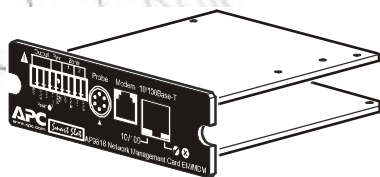




Installation and Quick-Start

Network Management Card

AP9617
AP9618
AP9619





This manual is available in English on the enclosed CD.

Dieses Handbuch ist in Deutsch auf der beiliegenden CD-ROM verfügbar.

Este manual está disponible en español en el CD-ROM adjunto.

Ce manuel est disponible en français sur le CD-ROM ci-inclus.

Questo manuale è disponibile in italiano nel CD-ROM allegato.

本マニュアルの日本語版は同梱の CD-ROM からご覧になれます。

O manual em Português está disponível no CD-ROM em anexo.

Contents

- How to Avoid Equipment Damage 1**
 - Disconnect power for Smart-UPS or expansion chassis . . 1
 - Use bypass mode for Matrix-UPS 2
- Preliminary Information 3**
 - Features 3
 - AP9618 features 3
 - AP9619 features 3
 - Upgrade kits (AP9618U and AP9619U) 4
 - Integrated Environmental Monitor (AP9618 and AP9619) 4
 - Internal analog modem (AP9618) 4
 - Related documents 4
 - Inventory 5
 - Disclaimer 5
- Installation in a UPS 6**
 - How to install the card for different UPS models 6
 - Step 1: Turn power off (Smart-UPS) or use bypass
(Matrix-UPS) 6
 - Step 2: Install the Network Management Card 7
 - Step 3: Restore Power to the card slot 8
 - Step 4: Configure the Management Card 8
- Expansion/Triple Chassis Installation 9**
 - When to use an Expansion Chassis 9
 - When to use the AC adapter (AP9505) 9
 - Step 1: Disconnect the chassis from all power 9
 - Step 2: Install the Network Management Card 10

Quick Configuration	11
Overview	11
TCP/IP configuration methods	11
APC Device IP Configuration Wizard	12
.ini file utility	12
BOOTP & DHCP configuration	12
Local access to the control console	15
Remote access to the control console	15
Control console	16
How to Recover from a Lost Password	17
How to Access a Configured Network Management Card	18
Overview	18
Web interface	18
Telnet/SSH	19
Simple Network Management Protocol (SNMP)	20
FTP and SCP	20
Analog modem (AP9618)	20
Managing the security of your system	20
Specifications	21
Warranty and Service	23
Limited warranty	23
Warranty limitations	23
Obtaining service	23
Life Support Policy	25
General policy	25

How to Avoid Equipment Damage

Disconnect power for Smart-UPS or expansion chassis

You do not need to turn off a Matrix-UPS[®], Symmetra[®] UPS, Silcon[®] UPS, or AIS 5000 UPS to install the Management Card. For a Matrix-UPS, however, you **must** put the UPS in maintenance bypass mode before you remove or install a Management Card.

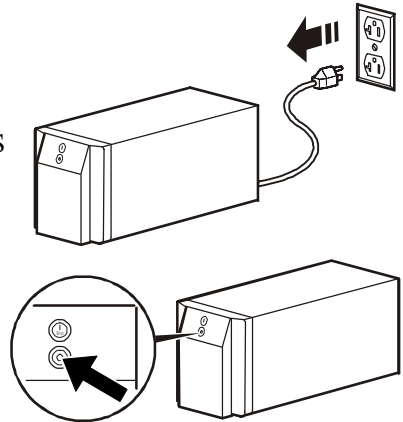


Caution

Damage to the UPS or Network Management Card can result if you do not remove all AC and DC power from a Smart-UPS[®], an Expansion Chassis, or a Triple Expansion Chassis before you install the Management Card.

Smart-UPS

1. Turn off the equipment that is connected to the UPS.
2. Disconnect the UPS from its AC (input power) source.
3. Press the OFF button on the UPS for approximately five seconds to turn off the DC (battery) power.

