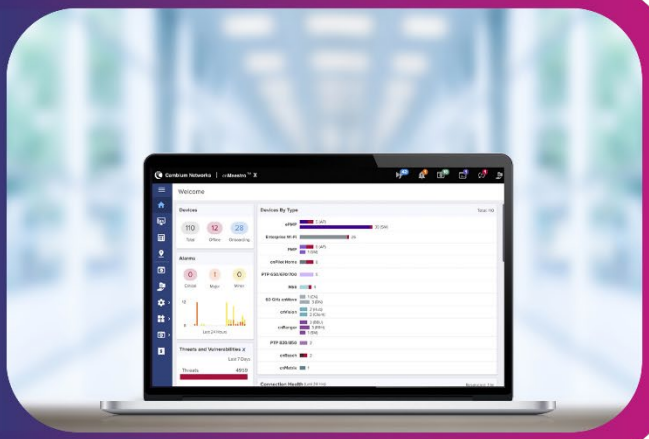
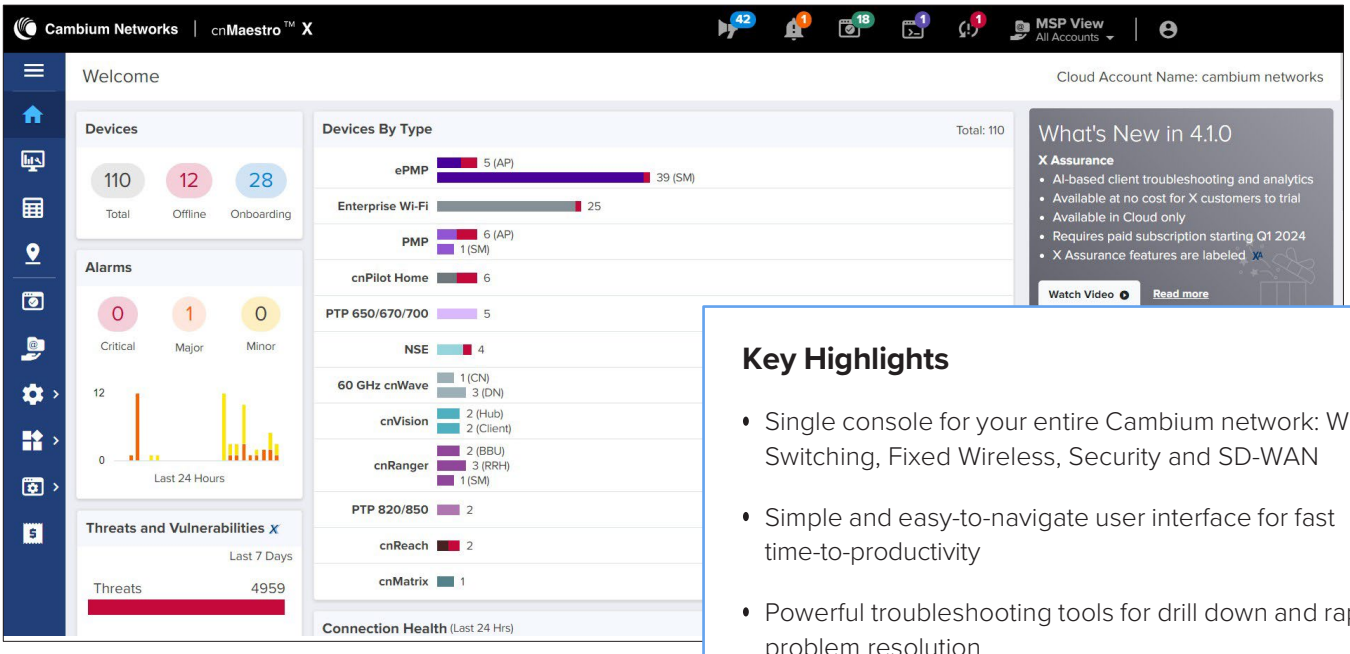
cnMaestro™ X Management System

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





Key Highlights

- Single console for your entire Cambium network: Wi-Fi, Switching, Fixed Wireless, Security and SD-WAN
- Simple and easy-to-navigate user interface for fast time-to-productivity
- Powerful troubleshooting tools for drill down and rapid problem resolution
- Flexible integration via APIs and Webhooks for third party extensibility and customization
- Includes Cambium Care Pro software support with 24x7 L2 engineer access and all software updates for cnMaestro and managed devices
- cnMaestro X is an account level construct and all devices in the account require cnMaestro X subscription.

