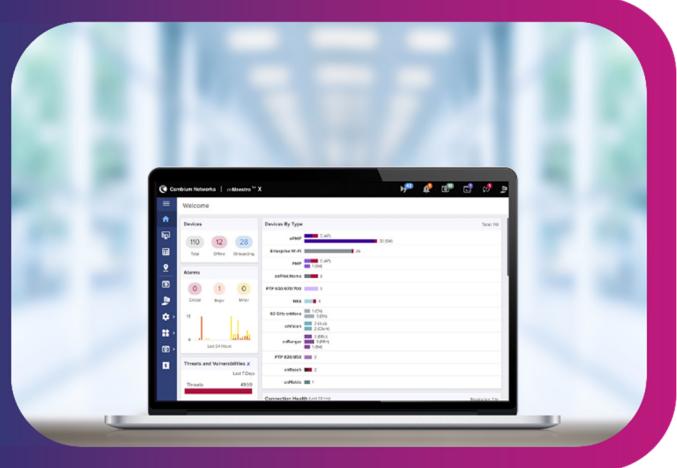


# cnMaestro™ Management System

cnMaestro Quick Look

A simple, yet sophisticated cloud-first network management system for Cambium Networks wireless and wired solutions.

- Elastic scalability and a single-pane-of-glass experience
- Secure, end-to-end network management with zero-touch provisioning
- Simplified operations and ongoing maintenance for the network administrator



Cambium Networks | cnMaestro™ X

Cloud Account Name: Cambium Networks Inc

3 14

Devices

90 Total, 45 Offline, 5 Onboarding

Alarms

Period: Last 24 Hours

3 CRITICAL, 54 MAJOR, 24 MINOR

94, 47, 0

Threats and Vulnerabilities

Period: Last 7 Days

Threats: 0

Unique Vulnerabilities: 62

Assists X

Period: Last 24 Hours

68% Good, 17 Failure, 13 Passed

Devices By Type

Total: 90

Type	Count
Enterprise Wi-Fi	52
cnMatrix	13
NSE	10
RV22 Home Mesh	5
PMP	1 (AP) 3 (SM)
ePMP	1 (AP) 3 (SM)
cnPilot Home	2

Connection Health

Period: Last 24 Hours, Resolution: 1 Hour

Count

18:00, 20:00, 22:00, 09 Dec, 02:00, 04:00, 06:00, 08:00

Total Devices (Blue), Offline (Red)

Top Managed Accounts

Period: Last 5 Minutes

Name	Total	Down	Devices By Type
01_ABC_Corp_(OneNetwork)	30	11	30
T14_GHH_Cloud	18	7	18
T09_Cal_Tech	17	17	17

What's New in 5.2.0

Enterprise

- Client Data History Retention increased to 30 Days.
- EasyPass Onboarding (ePSK Cloud)
- MarketApps Enhancements
- EasyPass Customizable Background
- EasyPass API Support

Key Highlights

To serve the demand for advanced management and services functionality, Cambium offers 2 management tiers:

**cnMaestro Essentials**

Unlicensed, free version delivers the same experience as previous versions of cnMaestro. This license-free option delivers a disruptive total cost of ownership (TCO) for organizations of all sizes.

**cnMaestro X**

Paid subscription that includes advanced management capabilities, AI troubleshooting, and Cambium Care Pro for 24x7 technical support, accelerated access to L2 engineers, and regular software updates and upgrades for advanced features.

This data sheet covers the highlights of the cnMaestro platform and cnMaestro Essentials features.



