

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*.

Icon	Notice type	Alerts you to
-ݣੑੑ	Тір	Helpful tips and notices for using the product
	Note	Useful information or instructions
•	Important	Important features or instructions
<u>.</u>	Caution	Risk of personal injury, system damage, or loss of data
	Warning	Risk of severe personal injury

Table 1: Notes and warnings

Convention	Description
screen displays	This typeface indicates command syntax, or represents information as it is displayed on the screen.
The words <i>enter</i> and <i>type</i>	When you see the word <i>enter</i> 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 <i>type</i> .
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 2: Text

Table 3: Command syntax

Convention	Description
bold text	Bold text indicates command names, keywords, and command options.
<i>italic</i> 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

Open Source Declarations

Some software files have been licensed under certain open source licenses. Information is available on the Open Source Declaration page.

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

Scenario on page 10 Topology on page 10 Hardware & Versions on page 12 Migration Summary on page 12

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

- 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 on page 14 Redistribute Multi-Area on Wildcat3 & Wildcat4 on page 27 Connect Topology connections (Core to Network) on page 27

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 У vlan members remove 1 1/1-1/50 interface loopback 1 ip address 1 10.2.254.212/255.255.255 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 У 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
V
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
У
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

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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

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 apply redistribute unicast
isis multi-area ip apply redistribute routed-multicast
multi-area 12 redistribute i-sid permit-all
isis multi-area 12 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:

				ISIS Adjacenci	.es			
INTERFACE	L STATE	UPTIME P	RI HOLDTIME	SYSID	HOST-NAME	STATUS	AREA	AREA-NAME
Port1/45	1 UP	16:22:40 1	27 26	0049.2200.6000	Wildcat 4	ACTIVE	HOME	area-49.bb0
PortVirtual	1 UP	16:22:28 1	27 0	92bb.00ff.fff0	vn-area-49.bb00	ACTIVE	HOME	area-49.bb0
Port1/49	1 UP	16:22:35 1	27 24	0049.bb00.1000	VSP-8600-10	ACTIVE	REMOTE	area-49.bb0
Port1/45	1 UP	16:22:40 1	27 23	887e.25be.d886	Wildcat 4	ACTIVE	REMOTE	area-49.bb0
PortVirtual	1 UP	16:22:28 1	27 0	92bb.02ff.fff0	vn-area-49.bb02	ACTIVE	REMOTE	area-49.bb0

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) on page 29 Add Both 7400's to XIQ-SE Control on page 30 Add 7400's to XIQ-SE Analytics on page 31 Verify XIQ-SE SNMP and RADIUS connectivity with the 7400's on page 34 Import the Onboard MGMT Clip and Onboard VSP workflows into XIQ-SE on page 35 Configure Workflows in XIQ-SE on page 36 Configure NAC Rules in XIQ-SE on page 40 Configure ZTP+ on page 44 Onboard New Edge Switches on page 47 Move Client Devices on page 47

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

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

C ExtremeClo	ExtremeCloud IQ Site Engine Q C (P) A 3211418 0 O root X0,52 Administrative C											
👬 Network 1	Dashboard Devices Discovered Firms	ware Archiv	es Configuration	emplates Reports								
🔔 Alarms & Events	Sites 👻 🚍	Sites E B Devices 02 Campus 2 Site Summary Endpoint Locations FlesReports										
Control	Name											
Analytics	🔻 💠 World	• Add 04	E CAPOIL									ו ~
奈 Wireless	🕨 💠 OZ Campus 1	Status	Name 1	Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware	Reference	Connector
Compliance	ØZ Campus 2	•	Pinkham_Notch	/World/OZ Campus 2	10.2.254.40	Available: 1	Up: 1807 Dow	ERS4850GTS-PWR+	ERS Series	v5.12.6.007		
III Reports	OZ Campus 3	•	Thompson_Falls	/World/OZ Campus 2	10.2.254.30	Available: 1	Up: 1807 Dow	ERS4850GTS-PWR+	ERS Series	v5.12.6.007		
Tasks	💠 OZ Data Center	•	Wildcat1	/World/OZ Campus 2	10.2.254.10	Available: 1	Up: 1807 Dow	VSP-8284XSQ	VSP Series	8.8.1.0		
	OZ NAT	•	Wildcat2	/World/OZ Campus 2	10.2.254.20	Available: 1	Up: 1808 Dow	VSP-8284XSQ	VSP Series	8.8.1.0		
	OZ Transit											
	In a computer of the second seco											
	Service Definitions	1										
	Campus1											
	Campus1 Test											
		4										
A Help		« <	Page 1 of	1 > » 2	Reset	Bookmark					Dis	playing 1 - 4 of 4
1												

Select Add Device.

