

VSP Edge Deployment Guide without NAC



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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 ExtremeSwitching 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.				
х у	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.				

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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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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.

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- · 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.



Overview

Prerequisites on page 9 Objectives on page 9 Network Diagram on page 10

This guide describes the steps needed to automate the deployment of a VSP switch running VSP Operating System Software (VOSS) 8.3 or later in environments where Network Access Control (NAC) is not used. The process uses a combination of automation features in VOSS Fabric Connect and in ExtremeCloud[™] IQ - Site Engine onboarding.

Prerequisites

- An existing Fabric Connect core switch running VSP Operating System Software (VOSS) 8.3 or later
- Extreme Management Center (XMC) 8.5 or later, or ExtremeCloud IQ Site Engine version 21.9 or later (this guide uses ExtremeCloud IQ Site Engine)
- A DHCP/DNS server reachable on the existing Fabric Connect network
- An active ExtremeCloud IQ account for running ExtremeCloud IQ Site Engine and for changing the switch persona from ExtremeXOS (EXOS) to VOSS

Objectives

This guide describes the steps needed to automate the deployment of a VSP switch using a combination VSP Fabric Connect automation features and ExtremeCloud IQ - Site Engine, without the use of Network Access Control (NAC). In particular, this guide describes the following:

- Preparing ExtremeCloud IQ Site Engine for a successful automated, zero-touch deployment of a VSP switch
- Automating VSP ZTP+ provisioning
- Converting a universal hardware switch from EXOS to VOSS using ExtremeCloud IQ or ExtremeCloud IQ - Site Engine
- Using VSP Zero Touch Fabric and port auto-sense functionality

Network Diagram

This guide uses the following network setup as an example of a typical VSP edge customer deployment. In particular it consists of the following devices:

- Two VSP core/distribution switches running VOSS 8.3 or later. These represent an existing customer Fabric Connect deployment.
- Two universal-hardware switches as edge/access switches. Any VSP switch will work as an edge switch if it supports VOSS 8.3 or later.
- One IP phone; Mitel 6920 model.
- One Extreme Wireless AP, model AP505i.
- One client VM acting as the wired client connected behind the phone.
- One ExtremeCloud IQ Site Engine instance.
- One Extreme Campus Controller (XCC) instance.
- ExtremeCloud IQ profile for onboarding the universal hardware edge switches.



It is assumed in this guide that the two VSP core switches have already been deployed and are part of an existing Fabric network and reachable by ExtremeCloud IQ - Site Engine. This guide focuses on describing the additional configuration necessary to successfully onboard the VSP edge switches from a *factory default* condition where each edge switch does not have an existing configuration file present on the internal flash. The edge switches use ExtremeCloud IQ - Site Engine ZTP+ and the VOSS Zero Touch Fabric functionality to achieve a typical VSP edge deployment with the following characteristics:

- No more SMLT Clustering (MLAG) of the core nodes.
- Use of DVR Controller on the core nodes and DVR Leaf on the VSP edge.
- Use of Zero Touch Fabric as an alternative to edge switch stacking.
- Complete automation of VSP edge deployment.

The edge VSPs have no connection at all on their OOB Ethernet management ports, which is customary in campus access deployments. All management of these switches is inband and shows how VOSS 8.3 Zero Touch Fabric solves the chicken-and-egg problem of past times: cannot manage the switch inband until Fabric is deployed; cannot deploy Fabric without having management access to switch.

At the end of the deployment, all connected endpoints (IP phone, AP, client) must be operational without any need to have performed any manual configuration on the VSP edge switches and in particular on any of the access ports.

It should be noted that some fabric *seed* configuration is initially be required on the VSP core, and this guide covers that configuration in detail. But the real gains of Zero Touch Fabric are realized when deploying the large quantities of edge access switches in any Fabric design.

The same network diagram tries to depict both the physical topology of the setup as well as the logical Fabric topology when deployed. The latter comprises 3 L2 VSNs where each is allocated an I-SID and an IP subnet.

