IBM

Advanced System Management Adapter
User's Guide

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IBM

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Contents

About This Book

This book provides instructions for installing, starting, and using Advanced System Management for Netfinity Manager. These instructions include details on how to install the configuration utilities and device drivers that the PC Server Advanced Systems Management Adapter requires. This book is intended for anyone who will install and use Advanced System Management with Netfinity Manager or Client Services for Netfinity Manager.

This book also provides instructions on using the PC Server Advanced Systems Management Adapter without Netfinity Manager.

Important!

The Advanced System Management service provides the most extensive functionality available with your PC Server Advanced Systems Management Adapter. The Advanced System Management service is included with this option, and must be used in conjunction with Netfinity Manager systems management software. Netfinity Manager can be installed using the copy of ServerGuide that was included with your IBM PC Server or Netfinity server. If you do not install Netfinity Manager and the Advanced System Management service, many PC Server Advanced Systems Management Adapter features will not be available to you.

Advanced System Management

Use the Advanced System Management service to configure and
monitor many features of your PC Server Advanced Systems
Management Adapter. With Advanced System Management you can
configure system management events (such as POST, loader, and
operating system timeouts or critical temperature, voltage, and
tamper alerts). If any of these events occurs, the Advanced System
Management service can be configured to automatically forward a
Netfinity Manager alert in one of three ways:

- Alert forwarded to another Netfinity Manager system

- Alert forwarded to a standard numeric pager

- Alert forwarded to an alphanumeric pager

With this service, you can dialout and directly access and control a
remote system's PC Server Advanced Systems Management
Adapter.

In addition, with Advanced System Management you can remotely
monitor, record, and replay all textual data generated during
power–on self–test (POST) on a remote system that includes a
supported PC Server Advanced Systems Management Adapter.
While monitoring a remote system during POST, you can enter key
commands on your keyboard that will then be relayed to the remote
system.
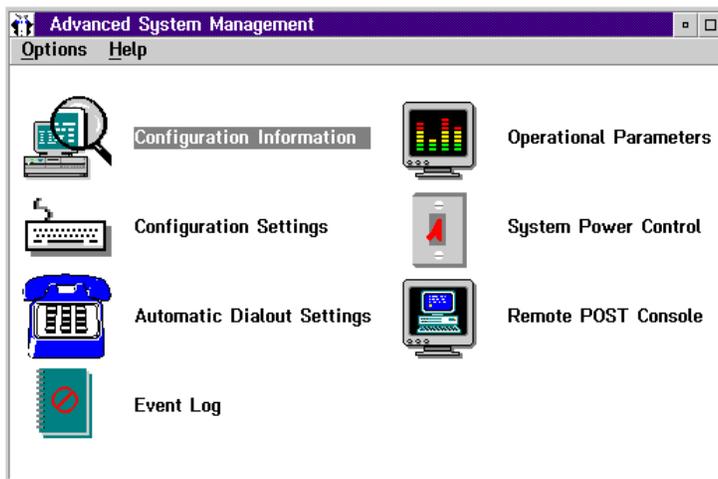
Figure 1. The Advanced System Management service

System Requirements

The minimum system requirements for Advanced System
Management are:

- Advanced System Management Adapter (microcode revision 10
  or later) installed in a supported system

  Note: See the *PC Server Advanced Systems Management
  Adapter Feature Summary* chart, included with this
  option., for a list of supported servers.

- One of the following Netfinity Manager products:

  - NetFinity Manager for OS/2, Windows 95, or Windows NT
    version 5.0

  - NetFinity Services for OS/2, Windows 95, or Windows NT
    version 5.0

  - Netfinity Manager for OS/2, Windows 95, or Windows NT
    version 5.02 or later

  - Client Services for Netfinity Manager for OS/2, Windows 95,
    Windows NT, or NetWare version 5.02 or later

- 2 MB of available hard disk space.

Starting the Installation Program

The Netfinity Manager installation program is identical for all operating systems. However, the process used to start the installation program differs depending on which operating system is running.

- If OS/2 is running, see "OS/2 Installation."

- If Windows 95 or Windows NT 4.0 is running, see "Windows 95 and Windows NT 4.0 Installation" on page 5.

- If Windows NT 3.51 is running, see "Windows NT 3.51 Installation" on page 6.

- If NetWare is running, see "NetWare Installation" on page 7.

OS/2 Installation

To start the Advanced System Management installation program on a system that is running OS/2:

1. Start the computer with the OS/2 operating system.

2. Open an OS/2 full-screen or OS/2 window session.

3. Place the *Advanced System Management for OS/2 or NetWare Installation Diskette* into your system's diskette drive.

4. Make the diskette drive the active drive.

   For example, if the diskette drive is drive letter A, type

   `A:`

   at the command prompt and then press **Enter.**

5. Make the OS/2 directory on the diskette the active directory.

   Type

   `CD OS2`

   and then press **Enter**.

6. Start the installation program.

   Type

```
INSTALL
```

and then press **Enter**.

To continue the installation, see "Installing Advanced System Management" on page 8.

Windows 95 and Windows NT 4.0 Installation

To start the Advanced System Management installation program on a system that is running Windows 95 or Windows NT 4.0:

1. Start the computer with the Windows 95 or Windows NT 4.0 operating system.

2. Place the *Advanced System Management for Windows 95 or Windows NT Installation Diskette* into your system's diskette drive.

3. Click on the **Start** button.

4. Click on **Run...** from the Start button menu.

5. Type in the **Command Line** field

   `A:\`*`directory`*`\NETFINST`

   where A is the drive letter of the diskette drive and *directory* is the directory that corresponds to the operating system running on the computer (WIN95 or WINNT for Windows 95 and Windows NT, respectively); and then select **OK**.

To continue the installation, see "Installing Advanced System Management" on page 8.

Windows NT 3.51 Installation

To start the Advanced System Management installation program on a system that is running Windows NT 3.51:

1. Start the computer with the Windows NT 3.51 operating system.

2. Place the *Advanced System Management for Windows 95 or Windows NT Installation Diskette* into your system's diskette drive.

3. Click on the **Start** button.

4. Click on **Run...** from the Start button menu.

5. Type in the **Command Line** field

   ```
   A:\WINNT\NETFINST
   ```

   where A is the drive letter of the diskette drive; and then select **OK**.

To continue the installation, see "Installing Advanced System Management" on page 8.

NetWare Installation

To start the Advanced System Management installation program on a system that is running NetWare:

1. Start the computer with the NetWare operating system.

2. Place the *Advanced System Management for OS/2 or NetWare Installation Diskette* into your system's diskette drive.

3. Type

   ```
   LOAD A:\NETWARE\NETFINST
   ```

   where A is the drive letter of the diskette drive; and then press **Enter**.

Because systems running Client Services for Netfinity Manager for NetWare must be managed remotely using Netfinity Manager, you do not need to select an installation configuration or provide any additional information. The installation program automatically installs all program files that are needed to remotely access and manage a PC Server Advanced Systems Management Adapter in this system. No additional actions will be needed to install Advanced System Management on this system.

Installing Advanced System Management

After you have started the installation program from your operating system (see "Starting the Installation Program" on page 3), the Netfinity Manager installation window appears.

1. In the **Install From** field, type the drive letter and directory name that contain the Advanced System Management program files. The default drive and directory for this field are the drive and directory that the Advanced System Management installation program was started from.

2. In the **Install To** field, type the drive letter and directory name where the Advanced System Management installation program will copy the Advanced System Management program files. The default drive and directory for this field is **C:\NETFIN**, but be sure to install Advanced System Management in the directory where Netfinity Manager was previously installed. If you did not install Netfinity Manager in the default drive and directory, be sure to specify the new drive letter and directory name.

