



# Web/SNMP Management SmartSlot Card

AP9606

User's Guide

**APC**<sup>®</sup>

## Thank You!

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Thank you for selecting the APC Web/SNMP Management SmartSlot 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 *Web/SNMP Management SmartSlot Card Installation and Quick Start Manual* provided in printed format, and in PDF format on the Web/SNMP Management Card *utility* CD (*.\\doc\\Insguide.pdf*).

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# APC® Web/SNMP Management SmartSlot Card

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## Introduction

### Product Description

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#### Functionality

American Power Conversion's Web/SNMP Management SmartSlot Card (APC part number AP9606) 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 Web/SNMP Management SmartSlot Card, which is referred to as the Management Card in this guide, 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:

- UPS systems with SmartSlots: Smart-UPS®, Matrix-UPS®, Symmetra® Power Array™, and Silcon™ DP300E series UPS (with the use of a SmartSlot Expansion Triple Chassis)
- SmartSlot Expansion Chassis (AP9600)
- SmartSlot Expansion Triple Chassis (AP9604, AP9604R, or AP9604SR)

**Note:** In addition to connecting the UPS to an Ethernet network, the Management Card is used to manage MasterSwitch II and MasterSwitch *plus* power distribution units, and the standalone Environmental Monitoring Unit. In order to provide such a range of support to specific devices, the Management Card uses different firmware application layers to control each device. For more information on how a Management Card is used with the MasterSwitch devices and the Environmental Monitoring Unit, see the documentation for those products.

*Continued on next page*



# Introduction

## Product Description *continued*

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### Management Card versions

The Management Card (v3.0.0) has firmware that provides an APC operating system (AOS) layer (*aos300.bin*), and one of three available application layers. Which application firmware a Management Card uses depends on the UPS it supports.

- Symmetra Power Array (*sy300.bin*)
- Smart-UPS and Matrix-UPS (*sumx300.bin*)
- Silcon DP300E series UPS (*dp3e300.bin*)

**Note:** For information about how to download firmware, as well as information about how to use the APC Management Card Wizard to configure multiple Management Cards, see the *Management Card Addendum*, provided in PDF format on the APC Web/SNMP Management Card *utility* CD (*.\doc\Addendum.pdf*). For information about the MasterSwitch devices, see their product documentation.

### 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

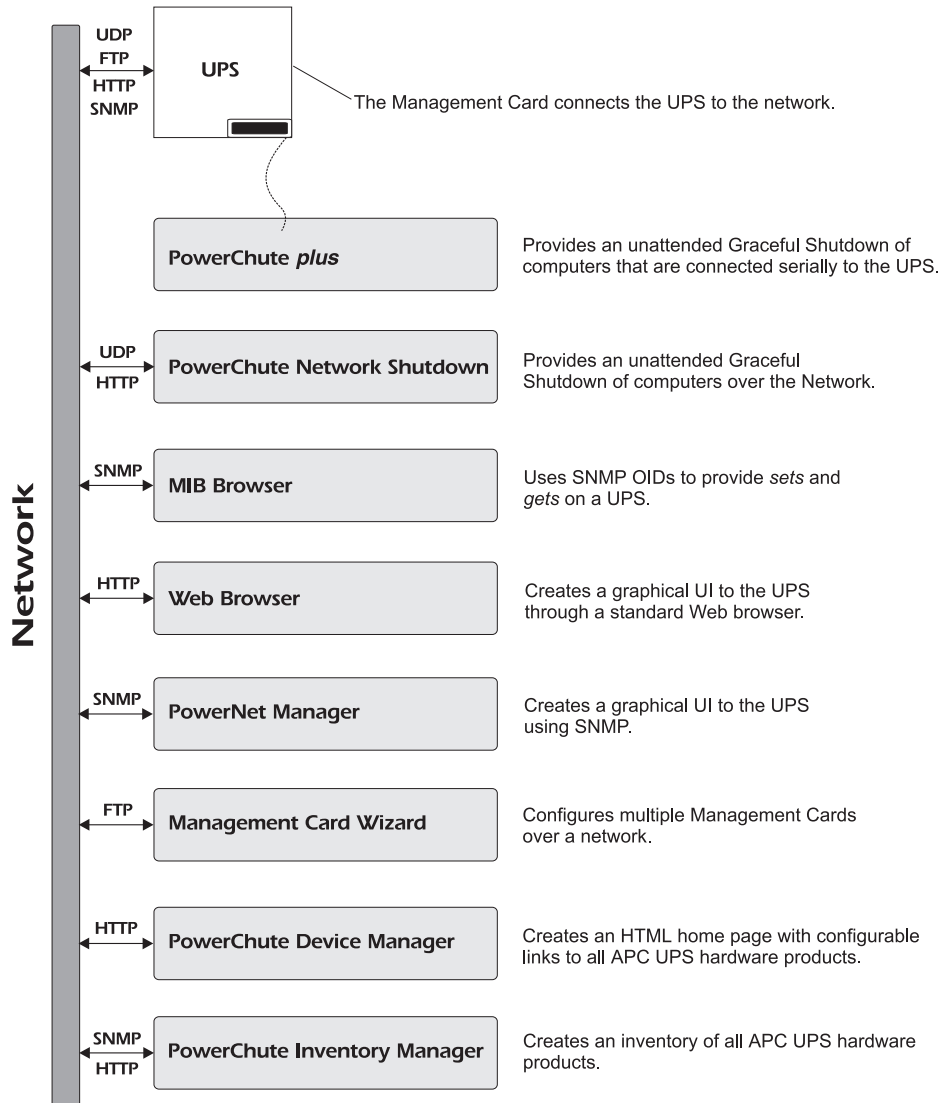
For instructions about how to configure the TCP/IP settings, see the *Web/SNMP Management SmartSlot Card Installation and Quick Start Manual*, provided in printed form, and in PDF on the APC Web/SNMP Management Card *utility* CD (*.\doc\Insguide.pdf*).

# 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.



# 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 Monitoring SmartSlot Card, and the Management Card: the Control Console and the Web interface. The Management Card's SNMP interface allows you to use an SNMP browser with the APC MIB (also known as the PowerNet MIB) to manage the UPS and an Environmental Monitoring SmartSlot Card.

For more information about the Management Card's internal user interfaces, see **Control Console on page 14** and **Web Interface on page 20**; for more information about how to use the APC MIB with an SNMP browser, see the *PowerNet MIB Reference Guide* which is provided on the APC Web/SNMP Management Card *utility* CD (*.ldocMibguide.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 29**.

### 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**.

**Note:** The Management Card also uses a **User Name** and **Password** to protect FTP access to the Management Card, as described in **FTP Client on page 28**.

For information about how to set Administrator and Device Manager **Password** and **User Name** settings, see **User Manager on page 31**.

# Introduction

## Front Panel

### Features

The front panel has the following features:

- Reset button
- 10Base-T network cable connector
- Link-RX/TX LED
- Status LED



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

**10Base-T Port.** Used to connect the Management Card 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	The Management Card is receiving data packets from the network.

**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. <sup>1</sup>
Solid Red	A hardware failure has been detected in the Management Card. Contact APC Technical Support as described in <b>APC Worldwide Technical Support on page 74</b> .
Flashing Red	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. <sup>1</sup>
<sup>1</sup> For information about how to configure the three TCP/IP settings that the Management Card needs to operate on the network, see the <i>Web/SNMP Management SmartSlot Card Installation and Quick Start Manual</i> provided in printed format, and in PDF format on the APC Web/SNMP Management Card utility CD ( <i>.\doc\insguide.pdf</i> ).	

# Introduction

## Watchdog Features

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### 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 will reboot itself to recover from the internal problem.

### 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 seven-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 seven-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 seven 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 five minutes. If the gateway is present, it will respond to the Management Card and the seven-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.

## Control Console

### Introduction

---

#### Overview

The Control Console provides a set of menus that you can use to manage the Management Card, its UPS, and an Environmental Monitoring SmartSlot Card, from a local computer or over the network.

#### Menu Structure

The Control Console menus 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 Monitoring SmartSlot Card menus.
- Press CTRL-L, to access the event log.

**Note:** For information about the event log, see **Events Menu on page 50**.

# 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). For information about the screen that appears when you log into the Control Console, see **Main Screen on page 17**.

### 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*, you do not need to perform step 3: 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 your **User Name** or **Password**, see **How to Recover from a Lost Password on page 16**.

### 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 that uses the APC AOS module, version 3.0 (or later). The latest AOS version is available at the APC web site ([www.apcc.com](http://www.apcc.com)).

### 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 (940-0024) that came with the Management Card to a serial port on the computer and to the serial port on the UPS or chassis.

