PowerVision - EMERGENCY COMPUTER SHUTDOWN

This chapter describes the basic steps for configuring an emergency shutdown of computer operating systems and for disabling the shutdown function for a device. It also includes a section on Powerware Shutdown Agent operations.

PowerVision monitors critical power devices on a 24 hours per day, 7 days per week basis. Support for servers is generally provided by UPSs backed up by generators. For the rare event of an emergency where the UPS is on battery and the UPS battery power is low, you can configure your network so computers are shut down.

The PowerVision Server application emergency computer shutdown option is for managing and controlling the shutdown of dependent computer systems which have been configured as shutdown groups. The computers within a shutdown group must be running the Powerware Shutdown Agent in any of the following operating systems:

- Windows NT 4.0, Windows 98, Windows 2000, Windows Me, Windows XP
- Novell NetWare 4.11 (TCP/IP required) and above
- HP-UX 10.2+, Sun Solaris 2.6+ (SPARC), IBM AIX 4.2+, Linux (with kernel 2.2)

You configure an emergency shutdown by creating a shutdown group and defining its properties. Figure 109 shows the communication within a typical subnet with one computer running the PowerVision Server application.
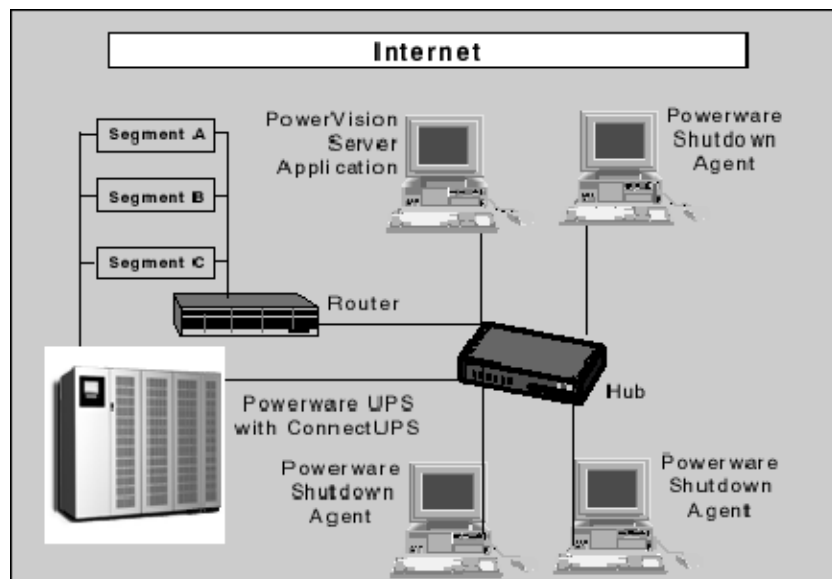

Figure 1. Configuration of Current Shutdown Group

Shutdown groups are shut down by a command from a computer running the PowerVision Server application when it receives an alert (default: low battery alert) from its supporting UPS. Since shutdown commands are triggered by a UPS status message, the configuration of one shutdown group should be limited to the computers supported by the same UPS.

Configuration is done in the PowerVision Server application by running the Shutdown Configuration wizard. The wizard's discovery process searches the network segment of the computer running the application for computers with the Powerware Shutdown Agent installed. To include computers from other segments, you perform a subnet discovery. Computers can also be manually added to the shutdown group.

> **NOTE** This function is for emergency shutdowns. It is assumed you will also have configured an alert notification system so key personnel are aware of the situation mandating the shutdown. See Chapter 6, Notifying Personnel of Alarms and Alerts.
>
> **NOTE** This function shuts down the operating system of designated servers or computers when the UPS low battery setting value is reached. PowerVision does not shut down UPSs. See your UPS documentation for instructions on configuring the low battery setting.
>
> **NOTE** Emergency Computer Shutdown is a new feature with PowerVision v.3.0. If you have been running a previous version of PowerVision and wish to use the Emergency Computer Shutdown function, you must delete the devices in the PowerVision Server application and re-install them, enabling emergency computer shutdown.