3. Select **OK** to save this information and continue with your installation.

4. Select the installation configuration that is appropriate for your system.

   There are up to three installation configurations available:

   - Advanced System Management Installation - Client

     Click on **Advanced System Management Installation - Client** to install only the Advanced System Management base program. Select this installation configuration if you are installing Advanced System Management on a system that has a PC Server Advanced Systems Management Adapter installed and you want to be able to manage this system remotely. This installation configuration does not allow for local access to the Advanced System Management. To manage this system, you will need to install Advanced System Management on the managing system (a system that has Netfinity Manager for OS/2, Windows NT, or Windows 95 installed) as well.

> **Note:** **Advanced System Management Installation - Manager** is the only installation configuration available for systems running Windows 95.

- Advanced System Management Installation - Manager

  Select **Advanced System Management Installation - Manager** to install only the Advanced System Management graphical user interface (GUI). Select this installation configuration if you want to use the Netfinity Manager to remotely access and manage any systems that have a PC Server Advanced Systems Management Adapter and the Advanced System Management installed. You must have Netfinity Manager for OS/2, Windows NT, or Windows 95 installed on your system to remotely access other systems on your network that are running Netfinity Manager or Client Services for Netfinity Manager.

- Advanced System Management Installation - Local Management

  Select **Advanced System Management Installation - Local Management** to install both the Advanced System Management base program and GUI. Select this installation configuration if you want to be able to access Advanced System Management both locally and from a remote manager's system, or if the system is not connected to a network.

5. After you've chosen an installation configuration, click on **Install** to begin installing the program files to your chosen drive and directory. To stop the installation process, select **Cancel**. Selecting **Cancel** will stop the installation, clean up any files that are open, and then exit from the Advanced System Management installation program.

Starting Advanced System Management

To start the Advanced System Management service, double-click on the Advanced System Management icon in the Netfinity Service Manager window. Then double-click on any of the selections available in the Advanced System Management window to access the function or configuration information you need.

- Select **Configuration Information** to view detailed information about the PC Server Advanced Systems Management Adapter, including RAM microcode, ROM microcode, and device driver information. For more information on Configuration Information, see "Configuration Information" on page 12.

- Select **Configuration Settings** to configure many features of the PC Server Advanced Systems Management Adapter. These features include system identification data, dial-in security settings, the time and date reported by the PC Server Advanced Systems Management Adapter clock, timeout and delay values, and advanced modem settings. For more information on Configuration Settings, see "Configuration Settings" on page 14.

- Select **Automatic Dialout Settings** to configure the PC Server Advanced Systems Management Adapter automatic dialout functions. For more information on Automatic Dialout Settings, see "Automatic Dialout Settings" on page 29.

- Select **Event Log** to view the contents of the PC Server Advanced Systems Management Adapter Event Log. Information about all remote access attempts and dialout events that have occurred is recorded in the Event Log. For more information on the Event Log, see "Event Log" on page 39.

- Select **Operational Parameters** to view the current values or status of many system components monitored by the PC Server Advanced Systems Management Adapter. For more information on Operational Parameters, see "Operational Parameters" on page 40.

- Select **System Power Control** to instruct the PC Server Advanced Systems Management Adapter to power off the system, restart the system, or power on the system. For more

information on System Power Control, see "System Power Control" on page 41.

- Select **Remote POST Console** to remotely monitor, record, and replay all textual output generated during POST on a remote system that has a PC Server Advanced Systems Management Adapter installed. For more information on using Remote POST, see "Remote POST Console" on page 43.

- To update the microcode on your PC Server Advanced Systems Management Adapter, from the **Options** pulldown menu select **Update Microcode...** and then select **System Management Subsystem**. For more information on updating microcode, see "Updating PC Server Advanced Systems Management Adapter Microcode" on page 46.

Using a Serial Connection to Manage Remote PC Server Advanced Systems Management Adapter

If you want to use your system's modem to dial out and access the PC Server Advanced Systems Management Adapter on a remote system, use Serial Connection Control to establish a connection with the remote system and then start the Advanced System Management service. You can also use Serial Connection Control to establish a null modem connection to another system. For more information on Serial Connection Control, see the *Netfinity Manager User's Guide*.

Notes:

1. Be sure to check the **System Management Processor** check box in the Netfinity Serial Connection Control window when you create the Serial Connection Control entry. If this check box is not checked the connection with the remote PC Server Advanced Systems Management Adapter will fail.

2. When using Serial Connection Control to configure a Dialout Entry for use by the Advanced System Management service, be sure to enter the Login ID and Password for access to the remote system's PC Server Advanced Systems Management Adapter, not the User ID and Password for access to Netfinity services on the remote system.

3. When creating a Serial Connection Control entry to establish a null modem connection to a remote system's System Management Processor, make sure that the **Port Baud Rate** value (configured using the Serial Connection Control service) is set to match the **Baud Rate** value (configured using the Advanced System Management control service) of the target system. If the **Port Baud Rate** and the **Baud Rate** values do not match, the connection will fail.

Configuring the Advanced System Management Service

To configure the Advanced System Management service on a system that has an PC Server Advanced Systems Management Adapter installed:

1. Start the Advanced System Management service.

2. Double-click on **Configuration Settings**.

3. Check the **Dial-in Enabled** checkbox.

4. Check the **Own Port on Startup** checkbox.

5. Type in the **Login ID**, field a user ID that will be used in conjunction with the **Password** to log into the PC Server Advanced Systems Management Adapter.

6. Type in the **Password**, field a password that will be used in conjunction with the **Login ID** to log into the PC Server Advanced Systems Management Adapter.

7. Click on **Apply** to save these settings.

Configuration Information

The Configuration Information window (shown in Figure 2 on page 13) contains detailed information about the PC Server Advanced Systems Management Adapter, including RAM microcode, ROM microcode, and device driver information.
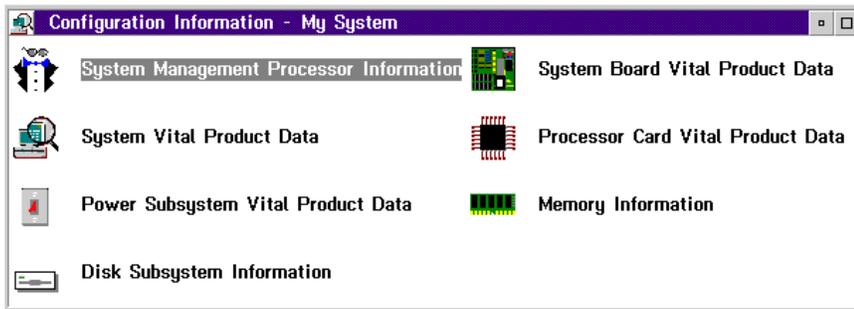
Figure 2. The Configuration Information window

Configuration Settings

Use the selections available in the Configuration Settings window
(see Figure 3 on page 15) to configure many features of the PC
Server Advanced Systems Management Adapter. These features
include system identification data, dial-in security settings, the time
and date reported by the PC Server Advanced Systems
Management Adapter clock, timeout and delay values, and advanced
modem settings.

This window contains:

- System Identification group

- Dial-in settings group

- PC Server Advanced Systems Management Adapter Clock group

- POST timeout, Loader timeout, O/S timeout, and Power off delay
  fields

This window also includes the Modem button. Select **Modem** to
open the Modem Settings window (see "Modem Settings" on
page 24).

The System Identification Group

The System Identification group contains two fields to help you
identify the system that contains the PC Server Advanced Systems
Management Adapter.

