

A large red chevron graphic pointing to the right, composed of three horizontal bars of varying lengths, creating a zig-zag shape.

Network Management Card

User's Guide

APC[®]

Thank You!

Thank you for selecting the APC Network Management Card. It has been designed for many years of reliable, maintenance-free service. APC is dedicated to the development of high-performance electrical power conversion and control products. We hope that you will find this product a valuable, convenient addition to your system.

Please read this manual! It provides important configuration and operating instructions that will help you get the most from your Management Card. For detailed information on installation and set-up, see the *Network Management Card Installation and Quick Start Manual* provided in printed format, and in PDF format on the Network Management Card *utility* CD (*.\doc\Insguide.pdf*).

APC Network Management Card

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APC Network Management Card

Introduction

Product Description

Functionality

American Power Conversion's Network Management Card is a web-based UPS Management product that uses multiple, open standards such as Telnet, HTTP, and SNMP to provide full management of UPS systems. Through the Network Management Card, you can monitor and configure your APC UPS systems to shut down and reboot your computer systems.

The Management Card can be installed into the following APC devices:

- Any Smart-UPS® or Matrix-UPS® model that has an internal expansion slot, as well as any Symmetra®, Symmetra 3 Phase, or Silcon™ DP300E series UPS models

Note: A Silcon™ DP300E, which does not have an expansion slot, requires using an Expansion Triple Chassis.

- Expansion Chassis (AP9600)
- Expansion Triple Chassis (AP9604, AP9604R, or AP9604SR)

Initial set-up

You must define three TCP/IP settings for the Management Card before it can operate on the network.

- IP address of the Management Card
- Subnet mask
- IP address of the default gateway

For instructions about how to configure the TCP/IP settings, see the *Network Management Card Installation and Quick Start Manual*, provided in printed form, and in PDF on the APC Network Management Card utility CD (.doc\Insguide.pdf).

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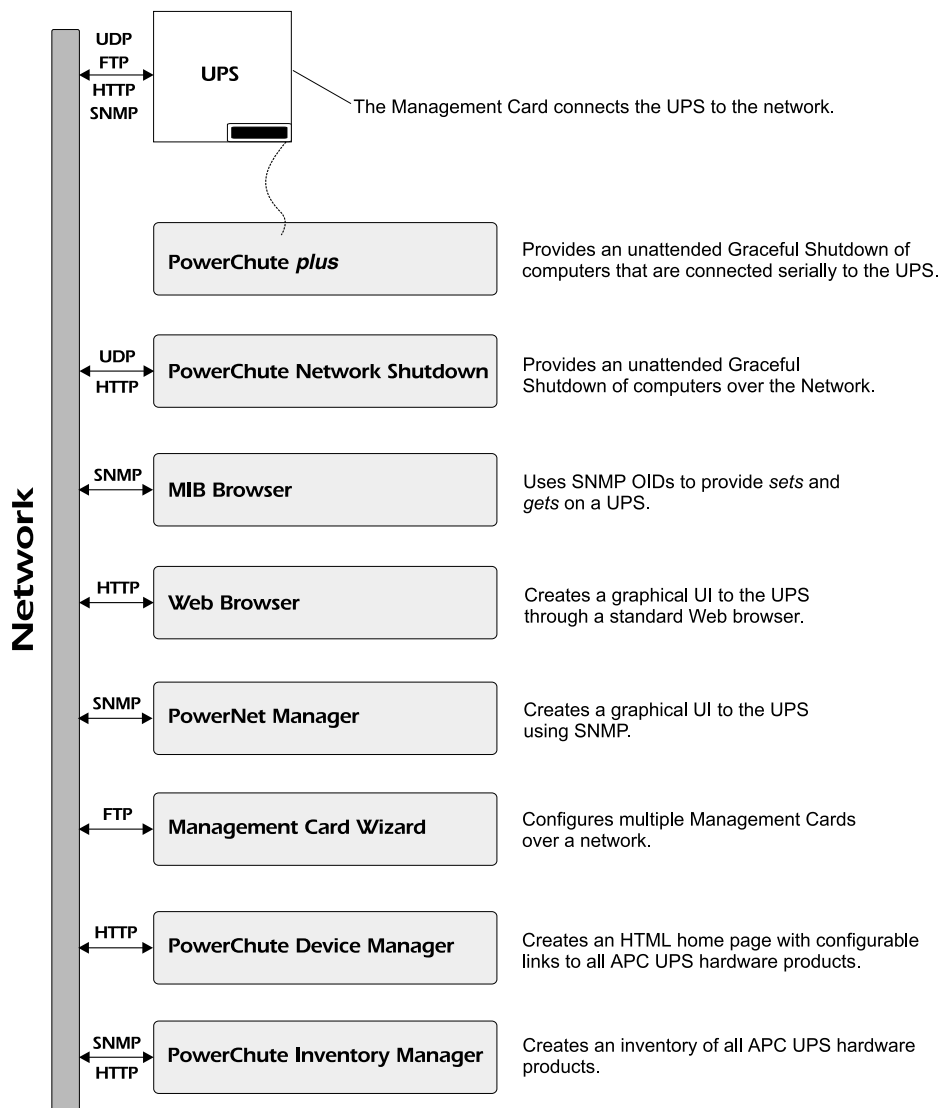
Introduction

Product Description *continued*

Network management features

The Management Card, along with other APC products, can perform a variety of tasks. The figure below identifies and briefly describes the network management applications that can work with a UPS that connects to the network through a Management Card.

Note: The Management Card Wizard identified in the following graphic can be used for mass configuration, either serially or over the network. It cannot be used to download firmware upgrades.



Introduction

Internal Management Features

Overview

The Management Card has two internal interfaces which provide menus with options that allow you to manage the UPS, an Environmental Monitor, and the Management Card: the Control Console and the Web Interface. The Management Card's SNMP interface also allows you to use an SNMP browser with the PowerNet MIB to manage the UPS and an Environmental Monitor.

For more information about the Management Card's internal user interfaces, see **Control Console on page 6** and **Web Interface on page 12**; for more information about how to use the PowerNet MIB with an SNMP browser, see the *PowerNet® SNMP Management Information Base (MIB) Reference Guide* which is provided on the APC Network Management Card *utility* CD (*.\docMibguide.pdf*)

Login control

Only one user at a time can log into the Management Card to use its internal user interface features. The priority for access is as follows:

- Local access to the Control Console from a computer with a direct serial connection to the Management Card always has the highest priority.
- Telnet access to the Control Console from a remote computer has the next highest priority.
- Web access has the lowest priority.

Note: For information about how SNMP access to the Management Card is controlled, see **SNMP on page 21**.

Types of user accounts

The Management Card has two levels of access (Administrator and Device Manager), both of which are protected by **Password** and **User Name** requirements.

- An Administrator can use all of the management menus available in the Control Console and the Web Interface. The Administrator's default **Password** and **User Name** are both **apc**.
- A Device Manager can only access the **Log** option in the **Events** menu and use the **UPS** and **Environment** menus. The Device Manager's default **Password** is **device**, and the default **User Name** is **apc**.

For information about how to set Administrator and Device Manager **Password** and **User Name** settings, see **User Manager on page 23**.

Introduction

Front Panel

Features

The following graphic identifies the Network Management Card's features:



Reset Button. Allows you to reset the Management Card while power is on.

10/100Base-T Port. Used to connect to the Ethernet network.

Link-RX/TX LED. This LED indicates the network status.

Condition	Description
Off	The device which connects the Management Card to the network is turned off or not operating correctly.
Flashing Green	The Management Card is receiving data packets from the network at 10 Megabits per second (Mbs).
Flashing Orange	The Management Card is receiving data packets from the network at 100 Megabits per second (Mbs).

Status LED. This LED indicates the status of the Management Card.

Condition	Description
Off	The Management Card has no power.
Solid Green	The Management Card has valid network settings.
Flashing Green	The Management Card does not have valid TCP/IP settings. ¹
Solid Orange	A hardware failure has been detected in the Management Card. Contact APC Technical Support as described in APC Global Support on page 61 .
Flashing Orange	The Management Card is making BOOTP requests. If you do not use a BOOTP server, you need to configure the Management Card's TCP/IP settings. ¹

¹ For information about how to configure the three TCP/IP settings that the Management Card needs to operate on the network, see the *Network Management Card Installation and Quick Start Manual* provided in printed format, and in PDF format on the APC Network Management Card utility CD (.doc\Insguide.pdf).

Introduction

Watchdog Features

Overview

The Management Card is designed to recover from unanticipated inputs. Through the use of internal, system-wide watchdog mechanisms, the Management Card can detect most internal problems. When it does, it reboots itself to recover from the internal problem. This results in a System: Warmstart event being recorded in the event log.

Network interface watchdog mechanism

The Management Card implements numerous internal watchdog mechanisms to protect itself from becoming inaccessible over the network. One of these mechanisms ensures that the Management Card can receive network traffic: If within a 9.5-minute period the Management Card does not receive any network traffic (either direct, like SNMP, or broadcast, like an Address Resolution Protocol [ARP] request) then it will assume that there is a problem with its network interface and reboot itself.

The role of the Default Gateway in resetting the network timer

Most networks will have some level of broadcast traffic which will be received by the Management Card and reset the 9.5-minute timer back to zero. But it is possible (for example, late at night in an accounting department) that the Management Card will not see any traffic for 9.5 minutes. Since it is not desirable for the Management Card to reboot just because the network is quiet, the Management Card will attempt to contact the Default Gateway once every 4.5 minutes. If the gateway is present, it will respond to the Management Card and the 9.5-minute timer will be reset to zero.

If your application does not require a gateway or does not have one, specify the IP address of a computer on the same subnet which is up and running on the network most of the time. This will have the same effect as configuring a gateway.

APC Network Management Card

Control Console

How to Log In

Overview

You can use either a local (serial) connection, or a remote (Telnet) connection with a computer on the Management Card's subnet to access the Control Console. Use case-sensitive **User Name** and **Password** entries to log in (by default, **apc** and **apc**, for an Administrator, or **device** and **apc**, for a Device Manager).

Local (Serial) access

You can use a computer that connects to the Management Card through the serial port at the UPS or chassis to access the Control Console.

1. Select a serial port at the computer to be used for a terminal-emulation connection with the Management Card.
2. Disable any service that currently uses the selected serial port, such as PowerChute *plus* or UNIX Respond.
3. Connect the smart-signaling cable (APC part number 940-0024) that came with the Management Card to the serial port on the computer and to the serial port on the UPS or chassis.

Note: If the computer uses smart-signaling PowerChute *plus*, a smart-signaling cable (APC part number 940-0024 or 940-1524) is already installed. For simple-signaling, temporarily replace the cable.

4. Run a terminal program, such as HyperTerminal.
5. Configure the serial port for 2400 bps, 8 data bits, no parity, 1 stop bit, and no flow control, then save the changes.
6. Press ENTER to display the **User Name** prompt (you may need to press ENTER two or three times).
7. Enter your **User Name** and **Password**.

Note: If you cannot remember a **User Name** or **Password**, see [How to Recover from a Lost Password on page 7](#).

Remote (Telnet) access

You can use Telnet to log into the Control Console from any computer on the same subnet as the Management Card.

1. At a command prompt, type `telnet` and the Management Card's System IP address, and then press ENTER. For an IP address of 159.215.12.114, the command would look like this:

```
telnet 159.215.12.114
```

2. Enter your **User Name** and **Password**.

Control Console

How to Recover from a Lost Password

Overview

If the **User Name** or **Password** becomes unknown, you can use a local computer to restore access to a Management Card.

