power outage. All connected servers are shut down at the same time. There are two ways to configure shutdown using an Interface Expander 2 card - using PowerChute Serial Shutdown, or using the physical DIP switches on the IE2 card.

NOTE: Do not edit the shutdown settings in the PowerChute UI when the IE2 card is in timer mode as PowerChute relies on the default configuration ("When the UPS signals the Low Battery event") to shut down the connected servers in this mode. The PowerChute shutdown settings should only be modified when the IE2 card is in confirmed mode. For more information on the IE2 modes of operation, see Knowledge Base article **FA156051** on the **APC website**.

Shutdown Configuration via PowerChute Serial Shutdown

In this configuration, PowerChute Serial Shutdown is used to specify the shutdown settings and the IE2 card is in confirmed mode.

NOTE: If you are using this configuration, you must ensure that:

- All PowerChute Agents have the same shutdown settings.
- All command files, if configured, use the same time required to run.
- The IE2 card DIP switches are set to:
  - 0001 for **Type A** UPS devices.
  - 0000 for **Type B** UPS devices.

Shutdown Configuration via Interface Expander 2 DIP switches

In this configuration, the DIP switches on the IE2 card are used to configure when to shut down the connected servers and the IE2 card is in timer mode. A PowerChute Serial Shutdown Agent is installed on all connected servers, and the shutdown settings are set to the default configuration "When the UPS signals the Low Battery event" - PowerChute will shut down the server when the Low Battery event occurs.

The IE2 DIP switches are used to define the shutdown mode:

Shutdown Mode		Switch Setting (↓=0, ↑ =1)			
		1	2	3	4
Confirmed		0	0	0	*
Until Low Battery		0	0	1	N/A
Timer	2 min.	0	1	0	N/A
	5 min.	0	1	1	N/A
	10 min.	1	0	0	N/A
	15 min.	1	0	1	N/A
	30 min.	1	1	0	N/A
	60 min.	1	1	1	N/A
Server on UPS port	Await Confirmation	0	0	0	0
	Treat as Confirmed	0	0	0	1

For more information on configuring the IE2 card, see the **Interface Expander 2 User Guide** and Knowledge Base article **FA176957**, both available on the **APC website**.

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 issued 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. See Knowledge Base article **FA335089** available on the **APC website** for more information.

Accessing the PowerChute Serial Shutdown Agent Interface

When you first access the Agent, the browser gives an error saying the security certificate is not trusted.

Some browsers display a message box with an option to click on a button to trust the certificate. Click on the button to avoid getting the error message. With other browsers, you must add the certificate manually by adding the <`servername`> as a trusted site.

See the Knowledge Base article **FA165288** on the **APC website** for information on installing the certificate on different browsers.

Local and Remote Access

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** machine, 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 and port:

`https://servername:6547`

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

Troubleshooting

These sections discuss the issues and problems that can occur when installing PowerChute Serial Shutdown.

See the following sections:

- **Installation Messages that can occur as you install PowerChute Serial Shutdown**
- **Linux Installation Issues**
- **Error Codes for Silent Installation**
- **Possible Issues When Uninstalling on Windows**
- **Communications Help – Troubleshooting Automatic and Manual UPS Detection**
- **Checking UPS Communications on Windows**
- **Installing without a USB Cable Connected on Windows**
- **Unexpected Shutdown and Lost Communications**
- **Standby Mode Disables the Agent Temporarily on Windows**
- **Standby Can Postpone a Scheduled Shutdown on Windows**
- **Issues when Changing the Date and Time on the Operating System**
- **Changing the UPS following Installation or an Upgrade**
- **UPS does not Turn On after Scheduled Shutdown**

Installation Messages that can occur as you install PowerChute Serial Shutdown

The following messages may occur while you are installing the PowerChute Serial Shutdown Agent.

NOTE:
If the problem persists, contact **APC Worldwide Customer Support** (**https://www.apc.com/support/**).

