
PowerMon[®] II

User's Manual

for the:

Novell[®] NetWare[®]
Operating System

by:



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Conventions Used In This Guide

This guide uses these type style conventions:

Italic print, as shown in this example, indicates chapter or section names in this guide, window or dialog box names, or is used for emphasis.

Bold italic print, as shown in this example, indicates field names or menu items in the software, or is used for emphasis. Words separated by a */* vertical bar indicate a series of menu items that must be selected. For example: ***File/Exit***

Bold print, as shown in this example, indicates filenames, directories, or items to be typed exactly as they appear.

Italic print words or letters in braces { } indicate values that must be supplied by the user. For example: *{drive}:\install*

Italic print words or letters in brackets < > indicate keys to press. If two keys are separated by a + plus symbol, then the first key should be pressed and held down while pressing the second key. For example: *<alt+enter>*

Note: **Notes contain important information set off from the text.**

Warning: **Warning messages alert you to a specific procedure or practice which, if not followed correctly, could cause serious personal injury or loss of data.**

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Introduction

PowerMon II is a power monitoring software package that allows UPS monitoring for Novell NetWare operating systems. There are two parts to this package; the UPS monitor and the UPS console. The UPS monitor is a module which monitors the UPS, logs data, and alerts users of power events. The UPS console allows you to configure the UPS monitor, view the status of other UPSs on the Novell network, and view the power history of the UPS.

UPS Monitor

The UPS monitoring portion is executed as a NetWare Loadable Module (NLM). The UPS monitor communicates through a cable attached to a serial port on the computer and the communication interface on the UPS. This cable enables the UPS monitor to check the status of the UPS (such as battery warning, power fail, power restored, and low battery) and to perform a graceful shutdown if required.

If the UPS monitor detects a utility power failure, it activates a user-specified timer to automatically shutdown the server. The UPS monitor disables login and broadcasts a message to all users to notify them that the system is functioning on battery back up. Users can recognize the possibility of a system shutdown, save their work, and log out of the server.

If power is restored, the UPS monitor will reset the shutdown timer. The UPS monitor then enables login and broadcasts a message to notify users that utility power has been restored.

If the UPS battery power runs low, the UPS monitor activates a user-specified low battery shutdown timer to override the power failure shutdown timer.

If the user-specified shutdown or low battery timer expires and power is still not restored, users are notified of imminent shutdown, then shutdown of the system begins.

PowerMon II will also track battery warnings, when the UPS reports low battery with utility power present. This feature allows a system administrator to be informed of a potential problem with the UPS.

Commands can be performed at utility power failure, power restoration, or system shutdown time by creating command files. See *Creating Event Command Files* in the *Getting Started* section for more information.

PowerMon II can be configured to dial a network administrator's pager number upon power failure. Configure PowerMonII to dial the number and leave a warning code.

All power events are recorded in the *File Server Error Log* file. A supervisor can review these events using the SYSCON or *NetAdmin* utilities.

UPS Console

The second part of this package is the UPS console application, UPSCON. UPSCON is used to install and configure the UPS monitor, view the real time status of the UPS, schedule server shutdown, and monitor PowerMonII on any NetWare server on the network.

PowerMon II records power activity in 5 minute intervals for the past 31 days. PowerMonII graphs the activity in 2 hour increments for a 31 day time period, or 5 minute increments for a 24 hour time period. The power history graph screens also display the current power and battery status of the UPS.

The server can be scheduled to shutdown daily. The server must be restarted manually.

You can run UPSCON from any workstation, on the network, that has access to `upscon.exe`. You can load `upscon.nlm` at the file server console.

If you have any questions and or recommendations regarding this installation guide, please bring them to the attention of our Technical Support Department.



REMEMBER



Don't forget to mail your PowerMonII registration card, it is your proof-of-purchase.



NOTE



If you have any questions about PowerMonII or other products from Systems Enhancement Corporation, please contact us at:

World Headquarters Systems Enhancement Corporation

174 Chesterfield Industrial Blvd.
Chesterfield, MO 63005 USA

Telephone (314) 532-2855

Fax: (314) 532-2037

E-mail: sales@sechq.com

European Headquarters Systems Enhancement Corporation Limited

Singleton Court, Wonastow Industrial Estate
Monmouth, Gwent. NP3 3AH U.K.

Telephone +44 1600 716400

Fax: +44 1600 772026

For Technical Support, see the section titled, **Placing a
Technical Support Call**

Getting Started

System Requirements

1. To use PowerMon II, you must have a file server running one of the following operating systems:
 - NetWare v4.1
 - NetWare v3.11, 3.12

If you have any questions about the ability of the software to run on other systems, please contact our technical support staff.
2. PowerMon II requires one dedicated RS-232 serial port on your computer for communications with a UPS.

Note: PowerMon II will **not** work through a PS/2 style mouse port.

Creating Event Command Files

The files, `acfail.ncf`, `acrest.ncf`, & `shutdown.ncf` are optional, user-configured text files that are executed at specific events. These files allow you to perform any special routines your site requires.

Use a text editor to create the text files called, `acfail.ncf`, `acrest.ncf`, & `shutdown.ncf` in the `system` directory of the `sys` volume. In these text files, include any special routines or commands that need to be executed at specific events.

`acfail.ncf` is executed after the **Disruption Time**, when utility power fails.

`acrest.ncf` is executed after utility power is restored.

`shutdown.ncf` is executed before a system shutdown.

Make sure that none of the commands added to this file require any keyboard input. If they require input and the system is unattended, PowerMonII will not be able to complete the commands before system shutdown.

In order to close an application, a command-line method must be available. If you have any questions regarding closing specific applications, please contact the developer of that application. Do not execute a *down*, PowerMon II will do that for you.

If you use event command files, please pay attention to instructions given in this manual for installation and loading of PowerMon II.

Upgrading to PowerMon II

If you purchased the PowerMon II upgrade, you should follow the instructions in this section of the manual. Before you install the PowerMon II upgrade, you should perform the following steps:

- Identify and record the current **Configuration Code**. Record the **Configuration Code** on the inside front cover of this manual.
- Identify and record the serial port to which the UPS interface cable is attached.
- Unload & Delete the old software.