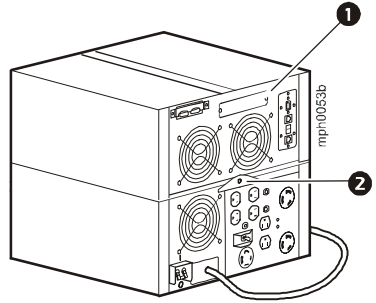


Expansion chassis. Make sure that any Expansion Chassis or Triple Expansion Chassis is disconnected from all power: disconnect the chassis cable from the UPS and, if the AC-to-DC Adapter (AP9505) option is used, disconnect the adapter from the chassis.

Use bypass mode for Matrix-UPS

Matrix-UPS. Before you install the Management Card, put the UPS into bypass mode to continue to provide power to the load:

1. Loosen the thumbscrew **2** at the center of the back of the UPS to remove power from the electronics unit, which contains the slot **1** for the Management Card. The



isolation unit (the part of the UPS below the thumbscrew) continues to provide power to the load.

2. Install the Management Card.



For instructions, see “Installation in a UPS” on page 6.

3. To restore power to the Electronics Unit, taking the UPS out of bypass mode:
 - a. At the back of the UPS, tighten the thumbscrew **2**.
 - b. At the front of the UPS, press any one of the three buttons below the LCD on the Electronics Unit. Then respond to the prompt to take the UPS out of bypass mode.

Preliminary Information

Features

All Network Management Cards have standard features that do the following:

- Detect 10/100 Mbps connection speeds
- Provide a data log accessible by File Transfer Protocol (FTP), Secure CoPy (SCP), or a Web browser
- Provide UPS scheduling features
- Provide an event log that is accessible by Telnet, FTP, SCP, or a Web browser
- Generate system log (Syslog) messages
- Enable you to configure a BOOTstrap Protocol (BOOTP) or Dynamic Host Configuration Protocol (DHCP) server to provide the TCP/IP values a Network Management Card needs for network communication
- Generate e-mail notifications for UPS or system events
- Limit SNMP traps, e-mail notification, and event logging based on severity and categories of events
- Enable you to configure multiple Management Cards simultaneously over the network
- Provide support for APC Silcon UPS models
- Provide support for APC AIS 5000 UPS models
- Provide UPS-specific application modules based on the Management Card's hardware platform
- Provide enhanced security by supporting Secure Sockets Layer (SSL) and Secure CoPy (SCP)

AP9618 features

The AP9618 Network Management Card *EM/MDM* includes the analog modem and Integrated Environmental Monitor features described in “Integrated Environmental Monitor (AP9618 and AP9619)” on page 4.

AP9619 features

The AP9619 Network Management Card *EM* includes the Integrated Environmental Monitor features described in “Integrated Environmental Monitor (AP9618 and AP9619)” on page 4; the AP9619 does not include the analog modem feature.

**Upgrade kits
(AP9618U and
AP9619U)**

You can use an AP9618U kit to convert an AP9617 Network Management Card *EX* or an AP9619 Network Management Card *EM* into an AP9618 Network Management Card *EM/MDM*.

You can use an AP9619U kit to convert an AP9617 Network Management Card *EX* into an AP9619 Network Management Card *EM*.

**Integrated
Environmental
Monitor (AP9618
and AP9619)**

The AP9618 and AP9619 Management Cards include an Integrated Environmental Monitor that provides the following features:

- A temperature sensor
- Two input contacts
- Two-position output relay

Additionally, you can purchase a temperature/humidity sensor (AP9512THBLK) from APC.

In addition to the Integrated Environmental Monitor, an AP9618 or AP9619 Management Card can also monitor and manage an Environmental Monitoring Card.

**Internal analog
modem
(AP9618)**

An AP9618 Network Management Card *EM/MDM* has an internal analog modem that provides for the following out-of-band communication:

- Dial-out notifications for APC Remote Monitoring Service (RMS)
- Dial-in access to the Management Card's Console Interface

**Related
documents**

The APC Network Management Card *Utility* CD contains the following documentation:

- *Network Management Card User's Guide*
- *Network Management Card Upgrade Utilities*
- *Security Handbook*
- *PowerNet[®] Management Information Base (MIB) Reference Guide*

Inventory

The Management Card package includes the following items:

- This *Installation and Quick Start Manual*
- Network Management Card
- APC Network Management Card *Utility* CD
- Smart-signaling cable (940-0024)
- *Installation of Multiple Management Cards* booklet
- Declaration of Conformity
- Warranty registration form
- Network Management Card quality assurance test slip



Save the quality assurance test slip. The slip contains the MAC address that you may need when performing the procedures in “TCP/IP configuration methods” on page 11.