**Note:** If the computer uses smart-signaling PowerChute *plus*, you do not need to perform **Step 3**: A smart-signaling cable (940-0024 or 940-1524) is already installed. For simple-signaling, temporarily replace the PowerChute *plus* 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, and 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 **Step 6** through **Step 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.

```
User Name : apc
Password : ***

American Power Conversion      Web/SNMP Management Card AOS      v3.0.0
(c) Copyright 2000 All Rights Reserved  Smart-UPS & Matrix-UPS APP      v3.0.0

Name       : Writer1           Date       : 05/18/2000
Contact    : JKing            Time        : 10:39:16
Location   : User Ed Department Up Time    : 0 Days 17 Hours 46 Minutes
Status     : P+ N+ A+         User        : Administrator

Environment : Thresholds Ok, Contact Alarms Ok
Smart-UPS 700 named User Ed : On

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

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

### Status and Identification Information

In addition to a menu (described in [Control Console Menu on page 19](#)), the main screen provides the following information:

- Two fields identify the APC operating system (AOS) and application (APP) firmware versions. A Management Card can use Smart-UPS/Matrix-UPS, Symmetra Power Array, or Silcon DP300E versions of the APP firmware. The example above shows that this Management Card uses the application firmware for the Smart-UPS/Matrix-UPS.

```
Web/SNMP Management Card AOS      v3.0.0
Smart UPS & Matrix UPS APP        v3.0.0
```

- 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 30](#).

*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       : 05/10/2000
Time       : 10:39:16
```

**Note:** For information about how to change the **Date** and **Time** values, see **System Menu on page 30**.

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

```
User       : Administrator
```

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

```
Up Time    : 0 days 17 hours 46 Minutes
```

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

```
Status     : 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+).

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

```
Smart-UPS 700 named User Ed: On
```

**Note:** For more information about the UPS status, see **UPS Status Options on page 35**.

- An **Environment** field reports the status of the Environmental Monitoring SmartSlot Card.

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

**Note:** For more information about the Environmental Monitoring SmartSlot Card status, see **Environment Menu Options on page 49**.

# Control Console

## Control Console Menu

---

### Overview

The Control Console menu has four options, three of which 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.

### 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 first **Environment** option is only present when an Environmental Monitoring SmartSlot Card is present.

For information about the menus used to manage a UPS and Environmental Monitoring SmartSlot Card, see **Device Manager Menus on page 34**.

### Network Option

To do any of the following tasks, see **Network Menu on page 26**:

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

### System Option

To do any of the following tasks, see **System Menu on page 30**:

- 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.

## Web Interface

### Introduction

---

#### Overview

Unless the Web interface is disabled by the Web menu's **Access** option, you can use a supported Web browser to manage a UPS, an Environmental Monitoring SmartSlot Card, 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 28**.

#### Supported Web browsers

You can use Microsoft® Internet Explorer (IE) 3.0.2 (or later), or Netscape® Navigator 3.0 (or later), with the Web interface.

Some Web interface features (data verification, APC Interactive Assistant, and MD5 authentication) require that you enable the following for your Web browser:

- JavaScript
- Java
- Cookies

**Note:** For more information, see **MD5 Authentication on page 69**.

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 22**.

### 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, 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 28**.

- For a DNS name of `web1`, the entry would look like this:

`http://web1`

**Note:** The Management Card must have a DNS name before it can use E-mail for event notifications. For more information, see **Email on page 56**.

- 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`

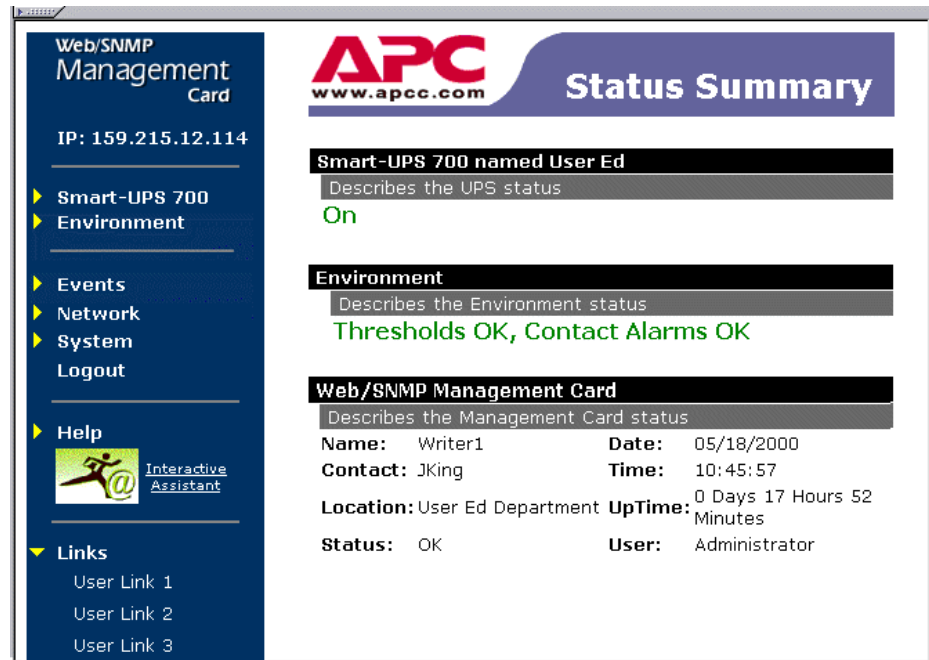
**Note:** For Internet Explorer, you must type in `http://` as part of the address when any port other than 80 is used or you will get a "This page cannot be displayed" error. For more information, see **FTP Server, Telnet, and Web on page 28**.

# Web Interface

## Status Summary Page

### Example Web page

The following is an example of the “Status Summary” page that appears when you log into the Web interface.



### Status and identification information

In addition to the menu frame elements described in **Menu Frame on page 23**, the “Status Summary” page provides the following information:

- A **UPS model and name** section reports the UPS status.
- An **Environment** section reports the status of the Environmental Monitoring SmartSlot Card.
- **Date** and **Time** fields Identify when you logged in.
- A **User field** identifies whether you logged in as an **Administrator** or **Device Manager**.
- An **Up Time** field reports how long the Management Card has been running since it was last turned on or reset.
- A **Status** field reports the status of the Management Card.

**Note:** If the Status field does not report **Ok**, contact APC Technical Support as described in **APC Worldwide Technical Support on page 74**.

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 30**; for information about UPS status, see **UPS Status Options on page 35**; for information about the Environmental Monitoring SmartSlot Card status, see **Environment Menu Options on page 49**.

# 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
- An **Events** menu
- A **UPS** menu which uses the UPS model for its name (Smart-UPS 700, in the example on [page 22](#))
- An **Environment** menu

**Note:** The Environment menu only appears when an Environmental Monitoring SmartSlot Card is used with the UPS.

- 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
- Logo and text links to **Interactive Assistant**
- Three user-definable **User Links**

### Events menu

To do the following, see the [Events Menu chapter on page 50](#):

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

### UPS and Environment menus

For information about how to use the UPS and Environment menus to manage a UPS or an Environmental Monitoring SmartSlot Card, see [Device Manager Menus on page 34](#).

### Network menu

To do the following, see the [Network Menu chapter on page 26](#):

- Configure new TCP/IP settings for the Management Card.
- Define settings that affect the use of TFTP, FTP, Telnet, SNMP, and Email.

**Note:** For information about how the Web options you can access through the **Network** menu's **Telnet/Web** option affect access to the Web interface, see [Web menu options on page 20](#).

*Continued on next page*

# Web Interface

## Menu Frame *continued*

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### System menu

To do the following, see the **System Menu chapter on page 30**:

- 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.

**Note:** For information about how to configure the Menu Frame's user links, as well as the links used by the APC logo and the Interactive Assistance logo and text, see **User-definable links on page 25**.

### Help menu

When you click **Help**, the **Contents** option is automatically selected, and the online help appears in your browser. You can use the question marks (?) that appear in the various Web pages to link to the section of the online help that covers that page's content.

The **Help** menu has two other links:

- **Interactive Assistant** links you to the APC Interactive Assistant Web page. For more information, see **Interactive Assistant on this page**.
- **About System** displays a page that provides information about the Management Card. For more information, see **About System on page 33**.

### Interactive Assistant

APC Interactive Assistant brings APC customer service to the Web. When you select **Interactive Assistant**, the Management Card transmits information about itself, and its UPS, to the APC Interactive Assistant server. The server processes the information and tells you if the UPS has a bad battery. The "Interactive Assistant" Web page provides links to more information about the Management Card and the UPS, as well as links to various pages at APC's Web site.

*Continued on next page*



# Web Interface

## Menu Frame *continued*

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### User-definable links

The **Link** menu has three link options. By default, these links are labeled **User Link 1** through **User Link 3**, and all three link to APC's home page.

Use the following procedure to redefine these link 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 new names.
- Define the new URL addresses that you want the links to access.
- Click **Apply** to save your changes.

**Note:** This "Links" page also has fields you can use to modify the URL address used by the APC logo and by the Interactive Assistant logo and text links.

## Network Menu

### Introduction

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#### 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 **System** menu.

#### Menu options

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

- **TCP/IP on page 27**
- **DNS on page 27**
- **Ping utility on page 27**

**Note:** The **Ping** utility option is only available in the Control Console.

- **TFTP Client on page 28**
- **FTP Client on page 28**
- **FTP Server, Telnet, and Web on page 28**
- **SNMP on page 29**
- **Email on page 56**

# Network Menu

## Option Settings

---

### 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 13**; for information about how to configure the initial TCP/IP settings when you install the Management Card, see the *Web/SNMP Management SmartSlot Card Installation and Quick Start Manual*, provided in printed form and on the APC Web/SNMP 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 *Management Card Addendum*, provided in PDF format on the APC Web/SNMP Management Card *utility* CD (`./doc/adendum.pdf`).

### DNS

Use this option (which is combined with TCP/IP, described above, in the Web interface) to define the IP address of the Domain Name Server (DNS). You must define the DNS address to use the Management Card's Email feature.

**Note:** For information about how to use the Email feature, see **Email on page 56**.

### Ping utility

This option (which is only available in the Control Console) allows you to use Ping, a network utility, to test the Management Card's network connection.

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

## Option Settings *continued*

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### TFTP Client

Use this option to define the IP address of the TFTP server used to download configuration files (**0.0.0.0**, by default).

**Note:** For information about how to use TFTP to download configuration files, see the *Management Card Addendum* on the APC Web/SNMP Management Card utility CD ([./doc/addendum.pdf](#)).

### FTP Client

Use this option to define the IP address of the FTP server used to download configuration files (**0.0.0.0**, by default), as well as the case-sensitive **User Name** and **Password** settings (**apc** is the default for both) used to protect FTP access.

**Note:** For information about how to use FTP to download configuration files, see the *Management Card Addendum* on the APC Web/SNMP 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 log, see **FTP on page 52**.

### 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 address used. 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
```

