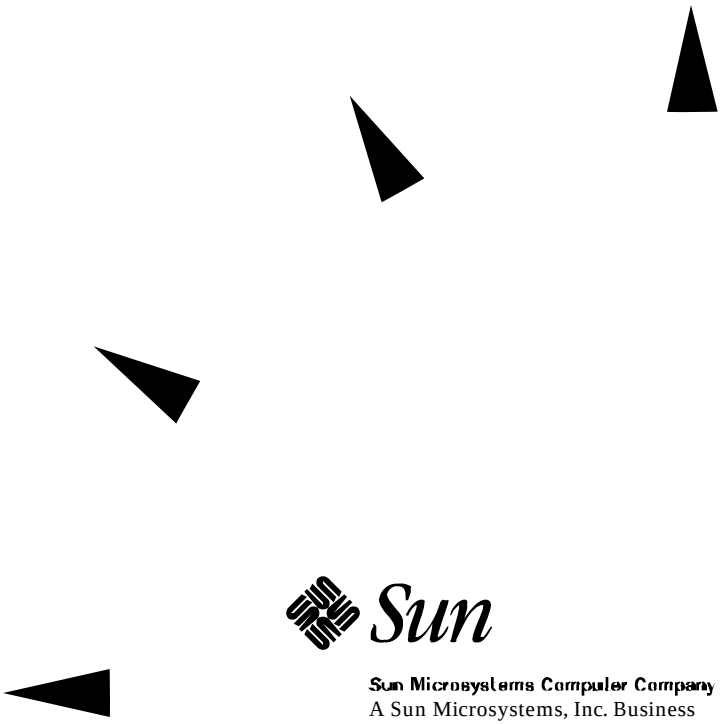
Installing and Using Power Management



2550 Garcia Avenue
Mountain View, CA 94043
U.S.A.

Part No: 801-7921-10
Revision A, November 1994

Sun Microsystems Computer Company
A Sun Microsystems, Inc. Business

Contents

Figures

Tables

Preface

The *Installing and Using Power Management* manual describes how to configure Sun™ SPARCstation™ systems to conserve energy.

What Typographic Changes Mean

The following table describes the typographic changes used in this book.

Table P-1 Typographic Conventions

Typeface or Symbol	**Meaning**	**Example**
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `machine_name% You have mail.`
`AaBbCc123`	What you type, contrasted with on-screen computer output	`machine_name% su` `Password:`
AaBbCc123	Command-line placeholder: replace with a real name or value	To delete a file, type `rm` *filename.*
AaBbCc123	Book titles, new words or terms, or words to be emphasized	Read Chapter 6 in *User's Guide.* These are called *class* options. You *must* be root to do this.

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

Table P-2 Shell Prompts

Shell	**Prompt**
C shell prompt	`machine_name%`
C shell superuser prompt	`machine_name#`
Bourne shell and Korn shell prompt	`$`
Bourne shell and Korn shell superuser prompt	#

Introduction 1

Power Management™ software increases your system's energy efficiency to meet the U.S. Environmental Protection Agency (EPA) Energy Star guidelines. Power Management conserves the amount of power that your system consumes. Power conservation is done in two levels:

- The first level reduces the power consumption of each system component when possible. Any system component that is power manageable can be placed in a low power-mode; one example is the display monitor.
- The second level removes system power completely when the system is not in use. This feature, named AutoShutdown, makes use of the Suspend-Resume feature to allow for quick restoration of the system during the next power on.

The Power Management software consists of two utilities:

- `dtpower`
- Suspend-Resume

Suspend-Resume

Suspend-Resume is a new, time-saving feature in the Power Management software that allows you to power cycle your system without losing the state of your current activities. Your workspace and files are preserved when the system is powered off so that they can be restored to the same state when the system is powered on.

For example, you can be in the process of editing a document when you decide to leave and power off your system. By using the Suspend-Resume feature, your edit session will automatically be restored and appear as it did when you left it the next time you power on the system.

dtpower

The Power Management graphical user interface, `dtpower`, allows you to designate periods of inactivity after which the display will turn off and the system will shut down. You can also use this tool to set the time of day to activate the automatic shutdown; for example, if you wish to use this feature only after your regular work hours.

Using Power Management 2

Note – If you are using the Power Management software on a SPARCstation Voyager system, see also Chapter 3, “Using Power Management on a SPARCstation Voyager” for additional information.

As soon as you complete installing the software, the Power Management features become active. Power Management is initialized to the default settings. There are two types of default settings, the system default settings and the per user default settings. When you first boot the system, the system default settings are in effect. To override the system settings with the per user settings, you need to start the window system and the graphical user interface (GUI), `dtpower`. The system default settings control the AutoShutdown feature in addition to the device settings, and can only be modified by the superuser.

`dtpower` allows you to tailor per user settings, such as the device settings (e. g. the display), according to your preference. `dtpower` also allows you to view the system AutoShutdown settings. To change the system AutoShutdown settings you must start `dtpower` as superuser. To use `dtpower`, go to the next section, “Configuring Power Management In OpenWindows.”

A command line interface is also provided for the system administrator to change the system default settings. Go to Appendix B, “Configuring Power Management Using the Command Line”.

2

Configuring Power Management In OpenWindows

Using `dtpower`, you can change the length of idle time before:

- Screen power off
  `dtpower` turns off the power to your monitor.
- AutoShutdown
  `dtpower` suspends your system. For more information on the Suspend function, see Chapter 4, “Suspend-Resume.”

Starting `dtpower`

You can start `dtpower` using one of the following methods:

1. Type

```
example% /usr/openwin/bin/dtpower &
```

or

Select Power Manager from the Workspace Menu under the Programs option if you are using the default OpenWindows menu.

For more information on the Workspace Menu, refer to the *Solaris 2 Deskset Quick Reference*.

The `dtpower` icon is displayed, as shown in Figure 2-1.

Figure 2-1 `dtpower` Icon

2. **Double-click on the `dtpower` icon.**
   The main window is displayed, as shown in Figure 2-2.

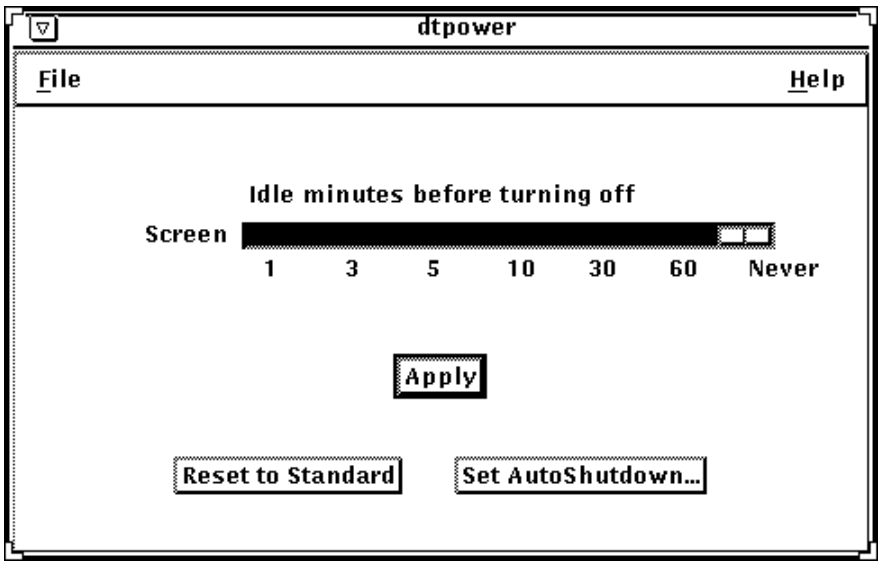


Figure 2-2 Main Window

The initial value for the idle time for screen turn off is 30 minutes, this is set at installation. The standard value is Never. If you wish to change the settings, proceed to the next section.