Field	Description
Name	Can be used to provide a name for the system, the name of the system's user, or the name of a contact. This information will be transmitted to Netfinity Manager systems (as part of a Netfinity alert) and to alphanumeric pagers to help you identify the system that generated the alert.
Number	Can be used to identify the system with a specific serial or identification number, to record the phone number used to dial into the system, or to provide the phone number of a contact. This information will be transmitted to Netfinity Manager systems (as part of a Netfinity alert) and to numeric pagers to help you identify the system that generated the alert.
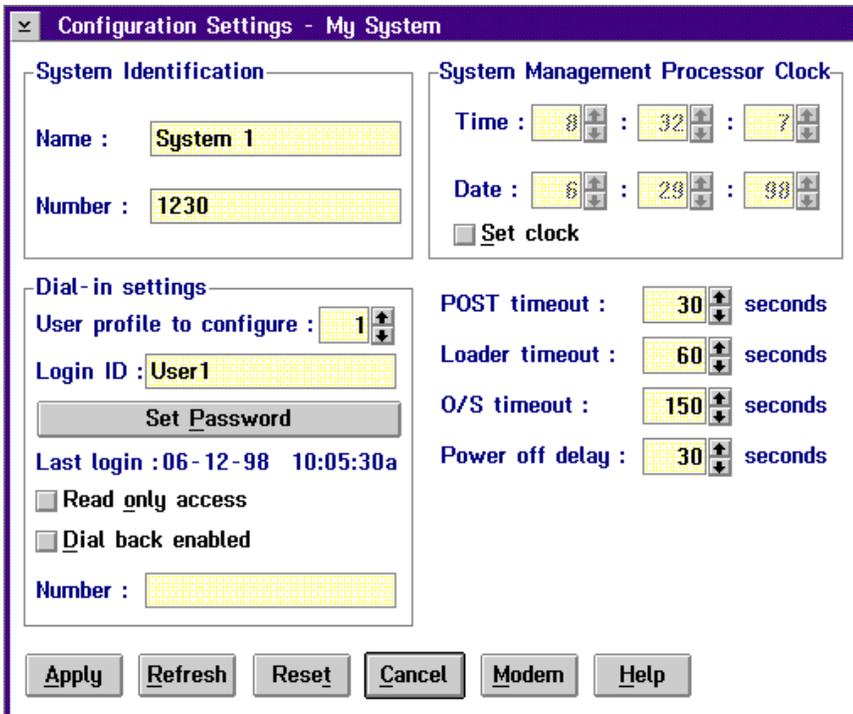
Figure 3. The Configuration Settings window

To change the information provided by these fields:

1. In the **Name** or **Number** field, type the system information you want to record.

2. Select **Apply** to save this information.

The Dial-In Settings Group

Use the selections available in the Dial-In Settings group to enable or disable dial-in support, and to enable users to dial in and access the PC Server Advanced Systems Management Adapter. The Dial-In Settings group contains the following items.

Item	Description
User profile to configure	Use the spin buttons to select the user profile you want to configure. This service supports up to six separate user profiles on systems with an PC Server Advanced Systems Management Adapter.
Login ID	Type in this field the login ID that will be used by the remote user. Up to six Login IDs can be configured. (This field is case sensitive.)
	Note: A Login ID *must* be specified to remotely access the PC Server Advanced Systems Management Adapter.
Set Password	A password must be provided along with the Login ID to allow a remote user to access the PC Server Advanced Systems Management Adapter. After providing a Login ID, click on **Set Password** to open the Set Password window. (The fields in the Set Password window are case sensitive.)
Last login	Shows the date and time of the last successful login by a remote user.
Read only access	If the **Read only access** check box is checked, the users whose profile is selected will not be able to alter any of the PC Server Advanced Systems Management Adapter settings when access is granted. The user will, however, be able to see all currently configured settings and values except passwords.
Dial back enabled	If the **Dial back enabled** check box is checked, the PC Server Advanced Systems Management Adapter will automatically terminate the connection as soon as the user whose profile is selected logs in, and will then use the telephone number that is entered in the **Number** field to dial out and attempt to connect with a remote system.

If necessary, select **Modem** to access the Modem Settings window (see "Modem Settings" on page 24). From the Modem Settings window you can specify modem settings and dialing settings.

To create a new login ID for a remote user:

1. In the **Login ID** field, type the ID that will be used by the remote user. This ID can be up to 8 characters.

2. Remote users must provide a password along with a login ID in order to access the PC Server Advanced Systems Management Adapter. Select **Set Password** to open the Set Password window.

   From the Set Password window:

   a. In the **Enter Password** field, type a password.

      Note: This password must be 5–8 characters in length and must contain at least one numeric character.

   b. In the **Re-enter Password** field, type the same password that you typed in the **Enter Password** field.

   c. Click on **OK** to save this password and close the Set Password window.

3. Click on **Apply** to save the new user ID.

To delete the currently selected login ID:

1. Use the spin buttons beside the **User ID to configure** field to select a previously configured User profile.

2. Click on the **Login ID** field.

3. Using the Backspace or Delete key, delete the currently displayed login ID.

4. Click on **Apply** to remove the user ID.

The PC Server Advanced Systems Management Adapter Clock Group

Use the selections available in the PC Server Advanced Systems Management Adapter Clock group to set the time and date that is reported by the PC Server Advanced Systems Management Adapter.

Note: The PC Server Advanced Systems Management Adapter clock is found on the PC Server Advanced Systems Management Adapter and is not associated with the clock that is contained in your server. Changing the PC Server Advanced Systems Management Adapter clock settings has no effect on your server clock.

To change the currently set time or date:

1. Verify that there is a check in the **Set PC Server Advanced Systems Management Adapter Clock** check box. This check box *must* be checked to enable the Advanced System Management service to change the currently stored time and date values.

2. Use the spin buttons beside each field to set the time or date.

   - The **Time** fields represent, when viewed from left to right, hours, minutes, and seconds.

   - The **Date** fields represent, when viewed from left to right, month, date, and year.

3. Click on **Apply** to save the new time and date.

POST Timeout

Note: This function requires a specially architected POST routine and is available only on some IBM systems. For a list of systems that support this feature, see the *PC Server Advanced Systems Management Adapter Feature Summary* chart, included with this option.

The **POST timeout** field shows the number of seconds that the PC Server Advanced Systems Management Adapter will wait for the system's power-on self-test (POST) to complete before generating a POST Timeout event. If POST takes longer than the configured amount of time to complete and the **POST timeout** check box (found in the **Enabled Alerts Dialout** group on the Automatic Dialout Settings window) is checked, the PC Server Advanced Systems Management Adapter will automatically restart the system one time and will attempt to forward an alert to all enabled Dialout Entries. Once the system is restarted **POST timeout** is automatically disabled.

Note: If you do not check this checkbox and a POST Timeout is detected, the system will restart but no alert will be forwarded.

To set the POST timeout value, use the spin buttons beside the **POST timeout** field to set the number of seconds that the PC Server Advanced Systems Management Adapter will wait for POST to complete. Then, click on **Apply** to save this value.

For more information on the Automatic Dialout Settings window, see "Automatic Dialout Settings" on page 29.

Loader Timeout

Note: This function requires a specially architected POST routine and is available only on some IBM systems. For a list of systems that support this feature, see the *PC Server Advanced Systems Management Adapter Feature Summary* chart, included with this option.

The **Loader timeout** field shows the number of seconds that the PC Server Advanced Systems Management Adapter will wait for the system's loading process to complete before generating a Loader Timeout event. The Loader Timeout measures the amount of time that passes between the completion of POST and the end of operating system (O/S) startup. If this takes longer than the configured amount of time to complete and the **Loader timeout** check box (found in the **Enabled Alerts Dialout** group of the Automatic Dialout Settings window) is checked, the PC Server Advanced Systems Management Adapter will automatically restart the system one time and will attempt to forward an alert to all enabled Dialout Entries. Once the system is restarted **Loader timeout** is automatically disabled.

Note: If you do not check this checkbox and a Loader timeout is detected, the system will restart but no alert will be forwarded.

