



Cambium Networks



SOLUTION GUIDE

Xirrus AOS AP Support System

Release 1.0



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Xirrus AOS AP support for cnMaestro-X

This guide covers two major areas: 1.) XMS-Enterprise migration of Xirrus AOS APs to cnMaestro-X and 2.) Configuring Xirrus AOS APs in cnMaestro-X. It is recommended to read this entire guide before starting the migration process or adding Xirrus AOS APs to an existing cnMaestro-X account.

XMS-Enterprise migration to cnMaestro-X

Required Steps – to be performed before migration (details are outside the scope of this document)

1. XMS-Enterprise - Upgrade XMS-Enterprise to version 8.4.0 or higher.
2. XMS-Enterprise - Upgrade Xirrus APs to AOS version 8.7.0 or higher.
3. Purchase (or a trial) of cnMaestro-X subscription is required.
4. cnMaestro-X OnPrem must be upgraded to version 3.1.1 or higher.

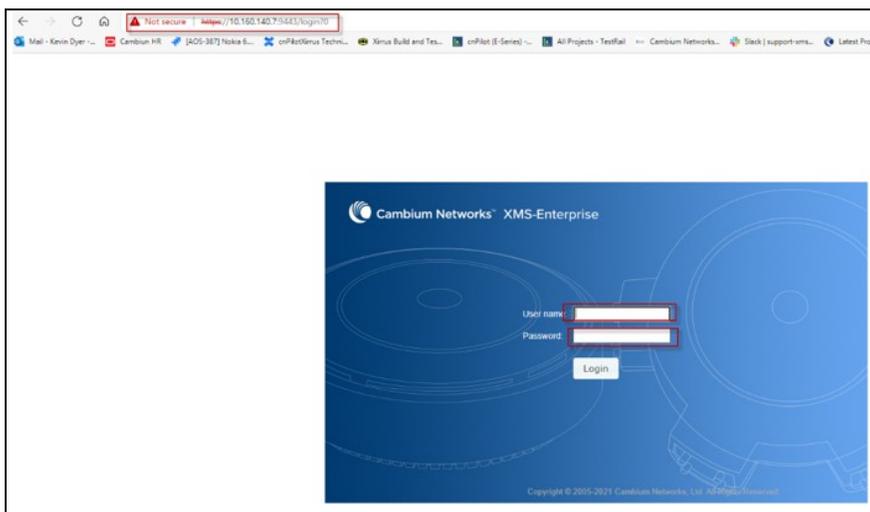
Migration Process

Perform the following steps, for migration process (details included in this document)

1. XMS-Enterprise System - Export Golden Configuration - save as zipped file to local directory.
2. Local System - unzip folder and extract files to local directory
3. XMS-Enterprise - Select APs to migrate (push) to cnMaestro-X (OnPrem)
4. cnMaestro-X - Create Wi-Fi AP Group - import clicommand file from exported directory.
5. cnMaestro-X - Approve / Claim APs into Wi-Fi AP Group
6. cnMaestro-X - Import AP configuration via .csv file from exported directory.
7. cnMaestro-X - Apply AP configuration
8. Best Practices - Network DHCP/DNS Changes

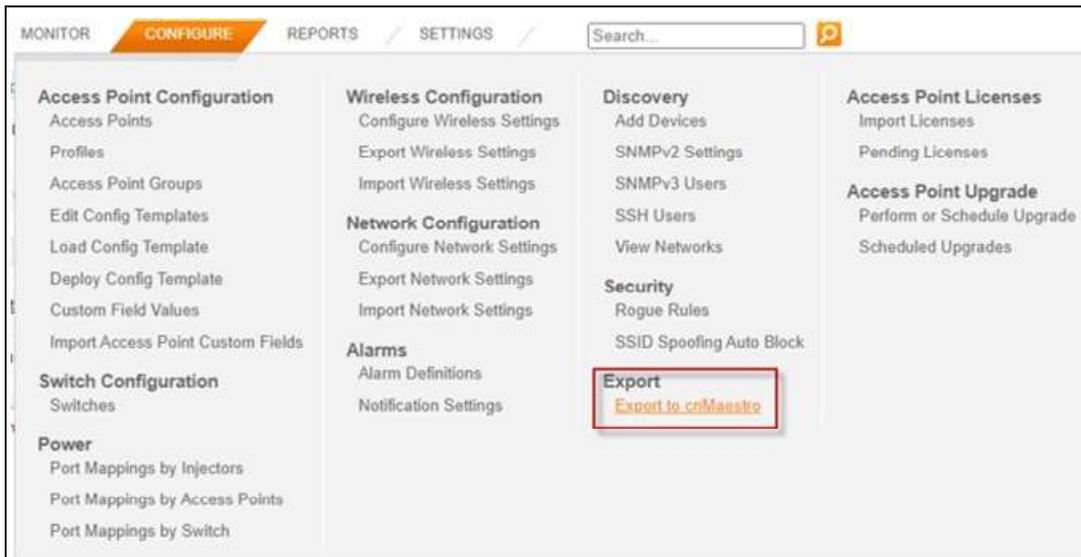
XMS-Enterprise system

1. Login to XMS-Enterprise via the URL.



Within XMS-Enterprise, Export Golden Configuration for one of the APs

- From Configure tab, under Export press the Export to cnMaestro hyperlink.

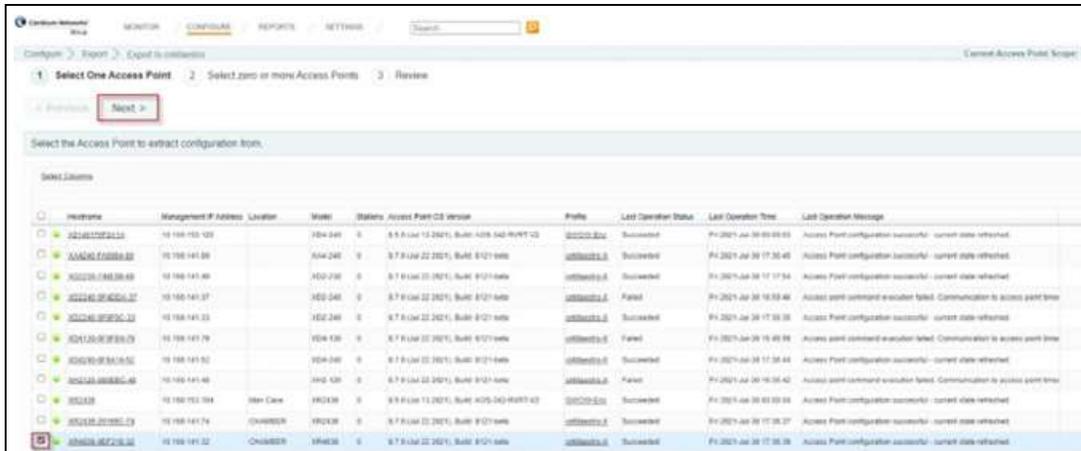


Select the AP to create the Golden configuration for a group of APs press the Next Button.



NOTE

Select the AP with the most radios & the highest capability (ex. anac vs. an).



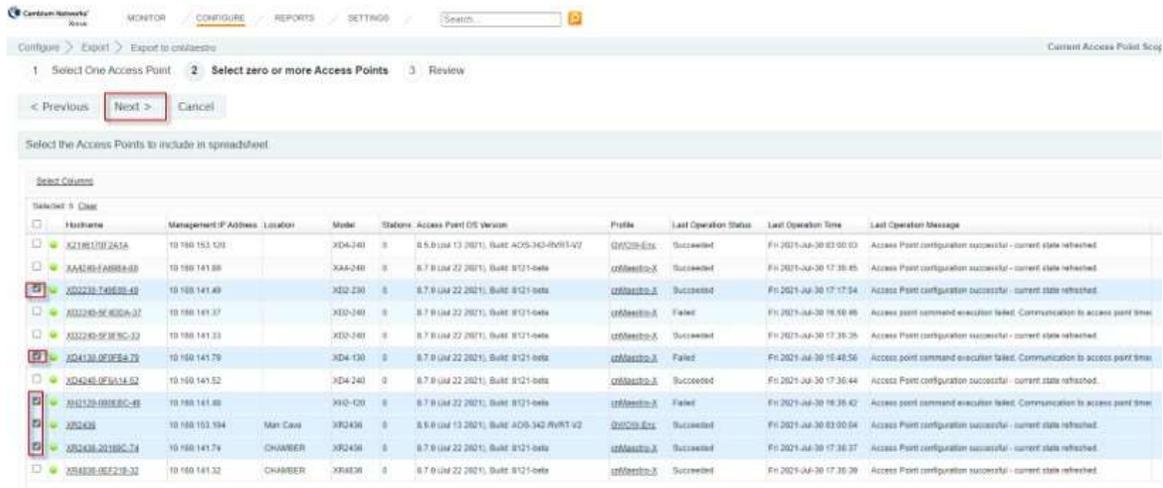
- Select a group of APs to add to the spreadsheet.



NOTE

A mix of Xirrus 11ac Wave 1 and Wave 2 APs have been included as an example.

4. Press the Next button.



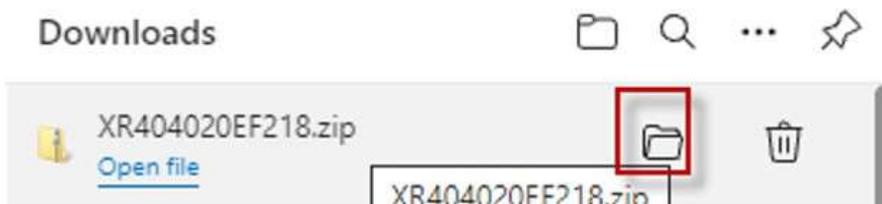
5. Press the Export Button.



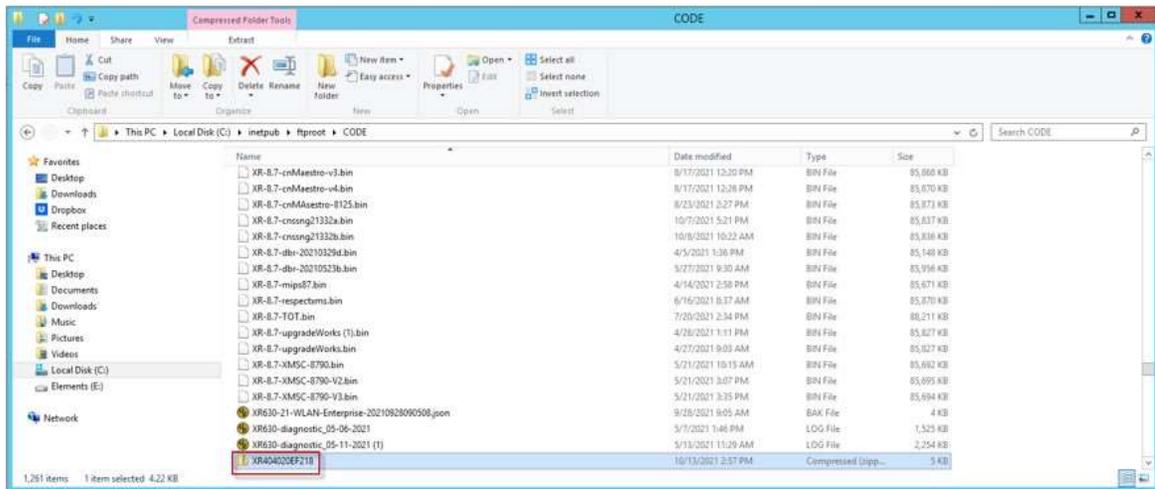
Extract files to local directory

In your local system, go to download folder and extract files to local directory

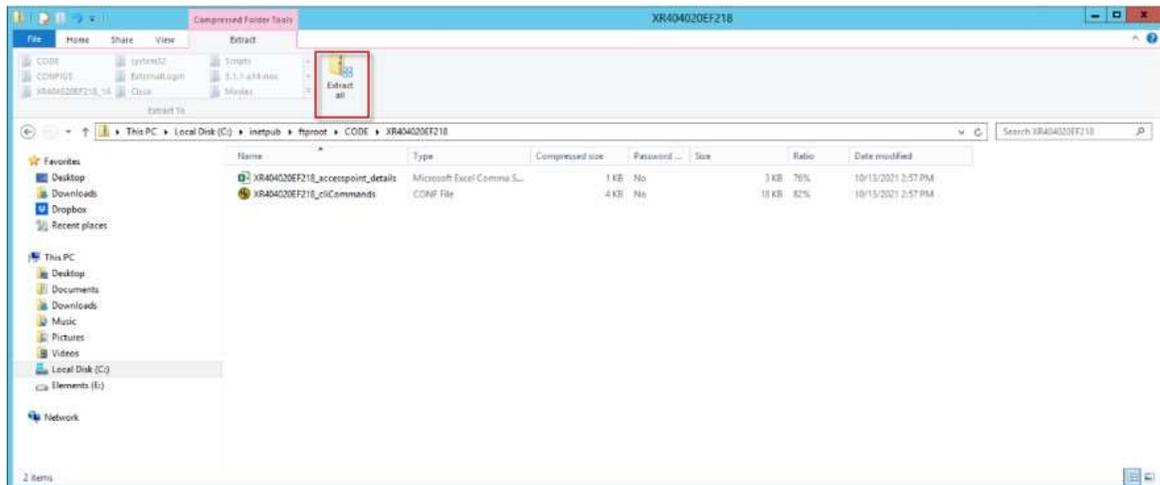
1. Browser download window should open to indicate the Download Zip file name.



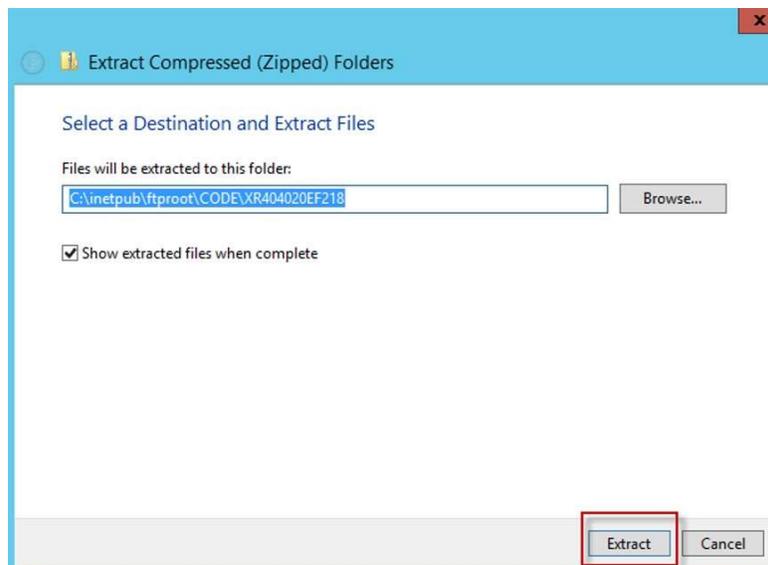
2. Go to your folder where this Zipped file has been placed and extract all the contents to a folder.