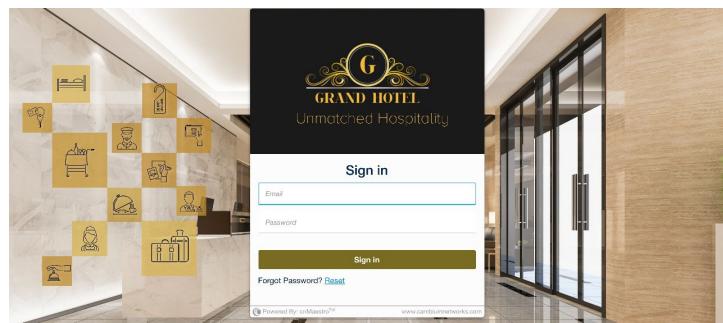
## cnMaestro™ Management System

### Product Overview

#### cnMaestro Essentials

- Comprehensive cloud and on-premises management for Cambium's wired and wireless portfolio is included with the hardware purchase with no subscription or recurring fees.
- Zero-touch provisioning: Create, provision, monitor, and manage the entire network of wireless and wired devices from a single dashboard login with key performance metrics, alarms, and alerts. The cloud-first UI design is easy to learn and apply across the portfolio and helps network administrators simplify operations and deliver an optimal client experience.
- With centralized visibility and control for Cambium Networks' wireless and wired products, network administrators can quickly and easily deploy networks with minimal training. Whether you work on small sites or large distributed networks with thousands of sites, cnMaestro makes deployment and operations easy. Administrators have access to information needed to enforce policies and optimize performance. Remote support capability is integrated into the architecture, along with powerful help desk tools to debug remote issues without going onsite. Troubleshooting tools such as ping, traceroute, throughput, and live packet captures are included, dramatically reducing resolution times and enabling remote troubleshooting.
- Deployment flexibility and TCO: Choice of public cloud, private cloud, or on-premises deployment with best TCO. cnMaestro helps reduce operating costs and accelerate return on investment. cnMaestro does not require Wi-Fi controllers, thereby reducing the complexity and cost of deploying Wi-Fi networks.
- Built for scale and security at all levels: Devices connect to cnMaestro Cloud using SSL-enabling deployments without changes to the firewall configuration. Cambium Intelligent edge architecture enables fault-tolerant networks where the network continues to operate even when the cloud is unreachable due to a WAN outage. With cnMaestro Essentials, you can manage networks with up to thousands of sites, and up to 10,000 devices.
- Tailored views for enterprise, access and backhaul, and IIoT: The access and backhaul view provides visualization and control of devices from tower to edge. This includes PTP and PMP devices.
- Supports network hierarchy, which enables easy configuration, monitoring, and debugging at network nodes to reduce operational costs. This is especially critical for large networks or small distributed networks with small on-site IT staff.

- Provides a bird's-eye view of network health with insights on performance, connectivity, and client experience. Administrators can quickly identify potential trouble spots and drill down from network to client-level details.



#### Advanced Functionality in cnMaestro X

cnMaestro X is a super set of cnMaestro Essentials and includes advanced features with Cambium Care Pro for 24x7 technical support. *Paid subscription is required.*

- X Assurance provides AI-powered analytics to identify and fix wireless network issues, helping IT admins improve user experience by proactively finding root cause of problems.
- EasyPass offers diverse Wi-Fi onboarding options for employees, guests, attendees, and IoT, featuring advanced captive portals and one-year client login history.
- Application visibility and control provides analytics and policy control for 2,400+ applications at the Wi-Fi and WAN edge.
- Customizable MSP dashboard offers ability to create different brands with multi-tier customizations including guest portals.
- Consolidated MSP tenant statistics offers ability to drill down to manage a specific tenant without impacting data from others.
- cnMaestro X support up to 200 managed tenants
- Restful APIs and webhooks allow for integration with existing OSS/BSS systems and event monitoring.
- The Assists function scans device configurations to identify potential vulnerabilities and recommends improvements to save time troubleshooting.
- RADIUS, TACACS+, LDAP, and AD Login for user administration.
- Long-term historical data: 2-year data retention for FWB and 1-year data retention for Enterprise and IIoT devices.
- Advanced cnMatrix™ switch features including QinQ, auto-device recovery (ADR), and cable diagnostics.

## cnMaestro™ Management System

### Product Summary

Features marked **X** require cnMaestro X subscription

#### PLATFORM FEATURES

##### Scale

- Max number of managed devices: 10,000 (requires X for over 10,000 devices)
- Max number of managed devices: **X**
  - 25,000 for enterprise
  - 40,000 for FWB
- Management users: 10
- Management users: 200 **X**
- Managed service provider accounts **X**
  - Branded tenant login page **X**
  - Support for up to 200 accounts
- Long-term data retention **X**
  - 2-year for Access & backhaul view
  - 1-year for enterprise & Industrial internet view

##### Deployment

- Cloud-hosted delivered as a service
- Customer-hosted **On-premises**
- Amazon Marketplace AMI

##### Onboarding & Provisioning

- Zero-touch onboarding
- Template configuration
- Object configuration (enterprise)
- RESTful provisioning API **X**
- Auto-provisioning **X**

##### Visualization

- Full visibility across network
- Supports ePMP, cnMatrix, enterprise & residential Wi-Fi, PMP, PTP, cnReach, cnRanger™, **NSE, PON**
- Multiple product views
  - Access & backhaul view
  - Enterprise wireless view
  - Industrial internet view
- Hierarchical device tree

