Cambium Networks™

COMMAND-LINE INTERFACE
REFERENCE GUIDE

Enterprise Wi-Fi Access Point

Release 7.1

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About This Command-Line Interface Reference Guide

This section describes the following topics:

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Overview of Enterprise Wi-Fi AP products

This Command-Line Interface (CLI) Reference Guide describes the CLI commands supported by Enterprise Wi-Fi Access Point (AP), and provides instructions for executing these commands.

Intended audience

This guide is intended for use by the system designer, system installer, and system administrator.

Purpose

Cambium Network's Enterprise Wi-Fi AP documents are intended to instruct and assist personnel in the operation, installation, and maintenance of Cambium's equipment and ancillary devices. It is recommended that all personnel engaged in such activities be properly trained.

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Related documents

Table 1 provides details of related documents for Enterprise Wi-Fi AP.

Table 1 *Related documents*

Document Name	Location
Enterprise Wi-Fi AP product details	https://www.cambiumnetworks.com/products/wifi/
Enterprise Wi-Fi AP Hardware and Installation Guide	https://support.cambiumnetworks.com/files

Document Name	Location
Enterprise Wi-Fi AP User Guide	https://support.cambiumnetworks.com/files
Enterprise Wi-Fi AP Release Notes	https://support.cambiumnetworks.com/files
Enterprise Wi-Fi AP Command-Line Interface Reference Guide (This document)	https://support.cambiumnetworks.com/files
Software Resources	https://support.cambiumnetworks.com/files
Community	http://community.cambiumnetworks.com/
Support	https://www.cambiumnetworks.com/support/contact-support/
Warranty	https://www.cambiumnetworks.com/support/warranty/
Feedback	support@cambiumnetworks.com/

Existing hardware platforms

Table 2 lists the existing hardware platforms in Enterprise Wi-Fi Access Points:

Table 2 *Existing hardware platforms*

Hardware Platfrom	Description	Supported Software Version
XV2-22H	2x2:2, 2x2:2 802.11a/b/g/n/ac wave 2/ax Dual-Radio Indoor Wi-Fi 6 Wall-Plate Access Point	Release 6.5 and above
XV2-21X	2x2:2, 2x2:2 802.11a/b/g/n/ac wave 2/ax Dual-Radio Indoor Wi-Fi 6 Access Point	Release 6.5 and above
XV2-23T	2x2:2, 2x2:2 802.11a/b/g/n/ac wave 2/ax Dual-Radio Outdoor Wi-Fi 6 Access Point	Release 6.5 and above

Getting Started

cnMaestro serves as a software platform for secure, end-to-end network control. The cnMaestro wireless network manager facilitates zero-touch provisioning and offers complete network visibility, simplifying device administration.

cnMaestro operates based on the following subscription modes:

- **cnMaestro Essentials**—Offers minimal management features and is free of cost.

- **cnMaestro X**—Offers premium features and administration capabilities with a subscription.

Cambium access points can be managed, provisioned, and operated using multiple methods, such as through APIs (available in cnMaestro X), the cnMaestro UI, on-device UI, SNMP, and device CLI.

Each communication method has its advantages and disadvantages. Understanding the differences is essential for properly managing a network environment.

cnMaestro and cnMaestro APIs

cnMaestro allows users to provision, configure, operate, and troubleshoot APs from a single UI. In this method, all network details are available in a single pane.

You can seamlessly monitor the APs and debug client-AP connectivity issues from the cnMaestro UI. You can also diagnose all client and network issues from cnMaestro XA.

Provisioning, configuring, and managing APs through APIs is also possible from the cnMaestro UI. This method makes it easier to perform bulk activities and to complete mass tasks. These APIs are known as RESTful services. RESTful services use a POST or a PUT call to create them. Web payloads sent in the POST or PUT calls, often to a URL, contain data consumed by an application or service. For the POST or PUT queries, each API endpoint requires specific data to be formatted in a particular way.

SNMP

SNMP is primarily utilized only for network monitoring due to its limited capacity for operations compared to console usage. SNMP facilitates access to various variables within a network equipment, allowing for real-time data capture of metrics, such as data flow in and out of ports, AP uptime, and radio channel usage.

Cambium does not support AP configuration using SNMP. However, SNMP is employed only for collecting and displaying network data.

Device Command-Line Interface (CLI)

In the past, AP configuration was typically done through the command line. Many network engineers still prefer using the command-line interface (CLI) because of its extensive control capabilities. However, working with the CLI requires thorough preparation and documentation, and manual configuration lacks a holistic network overview.

Cambium advises against using CLI for managing or troubleshooting APs. Instead, this document focuses on specific AP functions accessible only through device CLI. Additionally, it covers debugging and

troubleshooting commands that you can execute from cnMaestro Remote CLI, as explained later in this document.

