Cambium Networks

e**PMP**™

Release Notes

System Release 3.5.1

Sections included:

Introduction
Product Releases
Scope
Defect Fixes
Known Limitations
Technical Support
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Introduction

This document provides information for the Cambium Networks ePMP Series System Release 3.5.1.

The information in this document is subject to change without notice. The recommendations, technical data, configurations and statements in this document are believed to be reliable and accurate, but are presented without implied or express warranty. Users must take full responsibility for their applications of any product specified in this document. The information in this document is proprietary to Cambium Networks Ltd.

Product Releases

Hardware

EPMP 2000

Part Number	Description
C050900A033A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (EU)
C058900A132A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (FCC)
C050900A031A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (ROW) (no cord)
C050900A231A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (ROW) (EU cord)
C050900A131A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (ROW) (US cord)
C050900A333A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (EU) (UK cord)
C050900A331A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (ROW) (UK cord)
C050900A431A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (ROW) (India cord)
C050900A531A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (ROW) (China cord)
C050900A631A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (ROW) (Brazil cord)
C050900A731A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (ROW)(Argentina cord)
C050900A831A	ePMP 2000: 5 GHz AP with Intelligent Filtering and Sync (ROW)(ANZ cord)
C050900L033A	ePMP 2000: 5 GHz AP Lite with Intelligent Filtering and Sync (EU)
C058900L132A	ePMP 2000: 5 GHz AP Lite with Intelligent Filtering and Sync (FCC)
C050900L031A	ePMP 2000: 5 GHz AP Lite with Intelligent Filtering and Sync (ROW) (no cord)
C050900L231A	ePMP 2000: 5 GHz AP Lite with Intelligent Filtering and Sync (ROW) (EU cord)
C050900L131A	ePMP 2000: 5 GHz AP Lite with Intelligent Filtering and Sync (ROW) (US cord)
C050900L333A	ePMP 2000: 5 GHz AP Lite with Intelligent Filtering and Sync (EU) (UK cord)

C050900L331A	ePMP 2000: 5 GHz AP Lite with Intelligent Filtering and Sync (ROW) (UK cord)
C050900L431A	ePMP 2000: 5 GHz AP Lite with Intelligent Filtering and Sync (ROW) (India cord)
C050900L531A	ePMP 2000: 5 GHz AP Lite with Intelligent Filtering and Sync (ROW) (China cord)
C050900L631A	ePMP 2000: 5 GHz AP Lite with Intelligent Filtering and Sync (ROW) (Brazil cord)
C050900L731A	ePMP 2000: 5 GHz AP Lite with Intelligent Filtering and Sync (ROW) (Argentina cord)

EPMP 1000

The following tables provides the key components available for purchase:

Part Number	Description
C050900A011A	ePMP 1000: 5 GHz Connectorized Radio with Sync (ROW)
C050900A013A	ePMP 1000: 5 GHz Connectorized Radio with Sync (EU)
C058900A112A	ePMP 1000: 5 GHz Connectorized Radio with Sync (FCC)
C050900A021A	ePMP 1000: 5 GHz Connectorized Radio (ROW)
C050900A023A	ePMP 1000: 5 GHz Connectorized Radio (EU)
C058900A122A	ePMP 1000: 5 GHz Connectorized Radio (FCC)
C050900C031A	ePMP 1000: 5 GHz Integrated Radio (ROW)
C050900C033A	ePMP 1000: 5 GHz Integrated Radio (EU)
C058900C132A	ePMP 1000: 5 GHz Integrated Radio (FCC)
C024900A011A	ePMP 1000: 2.4 GHz Connectorized Radio with Sync
C024900A021A	ePMP 1000: 2.4 GHz Connectorized Radio
C024900C031A	ePMP 1000: 2.4 GHz Integrated Radio

FORCE 110

Part Number	Description
C058900C042B	ePMP Force 110AR5-25 High Gain (25 dBi) SM/PTP Radio (FCC)
C050900C043B	ePMP Force 110AR5-25 High Gain (25 dBi) SM/PTP Radio (EU)
C050900C041B	ePMP Force 110AR5-25 High Gain (25 dBi) SM/PTP Radio (ROW)
C058900B052A	ePMP Force 110 PTP - High Performance PTP Radio (FCC)
C050900B053A	ePMP Force 110 PTP - High Performance PTP Radio (EU)
C050900B051A	ePMP Force 110 PTP - High Performance PTP Radio (ROW)

FORCE 180

Part Number	Description
C058900C072A	ePMP 5 GHz Force 180 Integrated Radio (FCC) (US cord)
C050900C071A	ePMP 5 GHz Force 180 Integrated Radio (ROW) (no cord)
C050900C073A	ePMP 5 GHz Force 180 Integrated Radio (EU) (EU cord)
C050900C171A	ePMP 5 GHz Force 180 Integrated Radio (ROW) (US cord)
C050900C271A	ePMP 5 GHz Force 180 Integrated Radio (ROW) (EU cord)
C050900C371A	ePMP 5 GHz Force 180 Integrated Radio (ROW) (UK cord)
C050900C373A	ePMP 5 GHz Force 180 Integrated Radio (EU) (UK cord)
C050900C471A	ePMP 5 GHz Force 180 Integrated Radio (ROW) (India cord)
C050900C571A	ePMP 5 GHz Force 180 Integrated Radio (ROW) (China cord)
C050900C671A	ePMP 5 GHz Force 180 Integrated Radio (ROW) (Brazil cord)
C050900C771A	ePMP 5 GHz Force 180 Integrated Radio (ROW) (Argentina cord)
C050900C871A	ePMP 5 GHz Force 180 Integrated Radio (ROW) (ANZ cord)

