



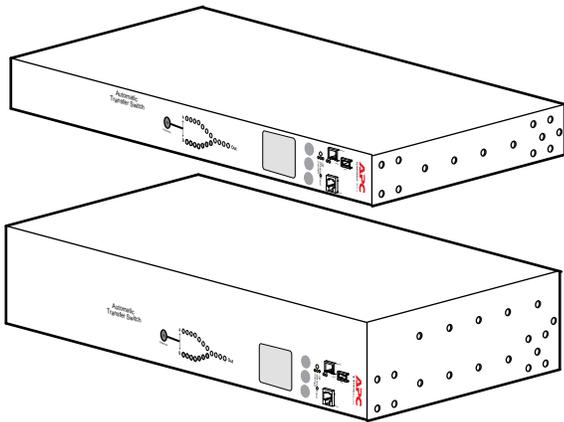
Installation and Quick Start

Rack Automatic Transfer Switch (ATS)

AP4421, AP4422, AP4423, AP4424, AP4430, AP4430X914, AP4431, AP4432, AP4433, AP4434, AP4450, AP4452, AP4452X631, AP4452J, AP4453

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Important Safety Information

Read the instructions carefully to become familiar with the equipment before trying to install, operate, service or maintain it. The following messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

NOTICE

NOTICE addresses practices not related to physical injury including certain environmental hazards, potential damage or loss of data.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by APC for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Safety Information for the Rack ATS

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- High leakage current from attached loads is possible. If total leakage current will exceed 3.5mA, attach a ground wire from the Rack ATS supplementary ground (M4 thread) to a reliable ground in your facility before energizing the Rack ATS.
- Do not operate the Rack ATS with the covers removed.
- No user-serviceable parts inside. Refer servicing to qualified personnel.
- Use only the supplied hardware for attaching mounting and cable control accessories.
- Use indoors only in a dry location.

Failure to follow these instructions will result in death or serious injury.

NOTICE

- The ambient operating temperature of a closed or multi-unit rack environment may be greater than the ambient temperature of the room. Ensure the ambient operating temperature of your rack environment does not exceed the rated ambient operating temperature for the device.
- Ensure the device is mounted securely and evenly.

Preliminary Information

The APC™ Rack Automatic Transfer Switch (ATS) provides reliable, redundant power to single-corded equipment loads, such as servers. The Rack ATS has two input power cords supplying power to the connected loads from both a primary and secondary power source. If the primary source becomes unavailable or goes out of the configured power range, the Rack ATS will seamlessly switch to draw power from the secondary source without interrupting critical loads. The Rack ATS has built-in network connectivity, which allows remote management via Web, Telnet, SNMP, SSH or Data Center Expert™ interfaces.

Available Power Cords

Power cords are not provided with the following units:

- For AP4421 use a properly IEC rated, VDE/HOR certified power cord, rated 300 VAC, 3 x 1.0mm² minimum, with approved plug and outlet, for use on listed information technology equipment.
- For AP4423 use a properly IEC rated, VDE/HOR certified power cord, rated 300 VAC, 3 x 1.5mm² minimum, with approved plug and outlet, for use on listed information technology equipment.
- For AP4433 use a properly rated, UL Listed/CSA certified power cord, rated 300 VAC, 14 AWG minimum, with approved plug and outlet, for use on listed information technology equipment.
- For AP4434 use a properly rated, UL Listed/CSA certified power cord, rated 300 VAC, 12 AWG minimum, with approved plug and outlet, for use on listed information technology equipment.

The length of a power supply cord shall not exceed 4.5 meters, minimum length shall be 1.5 meters unless intended for special installation, such as dedicated equipment intended to be mounted near a receptacle.

Additional Documentation

You can find relevant additional documentation for the Rack ATS, including updates to the *User Guide*, on the APC website, www.apc.com. Other technical publications (white papers, for example) are also available on the website.

Specification sheets: Specification sheets list electric capabilities, recommendations, physical limits, and safety approvals for individual Rack ATS models.

User Guide: The *User Guide* contains additional information about management interfaces, user accounts, customization, and security.

Security Handbook: The *Security Handbook* explains different security settings for the Rack ATS in depth.

Receiving Inspection

Inspect the package and contents for shipping damage, and make sure that all parts were sent. Report any shipping damage immediately to the shipping agent, and report missing contents, damage, or other problems immediately to APC or your APC reseller.