Managing APs Using Device UI

You can manage Enterprise Wi-Fi APs using the device UI, which is accessible from any network device, such as computers, mobile phones, and tablets. This chapter provides details on how to access the device UI.

This section covers the following topics:

- Logging into the UI

- Configuration mode

- Console port on the AP

Logging into the UI

To log in to the device UI, complete the following steps:

1. Open any supported web browser and enter the IP address of the management port. For example,

   - For HTTP: `http://<Access Point IP address>/`

   - For HTTPS: `https://<Access Point IP address>/`

   The web UI launches, prompting users to log in.

   If using the HTTPS protocol, the browser may display the **Your connection is not private** warning message**.** This occurs because the root CA for the website's SSL certificate is not available in the PC's **Trusted Root Certificate Authorities**. Users can safely ignore this warning and proceed to access the AP UI.

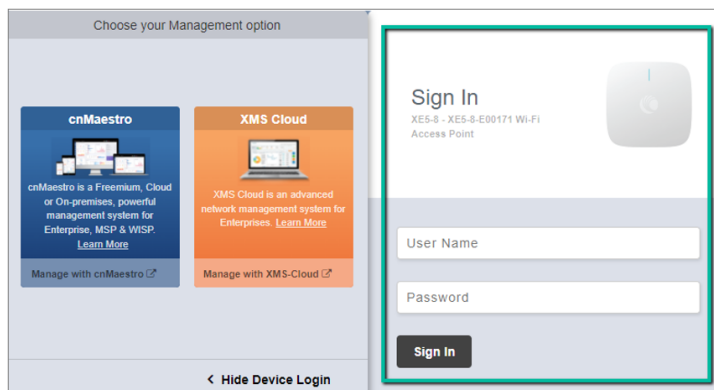   Users can select the Management options such as XMS-Cloud or cnMaestro to manage the device, as shown in Figure 1.

Figure 1 *The Management option page*
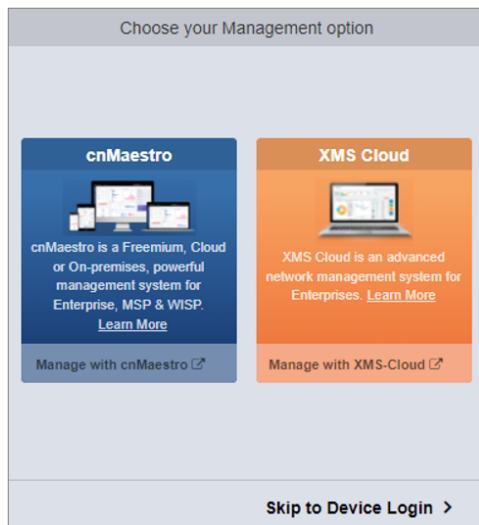
2. To log in to the device login page, click **Skip to Device Login**.

   The **Sign In** tab appears, as shown in [Figure 2].

   Figure 2 *The device UI login page*

3. Enter the following factory default username and password:

   - Username—admin

   - Password—admin

   > **Note**
   >
   > Once the device is managed from cnMaestro, you cannot view the password from the UI. However, you can change the password in cnMaestro under **AP groups** > **Management** > **Admin Password**.

The maximum length supported for authentication of GUI and CLI sessions on the AP is 32 characters.

The password policy supports all alphanumeric and special characters, and integers.

By default, remote access is supported using SSH (port 22), HTTP (port 80), and HTTPS (port 443) protocols.

Telnet does not use any encryption methodologies for remote connections, and therefore any remote connection using Telnet is vulnerable.

Configuration mode

Context: `config`—allows global configuration.

Commands available only in AP configuration mode in the CLI prompt (Not available from the cnMaestro UI).

Table 3 CLI-based configuration options

CLI Command	Description
`arp-rate-limit`	This command is executed in the `wireless-wlan-<no.>` context.
	Enables the ARP rate limiting feature, which means the number of ARP packets processed by the AP is limited to the configured value. Exceeding this limit results in a broadcast storm.
	By default, the ARP rate limit is configured to 50 packets per second. This value cannot be modified.
`auto-rf dynamic-power rx-sens` `auto-rf dynamic-power rx-sens-min-threshold`	Configures Auto-RF Rx sensitivity feature. Enables clients to connect only to nearby APs in deployments where APs are close together.
`client-isolation-external-firewall ethernet-interface <1-3>`	Configures ARP request forwarding from wireless clients to the specified Ethernet port.
`client-isolation-external-firewall multicast-snoop`	Initiates background process to monitor multicast traffic.
`coa-port <port-number>`	Configures custom COA port.
`fallback-to-configured-channel interval <0-4320 minutes>`	Configures the interval for fallback to the statically configured channel to prevent continuous channel switches.
`fallback-to-configured-channel schedule-time <00:00-23:59>`	Sets the schedule time for fallback to the statically configured channel.
`firmware-recovery-method None`	Configures the action taken when firmware stall is detected; if none selected, no action taken.
`firmware-recovery-method reboot-device`	Reboots the AP when a firmware stall is detected.

