OZ - ERS to Universal Edge (VOSS) Migration Guide

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Preface

Read the following topics to learn about:

- The meanings of text formats used in this document.
- Where you can find additional information and help.
- How to reach us with questions and comments.

Text Conventions

Unless otherwise noted, information in this document applies to all supported environments for the products in question. Exceptions, like command keywords associated with a specific software version, are identified in the text.

When a feature, function, or operation pertains to a specific hardware product, the product name is used. When features, functions, and operations are the same across an entire product family, such as Extreme Networks switches or SLX routers, the product is referred to as *the switch* or *the router*.

Table 1: Notes and warnings

Icon	Notice type	Alerts you to...
	Tip	Helpful tips and notices for using the product
	Note	Useful information or instructions
	Important	Important features or instructions
	Caution	Risk of personal injury, system damage, or loss of data
	Warning	Risk of severe personal injury

Table 2: Text

Convention	Description
`screen displays`	This typeface indicates command syntax, or represents information as it is displayed on the screen.
The words *enter* and *type*	When you see the word *enter* in this guide, you must type something, and then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says *type*.
Key names	Key names are written in boldface, for example **Ctrl** or **Esc**. If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press **Ctrl**+**Alt**+**Del**
Words in italicized type	Italics emphasize a point or denote new terms at the place where they are defined in the text. Italics are also used when referring to publication titles.
NEW!	New information. In a PDF, this is searchable text.

Table 3: Command syntax

Convention	Description
bold text	Bold text indicates command names, keywords, and command options.
italic text	Italic text indicates variable content.
`[ ]`	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
`{ x | y | z }`	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.
`x | y`	A vertical bar separates mutually exclusive elements.
`< >`	Nonprinting characters, such as passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, *member*[*member*...].
\	In command examples, the backslash indicates a “soft” line break. When a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Documentation and Training

Find Extreme Networks product information at the following locations:

Current Product Documentation
Release Notes
Hardware and Software Compatibility for Extreme Networks products
Extreme Optics Compatibility
Other Resources such as articles, white papers, and case studies

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Training

Extreme Networks offers product training courses, both online and in person, as well as specialized certifications. For details, visit the Extreme Networks Training page.

Help and Support

If you require assistance, contact using one of the following methods:

Extreme Portal

Search the GTAC (Global Technical Assistance Center) knowledge base; manage support cases and service contracts; download software; and obtain product licensing, training, and certifications.

The Hub

A forum for customers to connect with one another, answer questions, and share ideas and feedback. This community is monitored by employees, but is not intended to replace specific guidance from GTAC.

Call GTAC

For immediate support: (800) 998 2408 (toll-free in U.S. and Canada) or 1 (408) 579 2800. For the support phone number in your country, visit www.extremenetworks.com/support/contact.

Before contacting for technical support, have the following information ready:

- Your service contract number, or serial numbers for all involved products
- A description of the failure
- A description of any actions already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

Subscribe to Product Announcements

You can subscribe to email notifications for product and software release announcements, Field Notices, and Vulnerability Notices.

1. Go to The Hub.
2. In the list of categories, expand the **Product Announcements** list.
3. Select a product for which you would like to receive notifications.
4. Select **Subscribe**.
5. To select additional products, return to the **Product Announcements** list and repeat steps 3 and 4.

You can modify your product selections or unsubscribe at any time.

Send Feedback

The User Enablement team at has made every effort to ensure that this document is accurate, complete, and easy to use. We strive to improve our documentation to help you in your work, so we want to hear from you. We welcome all feedback, but we especially want to know about:

- Content errors, or confusing or conflicting information.
- Improvements that would help you find relevant information.
- Broken links or usability issues.

To send feedback, email us at .

Provide as much detail as possible including the publication title, topic heading, and page number (if applicable), along with your comments and suggestions for improvement.

Introduction

This document provides guidance for migrating from ERS Edge to a Universal (Fabric/VSP) Edge solution, including the deployment of multi-area boundary nodes, in systematic steps. The configurations and design practices documented here are fully validated and conform to Extreme best practices and recommendations.

Review other reference materials for a deeper understanding of the concepts described in this document.

Not all variations of the migration are covered in this document.

This document assumes that the reader has a good understanding of switching and routing features.

Migration Overview

The migration approach documented here uses a reference topology. A new campus with VSP Edge is brought up with connectivity first, followed by services and end user access. The summary of the migration steps is in Migration Summary on page 12.

Scenario

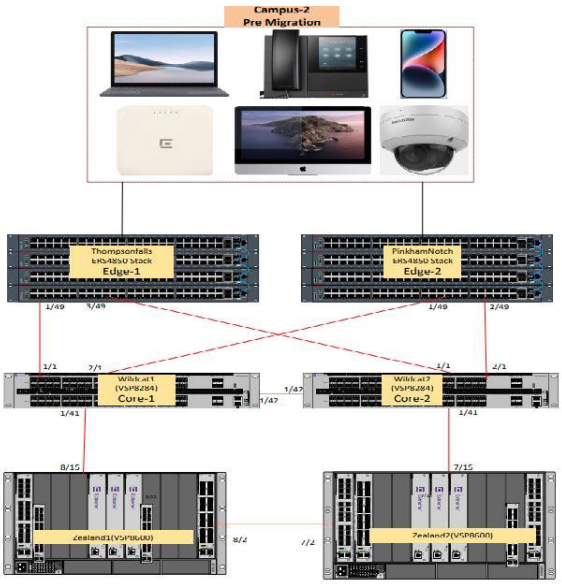
This document incorporates the following scenario:

- Migrating from ERS4850 stacks and VSP8284s to 5420 running Fabric Engine and VSP7400s.
- The attached end client subnets are migrated retaining the same subnet/VLAN structure in the new fabric area.
- Uses *NOS Persona Change* in ZTP to convert Universal switches to Fabric Engine.
- Utilizes *Onboard Mgmt CLIP* workflow to onboard the Fabric Engine switches to their Site and assign a Mgmt CLIP.
- Utilizes *Onboard VSP* workflow to configure radius on the switch, add to NAC, and configure autosense parameters.
- Simplified multi-area redistribution command set.
- Utilizes Multicast-Lite configuration for multicast traffic.
- Utilizes NAC to dynamically create and assign VLANs/I-SIDs to ports after client authentication using new Post-VOSS 8.8 Radius VSA format.

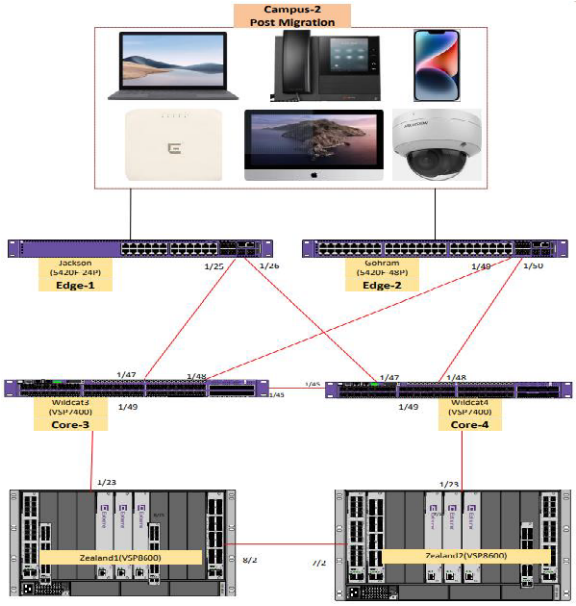
Topology

The reference topology illustrates a section of an enterprise network with Fabric Connect Core and an ERS Campus Edge. This campus with ERS Edge is migrated to Universal Fabric Engine (VSP) Edge. The key technology is Extreme Fabric Connect with Multi Area. The VSP Edge campus has two linked VSP7400 units, configured as BEBs, which is critical to deploy multi-area and are directly connected to dual homed 5420 running VOSS, functioning as the access layer.

Pre-Migration Topology



Post-Migration Topology



Hardware & Versions

Pre-Migration Hardware & Versions:

Product	FW Version	Enabled License Level	Naming
ERS4850-PreMigration	5.12.6.007	N/A	Thompson Falls
ERS4850-PreMigration	5.12.6.007	Advanced	Pinkham Notch
VSP8284XSQ-PreMigration	8.10.0.0	Premier	WildCat1
VSP8284XSQ-PreMigration	8.10.0.0	Premier	WildCat2
XIQ-C	10.03.02.0019	Permanent License	
XIQ-SE	23.4.12.3	EVAL	
NAC1-IA-V	23.4.12.3	EVAL	
NAC2- IA-V	23.4.12.3	EVAL	

Post-Migration Hardware & Versions:

Product	FW Version	Enabled License Level	Naming
X5420-PostMigration	VOSS5420.8.10.1.0	Premier	Jackson
X5420-PostMigration	VOSS5420.8.10.1.0	Premier	Gorham
VSP7400-PostMigration	VOSS5420.8.10.1.0	Premier	WildCat3
VSP7400-PostMigration	VOSS5420.8.10.1.0	Premier	WildCat4

Migration Summary

1. Configure Network connectivity and management on 7400's (Wildcat 3 and Wildcat 4)
2. Configure Vlans and DHCP relay on the 7400's
3. Onboard 7400's to XIQ-SE
4. Import Workflows to XIQ-SE
5. Configure workflows in XIQ-SE
6. Configure NAC in XIQ-SE
7. Configure ZTP+ in XIQ-SE
8. Onboard Edge switches (Gorham and Jackson)

9. Move Clients
10. Network Validation

Core (VSP7400) configurations

Configure Core connectivity

Note

When you log in for the first time, you are prompted to set the CLI's default username and password. Set this to the desired fallback login information.

Configure Core - Wildcat3

```
enable
Config t
syslog host 1
syslog host 1 address 10.151.251.20
syslog host 1 enable
syslog host 2
syslog host 2 address 10.151.251.70
syslog host 2 enable

no ntp
ntp server 10.151.251.254
ntp server 134.141.79.201
ntp

radius server host 10.151.251.21 key <shared secret>used-by cli
radius server host 10.151.252.21 key <shared secret>used-by cli
radius dynamic-server client 10.151.251.21 secret <shared secret> enable
radius dynamic-server client 10.151.252.21 secret <shared secret> enable
radius enable
write memory

snmp-server name "Wildcat3"
snmp-server authentication-trap enable
snmp-server login-success-trap enable
snmp-server view nncli +1
snmp-server user OZWR group OZWR sha <shared secret> aes <shared secret>
snmp-server user OZRO group OZRO sha <shared secret> aes <shared secret>
snmp-server host 10.151.251.20 v3 authPriv OZWR inform
snmp-server group "OZRO" "" auth-priv read-view root notify-view root
snmp-server group "OZWR" "" auth-priv read-view root write-view root notify-view root

mgmt vlan 4048
enable
```

```
exit
mgmt dhcp-client cycle
mgmt oob
enable
exit
mgmt clip vrf GlobalRouter
ip address 10.2.254.12/32
enable
exit
No mgmt dhcp-client

no router isis enable
y
vlan members remove 1 1/1-1/50
interface loopback 1
ip address 1 10.2.254.212/255.255.255.255
exit
spbm
router isis
spbm 1
spbm 1 nick-name 1.22.50
spbm 1 b-vid 4051-4052 primary 4051
spbm 1 ip enable
spbm 1 multicast enable
exit
vlan create 4051 type spbm-bvlan
vlan create 4052 type spbm-bvlan
router isis
sys-name "Wildcat 3"
ip-source-address 10.2.254.212
system-id 0049.2200.5000
manual-area 49.bb02
exit

router isis enable
router isis remote
manual-area 49.bb00
spbm 1 nick-name 2.22.50
exit
router isis remote enable

interface GigabitEthernet 1/49
no auto-sense enable
default-vlan-id 0
no shutdown
isis remote
isis remote spbm 1
isis remote enable
no spanning-tree mstp force-port-state enable
y
no spanning-tree mstp msti 62 force-port-state enable
exit
int gig 1/45
no auto-sense enable
isis
isis spbm 1
isis enable
isis remote
isis remote spbm 1
isis remote enable
exit
write memory
```

```
spbm nick-name server prefix F.20.00
spbm nick-name server
```

