Command Line Interface Guide

Network Management Card 3, Firmware Version 3.1.x

AP9640, AP9641, AP9643

UPS devices with an embedded Network Management Card 3, such as Smart-UPS devices with the SRT prefix, Smart-UPS Ultra devices with the SRTL prefix, or Smart-UPS Modular Ultra devices with the SRYLF prefix.

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Command Line Interface (CLI)

How To Log On

Overview

To access the command line interface, you can use either a local, serial connection, or a remote connection (Telnet or SSH) with a computer on the same network as the Network Management Card (NMC).

To access the Command Line Interface detailed in this CLI Guide, the NMC must have the Smart-UPS, Single Phase Symmetra, or Smart-UPS Ultra 5-20 kWA firmware installed, and the NMC must be installed in a Smart-UPS or Single Phase Symmetra model UPS. For more information on UPS models compatible with your NMC, see Knowledge Base article **FA237786**.

Use case-sensitive user name and password entries to log on (by default, **apc** and **apc** for a Super User). The default user name for a Device User is **device**. A Read-Only User has limited access to the command line interface.

NOTE: You will be prompted to enter a new password the first time you connect to the NMC with the Super User account.

Security Lockout. If a valid user name is used with an invalid password consecutively for the number of times specified in the NMC web interface under **Configuration > Security > Local Users > Default Settings**, the user account will be locked for one hour or until the Super User or an Administrator-level account unlocks the account.

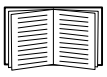
See the Network Management Card 3 **User Guide** (for AP9640, AP9641, AP9643, and SRTL/SRYLF devices) for more information on these options.

If you cannot remember your user name or password, see **How to Recover from a Lost Password** in the **User Guide**.

Remote access to the command line interface

You can access the command line interface through Telnet or SSH. Only SSH is enabled by default.

To enable or disable these access methods, use the Web interface. On the **Configuration** menu, select **Network > Console > Access**.



You can also enable or disable Telnet or SSH access through the command line interface. For more information, see **console**.

SSH for high-security access. If you use the high security of SSL/TLS for the Web interface, use SSH for access to the command line interface. SSH encrypts user names, passwords, and transmitted data. The interface, user accounts, and user access rights are the same whether you access the command line interface through SSH or Telnet, but to use SSH, you must first configure SSH and have an SSH client program installed on your computer. Enabling SSH also enables SCP (Secure Copy), for secure file transfer.

1. Use the following example command to use SSH to access the NMC:

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

   NOTE: This SSH command is for OpenSSH. The command may differ depending on the SSH tool used.

2. Enter the user name and password.

   NOTE: You will be prompted to enter a new password the first time you connect to the NMC with the Super User account.

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 command line interface:

1. From a computer that has access to the network on which the NMC is installed, at a command prompt, type `telnet` and the IP address for the NMC (for example, `telnet 139.225.6.133`, when the NMC uses the default Telnet port of 23), and press ENTER.
   NOTE: This example works for command prompt based Telnet clients. The commands may differ for different Telnet clients.

   If the NMC uses a non-default port number (from 5000 to 32768), you must include a colon or a space, depending on your Telnet client, between the IP address (or DNS name) and the port number. (These are commands for general usage: some clients don't allow you to specify the port as an argument and some types of Linux might want extra commands).

2. Enter the user name and password.

   NOTE: You will be prompted to enter a new password the first time you connect to the NMC with the Super User account.

Local access to the command line interface

For local access, use a computer that connects to the Network Management Card through the USB virtual serial port to access the command line interface:

1. Connect the provided micro-USB cable (part number 960-0603) from a USB port on the computer to the console port at the NMC.
2. In Windows Search, type "Device Manager", or open it from the Control Panel. Select "Ports" and note the COM port number the NMC was assigned.
3. Run a terminal program (e.g. 3rd party terminal emulator programs like HyperTerminal, PuTTy, or Tera Term) and configure the COM port (noted in step 2) for 9600 bps, 8 data bits, no parity, 1 stop bit, and no flow control. Save the changes.
4. Press ENTER, repeatedly if required, to display the **User Name** prompt.
5. Enter the user name and password.

   NOTE: The user name will be "apc" at first log for the Super User account. You will be prompted to enter a new password after you log in.

Main Screen

Sample main screen

Following is an example of the screen displayed when you log on to the command line interface at the Network Management Card (NMC).

```
 Schneider Electric                    Network Management Card AOS vx.x.x.x
(c)Copyright 2022 All Rights Reserved Smart-UPS APP               vx.x.x.x
-------------------------------------------------------------------------------
Name     : Test Lab                                  Date : 01/15/2022
Contact  : Don Adams                                 Time : 5:58:30
Location : Building 3                                User : Super User
Up Time  : 0 Days, 21 Hours, 21 Minutes              Stat : P+ N4+ N6+ A+
-------------------------------------------------------------------------------
IPv4                : Enabled          IPv6              : Enabled
Ping Response       : Enabled
-------------------------------------------------------------------------------
HTTP                : Disabled         HTTPS             : Enabled
FTP                 : Disabled         Telnet            : Disabled
SSH/SCP             : Enabled          SNMPv1            : Disabled
SNMPv3              : Disabled         Modbus TCP        : Disabled
BACnet/IP           : Disabled
-------------------------------------------------------------------------------
Super User          : Enabled         User authentication: Local
Administrator       : Disabled        Device User       : Disabled
Read-Only User      : Disabled        Network-Only User  : Disabled

Type ? for command listing
Use tcpip command for IP address(-i), subnet(-s), and gateway(-g)
apc>
```

Information and status fields

Main screen information fields.

- Two fields identify the American Power Conversion operating system (AOS) and application (APP) firmware versions. The application firmware name identifies the device that connects to the network through this NMC. In the example above, the NMC uses the application firmware for a Smart-UPS UPS.

```
Network Management Card AOS    vx.x.x.x
Smart-UPS APP                  vx.x.x.x
```

Three fields identify the system name, contact person, and location of the NMC.

```
Name   : Test Lab
Contact: Don Adams
Location: Building 3
```

- The **Up Time** field reports how long the NMC management interface has been running since it was last turned on or reset.

  ```
  Up Time: 0 Days 21 Hours 21 Minutes
  ```

- Two fields report when you logged in, by date and time.

  ```
  Date : 01/15/2022
  Time : 5:58:30
  ```

- The **User** field reports whether you logged in through the **Super User**, **Administrator**, **Device Manager**, **Network-Only** or **Read-Only** account.
  When you log on as Device Manager (equivalent to Device User in the user interface), you can access the event log, configure some UPS settings, and view the number of active alarms.

  ```
  User : Super User
  ```

Main screen status fields.

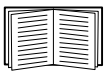
- The **Stat** field reports the NMC status. The middle status varies according to whether you are running IPv4, IPv6, or both, as indicated in the second table below.

  ```
  Stat : P+ N+ A+
  ```

P+	The operating system (AOS) is functioning properly.

IPv4 only	IPv6 only	IPv4 and IPv6*	Description
N+	N6+	N4+ N6+	The network is functioning properly.
N?	N6?	N4? N6?	A DHCP or BOOTP request cycle is in progress.
N–	N6–	N4– N6–	The NMC did not connect to the network.
N!	N6!	N4! N6!	Another device is using the IP address of the NMC.
* The N4 and N6 values can be different from one another: you could, for example, have N4– N6+.			

A+	The application is functioning properly.
A–	The application has a bad checksum.
A?	The application is initializing.
A!	The application is not compatible with the AOS.



If P+ is not displayed, see customer support at http://www.apc.com/site/support/.

How to Use the Command Line Interface

Overview

The command line interface provides options to configure the network settings and manage the UPS and its Network Management Card (NMC).

How to enter commands

At the command line interface, use commands to configure the NMC. To use a command, type the command and press ENTER. Commands and arguments are valid in lowercase, uppercase, or mixed case. Options are case-sensitive.

While using the command line interface, you can also do the following:

- Type `?` and press ENTER to view a list of available commands, based on your account type.

  To obtain information about the purpose and syntax of a specified command, type the command, a space, and `?` or the word `help`. For example, to view RADIUS configuration options, type:
  `radius ?`
  or
  `radius help`
- Press the UP arrow key to view the command that was entered most recently in the session. Use the UP and DOWN arrow keys to scroll through a list of up to ten previous commands.
- Type at least one letter of a command and press the TAB key to scroll through a list of valid commands that match the text you typed in the command line.
- Type `ups -st` to view the status of the UPS.
- Type `exit` or `quit` to close the connection to the command line interface.

Command syntax

Item	Description
`-`	Options are preceded by a hyphen.
`< >`	The definitions of options are enclosed in angle brackets. For example: `-pw <user password>`
`[ ]`	If a command accepts multiple options or an option accepts mutually exclusive arguments, the values may be enclosed in brackets.
`|`	A vertical line between items enclosed in brackets or angle brackets indicates that the items are mutually exclusive. You must use one of the items.

Syntax examples

A command that supports multiple options:

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

Here, the `user` command accepts both the option `-n`, which specifies the user name, and the option `-pw`, which changes the password.

For example, to change a password to XYZ, type:

```
user -n apc -pw XYZ
```

NOTE: Super User also requires the current password when changing the password remotely. See the **user** section.

A command that accepts mutually exclusive arguments for an option:

```
alarmcount -p [all | warning | critical]
```

In this example, the option `-p` accepts only three arguments: `all`, `warning`, or `critical`. For example, to view the number of active critical alarms, type:

```
alarmcount -p critical
```

The command will not work if you type an argument that is not specified.

Command Response Codes

The command response codes enable scripted operations to detect error conditions reliably without having to match error message text.

The CLI reports all command operations with the following format:

```
E [0-9][0-9][0-9]: Error message
```

Code	Error message
E000	Success
E001	Successfully Issued
E002	Reboot required for change to take effect
E100	Command failed
E101	Command not found
E102	Parameter Error
E103	Command Line Error
E107	Serial communication with the UPS has been lost
E108	EAPoL disabled due to invalid/encrypted certificate

Command Descriptions

The availability of the commands and options below can vary between UPS devices.

?

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User.

Description: View a list of all the CLI commands available to your account type. To view help text for a specific command, type the command followed by a question mark.

Example: To view a list of options that are accepted by the `alarmcount` command, type:

```
alarmcount ?
```

about

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User

Description: View hardware and firmware information. This information is useful in troubleshooting and enables you to determine if updated firmware is available at the website.

alarmcount

Access: Super User, Administrator, Device User, Read Only

Description: View the alarm information.

Option	Arguments	Description
`-p`	`all`	View the number of active alarms reported by the NMC. Information about the alarms is provided in the event log.
	`warning`	View the number of active warning alarms.
	`critical`	View the number of active critical alarms.
	`informational`	View the number of active informational alarms.

Example: To view the number of active warning alarms, type:

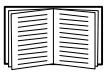
```
alarmcount -p warning
```

bacnet

Access: Super User, Administrator

Description: View and define the BACnet settings.

This command is not available with all UPS devices.