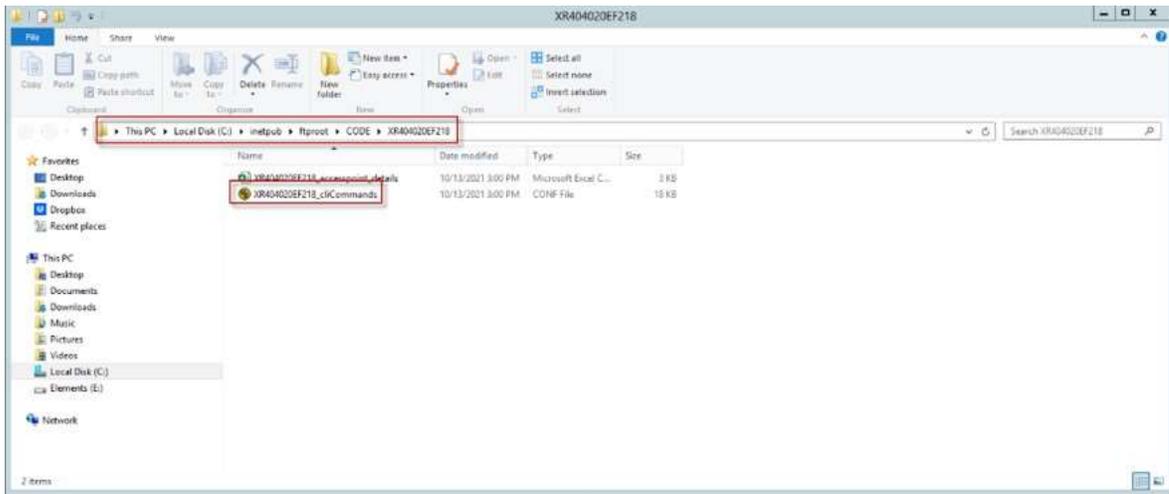
3. Double click on the zipped file. Click on the Extract All button.



4. This will open the directory path where the file has been stored.



5. Extract the folder to the path.



6. Make a note of the folder/file location as you will need this file later in this procedure.
7. Go back to Configure > Access Point Configuration > Access Points.



Select the Xirrus AOS APs to migrate (push) to cnMaestro-X

1. Select the AP(s) from the list by checking the box to the left of the AP Serial Number.

The screenshot shows the 'Access Point Configuration' page in the Xirrus interface. A table lists various APs with columns for Serial Number, Hostname, Location, Profile, Group Name, Management IP Address, Model, Stations, Access Point OS Version, and Last Operation Status. Five APs are selected with checkboxes: X80672109ABA2, X307441035022, X30744103502C, X307441035056, and X30744903835E. The 'More' menu is visible in the top right of the table area.

Serial Number	Hostname	Location	Profile	Group Name	Management IP Address	Model	Stations	Access Point OS Version	Last Operation Status
<input type="checkbox"/>	X4146470F68C2	Class-5A-XD4-249	Port-ge0/1-switch20		10.160.153.100	XD4-240	0	8.7.0 (Apr 28 2022), Build: 8158-beta	Succeeded
<input type="checkbox"/>	X017629FA6984	XA4240-6984-30	AC-Wave2-4		10.160.141.80	XA4-240	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded
<input type="checkbox"/>	X2135425F4DDC	XD2240-4DDC-39	Chamber	AC-Wave2-2	10.160.141.39	XD2-240	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded
<input type="checkbox"/>	X3136165F8F9C	XD2240-8F9C-33	Chamber	AC-Wave2-2	10.160.141.33	XD2-240	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded
<input type="checkbox"/>	X4138035FEF98	XD2240-EF98-41		AC-Wave2-2	10.160.141.41	XD2-240	0	8.7.0 (Jun 22 2022), Build: 8168	Succeeded
<input type="checkbox"/>	X4096450F5DA0	XD4130-5DA0-63	SQLALB	AC-Wave1-4	10.160.141.63	XD4-130	0	8.7.0 (Jun 22 2022), Build: 8168	Succeeded
<input type="checkbox"/>	X2095230EAA4E	XD4130-AA4E-52	SQLALB	AC-Wave1-4	10.160.141.62	XD4-130	0	8.7.0 (Jun 22 2022), Build: 8168	Succeeded
<input type="checkbox"/>	X4146470F69AE	XD4240-69AE-53	SQLALB	AC-Wave2-4	10.160.141.53	XD4-240	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded
<input type="checkbox"/>	X4146470F6A1E	XD4240-6A1E-55	SQLALB	AC-Wave2-4	10.160.141.55	XD4-240	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded
<input type="checkbox"/>	XR203110E800B	XR2420-800B-78	CHAMBER	XR2400-APs	10.160.141.78	XR2420	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded
<input type="checkbox"/>	XR21343201674	XR2447-1674-85			10.160.141.85	XR2447	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Never Configured
<input type="checkbox"/>	XR21433057FA4	XR2447-7FA4-85	CHAMBER	XR2400-APs	10.160.141.85	XR2447	0	8.7.0 (May 26 2022), Build: 8164	Succeeded
<input type="checkbox"/>	XR4012601C688	XR4447-C688-88	CHAMBER	XR4800-APs	10.160.141.88	XR4447	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded
<input type="checkbox"/>	XR404020EF218	XR4836-F218-88	CHAMBER	XR4800-APs	10.160.141.88	XR4836	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded
<input checked="" type="checkbox"/>	X80672109ABA2	1234567890	XR600-APs		10.160.141.17	XR620	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded
<input checked="" type="checkbox"/>	X307441035022	SQLALB	XR600-APs		10.160.141.20	XR630	0	8.7.0 (Jun 28 2022), Build: 8168	Succeeded
<input checked="" type="checkbox"/>	X30744103502C	CHAMBER	XR600-APs		10.160.141.15	XR630	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded
<input checked="" type="checkbox"/>	X307441035056	Chamber	XR600-APs		10.160.141.28	XR630	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded
<input checked="" type="checkbox"/>	X30744903835E	1234567890	XR600-APs		10.160.141.24	XR630	0	8.7.0 (Jun 08 2022), Build: 8166-beta	Succeeded

2. Select the More Menu and press "Migrate APs to cnMaestro".

The screenshot shows the same table as above, but with the 'More' menu open. The menu options include 'Add to Access Point Group', 'Create Profile', 'Access Point WMI', 'Delete', 'Take AP(s) Out of Service', 'Return AP(s) to Service', 'Migrate AP(s) to cnMaestro', and 'Migrate AP(s) to XMS Cloud'. The 'Migrate AP(s) to cnMaestro' option is highlighted with a red box.

3. Important to know what this step is doing:
 - a. Sets the following management values on each AP.
 - cloud server ipaddress/dnsname
 - cloud scheme cnmaestro
 - cloud port 443
 - cloud enable
 - b. It also clears the SNMP trap host 1 name, this keeps XMS-Enterprise from automatically rediscovering the AP and pulling it back to XMS-Enterprise control

4. For cnMaestro-X On-Premises:

- Enter the IP address or Hostname that is mapped in DNS to the On-Prem cnMaestro-X platform.
- Enter the Cambium-ID and Onboarding Key, as defined in cnMaestro-X.



NOTE

Cambium-ID and Onboarding Key maybe left blank for OnPrem installations but is mandatory for cnMaestro-X Cloud deployments.

5. For cnMaestro-X Cloud:

- Enter cloud.cambiumnetworks.com for the server hostname.
- Enter the Cambium-ID and Onboarding Key (Mandatory - for CLOUD deployments).
- Select Delete AP(s) or Put AP(s) out of Service.
- Press the Ok Button.

Migrate AP(s) to cnMaestro X

cnMaestro X (IP Address / Hostname)

Cambium ID

Onboarding Key

When done:

Delete AP(s) Put AP(s) Out of Service

Please ensure that you have used "Export to cnMaestro" from the Configuration menu to capture the AOS AP Configuration and list of APs that will be migrated prior to performing this action.
 Moving the AOS APs to cnMaestro X without a working configuration to import is not advised.

Click Cancel to perform the "Export to cnMaestro X" function.

Click OK if you have a working Configuration from this function.



NOTE

- Out of service APs will not be removed from XMS-Enterprise, so if there is an issue, you can use Return APs to Service, and they will come back to XMS-Enterprise.
- If you select Delete AP(s), then they will be removed, and you would have to rediscover them on the network to get this back to XMS-Enterprise.
 - o You should also remove the Device Network from the Device discovery section to clean up XMS- Enterprise after the APs have successfully been migrated.

6. Next, let's do a progress check using the AP's CLI and the command 'show management' to see the Cambium-ID (has the value entered in XMS-Enterprise) Onboarding Key as NOTSET, cnMaestro Status = Approval Pending/Connected.

Cambium ID: Customer_X123X

Onboarding Key: NOTSET

cnMaestro Status: Connected

Cambium ID

Cambium ID: is the cnMaestro customer Account ID

Cambium Key

SET - During initial onboarding authorization the value shows set which means a value is entered for the key, but the onboarding process has not been completed for this AP.

NOTSET - After being Authorized by cnMaestro-X, this value is cleared, as an internal cookie is used for AP validation after initial onboarding.

cnMaestro Status

Connected - Means the AP had previously been claimed in cnMaestro-X and is connected and ready to go.

Approval Pending - Means the AP is communicating to cnMaestro-X and waiting for action to be taken to claim the device in cnMaestro-X

Invalid Cambium-ID - Means the Cambium-ID is incorrect. Use Return APs to Service to pull the APs back to XMS-Enterprise and enter the correct values.

Invalid Onboarding-Key - Means the Onboarding Key is incorrect. Use Return APs to Service to pull the APs back to XMS-Enterprise and enter the correct values.

Invalid Credentials - Means both the Cambium-ID and Onboarding Key are incorrect. Use Return APs to Service to pull the APs back to XMS-Enterprise and enter the correct values.

Unknown Device - Means the Cambium-ID and Onboarding Key were left blank and that the AP has not been Claimed in cnMaestro-X. Use "Return APs to Service" to pull the APs back to Enterprise and enter the correct values.

The values above in italics indicate a problem that needs to be addressed. The best way is to pull the AP back to XMS-Enterprise and enter the correct information.

You should see a display of the success messages from XMS-Enterprise for each of the APs migrated to cnMaestro-X.

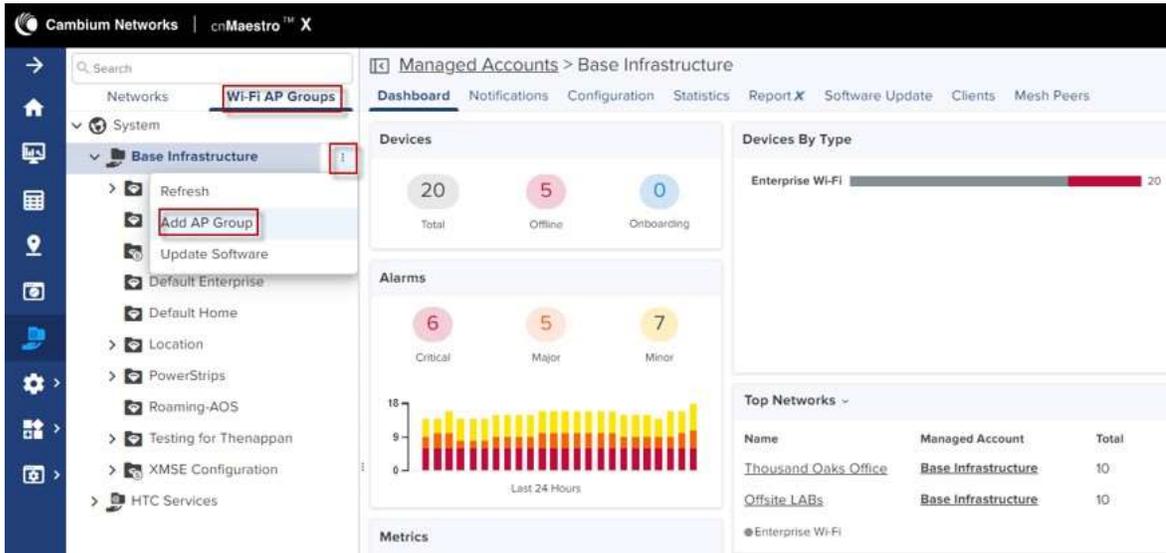
Select Columns

Succeeded: 4

Message	Serial Number	Hostname	Gig1 IP Address	Location
 cnMaestro migration has succeeded.	X30642902EC56	XR620-02EC56-25	172.16.0.25	SQA LAB
 cnMaestro migration has succeeded.	X30744103502C	XR630-03502C-15	172.16.0.15	SQA LAB
 cnMaestro migration has succeeded.	XR0741902AA14	XR630-02AA14-21	172.16.0.21	SQA LAB
 cnMaestro migration has succeeded.	X80672109A8A2	XR620-09A8A2-17	172.16.0.17	SQA LAB

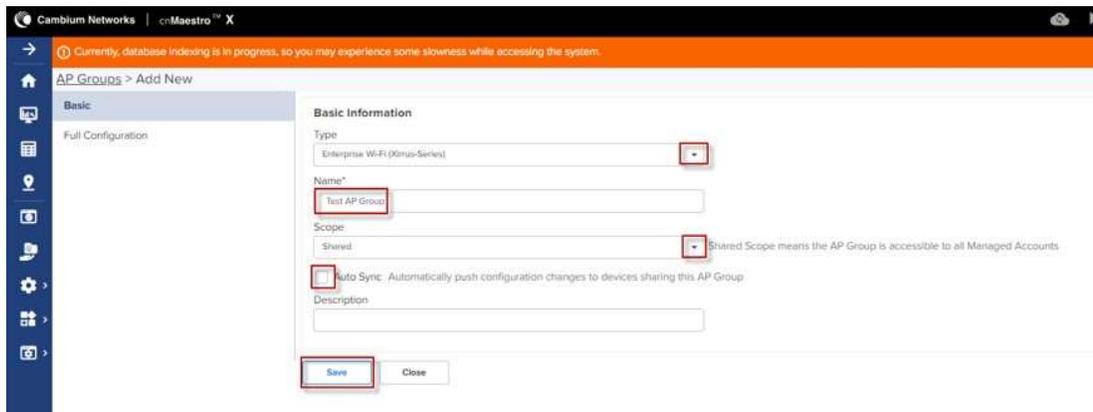
In cnMaestro-X: Create Wi-Fi AP Group - import CLI command file from exported directory.

