

VIEW Certified Configuration Guide

Cambium Networks

AP's XV2-2,XV3-8

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Warranty

The *Product Warranty and Software License and Warranty* and other support documents are available at <http://support.spectralink.com>.

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Chapter 1: Introduction

Spectralink’s Voice Interoperability for Enterprise Wireless (VIEW) Certification Program is designed to ensure interoperability and high performance between Spectralink Wireless Telephones and wireless LAN (WLAN) infrastructure products. The Cambium products listed have been tested in the Spectralink lab and found to be interoperable as noted.

Certified Product Summary

Manufacturer:	Cambium Networks
Certified products:	APs XV2-2, XV3-8
AP Radio(s):	2.4 GHz (802.11b/g/n), 5 GHz (802.11a/n/ac)
Security:	None, WEP, WPA2-PSK, WPA2-Enterprise (PEAPv0/MSCHAPv2, and EAP-TLS) with OKC, 802.11r(FT-enabled)
QoS:	Wi-Fi Standard for Spectralink 84 series, Versity92/95/96
Network topology:	Bridged
Version approved:	6.4

<i>Handset* models tested:</i>	<i>Spectralink</i>			<i>Smartphone (Versity)</i>
Handset radio mode:	802.11b	802.11b/g	802.11bgn	802.11a, 802.11n & 802.11ac
Meets VIEW minimum call capacity per AP**	10	10	10	10

<i>Handset models tested:</i>	<i>Spectralink</i>			<i>Wireless Telephone (84-Series)</i>
Handset radio mode:	802.11b	802.11b/g	802.11bgn	802.11a, 802.11n
Meets VIEW minimum call capacity per AP**	8	8	8	10

*Spectralink handset models and their OEM derivatives are verified compatible with the WLAN hardware and software identified in the table. Throughout the remainder of this document they will be referred to collectively as “Spectralink Wireless Telephones”, “phones” or “handsets”.

** Maximum calls tested per the VIEW Certification Test Plan. The certified product may actually support a higher number of maximum calls.

Known Limitations

- Ensure FT is set to enabled on the VQO app to gain 802.11r functionality on Versity devices.
- Use a dedicated SSID for Voice.
- Do not enable 802.11v as it may cause performance issues.

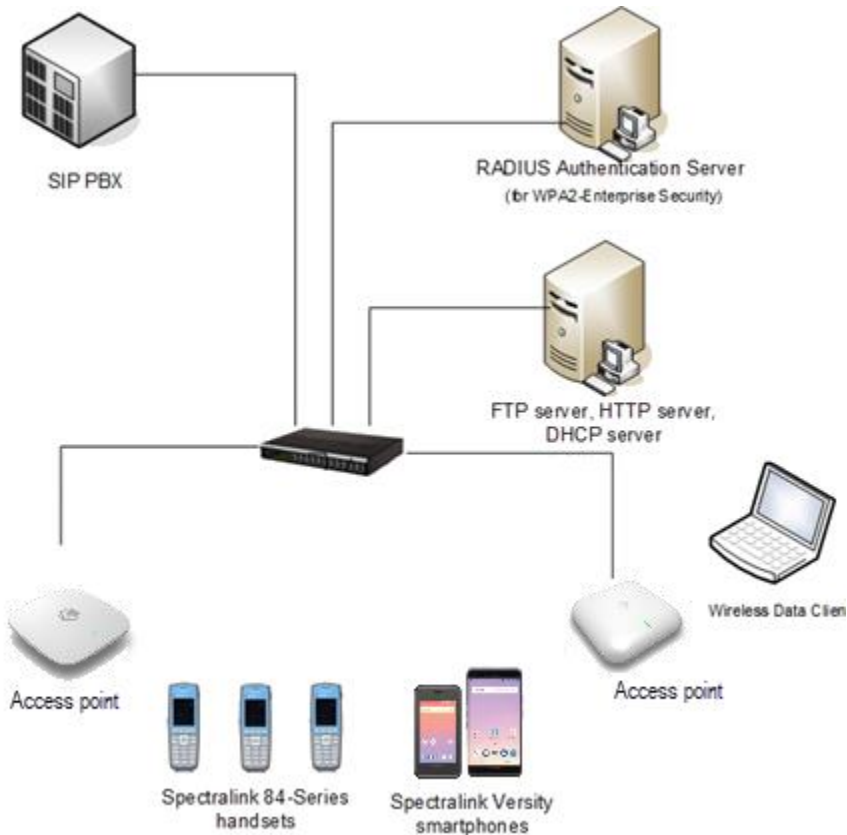
Product Support

Spectralink support can be reached at support.spectralink.com.