FORCE 190

Part Number	Description
C058900C082A	ePMP Force 190 5 GHz Subscriber Module (FCC) (US Cord)
C050900C083A	ePMP Force 190 5 GHz Subscriber Module (EU) (EU Cord)
C050900C873A	ePMP Force 190 5 GHz Subscriber Module (EU) (UK Cord)
C050900C081A	ePMP Force 190 5 GHz Subscriber Module (RoW) (No Cord)
C050900C181A	ePMP Force 190 5 GHz Subscriber Module (RoW) (US Cord)
C050900C281A	ePMP Force 190 5 GHz Subscriber Module (RoW) (EU Cord)
C050900C481A	ePMP Force 190 5 GHz Subscriber Module (RoW) (India Cord)
C050900C581A	ePMP Force 190 5 GHz Subscriber Module (RoW) (China Cord)
C050900C681A	ePMP Force 190 5 GHz Subscriber Module (RoW) (Brazil Cord)
C050900C781A	ePMP Force 190 5 GHz Subscriber Module (RoW) (Type-N Plug Cord)
C050900C881A	ePMP Force 190 5 GHz Subscriber Module (RoW) (ANZ Cord)
C050900C981A	ePMP Force 190 5 GHz Subscriber Module (RoW) (No PSU)

FORCE 200

Part Number	Description
C058900C062A	ePMP 5 GHz Force 200AR5-25 High Gain Radio (FCC) (US cord)
C050900C061A	ePMP 5 GHz Force 200AR5-25 High Gain Radio (ROW) (no cord)
C050900C063A	ePMP 5 GHz Force 200AR5-25 High Gain Radio (EU) (EU cord)
C050900C161A	ePMP 5 GHz Force 200AR5-25 High Gain Radio (ROW) (US cord)
C050900C261A	ePMP 5 GHz Force 200AR5-25 High Gain Radio (ROW) (EU cord)
C050900C361A	ePMP 5 GHz Force 200AR5-25 High Gain Radio (ROW) (UK cord)
C050900C363A	ePMP 5 GHz Force 200AR5-25 High Gain Radio (EU) (UK cord)
C050900C461A	ePMP 5 GHz Force 200AR5-25 High Gain Radio (ROW) (India cord)
C050900C561A	ePMP 5 GHz Force 200AR5-25 High Gain Radio (ROW) (China/ANZ cord)
C050900C661A	ePMP 5 GHz Force 200AR5-25 High Gain Radio (ROW) (Brazil cord)
C050900C761A	ePMP 5 GHz Force 200AR5-25 High Gain Radio (ROW) (Argentina cord)
C024900C161A	ePMP 2.4 GHz Force 200AR2-25 High Gain Radio (US cord)
C024900C261A	ePMP 2.4 GHz Force 200AR2-25 High Gain Radio (EU cord)
N000900L021A	ePMP Force 200 Radome

ACCESSORIES

Part Number	Description
C050900D021A	ePMP 2000/1000: 5 GHz Sector Antenna - 90° / 120°
C050900D020A	ePMP 2000: 5 GHz Smart Antenna
C050900D002A	ePMP 1000: 5 GHz Sector Antenna - 120°
C050900D003A	ePMP 1000: 5 GHz Sector Antenna - 90°
C024900D004A	ePMP 1000: 2.4 GHz Sector Antenna - 90° / 120°
N000900L001B	ePMP 1000: Spare Power Supply for Radio with Gigabit Ethernet (no cord)
N000900L002A	ePMP 1000: Spare Power Supply for Radio with 100Mbit Ethernet (no cord)
N000900L005A	ePMP 1000: Spare GPS Antenna
C050900H007B	4 pack of C050900D007B: ePMP 110A5-25 Dish Antenna (25 dBi) for ePMP Connectorized Radio

Embedded Software

RELEASE SOFTWARE

New ePMP software releases may be downloaded from the ePMP Downloads website.

The following software update is provided with ePMP System Release 3.5.1:

Device Description	Applicable Software Package
Connectorized Radio with Sync	ePMP-GPS_Synced-v3.5.1.tar.gz
Integrated Radio / Connectorized Radio	ePMP-NonGPS_Synced-v3.5.1.tar.gz
CNUT package (for all radios)	ePMP-3.5.1.pkg3

EPMP ELEVATE SOFTWARE
The following software is provided with ePMP Elevate in ePMP System Release 3.5.1:

Application Description	Applicable Software Package
ePMP Elevate (XM firmware devices) *Use this file if upgrading an XM device to ePMP Elevate for the first time*	UBNTXM-ubntxm-squashfs-factory.bin
ePMP Elevate (XW firmware devices) *Use this file if upgrading an XM device to ePMP Elevate for the first time*	UBNTXW-ubntxw-squashfs-factory.bin
ePMP Elevate (XM firmware devices)	UBNTXM-v3.5.1.tar.gz
ePMP Elevate (XW firmware devices)	UBNTXW-v3.5.1.tar.gz

SPECIAL SOFTWARE UPGRADE NOTICE

All users of ePMP product are encouraged to upgrade the Connectorized Radio with Sync, Integrated Radio, Connectorized Radio, Force 180, Force 190 and Force 200 units to the latest System Release 3.5.1. ePMP software updates can be downloaded from the ePMP Downloads website. For instructions on upgrading an ePMP device, see the *ePMP User Guide*.

> **Note**
> While upgrading a **Connectorized Radio with Sync** from the factory, ensure both the device software banks are updated. Upgrade to the latest software **TWICE** so that both Active & Backup are updated. This is NOT required for Integrated or Connectorized Radios since these radios do not have two software banks.
>
> While upgrading devices with System Release 1.0.3 or earlier, ensure that the browser cache is cleared prior to the upgrade.

⚠️Caution
ePMP radios running System Release 2.1 or earlier cannot be directly upgraded to System Release 3.5.1. Please upgrade to System Release 2.6 first, then upgrade to System Release 3.5.1. Stepping through System Release 2.6 is not required if the ePMP radio is running System Release 2.2 or later.

UPGRADING THE ON-BOARD GPS CHIP FIRMWARE

Beginning with System Release 2.0, users can upgrade the firmware of the on-board GPS chip present on the **Connectorized Radio with Sync**. All users are strongly encouraged to upgrade the on-board GPS chip firmware in order to avoid sporadic lock up of the chip during normal operation. ePMP software updates can be downloaded from the ePMP Downloads website.