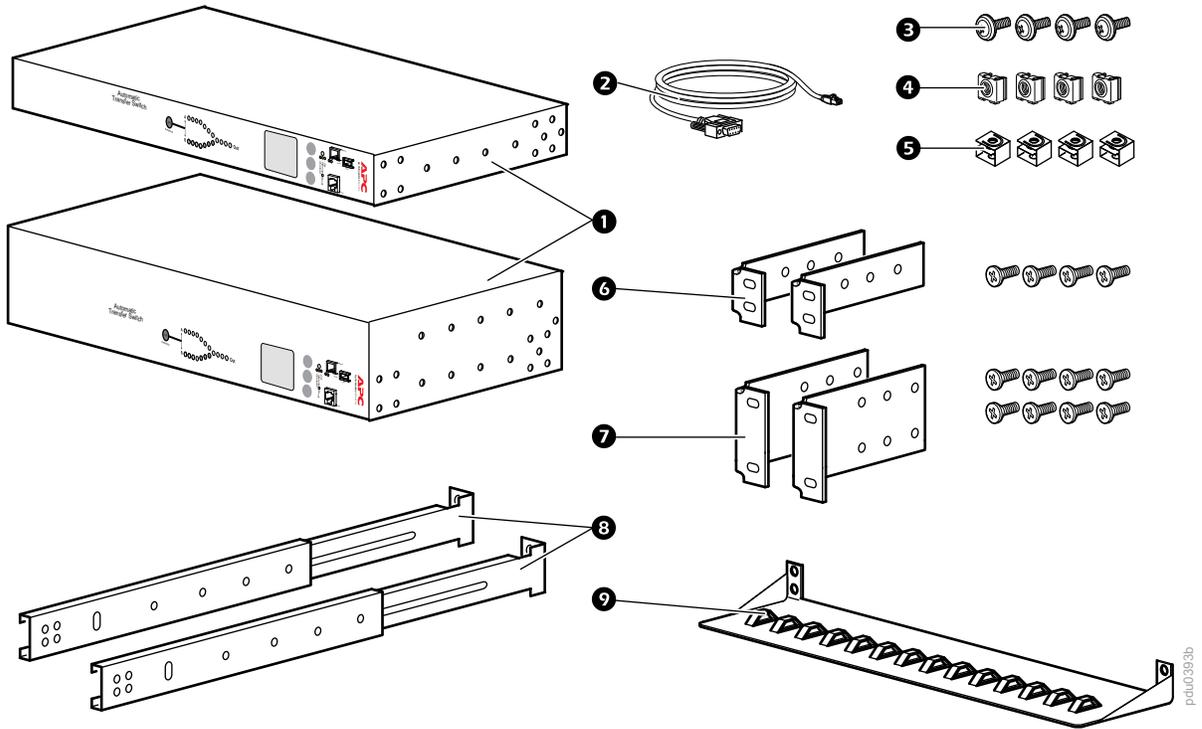
Please Recycle

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

User Comments

We welcome your comments about this document. Contact www.apc.com.

Product Inventory



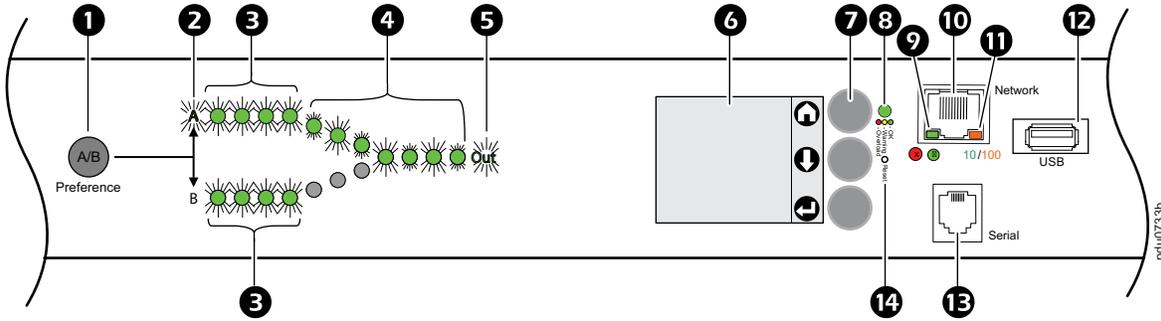
- ❶ Rack Automatic Transfer Switch (1 U or 2 U)
- ❷ Serial Communication cable, RJ12 to female DB-9
- ❸ Screw
- ❹ Cage nut
- ❺ Clip-on retainer
- ❻ 1-U rack-mount bracket kit (provided with 1-U Rack ATS)
- ❼ 2-U rack-mount bracket kit (provided with 2-U Rack ATS)

Additional options

- ❽ Front and rear rail segments AP7768 (not provided)
- ❾ Cord retention bracket AP7769 (not provided)

NOTE: Install the Rack ATS with front and rear rail segments for increased stability. The front/rear rail segments and cord retention bracket are available on the APC website, www.apc.com.

Front Panel Overview



NOTE: Your Rack ATS is configured so the display backlight turns off after 10 minutes of inactivity. Press any display navigation button to illuminate the backlight.

Item	Function
1 Preference A/B Button	Press to set a preferred source: the first press sets source A, the second press sets source B, and the third press sets no preference.
2 Source A and B LEDs	Indicates preferred source. If no source is preferred, both LEDs are illuminated. You can also see preferred source on the LCD Display.
3 Input Connector LEDs	Provide information about input voltage from each source. If the RMS input voltage and measured frequency are within the selected tolerance range, the corresponding LED will be illuminated. In a normal operating condition (full source redundancy) both sets of LEDs are illuminated.
4 Output Connector LEDs	Indicate which source is being used for the output (only one path will be illuminated at any time). Together, the Source Preference LEDs, the Connector LEDs, and the Output LED show the power flow through the ATS.
5 Output LED	Shows that voltage is available at the output for the ATS.
6 LCD Display	View ATS status, settings, and product information. See the <i>User Guide</i> on www.apc.com for more information on LCD display screens.
7 Display navigation buttons	On the LCD Display, icons indicate the purpose of adjacent buttons. 🏠 Home: Press to move through monitor screens or return to monitor screens from sub-menus. ⬇️ Down: Press to move through monitor screens or menu items. ⏏️ Select: Press to select menu items or navigate to the main menu from monitor screens.
8 Load Status LED	See “Load Status LED” on page 9
9 Network status LED	See “Network Status LED” on page 9
10 10/100 Base-T Connector	Connects the ATS to the network.
11 10/100 Status LED	See “10/100 Status LED” on page 9.
12 USB port	Use USB drives for firmware upgrades.
13 Serial port	Connect your computer to the ATS for local access to the command line interface. Use the supplied Serial Communication cable (APC part number 940-0144A).
14 Reset switch	Restarts ATS network and serial communication.