Disclaimer

American Power Conversion is not responsible for damage sustained during reshipment of this product.



The Network Management Card is sensitive to static electricity. When handling the Management Card, touch only the end plate while using one or more of these electrostatic-discharge devices (ESDs): wrist straps, heel straps, toe straps, or conductive shoes.

Please recycle



The shipping materials are recyclable. Save them for later use, or dispose of them appropriately.

APC management products, including the Network Management Card, contain removable, lithium coin-cell batteries. When discarding these batteries, you must follow local rules for recycling.

Installation in a UPS

How to install the card for different UPS models

You can install the Management Card in a card slot in a Smart-UPS, Matrix-UPS, Symmetra UPS, or AIS 5000 UPS. For a Silcon UPS, install the Management Card in a Silcon Triple Chassis Protocol Converter (AP9604S).

- In a Symmetra UPS that uses more than one APC management product, you **must** install the APC management products in the correct order for them to operate properly.



See also

See *Installation of Multiple Management Cards*, a copy of which came with the Management Card.

- You do not need to turn power off for a Symmetra UPS or Matrix-UPS. For a Matrix-UPS, however, you **must** put the UPS in maintenance bypass mode before you remove or install a Management Card.

Step 1: Turn power off (Smart-UPS) or use bypass (Matrix-UPS)

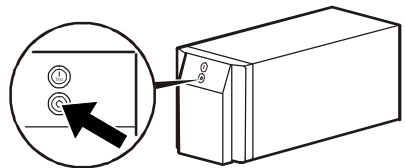
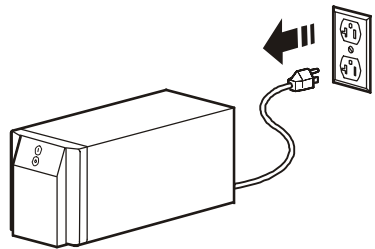
Smart-UPS



Caution

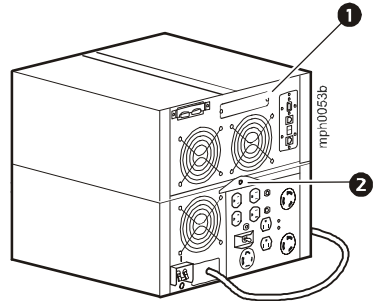
Damage to the UPS or Management Card can result if you do not remove all AC and DC power from a Smart-UPS.

1. Turn off the equipment that is connected to the UPS.
2. Disconnect the UPS from its AC (input power) source.
3. Press the OFF button on the UPS for approximately five seconds to turn off the DC (battery) power.



Matrix-UPS. Before you install the Management Card, put the UPS into bypass mode to continue to provide power to the load:

1. Loosen the thumbscrew **2** at the center of the back of the UPS to remove power from the electronics unit, which contains the slot **1** for the Management



Card. The isolation unit (the part of the UPS below the thumbscrew) continues to provide power to the load.

2. Install the Management Card.



For instructions, see “Installation in a UPS” on page 6

3. To restore power to the Electronics Unit, taking the UPS out of bypass mode:
 - a. At the back of the UPS, tighten the thumbscrew **2**.
 - b. At the front of the UPS, press any one of the three buttons below the LCD on the Electronics Unit. Then respond to the prompt to take the UPS out of bypass mode.