*Continued on next page*

# Network Menu

## Option Settings *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 server as trap receivers, see **Trap Receivers on page 55**; for more information about how to use SNMP to manage a UPS or an Environmental Monitoring SmartSlot Card, see the *PowerNet MIB Reference Guide* on the APC Web/SNMP Management Card *utility CD* (.\\doc\\mibguide.pdf).

Setting	Definition	
<b>Community Name</b>	This setting defines the password (maximum of 15 characters) which an NMS that is defined by the <b>NMS IP</b> setting below uses to access the channel.	
<b>NMS IP</b>	Limits access to the NMS or NMSs specified by the format used for the IP address. <ul style="list-style-type: none"><li>• <b>159.215.12.1</b> allows only the NMS with that specific IP address to have access.</li><li>• <b>159.215.12.255</b> allows access for any NMS on the 159.215.12 segment.</li><li>• <b>159.215.255.255</b> allows access for any NMS on the 159.215 segment.</li><li>• <b>159.255.255.255</b> allows access for any NMS on the 159 segment.</li><li>• <b>0.0.0.0</b> or <b>255.255.255.255</b> allows access for any NMS.</li></ul>	
<b>Access Type</b>	Selects how the NMS defined by the <b>NMS IP</b> setting can use the channel, when that NMS uses the correct <b>Community Name</b> .	
	<b>Read</b>	The NMS can use Gets at any time, but it can never use Sets.
	<b>Write</b>	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.
	<b>Write+</b>	The NMS can use Gets and Sets at any time, even when someone is logged into the Control Console or Web interface.
	<b>Disabled</b>	The NMS cannot use Gets or Sets.

## 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.
- 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.

**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.
- 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 31**
- **Identification on page 31**
- **Date & Time on page 32**
- **File Transfer on page 32**
- **Tools on page 32**
- **Links on page 33**
- **About System on page 33**

# System Menu

## Option Settings

---

### User Manager

Use this option to define the access values shared by the Control Console and the Web interface, and the authentication used to access the Web interface.

Setting	Definition
<b>Auto Logout</b>	Defines how much inactivity can occur, measured in minutes ( <b>3</b> , by default), before a user is automatically logged out.
<b>Authentication</b>	The <b>Basic</b> setting (default) causes the Web Interface to use standard HTTP 1.1 login (base64-encoded passwords); <b>MD5</b> causes the Web Interface to use an MD5-based authentication login. <b>Note:</b> Cookies must be enabled at a browser before it can be used with MD5 authentication.
<b>Administrator</b> and <b>Device Manager User</b>	
<b>User Name</b>	Defines the case-sensitive name (maximum of 10 characters) used to log in ( <b>apc</b> , by default, for <b>Administrator</b> , and <b>device</b> , by default, for <b>Device Manager User</b> ).
<b>Password</b>	Defines the case-sensitive password (maximum of 10 characters) always used to log into the Control Console, but only used to log into the Web interface when <b>Basic</b> is selected for the <b>Authentication</b> setting ( <b>apc</b> is the default for both <b>Password</b> settings).
<b>Authentication Phrase</b>	Defines the case-sensitive, 15-to-32 character phrase used to log into the Web interface when <b>MD5</b> is the <b>Authentication</b> setting ( <b>admin user phrase</b> , is the default for <b>Administrator</b> ; <b>device user phrase</b> is the default for Device Manager User).

### 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).

For more information about the MIB-II OIDs, see the *PowerNet MIB Reference Guide* provided on the APC Web/SNMP Management Card utility CD (./doc/mibguide.pdf).

*Continued on next page*

# System Menu

## Option Settings *continued*

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### Date & Time

Use this option to change the **Date** (MM/DD/YYYY format) or **Time** (HH:MM:SS format) used by the Management Card.

### File Transfer

The Web interface identifies the IP addresses for the remote TFTP and FTP servers, as well as the case-sensitive **User Name** and **Password** settings used for FTP (**apc**, is the default for both), and allows you to use TFTP and FTP for file transfers.

1. Define the file name in the **Filename** field, and click **Apply**.
2. Select **TFTP** or **FTP** from the **Initiate File Transfer Via** menu, and click **Apply**.

The Control Console allows you to use TFTP, FTP, and XMODEM.

1. Use the **Settings** option to define the file name.
2. Select **TFTP**, **FTP**, or **XMODEM** from the menu and follow the on-screen instructions.

For information about how to define the **TFTP** and **FTP** settings, see **Network Menu on page 26**; for more information about file transfers, see the *Management Card Addendum* provided on the APC Web/SNMP Management Card *utility* CD (.\\doc\\Addendum.pdf).

### Tools

Use this option's drop-down menu to reboot the Management Card or to reset some or all of its configuration settings to their original, default values.

Menu Option	Definition
<b>Reboot Card</b>	Restarts the Management Card.
<b>Reset Card to Defaults</b>	Resets all configuration settings. <b>Note:</b> This will reset the TCP/IP settings and enable BOOTP. The Management Card will not be able to operate on the network until its TCP/IP settings are redefined.
<b>Reset Card to Defaults Except TCP/IP</b>	Resets all configuration settings except the TCP/IP and BOOTP settings.

*Continued on next page*



# System Menu

## Option Settings *continued*

### Links

Use this option, which is only available in the Web interface, to configure the three User Links, the URL address used by the APC logo, and the URL address used by the various Interactive Assistant links.

Setting	Definition
<b>User Links</b>	
<b>Name</b>	Defines the link name (up to 3) that appears on the menu frame.
<b>URL</b>	Defines URL address used by each link ( <b><i>http://www.apcc.com</i></b> is the default for all three user links).
<b>APC Links</b>	
<b>URL for APC Home Page</b>	Defines the link used by the APC logo that appears at the top of each Web page. By default, the APC logo accesses APC's home page ( <b><i>http://www.apcc.com</i></b> ).
<b>URL for APC Interactive Assistant</b>	Defines the link used by the Interactive Assistant logo and text links. By default, the Interactive Assistant links access the "APC Interactive Assistant" Web page ( <b><i>http://web2.apcc.com/cgi-apps/ce.exe?</i></b> ).

### About System

This option displays hardware, factory, application module, and APC OS information for the Management Card. It includes information such as the Management Card's serial number, hardware revision, and the date and time when the application and APC OS modules were loaded.

**Note:** **About System** is a **Help** menu option in the Web interface.

## Device Manager Menus

### Introduction

---

#### Overview

Two **Device Manager** menus appear in the Control Console and Web interface.

- 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 Monitoring SmartSlot Card is present, provides options that you use to manage the Environmental Monitoring SmartSlot Card. For more information about this menu, see **Environment Menu Options on page 49**.

#### UPS menu options

The **UPS** menu options, and the information provided by those options, vary by UPS model: Smart-UPS/Matrix-UPS, Symmetra *Power Array*, or Silcon DP300E.

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 that the Web interface includes a PowerChute option in each UPS model's **UPS** menu, which allows you to use APC's PowerChute network shutdown utility. This PowerChute option is not available in the Control Console.