CLI Command	Description
`firmware-recovery-method reload-config`	Reloads WLAN configuration when a firmware stall is detected.
`ignore-cac`	Configures APs to ignore Channel Availability Check (CAC) that allows them to bypass CAC on DFS channels if CAC was previously completed.
`mac-authentication radius failed-allow-traffic`	Configures APs to assign the default SSID VLAN to clients failing RADIUS-based MAC authentication.
`[no] power bootloop`	Disables boot loop detection.
`[no] usb`	Disables USB port access. USB is enabled, by default.
`radar-rssi-threshold <10-80>`	Configures the radar detection RSSI threshold.
`roam management-vlan <1-4094>`	Configures the Management VLAN used for syncing client cache messages between Access Points to support roaming.
`switch-mac-authentication`	Configures switch MAC authentication for improved throughput. Applicable only on XV2-22H APs.

Console port on the AP

There is no option for an RJ-45 console port on Cambium Access Points. Instead, a 4-pin connector option is provided, with the other end being USB, which connects to a laptop or PC.

> **Note**
>
> 4-pin connector is not available on the outdoor APs.

Model	4-pin connector
XV2-22H	No
XV2-21X	No
XV2-23T	No

> **Caution**
>
> Use the console port only for diagnostics and under the guidance of Cambium Support
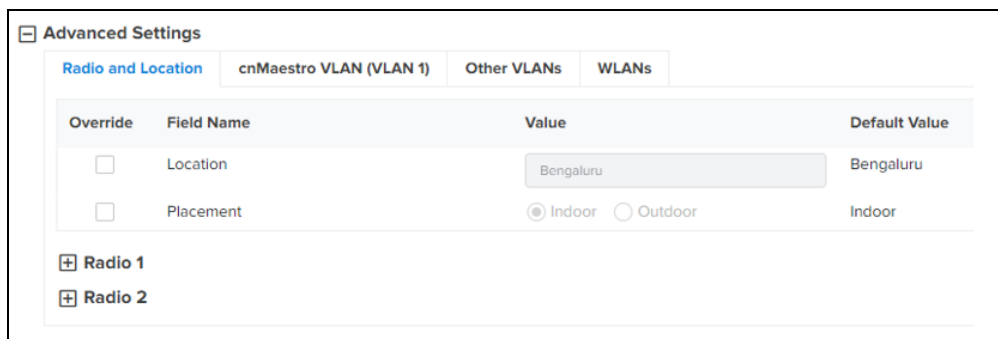
Managing APs Using CLI

The AP CLI is accessible through SSH or Telnet on IP interfaces that have been configured with these services enabled. However, the recommended approach for accessing the AP CLI is through cnMaestro's Remote CLI option. Additionally, cnMaestro provides two modes that accept CLI commands: **User-Defined Overrides** and **Predefined Overrides**. The details of each mode are explained in detail in the sections below.

- Predefined overrides

- User-defined overrides

- Remote CLI

Predefined overrides

Some configurations in all devices are mostly specific to an individual device, which cannot be shared through an AP group. This includes location, placement, radio settings, VLANs, and WLANs. In the device configuration tab, select the **Advanced Settings** option and modify the predefined profile values to override them.

User-defined overrides

User-defined overrides are entered at the end of an AP group configuration. They are merged into or appended to the AP groups before the configuration is applied to the device. This allows configuring the parameters that are not supported by the UI. The format of the commands is the same as with the device CLI.

For example, if a new version of the software has a feature that is not supported in the cnMaestro UI, you can apply that feature configuration on the device using CLI commands using the **User-Defined Overrides** option.

The same is explained with the following example, in which a filter list, RADIUS ID, and an individual VLAN are assigned to an AP group. This configuration ensures that all clients with the string **student** in their RADIUS response are assigned VLAN 1702, and filter list 1 is applied to all client traffic.

Remote CLI

Remote CLI mode is enabled for Super Admin, Admin, and Operator users only. You must enter the CLI commands in the command text box to execute them on the device. For all AP troubleshooting, Remote CLI mode is suggested.

> **Note**
>
> - Operator users have access to only the `show` command.
> - Super Admin and Admin users have access to the `service show` and `show` commands.