Load Status LED

This LED identifies overload and warning conditions for the ATS. To configure warning thresholds, see the *User Guide* on www.apc.com.

Condition	Description
Green	The Rack ATS current is below the Near Overload Warning threshold.
Yellow	The Rack ATS current is above the Near Overload Warning threshold.
Red	The Rack ATS current is above the Overload Alarm threshold.

Network Status LED

This LED indicates the network status.

Condition	Description
Off	The device that connects the Rack ATS to the network is off or not operating correctly.
Flashing Green	The Rack ATS is receiving data packets from the network at 10 Megabits per second (Mbps).
Flashing Orange	The Rack ATS is receiving data packets from the network at 100 Megabits per second (Mbps).
Solid Green or Orange	The Rack ATS is receiving no network traffic.

10/100 Status LED

This LED indicates the network status of the Rack ATS.

Condition	Description
Off	The Rack ATS is connected to an unknown network.
Solid green	The Rack ATS has valid TCP/IP settings.
Flashing green	The Rack ATS does not have valid TCP/IP settings. ¹
Solid orange	A hardware failure has been detected in the Rack ATS.
Flashing orange	The Rack ATS is making BOOTP requests.
Flashing orange and green (alternating)	The Rack ATS is making DHCP requests.

¹If you do not use a BOOTP or DHCP server, see “Local access to the command line interface (CLI)” on page 15, “Remote access to the CLI” on page 15, or the *User Guide* on www.apc.com to configure the TCP/IP settings.

Installation

⚠ ⚠ DANGER
<p>HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH</p> <ul style="list-style-type: none"> • High leakage current from attached loads is possible. If total leakage current will exceed 3.5mA, attach a ground wire from the Rack ATS supplementary ground (M4 thread) to a reliable ground in your facility before energizing the Rack ATS. • Do not operate the Rack ATS with the covers removed. • No user-serviceable parts inside. Refer servicing to qualified personnel. • Use only the supplied hardware for attaching mounting and cable control accessories. • Use indoors only in a dry location. <p>Failure to follow these instructions will result in death or serious injury.</p>

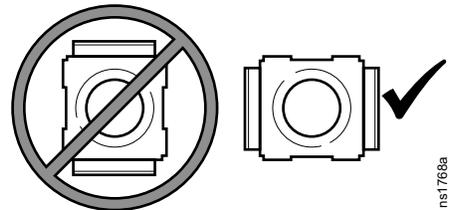
NOTICE
Ensure the device is mounted securely and evenly.

Cage Nuts

If needed, APC offers a cage nut hardware kit (AR8100) for use with square holes.

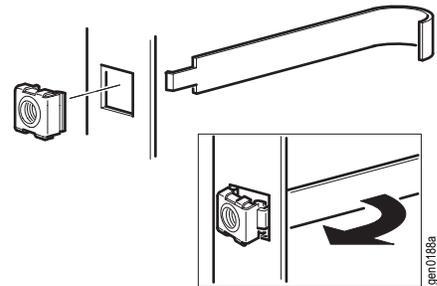
⚠ CAUTION
<p>FALLING EQUIPMENT HAZARD</p> <p>Do NOT install cage nuts vertically with the ears engaging the top and bottom of the square hole.</p> <p>Failure to follow these instructions can result in minor or moderate injury.</p>

- Install cage nuts horizontally, with the ears engaging the sides of the square hole.
- Install the cage nuts on the interior of the vertical mounting rail.



Installation

1. From inside of the cabinet, insert the cage nut into the square hole. Hook one ear of the cage nut assembly through the far side of the hole.
2. Place the cage nut tool on the other side of the cage nut and pull to snap into position.



Removal

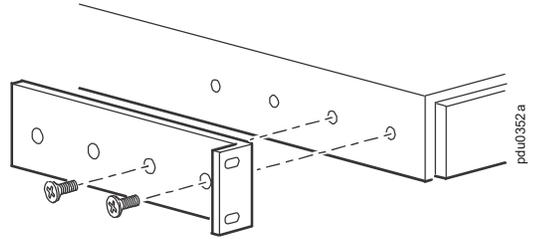
1. Remove any attached screw.
2. Grasp the cage nut and squeeze the sides to release it from the square hole.

Mounting Options

You can mount the Rack ATS in an APC NetShelter® or other EIA-310-D standard 483 mm (19 in.) rack.