Configuring an Emergency Computer Shutdown

To configure an emergency shutdown of a computer or computers supported by a UPS device, perform the following steps:

1. **Make a list** – Make a list of your system servers and computers with the IP address and supporting UPS for each. See Listing Server and Device Details on page 19.

2. **Check your installed devices** – Devices supporting the computers to be shut down must appear in the Devices window of the PowerVision Server application. If you installed the devices using a version of PowerVision prior to version 3, you must delete the devices from the Devices window and re-install them. The Device Installation Wizard in version 3 and later includes a checkbox for enabling shutdowns which must be checked before shutdowns can be configured and enabled. See Adding and Removing Devices on page 89.

3. **Install the Powerware Shutdown Agent** – Be sure you install the shutdown agent on each critical server on the network. See next page.

4. **Create a Shutdown Group and Configure the Emergency Shutdown** – See Configuring the Emergency Shutdown on page 127.

5. **Test your computer shutdown functions** – See Testing the Emergency Computer Shutdown Function on page 130.

Installing the Powerware Shutdown Agent

You must install the Powerware Shutdown Agent on any server you designate for shutdown. Installation is as follows:

• **Windows Systems** – On the Software Suite, navigate to \PV\SDA\Win32 and run sdagent.exe.

- **Novell NetWare** – On the Software Suite CD, run load cd_volume:\PV\SDA\Novell\sdasetup. Optionally, copy the following files to a directory in your Novell system: sda.pum, sdagent.nlm, sdasetup.nlm, shutdown.ncf, and uninstall.nlm. Then run load sys:\tempdir\sdasetup.

- **UNIX Systems** – On the Software Suite CD, navigate to \PV\SDA\UNIX and run ./install.sh. Optionally, copy the distribution program file sda.XX.YY.tar (where XX=Major Version and YY=Minor Version) and the install script install.sh to a directory on your UNIX system.

  Installation options are as follows:

  - **Install path** – Accept the default path or specify an alternative.
  - **Automatic startup** – Recommend accepting the default so the Powerware Shutdown Agent starts automatically with each system reboot

For a list of installed files and their descriptions, see page 133 for Windows systems, page 133 for Novell NetWare, and page 134 for UNIX systems.

Creating a Shutdown Group and Configuring the Emergency Shutdown

1. Do one of the following:

   - After you install a device (see page 89) the PowerVision Emergency Computer Shutdown Summary opens.
   - On the PowerVision Server application File menu, point to Emergency Computer Shutdown and click Start the Configuration Wizard. The PowerVision Emergency Computer Shutdown Summary opens. See Figure 110.
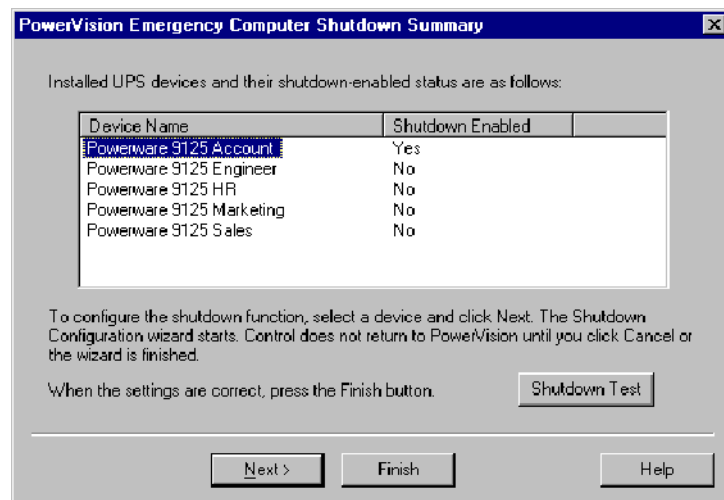