To set the Loader timeout value, use the spin buttons beside the **Loader timeout** field to set the number of seconds that the PC Server Advanced Systems Management Adapter will wait between POST completion and O/S startup before generating a timeout event. Then, click on **Apply** to save this value.

For more information on the Automatic Dialout Settings window, see "Automatic Dialout Settings" on page 29.

O/S Timeout

The **O/S timeout** field shows the interval at which the PC Server
Advanced Systems Management Adapter will check to confirm that
the system's operating system is responding to system requests (for
example, if the OS/Timeout value is set to 30 seconds, the PC
Server Advanced Systems Management Adapter will check the O/S
every 30 seconds). If the O/S takes longer than 6 seconds to
respond and the device driver is installed and running correctly, the
PC Server Advanced Systems Management Adapter will attempt to
restart the system, and if the **O/S timeout** check box (found in the
Enabled Alerts Dialout group of the Automatic Dialout Settings
window) is checked, the PC Server Advanced Systems Management
Adapter will automatically restart the system one time and will
attempt to forward an alert to all enabled Dialout Entries.

Note: If you do not check this checkbox and an O/S timeout is
detected, the system will restart but no alert will be
forwarded.

To set the O/S timeout value, use the spin buttons beside the **O/S
timeout** field to set the number of seconds that the PC Server
Advanced Systems Management Adapter will wait between operating
system response checks. Then, click on **Apply** to save this value.

For more information on the Automatic Dialout Settings window, see
"Automatic Dialout Settings" on page 29.

Power Off Delay

The **Power off delay** field shows the number of seconds that the PC Server Advanced Systems Management Adapter will wait for the system's operating system shutdown process to complete before powering off the system. This delay is used only when you use the System Power Control and select **Power Off with OS Shutdown** or **Restart the System with OS Shutdown** from the **Power Control Options** selection list.

When the PC Server Advanced Systems Management Adapter initiates a power down procedure and the **Power off** check box (found in the **Enabled Alerts Dialout** group of the Automatic Dialout Settings window) is checked, the PC Server Advanced Systems Management Adapter will automatically attempt to forward an alert to all enabled Dialout Entries. This alert is forwarded after the system is powered off and the **Power off delay** time has passed.

To set the power off delay value, use the spin buttons beside the **Power off delay** field to set the number of seconds that the PC Server Advanced Systems Management Adapter will wait for the system's operating system shutdown to complete before powering off the system. Then, click on **Apply** to save this value.

For more information on the Automatic Dialout Settings window, see "Automatic Dialout Settings" on page 29.

Other Configuration Settings Functions

The Configurations Settings window also includes three additional buttons:

Button	Description
Refresh	Select **Refresh** to update all data that is shown on the PC Server Advanced Systems Management Adapter Configuration Settings window, including date, time, and last login.
Reset	Select **Reset** to set *all* Advanced System Management settings back to their default values, including configuration settings, dialout settings, and advanced dialout settings. **Important:** All previously configured PC Server Advanced Systems Management Adapter settings will be permanently lost.
Cancel	Select **Cancel** to close this window without saving any changes.

Modem Settings

Use the Modem Settings window to specify advanced modem and dialing settings. To open this window, click on **Modem** from the Configuration Settings window (see "Configuration Settings" on page 14).
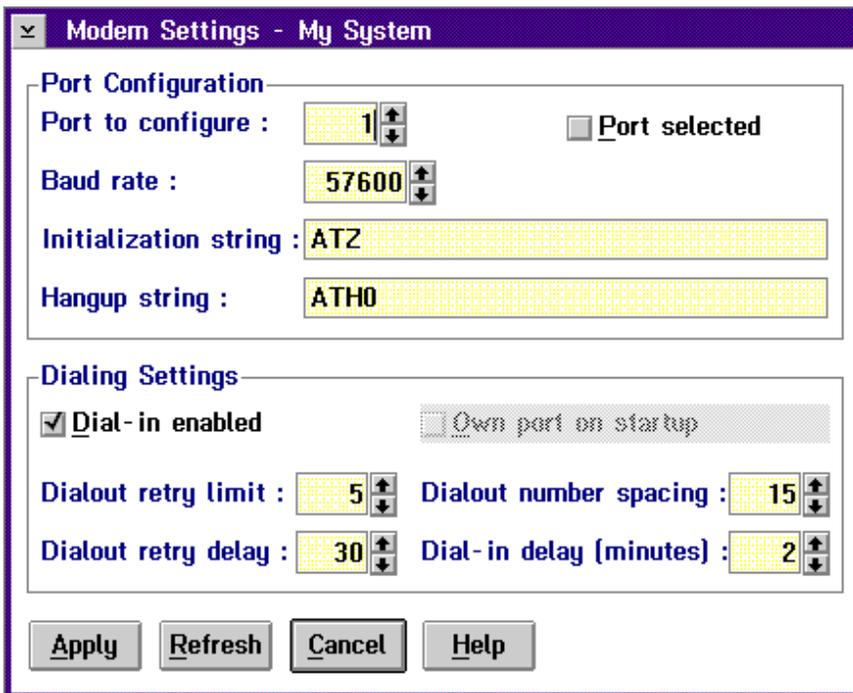
Figure 4. The Modem Settings window

The Port Configuration Group

Use the Modem Settings group to specify and configure the modem
that will be used to forward the alert when a PC Server Advanced
Systems Management Adapter Dialout Event occurs. The Port
Configuration group contains the following items.

Item	Description
Port to configure	Use the spin buttons to select the port that your modem is configured to use. This spin button will show only values that are available for use by your PC Server Advanced Systems Management Adapter. The port that you select to use affects the availability of the modem for use by either the PC Server Advanced Systems Management Adapter or the operating system. Select Port 2 to ensure that a port dedicated for use by the PC Server Advanced Systems Management Adapter is selected.
Baud rate	Use the spin buttons to specify the baud rate of the modem.
Initialization string	Type the initialization string that will be used for the specified modem. A default string is provided (ATE0). Do not change this string unless your dialout functions are not working properly. If you need to change the initialization string, see "Initialization String Guidelines" on page 28.
Port selected	This check box indicates whether the port number currently displayed in the **Port to configure** field is the port that is currently designated for use by the PC Server Advanced Systems Management Adapter. Check this check box if you want to configure the PC Server Advanced Systems Management Adapter to use the currently displayed port number.

Note: Depending on the Advanced System Management service version you are using, additional string fields may be available from this window, or from the Advanced Modem Configuration window (opened by selecting the **Advanced** button, available only some versions of the Advanced System Management service). The functions related to these additional fields are not supported by your PC Server Advanced Systems Management Adapter.

The Dialing Settings Group

Use the Dialing Settings group to specify settings related to the modem, and to configure the modem that is used to forward an alert when a PC Server Advanced Systems Management Adapter Dialout Event occurs. The Dialing Settings group contains the following items.

Item	Description
Dial-in enabled	Check this check box to enable remote users to dial into and access the PC Server Advanced Systems Management Adapter. If this box is unchecked, remote users will be unable to remotely access the PC Server Advanced Systems Management Adapter. Click on **Apply** after checking or unchecking this check box to save the new setting.
Dialout retry limit	Use the spin buttons to select the number of additional times that the Advanced System Management service will attempt to forward the alert.
Dialout retry delay	Use the spin buttons to specify the number of seconds that the Advanced System Management service will wait before retrying a dialout attempt.
Own port on startup	Check this check box to reserve a serial port for exclusive use by the PC Server Advanced Systems Management Adapter. Click on **Apply** after checking or unchecking this check box to save the new setting. **Note:** Check this box if you are configuring your system for dial-in access. If this check box is not checked, you will be unable to dial into this system unless the PC Server Advanced Systems Management Adapter has reclaimed the port for a dialout. If you want to configure the PC Server Advanced Systems Management Adapter to always be dial-in enabled, regardless of whether the system is currently powered up, you must check this check box. When this check box is checked, you cannot configure the specified port for use by your system.