Cambium Networks support can be reached at <https://www.cambiumnetworks.com/support/>.

Chapter 2: Network Topology

The following configuration was tested during VIEW certification.



Note: Example configuration shown

This is a modified diagram and not all components are shown for every system type.



Note: Radius server setup

The setup for a Radius server for Enterprise security is outside the scope of this document.

Chapter 3: Setting Up Your Cloud Network

Initial network setup is performed when APs and/or support are purchased from Cambium. The dashboard is used to log in, network is created, and APs are added to the network.



Note: Use an incognito window

An “incognito window” must be used with some web browsers to avoid confusing field entry behavior. Click the browser “More” menu (3 vertical dots) and select “Use an incognito window”.

Login and AP Onboarding

- 1 Navigate to <https://cloud.cambiumnetworks.com> for an initial login.

Please sign in

Email address

Password

Remember me

[Click here to reset your password.](#) If you don't have an account yet, [click here to register.](#)

Sign in

- 2 Navigate to the **Onboard** option and under **Settings** and enter the Cambium ID and Onboarding Key for the User. Enable the option ‘**Allow Device to be claimed by Cambium ID**’

Cambium Networks | cnMaestro™

Onboard

Devices **Settings**

You can add devices to your account by logging into the Device UI directly and entering the Cambium ID and Onboarding Key (these were set when you created your Company Account, and they can be re-set via the Device UI).

Cambium ID: SPECTRALINK_VIEW

Allow device to be claimed using Cambium ID

Enabling this feature allows a device to be claimed by entering the Cambium ID and Onboarding Key on the device. This information can be set on the device via its user interface (or SNMP or CLI on some devices). Each user can have their own Onboarding Key. [Learn more](#)

The following users can claim devices using the cnMaestro Cambium ID and the user's Onboarding Key.

User	Onboarding Key	
Sree Natarajan	Delete

Save Cancel Add New

- 3 Log into the AP to be onboarded and enter the **cnMaestro URL**, **Cambium ID** and **Onboarding Key**.