For more information on the UPS data points made available via BACnet, see the BACnet Application Maps available on the **APC website.**

Option	Arguments	Description
`-S`	`<enable | disable>`	Select the option to enable or disable BACnet. If BACnet is disabled, the NMC cannot be accessed via BACnet. BACnet is disabled by default. **NOTE:** BACnet cannot be enabled until the Device Communication Control Password (`-pw`) is set.
`-d`	`0-4194302`	A unique identifier for this BACnet device, used for addressing the device.
`-n`	`<device name>`	A name for this BACnet device, which must be unique on the BACnet network. The default device name is “BACn”+ the last eight digits of the NMC MAC address. The minimum length is 1, the maximum length is 150 characters, and special characters are permitted.
`-t`	`1000 - 30000`	Specify the APDU timeout; the number of milliseconds the NMC will wait for a response to a BACnet request. The default value is 6000.
`-r`	`0 - 10`	Specify the APDU retries; the number of BACnet requests attempts that the NMC will make before aborting the request. The default value is 3.
`-pw`	`<password>`	The Device Communication Control service is used by a BACnet client to instruct a remote device (e.g. a BACnet-enabled NMC) to stop initiating, or stop responding to all APDUs (except the Device Communication Control service) for a specified duration of time. This service can be used for diagnostic purposes. Specify the Device Communication Control password to ensure that a BACnet client cannot control the BACnet communication of an NMC without first providing the password set here. The password is required to be between 8 and 20 characters, and must contain: • A number. • An uppercase character. • A lowercase character. • A special character. It is recommended to update the password when you first enable BACnet. You do not need to know the current password to update the password.

Option	Arguments	Description
BACnet IP options:		
`-o`	`47808, 5000-65535`	Specify the UDP/IP port the NMC uses to send and receive BACnet/IP messages. **NOTE:** The address of a BACnet/IP-enabled NMC is defined as the IP address of the NMC and the local port.
`-fdre`	`enable | disable`	Specify enable to register the NMC with a BACnet broadcast management device (BBMD). **NOTE:** You need to register your NMC as a foreign device with a BBMD if there is no BBMD currently on the subnet of the NMC, or if the NMC uses a different local port to the BBMD. See the NMC **User Guide** for more information on Foreign Device Registration.
`-rip`	`<IPv4 address or DNS host>`	The IP address or fully qualified domain name (FQDN) of the BACnet broadcast management device with which this NMC card will be registered.
`-rpo`	`0 - 65535`	The port of the BBMD with which this NMC card will be registered.
`-fttl`	`1-65535`	The number of seconds (Time To Live) that the BBMD will maintain the NMC as a registered device. If the NMC does not re-register before this time expires, the BBMD will delete it from its foreign-device table, and the NMC will no longer be able to send and receive broadcast messages via the BBMD.
`-fst`		The foreign device registration status.

Example 1: To see current BACnet settings, type:
`bacnet`

Example 2: To enable BACnet, type:
`bacnet -S enable`

boot

Access: Super User, Administrator, Network-Only User

Description: Define how the NMC will obtain its network settings, including the IP address, subnet mask, and default gateway. Then configure the BOOTP or DHCP server settings.

Option	Argument	Description
`-b`	`dhcp | bootp | manual`	Define how the TCP/IP settings will be configured when the NMC turns on, resets, or restarts.
`-c`	`enable | disable`	`dhcp` boot modes only. Enable or disable the requirement that the DHCP server provide the APC cookie.
The default values for these three settings generally do not need to be changed:		
`-v`	`<vendor class>`	APC.

Option	Argument	Description
-i	<client id>	The MAC address of the NMC, which uniquely identifies it on the network.
-u	<user class>	The name of the application firmware module.

Example 1: To use a DHCP server to obtain network settings, type:

```
boot -b dhcp
```

Example 2: To enable the requirement that the DHCP server provide the APC cookie, type:

```
boot -c enable
```

bye

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User

Description: Exit from the command line interface session.This works the same as the exit or quit commands.

Example:

```
bye
Connection Closed - Bye
```

cd

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User

Description: Navigate to a folder in the directory structure of the NMC.

Example 1: To change to the `ssh` folder and confirm that an SSH security certificate was uploaded to the NMC:

1. Type `cd ssh` and press ENTER.
2. Type `dir` and press ENTER to list the files stored in the SSH folder.

Example 2: To return to the previous directory folder, type:

```
cd
```

cfgshutdn

Access: Super User, Administrator, Device User

Description: Configure the shutdown parameters: this enables you to show and configure UPS Shutdown Delay, UPS Return Delay, UPS Low Battery Duration, UPS Sleep Time, UPS Minimum Battery Charge, and UPS Minimum Return Runtime.

These options are not available with all UPS devices.

Option	Argument These values can vary with different devices.	Description
`-all`		Show all applicable shutdown parameters for this UPS.
`-sd`	`000 | 090 | 180 | 270 | 360 | 450 | 540 | 630`	Set the shutdown delay in seconds.
`-lo`	`0-30`	Set the low battery duration in minutes.
`-rd`	`000 | 060 | 120 | 180 | 240 | 300 | 360 | 420`	Set the UPS return delay in seconds, that is, the delay time before the UPS turns on again.
`-rrt`	`0-3600`	Set the minimum return runtime in seconds, that is, the battery runtime to support the load must reach this value before the UPS turns on again.
`-sl`	`0.0-336.0`	Set the sleep time, in hours. The argument can have any number between 0.0 and 336.0.
`-rsc`	`00 | 15 | 30 | 45 | 60 | 75 | 90`	Set the minimum battery charge, as a percentage of the total capacity.

Example 1: To show all the shutdown parameters supported by this UPS device, type:

```
cfgshutdn -all
```

Example 2: To set the low battery duration to 5 minutes, type:

```
cfgshutdn -lo 5
```

The cfgshutdn command options for UPS devices running the Smart-UPS Ultra 5-20 kW application:

These options are not available with all UPS devices.

Option	Argument	Description
`-all`		Show all applicable shutdown parameters for this UPS.
`-lo`	`0-30`	Set the NMC low battery duration in minutes.
`-pod`	`0-600`	Set the power on delay in seconds.
`-pfd`	`0-32767`	Set the power off delay in seconds.
`-rbd`	`4-300`	Set the reboot duration in seconds.

Option	Argument	Description
-mrr	0-32767	Set the minimum return runtime in seconds, that is, the battery runtime to support the load must reach this value before the UPS turns on again.
-lsb	disabled, 5-32767	Disable load shedding, or enable it and set, in seconds, how long the UPS stays on while on battery before powering off.
-lsr	disabled, 0-3600	Disable load shedding, or enable it and set, in seconds, the runtime remaining left while on battery before the UPS powers off.
-lss	enable | disable	Enable or disable skipping the UPS turn off delay.
-lsp	enable | disable	Enable or disable the UPS staying off after the power returns.
-sl	0.0-336.0	Set the sleep time, in hours. The argument can have any number between 0.0 and 336.0.

Example 3: To set the power off delay to 120 seconds (2 minutes), type:
`cfgshutdn -pfd 120`

cfgoutlet

This command is not available with all UPS devices.

Access: Super User, Administrator, Device User

Description: Configure the outlet group parameters: this enables you to show and configure outlet group on/off delays and load shedding.

When setting parameters, outlet group 1 is the Unswitched Outlet Group and 2 is the Switched Outlet Group 1, etc., unless the UPS device doesn't have an Unswitched Outlet Group in which case outlet group 1 is the Switched Outlet Group 1, etc. Entering `cfgoutlet ?` will describe the connected UPS device and the associated outlet group numbers.

Option	Argument	Description
-all		Show all applicable outlet group shutdown parameters for this UPS.
-pod	[outlet group #] 0-600	Set the power on delay in seconds.
-pfd	[outlet group #] 0-32767	Set the power off delay in seconds.
-rbd	[outlet group #] 4-300	Set the reboot duration in seconds.
-mrr	[outlet group #] 0-32767	Set the minimum return runtime in seconds.
-lsb	[outlet group #] disabled, 5-32767	Disable load shedding, or enable it and set, in seconds, how long the UPS stays on while on battery before powering off.

Option	Argument	Description
-lsr	[outlet group #] disabled, 0-3600	Disable load shedding, or enable it and set, in seconds, the runtime remaining left before the UPS powers off.
-lss	[outlet group #] enable | disable	Enable or disable skipping the UPS turn off delay.
-lsp	[outlet group #] enable | disable	Enable or disable the UPS staying off after the power returns.

Example 1: To see all the outlet configuration settings for this UPS device, type:

```
cfgoutlet -all
```

Example 2: To set the Outlet Group 1 power off delay to 120 seconds in a UPS device with an Unswitched Outlet Group, type:

```
cfgoutlet -pfd 2 120
```

cfgpower

Access: Super User, Administrator, Device User

Description: Configure the power parameters: this enables you to show and configure transfer points, sensitivity, and output voltage.

These options are not available with all UPS devices.

Option	Argument These values can vary with different devices.	Description
-all		Show all applicable power parameters for this UPS.
-l	97-106	Set the low transfer point, in VAC.
-h	127-136	Set the high transfer point, in VAC.
-ov	100 | 120 | 110 |	Set the output voltage, in VAC.
-s	Normal | Reduced | Low	Set the sensitivity, using one of the three arguments.
-bu	127-148	Set the bypass upper voltage, in VAC.
-bl	86-100	Set the bypass lower voltage, in VAC.

Example 1: To see all the power settings for this UPS device, type:

```
cfgpower -all
```

Example 2: To set the low transfer point to 100 VAC, type:

```
cfgpower -l 100
```

The cfgpower command options for UPS devices running the Symmetra application:

These options are not available with all UPS devices.

Option	Argument	Description
`-all`		Show all applicable power parameters for this UPS.
`-rda`	`Never | n+1 | n+2`	Set an alarm to occur if available redundant power drops below n+1 or n+2. Enter Never to prevent an alarm in response to any loss of redundancy.
`-lda`	`Never | 01.0 | 02.0 | 03.0 | 04.0 | 05.0 | 06.0 | 07.0 | 08.0 | 09.0 | 10.0 | 12.0 | 14.0 | 16.0`	Set an alarm to occur if the load exceeds the specified kVA load level. Enter Never to prevent an alarm in response to changes to the load level.
`-rta`	`Never | 005 | 010 | 015 | 030 | 045 | 060 | 120 | 180 | 240 | 300 | 360 | 420 | 480`	Set an alarm to occur if the Available Battery Runtime drops below the specified number of minutes. Available Battery Runtime is the number of minutes the UPS can support the current load while operating on battery power. Enter Never to prevent an alarm in response to a drop in available battery runtime.

The cfgpower command options for UPS devices running the Smart-UPS Ultra 5-20 kW application:

These options are not available with all UPS devices.

Option	Argument These values can vary with different devices.	Description
`-all`		Show all applicable power parameters for this UPS.
`-l`	`187–192`	Set the low transfer point, in VAC.
`-h`	`218–230`	Set the high transfer point, in VAC.

Option	Argument These values can vary with different devices.	Description
-bl	160-184	Set the bypass lower voltage, in VAC.
-bu	220-270	Set the bypass upper voltage, in VAC.
-ov	120/208 | 120/240 | 100/200	Set the output voltage, in VAC.
-of	Auto_50/60 | 50+/-0.1 | 50+/-3.0 | 60+/-0.1 | 60+/-3.0	Set the output frequency, in Hz.
-ofsr	0.50 | 1.00 | 2.00 | 4.00	Set the output frequency slew rate, in Hz/second.
-red	Never | N+1 | N+2	Set the redundancy alarm setting.