Item	Description
Dialout number spacing	If you have configured more than one Dialout Entry to forward alerts, the PC Server Advanced Systems Management Adapter will attempt to contact each of these entries sequentially. Use the spin buttons to specify the number of seconds for the PC Server Advanced Systems Management Adapter to wait between dialout attempts for separate Dialout Entries.
Dial-in delay (minutes)	The **Dial-in delay (minutes)** field shows the number of minutes that must pass after an incorrect User ID or Password has been used in six successive dial-in attempts before valid dial-in access will be permitted. After the sixth successive login failure, dial-in access is disabled for the number of minutes you specify, the PC Server Advanced Systems Management Adapter adds an entry in the Event Log noting that dial-in access was suspended due to six successive login failures, and the PC Server Advanced Systems Management Adapter attempts to forward an alert if the **Tamper** Enabled Alerts Dialout check box has been checked (see Figure 5 on page 30).

Initialization String Guidelines

If you need to provide a new initialization string, refer to the user's guide that came with your modem. Your initialization string must contain commands that configure your modem as follows:

- Command echoing OFF
- Online character echoing OFF
- Result codes ENABLED
- Verbal result codes ENABLED
- All codes and Connect messages with BUSY and DT detection
- Protocol identifiers added - LAPM/MNP/NONE V42bis/MNP5
- Normal CD operations
- DTR ON-OFF hang-up, disable AA and return to command mode
- CTS hardware flow control
- RTS control of receive data to computer
- Queued and nondestructive break, no escape state

Changing Dialout Entry Settings

To apply settings to a selected Dialout Entry:

1. Specify Modem Settings.

2. Specify Dialing Settings.

3. Click on **Apply** to save these settings and return to the Automatic Dialout Settings window.

Automatic Dialout Settings

Use the Automatic Dialout Settings window (shown in Figure 5 on page 30) to configure the PC Server Advanced Systems Management Adapter automatic dialout functions. If you configure a Dialout Entry, the PC Server Advanced Systems Management Adapter will attempt to forward an alert to a remote Netfinity system, a numeric pager, or an alphanumeric pager when any of the events selected from the **Enabled Alerts Dialout** group occur. This alert will contain information about the nature of the event that occurred, the time and date at which the event occurred, and the name of the system that generated the alert.

If the PC Server Advanced Systems Management Adapter is currently performing a dialout function, the **Dialout status** text will read DIALOUT ON. If you want to halt a currently active dialout function, click on **Stop Dialout**.

Your PC Server Advanced Systems Management Adapter can be configured with up to six separate Dialout Entries.
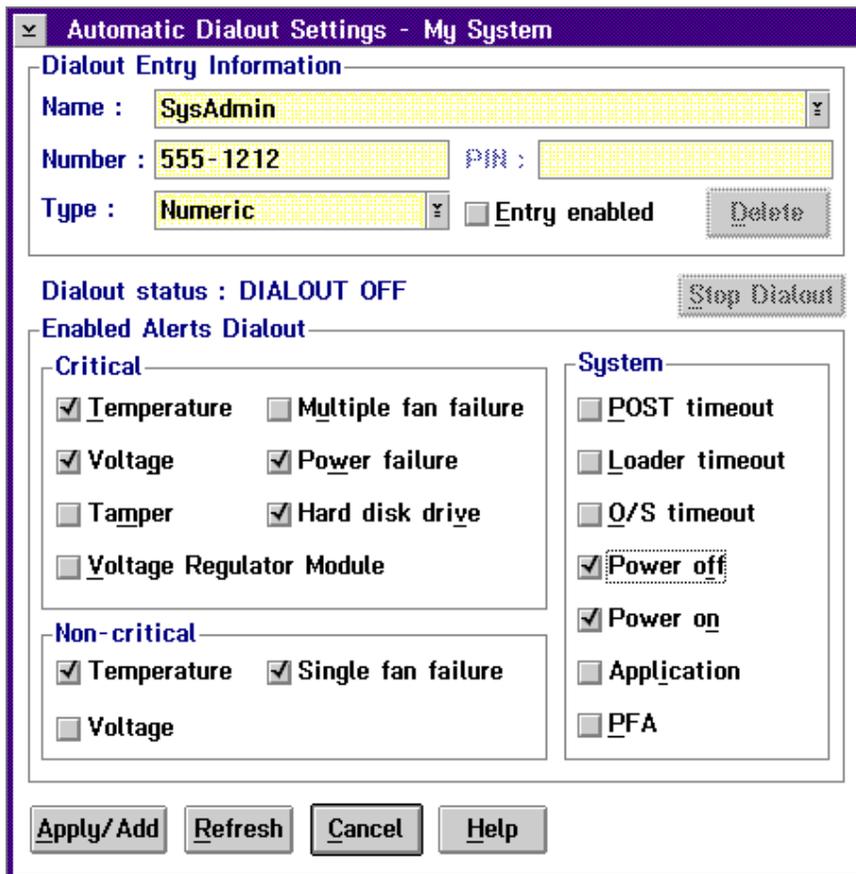
Figure 5. The Automatic Dialout Settings window

Dialout Entry Information Group

To edit or create a Dialout Entry:

1. In the **Name** field, type the name of the person or system that the alert will be forwarded to. The information in the **Name** field is strictly for your use in identifying the Dialout Entry. If you are editing a previously configured Dialout Entry, select the entry that you want to edit from the **Name** selection list.

2. In the **Number** field, type the telephone number that will be used by the system's modem to dial out to a digital pager service.

After the modem connects to the pager service, it will send numeric data specific to the dialout event.

Note: Depending on your paging service, you might need to increase the amount of time that this alert action waits after dialing the telephone number before it transmits the numeric data. To increase the amount of time that will pass before the numeric data is transmitted, add one or more commas (",") to the end of the telephone number. Each comma will cause the modem to wait two seconds before transmitting the numeric data.

3. In the **PIN** field, type the personal identification number required by your alphanumeric pager provider. This field will be active only if you select Alpha-numeric in the **Type** field.

4. From the **Type** selection list, select the type of connection the PC Server Advanced Systems Management Adapter will attempt to make in order to forward the event notification. You can select Numeric (for standard pagers), Alphanumeric (for alphanumeric pagers), or Netfinity (for connecting to a remote Netfinity system).

5. Check the **Entry enabled** check box to activate this Dialout Entry. If the **Entry enabled** check box is not checked, no dialouts will be made to this entry.

6. Select dialout events from the **Enabled Alerts Dialout** group. If any of the checked events occur, the PC Server Advanced Systems Management Adapter will dial out to the telephone number specified in the **Number** field and forward an alert describing the event using the method selected in the **Type** field. For more detailed information about dialout events, see "Enabled Alerts Dialout Group" on page 32.

7. Click on **Apply/Add** to save these settings.

To remove a previously configured Dialout Entry, select the name of the entry from the **Name** selection list and then select **Delete**.

Enabled Alerts Dialout Group

Use the selections available in the Enabled Alerts Dialout group to specify which PC Server Advanced Systems Management Adapter events will result in all currently configured Dialout Entries being contacted by the PC Server Advanced Systems Management Adapter. Any selected items will, if detected by the PC Server Advanced Systems Management Adapter, result in an alert describing the event being forwarded, using the method selected in the **Type** field, to the recipient specified by the Dialout Entry.

If the alert is being forwarded to a pager, the Advanced System Management service will include information about the event that triggered the alert. If the alert is forwarded to a numeric (or standard), pager, the page will include a code number that corresponds to the triggering event. If the alert is forwarded to an alphanumeric pager, the page will include both a code number and a text string that describe the triggering event. For more information on the numeric codes and text strings that are transmitted to pagers, see Table 1, Table 2 on page 35, and Table 3 on page 37.