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

Add Devic	e	? 🗙	Add Device	e ? X
IP Address:	10.2.254.12		IP Address:	10.2.254.13
Profile:	OZ_V3	•	Profile:	OZ_V3
Nickname:	Wildcat 3		Nickname:	Wildcat 4
Poll Status	s Only		Poll Statu:	5 Only
🗌 Run Site's	Add Actions		🗌 Run Site's	Add Actions
	ОК Арріу	Close		OK Apply Close

Add Both 7400's to XIQ-SE Control

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

Select A	Add.											
ExtremeClo	ud IQ Site Engine						90	🕒 🗘 32 l'	141810 @	XQ-SE Administrator		
A Network	Dashboard Policy Access Control 2	nd-Systems Reports										
🔔 Alarms & Events	Configuration +	Engine Group -	Engine Group - Default									
Control 1		Details Switche	Details Switches 6 End. Systems Access Control Engines Givest and IoT Managers									
Analytics	Group Editor -											
🗢 Wireless	Engines 3	• Add_ / 2	-dit 😉 Delete 🛛 📦 I	serresh								
G Compliance	 Engine Groups 4 	IP Address 1	Nickname	Status	System Name	Primary Engine	Secondary Engine	Policy/VLAN	Policy Domain	Authentication Access Type		
III Reports	▼ Default 5	10.0.254.10	Zealand1	Contact Est	Zealand-1	10.151.251.21	10.151.252.21	Extreme VOSS		Manual RADIUS Configuratic		
📑 Tasks	Control-1/10.151.251.21	10.0.254.20	Zealand2	Contact Est	Zealand-2	10.151.251.21	10.151.252.21	Extreme VOSS		Manual RADIUS Configuratic		
🐏 Administration	Control-2/10.151.252.21	10.1.254.10	Bond1	Contact Est	Bond1	10.151.251.21	10.151.252.21	Extreme VOSS		Manual RADIUS Configuratio		
- Connect	 All Engines 	10.1.254.20	Bond2	Contact Est	Bond2	10.151.251.21	10.151.252.21	Extreme VOSS		Manual RADIUS Configuratio		
		10.1.255.4	Woodstock-ERS4926	Contact Est	Woodstock	10.151.251.21	10.151.252.21	Env - Extrem		Manual RADIUS Configuratic 🧃		
		10.1.255.5	Mittersill-ER55928	Contact Est	Mittersill	10.151.251.21	10.151.252.21	Env - Extrem		Manual RADIUS Configuratio		
		10.2.254.10	Wildcat1	Contact Est	Wildcat1	10.151.251.21	10.151.252.21	Extreme VOSS		Manual RADIUS Configuratio		
		10.2.254.20	Wildcat2	Contact Est	Wildcat2	10.151.251.21	10.151.252.21	Extreme VOSS		Manual RADIUS Configuratio		
		10.2.254.30	Thompson_Falls	Contact Est	Thompson_Falls	10.151.251.21	10.151.252.21	BOSS-Vlan-N		Manual RADIUS Configuration		
		10.2.254.40	Pinkham_Notch	Contact Est	Pinkham_Notch	10.151.251.21	10.151.252.21	BOSS-Vlan-N		Manual RADIUS Configuratio		
		10.3.254.10	Cabot	Contact Est	Cabot	10.151.251.21	10.151.252.21	Extreme VOSS		Manual RADIUS Configuratic		
		10.3.255.2	Lancaster	Contact Est	10.3.255.2	10.151.251.21	10.151.252.21	Env - Extrem		Manual RADIUS Configuratio		
		10.3.255.3	Groveton	Contact Est	10.3.255.3	10.151.251.21	10.151.252.21	Env - Extrem		Manual RADIUS Configuratio		
		10.11.255.31				10.151.251.21	10.151.252.21	VSPEdge		Manual RADIUS Configuratio		
		10.11.255.32	Easton	Contact Est	Easton	10.151.252.21	10.151.251.21	Oz C1 VOSS	Campus1 ZTP	Manual RADIUS Configuratio		
Help	Enforce Refresh	10.99.99.1	Bond 3	Contact Est	Bond3	10.151.251.21	10.151.252.21	VSPEdge		Manual BADIUS Configuratic*		
<	Last Updated: 5/22/2023 8:04:24 PM Uptime: 6 Days 08:046:	10								9		

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.