Example 3: To set the output frequency to 60 +/- 3 Hz, type:

```
cfgpower -of 60+/-3.0
```

cfguio

This command is only available on the AP9641 or AP9643 cards, or an embedded NMC3 with a Universal Input/Output (UIO) port.

Access: Super User, Administrator, Device User

Definition: Show or configure the parameters used by an attached UIO probe.

NOTE: Temperature settings will appear in degrees Celsius or degrees Fahrenheit depending upon the logged in user's preference settings. The temperature settings are always stored in degrees Celsius so not all values can be set in degrees Fahrenheit.

Option	Argument	Description
<none>		Show all attached UIO probes and the parameters associated with those probes.
-thname	[UIO port #] <name>	Temperature or temperature/humidity probe name.
-thloc	[UIO port #] <location>	Temperature or temperature/humidity probe location.

Option	Argument	Description
-tenable	[UIO port #] [min | low | high | max] <enable | disable>	Enable or disable temperature alarm generation for the various temperature settings.
-tmin	[UIO port #] <0-60 degrees C>	Minimum temperature threshold, a critical alarm.
-tlow	[UIO port #] <0-60 degrees C>	Low temperature threshold, a warning alarm.
-thigh	[UIO port #] <0-60 degrees C>	High temperature threshold, a warning alarm.
-tmax	[UIO port #] <0-60 degrees C>	Maximum temperature threshold, a critical alarm.
-thyst	[UIO port #] <0-10 degrees C>	Temperature hysteresis.
-henable	[UIO port #] [min | low | high | max] <enable | disable>	Enable or disable humidity alarm generation for the various humidity settings.
-hmin	[UIO port #] <0-60%>	Minimum humidity threshold, a critical alarm.
-hlow	[UIO port #] <0-60%>	Low humidity threshold, a warning alarm.
-hhigh	[UIO port #] <0-60%>	High humidity threshold, a warning alarm.
-hmax	[UIO port #] <0-60%>	Maximum humidity threshold, a critical alarm.
-hhyst	[UIO port #] <0-20%>	Humidity hysteresis.
-cname	[UIO port #] [contact #] <name>	Input contact name.
-cloc	[UIO port #] [contact #] <location>	Input contact location.
-cnormst	[UIO port #] [contact #] <open | closed>	Input contact normal state.
-csever	[UIO port #] [contact #] <warning | critical>	Input contact alarm severity.
-cenable	[UIO port #] [contact #] <enable | disable>	Enable or disable input contact alarm generation.
-orname	[UIO port #] <name>	Output relay name.
-orloc	[UIO port #] <location>	Output relay location.
-ornormst	[UIO port #] <open | closed>	Output relay normal state.
-ordelay	[UIO port #] <0-65535 seconds>	Output relay activation delay. The number of seconds an alarm condition must exist before the output relay is activated.

Option	Argument	Description
-orhold	[UIO port #] <0-65535 seconds>	Output relay hold time. The minimum number of seconds the output relay remains activated after the alarm occurs.
-fname	[UIO port #] <name>	Fluid sensor name.
-floc	[UIO port #] <location>	Fluid sensor location.
-fenable	[UIO port #] <enable | disable>	Enable or disable fluid sensor alarm generation.

Example 1: To show all the attached UIO probes and their associated parameters, type:

```
cfguio
```

Example 2: To set the name of the temperature probe connected to UIO port 1, type:

`cfguio -thname 1` "new probe name"

clrrst

Access: Super User, Administrator

Definition: Clear the network interface reset reason. See **lastrst**.

console

Access: Super User, Administrator, Network Only

Description: Define whether users can access the command line interface using Telnet, which is disabled by default, or Secure Shell (SSH), which is enabled by default, which provides protection by transmitting user names, passwords, and data in encrypted form. You can change the Telnet or SSH port setting for additional security. Alternately, disable network access to the command line interface.

Option	Argument	Description
-s	enable | disable	Enable or disable SSH. Enabling SSH enables SCP.
-t	enable | disable	Enable or disable Telnet.
-pt	<telnet port number>	Specify the Telnet port number used to communicate with the NMC (23 by default). The other range is 5000–32768.
-ps	<SSH port number>	Specify the SSH port number used to communicate with the NMC (22 by default). The other range is 5000–32768.
-b	2400 | 9600 | 19200 | 38400| 57600 | 115200	Configure the serial baud rate (9600 by default).

Example 1: To enable SSH access to the command line interface, type:

```
console -s enable
```

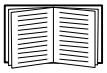
Example 2: To change the Telnet port to 5000, type:

```
console -pt 5000
```

date

Access: Super User, Administrator

Definition: Configure the date used by the NMC.



To configure an NTP server to define the date and time for the NMC, see the **User Guide**.

Option	Argument	Description
-d	<"datestring">	Set the current date. Use the date format specified by the `date -f` command.
-t	<00:00:00>	Configure the current time, in hours, minutes, and seconds. Use the 24-hour clock format.
-f	mm/dd/yy | dd.mm.yyyy | mmm-dd-yy | dd-mmm-yy | yyyy-mm-dd	Select the numerical format in which to display all dates in this user interface. Each letter m (for month), d (for day), and y (for year) represents one digit. Single-digit days and months are displayed with a leading zero. **NOTE:** The date format configured in the user settings in the NMC UI will override this setting at next login.
-z	<time zone offset>	Set the difference with GMT in order to specify your time zone. This enables you to synchronize with other people in different time zones.

Example 1: To display the date using the format yyyy-mm-dd, type:

```
date -f yyyy-mm-dd
```

Example 2: To set the date as October 30, 2009, using the format configured in the preceding example, type:

```
date -d "2009-10-30"
```

Example 3: To set the time as 5:21:03 p.m., type:

```
date -t 17:21:03
```

delete

Access: Super User, Administrator

Description: Delete a file in the file system. (To delete the event log, see the **User Guide**).

Argument	Description
<file name>	Type the name of the file to delete.

Example: To delete a file:

1. Navigate to the folder that contains the file. For example, to navigate to the `logs` folder, type:
   `cd logs`
2. To view the files in the `logs` folder, type:
   `dir`
3. Type
   `delete <file name>`

detbat

This command is not available on all UPS devices.

Access: Super User, Administrator, Device User

Description: View detailed UPS battery information about battery packs and battery cartridges, if applicable, installed in the UPS device. In some UPS devices, set battery pack or cartridge installation date.

These options are not available with all UPS devices.

Option	Argument This is optional except when performing a set function using -id or -pi.	Description
-all	<pack_#>	Show all battery information.
-f	<pack_#>	Pack firmware revision(s).
-t	<pack_#>	Pack temperatures.
-pe	<pack_#>	Pack battery status (fault conditions).
-s	<pack_#> <cartridge_#>	Cartridge health.
-ph	<pack_#>	Pack health.
-rd	<pack_#> <cartridge_#>	Cartridge recommended replace battery dates.
-pr	<pack_#>	Pack recommended replace battery dates.
-id	<pack_#> <cartridge_#> <"datestring">	Cartridge battery install date in current date format.
-pi	<pack_#> <"datestring">	Pack battery install date in current date format.
-ce	<pack_#> <cartridge#>	Cartridge battery status.
-pm	<pack_#>	Pack manufacture date.
-ps	<pack_#>	Pack serial number.

Option	Argument This is optional except when performing a set function using -id or -pi.	Description
-pk	<pack_#>	Pack SKU number.

Example 1: To see all the battery related information for the UPS device, type:
`detbat -all`

Example 2: To see the pack temperature(s) for all the battery packs, type:
`detbat -t`

Example 3: To see the pack temperature(s) for just the first (typically internal) battery pack, type:
`detbat -t 1`

detstatus

Access: Super User, Administrator, Device User

Description: View the detailed status of the UPS. See also the -st option in **ups**.

Option	Description
-all	Show all applicable status information for this UPS.
-rt	Runtime remaining, in hours, minutes and seconds.
-ss	UPS status summary: on line, on battery, etc.
-soc	UPS battery charge, as a percentage of the total capacity.
-om	Output measurements: voltage, frequency, watts percentage, VA percentage, current.
-im	Input measurements: voltage and frequency.
-bat	Battery voltage.
-tmp	Temperature measurements.
-dg	Diagnostic test results: self-test result and date, calibration result and date.

Example 1: To show all the UPS detailed status information, type:
`detstatus -all`

Example 2: To show just the remaining runtime, type:
`detstatus -rt`

dir

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User

Description: View the files and folders stored on the NMC.

Example:

```
dir

E000: Success

1024 Jan  2  4:34  apc_hw21_aos_1.1.0.15.bin

6249332 Jan  2  4:34  apc_hw21_su_1.1.0.15.bin

45000 Sep 30  1996  config.ini

           0 Apr 23 18:53  db/
           0 Apr 23 18:53  ssl/
           0 Apr 23 18:53  ssh/
           0 Apr 23 18:53  logs/
           0 Apr 23 18:53  sec/
           0 Apr 23 18:53  fwl/
           0 Apr 23 18:53  email/
           0 Apr 23 18:53  eapol/
           0 Apr 23 18:53  tmp/
           0 Apr 23 18:53  upsfw/
```

dns

Access: Super User, Administrator, Network-Only User

Description: Configure and display the manual Domain Name System (DNS) settings.

Option	Argument	Description
-OM	enable | disable	Override the manual DNS.
-y	enable | disable	Synchronizes the system and the hostname. This is the same as using “system -s”.
-p	<primary DNS server>	Set the primary DNS server.
-s	<secondary DNS server>	Set the secondary DNS server.
-d	<domain name>	Set the domain name.
-n	<domain name IPv6>	Set the domain name IPv6.
-h	<host name>	Set the hostname.

Example:

```
dns -OM

E000: Success
```

```
Override Manual DNS Settings: enabled
```

eapol

Access: Super User, Administrator

Description: Configure EAPoL (802.1X Security) settings.

Option	Argument	Description
-S	enable | disable	Enable or disable EAPoL.
-n	<supplicant name>	Set the supplicant name.
-c	<certificate filename>	The name of the file that contains the end-entity device certificate to use for EAPoL authentication.
-r		Restart authentication using current settings.

Example 1: To display the result of an `eapol` command:

```
apc>eapol
E000: Success
Active EAPoL Settings
---------------------
EAPoL: enabled
Supplicant Name: NMC-Supplicant
Certificate: nmc.pem
Certificate status: loaded
Status: Authenticated
```

Example 2: To enable EAPoL:

```
apc>eapol -S enable
E000: Success
Reboot required for change to take effect.
```

email

Access: Super User, Administrator, Network-Only User

Description: Use the following commands to configure parameters for email, used by the NMC to send event notification.

Option	Argument	Description
-g[n]	<enable | disable>	Enables (default) or disables sending email to the recipient.
-t[n]	<To Address>	The e-mail address of the recipient.