Configure Core - Wildcat4

```
enable
Config t
syslog host 1
syslog host 1 address 10.151.251.20
syslog host 1 enable
syslog host 2
syslog host 2 address 10.151.251.70
syslog host 2 enable

no ntp
ntp server 10.151.251.254
ntp server 134.141.79.201
ntp

radius server host 10.151.251.21 key <shared secret>used-by cli
radius server host 10.151.252.21 key <shared secret>used-by cli
radius dynamic-server client 10.151.251.21 secret <shared secret> enable
radius dynamic-server client 10.151.252.21 secret <shared secret> enable
radius enable
write memory

snmp-server name "Wildcat4"
snmp-server authentication-trap enable
snmp-server login-success-trap enable
snmp-server view nncli +1
snmp-server user OZWR group OZWR sha <shared secret> aes <shared secret>
snmp-server user OZRO group OZRO sha <shared secret> aes <shared secret>
snmp-server host 10.151.251.20 v3 authPriv OZWR inform
snmp-server group "OZRO" "" auth-priv read-view root notify-view root
snmp-server group "OZWR" "" auth-priv read-view root write-view root notify-view root

mgmt vlan 4048
enable
exit
mgmt dhcp-client cycle
mgmt oob
enable
exit
mgmt clip vrf GlobalRouter
ip address 10.2.254.13/32
enable
exit
no mgmt dhcp-client

no router isis enable
y
vlan members remove 1 1/1-1/50
interface loopback 1
ip address 1 10.2.254.213/255.255.255.255
exit
spbm
router isis
spbm 1
spbm 1 nick-name 1.22.60
spbm 1 b-vid 4051-4052 primary 4051
spbm 1 ip enable
spbm 1 multicast enable
exit
```

```
vlan create 4051 type spbm-bvlan
vlan create 4052 type spbm-bvlan
router isis
sys-name "Wildcat 4"
ip-source-address 10.2.254.213
system-id 0049.2200.6000
manual-area 49.bb02
exit
router isis enable
router isis remote
manual-area 49.bb00
spbm 1 nick-name 2.22.60
exit
router isis remote enable
interface GigabitEthernet 1/49
no auto-sense enable
default-vlan-id 0
no shutdown
isis remote
isis remote spbm 1
isis remote enable
no spanning-tree mstp force-port-state enable
y
no spanning-tree mstp msti 62 force-port-state enable
exit
int gig 1/45
no auto-sense enable
isis
isis spbm 1
isis enable
isis remote
isis remote spbm 1
isis remote enable
exit
write memory

spbm nick-name server prefix F.30.00
spbm nick-name server
```

Configure Wildcat 3 Vlans

```
vlan members remove 1 1/1-1/42 portmember
vlan create 2024 name "Telecom" type port-mstprstp 0
vlan i-sid 2024 120247
interface Vlan 2024
ip address 10.2.24.4 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.24.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 2064 name "Cameras" type port-mstprstp 0
vlan i-sid 2064 120647
interface Vlan 2064
ip address 10.2.64.4 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.64.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit
```

```
vlan create 2068 name "Vendor" type port-mstprstp 0
vlan i-sid 2068 120687
interface Vlan 2068
ip address 10.2.68.4 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.68.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 2076 name "Printers" type port-mstprstp 0
vlan i-sid 2076 120767
interface Vlan 2076
ip address 10.2.76.4 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.76.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit
vlan create 2097 name "AV" type port-mstprstp 0
vlan i-sid 2097 120977
interface Vlan 2097
ip address 10.2.97.4 255.255.255.0
ip spb-multicast enable
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.97.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 2104 name "Guest" type port-mstprstp 0
vlan i-sid 2104 121047
interface Vlan 2104
ip address 10.2.104.4 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.104.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit
vlan create 2116 name "Remote" type port-mstprstp 0
vlan i-sid 2116 121167
interface Vlan 2116
ip address 10.2.116.4 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.116.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 2129 name "Students" type port-mstprstp 0
vlan i-sid 2129 121297
interface Vlan 2129
ip address 10.2.129.4 255.255.255.0
ip spb-multicast enable
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.129.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
```

```
exit
vlan create 2130 name "Envision-Ext" type port-mstprstp 0
vlan i-sid 2130 121307
interface Vlan 2130
ip address 10.2.131.4 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.131.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 2155 name "Staff" type port-mstprstp 0
vlan i-sid 2155 121557
interface Vlan 2155
ip address 10.2.155.4 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.155.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit
vlan create 2164 name "APMGMT" type port-mstprstp 0
vlan i-sid 2164 121647
interface Vlan 2164
ip address 10.2.164.4 255.255.254.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.164.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 2192 name "VOIP" type port-mstprstp 0
vlan i-sid 2192 121927
interface Vlan 2192
ip address 10.2.192.4 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.192.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit
vlan create 3104 name "OZ_C2_Catchall" type port-mstprstp 0
vlan i-sid 3104 131047

vlan create 4048 name "onboarding-vlan" type pvlan-mstprstp 0 secondary 4049
vlan i-sid 4048 15999999
interface Vlan 4048
ip address 172.16.200.4 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 172.16.200.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit

vlan create 4051 type spbm-bvlan
vlan create 4052 type spbm-bvlan

ip dhcp-relay fwd-path 10.2.24.4 10.151.251.10
ip dhcp-relay fwd-path 10.2.24.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.24.4 10.151.251.10 mode bootp_dhcp
```

```
ip dhcp-relay fwd-path 10.2.24.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.24.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.24.4 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.64.4 10.151.251.10
ip dhcp-relay fwd-path 10.2.64.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.64.4 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.64.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.64.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.64.4 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.68.4 10.151.251.10
ip dhcp-relay fwd-path 10.2.68.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.68.4 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.68.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.68.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.68.4 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.76.4 10.151.251.10
ip dhcp-relay fwd-path 10.2.76.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.76.4 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.76.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.76.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.76.4 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.97.4 10.151.251.10
ip dhcp-relay fwd-path 10.2.97.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.97.4 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.97.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.97.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.97.4 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.104.4 10.151.251.10
ip dhcp-relay fwd-path 10.2.104.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.104.4 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.104.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.104.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.104.4 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.116.4 10.151.251.10
ip dhcp-relay fwd-path 10.2.116.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.116.4 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.116.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.116.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.116.4 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.129.4 10.151.251.10
ip dhcp-relay fwd-path 10.2.129.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.129.4 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.129.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.129.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.129.4 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.131.4 10.151.251.10
ip dhcp-relay fwd-path 10.2.131.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.131.4 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.131.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.131.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.131.4 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.155.4 10.151.251.10
ip dhcp-relay fwd-path 10.2.155.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.155.4 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.155.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.155.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.155.4 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.164.4 10.151.251.10
ip dhcp-relay fwd-path 10.2.164.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.164.4 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.164.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.164.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.164.4 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.192.4 10.151.251.10
```

```
ip dhcp-relay fwd-path 10.2.192.4 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.192.4 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.192.4 10.151.252.10
ip dhcp-relay fwd-path 10.2.192.4 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.192.4 10.151.252.10 mode bootp_dhcp

ip dhcp-relay fwd-path 172.16.200.4 10.151.251.10
ip dhcp-relay fwd-path 172.16.200.4 10.151.251.10 enable
ip dhcp-relay fwd-path 172.16.200.4 10.151.251.10 mode dhcp
ip dhcp-relay fwd-path 172.16.200.4 10.151.252.10
ip dhcp-relay fwd-path 172.16.200.4 10.151.252.10 enable
ip dhcp-relay fwd-path 172.16.200.4 10.151.252.10 mode dhcp
ip dhcp-relay fwd-path 10.2.24.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.24.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.24.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.24.4 10.151.252.21
ip dhcp-relay fwd-path 10.2.24.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.24.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.64.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.64.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.64.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.64.4 10.151.252.21
ip dhcp-relay fwd-path 10.2.64.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.64.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.68.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.68.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.68.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.68.4 10.151.252.21
ip dhcp-relay fwd-path 10.2.68.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.68.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.76.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.76.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.76.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.76.4 10.151.252.21
ip dhcp-relay fwd-path 10.2.76.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.76.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.97.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.97.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.97.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.97.4 10.151.252.21
ip dhcp-relay fwd-path 10.2.97.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.97.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.104.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.104.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.104.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.104.4 10.151.252.21
ip dhcp-relay fwd-path 10.2.104.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.104.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.116.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.116.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.116.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.116.4 10.151.252.21
ip dhcp-relay fwd-path 10.2.116.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.116.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.129.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.129.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.129.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.129.4 10.151.252.21
ip dhcp-relay fwd-path 10.2.129.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.129.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.131.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.131.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.131.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.131.4 10.151.252.21
```

```
ip dhcp-relay fwd-path 10.2.131.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.131.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.155.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.155.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.155.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.155.4 10.151.252.21
ip dhcp-relay fwd-path 10.2.155.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.155.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.164.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.164.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.164.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.164.4 10.151.252.21
ip dhcp-relay fwd-path 10.2.164.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.164.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.192.4 10.151.251.21
ip dhcp-relay fwd-path 10.2.192.4 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.192.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.192.4 10.151.252.21
ip dhcp-relay fwd-path 10.2.192.4 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.192.4 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 172.16.200.4 10.151.251.21
ip dhcp-relay fwd-path 172.16.200.4 10.151.251.21 enable
ip dhcp-relay fwd-path 172.16.200.4 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 172.16.200.4 10.151.252.21
ip dhcp-relay fwd-path 172.16.200.4 10.151.252.21 enable
ip dhcp-relay fwd-path 172.16.200.4 10.151.252.21 mode bootp_dhcp
```

Configure Wildcat 4 Vlans

```
vlan members remove 1 1/1-1/42 portmember
vlan create 2024 name "Telecom" type port-mstprstp 0
vlan i-sid 2024 120247
interface Vlan 2024
ip address 10.2.24.5 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.24.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit
vlan create 2064 name "Cameras" type port-mstprstp 0
vlan i-sid 2064 120647
interface Vlan 2064
ip address 10.2.64.5 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.64.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 2068 name "Vendor" type port-mstprstp 0
vlan i-sid 2068 120687
interface Vlan 2068
ip address 10.2.68.5 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.68.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit
vlan create 2076 name "Printers" type port-mstprstp 0
vlan i-sid 2076 120767
```

```
interface Vlan 2076
ip address 10.2.76.5 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.76.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 2097 name "AV" type port-mstprstp 0
vlan i-sid 2097 120977
interface Vlan 2097
ip address 10.2.97.5 255.255.255.0
ip spb-multicast enable
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.97.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit
vlan create 2104 name "Guest" type port-mstprstp 0
vlan i-sid 2104 121047
interface Vlan 2104
ip address 10.2.104.5 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.104.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 2116 name "Remote" type port-mstprstp 0
vlan i-sid 2116 121167
interface Vlan 2116
ip address 10.2.116.5 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.116.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit
vlan create 2129 name "Students" type port-mstprstp 0
vlan i-sid 2129 121297
interface Vlan 2129
ip address 10.2.129.5 255.255.255.0
ip spb-multicast enable
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.129.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 2130 name "Envision-Ext" type port-mstprstp 0
vlan i-sid 2130 121307
interface Vlan 2130
ip address 10.2.131.5 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.131.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit
vlan create 2155 name "Staff" type port-mstprstp 0
```

```
vlan i-sid 2155 121557
interface Vlan 2155
ip address 10.2.155.5 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.155.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 2164 name "APMGMT" type port-mstprstp 0
vlan i-sid 2164 121647
interface Vlan 2164
ip address 10.2.164.5 255.255.254.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.164.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit
vlan create 2192 name "VOIP" type port-mstprstp 0
vlan i-sid 2192 121927
interface Vlan 2192
ip address 10.2.192.5 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.2.192.1
ip vrrp 1 backup-master enable
ip vrrp 1 priority 200
ip vrrp 1 enable
exit
vlan create 3104 name "OZ_C2_Catchall" type port-mstprstp 0
vlan i-sid 3104 131047

vlan create 4048 name "onboarding-vlan" type pvlan-mstprstp 0 secondary 4049
vlan i-sid 4048 15999999
interface Vlan 4048
ip address 172.16.200.5 255.255.255.0
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 172.16.200.1
ip vrrp 1 backup-master enable
ip vrrp 1 enable
exit

vlan create 4051 type spbm-bvlan
vlan create 4052 type spbm-bvlan

ip dhcp-relay fwd-path 10.2.24.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.24.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.24.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.24.5 10.151.252.10
ip dhcp-relay fwd-path 10.2.24.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.24.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.64.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.64.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.64.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.64.5 10.151.252.10
ip dhcp-relay fwd-path 10.2.64.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.64.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.68.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.68.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.68.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.68.5 10.151.252.10
```

```
ip dhcp-relay fwd-path 10.2.68.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.68.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.76.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.76.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.76.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.76.5 10.151.252.10
ip dhcp-relay fwd-path 10.2.76.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.76.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.97.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.97.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.97.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.97.5 10.151.252.10
ip dhcp-relay fwd-path 10.2.97.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.97.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.104.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.104.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.104.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.104.5 10.151.252.10
ip dhcp-relay fwd-path 10.2.104.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.104.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.116.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.116.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.116.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.116.5 10.151.252.10
ip dhcp-relay fwd-path 10.2.116.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.116.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.129.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.129.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.129.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.129.5 10.151.252.10
ip dhcp-relay fwd-path 10.2.129.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.129.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.131.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.131.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.131.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.131.5 10.151.252.10
ip dhcp-relay fwd-path 10.2.131.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.131.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.155.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.155.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.155.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.155.5 10.151.252.10
ip dhcp-relay fwd-path 10.2.155.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.155.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.164.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.164.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.164.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.164.5 10.151.252.10
ip dhcp-relay fwd-path 10.2.164.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.164.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.192.5 10.151.251.10
ip dhcp-relay fwd-path 10.2.192.5 10.151.251.10 enable
ip dhcp-relay fwd-path 10.2.192.5 10.151.251.10 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.192.5 10.151.252.10
ip dhcp-relay fwd-path 10.2.192.5 10.151.252.10 enable
ip dhcp-relay fwd-path 10.2.192.5 10.151.252.10 mode bootp_dhcp
ip dhcp-relay fwd-path 172.16.200.5 10.151.251.10
ip dhcp-relay fwd-path 172.16.200.5 10.151.251.10 enable
ip dhcp-relay fwd-path 172.16.200.5 10.151.251.10 mode dhcp
ip dhcp-relay fwd-path 172.16.200.5 10.151.252.10
ip dhcp-relay fwd-path 172.16.200.5 10.151.252.10 enable
ip dhcp-relay fwd-path 172.16.200.5 10.151.252.10 mode dhcp
ip dhcp-relay fwd-path 10.2.24.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.24.5 10.151.251.21 enable
```