For information about the PowerChute option, see **UPS PowerChute network shutdown Option on page 48**. For information about the **UPS** menu options available in the Control Console and Web Interface, see the following descriptions:

- **UPS Status Options on page 35**
- **UPS Diagnostics Options on page 40**
- **UPS Control Options on page 41**
- **UPS Configuration Options on page 43**
- **Module Status Option (Symmetra Power Array) on page 47**

**Note:** A Silcon DP300E series UPS has no diagnostics options.

# Device Manager Menus

## UPS Status Options

---

### Overview

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

- **Detailed UPS Status on this page**
- **Input Voltage on page 36**
- **Output Voltage on page 37**
- **Fault Tolerance (Symmetra Power Array) on page 38**
- **Battery on page 39**

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

The **UPS** menu for a Symmetra *Power Array* also has the diagnostics and status options which are described in **Module Status Option (Symmetra Power Array) on page 47**.

### Detailed UPS Status

In the Web interface, UPS status information is displayed at the top of the page that appears when the **UPS** menu's **Status** option is selected. This UPS status expands on the information displayed in the "Status Summary" page, and includes information about what caused the most recent transfer to battery power at the UPS, as well as the internal temperature of the UPS.

**Note:** The detailed UPS status also appears on the Web interface's "Control" and "Diagnostics" Web pages.

In the Control Console, the following information is displayed above the **UPS** menu options:

- Reason for the last transfer to battery
- UPS internal temperature
- The voltage values described in **Input Voltage on page 36**, **Output Voltage on page 37**, and **Battery on page 39**.

The **Detailed Status** (Smart-UPS or Matrix-UPS) or **Detailed UPS Information** (Symmetra *Power Array* or Silcon DP300E) option provides access to the expanded UPS operational status (and other status information, as noted in the following sections). In addition, the Control Console's **UPS** menu for a Symmetra *Power Array* has a **Faults & Alarms** option which describes any faults or alarms reported as part of the UPS status.

**Note:** A Silcon DP300E series UPS will report a non-specific fault for about 50 different conditions, including going into Bypass. Access the UPS Keyboard for details when a non-specific fault is reported.

For information about the UPS events that can be reported as part of the UPS status, see **Management Card and Device Events on page 61**.

# Device Manager Menus

## UPS Status Options *continued*

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### Input Voltage

All UPS models report the input voltage and frequency. A Silcon DP300E series UPS, which identifies the input voltage values for all three phases, also reports the current (amperage) provided by the input voltage.

**Note:** In the Control Console, you use the **Detailed UPS Information** option to access the **Minimum** and **Maximum Input Voltage** status for a Symmetra *Power Array* or Silcon DP300E series UPS.

Status Field	Definition
<b>Input Voltage</b>	Identifies the AC voltage (VAC) being input to the UPS.
<b>Input Frequency</b>	Identifies the input voltage's frequency, in Hertz (Hz). <b>Note:</b> In the Control Console for Smart-UPS or Matrix-UPS, the <b>Operating Frequency</b> field reports the frequency value shared by the input and output voltages.
<b>Maximum Line Voltage</b>	Identifies the highest AC voltage input to the UPS during the previous minute of operation.
<b>Minimum Line Voltage</b>	Identifies the lowest AC voltage input to the UPS during the previous minute of operation.
<b>Input Current</b> (Silcon DP300E series UPS only)	Identifies how much current is being supplied by the input voltage.

*Continued on next page*

# Device Manager Menus

## UPS Status Options *continued*

### Output Voltage

The output voltage status information presented depends on the UPS model.

**Smart-UPS/Matrix-UPS.** Four status fields report on the output from a Smart-UPS or Matrix-UPS.

**Note:** In the Control Console, the output voltage fields for a Smart-UPS or Matrix-UPS are all displayed above the **UPS** menu.

Status Field	Definition
<b>Output Voltage</b>	Identifies how much AC voltage the UPS is providing to its attached equipment.
<b>Output Frequency</b>	Identifies the frequency used by the output voltage. <b>Note:</b> In the Control Console, an <b>Operating Frequency</b> field reports the frequency value that is shared by the input and output voltages.
<b>Load Power</b>	Identifies the load placed on the UPS by its attached equipment.
<b>Load Current</b> (Matrix-UPS only)	Identifies the current being supplied by the output voltage.

**Symmetra Power Array.** Five status fields report the Symmetra Power Array output values.

**Note:** In the Control Console, only the **Output Voltage** and **Output Watts** (as a single **Load Power** field) is reported in the status displayed above the **UPS** menu. You use the **Detailed UPS Information** option to access the other status fields for the output voltage.

Status Field	Definition
<b>Output Voltage</b>	Identifies how much AC voltage the UPS is providing to its attached equipment.
<b>Output Frequency</b>	Identifies the frequency used by the output voltage.
<b>Output Current</b>	Identifies the current supplied by the output voltage.
<b>Output Watts</b>	Identifies the load placed on each of the Power Modules by the attached equipment, expressed in Watts.
<b>Output VA</b>	Identifies the load placed on each of the Power Modules by the attached equipment, expressed as a percentage of the kVA available from the UPS.

*Continued on next page*

# Device Manager Menus

## UPS Status Options *continued*

### Output Voltage, continued

**Silcon DP300E.** Five status fields report the output values for a Silcon DP300E series UPS.

**Note:** In the Control Console, you use the **Detailed UPS Information** option to access the **Peak Output Current** status.

Status Field	Definition
<b>Output Voltage</b>	Identifies how much AC voltage the UPS is providing to its attached equipment for each phase.
<b>Output Current</b>	Identifies how much current the output voltage is providing for each phase.
<b>Output Power</b>	Identifies the load placed on each phase by the attached equipment, in total kVA.
<b>Output Power Percentage</b>	Identifies the load placed on each phase by the attached equipment, expressed as a percentage of the of the kVA available from the UPS.
<b>Peak Output Current</b>	Identifies the highest current output by each phase.

### Fault Tolerance (Symmetra Power Array)

Two status fields report the Symmetra *Power Array* fault tolerance.

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

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

*Continued on next page*

# Device Manager Menus

## UPS Status Options *continued*

### Battery

Although only one battery-related status field (**Runtime Remaining**) is shared by all UPS models, the fields used for each UPS model are essentially the same.

The following table uses footnotes to indicate which fields are shared by which UPS models.

**Note:** In the Control Console, you use the **Detailed UPS Information** option to access the **Number of External Batteries**, **Number of Bad Batteries**, and **Actual Battery Bus Voltage** status for a Symmetra *Power Array*. All other fields, for all UPS models, are displayed above the **UPS** Menu.

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

# Device Manager Menus

## UPS Diagnostics Options

### Overview

There are two types of diagnostics options you can use with a Smart-UPS, Matrix-UPS, or Symmetra *Power Array* (a Silcon DP300E has no diagnostic options):

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

Exactly how these options are accessed depends on whether you use the Web interface or Control Console.

### Diagnostics

The following table describes the available diagnostics options.

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

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

### 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 *Power Array* has a **Scheduled Tests** option in the **UPS** menu.
- Smart-UPS or Matrix-UPS has 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 Options

### Silcon DP300E

Three control actions are available for a Silcon DP300E series UPS.

**Note:** Only the **Reset UPS to Defaults** option is available by default.

Action	Definition
Turn UPS Off	Turns the UPS off after the expiration of the <b>Shutdown Delay</b> described in the table in <b>Shutdown Parameters on page 45</b> .
Turn UPS Off Gracefully <sup>1</sup>	Causes the UPS to turn off after PowerChute <i>plus</i> has time to safely shut down the server's operating system.
Reset UPS To Defaults	Resets all UPS parameters to their default settings.

To enable the turn-off options, do the following:

1. Access the Control Console from a local computer which has a direct, serial-cable connection with the Management Card, as described in **Local (Serial) Access on page 15**.

**Note:** You cannot use the Web interface or Telnet access to the Control Console to enable the turn-off options.

2. Select the **Device Manager** option from the **Control Console** menu.
3. Select the Silcon DP300E option.
4. Select the **Control** option.
5. Enable the turn-off options.
6. Use CTRL-C to return to the **Control Console** menu.
7. Log out to have the change take effect.

Once you enable the turn-off options, you can use the Web interface or Telnet to disable them, but you must use local access to the Control Console to enable them again.

*Continued on next page*

# Device Manager Menus

## UPS Control Options *continued*

### Smart-UPS, Matrix-UPS, and Symmetra Power Array

The Smart-UPS, Matrix-UPS, and Symmetra *Power Array* **Control** options are identical, with one exception: Symmetra *Power Array* and Matrix-UPS use a bypass mode; Smart-UPS does not.

**Note:** For information about the **Sleep Time** setting which appears in the Web interface's "Control" and "Configuration" pages, see the table in **Shutdown Parameters on page 45**.

With one exception, control actions are accessed through the **Control** menu in the Web interface and the Control Console: The **Reset UPS To Defaults** is a **Configuration** menu option in the Control Console.