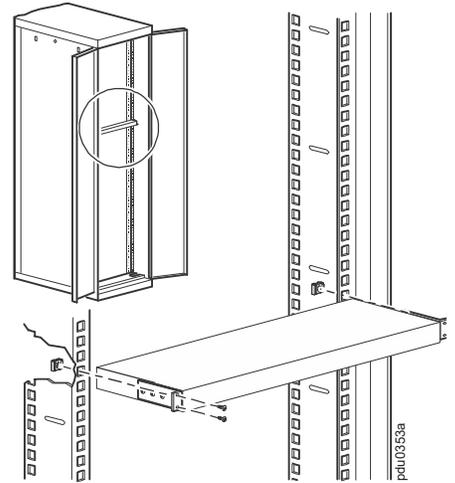
Horizontal mounting

1. Choose a mounting position for the Rack ATS with either the digital display or the rear panel facing out of the enclosure.
2. Attach the mounting brackets to the Rack ATS using the provided flat-head screws.



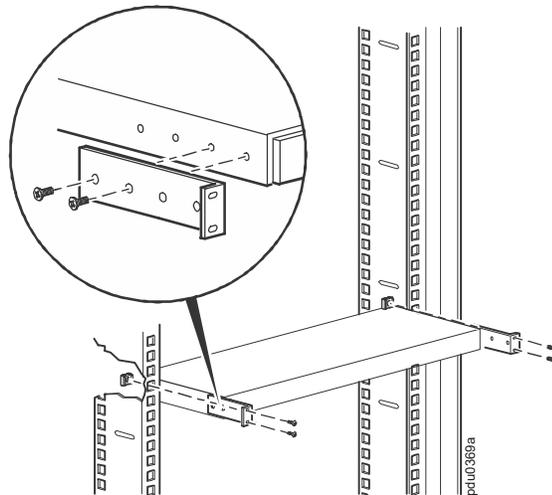
3. Choose a location for the unit. The unit occupies one or two U-spaces. A notched hole on the enclosure's vertical rail (or a number, on newer enclosures) indicates the middle of a U-space. Insert cage nuts above and below the notched hole (or number) on each vertical mounting rail in your chosen location.
4. Align the mounting holes of the brackets with the installed cage nuts. Insert and tighten screws.

Insert cage nuts above and below the notched hole (or number) on each vertical mounting rail in your chosen location.



Recessed horizontal mounting

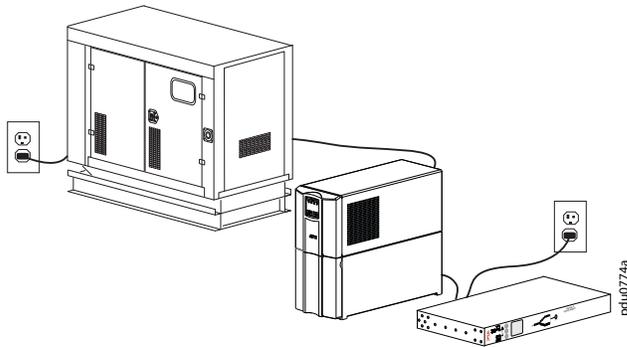
You can mount the Rack ATS in a recessed configuration by attaching the brackets as shown in the following illustration:



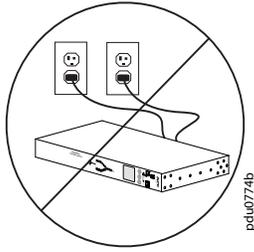
Connect the ATS

NOTICE
<ul style="list-style-type: none"> Do not plug an ATS into a generator without the protection of a Double Conversion On-Line Uninterruptible Power Supply (UPS). ATS models are compatible with only a Double Conversion On-Line UPS and not a Line Interactive UPS. (See White Paper 1 on www.apc.com for more information.)

Plug the ATS into two power sources that are independent of each other. The Rack ATS protects your equipment by drawing from a secondary power source when the primary source becomes unstable or unavailable. Without two independent sources, the Rack ATS is unable to protect your equipment.



Source A: Utility A → Generator A → UPS A
Source B: Utility A



Source A: Utility A
Source B: Utility A

Source Configurations

Source	Configuration	Configuration strength
A B	Utility A → Generator A → UPS A Utility B → Generator B → UPS B	Best
A B	Utility A → Generator A → UPS Utility B	Better
A B	Utility A → Generator → UPS A Utility A	Good
A B	Utility A → UPS A Utility B → UPS B	Good
A B	Utility A → UPS Utility A	Good
A B	Utility A Utility B	Weak
A B	Utility A Utility A	Bad: sources A and B are not independent
A B	Utility A → Generator A Utility B → Generator B	Bad: see NOTICE

Quick Configuration

NOTE: Disregard the procedures in this section if you have APC Data Center Expert or EcoStruxure as part of your system. See the documentation available on www.apc.com for more information.

NOTE: The default login and password is **apc**. You will be prompted to enter a new password the first time you connect to the ATS. You will be logging in as the Super User the first time you access the device. A secure password in compliance with your company's password policy is recommended. All other user accounts (Administrator, Device User, Read-Only User and Network-Only User) are disabled by default.

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

- IP address of the Rack ATS
- Subnet mask
- Default gateway (See the *User Guide* on www.apc.com for more information about the watchdog role of the 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 Rack ATS and is usually running. The Rack ATS uses the default gateway to test the network when traffic is very light.

NOTE: Do not use the loopback address (127.0.0.1) as the default gateway address. It disables the network connection of the Rack ATS and requires you to reset TCP/IP settings to their defaults using a local serial login.