GPS Chip and Software Reference

	ePMP 1000 (1st Generation)	ePMP 1000 (2nd Generation)	ePMP 2000
GPS Chip Type	GPS only	GPS + GLONASS	GPS + GLONASS
Default GPS Firmware	AXN_1.51_2801	AXN_3.20_8174	AXN_3.20_8174
Potential Issues (With Default Firmware Installed)	GPS chip locked, resulting in loss of sync and no display of firmware version or visible/tracked satellites	Occasional sync loss following low number of tracked satellites for customers in APAC and Russia regions	Occasional sync loss following low number of tracked satellites for customers in APAC and Russia regions
Current GPS Firmware	AXN_1.51_2838	AXN_5.1._8174	AXN_5.1._8174
Corresponding ePMP Software Release	2.1	3.5.1	3.5.1
Known issues (With Current GPS Firmware)	None	None	None

For instructions on upgrading the GPS chip firmware, see below or refer the *ePMP User Guide*.

To upgrade the on-board GPS chip on a Connectorized Radio with Sync (1st Generation - purchased 2015 and prior):
1. Navigate to **Monitor > GPS** to check the **GPS Firmware Version** that is currently present on the radio.
2. If the GPS Firmware Version displays **AXN_1.51_2838** and/or "**GPS Firmware is up-to-date**", do nothing. The on-board GPS chip already has the latest firmware.
3. If the GPS Firmware Version displays **AXN_1.51_2801**, navigate to **Tools > Software** Upgrade page.
4. Under the **GPS Firmware** upgrade section, select the same package used to upgrade the device's firmware ex: **ePMP-GPS_Synced-v3.5.1.tar.gz.**
5. Click the **Upgrade** button.
6. The upgrade can take up to 3 minutes. Once the upgrade is done, the radio's UI prompts for a reboot and the reboot button will be highlighted.
7. Click the Reboot button on the top right corner of the UI.
8. Once the radio has completed its reboot process, check under the **Monitor > GPS** page to ensure that the **GPS Firmware Version** displays **AXN_1.51_2838.**

To upgrade the on-board GPS chip on a Connectorized Radio with Sync (2nd Generation - purchased 2016 and after):

1. Navigate to **Monitor > GPS** to check the **GPS Firmware Version** that is currently present on the radio.
2. If the GPS Firmware Version displays **AXN_5.1_8174** and/or **"GPS Firmware is up-to-date"**, do nothing. The on-board GPS chip already has the latest firmware.
3. If the GPS Firmware Version displays **AXN_3.20_8174**, navigate to **Tools > Software** Upgrade page.
4. Under the **GPS Firmware** upgrade section, select the same package used to upgrade the device's firmware ex: **ePMP-GPS_Synced-v3.5.1.tar.gz.**
5. Click the **Upgrade** button.
6. The upgrade can take up to 3 minutes. Once the upgrade is done, the radio's UI prompts for a reboot and the reboot button will be highlighted.
7. Click the Reboot button on the top right corner of the UI.
8. Once the radio has completed its reboot process, check under the **Monitor > GPS** page to ensure that the **GPS Firmware Version** displays **AXN_5.1_8174.**

Note

On occasion the **GPS Firmware Version** under **Monitor > Tools** may display **NA**. This means that the GPS chip has already locked up and is no longer communicating with the main processor. Perform a hard reboot (power cycle the entire unit) to restore communication. Then perform steps 3 through 8 above.

This is NOT required for Integrated or Connectorized Radios since these radios do not have an on-board GPS chip.

NEW LOCAL IP

Prior to System Release 2.1, in both Bridge and NAT mode, the ePMP Device was previously accessible through a local IP of 10.1.1.254 through the LAN port. Beginning with System Release 2.1, the local IP has been updated to **169.254.1.1(/16).**

EPMP POST-UPGRADE IP ADDRESSING

If **Device IP address Mode** is set to **DHCP** and the device is unable to retrieve IP address information via DHCP, the device management IP is set to fallback IP of *192.168.0.1* (AP mode), *192.168.0.2* (SM mode), *192.168.0.3* (Spectrum Analyzer mode) or a previously configured static Device IP Address. Units can always be accessed via the Ethernet port with a local IP of *169.254.1.1*.

SPECTRUM ANALYZER ON SM WHEN USING PORT FORWARDING OR DMZ

If port forwarding or DMZ is enabled on the SM, it is necessary to add a port forwarding entry for the Spectrum Analyzer to work. The Spectrum Analyzer uses port 8001 and this must be explicitly added in the port forwarding table under **Configure>Network>NAT>Advanced**, on the radio's GUI. In addition, once the Spectrum Analyzer is launched on the client PC, select the Port Forwarding IP as the device IP address under **Tools>Preferences**, on the Spectrum Analyzer Java tool. Depending on the network configuration, the generation configuration scheme must be **Client PC > Port_Forwarding_IP:8001 > Device_IP:8001.**

SPECTRUM ANALYZER WHEN MANAGEMENT VLAN IS ENABLED
When Management VLAN is enabled on the ePMP radio, the Spectrum Analyzer client must be launched from the same network as the Management VLAN.

CHROME / FIREFOX WEB MANAGEMENT INTERFACE ACCESS – SPECIAL NOTICE FOR SOFTWARE RELEASE 3.4 / 3.4.1
If access to the web management interface is lost after upgrading to Software Release 3.4 or 3.4.1, it is recommended to clear the browser cookies and cache to regain access. This workaround is only applicable to devices which have been loaded with Software Release 3.4 or 3.4.1.