Add Switches to Access Control Engine Grou	p: Def	ault		×
3 Add Device	Q	Switch Type:	Layer 2 Out-Of-Band	*
OZ-XCC1		Primary Engine:	Control-1/10.151.251.21	-
OZ-XCC2		Secondary Engine:	Control-2/10.151.252.21	-
OZFM		Auth. Access Type:	Manual RADIUS Configuration	-
OZPurview		Virtual Router Name:		
OperatorZeroNAT				
Pinkham_Notch		RADIUS Attributes to Send:	VSPEdge	*
Thompson_Falls		RADIUS Accounting:	Enabled	*
Wildcat1				
Wildcat2	-	Management RADIUS Server 1:		Ŧ
🗹 🔍 Wildcat3		Management RADIUS Server 2:		~
💽 🖲 Wildcat4	_	Natwork BADILIS Conver		~
Woodstock-ERS4926		Network RADIOS Server.		
🔲 🍨 Zealand1		Policy Enforcement Point 1:		~
🗌 🍨 Zealand2		Policy Enforcement Point 2:	None	v
🗌 🌒 Zealand3				
🔲 🌒 Zealand4		Policy Domain:	Do Not Set	*
Grouped By (31 devices)		Advanced Settings		
🕨 🔲 🗢 Campus 1 (4 devices)				
🕨 🔲 🥌 Campus 2 (4 devices)				
🕨 🔲 🔍 Campus 3 (3 devices)				
			Save	Close

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**.

ExtremeClo	ud IQ Site Engine						90	🕒 🗘 32	14 8 0 🧕	NQ-SE Administrator	
A Network	Dashboard Policy Access Control I	End-Systems Repor	Z								
Alarms & Events Control	Configuration +	Engine Group	Engine Group - Default								
Analytics	Group Editor +	Details Switc	nes End-Systems Acc	ess Control Engines	Guest and IoT Ma	inagers					
🗢 Wireless	Engines O-	🔷 Add 🍺	Edit 😂 Delete	C Refresh							
Compliance	▼ Engine Groups	IP Address 1	Nickname	Status	System Name	Primary Engine	Secondary Engine	Policy/VLAN	Policy Domain	Authentication Access Type	
III Reports	▼ Default	10 Access Cor	trol Engine Enforce				2 × 0	Extreme VOSS		Manuai RADIUS Configuratic	
📑 Tasks	Control-1/10.151.251.21	10 Engin	e IP Address	Status	Result	Details	21	Extreme VOSS		Manual RADIUS Configuratio	
😻 Administration	Control-2/10.151.252.21	10 🖸 🗌 Contr	xl-1 10.151.251.21	Audit Comple	Warnings	Expand for details	21	Extreme VOSS		Manuai RADIUS Configuratio	
➡ Connect	 All Engines 	10 🖸 🗌 Contra	N-2 10.151.252.21	Audit Comple	Warnings	Expand for details	21	Extreme VOSS		Manuai RADIUS Configuratio	
		10					21	Env - Extrem		Manual RADIUS Configuratic	
		10					21	Env - Extrem		Manual RADIUS Configuratic	
		10 Eorce Reco	nfiguration for All Switches	Eorce Reconfig	uration for Captive I	Portal	21	Extreme VOSS		Manual RADIUS Configuratio	
		10	Barananan	C) refer fielding	or autor rot copure i		8	Extreme VOSS		Manual RADIUS Configuration	
		10		Audit	Preview	Enforce All	Close 21	BOSS-Vlan-N		Manuai RADIUS Configuratio	
		10.2.254.40	Pinkham_Notch	Contact Est	Pinkham_Notch	10.151.251.21	10.151.252.21	BOSS-Vlan-N		Manuai RADIUS Configuratio	
		10.3.254.10	Cabot	Contact Est	Cabot	10.151.251.21	10.151.252.21	Extreme VOSS		Manuai RADIUS Configuratio	
		10.3.255.2	Lancaster	Contact Est	10.3.255.2	10.151.251.21	10.151.252.21	Env - Extrem		Manuai RADIUS Configuratio	
		10.3.255.3	Groveton	Contact Est	10.3.255.3	10.151.251.21	10.151.252.21	Env - Extrem		Manual RADIUS Configuration	
		10.11.255.31				10.151.251.21	10.151.252.21	VSPEdge		Manual RADIUS Configuratio	
		10.11.255.32	Easton	Contact Est	Easton	10.151.252.21	10.151.251.21	Oz C1 VOSS	Campus1 ZTP	Manuai RADIUS Configuratio	
Help	C Refresh	10.99.99.1	Bond 3	Contact Est	Bond3	10.151.251.21	10.151.252.21	VSPEdge		Manuai RADIUS Configuratic	
<	Lest Updated: 5/22/2023 8:38:54 PM Uptime: 6 Days 07:20	543								8	

Add 7400's to XIQ-SE Analytics

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

Click Add.