New Commands Introduced in 7.1

The following CLI commands are introduced in Release 7.1.

CLI Command	Description
Context: `config`	
`auto-rf dynamic-power rx-sens` `auto-rf dynamic-power rx-sens-min-threshold`	Enables Auto-RF Rx sensitivity feature.
`[no] power bootloop`	Disables boot loop detection.
`[no] usb`	Disables USB port access.
`coa-port <port-number>`	Configures custom COA port.

`service test-aaa-server <auth protocol(supported`
`protocols are pap,chap and mschap>`
`<ip address of AAA server> <username> <password>`
`<secret>`
	Tests RADIUS server reachability.

AP CLI Commands

Firmware Management

This section lists the CLI commands available for Cambium AP firmware management.

Reboot

The following table lists the device restart-related commands.

Context: `config`

CLI Command	Description
`show boot`	Displays device firmware active-backup versions.
`service boot backup-firmware`	Restarts the device and activates the backup firmware.
`service schedule reload {HH:MM:SS : Time in Hour:Min:Sec Format <24 Hr Format>}`	Restarts the AP at a specified time.
`service show last-reboot-reason`	Displays the reason for the last restart of the AP.
`service show last-reboot-state watchdog`	Displays the state of the hardware watchdog on the AP at the last restart.

Upgrade

Cambium AP facilitates AP upgrades via the CLI using various protocols. Following are the upgrade commands:

Context: `config`

CLI Command	Description
`upgrade ftp://user:password@<HOST>/firmware-file.cimg`	Updates the AP image via FTP protocol.
`upgrade scp://user@<HOST>/firmware-file.cimg`	Updates the AP image via SCP protocol.
`upgrade tftp://<HOST>/firmware-file.cimg`	Updates the AP image via TFTP protocol.
`upgrade http://<HOST>/firmware-file.cimg`	Updates the AP image via HTTP protocol.

CLI Command	Description
`upgrade https://<HOST>/firmware-file.cimg`	Updates the AP image via HTTPS protocol.
`Upgrade <followed by command> verbose`	Optionally, upgrades in foreground with verbose output.
`show upgrade-status`	Displays the last upgrade status.

Device management

Device configuration

Cambium APs enable users to view, delete, export, and import device configurations.

Context: `config`

CLI Command	Description
`export config ftp://user:pass@1.2.3.4/config.txt`	Export the AP configuration using FTP protocol.
`export config tftp://1.2.3.4/config.txt`	Export the AP configuration using TFTP protocol.
`export config scp://user@1.2.3.4 [:port]/config.txt`	Export the AP configuration using SCP protocol.
`import config ftp://user:pass@1.2.3.4/config.txt`	Import the AP configuration using FTP protocol.
`import config tftp://1.2.3.4/config.txt`	Import the AP configuration using TFTP protocol.
`import config scp://user@1.2.3.4 [:port]/config.txt`	Import the AP configuration using SCP protocol.
`show config all`	Displays current configuration including defaults.
`service show config`	Displays configuration from the database.
`service show config-old`	Displays configuration from the backup database.
`delete config preserve-interface`	Deletes configuration but retains network interfaces, and restarts the device to the factory-default state.

System commands

Cambium APs enable users to perform various diagnostics and operational tasks from the CLI.

Context: `config`

CLI Command	Description
service lock-country-code <two digit CC>	Specifies a two-letter country code as a parameter to lock the country of operation.
service mgmt-url-lock	Locks management URL on factory reset; the unit does not default to cloud.cambiumnetworks.com.

Password management

Password administration

Cambium APs enable users to perform various diagnostics and operational commands from CLI to manage the AP password.

Context: config

CLI Command	Description
service configuration-password <password>	Configures the password used to encrypt configuration.
service password-lock <master password (optional)>	Locks admin password on factory reset; the unit does not default to admin.
service password-unlock <master password>	Resets admin password on factory reset of the device.

Remote management

Remote administration

Cambium APs enable users to perform various diagnostics and operational commands from the CLI to troubleshoot cnMaestro connectivity problems.

Context: config

CLI Command	Description
show cambium-id	Displays the configured Cambium-ID (if any).
show management	Displays management status.
show management details	Displays management status in detail.
monitor cnmaestro-connection <30-86400>secs	If connection fails to cnMaestro for this timeout, the AP will be restarted.
management cambium-remote url	Specifies the Cambium remote

CLI Command	Description
	cloud manager URL.
`management cambium-remote validate-server-cert`	Validates the server certificate during onboarding.

Troubleshooting and debugging

Clear commands

Cambium APs provide users with various diagnostics and operational commands from the CLI.