Setting an Idle Time for Your Screen

1. **Drag the screen slider, as shown in Figure 2-3, to set the length of idle time in minutes before your screen will automatically power off.**

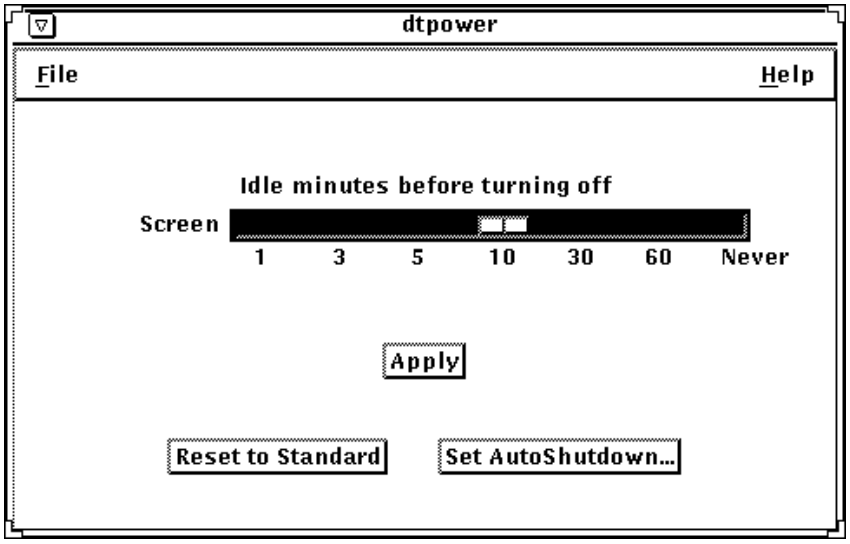


Figure 2-3 Setting a Screen Idle Time

2. **Select Apply.**
   In Figure 2-3, the default setting, Never, has been changed to 10 minutes. Your screen will now automatically power off after 10 minutes of inactivity (no keystrokes or mouse activity).

- If you want to change this setting, you need to repeat this procedure.
- If you want to apply the standard setting, go to the next section, “Resetting to Standard Values.”

Resetting to Standard Values

- **Click on the Reset to Standard button in the main window to select the default values (Never) for your screen, as shown in Figure 2-4.**

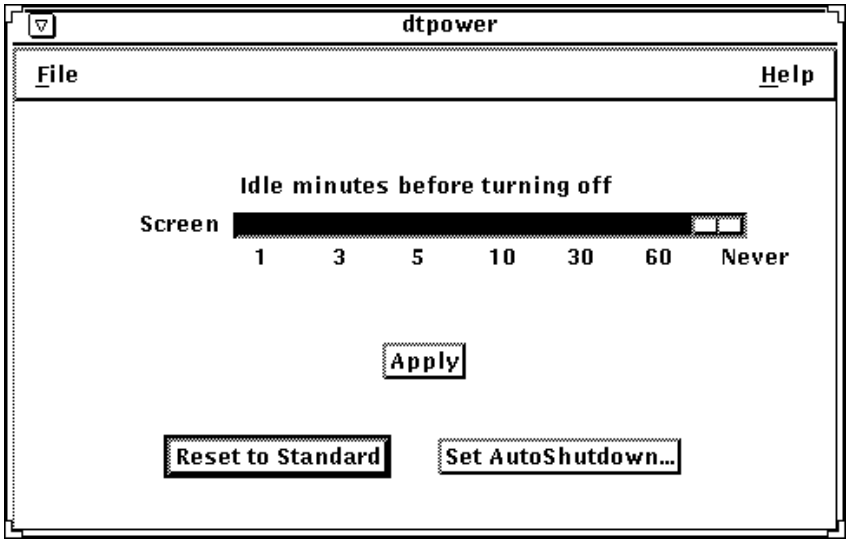


Figure 2-4 Resetting to Standard or Default Settings

- **You do not need to select Apply to effect this change.**

Setting AutoShutdown

AutoShutdown uses the Suspend feature to automatically power off your system. If you wish to change the AutoShutdown settings for your system, you have to start `dtpower` as superuser. Otherwise, the AutoShutdown settings can only be viewed but not changed.

1. Start `dtpower` as superuser by typing:

```
example% su
Password: root password
example# /usr/openwin/bin/dtpower &
```

2. Click on the Set AutoShutdown button in the main window, as shown in Figure 2-5.

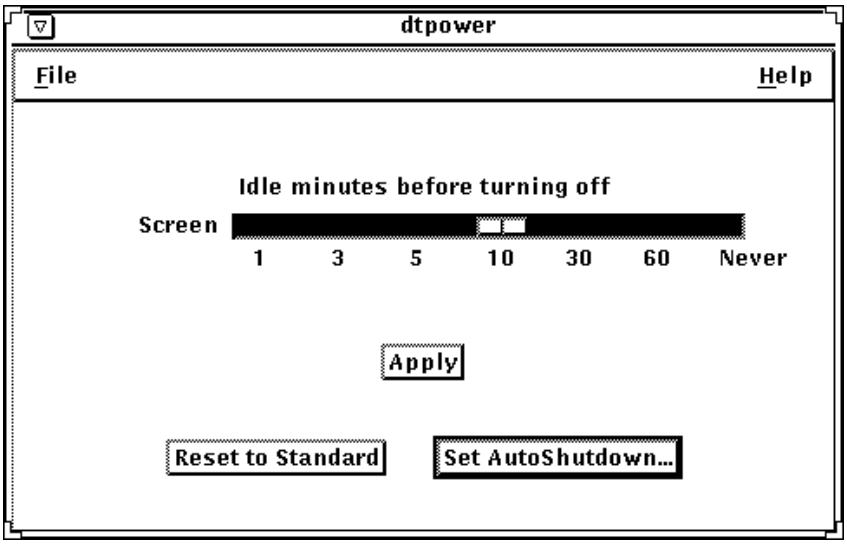


Figure 2-5 Selecting Set AutoShutdown

The AutoShutdown pop-up window is displayed, as shown in Figure 2-6.

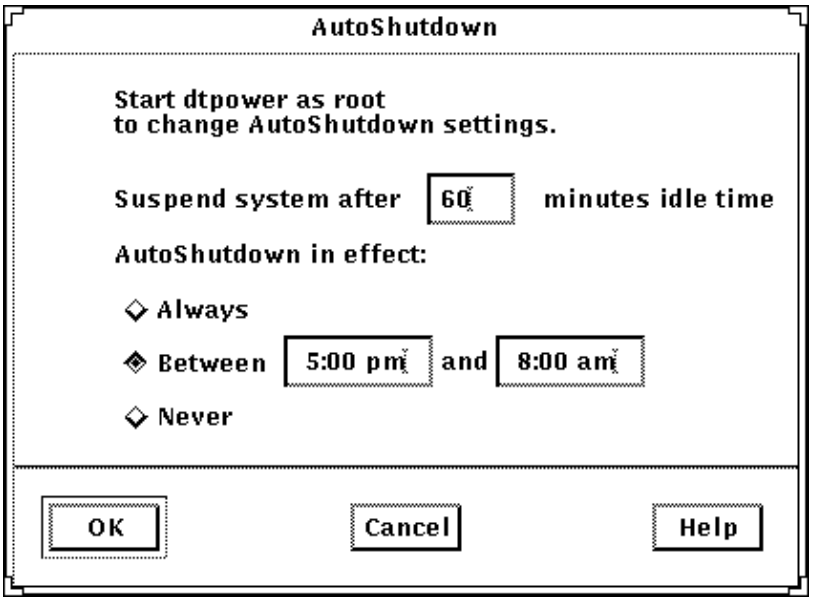


Figure 2-6 AutoShutdown Pop-Up Window

These settings cause your system to power off after 60 minutes of inactivity between the hours of 5:00 pm and 8:00 am.

- If you wish to change the length of idle time before your system is automatically powered off, go to Step 3.
- If you want to change the time of day when you want to power off your system, go to Step 4.