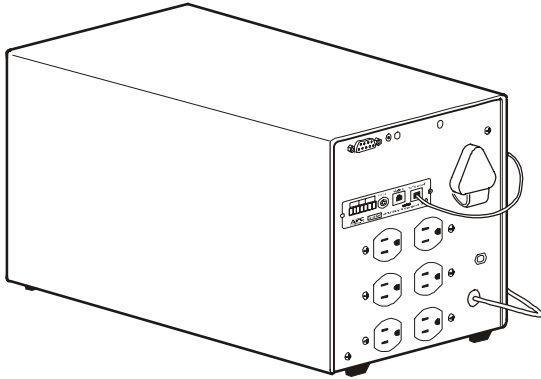
Step 2: Install the Network Management Card



The Network Management Card is sensitive to static electricity. When handling the Management Card, touch only the end plate while using one or more of these electrostatic-discharge devices (ESDs): wrist straps, heel straps, toe straps, or conductive shoes.

1. Use the same screws that hold the slot cover in place to secure the Management Card in the UPS card slot.

2. Connect a network interface cable to the 10/100Base-T network connector on the Management Card.



Step 3: Restore power to the card slot

Restore power to the card slot to energize the Network Management Card:

- For a Smart-UPS model, reconnect the UPS to its input power source, and then turn on the UPS.
- For a Matrix-UPS model, tighten the thumbscrew at the center of the back of the UPS to restore power to the Electronics Unit, which contains the card slot.

**Step 4:
Configure the Management Card**



See “Quick Configuration” on page 11.

Expansion/Triple Chassis Installation

When to use an Expansion Chassis

Use an Expansion Chassis or a Triple Expansion Chassis if the UPS has no card slot available.



Note

Use only a Silcon Triple Chassis Protocol Converter (AP9604S) with a Silcon UPS or an AIS 5000 UPS.

When you install the Management Card in the chassis, it communicates with the UPS through the cable connection between the chassis and the UPS.

When to use the AC adapter (AP9505)

Use the optional AC adapter with a chassis under the following circumstances:

- To connect the chassis to an independent AC input so that the Management Card can continue to operate if the UPS is turned off or fails.
- To provide the APC management products mounted in a Triple Expansion Chassis with more current than the UPS can provide through the UPS-to-chassis cable.
 - A Silcon UPS provides up to 500 mA.
 - A Matrix-UPS, Smart-UPS, or Symmetra UPS provide up to 200 mA.



See also

For information about the current requirements for APC management products, see *Installing Multiple Management Cards*, which came with your Management Card.

Step 1: Disconnect the chassis from all power

Make sure that the chassis is disconnected from any power source:

- Disconnect the chassis cable from the UPS.
- If the UPS uses an AC adapter, disconnect that adapter from the chassis.

Step 2: Install the Network Management Card

If the UPS uses multiple APC management products, you must install them in the correct order for them to operate properly.



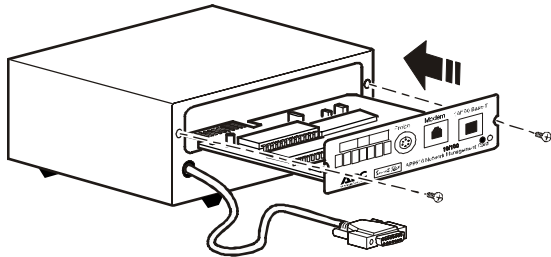
See *Installation of Multiple Management Cards*, which came with the Management Card.

See also



The Network Management Card is sensitive to static electricity. When handling the Management Card, touch only the end plate while using one or more of these electrostatic-discharge devices (ESDs): wrist straps, heel straps, toe straps, or conductive shoes.

1. If a cable is connected to the serial port at the UPS or chassis, stop the APC service that uses that serial connection, and disconnect the cable.
2. If you are installing a chassis, connect the chassis to the UPS serial port.
3. Use the same screws that hold the expansion slot cover in place to secure the Management Card in the chassis slot.



4. Connect a network interface cable to the Management Card's 10/100Base-T network connector.
5. If you are using the AC Adapter (AP9505), connect the adapter to the chassis. Then connect the adapter to an independent AC input so that the Management Card can continue to operate if the UPS is turned off or fails.
6. If you disconnected a cable in step 1, reconnect that cable to the serial port at the chassis, and restart the associated APC service.
7. See "Quick Configuration" on page 11.