##### Configuration & Monitoring

- Redundant cloud services
- Scheduled system backup
- Automatic bulk software update
- Dedicated device dashboards
- Statistics & trending
- Email alerts
- Supporting concurrent device jobs **X**
- Configuration lock **X**

##### Security

- Communication over SSL
- No inbound internet access
- Not-in-traffic path
- Disaster recovery

##### Troubleshooting & Forensics

- End to End view
- Technical support dump export
- Advanced troubleshooting **X**
  - Audit logs
  - Audit syslog & event syslog (On-Premises)

##### Support

- 8x5 Support
- Live link to Cambium Community
- Cambium Care Pro – 24/7 technical support, accelerated access to L2 engineers **X**

#### Data & Reporting

- Statistics reports exported in CSV
- Export UI tables in CSV **X**
- RESTful monitoring API **X**
- Graphical reports **X**
- Webhooks support **X**

#### Administration

- Role-based access
- RADIUS, TACACS+, LDAP, & AD login **X**
- Session management **X**
- User authentication (On-Premises) **X**
- Open ID/SAML authentication **X**
- High availability (1+1) for On-Premises **X**

#### ADVANCED SERVICES

##### Assurance **X**

- AI-Based Advanced Analytics/Troubleshooting
  - Client connection lifecycle monitoring & analysis
  - Root cause analysis of connection & service failures
  - Network-wide client health monitoring & scoring
- NOTE: Assurance is available for Wi-Fi 6 and above devices in cnMaestro X Cloud but not in cnMaestro X On-Premises

##### EasyPass

###### Wi-Fi Access Services

- One-click
- Sponsored guest **X**
- Voucher
- Paid **X**
  - Payment gateway
    - PayPal
    - IPPay
    - QuickPay
    - mPesa
  - WiFi4EU
  - Azure authentication **X**
  - Google authentication **X**
  - Self-registration: SMS & email **X**
  - Onboarding (ePSK cloud) **X**
  - Combined options

- Max number of login events:
  - 2,000 event records for 30 days
  - Unlimited records for 30 days **X**
- Number of guest portals: 4
- Number of guest portals: 500 **X**
- Max number of guest client sessions at a time: 10,000 **X**

##### Application Visibility and Control **X**

Application visibility & control of 2,400+ different applications across Wi-Fi access network

##### MarketApps **X**

###### Simple Apps for Non-Technical Users

- Managed Wi-Fi
- Self-Service Personal Wi-Fi
- Installer
- Senior Living
- Outdoor Hospitality

##### Assists **X**

- Assists for cnMatrix, Wi-Fi, cnPilot™-R, PMP, ePMP, cnWave 5G Fixed, & PTP 670/700 X

#### DEVICE FAMILY FEATURES

##### Wi-Fi

- Simplified wireless LAN view
- Stateful firewall support
- Dynamic channel listing based on country, release, & SKU
- AP group & WLAN configuration
- Site support for collocated APs
- Simplified Wi-Fi Offloading (Passpoint, WiFi, XNET, Open roaming)
- Rogue AP detection
- Wi-Fi packet capture
- Support for software-defined radios (SDR) on XV3-8, XE3-4, & XE5-8 Wi-Fi 6 APs
- ePSK types:
  - ePSK Local – ePSKs are cached locally on the Wi-Fi APs
    - 2,000 per WLAN (Wi-Fi 6+)
    - 300 per WLAN (Wi-Fi 5)
  - ePSK RADIUS – ePSKs are limited via external radius server **X**
  - ePSK Cloud – ePSKs are unlimited & cloud managed (Wi-Fi 6+) **X**
- WIDS support **X**
- Personal Wi-Fi **X**
- Monitor Wi-Fi performance from client or AP to cnMaestro (On-Premises) **X**

##### cnMatrix

- Zero-touch remote provisioning
- Policy-based automation (PBA) on EX and TX series switches
- Cambium Sync on TX series
- DHCP client/server
- Automated voice VLAN
- QinQ **X**
- Auto-device recovery **X**
- Cable diagnostics **X**
- MAC lists & location services for PBA **X**

