



**Network
Management
Card**

AP9617

AP9618

AP9619

**Installation and
Quick-Start Manual**

APC[®]

How to Avoid Equipment Damage

Disconnect UPS power

You do not need to turn off a Symmetra® or a Silcon™ model UPS to install the Management Card.

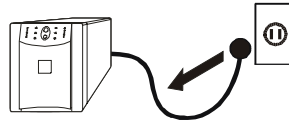


Caution

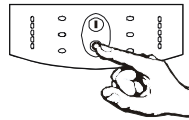
Damage to the UPS or APC Network Management Card (AP9617 or AP9618) can result if you do not remove all AC and DC power from a Smart-UPS® or Matrix-UPS®, Expansion Chassis, or a Triple Expansion Chassis before you install the Management Card.

Smart-UPS

1. Turn off the equipment that connects to the UPS.
2. Disconnect the UPS from its AC input source.

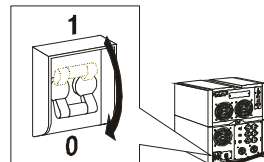


3. Press the OFF button on the UPS for approximately five seconds to turn off the DC (battery) power.



Matrix-UPS

1. Turn off the equipment that connects to the UPS.
2. Turn off the circuit breaker on the rear panel of the UPS.



Disconnect chassis power

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.

How to Recover from a Lost Password

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

1. Select a serial port at the local computer and disable any service that uses that port.
2. Unless an APC smart-signaling cable (940-0024 or 940-1524) is already connected to the selected port, connect the smart-signaling cable that came with the Management Card to the selected port and to the serial port at the Management Card's UPS or chassis.
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, and save the changes.
4. Press ENTER to display the **User Name** prompt.
5. Press the reset button on the Management Card.
6. Press ENTER and use **apc** for the **User Name** and **Password**. (If you take longer than 30 seconds to log on, you will need to repeat steps 4 and 5.)
7. Select **System** in the **Control Console** menu and **User Manager** in the **System** menu.
8. Select **Administrator** and follow the on-screen instructions to change the **User Name** and **Password settings**, both of which are now defined as **apc**.
9. Press CTRL-C and log off.



Note

Reconnect any cable disconnected in step 2, and restart any service disabled in step 1.

Preliminary Information

- New standard features** The AP9617, AP9618, and AP9619 Management Cards include the following new features:
- Generates system log (Syslog) messages
 - Allows using a dynamic host configuration protocol (DHCP) server to provide the TCP/IP values a Network Management Card needs for network communication
- Existing features** All Network Management Cards still include the following standard features:
- Detects 10/100 Mbps connection speeds
 - Provides a data log accessible by FTP or a Web browser
 - Provides UPS scheduling features
 - Provides support for the APC PowerChute Network Shutdown utility
 - Provides an event log which is accessible by Telnet, FTP, or a Web browser
 - Generates Email notifications for UPS or system events
 - Limits SNMP traps and Email notifications based on the severity level of the events
 - Allows using the APC Management Card Wizard to configure multiple Management Cards simultaneously over the network
 - Provides support for APC Silcon UPS models
 - Provides UPS-specific application modules based on the Management Card's hardware platform, and the application module's
- AP9618 features** The AP9618 Network Management Card *EM/MDM* includes the analog modem and Integrated Environmental Monitor features described on page 4.
- AP9619 features** The AP9619 Network Management Card *EM* includes the Integrated Environmental Monitor features described on page 4; the AP9619 does not include the analog modem feature.

Preliminary Information

AP9618U and AP9619U upgrade kits

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 feature (AP9618 and AP9619)

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

- A temperature/humidity probe
- Two input contacts
- Two-position output relay

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

Internal analog modem feature (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's 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* (`.\doc\usrguide.pdf`)
- *Management Card Addendum* (`.\doc\addendum.pdf`)
- *PowerNet[®] Management Information Base (MIB) Reference Guide* (`.\doc\mibguide.pdf`)
- CD-ROM contents file (`.\content.txt`)
- *Network Management Card Release Notes* (`.\relnotes.txt`)
- Installation instructions in text format (`.\install.txt`)
- Troubleshooting documents (`.\trouble*.*`)

Installation in a UPS

Overview

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

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

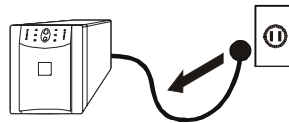
You do not need to turn power off for a Symmetra UPS.



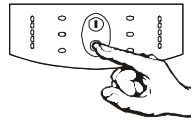
Damage to the UPS or Management Card can result if you do not remove all AC and DC power from a Smart-UPS or Matrix-UPS model UPS.