Message	Description
An unidentified program wants access to your computer.	This message is a security feature of Windows and occurs if User Account Control (UAC) is enabled. Click **Allow** to continue the installation.
Service failed to start. Aborting installation.	Setup could not install the PowerChute service. Ensure that no PowerChute files are already installed and that the computer uses a supported operating system. Restart your PC before you retry the installation.
The username must contain only US-ASCII characters.	The username must contain only US-ASCII characters and no whitespace. See **Username and Password Requirements**.
The password must contain only US-ASCII characters.	The password must contain only US-ASCII characters and no whitespace. See **Username and Password Requirements**.
The password requires: • Minimum 8 to maximum 128 characters in length • 1 upper and lower case letter • 1 number or special character	Ensure that the provided password meets the password requirements. See **Username and Password Requirements**.
The username must be 6 to 128 characters in length.	The username must have at least 6 but no more than 128 characters. See **Username and Password Requirements**.

Message	Description
PowerChute Serial Shutdown requires administrator privileges to install and run. Please log off and rerun Setup using an administrator-privileged account.	You must have administrative access to the computer before you can install PowerChute.
Passwords do not match!	The passwords you entered in the **Password** and **Confirm** fields must match.
Windows needs your permission to continue	This message is a security feature of Windows. Click **Continue.**

Error Codes for Silent Installation

The following error codes will be written to the PCSSInstall.log file if the silent installation was unsuccessful.

Error Code	Error Message	Description
3	Installer is already running	Another instance of the installer is already running.
4	Installation on 32-bit OS is not supported	PowerChute Serial Shutdown must be installed on a 64-bit operating system.
5	PowerChute Network Shutdown installation detected	Uninstall PowerChute Network Shutdown before installing PowerChute Serial Shutdown.
7	This version of PowerChute Serial Shutdown does not support Japanese language OS	
8	Upgrade from this version of PowerChute Business Edition is not supported	Uninstall PowerChute Business Edition before installing PowerChute Serial Shutdown.
9	Silent upgrade from PowerChute Business Edition 10.x is not supported	Run normal PowerChute Serial Shutdown installation, where the installer guides you through the upgrade steps. Alternatively, uninstall PowerChute Business Edition before installing PowerChute Serial Shutdown.
10	Silent installation of Visual C++ Redistributable is not supported	Run normal PowerChute Serial Shutdown installation, where the installer guides you through the Visual C++ Redistributable installation. Alternatively, download and install the **latest Visual C++ Redistributable version** before installing PowerChute Serial Shutdown.
11	Silent uninstall of PowerChute Personal Edition is not supported	Run normal PowerChute Serial Shutdown installation, where the installer guides you through uninstalling PowerChute Personal Edition v3.1. Alternatively, uninstall PowerChute Personal Edition before installing PowerChute Serial Shutdown.
12	Upgrade entry missing in ini file	Supported upgrade path found, but upgrade entry in ini file is missing.
13	APCPBEAgent service already exists	The PowerChute Agent service uninstallation has not completed. Reboot and run the PowerChute Serial Shutdown installation again.
14	Upgrade not enabled	Supported upgrade path found, but 'Upgrade' entry in ini file is not specified as 'yes'.

Error Code	Error Message	Description
15	Stopping Agent service did not succeed	Agent service of existing PowerChute Serial Shutdown installation could not be stopped. It is not possible to perform upgrade installation if the Agent service is still running.
16	No supported upgrade path found	Upgrading from an installed version of PowerChute Serial Shutdown to a new version is not supported.
20	"/F" command line parameter for silent configuration ini file is missing	
21	Silent configuration ini file doesn't exist	
22	`AcceptEULA` entry missing in ini file	
23	EULA not accepted	
24	`UPSModel` entry missing in ini file	
25	Invalid `UPSModel` value	
26	`ShareUPSMode` entry missing in ini file	
27	Invalid `ShareUPSMode` value	
28	Interface Expander and Share-UPS are not supported on UPS model	
29	`UPSPort` entry missing in ini file	
30	Serial port COM<n> for UPSPort value <b> doesn't exist on the system	
31	SRV UPS model requires serial port	
32	Interface Expander and Share-UPS require serial port	
33	Back-UPS requires USB port	
34	Disabling native OS UPS support did not succeed	
35	Username entry missing in ini file	
36	Password entry missing in ini file	
37	Username length must be between 6 and 128 characters	
38	Username must contain only US-ASCII characters and no spaces	
39	Password must contain only US-ASCII characters and no spaces	
40	Username cannot be part of the password	
41	Password length must be between 8 and 128 characters	
42	Password does not contain lowercase letter	
43	Password does not contain uppercase letter	
44	Password does not contain number or special character	
45	`AddToFirewall` entry missing in ini file	
46	`AutoDetect` entry missing in ini file	
47	No supported UPS detected	
50	`ApplicationDirectory` entry missing in ini file	
51	Installation directory could not be created	