Password-recovery procedure

To recover from a lost **Password** or **User Name**, do the following:

1. Select a serial port at the computer to be used for a terminal-emulation connection with the Management Card.
2. Disable any service that currently uses the selected serial port, such as PowerChute *plus* or UNIX Respond.
3. Connect the smart-signaling cable (APC part number 940-0024) that came with the Management Card to the serial port on the computer and to the serial port on the UPS or chassis.

Note: If the computer uses smart-signaling PowerChute *plus*, a smart-signaling cable (APC part number 940-0024 or 940-1524) is already installed. For simple-signaling, temporarily replace the cable.

4. Run a terminal program, such as HyperTerminal.
5. Configure the serial port for 2400 bps, 8 data bits, no parity, 1 stop bit, and no flow control, then save the changes.
6. Press ENTER to display the **User Name** prompt (you may need to press ENTER two or three times).
7. Press the reset button on the Management Card.
8. Press ENTER to redisplay the **User Name** prompt.
9. Use **apc** for both the **User Name** and **Password** to log in.
Note: If you take longer than 30 seconds to log in, you will need to repeat steps 6 through 8.
10. Select **System** from the **Control Console** menu.
11. Select **User Manager** from the **System** menu.
12. Select **Administrator** from the **User Manager** menu and follow the on-screen instructions to change the **User Name** and **Password** settings to the new values.
13. Press CTRL-C to exit to the **Control Console** menu.
14. Log out to save the changes.
15. If necessary, reconnect the simple-signaling PowerChute *plus* cable replaced in step 3.
16. Restart any service disabled in step 2.

Control Console

Main Screen

Example Main screen

The following is an example of the screen that appears when you log into the Control Console.

```
American Power Conversion          Network Management Card AOS    v1.0.0.u
(c) Copyright 2001 All Rights Reserved Smart-UPS & Matrix-UPS APP    v1.0.0.r
-----
Name      : Writer1                      Date : 07/22/2001
Contact   : JKing                        Time  : 06:44:47
Location  : User Ed Department           User  : Administrator
Up Time   : 1 Day 22 Hours 52 Minutes    Stat  : P+ N+ A+

Environment : Thresholds OK, Contact Alarms OK
Smart-UPS 450 named User Ed : On Line

----- Control Console -----

1- Device Manager
2- Network
3- System
4- Logout

<ESC>- Main Menu, <ENTER>- Refresh, <CTRL-L>- Event Log
> █
```

Status and identification information

The following information is provided at the top of the main screen:

- Two fields identify the APC operating system (AOS) and application (APP) firmware versions. The application firmware uses a name that identifies the type of UPS that the Management Card connects to the network. In the example above, the Management Card uses the application firmware for a UPS in the Smart-UPS/Matrix-UPS family, in this case, a Smart-UPS 450.

```
Network Management Card AOS    v1.0.0.u
Smart UPS & Matrix UPS APP    v1.0.0.r
```

- Three fields identify the system **Name**, **Contact**, and **Location** values.

```
Name      : Writer1
Contact   : JKing
Location  : User Ed Department
```

Note: For information about how to set the **Name**, **Contact**, and **Location** values, see **System Menu on page 22**.

- An **Up Time** field reports how long the Management Card has been running since it was last turned on or reset.

```
Up Time   : 1 Day 22 Hours 52 Minutes
```

Continued on next page

Control Console

Main Screen *continued*

Status and identification information, continued

- Two fields identify when you logged in, by **Date** and **Time**.

```
Date : 07/22/2001  
Time : 06:44:47
```

Note: For information about how to change the **Date** and **Time** values, see **System Menu on page 22**.

- A **User** field identifies whether you logged in as an **Administrator** or **Device Manager**.

```
User : Administrator
```

- A **Stat** field reports the Management Card status.

```
Stat : P+ N+ A+
```

Where,

P+ indicates that the APC operating system (AOS) is Ok

N+ indicates that the network is Ok

A+ indicates that the application is Ok

A- indicates that the application has a bad checksum

A? indicates that the application is initializing

A! indicates that the application is not compatible with the AOS

Note: If you can access the Control Console, the AOS and network will report that the status is OK (P+ and N+).

- An **Environment** field reports the status of the Environmental Monitor, when this device is used.

```
Environment: Thresholds Ok, Contact Alarms Ok
```

Note: For more information about the Environmental Monitor status, see **Environment Menu on page 43**.

- A **UPS model and name** field reports the status of the UPS.

```
Smart-UPS 1400 RM named User Ed: On Line
```

Note: For more information about the UPS status, see **UPS Status on page 27**.

Control Console

Control Console Menus

Overview

The Control Console provides a set of menus that you can use to manage the Management Card, its UPS, and an Environmental Monitor.

Main menu

The main Control Console menu has options that provide access to the Control Console's management features:

- 1- Device Manager
- 2- Network
- 3- System
- 4- Logout

Note: When you log in as Device Manager, you can only access the Device Manager menus.

Menu structure

The menus in the Control Console list options by number and name. To use an option, type the option's number and press ENTER, then follow any on-screen instructions.

Some options access a new menu; other options allow you to change a setting. Menus that allow you to change a setting have an **Accept Changes** option which you must use before you exit a menu to save the changes you made.

While in a menu, you can also do the following:

- Type ? and press ENTER, to access brief menu option descriptions (if the menu has help available).
- Press ENTER, to refresh the menu.
- Press ESC, to go back to the menu from which you accessed the current menu.
- Press CTRL-C, to return to the main (Control Console) menu.
- Press CTRL-D, to toggle between the UPS and Environmental Monitor menus.
- Press CTRL-L, to access the event log.

Note: For information about the event log, see **Events Menu on page 44**.

Continued on next page

Control Console

Control Console Menus *continued*

Device Manager option

This option accesses the Device Manager menu. This menu's options allow you to select the device that you want to manage:

- 1- Environment
- 2- Smart-UPS 700

Note: The **Environment** option is only present when an Environmental Monitor is present.

For information about the menus used to manage a UPS and Environmental Monitor, see **Device Manager Menus on page 26**.

Network option

To do any of the following tasks, see **Network Menu on page 18**:

- Configure the Management Card's TCP/IP settings.
- Use the Ping utility.
- Define settings that affect FTP, Telnet, the Web Interface, SNMP, and Email.

System option

To do any of the following tasks, see **System Menu on page 22**:

- Control Administrator and Device Manager access.
- Define the system **Name**, **Contact**, and **Location** values.
- Set the **Date** and **Time** used by the Management Card.
- Use file transfer protocols.
- Reboot the Management Card.
- Reset the Control Console settings to default settings.
- Access system information about the Management Card.

APC Network Management Card

Web Interface

Introduction

Overview

Unless the Web Interface is disabled, you can use a supported Web browser to manage a UPS, an Environmental Monitor, and the Management Card.

Web menu options

Two **Web** menu options affect access to the Web Interface.

- **Access:** Enables or disables the Web Interface.
- **Port:** Defines the Web-server port (**80**, by default) used for the Web Interface.

For more information about the Access and Port options, see **FTP Server, Telnet and Web on page 20**.

Supported Web browsers

You can use Microsoft® Internet Explorer (IE) 5.0 (and higher) or Netscape® 4.0.8 (and higher) browsers to access the Management Card through its Web Interface.

Some Web Interface features require that you enable the following for your Web browser:

- JavaScript
- Java
- Cookies

In addition, the Management Card cannot work with a proxy server. Therefore, before you can use a Web browser to access its Web Interface, you must do one of the following:

- Configure the Web browser to disable the use of a proxy server for the Management Card.
- Configure the proxy server to not proxy the specific IP address of the Management Card.

Web Interface

How to Log In

Overview

You can use a Management Card's DNS name or System IP address for the URL address of the Web Interface. Use your case-sensitive **User Name** and **Password** settings to log in (by default, **apc** and **apc**, for an Administrator, or **device** and **apc**, for a Device Manager).

For information about the Web page that appears when you log into the Web Interface, see **Status Summary Page on page 14**.

URL address formats

Type the Management Card's DNS name or IP address in the Web browser's URL address field and press ENTER. Except as noted below, `http://` is automatically added by the browser.

Note: If you get a "You are not authorized to view this page" error (Internet Explorer only), someone is logged into the Web Interface or Control Console. If a "No Response" (Netscape) or "This page cannot be displayed" (Internet Explorer) error occurs, Web access may be disabled, or the Management Card may use a non-default Web-server port, and you did not include the correct port number in the address. For more information, see **FTP Server, Telnet and Web on page 20**.

- For a DNS name of `web1`, the entry would look like this:
`http://web1`
- For a System IP address of `159.215.12.114`, when the Management Card uses the default port (80) at the Web server, the entry would look like this:
`http://159.215.12.114`
- For a System IP address of `159.215.12.114`, when the Management Card uses a non-default port (5000, in this example) at the Web server, the entry would look like this:
`http://159.215.12.114:5000`

Note: For Internet Explorer, you must type in `http://` as part of the address when any port other than 80 is used or you will get a "This page cannot be displayed" error. For more information, see **FTP Server, Telnet and Web on page 20**.

Web Interface

Status Summary Page

Example Web page A menu frame (see [Menu Frame on page 15](#)) and “Summary” page appear when you log into the Web Interface.



Status and identification information

The “Summary” page reports the status of the UPS and the Environmental Monitor, when one is present. A **Management Card Status** section reports the following:

- The **Name**, **Contact** and **Location** information for the Network Management Card
- The log in **Date** and **Time**
- Type of **User** (**Administrator** or **Device Manager**)
- How long (**Up Time**) the Network Management Card has been continuously running since it was turned on or reset
- The **Status** of the Network Management Card

Note: If the **Status** field reports anything other than **Ok**, contact APC as described in [APC Global Support on page 61](#).

For information about how to set the **Name**, **Contact**, and **Location** values, or to modify the **Date** and **Time** settings, see [System Menu on page 22](#); for information about UPS status, see [UPS Status on page 27](#); for information about the Environmental Monitor status, see [Environment Menu on page 43](#).

Web Interface

Menu Frame

Overview

When you log into the Web Interface as an Administrator, the navigation bar (left frame) includes the following elements:

- The Management Card's IP address
- A **UPS** menu which uses the UPS model for its name (Smart-UPS 450, in the example on [page 14](#))
- An **Environment** menu (if an Environmental Monitor is used with the UPS).
- An **Events** menu
- A **Data** menu
- A **Network** menu
- A **System** menu

Note: When you log in as a Device Manager, the **Network** and **System** menus do not appear in the menu frame.

- A **Logout** option
- A **Help** menu
- A **Links** menu

UPS and Environment menus

For information about how to use the UPS and Environment menus to manage a UPS or an Environmental Monitor, see [Device Manager Menus on page 26](#).

Events menu

To do the following, see the [Events Menu chapter on page 44](#):

- Access the event log.
- Configure the actions to be taken based on an event's severity level.
- Configure SNMP Trap Receiver settings for sending event-based traps.
- Define who will receive Email notifications of events.

Data menu

To do the following, see the [Data Menu chapter on page 54](#):

- Access the data log.
- Define the log interval (how often data will be sampled and recorded) for the data log.

Continued on next page

Web Interface

Menu Frame *continued*

Network menu

To do the following, see the **Network Menu chapter on page 18**:

- Configure new TCP/IP settings for the Management Card.
- Identify the Domain Name Service (DNS) Server and test the network connection to that server.
- Define settings that affect FTP, Telnet, the Web Interface, SNMP, and Email.

Note: For information about how the **Network** menu's **Telnet/ Web** option can affect access to the Web Interface, see **Web menu options on page 12**.