Instructions for clearing cookies / cache in Google Chrome:
https://support.google.com/accounts/answer/32050?co=GENIE.Platform%3DDesktop&hl=en

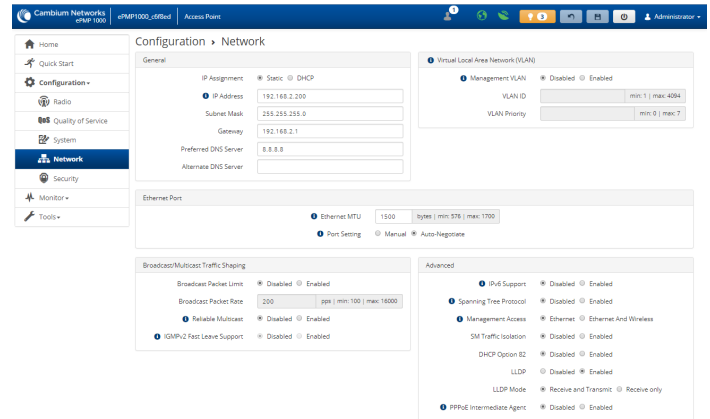Instructions for clearing cookies / cache in Mozilla Firefox:
https://support.mozilla.org/en-US/kb/delete-cookies-remove-info-websites-stored

cnMaestro™

*cn*Maestro is a cloud-based or on-site platform designed to monitor, configure, operate, upgrade, manage and monitor ePMP systems. For more information, see the cnMaestro website.

New Features

ePMP Elevate Floating License Server Official Release

Software Release 3.5.1 introduces official support for the ePMP Elevate Floating License Server functionality. There are two types of ePMP Elevate license management mechanisms available on the ePMP device – Flexible and Fixed, as described below:

Flexible Licensing ☁

With Flexible Licensing, your licenses are stored in a license server and can be shared among all your Access Points. Each Access Point will only use as many licenses as it has connected subscribers. When a subscriber disconnects, a license is returned to the pool and can be used by any other Access Point.

In order to use Flexible Licensing, your Access Points must:

- be able to make HTTPS requests out to the Internet,
- be running firmware version 3.5 or greater,
- have an accurate NTP time source.

Use Flexible Licensing ➡

Fixed Licensing 🖥

With Fixed Licensing, you will generate a license key for a specific MAC address, and load that license key into the Access Point. The license key represents the number of Elevate Subscribers that can be supported by that Access Point. The license key may not be transferred to any other Access Point.

You should use Fixed Licensing if your Access Points:

- are unable to make HTTPS requests to the Internet, or
- are running firmware version 3.4.1 or earlier, or
- don't have an accurate NTP time source.

Use Fixed Licensing ➡

The AP's **License Management** page is used to:

- Install licensing for ePMP Elevate subscriber access allotments
- Convert the AP from Lite (10 subscriber) to Full (120 subscriber)
- Configure the Country Code ETSI-locked devices

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Note

ePMP 3.4.1 and earlier Releases support only Fixed Licensing.

Elevate Flexible Licensing is available only for ePMP AP devices with GPS sync.

Country Code configuration for ETSI locked device and Full Capacity Keys for AP Lite devices are available only via Fixed License Management. Elevate is available via Fixed or Flexible License Management.
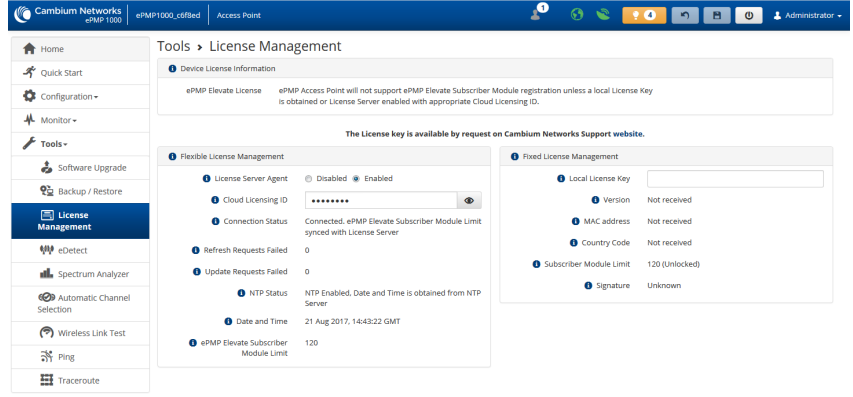
Note

To use flexible licensing, the AP must:

1. be able to make HTTPS requests out to the Internet

2. be running firmware version 3.5.1 or greater

3. have an accurate NTP time source

AP web management interface flexible licensing parameters:

Attribute	Meaning
Flexible License Management	
License Server Agent	Disabled: No communication with the License Server is established
	Enabled: Enables License Server functionality to obtain the number of allowed ePMP Elevate SMs to be connected to the AP
Cloud Licensing ID	This field represents a Cambium Networks customer identification used for AP identification on the License Server. This identifier is generated upon License Entitlement activation at the Cambium Networks web-based Support Center.
Connection Status	The **Connection Status** displays the License Server process state when **License Server Agent** is **Enabled**. This status may also be referenced on the device **Home** page.
Refresh Requests Failed	The number of failed refresh (polling) requests to the License Server. The **ePMP Elevate Subscriber Module Limit** resets to 1 after the 3rd failed refresh request.
Update Requests Failed	The number of failed update (licensing information transfer) requests to the License Server. The **ePMP Elevate Subscriber Module Limit** resets to 1 after the 5th failed updated request.
NTP Status	Represents whether or not the current time and date have been retrieved from the configured NTP server
ePMP Elevate Subscriber Module Limit	The number of ePMP Elevate devices allowed to register to the AP

FLEXIBLE LICENSE GENERATION PROCEDURE

Procedure:

Follow this procedure to set up the Cambium Networks licensing portal to host ePMP Elevate licenses:

1   Purchase the desired license product Entitlements from your Cambium Networks distributor (C050900S510A – 10 ePMP Elevate licenses)

2   Cambium Networks will email your Entitlements to the provided email address. An example of the email is displayed below:

Cambium Networks is pleased to deliver an Entitlement Certificate that you may use to redeem your recent purchase of software license key(s). To redeem this entitlement, please go to the Cambium Support Center and follow the instructions. If you need any assistance with this process, please contact Cambium Networks Support by phone or support@cambiumnetworks.com.