1. Navigate to Wi-Fi AP Group - Base Network - Right mouse three dots - Select Add AP Group

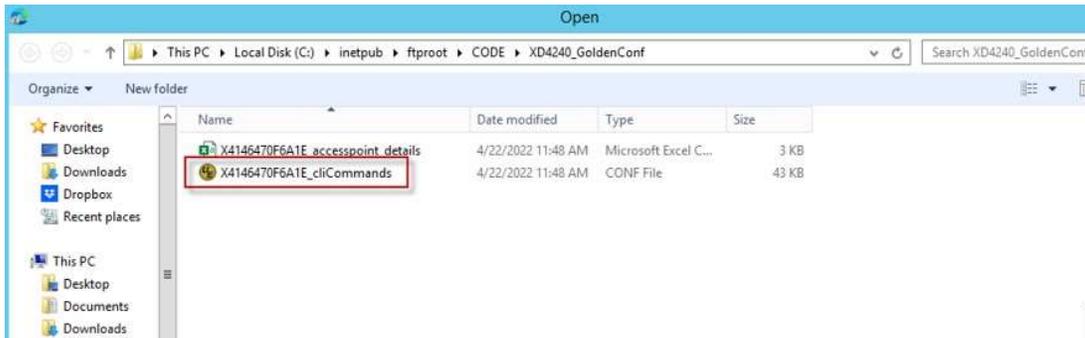
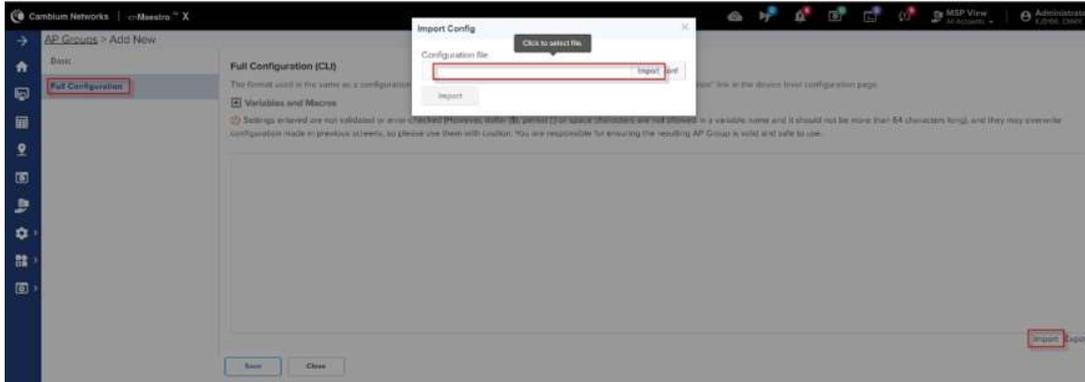


2. Here select the Type as Enterprise Wi-Fi (Xirrus-Series)

- Type in a name for the Wi-Fi AP Group.
- For Scope, select Shared if you want to share this profile in different MSP accounts (this option may not be available if cnMaestro-X is not configured for MSP Support).
- Make sure to un-Check the Auto-Sync button - this will avoid mistakes being pushed before you are ready.
- Select Save or Full Configuration.



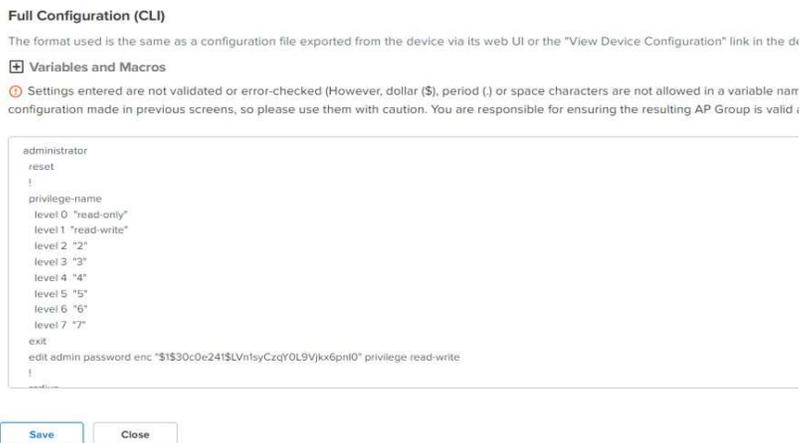
3. In the Full Configuration window select the import function and then select the cliCommands conf file from the unzipped directory.



4. Press the Import button.



5. You should now see the configuration placed into the window. Press the save button.



In cnMaestro-X, Approve APs into Wi-Fi AP Group

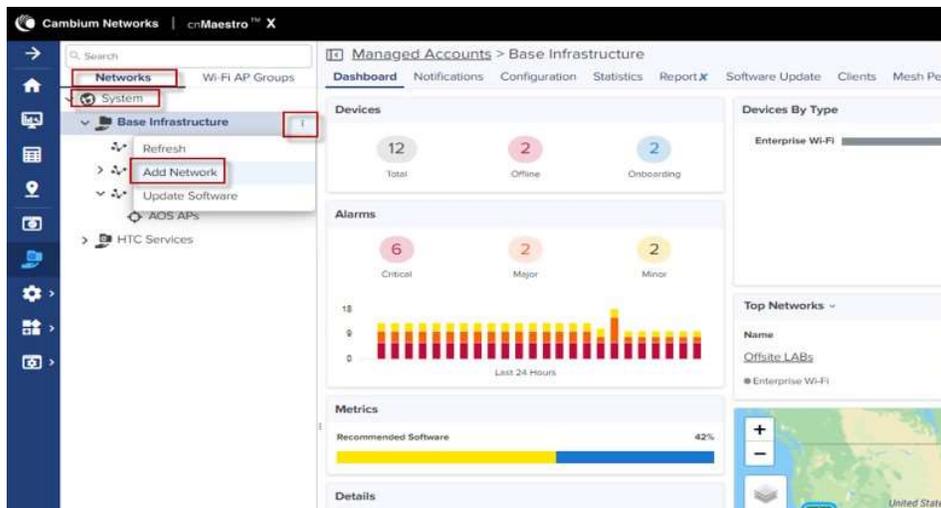
The APs should already be pending approval in cnMaestro-X based on the Migrate APs to cnMaestro-X step above.

There are a couple of options in how to claim APs - Site Claim Device(s) or from Onboarding Page - Approve All and Claim Devices.

- Claim APs from the Site using Bulk MAC method.
- Approve ALL APs from Onboarding page.
- Individually Approving APs from Onboarding page.

Claim APs from the Site using Bulk MAC method

1. Select Networks at the top of the display
2. Select System
3. Select Base Infrastructure
 - Click on Action Menu (three dots) to the right side
4. Add new Network



5. Next Give the Network a name and press the Add button.

Add Network

Managed Account

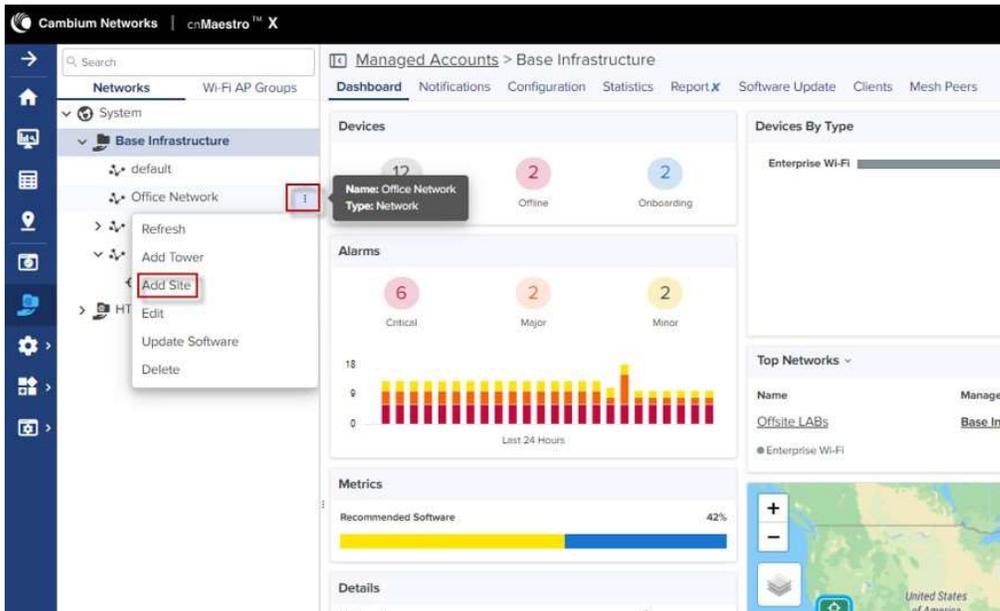
Base Infrastructure

*Name

Office Network

Add Cancel

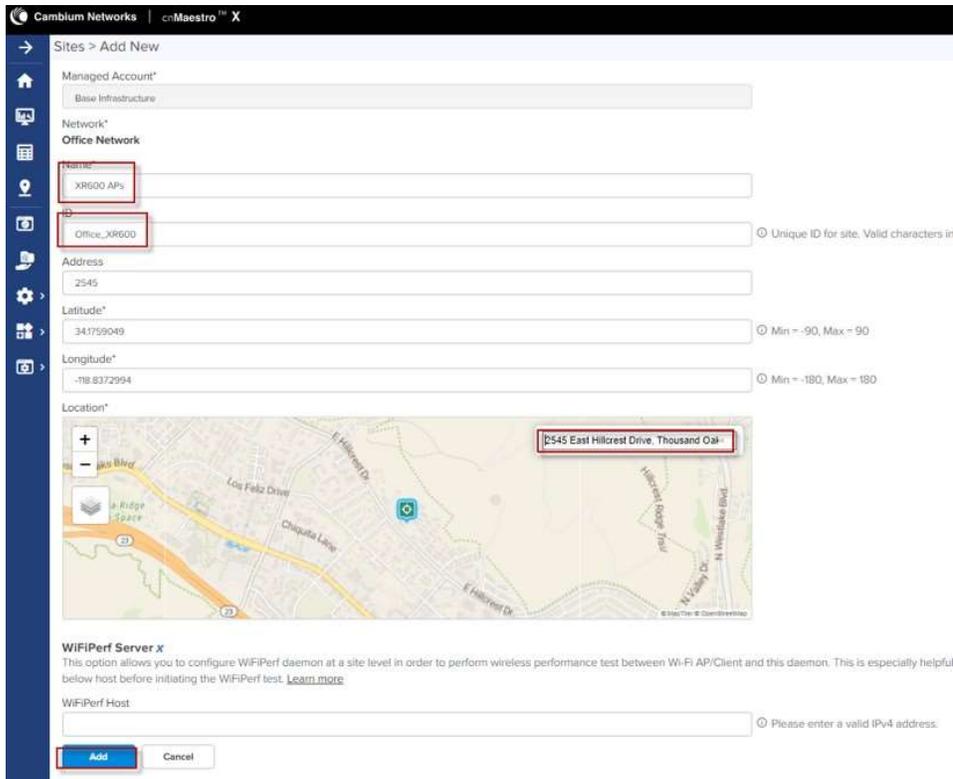
6. Select the Network just created - press the Action menu and add a Site.



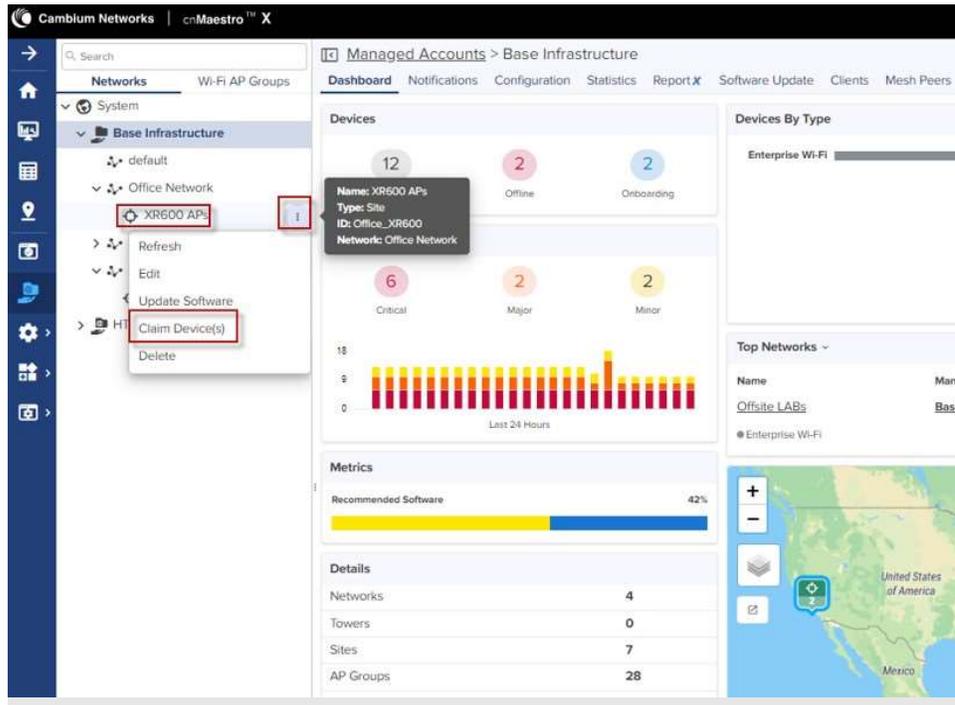
7. Add Name.

ID- this can be anything - Alphanumeric including "_".

Type in the Address in the Location Map field to get the GPS Location Info. Press the Add button at the bottom.



- Select Site and press the Action Menu (three dots). Click Claim Device(s).