System menu

To do the following, see the **System Menu chapter on page 22**:

- Control **Administrator** and **Device Manager** access.
- Define the system **Name**, **Contact**, and **Location** values.
- Set the **Date** and **Time** used by the Management Card.
- Use file transfer protocols.
- Reboot the Management Card
- Reset the Control Console settings to default settings.

Help menu

When you click **Help**, the **Contents** for the online help is automatically displayed to provide for easy navigation to a specific online help topic. However, from any of the Web Interface pages, you can use the question marks (?) that appears in the top right corner to link to the section of the online help that covers that page's content.

The **Help** menu also has an **About System** option you use to view information about the Management Card's **Model Number**, **Serial Number**, **Hardware Revision**, **Manufacture Date**, **MAC Address**, **Application Module** and **APC OS (AOS) Module**, including the date and time these modules were loaded.

Note: In the Control Console, the **About System** option, which is a **System** menu option, identifies the **Flash Type** used.

Continued on next page

Web Interface

Menu Frame *continued*

Links menu

Provides three user-definable URL link options. By default, these links access the following APC web pages:

- **APC's Web Site** accesses the APC home page.
- **Testdrive Demo** accesses the APC Web-driven Products Demonstration Page, a page which allows customers to try-out APC web-enabled products.
- **Remote Monitoring** accesses the APC Remote Monitoring Service Page where you can find more information about pay-for-monitoring services available from APC.

Note: For more information about the APC Remote Monitoring Service available, use the **Remote Monitoring** link.

You can use the following procedure to redefine these links so that they point to other UPS devices, or to the MasterSwitch devices and servers that are being powered by the UPS.

- Click on **Links** in the **System** menu.
- Define the any new names for the **User Links**.
- Define the any new URL addresses that you want the **User Links** to access.
- Click **Apply**.

Note: This "Links" page also has an **Access Link** option that you can use to modify the URL address used by the APC logo, if desired.

APC Network Management Card

Network Menu

Menu Options

Overview

The **Network** menu provides access to the options you use to configure the Management Card's network settings.

Note: Only an Administrator has access to the **Network** menu.

TCP/IP

This option allows you to enable or disable BOOTP, and when BOOTP is disabled, define the three TCP/IP settings that the Management Card needs to operate on the network.

- The Management Card's System IP address
- The subnet mask value
- The IP address of the Default Gateway

Note: For information about the watchdog role the Default Gateway plays, see **The role of the Default Gateway in resetting the network timer on page 5**; for information about how to configure the initial TCP/IP settings when you install the Management Card, see the *Network Management Card Installation and Quick Start Manual*, provided in printed form and on the APC Network Management Card *utility* CD (`./doc\insguide.pdf`).

When **BOOTP** is enabled (by default), you can only affect the **BOOTP** setting: A BOOTP server will provide the Management Card with its TCP/IP settings whenever the Management Card is turned on, reset, or rebooted.

Note: For information about how to use BOOTP, see the *Network Management Card Addendum* provided on the APC Network Management Card *utility* CD (`./doc/adendum.pdf`).

DNS

Use this option (which is combined with the **Email** option in the Web Interface) to define the IP addresses of the primary and secondary Domain Name Servers (DNS) used by the Management Card's **Email** feature.

Note: For information about how to use the Email feature, see **Email Feature on page 50**; for more information about the role of the DNS servers, see **DNS servers on page 50**.

Continued on next page

Network Menu

Menu Options *continued*

Send DNS Query

This option is only available through the **TCP & DNS** option in the Web Interface. It allows you to have the Management Card send a DNS query that tests the setup of your DNS servers.

You use the following settings to define the parameters for the test DNS request.

- Use the **Query Type** setting to select the method to use for the DNS query:
 - The URL name of the server (**Name**).
 - The IP address of the server (**IP**).
 - The Mail Exchange used by the server (**MX**)
- Use the **Query Question** text field to identify the value to be used for the selected **Query Type**:
 - For **Name**, identify the URL.
 - For **IP**, identify the IP address.
 - For **MX**, identify the Mail Exchange address.
- Use the **DNS Server to Query** to select whether you want to query the **Primary DNS Server** or **Secondary DNS Server**.

Note: The **Last Query Response** field reports the result of the last query that was performed: **Passed**, **Failed**, or **Not Responding**.

Ping utility

This option is only available in the Control Console. It allows you to use Ping, a network utility, to test the Management Card's network connection by seeing if a defined IP address responds to the Ping utility.

By default, the Default Gateway IP address (see **TCP/IP** above) is used. However, you can use the IP address of any device known to be running on the network.

Continued on next page

Network Menu

Menu Options *continued*

FTP Server, Telnet and Web

Each of these options has a setting which enables (by default) or disables **Access**, and a **Port** setting that identifies the TCP/IP port used for communications with the Management Card. The default **Port** settings are **21** (FTP), **23** (Telnet), and **80** (Web Interface).

You can change a **Port** setting to any port number between **5000** and **65535** to enhance the protection provided by **User Name** and **Password** settings. When you do, you must use a colon (:) to add the **Port** number to the IP or URL address used for access. The selected port number must be unique. The following examples show what the FTP, Telnet, and Web Interface commands could look like when the **Port** numbers for all three interfaces have been changed from their default settings at a Management Card with a System IP address of 159.215.12.114:

```
ftp 159.215.12.114:5000
telnet 159.215.12.114:59401
http://159.215.12.114:65002
```

Note: For information about how to use FTP to download configuration files, see the *Network Management Card Addendum* on the APC Network Management Card *utility* CD (*./doc/addendum.pdf*); for information about how to use FTP to access a text-version of the Management Card's event or data log, see **How to use FTP to retrieve log files on page 46**.

Continued on next page

Network Menu

Menu Options *continued*

SNMP

An **Access** option (the **Settings** option in the Control Console) enables (by default) or disables SNMP. When SNMP is enabled, the **Access Control** settings allow you to control how each of the four available SNMP channels is used.

Note: For information about how to define the up to four NMSs which will serve as trap receivers, see **Trap Receivers on page 49**; for more information about how to use SNMP to manage a UPS or an Environmental Monitor, see the *PowerNet® SNMP Management Information Base (MIB) Reference Guide* on the APC Network Management Card *utility CD (.ldoc\mibguide.pdf)*.

Setting	Definition
Community Name	This setting defines the password (maximum of 15 characters) which an NMS that is defined by the NMS IP setting below uses to access the channel.
NMS IP	Limits access to the NMS or NMSs specified by the format used for the IP address. <ul style="list-style-type: none">• 159.215.12.1 allows only the NMS with that specific IP address to have access.• 159.215.12.255 allows access for any NMS on the 159.215.12 segment.• 159.215.255.255 allows access for any NMS on the 159.215 segment.• 159.255.255.255 allows access for any NMS on the 159 segment.• 0.0.0.0 or 255.255.255.255 allows access for any NMS.
Access Type	Selects how the NMS defined by the NMS IP setting can use the channel, when that NMS uses the correct Community Name .
	Read The NMS can use GETs at any time, but it can never use SETs.
	Write The NMS can use GETs at any time, and can use SETs when no one is logged into either the Control Console or Web Interface.
	Write+ The NMS can use GETs and SETs at any time, even when someone is logged into the Control Console or Web Interface.
Disabled The NMS cannot use GETs or SETs.	

Email

You use this option to define two SMTP settings (**SMTP Server** and **From Address**) used by the Management Card's Email feature.

For more information about these settings, see **SMTP settings on page 50**; for more information about Email as it relates to the Management Card, see **Email Feature on page 50**.

APC Network Management Card

System Menu

Introduction

Overview

The **System** menu provides access to the options that you use to do the following tasks:

- Configure system identification, date and time settings, and Administrator and Device Manager access.
- Synchronize the Management Card's real-time clock with an Network Time Protocol (NTP) server.
- Download configuration files.
- Reset or reboot the Management Card.
- Define the URL links available in the Web Interface
- Access hardware and firmware information about the Management Card.
- Set the units (Fahrenheit or Celsius) used for temperature displays.

Note: Only an Administrator has access to the **System** menu.

Menu options

Two differences exist in the **System** menu as it appears in the Control Console and the Web Interface:

- The **About System** option in the Control Console's **System** menu is located in the Help menu in the Web Interface. For information about this option, see **Help menu on page 16**.
- The Web Interface has a **Links** option you can use to configure its URL links.

For information about the settings available for the **System** menu options, see the following descriptions:

- **User Manager on page 23**
- **Identification on page 23**
- **Date & Time on page 24**
- **Tools on page 25**
- **Preferences on page 25**
- **Links on page 25**

System Menu

Option Settings

User Manager

Use this option to define the access values shared by the Control Console and the Web Interface.

Setting	Definition
Auto Logout	Defines how much inactivity can occur, measured in minutes (3 , by default), before a user is automatically logged out.
Authentication (Control Console only)	Only one setting, Basic , is available. The Basic setting causes the Web Interface to use standard HTTP 1.1 login (base64-encoded passwords).
Administrator and Device Manager User	
User Name	Defines the case-sensitive name (maximum of 10 characters) used to log in at the Control Console or Web Interface (apc , by default, for Administrator , and device , by default, for Device Manager User).
Password	Defines the case-sensitive password (maximum of 10 characters) used to log in at the Control Console or Web Interface (apc is the default for both Password settings).
Authentication Phrase	Not used at this time.

Identification

Use this option to define the System **Name**, **Location**, and **Contact** values used by the Management Card's SNMP agent. The option's settings provide the values used for the MIB-II **sysName**, **sysContact**, and **sysLocation** Object Identifications (OIDs).

Note: For more information about the MIB-II OIDs, see the *PowerNet® SNMP Management Information Base (MIB) Reference Guide* provided on the APC Network Management Card *utility* CD (`./doc/mibguide.pdf`).

Continued on next page

System Menu

Option Settings *continued*

Date & Time

Use this option to set the time and date used by the Management Card. The option displays the current settings, and allows you to change those settings manually, or through a Network Time Protocol (NTP) Server.

Manual. Use this option (**Set Manually** in the Web Interface) to set the **Date** and **Time** settings for the Management Card.

Note: An **Apply Local Computer Time to Network Management Card** option, which is available in the Web Interface only, sets these values to match the date and time settings of the computer you are using to access the Web Interface.

Network Time Protocol (NTP) . Use this option (**Synchronize with Network Time Protocol (NTP) Server** in the Web Interface) to have an NTP Server automatically update the **Date** and **Time** settings for the Management Card.

Note: The Control Console has a **NTP Client** option that enables or disables (the default) the NTP Server updates, while in the Web Interface, selecting the **Set Manually** option disables the updates.

Setting	Definition
Primary NTP Server	Identifies the IP address of the primary NTP server.
Secondary NTP Server	Identifies the IP address of the secondary NTP server, when a secondary server is available.
GMT Offset (Time Zone)	Defines the offset to be used from Greenwich Mean Time (GMT) based on the Management Card's time zone.
Update Interval	Defines how often, in weeks, the Management Card will access the NTP Server for an update (1 week minimum, 52 weeks maximum).

Continued on next page

System Menu

Option Settings *continued*

Tools

Use this option to reboot the Management Card or to reset some or all of its configuration settings to their original, default values.

Action	Definition
Reboot Card	Restarts the Management Card.
Reset Card to Defaults	Resets all configuration settings. Note: This resets the TCP/IP settings and enables BOOTP. The Management Card will not be able to operate on the network until its TCP/IP settings are redefined.
Reset Card to Defaults Except TCP/IP	Resets all configuration settings except the TCP/IP and BOOTP settings.
XMODEM (Control Console only)	Allows you to download firmware using a terminal-emulation program when you use a local connection to the Control Console only. For more information about how you connect to the Control Console locally, see Local (Serial) access on page 6 .