3. **Enter the idle time in minutes before your system is automatically powered off, as shown in Figure 2-7.**

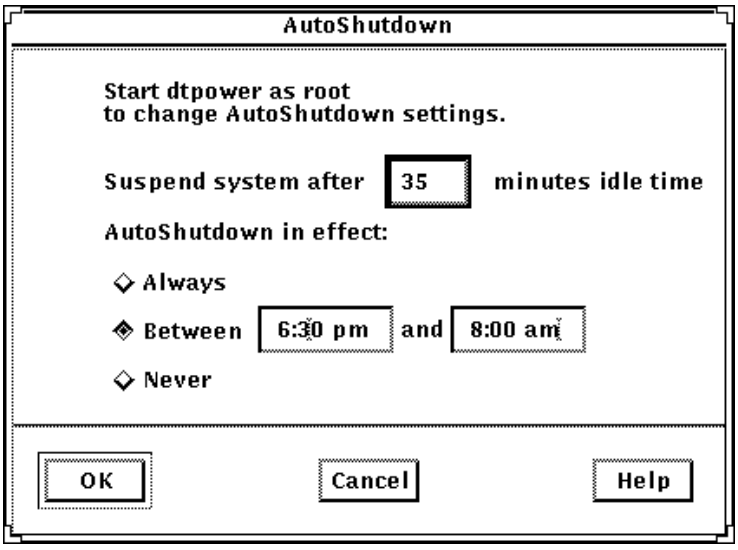


Figure 2-7 Entering the Number of Minutes Before AutoShutdown (35 minutes)

4. **Select the condition under which your system is automatically powered off.**
   You can select Always, Between, and Never.

   - If you select Always, your system will always power off automatically after the idle time that you set, as shown in Figure 2-8.

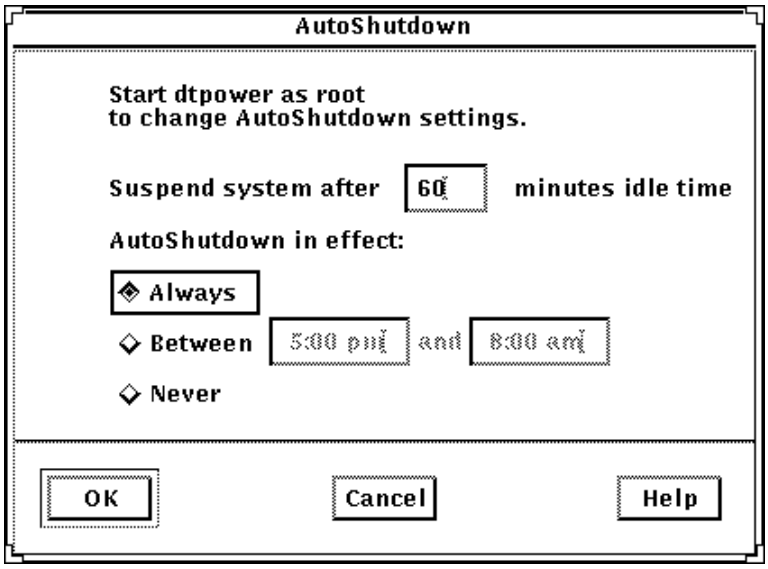


Figure 2-8 The AutoShutdown Menu: Idle Time - Always

- If you select Between, your system will power off automatically between the times that you specify, after the idle time that you set, as shown in Figure 2-9.

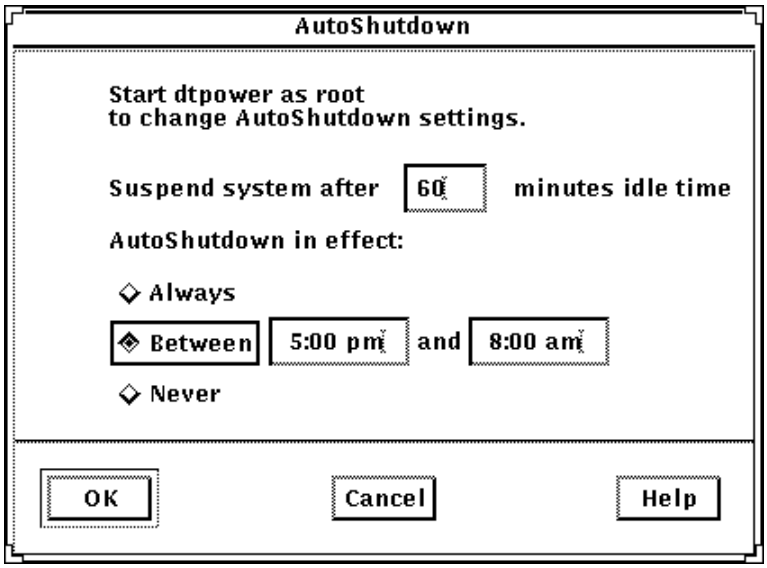


Figure 2-9 The AutoShutdown Menu: Idle Time - Between Time Periods

- If you select Never, your system will not power off automatically.

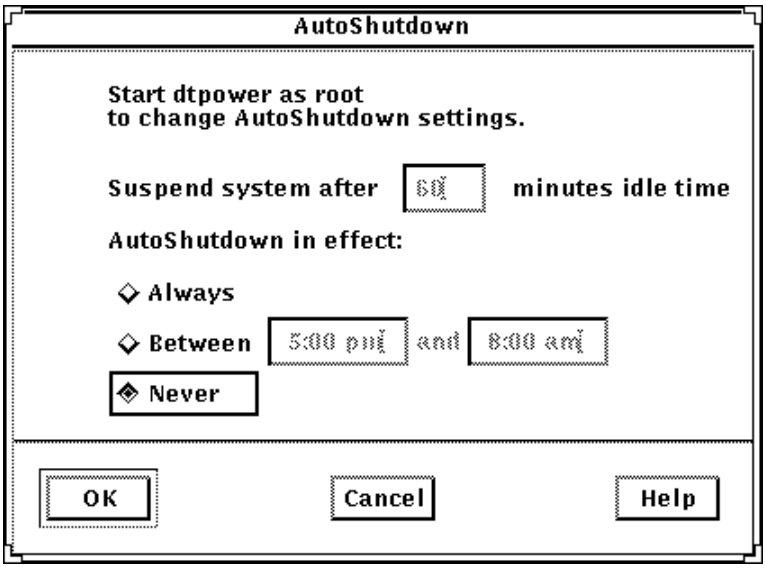


Figure 2-10 Selecting Never

5. **Select OK to apply the settings.**
   If you want to abort this task, select Cancel.

Exiting `dtpower`

- **Select Exit from the File Menu in the main window, as shown in Figure 2-11.**

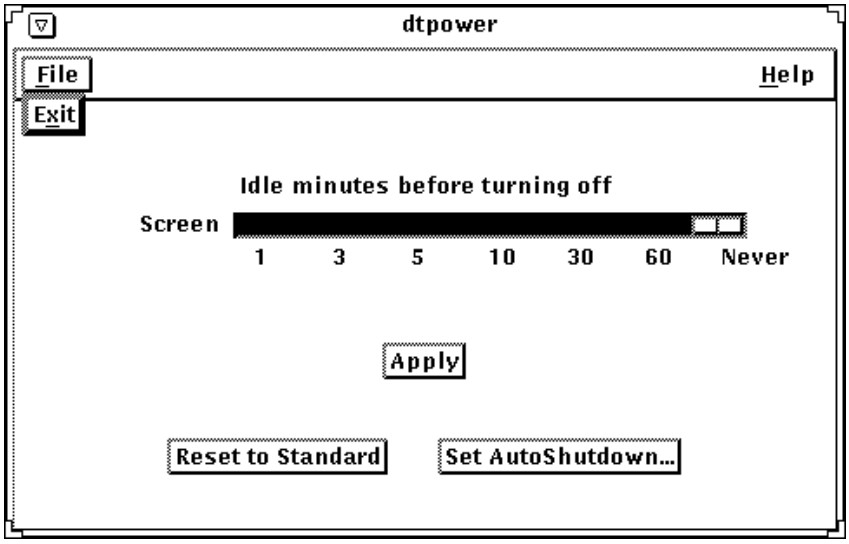


Figure 2-11 Exiting `dtpower`

2

Using Power Management on a SPARCstation Voyager 3

Power Management software on a SPARCstation Voyager system has additional functionality that is not documented in Chapter 2, “Using Power Management.”