**Note:** The **Control** menu in the Control Console lists the diagnostic tests which are accessed through the **Diagnostics** option in the Web interface. For descriptions of the **Self-Test**, **Simulate Power Failure**, **Start/Stop Runtime Calibration**, and **Test UPS Alarm** options, see **UPS Diagnostics Options on page 40**.

Action	Definition
Turn UPS On	Turns the UPS on.
Turn UPS Off	Turns the UPS off after the expiration of the <b>Shutdown Delay</b> described in the table in <b>Shutdown Parameters on page 45</b> .
Turn UPS Off Gracefully <sup>1</sup>	Causes the UPS to turn off after PowerChute <i>plus</i> has time to safely shut down the server's operating system.
Reboot UPS	Reboots the attached equipment by causing the UPS to immediately turn off and then back on again.
Reboot UPS Gracefully <sup>1</sup>	Reboots the attached equipment by causing the UPS to turn off and then back on again, after PowerChute <i>plus</i> has time to safely shut down the server's operating system.
Put UPS To Sleep	Turns the UPS immediately off for the period of time defined by the <b>Sleep Time</b> setting described in the table in <b>Shutdown Parameters on page 45</b> .
Put UPS To Sleep Gracefully <sup>1</sup>	Turns the UPS off for the period of time defined by the <b>Sleep Time</b> setting described in the table in <b>Shutdown Parameters on page 45</b> , after PowerChute <i>plus</i> has time to safely shut down the server's operating system.
Put UPS In/Take UPS Off Bypass	Controls the use of the bypass, an operational mode that allows maintenance to be performed at Matrix-UPS or Symmetra <i>Power Array</i> models without turning off the UPS.
Reset UPS To Defaults	Resets all UPS parameters to their default settings.
<sup>1</sup> For information about the <b>Low-Battery Shutdown</b> parameter that defines how much time PowerChute <i>plus</i> has available to safely shut down the server, see the table in <b>Shutdown Parameters on page 45</b> .	

# Device Manager Menus

## UPS Configuration Options

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### 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 Power Array) on page 44**
- **Shutdown Parameters on page 45**
- **General Settings on page 46**
- **Battery on page 39**

### Utility Line settings

The Smart-UPS and Matrix-UPS **Utility Line** settings differ from the Symmetra *Power Array* settings.

**Note:** No **Utility Line** settings are available for a Silcon DP300E series UPS.

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

*Continued on next page*

# Device Manager Menus

## UPS Configuration Options *continued*

### Utility Line settings, continued

**Symmetra Power Array.** The following table describes the Symmetra Power Array **Utility Line** settings.

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

### Alarm Thresholds (Symmetra Power Array)

The following table describes the Symmetra Power Array **Alarm Thresholds** settings.

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

*Continued on next page*

# Device Manager Menus

## UPS Configuration Options *continued*

### Shutdown Parameters

Symmetra *Power Array*, Smart-UPS, and Matrix-UPS use all five **Shutdown Parameter** settings. A Silcon DP300E series UPS only uses **Low-Battery Duration** and **Shutdown Delay**.

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

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

*Continued on next page*

# Device Manager Menus

## UPS Configuration Options *continued*

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### General Settings

Four **General Settings** are available for Smart-UPS. The first two settings (**UPS Name** and **Last Battery Replacement**) are available for all UPS models. The third setting (**Audible Alarm**) is also available for Matrix-UPS.

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

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

# Device Manager Menus

## Module Status Option (Symmetra Power Array)

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### Menu options

A **Module Status** option in the Web interface, and a **Module Diagnostics & Information** option in the Control Console, provide access to status, hardware, and diagnostics information about the Symmetra *Power Array* modules.

**Note:** The **Module Diagnostics & Information** option in the Control Console also provides raw data for each module. The raw data 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 Frames

For information about the module-related, Symmetra *Power Array* status events, see **Management Card and Device Events on page 61**.

# Device Manager Menus

## UPS PowerChute network shutdown Option

---

### Overview

A PowerChute option in the Web interface's UPS menu 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 Web/SNMP Management Card *utility* CD.

### Parameters

The following table describes the PowerChute network shutdown parameters.

Parameter	Definition
<b>Event Notification Port</b>	Identifies the port on which the PowerChute network shutdown clients will listen for asynchronous events. This value is not configurable in this version.
<b>Shutdown Behavior</b>	Defines how the UPS will be turned off after the PowerChute network shutdown clients finish shutting down their computer systems.
<b>Add Client IP</b>	Allow you to add up to 50 PowerChute network shutdown clients to the list of <b>Configured Client IP Addresses</b> . <b>Note:</b> A PowerChute network shutdown client is normally automatically added to the list when that client is installed on your network.
<b>Configured Client IP Addresses</b>	Allows you to view the list of PowerChute network shutdown clients, and, when appropriate, remove PowerChute network shutdown clients from the list. <b>Note:</b> A PowerChute network shutdown client is normally automatically removed from the list when that client is uninstalled.



# Device Manager Menus

## Environment Menu Options

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### 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 Monitoring SmartSlot Card. 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
<b>Temperature</b>	Identifies the temperature sensed by the probe.
<b>High or Low Temperature Violation</b>	Identifies whether or not the current temperature violates the probe's temperature threshold settings: <b>Yes</b> , <b>No</b> , or <b>Disabled</b> .
<b>Humidity</b>	Identifies whether the relative humidity sensed by the probe.
<b>High or Low Humidity Violation</b>	Identifies whether or not the current humidity violates the probe's humidity threshold settings: <b>Yes</b> , <b>No</b> , or <b>Disabled</b> .

### 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.

## Events Menu

### Introduction

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#### 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. You can also use an *evntlist.htm* page to affect individual events, as described in **How to Configure Individual Events on page 59**.

- 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 51**
- **Event Actions (Web Interface only) on page 53**
- **Event Recipients on page 55**
- **Email on page 56**

# Events Menu

## Event Log

---

### Overview

The Management Card supports an event logging capability for all UPS application firmware modules (*sumx300.bin*, *sy300.bin*, and *dp3e300.bin*.) This allows you to record and view UPS, Environmental Monitoring SmartSlot Card, 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 53**.

**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 a list of the UPS, Environmental Monitoring SmartSlot Card, and Management Card events, see **Management Card and Device Events on page 61**.

**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 SP=1 typically indicates that PowerChute *plus* or PowerNet Manager performed the shutdown; a graceful shutdown from SP=0 typically indicates that a management peripheral, such as PowerView or the Out-of-Band Management SmartSlot Card, initiated the shutdown.

### Web Interface

The **Log** option in the **Events** menu accesses the event log, which will display up to the last 300 recorded events, 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 the event log. The most recent events are displayed first. You use the SPACE BAR, as many times as necessary, to view up to the last 300 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*

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### FTP

You can use FTP to retrieve a text version (*event.txt*) of the event log.

- The *event.txt* file is Tab-delineated so that it can be easily imported into any spreadsheet application.
- It reports as many events as possible since the log was last deleted, which can be as many as 5000 recorded events.
- It includes information that does not show up in the Web interface and Control Console event log displays.
  - The version of the *event.txt* file format (first field).
  - The **Date** and **Time** the *event.txt* file was retrieved.
  - The **Name**, **Contact**, **Location**, and IP address of the Management Card.
  - The unique **Event Code** for every type of event.

**Note:** The Management Card always uses 4-digit year representation when logging and displaying event data. However, sometimes when importing the *event.txt* file into a spreadsheet, the spreadsheet will display the date fields as only 2-digit years. This can be fixed by selecting a different date format in the spreadsheet.

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

1. At a command prompt, type `ftp` and the IP address of the Management Card, and press ENTER.

```
ftp 159.215.12.114
```

2. Log in.

**Note:** Case-sensitive **User Name** and **Password** settings (**apc** is the default for both) protect FTP access. You use the **Network** menu (the **FTP option** in the Control Console or the **TFTP & FTP** option in Web interface) to change these settings.

3. Use the get command to transmit the text-version of the event log to your local drive.

```
ftp>get event.txt
```

4. You can use the delete command to clear all events from the log. You will not be asked to confirm the deletion, and a new *event.txt* file will be immediately created to record a Deleted Log event.

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

5. Use the quit command to exit from FTP.

```
ftp>quit
```

# Events Menu

## Event Actions (Web Interface only)

---

### Overview

The **Actions** option is available only in the Web interface's **Events** menu. It allows you to select whether the following actions are enabled or disabled for events with a specified severity level:

- **Events Log**
- **SNMP Traps**
- **Email**

**Note:** You can use an *evntlist.htm* page to change the severity level assigned to a specific event. For more information, see **How to Configure Individual Events on page 59**.

For information about the event log, see **Event Log on page 51**; for information about the UPS, Environmental Monitoring SmartSlot Card, and Management Card events, including information about what the default severity level is for each event, see **Management Card and Device Events on page 61**; for information about Email notifications, see **Email on page 56**.

### Severity levels

With the exception of some system (Management Card) events that do not have a severity level assigned, events are assigned a default severity level based on the type of action that is required when the event occurs.