Configuration Code & Serial Port

If you have the User's Manual for the old version of PowerMon or PowerMon II, look for the **Configuration Code** in the install section. Some manuals may have the **Configuration Code** marked on the inside front cover. If you find the **Configuration Code** and you know the serial port to which the UPS interface cable is attached, then skip ahead to the *Deleting Previous Version* topic.

If you don't have the User's Manual for the old version of PowerMon or PowerMon II, or you cannot determine the serial port or **Configuration Code**, check to see if the software is installed and running. The NLM would be named `powermon.nlm` or `pm2.nlm`. You can identify the **Configuration Code** and serial port from the installed software. If the software isn't installed, contact technical support. You must have your UPS interface cable ready, and the other information in the *Placing a Technical Support Call* section.

Determining the **Configuration Code** and serial port in installed software varies by version. If you are unsure of the PowerMon version number, load `powermon.nlm` and the version will be displayed on the console. If the software is already running, type `modules` at the server console. Follow the instructions for your version of PowerMon.

PowerMon v4.02 and PowerMon II v1.03 or older

Login from a workstation as supervisor and run `install.bat` from the old software diskette. Choose **yes** when install asks if you are installing to a server with a cable attached. Choose **Install Monitoring Configuration** from the **Available Topics** menu. You will be prompted to *Install UPS Software to {server}*. Select the target server. You will be prompted to *Recall Current Configuration*. Choose **yes**. Record the **Configuration Code** and the **Monitoring Board** and **Monitoring Port** values. Exit install and skip ahead to the *Deleting Previous Version* topic.

PowerMon v2.97 or older

Login from a workstation as supervisor and run `install1.exe` from the old software diskette. Choose **Recall Configuration** from the **Available Topics** menu. Record the **Configuration Code** and the **Serial Port Selection** values. See *Serial Port Addresses* in the *Installation & Configuration* section to translate your **Serial Port Selection** to AIO Board & Port values. Exit install.

Deleting Previous Versions

If PowerMon or PowerMon II is currently running, unload the `powermon.nlm` or `pm2.nlm`. Delete the following files from the `sys:system` directory before installing the PowerMon II upgrade.

PowerMon II v1.03 or older

```
del \system\pm2.nlm<enter> or
del \system\pm2slave.nlm<enter>
del \system\pm2.hlp<enter>
del \system\ups.dat<enter>
del \system\upscon.exe<enter>
del \system\upscon.nlm<enter>
```

PowerMon v4.02

```
del \system\powermon.nlm<enter> or
del \system\pwrslave.nlm<enter>
del \system\powermon.hlp<enter>
del \system\upscon.exe<enter>
```

PowerMon v2.97 or older

```
del \system\powermon.nlm<enter>
```

Proceed with PowerMon II upgrade installation.

Installation & Configuration

Installation and configuration consists of the following:

- Installing the UPS interface cable
- Installing PowerMon II software

Installing the UPS Interface Cable

To install the PowerMon II cable:

1. Locate the UPS interface cable that was provided in the PowerMon II kit.
2. Plug the end of the cable with the identification label into any dedicated serial communications port on your computer. If this end of the cable does not match your serial port connector, use an RS-232 adapter.
3. Plug the other end of the cable into the communications port on the UPS. (Refer to your UPS user's manual for help in locating the interface port.) If this end of the cable does not match the connector on your UPS, contact your reseller or Systems Enhancement Corporation. Do **not** use an adapter.

WARNING: If you don't have the UPS interface cable connected to the computer and the UPS, your system could shutdown immediately when the software starts.

Serial Port Addresses

PowerMon II requires one serial port for UPS monitoring, and an optional second port used for alerting an administrator via a modem. You need the AIO addresses for the ports during installation. Determine the addresses before proceeding with the installation.

Novell has added support for various communications port hardware using their AIO communications driver. The AIO driver method of addressing the serial port consists of a board number and a port number. To identify the ports on your system, you need to load the common AIO driver called `aio.nlm` and a hardware specific driver.

On your diskette, we have included some common AIO NLMs. If you have NetWare v3.11, copy these files to the `system` directory, if needed. The install program will also copy them, when you choose *Install Monitoring Configuration*. You need to load the common AIO driver called `aio.nlm` and a hardware specific driver. On most systems, the hardware specific driver is `aiocomx.nlm` (`aiownim.nlm` for Wide Area Network Interface Module WNIM boards, and `aioartic.nlm` for IBM Artic boards are also included on the diskette). So for example, type the following commands at the system console:

```
load aio <enter>
load aiocomx <enter>
```

After you press `<enter>`, you will see the hexadecimal address, IRQ number, and the AIO board and port numbers for those serial ports detected by `aiocomx.nlm`

```
3F8h IRQ 4 is standard for COM1
2F8h IRQ 3 is standard for COM2
```

The AIO board and port numbers may vary depending how the hardware on your system is setup. For example, on some systems, `aiocomx.nlm` installs:

```
3F8h IRQ 4 as Board 0 Port 0
2F8h IRQ 3 as Board 0 Port 1
```

on other systems, `aiocomx.nlm` installs:

```
2F8h IRQ 3 as Board 1 Port 0
```

So the port at 2F8h IRQ 3 (COM2) could be Board 0 Port 1 or Board 1 Port 0. Even if your serial ports are built in to the motherboard, the ports may be installed with different board numbers. To detect all of your serial ports, you may have to load `aiocomx.nlm` more than once, depending on the number of boards installed on your system and the configuration of your hardware.

Installing PowerMonII

Turn on the UPS and the file server.

- Login to the server at a workstation as **supervisor**.

Note: If you have more than one server on your network, make sure you are logged in to the **target** file server only.

- Place the PowerMonII diskette in a disk drive on the workstation.
- Make the disk drive containing the PowerMonII diskette the default drive by typing:
 a: `<enter>`
or, if using drive B, type:
 b: `<enter>`
- Start the PowerMonII installation program, type:
 install `<enter>`

Note: If you are upgrading your PowerMon or PowerMon II software, see the section titled *Upgrading to PowerMon II* before you continue.