Option	Argument	Description
-o[n]	<long | short> (Format)	The long format contains name, location, contact, IP address, serial number of the device, date and time, event code, and event description. The short format provides only the event description.
-l[n]	<Language Code>	The language in which the emails will be sent. This is dependent on the installed language pack.
-r [n]	<Local | recipient | custom> (Route)	Set the SMTP Server options: • **Local** (recommended): Choose this option if your SMTP server is located on your internal network, or is set up for your e-mail domain. Choose this setting to limit delays and network outages. If you choose this setting, you must also enable forwarding at the SMTP server of the device, and set up a special external e-mail account to receive the forwarded e-mail. **NOTE:** Check with your SMTP server administrator before making these changes. • **Recipient:** This setting sends email directly to the recipient's SMTP server, which is determined by an MX record lookup of the domain of the To: Address. The device tries only once to send the e-mail. A network outage or a busy remote SMTP server can cause a time-out and cause the e-mail to be lost. This setting requires no additional administrative tasks on the SMTP server. **Note:** When using this setting, the “From Address” will match the “To Address”, authentication and encryption (TLS) will be disabled, and port 25 will be used. • **Custom**: This setting allows each email recipient to have its own server settings. These settings are independent of the settings given by the `smtp` command.
-f[n]	<From Address>	The address from which email will be sent by the NMC.
-s[n]	<SMTP Server>	The IPv4/IPv6 address or DNS name of the local SMTP server.
-p[n]	<Port>	The SMTP port number, default is 25. Common ports are 25 for unencrypted e-mail, and 465 and 587 for SSL/TLS encrypted e-mail. You can change the port setting to any port from 1 to 65535.
-a[n]	<enable | disable>	Enable this if your SMTP server requires authentication.
-u[n]	<User Name>	If the SMTP server requires authentication, type the user name and password here.
-w[n]	<Password>	

Option	Argument	Description
-e[n]	<none | ifsupported | always | implicit>	Encryption options: • **none**: The SMTP server does not require/support encryption. • **ifsupported**: The SMTP server advertises support for STARTTLS but does not require the connection to be encrypted. The STARTTLS command is sent after the advertisement is given. This is typically used with port 25. • **always**: The SMTP server requires the STARTTLS command to be sent upon connection to the server. This is typically used with port 587. • **implicit**: The SMTP server only accepts connections that begin encrypted. No STARTTLS message is sent to the server. This is typically used with port 465.
-c[n]	<enable | disable >	Require CA Root Certificate: This should be enabled if the security policy of your organization does not allow for implicit trust of SSL/TLS connections. If this is enabled, a valid CA certificate for the SMTP server must be installed to the NMC's certificate store using the certificate loader for a TLS connection with the SMTP server to succeed. See the **User Guide** for more information about loading TLS certificates.
n=	Email Recipient Number (1,2,3, or 4)	Specifies the recipient of the e-mail, identified by the recipient number.

Example: To enable email to be sent to email recipient 1 with email address recipient1@apc.com, using the local SMTP server, type:

```
email -g1 enable -r1 local -t1 recipient1@apc.com
```

eventlog

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User

Description: View the date and time you retrieved the event log, the status of the UPS, and the status of sensors connected to the NMC. View the most recent device events, and the date and time they occurred.

Use the following keys to navigate the event log:

Key	Description
ESC	Close the event log and return to the command line interface.
ENTER	Update the log display. Use this command to view events that were recorded after you last retrieved and displayed the log.
SPACEBAR	View the next page of the event log.
B	View the preceding page of the event log. This command is not available at the main page of the event log.
D	Delete the event log. Follow the prompts to confirm or deny the deletion. Deleted events cannot be retrieved.

exit

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User

Description: Exit from the command line interface session.

firewall

Access: Super User, Administrator, Network-Only User

Description: Enable, disable, or configure the internal NMC firewall feature.

Option	Argument	Definition
`-S`	`<enable | disable>`	Enable or disable the firewall.
`-f`	`<file name to activate>`	Name of the firewall policy file to activate.
`-t`	`<file name to test>`	Name of the firewall to test, and duration time in minutes.
`-fe`		Shows a list of active file errors.
`-te`		Shows a list of test file errors.
`-c`		Cancel a firewall test.
`-r`		Shows a list of active firewall rules.
`-l`		Shows a firewall activity log.
`-Y`		Skip the firewall test prompt.

Example: To enable firewall policy file example.fwl, type:

```
firewall -f example.fwl
```

format

Access: Super User, Administrator

Description: Reformat the file system of the NMC and erase all security certificates, encryption keys, configuration settings, and the event and data logs. Be careful with this command.

To reset the NMC to its default configuration, use the `resetToDef` command instead.

Option	Argument	Definition
`-f`		Perform low level flash erase and format.
`-p`		Preserve network settings while performing the format functions.

ftp

Access: Super User, Administrator, Network-Only User

Description: Enable or disable access to the FTP server. Optionally, change the port setting to the number of any unused port from 5001 to 32768 for added security. **NOTE:** FTP is disabled by default, and Secure CoPy (SCP) is automatically enabled when the Super User password is set via SSH.

Option	Argument	Definition
`-p`	`<port number>`	Define the TCP/IP port that the FTP server uses to communicate with the NMC (21 by default). The FTP server uses both the specified port and the port one number lower than the specified port.
`-S`	`enable | disable`	Configure access to the FTP server.

Example: To change the TCP/IP port to 5001, type:

```
ftp -p 5001
```

help

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User

Description: View a list of all the CLI commands available to your account type. To view help text for a specific command, type the command followed by `help`.

Example 1: To view a list of commands available to someone logged on as a Device User, type:

```
help
```

Example 2: To view a list of options that are accepted by the `alarmcount` command, type:

```
alarmcount help
```

lang

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User

Description: List the available languages for users on the Web User Interface.

Example: To see the list of available languages, type:

```
lang
```

lastrst

Access: Super User, Administrator

Description: Last network interface reset reason. Use the output of this command to troubleshoot network interface issues with the guidance of technical support.

Option	Definition
`02 NMI Reset`	The network interface was reset via the Reset button on the NMC faceplate.
`09 Coldstart Reset`	The network interface was reset by removing power from the hardware.
`12 WDT Reset`	The network interface was reset via a firmware command.

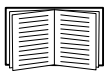
Example:

```
lastrst

09 Coldstart Reset

E000: Success
```

ldap

Access: Super User, Administrator, Network-Only User

Description: View and configure LDAP settings. You can set up the device to use an LDAP server to authenticate remote users. Two common examples of this are Microsoft Active Directory and OpenLDAP. Authentication is always performed using a simple bind request over a TLS connection. Ensure that the LDAP server's CA certificate is installed in order for the TLS connection to the LDAP server to complete.



For more information to use LDAP, see the **User Guide**.

Option	Argument	Definition
-s	<Search User URI>	An LDAP URI representing the location of a user object to initially bind to. This user object must have permission to search the LDAP database for users. During a user login attempt, the LDAP server in this URI is connected to and a bind to the DN is performed with the password provided in -p (Search User Password). If this bind is successful, the user attempting to login is then searched for. This LDAP URI must include a scheme of either "ldap" or “ldaps”. When “ldaps” is used, then the TLS connection is implicit and the TCP connection defaults to using port 636. When “ldap” is used, then the TLS connection is initiated by sending a StartTLS request and the TCP connection defaults to using port 389. Use of “ldaps” is non-standard and discouraged. This LDAP URI may include the address of the LDAP server and optionally the port number. The DN of the search user object follows. If the search user DN ends with DC components, then a DNS lookup of the SRV record for the LDAP service at this domain is performed. If the SRV record is found, then it is used instead of the host specified in the URI. If the SRV record is not found, then the host specified in the URI is used. The host component of the URI may be omitted if the SRV record for LDAP is known to exist. If the DN is omitted, then the host component must be present, and an anonymous bind is performed.

Option	Argument	Definition
		Examples: • **ldap://ldap.domain.com/ CN=searchuser,OU=users,DC=domain,DC=com** If DNS is available, a DNS lookup of the SRV record for the LDAP service at domain.com is performed. If it is found, then it is connected to. If it is not found, then "ldap.domain.com" at port 389 is connected to. TLS is then established after sending a StartTLS request, and then a bind to the object “CN=searchuser,OU=users,DC=domain,DC=com” with the password specified in –p (Search User Password) is performed. From here a search for the user logging in is performed. • **ldap:/// CN=searchuser,OU=users,DC=domain,DC=com** If DNS is available, a DNS lookup of the SRV record for the LDAP service at domain.com is performed. If it is found, then it is connected to. If it is not found, then no connection is made because the host component of the URI is omitted and LDAP authentication cannot proceed. If the connection is successful, then StartTLS, bind, and search are performed as described above. • **ldaps://ldap.domain.com** “ldap.domain.com” at port 636 is connected to and a TLS handshake is immediately performed without sending a StartTLS request. If this succeeds, then an anonymous bind is performed. From here a search for the user logging in is performed. • **ldap://ldap.domain.com:42/ CN=searchuser,OU=users,DC=domain,DC=com** This is the same as the first example except that if the SRV record is not found then “ldap.domain.com” at port 42 is connected to.
-p	<Search User Password>	The password to use in the initial bind request to the search user as described above. If left blank, then either an anonymous or unauthenticated bind is performed depending on whether or not a search user DN is provided.
-t	<2-60>	The timeout in seconds to use when connecting to and communicating with the LDAP server. The initial TCP connection must complete within this amount of time. If it does, then each LDAP response from the server must be received within this amount of time following each LDAP request. Because a single LDAP authentication can consist of multiple requests (and even to multiple servers if referrals are chased), the overall authentication time may end up being much longer than the timeout value specified here.
-u	<Users Base DN>	This is the DN of the base object entry under which all users who login must exist.

Option	Argument	Definition
-g	<Groups Base DN>	This is the DN of the base object entry under which the user groups specified in the following settings must exist.
-ag	<Admins Group Name>	This is the common name (CN) of the LDAP group to which NMC Administrators are members of. If the user logging in is a member of this group, then the user is granted Administrator access.
-dg	<Device Users Group Name>	This is the common name (CN) of the LDAP group to which NMC Device Users are members of. If the user logging in is a member of this group, then the user is granted Device User access.
-ng	<Network Users Group Name>	This is the common name (CN) of the LDAP group to which NMC Network Users are members of. If the user logging in is a member of this group, then the user is granted Network User access.
-rg	<Read Only Users Group Name>	This is the common name (CN) of the LDAP group to which NMC Read Only Users are members of. If the user logging in is a member of this group, then the user is granted Read Only User access.
-ad	<enable | disable>	If this is enabled, then LDAP directories containing users of the “User” class and groups of the “Group” class following the standard Active Directory schema will be supported.
-posix	<enable | disable>	If this is enabled, then LDAP directories containing users of the “posixAccount” class and groups of the “posixGroup” class following the schema defined in RFC 2307 will be supported.
-4519	<enable | disable>	If this is enabled, then LDAP directories containing users of the “uidObject” class and groups of either the “groupOfNames” class or the “groupOfUniqueNames” class following the schema defined in RFC 4519 will be supported.
-2798	<enable | disable>	If this is enabled, then LDAP directories containing users of the “inetOrgPerson” class as defined in RFC 2798 will be supported.
-cuser	<enable | disable>	If this is enabled, then LDAP directories containing users of classes that do not conform to any of the supported classes above can be supported. When this is enabled, the settings -ucn (Custom User Class Name) and -ucua (Custom User Username Attr) must be provided, and -ucga (Custom User Group Number Attr) may optionally be provided.
-cgroup	<enable | disable>	If this is enabled, then LDAP directories containing groups of classes that do not conform to any of the supported classes above can be supported. When this is enabled, the settings -gcn (Custom Group Class Name) and -gcma (Custom Group Member Attr) must be provided, and -gcga (Custom Group Group Number Attr) may optionally be provided. -gcmt (Custom Group Member Type) must also be set correctly.