- **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 Monitoring SmartSlot Card severe events warn of abnormal environmental conditions or possible security violations.

**Note:** For information about how you can use an *evntlist.htm* page to change the severity level assigned to a specific event, see **How to Configure Individual Events on page 59**.

*Continued on next page*

# Events Menu

## Event Actions (Web Interface only) *continued*

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### Event Log action

You can disable the recording of events in the event log. By default, all events are recorded.

**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.

### 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 55**.

### Email action

By default, the **Email** action is enabled for severe events only. 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 on page 56**.

# 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 53**.

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

### Email options

See **Email** on the next page.

# Events Menu

## Email

---

### 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 address of the Domain Name Service (DNS) server
- The DNS name of the SMTP server and the **From Address** settings for SMTP
- The Email addresses for up to a maximum of four recipients

**Note:** You can use the Email feature to page an Email recipient by sending Email to a recipient who uses a text-based pager gateway. For more information, see the **To Address** setting description in **Email Recipients on page 57**.

### DNS server

The Management Card cannot send any Email messages unless the DNS server is defined. The **TCP/IP & DNS** (Web interface) or **DNS** (Control Console) option in the **Network** menu accesses the setting that you use to identify the Domain Name Service (DNS) server by its IP address.

The Management Card will only wait a maximum of 5 seconds for a response from the DNS server. If the Management Card does not get a response within that time, Email cannot be sent. Therefore, use a DNS server that is on the same segment as the Management Card, or on a nearby segment (but not across a WAN).

Once you define the DNS server's IP address, 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
<b>SMTP Server</b>	Defines the SMTP server by its DNS name.
<b>From Address</b>	Defines the contents of the <b>From</b> field in the Email messages sent by the Management Card. <b>Note:</b> 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 *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:** Once you configure the settings for an Email recipient, you can use an **Email Test** option to send an Email message to the recipient. The **Email Test** option, which is only available in the Web interface, is located directly below the **Email Recipients** settings.

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, <b>myacct100@skytel.com</b> ). The pager gateway will generate the page. <b>Note:</b> Email can only send text messages. Therefore, the recipient's pager must be able to use text-based messaging.
Send via	Selects whether Email will be routed through the Management Card's SMTP server ( <b>Local SMTP Server</b> option) or sent directly to the recipient's SMTP server ( <b>Recipient's SMTP Server</b> option). When the recipient uses the Management Card's SMTP server, this setting has no effect. <b>Note:</b> The recommended selection is the <b>Local SMTP Server</b> option. For information about why this is recommended, and for issues to keep in mind when making this selection, see <b>Optimal Email Configuration Issues on page 58</b> .
Email Generation	Enables (by default) or disables the sending of Email to the defined recipient.

*Continued on next page*

# Events Menu

## Email *continued*

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### Email Recipients, continued

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

- The Management Card will attempt to make a connection with the selected server for up to 20 seconds. If the SMTP server does not respond within that 20 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 SNMP Server** option, the Management Card will only try to send the Email once.

When you select the **Local SNMP 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

---

### Overview

The **Actions** option in the Web interface's **Events** menu allows you to configure the actions to be taken by events based on the severity level assigned to each event. An event list (*evntlist.htm*) page allows you to configure the actions to be taken for an individual event.

**Note:** The I2C Configuration Utility on the APC Web/SNMP Management Card *utility* CD allows you to perform the same configuration as outlined in this section by editing a text-formatted configuration (INI) file and then converting that file to a binary-formatted configuration (CFG) file which you can send to multiple Management Cards over the network using the Web/SNMP Management Card Wizard. For more information on how to use the I2C utility, see the *Management Card Addendum*, which is also available on the APC Web/SNMP Management Card *utility* CD (*.\doc\Addendum.pdf*).

### Event list access

To access the event list, you need to add */evntlist.htm* to the Management Card's URL address value (IP address or DNS name). You cannot access the event list directly from the Web interface menus.

- For an IP address of 159.215.12.114, and the default TCP port of 80, the URL would be as follows:  
*http://159.215.12.114/evntlist.htm*
- For an IP address of 159.215.12.114, and a TCP port other than 80 (in this example, 5000), the URL would be as follows:  
*http://159.215.12.114:5000/evntlist.htm*
- For DNS name of *usered*, the URL would be as follows:  
*http://usered/evntlist.htm*

### Event list format

The *evntlist.htm* page uses the following columns to identify the events:

- **Code:** Identifies each event's unique Event Code.
- **Description:** Identifies the text used for each event.
- **Severity:** Identifies each event's default severity level.
- **Configuration:** Identifies the hexadecimal code that defines the actions that will occur for each event, and provides a link to the event mask you can use to configure that event.

# Events Menu

## How to Configure Individual Events *continued*

### Event mask

Use the codes identified in the following table to configure an event. For example, to configure the UPS on battery event, as follows:

- To configure it as a severe event, change the 1st character to 3.
- To log the event, and send traps to trap receivers 1 and 2, change the 2nd character to B.
- To send no traps to receivers 3 and 4, and to only send Email to Email recipient 3, change the 3rd character to 0 and the 4th character to 8.

**Note:** The result would be a code of 3B0800.

Character	Event Mask Code Format
<b>1st (Left-Most)</b>	Defines the severity code for the event. 0 (0000): No severity 1 (0001): Informational 2 (0010): Warning 3 (0011): Severe
<b>2nd</b>	Defines whether or not the event will be logged, as well as whether or not SNMP traps are sent to trap receivers 1 and 2. 0 (0000): Disable logging and SNMP traps 1 (0001): Disable logging, send traps to receiver 2 2 (0010): Disable logging, send traps to receiver 1 3 (0011): Disable logging, send traps to both receivers 8 (1000): Enable logging, disable SNMP traps 9 (1001): Enable logging, send traps to receiver 2 A (1010): Enable logging, send traps to receiver 1 B (1011): Enable logging, send traps to both receivers
<b>3rd</b>	Controls the sending of SNMP traps to trap receivers 3 and 4, and Email notifications to Email recipients 1 and 2. 0 (0000): Disable traps and Email 1 (0001): Disable traps, send Email to recipient 2 2 (0010): Disable traps, send Email to recipient 1 3 (0011): Disable traps, send Email to both recipients 4 (0100): Send traps to receiver 1, disable Email 5 (0101): Send traps to receiver 1, Email to recipient 2 6 (0110): Send traps to receiver 1, Email to recipient 1 7 (0111): Send traps to receiver 1, Email to both recipients 8 (1000): Send traps to receiver 2, disable Email 9 (1001): Send traps to receiver 2, Email to recipient 2 A (1010): Send traps to receiver 2, Email to recipient 1 B (1011): Send traps to receiver 2, Email to both recipients C (1100): Send traps to both receivers, disable Email D (1101): Send traps to both receivers, Email to recipient 2 E (1110): Send traps to both receivers, Email to recipient 1 F (1111): Send traps to both receivers, Email to both recipients
<b>4th</b>	Defines whether or not the event will send Email notifications to Email recipients 3 and 4. 0 (0000): Disable Email 4 (0100): Send Email to recipient 4 8 (1000): Send Email to recipient 3 C (1100): Send Email to both recipients
<b>5th and 6th</b>	Reserved for future use. Always map as 00.

# Events Menu

## Management Card and Device Events

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### Overview

The Management Card, UPS, and Environmental Monitoring SmartSlot Card all generate event codes when certain activities occur. Each event has a unique code and is classified with a default severity level that indicates the seriousness of the event.

**Note:** For information about severity levels and how an event's severity level defines the actions associated with that event, see **Event Actions (Web Interface only) on page 53**.

### Management Card events

The following table identifies the Management Card events (labeled as System events in the table's descriptions).

**Note:** The Management Card has events that are classified as having no severity level. You cannot configure any action to occur for events that have no severity level assigned.

Event Code	Default Severity	Description
0x0001	Severe	System: Coldstart. (The Management Card was turned on.)
0x0002	Severe	System: Warmstart. (The Management Card was reset while it was turned on.)
0x0003	Warning	System: SNMP configuration change.
0x0004	Informational	System: Detected an unauthorized user attempting to access the SNMP interface.
0x0005	Warning	System: Detected an unauthorized user attempting to access the Control Console interface.
0x0006	Warning	System: Detected an unauthorized user attempting to access the Web interface.
0x0008	Warning	System: Password changed.
0x000C	No severity	System: File transfer started. (FTP)
0x000D	No severity	System: File transfer started. (TFTP)
0x000F	No severity	System: File transfer failed.
0x0014	No severity	System: Control Console User logged in.
0x0015	No severity	System: Web User logged in.
0x0016	No severity	System: FTP User logged in.
0x0018	No severity	System: Reset to Defaults.
0x0019	No severity	System: Initializing data.

# Events Menu

## Event Log *continued*

### UPS events

The following table identifies the all of the possible UPS events. However, not all of the events are generated by all UPS models.