After a few seconds, the main menu of UPSCON will appear. The **Current Server** displayed at the top of the screen is the server that PowerMonII will be installed on. If you would like to install PowerMonII on a different server, then logout of all servers and login to the target server.

You can get context sensitive help, for most options, by pressing the `<F1>` key while the item is selected.

To exit installation, type `<Esc>` until the exit menu appears, then select **yes**.

The **Install Monitoring Configuration** topic will be automatically highlighted in the **Available Topics** menu, press `<enter>` to select. This topic is used to install PowerMonII to a file server or reconfigure the PowerMonII software that already exists on the file server.

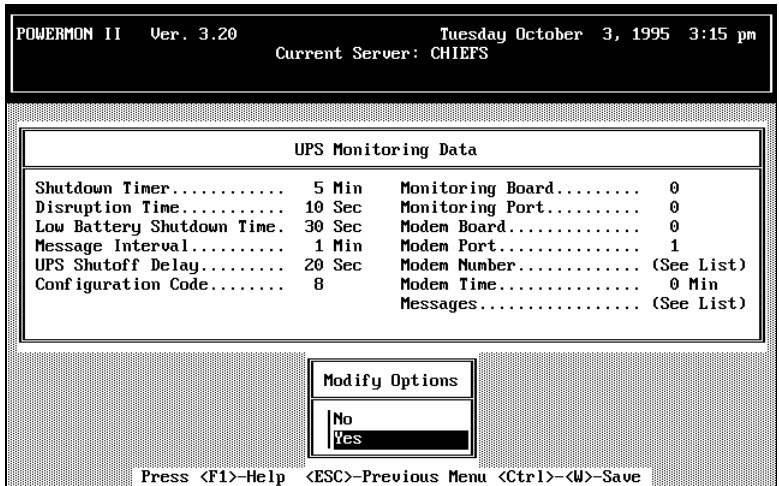
After you choose *Install Monitoring Configuration*, you will be prompted to *Install UPS Software to {server}*. If the server listed is the one you wish to install PowerMonII on, choose **Yes**. If you choose **No**, you will be prompted for other servers to which you are currently logged in with *Supervisor* equivalence.

Recall Configuration

You may be prompted to *Recall Current Configuration*. Confirm the recall by selecting **Yes** or continue without recalling the configuration by selecting **No**. Selecting **Yes**, reads the currently installed configuration into the **UPS Monitoring Data** menu for modification. If you do not recall the current configuration, the values you modify will be the default values.

UPS Monitoring Data

The **UPS Monitoring Data** menu allows you to configure event reporting and shutdown times, UPS communications, administrator paging, and warning messages.



Shutdown Timer

The **Shutdown Timer** allows you to set the amount of time to allow the computer to run before PowerMonII performs an automatic graceful NetWare shutdown. Choose an amount of time that will give the users enough time to close their current applications and log out of the server without exhausting the UPS battery supply. Default setting: 5 minutes.

Disruption Time

The **Disruption Time** allows you to set the amount of time between a utility power failure occurrence and notification of the failure. This feature allows you to avoid nuisance power disruption notices. All power interruptions, regardless of length, are displayed to the file server console and written to the File Server Error Log file. Default setting: 10 seconds.

Low Battery Shutdown Time

The **Low Battery Shutdown Time** allows you to set the amount of time to allow the computer to run before PowerMonII performs an automatic graceful NetWare shutdown. This value overrides the **Shutdown Timer**. Default setting: 30 seconds.

Message Interval

The **Message Interval** allows you to set the amount of time between power failure message broadcasts. The initial utility power failure message and the **One Minute Warning** message will always be broadcast. If you set this parameter to 0 minutes, then no other power failure messages will be broadcast. Default setting: 1 minute.

UPS Shutoff Delay

The **UPS Shutoff Delay** allows you to set the amount of time to allow the operating system to shutdown before turning off UPS output power. Allow enough time to make sure that the UPS is **not** turned off before the shutdown is completed, otherwise data may be corrupted. If you set this parameter to 0 seconds, then UPS output power will not be shutoff. Default setting: 20 seconds.

Configuration Code

Enter your **Configuration Code**. Your **Configuration Code** is located on the inside front cover of this manual. You must reinstall PowerMon II if you would like to change this value later. Default setting: 8

WARNING: If you don't have the UPS interface cable connected to the computer and the UPS, your system could shutdown immediately when the software starts.

Monitoring Board

Enter the board number that the AIO driver assigns to the serial port to which the UPS interface cable is connected. The **Monitoring Board** is used in conjunction with the **Monitoring Port** option to determine the address of the serial port. You must reinstall PowerMon II if you would like to change this value later. Default setting: 0.

Monitoring Port

Enter the port number that the AIO driver assigns to the serial port to which the UPS interface cable is connected. The **Monitoring Port** is used in conjunction with the **Monitoring Board** option to determine the address of the serial port. You must reinstall PowerMon II if you would like to change this value later. Default setting: 0.

Modem Board

Enter the board number that the AIO driver assigns to the serial port to which the modem is connected. The **Modem Board** is used in conjunction with the **Modem Port** option to determine the address of the serial port. Default setting: 0.

Modem Port

Enter the port number that the AIO driver assigns to the serial port to which the modem is connected. The **Modem Port** is used in conjunction with the **Modem Board** option to determine the address of the serial port. Default setting: 1.

Modem Number

The **Modem Number** field allows you to enter a dial string that will page your network administrator when a utility power failure or low battery event occurs. The page will be performed after the **Shutdown Timer** reaches the value configured in **Modem Time**. The examples use the Hayes® standard AT modem command set.

Enter the dial string that will be sent to the modem to page. Begin the string with AT, and include any Hayes commands required to dial the telephone number of the paging service, wait for the paging service to answer, and send a warning code or phone number.

Common Modem Commands

For more information, see your modem user manual.