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ip dhcp-relay fwd-path 10.2.24.5 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.24.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.24.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.24.5 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.64.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.64.5 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.64.5 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.64.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.64.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.64.5 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.68.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.68.5 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.68.5 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.68.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.68.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.68.5 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.76.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.76.5 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.76.5 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.76.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.76.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.76.5 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.97.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.97.5 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.97.5 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.97.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.97.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.97.5 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.104.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.104.5 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.104.5 10.151.251.21 mode bootp_dhcp
p dhcp-relay fwd-path 10.2.104.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.104.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.104.5 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.116.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.116.5 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.116.5 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.116.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.116.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.116.5 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.129.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.129.5 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.129.5 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.129.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.129.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.129.5 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.131.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.131.5 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.131.5 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.131.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.131.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.131.5 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.155.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.155.5 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.155.5 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.155.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.155.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.155.5 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.164.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.164.5 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.164.5 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.164.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.164.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.164.5 10.151.252.21 mode bootp_dhcp
```

```
ip dhcp-relay fwd-path 10.2.192.5 10.151.251.21
ip dhcp-relay fwd-path 10.2.192.5 10.151.251.21 enable
ip dhcp-relay fwd-path 10.2.192.5 10.151.251.21 mode bootp_dhcp
ip dhcp-relay fwd-path 10.2.192.5 10.151.252.21
ip dhcp-relay fwd-path 10.2.192.5 10.151.252.21 enable
ip dhcp-relay fwd-path 10.2.192.5 10.151.252.21 mode bootp_dhcp
ip dhcp-relay fwd-path 172.16.200.5 10.151.251.21
ip dhcp-relay fwd-path 172.16.200.5 10.151.251.21 enable
ip dhcp-relay fwd-path 172.16.200.5 10.151.251.21 mode dhcp
ip dhcp-relay fwd-path 172.16.200.5 10.151.252.21
ip dhcp-relay fwd-path 172.16.200.5 10.151.252.21 enable
ip dhcp-relay fwd-path 172.16.200.5 10.151.252.21 mode dhcp
```

Redistribute Multi-Area on Wildcat3 & Wildcat4

```
router isis
redistribute direct
redistribute direct enable
multi-area ip redistribute unicast
multi-area ip redistribute unicast enable
multi-area ip redistribute routed-multicast
multi-area ip redistribute routed-multicast enable
isis multi-area ip apply redistribute unicast
isis multi-area ip apply redistribute routed-multicast
multi-area l2 redistribute i-sid permit-all
isis multi-area l2 apply redistribute i-sid
isis apply redistribute direct
exit
write memory
```

Connect Topology connections (Core to Network)

Connect the Network Links between the Core 7400s and Zealand (Uplink Router) as shown in the diagram.

Connect the inter 7400 link as shown in the diagram.

Refer to Topology on page 10.

Note
Do not make connections from Cores to New Edges until Onboard New Edge Switches on page 47 is complete, and Edges to Clients until Move Client Devices on page 47 is complete.

Run the following commands to verify that devices have all the expected isis adjacencies and can reach the ISIS remote area.

`show isis adjacencies:`

```
Wildcat3:1(config)#show isis adjacencies
********************************************************************************
                Command Execution Time: Thu Jun 01 07:40:11 2023 UTC
********************************************************************************

================================================================================================================================
                                                        ISIS Adjacencies
================================================================================================================================
INTERFACE         L STATE        UPTIME PRI HOLDTIME   SYSID            HOST-NAME                STATUS   AREA       AREA-NAME
--------------------------------------------------------------------------------------------------------------------------------
Port1/45          1 UP         16:22:40 127         26 0049.2200.6000   Wildcat 4                ACTIVE   HOME       area-49.bb02
PortVirtual       1 UP         16:22:28 127          0 92bb.00ff.fff0   vn-area-49.bb00          ACTIVE   HOME       area-49.bb02
Port1/49          1 UP         16:22:35 127         24 0049.bb00.1000   VSP-8600-10              ACTIVE   REMOTE     area-49.bb00
Port1/45          1 UP         16:22:40 127         23 887e.25be.d886   Wildcat 4                ACTIVE   REMOTE     area-49.bb00
PortVirtual       1 UP         16:22:28 127          0 92bb.02ff.fff0   vn-area-49.bb02          ACTIVE   REMOTE     area-49.bb00

--------------------------------------------------------------------------------------------------------------------------------
Home:   2 out of 2 interfaces have formed an adjacency
Remote: 3 out of 3 interfaces have formed an adjacency
--------------------------------------------------------------------------------------------------------------------------------