Event Code	Default Severity	Description
0x0101	Informational	UPS: Communications established.
0x0102	Severe	UPS: Communications lost.
0x0103	Severe	UPS: Sensed a load greater than 100 percent of rated capacity.
0x0104	Informational	UPS: Overload condition cleared.
0x0105	Informational	UPS: Passed internal self-test.
0x0106	Severe	UPS: Failed internal diagnostic self-test.
0x0107	Severe	UPS: Batteries discharged.
0x0108	Informational	UPS: Battery discharge condition cleared.
0x0109	Warning	UPS: Switched to battery backup power; utility power failure.
0x010A	Informational	UPS: Returned from battery backup power; utility power restored.
0x010B	Warning	UPS: Enabled SmartBoost; low incoming line voltage.
0x010C	Informational	UPS: Returned from SmartBoost.
0x010D	Warning	UPS: Enabled SmartTrim; high incoming line voltage.
0x010E	Informational	UPS: Returned from SmartTrim.
0x010F	Severe	UPS: Battery power is low and will soon be exhausted.
0x0110	Informational	UPS: Returned from a Low-Battery condition.
0x0113	Informational	UPS: Turned on.
0x0114	Warning	UPS: Turned off.
0x0115	Warning	UPS: Entered sleep mode.
0x0116	Informational	UPS: Returned from sleep mode.
0x0117	Warning	UPS: Started reboot sequence.
0x0119	Severe	UPS: Batteries need immediate replacement.
0x011A	Informational	UPS: Bad battery condition cleared.
0x011B	Severe	UPS: In bypass due to an internal fault.
0x011C	Warning	UPS: In bypass due to user command via software or panel.
0x011D	Warning	UPS: In bypass initiated by user. (The bypass switch at the UPS was used.)
0x011E	Informational	UPS: Returned from bypass.
0x011F	Severe	UPS: Base module bypass power supply failure.

*Continued on next page*

# Events Menu

## Event Log *continued*

### UPS events, continued

Event Code	Default Severity	Description
0x0120	Severe	UPS: Base module fan failure.
0x0121	Informational	UPS: External battery pack communications established.
0x0122	Severe	UPS: External battery pack communications lost.
0x0123	Informational	UPS: Battery calibration test initiated.
0x0124	Informational	UPS: Battery calibration complete.
0x0125	Informational	UPS: Graceful shutdown initiated.
0x0126	Warning	UPS: SmartBoost or SmartTrim relay failure.
0x0127	Informational	UPS: SmartBoost or SmartTrim relay failure cleared.
0x0128	Warning	UPS: Bad output voltage condition.
0x0129	Informational	UPS: Bad output voltage condition cleared.
0x012A	Warning	UPS: Battery charger failure.
0x012B	Informational	UPS: Battery charger failure cleared.
0x012C	Warning	UPS: Internal battery temperature threshold violation.
0x012D	Informational	UPS: Internal battery temperature threshold violation cleared.
0x012F	Warning	UPS: No batteries installed.
0x0130	Informational	UPS: No batteries installed cleared.
0x0201	Severe	UPS: Power Module failure.
0x0202	Informational	UPS: Power Module failure cleared.
0x0203	Severe	UPS: Intelligence Module failure.
0x0204	Informational	UPS: Intelligence Module failure cleared.
0x0205	Severe	UPS: Redundant Intelligence Module failure.
0x0206	Informational	UPS: Redundant Intelligence Module failure cleared.
0x0207	Severe	UPS: Battery failure.
0x0208	Informational	UPS: Battery failure cleared.
0x0209	Severe	UPS: Load(kVA) alarm threshold violation.
0x020A	Informational	UPS: Load(kVA) alarm threshold violation cleared.
0x020B	Severe	UPS: Redundancy lost.
0x020C	Informational	UPS: Redundancy returned.
0x020D	Severe	UPS: Redundancy below alarm threshold.
0x020E	Informational	UPS: Redundancy below alarm threshold cleared.

*Continued on next page*

# Events Menu

## Event Log *continued*

### UPS events, continued

Event Code	Default Severity	Description
0x020F	Severe	UPS: bypass not in range; either frequency or voltage.
0x0210	Informational	UPS: bypass not in range cleared; either frequency or voltage.
0x0211	Severe	UPS: Bypass contactor stuck in bypass position.
0x0212	Informational	UPS: Bypass contactor stuck in bypass position cleared.
0x0213	Severe	UPS: Bypass contactor stuck in on-line position.
0x0214	Informational	UPS: Bypass contactor stuck in on-line position cleared.
0x0215	Severe	UPS: In bypass due to an internal fault.
0x0216	Informational	UPS: In bypass due to an internal fault cleared.
0x0217	Severe	UPS: In bypass due to an overload.
0x0218	Informational	UPS: In bypass due to an overload cleared.
0x0219	Severe	UPS: In maintenance bypass.
0x021A	Informational	UPS: In maintenance bypass cleared.
0x021B	Severe	UPS: Input circuit breaker tripped open.
0x021C	Informational	UPS: Input circuit breaker tripped open cleared.
0x021D	Severe	UPS: System level fan failure.
0x021E	Informational	UPS: System level fan failure cleared.
0x021F	Severe	UPS: Redundant Intelligence Module in control.
0x0220	Informational	UPS: Redundant Intelligence Module in control cleared.
0x0221	Severe	UPS: IIC inter-module communications failure.
0x0222	Informational	UPS: IIC inter-module communications failure cleared.
0x0223	Severe	UPS: No working Power Modules.
0x0224	Informational	UPS: No working Power Modules cleared.
0x0225	Severe	UPS: Load shutdown from bypass; input frequency or voltage outside limits.
0x0226	Informational	UPS: Load shutdown from bypass cleared; input frequency or voltage outside limits.
0x0227	Severe	UPS: Runtime below alarm threshold.
0x0228	Informational	UPS: Runtime below alarm threshold cleared.
0x0229	Severe	UPS: Extended Run Frame fault.
0x022A	Informational	UPS: Extended Run Frame fault cleared.
0x022B	Severe	UPS: Output voltage out of range.

*Continued on next page*



# Events Menu

## Event Log *continued*

### UPS events, continued

Event Code	Default Severity	Description
0x022C	Informational	UPS: Output voltage out of range cleared.
0x022D	Severe	UPS: Not synchronized fault.
0x022E	Informational	UPS: Not synchronized fault cleared.
0x022F	Severe	UPS: No batteries installed.
0x0230	Informational	UPS: No batteries installed cleared.
0x0231	Severe	UPS: Battery voltage high.
0x0232	Informational	UPS: Battery voltage high cleared.
0x0233	Severe	UPS: Non-specific fault; Access UPS keyboard for details.
0x0234	Informational	UPS: Non-specific fault cleared.
0x0235	Severe	UPS: Site wiring fault.
0x0236	Informational	UPS: Site wiring fault cleared.
0x0237	Severe	UPS: Backfeed protection relay open.
0x0238	Informational	UPS: Backfeed protection relay open cleared.
0x0239	Severe	UPS: Bit 28 of the abnormal condition register set.
0x023A	Informational	UPS: Bit 28 of the abnormal condition register cleared.
0x023B	Severe	UPS: Bit 29 of the abnormal condition register set.
0x023C	Informational	UPS: Bit 29 of the abnormal condition register cleared.
0x023D	Severe	UPS: Bit 30 of the abnormal condition register set.
0x023E	Informational	UPS: Bit 30 of the abnormal condition register cleared.
0x023F	Severe	UPS: Bit 31 of the abnormal condition register set.
0x0240	Informational	UPS: Bit 31 of the abnormal condition register cleared.
0x0241	Informational	UPS: Number of batteries increased.
0x0242	Informational	UPS: Number of batteries decreased.
0x0243	Informational	UPS: Number of Power Modules increased.
0x0244	Informational	UPS: Number of Power Modules decreased.
0x0245	Informational	UPS: Intelligence Module inserted.
0x0246	Informational	UPS: Intelligence Module removed.
0x0247	Informational	UPS: Redundant Intelligence Module inserted.
0x0248	Informational	UPS: Redundant Intelligence Module removed.
0x0249	Informational	UPS: Number of Extended Run Frames increased.
0x024A	Informational	UPS: Number of Extended Run Frames decreased.

# Events Menu

## Event Log *continued*

### Environmental Monitoring SmartSlot Card events

The following table identifies the Environmental Monitoring SmartSlot Card events.