##### Network Service Edge (NSE)

NOTE: Security Plus (**S+**) is a subscription-based version of NSE

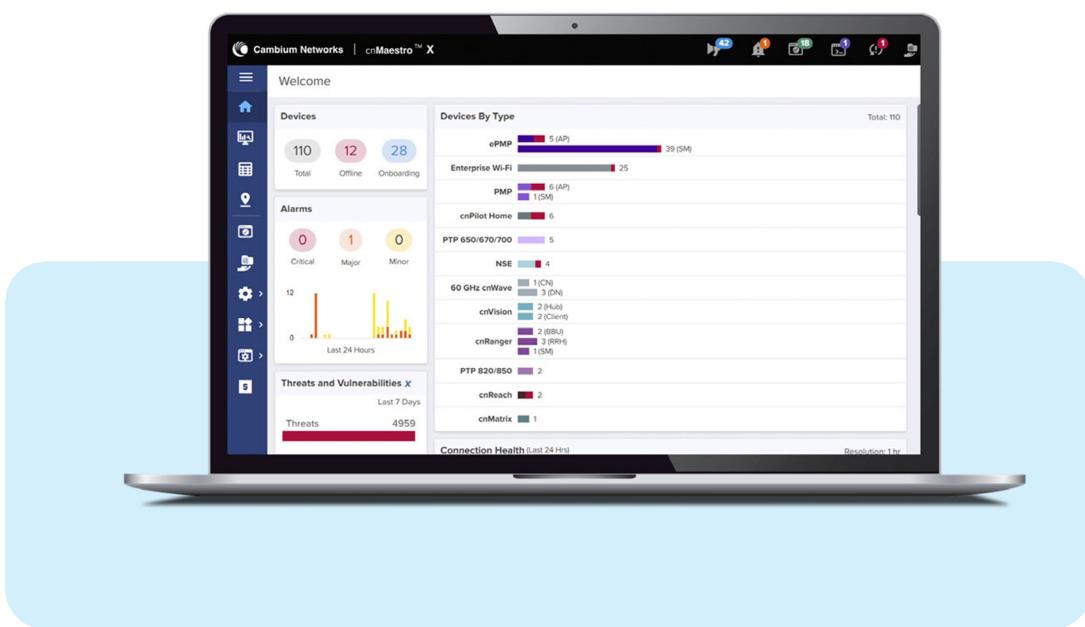
- Auto VPN **S+**
- Site-to-site VPN
- Remote VPN
- WAN flow preferences
- DHCP/RADIUS/DNS services
- Load balancing
- WAN QoS
- Firewall
- LAN vulnerability assessment **S+**
- Granular content filtering (DNS-based) **S+**
- WAN failover policy & IP groups
- High Availability **S+**
- IoT device identification **S+**

##### Fixed Wireless

- Claim PMP SMs associated with AP
- cnMaestro Installer installation summary upload (PMP & ePMP) **X**
- Mass provisioning for ePMP/PMP/cnWave™ 60 GHz (using LinkPlanner) **X**
- ePMP/PMP link test
- PMP/ePMP sector display
- Spectrum analyzer PMP **X**
- cnWave 60 GHz Interference Scan **X**
- cnWave 60 GHz MAP features
  - Extensive Network Map RF Link visualization **X**
  - Auto-manage route

## cnMaestro™ Management System

Resources	Enterprise	FWBB	Wi-Fi and FWBB
8vCPUs, 16 GB RAM, 250 GB Hard Disk	10,000 enterprise devices (Wi-Fi, cnMatrix)	20,000 fixed wireless devices (PMP, ePMP, PTP, cnReach, cnRanger)	10,000 total devices – fixed wireless and Enterprise
16vCPUs, 32 GB RAM, 500 GB Hard Disk	25,000 enterprise devices (Wi-Fi, cnMatrix)	40,000 fixed wireless devices (PMP, ePMP, PTP, cnReach, cnRanger)	25,000 total devices – fixed wireless and Enterprise



### GET STARTED at

[cloud.cambiumnetworks.com](http://cloud.cambiumnetworks.com)

**Free 90-day trial of cnMaestro X:**

[cambiumnetworks.com/cnmaestro-x](http://cambiumnetworks.com/cnmaestro-x)

### ABOUT CAMBIUM NETWORKS

Cambium Networks enables service providers, enterprises, industrial organizations, and governments to deliver exceptional digital experiences and device connectivity with compelling economics. Our ONE Network platform simplifies management of Cambium Networks' wired and wireless broadband and network edge technologies. Our customers can focus more resources on managing their business rather than the network. We make connectivity that just works.

[cambiumnetworks.com](http://cambiumnetworks.com)

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