The Enable Alerts Dialout group is divided into **Critical**, **Non-critical**, and **System** groups. The **Critical** Enabled Alerts Dialout group contains the following items.

Table 1 (Page 1 of 3). Critical Enabled Alerts Dialout Group. Critical alert events.

Item	Description (if checked)	Numeric Code	Text String
Temperature	The PC Server Advanced Systems Management Adapter will dial out and then automatically initiate a system shutdown if any monitored temperatures exceed their threshold values.	00	SYSTEM SHUTDOWN DUE TO TEMPERATURE

Table 1 (Page 2 of 3). Critical Enabled Alerts Dialout Group. Critical alert events.

Item	Description (if checked)	Numeric Code	Text String
Voltage	The PC Server Advanced Systems Management Adapter will dial out if the voltages of any monitored power sources fall outside their specified operational ranges.	01	SYSTEM SHUTDOWN DUE TO VOLTAGE
Tamper	The PC Server Advanced Systems Management Adapter will dial out if six consecutive remote login attempts fail.	02	SYSTEM TAMPER ALERT
Multiple fan failure	The PC Server Advanced Systems Management Adapter will dial out if two (or more) of the system's cooling fans fail *and* will automatically initiate a system shutdown. **Note:** This function is available only on some IBM systems. For a list of systems that support this feature, see the *PC Server Advanced Systems Management Adapter Feature Summary* chart, included with this option.	03	MULTIPLE SYSTEM FAN FAILURES

Table 1 (Page 3 of 3). Critical Enabled Alerts Dialout Group. Critical alert events.

Item	Description (if checked)	Numeric Code	Text String
Power failure	The PC Server Advanced Systems Management Adapter will dial out if the system's power supply fails. **Note:** This function is available only on some IBM systems. For a list of systems that support this feature, see the *PC Server Advanced Systems Management Adapter Feature Summary* chart, included with this option.	04	POWER SUPPLY FAILURE
Hard disk drive	The PC Server Advanced Systems Management Adapter will dial out if one or more of the hard disk drives in the system fail. **Note:** This function is available only on some IBM systems. For a list of systems that support this feature, see the *PC Server Advanced Systems Management Adapter Feature Summary* chart, included with this option.	05	DASD FAULT

The **Non-critical** Enabled Alerts Dialout group contains the following items.

Table 2 (Page 1 of 2). Non-critical Enabled Alerts Dialout Group. Non-critical alert events.

Item	Description (if checked)	Numeric Code	Text String
Temperature	The PC Server Advanced Systems Management Adapter will dial out if any monitored temperatures exceed their threshold values. However, unlike the Critical Temperature event, this Alerts Dialout will *not* initiate a system shutdown automatically. **Note:** This function is available only on some IBM systems. For a list of systems that support this feature, see the *PC Server Advanced Systems Management Adapter Feature Summary* chart, included with this option.	12	NON-CRITICAL TEMPERATURE THRESHOLD EXCEEDED

Table 2 (Page 2 of 2). Non-critical Enabled Alerts Dialout Group.
Non-critical alert events.

Item	Description (if checked)	Numeric Code	Text String
Single fan failure	The PC Server Advanced Systems Management Adapter will dial out if one of the system's cooling fans fail. **Note:** This function is available only on some IBM systems. For a list of systems that support this feature, see the *PC Server Advanced Systems Management Adapter Feature Summary* chart, included with this option.	11	SINGLE FAN FAILURE

The **System** Enabled Alerts Dialout group contains the following items.

Table 3 (Page 1 of 2). System Enabled Alerts Dialout Group. System alert events.

Item	Description (if checked)	Numeric Code	Text String
POST timeout	The PC Server Advanced Systems Management Adapter will dial out if the **POST timeout value** (specified in the PC Server Advanced Systems Management Adapter Configuration Settings window) is exceeded.	20	POST/BIOS WATCHDOG EXPIRED. SYSTEM RESTARTED
Loader timeout	The PC Server Advanced Systems Management Adapter will dial out if the **Loader timeout value** (specified in the PC Server Advanced Systems Management Adapter Settings window) is exceeded.	26	LOADER WATCHDOG EXPIRED. SYSTEM RESTARTED
O/S timeout	The PC Server Advanced Systems Management Adapter will dial out if the **O/S timeout value** (specified in the PC Server Advanced Systems Management Adapter Configuration Settings window) is exceeded.	21	OPERATING SYSTEM WATCHDOG EXPIRED. SYSTEM RESTARTED
Power off	The PC Server Advanced Systems Management Adapter will dial out if the system is powered off.	23	SYSTEM COMPLEX POWERED OFF

Table 3 (Page 2 of 2). System Enabled Alerts Dialout Group. System alert events.

Item	Description (if checked)	Numeric Code	Text String
Power on	The PC Server Advanced Systems Management Adapter will dial out if the system is powered on.	24	SYSTEM COMPLEX POWERED ON
Application	The PC Server Advanced Systems Management Adapter will dial out if it receives a Netfinity Manager alert (Netfinity Manager can forward alerts directly to the PC Server Advanced Systems Management Adapter using the Alert Manager **Forward Alert to System Management Subsystem** action)	22	APPLICATION LOGGED EVENT

Event Log

Use Event Log to open the PC Server Advanced Systems Management Adapter Event Logs window (shown in Figure 6). This window contains all entries that are currently stored in the PC Server Advanced Systems Management Adapter Event Log. Information about all remote access attempts and dialout events that have occurred is recorded in the PC Server Advanced Systems Management Adapter event log.
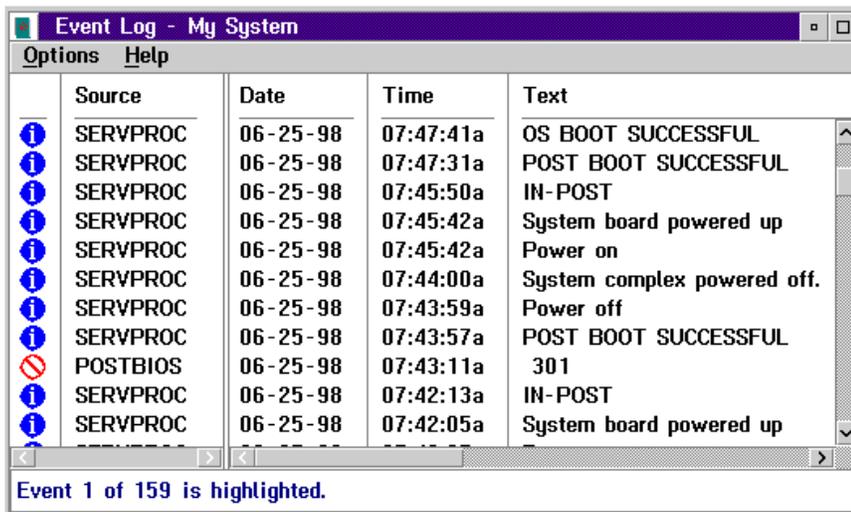
Figure 6. The PC Server Advanced Systems Management Adapter Logs window

Note: If you are using the Advanced System Management service with an PC Server Advanced Systems Management Adapter installed in a Netfinity 7000 server, the event log might contain entries that begin with the text "I2C Message." These messages are normal and are intended for use by IBM servicers in the event of system problems.

The following functions are available from the Options pulldown menu in the PC Server Advanced Systems Management Adapter Event Logs window:

- Load

Refreshes the contents of the PC Server Advanced Systems
Management Adapter Logs window.

- Print to File

  Saves the contents of the PC Server Advanced Systems
  Management Adapter Logs window to a text file.