You can use a SPARCstation Voyager system:

- Connected to a wall outlet without a battery (on AC)
- Connected to a wall outlet with a battery (on AC or battery)
- Connected only to a battery

When connected to a wall outlet, a SPARCstation Voyager system has the same functionality as any other Sun SPARCstation system. However, when using a battery, Power Management displays information about the battery charge. If a SPARCstation Voyager system that only uses battery power is about to exhaust the battery charge, the system will automatically suspend and override any setting in `dtpower`. You can resume after changing battery packs or connecting to a wall outlet. For more information on the Suspend feature, see Chapter 4, “Suspend-Resume.”

In addition, power consumption of the hard disk can also be conserved on a SPARCstation Voyager system. If no activity occurs on the hard disk for a specified period of time, the hard disk will automatically power off. You can also specify the length of time before the hard disk is powered off.

The Power Management graphical user interface, `dtpower`, provides additional information about battery connectivity and charge on a SPARCstation Voyager system, which is not available on other Sun SPARCstation systems.

3

SPARCstation Voyager Power Sources

The `dtpower` icon and main window on a SPARCstation Voyager system display information about battery connectivity and battery charge. Both the icon and main window are automatically updated whenever the power configuration of your SPARCstation Voyager system changes. A power profile consists of a set of specified periods of inactivity before different devices, such as the screen and hard disk, are automatically powered off.

`dtpower` on a SPARCstation Voyager system provides the flexibility of storing two power profiles. You have an AC power profile and a battery power profile, each of which can be customized. You can set up the battery power profile to conserve battery charge by shutting down the screen and hard disk during shorter periods of inactivity. `dtpower` automatically sets the correct profile for the available power supply.

SPARCstation Voyager Connected to a Wall Outlet (on AC)

Figure 3-1 illustrates the `dtpower` icon on a SPARCstation Voyager system that is running on AC only.

Figure 3-1 `dtpower` Icon on a SPARCstation Voyager Connected to a Wall Outlet (AC)

Figure 3-2 shows the main window on a SPARCstation Voyager system that is running on AC only.

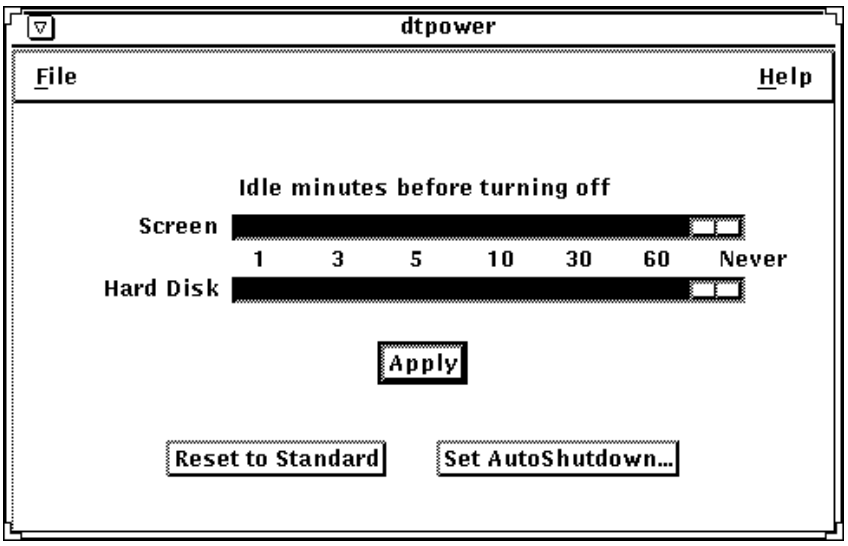


Figure 3-2 Main Window on a SPARCstation Voyager Connected to a Wall Outlet

SPARCstation Voyager Connected to a Wall Outlet and a Battery

Figure 3-3 shows the dtpower icon of a SPARCstation Voyager system connected to a wall outlet and a battery. The power level in the icon represents the level of charge of the battery.

Figure 3-3 `dtpower` Icon on a SPARCstation Voyager Connected to a Wall Outlet and a Battery (fully charged)

The icon displays the amount of battery charge that is left, as shown in Figure 3-4.

Figure 3-4 `dtpower` Icon on a SPARCstation Voyager Connected to a Wall Outlet or Powered by a Battery (partially charged)

Figure 3-5 shows the main window on a SPARCstation Voyager system that is connected to a wall outlet and a battery. The battery charge is displayed as a percentage of total capacity.

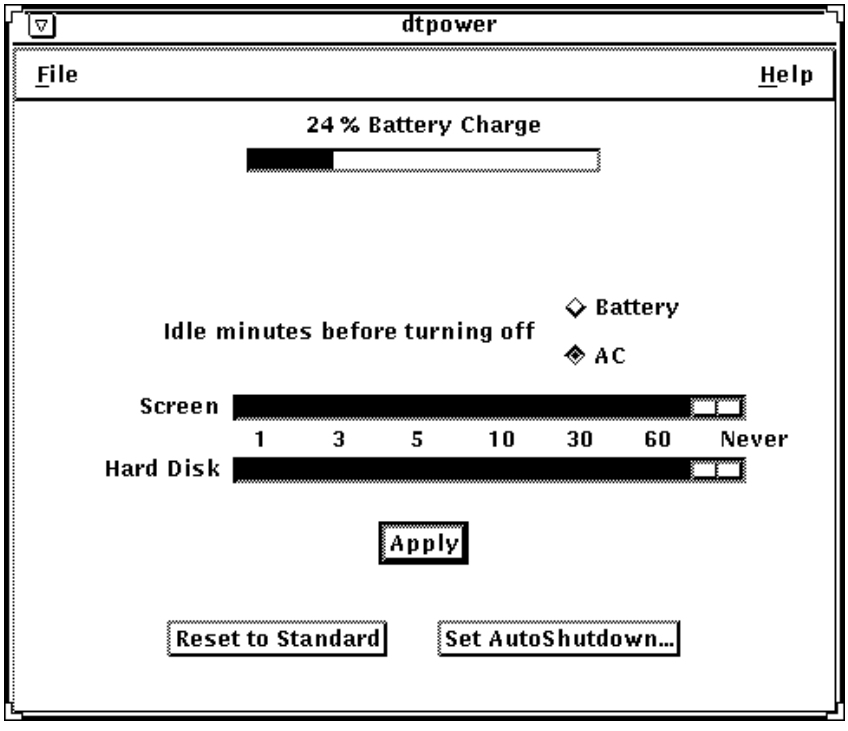


Figure 3-5 `dtpower` Icon on a SPARCstation Voyager Connected to a Wall Outlet and a Battery

SPARCstation Voyager Powered by a Battery

Figure 3-6 illustrates the `dtpower` icon on a SPARCstation Voyager system connected only to a battery.

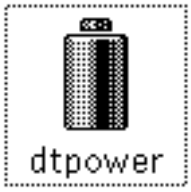


Figure 3-6 `dtpower` Icon on a SPARCstation Voyager Powered by a Battery (fully charged)

The icon displays the amount of battery charge that is left, as shown in Figure 3-7.

Figure 3-7 `dtpower` Icon on a SPARCstation Voyager Powered by a Battery (partially charged)

Figure 3-8 shows the main window on a SPARCstation Voyager system connected only to a battery. The battery charge is displayed as a percentage of total capacity. The number of minutes remaining for the SPARCstation Voyager system to operate with only a battery is 15 minutes in this example.