- Select the Device Type as Enterprise Wi-Fi (Xirrus-Series).
In the Enterprise (Xirrus-Series) AP Group select the Group you already created.

Claim Wi-Fi Devices ✕

Enter the ESN (Ethernet MAC) of the devices you would like to add to your account (comma-separated or one per line).

Managed Account:

Device Type: ▼

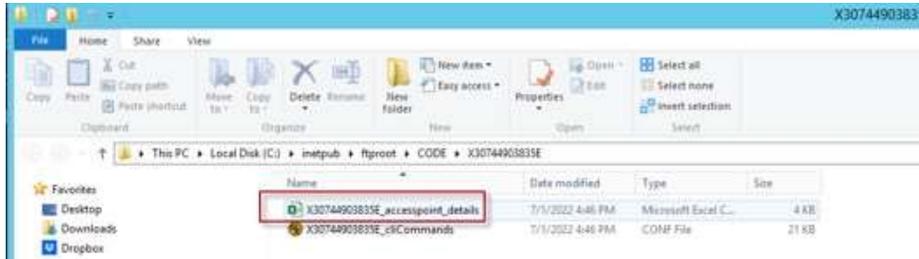
Site: XR600 APs

Enterprise (E-series, XV-series) AP Group: ▼

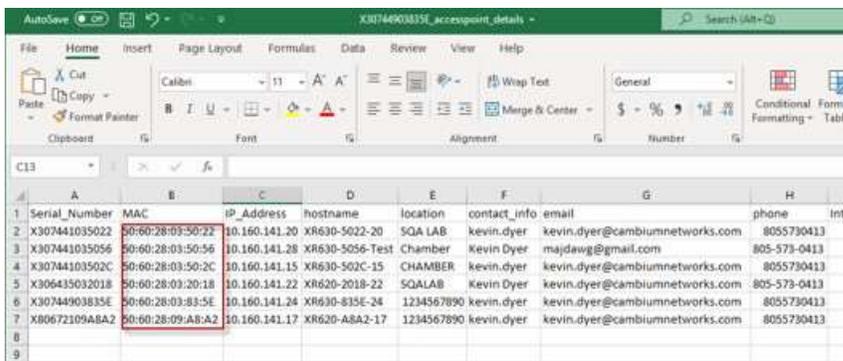
Enterprise (Xirrus-series) AP Group: ▼

Home AP Group: ▼

- Go to the Excel Spreadsheet in the same directory where the CLI Commands file is located (the Unzipped directory).
Select and open the Access Point details file.



- Expand the Excel Columns - Cut the MAC addresses from the file.



- Go back to the Claim Wi-Fi Devices screen and paste the AP MAC addresses into the bottom window.
Press the claim button at the bottom.

Claim Wi-Fi Devices ✕

Enter the ESN (Ethernet MAC) of the devices you would like to add to your account (comma-separated or one per line).

Managed Account:

Device Type:

Site: XR600 APs

Enterprise (E-series, XV-series) AP Group:

Enterprise (Xirus-series) AP Group:

Home AP Group:

50:60:28:03:50:22

50:60:28:03:50:56

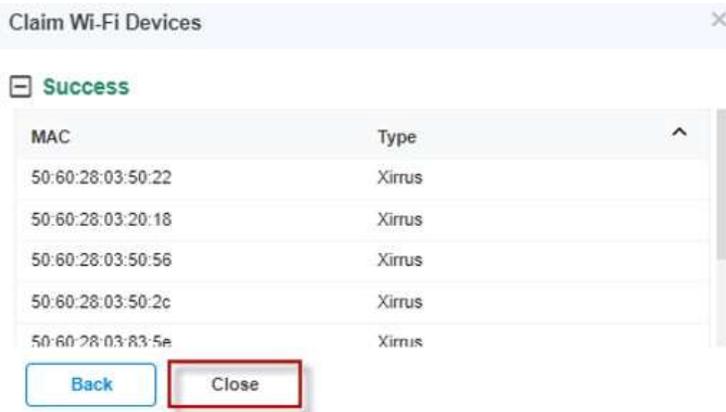
50:60:28:03:50:2C

50:60:28:03:20:18

50:60:28:03:83:5E

50:60:28:09:A8:A2

13. Press the Close button on the Success window.

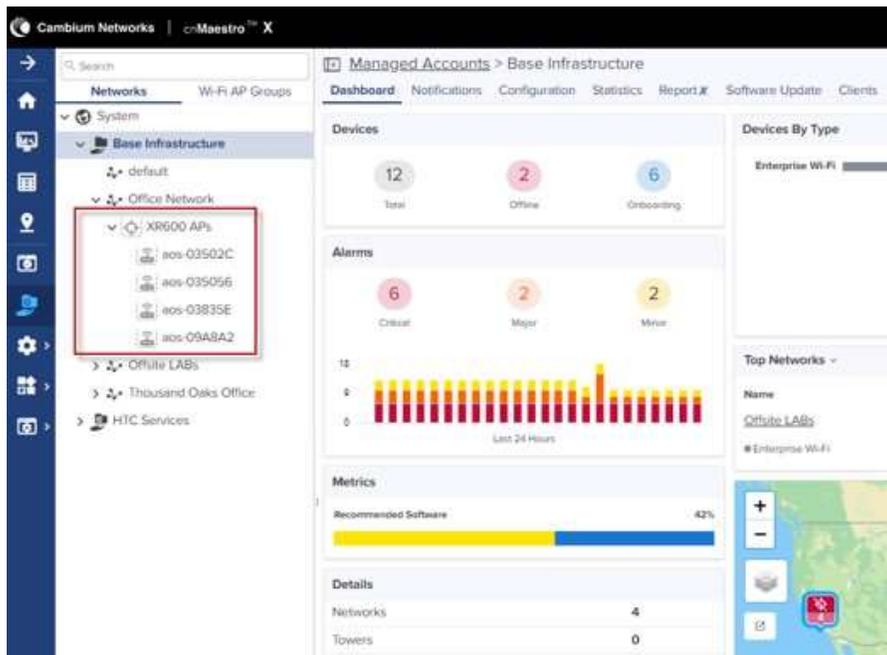


14. Close the Excel Spreadsheet.

The Networks - Site should display the APs that have connected.

If the APs have not been migrated from XMS-Enterprise yet go back to the above steps in the previous section.

The dotted lines and gray icons below indicate that the APs have not migrated to cnMaestro-X yet.



Approve ALL APs from Onboarding page

Navigate to the Onboarding Page and press the Approve ALL button.



Individually Approving APs from Onboarding page

1. Navigate to the Onboarding window

Click on the Icons under Configure tab or Click Approve All at the top of the page.



2. Fill in the necessary information on each tab.

- Details - AP Hostname
- Location - Network - Site
- Configuration - AP Group Then press the Save button

Edit Device Configuration: XR630-5022-20

Details Location Update Configure

Basic Details

Serial Number
X307441035022

MAC
50:60:28:03:50:22

Device Name
XR630-5022-20

Description

Save Cancel

Edit Device Configuration: XR630-5022-20

Details | **Location** | Update | Configure

Configure Device Location

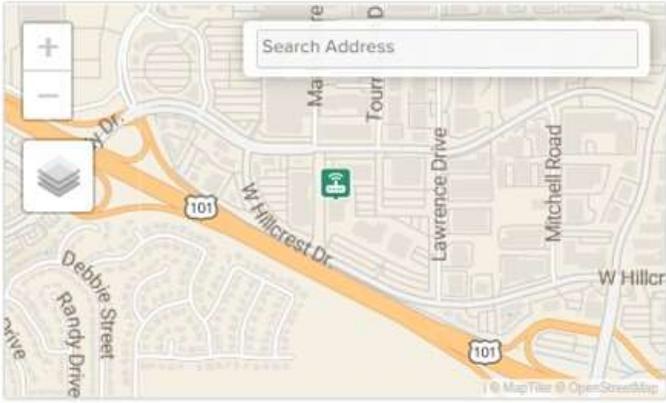
Managed Account
Base Infrastructure

Network
Thousand Oaks Office

Site
Testing_for_...

Latitude ⓘ Min = -90, Max = 90
34.18873689999999

Longitude ⓘ Min = -180, Max = 180
-118.9326911



Save | Cancel

Edit Device Configuration: XR630-5022-20

Details | Location | Update | **Configure**

AP Group
Test AP Group

Configuration Variables (Advanced)

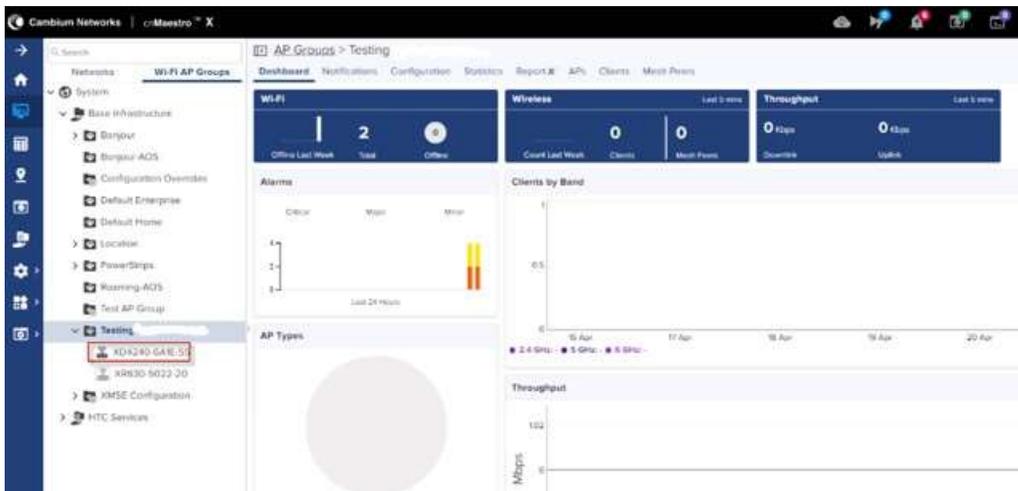
Save | Cancel

- When you are dropped back to the Onboarding Page, press the Approval All button at the top or you can select the Approve button per AP.

Type	AP Name	Color	MAC	IP Address	Power P	Managed Account	Added By	Status	Location	Priority
Enterprise-Wi-Fi Group 5	NR	Red	000000000000	192.168.1.1	5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Enterprise-Wi-Fi Group 5	NR	Red	000000000000	192.168.1.2	5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Enterprise-Wi-Fi Group 5	NR	Red	000000000000	192.168.1.3	5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Wi-Fi AP	XR1290-64AE-55	Black	000000000000	192.168.1.20	12.5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Wi-Fi AP	XR1290-64AE-55	Black	000000000000	192.168.1.21	12.5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Wi-Fi AP	XR1290-64AE-55	Black	000000000000	192.168.1.22	12.5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Wi-Fi AP	XR1290-64AE-55	Black	000000000000	192.168.1.23	12.5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Wi-Fi AP	XR1290-64AE-55	Black	000000000000	192.168.1.24	12.5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Wi-Fi AP	XR1290-64AE-55	Black	000000000000	192.168.1.25	12.5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Wi-Fi AP	XR1290-64AE-55	Black	000000000000	192.168.1.26	12.5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Wi-Fi AP	XR1290-64AE-55	Black	000000000000	192.168.1.27	12.5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Wi-Fi AP	XR1290-64AE-55	Black	000000000000	192.168.1.28	12.5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Wi-Fi AP	XR1290-64AE-55	Black	000000000000	192.168.1.29	12.5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High
Wi-Fi AP	XR1290-64AE-55	Black	000000000000	192.168.1.30	12.5W	Base Infrastructure	Administrator	Ready for Device	Thousand Oaks Office	High

In cnMaestro-X, Import AP configuration via .csv file from exported directory

- Once the APs name are black and not gray, they are ready for more than the basic configuration.



- Wi-Fi AP Group > Select Group > APs > AP Configuration - Check All APs to configure Press Configure.

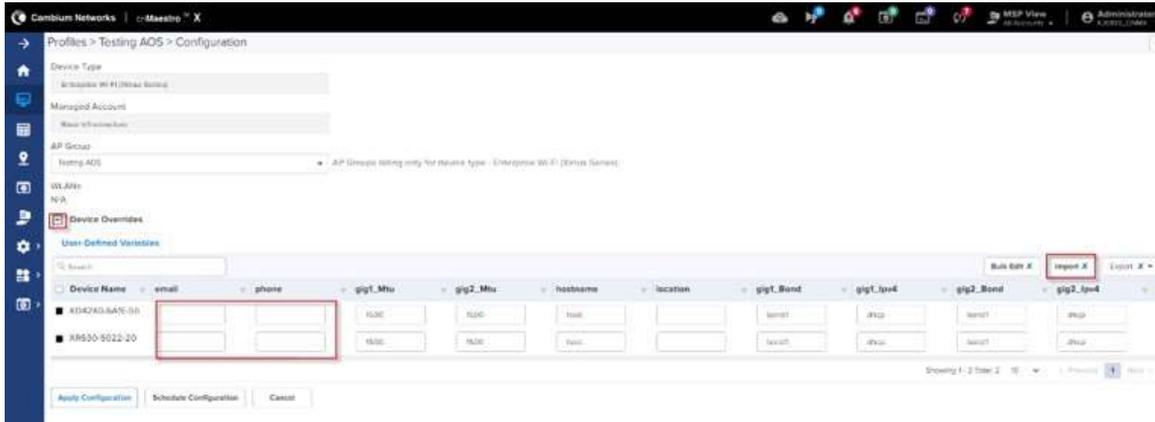
Device	Managed Account	AP Group	Status	Sync Status	Network	Tower/Site
XR1290-64AE-55	Base Infrastructure	Testing	Online	In Sync	Thousand Oaks Office	Testing
XR1290-64AE-55	Base Infrastructure	Testing	Online	In Sync	Thousand Oaks Office	Testing

- Expand Device Override.

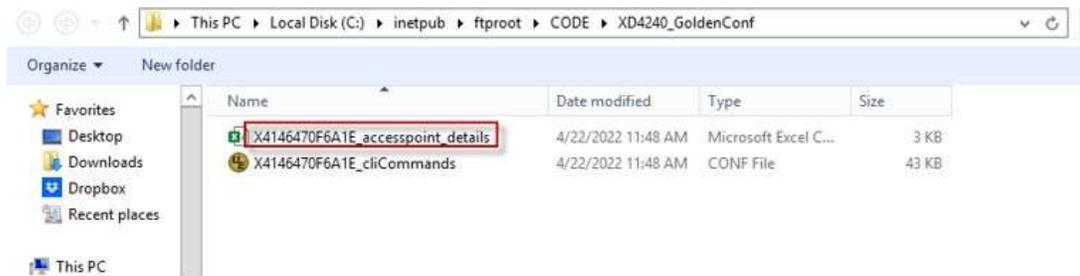
Check AP boxes.