Wildcat3:1(config)#
```

`show ip route`

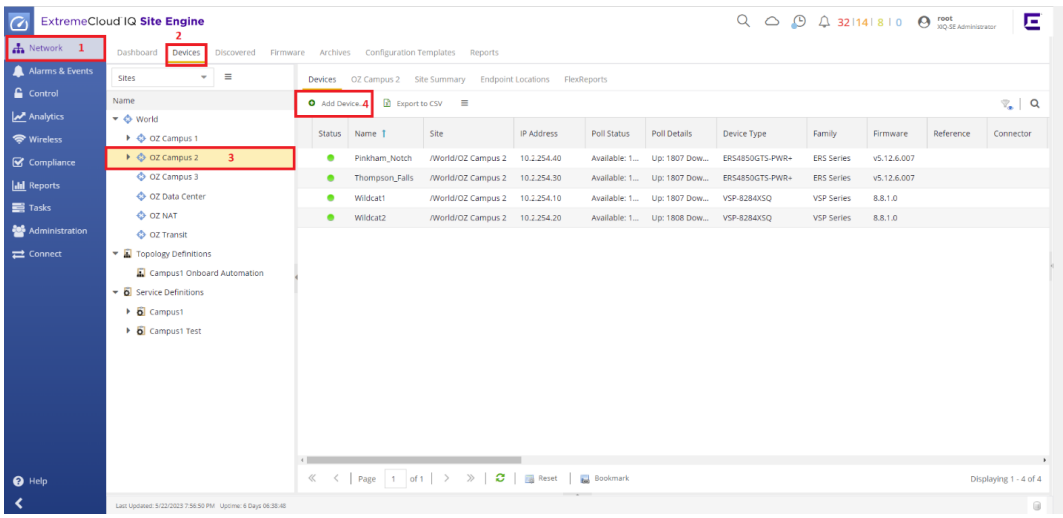
In the output for **`show ip route`** we expect to see all subnets from the home area. To verify routing is working, pick a few subnets and ping their default gateways using the management interface on Wildcat3 or Wildcat4.

XIQ-SE Management and Access Control

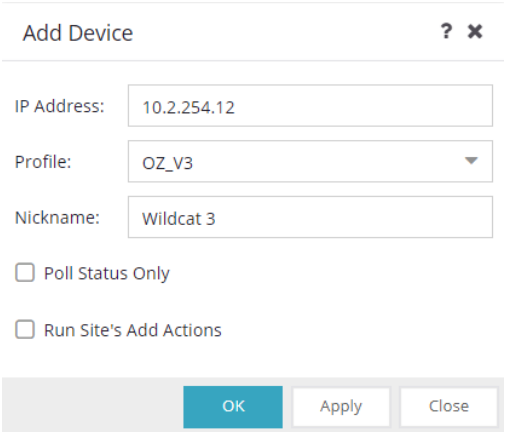
Add 7400's to XIQ-SE (Wildcat 3 and Wildcat 4)

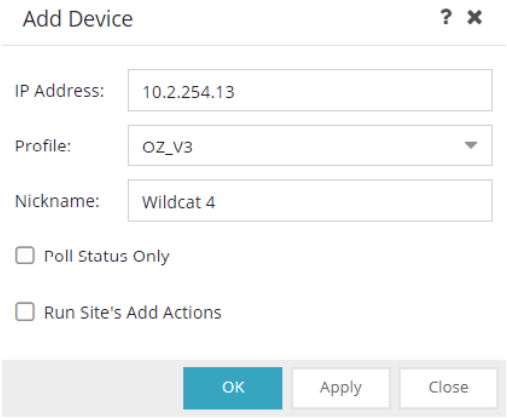
In XIQ-SE navigate to **Networ** > **Devices** > **Campus 2**.

Select **Add Device**.



Fill in the pop-up window with the settings in the screenshots below. Repeat for both 7400's:

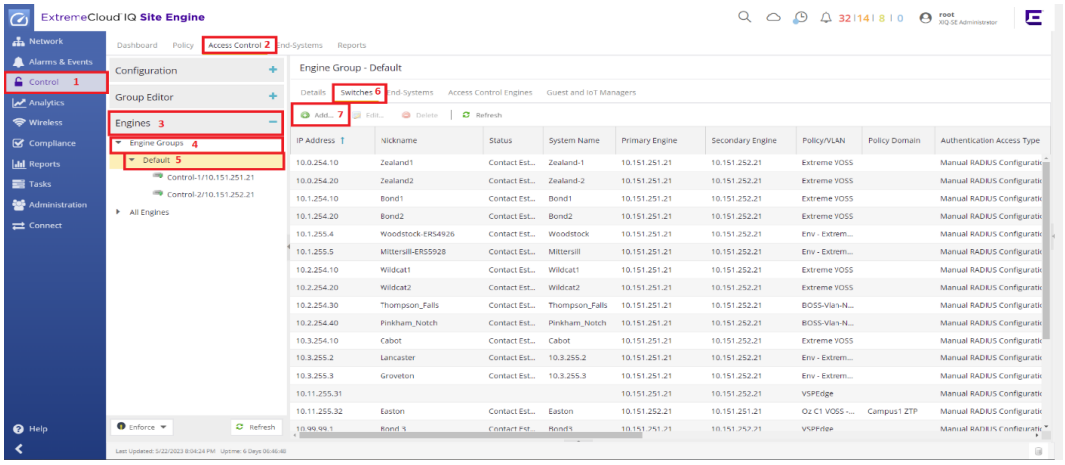




Add Both 7400's to XIQ-SE Control

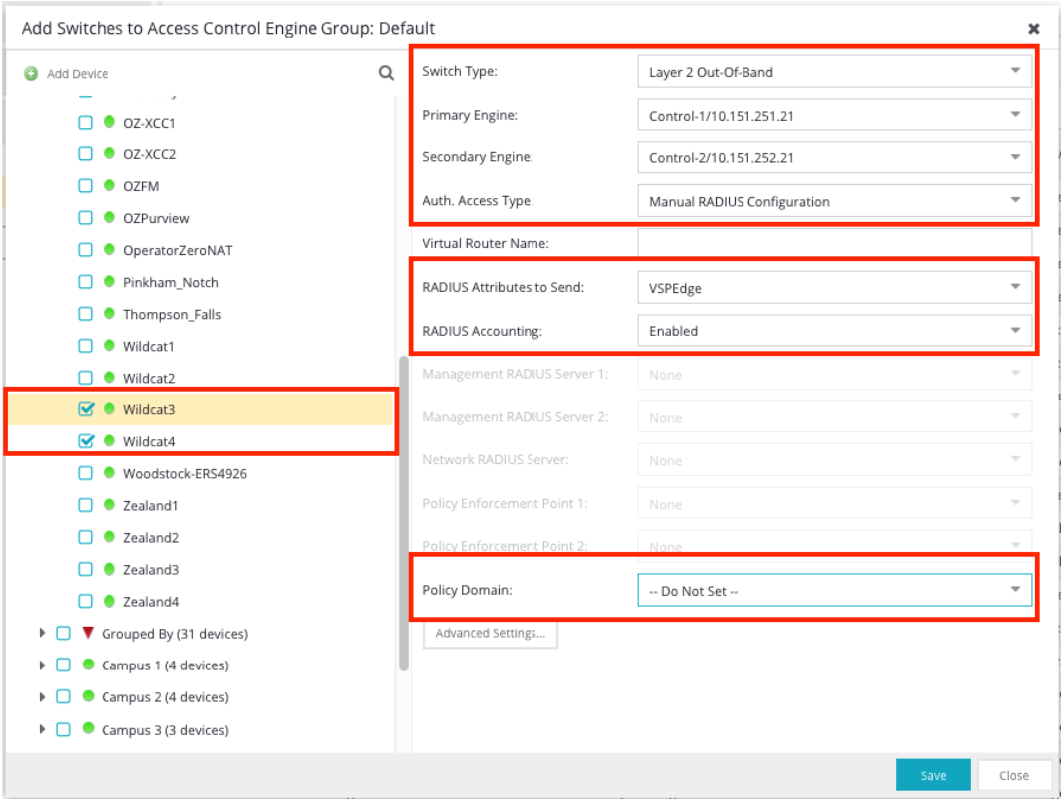
In XIQ-SE navigate to **Control** > **Access Control** > **Engines** > **Engine Groups** > **Default** > **Switches** .

Select **Add**.

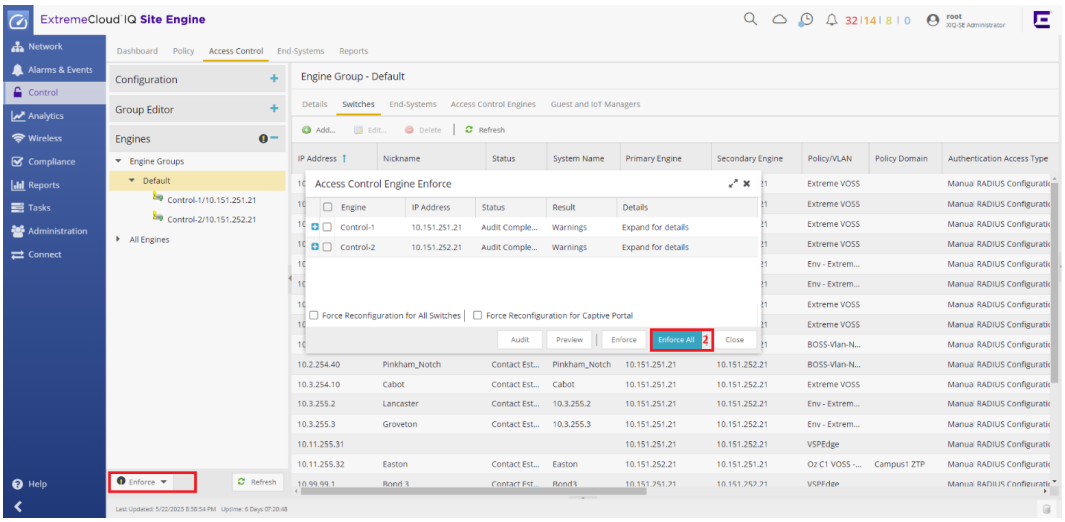


Fill in the pop-up window with the settings displayed in the following screenshot. To add both switches at the same time expand **My Network** > **All Devices**, then check both Wildcat 3 and 4.

Note
When adding switches to NAC if you expand Campus 2, Wildcat 3 and 4 might not show up for an extended period of time. Use **All Devices** to find and add both.



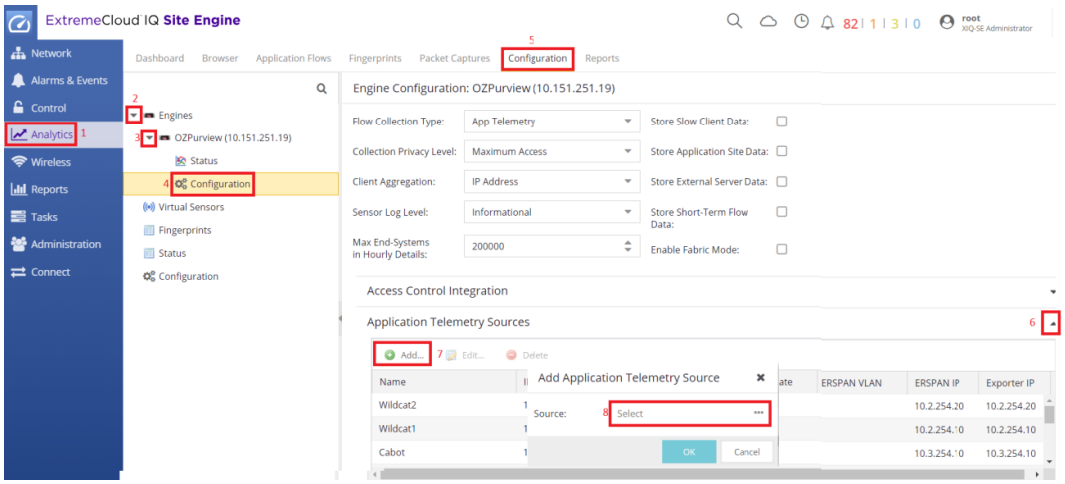
Run an Enforce on NAC by clicking **Enforce**, then selecting **Enforce all** from the dropdown menu. Click **Enforce All** from the pop-up window when the status shows **Audit Complete**.



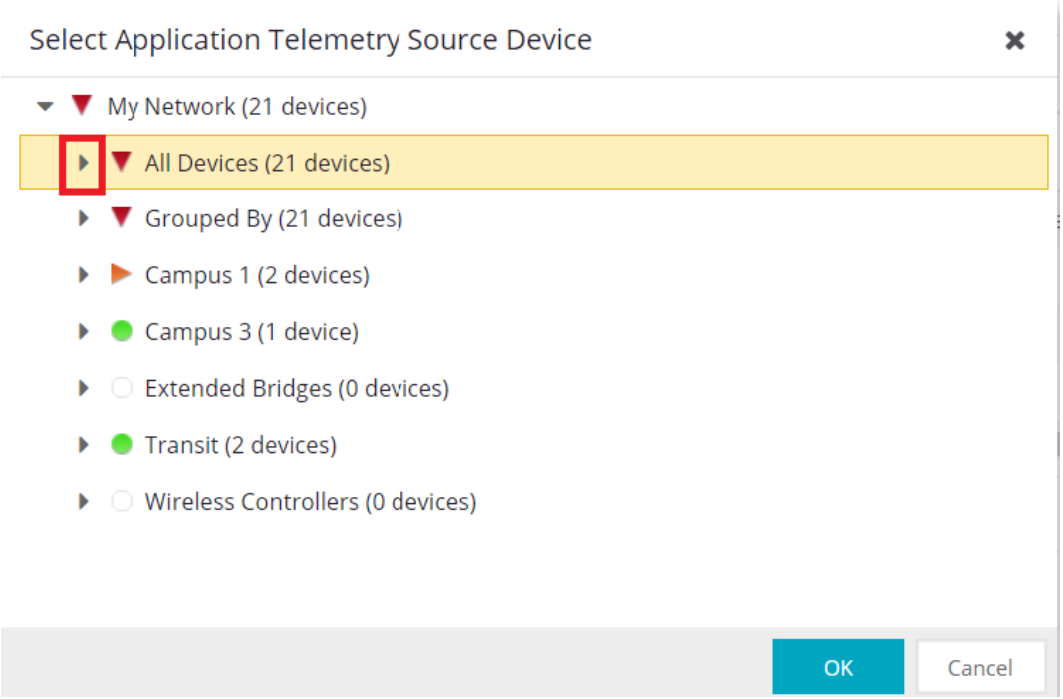
Add 7400's to XIQ-SE Analytics

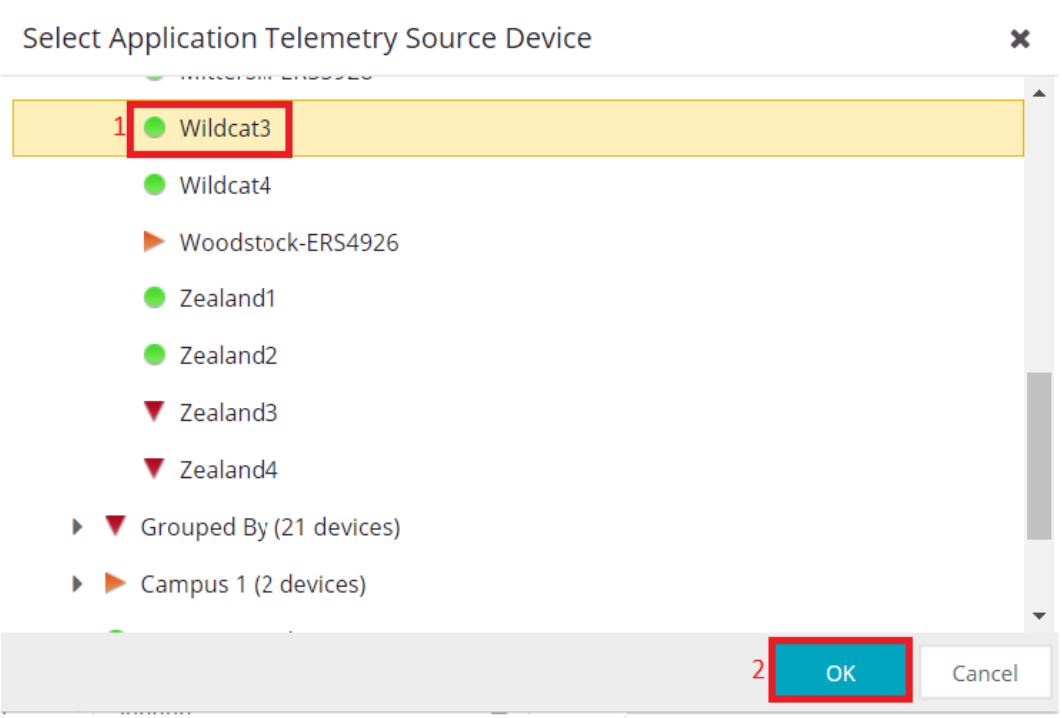
In XIQ-SE navigate to **Analytics** > **Configuration** > **Engines** > **OZPurview** > **Configuration**.

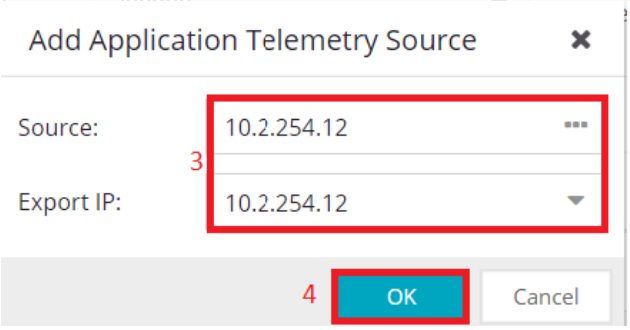
Click **Add**.



Enter the settings from screenshots in the **Select Application Telemetry Source Device** window. Both 7400's must be added separately.


Select Application Telemetry Source Device
My Network (21 devices)
All Devices (21 devices)
Grouped By (21 devices)
Campus 1 (2 devices)
Campus 3 (1 device)
Extended Bridges (0 devices)
Transit (2 devices)
Wireless Controllers (0 devices)
OK
