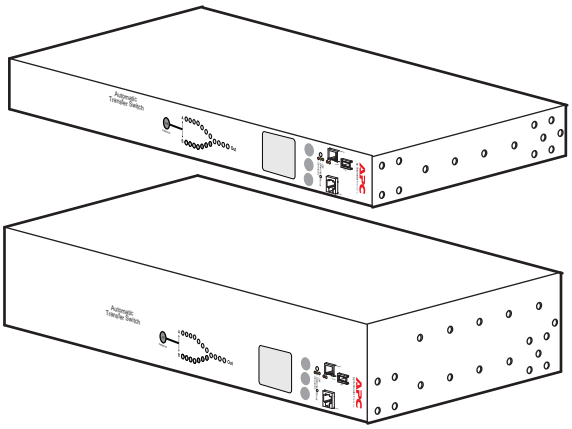
Installation and Quick Start

Rack Automatic Transfer Switch (ATS)

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

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by Schneider Electric

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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 special 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.

Preliminary Information

Overview

The APC by Schneider Electric™ 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 StruxureWare™ 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 1.0mm^2 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 1.5mm^2 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 Manual*, on our 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 Manual

The *User Manual* contains additional information about the following topics related to the Rack ATS firmware:

- Management interfaces
- User accounts
- Customizing setup
- 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 by Schneider Electric or your Schneider Electric reseller.

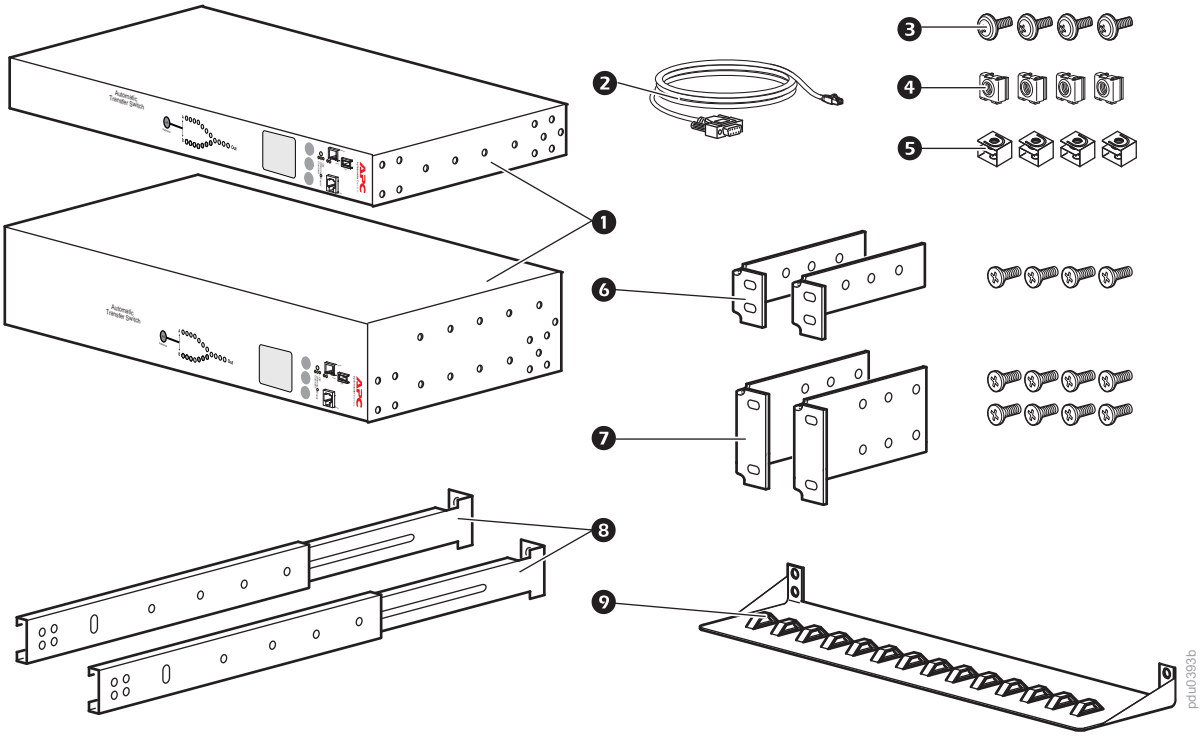
Please recycle

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.schneider-electric.com/support/**