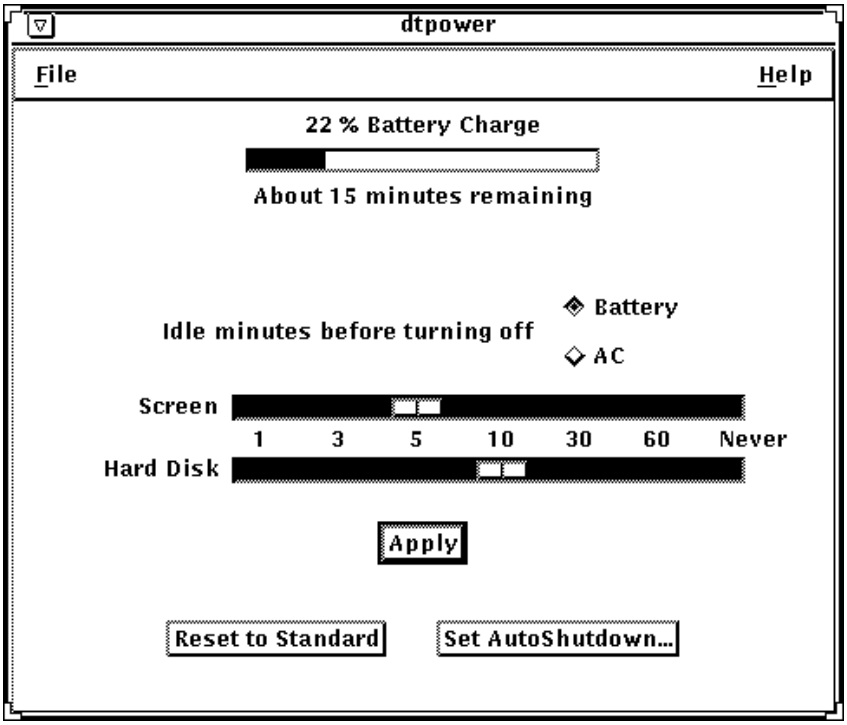


Figure 3-8 `dtpower` Icon on a SPARCstation Voyager Powered by a Battery

Viewing Power Profiles

Note – If the SPARCstation Voyager system does not have a battery, you cannot change the battery profile.

To view a power profile:

- **Select the type of profile by clicking the Battery or AC toggle button in the main menu, as shown in Figure 3-9.**

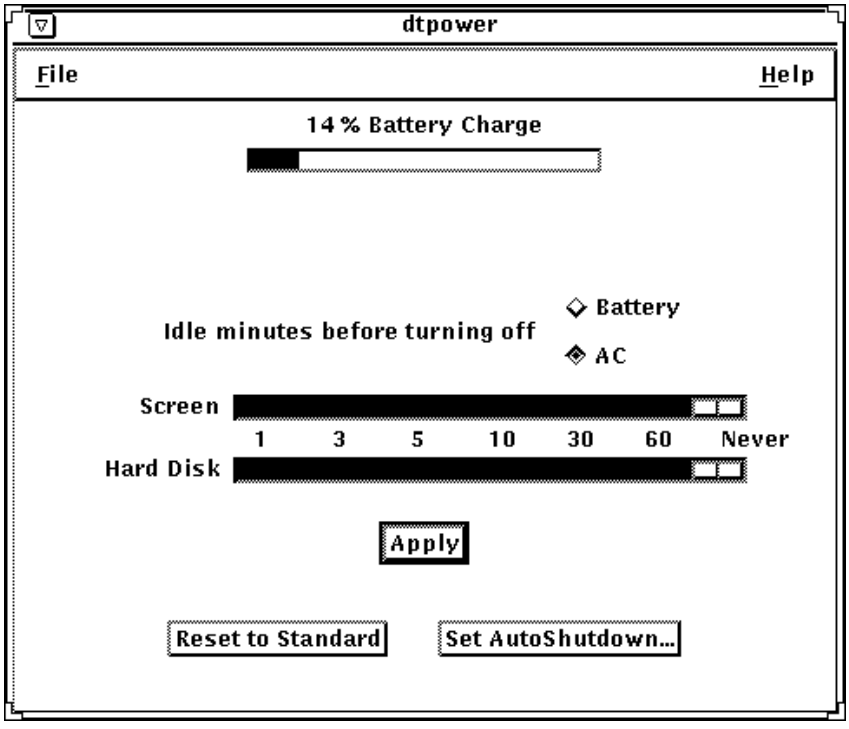


Figure 3-9 Viewing the AC Power Profile

Setting Idle Time for Screen and Hard Disk

To change or set the idle time for a certain profile before a screen or hard disk is automatically powered off:

1. **Select the type of profile, Battery or AC, in the main menu.**
2. **Drag the slider for the screen or hard disk, as shown in Figure 3-10, to set the length of idle time before your screen or hard disk is automatically powered off.**

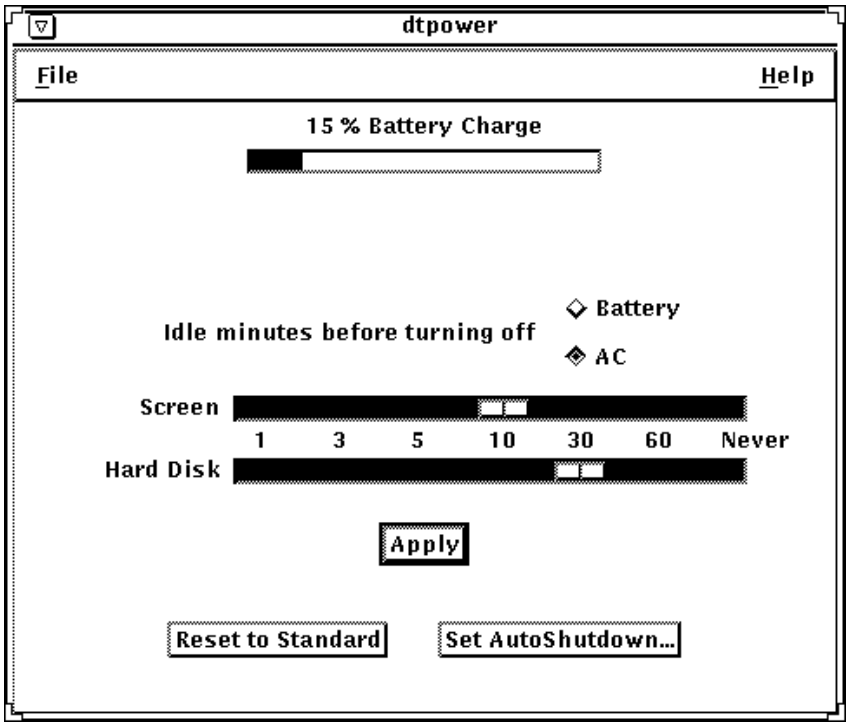


Figure 3-10 Changing the Settings in a Power Profile

The default settings for the AC power profile are Never for screen and Never for hard disk. The default settings for the battery power profile are 5 minutes for the screen and 10 minutes for the hard disk.

Resetting to Standard Values

- **Click on the Reset to Standard button in the main menu to select the standard values for the screen and hard disk for both profiles, as shown in Figure 3-11.**

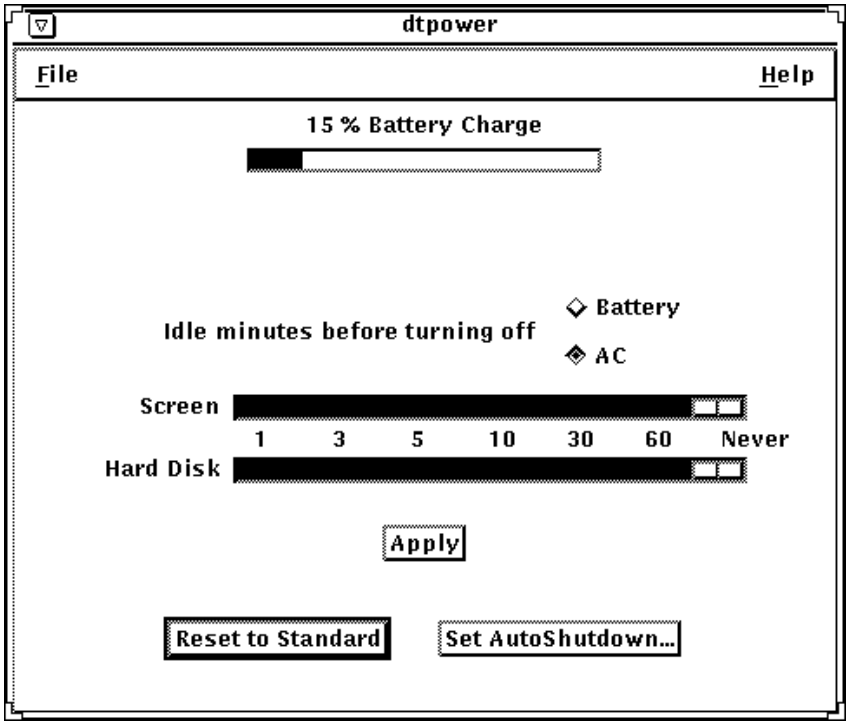


Figure 3-11 Clicking on the Reset to Standard Button

- **You do not need to select Apply to effect this change.**

3

Suspend-Resume 4

The Power Management software introduces a new timesaving feature, *Suspend-Resume.*

The traditional process of powering off your system can be time consuming. Similarly, the process of rebooting and setting up your workspace also can take awhile. With the Suspend-Resume feature, you can power off your system quickly saving all your current work in process, and at the next power on return quickly to your workspace as it was when you left it.