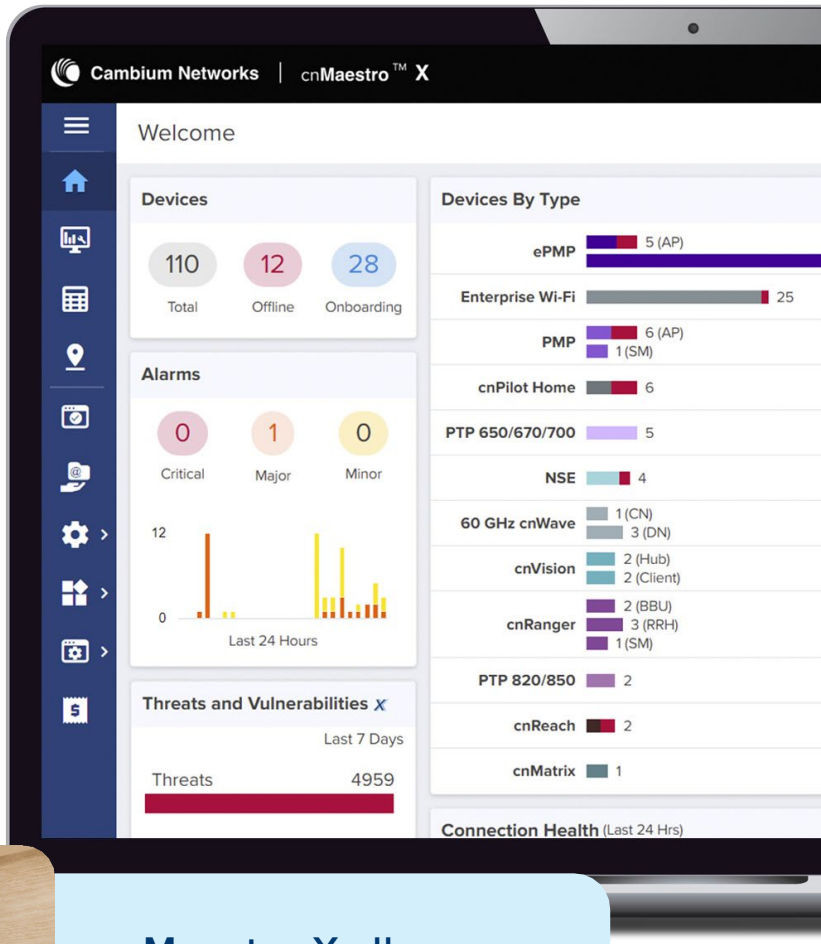
cnMaestro™

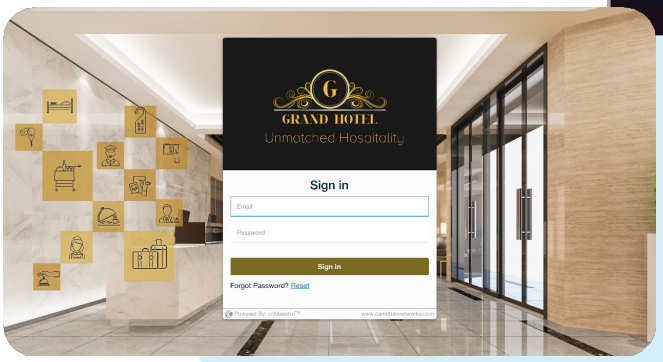
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cnMaestro™ X Management System

Advanced Functionality in cnMaestro X

- Advanced captive portal capabilities: Payment gateway, 500 portals, 30,000 max vouchers, 1-year client login history
- Application visibility and control for 2400+ apps at the Wi-Fi and WAN edge
- Advanced cnMatrix switch features including QinQ, Auto Device Recovery (ADR) and cable diagnostics
- Customizable MSP dashboard with ability to create different brands with multi-tier customizations including guest portals
- Consolidated MSP tenant statistics with ability to drill down to manage a specific tenant without impacting data from others. Support for up to 200 managed tenants. Restful APIs and Webhooks for integration with existing OSS/BSS systems and event monitoring
- Assists security audit to identify potential vulnerabilities in network infrastructure and troubleshoot issues
- Long-term historical data: 2-year data retention for FWB and 1-year data retention for Enterprise and IIoT devices
- RADIUS, TACACS+, LDAP, and AD Login for user administration





cnMaestro X allows MSPs to create a custom branding experiences for their customers