Smart-UPS

1. Turn off the equipment that connects to the UPS.
2. Disconnect the UPS from its AC input source.

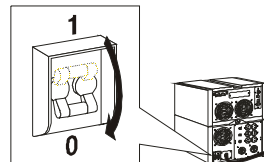


3. Press the OFF button on the UPS for approximately five seconds to turn off the DC (battery) power.



Matrix-UPS

1. Turn off the equipment that connects to the UPS.
2. Turn off the circuit breaker on the rear panel of the UPS.



Step 2: Install the Network Management Card

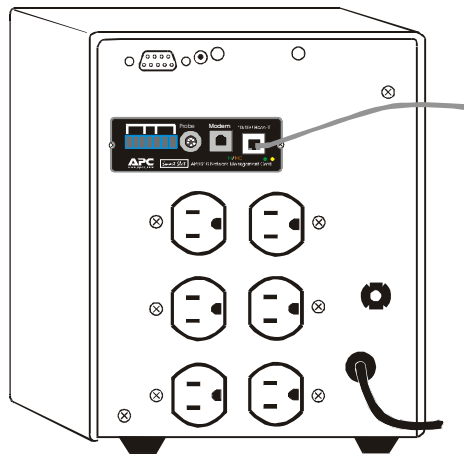
If you are installing the Management Card in a Symmetra UPS that uses more than one APC management product, see *Installation of Multiple Management Cards*, a copy of which came with the Management Card. You must install the APC management products in the correct order for them to operate properly.



Caution

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.
3. Reconnect the UPS to its input power source.
4. Turn on the UPS.
5. See “Quick Configuration” on page 10.



Expansion/Triple Chassis Installation

Overview

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



Note

Use only a Silcon Triple Expansion Chassis (AP9604S) with a Silcon UPS.

The Management Card installs in the chassis and 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 provides up to 200 mA.

For information about the current requirements for APC management products, do the following:

- a. Go to APC's Support page
- b. Click the Knowledge Base link in the "Search the Knowledge Base" section.
- c. Use "current draw" as your search phrase.
- d. Select the "Recommended connection order and power requirements for APC SmartSlot accessories" document.

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 and, if the UPS uses an AC adapter, disconnect that adapter from the chassis.

Step 2: Install the Network Management Card

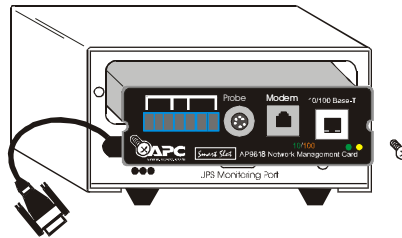
If the UPS uses more than one APC management product, see *Installation of Multiple Management Cards*, a copy of which came with the Management Card. You must install the APC management products in the correct order for them to operate properly.



Caution

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):
 - a. Connect the adapter to the chassis.
 - b. 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 10.



Quick Configuration

Overview

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

- The IP address of the Management Card
- The subnet mask
- The default gateway



Note

If a default gateway is unavailable, use the IP address of a computer located on the same subnet as the Management Card that is usually running. The Management Card uses the default gateway to test the network when traffic is very light. See “Watchdog Features” in the “Introduction” of the *Network Management Card User’s Guide* (`.\doc\usrguide.pdf`) 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:

- The APC Management Card Wizard (see “APC Management Card Wizard” on page 11)
- A DHCP or BOOTP server (see “BOOTP & DHCP configuration” on page 11)
- A local computer (see “Local access to the control console” on page 14)
- A networked computer (see “Remote access to the control console” on page 15)

**APC
Management
Card Wizard**

You can use the APC Management Card Wizard at a Windows 95, Windows 98, Windows NT 4.0, or Windows 2000 computer to configure a Management Card.



To configure multiple Management Cards, or to configure a Management Card from a configuration file, see the *Management Card Addendum* (.\\doc\\addendum.pdf).

1. Follow the on-screen instructions to install the Wizard from the APC Network Management Card *utility* CD.
2. Launch the Wizard, when prompted, or, if prompted to restart the computer, access the Wizard from the **Start** menu after the computer has restarted.
3. Wait for the Wizard to discover the unconfigured Management Card, then follow the on-screen instructions.



Note

If you leave the **Start a Web browser when finished** option enabled, you can use **apc** for both the **User Name** and **Password** to access the Management Card through your browser.

**BOOTP & DHCP
configuration**

The **Boot Mode** setting, a **TCP/IP** option in the Management Card's **Network** menu, identifies how the TCP/IP settings will be defined. The possible settings are **Manual**, **DHCP only**, **BOOTP only**, and **DHCP&BOOTP** (the default setting).



Note

The **DHCP&BOOTP** setting assumes that a properly configured DHCP or BOOTP server is available to provide TCP/IP settings to APC Network Management Cards. If these servers are unavailable, see "APC Management Card Wizard" on page 11, "Local access to the control console" on page 14, or "Remote access to the control console" on page 15 to configure the needed TCP/IP settings.

With **Boot Mode** set to **DHCP&BOOTP**, the Management Card attempts to discover a properly configured server. It first searches for a BOOTP server, then a DHCP server, and repeats this pattern until it discovers a BOOTP or DHCP server.



For more information about using a server to configure a Management Card's TCP/IP settings, see "BOOTP" on page 12 or "DHCP" on page 13.