You can leave your system suspended and powered off for an indefinite length of time without any data loss.

You can initiate Suspend by using the AutoShutdown feature in the Power Management software, or initiate it manually using the instructions in the next section.

Suspend allows you to do the following without loosing state:

- Move your system from one location to another
- Power off your system to conserve energy
- Switch the system power source form a battery to the wall outlet (AC power supply) or vice-versa.

Note – Do not use the Suspend feature if you need to reconfigure your system. You must halt the operating system whenever you want to reconfigure your system.

Before suspending your system, you must wait for the following operations to finish:

- Audio activity
- Floppy disk activity
- Tape activity
- ISDN activity
- Synchronous tty activity

Using Suspend

To initiate Suspend and a subsequent Resume usually requires less than a minute. You can initiate Suspend from the keyboard, the Workspace Utilities menu, or the shell command.

Using the Keyboard to Suspend

1. Press the power key.

See Figure 4-1 and Figure 4-2 for the location of the power key.

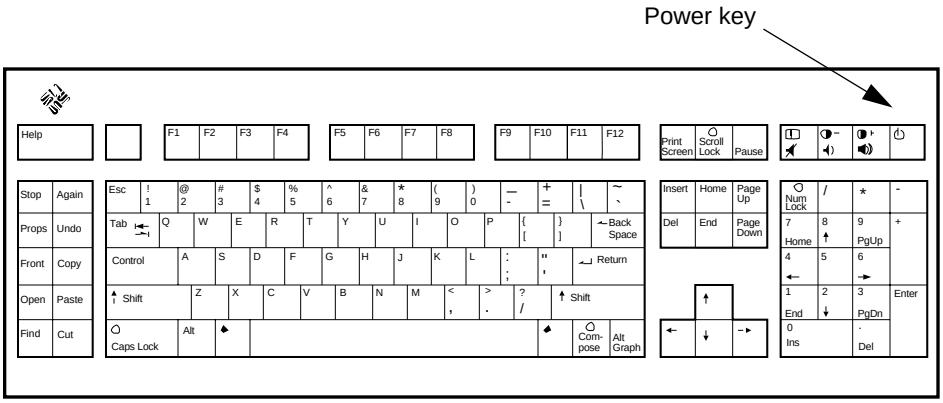


Figure 4-1 Power Key Location — Sun Type 5 Keyboard

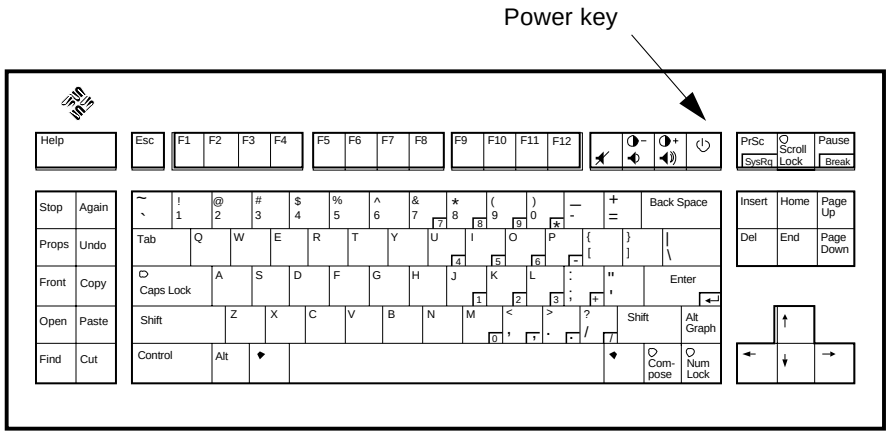


Figure 4-2 Power Key Location — Sun Compact 1 Keyboard

The pop-up confirmation window of the Workspace utility is displayed, as shown in Figure 4-3.

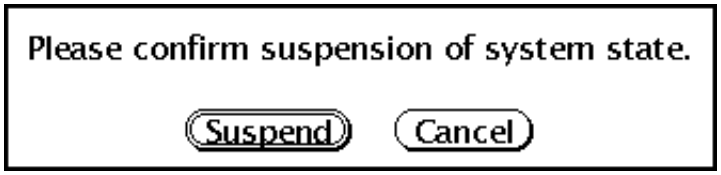


Figure 4-3 Suspend Confirmation Pop-Up Window

2. **Select Suspend.**

3. **Wait for the system to power off.**

4. **Power off all external devices.**
   External devices include disk drives, printers, or other serial or parallel peripherals. See the manual supplied with the external device for instructions.

Using Keyboard Shortcuts to Suspend

1. **Press Shift and the power key.**
   See Figure 4-1 and Figure 4-2 for the location of the power key.
2. **Wait for the system to power off.**
3. **Power off all external devices.**
   External devices include external disk drives, printers, or other serial or parallel peripherals. See the manual supplied with the external device for instructions.

Using Workspace Utilities to Suspend

1. **Place your cursor in the workspace and hold down the menu button.**
   The Workspace menu is displayed.
2. **Select Utilities with the menu button.**
3. **Select the Suspend menu option.**
   The Suspend confirmation is displayed, as shown in Figure 4-3.
4. **Select Suspend.**
5. **Wait for the system to power off.**
6. **Power off all external devices.**
   External devices include disk drives, printers, or other serial or parallel peripherals. See the manual supplied with the external device for instructions.

Using the Shell Command to Suspend

Note – A window system, such as the OpenWindows environment, does not have to be running for the Suspend shell command to work.

1. **At the prompt, type:**

```
example% /usr/openwin/bin/sys-suspend
```

The Suspend confirmation pop-up window is displayed, as shown in Figure 4-3. If a window system is not running, the command executes without displaying the confirmation pop-up window.

2. **Select Suspend.**
3. **Wait for the system to power off.**
4. **Power off all external units.**
   External devices include disk drives, printers, or other serial or parallel peripherals. See the manual supplied with the external device for instructions.

Resuming Your System

1. **Power on all external devices connected to your system.**
2. **Press the power key.**

   See Figure 4-1 andFigure 4-2 for power key locations.

4

Installing Power Management A

This chapter provides the hardware and software requirements and installation instructions for the Power Management software. If you have already determined that your system meets the requirements, proceed to your preferred method of installation.

Note – To install the Power Management software on a SPARCstation Voyager system, see the *SPARCstation Voyager User's Guide*.

To install Power Management from the OpenWindows™ environment, go to "Installing Power Management from OpenWindows Using swmtool" in this chapter. To install Power Management from the command line, go to "Installing Power Management on a Standalone System Using pkgadd" in this chapter.

Requirements

Your workstation must be one of the following platforms:

- SPARCstation™ 5 system
- SPARCstation 10 system
- SPARCstation 10SX system
- SPARCstation 20 system
- SPARCstation LX system
- SPARCstation Voyager™ system
- SPARCclassic™ system

You must have the following hardware:

- Type 5 or Compact 1 keyboard
- P4 monitors or an AC convenience power cord (PN: 180-1117) for non-Energy Star compliant monitors

You must have the following software on your system:

- Solaris™ 2.4 software environment, already installed
- A minimum of 10 Mbytes of available space in the root partition

If you want to use the Graphical User Interface of the Power Management application, you also need:

- Motif® runtime package (`SUNWmfrun`), already installed
- X11 Windows, already installed

Note – Consult your system administrator for information on the installation of Motif and X11 Windows.

Installing Power Management from OpenWindows Using `swmtool`

Note – The Power Management application should only be installed on a standalone system.