Figure 2. PowerVision Emergency Computer Shutdown Summary

2. Select the device supporting the computers to be shut down and click Next.

3. The Select Clients dialog box opens and the system searches the local network segment of your computer for other computers running the PowerVision Shutdown Agent. The hostnames for these computers appear in the left pane of the Select Clients dialog box as Available Shutdown Clients. See Figure 111.
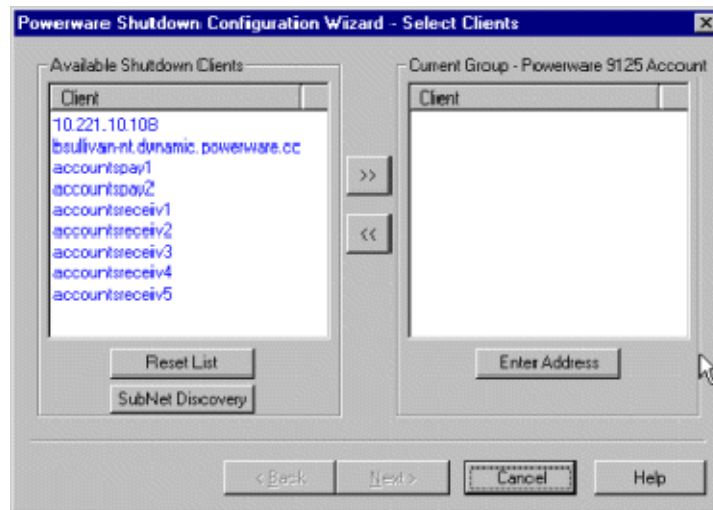
Figure 3. Available Shutdown Clients Found by System

4. Create the Current Shutdown Group for the UPS. If the UPS powers a computer in the Available Shutdown Clients area, select the computer and click >>, moving the computer or computers to the Current Group area. See Figure 112.
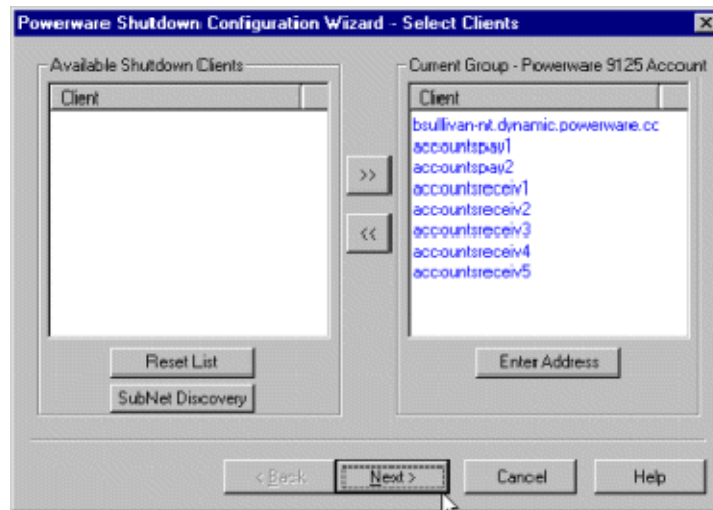

Figure 4. Current Shutdown Group Configured by User

If the UPS supports computers in other network subnets, click SubNet Discovery. The Manual Broadcast dialog box opens. Type the subnet number as xx.xxx.xx.255 and click OK. Discovered computers are added to the list of Available Shutdown Clients.

To add other computers to the Current Shutdown Group, click Enter Address. The Manual Client Entry dialog box opens. Type the IP address or hostname and click OK.