Quick Configuration

Overview

You must configure the following TCP/IP settings before the APC Network Management Card can operate on a network:

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



Note

If a default gateway is unavailable, use the IP address of a computer that is located on the same subnet as the Management Card and that is usually running. The Management Card uses the default gateway to test the network when traffic is very light.



Caution

Do not use the loopback address (127.0.0.1) as the default gateway address for the Management Card. It disables the card and requires you to reset TCP/IP settings to their defaults using a local serial login.



See also

See “Watchdog Features” in the “Introduction” of the *Network Management Card User’s Guide* for more information about the watchdog role of the default gateway.

TCP/IP configuration methods

Use one of the following methods to define the TCP/IP settings needed by the Management Card:

- APC Device IP Configuration Wizard (See “APC Device IP Configuration Wizard” on page 12.)
- BOOTP or DHCP server (See “BOOTP & DHCP configuration” on page 12.)
- Local computer (See “Local access to the control console” on page 15.)
- Networked computer (See “Remote access to the control console” on page 15.)

APC Device IP Configuration Wizard

You can use the APC Device IP Configuration Wizard at a computer running Microsoft® Windows® 2000, Windows 2003, or Windows XP to discover unconfigured Management Cards and configure their basic TCP/IP settings, one card at a time, over the network.



Note

Most software firewalls must be temporarily disabled for the Wizard to discover unconfigured Network Management Cards.

1. Insert the APC Network Management Card *Utility* CD into a computer on your network.
2. Select the Device IP Configuration Wizard from the main menu.
3. When the Wizard discovers the unconfigured Management Card, follow the on-screen instructions.



Note

If you leave the option **Start a Web browser when finished** enabled, you can access the Management Card through your browser by using **apc** (the default) for both the user name and password.

.ini file utility

You can use the .ini file export utility to export .ini file settings from configured Management Cards to one or more unconfigured Management Cards. The utility and documentation are included on the APC Network Management Card *Utility* CD.

BOOTP & DHCP configuration

The default TCP/IP configuration setting, **BOOTP & DHCP**, assumes that a properly configured BOOTP or DHCP server is available to provide TCP/IP settings to Management Cards. The Management Card first attempts to discover a properly configured BOOTP server, and then a DHCP server. It repeats this pattern until it discovers a BOOTP or DHCP server.



If neither of these servers is available, see “APC Device IP Configuration Wizard” on page 12, “Local access to the control console” on page 15, or “Remote access to the control console” on page 15 to configure the needed TCP/IP settings.



See also

A user configuration (.ini) file can function as a BOOTP or DHCP boot file. For more information, see the TCP/IP configuration section of the Network Management Card *User's Guide*, available from the *Utility* CD or the APC Web site, www.apc.com.

BOOTP. For the Network Management Card to use a BOOTP server to configure its TCP/IP settings, it must find a properly configured RFC951-compliant BOOTP server.

In the BOOTPTAB file of the BOOTP server, enter the Management Card's MAC address, IP address, subnet mask, and default gateway, and, optionally, a bootup file name. For the MAC address, look on the bottom of the Management Card or on the Quality Assurance slip included in the package.

When the Management Card reboots, the BOOTP server provides it with the TCP/IP settings.

- If you specified a bootup file name, the Management Card attempts to transfer that file from the BOOTP server using TFTP or FTP. The Management Card assumes all settings specified in the bootup file.
- If you did not specify a bootup file name, you can configure the other settings of the Management Card remotely through its Web interface or control console; user name and password are both **apc**, by default.



See also

To create a bootup file, see your BOOTP server documentation.

DHCP. You can use an RFC2131/RFC2132-compliant DHCP server to configure the TCP/IP settings for the Management Card.



See also

This section summarizes the Management Card's communication with a DHCP server. For more detail about how a DHCP server can configure the network settings for a Management Card, see "DHCP Configuration" in the *Network Management Card User's Guide* on the *Utility CD*.