cnMaestro™ X Management System

Key Functionalities

- 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 X, you can manage networks with up to thousands of sites, and up to 25,000 devices.
- Tailored views for Enterprise, Access and Backhaul, and IIoT: The Access and Backhaul view provide 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 which 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.
- Extensible platform for managing third-party endpoints.
- cnMaestro X supports the following Cambium solutions:
  - Wi-Fi 6/6E Access Points
  - cnPilot E-series and R-series Access Points
  - Xirrus XD, XH, XA, and XR 11ac Access Points
  - cnMatrix EX1000, EX2000, and TX2000 series Switches
  - Network Service Edge (NSE)
  - cnWave 60 GHz and 28 GHz
  - PTP Point-to-Point
  - PMP and ePMP Point-to-Multipoint
  - cnReach
  - cnRanger

	Resources	Enterprise	FWBB	Wi-Fi and FWBB
cnMaestro On-Premises Server Requirements	**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 (PMP, ePMP, PTP, cnReach, cnRanger, Wi-Fi, cnMatrix)
	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)	

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cnMaestro™ X Management System

Product Summary

Features marked X require cnMaestro X subscription

Onboarding and Provisioning

- Zero-Touch Onboarding
- Template Configuration
- Object Configuration (Enterprise)
- Claim PMP SMs Associated with AP
- cnMaestro Installer installation summary upload (PMP and ePMP) X
- Mass provisioning for ePMP /PMP/cnWave 60 GHz (Using LINKPlanner) X
- Webhooks support X

Network Services

- Social Login and SMS Authentication
- Access Vouchers
- Branded Tenant Login Page X
- Payment Gateway X
  - » PayPal
  - » IPPay
  - » QuickPay
  - » Orange Money
  - » mPesa
- Support for Software Defined Radios (SDR) on XV3-8, XE3-4, and XE5-8 Wi-Fi 6 Access Points
- Unlimited Radius based ePSK X
- Unique PSKs supported: 300 per WLAN and per account
- Unique PSKs supported: 2,000 Per WLAN and 50,000 Per Account X
- Personal Wi-Fi X
- Number of Guest Portals: 4
- Number of Guest Portals: 500 X
- Paid Ambassador and Azure guest portal X
- Google Authentication X
- Self-registration: SMS & Email X
- Max number of login events: 2,000 events records for 7 days
- Max number of login events: 20,000 event records for 7 days X
- Max number of managed devices: X
  25,000 for Enterprise
  40,000 for FWB
- Application Visibility and Control of over 2400 different applications across the Wi-Fi access network X

Wi-Fi

- Simplified Wireless LAN View
- Stateful Firewall Support
- Dynamic channel listing based on Country, Release and SKU
- AP Group and WLAN Configuration
- cnMaestro X supports a maximum of 10,000 guest client sessions at a time. X
- Site Support for Collocated APs
- WIDS Support X

Troubleshooting & Forensics

- Tower-to-Edge View
- Technical Support Dump export
- Rogue AP Detection
- Wi-Fi Packet Capture
- ePMP/PMP Link Test
- Cambium Care Pro – 24/7 technical support, accelerated access to L2 engineers and software updates/upgrades X

Security

- Communication over SSL
- No Inbound Internet Access
- Not-in-traffic path
- Disaster recovery

Deployment

- Cloud-Hosted delivered as a service
- Customer-Hosted VMware OVA
- Amazon Marketplace AMI

Visualization

- Full Visibility Across Network
- Supports ePMP™, cnMatrix™, Enterprise and Residential Wi-Fi, PMP, PTP, cnReach™, cnRanger™
- Multiple Product Views
  - » Access and Backhaul View
  - » Enterprise Wireless View
  - » Industrial Internet View
- Hierarchical Device Tree
- PMP/ePMP Sector Display
- Spectrum Analyses: PMP X

Configuration & Monitoring

- Redundant cloud services
- Scheduled system backup
- Automatic bulk software update
- Dedicated Device Dashboards
- Statistics and Trending
- Email Alerts
- Supporting concurrent device jobs X
- Configuration lock X
- Managed Service Provider Accounts X
- Support for up to 200 accounts
- High Availability (1+1) for On-Premises X
- Monitor Wi-Fi performance from client or AP to cnMaestro (On-Premises NMS; Cloud NMS – N/A) X
- Assists for cnMatrix, Wi-Fi, cnPilot-R, PMP, ePMP & cnWave 5G Fixed X