Preferences

Use this option, which is available in the Web Interface only, to define whether temperature values are displayed as **Fahrenheit** or **Celsius** in the Web Interface and the Control Console.

Links

Use this Web Interface-only option to modify the **User Links** that appear in the menu frame's **Links** menu, or the **Access Links** setting that defines the URL addresses used by the APC logo.

Setting	Definition
User Links	
Name	Defines the link names that appear in the Links menu (by default, Test Drive Demo , Remote Monitoring , and APC Web Site).
URL	Defines the URL addresses used by the links. By default, the following URL addresses are used: <i>http://testdrive.apc.com</i> (Test Drive Demo) <i>http://rms.apc.com</i> (Remote Monitoring) <i>http://www.apc.com</i> (APC Web Site) Note: For information about these pages see Links menu on page 17 .
Access Links	
APC Home Page	Defines the URL address used by the APC logo at the top of all Web Interface pages (by default, <i>http://www.apc.com</i>).

APC Network Management Card

Device Manager Menus

Introduction

Overview

Two **Device Manager** menus can appear.

- A **UPS** menu, which uses the UPS model for its name, provides the options that you use to manage the UPS. For more information about this menu, see **UPS menu options** below.
- An **Environment** menu, which appears only present when an Environmental Monitor is present, provides options that you use to manage the Environmental Monitor. For more information about this menu, see **Environment Menu on page 43**.

UPS menu options

The **UPS** menu options, and the information provided by those options, vary by UPS model. In addition, there are differences between the **UPS** menu in the Control Console and the **UPS** menu in the Web Interface. One major difference is the **UPS** menu in the Web Interface includes a PowerChute® option, which allows you to use APC's PowerChute network shutdown utility.

For information about the PowerChute® option, which is only available in the Web Interface, see **PowerChute® (UPS PowerChute network shutdown) on page 39**. For information about the **UPS** menu options available in both the Control Console and the Web Interface, see the following:

- **UPS Status on page 27**
- **UPS Diagnostics on page 31**
- **UPS Control on page 33**
- **UPS Configuration on page 34**
- **Module Status (Symmetra or Symmetra 3 Phase UPS) on page 38**
- **Scheduling (UPS Shutdown) on page 41**

Note: A Silcon DP300E series UPS has no **Diagnostics** or **Scheduling** options. In addition, although the **Control** option appears in the **UPS** menu, that option is disabled (Control Console) or has no actions available (Web Interface).

Device Manager Menus

UPS Status

Overview

The **Status** options provide access to the information described in the following sections:

- **Detailed UPS Status on this page**
- **Utility Voltage Status on page 28**
- **Output Power Status on page 29**
- **Fault Tolerance (Symmetra or Symmetra 3 Phase UPS) on page 30**
- **Battery on page 30**

Note: No description is provided for the self-explanatory **About UPS** status fields.

For a Silcon DP300E series UPS, the “Status of UPS” page in the Web Interface includes the **View the refreshing status page** hyperlink described in **Configure the Multiple/Parallel UPS IP Address and Monitor Name (Silcon DP300E series UPS only) on page 37**.

Detailed UPS Status

The Web Interface reports UPS status information on the “Status for UPS” page that is accessed by the **Status** option in the **UPS** menu:

- The UPS Status fields includes information about the following:
 - The current status of the UPS.

Note: The current UPS status also appears on the “Summary”, “Control”, and “Diagnostics” pages.
 - The reason for the last transfer to battery power at the UPS.
 - The internal temperature of the UPS.
 - The runtime that is currently available to the UPS.
- The values described in **Utility Voltage Status on page 28**, **Output Power Status on page 29**, and **Battery on page 30**.
- The Fault tolerance parameters described in **Fault Tolerance (Symmetra or Symmetra 3 Phase UPS) on page 30**.

The Control Console, which reports some UPS status information above the **UPS** menu, has a **Detailed Status** (Smart-UPS or Matrix-UPS) or **Detailed UPS Information** (Symmetra, Symmetra 3 Phase, or Silcon DP300E series UPS) option you use to access all UPS status information. In addition, for all Symmetra UPS models, a **Faults & Alarms** option in the Control Console’s **UPS** menu accesses descriptions of any faults or alarms reported as part of the UPS status.

Note: A Silcon DP300E series UPS can report a non-specific fault for about 50 different conditions. Access the UPS Keyboard for details when a non-specific fault is reported.

For information about how to access a list of the UPS events that can be reported as part of the UPS status, see **“Event List” page on page 53**.

Device Manager Menus

UPS Status *continued*

Utility Voltage Status

The following table uses footnotes to indicate which utility-voltage fields are shared by which UPS models (if no footnote is used, all UPS models report that value).

Note: A 3-phase UPS (Silcon 3 Phase or Silcon DP300E series UPS) identifies the values for all three phases.

Status Field	Definition
Bypass Input Voltage ¹	Identifies the AC voltage (VAC) used when the UPS is in bypass mode.
Input Current ¹	Identifies how much current is being supplied by the input voltage.
Input Frequency ²	Identifies the input voltage's frequency, in Hertz (Hz). Note: In the Control Console for Smart-UPS or Matrix-UPS, the Operating Frequency field reports the frequency value shared by the input and output voltages.
Input Voltage	Identifies the AC voltage (VAC) being input to the UPS.
Minimum Line Voltage	Identifies the lowest AC voltage input to the UPS during the previous minute of operation.
Maximum Line Voltage	Identifies the highest AC voltage input to the UPS during the previous minute of operation.
¹ Symmetra 3 Phase and Silcon DP300E series UPS models ² Smart-UPS, Matrix-UPS, or Symmetra UPS models	

Continued on next page

Device Manager Menus

UPS Status *continued*

Output Power Status

The following table uses footnotes to indicate which output-power fields are shared by which UPS models (only the status field, **Output Voltage**, is shared by all UPS models).

Note: A 3-phase UPS (Silcon 3 Phase or Silcon DP300E series UPS) identifies the values for all three phases.

Status Field	Definition
Load Current¹	Identifies the current, in Amps, supplied by the output voltage.
Load Power²	Identifies the UPS load as a percentage of available Watts.
Output Current³	Identifies the current, in Amps, supplied by the output voltage.
Output Frequency⁴	Identifies the frequency, in Hz, used by the output voltage. Note: In the Control Console for Smart-UPS or Matrix-UPS, the Operating Frequency field reports the frequency value shared by the input and output voltages.
Output kVA⁵ or Output Power⁶	Identifies the load placed on each phase by the attached equipment, in total kVA.
Output Power Percentage⁶	Identifies the load placed on each phase by the attached equipment, expressed as a percentage of the available kVA.
Output VA at n+0⁷	Identifies the load placed on each phase by the attached equipment, expressed as a percentage of the VA available with no redundancy.
Output VA at n+1⁷	Identifies the load placed on each phase by the attached equipment, expressed as a percentage of the VA available with the identified redundancy.
Output Voltage	Identifies the AC voltage the UPS is providing to its load.
Output Watts at n+0⁷	Identifies the load placed on each phase by the attached equipment, expressed as a percentage of the Watts available with no redundancy.
Output Watts at n+1⁷	Identifies the load placed on each phase by the attached equipment, expressed as a percentage of the Watts available with the identified redundancy.
Peak Output Current⁸	Identifies the highest current, in Amps, output by each phase.
¹ Matrix-UPS ² Smart-UPS or Matrix-UPS ³ Symmetra, Symmetra 3 Phase, or Silcon DP300E series UPS ⁴ Smart-UPS, Matrix-UPS, or Symmetra UPS ⁵ Symmetra 3 Phase UPS ⁶ Silcon DP300E series UPS ⁷ Symmetra or Symmetra 3 Phase UPS ⁸ Symmetra 3 Phase or Silcon DP300E series UPS	

Continued on next page

Device Manager Menus

UPS Status *continued*

Fault Tolerance (Symmetra or Symmetra 3 Phase UPS)

Two fault-tolerance fields are available for Symmetra and Symmetra 3 Phase UPS models.

Note: In the Control Console, you use the **Detailed UPS Information** option to access the fault tolerance status.

Status Field	Definition
Present KVA Capacity	Identifies the maximum load that the Symmetra can support.
Redundancy	Identifies the number of power modules which can fail or be removed without causing the Symmetra to switch to bypass.

Battery

The following table uses footnotes to indicate which output-power fields are shared by which UPS models (only the status field, **Runtime Remaining**, is shared by all UPS models).

Status Field	Definition
Battery Capacity ¹	Identifies how much of the UPS battery capacity is available to support the attached equipment.
Battery Current ²	Identifies the current which is being output from the battery.
Battery Voltage ³ , Actual Battery Voltage ² , or Actual Battery Bus Voltage ⁴	Identifies the available DC power.
Calibration Date ¹	Identifies when the last runtime calibration was performed.
Calibration Result ¹	Identifies the result of the last runtime calibration.
Nominal Battery Voltage ⁵	Identifies the basic voltage range that the battery needs to supply when the UPS uses its battery for output power. Note: This field only appears in the Web Interface.
Number of Bad Batteries ¹	Identifies how many of the UPS batteries need replacing. Note: This field only appears when the UPS has at least one external battery.
Number of Batteries ³ or Number of External Batteries ⁶	Identifies how many batteries the UPS has.
Runtime Remaining	Identifies how long the UPS can use battery power to support its attached equipment.
Self-Test Result ¹	Identifies the result of the last self-test.
Self-Test Date ¹	Identifies when the last self-test was performed.
¹ Smart-UPS, Matrix-UPS, Symmetra, or Symmetra 3 Phase UPS ² Symmetra 3 Phase or Silcon DP300E series UPS ³ Smart-UPS or Matrix-UPS ⁴ Symmetra 3 Phase UPS ⁵ Symmetra, Symmetra 3 Phase, or Silcon DP300E series UPS ⁶ Symmetra or Symmetra 3 Phase UPS	

Device Manager Menus

UPS Diagnostics

Overview

There are two types of diagnostics options you can use with all UPS models except a Silcon DP300E series UPS, which has no diagnostic options:

- Options which cause a specified test to occur immediately.
- A scheduling option which controls when a UPS self-test occurs.

Diagnostics

In the Web Interface, you use this **UPS** menu option when you want to perform diagnostic tests, or view status information that is based on the results of the last self-test or runtime calibration.

Note: In the Control Console, the diagnostics options are listed in the **Control** menu.

Smart-UPS, Matrix-UPS, or Symmetra UPS. You can use diagnostics options to perform the following tests.

Note: In the Web Interface, the “Diagnostics” page reports the results of the last self-test and last runtime calibration; In the Control Console, you can use a **Detailed Status** (all Smart-UPS or Matrix-UPS models) or **Detailed UPS Information** (Symmetra or Silcon DP300E series UPS models) option to access these results.

Test	Definition
Self-Test	Causes the UPS to perform a self-test.
Simulate Power Failure	Causes the UPS to test its ability to go on battery.
Start/Stop Runtime Calibration	Initiates (or cancels) a runtime calibration, a process which determines how much runtime the UPS has available when its battery is at 100% capacity. Note: Only perform a runtime calibration when the battery is at 100% capacity.
Test UPS Alarm (Smart-UPS or Matrix-UPS)	Causes a Matrix-UPS to generate an alarm tone, and a Smart-UPS to generate an alarm tone and flash its front panel lights.

Continued on next page

Device Manager Menus

UPS Diagnostics *continued*

Diagnostics, continued

Symmetra 3 Phase UPS. The “Diagnostics” page in the Web Interface provides buttons you use to perform self-tests (**Tests...**) or runtime calibrations (**Calibrate...**).