Option	Argument	Definition
-ucn	<Custom User Class Name>	This is the name of the object class that user entries belong to. It is only used when -cuser (Custom User Class) is enabled.
-ucua	<Custom User Username Attr>	This is the name of the attribute that contains a user's username for the object class specified by -ucn (Custom User Class Name). It is only used when -cuser (Custom User Class) is enabled.
-ucga	<Custom User Group Number Attr>	This is the name of the attribute that contains the group number for a user's primary group for the object class specified by -ucn (Custom User Class Name). This is optional, and only used when -cuser (Custom User Class is enabled. It is used the same way as the "gidNumber" attribute in the "posixAccount" class.
-gcn	<Custom Group Class Name>	This is the name of the object class that group entries belong to. It is only used when -cgroup (Custom Group Class) is enabled.
-gcma	<Custom Group Member Attr>	This is the name of the attribute that contains the members of the group for the object class specified by -gcn (Custom Group Class Name). It is only used when -cgroup (Custom Group Class) is enabled. When -gcmt (Custom Group Member Type) is set to DN, then the values in this attribute are DNs. When it is set to username, then the values in this attribute are user names.
-gcga	<Custom Group Group Number Attr>	This is the name of the attribute that contains the group number of the group for the object class specified by -gcn (Custom Group Class Name). This is optional, and only used when -cgroup (Custom Group Class) is enabled. It is used the same way as the "gidNumber" attribute in the "posixGroup" class.
-gcmt	<DN | user name>	This specifies how members of the group for the object class specified by -gcn (Custom Group Class Name) are specified. It can be set to either DN or username.

Example 1: To view the existing LDAP settings for the NMC, type:

```
ldap
```

Example 2: To configure LDAP to connect to an LDAP server using only an Active Directory schema at ldap.company.com (or to use the ldap SRV record at company.com if available) with a timeout of five seconds, and bind with an initial user with search privileges at DN cn=admin, dc=company, dc=com with password "password", with NMC administrators in the nmc-admins group, NMC read-only users in the nmc-ro-users group, and network only and device only users disabled, type:

```
ldap -s ldap://ldap.company.com/cn=admin,dc=company,dc=com -p password -t 5 -u ou=users,dc=company,dc=com -g ou=groups,dc=company,dc=com -ag nmc-admins -rg nmc-ro-users -dg "" -ng "" -ad enable -posix disable -4519 disable -2798 disable -cuser disable -cgroup disable
```

ledblink

Access: Super User, Administrator

Description: Sets the status LED of the NMC to blink for the specified amount of time. Use this command to help visually locate the NMC.

Parameters: Time in minutes

Example: `ledblink 2`

logzip

Access: Super User, Administrator

Description: Creates a single, compressed archive of the log files available from the NMC and UPS device. These files can be used by technical support to troubleshoot issues.

Option	Argument	Definition
`-m`	`<email recipient> (email recipient number (1-4)`	The identifying number of the email recipient to which the zip file will be sent. Enter the number of one of the four possible email recipients configured.

Example:

```
logzip -m 1

Generating files

Compressing files into /dbg/debug_ZA1752123456.tar

Emailing log files to email recipient - 1

E000: Success
```

modbus

This command is not available on all UPS devices.

Access: Super User, Administrator

Description: View and configure the Modbus parameters.

These options are not available with all UPS devices.

Option	Argument	Definition
`-a`	`<enable | disable>`	Enable or disable Modbus Serial. [1]
`-br`	`<2400 | 9600 | 19200 | 38400>`	Set the baud rate in bits per second. [1]

Option	Argument	Definition
-pr	<even | odd | none>	Set the parity bit. This option is left for legacy purposes, use -m instead. [1]
-m	<8e1 | 8o1 | 8n2 | 8n1>	Set the parity and number of stop bits (serial only). [1]
-s	<1-F7>	Set the hexadecimal Modbus slave address. [1]
-rDef		Reset the Modbus configuration to defaults.
-tE	<enable | disable>	Enable or disable Modbus TCP. [2]
-tP		Specify the Modbus TCP port number. The default port number is 502, and can be set to a value between 5000 and 32768. [2]
-tTO	<0-64800>	Specify the Modbus TCP communication timeout in seconds, where 0 indicates that the connection never times out. [2]
-ka	<enable | disable>	Modbus TCP keep-alive.
[1]Modbus Serial is supported on the AP9641 and AP9643 cards only. [2]Modbus TCP is supported on the AP9640, AP9641, AP9643 cards.		

Example 1: To see the Modbus parameters, type:

```
modbus
```

Example 2: To set the Modbus serial mode to 8-N-2 (8 bits, no parity, 2 stop bits), type:

```
modbus -m 8n2
```

netstat

Access: Super User, Administrator, Network-Only User

Description: View the status of the network and all active IPv4 and IPv6 addresses.

Example:

```
netstat

Current IP information

Family   mHome    Type     IP Address                          Status
IPv6     4        auto     FE80::2C0:B7FF:FEEA:D325/64         configured
IPv4     0        manual   10.125.43.115/22                    configured
IPv6     0        manual   ::1/128                             configured
IPv4     0        manual   127.0.0.1/32                        configured
```

ntp

Access: Super User, Administrator, Network-Only User

Description: View and configure the Network Time Protocol parameters.

Option	Argument	Definition
`-OM`	`enable | disable`	Override the manual settings.
`-p`	`<primary NTP server>`	Specify the primary server.
`-s`	`<secondary NTP server>`	Specify the secondary server.
`-e`	`enable | disable`	Enables or disables the use of NTP.
`-u`	`<update now>`	Immediately updates the NMC time from the NTP server.

Example 1: To enable the override of manual setting, type:

```
ntp -OM enable
```

Example 2: To specify the primary NTP server, type:

```
ntp -p 150.250.6.10
```

ping

Access: Super User, Administrator, Device User, Network-Only User

Description. Determine whether the device with the IP address or DNS name you specify is connected to the network. Four inquiries are sent to the address.

Argument	Description
<IP address or DNS name>	Type an IP address with the format *xxx.xxx.xxx.xxx*, or a DNS name.

Example: To determine whether a device with an IP address of 150.250.6.10 is connected to the network, type:

```
ping 150.250.6.10
```

portspeed

Access: Super User, Administrator, Network-Only User

Description: Configure the communication speed of the port.

Option	Arguments	Description
`-s`	`auto | 10H | 10F | 100H | 100F`	Define the communication speed of the Ethernet port. The `auto` command enables the Ethernet devices to negotiate to transmit at the highest possible speed.

Example: To configure the TCP/IP port to communicate using 100 Mbps with half-duplex communication (communication in only one direction at a time), type:

```
portspeed -s 100H
```

NOTE: The Port Speed setting can be changed to 1000 Mbps. However, this change can only be made via the Web UI. See **Port Speed screen** in the User Guide for more information.

prompt

Access: Super User, Administrator, Device User, Network-Only User

Description: Configure the command line interface prompt to include or exclude the account type of the currently logged-in user. Any user can change this setting; all user accounts will be updated to use the new setting.

Option	Argument	Description
-s	long	The prompt includes the account type of the currently logged-in user.
	short	The default setting. The prompt is four characters long: `apc>`

Example: To include the account type of the currently logged-in user in the command prompt, type:

```
prompt -s long
```

pwd

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User

Description: Used to output the path of the current working directory.

quit

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User

Description: Exit from the command line interface session (this works the same as the exit and bye commands).

radius

Access: Super User, Administrator, Network-Only User

Description: View the existing RADIUS settings and configure basic authentication parameters for up to two RADIUS servers.

For a summary of RADIUS server configuration and a list of supported RADIUS servers, see the **User Guide**.

Additional authentication parameters for RADIUS servers are available at the user interface of the NMC.

For detailed information about configuring your RADIUS server, see the **Security Handbook**.

Option	Argument	Description
`-p1` `-p2`	`<server IP>`	The server name or IP address of the primary or secondary RADIUS server.
`-o1` `-o2`	`<port>`	The port number of the primary or secondary RADIUS server. **NOTE:** RADIUS servers use port 1812 by default to authenticate users. The NMC supports ports 1 to 65535.

Option	Argument	Description
-s1 -s2	<server secret>	The shared secret between the primary or secondary RADIUS server and the NMC.
-t1 -t2	<server timeout>	The time in seconds that the NMC waits for a response from the primary or secondary RADIUS server.

Example 1: To view the existing RADIUS settings for the NMC, type:

```
radius
```

Example 2: To configure a 10-second timeout for a secondary RADIUS server, type:

```
radius -t2 10
```

reboot

Access: Super User, Administrator, Network-Only User

Description: Restart the network management interface of the NMC.

This does not affect the output power of the device in which the NMC is installed.

resetToDef

Access: Super User, Administrator

Description: Reset all configurable parameters to their defaults.

Option	Arguments	Description
-p	all | keepip	Caution: This resets all configurable parameters to their defaults. Reset all configuration changes, including event actions, device settings, and, optionally, TCP/IP configuration settings. Choose keepip to retain the settings that determine how the NMC obtains its TCP/IP configuration values, which by default is DHCP.

Certain non-configurable parameters are not reset using resetToDef and can only be erased from the NMC by formatting the file system using the **format** command.

Example: To reset all of the configuration changes *except* the TCP/IP settings for the NMC, type:

```
resetToDef -p keepip
```

session

Access: Super User, Administrator

Description: Records who is logged in (user), the interface, the address, time, and ID.

Option	Arguments	Description
-d	<session ID> (Delete)	Delete the session for the current user with the specified session ID.
-m	<enable | disable> (Multi-User Enable)	Enable to allow two or more users to log on at the same time. Disable to allow only one user to log in at a time.
-a	<enable | disable> (Remote Authentication Override)	The NMC supports RADIUS storage of passwords on a server. Enable Remote Authentication Override to allow a local user to log on using a username and password for the NMC that is stored locally on the NMC.

Example:

```
session
User     Interface   Address                 Logged In Time        ID
-------------------------------------------------------------------------
apc      Telnet      10.169.118.100          00:00:03              19
```

smtp

Access: Super User, Administrator, Network-Only User

Description: Configure the settings for the local e-mail server.