Data & Reporting

- Statistics Reports Exported in CSV
- Export UI Tables in CSV or PDF X
- RESTful Monitoring/Provisioning API X
- Graphical Reports X
- Long-term data retention X
  - » 2-year for FWB
  - » 1-year for Enterprise and IIoT

Administration

- Management users: 10
- Management users: 200 X
- Role-Based Access
- Auto provisioning X
- RADIUS, TACACS+, LDAP, and AD Login X
- Advanced troubleshooting X
  - » Audit logs
  - » Audit syslog & Event syslog (On-Premises NMS; Cloud NMS – N/A)
- Advanced monitoring X
  - o Session management
  - o User authentication (On-Premises NMS; Cloud NMS – N/A)
- cnWave 60GHz MAP features
  - » Extensive Network Map RF Link visualization X
  - » Auto Manage Route
- Open ID/SAML Authentication X

cnMatrix

- Zero-touch Remote Provisioning
- Policy Based Automation (PBA) on EX2000/EX3000
- Cambium Sync on TX series
- DHCP client/server
- Automated voice VLAN
- Assists X
- QinQ X
- Auto Device Recovery X
- Cable Diagnostics X
- PBA on EX1000 X
- MAC lists and location services for PBA X

Network Service Edge (NSE)

- Site-to-Site VPN
- WAN Flow Preferences
- DHCP/RADIUS/DNS services
- Load Balancing
- WAN QoS
- Firewall
- LAN vulnerability assessment
- Granular content filtering
- WAN failover policy and IP groups

X Assurance

- Client connection lifecycle monitoring and analysis
- Root cause analysis of connection and service failures
- Network-wide client health monitoring and scoring

NOTE: X Assurance is available in cnMaestro X Cloud, but not in cnMaestro X On-Premises.

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cnMaestro™ X Management System

cnMaestro X Part Numbers

cnMaestro X is available as a 1/3/5-year subscription service. The following pricing tiers are available for cnMaestro X for managing Cambium Networks devices. Both cloud and on-premises versions are available and use the same part numbers and pricing.

Tier 1: PMP 450 and cnRanger SMs, ePMP Force SMs/PTP

Tier 2: PMP 450 APs, cnRanger BBU and RRH, ePMP APs, PTP, and cnReach

Tier 3: All Wi-Fi APs (part numbers and pricing vary by model number)

Tier 4: cnWave™ 60 GHz Client Nodes

Tier 5: cnWave™ 60 GHz Distribution Nodes

Tier 6: cnWave™ 5G Fixed CPE

Tier 7: cnWave™ 5G Fixed BTS

Tier 20: cnMatrix™ Switches

Tier 30: Network Service Edge

cnMaestro X Ordering information for Wi-Fi APs (Part Numbers and Descriptions)	
MSX-SUB-XV2-2-1/3/5	cnMaestro X for one XV2-2 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-XV2-2T0-1/3/5	cnMaestro X for one XV2-2T0 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-XV2-2T1-1/3/5	cnMaestro X for one XV2-2T1 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-XV2-21X-1/3/5	cnMaestro X for one XV2-21X AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-XV2-22H-1/3/5	cnMaestro X for one XV2-222H AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-XV2-23T-1/3/5	cnMaestro X for one XV2-23T AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-XV3-8-1/3/5	cnMaestro X for one XV3-8 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-XE3-4-1/3/5	cnMaestro X for one XE3-4 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-XE5-8-1/3/5	cnMaestro X for one XE5-8 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-E410-1/3/5	cnMaestro X for one e410 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-E425-1/3/5	cnMaestro X for one e425 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-E430-1/3/5	cnMaestro X for one e430 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-E500-1/3/5	cnMaestro X for one e500 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-E501-1/3/5	cnMaestro X for one e501 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-E502-1/3/5	cnMaestro X for one e502 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-E505-1/3/5	cnMaestro X for one e505 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-E510-1/3/5	cnMaestro X for one e510 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-E600-1/3/5	cnMaestro X for one e600 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription

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cnMaestro™ X Management System

cnMaestro X Ordering information for Wi-FI APs, Continued

MSX-SUB-E700-1/3/5	cnMaestro X for one e700 AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-XIR-1/3/5	cnMaestro X for one Xirrus AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MS-SUB-NSE3000-1/3/5	cnMaestro subscription for one NSE 3000. Creates one Device Tier30 slot. Includes Cambium Care Pro Software support. 1/3/5-year subscription

cnMaestro X ordering information for cnMatrix Switches (Part Numbers and Descriptions)