Note: In the Web Interface, the “Diagnostics” page reports the results of the last self-test and last runtime calibration, as well as **Intelligence Modules, Power Modules, Batteries,** and **Communication Bus & Subsystems** status; in the Control Console, you can use the **Detailed UPS Information** option to access this status information.

Scheduled UPS self-tests

A scheduling option allows you to control when a UPS self-test occurs. The available selections are **Never, UPS Startup, Every 7 Days,** or **Every 14 Days.**

In the Web Interface, this option is located on the same page as the diagnostic test options. In the Control Console, the location of this option depends on the type of UPS:

- Symmetra and Symmetra 3 Phase UPS models have a **Scheduled Tests** option in the **UPS** menu.
- Smart-UPS or Matrix-UPS models have a **Self-Test Schedule** option which is accessed as follows:
 - a. Select **Configuration** from the **UPS** menu.
 - b. Select **General** from the **Configuration** menu.

Device Manager Menus

UPS Control

Overview

The table below describes the **Control** menu options you can use with all UPS models except a Silcon DP300E series UPS. When you select an option, a description of what will occur, and when, is provided as part of a confirmation process. You can then chose to initiate the selected action, or cancel it, based on that description.

Note: For descriptions of the **Self-Test**, **Simulate Power Failure**, **Start/Stop Runtime Calibration**, and **Test UPS Alarm** options, which are **Control** menu options in the Control Console, see **Diagnostics on page 31**.

Action	Definition
Turn UPS On (Control Console only)	Turns on power at the UPS when a software command was used to turn off output power. If the on/off switch at the UPS was used to turn off power, that switch must be used to turn on power.
Turn UPS Off ¹	Turns off power after the Shutdown Delay until you turn on power again.
Turn UPS Off Gracefully (Control Console) ²	Turns off power after two delays: A delay (Maximum Shutdown Time plus two minutes) that allows time for PowerChute to safely shut down its server, and the Shutdown Delay .
Reboot UPS ¹	Reboots the attached equipment by doing the following: <ul style="list-style-type: none"> • Turns off power at the UPS after the Shutdown Delay. • Turns on power at the UPS after the Return Delay.
Reboot UPS Gracefully (Control Console) ²	Reboots the attached equipment by doing the following: <ul style="list-style-type: none"> • Turns off power after two delays: A delay (Maximum Shutdown Time plus two minutes) that allows time for PowerChute to safely shut down its server, and the Shutdown Delay • Turns on power after the Return Delay.
Put UPS To Sleep ¹	Puts the UPS into its sleep mode (turns off power for a defined period of time), as follows: <ul style="list-style-type: none"> • Turns off power after the Shutdown Delay. • Turns on power after two delays: Sleep Time and Return Delay.
Put UPS To Sleep Gracefully (Control Console) ²	Puts the UPS into its sleep mode (turns off power for a defined period of time), as follows: <ul style="list-style-type: none"> • Turns off power after two delays: A delay (Maximum Shutdown Time plus two minutes) that allows time for PowerChute to safely shut down its server, and the Shutdown Delay. • Turns on power after two delays: Sleep Time and Return Delay.
Put UPS In/Take UPS Off Bypass	Controls the use of the bypass, an operational mode that allows maintenance to be performed at a Matrix-UPS or Symmetra UPS without turning off power at that UPS.
¹ The Web Interface has a Signal servers option. When Yes is selected for that option, initiating an action is equivalent to selecting the Control Console's Turn UPS Off Gracefully , Reboot UPS Gracefully , or Put UPS To Sleep Gracefully options.	

Device Manager Menus

UPS Configuration

Overview

The **UPS** menu's **Configuration** option provides access to the configurable parameters described in the following sections:

- **Utility Line Settings on this page**
- **Alarm Thresholds (Symmetra or Symmetra 3 Phase UPS) on page 35**
- **Shutdown Parameters on page 36**
- **General Settings on page 37**
- **Reset UPS Defaults on page 37**
- **Configure the Multiple/Parallel UPS IP Address and Monitor Name (Silcon DP300E series UPS only) on page 37**

Utility Line Settings

This Configuration menu option is available to all UPS models except a Silcon DP300E series UPS. The available settings differ based on the UPS model.

Smart-UPS or Matrix-UPS. Not all **Utility Line** settings are available for all Smart-UPS and Matrix-UPS models, and each setting's selections can differ from UPS-to-UPS.

Setting	Definition
Output Voltage	Defines the nominal AC voltage level for the UPS output.
High Transfer Voltage	Defines the upper limit of acceptable input voltage. When the input reaches this value, the UPS will go on battery (Matrix-UPS) or start using its AVR Boost feature (Smart-UPS).
Low Transfer Voltage (Smart-UPS)	Defines the lower limit of acceptable input voltage. When the input reaches this value, the Smart-UPS will start using its AVR Trim feature, or go on battery, if it does not have this feature. Note: This setting appears in the Control Console's Line Transfer menu for Matrix-UPS, but the value cannot be changed.
Vout Reporting (Matrix-UPS)	Defines how Matrix-UPS scales its output voltage readings.
Sensitivity	Defines how sensitive the UPS will be to distortions in the input voltage. Note: Matrix-UPS uses an Automatic setting.

Continued on next page

Device Manager Menus

UPS Configuration *continued*

Utility Line Settings, continued

Symmetra or Symmetra 3 Phase UPS. The following table describes the **Utility Line** settings for a Symmetra. A Symmetra 3 Phase uses the **Output Frequency Range** and **If UPS fails** settings only.

Setting	Definition
Output Voltage	Defines the nominal AC voltage level for the UPS output.
Vout Reporting	Defines how the UPS scales its output voltage readings.
Output Frequency Range	Defines the nominal value for the frequency used by the output voltage.
If UPS fails, and frequency or voltage is out of range	Defines how the UPS will respond if the stated condition occurs.

Alarm Thresholds (Symmetra or Symmetra 3 Phase UPS)

The following table describes the **Alarm Thresholds** settings for the Symmetra or Symmetra 3 Phase UPS.

Threshold	Definition
Alarm if Redundancy Under	Defines the minimum redundancy level that can be present without causing an alarm.
Alarm if Load Over	Defines the maximum load that the attached equipment can place on the UPS without causing an alarm.
Alarm If Runtime Under	Defines the minimum runtime that can be available without causing an alarm.

Continued on next page

Device Manager Menus

UPS Configuration *continued*

Shutdown Parameters

All of the following settings are available with Smart-UPS, Matrix-UPS, Symmetra, and Symmetra 3 Phase UPS models. The **Shutdown Behavior Settings** for a Silcon DP300E series UPS uses only the **Low-Battery Duration**, **Maximum Shutdown Time**, and **Shutdown Delay** settings.

Note: In the Control Console, you use the **Battery** option in the **Configuration** menu to access the **Return Battery Capacity** setting.

Setting	Definition
Return Battery Capacity	Defines the minimum battery capacity that must be present before the UPS turns on after a shutdown that was caused by a power failure. Note: The UPS must also wait until the time defined by the Return Delay setting expires before it can turn on.
Low-Battery Duration	Defines how the UPS can continue to run on battery once a low-battery condition occurs. Note: This setting also defines how much time PowerChute has to safely shut down its server in response to the Turn UPS Off Gracefully , Reboot Gracefully , and Put UPS To Sleep Gracefully Control menu options.
Maximum Shutdown Time (Web Interface only)	Reports the maximum time that the UPS will wait before it shuts down in response to graceful turn-off command, as defined by the Maximum Shutdown Time setting for the PowerChute® option. Note: For information about how the Maximum Shutdown Time is determined, see Maximum-Shutdown-Time negotiation on page 40 .
Shutdown Delay	Defines how long the UPS will wait before it shuts down in response to a turn-off command.
Return Delay	Defines how long a UPS must wait before it turns on after a shutdown that was caused by a power failure. Note: The UPS must also have the capacity specified by the Return Battery Capacity setting before it can turn on.
Sleep Time	Defines how long the UPS will sleep (stay turned off) when you use either one of the Control menu's sleep options (Put UPS To Sleep or Put UPS To Sleep Gracefully). Note: This setting also appears in the "Control" page.

Continued on next page

Device Manager Menus

UPS Configuration *continued*

General Settings

Four **General Settings** are available for Smart-UPS. The first two settings (**UPS Name** and **Last Battery Replacement**) are available for all other UPS models.

Note: In the Control Console, you use the **Battery** option in the **Configuration** menu to access the **Last Battery Replacement** and **External Batteries** settings.

Setting	Definition
UPS Name	Defines the name used by the UPS.
Last Battery Replacement	Defines the date when the UPS battery was last replaced. Note: Use an mm/dd/yy format.
Audible Alarm	Defines when the Smart-UPS will generate an alarm in response to going on battery.
External Batteries	Defines how many external battery packs are connected to Smart-UPS XL. Note: Smart-UPS XL models cannot automatically sense and report the number of connected battery packs.

Reset UPS Defaults

This option allows you to reset the UPS to use the default EEPROM values.

Configure the Multiple/Parallel UPS IP Address and Monitor Name (Silcon DP300E series UPS only)

This option is only available in the Web Interface. It allows you to identify up to nine different Silcon DP300E series UPS models which you can then access through the **View the refreshing status page** hyperlink that appears in the “Status for UPS” page.

Setting	Definition
IP Address	Identifies the Silcon DP300E series UPS to be monitored by the IP address of its Network Management Card.
Monitor Name	Identifies the name of the Silcon DP300E series UPS to be monitored.

Device Manager Menus

Module Status (Symmetra or Symmetra 3 Phase UPS)

Menu options

Symmetra UPS models have a **Module Status** option in the Web Interface that provides access to status information about the modules used at that UPS; Symmetra and Symmetra 3 Phase UPS models have a **Module Diagnostics & Information** option in the Control Console's **UPS** menu that provides access to module status, as well as to **Raw Status Data** fields that provide diagnostics information about those modules.

Note: The **Raw Status Data** information provided in the Control Console is used by APC engineers and technical support to troubleshoot hardware problems.

Module status

With the exception of the fields which report the operational status for a module, the information reported for the following modules is self-explanatory.

- The Intelligence Module
- The Redundant Intelligence Module
- The Power Modules
- The Battery in the Main Frame
- Any External Battery Frame
- Communication Bus (Symmetra 3 Phase UPS only)

For information about how to access a list of the UPS events, including the module-related, Symmetra status events, see **“Event List” page on page 53**.

Device Manager Menus

PowerChute® (UPS PowerChute network shutdown)

Overview

The **UPS** menu in the Web Interface has a PowerChute® option that allows you to use the APC PowerChute network shutdown utility to shut down up to 50 servers on your network that are using any client-version of PowerChute network shutdown.

Note: For more information about PowerChute network shutdown, see the PowerChute® *network shutdown Installation Guide (Install.htm)* and the PowerChute® *network shutdown Release Notes (Relnotes.htm)*, copies of which are provided in the .\pcns directory on the APC Network Management Card *utility* CD. Also, see the three flow diagrams provided on the CD's .\trouble\ directory: *PCNS Shutdown Behavior.pdf*, *PCNS Low-Battery Shutdown Behavior.pdf*, and *PCNS Maximum Shutdown Time Negotiation.pdf*.

Parameters

The following table describes the PowerChute network shutdown parameters.