Product inventory



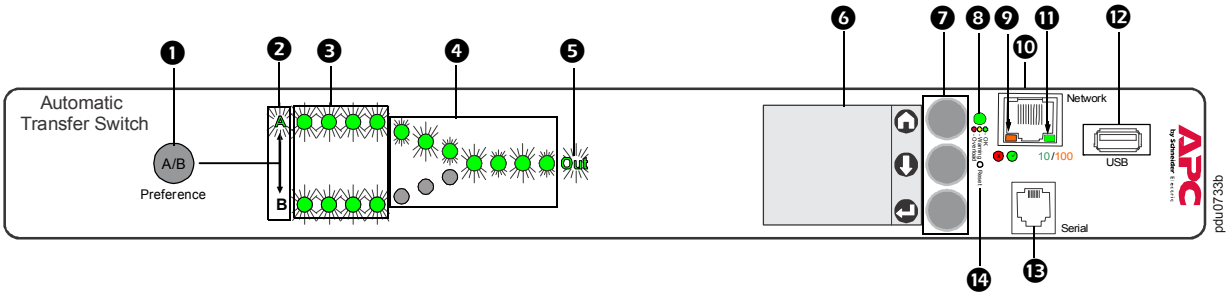
1 Rack Automatic Transfer Switch (1 U or 2 U)
2 Serial Communication cable - RJ12 to female DB-9
3 Screw
4 Cage nut
5 Clip-on retainer
6 1-U rack-mount bracket kit (provided with 1-U Rack ATS)
7 2-U rack-mount bracket kit (provided with 2-U Rack ATS)

Additional options

8 Front and rear rail segments AP7768 (not provided)
9 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 by Schneider Electric website, **www.apc.com**.

Front panel overview



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

Item		Function
❶	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.
❷	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.
❸	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 indicator will be illuminated. In a normal operating condition (full source redundancy) both sets of LEDs are illuminated.
❹	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.
❺	Output LED	Shows that voltage is available at the output for the ATS.
❻	LCD Display	View ATS status, settings, and product information. See the *User Manual* for more information on LCD display screens.
❼	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.
❽	Load Status LED	See “Load Status LED” on page 6
❾	Network status LED	See “Network Status LED” on page 6
❿	10/100 Base-T Connector	Connects the ATS to the network.
⓫	10/100 Status LED	See “10/100 Status LED” on page 6.
⓬	USB port	Use USB drives for firmware upgrades.
⓭	Serial port	Connect your computer to the ATS for local access to the command line interface. Use the supplied Serial Communication cable (Schneider Electric part number 940-0144A).
⓮	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 Manual*.

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.

[1] If you do not use a BOOTP or DHCP server, see “Local access to the command line interface (CLI)” on page 12, “Remote access to the CLI” on page 12, or the *User Manual* on www.apc.com to configure the TCP/IP settings.

Installation

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

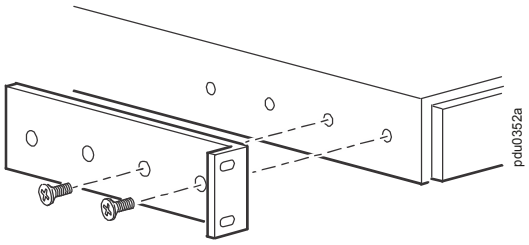
- High leakage current from attached loads is possible. If total leakage current will exceed 3.5mA, attach a ground wire from the Rack ATS supplementary ground (M4 thread) to a reliable ground in your facility before energizing the Rack ATS.
- Do not operate the Rack ATS with the covers removed.
- No 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.