Quick Configuration

BOOTP. You can use an RFC951-compliant BOOTP server to configure the TCP/IP settings the Management Card needs.

1. Enter the Management Card's MAC and IP addresses, the subnet mask, and default gateway settings, and an optional Bootup File Name in the BOOTPTAB file of the BOOTP server.



See the Network Management Card Quality Assurance slip for the MAC address.

2. 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 will attempt to transfer that file from a TFTP or FTP server residing on the BOOTP server. The Management Card will assume all settings specified in the bootup file.
 - If you did not specify a bootup file name, the Management Card can be configured remotely by using Telnet or by using the Web interface: **User Name** and **Password** are both **apc**, by default.



You must use the APC Management Card Wizard or the APC initialization (*.ini) text-to-binary configuration (*.cfg) conversion utility, *i2c300*, to create the bootup file. To create a bootup file, see the BOOTP section in the *Management Card Addendum* (.doc\addendum.pdf).

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



This section briefly summarizes the Management Card communication with a DHCP server. For more detail about how a DHCP server is used to configure the network settings for a Management Card, see “DHCP Configuration” in the *Network Management Card User’s Guide* (`.doc\usrguide.pdf`).

1. A Management Card sends out a DHCP request that use 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 of 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 will ignore DHCP offers that do encapsulate the APC cookie in the Vendor Specific Information option 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



Refer to your DHCP server documentation for information about adding code to the Vendor Specific Information option. To disable the APC cookie requirement, see “Local access to the control console” on page 14 or “Remote access to the control console” on page 15 to change the control console’s **DHCP Cookie Is** setting, an **Advanced** option in the **TCP/IP** menu.

Quick Configuration

Local access to the control console

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

1. Select a serial port at the local computer and disable any service that uses that port.
2. Unless an APC smart-signaling cable (940-0024 or 940-1524) is already connected to the selected port, connect the smart-signaling cable that came with the Management Card to the selected port and to the serial port at the Management Card's UPS or chassis.
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, and save the changes.
4. Press ENTER to display the **User Name** prompt.
5. Use **apc** for the **User Name** and **Password**.
6. 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 in a process known as gleaning, to assign an IP address to a Management Card, and then use Telnet to access that Management Card's control console and configure the needed 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 ARP to define an IP address for the Management Card, and use the Management Card's MAC address in the ARP command. For example, to define an IP address of 159.215.15.141 for a Management Card that has a MAC address of 00 c0 b7 63 9f 67, use one of the following commands:

– Windows command format:

```
arp -s 159.215.15.141 00-c0-b7-63-9f-67
```

– LINUX command format:

```
arp -s 159.215.15.141 00:c0:b7:63:9f:67
```



The Network Management Card quality assurance test slip lists the MAC address.

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 Ping commands:

– Windows command format:

```
ping 159.215.15.141 -l 113
```

– LINUX command format:

```
ping 159.215.15.141 -s 113
```

3. Use Telnet to access the Management Card at its newly assigned IP address. For this example, use this command:

```
telnet 159.215.15.141
```

4. Use **apc** for both the **User Name** and **Password**.
5. See "Control console" on page 16 to finish the configuration.

Quick Configuration

Control console After you log on at the control console, as described in either “Local access to the control console” on page 14 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 necessary, change the **Boot Mode** setting to **Manual**.
4. Set the **System IP**, **Subnet Mask** and **Default Gateway** address values.
5. Press CTRL-C to exit to the **Control Console** menu.
6. Log out (option 4 in the **Control Console** menu) to have the changes take effect.



Note

If you disconnected a cable during the procedure described in “Local access to the control console” on page 14, reconnect that cable and restart the associated service.

How to Access a Configured Network Management Card

Overview

Once the Management Card is running on your network, you can use several different interfaces to access the Management Card.



Note

For more information about how to use the interfaces identified here, see the *Network Management Card User's Guide* (*.\doc\usrguide.pdf*) and the *Management Card Addendum* (*.\doc\addendum.pdf*).

Web interface

You can use Internet Explorer 5.0 (and higher) or Netscape[®] 4.0.8 (and higher) browsers to configure Management Card options, or to view the Event log.

1. Address the Management Card by its IP address or DNS name (if configured).
2. Enter the **User Name** and **Password (apc by default)**.

Telnet

You can use Telnet to access a Management Card's Control Console from any computer on the same subnet.

1. At a command prompt, type `telnet <address>` and press ENTER at a command prompt, where `<address>` is the Management Card's IP address or DNS name (if configured).
2. Enter the **User Name** and **Password (apc by default)**.

SNMP

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

How to Access a Configured Network Management Card

- FTP** You can use FTP (enabled by default) to download new firmware to a Management Card, or to access a copy of a Management Card's event or data logs.
1. At a command prompt, type `ftp address` and press ENTER, where *address* is the Management Card's IP address.
 2. Enter the **User Name** and **Password (apc by default)**.
- APC Management Card Wizard** You can use the APC Management Card Wizard to configure multiple Management Cards over the network.
- 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.

Radio Frequency Interference



Warning

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.

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.

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.

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