Parameter	Definition
Maximum Shutdown Time	Defines the maximum time that the UPS at a PowerChute network shutdown client will wait before it shuts down in response to a graceful turn-off command. Note: For information about this shutdown delay is determined, see Maximum-Shutdown-Time negotiation on page 40 .
Shutdown Behavior	Defines how the UPS will be turned off after the PowerChute network shutdown clients finish shutting down their computer systems.
Add Client IP	Allow you to add up to 50 PowerChute network shutdown clients to the list of Configured Client IP Addresses . Note: A PowerChute network shutdown client is normally automatically added to the list when that client is installed on your network.
Configured Client IP Addresses	Allows you to view the list of PowerChute network shutdown clients, and, when appropriate, remove PowerChute network shutdown clients from the list. Note: A PowerChute network shutdown client is normally automatically removed from the list when that client is uninstalled.

Continued on next page

Device Manager Menus

PowerChute® (UPS PowerChute network shutdown) *continued*

Maximum- Shutdown-Time negotiation

The **Maximum Shutdown Time** setting provides the delay needed to make sure that a server will have enough time to shut down safely when a graceful shutdown is initiated by the Management Card or by PowerChute network shutdown client at the server.

Note: For information about the **Turn UPS Off Gracefully**, **Reboot UPS Gracefully**, and **Put UPS To Sleep Gracefully** options that use this delay, see **UPS Control on page 33**.

The time reported by the **Maximum Shutdown Time** setting represents the maximum delay needed by at least one of the servers listed in the **Configured Client IP Addresses** list. This time is determined by a negotiation process that is initiated when any of the following occurs:

- The Management Card turns on (a System: Coldstart event).
- The Management Card is reset (a System: Warmstart event).
- You select **Force negotiation** from the **Maximum Shutdown Time** setting's drop-down menu, and click **Apply**.

During the negotiation process, which can take up to 10 minutes to perform, each of the servers listed in the **Configured Client IP Addresses** list is contacted to determine the shutdown delay needed by each server. At the end of this process, the delay time defined by the **Maximum Shutdown Time** setting will be changed, if necessary, to reflect the highest delay time reported by the servers. For example, if **3 minutes** was the **Maximum Shutdown Time** setting determined during the last negotiation process, and a new server has been added to the **Configured Client IP Addresses** list that requires a 4-minute shutdown delay, **4 minutes** will be the **Maximum Shutdown Time** setting at the end of the new negotiation process. Conversely, if none of the servers need more than a 2-minute delay, **2 minutes** will be the **Maximum Shutdown Time** setting.

Note: To view a flowchart presentation of the negotiation process, see the *PCNS Maximum Shutdown Time Negotiation.pdf* file provided in the `.trouble\` directory on the APC Network Management Card *utility* CD. The `.trouble\` directory also has two other flowchart presentations that relate to PowerChute network shutdown: *PCNS Shutdown Behavior.pdf* and *PCNS Low-Battery Shutdown Behavior.pdf*.

Device Manager Menus

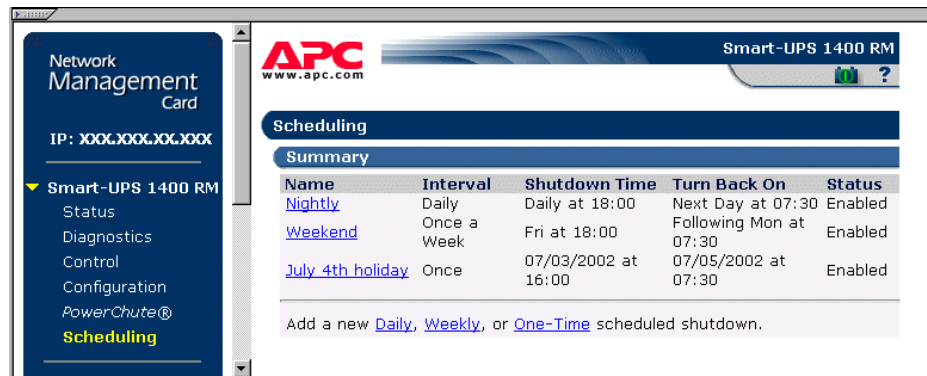
Scheduling (UPS Shutdown)

Overview

The following graphic provides examples of **Daily**, **Weekly**, and **One-Time** shutdowns that were scheduled using this Web Interface-only option.

For more information about how to use this option, see the following sections on this page:

- [How to Schedule a Shutdown](#)
- [How to Edit, Disable, or Delete a Shutdown](#)



How to Schedule a Shutdown

The fields used to schedule a shutdown are essentially the same whether you click the **Daily**, **Weekly**, or **One-Time** option.

1. Use **Name of Scheduled Shutdown** to identify a name for the shutdown. In the example in **Overview** above, **Nightly** is the name of the **Daily** shutdown.
2. Use **Shutdown** to identify when the shutdown will begin.
3. Use **Turn back on** to define whether the UPS will turn on at a specific day and time, **Never** (the UPS will be turned on manually), or **Immediately** (the UPS will turn on after a six-minute delay).
4. Select whether PowerChute servers will be warned before the shutdown begins.
5. Click **Apply**.

Continued on next page

Device Manager Menus

Scheduling (UPS Shutdown) *continued*

How to Edit, Disable, or Delete a Shutdown

When you click a listed shutdown, a “Daily Shutdown Detail” page appears. You use this page to do the following:

- View a summary of the shutdown, including information about the values for settings that can affect how the UPS shuts down and turns on again:
 - For information about **Maximum Shutdown Time**, a PowerChute® option setting, see the table in **Maximum-Shutdown-Time negotiation on page 40**.
 - For information about **Shutdown Delay** and **Return Delay**, see the table in **Shutdown Parameters on page 36**.
- Change any shutdown parameter.
- Use **Status of Scheduled Shutdown** to **Enable**, **Disable**, or **Delete** the shutdown.

Device Manager Menus

Environment Menu

Overview

The **Status** option (Web Interface) and the **Threshold and Contact Details** option (Control Console) provide access to the status information about the probes and contacts. The **Status** option in the Web Interface also accesses the firmware information for the Environmental Monitor. In the Control Console, the firmware information is accessed through the **About Environmental Monitor** option.

The **Configuration** option in the Web Interface provides access to all of the configuration settings for the probes and contacts. In the Control Console, individual options (**Trap Thresholds Probe 1**, **Trap Thresholds Probe 2**, and **Contact Settings**) are used.

Probe status

These fields report on the status for each probe.

Note: For information about the threshold values cited in the table, see **Probe settings** below.

Status Field	Definition
Temperature	Identifies the ambient temperature sensed by the probe.
High or Low Temperature Violation	Identifies whether or not the current ambient temperature violates the probe's temperature threshold settings: Yes , No , or Disabled .
Humidity	Identifies whether the relative humidity sensed by the probe.
High or Low Humidity Violation	Identifies whether or not the current relative humidity violates the probe's humidity threshold settings: Yes , No , or Disabled .

Contact status

Reports the name of each contact alarm, and whether or not the contact's alarm condition exists: **Yes**, **No**, or **Disabled**. For information about the contact alarm settings, see **Contact settings** below.

Probe settings

You use the **Setting** fields to define the temperature or humidity values you want to use for the thresholds, and the **Trap** fields to **Enable** or **Disable** each threshold.

Contact settings

You use the **Name** fields to define the name you want to use for the contact alarms, and the **Trap** fields to **Enable** or **Disable** each alarm.

APC Network Management Card

Events Menu

Introduction

Overview

The **Events** menu provides access to the options that you use to do the following tasks:

- Access the event log.
- Define the actions to be taken when an event occurs, based on the severity level of that event.
 - Event logging
 - SNMP trap notification
 - Email notification

Note: You can only use the Web Interface to define which events will use which actions, as described in **Event Log on page 45** and **How to Configure Individual Events on page 53**.

- Define up to four SNMP trap receivers, by NMS-specific IP address, for event notifications by SNMP traps.
- Define up to four recipients for event notifications by Email.

Menu options

In the Web Interface, all of the events options are accessed through the **Events** menu. In the Control Console, you access the available events-related options, as follows:

- You use the **Email** option in the **Network** menu to define the SMTP server and Email recipients.
- You use the **SNMP** option in the **Network** menu to define the SNMP trap receivers.
- You use CTRL-L to access the event log from any menu.

For information about the settings available for the **Events** menu options, and for a more detailed description of the Email feature, see the following descriptions:

- **Event Log on page 45**
- **Event Actions (Web Interface only) on page 47**
- **Event Recipients on page 49**
- **Email Feature on page 50**
- **How to Configure Individual Events on page 53**

Events Menu

Event Log

Overview

The Management Card supports an event logging capability for all UPS application firmware modules. This allows you to record and view UPS, Environmental Monitor, and Management Card events.

You can use any of the following to view the event log:

- Web Interface
- Control Console
- FTP

Logged events

By default, any event which causes an SNMP trap will be logged, except for SNMP authentication failures. Additionally, the Management Card will log its abnormal internal system events. However, you can use the **Actions** option in the Web Interface's **Events** menu to disable the logging of events based on their assigned severity level, as described in **Event Actions (Web Interface only) on page 47**.

Note: Some system (Management Card) events do not have a severity level. Even if you disable the event log for all severity levels, these no-severity events will still be logged.

For information about how to access a list of the UPS, Environmental Monitor, and Management Card events, see **“Event List” page on page 53**.

Note: The event log will log a graceful shutdown of the UPS, even when that shutdown was not initiated by the Management Card: a graceful shutdown from Serial Port 1 typically indicates that PowerChute or PowerNet Manager performed the shutdown; a graceful shutdown from Serial Port 0 typically indicates that a management peripheral, such as PowerView or the Out-of-Band Management Card, initiated the shutdown.

Web Interface

The **Log** option in the **Events** menu accesses the event log. This log displays all of the events that have been recorded since the log was last deleted, in chronological order, with the most recent event displayed first. A **Delete Log** button allows you to clear all events from the log.

Control Console

You can access the Management Card's Control Console from a local computer (direct serial-cable connection) or over the network (using Telnet). Once you log into the Control Console, press CTRL-L to display up to 300 events from the event log, with the most recent events displayed first. You use the SPACE BAR, as many times as necessary, to view the recorded events. While viewing the log, you can type d and press ENTER to clear all events from the log.

Continued on next page

Events Menu

Event Log *continued*

How to use FTP to retrieve log files

You can use FTP to retrieve a tab-delineated event log (*event.txt*) or data log (*data.txt*) file that you can import into a spreadsheet application.

- The file reports all of the events (*event.txt*) or data (*data.txt*) that has been recorded since the log was last deleted.
- The file includes information that does not show up in the event log or data log displays.
 - The version of the file format (first field).
 - The **Date** and **Time** the file was retrieved.
 - The **Name**, **Contact**, **Location**, and IP address of the Management Card.
 - The *event.txt* file includes the unique **Event Code** for each recorded event.

Note: The Management Card uses a 4-digit year for log entries. A spreadsheet may display these dates as 2-digit years. This can be fixed by selecting a different date format in the spreadsheet.

To use FTP to retrieve the *event.txt* or *data.txt* file, do the following:

1. At a command prompt, type `ftp` and the Management Card's IP address, and press ENTER. If the **Port** setting for **FTP Server** in the **Network** menu has changed from its default value (**21**), you must use the non-default value in the FTP command. For some FTP clients, you would use a colon to add the port number to the end of the IP address. For Windows FTP clients, you would use the following command (including spaces):

```
ftp>open ip_address port_number
```

Note: For information about using non-default port values to enhance security, see **Port assignments on page 55**.