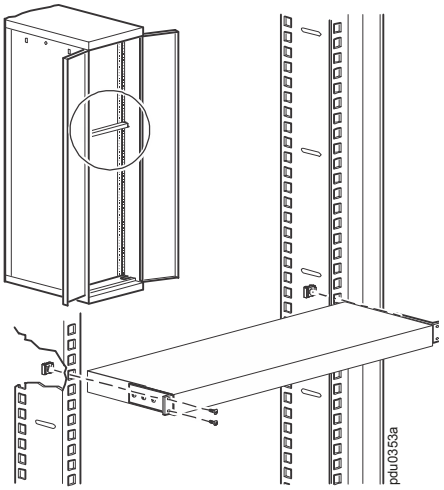
Mounting options

Horizontal mounting: You can mount the Rack ATS in an APC by Schneider Electric NetShelter® or other EIA-310-D standard 19-in rack.

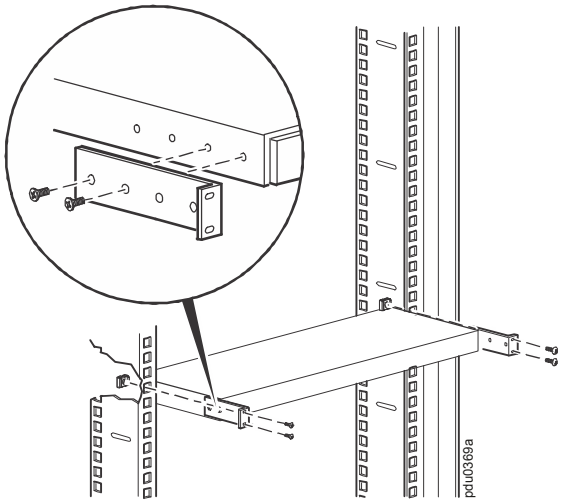
1. Choose a mounting position for the Rack ATS with either the digital display or the rear panel facing out of the enclosure.
2. Attach the mounting brackets to the Rack ATS using the provided flat-head screws.



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.
   a Insert cage nuts above and below the notched hole (or number) on each vertical mounting rail in your chosen location.
   b Align the mounting holes of the brackets with the installed cage nuts. Insert and tighten screws.



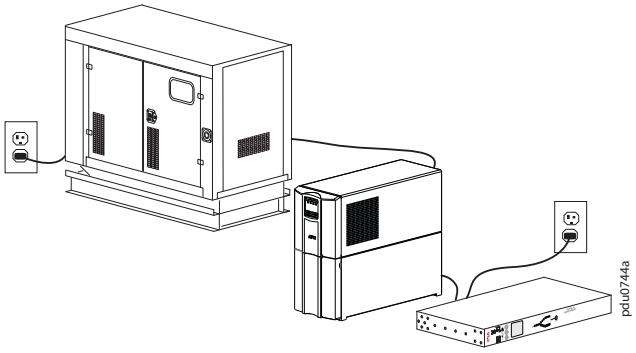
Recessed horizontal mounting: You can mount the Rack ATS in a recessed configuration by attaching the brackets as shown in the following illustration:



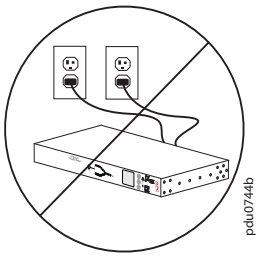
Connect the ATS

NOTICE
• Do not plug an ATS into a generator without the protection of a Double Conversion On-Line Uninterruptible Power Supply (UPS). • ATSs are compatible with Double Conversion On-Line UPSs, not Line Interactive UPSs. (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 by Schneider Electric StruxureWare as part of your system. See the StruxureWare documentation for more information.

Overview

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 Manual* 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.

Caution: 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 by Schneider Electric Device IP Configuration Wizard (See Device IP Configuration Wizard on this page).
- BOOTP or DHCP server (See “DHCP and BOOTP configuration” on page 11).
- Local computer (See “Local access to the command line interface (CLI)” on page 12).
- Networked computer (See “Remote access to the CLI” on page 12).

Device IP Configuration Wizard

The Device IP Configuration Wizard runs on Microsoft® Windows® 2000, Windows Server® 2003, Windows Server 2012, and on 32- and 64-bit versions of Windows XP, Windows Vista, Windows 2008, Windows 7, Windows 8, and Windows 10 operating systems. The Device IP Configuration Wizard supports cards that have firmware version 3.0.x or higher and is for **IPv4 only**. (To configure one or more Rack ATSs by exporting configuration settings from a configured Rack ATS, see the *User Manual*.)