Command	Description
DT	Dial the following number using Tone dialing.
DP	Dial the following number using Pulse dialing.
W	Wait for Dial tone. It is most often used to wait for the dial tone of an outside telephone line before processing the rest of the dial string. The amount of time to wait is set in the S-Registers of the modem. (S7)
,	A comma, placed anywhere in the dial string, tells the modem to pause before processing the rest of the string. The amount of time to pause is set in the S-Registers of the modem. (S8)

Example:

XYZ company has 20 systems running PowerMonII in one building. You are configuring PowerMonII for one of five systems located in one room of the building. The telephone number for the paging service is **1 800 555 1212**. To acquire an outside line from your building, you must dial **9** and wait for the dial tone.

Identify the location of the computer system. For example, your system is located in room number **122**, and it is the **third** of five systems located in that room. Identify your system as 122-3.

Using the previously supplied information, try to set up a dial string that will work with your paging service.

For example:

```
ATDT 9 W 18005551212,,,,,122 3
```

9W causes the modem to dial 9 and wait for the dial tone of an outside line. 18005551212 is the phone number of the pager. ",,,,," waits for approx. 10 seconds to allow the pager service to answer the phone and get ready to receive the number. 1223 (122-room, 3-computer) will be displayed on the pager to identify the computer system that is currently reporting utility power problems.

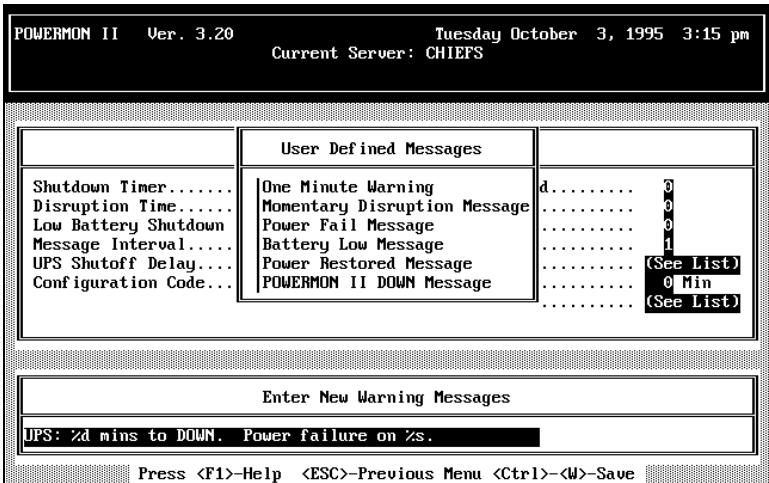
Dial your pager service to determine what you will need to include in your **Modem Number**. Your paging service may vary from the example.

Modem Time

The **Modem Time** allows you to set the amount of time before shutdown, at which PowerMonII will execute the modem string in the **Modem Number** field. If you set this parameter to 0 minutes, then paging will not be attempted. Default setting: 0 minutes.

Messages

Event messages are user-modifiable. You can modify each message by selecting **Messages** from the **UPS Monitoring Data** menu and then the individual message from the message sub-menu.



All power event messages are displayed on the file server console, and entered into the *File Server Error Log* file. The *File Server Error Log* file may be viewed and cleared by using NetWare's SYSCON or *NetAdmin* utilities.

Type over the old message to create a new message. In some messages, you may include the server name and the current value of the shutdown or low battery shutdown timer. Type %s at the location in the text you would like the file server name displayed. Type %d at the location you would like the timer value to be displayed. Be sure to use lower case letters for the %s and %d.

One Minute Warning

This message warns all users that the file server will shutdown in one minute. This message supports %s.

Momentary Disruption Message

This message informs administrators of utility power failures lasting less than the ***Disruption Time***. Users are not notified of this event. This message supports %s.

Power Fail Message

This message warns all users that a utility power failure lasting longer than the ***Disruption Time*** has occurred. It also warns that the server will be shutdown. This message supports %s and %d. %d is the amount of time, in minutes, until shutdown.

Battery Low Message

This message warns all users that the UPS batteries are low during a utility power failure. It also warns that the server will be shutdown in a short period of time. This message supports %s and %d. %d is the amount of time, in seconds, until shutdown.

Power Restored Message

This message informs all users that utility power has been restored. This message supports %s.

POWERMON II DOWN Message

This message informs the administrator that PowerMonII is shutting down the file server. This message is not broadcast to users. This message supports%*s*.

Saving the Settings

To save any parameter changes made, along with the default values of any unchanged parameters, type *<ctrl+w>*.

In order to monitor your UPS, PowerMonII must now be loaded.

Loading, Unloading & Deleting

Although saving the settings in the previous section installed the PowerMon II files in the `sys:system` directory of the file server, PowerMon II will not monitor your UPS until you load it. The following paragraphs concern loading, unloading, and deleting PowerMon II.

Loading

Loading will activate the power monitor. After the power monitor is loaded, you should cause a power failure to verify that the power monitor is active and that the configuration is correct. In order to monitor your UPS, you have to load several NLMs on the server. At the file server console, *load* the following NLMs.

Loading PATCH311

On NetWare v3.11 systems, if the `clib.nlm` version is earlier than v3.12, then PowerMon II may require `patch311.nlm`

```
load patch311 <enter>
```

You can determine if you need `patch311.nlm` by loading all other NLMs, then loading PowerMon II. If you get an error message stating “can’t find public symbol,” then review the names of the symbols. If the public symbols listed do not begin with *AIO*, load `clib.nlm` and `patch311.nlm`. Updated NLMs are available from Novell via NetWare.

Loading AIO Drivers

Load the appropriate *AIO* communications port driver for your hardware as described in the installation chapter. For example:

```
load aiocomx<enter>
```

There are a variety of *AIO* driver NLMs. You may have to load `aio.nlm` before you load the *AIO* hardware driver NLM.

Loading PowerMon II

If you are not using an `acfail.ncf`, `acrest.ncf`, or `shutdown.ncf` command file, then load PowerMonII. Load PowerMon II on the server by typing:

```
load upsmon <enter>
```

WARNING: If you don't have the UPS interface cable connected to the computer and the UPS, your system could shutdown immediately when the software starts.