TCP/IP Configuration Methods

Use one of the following methods to define the TCP/IP settings:

- APC Device IP Configuration Wizard (See Device IP Configuration Wizard on this page).
- BOOTP or DHCP server (See "DHCP and BOOTP configuration" on page 14).
- Local computer (See "Local access to the command line interface (CLI)" on page 15).
- Networked computer (See "Remote access to the CLI" on page 15).

Device IP Configuration Wizard

The Device IP Configuration Wizard is a Windows application designed specifically to remotely configure the basic TCP/IP settings of Network Management Cards. The Wizard runs on Microsoft® Windows® 2000, Windows Server 2003, Windows Vista, Windows XP, Windows Server® 2008, Windows 8, and Windows 10, and Windows 2012. This utility supports cards that have firmware version 3.x.x or higher and is for IPv4 only. (To configure one or more Rack ATS units by exporting configuration settings from a configured Rack ATS, see the *User Guide* on www.apc.com.)

NOTE: Most software firewalls must be temporarily disabled for the Wizard to discover unconfigured Rack ATS units.

To install the Device IP Configuration Wizard:

1. Go to www.apc.com/tools/download.
2. Select your country.
3. In the **Filter By Software/Firmware** drop-down menu, select **Software Upgrades - Wizards and Configurators**.
4. Download the latest version of the Network Management Device IP Configuration Wizard and run the executable file.

DHCP and BOOTP configuration

In the Web User Interface (Web UI), the **TCP/IP** options are defined under the **Configuration** tab, in the **Network** menu. The possible settings are **Manual**, **BOOTP**, and **DHCP** (the default setting). The default TCP/IP configuration setting, **DHCP**, assumes that a properly configured DHCP server is available to provide TCP/IP settings to the Rack ATS. You can also configure the setting for BOOTP. A user configuration (INI) file can function as a BOOTP or DHCP boot file.

NOTE: If no servers are available, see “Device IP Configuration Wizard” on page 13, “Local access to the command line interface (CLI)” on page 15, or “Remote access to the CLI” on page 15 to configure the TCP/IP settings.

BOOTP: For the Rack ATS to use a BOOTP server to configure its TCP/IP settings, it must find a properly configured RFC951-compliant BOOTP server.

1. In the BOOTPTAB file of the BOOTP server, enter the Rack ATS’s MAC address, IP address, subnet mask, and default gateway, and, optionally, a bootup file name. Look for the MAC address on the bottom of the Rack ATS.
2. When the Rack ATS reboots, the BOOTP server provides it with the TCP/IP settings.
 - If you specified a bootup file name, the Rack ATS attempts to transfer that file from the BOOTP server using TFTP or FTP. The Rack ATS 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 Rack ATS remotely through its Web UI (see “Web UI” on page 17) or CLI (see “Remote access to the CLI” on page 15) The default user name and password are **apc** for both interfaces. You will be instructed to change your password after your initial login. 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 Rack ATS.

1. The Rack ATS 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 MAC address of the Rack ATS)
 - A User Class Identifier (by default, the identification of the application firmware installed on the Rack ATS)
 - A Host Name (by default, apcXXYYZZ with XXYYZZ being the last six digits of the ATS serial number). This is known as DHCP Option 12.
2. A properly configured DHCP server responds with a DHCP offer that includes all the settings that the Rack ATS needs for network communication. The DHCP offer also includes the Vendor Specific Information option (DHCP option 43). The Rack ATS can be configured to ignore DHCP offers that do not encapsulate the APC cookie in DHCP option 43 using the following hexadecimal format. (The Rack ATS does not require this cookie by default.)

Option 43 = 01 04 31 41 50 43

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

NOTE: By selecting **Require vendor specific cookie to accept DHCP Address** in the Web UI, you can require the DHCP server to provide an “APC” cookie, which supplies information to the Rack ATS.

This section summarizes communication of the Rack ATS with a DHCP server. For more detail about how a DHCP server can configure the network settings for a Rack ATS, see the *User Guide* on www.apc.com.

Local access to the command line interface (CLI)

You can use a local computer to connect to the ATS and access the CLI.

1. Select a serial port at the local computer and disable any service that uses that port.
2. Use the communication cable to connect the selected port to the serial port on the front panel of the ATS.
3. Run a terminal program (such as Tera Term or HyperTerminal) and configure the selected port for 9600 bps, 8 data bits, no parity, 1 stop bit, and no flow control. Save the changes.
4. Press ENTER repeatedly until the **User Name** prompt is displayed. This usually takes up to 3 times.
5. Use **apc** for the user name and password the first time you access the device.
NOTE: You will be logging in as the Super User the first time you access the device. You will be prompted to change the password on first use. A secure password in compliance with your company's password policy is recommended. All other user accounts (Administrator, Device User, Read-Only User and Network-Only User) are disabled by default.
6. See "Configure TCP/IP settings in the CLI" on page 16 to finish the configuration.

Remote access to the CLI

From any computer on the same network as the Rack ATS, you can use ARP and Ping to assign an IP address to the Rack ATS and then use SSH to access the CLI of that Rack ATS and configure the other TCP/IP settings.

NOTE: After the IP address of the Rack ATS is configured, you can access the Rack ATS using Telnet or SSH, without first using ARP and Ping. You must enable Telnet before using it, so SSH is required for initial CLI configuration.