2. Use the case-sensitive **User Name** and **Password** settings for either an Administrator (**apc** is the default for both) or a Device Manager User (**device** is the default for the **User Name**, and **apc** is the default for the **Password**) to log in.
3. Use the `get` command to transmit the text-version of the event or data log to your local drive.

```
ftp>get event.txt or ftp>get data.txt
```

4. You can use the `delete` command to clear the contents of the event or data log. You will not be asked to confirm the deletion. If you clear the data log, a Deleted Log event will be recorded in the event log; if you clear the event log, a new *event.txt* file will be created to record the Deleted Log event.

```
ftp>del event.txt or ftp>del data.txt  
250 Requested file action okay, completed.
```

5. Type `quit` at the `ftp>` prompt to exit from FTP.

Events Menu

Event Actions (Web Interface only)

Overview

The **Actions** option is available only in the Web Interface's **Events** menu. This option allows you to do the following:

- You can select which actions will occur for events that have a specified severity level:
 - **Event Log** selects which severity levels will cause an event to be recorded in the event log. For more information about this action, see **Event Log action on page 48**.
 - **SNMP Traps** selects which severity levels will cause SNMP traps to be generated. For more information about this action, see **SNMP Traps action on page 48**.
 - **Email** selects which severity levels will cause Email notifications to be sent. For more information about this action, see **Email action on page 48**.
- You can click **Details** to do access a complete list of the Management Card (System events), UPS, and Environmental Monitor (Environment events) that can occur, and then edit the actions that will occur for an individual event, as described in **How to Configure Individual Events on page 53**.

Severity levels

With the exception of some Management Card (System) events that do not have a severity level assigned, events are assigned a default severity level based on the seriousness of the event.

- **Informational**: Indicates an event that requires no action, such as a notification of a return from an abnormal condition.
- **Warning**: Indicates an event that may need to be addressed should the condition continue, but which does not require immediate attention.
- **Severe**: Indicates an event that requires immediate attention. Unless resolved, UPS and Management Card severe events can cause incorrect operation of the UPS or its supported equipment, or can result in the loss of UPS protection during a power failure. Environmental Monitor severe events warn of abnormal environmental conditions or possible security violations.

Continued on next page

Events Menu

Event Actions (Web Interface only) *continued*

Event Log action

You can disable the recording of events in the event log. By default, all events are recorded, even events that have no severity level assigned.

Note: Even if you disable the **Event Log** action for all severity levels, system (Management Card) events which have no severity level assigned will still be logged.

For more information about this log, see **Event Log on page 45**.

SNMP Traps action

By default, the **SNMP Traps** action is enabled for all informational, warning, and severe events. However, before you can use SNMP traps for event notifications, you must identify each NMS (up to four), by its specific IP address, that you want to send those traps to.

For information about how to define the trap receivers, see **Event Recipients on page 49**.

Email action

By default, the **Email** action is enabled for all events that have a severity level assigned. However, before you can use Email for event notifications, you must define the Email recipients.

For information about how to define the Email recipients, see **Email Feature on page 50**.

Events Menu

Event Recipients

Overview

The Web Interface and Control Console both have options that allow you to define the trap receivers and up to four Email addresses to be used when an event occurs that has the SNMP traps or Email enabled, as described in **Event Actions (Web Interface only) on page 47**.

Trap Receivers

The **Trap Receiver** settings allow you to define which of up to four specific NMSs will be sent traps.

Note: In the Control Console, these settings are accessed through the **SNMP** option in the **Network** menu.

Item	Definition
Community Name	This setting defines the password (maximum of 15 characters) used when traps are sent to the NMS identified by the Receiver NMS IP setting.
Receiver NMS IP	Identifies the NMS that will be sent traps by its IP address. If this setting is 0.0.0.0 (the default value), traps will not be sent to any NMS.
Trap Generation	Enables (by default) or disables the sending of any traps to the NMS identified the Receiver NMS IP setting.
Authentication Traps	Enables or Disables the sending of authentication traps to the NMS identified the Receiver NMS IP setting.

Email options

See **Email Feature** on the next page.

Events Menu

Email Feature

Overview

You can use the Simple Mail Transfer Protocol (SMTP) to send Email to up to four recipients when an event occurs.

To use the Email feature, you must define the following settings:

- The IP addresses of the primary and secondary Domain Name Service (DNS) servers, as described in [DNS servers on this page](#).
- The DNS name of the **SMTP Server** and the **From Address** settings for SMTP, as described in [SMTP settings on this page](#).
- The Email addresses for up to a maximum of four recipients, as described in [Email Recipients on page 51](#).

Note: You can use the **To Address** setting of the **Email Recipients** option to send Email to a text-based pager.

DNS servers

The Management Card cannot send any Email messages unless at least the IP address of the primary DNS server is defined. The **Email** (Web Interface) or **DNS** (Control Console) option in the **Network** menu accesses the setting that you use to identify the primary and secondary Domain Name Service (DNS) servers by their IP addresses.

The Management Card will only wait a maximum of 15 seconds for a response from both the primary and secondary DNS servers. If the Management Card does not get a response within that time, Email cannot be sent. Therefore, use DNS servers that are on the same segment as the Management Card, or on a nearby segment (but not across a WAN).

Once you define the IP addresses of the DNS servers, verify that DNS is working correctly by entering the DNS name of a computer on your network to see if you can look up the IP address for that DNS name.

SMTP settings

The **Email** option in the **Network** menu accesses the following settings:

Setting	Description
SMTP Server	Defines the SMTP server by its DNS name. Note: This definition is only required when the Use SMTP Server option (see Email Recipients on page 51) is set to Local SMTP Server .
From Address	Defines the contents of the From field in the Email messages sent by the Management Card. Note: The SMTP server's configuration may require that you use a valid user account on the server for this setting. See the server's documentation for more information.

Continued on next page

Events Menu

Email Feature *continued*

Email Recipients

The **Recipients** option in the Web Interface's **Events** menu, or the **Email** option in the Control Console's **Network** Menu, accesses the settings you use to identify each of up to four Email recipients.

Note: The Web Interface has an **Email Test** option, which is located directly below the **Email Recipients** settings, you can use to send an Email test message to any defined (and enable) Email recipient.

Setting	Description
To Address	Defines the user and domain names of the recipient. To use Email for paging, use the Email address for that recipient's pager gateway account (for example, myacct100@skytel.com). The pager gateway will generate the page. Note: Email can only send text messages. Therefore, the recipient's pager must be able to use text-based messaging.
Use SMTP Server	Selects whether Email will be routed through the Management Card's SMTP server (Local SMTP Server option) or sent directly to the recipient's SMTP server (Recipient's SMTP Server option). When the recipient uses the same SMTP server as the Management Card, this setting has no affect. Note: The recommended selection is the Local SMTP Server option. For information about why this is recommended, and for issues to keep in mind when selecting the Use SMTP Server setting, see Optimal Email Configuration Issues on page 52 .
Generation	Enables (by default) or disables the sending of Email to the defined recipient.
Format	Selects format used for Email messages: <ul style="list-style-type: none">• Short: The message identifies only the event that occurred. For example: UPS: Communications Established• Long: The message includes information about the Management Card and UPS, and event. The following is an example of what the Long format could look like for the UPS: Communications Established event: Name : Writer1 Location : JKing Contact : User Ed Department http://xxx.xxx.xx.xxx Serial # : Wa12 UPS Ser #: XS9849007541 Date: 08/12/2001 Time: 16:09:48 Code: 0x0002 Severe - UPS: Communications Established

Continued on next page

Events Menu

Email Feature *continued*

Email Recipients, continued

Optimal Email Configuration Issues. It is recommended that you select the **Local SMTP Server** option for the **Use SMTP Server** setting for the following reasons:

- The Management Card will attempt to make a connection with the selected server for up to 60 seconds. If the SMTP server does not respond within that 60 seconds, the Email will not be sent. Therefore, there is a higher probability that the Management Card will be able to connect to a local SMTP server than one across the Internet. This is especially true when the remote SMTP server is handling large amounts of traffic, like AOL or MSN.

Note: The Management Card has limited resources to queue and transmit Email. Therefore, the Management Card has relatively low time-out values, particularly when compared to a workstation or server which has hundreds of times more processing bandwidth and storage.

- The local SMTP server will queue the Email and attempt to send it several times to the remote SMTP server. When you select the **Recipient's SMTP Server** option, the Management Card will only try to send the Email once.

When you select the **Local SMTP Server** option, as recommended, you will need to enable forwarding at that server so that the server can route Email to external SMTP servers. Typically, SMTP servers are not configured to forward Email in order to prevent someone from using the server to send SPAM.

Consult with your SMTP-server administrator before changing the configuration of your SMTP server to allow forwarding. Besides direct forwarding, you can set up a special Email account for the Management Card. This account would then forward the Email to an external Email account.

Events Menu

How to Configure Individual Events

“Event List” page

The **Actions** option in the **Events** menu opens the “Event Actions Configuration” page. You use the **Details** button in this page to access a complete list of the Management Card (System events), UPS, and Environmental Monitor (Environment events) that can be reported by your Management Card.

Each event is identified by its unique code, its description, and its assigned severity level, as shown in the following examples.

Note: For information about severity levels and how they define the actions associated with events, see **Event Actions (Web Interface only) on page 47**.

Code	Description	Severity
0x0008	System: Password changed.	Informational
0x0109	UPS: Switched to battery backup power.	Warning
0x030F	Environment: High humidity threshold violation on probe 1.	Severe

“Detailed Event Action Configuration” page

The event codes provide a link to a page that allows you to do the following:

- Change the selected event’s severity level.
- Enable or disable whether the event uses the event log, SNMP traps, or Email notifications.
- Enable or disable whether the event uses the APC Remote Monitoring Service, if you have signed up for this service.

Note: Change this setting only when a manual reconfiguration is needed. For more information about the APC Remote Monitoring Service available, use the **Remote Monitoring** link in the Menu frame to access the “APC Remote Monitoring Service” page at the APC Web site.

APC Network Management Card

Data Menu

Menu Options

Log option

Use this option to access a log that stores information about the UPS, the power input to that UPS, and when an Environmental Monitor is used at the UPS, information about the ambient temperature and relative humidity measured by that monitor's probes.

The information in the data log is sampled and stored based on the log interval defined by the **Data** menu's **Configuration** option. Each entry is listed by the date and time the data was recorded, and provides the data in a column format.

The data recorded depends on the UPS model. For example, a 3-phase Symmetra records the bypass voltage for each phase under columns labeled **Vbp1** to **Vbp3**; a Smart-UPS 700 does not have multiple phases, nor does it use bypass voltages.

For descriptions of the recorded data that is specific to your UPS, see the online help in your Network Management Card's Web Interface.

For information about how you can retrieve the data log as a text file, see **How to use FTP to retrieve log files on page 46**.

Configuration option

Use this option to access the "Data Log Configuration" page. This page reports how much data can be stored in the data log based on the **Log Interval** setting which defines how often data will be sampled and recorded in the data log. If you change the **Log Interval**, the report updates to reflect the effect of the new setting.

The minimum interval is **60** seconds; the maximum interval is **65,535** seconds.

APC Network Management Card

Security

Introduction

Overview

The Management Card provides several different security options, depending on the access interface used. Each of these individual elements is described below, and a summary table is given for each interface. In general, the security aspects of the Management Card should provide a reasonable level of access and authentication control. As a network device that passes information across the network, though, it is subject to the same exposure as other devices on the network. Protecting intranet networks that are connected to external networks (the Internet) with devices such as firewalls, is also an extremely important element in security.

Port assignments

It is possible to define the TCP ports that the Telnet, FTP and Web servers utilize. These are initially set at the standard “well known port” for the particular protocol. To enable users to hide the interfaces, one can use arbitrary ports from 5000-65535. Once an interface uses a non-standard port, it is required to specify the port when using a client interface, such as a Web browser. Hiding the servers provides a level of security in obscurity. In a sense, the non-standard ports are extra passwords. For examples of what the commands would look like when the default port numbers are changed, see **FTP Server, Telnet and Web on page 20**.