Event Code	Default Severity	Description
0x0301	Severe	Environment: Contact fault. (Contact 1)
0x0302	Informational	Environment: Contact fault cleared. (Contact 1)
0x0303	Severe	Environment: Contact fault. (Contact 2)
0x0304	Informational	Environment: Contact fault cleared. (Contact 2)
0x0305	Severe	Environment: Contact fault. (Contact 3)
0x0306	Informational	Environment: Contact fault cleared. (Contact 3)
0x0307	Severe	Environment: Contact fault. (Contact 4)
0x0308	Informational	Environment: Contact fault cleared. (Contact 4)
0x0309	Severe	Environment: Temperature threshold violation on probe 1. (Low)
0x030A	Informational	Environment: Temperature threshold violation on probe 1 cleared. (Low)
0x030B	Severe	Environment: Temperature threshold violation on probe 1. (High)
0x030C	Informational	Environment: Temperature threshold violation on probe 1 cleared. (High)
0x030D	Severe	Environment: Humidity threshold violation on probe 1. (Low)
0x030E	Informational	Environment: Humidity threshold violation on probe 1 cleared. (Low)
0x030F	Severe	Environment: Humidity threshold violation on probe 1. (High)
0x0310	Informational	Environment: High humidity threshold violation on probe 1 cleared. (High)
0x0311	Severe	Environment: Temperature threshold violation on probe 2. (Low)
0x0312	Informational	Environment: Temperature threshold violation on probe 2 cleared. (Low)
0x0313	Severe	Environment: Temperature threshold violation on probe 2. (High)
0x0314	Informational	Environment: Temperature threshold violation on probe 2 cleared. (High)
0x0315	Severe	Environment: Humidity threshold violation on probe 2. (Low)
0x0316	Informational	Environment: Humidity threshold violation on probe 2 cleared. (Low)
0x0317	Severe	Environment: Humidity threshold violation on probe 2. (High)
0x0318	Informational	Environment: Humidity threshold violation on probe 2 cleared. (High)
0x0319	Informational	Environment: Communications established.
0x031A	Severe	Environment: Communications lost.

## Security

### Introduction

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#### 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 28**.

*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"><li>• User name and password</li></ul>	Always enabled.
Control Console (Telnet access)	<ul style="list-style-type: none"><li>• User name and password</li><li>• Selectable server port</li><li>• Server Enable/Disable</li></ul>	The user name and password are transmitted in plain text.
SNMP	<ul style="list-style-type: none"><li>• Community Name</li><li>• NMS IP filters</li><li>• SNMP Enable/Disable</li><li>• Four access communities with read/write/disable</li></ul>	<p>The NMS IP filters allow access from designated IP addresses.</p> <ul style="list-style-type: none"><li>• 159.215.12.1 allows only the NMS with that IP address to have access.</li><li>• 159.215.12.255 allows access for any NMS on the 159.215.12 segment.</li><li>• 159.215.255.255 allows access for any NMS on the 159.215 segment.</li><li>• 159.255.255.255 allows access for any NMS on the 159 segment.</li><li>• 0.0.0.0 or 255.255.255.255 allows access for any NMS.</li></ul>
FTP Server	<ul style="list-style-type: none"><li>• User name and password</li><li>• Selectable server port</li><li>• Server Enable/Disable</li></ul>	Allows access to an Administrator only.
Web Interface	<ul style="list-style-type: none"><li>• User name and password</li><li>• Selectable server port</li><li>• Server Enable/Disable</li><li>• MD5 Authentication option</li></ul>	<p>In basic HTTP authentication mode, the user name and password are transmitted as base-64 encoded (no encryption) text. The MD5 Authentication mode uses a user name and a 15-to-32 character password phrase. For more information, see <b>MD5 Authentication on page 69</b>.</p>

# Security

## MD5 Authentication

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### Authentication versus Encryption

The Management Card does not currently use any type of encryption. This means that all the data and communication between the Management Card and any of the client interfaces, such as Telnet and the Web server, is readable by capturing the network traffic going to and from the Management Card. For almost all applications this should not be a problem since sensitive data is not being transferred. The Management Card does provide basic authentication via user names and passwords to control access as well as IP address verification. While these basic access modes are sufficient for most environments, the Management Card can also provide a greater level of security by enabling MD5 authentication for the Web interface.

### Authentication scheme

The Web interface option for MD5 authentication enables a higher level of access security than provided by the basic http authentication scheme. The MD5 scheme is very similar to the CHAP and PAP remote access protocols. When enabled, the Web server will request a user name and a password phrase (distinct from the passwords). As opposed to the basic scheme, the user name and password phrase are not transmitted over the network. The small Java login applet combines the user name, password phrase and a session-unique challenge number and calculates an MD5 hash number. This number is then returned to the server so that it can verify that the user has the correct login information. By passing back only the hash number, the login information is not revealed. In addition to the login authentication, each HTTP form submission form for configuration or control operations is also authenticated with a unique challenge and hash response. The scheme does not involve any encryption, so pages are transmitted in their plain-text form. In addition, after the authentication login, subsequent page access is restricted by IP address and a hidden session cookie. Since the MD5 authentication scheme is available only for the Web interface, it is important to disable the less secure interfaces including Telnet, FTP and SNMP. For SNMP, it is possible to disable write access only so that read and trap facilities are still available.

### Firewalls

The MD5 authentication scheme provides a much higher level of security than the plain-text type access methods. Sophisticated attacks are, however, almost impossible to prevent. Well-configured firewalls are an essential element in an overall security scheme.

## 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 71**, review the troubleshooting flowcharts on the APC Web/SNMP Management Card *utility* CD (.trouble\). If you still cannot resolve the problem, see **If Problems Persist on page 73**.

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"><li>• Verify that the Management Card is properly seated in the UPS or expansion chassis.</li><li>• Verify all network connections.</li><li>• Verify IP addresses of the Management Card and the NMS, and make sure both are on the same network or subnetwork.</li><li>• Verify the default gateway (or router) IP address if the NMS is on a different physical network (or subnetwork) from the Management Card.</li><li>• Verify the number of subnet bits for the Management Card's subnet mask.</li></ul>
PowerChute <i>plus</i> reports a constantly or frequently reports "Unable to Communicate with UPS"	See <b>How to Correct Communication Lost Problems on page 72</b> .
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"><li>• Verify that HTTP access is enabled.</li><li>• Verify that you can ping the adapter.</li><li>• Verify that you are using either Internet Explorer 3.0 or above, or Netscape 3.0 or above.</li></ul>

# 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"><li>• Verify the read (GET) community name.</li><li>• Use the Control Console or Web interface to ensure that the NMS has access. See <b>SNMP on page 29</b>.</li></ul>
Unable to perform a SET	<ul style="list-style-type: none"><li>• Verify the read/write (SET) community name.</li><li>• Use the Control Console or Web interface to ensure that the NMS has write (SET) access. See <b>SNMP on page 29</b>.</li></ul>
Unable to receive traps at the NMS	Query the <b>mconfigTrapReceiverTable</b> 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 <b>mconfigTrapReceiverTable</b> OIDs, or use the Control Console or Web interface to correct the trap receiver definition problem. See <b>SNMP on page 29</b> .
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

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### 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 Worldwide Technical Support on page 74** for information about how to contact APC for technical support.
6. If problem cleared, reinstall the Management Card. If the problem returns, see **APC Worldwide Technical Support on page 74** 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 Worldwide Technical Support on page 74** 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 Worldwide Technical Support on page 74** for information about how to contact APC for technical support.



# Troubleshooting

## If Problems Persist

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If you could not resolve the problem using the information in the previous tables, or by using the troubleshooting flowcharts on the APC Web/SNMP 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 Worldwide Technical Support on page 74** 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 Worldwide Technical Support

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APC provides technical support, for this or any other APC product, at no charge. This support is available by telephone, e-mail, or through the APC web pages.

You can contact APC Technical Support in any of the following ways:

- Use an APC web page.
  - <http://www.apcc.com> (Corporate Headquarters)  
Connect by links to APC web pages for specific countries and regions, each of which provides technical support information.
  - <http://www.apcc.com/support/>  
Submit technical support requests.
- Contact the APC representative or other distributor from whom you purchased your UPS or APC software application for information on how to obtain local technical support.
- Contact a local or regional APC Technical Support Center by telephone or e-mail.
  - For e-mail addresses and local, country-specific, technical support telephone numbers worldwide, go to <http://www.apcc.com/support/contact>.
  - For e-mail addresses and technical support telephone numbers of major APC regional technical support centers, use the following list:

APC Headquarters (U.S. & Canada)	1-800 800-4272 (toll free)
Latin America	+401-789-5735 (United States) apctchla@apcc.com
Europe, Middle East, Africa	+353 91 702020 (Ireland) apceurtech@apcc.com
Japan	03 5434 2021 jsupport@apcc.com

## Product Information

### Warranty Information

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#### Limited warranty

American Power Conversion (APC) warrants the Web/SNMP Management SmartSlot 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 73**.

#### 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

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### 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

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### Electrical

The following table identifies the electrical specifications.

Item	Specification
<b>Electrical</b>	
Acceptable input voltage:	18-30 VDC
Maximum total current draw:	110 mA

### Physical

The following table identifies the physical specifications.

<b>Physical</b>	
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.

<b>Environmental</b>	
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.

<b>Approvals</b>	
National and International:	FCC, Part 15, Class A EN 55 022 (CISPR 22), Class A VCCI Class 1 IEC 1000-4-2, 3, 4 CE C-Tick

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