Context: `config`

CLI Command	Description
`service clear-cores`	Clears system core files (if any).
`clear bonjour-statistics`	Clears Bonjour rule statistics.
`clear events`	Clears all event messages.
`clear filter-statistics`	Clears filter statistics.
`clear logs`	Clears debug log messages.
`service clear-dhcp-pool`	Clears DHCP pool allocated addresses.
`service show mdnsd-statistics clear`	Clears mDNS packet statistics.
`show application-statistics clear`	Clears all application statistics (global/SSID/VLAN/station).

Debug commands

Cambium APs allow users to perform process and feature debugging commands from the CLI.

Context: `config`

CLI Command	Description
`service debug acs`	Enables ACS debug trace logs.
`service debug auto-rf`	Enables trace logs for Auto-rf.
`service debug coplane`	Enables or disables coplane processing for packets.
`service debug dpid`	Enables debug logs for dpid.

CLI Command	Description
service debug infrad	Enables debug logs for infrad.
service debug mdnsd	Enables debug logs for mdnsd.
service debug rca-agent	Enables debug logs for rca-agent.
service debug rfmd	Enables debug logs for rfmd.
service debug uscd	Enables debug logs for uscd.
service debug wmd	Enables debug logs for wmd.
service debug xrp	Enables debug logs for xrp.
service flash-leds	Flashes system LEDs to help identify this device visually.

Radio commands

Cambium APs allow users to run radio internal commands from the CLI to view statistics.

Context: `config`

CLI Command	Description
service radio apstats	Displays apstats.
service radio athstats	Displays athstats.
service radio cfg80211tool	Views cfg80211tool.
service radio iwpriv	Configures iwpriv (used for debugging).
service radio thermaltool <1-2>	Displays thermaltool.
service radio wifitool	Configures wifitool (used for debugging).
service radio wlanconfig	Configures wlanconfig (used for debugging).
service show athstats1	Displays radio0 wireless statistics.
service show athstats2	Displays radio1 wireless statistics.
service show cac-completed-channels	Displays list of CAC completed DFS channels.
service show client-cache	Dumps cached client info to log file.
show wireless radios	Displays information on the device radios.

CLI Command	Description
`show wireless radios channels <CC>`	Displays supported channels.
`show wireless radios mu-mimo-statistics`	Displays MU-MIMO statistics of radios.
`show wireless radios multicast-to-unicast`	Displays multicast-to-unicast configuration.
`show wireless radios ofdma-statistics`	Displays OFDMA statistics of radios.
`show wireless radios rf-statistics`	Displays RF statistics of radios.
`show wireless radios statistics`	Displays statistics of radios.

SSH commands

Cambium APs enable users to execute SSH commands from the CLI.

Context: `config`

CLI Command	Description
`service remote-support`	Establishes a remote SSH tunnel for technical support.
`service remote-support connect`	Connects to a remote SSH server.
`service remote-support disconnect`	Disconnects from a remote SSH server.
`service remote-support keygen`	Generates a new SSH key for remote support.
`service ssh host add <hostname/IP address> <key type> <key>`	Adds a host and key to the known hosts list for SSH connections.
`service ssh host del <hostname/IP address>`	Deletes a host and its key from the known hosts list.
`service ssh keygen`	Generates a new SSH key.
`service ssh show hosts`	Displays the list of known hosts and their public SSH keys.
`service ssh show key`	Displays the current public SSH key.

General troubleshooting and debugging commands

Cambium APs allow users to execute AP commands for basic troubleshooting from the CLI.

Context: `config`

CLI Command	Description
`service start-shell`	Initiates a terminal shell session for troubleshooting.
`service system-trace <pid>`	Starts a strace session for troubleshooting with the specified process ID.
`service test leds`	Runs system internal tests for LEDs.
`service test qdart-qpst-server`	Enables radios in QDART test mode and connects to QPST server.
`service test radio <on/off/status>`	Runs system internal tests for radios with the specified status.
`service test reset-pin`	Tests the reset pin-press functionality.
`service trigger-tech-support`	Informs cnMaestro to pull a tech-support.
`service watch <Repeat Interval 1-3600 (in sec)> <CLI in quotes> <Loop Count>`	Executes a CLI command at a specified interval (in seconds) in a loop. Press CTRL+C to exit.
`service test-aaa-server <auth protocol`(supported protocols are pap,chap and mschap> `<ip address of AAA server> <username> <password> <secret>`	Tests RADIUS server reachability. For example: `service test-aaa-server pap 192.168.1.50 test userPassword test@1234`
`export tech-support tftp://1.2.3.4/config.txt`	Exports tech-support using TFTP protocol.
`export tech-support ftp://user:pass@1.2.3.4/config.txt`	Exports tech-support using FTP protocol.
`export tech-support scp://user@1.2.3.4[:port]/config.txt`	Exports tech-support using SCP protocol.