Entitlement Details			
Entitlement ID:		**Start Date:**	08/04/2017
Company:		**End Date:**	Never expires
Contact:			
Cambium Order Reference:			
Your Order Reference:			
Associated Products			
Product Number	**Description**	**Quantity Ordered**	**Remaining Quantity**
C050900S501A 1	ePMP Elevate: 1 Subscriber License	200	200
C050900S510A 1	ePMP Elevate: 10 Subscriber License	5	5

Cambium Networks Support

3   Log into **support.cambiumnetworks.com/licensekeys** and navigate to **Activate Entitlements**. Enter your provided **Entitlement ID** in the **Check Entitlements** section and click the **Check** button. Entitlement details are listed in the dialogue below. Click **Activate** to activate the Entitlement's corresponding licenses.

4   Select **Use Flexible Licensing**.

License Keys

ePMP Elevate Licensing

Part Number	Description	Quantity Available
C050900S501A	ePMP Elevate: 1 Subscriber License	10 of 10

ePMP Elevate Licenses can be bound to the MAC address of a single Access Point, or they can be deployed to a License Server and shared between multiple Access Points. How would you like to manage your licenses?

Flexible Licensing ☁

With Flexible Licensing, your licenses are stored in a license server and can be shared among all your Access Points. Each Access Point will only use as many licenses as it has connected subscribers. When a subscriber disconnects, a license is returned to the pool and can be used by any other Access Point.

In order to use Flexible Licensing, your Access Points must:

- be able to make HTTPS requests out to the Internet,
- be running firmware version 3.5 or greater,
- have an accurate NTP time source.

Use Flexible Licensing ➜

Fixed Licensing 🖥

With Fixed Licensing, you will generate a license key for a specific MAC address, and load that license key into the Access Point. The license key represents the number of Elevate Subscribers that can be supported by that Access Point. The license key may not be transferred to any other Access Point.

You should use Fixed Licensing if your Access Points:

- make HTTPS requests to the Internet,
- are running firmware version 3.4.1 or earlier, or
- don't have an accurate NTP time source.

Use Fixed Licensing ➜

Terms and Conditions | Privacy Policy

💬 Chat

Entitlements
- Activate Entitlements
- Recent Activations
- My Entitlements

License Keys
- ePMP 1000/2000
- PMP / PTP 450
- PTP 300/400/500/600/800
- PTP 650
- PTP 670
- PTP 700
- PTP 810
- PTP 820

5   Click **Activate** on the resulting page to activate your company account.

License Keys

Cloud Licensing

Part Number	Description	Quantity Available
C050900S501A	ePMP Elevate: 1 Subscriber License	10 of 10

Cloud licenses must be associated with a company account. Please select the account you would like to use, or create a

Cambium ID	Name	Cloud Licensing ID	
		not assigned	Activate ➜

➕ New Company Account

Entitlements
- Activate Entitlements
- Recent Activations
- My Entitlements

License Keys
- ePMP 1000/2000
- PMP / PTP 450
- PTP 300/400/500/600/800
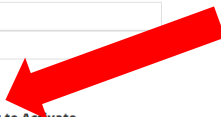- PTP 650
- PTP 670
- PTP 700
- PTP 810
- PTP 820

6   On the resulting dialogue, enter the number of licenses to activate then click **Activate**.

License Keys

Entitlements

| Activate Entitlements |
| Recent Activations |
| My Entitlements |

License Keys

| ePMP 1000/2000 |
| PMP / PTP 450 |
| PTP 300/400/500/600/800 |
| PTP 650 |
| PTP 670 |
| PTP 700 |
| PTP 810 |
| PTP 820 |

Cloud Licensing

You are going to activate cloud licenses for this Company account:

Cambium ID	Name	Cloud Licensing ID
MARTIN_GRAY	Martin Gray	60a62...

Please enter the quantity you would like to activate from the entitlement:

Description	Quantity Available	Quantity to Activate
ePMP Elevate: 1 Subscriber License	9 of 10	1

Activate

7   The recently-activated license keys are displayed, click **Details** to display the corresponding license key information.
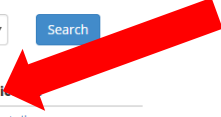
Cambium Networks | Support Center

Submit a request   Martin Gray ▾

Knowledge Base   Downloads   Warranty   License Keys   Beta   FAQ   My Requests

License Keys

Serial Number, Part Number or Description   10 results ▾   Search

Entitlements

| Activate Entitlements |
| Recent Activations |
| My Entitlements |

License Keys

| ePMP 1000/2000 |
| PMP / PTP 450 |
| PTP 300/400/500/600/800 |
| PTP 650 |
| PTP 670 |
| PTP 700 |
| PTP 810 |
| PTP 820 |

Date	Description	Serial Number	Li
2017-08-21	ePMP Elevate: 1 Subscriber License	-	Details

8   To use licenses from the pool, enter the corresponding **Cloud Licensing ID** on the AP's **License Managmenet** page.

⚠ Caution

Keep your **Cloud Licensing ID** secret to avoid unintended license pool usage!

ENABLING AP FLEXIBLE LICENSE MANAGEMENT

Procedure:

Follow this procedure to configure the ePMP Access Point to retrieve Elevate licensing information from the Flexible license server.

Note

To use flexible licensing, the AP must:

1. be able to make HTTPS requests out to the Internet
2. be running firmware version 3.5.1 or greater
3. have an accurate NTP time source

1 Follow the steps in section Flexible License Generation Procedure on page 12 to activate the applicable licenses on the Cambium Networks Support Center

2 Copy the Cloud Licensing ID generated on the Support Center website

License Request: ePMP Elevate: 1 Subscriber License

State:	Complete
Date:	2017-08-21
Entitlement ID:	
Quantity:	1
Cloud Licensing ID:	
Company Account:	

These licenses have been loaded into the Cambium Cloud Licensing system. To access them, enter the Cloud Licensing ID above into your device.