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

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 Device IP Configuration Wizard and run the executable file (DeviceIPConfigurationWizard.exe).
5. Click **Device IP Configuration Wizard** and follow the configuration prompts.
   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 Rack ATS through your browser.

DHCP and BOOTP configuration

In the web interface, 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 10, “Local access to the command line interface (CLI)” on page 12, or “Remote access to the CLI” on page 12 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 interface (see “Web interface” on page 14) or CLI (see “Remote access to the CLI” on page 12) The default user name and password are **apc** for both interfaces. 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 the **Require vendor specific cookie to accept DHCP Address** check box in the web interface, you can require the DHCP server to provide an “APC” cookie, which supplies information to the Rack ATS.

This section summarizes the Rack ATS’s communication with a DHCP server. For more detail about how a DHCP server can configure the network settings for a Rack ATS, see the *User Manual*.

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 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.
6. See “Configure TCP/IP settings in the CLI” on page 13 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 Telnet 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 SSH before using it, so Telnet 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 Telnet to access the Rack ATS at its newly assigned IP address. (For example: `telnet 156.205.14.141`) Use **apc** for both user name and password.
   (See “Telnet for basic access” on page 14)

See “Configure TCP/IP settings in the CLI” on page 13 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)” or “Remote access to the CLI” .
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

Overview

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 Manual* at www.apc.com.

Web interface

To access the web interface on Windows® operating systems, use Microsoft® Internet Explorer® (IE) 8.x or higher (with compatibility view turned on), or the latest release of Microsoft Edge®.

To access the web interface on any operating system, use the latest releases of Mozilla®, Firefox®, or Google Chrome®. Other commonly available browsers also may work but have not been fully tested by Schneider Electric.

The ATS cannot work with a proxy server. Before accessing the Web interface 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 (enabled by default), which provides authentication by user name and password but no encryption.
- The HTTPS protocol, which provides extra security through Secure Sockets Layer (SSL) and encrypts user names, passwords, and data being transmitted. It also provides authentication of Rack ATSs by means of digital certificates.

To access the web interface 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.
2. Enter the user name and password (by default, **apc** and **apc** for the Super User).
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 Manual*, 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 is enabled by default.

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 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 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) 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.

See the *Security Handbook* or the *User Manual* for more information on configuring and using SSH.

SNMP

SNMPv1 only

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 default read community name is **public**; the default read/write community name is **private**.

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**.

SNMPv1 and SNMPv3

To use StruxureWare to manage the Rack ATS on the public network of a StruxureWare system, you must have SNMPv1 enabled in the unit interface. Read access allows StruxureWare devices to receive traps from the Rack ATS. Write access is required while you set the StruxureWare device as a trap receiver.

To enable or disable SNMP access, you must be an Administrator or Super User. In the web interface, click **Configuration**, click **Network**, click either **SNMPv1** or **SNMPv3**, and then click **Access**.

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.

FTP and SCP

You can use FTP (enabled 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 Manual* for details.

To enable or disable **FTP Server** access, you must be an Administrator. In the web interface, 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.

NOTE: You can use FTP or SCP to configure and update the ATS with StruxureWare Data Center Expert as long as the same protocol is enabled on both the ATS and StruxureWare. See your StruxureWare 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 by Schneider Electric Web site, **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 interface

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 `vSensitvty High` or `vSensitvty 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**.

⚠ WARNING

HAZARDOUS VOLTAGE

Rack ATSs ARE NOT TO BE OPERATED OUTSIDE Rated Voltage. Voltage ranges in the table represent software control of switching behavior, not input voltages for use.

Use of the product outside the rated voltage (+/-10%) can result in equipment damage, electrocution, shock, serious injury, and death.

SKU Number	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

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 interface

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 (Schneider Electric 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 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.

Warranty

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Non-transferable warranty

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

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Warranty claims

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

Life-support Policy

General policy

APC by 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 APC by 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.

APC by Schneider Electric will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to APC by 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 APC by Schneider Electric is adequately protected under the circumstances

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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 APC by Schneider Electric UPS systems. APC by Schneider Electric does not claim that units with these modifications are certified or listed as hospital-grade by APC 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

Worldwide Customer Support

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

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