Option	Arguments	Description
-f	<From Address>	The address from which e-mail will be sent by the NMC.
-s	<SMTP Server>	The IPv4/IPv6 address or DNS name of the local SMTP server.
-p	<Port>	The SMTP port number, by default is 25. Common ports are 25 for unencrypted e-mail, and 465 and 587 for SSL/TLS encrypted e-mail. You can change the port setting to any port from 1 to 65535.
-a	<enable | disable>	Enable this if your SMTP server requires authentication.
-u	<User Name>	If the SMTP server requires authentication, type the user name and password here.
-w	<Password>	

Option	Arguments	Description
-e	<none | ifavail | always | implicit>	Encryption options: • **none**: The SMTP server does not require/support encryption. • **ifavail**: The SMTP server advertises support for STARTTLS but does not require the connection to be encrypted. The STARTTLS command is sent after the advertisement is given. This is typically used with port 25. • **always**: The SMTP server requires the STARTTLS command to be sent upon connection to the server. This is typically used with port 587. • **implicit**: The SMTP server only accepts connections that begin encrypted. No STARTTLS message is sent to the server. This is typically used with port 465.
-c	<enable | disable>	Require CA Root Certificate: This should be enabled if the security policy of your organization does not allow for implicit trust of SSL/TLS connections. If this is enabled, a valid CA certificate for the SMTP server must be installed to the NMC's certificate store using the certificate loader in order for a TLS connection with the SMTP server to succeed. For more information about loading TLS certificates, see the **User Guide**.

Example:

```
From: address@example.com
Server: mail.example.com
Port: 25
Auth: disabled
User: User
Password: <not set>
Encryption: none
Req. Cert: disabled
```

snmp

Access: Super User, Administrator, Network-Only User

Description: Enable or disable and configure SNMPv1. **NOTE:** SNMPv1 is disabled by default. The Community Name (`-c[n]`) must be set before SNMPv1 communications can be established.

In the table below, n is the access control number: 1,2,3, or 4.

Option	Arguments	Description
-S	enable | disable	Enable or disable SNMPv1.
-c[n]	Community	Specify a community name or string.

Option	Arguments	Description
-a[n]	read | write | writeplus | disable	Indicate the usage rights.
-n[n]	IP or Domain Name	Specify the IPv4/IPv6 address or the domain name of the Network Management Station.

Example: To enable SNMP version 1, type:

```
snmp -S enable
```

snmpv3

Access: Super User, Administrator, Network-Only User

Description: Enable or disable and configure SNMPv3. **NOTE:** SNMPv3 is disabled by default. A valid profile must be enabled with passphrases (-a[n], -c[n]) set before SNMPv3 communications can be established. In the table below, n is the access control number: 1,2,3, or 4.

Option	Arguments	Description
-S	enable | disable	Enable or disable SNMPv3.
-u[n]	<User Name>	Specify a user name, an authentication phrase and encryption phrase.
-a[n]	<Authentication Phrase>	
-c[n]	<Crypt Phrase>	
-ap[n]	sha-256 | sha | md5 | none	Indicate the type of authentication protocol.
-pp[n]	aes-256 | aes| des | none	Indicate the privacy (encryption) protocol.
-ac[n]	enable | disable	Enable or disable access.
-au[n]	<User Profile Name>	Give access to a specified user profile.
-n[n]	<IP or hostname for NMS>	Specify the IPv4/IPv6 address or the hostname for the Network Management Station.

Example: To give access level 2 to user “JMurphy”, type:

```
snmpv3 -au2 “JMurphy”
```

snmptrap

Access: Super User, Administrator, Network-Only User

Description: Enable or disable SNMP trap generation.

Option	Arguments	Description
-c[n]	<Community>	Specify a community name or string.

Option	Arguments	Description
-r[n]	<Receiver NMS IP>	The IPv4/IPv6 address or host name of the trap receiver.
-l[n]	<Language> [language code]	Specify a language. A language pack containing the desired language must be installed, and the language codes are: • enUS - English • deDe - German • ruRu - Russian • zhCn - Chinese • jaJa - Japanese • koKo - Korean • itIt - Italian • ptBr - Portuguese • frFr - French • esEs - Spanish
-t[n]	<Trap Type> [snmpV1 | snmpV3]	Specify SNMPv1 or SNMPv3.
-p[n]	<Port>	Specify the SNMP trap port number for this trap receiver (162 by default). The range is 1 to 65535.
-g[n]	<Generation> [enable | disable]	Enable or disable trap generation for this trap receiver. Enabled by default.
-a[n]	<Auth Traps> [enable | disable]	Enable or disable authentication of traps for this trap receiver, SNMPv1 only.
-u[n]	<profile1 | profile2 | profile3 | profile4> (User Name)	Select the identifier of the user profile for this trap receiver, SNMPv3 only.
n= Trap receiver number = 1, 2, 3, 4, 5 or 6		

Example: To enable and configure an SNMPv1 trap for Receiver 1, with the Community Name of public, receiver 1 IP address of `10.169.118.100`, using the default English language, type:

```
snmptrap -c1 public -r1 10.169.118.100 -l1 enUS -t1 snmpV1 -g1 enable
```

ssh

Access: Super User, Administrator, Network-Only User

Description: Show, delete, and generate SSH server keys. **NOTE:** The options in the table below are available with the `ssh key` command.

Option	Arguments	Description
-s		Display the current SSH server key in use.
-f		Display the current SSH server key's fingerprint.
-d		Delete the current SSH server key in use.
-i	<File Name>.pk15	Import the SSH server key from a PKCS #15 file.

Option	Arguments	Description
`-ecdsa`	`256`	Generate an Elliptic Curve Digital Signature Algorithm (ECDSA) SSH server key with the specified size in bits.
`-rsa`	`1024 | 2048 | 4096`	Generate a Rivest–Shamir–Adleman (RSA) SSH server key with the specified size in bits.

Example 1: To display the current SSH server key, type:

```
ssh key -s
```

Example 2: To import the SSH server key from a .p15 file generated by the NMC Security Wizard CLI Utility, type:

```
ssh key -i nmc.p15
```

ssl

Access: Super User, Administrator, Network-Only User

Description: Configure and manage the NMC's public key and Web UI certificate, and create a Certificate Signing Request (CSR).

NOTE: There are three sets of options for this command, indicated below (`key`, `csr`, and `cert`).

Configure public keys (`key`):

Option	Arguments	Description
`-s`		Display the current public key in use.
`-d`		Delete the current public key in use.
`-i`	`<File Name>.p15`	Import the public key from a PKCS #15 file.
`-ecdsa`	`256 | 384 | 521`	Generate an Elliptic Curve Digital Signature Algorithm (ECDSA) public key with the specified size in bits.
`-rsa`	`1024 | 2048 | 4096`	Generate a Rivest–Shamir–Adleman (RSA) public key with the specified size in bits.

Example 1: To generate a new ECDSA-521 public key, type:

```
ssl key -ecdsa 521
```

Example 2: To import the public key from a .p15 file generated by the NMC Security Wizard CLI Utility, type:

```
ssl key -i nmc.p15
```

Configure Certificate Signing Request (`csr`):

Option	Arguments	Description
`-s`	`<File Name>`	Display the current Certificate Signing Request (CSR).
`-q`	`<File Name>`	Create a Certificate Signing Request (CSR) from active configuration.

Option	Arguments	Description
-CN	<Common Name>	Create a custom Certificate Signing Request (CSR). The Common Name is the fully qualified domain name (FQDN) of the NMC. For example, its IP address or *.nmc.local.
Custom Certificate Signing Request (CSR) options. **NOTE:** The below options are only available for -CN.		
-O	<Organization>	The name of your organization.
-OU	<Organizational Unit>	The division of your organization handling the certificate.
-C	<Country>	The two-letter country code of where your organization is located.
-san	<Common Name | IP Address>	The Common Name or IP address of the NMC.

NOTE: Created Certificate Signing Requests will be stored in the NMC's ssl directory. See **dir**.

Example 3: To create a quick Certificate Signing Request (CSR) from active configuration, type:

```
ssl csr -q
```

Example 4: To create a minimal Certificate Signing Request (CSR), type:

```
ssl csr -CN 190.0.2.0 -C US
```

Example 5: To create a custom Certificate Signing Request (CSR), type:

```
ssl csr -CN apcXXXXXX.nmc.local -C US -san *.nmc.local -san 190.0.2.0
```

Configure the Web UI's certificate (`cert`):

Option	Arguments	Description
-s	<File Name>	Display the specified certificate. **NOTE:** Executing this option without an argument will display the current certificate in use.
-f	<File Name>	Display the specified certificate's fingerprint. **NOTE:** Executing this option without an argument will display the current certificate's fingerprint.
-i	<File Name>	Import a certificate.

Example 6: To display the active certificate, type:

```
ssl cert -s
```

Example 7: To display nmc.crt located in the ssl directory, type:

```
ssl cert -s ssl/nmc.crt
```

Example 8: To import other.crt, type:

```
ssl cert -i other.crt
```

system

Access: Super User, Administrator

Description: View and set the system name, the contact, and the location. Configure system messages, view up time as well as the date and time, the logged-on user, and the high-level system status P, N, A (see **Main screen status fields**).

Option	Argument	Description
`-n`	`<system name>`	Define the device name, the name of the person responsible for the device, and the physical location of the device. **NOTE:** If you define a value with more than one word, you must enclose the value in quotation marks. These values are also used by EcoStruxure™ IT Expert or Data Center Expert and the NMC's SNMP agent.
`-c`	`<system contact>`	
`-l`	`<system location>`	
`-m`	`<system-message>`	Show a configurable custom message or banner on the logon page of the Web UI, CLI (Serial, Telnet, SSH), FTP or FCP.
`-s`	`enable | disable`	Synchronize the system and the hostname. This is the same as using "dns -y".

Example 1: To set the device location as `Test Lab`, type:

```
system -l "Test Lab"
```

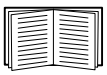
Example 2: To set the system name as `Don Adams`, type:

```
system -n "Don Adams"
```

tacacs+

Access: Super User, Administrator, Network-Only User

Description: View the existing TACACS+ settings and configure basic authentication parameters for up to two TACACS+ servers.



For a summary of TACACS+ server configuration and a list of supported TACACS+ servers, see the **User Guide**.

For detailed information about configuring your TACACS+ server, see the **Security Handbook**

Option	Argument	Description
`-p1` `-p2`	`<server IP>`	The server name or IP address of the primary or secondary TACACS+ server.

`-o1`
 	
`-o2`
	`<port>`	The port number of the primary or secondary TACACS+ server.
		NOTE: TACACS+ servers use port 49 by default to authenticate users. The NMC supports ports 1 to 65535.

`-s1` `-s2`	`<server secret>`	The shared secret between the primary or secondary TACACS+ server and the NMC.
`-t1` `-t2`	`<server timeout>`	The time in seconds that the NMC waits for a response from the primary or secondary TACACS+ server.

Option	Argument	Description
-d1 -d2		Delete the primary or secondary TACACS+ server configuration.
-r	<0-15>	Read-Only User privilege level.
-a	<0-15>	Administrator privilege level.