3 Log into the ePMP AP and navigate to **Tools > License Management**

4 Set **License Server Agent** to **Enabled**

5 Paste the **Cloud Licensing ID** from Step 2 into the **Cloud Licensing ID** field

6 Verify the license server connection in with field **Connection Status**

7 Verify the enacted licensing in field **ePMP Elevate Subscriber Module Limit**

ⓘ Flexible License Management

ⓘ License Server Agent	○ Disabled ● Enabled
ⓘ Cloud Licensing ID	●●●●●●●● 👁
ⓘ Connection Status	Connected. ePMP Elevate Subscriber Module Limit synced with License Server
ⓘ Refresh Requests Failed	0
ⓘ Update Requests Failed	0
ⓘ NTP Status	NTP Enabled, Date and Time is obtained from NTP Server
ⓘ Date and Time	29 Aug 2017, 00:39:46 GMT
ⓘ ePMP Elevate Subscriber Module Limit	120

Additional Elevate Subscriber Support

For operators of 2.4 GHz networks with ePMP Elevate subscribers, Software Release 3.5.1 introduces support for the following additional hardware types:

- NanoStation Loco M2 (board.sysid = 0xe866)
- NanoStation Loco M2 (board.sysid = 0xe867)

WPA2 Security Vulnerability Fix (KRACK)

Software Release 3.5.1 includes security improvements to prevent Key Reinstallation attacks targeted at ePMP radio networks.

This security improvement includes:

- Prevention of reinstallation of temporal keys (IGTK, GTK) during WPA key handshake

Support for Myanmar Country Code

The Myanmar Country Code is now supported for ePMP with the following operation:

Band	Frequency Range	Valid Center Frequencies 5/10 MHz Channel Size	Valid Center Frequencies 20 MHz Channel Size	Valid Center Frequencies 40 MHz Channel Size	EIRP Limit
2.4 GHz	2400 – 2500 MHz	2407 – 2492 MHz (every 5 MHz)	2412 – 2487 MHz (every 5 MHz)	2422 – 2477 MHz (every 5 MHz)	36 dBm
5.8 GHz	5725 – 5875 MHz	5730 – 5870 MHz (every 5 MHz)	5735 – 5865 MHz (every 5 MHz)	5745 – 5855 MHz (every 5 MHz)	30 dBm

Force 190 ETSI Region DFS Support

Beginning with Software Release 3.5.1, Force 190 devices are supported in ETSI regulatory environments. The Force 190 units use region-specific Dynamic Frequency Selection (DFS) mechanisms based on the device **Country** parameter setting.

> **Note**
>
> When operating in a region which requires DFS, ensure that the AP (BHM) is configured with alternate frequencies and that the SM (BHS) is configured to scan for these frequencies to avoid long outages.

Defect Fixes (System Release 3.5.1)

Defects in green are resolved
Defects in black are open

Tracking	Description / Workaround
15033	All Elevate SMs except 1 are dropped after upgrade request when Licensed capacity is exceeded
14989 14994	GPS chip information is not displayed with tddstats CLI command
15012	Not possible to upgrade GPS firmware on 2.5 GHz and 6 GHz radios
14970	Unexpected reboot of Force 180 / Force 200 in cold conditions
14928	Spectrum Analyzer terminates after two minutes of operation
14912	[Elevate] NanoStation Loco M2 (board.sysid=0xe867) not supported
14963	[Elevate] NanoStation Loco M2 (board.sysid=0xe866) not supported
14599	IPv6 Gateway not functioning
14921	Latitude and Longitude fields do not accept non-integer values
14558 14935	GUI error when saving RADIUS User Certificate
14894 14770	GUI error when changing device IP Address
14888	[ePMP 2000] LLDP neighbors not detected by ePMP 2000 AP
13790	DHCP Reply from SM may be dropped by AP
12753	DFS Support for Force 190
14945	[Elevate] XM devices in network may have the same Separate Wireless Management Interface MAC address assignments
14910	Radio becomes inaccessible when switching from Bridge to NAT mode with Separate Management IP and Management VLAN enabled
14493	Unable to log into device for 2 minutes after factory default procedure
14922	Myanmar country code support
14839	SNMP MIB parameter sysLocation is not supported
14872	[Elevate] Nanobridge M5 XM always displays Ethernet Port Status as "Down"
14904	IP address of Wireless Gateway obtained from PPPoE server is not displayed on GUI (when Separate Management IP enabled and VLAN retrieved via RADIUS VSA
14918	SNMP sysObjectID does not return Hardware SKU
14887	[Elevate] Software upgrade/downgrade not functional for Elevate XM radios
14968	ePMP key reinstallation attack security improvements

Known Problems or Limitations (System Release 3.5.1)

Tracking	Description / Workaround
15004	[Elevate] AP drops Elevate radio connections when switching from Fixed to Flexible licensing

Tracking	Description / Workaround
14997	Wrong DFS status displayed on ePMP SM Home page when device operates on ETSI non-DFS channel
14962	General error displayed on login page after redirecting to re-configured device IP address Workaround: Reload web page
15016	AP/SM does not obtain IP address via DHCPv6 server
15017	Separate Management IP retrieved from DHCP server after configuring IP Assignment to Static
15007	[Elevate] DNS and Gateway settings may not be carried over when upgrading to ePMP Elevate
15009	SM in NAT mode (Separate Management IP and PPPoE enabled, RADIUS authentication with VLAN VSA retrieval) cannot be upgraded/downgraded, radio connection drops every 10 minutes Workaround: Disable RADIUS authentication
14996	"Applying" is displayed on GUI for an extended period when saving changes on the Security page
15010	[Elevate] Spectrum Analyzer may disconnect after 20 seconds if Static IP Assignment has been modified from original setting Workaround: Click Connect and restart spectrum scan
15006	Satellites table is empty on GPS Gync AP configured in SM mode

Defect Fixes (System Release 3.5)