Press the Import button.

Notice the email and phone are empty - this data will be pulled in from the .csv file.

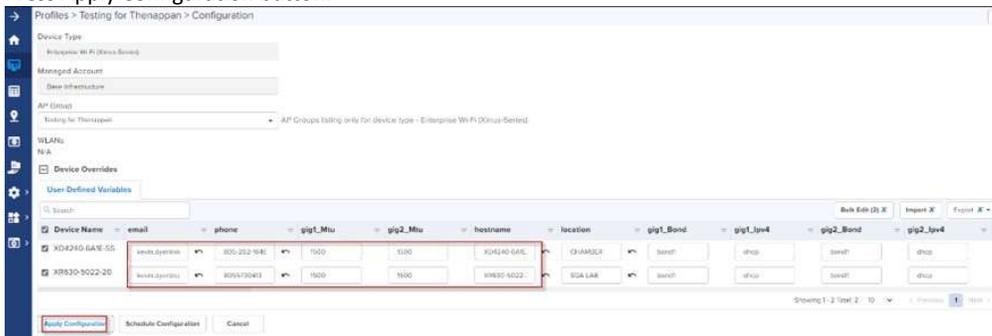


4. Select the .csv import file from the unzipped directory folder and press the Apply button.



5. Now all the configuration values from the .csv file will be populated for each AP and notice here the data has been filled into the form.

Press Apply Configuration button.



In cnMaestro-X, Apply AP Configuration

Apply Configuration ✕

Stop update on critical error

Devices to update in parallel (1-500)

Notes

Apply Configuration to 2 device(s) Cancel

1. Now the APs will be getting their complete configurations including all their IAP settings.

The screenshot shows the 'APs' section of the cnMaestro-X interface. The 'Device Type' is set to 'Enterprise Wi-Fi (Xirrus-Series)'. A table lists two devices: XD4240-6A1E-55 and XR630-5022-20. Both are 'Online' but their 'Sync Status' is 'Not In Sync', which is highlighted with a red box.

Device	Managed Account	AP Group	Status	Sync Status
<input type="checkbox"/> XD4240-6A1E-55	Base Infrastructure	Testing ...	Online	Not In Sync
<input type="checkbox"/> XR630-5022-20	Base Infrastructure	Testing ...	Online	Not In Sync

2. Once the APs have been completely configured this value will be changed to In Sync. Sometimes you must refresh the page by moving away and then back to see this change.

The screenshot shows the same 'APs' section after configuration. The 'Sync Status' for the first device, XD4240-6A1E-55, has changed to 'In Sync' and is highlighted with a red box. The second device, XR630-5022-20, remains 'Not In Sync'. The 'AP Group' is now 'Testing AOS'.

Device	Managed Account	AP Group	Status	Sync Status	Network	Tower/Site
<input type="checkbox"/> XD4240-6A1E-55	Base Infrastructure	Testing AOS	Online	In Sync	Thousand Oaks Office	Testing_for_Thenappan
<input type="checkbox"/> XR630-5022-20	Base Infrastructure	Testing AOS	Online	Not In Sync	Thousand Oaks Office	Testing_for_Thenappan

Best Practices

Network DHCP/DNS Changes

There are several ways cnMaestro-X can onboard an AOS AP to the system.

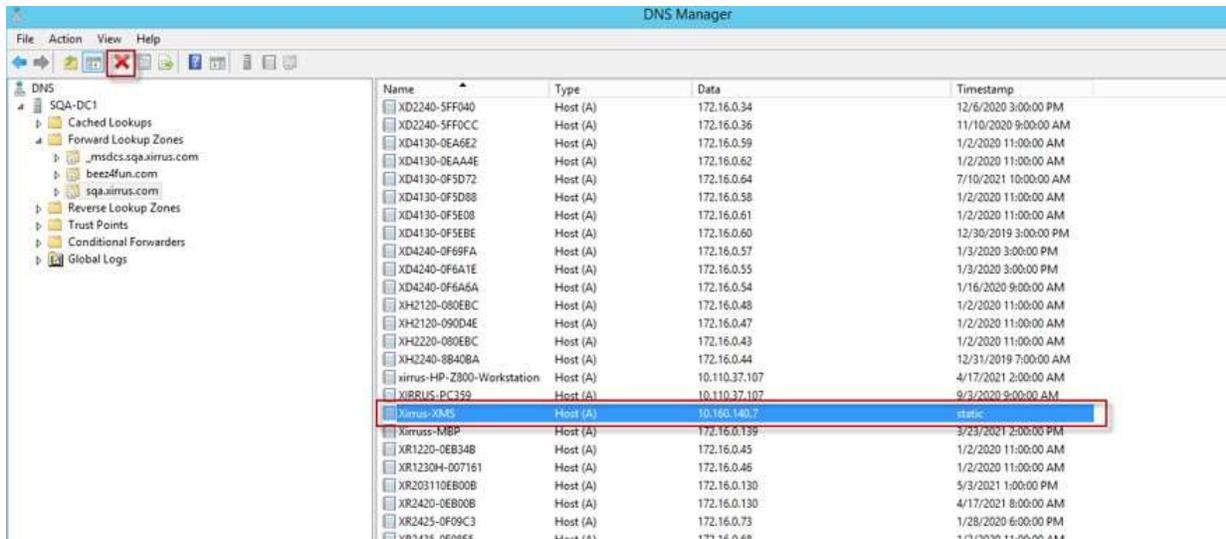
1. You can define DHCP Option 15 (Domain Name).
2. You can define DHCP Option 43 (Vendor Specific) with the URL for cnmaestro on-prem Server.
3. You can claim an AOS AP by using its Ethernet MAC Address, if you are not using DHCP, and have defined static IP configurations on the APs.
4. In this example DHCP Option 15 and 43 are defined.

Option 15 = `sqa.xirrus.com`

Option 43 = `https://cnmaestro.sqa.xirrus.com`

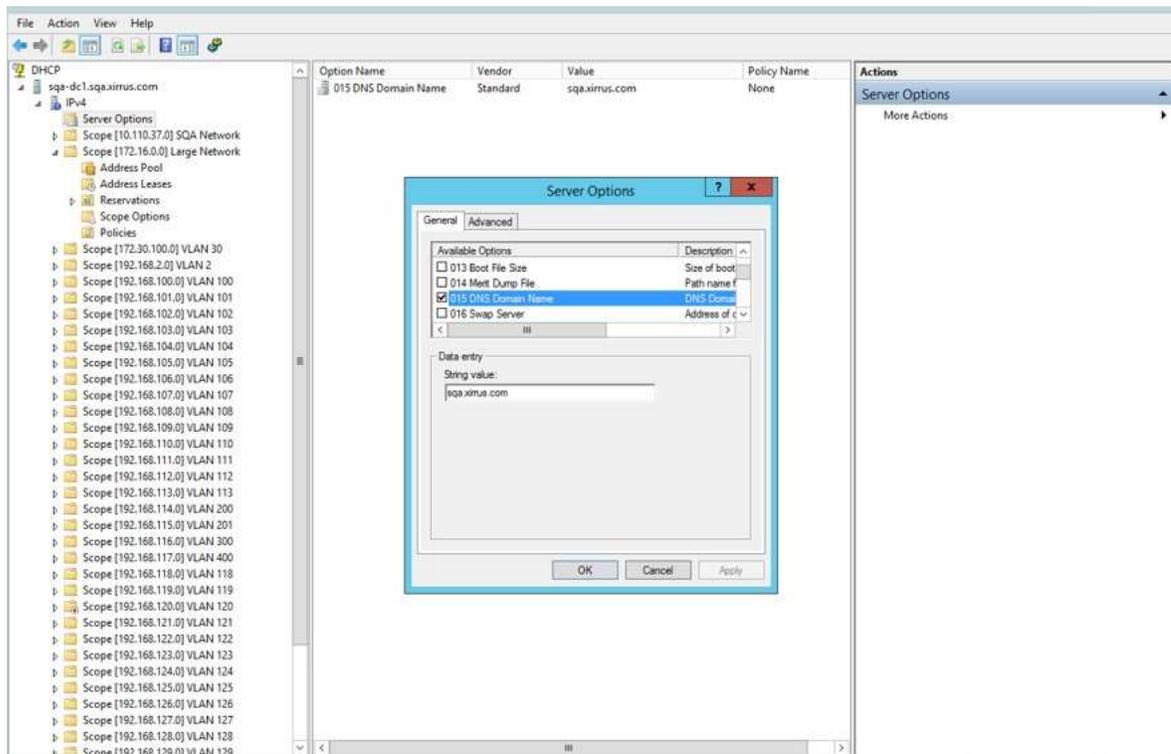
DNS Server - Add cnmaestro as Host (not cnmaestro-x)

DNS Server - Remove the Xirrus-XMS from DNS Server - this change may take time depending on the DNS record update time.

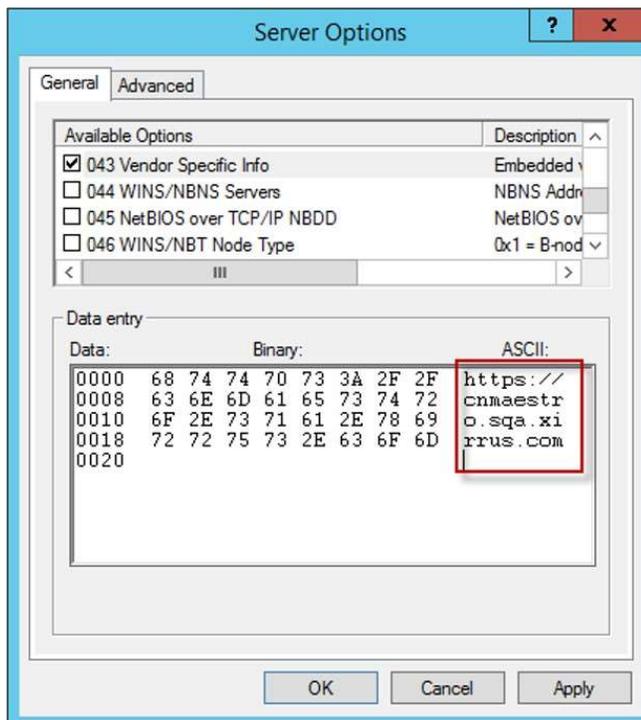


DHCP Sever - AP Scope

1. Make sure DNS Option 15 (DNS Domain Name) is defined (example - sqa.xirrus.com).



2. Add DNS Option 43 (Vendor Specific) if required - URL example - <https://cnmaestro.sqa.xirrus.com> - type in the value in the ASCII section of the display.



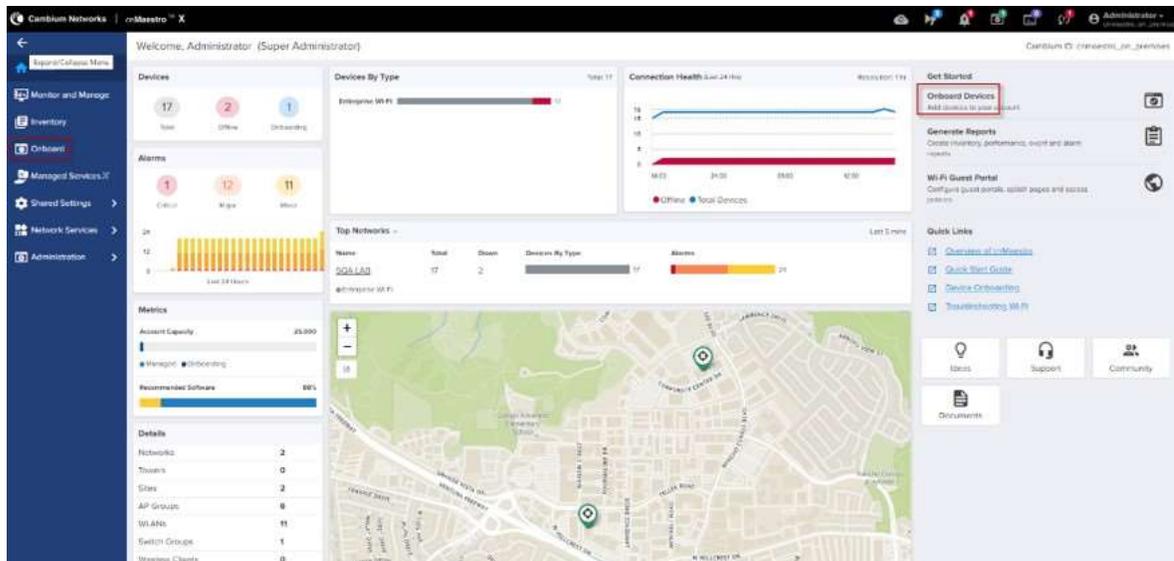
Configuring Xirrus AOS APs in cnMaestro-X

This section is being written to help with the Xirrus AOS AP configuration via cnMaestro-X. This section assumes the reader has already followed the XMS-Enterprise to cnMaestro-X Migration from the previous section and all APs have been successfully moved to cnMaestro-X. If not, the previous section must be followed before Xirrus AOS APs that have previously been part of XMS-Enterprise deployment will be able to be configured using the following steps. This section does not cover the installation or basic setup of cnMaestro-X so please refer to the cnMaestro User Guide for that information.

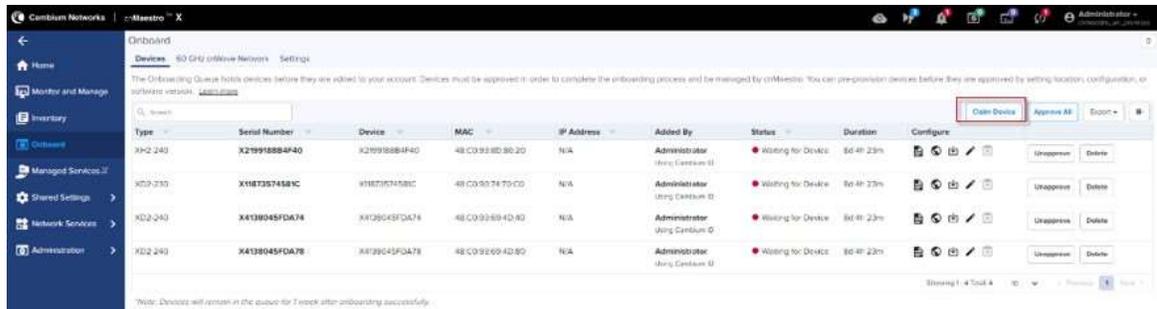
Onboarding Configuration

When the AP first connects to cnMaestro-X it will have to be Onboarded. This process includes some basic AP management and configuration that can be performed.