The onboarding I-SID 15999999 is a special I-SID which is always unique across the whole Fabric (or area, if SPB multi-area is in use). This is because it is the default I-SID that a newly unboxed VSP, with no configuration, always uses when onboarding itself after it has joined the existing fabric.

The other two L2 VSNs are the Voice I-SID for the IP phones and the Data I-SID for client connectivity. Currently, if Network Access Control (NAC) is not in use, only one global Data I-SID can be set on the VSP edge. As of VOSS 8.4.2, it is possible to set a different Data ISID per port, and in a future version of ExtremeCloud IQ - Site Engine it will be possible to set these via ZTP+ port templates. This guide will be updated when these enhancements become available.

All these L2 VSNs are IP routed in the base GRT (VRF-0) of the core VSPs and edge DVRLeaf nodes. Use of VRF and L3VSNs is of course possible but is not be covered in this guide as it changes nothing from the VSP to the edge model.



Pre-Existing Configuration

A review of the Extreme Campus Controller pre-Eexisting configuration. Extreme Campus Controller has already been configured with one site for the VSP edge Deployment.

E Extreme C	ampus Cor	ntroller						↓ admin • VESI20 Swall 05:08:02:0025
Dashboard					TANCES:			1
Monitor 1	· 5%	Ma Il	20		KURYK	Sol -		1 Del
Sites 2					FALLES			
🔒 Devices	>			2 the second	Ry C			
A Networks	>			N-S-				
Gi Delleri								0
Configure	Sites	Search (search by site name or country)	Q Exact match					
& OnBoard	Status	Name	Country	# Roles	πь	letworks	# Devices	=
	•	3 Fabric Edge Sandbox	United States	2	1		1	

With a single device group for our AP505.

Extreme C	ampus Controller						٩	admin + VERIZO Small OS OS OZ ODZS
Dashboard	11 :=						Save	Clone Delete
ii. Monitor	- Name	Fabric Edge Sandbox						
Configure	Country	United States						
Q Sites	Timezone	United States: America/Net	w York 🔹					
🛓 Devices	FLOOR PLANS LOCAT	ION DEVICE GROUPS	SWITCHES ADVANCED					
🙏 Networks	>		0					Add
Policy	Name	AP Platform	Profile	RF Management Policy	# Roles	# Networks	# Devices	=
Adoption	Device Group	AP505	AP505-default	Default Smart RF	2	í.	1	

The following WLAN network is defined and assigned to the above device group.

E	Extreme Can	npus Controller	
8	Dashboard	1 =	
	4onitor ~		
1	Configure 1 A	Network Name	Fabric Edge Data Building1
<u> </u>	i i i i i i i i i i i i i i i i i i i	SSID	Data Building1
0	Sites	Status	Enabled *
2,	Devices >	Auth Type	WPA2-Personal (PSK) * EDIT PRIVACY
2	Networks 2 >	Enable Captive Portal	
Q	Policy >	MAC-based authentication (MBA)	
	Adoption	Default Auth Role	Deny Access 🔻 🕲 🖍 🗊
4	ExtremeGuest	Default VLAN	Data Building1 (196) 🕐 🕑 🖍 🧻
0	AAA Policy	ADVANCED SCHEDULING	

And the associated VLAN is in fabric attach mode with the VLAN and I-SID.

Edit VLA	N		0 ×
Name	Data Building1		
Mode	Fabric Attach*		
VLAN ID	196	Tagged 🗸	
I-SID	2100196		
	ADVANCED		
			CANCEL



ExtremeCloud IQ - Site Engine Preparation for VSP Edge

Site Creation

Under ExtremeCloud IQ - Site Engine Network, the following sites are created:

ExtremeClo	ud IQ Site Engine						
Network 1	Dashboard Devices D	iscovered Firmware	Archives Config	uration Te	mplates Reports	i i	
🔔 Alarms & Events	Sites 👻	=	Devices World	Site S	ummary Endpoi	nt Locations Flex	Reports
Control	Name	• Add Device	Exp	port to CSV 🔳			
Analytics	🔻 💠 World		Device				
🛜 Wireless	🔻 💠 Building1		Status	Status	Name 1	Site	IP Address
III Reports	💹 Building1		0	٠	Fabric	/World	10.9.203.7
Tasks	▼ 💠 Building2		0	٠	NAC	/World	10.9.203.6
📽 Administration	Building2		٥	٠	VSP-core1	/World	10.9.193.131
	Topology Definitions		0	٠	VSP-core2	/World	10.9.193.132
≓ Connect	Service Definitions						

A map of the same name is already defined for each site, and the corresponding map has already been set under the **Site Actions add to Map** option.