C ExtremeClo	ud'IQ Site Engine	Q 0	Q (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c				
A Network	Dashboard Browser Application Flows	Fingerprints Packet Ca	ptures Configuration Reports				
Alarms & Events	2 Q	Engine Configuration	n: OZPurview (10.151.251.19)				
Control	Engines	Flow Collection Type:	App Telemetry	Store Slow Client Data:			
Analytics 1	3 CZPurview (10.151.251.19)	Collection Privacy Level:	Maximum Access	Store Application Site Data:			
S Wireless	4 🕰 Configuration	Client Aggregation:	IP Address	Store External Server Data:	2		
Tasks	(•) Virtual Sensors	Sensor Log Level:	Informational -	Store Short-Term Flow			
警 Administration	Status	Max End-Systems in Hourly Details:	200000 🗘	Enable Fabric Mode:			
₽ Connect	Ф ⁶ Configuration	Access Control Int	tegration				
		Application Telem	etry Sources				6
		🗿 Add 7 🍺	Edit 😂 Delete				
		Name	II Add Application T	elemetry Source 🛛 🗙 _a	ERSPAN VLAN	ERSPAN IP	Exporter IP
		Wildcat2	1 Source: 8 Sele	ect ····		10.2.254.20	10.2.254.20
		Wildcat1	1			10.2.254.10	10.2.254.10
		Cabot	1	OK Cancel		10.3.254.10	10.3.254.10 🗸
		<					

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



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

Dashboard Devices Discovered	Firmware /	Archives Configur	ation Templates Repo	orts						
Sites Devices OZ Campus 2 Site Summary Endpoint Locations FlexReports										
Name O Add Device B Export to CSV =										хQ
🔻 💠 World										
💠 OZ Campus 1	Status	Name 🕇	Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware	Referer
💠 OZ Campus 2	•	Wildcat1	/World/OZ Campus 2	10.2.254.10	Available: 1	Up: 181 Do	VSP-8284XSQ	VSP Series	8.10.0.0	1
OZ Campus 3	•	Wildcat2	/World/OZ Campus 2	10.2.254.20	Available: 1	Up: 181 Do	VSP-8284XSQ	VSP Series	8.10.0.0	1
💠 OZ Campus4-GNS		Wildcat3	/World/OZ Campus 2	10.2.254.12	Available: 1	Up: 181 Do	VSP-7400-48Y-8C	VSP Series	8.10.0.0	1
💠 OZ Data Center	•	Wildcat4	/World/OZ Campus 2	10.2.254.13	Available: 1	Up: 181 Do	VSP-7400-48Y-8C	VSP Series	8.10.0.0	4
💠 OZ NAT										
💠 OZ Transit										
Topology Definitions	4									
Service Definitions										

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.
--------------------------	---------------	------------------	---------------	---------

C ExtremeClo	ud IQ Site Engine						9 0 C		1 0 0 O root XIQ-SE Administrator	E
🚠 Network	Workflow Dashboard Sch	heduled Tasks Saved Tasks Scripts V	Vorkflows 2							
🜲 Alarms & Events	User Workflows -	No data to display							Details	•
🔓 Control	▼ Workflows								No data to display	
Analytics	℃ Change perso									
🗢 Wireless	℃ Change perso									
Compliance	℃ Onboard Mg									
Lill Reports	℃ Onboard VSP									
Tasks 1	∼ test	Import Workflow						×		
Administration		Import a new workflow.								
≓ Connect		Overwrite existing workflow								
		Press Elle Marco	Override Workflow Name	5	Charles	Information.				
		Remo File Name	(optional)	Size	Status	Information				
		4								
							6 Inport C	lose		
	Create Workflow									
	Create Group									
	Rename									
	Save As									
	Import 4									
	Export									
Help	🗢 👻 3 🌣 Refresh									
<	A Last Updated: 5/30/2023 3:05	I5:14 PM Uptime: 0 Days 00:53:03								

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

Devices	OZ Campu	us 2 Site Su	immary	Endpoin	t Locations	FlexReports						
Discover	Actions	VRF/VLAN	Fabric Co	onnect	Services	Port Templates	ZTP+ D	evice Default	s Endpoi	nt Locations	Analytics	Custom Variables
🕢 Add	🔯 Edit	🤤 Delete										
		Scop	e				Variable					
Category		Site		Туре		Name 🕇		Туре		Value		
Site	*	Global	•			SiteRadiusT	emp 🔻	String		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.
- 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:

Details						
General	Variables	Inputs	Outputs	Menus	Network OS	
🎲 Manage	e Inputs					
CSV data fi	le:	_				
/root/mgn	ntdataC2.csv					
Index into	CSV file:					
Serial Nur	nber					-
Mgmt CLIP	VRF:					
GlobalRou	ter					
Mgmt CLIP \$≤mgmt cl	IP:					
Existing mg	mt VLAN IP:	:				
Delete						•
System Nar	ne to config	ure on de	vice:			
\$ <sysnam Follow on w</sysnam 	e> vorkflow not	tes:				
lf it is desir example (v	ed to launch vithout the q	another v uotes): "Pr	vorkflow afte ovisioning/C	er this one l Inboard VS	nas completed, provide the workflow path/name like for P"	
Follow on w	orkflow to e	execute:				
Provisionir	ng/Onboard \	VSP				

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.

Details						
General	Variables	Inputs	Outputs	Menus	Network OS	
🎲 Manag	je Inputs					
DVR Leaf:						
disable						-
Network A	ccess Contro	ol - NAC:				
enable						-
	5:					
NAC Engin	e Group nan	er Data1-4 I	oroup, as pr for that Engi	imary RADI ne under it:	os server on the switch, a s Device Annotation.	aa
Default						
RADIUS At	tributes Ten	nplate nan	ne:			
*{SiteRad	liusTemplate)	}				
RADIUS Sh	ared Secret:					
						SP0
On switch	create RADI	US server	for:			
capol di]					-

Input the commands below in the additional CLI commands box:

Note

-0-0-0-

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
```

Details						
General	Variables	Inputs	Outputs	Menus	Network OS	
🌼 Manag	ge Inputs					
						Ø)
Auto-sense	e Wait Interv	val:				
Additional	CLI commai	nds:				
enable						
config t						
no auto-s	sense eapol v	oice lldp-au	ıth			
vlan crea	<u>te 2097 name</u>	e "AV" type	port-mstprs	tp 0		•

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.

Custom Co	Custom Configuration										
Add	📝 Edit 🛛 🤤 Delete										
Enabled	Vendor	Family	Topology	Task							
\checkmark	Extreme	Universal Platform Fabric Engine	Any	Provisioning/Onboard Mgmt CLIP							

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

Edit Policy Mappi	ng	Edit Policy Mappi	ing
Custom 1:	0	Custom 1:	0
Custom 2:	120977	Custom 2:	120647
Custom 3:		Custom 3:	
Custom 4:	AV	Custom 4:	Cameras
Custom 5:	0	Custom 5:	0
RADIUS Attribu	te Lists	RADIUS Attribu	ute Lists
Organization 1:	Extreme-Dynamic-Config=DHCPSNOOP Extreme-Dynamic-Config=DAI Extreme-Dynamic-Config=SLPPGUARD Extreme-Dynamic-Config=IGMPSNOOP V	Organization 1:	Extreme-Dynamic-Config=DHCPSNOOP Extreme-Dynamic-Config=DAI Extreme-Dynamic-Config=SLPPGUARD Extreme-Dvnamic-Config=IGMPSNOOP
Organization 2:		Organization 2:	
Organization 3:	Extreme-Dynamic-Client-Assignments=pv=2097, ev=0, vni=120977, vn=AV	Organization 3:	Extreme-Dynamic-Client-Assignments=create=vlan, pv=2064, ev=0, vni=120647, vn=Cameras
	Radius VSA for Multicast VLAN Show Ad		Radius VSA for Regular VLAN Show A
Preview with RADIUS	Attributes	Preview with RADIUS	Attributes

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).

ExtremeCloud IQ Site Engine Q	○ ₽
Access Control 2End-Systems Reports	
Alarms & Events Configuration + Edit Group: Campus 2	
Group Editor 3 Name: Campus 2 Description: W	ildcat1/2
✓ Analytics Type: Location The All Groups	iompson
 Wireless Device Type Groups Add G Z Add G Z Edit Copy Delete Import Export 	
Line Reports Switch Port/SSID	Access Point
Tasks Campus 1 10.2. Add Entry X	*
Administration Campus 1 wireless 10.2. Description: Campus 2 Universal Edges	*
Campus 2 5 7 Switches: List	
Campus 3	
Campus 3 wireless	
Campus 4 Select Devices	
OZ DC Vireless Interface: Any 💌	
Wireless General 8 Add Cancel	

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.

ExtremeClo	ud IQ Site Engine				Q 0	⊕	0 O root XIQ-SE Adm
🚠 Network	Dashboard Policy Access Control 2 End	d-Systems Report	ts				
🜲 Alarms & Events	Configuration +	Engine Group	- Default				
Control 1	Group Editor +	Details Switch	hes 5End-System	s Access Control Engines Gue	st and IoT Managers		
Analytics		🔾 Add 📝	Edit 🤤 Dele	Configure Device: 10.0.254.	10		
🗢 Wireless	Engines 3	IP Address	Nickname	Switch Type:	Layer 2 Out-Of-Band		
	Engine Groups Default	10.0.354.10	6 Zeeleedt	Primary Engine:	Control-1/10.151.251.21		
Lili Reports	Control-1/10.151.251.21	10.0.254.10	0 Zealand I	Secondary Engine:	Control-2/10.151.252.21		~
Tasks	Control-2/10.151.252.21	10.1.254.10	Bond1	Auth. Access Type:	Manual RADIUS Configura	ition	•
Administration	 All Engines 	10.1.254.20	Bond2	Virtual Router Name:			
≓ Connect		10.1.255.4	Woodstock-El	RADIUS Attributes to Send	Extreme VOSS		-
		10.1.255.5	Mittersill-ERS	RADIUS Accounting:	New 7		
		10.2.254.10	Wildcat1	RADIOS Accounting.	Manage		
		10.2.254.12	Wildcat3		None		
		10.2.254.13	Wildcat4	Management RADIUS Server 2:	BOSS-Vlan-Name		0
		10.2.254.20	Wildcat2	Network RADIUS Server:	BOSS_FA_custom		۵
		10.2.254.22	Jackson	Policy Domain:	C2_BOSS_test		0
		10.2.254.23	Gorham	Advanced Settings	Campus1 VSPEdge		۵
		10.2.254.30	Thompson_Fa		Cisco Per-User ACL		۵
		10.2.254.40	Pinkham_Not		Cisco Wired Dynamic ACL		۵
Name:		dge					~
Enable Port	Link Control: 🗌						
Attributes	:			Substitutions :			-
Service-Typ Passport-A %ORG3_R/	pe=%MGMT_SERV_TYPE% kccess-Priority=%MGMT_S ADIUS_ATTRS_LIST%	ERV_TYPE9	%				
						Save	Close

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

C ExtremeClo	ExtremeCloud IQ Site Engine						9 4 30 9 1 5	0 O root	ninistrator		