cnMaestro

Remote Management

Validate Server Certificate

cnMaestro URL

Cambium ID

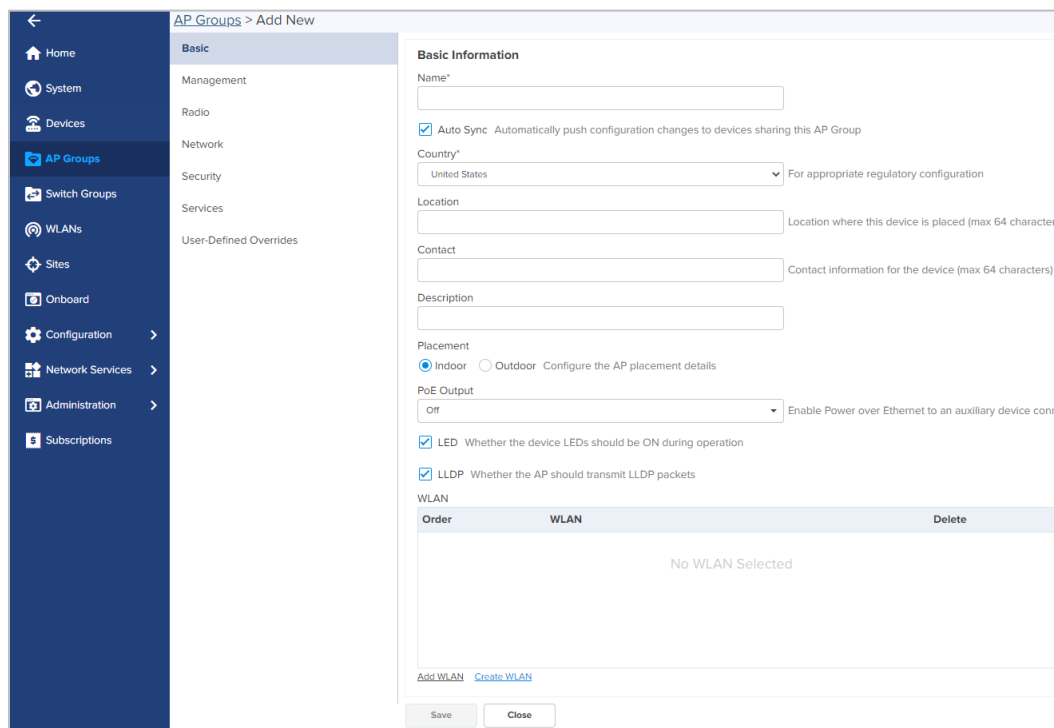
Onboarding Key

- 4 The **Onboarding Devices** will appear on cnMaestro after some time under **Onboard>Devices**. Approve the device by clicking the Approve button under Actions.

Create an AP Group

Create an AP group to organize the APs.

- 1 Navigate to **AP Groups>New**.



AP Groups > Add New

Basic Information

Name*

Auto Sync Automatically push configuration changes to devices sharing this AP Group

Country* For appropriate regulatory configuration

Location Location where this device is placed (max 64 characters)

Contact Contact information for the device (max 64 characters)

Description

Placement
 Indoor Outdoor Configure the AP placement details

PoE Output Enable Power over Ethernet to an auxiliary device connection

LED Whether the device LEDs should be ON during operation

LLDP Whether the AP should transmit LLDP packets

WLAN

Order	WLAN	Delete
No WLAN Selected		

[Add WLAN](#) [Create WLAN](#)

Save Close

On the **New AP Group** screen:

- 2 Enter a name for the AP Group.
- 3 Enable **Auto Sync**.

- 4 Add **WLANs** to AP Group: Navigate to **Management**.
- 5 Enter **Administrator password**.
- 6 Click **Save**.

Add APs to the AP group

Now that the AP Group has been created, APs need to be added to the system.

- 1 Navigate to **AP Group>** (Select AP Group)> **APs**
- 2 Select devices to be claimed to this AP Group.
- 3 Approve the device by clicking the **Approve** button under **Actions**.

Chapter 4: Configure SSIDs

The wireless settings are configured by defining the SSID settings on the APs.

Define the SSIDs



Note: Three enabled SSIDs per AP recommended

Best Practice is enabling a maximum of three SSIDs per AP.

- 1 Navigate to **Configure > WLAN** and click **Basic**.

The screenshot shows the Cambium Networks web interface for device configuration. The left sidebar contains navigation options: Dashboard, Monitor, Configure, System, Radio, WLAN (selected), Network, Services, Operations, and Troubleshoot. The main content area is titled 'Configure / Wan' and includes an 'Add WLAN' button. Below this is the 'Edit WLAN' section with 'VPSK' and 'VPEAP' buttons. The 'Basic' tab is active, showing the following settings: Enable (checked), Mesh (Off), SSID (VPSK), VLAN (1), and Security (WPA2 Pre-shared Keys). A notification at the top right states: 'Your current password is set to default, please change it.'

- 2 Enter the **SSID name, Security Type**. Select **both WiFi radio** options for broadcasting SSID.

This screenshot shows the 'Basic' configuration tab for a WLAN. The settings are: Enable (checked), Mesh (Off), SSID (VPSK), VLAN (1), Security (WPA2 Pre-shared Keys), Passphrase (masked), Radios (All), VLAN Pooling (Disable), Max Clients (256), and Client Isolation (Disable). The 'cnMaestro Managed Roaming' checkbox is checked. Descriptive text for each field is provided on the right side of the form.