In this deployment guide the VSP edge switches are onboarded into the Building1 site

Admin Profile Creation

Under Administration, the following admin profile is created to manage the switches:

A Network	2 Drofiles	aformation Cort	ficates Ontions	Device Types Pack	up/Pastora Diagnostics	Client ADI Access			
🔔 Alarms & Events	🔾 Add 🔯 Edit 🧯	Delete Defau	It Profile: public_v1_	Profile - Defau	It Access Control Engine Profil	e: snmp_v3_profile *	•		
Control	Name	SNMP Version	Read Credential	Write Credential	Max Access Credential	Read Security Level	Write Security Level	Max Access Security Level	CLI Credential
Analytics	public_v2_Profile	SNMPv2	public_v2	public_v2	public_v2				Default
奈 Wireless	EXTR_v2_Profile	SNMPv2	public_v2	private_v2	private_v2				Default
III Reports	snmp_v3_profile	SNMPv3	default_snmp_v3	default_snmp_v3	default_snmp_v3	AuthPriv	AuthPriv	AuthPriv	Default
🚟 Tasks 📲	VOSS_v1_Profile	SNMPv1	public_v1	private_v1	private_v1				Default RWA
Administration	BOSS_ESM_v1_Profile	SNMPv1	public_v1	private_v1	private_v1				Default BOSS ESM
→ Connect	BOSS_4800_v1_Profile	SNMPv1	public_v1	private_v1	private_v1				Default BOSS 48
- connect	BOSS_v1_Profile	SNMPv1	public_v1	private_v1	private_v1				Default BOSS
	VOS5_v2_Profile	SNMPv2	public_v2	private_v2	private_v2				Default RWA
	BOSS_ESM_v2_Profile	SNMPv2	public_v2	private_v2	private_v2				Default BOSS ESM
	BOSS_4800_v2_Profile	SNMPv2	public_v2	private_v2	private_v2				Default BOSS 48
	BOSS_v2_Profile	SNMPv2	public_v2	private_v2	private_v2				Default BOSS
	san_security_profile	SNMPv1	public_v1	public_v1	public_v1				SAN Security
	Servers	SNMPv3	default_snmp_v3	default_snmp_v3	default_snmp_v3	AuthPriv	AuthPriv	AuthPriv	Server
	Fabric Edge 3	SNMPv3	fabric_edge	fabric_edge	< No Access >	AuthPriv	AuthPriv	NoAuthNoPriv	FabricEdge

Which uses these SNMP of	credentials:
--------------------------	--------------

Edit SNMP Creder	ntial: fabric_edge		×
Credential Name:	fabric_edge		
SNMP Version:	SNMPv3		×
User Name:	admin		
Authentication Type:	SHA		
Authentication Password:	snmpauthcred		۲
Privacy Type:	AES		v
Privacy Password:	snmpprivcred		۲
		Save	Cancel

And these CLI credentials:

Edit CLI Credential: F	abricEdge		×
Description:	FabricEdge		
User Name:	admin		
Туре:	SSH		Ŧ
Login Password:	password		۲
Enable Password:	password		۲
Configuration Password:	password		۲
		Save	Cancel

These are non-default credentials, so they illustrate how ZTP+ is able to configure these credentials on the switch when it is onboarded for the first time.

Fabric Topology Definitions

Under ExtremeCloud IQ - Site Engine Network > Topology definitions, the following Fabric Connect topology settings are configured.