Cancel


Select Application Telemetry Source Device
1
Wildcat3
Wildcat4
Woodstock-ERS4926
Zealand1
Zealand2
Zealand3
Zealand4
Grouped By (21 devices)
Campus 1 (2 devices)
2
OK
Cancel

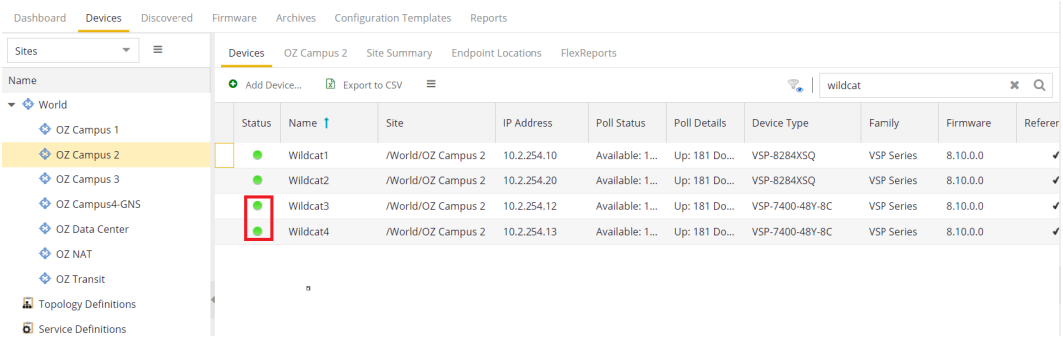

Add Application Telemetry Source
Source:
10.2.254.12
3
Export IP:
10.2.254.12
4
OK
Cancel

Enforce Purview using the button at the bottom right of the screen

Verify XIQ-SE SNMP and RADIUS connectivity with the 7400's

In XIQ-SE navigate to **Networks** > **Devices** > **Campus 2**.

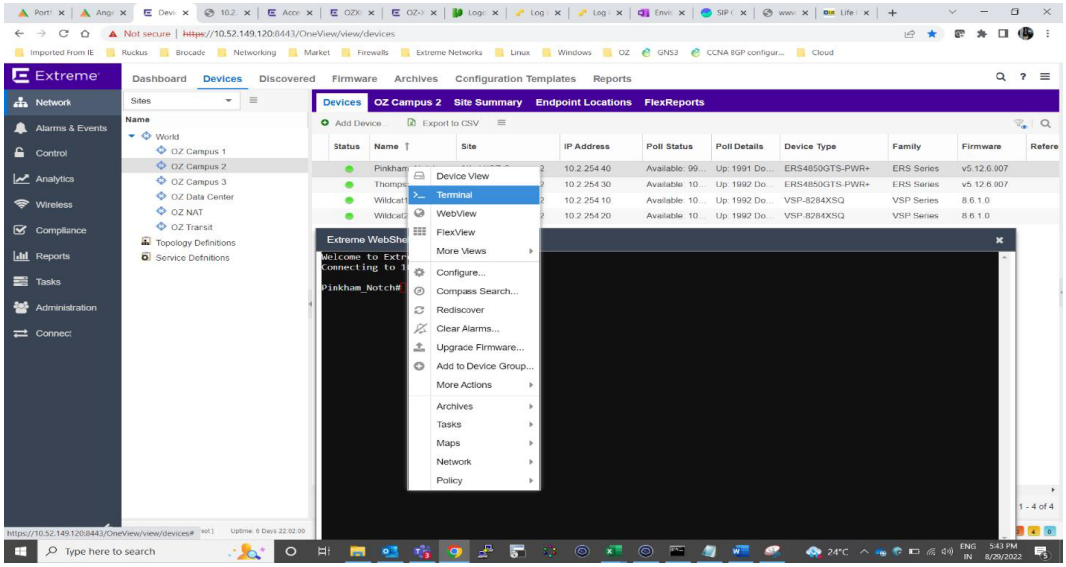
To verify SNMP connectivity, check the symbol next to Wildcat 3 and 4. Any symbol other than a white circle (device hasn't checked in) or a red down arrow (device unreachable) means the device is up and has SNMP contact

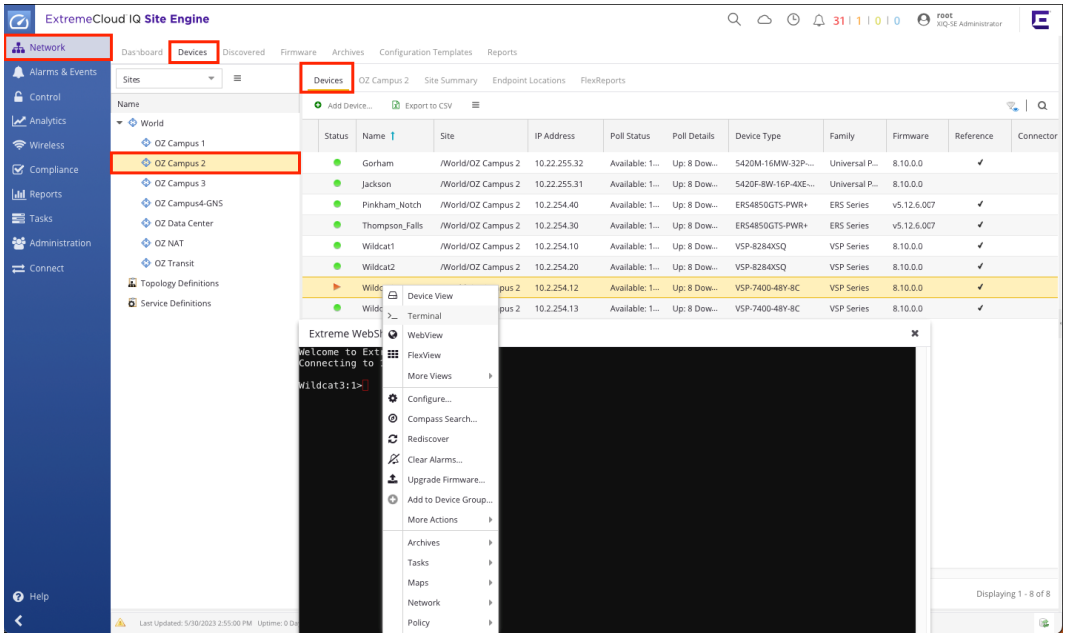


To Verify RADIUS connectivity

In XIQ-SE navigate to **Networks** > **Devices** > **Campus 2**.

Right click on Wildcat 3 and select **terminal** – We expect a terminal window to pop up. It may take several seconds before you are given either the devices terminal prompt if successful, or an error if not. If we get the devices prompt RADIUS is working as this test uses the CLI credentials configured in the OZV3 SNMP profile to attempt an SSH connection.





Import the *Onboard MGMT Clip* and *Onboard VSP* workflows into XIQ-SE

Download Workflow from the Extreme Networks Github Page

Note

The Change Persona workflow is only needed if you are running XIQ-SE 22 or older. For this MOP we are running version 22 so we will need the Change Persona workflow.

Starting in XIQ-SE 23.2 Changing a universal switch's persona can be done in the ZTP+ tab.

Note
Workflow version will be increment by 1 for each save commit in workflow input.

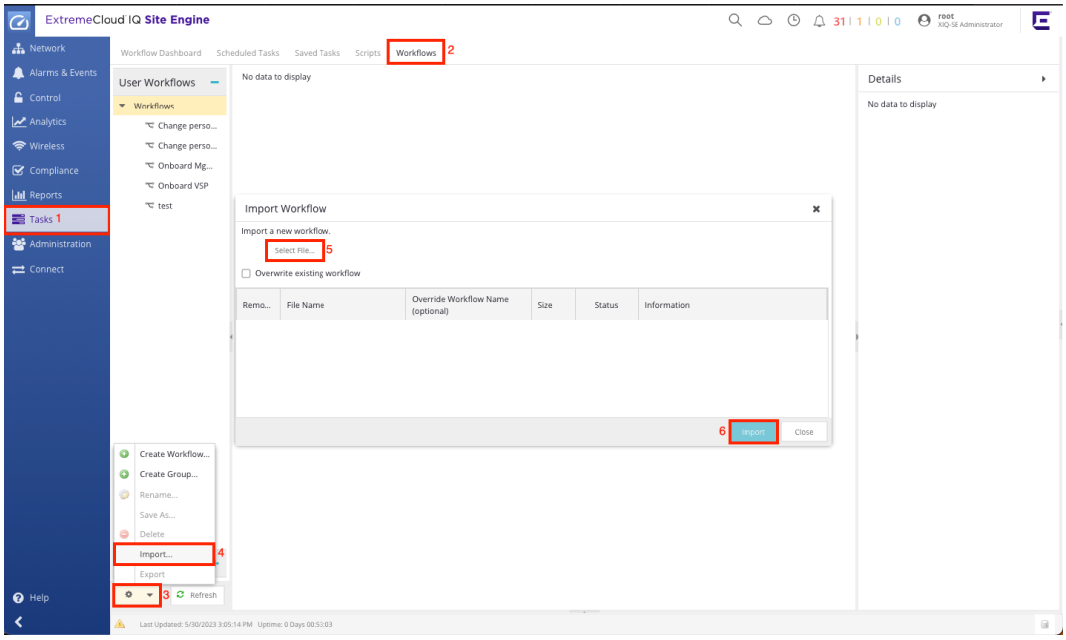
https://github.com/extremenetworks/ExtremeScripting/blob/master/XMC_XIQ-SE/oneview_workflows/README.md

Upload the Workflow to XIQ-SE

Note
The workflows we are using require root access to XIQ-SE.

To upload workflows to XIQ-SE follow the steps below.

Navigate to **Tasks** > **Workflows** > **click on Setting gear button** > **Import**.



Provide the **Authorization Groups** and **Category** to **Workflow**.