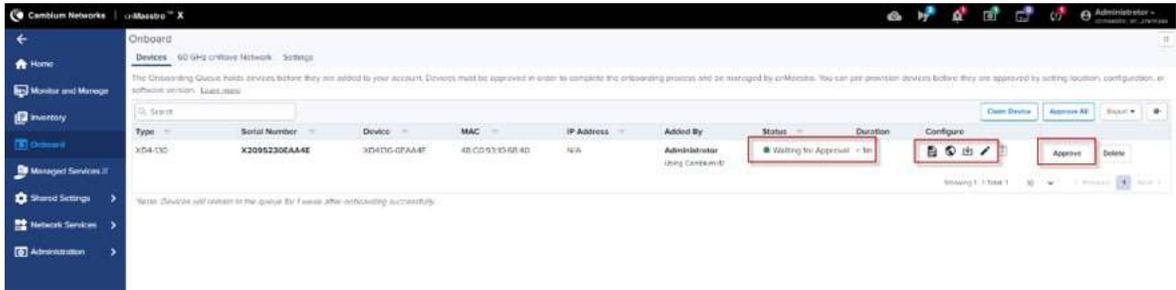
1. From cnMaestro-X, select the Onboarding link from either the left-hand side Onboard icon or from the Device Onboarding link on the right side of the Dashboard.



2. In the Onboard page, if the AP has not joined and is not waiting to be approved, you might have to use the Claim button and add the AP via its GIG1 MAC address. (This is currently using the first radio MAC address) - Claiming the AP will be covered in another section.



- If the AP is sitting in the list with the Waiting Approval button, then continue. Here you have an AP that has found cnMaestro-X and is waiting for the Administrator to approve it onto the network. The Configuration icons allow the Administrator to setup basic AP information before it is placed into the Site management.



- Clicking on the first configuration icon gives you the ability to set the following AP configuration items.

Device Name and Description.

Edit Device Configuration: XD4130-0EAA4E ✕

Details
Location
Update
Configure

Basic Details

Serial Number

X2095230EAA4E

MAC

48:C0:93:10:68:40

Device Name

Description

Save
Cancel

- You can also configure the Location, Update, and Configuration from here without having to use

the other Icons  , software update,  , or configure  .

Edit Device Configuration: XD4130-0EAA4E

Details Location Update Configure

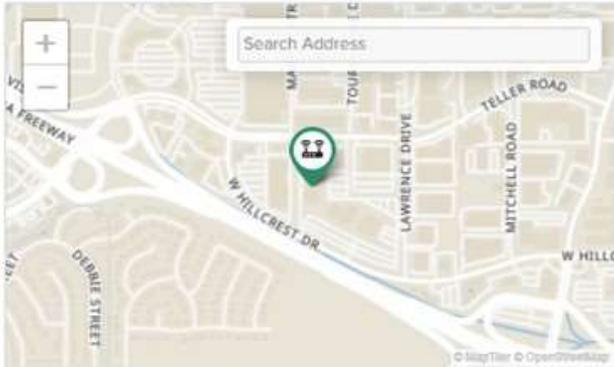
Configure Device Location

Network
SQA LAB

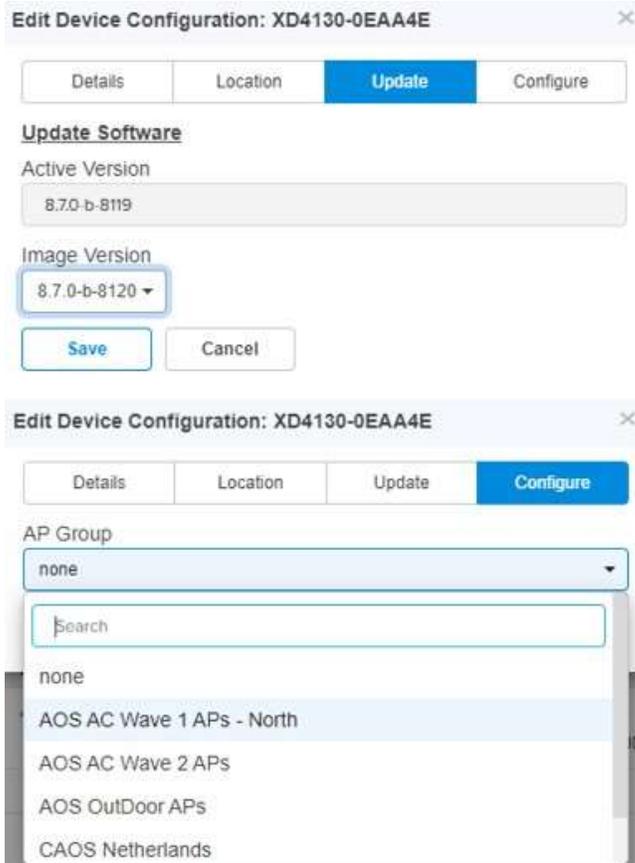
Site
Thousand Oaks Office - SQA Lab

Latitude Min = -90, Max = 90
34.18873689999999

Longitude Min = -180, Max = 180
-118.9326911



Save Cancel



Location (Network and Site), Software Update (Image Version), and Configuration (AP Groups) must have already been setup before they can be used in this process.

6. In the Configure - AP Group - if an AP Group has been setup previously and is selected here additional configuration information may be required or recommended, this is dependent on the AP Group type that has been created. The following is an example of other parts of the AP configuration that may be configured here. Radio and Location information, cnMaestro VLAN, Other VLANs, and WLANs (SSIDs) may be available to be configured.

Edit Device Configuration: XD4130-0EAA4E

Details Location Update **Configure**

AP Group
AOS AC Wave 1 APs - North

Advanced Settings

Radio and Location cnMaestro VLAN Other VLANs WLANs

Override	Field Name	Value	Default Value
<input type="checkbox"/>	Location		
<input type="checkbox"/>	Placement	<input type="radio"/> Indoor <input type="radio"/> Outdoor	profiles.texts.
<input type="checkbox"/>	Radio 1 (2.4 GHz)	<input type="radio"/> Enabled <input type="radio"/> Disabled	Enabled
<input type="checkbox"/>	Radio 2 (5 GHz)	<input type="radio"/> Enabled <input type="radio"/> Disabled	Enabled

Radio 1 (2.4 GHz)

Override	Field Name	Value	Default Value
<input type="checkbox"/>	Channel		
<input type="checkbox"/>	Transmit Power		

Radio 2 (5 GHz)

Override	Field Name	Value	Default Value
<input type="checkbox"/>	Channel		
<input type="checkbox"/>	Transmit Power		

Save Cancel

- Once you have completed the initial AP configuration, the icons will turn green if successful, or red if not successful. Next press the Approve button.

Cambium Networks | Maestro X

Onboard

Devices: 60 GHz or Wave Network Settings

The Onboarding Queue holds devices before they are added to your account. Devices must be approved in order to complete the onboarding process and be managed by cnMaestro. You can pre-approve devices before they are approved for setting location, configuration, or software version. [Learn more](#)

Type	Serial Number	Device	MAC	IP Address	Added By	Status	Duration	Configure	Approve	Delete
XD4-50	X20952306AA4E	XD4130-0EAA4E	48 CC 93 1D BE 8D	N/A	Administrator (Using Cambium ID)	Waiting for Approval	00:01:12m			

Note: Devices will remain in the queue for 1 week after onboarding successfully.

- Upon completion of the last step, the AP should successfully pass this configuration/upgrade processing and will then be onboarded to cnMaestro-X.
- If you get Errors, then you can use the Summary link to identify which section had issue.

Onboarding Summary ✕

Basic Summary Details

Status: ✔

Device Type: XD4-130

Serial Number: X2095230EAA4E

MAC: 48:C0:93:10:68:40

Device Name: XD4130-0EAA4E

Force Onboard: No

Description: In RF Cage #1

Software Update

Status: ✔ Software Update Successful

Current Version: 8.7.0-b-8120

Device Location

Status: ✔ Location obtained from device

Network: SQA LAB

Site: Thousand Oaks Office - SQA Lab

Latitude: 34.18873689999999

Longitude: -118.9326911

+
-

© MapTiler © OpenStreetMap

Configuration

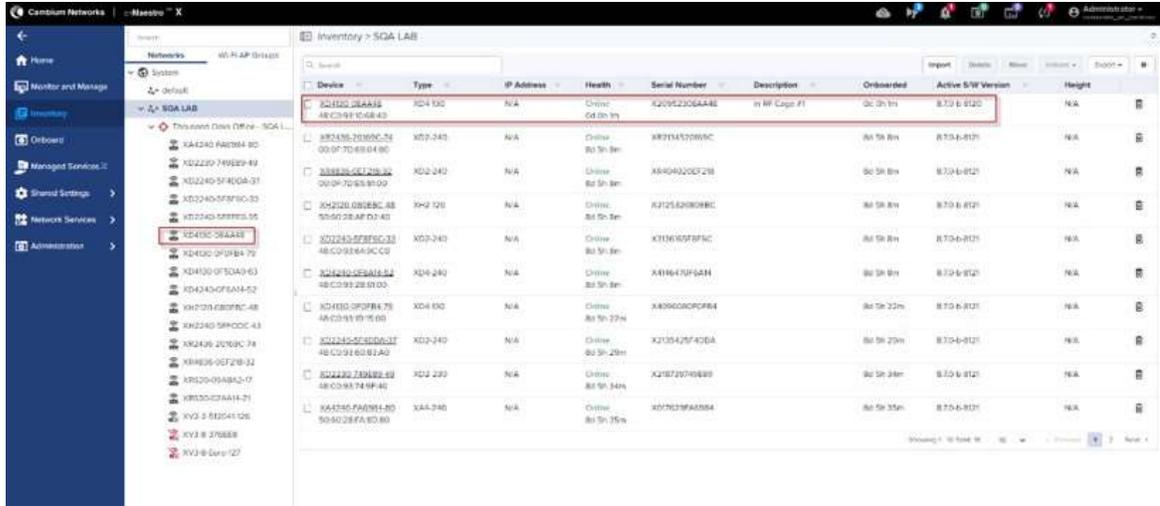
Status: ✘ Device got timed out during config push.

Name: AOS AC Wave 1 APs - North

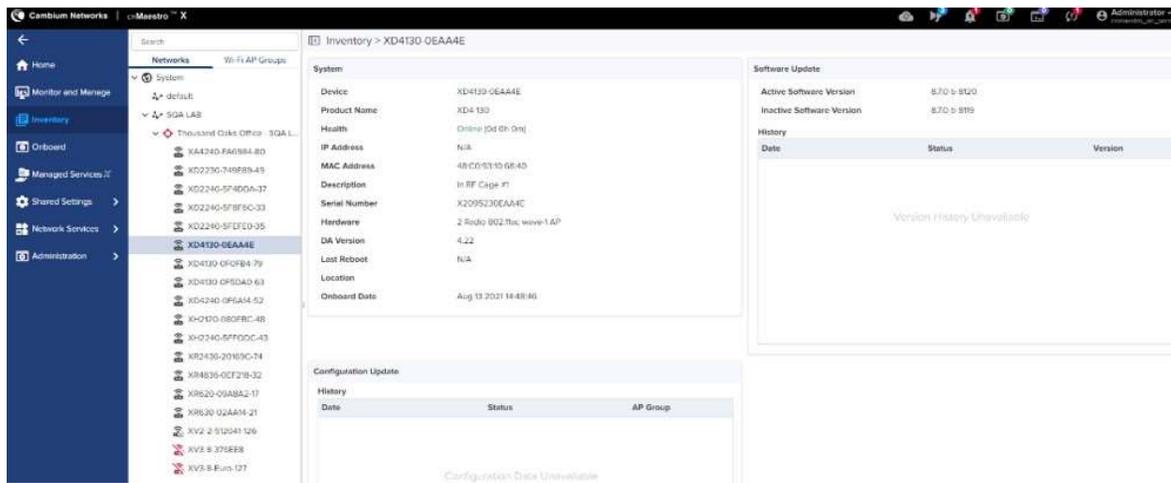
Variables

Key	Value

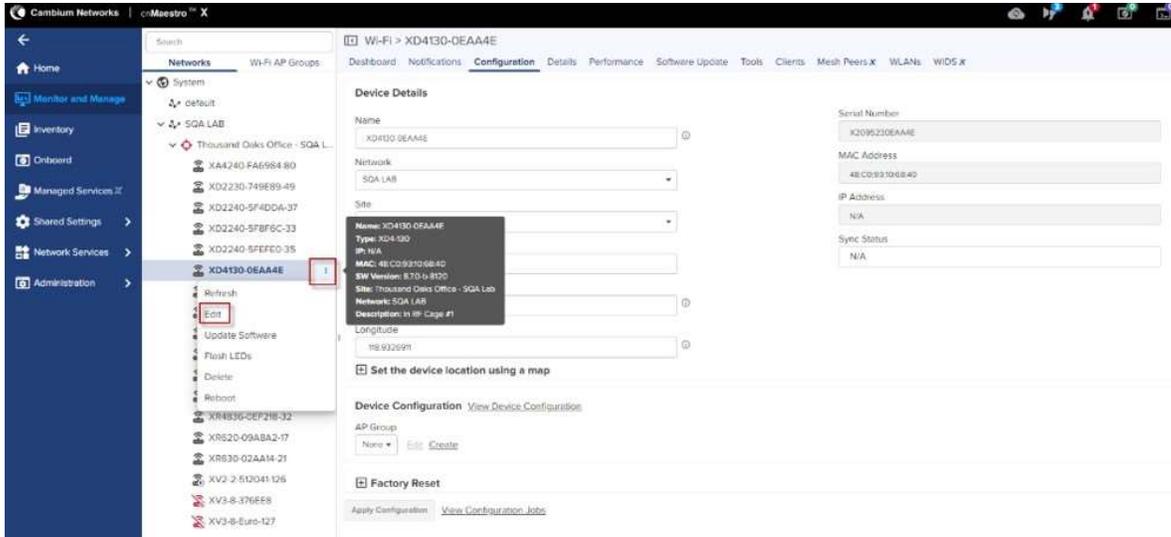
10. Open the Inventory section and validate the AP has been put into the correct Network, Site, and Wi-Fi Group.