Security Type

No security

- For no security, choose the **Open option**.

The screenshot shows the 'Basic' configuration page for a WLAN. The 'Enable' checkbox is checked. The 'Mesh' dropdown is set to 'Off'. The 'SSID' is 'VPSK'. The 'VLAN' is '1'. The 'Security' dropdown is set to 'open'. The 'Radios' dropdown is set to 'All'. The page includes tabs for 'Basic', 'Radius Server', 'Guest Access', 'Usage Limits', 'Scheduled Access', 'Access', and 'Passpoint'.

WPA2-PSK

- 1 Select the **WPA2-Pre Shared Keys** from the dropdown menu.
- 2 Enter an ASCII passphrase in the **Passphrase** box. This same key must be entered in the password or passphrase fields on the phones.

The screenshot shows the 'Basic' configuration page for a WLAN with WPA2-PSK security. The 'Enable' checkbox is checked. The 'Mesh' dropdown is set to 'Off'. The 'SSID' is 'VPSK'. The 'VLAN' is '1'. The 'Security' dropdown is set to 'WPA2 Pre-shared Keys'. The 'Passphrase' field contains a masked ASCII passphrase. The 'Radios' dropdown is set to 'All'. The page includes tabs for 'Basic', 'Radius Server', 'Guest Access', 'Usage Limits', 'Scheduled Access', 'Access', and 'Passpoint'.

Enterprise Securities



Note: Radius server setup

The setup for a Radius server for Enterprise security is outside the scope of this document.

- 1 Choose **WPA2-Enterprise** option under **Security** and click **Save**.
- 2 Navigate to **Configure > WLAN > Radius Server** to enter AAA server information for Enterprise security.

- 3 Enter the **Host** IP Address or DNS name, the **Port**, and the **Secret** entered on the Radius server.
- 4 Click **Save** to save the configuration.

Advanced SSID settings

Advanced SSID settings can be applied to SSIDs of all Usage types.

- 1 Navigate to **Configure > WLAN > Basic** and scroll down.

2 Set Client Isolation to Disable. Set Session Timeout to 86400 and Set Inactivity Timeout to 1800.

Client Isolation	Disable	When selected, it allows wireless clients connected to the same AP or different APs to communicate with each other in the same VLAN
cnMaestro Managed Roaming	<input type="checkbox"/>	Enable centralized management of roaming for wireless clients through cnMaestro
Hide SSID	<input type="checkbox"/>	Do not broadcast SSID in beacons
Session Timeout	86400	Session time in seconds (60 to 604800)
Inactivity Timeout	1800	Inactivity time in seconds (60 to 28800)
Drop Multicast Traffic	<input type="checkbox"/>	Drop the send/receive of multicast traffic

Advanced		
UAPSD	<input checked="" type="checkbox"/>	Enable UAPSD
QBSS	<input checked="" type="checkbox"/>	Enable QBSS load element
DTIM interval	1	Number of beacons (1-255)
Monitored Host		
Host		IP Address or Hostname that should be reachable for this WLAN to be active
Interval	300	Duration in seconds (60-3600)
Attempts	5	Number of attempts to check the reachability of monitored host (1-20)

3 Under the **Advanced** section, Enable **QBSS load element** and Enable **U-APSD**.

4 Set **DTIM Interval** to **1**.

DNS Logging Host		Port	514	Syslog server where all client DNS requests will be logged
Connection Logging Host		Port	514	Syslog server where all client connection requests will be logged
Band Steering	Disabled	Steer dual-band capable clients towards 5GHz radio		
Proxy ARP	<input checked="" type="checkbox"/>	Respond to ARP requests automatically on behalf of clients		
Proxy ND	<input type="checkbox"/>	Respond to IPv6 ND requests automatically on behalf of clients		
Unicast DHCP	<input type="checkbox"/>	Convert DHCP-OFFER and DHCP-ACK to unicast before forwarding to clients		
Insert DHCP Option 82	<input type="checkbox"/>	Enable DHCP Option 82		
Tunnel Mode	<input type="checkbox"/>	Enable tunnelling of WLAN traffic over configured tunnel		
Fast-Roaming Protocol	<input type="checkbox"/> OKC <input checked="" type="checkbox"/> 802.11r	Configure roaming protocol		
Re-association Timeout	20	Number of seconds (1-100)		
RRM (802.11k)	<input checked="" type="checkbox"/>	Enable Radio Resource Measurements (802.11k)		
802.11v	<input type="checkbox"/>	Enable 802.11v BSS Transition Management		
PMF (802.11w)	Disable			