MSX-SUB-EX1010-1/3/5	cnMaestro X for one EX1010. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-EX1010-P-1/3/5	cnMaestro X for one EX1010-P. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-EX2010-1/3/5	cnMaestro X for one EX2010. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-EX2010-P-1/3/5	cnMaestro X for one EX2010-P. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-TX1012-P-AC-1/3/5	cnMaestro X for one TX1012-P-AC. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-TX1012-P-DC-1/3/5	cnMaestro X for one TX1012-P-DC. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-EX1028-1/3/5	cnMaestro X for one EX1028. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-EX1028-P-1/3/5	cnMaestro X for one EX1028-P. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-TX2012R-P-1/3/5	cnMaestro X for one TX2012R-P. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-EX2016M-P-1/3/5	cnMaestro X for one TX2016M-P. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-TX2020R-P-1/3/5	cnMaestro X for one TX2020R-P. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-EX2028-1/3/5	cnMaestro X for one EX2028. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-EX2028-P-1/3/5	cnMaestro X for one EX2028-P. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-TX2028RF-P-1/3/5	cnMaestro X for one EX2028RF-P. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-EX2052-1/3/5	cnMaestro X for one EX2052. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription
MSX-SUB-EX2052R-P-1/3/5	cnMaestro X for one EX2052R-P. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 1/3/5-year subscription

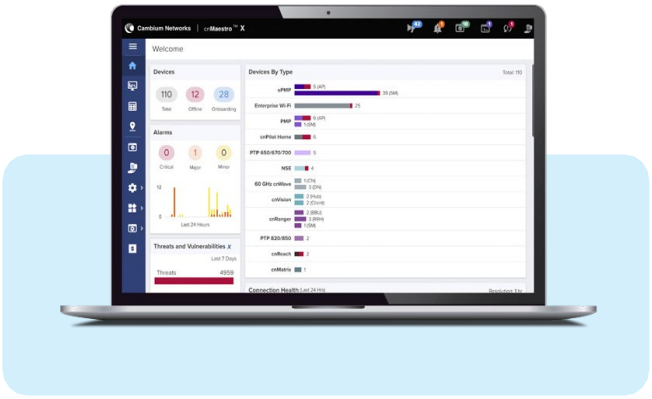
cnMaestro™ X Management System

cnMaestro X ordering information for Fixed Wireless Broadband (Part Numbers and Descriptions)

Part Number	Description
MSX-SUB-EPMP-1/3/5	cnMaestro X for one ePMP 1K/2K/3K/4K Access Point or cnRanger BBU. Creates one Device Tier 2 slot. 1/3/5-Year subscription
MSX-SUB-PMP450I-1/3/5	cnMaestro X for one PMP 450i Access Point; Creates one Device Tier2 slot; 1/3/5-year subscription
MSX-SUB-PMP450M-1/3/5	cnMaestro X for one PMP 450m Access Point; Creates one Device Tier2 slot. 1/3/5-year subscription
MSX-SUB-PTP-1/3/5	cnMaestro X for one PTP 550, 670, 700, 8xx Access Point or cnReach. Creates one Device Tier 2 slot. 1/3/5-Year subscription
MSX-SUB-T4-1/3/5	cnMaestro X for one Tier 4 device. Creates one Tier 4 slot for 60 GHz cnWave V1000 and V3000. Includes CC Pro support. 1/3/5-year subscription
MSX-SUB-T5-1/3/5	cnMaestro X for one Tier 5 device. Creates one Tier 5 slot for 60 GHz cnWave Distribution Nodes includes V5000. Includes CC Pro support. 1/3/5-year subscription
MSX-SUB-T6-1/3/5	cnMaestro X for one Tier 6 device. Creates one Tier 6 slot for 28 GHz cnWave Customer Premises Equipment. Includes CC Pro support. 1/3/5-year subscription
MSX-SUB-T7-1/3/5	cnMaestro X for Tier 7 device. Creates one Tier 7 slot for 28 GHz cnWave Base Transceiver Station. Includes CC Pro support. 1/3/5-year subscription

* Subscriptions are not needed for FWBB subscriber modules.

* Descriptions of FWBB part numbers for PMP and PTP devices will change post 1st October, 23 with new Tiers.



GET STARTED at

cloud.cambiumnetworks.com

Free 90-day trial of cnMaestro X:

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 deliver connectivity that just works.

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