5. Click Next. The Shutdown Client Properties dialog box opens. See Figure 113.
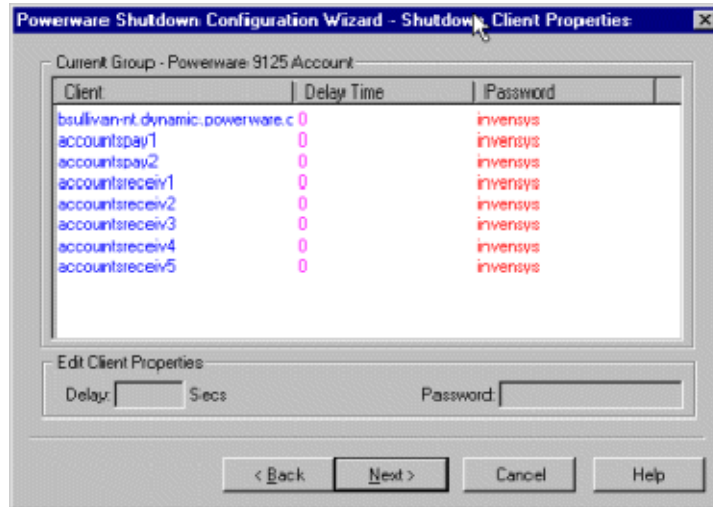
Figure 5. Shutdown Client Properties

6. To edit client properties, select the client. You can change either of the following:

   • **Delay Time** – The interval between the low battery alert and the moment when the workstation initiates its shutdown. This interval allows the system administrator to sequence the shutdown so the most critical servers are shut down last. See your local Powerware representative to help you set your low battery definition.

   • **Password** – This makes shutdown a password-controlled function. Passwords can be individualized by computer or server.
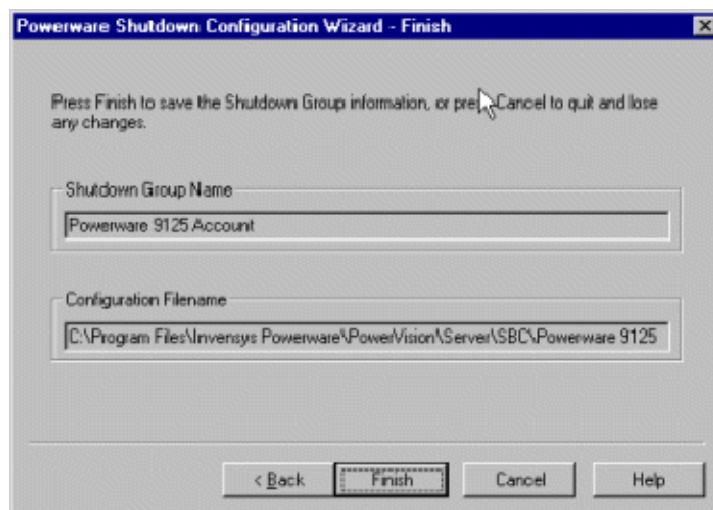
7. Click Next. The Finish dialog box opens.

Figure 6. Finish

By default, if you enable shutdowns, the computer shuts down if the UPS is on battery and the battery is low. Changing the defaults is not advised without Powerware Corporation technical support. To change defaults, edit the user-defined equation for the Emergency Computer Shutdown channel.

Testing the Emergency Computer Shutdown Function

This is a pre-test of communications. It does not shut down a system but checks to see if a group's clients are on line and would shut down if a shutdown message was sent to the UPSs. If contact it successful, it is shown in the report that is generated at the conclusion of the test.

1. On the File menu, point to Emergency Computer Shutdown and click Start the Configuration Wizard. The Wizard Summary dialog box opens.

2. Select a device and click Shutdown Test.

The system checks client IP addresses and links and tests communication with remote and local clients. A report is generated and opens on your screen.

Disabling the Shutdown Function

When you disable the emergency computer shutdown channel for a device and remove the device from a shutdown group, you disable the emergency computer shutdown function for all the computers it supports.