5 Enable **Proxy ARP** and **Unicast DHCP**.

6 Enable **802.11k** and **802.11r**.

7 Do not enable **802.11v**.

Radio settings

The radio settings for each AP must be set.

1 Navigate to **Configure> Radio**.

2 Edit the Radio to be configured.

Configure - Radio

Edit Radio

Radio 1 (2.4GHz) Radio 2 (5GHz)

Basic Enhanced Roaming

Radio

Enable Enable operation of this radio

Band 5GHz

Channel 52

Channel Width 40MHz

Transmit Power 4

Beacon Interval 100

Minimum Unicast rate default

Multicast data rate default

Airtime Fairness Enable Airtime Fairness

Mode default

Short Guard Interval Enable short guard interval

Configure the supported bands

Primary operating channel

Operating width of the channel

Radio transmit power in dBm (4 to 30; Subject to regulatory limit)

Beacon interval in mSec (100 to 3500 in increments of 100)

Configure the minimum unicast management rate (Mbps)

Data-rate to use for transmission of multicast/broadcast packets

Allow 802.11 a/b/g/n clients to connect

- 3 Set **Channel**, **Channel Width** and **Transmit Power** according to your Wi-Fi design.
- 4 Enable **Airtime Fairness** and **Short Guard Interval**.

Off Channel Scan

Enable Enable OCS

Dwell-time 150

Configure Off-Channel-Scan dwelltime in milliseconds (50-300)

Auto RF

Dynamic Power Enable dynamic power management

Mode By-channel By-band

Minimum Transmit Power 8

Minimum Neighbour Threshold 2

Cellsize Overlap Threshold 50%

Interference Avoidance

Packet Error Rate Threshold 30

Save Cancel



Note: Actual channel may be different than the manual channel setting
Due to radar or interference detection, the system may change the AP's channel.

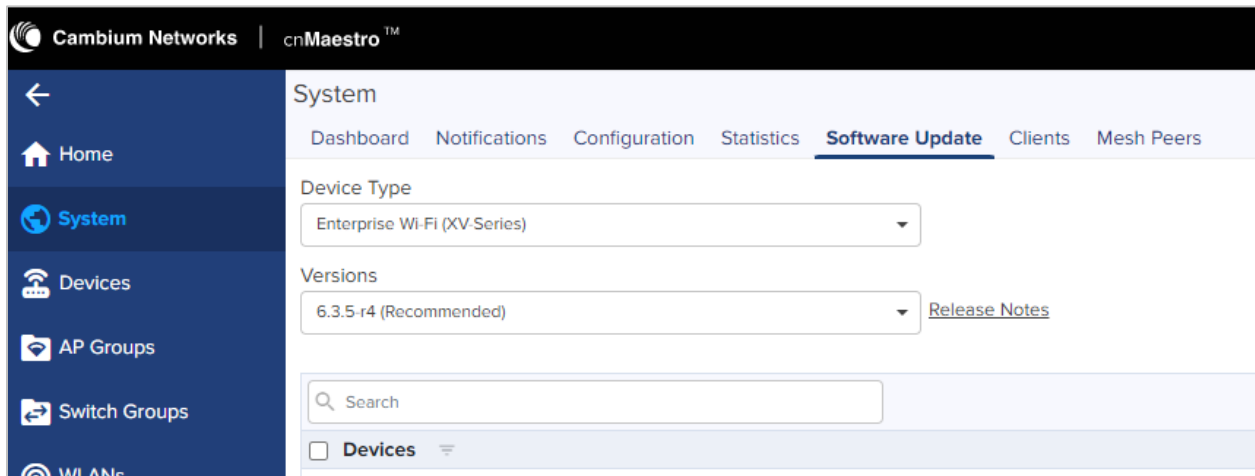
- 5 For **Off Channel Scan** set **Dwell time**.
- 6 Set **Auto-RF** parameters according to your Wi-Fi design and click **Save**.
- 7 Set **Enhanced Roaming** to default value.