1. Use ARP to define an IP address for the Rack ATS and use the MAC address of the Rack ATS in the ARP command. For example, to define an IP address of 156.205.14.141 for a Rack ATS that has a MAC address of 00 c0 b7 63 9f 67, 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
```**NOTE:** The MAC address can be found on the bottom of the ATS.
2. Use Ping with a size of 113 bytes to assign the IP address defined by the ARP command. For example:
 - Windows command format:

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

```
ping 156.205.14.141 -s 113
```
3. Use SSH to access the Rack ATS at its newly assigned IP address. For example:

```
ssh apc@156.205.14.141 -c aes256-cbc
```

 where **-c** indicates the cipher (aes256-cbc or 3des-cbc).
4. Use **apc** for the user name and password the first time you access the device.
NOTE: You will be prompted to change the password on first use.

See "Configure TCP/IP settings in the CLI" on page 16 to finish the configuration.

Configure TCP/IP settings in the CLI

1. Log on to the CLI. See “Local access to the command line interface (CLI)” on page 15 or “Remote access to the CLI” on page 15.
2. Contact your network administrator to obtain the IP address (if needed), subnet mask, and default gateway for the Rack ATS.
3. Use these three commands to configure network settings. (Text in italics indicates a variable.)

```
tcpip -i yourIPAddress  
tcpip -s yourSubnetMask  
tcpip -g yourDefaultGateway
```

For each variable, type a numeric value that has the format *xxx.xxx.xxx.xxx*.
For example, to set a system IP address of 156.205.14.141, type the following command and press ENTER:

```
tcpip -i 156.205.14.141
```

4. Type `exit`, and then press ENTER. The Rack ATS restarts to apply the changes.

How to Access the Rack ATS Interfaces

After the Rack ATS is running on your network, you can use the interfaces summarized here to access the unit. For more information on the interfaces, see the *User Guide* at www.apc.com.

Web UI

You can use the latest version of Microsoft Internet Explorer® (IE) or Edge®, Google Chrome®, Apple Safari®, or Mozilla Firefox® to access the device through its Web UI. Other commonly available browsers and versions may work but have not been fully tested.

The ATS cannot work with a proxy server. Before accessing the Web UI of the ATS, do one of the following:

- Configure the browser to disable the use of a proxy server for your ATS.
- Configure the proxy server so that it does not proxy the specific IP address of your ATS.

To use the Web browser to configure Rack ATS options or to view the event and data logs, you can use either of the following protocols:

- The HTTP protocol (disabled by default), which provides authentication by user name and password but no encryption.
- The HTTPS protocol (enabled by default), which provides extra security through Secure Sockets Layer (SSL) and encrypts user names, passwords, and data being transmitted. It also provides authentication of Rack ATS units by means of digital certificates.

To access the Web UI and configure the security of your unit on the network:

1. Type the IP address (or DNS name if configured) into your Web browser's address bar. You may receive a message that the Web page is not secure. This is normal, and you can continue to the Web UI. The warning is generated because your Web browser does not recognize the default certificate used for encryption over HTTPS. However, information transmitted over HTTPS is still encrypted. See the *Security Handbook* on www.apc.com for more details on HTTPS and instructions to resolve the warning.
2. Use **apc** for the user name and password the first time you access the device.
NOTE: You will be logging in as the Super User the first time you access the device. You will be prompted to change the password on first use. A secure password in compliance with your company's password policy is recommended. All other user accounts (Administrator, Device User, Read-Only User and Network-Only User) are disabled by default.
3. Select and configure the type of security you want by selecting the **Configuration** tab, and then the **Security** or **Network** menu from the top menu bar. (This option is only available for Administrators and Super Users).

See the *Security Handbook* or *User Guide*, available at www.apc.com, for more information on selecting and configuring network security.

Command Line Interface: Telnet and SSH

To access the Command Line Interface, you can use either a local (serial) connection or a remote (Telnet or SSHv2, depending on which is enabled) connection with a computer on the same network as the Rack ATS. A Super User or Administrator can enable these access methods.

Telnet for basic access

Telnet provides the basic security of authentication by user name and password, but not the high-security benefits of encryption. Telnet is disabled by default.

To use Telnet to access the Rack ATS from any computer on the same network:

1. At a command prompt, use the following command line, and then press ENTER until the **User Name** prompt appears. (You may have to press ENTER up to 3 times.):