If you are using command files, you should set timers to allow the command files to execute before PowerMon II performs other actions. For example, if you are performing actions for a utility power failure and power is restored, you would want the `acfail.ncf` to finish before PowerMon II attempts to execute `acrest.ncf`. You would also want to delay file server shutdown to allow `shutdown.ncf` to execute.

To set timers, add command-line arguments to the `upsmon` load statement. Each command file has a command-line argument assigned to it:

Command File	Argument
<code>acfail.ncf</code>	<code>-f {delay in seconds}</code>
<code>acrest.ncf</code>	<code>-e {delay in seconds}</code>
<code>shutdown.ncf</code>	<code>-c {delay in seconds}</code>

Load `upsmon` with the command-line arguments. For example, to allow 20 seconds for each file to execute, you would type:

```
load upsmon -f 20 -e 20 -c 20<enter>
```

Errors Loading PowerMon II

If you immediately receive a utility power failure or low battery message, unload PowerMonII by typing:

```
unload upsmon <enter>
```

See the *Troubleshooting* section of this manual.

If you get an "already loaded" error message, then unload and reload `upsmon`.

If you get an error message stating “can’t find public symbol,” then review the names of the symbols. If the public symbols listed begin with *AIO*, then you must load `ai0.nlm` and your hardware specific *AIO* driver. If the public symbols listed do not begin with *AIO*, see *Loading PATCH31* above.

Loading Automatically

After you have determined which modules you need to load, add the load statements to your `autoexec.ncf` file. PowerMon II will automatically monitor your UPS when the file server is started. You can modify `autoexec.ncf` using NetWare’s `install.nlm`

Unloading

To disable power monitoring, *unload* PowerMon II at the file server console by typing:

```
unload upsmon <enter>
```

You can also unload any support NLMs that are not required by other modules.

If you modified the `autoexec.ncf` file during the install process, and you want to prevent PowerMonII from loading at system startup, use `install.nlm` to remove the `upsmon` load command. You can also remove any support NLM load commands that are not needed.

Deleting

If you wish to permanently remove PowerMonII from the file server **SYS** volume, follow the steps listed under *Unloading*, then delete the following files from the **sys:system** directory.

```
del \system\upsmon.nlm<enter>
del \system\upsmon.hlp<enter>
del \system\ups.dat<enter>
del \system\upscon.exe<enter>
del \system\upscon.nlm<enter>
```

You may also have to remove the load commands entered in the **autoexec.ncf** file.

Using UPSCON

The UPSCON UPS Management Console application allows you to control the currently loaded `upsmcon.nlm` power monitor. UPSCON can be loaded at the file server console, or run as a DOS application. To run the console:

From a server console, load `upsmcon.nlm` by typing:

```
load upsmcon<enter>
```

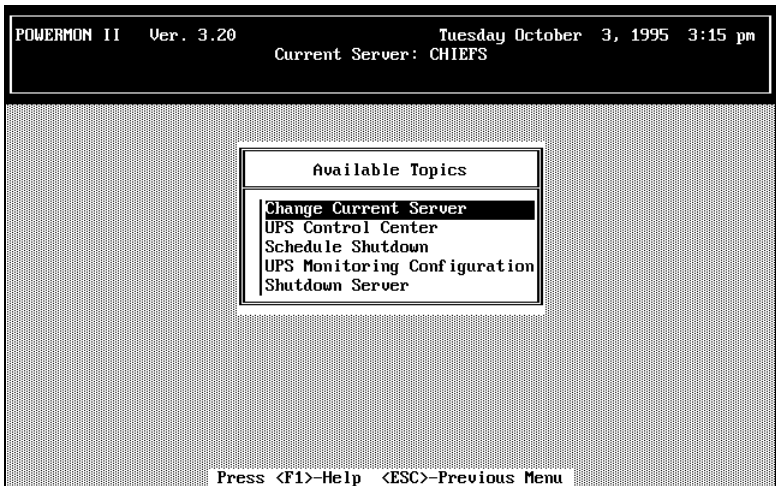
This will display the application screen. When you exit the application, it will automatically unload itself.

From a DOS workstation, run `upsmcon.exe` by typing:

```
upsmcon <enter>
```

This will display the application screen. The UPSCON application file `upsmcon.exe` is installed in the `sys:system` directory.

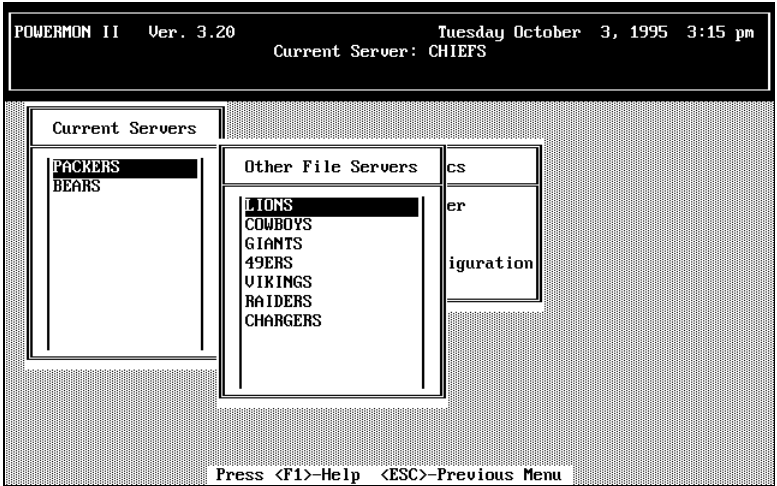
After a few seconds, the main menu of UPSCON will appear.



The name of the *Current Server* is displayed at the top of the screen. If you would like to work on PowerMon II on another server, choose **Change Current Server** from the **Available Topics** menu.

Change Current Server

The **Change Current Server** topic is used to select a file server to be monitored. You may select from a list of all file servers you are currently attached to that are running PowerMonII. If you are not attached to any server, you can use **Change Current Server** to attach to a server.