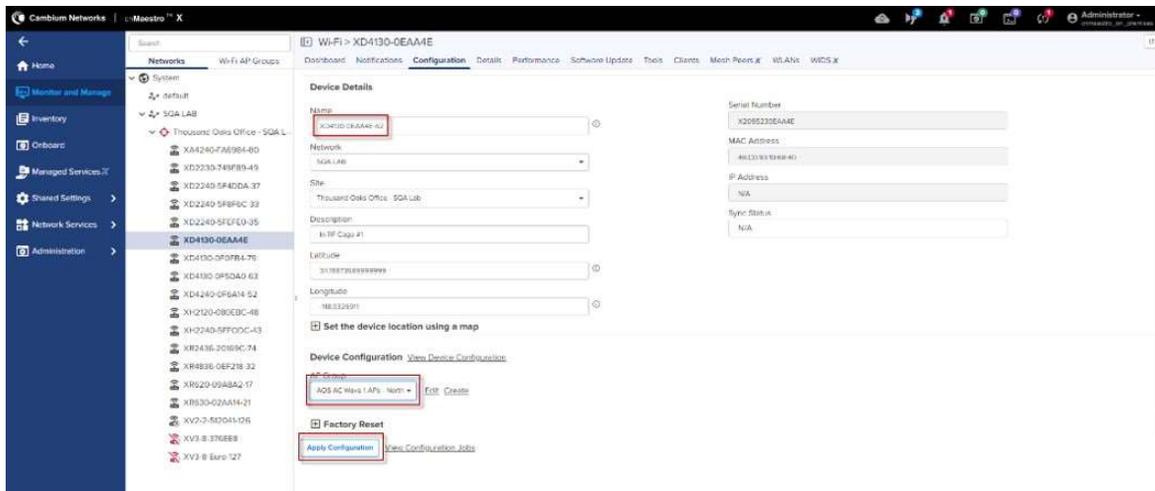
Clicking the AP will display the information that cnMaestro-X could retrieve from the AP.



11. To Edit AP configuration information from this screen Right click on the 3 dots to the right the AP name.



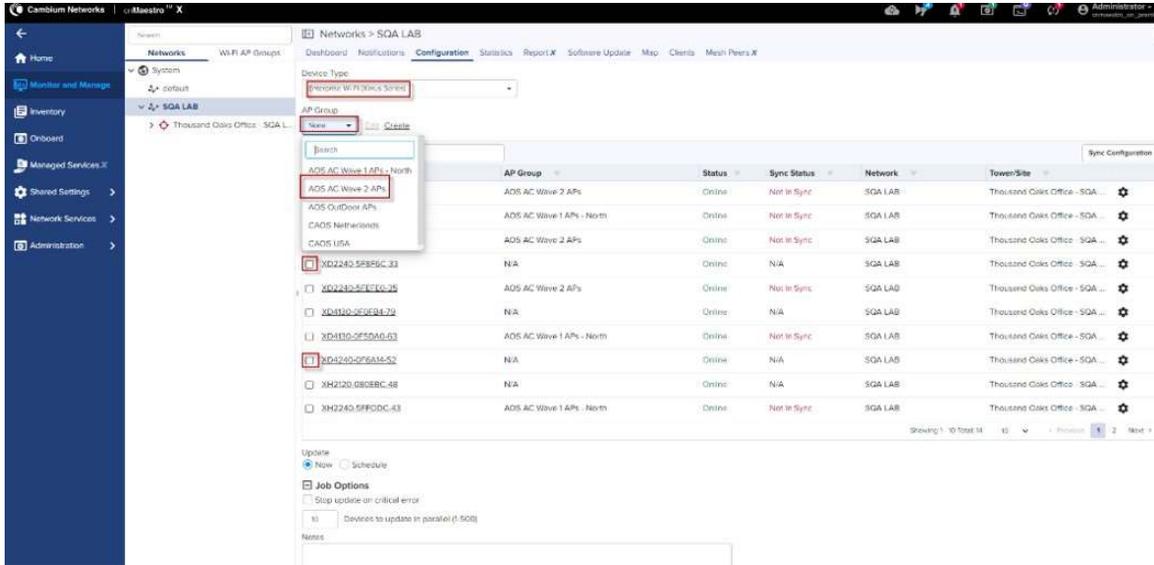
12. This AP was not placed into the correct Wi-Fi Group, so I have decided to add the IP to the end of the Device name (62), and selected the Wi-Fi Group, then press the Apply Configuration button.
- 13.



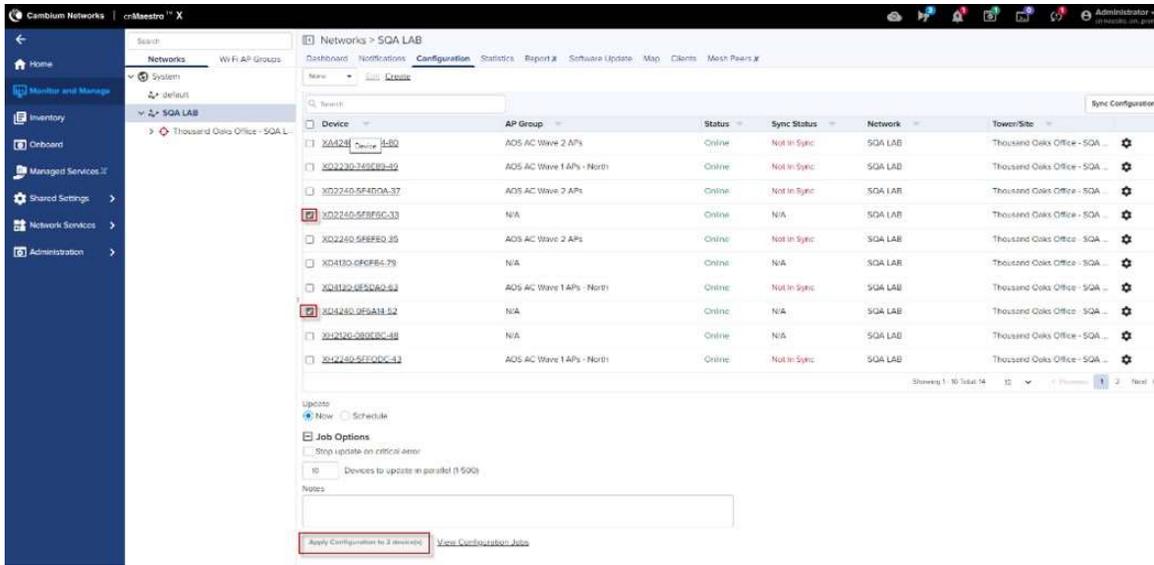
Network AP Configuration

This section allows the administrator to select the Devices by Type and select APs to assign to AP Groups from the list.

1. Select Device Type - Enterprise Wi-Fi (Xirrus Series), AP Group - AOS AC Wave 2 APs, then from the list select APs not currently in an AP Group.

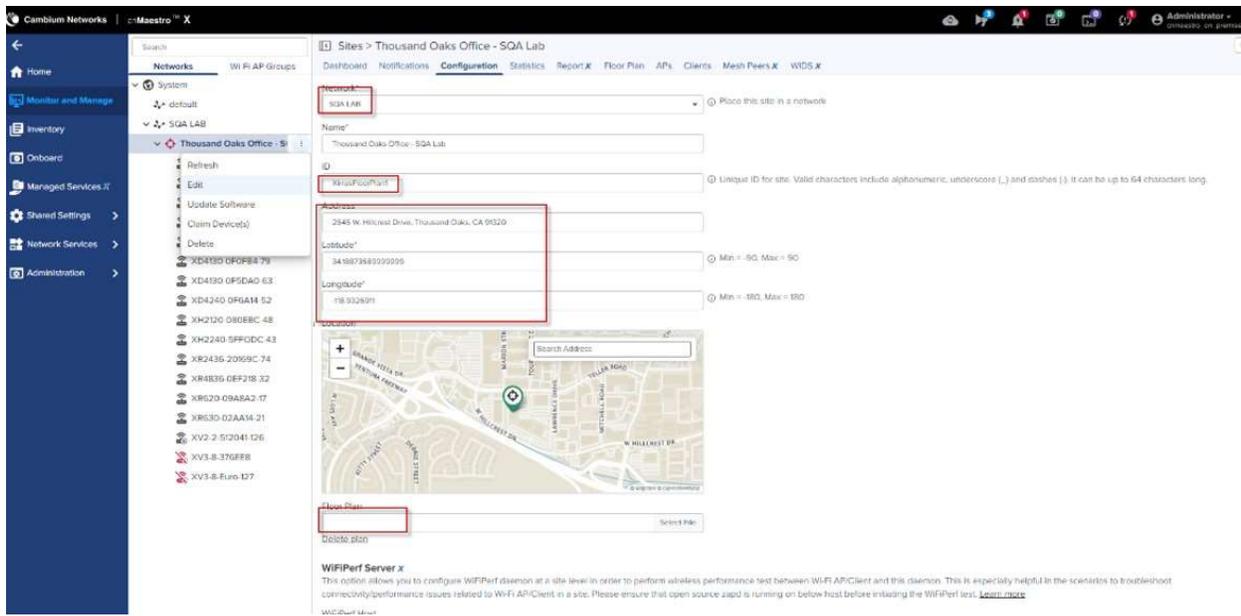


2. Don't forget to press the Apply Configuration at the bottom of the page for the number of device(s) you have selected.



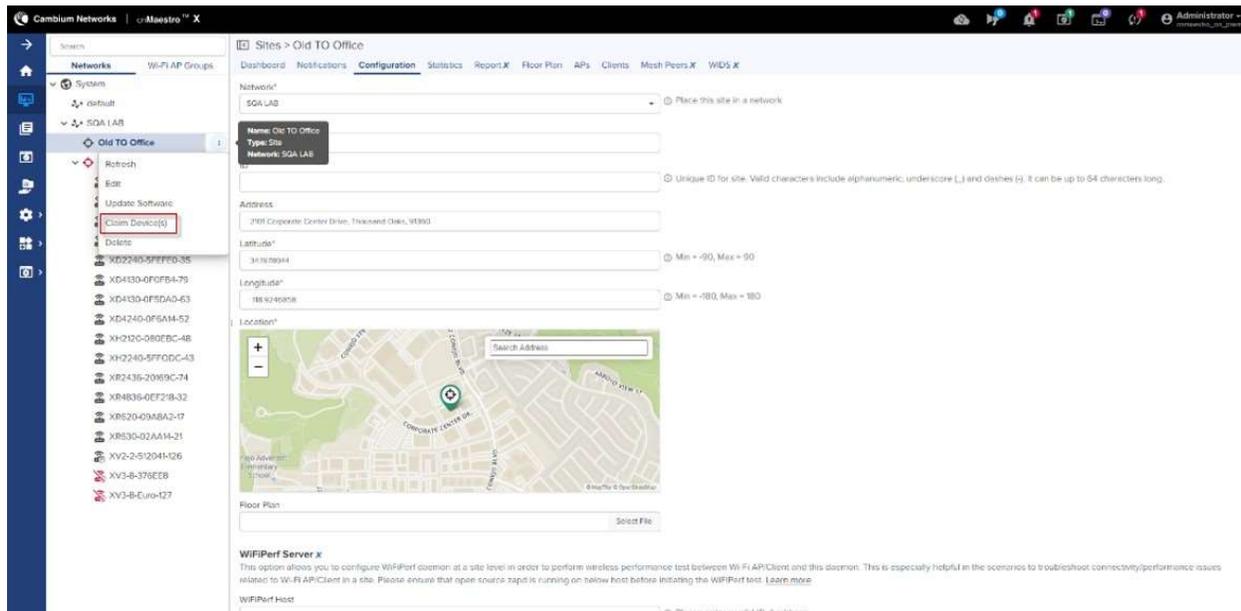
Site AP Configuration

Once the AP has been onboarded and is now part of a cnMaestro-X, the Site configuration pieces, like the Network, Floor Plan ID, Site Address - Longitude/Latitude can be configured here.



Make sure to save at the bottom of the page for any changes made here.

Multiple Site can be defined, and APs can be moved from Site to Site simply by using the Claim Device(s) from the Site Menu.



From the device window select the Device type/Enterprise Group/Home AP Group and then enter the GIG1 MAC Addresses of the APs.

Claim Enterprise Wi-Fi Devices
✕

Enter the ESN (Ethernet MAC) of the devices you would like to add to your account.
(comma-separated or one per line).

Managed Account: Base Infrastructure

Device Type
Enterprise Wi-Fi (Xirrus-Series) ▼

Network
Office Network ▼

Site
XR600 APs ▼

Enterprise (Xirrus-series) AP Group
XR-600 APs

48:c0:93:00:12:34

Import .csv

Claim Devices
Cancel
Clear

Make sure to press the Claim Devices button at the bottom of the page.

If the claim is successful, you should see a window like this pop up. Press the Close Button.

Claim Wi-Fi Devices
✕

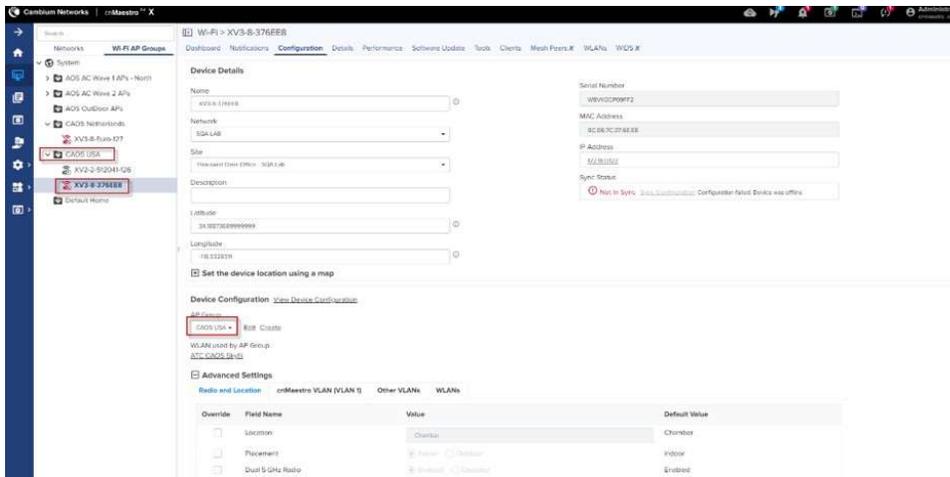
Success

MAC	Type
bc:e6:7c:37:6e:e8	Enterprise Wi-Fi (XV-Series)

Info: 1 MAC(s) already claimed. Please onboard these devices, if not onboarded yet.