Disabling the Emergency Computer Shutdown Channel

1. In the Emergency Computer Shutdown channel properties, select Channel Disabled.

2. In the PowerVision Server application window, select the device and expand its list of channels.

3. Select the Emergency Computer Shutdown channel and open its Properties dialog box.

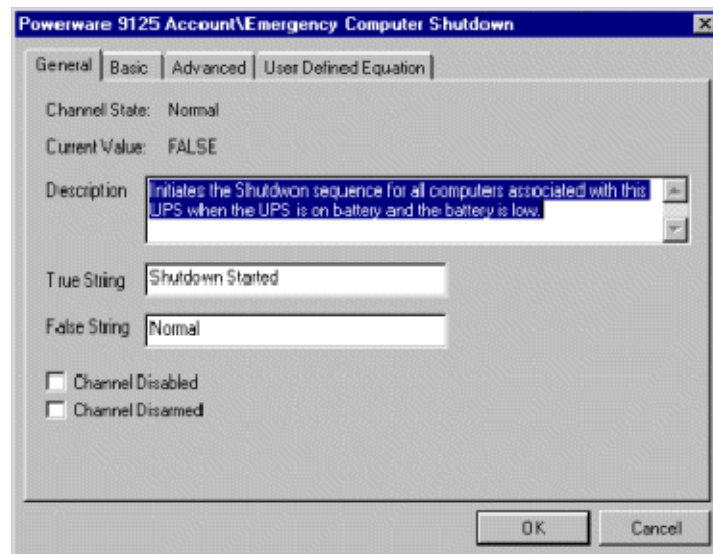4. Select the Channel Disabled check box. See Figure 115.

Figure 7. Emergency Computer Shutdown Channel Properties

Removing a Device from a Shutdown Group

1. In the Computer Shutdown wizard, reconfigure the computers that are attached to the device.

2. In the PowerVision Server application File menu, point to Emergency Computer Shutdown and click Start the Configuration Wizard. The Select Clients dialog box opens and the system searches your local subnet. When the search is complete, all computers in the shutdown group appear in the right pane. See Figure 112.

3. In the Current Group (right pane), select a device to be removed and click <<. The device appears on the available shutdown clients list (left pane). See Figure 111.

4. Click Next. The Shutdown Client Properties dialog box opens. See Figure 113.

5. Click Next. The Finish dialog box opens. See Figure 114.

6. Click Finish. The PowerVision Emergency Computer Shutdown Summary opens. See Figure 110.

7. Click Finish. A new .ini file is generated, overwriting the exisiting one. This completes the removal of the device.

Powerware Shutdown Agent Operations

The following sections cover procedures for shutting down specific programs before the operating system, changing the unique ID of the local host, setting the ports for discovery or communication, limiting the IP addresses to which the Powerware Shutdown Agent responds, shutting down the Powerware Shutdown Agent, and uninstalling the Powerware Shutdown Agent.

Shutting Down Specific Programs Before the Operating System

1. In a text editor or word processor, run the appropriate file from the following list:

   - **Windows Systems** – shutdown.bat
   - **Novell NetWare** – shutdown.ncf
   - **UNIX Systems** – shutdown.sh

These files contain the shutdown command for the system. Add shutdown commands for specific applications before the system shutdown command.

Changing the Unique ID of the Local Host

The installation program proposes a default value or hostname. You can change this value but you must be sure that the new value is unique to all instances of the Powerware Shutdown Agent that the PowerVision Server application can see.

1. In a text editor, open sda.cfg.

2. Change the value for UniqueID.

Setting the Ports for Discovery or Communication

Create either or both of these values if you are having problems because another software program indiscriminately uses the same port or ports. The value you specify forces the program to use the value for discovery or communication with the PowerVision Server application.

1. In a text editor, open sda.cfg.

2. Specify a value for DiscoveryPort or CommunicationPort.

Limiting the IP Addresses to Which the Powerware Shutdown Agent Responds

By default, the Powerware Shutdown Agent responds to shutdown commands from any IP address. You can specify that the Powerware Shutdown Agent respond only to shutdown commands from a specific IP address or addresses. Enter each IP address on a separate line. You may specify up to 16 IP addresses.