Example 1: To view the existing TACACS+ settings for the NMC, type:

```
tacacs+
```

Example 2: To configure a 10-second timeout for a secondary TACACS+ server, type:

```
tacacs+ -t2 10
```

tcpip

Access: Super User, Administrator, Network-Only User

Description: View and manually configure these IPv4 TCP/IP settings for the NMC:

Option	Argument	Description
-S	enable | disable	Enable or disable TCP/IP v4.
-i	<IPv4 address>	Type the IP address of the NMC, using the format *xxx.xxx.xxx.xxx*
-s	<subnet mask>	Type the subnet mask for the NMC.
-g	<gateway>	Type the IP address of the default gateway. *Do not* use the loopback address (127.0.0.1) as the default gateway.
-d	<domain name>	Type the DNS name configured by the DNS server.
-h	<host name>	Type the host name that the NMC will use.

Example 1: To view the network settings of the NMC, type:

```
tcpip
```

Example 2: To manually configure an IP address of `150.250.6.10` for the NMC, type:

```
tcpip -i 150.250.6.10
```

tcpip6

Access: Super User, Administrator, Network-Only User

Description: Enable IPv6 and view and manually configure these IPv6 TCP/IP settings for the NMC:

Option	Argument	Description
-S	enable | disable	Enable or disable TCP/IP v6.

Option	Argument	Description
-man	enable | disable	Enable manual addressing for the IPv6 address of the NMC.
-auto	enable | disable	Enable the NMC to automatically configure the IPv6 address.
-i	<IPv6 address>	Set the IPv6 address of the NMC.
-g	<IPv6 gateway>	Set the IPv6 address of the default gateway.
-d6	router | statefull | stateless | never	Set the DHCPv6 mode, with parameters of router controlled, statefull (for address and other information, they maintain their status), stateless (for information other than address, the status is not maintained), never.

Example 1: To view the network settings of the NMC, type:

```
tcpip6
```

Example 2: To manually configure an IPv6 address of 2001:0:0:0:0:FFD3:0:57ab for the NMC, type:

```
tcpip -i 2001:0:0:0:0:FFD3:0:57ab
```

uio

This command is only available on the AP9641 or AP9643 cards, or an embedded NMC3 with a Universal Input/Output (UIO) port.

Access: Super User, Administrator, Device User

Description: View the status of any connected UIO probes.

NOTE: The temperature settings will appear in degrees Celsius or degrees Fahrenheit depending upon the logged in user's preference settings.

Option	Argument	Description
-rc	<UIO port #> <open | close >	Change the state of a connected output on the given UIO port number if that UIO port has a Dry Contact I/O Accessory (AP9810) attached to it.
-st	<UIO port #> | <UIO port #>, <UIO port #> | <UIO port #>-<UIO port #>	View the status of the sensors connected. To view the status of a specific sensor or several sensors, type their UIO port numbers.
-disc	<UIO port #> | <UIO port #>, <UIO port #> | <UIO port #>-<UIO port #>	Identify the probes connected, if any, to the UIO port(s). t = temperature probe, th = temperature / humidity probe, 9810 = Dry Contact I/O Accessory (AP9810), spotFluid= spot fluid sensor, if supported, (NBES0301).

Example 1: To open the output relay on the second UIO port, type:

```
uio -rc 2 open
```

Example 2: To view the status of the device connected to UIO port 2, type:

```
uio -st 2
```

ups

Access: Super User, Administrator, Device User

Description: Control the UPS and view status information. See the User Guide for information on how these options relate to that screen.

Some **ups** options are dependent on the UPS model. Not all configurations may support all options of the **ups** command.

Option	Arguments	Description
-c	reboot	Restarts the attached equipment by doing the following: • Turns off power at the UPS. • Turns on power at the UPS after the UPS battery capacity returns to at least the percentage configured for **Minimum Battery Capacity**. See **cfgshutdn**.
	on	Turns on power at the UPS.
	off	Turns off the output power of the UPS immediately, without a shutdown delay. The UPS remains off until you turn it on again.
	graceoff	Turns off the outlet power of the UPS after the **Maximum Required Delay**.
	gracereboot	This action is similar to reboot above, but with an additional delay before the shutdown. The attached equipment shuts down only after the UPS waits the **Maximum Required Delay**, which is calculated as described in the User Guide topic **Shutdown delays and PowerChute Network Shutdown**.
	sleep	Puts the UPS into sleep mode by turning off its output power for a defined period of time. The UPS turns off output power after waiting the time configured as **Shutdown Delay**. When input power returns, the UPS turns on output power after the configured **Sleep Time**. See **cfgshutdn**.
	gracesleep	Puts the UPS into sleep mode (turns off power for a defined period of time): • The UPS turns off output power after waiting the **Maximum Required Delay** to allow time for PowerChute Network Shutdown to shut down its server with protection, and its **Shutdown Delay**. • When input power returns, the UPS turns on output power after the configured **Sleep Time.** See **cfgshutdn**.
-r	start | stop	Initiate or end a runtime calibration. A calibration recalculates remaining runtime and requires the following: • Because a calibration temporarily depletes the UPS batteries, you can perform a calibration only if battery capacity is at 100%. • The load must be at least 15% to guarantee that a calibration will be accepted.

Option	Arguments	Description
-s	start	Initiate a UPS self-test.
-b	enter | exit	Control the use of bypass mode. This command is model-specific and may not apply to your UPS.
-o	<outlet #> <Off | DelayOff | On | DelayOn | Reboot | DelayReboot| Shutdown | DelayShutdown | Cancel>	Control the UPS outlet groups. Replace <outlet#> with the outlet group number. When the state of the outlet group is **on**, the option accepts the following arguments: • Off — Turn off the group immediately. • DelayOff — Turn off the group after the number of seconds configured as **Power Off Delay**. • Reboot — Turn off the group immediately, then turn it on after the number of seconds configured as **Reboot Duration** and **Power On Delay**. • DelayReboot — Turn the outlet group off after the number of seconds configured as **Power Off Delay**, then turn it on after the number of seconds configured as **Reboot Duration** and **Power On Delay**. • Shutdown — If the UPS is online, this reboots the outlet group. If the UPS is on battery, this shuts down the group and waits for AC utility power before turning on the group again. • DelayShutdown — Shut down the outlet group after the number of seconds configured as **Power Off Delay**. • Cancel — Cancel your previous commands, e.g. turning off. When the state of the outlet group is **off**, the option accepts two arguments: • On — Turn on the group immediately. • DelayOn — Turn on the group after the number of seconds configured as **Power On Delay**. The **Power On Delay**, **Power Off Delay**, and **Reboot Duration** must be configured at the user interface.
-os	<outlet #>	View the status (on, off, or rebooting) of all the outlet groups. To view the status of a specific outlet group, specify its number. For example, type ups -os 1 to view the status of outlet group 1. But: a) When you use this option on a UPS with a Main Outlet Group: 1 identifies the Main Outlet Group, 2 identifies Switched Outlet Group 1, 3 identifies Switched Group 2, etc. b) On a UPS with NO main outlet group: 1 identifies Switched Outlet Group 1, etc.
-st		View the status of the UPS.
-a	start	Test the UPS audible alarm.

Example 1: To initiate a runtime calibration, type:

```
ups -r start
```

Example 2: To immediately turn off outlet group 2 at a Smart-UPS XLM, type:

```
ups -o 2 off
```

The ups command options for MGE Galaxy-specific UPS devices:

These commands are only available on the MGE Galaxy 300 and MGE Galaxy 7000 UPS. Some options may only be available based on the individual UPS model.

Option	Argument	Description
-input	<phase#> | all	Display the input measurements for the chosen phase of the UPS. Typing “all” displays the information for all phases of the UPS.
	voltage | current | frequency | all	Specify the input measurement for the ups command. **Example:** ups -input 2 frequency Displays the frequency for phase 2 of the UPS.
-bypass	<phase#> | all	Display the input measurements for the chosen phase of the bypass main. Typing “all” displays all phases of the bypass main.
	voltage | current | frequency | all	Specify the input measurement for the ups command. **Example:** ups -bypass 2 current Displays the current for phase 2 of the bypass main.
-output	<phase#> | all	Display the output measurements for the chosen phase of the UPS. Typing “all” displays the information for all phases of the UPS.
	voltage | current | load | power | percload | pf | frequency | all	Specify the output measurement for the ups command. **Example:** ups -output 2 percload Displays the percentage of load for phase 2 of the UPS.
-batt		Display the battery status of the UPS
-about		Displays information about the UPS.
-al	c | w | i	Display all existing alarms. Specifying “c”, “w”, or “i” limits the display to either Critical (c), Warning (w), or Informational (i) alarms.

Example 3: To display the battery status of the MGE Galaxy device, type:

```
ups -batt
```

upsabout

Access. Super User, Administrator, Device User.

Description: Displays information about the UPS including:

Model, SKU, Serial Number, UPS Firmware Revision, Manufacture Date, Apparent Power Rating, Real Power Rating, Internal Battery SKU and External Battery SKU.

All UPS information listed by the **upsabout** command might not be available for all UPS devices.

upslog

This command is not available for all UPS devices.

Access. Super User, Administrator, Device User.

Description: Displays the UPS Event Log.

Example:

```
upslog
-- Event Log ------------------------------------------------------------
    Date: 01/13/2022               Time: 11:02:07
    ---------------------------------------------
    Date        Time     User    Event
    ------------------------------------------------------------------------
    01/09/2022 20:34:52 Device UPS: Battery module detected in location 0.
    01/09/2022 20:34:51 Device UPS: The number of unknown batteries decreased.
   <ESC>- Exit, <ENTER>- Refresh, <SPACE>- Next
```

upsfwupdate

This command is not available for all UPS devices.

Access. Super User, Administrator, Device User.

Description: Initiate an update of the UPS firmware.

Follow the instructions in the CLI to determine if the output of your UPS needs to be turned off in advance of a firmware update.

- See the Knowledge Base article IDs **FA164737** and **FA170679** for information on obtaining a firmware update file.
- To update via USB (AP9641 and AP9643 only):
  - The USB drive must support USB v1.1, and be in FAT, FAT16 or FAT32 format.
  - The firmware update file can be saved to the root of the USB drive, or to a /upsfw/ directory on the USB drive.
  - The drive must be inserted into the USB port of the NMC.

NOTE: Firmware update can take a few minutes. Do not remove the USB drive from the NMC until the UPS firmware update has completed. If you remove the USB drive before completion, the firmware update will not be successful.

Option	Argument	Description
`-install`	`-file <filepath>| -ver <firmware version>`	Install a UPS firmware update from a USB drive inserted into the USB port of the NMC. Include the file path to the firmware update file on the USB drive. The USB drive is mounted on the NMC with drive letter `c:\` If there are multiple firmware files on the USB drive, provide the firmware version in the format: `[UPS ID number] [UPS Firmware version]` **NOTE:** The UPS ID number can be found by using the `-info` command described below.
`-info`	`-file <filepath>| -ver <firmware version>`	See information about the firmware available on the USB drive inserted into the USB port of the NMC. Include the file path to the firmware update file on the USB drive. If there are multiple firmware files on the USB drive, provide the firmware version in the format: `[UPS ID number] [UPS Firmware version]`
`-instpend`		Install a pending UPS firmware update.
`-instabort`		Abort an installing or pending UPS firmware update.
`-list`		Display a list of available firmware versions present on a USB drive inserted into the USB port of the NMC.
`-status`		Check the status of a firmware update that is already initiated.
`-lastresult`		View the result of the last attempted firmware update.