Linux Installation Issues

Message	Description
When installing using rpm on Linux, a warning about a key is received.	To avoid getting this error message, see Knowledge Base article **FA350955**. Alternatively, you can ignore the message, the installation will proceed as normal.
During the Agent installation there is no option to communicate using the USB port.	There is a known issue in relation to Linux kernels where a panic can occur when a USB cable is disconnected. If the PowerChute installation cannot determine whether your kernel has the necessary patch that addresses this and does not display the USB port option, then you need to check with your OS provider whether your kernel has the fix included in it or not. The USB option is available in RHEL v6.4 and above and SUSE 11 SP2 and above, as the fix has been applied to its kernel. The commit number for the patch is 1a8e8fab790ea7af81b8f964fdec706ad1ec2271. See also **http://git.kernel.org**.

Possible Issues When Uninstalling on Windows

The following issues can occur when you are uninstalling PowerChute Serial Shutdown on Windows:

- After you uninstall PowerChute Serial Shutdown, you might need to remove some files and folders manually. Delete the installation folder, including its contents, if it still exists (the default folder `\Program Files\APC\PowerChute Serial Shutdown` or the non-default folder you specified during the installation). If PowerChute Serial Shutdown is the only PowerChute product installed, also delete the `APC` folder.

Communications Help – Troubleshooting Automatic and Manual UPS Detection

Use the following troubleshooting checklist if PowerChute Serial Shutdown does not detect the UPS automatically, or if you are having difficulty with manual UPS detection.

NOTE:
Setup cannot automatically detect a device connected by a simple-signaling cable. Therefore, during setup, when your UPS is connected through the basic port of an Interface Expander 2 Card, use manual detection and specify the port and UPS type. See **Simple Signaling**.

IMPORTANT:

- Check that you are using a UPS model that is compatible with PowerChute Serial Shutdown. See Knowledge Base article **FA315835** on the **APC website** to find out more about supported UPS model types.
- If another service, such as a terminal emulator, is using the COM port to which the UPS is connected, stop that service or connect the UPS to another COM port. For automatic detection,

use **Run Detect** to have the setup program search again for the UPS. For manual UPS detection, specify the new COM port.

- Ensure that the service `PowerChute Serial Shutdown` is running.
- Check the back of the UPS to ensure that you are using the correct cable, and that it is securely connected. See **UPS Communications Cable Requirements**. After any changes, stop and restart the service `PowerChute Serial Shutdown`.
- Make sure that there is only one communications cable connecting the UPS to the server on which you are installing PowerChute. If you connect the UPS to the server using both USB and serial communications cables at once, the incorrect communications type may be installed, and installation may not be successful.
- If you are using a serial-to-USB or USB-to-serial adapter, ensure that the correct drivers for the adapter are installed. **NOTE:** PowerChute was not tested for usage with serial-to-USB or USB-to-serial adapters.
- If you are using a USB cable:
  - Ensure that the Communications Port is set to USB. (To change from a serial to a USB connection, you must re-install the PowerChute Serial Shutdown Agent.)
  - Check your USB device through the Windows Control Panel, by selecting **Administrative Tools** > **Computer Management > HID**. If either **HID**, or under **HID** the driver `American Power Conversion USB UPS` is not displayed, ensure that the USB port is enabled at your computer. If you are using a USB hub instead (not recommended), ensure that the hub is receiving power, check the hub's documentation to determine if an adapter is needed, ensure that the USB cable to the UPS is the last cable in the chain, and ensure that all USB devices upstream from the UPS have are communicating.
- If either of the following is installed or connected, check its configuration:
  - A Network Management Card must be fully configured and operational.
  - If you are using PowerChute Serial Shutdown to monitor an Interface Expander 2 Card, ensure that you are using the correct cable (as listed in **Simple Signaling Cables**), and that "Simple signaling Accessory" was specified when the card or device was installed. If you are unsure what type of accessory was specified, reinstall the card or device with the correct settings.
- To check for USB/serial connection issues, use another port and cable, or use a terminal emulator to check the connection. See **Checking UPS Communications on Windows**.