Tracking	Description / Workaround
14490	[ePMP 2000] Clock calibration between ePMP and ePMP Elevate devices
14455	2nd Management interface obtains Fallback IP with VLAN enabled
14771	Reliable Multicast parameters removed from ePTP mode
14567	[Elevate] Automatic workaround to reset device when Elevate XW Nanostation Loco M5 subscriber Ethernet LAN port goes down
10124	Ethernet watchdog error on SM
14889	"\" symbol for DeviceName crashes web management interface
14721	[Elevate] Unsupported Elevate models removed from MIB file
13308	[Elevate 2.4] RADIUS GUI Authentication not functional
14497	Erroneous validation failure between Lan IP address and Lan Gateway IP addresses
14734	Fixed tcpdump vulnerability to gain root CLI access

Known Problems or Limitations (System Release 3.5)

Tracking	Description / Workaround
14862	Link test error message when run with more than 28 SMs connected to ePMP2000 AP. Workaround: Restart the link test

Tracking	Description / Workaround
14868	Primary Frequency Carrier is not saved to .config file if ACS is started after selecting Country. Workaround: Device reboot or re-run ACS
14866	Save and Undo buttons are highlighted after importing JSON/BINARY configuration with ACS Enabled. Workaround: Web management interface refresh
14872	[Elevate 2.4] ePMP Elevate NanoBridge M2 XM always displays Ethernet Status Down. Display-only issue, Ethernet port is functional. (fixed in 3.5.1)
14846	[Elevate 2.4] Error message 'Please perform device reboot before Upgrading software.' is shown on GUI during SW upgrade. Workaround: Web management interface refresh
14888	LLDP neighbors are not seen by ePMP 2000 AP (fixed in 3.5.1)
14772	"Applying" button is present for a long time in NAT mode if the Community String has changed before. Workaround: Web management interface refresh
14891	"Applying" button is present for a long time if IP address received from DHCP via VLAN interface with enabled LLDP. Workaround: Disable LLDP functionality
14816	Switching IP assignment to Dynamic creates second user GUI session. Workaround: Device reboot
14776	After reset to factory defaults SM in Standard WiFi mode cannot connect to AP configured in Standard WiFi mode on 20 MHz channel bandwidth.
14894	Web management interface shows error message when trying to change IP address. Workaround: Device reboot (fixed in 3.5.1)
14873	Cannot import binary configuration with non-valid License Key.
14904	Wireless Gateway is shown as empty on ePMP SM web management interface if obtained from PPPoE server with Separate Management IP and VSA configured. (fixed in 3.5.1)
14770	New IP Address cannot be assigned if the Community String has been previously changed. Workaround: Device reboot (fixed in 3.5.1)
14906	Unable to force Sector Antenna on ePMP2000 AP via SNMP. Workaround: Use web management interface to force Sector Antenna
14783	Admin password erroneously applied to Full AP radio after exporting configuration from Lite AP radio
14873	Web management interface will not show error after importing binary configuration with non-value license key

Known problems or limitations (System Release 3.4.1)

Tracking	Description / Workaround
14910	Device becomes available after switching from Bridge to NAT mode then enabling Separate Management IP and VLAN. Workaround: Power reset the device (fixed in 3.5.1)
14611	[Elevate 2.4] "SM disassociated from AP. Reason 32/33/48" during Stability test {XW}
14613	Incorrect processing status on GUI when Link Test is failed
14609	Home User erroneously able to configure network configuration (fixed in 3.5)
14614	The Ping utility does not show latency if use less than 8 of 'Buffer Size'

Tracking	Description / Workaround
14612	[Elevate 2.4] Link Test is not completed properly (fixed in 3.5)

Known problems or limitations (System Release 3.4)

Tracking	Description / Workaround
14591	Not able to login to the GUI after changing the IP. Works with Chrome but not with Firefox. However, once you clear the cache and cookies, it works with Firefox. (fixed in 3.4.1) See section **Chrome / Firefox Web Management Interface Access – Special Notice for Software Release 3.4** for additional information.
14589	Upgrade of 2.4 and 5 GHz ePMP Elevate devices to 3.4 will shows as failed when upgraded via cnMaestro. However, the devices do upgrade and a refresh on the cnMaestro screen will show that the devices are running 3.4 after a successful upgrade. (fixed in 3.4.1)
14470	[ePMP Elevate 2.4] Unexpected behaviour of Port Speed Settings
13308	[ePMP Elevate 2.4] RADIUS GUI Authentication: Authentication not functional if used RADIUS authentication method (fixed in 3.5)
14477	DHCP Server on SM sends host name as lease time if only digits are used for DHCP client name
14510	Unable to Export eDetect scan results in Chromium browser with AdBlock extension
14558	GUI shows error message after saving User Certificate for RADIUS Server (fixed in 3.5.1)
14458	[ePMP Elevate 2.4, XM] Cambium Elevate operating Tx Power exceeds original non-Cambium software-configured Tx Power by 1.5 – 3 dBm

Known problems or limitations (System Release 3.3)

Tracking	Description / Workaround
13238	[ePMP Elevate] ePMP Elevate devices are not supported by CNUT
13346	[ePMP Elevate] Device name and network settings are not copied from original device configuration (resolved by ePMP Elevator tool)
13299	[ePMP Elevate] Not possible to configure Uplink Max Rate to any MCS except 7th on single stream devices
14016	After configuring the SM device into NAT mode and reconfiguring the WAN IP address, the Spectrum Analyzer tool is only available via previously-configured Bridge mode IP address
14030	Unable to add new AP to Preferred APs table when in "Show Details" view. As a workaround, add new APs to the table when in "Show List" view. (fixed in 3.4)
14131	[IPv6] AP and SM Separate Management Interface don't display obtained DHCP address on without manual refresh (fixed in 3.4)

Known problems or limitations (System Release 3.2.2)

Tracking	Description / Workaround
13846	It is not possible to change the SM's Network configuration from Bridge to Router mode via SNMP. (fixed in 3.3)
13825	GUI indicates In-Service-Monitoring DFS status for 5-10 seconds after switching to non-DFS channel.