- Print to Printer

  Sends the contents of the PC Server Advanced Systems
  Management Adapter Logs window to a printer attached to your
  system.

- Clear Log

  Erases all entries that are currently stored in the PC Server
  Advanced Systems Management Adapter Event Log (including
  any entries that are not currently visible in the PC Server
  Advanced Systems Management Adapter Log window).

  Note: Once you use **Clear Log** to erase the entries in the PC
  Server Advanced Systems Management Adapter Event
  Log, they are permanently erased and cannot be
  retrieved.

Operational Parameters

The Operational Parameters window (see Figure 7 on page 41)
shows the current values or status of many system components
monitored by the PC Server Advanced Systems Management
Adapter. Available values include:

- Power supply voltages (including +5 V ac, +12 V ac, -3.3 V ac,
  -12 V ac).

- Current temperatures and threshold levels for system
  components such as far-end adapter, center adapter,
  microprocessors, system board, and DASD backplane.

- System state (including O/S started, O/S running, POST started,
  POST stopped (error detected), and system powered off/state
  unknown).

- System power status (on or off).

- Power on hours; the total number of hours that the system has been powered on. (This is a cumulative count of all powered-on hours, not a count of hours since the last system restart).

System Operational Parameters - My System

Temperatures (degrees celsius)

	Value	Warning Reset	Warning	Soft Shutdown	Hard Shutdown
Center card	31.00	39.00	47.00	52.00	57.00
Microprocessor 1	34.00	42.00	47.00	53.00	58.00
Microprocessor 2	34.00	41.00	50.00	57.00	62.00

Voltages

Source	Value	Warning Reset
+5 Volt	5.13	(4.90, 5.25)
-5 Volt	-5.04	(-4.90, -5.25)
+3 Volt	3.36	(3.26, 3.43)
+12 Volt	12.03	(11.50, 12.60)
-12 Volt	-11.80	(-10.92, -13.20)

System Status

System Power	ON
Power-on Hours	290
Start-up Count	24
System State	O/S activity detected
Fan 1	83%
Fan 2	77%
Fan 3	76%

Figure 7. The Operational Parameters window

Note: Some temperature and voltage monitors are available only on some IBM systems. For a list of systems that support this feature, see the *PC Server Advanced Systems Management Adapter Feature Summary* chart, included with this option.

System Power Control

Use the System Power Control window to instruct the PC Server Advanced Systems Management Adapter to power off the system, restart the system, or power on the system. To initiate any of the power control options, you must first check the **Enable power control options** check box. If this check box in unchecked, the **Power Control Options** field will not be available.
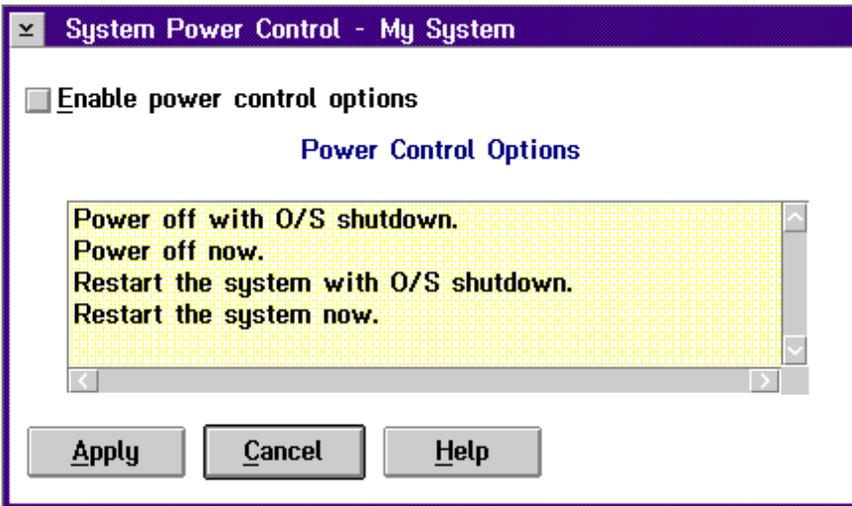
Figure 8. The System Power Control window

The following System Power Control functions are available at all times.

Function	Description
Power off with O/S shutdown	Performs an O/S shutdown before removing power from the system.
Power off now	Immediately removes power from the system.
Restart the system with O/S shutdown	Performs an O/S shutdown, removes power from the system, and then restores power to the system.
Restart the system now	Immediately removes and then restores power to the system.

If you are connected to the PC Server Advanced Systems Management Adapter through a modem, the **Power on now** selection will also be available. This function powers up the system and allows the microprocessor to perform POST, loading, and O/S startup procedures.

To initiate a Power Control Option:

1. Check the **Enable power control options** check box.

   Note: To initiate any of the power control options, you must first check the **Enable power control options** check box. If this check box in unchecked, the **Power Control Options** field will not be available.

2. From the **Power Control Options** field, select the Power Control Option you want to activate.

3. Click on **Apply**.

Remote POST Console

You can use the Advanced System Management Remote POST Console function to remotely monitor, record, and replay all textual output generated during POST. To monitor and record the POST data on a remote system:

1. Connect to the remote system's PC Server Advanced Systems Management Adapter.

2. Open the Remote POST window.

3. Restart the remote system (using the Advanced System Management service System Power Control functions).

All POST data will be displayed in and recorded by the Remote POST Console as the remote system completes POST. While you are monitoring POST on a remote system all local keystrokes are relayed automatically to the remote system, enabling you to interact with the POST process on the remote system.

To review data after POST completes, disconnect from the remote system and use the Replay functions.

Figure 9. The Remote POST window

Use the selections available in the Replay pulldown menu to replay the textual output that was captured during the last Remote POST operation. All text that was displayed by the remote system during POST will be displayed as it appeared on the remote system.

- To begin playing the recorded POST data, or to resume playing the recorded POST data after stopping playback, click on **Replay Last POST**.

- To halt playback of the recorded POST data, click on **Stop**.

- To resume viewing the recorded POST data from the beginning, click on **Restart**.

- Select **Fast**, **Medium**, or **Slow** to specify the speed at which the recorded POST data is displayed in the Remote POST window.

Notes:

1. Remote POST data can be replayed only when you are *not* connected to a remote system's PC Server Advanced Systems Management Adapter.

2. This function requires a specially architected POST routine and is available only on some IBM systems. For a list of systems that support this feature, see the *PC Server Advanced Systems Management Adapter Feature Summary* chart, included with this option.

Updating PC Server Advanced Systems Management Adapter Microcode

To update the PC Server Advanced Systems Management Adapter microcode:

1. From the **Options** pulldown menu select **Update Microcode...** and then select **System Management Subsystem**.

   A file selection window appears.

2. Use the file selection window to select the source disk drive (or diskette drive) and directory where the PC Server Advanced Systems Management Adapter microcode update is located.

3. Select **OK** to continue.

4. Warning notices will appear, asking that you verify that you want to continue. Select **OK** to continue or **Cancel** to stop the microcode update process.

5. When you have verified that you want to proceed with updating the PC Server Advanced Systems Management Adapter microcode, the Advanced System Management service will apply the microcode update to the PC Server Advanced Systems Management Adapter.

   During this process, some of the monitoring functions your PC Server Advanced Systems Management Adapter will be disabled. Once the microcode update is complete, all system monitoring will resume.

Accessing the ASMA without Netfinity Manager

If for some reason you are unable to use Netfinity Manager to access and manage your PC Server Advanced Systems Management Adapter, you can use a terminal program and a modem to connect directly to the PC Server Advanced Systems Management Adapter. This modem should be connected to management port 2 (for more information on configuring the PC Server Advanced Systems Management Adapter modem, see "Modem Settings" on page 24). When connected, you will be able to access a variety of monitor, configuration, and error log data. You can also power the remote system on or off, shutdown and restart the server, and initiate remote terminal mode on the PC Server Advanced Systems Management Adapter. Remote Terminal mode enables you to remotely monitor all textual output generated during POST. All POST data will be displayed in the terminal program window as the remote system completes POST. While you are monitoring POST on the remote system, all local keystrokes are relayed automatically to the remote system, enabling you to use POST utilities (such as system configuration, RAID mini-configuration program, and diagnostic programs) that can be accessed during POST.