1. **Open File Manager.**
2. **Insert the SPARC® Vendors' Software CD into the CD caddy.**
3. **Insert the caddy into the CD-ROM drive.**
   If there is a CD in the drive, type `eject` in a shell window to remove the CD. The File Manager CD window is displayed. The contents of the CD is displayed in the window.

Note – If the File Manager CD window is not displayed, go to "Installing Power Management on a Standalone System Using pkgadd" in this appendix.

4. **Double-click on the SMCC folder in the File Manager window.**
   This folder lists the contents of the SMCC directory.

5. **Become superuser by typing:**

```
example% su
Password: root password
example#
```

6. **Enter the following commands at the # prompt for all supported systems:**

Note – To install the Power Management software on a SPARCstation Voyager system, see the *SPARCstation Voyager User's Guide.*

```
example# cd /cdrom/upd_sol_2_4_hw1194_smcc/SMCC
example# swmtool -d 'pwd' -c .swm
```

The Software Manager window displays Power Management Software and other packages.

7. **Double-click on the icon for the Power Management Software cluster.**
The Power Management clusters and packages are now displayed.

8. **Click on the icon for the Power Management Software User Cluster.**

9. **Click the Begin Installation button.**
The Software Manager: Command Input/Output pop-up window is displayed listing all package installation messages. If any errors occur, you are prompted with a question in this window.

The installation process should take about four to five minutes. When the installation is complete, the following message is displayed at the bottom of the window:

```
Re-initialize list of install software
```

It then displays:

```
Click select on software to mark for installation.
```

10. **Quit the Software Manager window.**

11. **Exit the OpenWindows environment.**
    When you start the OpenWindows environment again, the special-keys daemon automatically starts. This daemon recognizes the power key and the brightness keys on the keyboard.

Note – If you do not exit the OpenWindows desktop, you can start the special-keys daemon with the command `/usr/openwin/bin/speckeysd`.

Installing Power Management on a Standalone System Using `pkgadd`

1. **Insert the SPARC Vendors' Software CD into the CD caddy (supplied with your CD-ROM drive).**

2. **Insert the caddy into the CD-ROM drive.**
    If there is a CD in the drive, type `eject` in a shell window to remove the CD. The contents of the CD is displayed in the window.

3. **Become superuser by typing:**

```
example% su
Password: root password
example#
```

4. **Type `/usr/sbin/pkgadd -d` *device* `SUNWcpr SUNWpmu SUNWpmr SUNWpmow`.**
    For example:

```
# /usr/sbin/pkgadd -d /upd_sol_2_4_hw1194_smcc/SMCC/\
 SUNWcpr SUNWpmu SUNWpmr SUNWpmow
```

The *device* argument to the `-d` option must be a full path name to a device or directory. If you do not specify the device on which the package resides, `pkgadd` checks the default spool directory (`/var/spool/pkg`). If the package cannot be located, you will not be able to complete the installation. If `pkgadd` encounters a problem during installation of the package, information about the problem is displayed, followed by this prompt:

```
Do you want to continue with this installation?
```

You can respond by typing either `yes`, `no`, or `quit`.

A

Configuring Power Management Using the Command Line B

You can change the system default settings for the Power Management utilities on systems that are not configured to run the OpenWindows environment. Refer to the `power.conf` man page for more information.

Note – To change any of the system default settings, you must become superuser.

♦ **Become superuser by typing:**

```
example% su
Password: root password
example#
```

Setting Device Idle Time

The length of idle time before a system device, such as a screen, keyboard, or mouse, uses the low power mode is specified by the threshold field in the `/etc/power.conf` file.

To change the length of idle time:

1. **Edit the `/etc/power.conf` file. Type:**

```
example# vi /etc/power.conf
```

2. **Modify the desired entry.**
   The idle threshold for the mouse device has been set at 300 seconds or 5 minutes in the `/etc/power.conf` file, as shown below.

```
# This is a sample power management configuration file
# Fields must be separated by white space or semicolons
# Remember that physical dependents are automatically included
# in power management scans.

# Name            Threshold(s)     Logical Dependent(s)
/dev/kbd          300
/dev/mouse        300
/dev/fb           0 0              /dev/kbd /dev/mouse

# Auto-Shutdown   Idle Time(min)   Start/Finish Times (hh:mm)
autoshutdown      30               17:00   8:00
```

3. **Inform the Power Management framework of the new settings. Type:**

```
example# /usr/sbin/pmconfig
```

   This informs the Power Management framework of the new setting according to the thresholds that are now defined in the `/etc/power.conf` file.

Setting AutoShutdown

To change the automatic shutdown time:

1. **Edit the AutoShutdown entry in `/etc/power.conf` file. Type:**

```
example# vi /etc/power.conf
```

The AutoShutdown feature has been set to always in the `/etc/power.conf` file, as shown below. This means your system will always power off after a 30 minute period of inactivity.

```
# This is a sample power management configuration file
# Fields must be separated by white space or semicolons
# Remember that physical dependents are automatically included
# in power management scans.

# Name            Threshold(s)     Logical Dependent(s)
/dev/kbd          00
/dev/mouse        300
/dev/fb           0 0              /dev/kbd /dev/mouse

# Auto-Shutdown   Idle Time(min)   Start/Finish Times (hh:mm)
autoshutdown      30               0:00   0:00
```

The AutoShutdown time in the `/etc/power.conf` file, as shown below, is set to power off your system every day between 5:00 pm and 8:00 am after a 30 minute period of inactivity.

Note – The start and finish times must be entered in a 24-hour format.

```
# This is a sample power management configuration file
# Fields must be separated by white space or semicolons
# Remember that physical dependents are automatically included
# in power management scans.

# Name            Threshold(s)     Logical Dependent(s)
/dev/kbd          00
/dev/mouse        300
/dev/fb           0 0              /dev/kbd /dev/mouse

# Auto-Shutdown   Idle Time(min)   Start/Finish Times (hh:mm)
autoshutdown      30               17:00   8:00
```

To disable the AutoShutdown feature, comment out the `AutoShutdown` line as shown below, or set idle time to `-1`.

```
# This is a sample power management configuration file
# Fields must be separated by white space or semicolons
# Remember that physical dependents are automatically included
# in power management scans.

# Name            Threshold(s)     Logical Dependent(s)
/dev/kbd          00
/dev/mouse        300
/dev/fb           0 0              /dev/kbd /dev/mouse

# Auto-Shutdown   Idle Time(min)   Start/Finish Times (hh:mm)
#autoshutdown      -1               17:00   8:00
```

2. Inform the Power Management framework of the new settings. Type:

```
example# /usr/sbin/pmconfig
```

This informs the Power Management framework of the new setting according to the thresholds that are now defined in the `/etc/power.conf` file.

Troubleshooting

C

This appendix provides troubleshooting procedures if the power key does not suspend your system or if you need to recover from a hung system.

Power Key Does Not Suspend the System

If pressing the power key does not suspend your system, use a shell to verify that the key processing daemon is present.

♦ **Type**

```
% ps -eaf | grep speckeysd
```

If the resulting message does not list `/usr/openwin/bin/speckeysd`, you should start the key processing daemon by entering:

```
% /usr/openwin/bin/speckeysd
```

C

What to Do If a Device Suspend Fails

If a device fails to suspend, an alert pop-up window is displayed, as shown in Figure C-1. Additional information about the failure is also displayed in the console window.

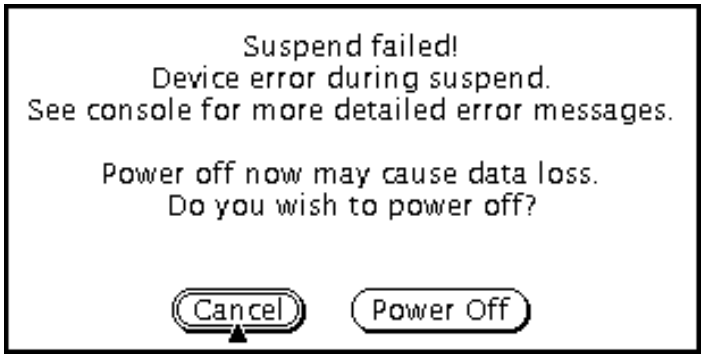


Figure C-1 Suspend Failed Example

1. **Select Cancel.**
   Take corrective action before retrying suspend again. If you have not already saved your work, do so now.