Device infra commands

Cambium APs permit users to execute device commands from the CLI to view, diagnose, and perform troubleshooting on the device.

Context: `config`

CLI Command	Description
`service show XRP-neighbors`	Displays XRP neighbors.
`service show bridge`	Displays AP bridge table entries.
`service show conntrack-`	Displays conntrack statistics.

CLI Command	Description
`statistics`	
`service show control-packet-count`	Displays the count of control packets for the specified protocols, as well as the overall packets count.
`service show crashdumps`	Displays kernel crash information.
`service show df`	Displays flash status.
`service show ethtool`	Displays ethtool info for Ethernet interfaces.
`service show ifconfig`	Displays interface configuration and status.
`service show iperfd-logs`	Displays IPERF logs (if any).
`show conntrack`	Displays connection track entries.
`show interface brief`	Displays interface parameters briefly.
`show interface details`	Displays MAC-auth enabled interface parameters in detail.
`show ip interface brief`	Displays IP interface parameters briefly.
`show ip neighbour`	Displays IPv4 neighbor entries.
`show mfgrom`	Displays manufacturing ROM details.
`show version`	Displays device firmware information.
`show version build-info`	Displays detailed device firmware information.
`service show cores`	Displays process cores (if any).
`service show dmesg`	Displays system kernel logs.
`show arp`	Displays ARP entries.

Show commands

Process commands

Cambium APs enable users to perform process diagnostics from the CLI.

Context: `config`

CLI Command	Description
`service show memory`	Displays memory information.
`service show netstat`	Displays network socket connections.
`service show proc-coplane`	Displays coplane /proc debug information.
`service show ps`	Displays a list of processes.

CLI Command	Description
`service show ps-open-file-descriptors`	Displays the number of open file descriptors of processes.
`service show ps-restart-history`	Displays the history of process restart on the AP.
`service show top`	Displays process activity status.
`service show debug-logs device-agent`	Displays control message details between AP and cnMaestro.
`service show debug-logs dpid`	Displays deep packet inspection debug messages.
`service show debug-logs dpistatsd`	Displays application-related stats.
`service show debug-logs infrad`	Displays debug messages related to port status and ACL rules.
`service show debug-logs mdnsd`	Displays mDNS-related messages.
`service show debug-logs messages`	Displays messages related to common daemons (like dhcpd).
`service show debug-logs nfq_agent`	Displays debug messages related to the distribution of packets coming from NFQ to other daemons.
`service show debug-logs rfmd`	Displays debug info related to RF features and wireless neighbors.
`service show debug-logs rca-agent`	Displays debug messages related to client life-cycle.
`service show debug-logs scmd`	Displays debug messages related to system configuration and stats.
`service show debug-logs wmd`	Displays debug messages related to wireless LAN settings.
`service show debug-logs xrp`	Displays debug messages related to roaming protocol settings.
`service show debug-logs xwfd`	Displays debug messages related to Express-WiFi for Facebook.
`service show debug-logs utm`	Displays debug messages related to various components of the security gateway.
`service show debug-logs wanlb`	Displays debug messages related to WAN links for load balancing.

Wireless troubleshooting

Cambium APs allow users to execute wireless and WLAN commands from the CLI to view wireless configuration, stats, and diagnose.

Context: `config`

CLI Command	Description
`show config wireless`	Displays wireless configuration.
`show config wireless all`	Displays wireless configuration including defaults.
`show wireless band-steer`	Displays band steer related information.
`show wireless band-steer client-cache`	Displays band-steered client cache.
`show wireless clients`	Displays information of associated clients.
`show wireless clients aggregate-statistics`	Displays aggregate statistics of associated clients.
`show wireless clients device-details`	Displays device details of associated clients.
`show wireless clients discovered`	Displays information of discovered clients.
`show wireless clients ipv6`	Displays IPv6 address of associated clients.
`show wireless clients statistics`	Displays statistics of associated clients.
`show wireless clients unconnected`	Displays information of unconnected clients.
`show wireless clients wmm-statistics`	Displays WMM statistics of associated clients.
`show wireless mesh`	Displays information on the mesh links.
`show wireless mesh-xtnded-list`	Displays mesh extended device list for 2.4 GHz when 'mesh-xtnded-dev-list' is enabled.
`show wireless neighbors`	Displays wireless neighbors.
`show wireless neighbors 2.4GHz`	Displays 2.4 GHz wireless neighbors.
`show wireless neighbors 5GHz`	Displays 5 GHz wireless neighbors.
`show wireless neighbors 6GHz`	Displays 6 GHz wireless neighbors.
`show wireless neighbors autocell`	Displays autocell neighbors.