A Network 1	Dashboard Devices 2 Discovered	d Firmware Archives	Configuration Templates	Reports							
🔔 Alarms & Events	Sites 💌 🗏	Devices World 4Site	Summary Endpoint Loc	ations FlexReports							
🔓 Control	Name	Discover Actions Vi	RE/VLAN Eabric Connect	Services Port Templates	ZTP+ Device [Defaults 5	Endpoint Locations	Analytics Custom V	ariables		
Analytics	👻 🗇 World 3	World 3									
奈 Wireless	🕨 💠 OZ Campus 1	Basic Management							1.1		
Compliance	🕨 🚸 OZ Campus 2	Use Discovered:	IP and Managemen 🔻	6 Domain Name:			System Contact:				
III Reports	OZ Campus 3	Subnet Address:		DNS Server:			System Location:				
Tasks	OZ Data Center						Admin Profile:	public v2 Profi			
😤 Administration	OZ Transit						Poll Group:	Default			
≓ Connect	▼ I Topology Definitions						Poir Group.	Deladit			
	📓 Campus1 Onboard Aut						Poll Type:	SNMP	*		
	▼ Service Definitions	Management Interface:	Default 👻	NTP Server:			Site Assignment Precedence:	7 LLDP Only	*		
	Campus1			NTP Server 2:							
	A Computit Test										

Change the Configuration/Upgrade as below.

Sites 💌 🔳	Devices World 2 Site Summary Endpoint Locations FlexReports									
Name	Discover Actions VR	Discover Actions VRF/VLAN Fabric Connect Services Port Templates ³ ZTP+ Device Defaults								
Vorld 1						_				
🕨 💠 OZ Campus 1	Configuration/Upgr	ade								
🕨 💠 OZ Campus 2	Configuration Updates:	Always	▼ 4	Firmware Upgrades: 5	Never	•				
OZ Campus 3		5/2//2023	<u>#</u> #	Ungrado Dato:	5/24/2023	et to				
💠 OZ Data Center		JI 271 2023			512412025					
🚸 OZ NAT	Update Time:	05:00 AM	~	Upgrade Time:	05:00 AM	Ψ.				
💠 OZ Transit	Update UTC Offset:	UTC-04:00		Upgrade UTC Offset:	UTC-04:00					
🔻 📓 Topology Definitions				NOS Persona Change: 6	None	-				
📓 Campus1 Onboard Aut 📍				tios resolutionalizer o	None					

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

ExtremeClo	oud IQ Site Engine						↓ 22 10 6	0 (
📥 Network	Dashboard Devices Discovered	Firmware Archives C	onfiguration Templates	Reports				
Alarms & Events	Sites 👻 🗮	Devices OZ Campus 1	3 Site Summary En	dpoint Locations FlexReports	5			
Control	Name 🕇	Discover Actions V	RF/VLAN Topologies	Services Port Templates	ZTP+ Device Defaults 4 En	dpoint Locations Analyti	cs Custom Variabl	es
Analytics	🔻 💠 World							
奈 Wireless	💠 OZ Campus 1 🛛 2	Basic Management	t					
Compliance	💠 OZ Campus 2	Use Discovered:	IP and Managemen	▼ 5 Domain Name:		System Contact:		
I.III Reports	💠 OZ Campus 3	61 M.	170.45.000.0404					
	💠 OZ Data Center	Subhet Address:	172.16.200.0/24	6 DNS Server:		System Location:		
Tasks	💠 OZ NAT			DNS Server 2:		Admin Profile:	7 OZ_V3	~
警 Administration	💠 OZ Transit			DNS Server 3:		Poll Group:	Default	-
≓ Connect	Topology Definitions							
	Service Definitions					Poll Type:	SNMP	•
		Management Interface:	Default	NTP Server:	10.151.251.254 8			~
		CLI Recovery Mode Only:		NTP Server 2:				

Change the Configuration/Upgrade as below.

A Network 1	Dashboard Devices 2Discovered	d Firmware Archives	Configuration Temp	plates Reports							
🔔 Alarms & Events	Sites 👻 🚍	Devices 3 OZ Campus 1	Site Summary	Endpoint Location:	s FlexReports						
🔓 Control	Name	Discover Actions VI		post Condess	Port Tomplate	as E ZTR: Davisa Dafa	aulte I				
Analytics	👻 💠 World	Discover Actions ve	REVIENN FADRIC CO	innect services	Port remplate	as 5 ZTP+ Device Dela	iuits				
奈 Wireless	🕨 💠 OZ Campus 1 🛛 4	▶ ♦ OZ Campus 1 4 Configuration/Upgrade									
🗹 Compliance	🕨 💠 OZ Campus 2					7	_				
III Reports	💠 OZ Campus 3	Configuration Updates:	Always	• 6 Firmwa	ire Upgrades:	Always	Ť				
Tacka	💠 OZ Data Center	Update Date:	5/24/2023	Upgrad	le Date:		Ê				
	OZ NAT	Update Time:	05:15 AM	🔻 Upgrad	le Time:	05:15 AM	~				
Administration	💠 OZ Transit										
⇄ Connect	 Topology Definitions 					010-04.00	_				
	📓 Campus1 Onboard Aut 📍			NOS P	ersona Change:	8 To Fabric Engine	-				

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

Devic	e Protocols						
Telnet:	🕑 Enabled	HTTP:	🕑 Enabled	LACP:	Enabled	MSTP:	🗹 Enabled
SSH:	🕑 Enabled	HTTPS:	🕑 Enabled	LLDP:	🕑 Enabled	POE:	🕑 Enabled