Configure Workflows in XIQ-SE

Create Custom Variables for the Onboard VSP workflow

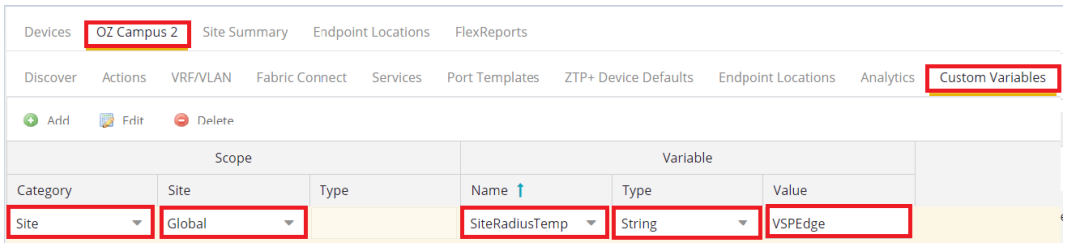
Custom variables are required to be configured for each service requiring a VLAN or I-SID at the site. These are used during the initial onboarding and configuration of the new Fabric Engines by the workflows.

In XIQ-SE Navigate to **Network** > **Devices** > **OZ Campus 2** > **OZ Campus 2** > **Custom Variables**.

Input the following custom variables as shown in the screenshot:

SiteRadiusTemplate

Category: Site
Site: Global
Name: SiteRadiusTemplate
Type: String
Value: VSPEdge



Create a CSV to give permanent IP's to onboarding switches

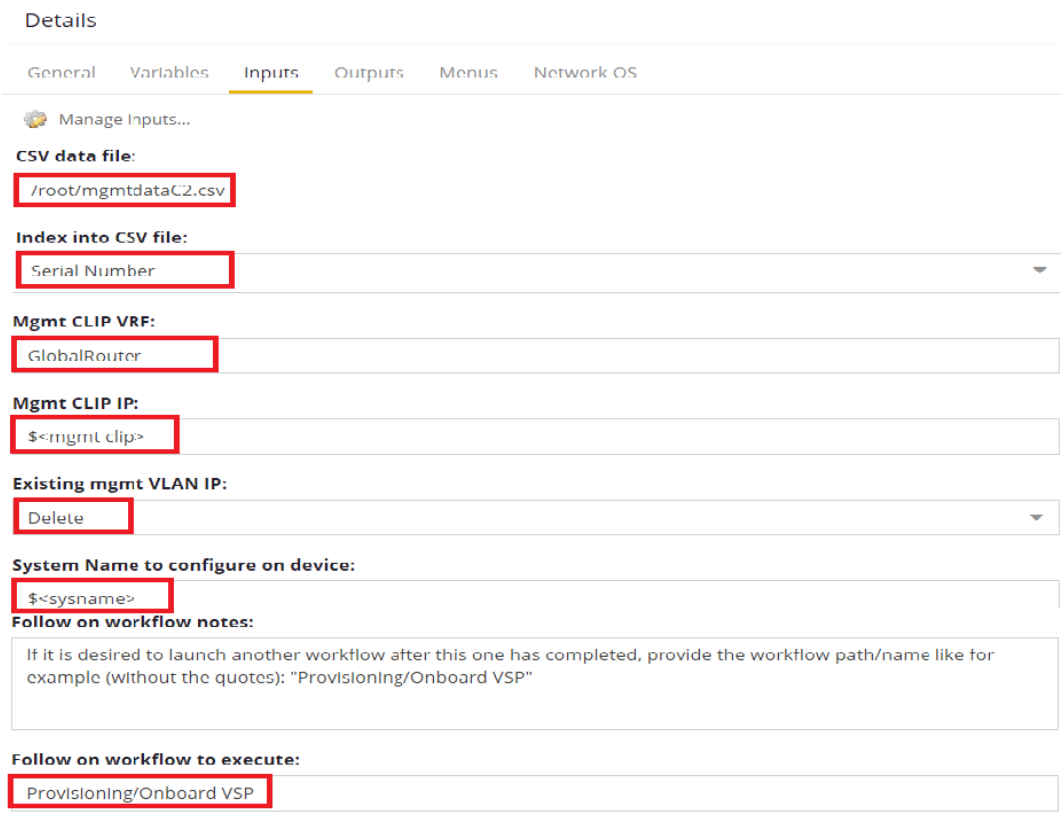
We need to create a CSV, then upload it to XIQ-SE's file structure. The CSV has three fields as shown in the table below. These values are set using the workflows we have uploaded in previous steps. Each switch to be onboarded needs its own entry in this CSV.

1. Create CSV using the data in the table below. Name it 'mgmtdataC2.csv'
2. SFTP 'mgmtdataC2.csv' to XIQ-SE. It can be left in the root directory. Note the directory containing the csv, 'pwd' shows the current file path.
3. In XIQ-SE's GUI Navigate the to **Tasks** > **Workflows** > **Onboard Mgmt CLIP** > **Details** > **Inputs**.
4. Input the settings in the screenshot below into the workflows inputs

Example CSV Format:

serial number	mgmt clip	sysname
JA022113G-00014	10.22.255.31	Jackson
JA142233G-00320	10.22.255.32	Gorham

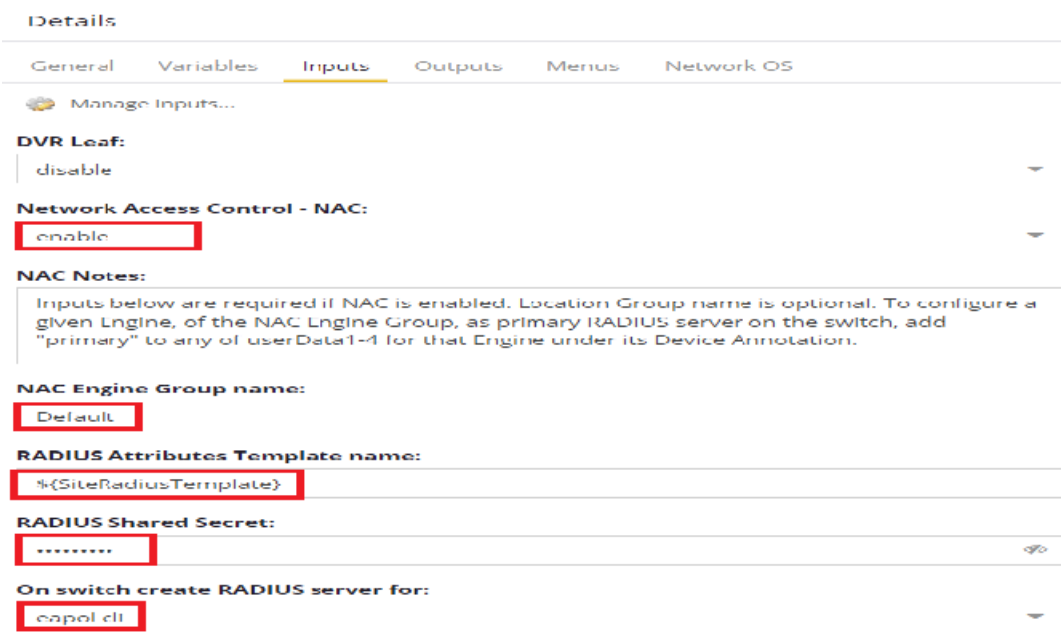
Example Workflow Inputs:



Edit inputs for the *Onboard VSP* workflow in XIQ-SE

In XIQ-SE Navigate to**Tasks** > **Workflows** > **Onboard VSP** > **Details** > **Inputs**.

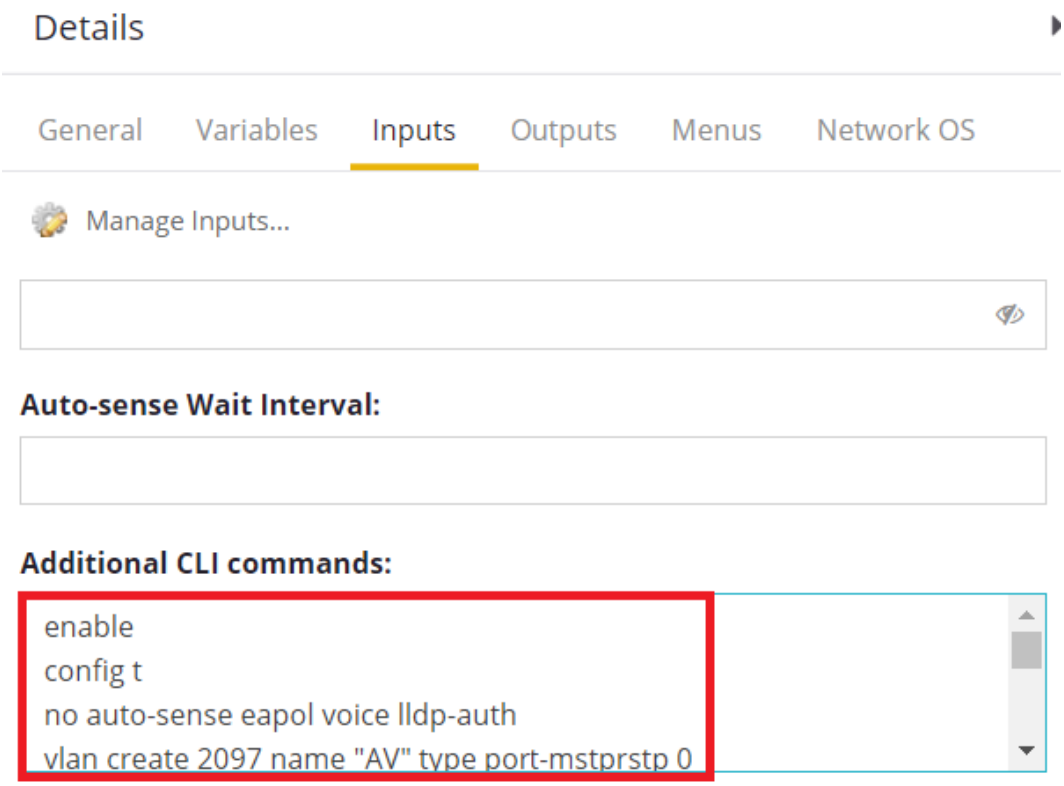
Fill in the workflow inputs as seen in the screenshot below. DVR Leaf, NAC, and RADIUS are dropdowns, the rest are fields for strings. In additional CLI commands we input the custom variables we created earlier for our VLAN/I-SID's.



Input the commands below in the **additional CLI commands** box:

Note
Below commands are used in Multicast Vlans to Create VLAN Manually and enable multicast. Regular VLANs are created by Radius VSA used in Policies.