2. **Check for more information in the Console window in the Workspace.**
   This error can be caused by an unsupported device or a device performing non-resumable activity. If your system contains devices in addition to the default configuration, then these devices may not support the Suspend feature. In this case, either unload the device driver (contact your system administrator) and try suspend again, or obtain a device driver that supports suspend from your manufacturer. If the device specified by the console message is performing a non-resumable activity, stop the activity and try suspend again.

3. **Try Suspend again.**
   - If Suspend succeeds, the system will save your activities and the system will power off.
   - If Suspend does not succeed, the alert pop-up window is displayed again.

Caution – Save your work if you have not already done so.

4. **Select Power Off.**
   The error persists and therefore suspend is not possible. This step shuts down the system properly without causing file system damage. Your data will *not* be saved unless you have done so manually. When you power on again, your system automatically reboots.

   If you select Power Off and it fails, an alert pop-up window is displayed with information about the power-off failure, as shown in Figure C-2.

Figure C-2 Power Off Failure Window

5. **Select Continue.**
   Your system does not support software power off. This could be due to a non-type 5 keyboard or an outdated system PROM. If you have a type 5 keyboard installed then contact your system provider for a system PROM upgrade.

6. **Save your work if you have not already done so.**

7. **Halt the Operating System.**

8. **Power off by pressing the power switch on the back panel of the system to the off (0) position.**

What to Do If a Process Fails to Suspend

If a process cannot be properly suspended, an alert pop-up window is displayed, as shown in Figure C-3. Additional information about the failure is also displayed in the console window,

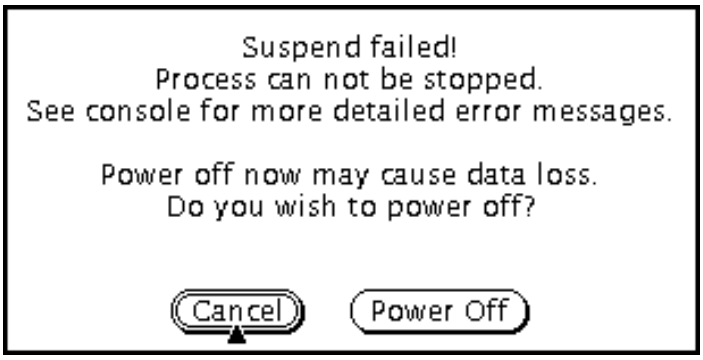


Figure C-3 Abnormal Condition During Suspend

1. **Select Cancel.**
   Retry suspend again. If you have not already saved your work, do so now.

2. **Check for more information in the Console window in the Workspace.**
   If it is a real time process or if it is performing certain special network operations, a process may refuse to suspend gracefully. In most cases, this is only a temporary condition and can be corrected by trying suspend again. If this condition persists, stop the offending process as specified in the console and retry suspend again.

3. **Try Suspend again.**
   - If Suspend succeeds, the system will save your activities and the system will power off.
   - If Suspend does not succeed, the alert pop-up window is displayed again.

Caution – Save your work if you have not already done so.

4. **Select Power Off.**
   Your data will *not* be saved unless you have done so manually. When you power on again, your system automatically reboots.

What to Do If More Disk Space Is Needed

If there is not enough disk space to store the suspend state file, an alert pop-up window is displayed, an alert pop-up window is displayed, as shown in Figure C-4. Additional information about the failure is also displayed in the console window.

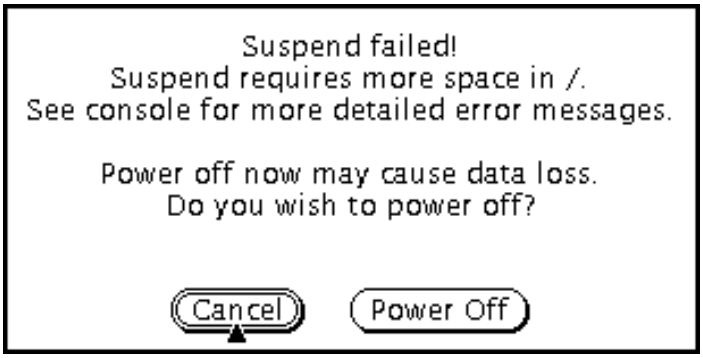


Figure C-4 Suspend Requires More Disk Space

1. **Select Cancel.**
   Take corrective action before retrying suspend again. If you have not already saved your work, do so now.

2. **Check for more information in the Console window in the Workspace.**
   You must have about 10 MBytes of space in your root partition. Clean up the root partition and try suspend again. Contact your system administrator for assistance if necessary.

3. **Try Suspend again.**
   - If Suspend succeeds, the system will save your activities and the system will power off.
   - If Suspend does not succeed, the alert pop-up window is displayed again.

Caution – Save your work if you have not already done so.

4. **Select Power Off.**
   Your data will *not* be saved unless you have done so manually. When you power on again, your system automatically reboots.

What to Do If Abnormal Conditions Occur

If a rare error has been detected, an alert pop-up window is displayed, as shown in Figure C-5. Additional information about the failure is also displayed in the console window.

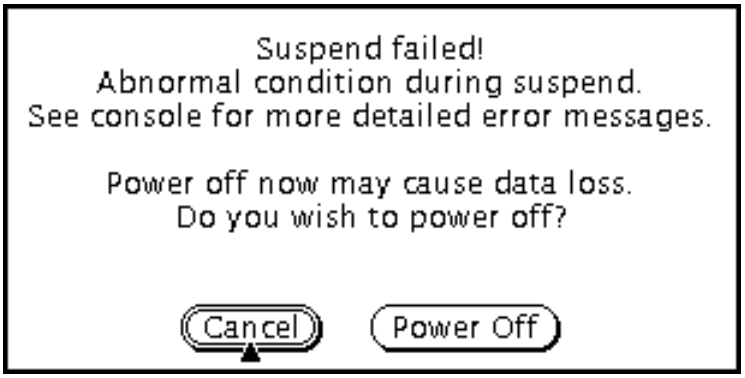


Figure C-5 Abnormal Condition During Suspend

1. **Select Cancel.**
   Take corrective action before retrying suspend again. If you have not already saved your work, do so now.
2. **Check for more information in the Console window in the Workspace.**
   You may be able to take further corrective action by checking the console error messages.
3. **Try Suspend again.**
   - If Suspend succeeds, the system will save your activities and the system will power off.
   - If Suspend does not succeed, the alert pop-up window is displayed again.

Caution – Save your work if you have not already done so.

4. **Select Power Off.**

Your data will *not* be saved unless you have done so manually. When you power on again, your system automatically reboots.

Power Management Cluster and Package Descriptions

D

This appendix provides a list of Power Management cluster and package names for all SPARCstation system. The SPARCstation Voyager system has additional packages that have to be installed before the Power Management software installation process is complete.

Table D-1 lists the Power Management packages that are included in the Power Management Software User Cluster.

Table D-1 Power Management Clusters and Packages

Cluster Name	**Includes Cluster/Package**	**Name**	**Description**
SUNWCpmu		Power Management User Cluster	Drivers and binaries for the Power Management software
	SUNWcpr	Suspend-Resume	Kernel module for Suspend-Resume
	SUNWpmu	Power Management binaries	Kernel drivers and user binaries for the Power Management software
	SUNWpmr	Power Management config file and rc script	Configuration files and run-control scripts for the Power Management software
	SUNWpmow	Power Management OW Utilities	Graphical User Interface (GUI) and Special Keys support for the Power Management software

Table D-1 Power Management Clusters and Packages (Continued)

Cluster Name	Includes Cluster/Package	Name	Description
SUNWCpm		Power Management Software	Complete Power Management package
	SUNWCpmu	Power Management User Cluster	Drivers and binaries for the Power Management software
	SUNWpmman	Power Management man pages	Man pages for Power Management drivers/binaries

Revision History

Revision	Dash	Date	Comments
801-7921-10	-10	November 1994	Alpha Release
801-7921-10	-10	November 1994	final Release