Example 1:

```
upsfwupdate -info -ver "ID11 UPS 03.8"
Searching for version 'UPS 03.8'... found.
Version 'UPS 03.8' at C:\SMX11UPS_03-8.enc
E000: Success
Update File:          C:\SMX11UPS_03-8.enc
```

```
Compatible with UPS: Yes
Update Version: UPS 03.8
```

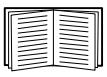
Example 2:

```
upsfwupdate -status
E000: Success
Status: 3k/257k (1%)
```

user

Access: Super User, Administrator

Description: Configure the user name and password for each account type, and configure the inactivity timeout. (You can't edit a user name, you must delete and then create a new user).



For information on the permissions granted to each account type (Super User, Administrator, Device User, Read-Only User, Network-Only User), see the **User Guide**.

Option	Argument	Description
-n	<user>	Indicate the user.
-cp	<current password>	For a Super User, you must specify the current password. **NOTE:** The -cp option is only required when changing the Super User's password remotely.
-pw	<user password>	Specify these options for a user. **NOTE:** Description must be enclosed in quotation marks.
-pe	<user permission>	
-d	<user description>	
-e	<enable | disable>	Enable or disable access for the particular user account.
-te	<enable | disable>	Enable touch screen access.
-tp	<touch screen access pin>	This option is only available on certain devices.
-tr	<enable | disable>	Enable the touch screen remote authorization override. This option is only available on certain devices. If you enable this override, the NMC will allow a local user to log on using the password for the NMC that is stored locally on the NMC.
-st	<session timeout>	Specify how long a session lasts waits before logging off a user when the keyboard is idle.
-sr	<enable | disable>	Bypass RADIUS by using the serial console (CLI) connection, also known as Serial Remote Authentication Override
-el	<enable | disable>	Indicate the Event Log color coding.
-lf	<tab | csv>	Indicate the format for exporting a log file.
-ts	<us | metric>	Indicate the temperature scale, fahrenheit or celsius.

Option	Argument	Description
-df	<mm/dd/yyyy | dd.mm.yyyy | mmm-dd-yy | dd-mmm-yy | yyyy-mm-dd>	Specify a date format.
-lg	<language code (e.g. enUs)>	Specify a user language. For a list of available languages and corresponding language codes, type `To view a list of options that are accepted by the alarmcount command, type: alarmcount help` at the command prompt.
-del	<user name>	Delete a user.
-l		Display the current user list.

Example: To change the log off time to 10 minutes for user “JMurphy”, type:
`user -n “JMurphy” -st 10`

userauth

Access: Super User, Administrator, Network-Only User

Description: View or configure the user authentication method. Local authentication, as well as the LDAP, RADIUS, and TACACS+ protocols are supported.

Option	Argument	Description
-l	first | last | off	Specify if and when the local user database is checked: **first**: The local user database is always checked first. If the username is found, then the password is checked and the login either succeeds or is unsuccessful. If the username is not found, then remote authentication is used, if enabled. **last**: The local user database is checked after attempting remote authentication, if there is an error contacting the remote authentication server. When remote authentication is off, it behaves the same as **first**. **off**: The local user database is never checked. **Note**: Setting this to `off` is not recommended as it can result in being permanently locked out of the NMC if the remote authentication server goes down or is misconfigured on the NMC. If off is used, it is strongly recommended to enable the Remote Authentication Override setting (`session -a`) and to set the Serial Remote Authentication Override option (`user -sr`) for the Super User or an Administrator. **Note**: If both Local and Remote User Authentication settings are set to **off**, then Local User Authentication will automatically be set to **first**.

Option	Argument	Description
-r	off | radius | tacacs+ | ldap	Specify which, if any, remote authentication protocol is used: **off**: Do not use remote user authentication and always perform local user authentication. **radius**: Remote user authentication will use RADIUS. **tacacs+**: Remote user authentication will use TACACS+. **ldap**: Remote user authentication will use LDAP.

Example: To configure local authentication first, followed by TACACS+ authentication, type:

```
userauth -l first -r tacacs+
```

userdflt

Access: Super User, Administrator

Description: Complimentary function to **user** establishing default user preferences. There are two main features for the default user settings:

- Determine the default values to populate in each of the fields when the Super User or Administrator-level account creates a new user. These values can be changed before the settings are applied to the system.
- For remote users (user accounts not stored in the system that are remotely authenticated such as RADIUS) these are the values used for those that are not provided by the authenticating server.

For example, if a RADIUS server does not provide the user with a temperature preference, the value defined in this section will be used.

Option	Argument	Definition
-e	<enable | disable>	By default, user will be enabled or disabled upon creation.
-pe	<Administrator | Device | Read-Only | Network-Only>	Specify the user's permission level and account type.
-d	<user description>	Provide a user description. Description must be enclosed in quotation marks.
-st	<session timeout>	Provide a default session timeout in minutes.
-bl	<bad login attempts>	Number of incorrect login attempts a user has before the system disables their account. Upon reaching this limit, a message is displayed informing the user the account has been locked. The Super User or an Administrator-level account is needed to re-enable the account to allow the user to log back in. **Note:** A Super-User account cannot be locked out but can be manually disabled if necessary.
-el	<enable | disable>	Enable or disable event log color coding.
-lf	<tab | csv>	Specify the log export format, tab or Comma Separated Values (CSV).

Option	Argument	Definition
-ts	<us | metric>	Specify the user's temperature scale. This setting is also used by the system when a user preference is not available (for example, email notifications).
-df	<mm/dd/yyyy | dd.mm.yyyy | mmm-dd-yy | dd-mmm-yy | yyyymm-dd>	Specify the user's preferred date format.
-lg	<language code (e.g. enUS)>	Specify a user language. For a list of available languages and corresponding language codes, type `To view a list of options that are accepted by the alarmcount command, type: alarmcount help` at the command prompt.
-sp	<enable | disable>	Enable/disable strong password.
-pp	<interval in days>	Required password change interval.

Example: To set the default user's session timeout to 60 minutes, type:

```
userdflt -st 60
```

web

Access: Super User, Administrator, Network-Only User

Description: Enable access to the user interface using HTTP or HTTPS.

For additional security, you can change the port setting for HTTP and HTTPS to any unused port from 5000 – 32768. Users must then use a colon (:) in the address field of the browser to specify the port number. For example, for a port number of 5000 and an IP address of 152.214.12.114:

```
http://152.214.12.114:5000
```

Option	Argument	Definition
-h	<enable | disable>	Enable or disable access to the user interface for HTTP. HTTP is disabled by default.
-s	<enable | disable>	Enable or disable access to the user interface for HTTPS. HTTPS is disabled by default. When HTTPS is enabled, data is encrypted during transmission and authenticated by digital certificate using SSL/TLS.
-mp	<minimum protocol>	Specify the minimum protocol used by the web interface: TLS v1.1, TLS v1.2, or TLS v1.3.
-ph	<http port #>	Specify the TCP/IP port used by HTTP to communicate with the NMC (80 by default). The other available range is 5000–32768.
-ps	<https port #>	Specify the TCP/IP port used by HTTPS to communicate with the NMC (443 by default). The other available range is 5000–32768.
-lsp	<enable | disable>	Enable or disable access to the Limited Status page in the Web UI.
-lsd	<enable | disable>	Enable or disable the Limited Status page being used as the default page when accessing the device's IP or hostname in a web browser.

Option	Argument	Definition
-cs	<0 | 1 | 2 | 3 | 4>	Select the level of security of TLS v1.2 cipher suites between 0 - 4, where 4 is the highest level of security, and 0 is the lowest level of security. The default value is 4. **NOTE:** The -cs option is only applied when -mp is set to TLS v1.2. When a value between 0 - 4 is entered, the CLI responds with a list of the currently allowed SSL cipher suites.
-hs	<enable | disable>	Enable/ disable the HTTP Strict Transport Security Header (HSTS) response header.

Example: To prevent all access to the user interface for HTTPS, type:

```
web -s disable
```

whoami

Access: Super User, Administrator, Device User, Read-Only User, Network-Only User

Description: Provides login information on the current user.

Example:

```
apc> whoami
E000: Success
apc
```

wifi

Access: Super User, Administrator

Description: Enable or disable wi-fi and configure the Wi-Fi network's settings.

This command requires the optional APC USB Wi-Fi Device (AP9834) to be inserted in a USB port of an AP9641/AP9643 card.

IMPORTANT: It is recommended that you do not download a config.ini file from a wired device and upload the entire file to a Wi-Fi-enabled device. It is also not recommended to download a config.ini file from a Wi-Fi-enabled device and push the entire file to a wired device unless the entire [NetworkWiFi] section is removed or commented out using semi-colons (for example; WiFi=enabled).

The [NetworkWiFi] section contains device settings specific to Wi-Fi use. These settings should not be uploaded to a wired device.

Option	Argument	Definition
-S	enable | disable	Enable or disable Wi-Fi. Disabled by default. **NOTE:** Enabling/ disabling Wi-Fi will disable/enable the wired LAN connection.

Option	Argument	Definition
-n	<network name (SSID)>	Specify the network name (SSID) of the Wi-Fi network. The maximum length is 32 characters.
-t	WPA | WPA2-AES |WPA2-Mixed | WPA2-TKIP | WPA2-Enterprise	Specify the security type (authentication and encryption) of the Wi-Fi network.
-p	<wifi password>	Specify a password for the Wi-Fi network. The maximum length is 64 characters. **NOTE:** This is required for WPA, WPA2-AES, and WPA2-Mixed security types.
-eu	<WPA2-Enterprise user name>	The user name for WPA2-Enterprise authentication. The maximum length is 32 characters.
-ep	<WPA2-Enterprise password>	The password for WPA2-Enterprise authentication. The maximum length is 32 characters.
-eo	<WPA2-Enterprise outer identity>	Specify the WPA-2-Enterprise outer identity. This is an optional unencrypted identification used by the WPA-2-Enterprise server. For example: user@example.com or anonymous. The maximum length is 32 characters.
-fw	<path/filename>	Specify the firmware file to upgrade the APC USB Wi-Fi Device's firmware. This must be an .ism file located on a USB drive inserted into the USB port of the NMC. **NOTE:** The Wi-Fi network will be unavailable during the firmware upgrade.

Example 1: To enable Wi-Fi and configure the Wi-Fi network's settings, type:

```
wifi -S enable -n NETGEAR06 -t WPA2-AES -p apc123
```

Example 2: To upgrade the APC USB Wi-Fi Device's firmware, type:

```
wifi -fw apc_uw01_wni_1-26-7.ism
```

xferINI

Access: Super User, Administrator. This command only works through serial/local console CLI.

Description: Use XMODEM to upload an .ini file while you are accessing the command line interface through a serial connection. After the upload completes:

- If there are any system or network changes, the command line interface restarts, and you must log on again.
- If you selected a baud rate for the file transfer that is not the same as the default baud rate for the NMC, you must reset the baud rate to the default to re-establish communication with the NMC.

xferStatus

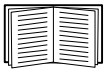
Access: Super User, Administrator

Description: View the result of the last file transfer.

Example:

```
xferStatus
```

```
E000: Success

Result of last file transfer: OK
```



See the **User Guide** for descriptions of the transfer result codes.

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