Continued on next page

Security

Introduction *continued*

User Names, Passwords and SNMP Community Names

All user names, passwords, and SNMP community names are transferred over the network as plain-text. This means that someone capable of monitoring the network traffic can determine the user names and passwords required to access the Management Card. Any similar device with Telnet server, Web server, or SNMPv1 agent will have the same constraints due to the limitations in the protocols themselves.

Each of the interfaces and access methods is described in the following table.

Interface	Security Access	Notes
Control Console (Serial access)	<ul style="list-style-type: none">• User name and password	Always enabled.
Control Console (Telnet access)	<ul style="list-style-type: none">• User name and password• Selectable server port• Server Enable/Disable	The user name and password are transmitted in plain text.
SNMP	<ul style="list-style-type: none">• Community Name• NMS IP filters• SNMP Enable/Disable• Four access communities with read/write/disable	<p>The NMS IP filters allow access from designated IP addresses.</p> <ul style="list-style-type: none">• 159.215.12.1 allows only the NMS with that IP address to have access.• 159.215.12.255 allows access for any NMS on the 159.215.12 segment.• 159.215.255.255 allows access for any NMS on the 159.215 segment.• 159.255.255.255 allows access for any NMS on the 159 segment.• 0.0.0.0 or 255.255.255.255 allows access for any NMS.
FTP Server	<ul style="list-style-type: none">• User name and password• Selectable server port• Server Enable/Disable	Allows access to an Administrator only.
Web Interface	<ul style="list-style-type: none">• User name and password• Selectable server port• Server Enable/Disable	In basic HTTP authentication mode, the user name and password are transmitted as base-64 encoded (no encryption) text.

APC Network Management Card

Troubleshooting

Management Card

Management Card-access problems

The following table describes problems that are related to network or other access to the Management Card. If you are experiencing a problem that is not described in this table, or in the table in **SNMP issues on page 58**, review the troubleshooting flowcharts on the APC Network Management Card *utility* CD (*.trouble*). If you still cannot resolve the problem, see **If Problems Persist on page 60**.

Problem	Solution
Unable to ping the Management Card	<p>Is the Management Card's Status LED green, indicating it is up and running its SNMP agent on the network? If yes, try to ping another node on the same network segment as the Management Card. If that fails, it is not a Management Card problem. If the Status LED is not green, or if the ping test succeeds, perform the following checks:</p> <ul style="list-style-type: none">• Verify that the Management Card is properly seated in the UPS or expansion chassis.• Verify all network connections.• Verify IP addresses of the Management Card and the NMS, and make sure both are on the same network or subnetwork.• Verify the default gateway (or router) IP address if the NMS is on a different physical network (or subnetwork) from the Management Card.• Verify the number of subnet bits for the Management Card's subnet mask.
PowerChute <i>plus</i> reports a constantly or frequently reports "Unable to Communicate with UPS"	See How to Correct Communication Lost Problems on page 59 .
The terminal program reports that it cannot allocate the comm port when you try to configure the Management Card	You must shut down PowerChute <i>plus</i> before you can use a terminal to configure the Management Card.
Cannot access the Web Interface	<ul style="list-style-type: none">• Verify that HTTP access is enabled.• Verify that you can ping the adapter.• Verify that you are using either Internet Explorer 4.0 or Netscape 4.0.

Troubleshooting

Management Card *continued*

SNMP issues

The following table describes known SNMP problems.

Problem	Solution
Unable to perform a GET	<ul style="list-style-type: none">• Verify the read (GET) community name.• Use the Control Console or Web Interface to ensure that the NMS has access. See SNMP on page 21.
Unable to perform a SET	<ul style="list-style-type: none">• Verify the read/write (SET) community name.• Use the Control Console or Web Interface to ensure that the NMS has write (SET) access. See SNMP on page 21.
Unable to receive traps at the NMS	Query the mconfigTrapReceiverTable PowerNet MIB OID to see if the NMS IP address is listed correctly, and the community name defined for the NMS matches the community name in the table. If not, use SETs to the mconfigTrapReceiverTable OIDs, or use the Control Console or Web Interface to correct the trap receiver definition problem. See SNMP on page 21 .
Traps received at an NMS are not identified	See your NMS documentation to verify that the traps are properly integrated in the alarm/trap database.

Troubleshooting

How to Correct Communication Lost Problems

Overview

PowerChute *plus* may constantly or frequently report an Unable to Communicate with UPS condition when PowerChute *plus* and the Management Card have been installed together on a UPS.

Constant Unable to Communicate Problem

1. Ensure that the cable between the computer and the UPS (or the expansion chassis) is securely connected at both ends.
2. Ensure that the UPS (or the expansion chassis) serial port is connected to the same computer port used to connect the computer to the UPS when PowerChute *plus* was installed.
3. If **Step 1** or **Step 2** did not find the problem, reset the Management Card.
4. If the problem persists, disconnect (or remove) the Management Card and restart PowerChute *plus*. If the problem persists, go to **Step 5**, and if the problem clears, go to **Step 6**.
5. If the problem persisted, see your PowerChute *plus* documentation to remove and then reinstall PowerChute *plus*. If the problem continues, see **APC Global Support on page 61** for information about how to contact APC for technical support.
6. If problem cleared, reinstall the Management Card. If the problem returns, see **APC Global Support on page 61** for information about how to contact APC for technical support.

Intermittent Unable to Communicate Problem

1. To eliminate an interrupt request (IRQ) conflict, the most likely cause of the problem, disconnect (or remove) the Management Card from the UPS and restart PowerChute *plus*. If the problem persists, go to **Step 2**, and if the problem clears, go to **Step 3**.
2. If the problem persisted, see your PowerChute *plus* documentation to remove, and then reinstall, PowerChute *plus*. If the problem continues, see **APC Global Support on page 61** for information about how to contact APC for technical support.
3. If the problem cleared, stop PowerChute *plus*.
4. Use an ASCII text editor to edit the [ups] section of the PowerChute *plus* initialization file (*pwrchute.ini* or *powerchute.ini*, depending on the PowerChute *plus* operating system):
 - Add a TimeoutFactor=40 parameter to the file.
 - Change the UpsPollInterval value to =6 (default value is 4).
5. Reconnect (or reinstall) the Management Card and restart PowerChute *plus*. If the problem continues, see **APC Global Support on page 61** for information about how to contact APC for technical support.

Troubleshooting

If Problems Persist

If you could not resolve the problem using the information in the previous tables, or by using the troubleshooting flowcharts on the APC Network Management Card *utility* CD (*.trouble*), do the following:

1. Note the serial number and date of purchase of the Management Card before you use the information in **APC Global Support on page 61** to contact APC.
2. Be prepared to provide a description of the problem. A technician will help solve the problem, if possible, or will give you a Return Material Authorization (RMA) number.
3. If the Management Card is under warranty, repairs or replacement is free of charge. If the warranty has expired, there will be a charge for repair or replacement.
4. Pack the Management Card carefully to avoid damage in transit. Damage sustained in transit is not covered under the warranty. Enclose a letter in the package with your name, address, RMA number, a copy of the sales receipt, daytime phone number, and check (if applicable).
5. Mark the RMA number clearly on the outside of the shipping carton. The factory will not accept any materials without this marking.
6. Return the Management Card by insured, prepaid carrier to the address provided by the Customer Support technician.

Troubleshooting

APC Global Support

Customer support for this or any other APC product is available at no charge in any of the following ways:

- Visit the APC Web site to find answers to frequently asked questions (FAQs), to access documents in the APC Knowledge Base, and to submit customer support requests.
 - APC Home page (www.apc.com)
Connect to localized APC Web sites for specific countries, each of which provides customer support information.
 - APC Global Support page (www.apc.com/support/)
Global support with FAQs, knowledge base, and e-support.
- Contact an APC Customer Support center by telephone or e-mail.
 - Regional centers:

APC Headquarters (U.S. and Canada)	(1) (800) 800-4272 (toll free)
Latin America	(1) (401) 789-5735 (United States)
Europe, Middle East, Africa	(353) (91) 702020 (Ireland)
Japan	(03) 5434-2021 Guidance 3

- Worldwide Contact page (www.apc.com/support/contact)
For information about how to contact local, country-specific centers.
- Contact the APC representative or other distributor from whom you purchased your APC product for information on how to obtain local customer support.

APC Network Management Card

Product Information

Warranty Information

Limited warranty American Power Conversion (APC) warrants the Network Management Card to be free from defects in materials and workmanship for a period of two years from the date of purchase. Its obligation under this warranty is limited to repairing or replacing, at its own sole option, any such defective products. This warranty does not apply to equipment which has been damaged by accident, negligence, or misapplication or has been altered or modified in any way. This warranty applies only to the original purchaser.

Obtaining service To obtain service under warranty you must obtain a returned material authorization (RMA) number from APC or a designated APC service center. Products must be returned to APC or an APC service center with transportation charges prepaid and must be accompanied by a brief description of the problem encountered and proof of date and place of purchase. For further information on obtaining service, see **If Problems Persist on page 60**.

Warranty limitations *Except as provided herein, American Power Conversion makes no warranties, express or implied, including warranties of merchantability and fitness for a particular purpose. Some jurisdictions do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.*

Except as provided above, in no event will APC be liable for direct, indirect, special, incidental, or consequential damages arising out of the use of this product, even if advised of the possibility of such damage.

Specifically, APC is not liable for any costs, such as lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, costs of substitutes, claims by third parties, or otherwise. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Product Information

Life-Support Policy

General policy

As a general policy, American Power Conversion (APC) does not recommend the use of any of its products in life-support applications where failure or malfunction of the APC product can be reasonably expected to cause failure of the life-support device or to significantly affect its safety or effectiveness. APC does not recommend the use of any of its products in direct patient care. APC will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to APC that (a) the risks of injury or damage have been minimized, (b) the customer assumes all such risks, and (c) the liability of American Power Conversion is adequately protected under the circumstances.

Examples of life-support devices

The term *life-support device* includes but is not limited to neonatal oxygen analyzers, nerve stimulators (whether used for anesthesia, pain relief, or other purposes), autotransfusion devices, blood pumps, defibrillators, arrhythmia detectors and alarms, pacemakers, hemodialysis systems, peritoneal dialysis systems, neonatal ventilator incubators, ventilators (for adults or infants), anesthesia ventilators, infusion pumps, and any other devices designated as “critical” by the U.S. FDA.

Hospital-grade wiring devices and leakage current protection may be ordered as options on many APC UPS systems. APC does not claim that units with this modifications are certified or listed as hospital-grade by APC or any other organization. Therefore these units do not meet the requirements for use in direct patient care.

Product Information

Specifications

Electrical

The following table identifies the electrical specifications.

Item	Specification
Electrical	
Acceptable input voltage:	19-30 VDC
Maximum total current draw:	110 mA

Physical

The following table identifies the physical specifications.

Physical	
Size (H x W x D)	1.46 x 4.75 x 4.3 in (3.7 x 12.1 x 10.9 cm)
Weight	.25 lb (.11 kg)
Shipping weight:	.8 lb (.36 kg)

Environmental

The following table identifies the environmental specifications.

Environmental	
Elevation (above MSL): Operating Storage	0 to 10,000 ft (0 to 3,000 m) 0 to 50,000 ft (0 to 15,000 m)
Temperature: Operating Storage	32° to 122° F (0° to 50° C) 5° to 158° F (-15° to 70° C)
Operating and storage humidity:	0 to 95%, non-condensing

Approvals

The following table identifies the approvals.

Approvals	
National and International:	FCC, Part 15, Class A EN 55022 (CISPR 22), Class A VCCI Class 1 EN 55024 (CISPR 24) CE C-Tick BSMI

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