```
enable
config t
no auto-sense eapol voice lldp-auth
vlan create 2097 name "AV" type port-mstprstp 0
vlan i-sid 2097 120977
int vlan 2097
mvpn-isid 0
ip spb-multicast enable
exit
vlan create 2129 name "Students" type port-mstprstp 0
vlan i-sid 2129 121297
int vlan 2129
mvpn-isid 0
ip spb-multicast enable
exit
```



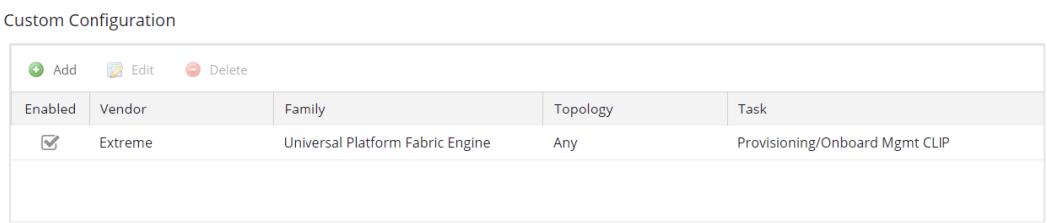
Add the Workflows to ZTP+ Onboarding

Uploaded Workflows must be added under Custom Configuration in the site to take effect.

To Add a Workflow to the Device onboarding procedure, follow the steps below:

Navigate to **Network** > **Devices** > **OZ Campus 2** > **Actions** > **Custom Configuration** > **Add**.

Provide details of Vendor, Family, Topology and Task from drop down.



Configure NAC Rules in XIQ-SE

In XIQ-SE Navigate to **Control** > **Access Control** > **Configurations** > **Default** > **Rules**.

Radius VSA Extreme Dynamic Client Assignments

Update Organization 3 with below VSA format:

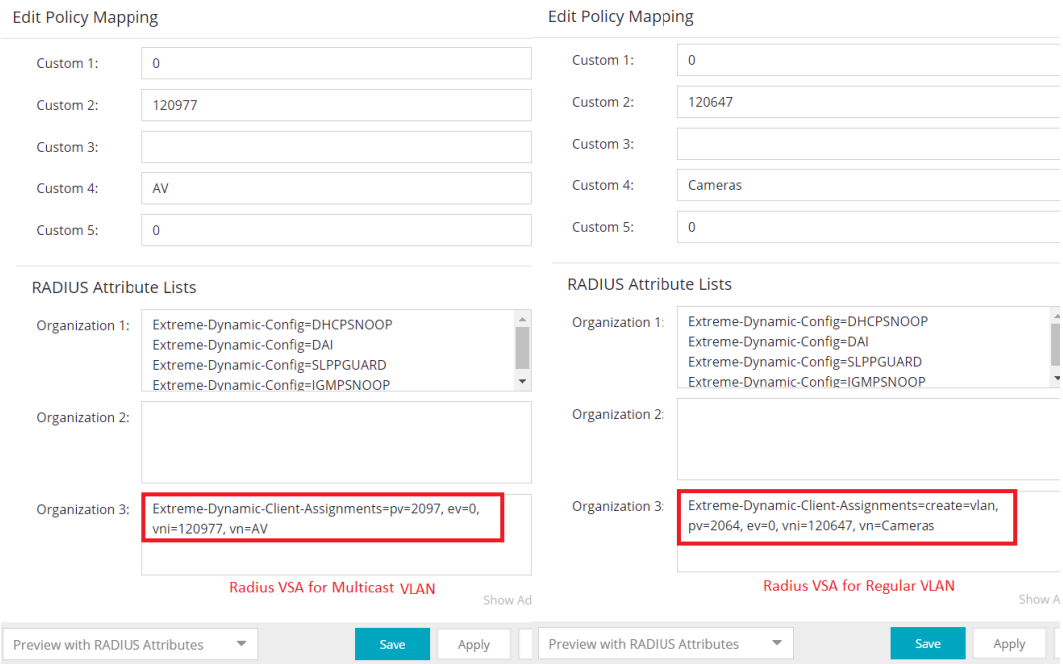
For Statically configured VLANs (Auto-sense Voice or Data VLANs or VLANs requiring multicast):

Extreme-Dynamic-Client-Assignments=pv=2097, ev=0, vni=120977, vn=AV

If VLAN Is not configured with multicast (spb-multicast enable) in 3.1.3 & 3.1.4 use below.

For all other VLANs that are created dynamically:

Extreme-Dynamic-Client-Assignments=create=vlan, pv=2064, ev=0, vni=120647, vn=Cameras

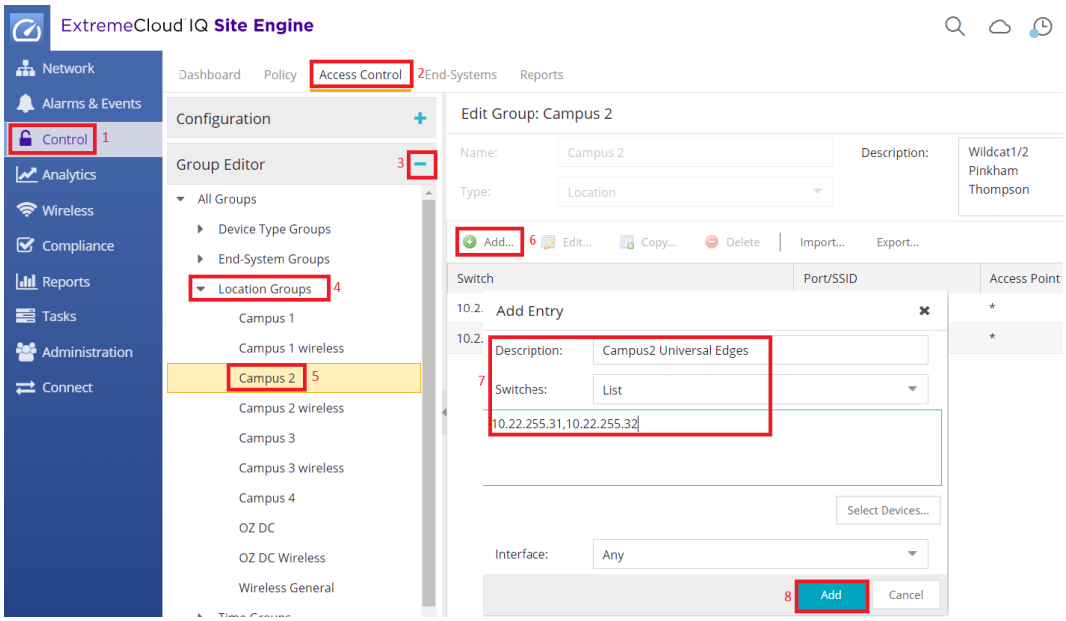


Update Location Group:

Update Location Group (Campus 2), add IP addresses of Universal Edge switches.

To Update location group navigate to **Control** > **Access Control** > **Group Editor** > **Location Groups** > **Campus 2** > **Add**.

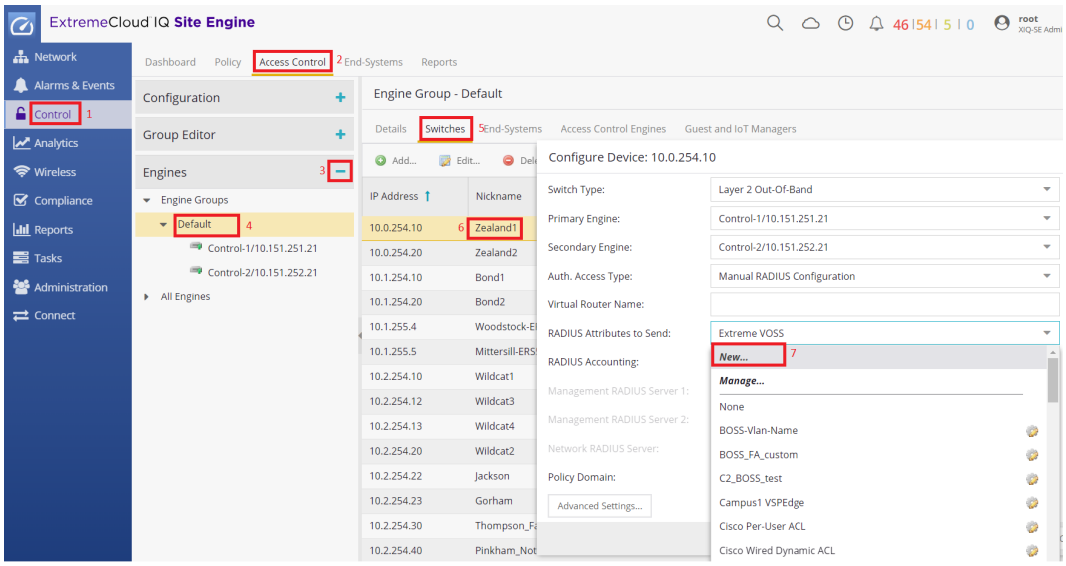
Provide the required details. (Provide a list of CLIP IP addresses of switches to be automated. This group is used by Control to determine where an end user is connecting and what rules should be applied).

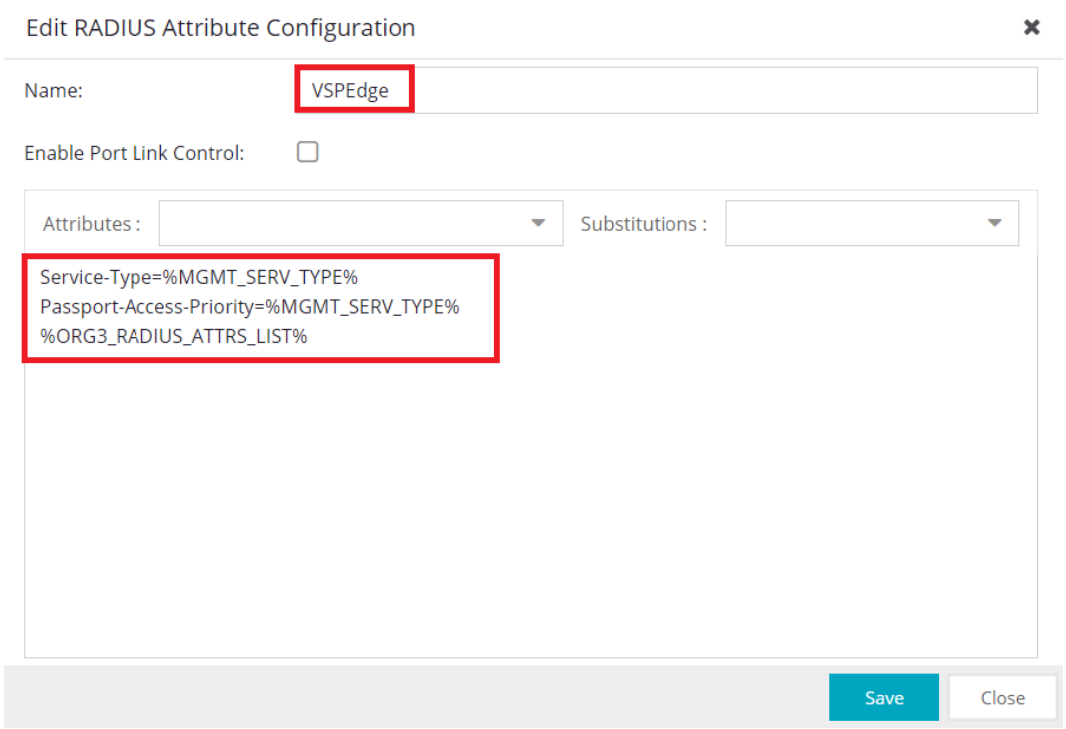


Create Radius Attributes for ZTP+ Edge Switches

Radius Attributes required to authentication of Onboard Edge switches.

To create **Radius Attributes**, navigate to **Control** > **Access Control** > **Engines** > **Engine Groups** > **Default** > **double click any device** > **Radius Attributes to send** > **New** > **provide details**.





Radius details:

Name: VSPEdge

Attributes:

- Service-Type=%MGMT_SERV_TYPE%
- Passport-Access-Priority=%MGMT_SERV_TYPE%
- %ORG3_RADIUS_ATTRS_LIST%

Enforce XIQ-SE Control - **Control** > **Access Control** > **Engines** > **Enforce** > **Enforce All** .

Configure ZTP+

Enable ZTP+ Globally

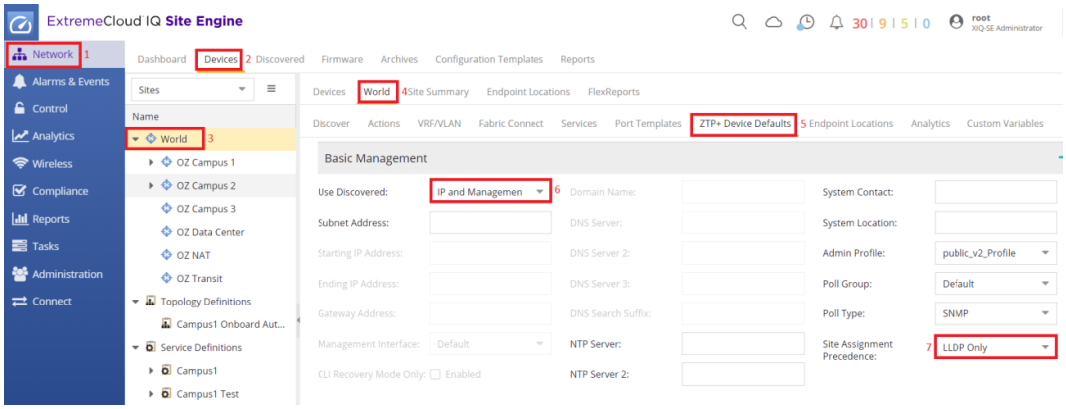
ZTP has to be enabled globally and per campus on XIQ-SE

To enable ZTP+ Globally, navigate to **Network** > **Devices** > **World** > **ZTP+ Device Defaults**.

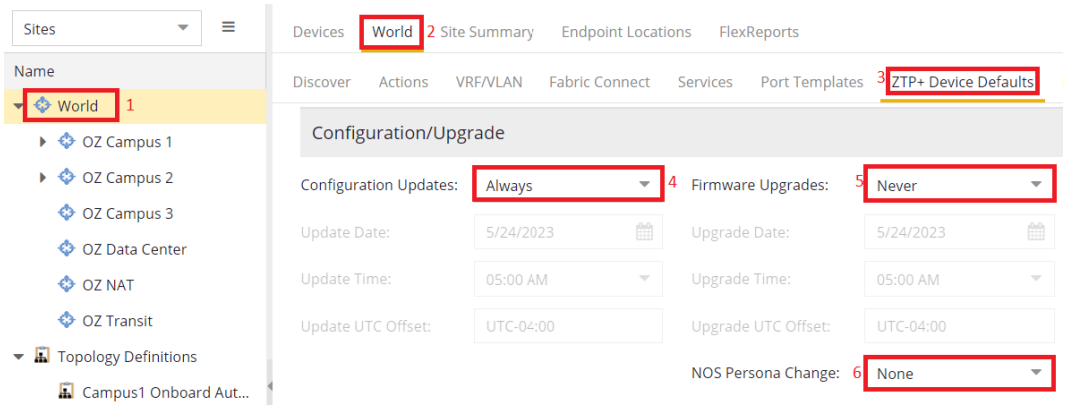
Select **Use Discovered** to **IP and Management Interface**.

Select **Site Assignment Precedence** to **LLDP Only**.

Save the site using the save button at the bottom right



Change the Configuration/Upgrade as below.



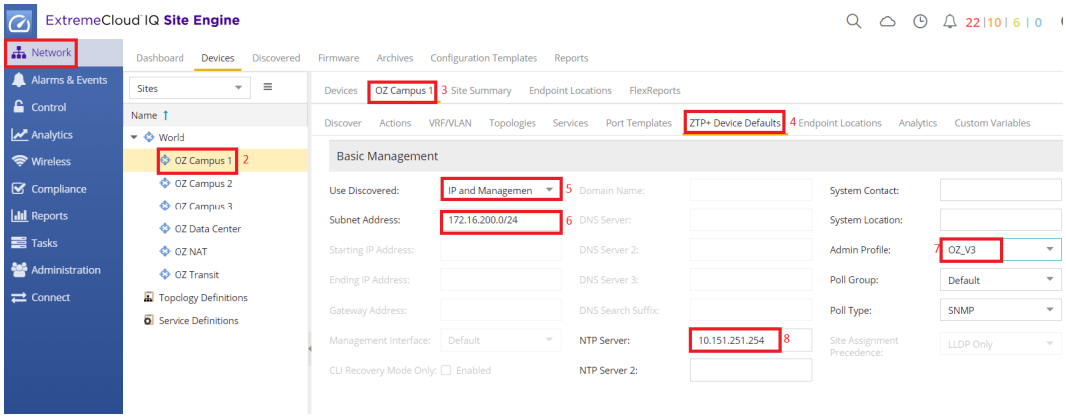
Enable ZTP+ for Campus 2

In XIQ-SE navigate to **Network** > **Devices** > **OZ Campus 2** > **OZ Campus 2** > **ZTP+ Device Defaults**.