NOTE:
If the troubleshooting methods in this section do not solve the problem, contact **APC Worldwide Customer Support** (**https://www.apc.com/support/**).

Checking UPS Communications on Windows

To check the connection between a smart-signaling UPS and your computer's supported Windows operating system, use any terminal-emulation program.

NOTE: There is currently no way to check the communication for Type A devices.

The following procedure describes how to check the serial communication using the **PuTTY** terminal emulator.

1. Make sure that no other service is using the communications port.
2. Open **PuTTY**.
3. On the Putty Configuration screen, enter:
   a. **Connection Type**: Serial
   b. **Serial Line**: Specify the communications port to which the UPS is connected.
   c. **Speed**: 2400 bits/second
   d. Click **Open**
4. When a blank terminal screen is displayed, type an uppercase `Y`.
   – If the screen displays the letters, `SM` (Smart Mode), there is no problem with the serial communications link.
   – If `SM` is not displayed, type an uppercase `A`. If the screen displays `OK`, the UPS can receive signals, but it cannot send them. Possible causes of issues are:
     • There may be an issue with the serial cable. Replace the serial cable.
     • The computer's serial port may be unable to receive signals because of an interrupt conflict or a malfunctioning in the port. Try using a different computer.
     • There may be a hardware issue with the UPS. Try using a different UPS.

NOTE:
For further help with communications issues, or to troubleshoot Linux communications, see Knowledge Base article **FA163608** on the **APC website**. If the problem persists, contact **APC Worldwide Support** (**https://www.apc.com/support/**).

Installing without a USB Cable Connected on Windows

On Windows, for Smart-UPS devices with the SMX and SMT prefix and Back-UPS devices, if you installed the PowerChute Agent without the USB communications cable connected to the UPS, then you cannot subsequently establish communications.

You need to correctly connect the USB communications cable from the computer to the UPS and then re-install the Agent.

Unexpected Shutdown and Lost Communications

If communications between the UPS and the server running PowerChute Serial Shutdown are lost, unexpected shutdown may occur in the event of a power outage, as the UPS cannot communicate with the PowerChute Agent running on the server.

Standby Mode Disables the Agent Temporarily on Windows

The PowerChute Agent Windows service does not work while the computer is in Standby mode.

Standby Can Postpone a Scheduled Shutdown on Windows

If your Windows computer is on standby at the time for which a shutdown is scheduled, the shutdown starts after standby mode ends. This is true even if the time scheduled for the shutdown (through the **Shutdown Schedule** command) has already passed.

For example, if a shutdown is scheduled for 7 p.m. to 7 a.m., and your computer is on standby at 7 p.m., it will not shut down at that time. But if the computer resumes normal operation at 9 p.m., the shutdown begins then. The notification will indicate that an administrative shutdown began at 7 p.m., and a minute later the computer will shut down. The computer will turn on again twelve hours later.

Issues when Changing the Date and Time on the Operating System

Certain PowerChute functionality uses the operating system's time settings. Components such as scheduled shutdowns, event logging, and data logging rely on the time settings to function correctly. Changing the time or date after PowerChute is installed is not supported.

Changing the UPS following Installation or an Upgrade

It is not supported to change the UPS used after installing PowerChute v1.3 or upgrading to PowerChute v1.3. You are not asked to select a UPS during an upgrade installation, the UPS identified during the original installation is used. To use a different UPS to that configured with PowerChute during the original installation, you must uninstall PowerChute and then reinstall to configure with the new UPS.

UPS does not Turn On after Scheduled Shutdown

With the SMX1000 and SMX750 UPS devices, the UPS might not turn back on after a scheduled shutdown.

To turn on the device manually:

1. Turn off the UPS using the LCD.
2. Remove the UPS plug from the socket.
3. Disconnect the UPS battery.

Then put the device back into normal usage by reversing these steps:

1. Re-connect the UPS battery.
2. Put the UPS plug into the socket.

Turn on the UPS using the LCD.

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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.

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