1. In a text editor, open sda.cfg.

    Change the value for ResponseIP per the following example:

    ResponseIP=12.345.678.90
    12.345.678.91
    12.345.678.92
    12.345.678.93
    12.345.678.94

Shutting down the Powerware Shutdown Agent

*   **Windows 95**, **Windows 98** – Type Ctrl+Alt+Delete. On the Close Program dialog box, select pwagdmon and click End Task.
*   **Windows NT**, **Windows 2000** – On the Start menu, point to Settings and click Control Panel. On the Control Panel, open the Services icon. On the Services dialog box, select Powerware Shutdown Agent and click Stop.
*   **Novell NetWare** – Type unload sdagent. The module sdagent.nlm is unloaded. Optionally, uninstall the Powerware Shutdown Agent.
*   **UNIX** – Run the script /usr/sda/sda.init stop.

Uninstalling the Powerware Shutdown Agent

Windows Systems – Perform the following steps:

1. On the Start menu, point to Settings and click Control Panel. The Control Panel opens.

2. On the Control Panel, open the Add/Remove Programs icon. The Add/Remove Programs Properties dialog box opens.

3. On the Add/Remove Programs Properties dialog box, select Powerware Shutdown Agent and click Add/Remove.

Novell NetWare – Run LOAD SYS:\sda\uninstal. The uninstall stops the Powerware Shutdown Agent, removes the autostart files, removes the files from the Powerware Shutdown Agent directory, and removes the Powerware Shutdown Agent's install directory.

UNIX Systems – From outside the /usr/sda directory, run /usr/sda/uninstal.sh.

Windows Files

Table 1 is a list of files and their descriptions. These files are installed with the Powerware Shutdown Agent in Windows systems.

Table 1. Powerware Shutdown Agent Files for Windows

File Name	Description
sdagent.exe	Powerware Shutdown Agent for Windows 95, Windows 98, and Windows ME
pwagsrvc.exe	Powerware Shutdown Agent service (Windows NT, Windows 2000, Windows XP)
pw_popup.exe	Message popup program
sda.stt	System file
sda.pwd	System file
sda.par	System file
sda.cfg	System file
sda.cmt	System file
sda.act	System file
sda.pum	System file
sda.acc	System file
shutdown.bat	Batch file which user can open in a text editor to modify so specific programs are shut down before the operating system
shutdown.exe	System and application shutdown program
shutdown.cfg	Configuration file for shutting down applications

Novell NetWare Files

Table 2 is a list of files and their descriptions. These files are installed with the Powerware Shutdown Agent in Novell NetWare systems.

Table 2. Powerware Shutdown Agent Files for Novell NetWare

File Name	Description
sdagent.nlm	Shutdown agent
shutdown.ncf	Shutdown script modifiable file to shut down critical applications before the operating system
uninstal.nlm	Uninstall script
sda.stt	System file
sda.pwd	System file
sda.par	System file
sda.cfg	System file
sda.cmt	System file
sda.act	System file
sda.pum	System file
sda.acc	System file

UNIX Files

Table 3 is a list of files and their descriptions. These files are installed with the
Powerware Shutdown Agent in UNIX systems.

Table 3. Powerware Shutdown Agent Files for UNIX

File Name	Description
sdagent	Powerware Shutdown Agent daemon
shutdown.sh	Modifiable shutdown script file to shut down critical applications before the operating system
uninstal.sh	Uninstall script
sda.init	Script file that starts, stops, or initializes the Powerware Shutdown Agent daemon
sda.stt	System file
sda.pwd	System file
sda.par	System file
sda.cfg	System file
sda.cmt	System file
sda.act	System file
sda.pum	System file
sda.acc	System file