The screenshot displays the Spectralink VIEW configuration interface. On the left is a navigation sidebar with the following items: Dashboard, Monitor, Configure, System, Radio (highlighted), WLAN, Network, and Services. The main content area is titled 'Configure / Radio' and 'Edit Radio'. It shows two radio buttons: 'Radio 1 (2.4GHz)' and 'Radio 2 (5GHz)'. Below these are two tabs: 'Basic' and 'Enhanced Roaming' (selected). Under the 'Enhanced Roaming' tab, there is an 'Enable' checkbox which is checked, with a sub-label 'Enable active disconnection of clients with weak signal'. Below this is a 'Roam SNR threshold' field containing the value '15', with a sub-label 'SNR below which clients will be forced to roam (1-100 dB)'. At the bottom right of the configuration area are 'Save' and 'Cancel' buttons.

Chapter 5: Firmware Upgrades

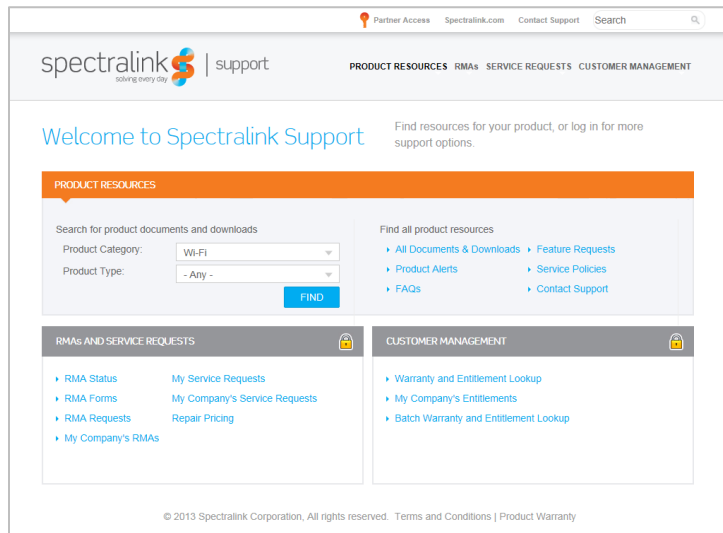
The administrative overhead of cnMaestro systems is minimized by centrally managing the software upgrade process.

- 1 Navigate to **System**> **Software Update**.
- 2 Select the **Device Type**, **Versions** and **Devices** for the upgrade and add the **software job** to perform the update.



Appendix A: Spectralink References

All Spectralink support documents are available at <http://support.spectralink.com>.



To go to a specific product page:

Select the Product Category and Product Type from the dropdown lists and then select the product from the next page. All resources for that particular product are displayed by default under the All tab. Documents, downloads and other resources are sorted by the date they were created so the most recently created resource is at the top of the list. You can further sort the list by the tabs across the top of the list to find exactly what you are looking for. Click the title to open the link.

Support Documents

AP Configuration Guides show you how to correctly configure access points and WLAN controllers (if applicable) and identify the optimal settings that support Spectralink 87-Series smartphones. The guides are available on the View Certified page on the Spectralink support site at <http://support.spectralink.com/view>.

Spectralink Versity software and support documents are available on the Spectralink support site at <http://support.spectralink.com/versity>.

Spectralink SAM software and support documents are available on the Spectralink support site at <http://support.spectralink.com/sam>.

Spectralink 84-Series system documents are available on the Spectralink support site at <http://support.spectralink.com/products/wi-fi/spectralink-84-series-wireless-telephone>.

Release Notes accompany every software release and provide the new and changed features and resolved issues in the latest version of the software. Please review these for the most current information about your software.

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