Selecting Servers

A list of **Current Servers** available will be displayed. Highlight the file server you want to select and press<enter>. If you select a new server from this list, the **Current Server** will change at the top of the screen.

Attaching to Servers

The **Current Server** list will be blank if you are not currently attached to a server. If the list is blank, press<insert> to get a list of available file servers that you are NOT currently attached to. Highlight the file server in the **Other File Servers** list that you want to select, and press<enter>.

A login name screen will be displayed. If a password is required, a password window will be displayed. You will be attached to the selected file server and returned to the current servers listing. Select a server from the **Current Servers** list, the *Current Server* will change at the top of the screen.

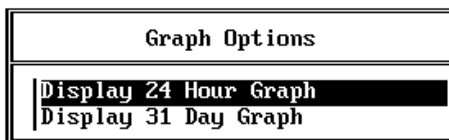
Detaching from Servers

If the server you wish to detach from is the *Current Server*, you will need to first select a different server. Once this is completed, press the <Esc> key to return to the **Available Topics** menu.

If you want to detach from a server, return to the *Current Servers* listing. Highlight the name of the file server you want to detach from and press the <delete> key. You will be asked if this is the item you want to delete, select **Yes** to detach.

UPS Control Center

The **UPS Control Center** topic gives you the ability to monitor the selected UPS. A graphic representation of the power history of the UPS is presented. You can view a graph of the last 31 days, or a 24 hour graph of any day in the last 31 days. Each graph provides statistics on power outages, and server shutdowns for the graphed time frame. Each graph also provides indicators of the current state of the UPS.



Each type of graph screen will provide you with statistics concerning the *Current Server*. You can determine the number of outages that occurred during that given time period. You can also see the longest and shortest outages, and the average outage duration. You can determine the number of times the server was shutdown, and the reason for shutdown.

From the *UPS Control Center*, you can monitor the current state of the UPS. The **Power Status** indicator is normally green. If power fails, it turns red, and blinks. The **Battery Status** indicator is normally green. If power fails, and the UPS batteries are low, it turns red, and blinks. If the power is normal, and the UPS batteries are low, the **Battery Status** indicator turns yellow, and blinks.

You can use the **Change Current Server** topic to view the status of PowerMonII NetWare servers, network-wide.

24 Hour Graph

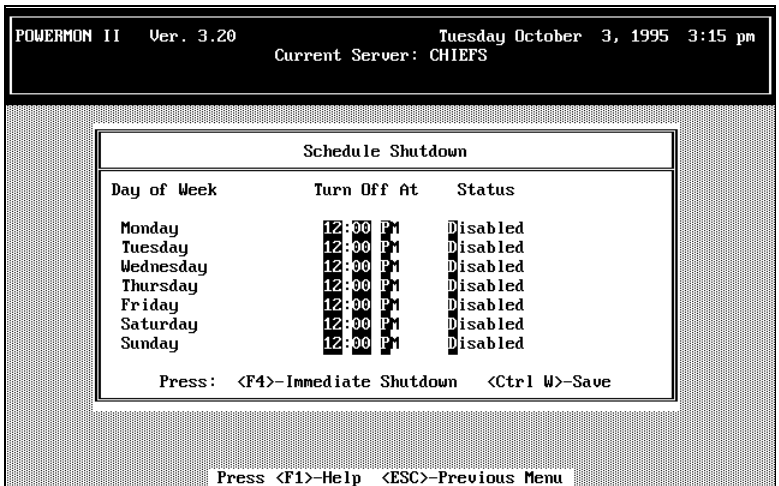
To change days in the 24 hour graph, use the < > key to backup 1 day, or < > to go forward 1 day.

31 Day Graph

The 31 Day Graph shows the first 24 days on screen. To view the entire 31 days, use the < > key to go forward the final 24 days, or < > to backup to the beginning.

Schedule Shutdown

The **Schedule Shutdown** topic allows you to schedule future file server shutdowns. You must manually restart the server.



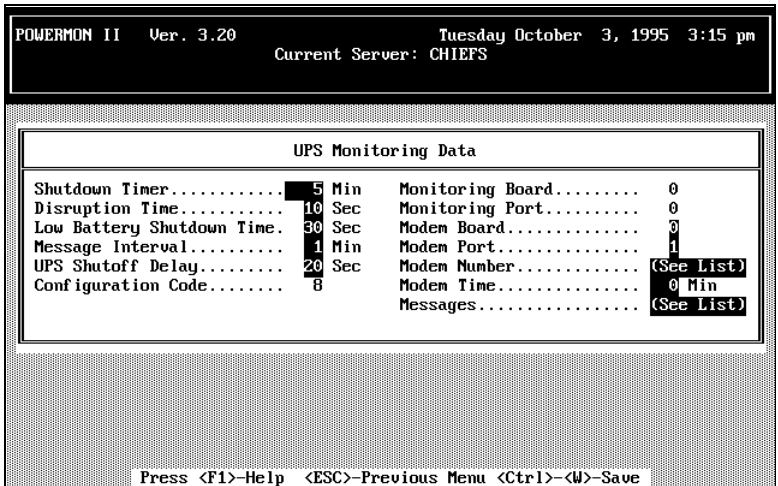
For each day of the week, enter a time in the **Turn Off At** field. Set the schedule time by choosing either AM or PM. Set the schedule **Status** by choosing either enabled or disabled.

You can perform an **Immediate Shutdown** by pressing <F4>.

Press <ctrl+w> to save the current schedule.

UPS Monitoring Configuration

The **UPS Monitoring Configuration** topic brings up the same basic **UPS Monitoring Data** screen as in the Install section of the manual. You can change most of the settings without reinstalling PowerMon II. Some settings require reinstallation to change.



You will notice that some of the options that were available during the install are unavailable. To change the values for these options, you will need to reinstall PowerMonII. You can find descriptions for each of the options under *Installing PowerMon II* in the *Installation & Configuration* section.

Shutdown Server

The shutdown server topic is used to gracefully bring down the Current Server. This can only be performed by a user with supervisor rights.