```
telnet address
```

NOTE: For *address*, use the Rack ATS IP address (or DNS name if configured).

2. Enter **apc** for the user name and password the first time you access the device.

NOTE: You will be prompted to change the password on first use.

SSH for high-security access

If you use the high security of SSL for the Web UI, use Secure SHell (SSH) to access the CLI. SSH encrypts user names, passwords, and transmitted data. The interface, user accounts, and user access rights are the same whether you access the CLI through SSH or Telnet, but to use SSH, you must first configure SSH and have an SSH client program installed on your computer. SSH is enabled by default.

See the *Security Handbook* or the *User Guide* on www.apc.com for more information on configuring and using SSH.

SNMP

SNMP is disabled by default. You must be an Administrator or Super User to enable or disable SNMP access. Go to **Configuration > Network > SNMPv1** or **SNMPv3 > Access** in the Web UI, or use the `SNMP` or `SNMPv3` commands in the CLI. See the *User Guide* on www.apc.com for more information.

To use Data Center Expert or EcoStruxure to manage the Rack ATS, you must have SNMPv1 or SNMPv3 enabled in the unit interface. For SNMPv1, Read access allows Data Center Expert devices to receive traps from the Rack ATS. Write access is required while you set the Data Center Expert device as a trap receiver. See your Data Center Expert or EcoStruxure IT documentation for detailed instructions.

All user names, passwords, and community names for SNMPv1 are transferred over the network as plain text. If your network requires the high security of encryption, disable SNMPv1 access and use SNMPv3 instead.

SNMPv1

After you add the PowerNet[®] MIB to a standard SNMP MIB browser, you can use that browser for SNMP access to the Rack ATS. The community name used as an identifier when SNMPv1 traps are sent to this trap receiver. You can set a read community name and a read/write community name.

SNMPv3

NOTE: To use SNMPv3, you must have an MIB program that supports SNMPv3.

For SNMP GETs, SETs, and the trap receivers, SNMPv3 uses a system of user profiles to identify users. An SNMPv3 user must have a user profile assigned in the MIB software program to perform GETs and SETs, browse the MIB, and receive traps. The default settings are **no authentication** and **no privacy**.

FTP and SCP

You can use FTP (disabled by default) or Secure CoPy (SCP) to transfer downloaded firmware to the ATS, or to access a copy of the event or data logs of the ATS. See the *User Guide* on www.apc.com for details.

To enable or disable **FTP Server** access, you must be an Administrator. In the Web UI, click **Configuration**, click **Network**, and then click **FTP server**.

NOTE: FTP transfers files without encryption. For higher security, disable the FTP server, and transfer files with SCP. Selecting and configuring Secure SHell (SSH) enables SCP automatically. However, SCP will not allow a file transfer until the Super User default password (**apc**) is changed.

NOTE: You can use FTP or SCP to configure and update the ATS with Data Center Expert as long as the same protocol is enabled on both the ATS and Data Center Expert. See your Data Center Expert documentation for details.

Manage the Security of Your System

For detailed information on enhancing the security of your system after installation and initial configuration, see the *Security Handbook*, available on the APC website, www.apc.com.

How to Configure the Rack ATS

Configure Sensitivity

The sensitivity setting controls how tolerant the Rack ATS is of fluctuations in power before it switches to the secondary power source. When sensitivity is set to **Low**, the Rack ATS waits 4 milliseconds (ms) before switching to the alternate power source when there is a disturbance in the power supply. The **Low** setting can prevent excessive switching if your source voltage has excessive or frequent fluctuation. When sensitivity is set to **High**, the Rack ATS waits 2 ms before switching to the alternate power source. The default setting is **High**.

Configure sensitivity through the Web UI

1. Click **Configuration**, click **ATS**, and then click **Frequency/Voltage**.
2. Under **Sensitivity**, click **High** or **Low**.
3. Click **Apply** to save or **Cancel** to leave the page without saving.

Configure sensitivity through the CLI

Type `vSensitivity High` or `vSensitivity Low`, and then press ENTER.

Configure Voltage Transfer Range

The voltage transfer range determines the switching behavior for the Rack ATS based on source voltage. When the source voltage moves outside the specified range, the Rack ATS switches to the secondary power source. You can configure Narrow, Medium, or Wide voltage ranges and then set the ATS to the desired range.

The Rack ATS can be set to **Narrow**, **Medium**, or **Wide** voltage ranges, depending on the power conditions of your system. The default setting is **Wide**.

DANGER

HAZARDOUS VOLTAGE

Do not operate the Rack ATS outside Rated Voltage (+/- 10%). Voltage ranges in the table represent software control of switching behavior, not input voltages for use.

Failure to follow these instructions will result in death or serious injury.

| SKU | Rated Voltage (L-N) (VAC) | Configurable Ranges (VAC) | Narrow Default Range (VAC) | Medium Default Range (VAC) | Wide Default Range (VAC) |
|---------|---------------------------|---------------------------|----------------------------|----------------------------|--------------------------|
| AP4421 | 230 | ± 16–25 | ± 16 | ± 20 | ± 25 |
| AP4422 | 230 | ± 16–25 | ± 16 | ± 20 | ± 25 |
| AP4423 | 230* | ± 16–25 | ± 16 | ± 20 | ± 25 |
| AP4424 | 230* | ± 16–25 | ± 16 | ± 20 | ± 25 |
| AP4430 | 200/208 | ± 15–30 | ± 15 | ± 22 | ± 30 |
| AP4431 | 208 | ± 15–30 | ± 15 | ± 22 | ± 30 |
| AP4432 | 200/208 | ± 15–30 | ± 15 | ± 22 | ± 30 |
| AP4433 | 208 | ± 15–30 | ± 15 | ± 22 | ± 30 |
| AP4434 | 208 | ± 15–30 | ± 15 | ± 22 | ± 30 |
| AP4450 | 100/120 | ± 10–23 | ± 10 | ± 16 | ± 23 |
| AP4452 | 120 | ± 10–23 | ± 10 | ± 16 | ± 23 |
| AP4452J | 100 | ± 10–15 | ± 10 | ± 12 | ± 15 |
| AP4453 | 120 | ± 10–23 | ± 10 | ± 16 | ± 23 |

*220 V Korea only.

NOTE: The voltage transfer range must remain within the absolute maximum ratings of the Rack ATS: 85–265 VRMS. At any source voltage below 85 VRMS or above 265 VRMS, the Rack ATS will switch power sources regardless of configuration.

Configure voltage transfer range through the Web UI

1. Click **Configuration**, click **ATS**, and then click **Frequency/Voltage**.
2. Type the **Line VRMS** and desired **Wide**, **Medium**, and **Narrow** ranges into the appropriate fields.
3. Under **Voltage Transfer Range**, click **Wide**, **Medium**, or **Narrow**.
4. Click **Apply** to save or **Cancel** to leave the page without saving.

Configure voltage transfer range through the CLI

- To set the voltage transfer range to Narrow, Medium, or Wide: type `vXferRange` *Narrow*, `vXferRange` *Medium*, or `vXferRange` *Wide*, and then press ENTER.
- To change the Narrow voltage transfer range, type `vNarrowLmt` *NarrowTransferRange*, and then press ENTER.
- To change the Medium voltage transfer range, type `vMediumLmt` *MediumTransferRange*, and then press ENTER.
- To change the Wide voltage transfer range, type `vWideLmt` *WideTransferRange*, and then press ENTER.

NOTE: For any *TransferRange* value, enter a whole number within the configurable range for your ATS.

Recovering from a Lost Password

You can use a local computer (a computer that connects to the Rack ATS through the serial port) to access the command line interface to reset the user name and password:

1. Select a serial port at the local computer, and disable any service that uses that port.
2. Connect the serial communication cable (APC part number 940-0144A) to the selected port on the computer and to the Serial port on the Rack ATS.
3. Run a terminal program (such as Tera Term[®] or HyperTerminal[®]), and configure the selected port for 9600 bps, 8 data bits, no parity, 1 stop bit, and no flow control.
4. Press ENTER, repeatedly if necessary, to display the **User Name** prompt. (You may need to press ENTER up to 3 times.) 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 on the ATS. The Status LED will flash alternately orange and green within 5 to 7 seconds of pressing the **Reset** button. When the LED begins flashing, immediately press the **Reset** button a second time to temporarily reset the user name and password to their defaults.
6. Press ENTER, repeatedly if necessary, to display the **User Name** prompt again, then use the default user name and password, **apc**. (If you take longer than 30 seconds to log on after the User Name prompt is re-displayed, you must repeat step 5 and log on again.)
7. At the CLI, use the following commands to change the password from **apc** to a value of your choice:

```
user -n <user name> -pw <user password>
```

For example, to change the **Super User** password to **XYZ** type:

```
user -n apc -cp apc -pw XYZ
```
8. Type `quit` or `exit`, and then press ENTER to log off.
9. Reconnect any serial cable you disconnected, and restart any service you disabled.

Two-Year Factory Warranty

This warranty applies only to the products you purchase for your use in accordance with this manual.

Terms of Warranty

Schneider Electric warrants its products to be free from defects in materials and workmanship for a period of two years from the date of purchase. Schneider Electric will repair or replace defective products covered by this warranty. This warranty does not apply to equipment that has been damaged by accident, negligence or misapplication or has been altered or modified in any way. Repair or replacement of a defective product or part thereof does not extend the original warranty period. Any parts furnished under this warranty may be new or factory-remanufactured.

Non-transferable Warranty

This warranty extends only to the original purchaser who must have properly registered the product. The product may be registered at the Schneider Electric website, www.apc.com.

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Warranty Claims

Customers with warranty claims issues may access the Schneider Electric customer support network through the Support page of the Schneider Electric website, www.apc.com/support. Select your country from the country selection pull-down menu at the top of the Web page. Select the Support tab to obtain contact information for customer support in your region.

Life-support Policy

General policy

Schneider Electric does not recommend the use of any of its products in the following situations:

- In life-support applications where failure or malfunction of the Schneider Electric product can be reasonably expected to cause failure of the life-support device or to affect significantly its safety or effectiveness.
- In direct patient care.

Schneider Electric will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to Schneider Electric that (a) the risks of injury or damage have been minimized, (b) the customer assumes all such risks, and (c) the liability of Schneider Electric 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 and 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 Schneider Electric UPS systems. Schneider Electric does not claim that units with these modifications are certified or listed as hospital-grade by Schneider Electric or any other organization. Therefore these units do not meet the requirements for use in direct patient care

Radio Frequency Interference

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the users 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 るように要求されることがあります。

Australia and New Zealand

Attention: 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 Electromagnetic Compatibility (EMC) requirements set forth by the EU directive 2014/30/EU of the European parliament and of the council of 26 February 2014 on the harmonization of the laws of the Member States relating to electromagnetic compatibility.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 32/EN 55032:2015 for Emissions and EN 55024:2010+A1:2015 for Immunities.

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

United Kingdom

This product is in conformity with Electromagnetic Compatibility Regulations 2016 of the UK Legislation as applied to products being supplied in or into Great Britain from 1 January 2021. This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 32/EN 55032:2015 for Emissions and EN 55024:2010+A1:2015 for Immunities.

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

Worldwide Customer Support

Customer support for this or any other product is available at www.apc.com

APC

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