Known problems or limitations (System Release 3.2.1)

Tracking	Description / Workaround
13783	User cannot login to GUI by DNS address if URL contains dash (-). (fixed in 3.3)
13516	[ePMP Elevate] XM hardware – Spectrum Analyzer not supported (fixed in 3.3)
13343	[ePMP Elevate] XW hardware – If an ePMP Elevate module is interrupted during an ePMP software upgrade, TFTP flash recovery of ePMP Elevate software may fail. As a workaround, load the native device software, then upgrade again to ePMP Elevate
13552	[ePMP Elevate] After changing the device management IP address, the browser may not automatically redirect to the new IP address. Workaround: Enter the new management IP address in the browser address bar. (fixed in 3.3)
13630	[ePMP Elevate] Upon downgrading from Release 3.2.1 to Release 3.2, the Remote Management parameter may be set to Disabled. Workaround: Re-enable the Remote Management parameter after downgrading from Release 3.2.1 to Release 3.2.

Known problems or limitations (System Release 3.2)

Tracking	Description / Workaround
13472	[ePMP Elevate] Updates to XM hardware Ethernet port interface MAC address assignment (fixed in 3.2.1)
13289	Invalid warning appears on web management interface when Subscriber Module Target Receive Level is configured above -60 dBm (fixed in 3.2.1)
13165	SM in NAT mode with Separate Management IP and Management VLAN is not accessible by Separate Management IP address (fixed in 3.2.1)
13228	Web management interface is not accessible after an upgrade attempt with invalid software archive. Workaround: reboot the device to regain management access.
13317	eDetect may not display interfering devices at lower received/detected power levels (fixed in 3.3)
13187	Upon configuration restore, a browser refresh is required to display updated parameter values (fixed in 3.2.1)
13274	[ePMP Elevate] ePMP Elevate subscriber may disconnect under load due to hardware limitations. This disconnect is followed by an immediate re-registration. (fixed in 3.2.2)
12791	[ePMP Elevate] XM devices: When downlink RSSI is stronger than -30 dBm, the web management interface incorrectly reports RSSI of 256 dBm and SNR as 0 dB (fixed in 3.2.1)
12919	[ePMP Elevate] Rocket™ M5 (XM and XW): The web management provides options for configuring the device in AP or ePTP mode. These modes are not supported by ePMP Elevate software and should not be utilized. (fixed in 3.2.1)
13332	On occasion, after upgrading an ePMP SM to Release 3.2, the SM's web management interface may display "Board still in reboot state" or the interface may not be accessible. Workaround: reboot or power cycle the SM. (fixed in 3.3)

Known problems or limitations (System Release 3.1)

Tracking	Description / Workaround
13220	Support for use of shift key to select multiple frequencies in the Scan List (fixed in 3.2.1)
13165	SM does not create static route for separate management interface (fixed in 3.2.1)

Tracking	Description / Workaround
13117	ePMP 2000 device configured in SM mode reports incorrect AP frequency and does not register (fixed in 3.2.1)
12409	With rare occurrence, SM scans without registration
12709	ePMP 2000: Cannot factory default via power cycle sequence (fixed in 3.2.1)
12792	Throughput Chart: Upon changing Throughput Measurement Period, control points (hover targets) not shown (fixed in 3.2.1)
12837	With certain configurations, GPS-synched software can be loaded onto Force 200 module
12878	ePMP device reboots twice after factory default

Known problems or limitations (System Release 3.0.1)

Tracking	Description / Workaround
12385	ePMP web management interface test tool Ping (Tools > Ping) does not execute with maximum buffer size (65507)
12439	ePMP devices with saved cnMaestro credentials which are not on-boarded by cnMaestro for more than 12 hours will stay in state "Device Approval Pending"
12513	Transmitter Output Power reference tables duplicated in web management interface notification

Known problems or limitations (System Release 3.0)

Tracking	Description / Workaround
12794	False radar detection on DFS channel FCC1322 Type1 22 (fixed in 3.2.1)
12793	False radar detection on DFS channel FCC1322 Type1 24 (fixed in 3.2.1)
12125	When in ETSI region and 5.4 GHz band using LBT, if the SM is subjected to very high interference, it may cause a reboot with a crash signature "arqtx_rwb_from_wbuf".
11973	The "Internet" Globe icon on the top right of the GUI page may take up to 40 seconds to turn green once a DNS server has responded.
11491	When ePMP 2000 is in Standard WiFi, a Ubiquiti Nanobeam may not register. There is currently no workaround.
11406	When using 5 MHz channels on ePMP 2000 in TDD mode, TCP downlink throughput may degrade by up to 20%.

Known problems or limitations (System Release 2.6.2)

Tracking	Description / Workaround
11978	When there are more than 128 entries into the Bridge Table, the table may display as an empty table.

Known problems or limitations (System Release 2.6)

Tracking	Description / Workaround
10907	When in AP WiFi mode and the SM connected is an 802.11a SM, the downlink throughput can be lower by 20%. (fixed in 3.3)
10704	When editing the MAC Addresses entries in the Wireless MAC Filtering table using the configuration file upload, care must be taken to ensure MAC address format integrity. The ePMP device will not validate the format.

Known problems or limitations (System Release 2.4.3)

Tracking	Description / Workaround
9951	On occasion, pings are lost when continuously pinging the SM from the AP. The ping loss can occur for a period of 30-60 seconds before it operates normally. User traffic may also be lost during this time and a reboot of the SM may be required to recover the SM.

Known problems or limitations (System Release 2.4)

Tracking	Description / Workaround
8198	On occasion, stale ARP entries are not cleared from the ARP table (under Monitor>network) on the SM. The entries should be cleared in 5 minutes but it may take up to 10 minutes for them to be cleared.

Technical Support

For technical support, see

http://www.cambiumnetworks.com/support/

Cambium Networks Community Forum

Join the conversation

http://community.cambiumnetworks.com/