As a safety feature against unwanted file server shutdown, you will be asked a second time if you wish to DOWN the server.

Troubleshooting

We have made every effort to ensure an easy and straight forward PowerMonII installation. If you should experience problems or unexpected results during the installation or execution of PowerMon II, please verify your system setup and configuration using the following checklist:

- ❑ Positively identify the serial port to which the UPS interface cable is connected. (Consult computer and/or operating system documentation if necessary.) Note the Hex address and IRQ number for each serial port. Positively identify AIO Board & Port values.
- ❑ Verify that no other hardware or software is using/accessing this serial port, including your mouse. Verify that no other board/adaptor is using the same signal interrupt as the dedicated RS-232 serial port. PowerMonII requires a serial port dedicated to monitoring the UPS.
- ❑ Verify that you are using the UPS interface cable supplied with the PowerMonII software and that it is securely connected to the serial port. If you are using an adapter, it must be a standard serial adapter.
- ❑ Verify that the other end of the supplied cable is securely attached to the UPS interface. This end will not require any adapters.
- ❑ Make sure you are logged in to the target server as Supervisor.
- ❑ When changing default configuration options, be certain to press <enter> after typing in the new value.
- ❑ Verify that you are using the proper **Configuration Code**
- ❑ Be certain to **save the configuration** after making changes in the **UPS Monitoring Data** menu.

Common Problems and Solutions

Problems	Solutions
When loading my hardware specific <i>AIO</i> driver, it cannot find the serial port or assigns a very high number to the board or port value.	<p>Are your AIO drivers loaded properly? You may have to load the hardware specific driver more than once to find all serial ports.</p> <p>Make sure the serial port is enabled. Check jumpers and/or BIOS.</p> <p>Make sure the port is operational, by performing another test on it, such as attaching a modem and attempting to dial out.</p> <p>A conflict may occur with other hardware devices, or software. Hardware conflicts will appear in DOS as well as Novell, and may be easier to identify (address/IRQ). Software conflicts will only appear in Novell, and may occur with other applications that provide port services, including pserver.</p>
Soon after loading upsmo.nlm utility power failure or low battery is displayed. When testing PowerMon II, no power failure or power restored messages are displayed.	<p>Make sure the cable is plugged in to the UPS and the computer.</p> <p>Make sure you have correctly identified the serial ports. You may have connected the cable to the wrong port. Ports may be mislabeled.</p> <p>If the UPS is charged and seems to be operating properly, then PowerMonII is having trouble communicating with the UPS. (See the section titled, <i>Serial Port Testing</i>)</p>
The output power from my UPS is not shutting off after PowerMon II shuts down my system.	Make sure that you are setting the UPS Shutoff Delay parameter. The UPS will not shut off if it is set to zero.

Some solutions/suggestions may apply for more than one problem.

Serial Port Testing

Use the following procedure to test if PowerMonII can communicate properly through the specified serial port on your computer. This procedure tests the serial port independently from the supplied PowerMonII cable and the UPS. Follow the steps below:

Please refer to installation section of the manual to become familiar with the software installation.

- Unload PowerMonII. Refer to the *Loading, Unloading & Deleting* section.
- Disconnect the UPS interface cable from your server's serial port. The other end may be left connected to your UPS.
- Login as *supervisor* on a workstation. Insert the PowerMonII disk into the diskette drive. Run the UPSCON install program (`install.bat`) from the PowerMonII diskette.
- When the menu appears, choose **Install Monitoring Configuration**. Do **NOT** choose **Yes** when *Recall Configuration* is highlighted.
- Select **Configuration Code** from the menu. Type in the value **7** and press `<enter>`.
- Go directly to **Monitoring Board** and **Monitoring Port** and choose the serial port that the PowerMonII cable will ultimately be connected to.
- Save the configuration by typing `<ctrl+w>`. Exit the Install program by pressing `<Esc>`.
- Load PowerMonII. Refer to the *Loading and Unloading* section.
- On the server serial port, use a "jumper wire" or a paper clip to touch pins together at the same time.

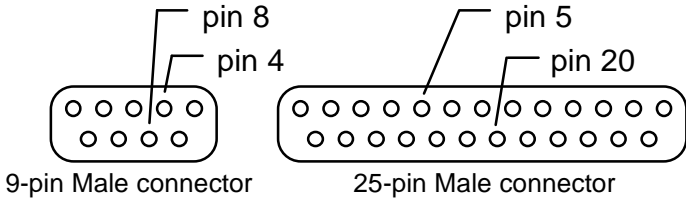
For a **25-pin serial port** jumper pins numbered **20** and **5**.

For a **9-pin serial port** jumper pins numbered **4** and **8**.

Continue to hold the two pins jumpered together. (See the following diagrams for pin numbering.)

Serial Port Connectors

As depicted, you are looking straight into the connector. For standard serial ports, you should see **pins** and not holes.



- After holding the pins jumpered together for 30 seconds, the server should report a utility power failure.
- Remove the jumper from the pins. Another message should report that utility power has been restored.
- Unload PowerMon II.

Serial Port Test Results

If you receive the messages, then your system passes the test. If you did not receive the messages, then your system fails the test.

If your system passes this test, follow these steps:

- Connect the UPS interface cable to your serial port. If your system reports that it is on battery backup, you can stop system shutdown by unloading `upsmo.nlm`
- Reinstall PowerMon II using your **Configuration Code**
- Load PowerMon II

If you continue to have problems, place a technical support call.

If your system fails the serial port test, review these suggestions:

- Ensure that your serial port is properly installed and configured to your system.
- Ensure that you are testing the correct port. Ports may be mislabeled.
- Check that no other adapter setups conflict with the port.
- Check that no other applications are accessing the port.
- Perform another test on the serial port using another method such as connecting to an external modem.

PowerMon II will not function properly until the serial port passes the test described above.