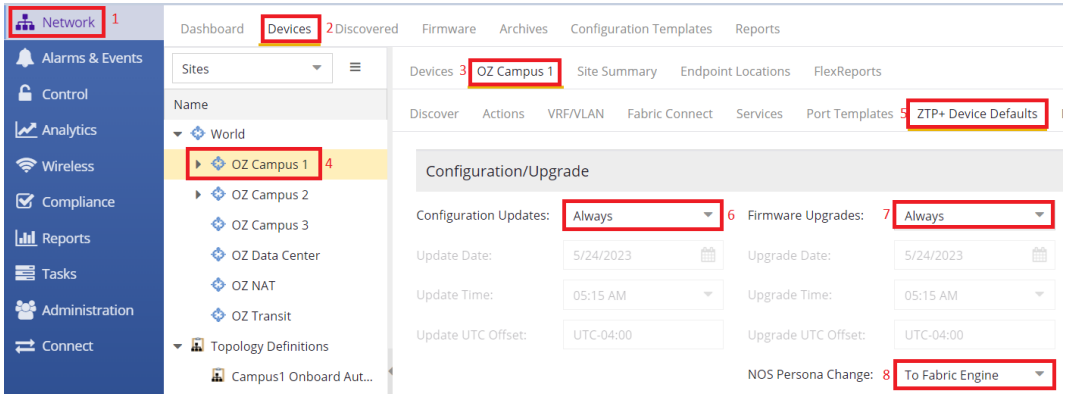
- Use Discovered: IP and Management Interface
- Admin Profile: OZ_V3

- Poll Type: SNMP
- NTP Server: 10.151.251.254

Save the Site using the button on the bottom right



Change the Configuration/Upgrade as below.



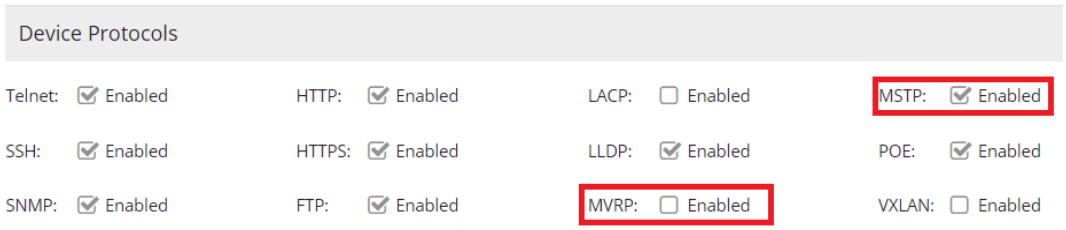
Select ZTP+ Switching Protocols

To Configure switching protocols on Campus 2

Navigate to **Network** > **Devices** > **OZ Campus 2** > **ZTP+ Device Defaults**.

Uncheck MVRP : to avoid learning MAC on wrong ports, which breaks ZTP+

Check MSTP : MSTP to enable protocol in port templates



Upload Firmware into XIQ-SE

Configured on: XIQ-SE

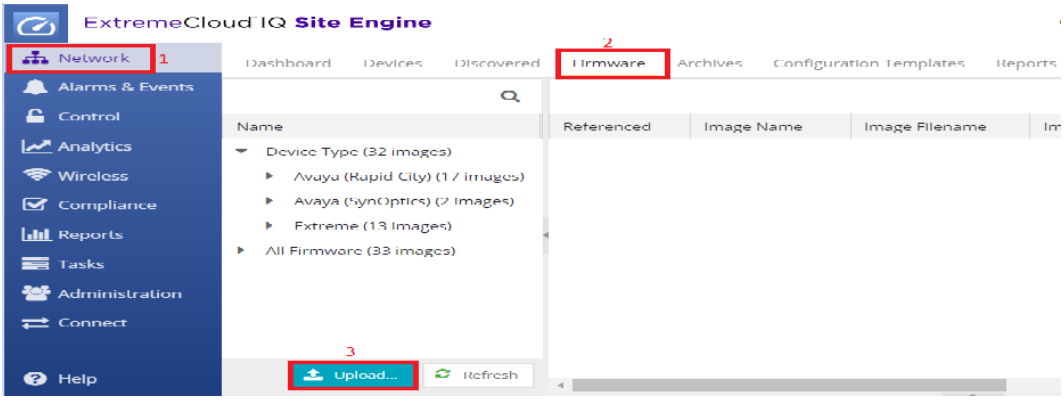
XIQ-SE can perform Switch firmware upgrades automatically during the on-boarding process.

Select the reference image for a particular model after uploading the necessary firmware files to the XIQ-SE.

Note
When uploading firmware to XIQ-SE you are prompted to select the file transfer type the firmware uses to download to switches. Selecting the correct value is important as it changes where the firmware lives inside the XIQ-SE file structure. For Universal switches running Switch Engine TFTP is used by default so we need to place the Fabric Engine image used during the persona flip in the TFTP directory. If you would like to also upgrade devices already running Fabric Engine to the version being uploaded, we need to also upload it to the SFTP directory.

Navigate to **Network** > **Firmwares** > **Upload**.

Upload the firmware image to XIQ-SE

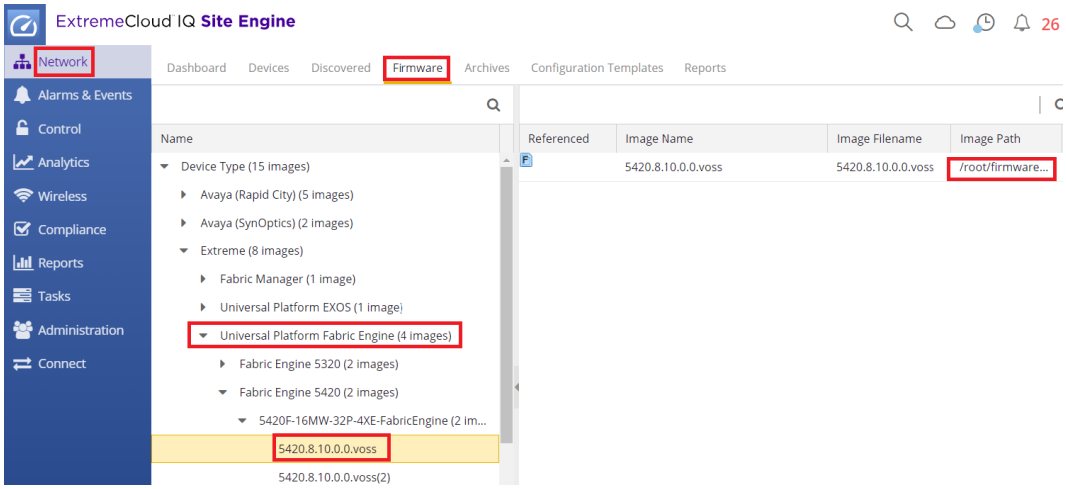


Note
Upload Firmware using both the TFTP and the SFTP option during upload.

Select the required firmware image as reference image.

1. Navigate to **Network** > **Firmware** > **Expand the Device Type** navigation tree and select the folder for the type of device.
2. Right-click the firmware file you downloaded and select **Set as Reference Image**.

Note
Use the SFTP image (/root/firmware/images) as the reference image rather than TFTP (/tftpboot/firmware/images/).



Onboard New Edge Switches

Connect uplinks from all Edge switches.

1. Connect edge switch uplink to the primary 7400 (Wildcat 3)
2. Go the the XIQ-SE GUI and navigate to **Network** > **Campus 2**.
3. Wait for the edge switches to appear with their final names and Ips

During the onboarding process you can check the **Discovered** tab in XIQ-SE to monitor the device status.

Move Client Devices

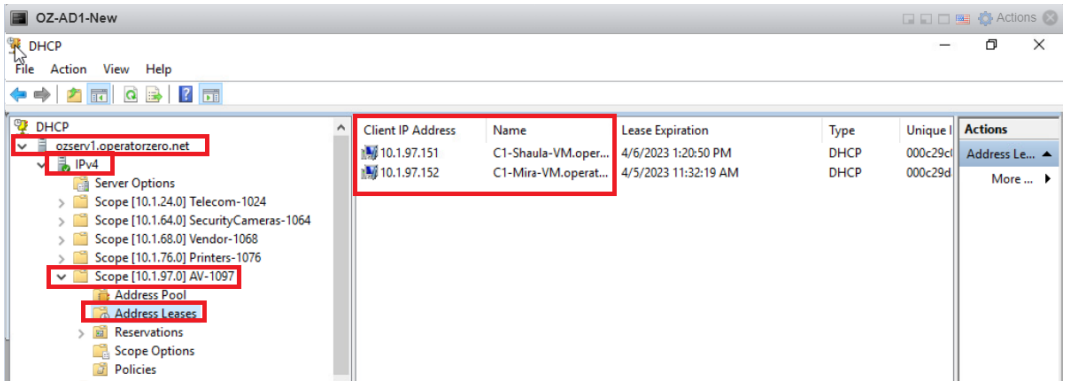
Migrate one AP, Camera, Windows VM & IP Phone and check the Network Reachability

Physically move one Client Uplink cable to New Edge and check below:

- DHCP IP address
- Authentication status
- Internet access
- Policy hitting on NAC

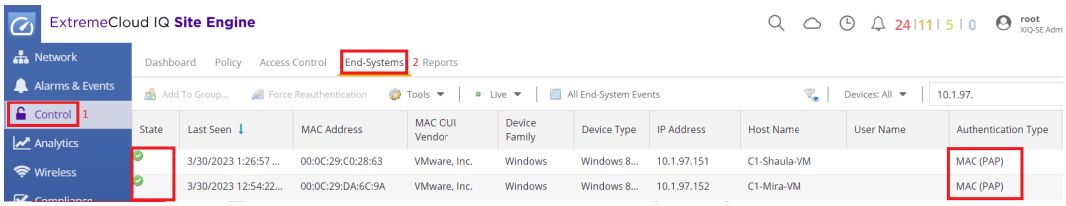
DHCP IP Address:

Verify the IP address DHCP leases in DHCP servers.



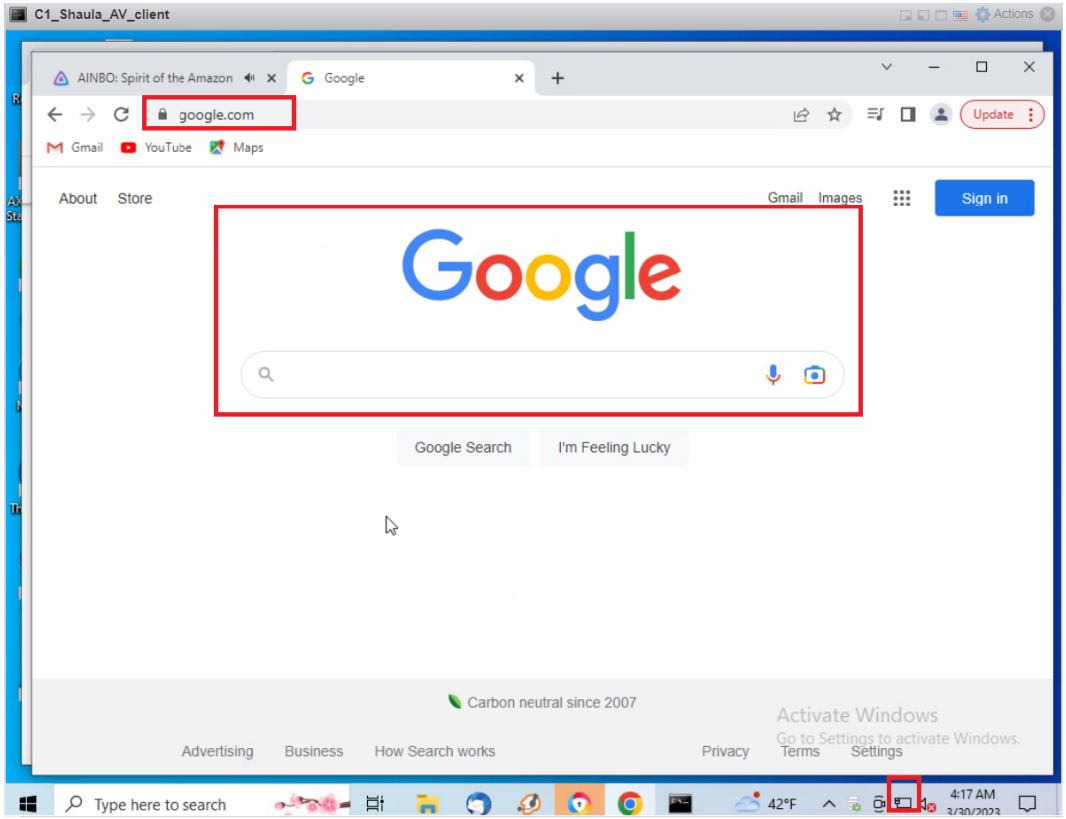
Authentication Status:

Verify authentication status in XIQ-SE.



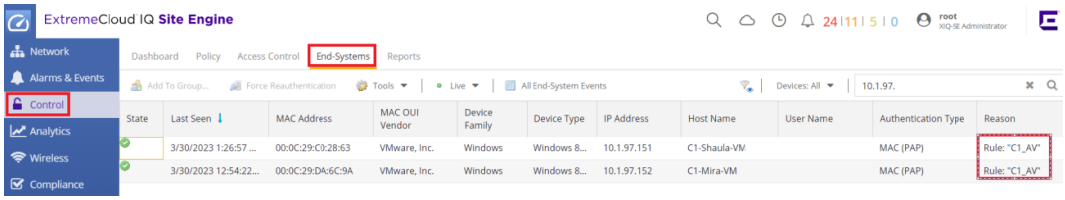
Internet Access:

Verify Internet access for the client.



Extreme Control Rules:

Verify the client is getting both the expected rule, and an appropriate IP address for that VLAN.



Migrate all Clients one by one

Physically move all clients one by one to New Edges.