CLI Command	Description
`show wireless neighbors snr-nbrs`	Displays autocell SNR reported neighbors.
`service show iwconfig`	Displays iwconfig configuration.
`show wireless wlans`	Displays information on the wireless LANs.
`show wireless wlans aggregate-statistics`	Displays aggregate statistics of wireless LANs.
`show wireless wlans interface`	Displays wireless WLAN interface details.
`show wireless wlans monitor-host`	Displays monitor host information for wireless LANs.
`show wireless wlans statistics`	Displays statistics of wireless LANs.

Feature-wise configuration view

Cambium APs allow users to execute `show` and `clear` commands from the CLI to view device configuration specific to each feature.

Context: `config`

CLI Command	Description
`show config dhcp-pools`	Displays DHCP pools configuration.
`show config dhcp-pools all`	Displays DHCP pools configuration including defaults.
`show config filter`	Displays Filter configuration.
`show config syslog`	Displays syslog configuration.
`show config syslog all`	Displays syslog configuration including defaults.
`show config system`	Displays infrastructure configuration.
`show config system all`	Displays infrastructure configuration including defaults.
`show config system interfaces`	Displays network interfaces configuration.

Device show commands

Cambium APs enable users to execute show commands from the CLI to view general device infrastructure-specific configuration.

Context: `config`

CLI Command	Description
`show clock`	Displays system time.

CLI Command	Description
`show country-codes`	Displays a list of supported countries and corresponding country-codes.
`show events`	Displays recent event messages.
`show hw-reset`	Displays whether the hardware reset button is enabled or not.
`show timezones <region>`	Displays the time zone for a specific region chosen from Africa, America, Asia, Atlantic, Australia, Europe, or Pacific.
`show power`	Displays power conditions.

Feature-wise show commands

Auto-RF

Cambium APs enable users to execute show commands from the CLI to view and diagnose Auto-RF specific configuration.

Context: `config`

CLI Command	Description
`service show channel-change-history`	Displays channel change history.
`show auto-rf channel-info`	Displays Auto-RF channel information.
`show auto-rf history`	Displays Auto-RF history.

Multicast and mDNS

Cambium APs enable users to execute mDNS and Multicast commands from the CLI.

Context: `config`

CLI Command	Description
`service show mcastsnoop`	Displays mcastsnoop details.
`service show mdnsd-statistics`	Displays mDNS packet statistics on mdnsd.
`show bonjour-statistics`	Displays Bonjour rule statistics.
`show bonjour-services`	Displays available Bonjour services.

ePSK configuration

Cambium APs enable users to execute commands from the CLI to view and diagnose ePSK specific configuration.

Context: `config`

CLI Command	Description
`service show epsk`	Displays ePSK information.
`service show epsk-api-service-info`	Displays ePSK API service information, such as the redirection URL, number of requests sent and responses received.
`service show epsk-client-cache`	Displays WPA3 ePSK clients information.

RCA

Cambium APs enable users to execute commands from the CLI to view and diagnose RCA.

Context: `config`

CLI Command	Description
`service show rca-client-cache`	Dump RCA cached client info to log.

Route configuration

Cambium APs enable users to execute commands from the CLI to view and diagnose device routes.

Context: `config`

CLI Command	Description
`service show route`	Displays routing table.
`show ip gw-source-precedence`	Displays the precedence of gateway Sources.
`show ip route`	Displays IP route information.
`show route`	Displays route information.

DPI (Application Statistics)

Cambium APs enable users to execute commands from the CLI to view and diagnose DPI information.

Context: `config`

CLI Command	Description
`show application-statistics by-application`	Displays statistics per application type.
`show application-statistics by-application ssid <1-16>`	Displays statistics for the specified WLAN index.
`show application-statistics by-application station <58:c1:7a:e7:8a:50>`	Displays statistics for the specified station entry.

CLI Command	Description
`show application-statistics by-application time-frame <1-86400 seconds>`	Displays application statistics from the last specified time frame.
`show application-statistics by-application vlan <1-4094>`	Displays statistics for the specified VLAN ID.
`show application-statistics by-category ssid <1-16>`	Displays statistics for the specified WLAN index by category.
`show application-statistics by-category station <58:c1:7a:e7:8a:50>`	Displays statistics for the specified station entry by category
`show application-statistics by-category vlan <1-4094>`	Displays statistics for the specified VLAN ID by category
`show application-statistics debug`	Dumps list of stations/VLANs stored in dpistatsd daemon.
`show application-statistics dpi-version`	Dumps current DPI library version used.

DHCP Pool and DNS configuration

Cambium APs enable users to execute commands from the CLI to view and diagnose DHCP and DNS configuration, as well as troubleshoot any issues.