SNMP:	🐨 Enabled	FTP:	🕑 Enabled	MVRP:	Enabled	VXLAN:	🗌 Enabled

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.

Mote

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.

ExtremeClo	ud IQ Site Engine				
📫 Network 1	Dashboard Devices Discovered	Elrmware	Archives Configura	ation Templates — Repo	orts
Alarms & Events	Q				
🔓 Control	Name	Referenced	Image Name	Image Filename	Inc
Analytics	 Device Type (32 images) 				
🗇 Wireless	 Avaya (Rapid City) (17 images) 				
🗹 Compliance	 Avaya (SynOptics) (2 Images) 				
lill Reports	 Extreme (13 Images) All Firmware (22 images) 				
Tasks	 Air Pir Hiware (35 images) 				
🐸 Administration					
≓ Connect					
	3				
Help	🛓 Upload 🈂 Refresh	4			

Upload the firmware image to XIQ-SE



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.



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

ExtremeClo	ud IQ Site Engine			Q (S 🕒 🗘 26
📥 Network	Dashboard Devices Discovered Firmware Archives	Configuration T	emplates Reports		
🔔 Alarms & Events	Q				C
🔓 Control	Name	Referenced	Image Name	Image Filename	Image Path
Analytics	▼ Device Type (15 images)	F	5420.8.10.0.0.voss	5420.8.10.0.0.voss	/root/firmware
奈 Wireless	 Avaya (Rapid City) (5 images) 				
🗹 Compliance	 Avaya (SynOptics) (2 images) 				
III Reports	 Extreme (8 images) 				
Tasks	 Fabric Manager (1 image) 				
	 Universal Platform EXOS (1 image) 				
	Universal Platform Fabric Engine (4 images)				
Connect	Fabric Engine 5320 (2 images)	4			
	 Fabric Engline 3420 (2 integes) E420E 16MW 22P 4VE EnbricEngino (2 im 				
	5420.8.10.0.voss				
	5420.8.10.0.0.voss(2)				

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.

OZ-AD1-New						🖬 🏟 Actions 🛞
CHCP File Action View Help						o x
← ➡ 2 📰 🖻 🗟 🗊						
DHCP A czserv1.operatorzero.net Server Options Scope [10.1.24.0] Telecom-1024 Scope [10.1.34.0] SecurityCameras-1064 Scope [10.1.64.0] SecurityCameras-1064 Scope [10.1.60.0] Vendor-1068 Scope [10.1.76.0] Printers-1076 Scope [10.1.97.0] AV-1097 Address Pool Address Pool Reservations Scope Options Policies Policies	Client IP Address	Name C1-Shaula-VM.oper C1-Mira-VM.operat	Lease Expiration 4/6/2023 1:20:50 PM 4/5/2023 11:32:19 AM	Type DHCP DHCP	Unique I 000c29cl 000c29d	Actions Address Le A More >

Authentication Status:

Verify authentication status in XIQ-SE.

C ExtremeClo	ud IQ	Site Engine							D 4 24 11 1	5 0 O root XIQ-SE Admi
📥 Network	Dashb	oard Policy Access	Control End-Systems	2 Reports						
Alarms & Events	🔬 Ada	🔬 Add To Group 🚚 Force Reauthentication 🔅 Tools 🔻 📔 Live 👻 🔠 All End-System Events 🛛 🍢 Devices: All 💌 🗌 10							0.1.97.	
Control 1	State	Last Seen 👃	MAC Address	MAC OUI Vendor	Device Family	Device Type	IP Address	Host Name	User Name	Authentication Type
🗢 Wireless	٢	3/30/2023 1:26:57	00:0C:29:C0:28:63	VMware, Inc.	Windows	Windows 8	10.1.97.151	C1-Shaula-VM		MAC (PAP)
Compliance	9	3/30/2023 12:54:22	00:0C:29:DA:6C:9A	VMware, Inc.	Windows	Windows 8	10.1.97.152	C1-Mira-VM		MAC (PAP)

Internet Access:

Verify Internet access for the client.

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	dvertising Business	How Search works		Privacy	Go to Setting	s to activ	ate Window

Extreme Control Rules:

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

C ExtremeCloud IQ Site Engine								Q 🛆 🕑 🗘 24 11 5 0 😶 root XQ-3E Administrator				
A Network	Dashboard Policy Access Control End-Systems Reports											
🔔 Alarms & Events	🍰 Add To Group 🔊 Force Reauthentication 🛛 🌞 Tools 🔻 📔 e Live 👻 📑 All End-System Events						nts	🗞 Devices: All 🕶 10.1.97. 🗶 Q				
🔓 Control	State	Last Seen	MAC Address	MAC OUI	Device	Device Type	IP Address	Host Name	User Name	Authentication Type	Reason	
Analytics				Vendor	Family							
🗢 Wireless 🧭	0	3/30/2023 1:26:57	00:0C:29:C0:28:63	VMware, Inc.	Windows	Windows 8	10.1.97.151	C1-Shaula-VM		MAC (PAP)	Rule: "C1_AV"	
	0	3/30/2023 12:54:22	00:0C:29:DA:6C:9A	VMware, Inc.	Windows	Windows 8	10.1.97.152	C1-Mira-VM		MAC (PAP)	Rule: "C1_AV"	
Compliance												

Migrate all Clients one by one

Physically move all clients one by one to New Edges.