Note: The Advanced System Management service provides the most extensive functionality available with your PC Server Advanced Systems Management Adapter. While some functionality is available using a terminal program, most of the advanced features available with your PC Server Advanced Systems Management Adapter are available only when you use Netfinity Manager and the Advanced System Management service.

To use a terminal program to establish a connection with the PC Server Advanced Systems Management Adapter:

1. Use a terminal program to establish a connection with the PC Server Advanced Systems Management Adapter modem.

   The modem settings you should use are:

   Baud   57.6 k

Data Bits   8
Parity   None
Stop Bits   1
Flow Control Hardware

2. Log in to the PC Server Advanced Systems Management Adapter.

   When you have established a connection with the PC Server Advanced Systems Management Adapter, you will be prompted for a username and password. You must provide a username and password combination that has been previously configured for use with the PC Server Advanced Systems Management Adapter.

   Note: The username and password are case-sensitive.

When you have logged into the PC Server Advanced Systems Management Adapter, the following main menu appears:

```
1 System State
2 Event Log
3 VPD/Revisions
4 Power Control
5 Reset Control
6 Remote Terminal
7 Logoff
```

To access a menu item, press the number or letter that corresponds to the information you want to access. After you select a menu item, subsequent menus will offer more specific information that pertains to the selection you made from the main menu.

Note: Selecting **7 Logoff** ends the current session and disconnects you from the PC Server Advanced Systems Management Adapter. You must reconnect and enter a new username and password before continuing.

Menu Selection	Data Available for Viewing
System State	System board temperature, CPU temperatures, power supply temperatures, voltage readings, voltage regulator module readings, fan status, redundant power supply status, system state **Note:** Some information is available only on specific systems.
Event Log	Contents of system error log
VPD/Revisions	PC Server Advanced Systems Management Adapter VPD information
Power Control	Power the system on or off
Reset Control	Restart the system
Remote Terminal	Use **Remote Terminal** to enable your terminal program to remotely monitor and manage the server during POST. For more information, see "Using Remote Terminal Mode to Monitor and Access POST" on page 52.

When you are finished accessing the PC Server Advanced Systems Management Adapter using a terminal program, select **7 Logoff** from the main menu and then use your terminal program to close the connection to the PC Server Advanced Systems Management Adapter.

Power Control Selections

You can use the selections available from the System Power menu to:

- Power the server off
- Power the server on

To access these functions:

1. Use a terminal program to establish a connection with the PC Server Advanced Systems Management Adapter modem.

2. Log in to the PC Server Advanced Systems Management Adapter.

When you have established a connection with the PC Server Advanced Systems Management Adapter, you will be prompted for a username and password. You must provide a username and password combination that has been previously configured for use with the PC Server Advanced Systems Management Adapter.

Note: The username and password are case sensitive.

When you have logged into the PC Server Advanced Systems Management Adapter, the following main menu appears:

```
1 System State
2 Event Log
3 VPD/Revisions
4 Power Control
5 Reset Control
6 Remote Terminal
7 Logoff
```

3. Select **4 Power Control**.

   The following System Power menu appears:

```
1 Power On
2 Power Off now
3 Power Off with OS Shutdown
4 Return to Main Menu
```

4. Select a System Power menu item.

   - Select **1 Power On** to power the server on (if it is currently powered off).

   - Select **2 Power Off** to power the server off (if it is currently powered on).

   - Select **3 Power Off with OS Shutdown** to power the server off after first shutting down the operating system (if it is currently powered on).

   - Select **4 Return to Main Menu** to return to the Main Menu.

Reset Control Menu Selections

You can use the selections available from the Reset Control menu to:

- Reset the server immediately
- Reset the server after first performing an operating system shutdown

To access these functions:

1. Use a terminal program to establish a connection with the PC Server Advanced Systems Management Adapter modem.

2. Log in to the PC Server Advanced Systems Management Adapter.

   When you have established a connection with the PC Server Advanced Systems Management Adapter, you will be prompted for a username and password. You must provide a username and password combination that has been previously configured for use with the PC Server Advanced Systems Management Adapter.

   Note: The username and password are case sensitive.

   When you have logged into the PC Server Advanced Systems Management Adapter, the following main menu appears:

   ```
   1 System State
   2 Event Log
   3 VPD/Revisions
   4 Power Control
   5 Reset Control
   6 Remote Terminal
   7 Logoff
   ```

3. Select **Reset Control**.

   The following Reset Control menu appears:

   ```
   1 Reset Now
   2 Reset with OS Shutdown
   3 Return to Main Menu
   ```

4. Select a Boot menu item.

- Select **1 Reset Now** to reset the server immediately, without first shutting down the operating system.
- Select **2 Reset with OS Shutdown** to shutdown the server operating system and then reset the server.
- Select **3 Return to Main Menu** to return to the Main Menu.

Using Remote Terminal Mode to Monitor and Access POST

You can use a terminal program to remotely monitor all textual output generated during POST. All POST data will be displayed in the terminal program window as the remote system completes POST. While you are monitoring POST on the remote system, all local keystrokes are relayed automatically to the remote system, enabling you to use POST utilities (such as system configuration, RAID mini-configuration program, or diagnostic programs) that can be accessed during POST.

To use Remote Terminal mode to monitor and access POST on the server:

1. Use a terminal program to establish a connection with the PC Server Advanced Systems Management Adapter modem.

2. Log in to the PC Server Advanced Systems Management Adapter.

   When you have established a connection with the PC Server Advanced Systems Management Adapter, you will be prompted for a username and password. You must provide a username and password combination that has been previously configured for use with the PC Server Advanced Systems Management Adapter.

   Note: The username and password are case sensitive.

   When you have logged into the PC Server Advanced Systems Management Adapter, the following main menu appears:

```
1 System State
2 Event Log
3 VPD/Revisions
4 Power Control
5 Reset Control
6 Remote Terminal
7 Logoff
```

3. Start (or restart) the server.

- If the remote server is currently powered off:

    a. Select **4 Power Control** from the main menu.

    b. Select **1 Power On** from the Power Control menu.

- If the server is currently powered on, you must restart the server. You can use selections from the Power Control menu or the Reset Control menu to restart the server in several ways.

    To restart the server using the Power Control menu selection:

    a. Select **4 Power Control** from the main menu.

    b. Select **2 Power Off** from the Power Control menu.

    c. Once the server has powered off, select **1 Power On** to restore power to the server.

    To restart the server using Reset Control menu selections:

    a. Select **5 Reset Control** from the main menu.

    b. Select either **1 Reset Now** or **2 Reset with OS Shutdown** to restart the server.

    Note: For information on the System Power and Boot menus, see "Power Control Selections" on page 49 and "Reset Control Menu Selections" on page 51.

4. After you restart the server, return to the main menu and select **6 Remote Terminal**.

Once you have started Remote Terminal mode on the PC Server Advanced Systems Management Adapter, all textual output generated during POST will be sent to your terminal window. Your

terminal will also act as a fully-active remote session, enabling you to enter keyboard commands that will be sent to the remote server. In this way, you can enter key commands and key-combinations that access POST operations and utilities such as system setup or the RAID mini-configuration program.

When you have finished using Remote Terminal mode, press **Ctrl+R**, then press **Ctrl+E**, and then press **Ctrl+T**. This will end Remote Terminal mode and return you to the main menu.

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