Context: `config`

CLI Command	Description
`show dhcp-pool <Enter pool number {1-16} or all for details of all dhcp-pools>`	Displays DHCP server status and assigned leases.
`show ip dhcp-client-info`	Displays learned DHCP client information.
`show ip domain-name`	Displays learned domain name information.
`show ip name-server`	Displays DNS server information.

VLAN pool and filters configuration

Cambium Ps enable users to execute commands from the CLI to view and diagnose VLAN Pool and User filter configuration, as well as troubleshoot any related issues.

Context: `config`

CLI Command	Description
`show filter-statistics`	Displays filter statistics.
`show filter-statistics <Filter ID	global>`	Displays filter statistics with respect to filter ID.
`show wireless clients user-group`	Displays information of user groups of each connected client.
`show vlan-pool-summary`	Displays VLAN pool information.
`show wireless clients vlan-pool`	Displays information of VLAN pool of each connected client.

Uplink and tunnel configuration

Cambium APs enable users to execute commands from the CLI to view and diagnose uplink and tunnel configuration, as well as troubleshoot any related issues.

Context: `config`

CLI Command	Description
`show ip pppoe-client-info`	Displays learned PPPoE client information.
`show pppoe-status`	Displays the PPPoE status and other details.
`show tunnel-statistics`	Displays tunnel type and statistics.
`show tunnel-status`	Displays tunnel remote host details and uptime.
`show tunnel-status details`	Displays negotiated tunnel parameters.

IPv6 configuration

Cambium APs enable users to execute commands from the CLI to view and diagnose IPv6 configuration.

Context: `config`

CLI Command	Description
`show ipv6 6rd-status`	Displays 6rd tunnel status.
`show ipv6 dhcp-client-info`	Displays learned DHCPv6 client information.
`show ipv6 domain-name`	Displays learned domain name information.
`show ipv6 gw-source-precedence`	Displays the precedence of gateway sources.
`show ipv6 interface brief`	Displays IPv6 interface parameters.
`show ipv6 name-server`	Displays IPv6 name server information.

CLI Command	Description
`show ipv6 neighbour`	Displays neighbor entries.
`show ipv6 route`	Displays IPv6 route information.

LLDP configuration

Cambium APs enable users to execute commands from the CLI to view and diagnose LLDP configuration.

Context: `config`

CLI Command	Description
`show lldp chassis`	Displays local chassis data.
`show lldp configuration`	Displays LLDP configuration.
`show lldp interfaces`	Displays interface data.
`show lldp neighbors`	Displays neighbor data.
`show lldp statistics`	Displays LLDP statistics.

RTLS configuration

Cambium APs enable users to execute commands from the CLI to view and diagnose RTLS configuration.

Context: `config`

CLI Command	Description
`show rtls aeroscout ble-tag-summary`	Displays Aeroscout BLE-tag summary.
`show rtls aeroscout configuration`	Displays Aeroscout configuration.
`show rtls aeroscout wifi-tag-summary`	Displays Aeroscout WiFi-tag summary.

WIDS-WIPS configuration

Cambium APs enable users to execute commands from the CLI to view and diagnose WIDS-WIPS details.

Context: `config`

CLI Command	Description
`show wids-wips adhoc-networks`	Displays adhoc networks detected by the AP.
`show wids-wips honeypot-clients`	Displays information of clients connected to honeypot APs.

CLI Command	Description
`show wids-wips rogue-ap-clients`	Displays information of clients connected to rogue APs.

Packet capture

Cambium APs enable users to execute commands from the CLI to capture packets and export them to a 3rd party server for diagnostics.

Context: `config`

CLI Command	Description
`show packet-capture status`	Displays status of packet capture.
`export packet-capture tftp://1.2.3.4/config.txt`	Exports packet capture details to the configured file using TFTP protocol.
`export packet-capture ftp://user:pass@1.2.3.4/config.txt`	Exports packet capture details to the configured file using FTP protocol.
`export packet-capture scp://user@1.2.3.4[:port]/config.txt`	Exports packet capture details to the configured file using SCP protocol.

Cambium Networks

Cambium Networks delivers wireless communications that work for businesses, communities, and cities worldwide. Millions of our radios are deployed to connect people, places, and things with a unified wireless fabric that spans multiple standards and frequencies of fixed wireless and Wi-Fi, all managed centrally via the cloud. Our multi-gigabit wireless fabric offers a compelling value proposition over traditional fiber and alternative wireless solutions. We work with our Cambium certified Connected Partners to deliver purpose built networks for service provider, enterprise, industrial, and government connectivity solutions in urban, suburban, and rural environments, with wireless that just works.

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