Back
Close

From the Wi-Fi AP Groups list for CAOS USA you will now see the AP listed.

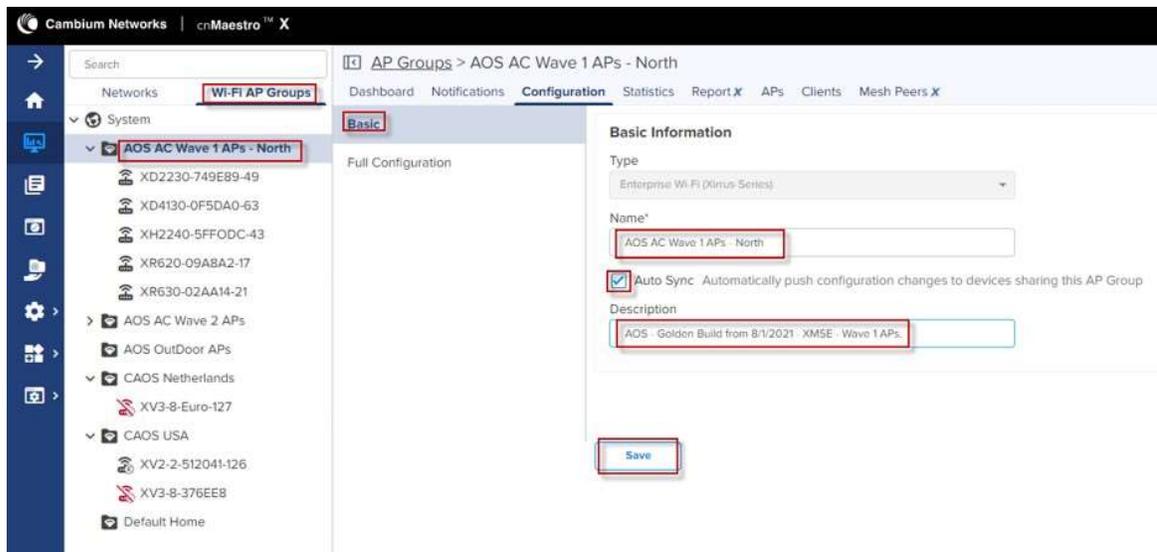


Exporting / Importing XMS-Enterprise Golden Configuration

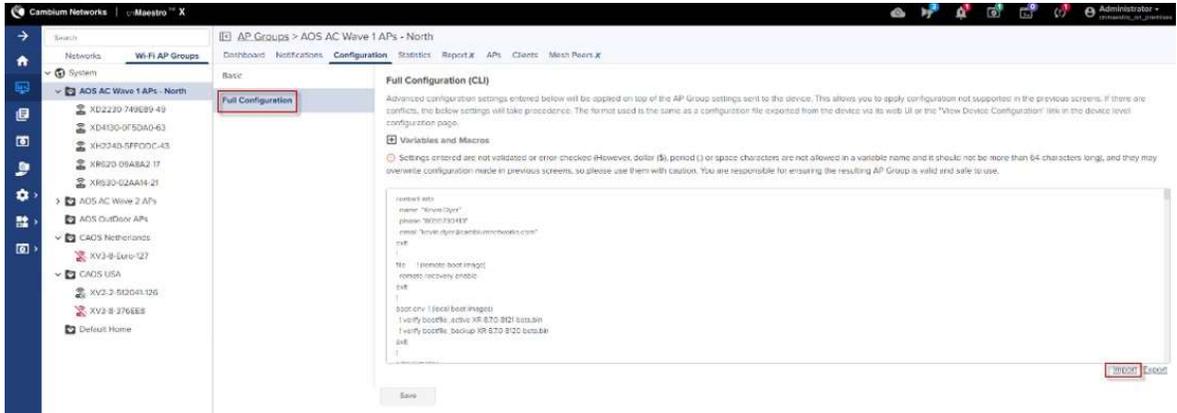
This section is more about the exporting and importing of configurations, based on the AP configuration when it was part of XMS-Enterprise.

Exporting Golden Builds from XMS-Enterprise was covered in the XMS-Enterprise to cnMaestro-X migration documentation. This section assumes you already have a saved AP configuration.

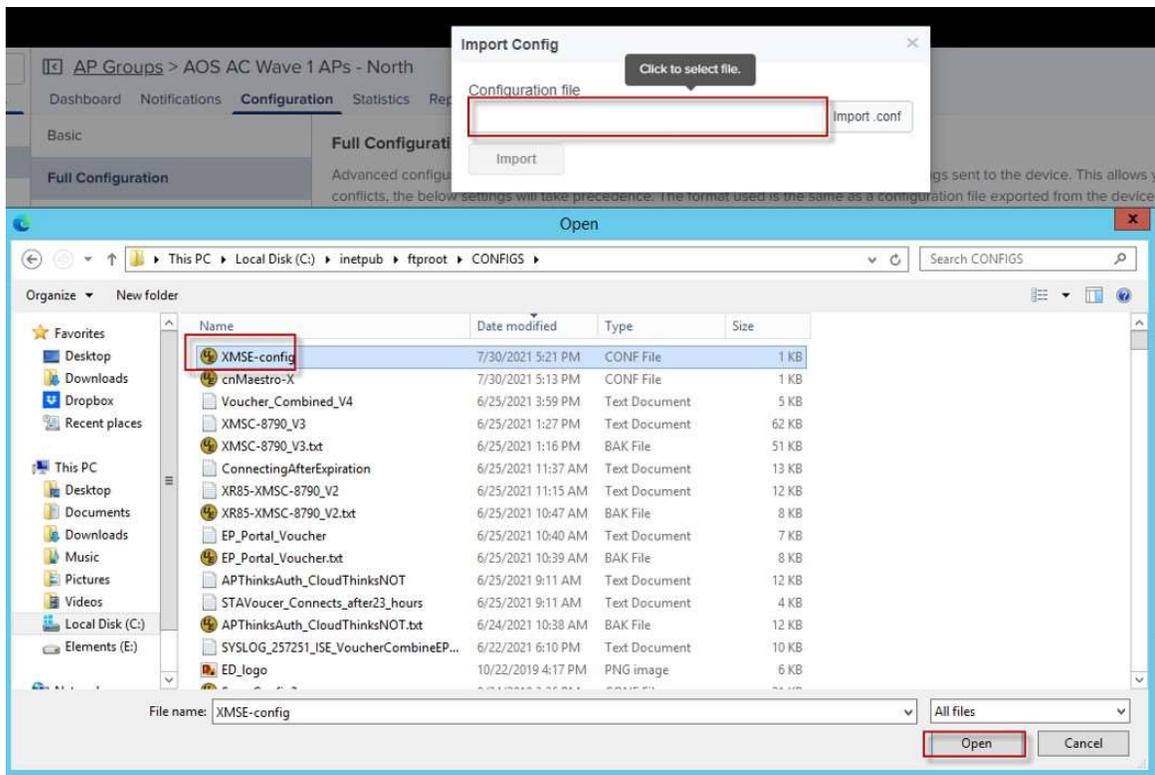
1. Select the Wi-Fi AP Groups - System - AP Group for AOS APs. The basic configuration window is displayed. Here you can change the name, auto-sync and add a Description.
- 2.



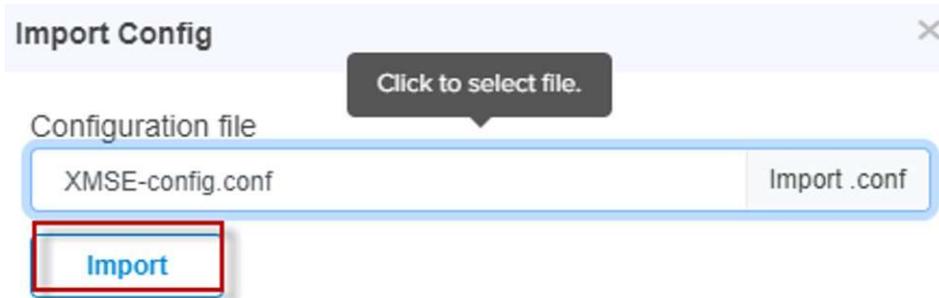
3. Under the Full Configuration settings, open a window to allow for importing or exporting Configuration files generated via XMS-Enterprise.



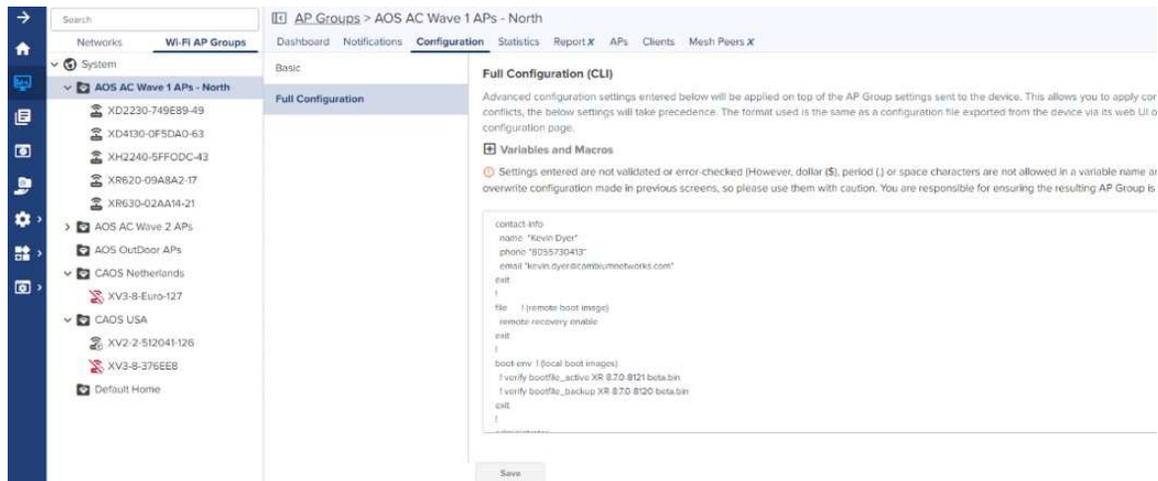
4. After opening the selection window, navigate to the configuration file, highlight the file and press the Open button.



5. Press the Import button.



6. Now you will have the AP configuration loaded in the window.



At the bottom of the configuration are all the Configuration Variables that can be replaced by AP specific information. Using Configuration Variables described in the next section of this guide.

```

description
  hostname ${hostname=host}
  location "${location=}"
exit
contact-info
  name "${contact_info=}"
  phone "${phone=}"
  email "${email=}"
exit
interface gig1
  autoneg      ${gig1_Autoneg=on}
  mtu          ${gig1_Mtu=1500}
  ipv4        ${gig1_Ipv4=dhcp}
  management  ${gig1_Management=on}
  bond        ${gig1_Bond=bond1}
  ${gig1_enable=up}
exit
interface gig2
  autoneg      ${gig2_Autoneg=on}
  mtu          ${gig2_Mtu=1500}
  ipv4        ${gig2_Ipv4=dhcp}
  management  ${gig2_Management=on}

```

```

bond          ${gig2_Bond=bond1}
${gig2_enable=up}
exit
interface iap1
bond-40Mhz    off
bond-80Mhz    off
bond-160Mhz   off
channel       ${radio1_Channel=1}
channel       ${radio1_Locked=unlocked}
${radio1_Bond_Mode=bond-40mhz OFF}
mode          ${radio1_Dot11_Mode=gn}
cellsize      ${radio1_Cell_Size=max}
rx-threshold  ${radio1_Rx_Threshold=-90}
tx-power      ${radio1_Tx_Power=20}
${radio1_Enabled=down}
exit
interface iap2
bond-40Mhz    off
bond-80Mhz    off
bond-160Mhz   off
channel       ${radio2_Channel=1}
channel       ${radio2_Locked=unlocked}
${radio2_Bond_Mode=bond-40mhz OFF}
mode          ${radio2_Dot11_Mode=gn}
cellsize      ${radio2_Cell_Size=max}
rx-threshold  ${radio2_Rx_Threshold=-90}
tx-power      ${radio2_Tx_Power=20}
${radio2_Enabled=down}
exit

```



NOTE

If the configuration is based on a 2 radio AP it should not be used for 4 radio APs because it will be missing the radio configuration variables for radio 3 and 4.

Configuration modifications on individual APs

In this section, the use of Configuration Variables will be discussed.

1. Under Monitor and Manage, select the AP in the Wi-Fi AP Group you want to individually configure.
2. Click on Configuration for that AP.
3. Expand the Configuration Variables (Advanced) section
4. Use any of the configuration variables to make configuration changes specific to this AP.

The screenshot displays the Cambium Networks cnMaestro X interface. The top navigation bar shows 'Cambium Networks | cnMaestro™ X'. The main interface is divided into a sidebar on the left and a main content area on the right. The sidebar contains a search bar and a list of APs under the 'XR-600 APs' group, with 'XR620-A8A2-17' selected. The main content area has tabs for 'Dashboard', 'Notifications', 'Configuration', 'Details', 'Performance', and 'Software Update'. The 'Configuration' tab is active, showing a list of configuration variables for the selected AP. The variables and their values are: 'radio1_Locked' (Default Value = unlocked), 'radio2_Locked' (Default Value = unlocked), 'radio1_Channel' (Default Value = 1), 'radio1_Enabled' (Default Value = down), and 'radio2_Channel' (Default Value = 1).

5. Once you are finished, click on the Apply Configuration button at the bottom to push the configuration changes to the AP.

Cambium Networks

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

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Support website (enquiries)	https://support.cambiumnetworks.com
Main website	http://www.cambiumnetworks.com
Sales enquiries	solutions@cambiumnetworks.com
Warranty	https://www.cambiumnetworks.com/support/standard-warranty/
Telephone number list	http://www.cambiumnetworks.com/contact-us/
Address	Cambium Networks Limited, Unit B2, Linhay Business Park, Eastern Road, Ashburton, Devon, TQ13 7UP United Kingdom

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