1. A Management Card sends out a DHCP request that uses the following to identify itself:
 - A Vendor Class Identifier (APC by default)
 - A Client Identifier (by default, the Management Card's MAC address value)
 - A User Class Identifier (by default, the identification of the Management Card's application firmware)
2. A properly configured DHCP server responds with a DHCP offer that includes all the settings that the Management Card needs for network communication. The DHCP offer also includes the Vendor Specific Information option (DHCP option 43). By default, the Management Card ignores DHCP offers that do not encapsulate the APC cookie in DHCP option 43 using the following hexadecimal format:

Option 43 = 01 04 31 41 50 43

where

- the first byte (01) is the code
- the second byte (04) is the length
- the remaining bytes (31 41 50 43) are the APC cookie.



See also

See your DHCP server documentation to add code to the Vendor Specific Information option.



Note

To disable the requirement that a DHCP offer include the APC cookie, use the **DHCP Cookie Is** setting in the control console:

```
Network>TCP/IP>Boot Mode>DHCP  
only>Advanced>DHCP Cookie Is).
```

Local access to the control console

You can use a computer connected to the serial port on the front of the Management Card to access the control console.

1. Select a serial port at the local computer, and disable any service that uses that port.
2. Use the configuration cable to connect the selected port to the serial port on the front panel of the Management Card. Use either 940-0024C, the 6-ft cable that came with your UPS, or AP9804 (990-1524), the 15-ft cable available from APC.
3. Run a terminal program (such as HyperTerminal) and configure the selected port for 2400 bps, 8 data bits, no parity, 1 stop bit, and no flow control. Save the changes.
4. Press ENTER to display the **User Name** prompt.
5. Use **apc** for the user name and password.



See “Control console” on page 16 to finish the configuration.

Remote access to the control console

From any computer on the same subnet as the Management Card, you can use ARP and Ping to assign an IP address to a Management Card, and then use Telnet to access its control console and configure the other TCP/IP settings.



Note

After a Management Card has its IP address configured, you can use Telnet, without first using ARP and Ping, to access that Management Card.

1. Use the Management Card’s MAC address in the ARP command to define the IP address.



Note

For the MAC address, look on the bottom of the Management Card or on the Quality Assurance slip included in the package.

For example, to define 156.205.14.141 as the IP address of a Management Card with 00 c0 b7 63 9f 67 as its MAC address., use one of the following commands:

– Windows command format:

```
arp -s 156.205.14.141 00-c0-b7-63-9f-67
```

– LINUX command format:

```
arp -s 156.205.14.141 00:c0:b7:63:9f:67
```

2. Use Ping with a size of 113 bytes to assign the IP address defined by the ARP command. For the IP address defined in step 1, use one of the following commands:
 - Windows command format:

```
ping 156.205.14.141 -l 113
```
 - LINUX command format:

```
ping 156.205.14.141 -s 113
```
3. Use Telnet to access the Management Card at its newly assigned IP address. For example:

```
telnet 156.205.14.141
```
4. Use **apc** for both user name and password.
5. See “Control console” on page 16 to finish the configuration.

Control console

After you log on at the control console, as described in “Local access to the control console” on page 15 or “Remote access to the control console” on page 15:

1. Choose **Network** from the **Control Console** menu.
2. Choose TCP/IP from the **Network** menu.
3. If you are not using a BOOTP or DHCP server to configure the TCP/IP settings, select the **Boot Mode** menu and then select **Manual**.
4. Set the **System IP**, **Subnet Mask**, and **Default Gateway** address values. (Changes take effect when you log off.)
5. Press ENTER to return to the TCP/IP menu.
6. Press CTRL+C to exit to the **Control Console** menu.
7. Log out (option 4 in the **Control Console** menu).



Note

If you disconnected a cable during the procedure described in “Local access to the control console” on page 15, reconnect that cable and restart the associated service.

How to Recover from a Lost Password

You can use a local computer that connects to the Management Card through the serial port to access the control console.