Placing a Technical Support Call

In order to diagnose the problem you are having, our technicians will need the following information from you:

Installation Site:

Company Name: _____

Address: _____

City: _____

State: _____ ZIP code: _____

Installation Site Contact:

Full Name: _____

Phone Number: _____

Fax Number: _____

If you are a consultant,

Consultant Name: _____

Phone Number: _____

Fax Number: _____

Computer System:

Operating System type and version: _____

System Manufacturer: _____

System Model Number: _____

Type of Serial Port Connector (How many pins, male or female, etc.): _____

Address of the Port: _____

UPS:

Manufacturer: _____

Model Name/Number: _____

Type of Port Connector (How many pins, male or female, etc.): _____

PowerMonII Configuration:

Configuration Code: _____

UPS Interface Cable Part Number (Identification label located at end of cable): _____

Are any adapters connected to the cable? _____

If yes, what type? _____

What are the symptoms?



Technical Support



Have the information listed above ready. You can reach us by calling:

US & World (314) 532-2855

by fax at (314) 532-2037

or by E-mail at: support@sechq.com

Europe +44 1600 716400

or by fax at +44 1600 772026

Systems Enhancement Products

SensiMon™

SensiMon is the power monitoring and shutdown package designed to work with any Uninterruptible Power Supply (UPS) with or without a serial interface. SensiMon incorporates all the monitoring capabilities of PowerMon II by using a custom SensiCable. The SensiCable plugs into the same electrical outlet as the UPS and provides a graceful system shutdown when unfavorable power events occur. SensiMon works with all PowerMon II supported operating systems.

Multi-Interface Units (MIU)

Multi-Interface Units (MIU) are designed to allow more than one computer to monitor a single UPS for a utility power failure or a low battery condition. Multi-Interface Units are necessary since a typical UPS has only one communication interface, making it impossible for multiple computers to simultaneously monitor a single UPS.

One cable is provided to attach the MIU to the UPS interface. A cable is provided for each computer system to attach to the MIU. Each computer will individually monitor the status of the UPS, and all power events that occur, by using PowerMonII, SmartMon (for MIUs that support serial UPSs), or built-in UPS monitoring software. When the MIU detects a change in UPS status, it passes the same status signals to all the attached servers, informing them of the power event.

The following provides more information on Systems Enhancement's family of Multi-Interface Units:

MultiMon™

- Provides 8 ports for basic monitoring and system shutdown.
- Expandable for UPS systems that support more than 8 computer systems.
- Allows each computer system to monitor for utility power failure and UPS low battery.*
- Provides support for UPS inverter shut off.**

MultiMon/400™

- Provides 4 ports for basic monitoring and system shutdown.
- Expandable for UPS systems that support more than 4 computer systems.
- Allows each computer system to monitor for utility power failure, UPS low battery, general alarm, and on bypass mode. IBM AS/400 servers use the monitoring capabilities provided by the operating system. Other operating systems require PowerMonII or other UPS (contact closure) monitoring software. PowerMonII does not monitor general alarm or on bypass mode.
- Provides support for UPS inverter shut off.**

MultiMon Plus™

- Provides 9 ports—8 basic and 1 smart/serial port, for power management and system shutdown.
- Expandable for UPS systems that support more than 9 computer systems.
- Allows each computer system connected to the basic monitoring ports to monitor for utility power failure and UPS low battery. Allows one computer system connected to the smart monitoring port to monitor smart UPS data, including frequency, load, and temperature.
- Provides support for UPS inverter shut off.*

MicroMon™

- Provides 3 ports—2 basic and 1 smart/serial port, for power management and system shutdown. Designed to work with smaller UPS systems.
- Allows two computer systems connected to the basic monitoring ports to monitor for utility power failure and UPS low battery. Allows one computer system connected to the smart monitoring port to monitor smart UPS data.
- Provides support for UPS inverter shut off.**
- Cost-effective solution that is less than half the price of other MIUs.

* Basic monitoring requires PowerMonII or other UPS (contact closure) monitoring software. Smart/serial monitoring requires SmartMon or other smart/serial UPS monitoring software.

** UPS inverter shut off is currently supported for basic monitoring in PowerMon II systems only. UPS inverter shut off for smart/serial monitoring is normally handled through serial communications.

NetMon SNMP Adapters

Systems Enhancement's NetMon products give you a cost-effective solution for monitoring your uninterruptible power supplies using Simple Network Management Protocol (SNMP). The NetMon adapters receive status data from the UPS, translate this information into SNMP-compliant messages, and send these messages to the Network Management Station (NMS). The NetMon family is compatible with a variety of NMSs—Novell, HP OpenView, SunNet Manager, and IBM NetView.

The following NetMon features provide your solution for UPS monitoring.

NetMon—SP™ (Single Port)

- Allows network administrators to manage a single UPS using SNMP.
- Works with contact closure and serial data UPSs.
- Designed for Ethernet networks.
- Small, compact design.

NetMon—MP™ (Multi Port)

- Allows your network administrators to manage up to four UPSs simultaneously using SNMP.
- Works with contact closure and serial data UPSs.
- Provides additional monitoring with up to four input relays for devices such as smoke detectors and security alarms.
- Provides control with two output relay contacts for devices such as air conditioners or cooling fans.
- Measures temperature and humidity with built-in environmental sensors.
- Designed for Ethernet or Token-Ring networks.

SmartMon™

SmartMon is UPS power management and shutdown software that works with smart/serial data to provide critical information about power conditions and the status of the UPS. SmartMon is designed to monitor a smart UPS for events such as power failure and low battery conditions and provide a graceful system shutdown.

Key features of SmartMon include:

- Multiple brand UPS support
- Configurable user interface—display UPS values, such as:
 - Input Voltage
 - Output Voltage
 - Output Frequency
 - Percent Load
 - Battery Charge
 - Battery Temperature
 - more...
- Configurable real-time graphing
- User-defined events based on UPS value thresholds
- User-configurable actions based on UPS events and data, including:
 - Shutdown the Operating System
 - Shutdown the UPS
 - Log the event
 - Broadcast a warning
 - Page the Administrator
- Scheduled system shutdown
- Scheduled UPS self-test

Contact Systems Enhancement Corporation for more information.