1. Select a serial port at the local computer, and disable any service that uses that port.
2. Connect the serial cable to the selected port on the computer and to the configuration port at the UPS. Use 940-0024, the 6-ft cable that came with your UPS, or AP9804, the 15 ft cable available from APC.
3. Run a terminal program (such as HyperTerminal[®]) and configure the selected port as follows:
 - 2400 bps
 - 8 data bits
 - no parity
 - 1 stop bit
 - no flow control
4. Press ENTER, repeatedly if necessary, to display the **User Name** prompt. If you are unable to display the **User Name** prompt, verify the following:
 - The serial port is not in use by another application.
 - The terminal settings are correct as specified in step 3.
 - The correct cable is being used as specified in step 2.
5. Press the **Reset** button. The Status LED will flash alternately orange and green. Press the **Reset** button a second time immediately while the LED is flashing to reset the user name and password to their defaults temporarily.
6. Press ENTER as many times as necessary to redisplay the **User Name** prompt, then use the default, **apc**, for the user name and password. (If you take longer than 30 seconds to log on after the **User Name** prompt is redisplayed, you must repeat step 5 and log on again.)
7. From the **Control Console** menu, select **System**, then **User Manager**.
8. Select **Administrator**, and change the **User Name** and **Password** settings, both of which are now **apc**.
9. Press CTRL+C, log off, reconnect any serial cable you disconnected, and restart any service you disabled.

How to Access a Configured Network Management Card

Overview

After the Network Management Card is running on your network, you can use the interfaces summarized here: Web interface, Telnet and SSH, SNMP, FTP and SCP, and, for an AP9618 Network Management Card, a built-in analog modem.



See also

For more information on the interfaces, see the *User's Guide*.

Web interface

Use Microsoft Internet Explorer (IE) 5.5 or higher (on Windows operating systems only), Firefox, version 1.x, by Mozilla Corporation (on all operating systems), or Netscape® 7.x or higher (on all operating systems) to access the Web interface of the Management Card. Other commonly available browsers may work but have not been fully tested by APC.

You can use either of the following protocols when you use the Web interface:

- The HTTP protocol (enabled by default), which provides authentication by user name and password but no encryption.
- The HTTPS protocol, which provides extra security through Secure Socket Layer (SSL), encrypts user names, passwords, and data being transmitted, and authenticates Network Management Cards by means of digital certificates.

To access the Web interface and configure the security of your device on the network:

1. Address the Network Management Card by its IP address (or its DNS name, if a DNS name is configured).
2. Enter the user name and password (by default, **apc** and **apc** for an Administrator).
3. To enable or disable the HTTP or HTTPS protocols, use the **Network** menu on the **Administration** tab, and select the **access** option under the **Web** heading on the left navigation menu.



See also

See the *Security Handbook: Network Management Card*, available on the APC Network Management Card *Utility CD* or from the APC Web site, www.apc.com, for more information on selecting and configuring network security.

Telnet/SSH

You can access the control console through Telnet or Secure SHell (SSH), depending on which is enabled. To enable these access methods, select the **Administration** tab, the **Network** menu on the top menu bar, and the **access** option under **Console** on the left navigation menu. By default, Telnet is enabled. Enabling SSH automatically disables Telnet.

Telnet for basic access. Telnet provides the basic security of authentication by user name and password, but not the high-security benefits of encryption. To use Telnet to access an Network Management Card's control console from any computer on the same subnet:

1. At a command prompt, use the following command line, and press ENTER:

```
telnet address
```

As *address*, use the Network Management Card's IP address or DNS name (if configured).

2. Enter the user name and password (by default, **apc** and **apc** for an Administrator, or **device** and **apc** for a Device User).

SSH for high-security access. If you use the high security of SSL for the Web interface, use Secure SHell (SSH) for access to the control console. SSH encrypts user names, passwords, and transmitted data.

The interface, user accounts, and user access rights are the same whether you access the control console through SSH or Telnet, but to use SSH, you must first configure SSH and have an SSH client program installed on your computer.



See also

See the *User's Guide* for more information on configuring and using SSH.

Simple Network Management Protocol (SNMP)

After you add the PowerNet MIB to a standard SNMP MIB browser, you can use that browser to access the Network Management Card. The default read community name is **public**; the default read/write community name is **private**.

To use InfraStruXure Manager to manage a UPS on the public network of an InfraStruXure system, you must have SNMP enabled in the Management Card interface.

To enable or disable SNMP access, you must be an Administrator. Select the **Administration** tab, select the **Network** menu on the top menu bar, and use the **access** option under **SNMP** on the left navigation menu.

FTP and SCP

You can use FTP (enabled by default) or SCP to transfer downloaded firmware to a Management Card, or to access a copy of a Management Card's event or data logs.

To use InfraStruXure Manager to manage a UPS, you must have **FTP Server** enabled in the Management Card interface.

To enable or disable **FTP Server** access, you must be an Administrator. Select the **Administration** tab, select the **Network** menu on the top menu bar, and use the **FTP Server** option on the left navigation menu.



See also

In the Network Management Card *User's Guide*, see the following sections:

- To transfer firmware, see "File Transfers."
- To retrieve a copy of the event or data log, see "How to use FTP or SCP to retrieve log files."

Analog modem (AP9618)

The AP9618 Network Management Card *EM/MDM* has an internal analog modem you can use for dial-in access to its Management Card's control console.

Managing the security of your system



See also

For detailed information on enhancing the security of your system after installation and initial configuration, see the Security Handbook, available on the APC Network Management Card *Utility* CD and on the APC Web site, www.apc.com.

Specifications

Electrical

Input voltage, nominal	24 VDC
Maximum total current draw	130 mA @ 19-30 VDC (with standard sensor attached)
Temperature accuracy	±2°C (±3°F) within the range of 0 to 40°C (32 to 104°F)
Humidity accuracy	±8% RH within the range of 10 to 90% RH at 25°C (77°F) ±8% RH within the range of 30 to 80% RH at temperatures from 15 to 30°C (59 to 95°F)
Current capacity of relay contacts	1 A @ 30 V AC/DC (for AP9618 and AP9619 only)
+12 VDC output	25 mA maximum current (for AP9618 and AP9619 only)
Sensor zone input response time	200 mS

Physical

Size (H × W × D)	1.50 × 4.75 × 4.25 in (3.81 × 12.07 × 10.80 cm)
Weight	0.30 lb (0.14 kg)
Shipping weight	2 lb (0.91 kg)

Environmental

Elevation (above MSL)	0 to 10,000 ft (0 to 3000 m)
Operating	0 to 50,000 ft (0 to 15 000 m)
Storage	
Temperature	
Operating	-5 to 45°C (23 to 113°F)
Storage	0 to 45°C (32 to 113°F)
Operating humidity	0 to 95%, non-condensing
Sensor operating temperature	0 to 60°C (32 to 140°F)

Compliance

Radiated emissions approvals	FCC Class A, VCCI Class A, ICES-003 Class A, EN 55022 Class A, AS/NZS CISPR 22, GOST-R 51318.22
Radiated immunity approvals	GOST-R 51318.24, EN 55024

Radio Frequency Interference



Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

USA—FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. The user will bear sole responsibility for correcting such interference.

Canada—ICES

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Japan—VCCI

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準

に基づくクラス A 情報技術装置です。この装置を家庭環境で使用すると、電波妨害を引き起こすことがあります。この場合には、使用者が適切な対策を講ずるよう要求されることがあります。

Taiwan—BSMI

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Australia and New Zealand

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

European Union

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. APC cannot accept responsibility for any failure to satisfy the protection requirements resulting from an unapproved modification of the product.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/ European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide a reasonable protection against interference with licensed communication equipment.

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

APC Worldwide Customer Support

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

- Visit the APC Web site to access documents in the APC Knowledge Base and to submit customer support requests.
 - **www.apc.com** (Corporate Headquarters)
Connect to localized APC Web sites for specific countries, each of which provides customer support information.
 - **www.apc.com/support/**
Global support searching APC Knowledge Base and using e-support.
- Contact an APC Customer Support center by telephone or e-mail.
 - Regional centers:

APC headquarters U.S., Canada	(1)(800)800-4272 (toll free)
Latin America	(1)(401)789-5735 (USA)
Europe, Middle East, Africa	(353)(91)702000 (Ireland)
Japan	(0) 35434-2021
Australia, New Zealand, South Pacific area	(61) (2) 9955 9366 (Australia)

- Local, country-specific centers: go to **www.apc.com/support/contact** for contact information.

Contact the APC representative or other distributor from whom you purchased your APC product for information on how to obtain local customer support.

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