Network	Dashboard Devices Discovered Firmware	Archives Configuration Templates Reports
🔔 Alarms & Events	Sites 👻 🗏	Fabric Connect Fabric Topology Summary
Gentrol	Name	Fabric Infrastructure Settings
Analytics	🔻 💠 World	
奈 Wireless	🕨 💠 Building1	IS-IS Manual Area: 49.0000
III Reports	Building2	Primary BVLAN: 4051
📑 Tasks	▼ 📓 Topology Definitions	Secondary BVLAN: 4052
🐏 Administration	Fabric Connect 2	DvR Domain Settings
	Service Definitions	🔕 Add 🛛 Edit 🥥 Delete 🖓
		Name Domain ID
		Domain1 1
		Features
		S Multicast
		IP Shortcuts
		IPv6 Shortcuts

And they are assigned to both the Building1 and Building2 sites.



The VSP cores are already fabric configured. But when onboarding the VSP edge, the *Onboard VSP* workflow automatically converts the VSP edge into DVR Leaf nodes, and for this to happen the workflow must be able to read the DVR Domain ID from the site.

ExtremeCloud IQ - Site Engine Add-On Scripts and Workflows

The following ExtremeCloud IQ - Site Engine scripts and workflows from GitHub are used for automating the deployment of VSP edge.

Name	Туре	GitHub URL
Move to CLIP Mgmt IP	Script	https://github.com/ extremenetworks/

Name	Туре	GitHub URL
		ExtremeScripting/tree/master/ Netsight/oneview_CLI_scripts
Change persona to VOSS	Workflow	https://github.com/ extremenetworks/ ExtremeScripting/tree/master/ Netsight/oneview_workflows
Onboard VSP	Workflow	https://github.com/ extremenetworks/ ExtremeScripting/tree/master/ Netsight/oneview_workflows

The script named **Move to CLIP Mgmt IP** is downloaded using right-click and **Save link** as....

Then the script is imported into ExtremeCloud IQ - Site Engine by selecting **Tasks** > **Scripts** > **Import...**.

Workflow D	ashboard	Schedu	led Tasks Save	ed Tasks	Scripts	2 Workflows					
🔕 Add 👻	🛃 Edit.	. 🚯	Run 🥥 De	lete 🕻	Refresh	Import 3	xport				
Script Type	Name		Category	Saved	Wor	Modified By	Commen	·c			
Script Type			conception	Tasks	World	modified by	connen				
CLI	Import	Script									×
Python	Import a	new scrip	t.								
Python	S	elect File									
Python	Overw	vrite exist	ing scripts								
Python	Remo	File Na	me	(Override Sc	ript Name (optiona	al) Size	Status	Information		
Python											
Python											
Python											
Python											
Python											
Python	4										•
Python										Import	Close
	Workflow D Add ~ Script Type CLI Python P	Workflow Debts Workflow Debts Script Type Remote Script Type Import a Python Import a	Workflow Dabbard Schedul Import Script Import Script Python Import Script Python Select File. Python Overwrite exist Python Neme Python Python Python Remo Python File Na Python Python Python Select File. Python Python Python Python Python Select File. Python Python Python File Na Python Select File. Python Select File.	Workflow Dashboard Schedult Tasks Saw Image: Schedult Tasks Saw Script Type Image: Schedult Tasks Saw Script Type Name: Image: Schedult Tasks Saw Script Type Image: Schedult Tasks Saw Python Image: Schedult Tasks Saw Python Schedult Tasks Saw </th <th>Workflow Dashboard Schedule Tasks Savet Tasks Savet Tasks Soript Type Name Category Savet Tasks Script Type Name Category Savet Tasks Python Import Script Select File Select File Python Overwrite existing scripts P Python File Name Category Python File Name Category Python Select File Category Python Overwrite existing scripts Category Python File Name Category Python Select File Select File Python Select Fi</th> <th>Workflow Dashboard Schedule Tasks Saved Tasks Scripts Image: Add with the field of the fie</th> <th>Workflow Dashboard Schedule Tasks Saved Tasks Scripts Workflows Import Script Name Category Saved Tasks Wor Modified By Script Type Name Category Saved Tasks Wor Modified By Script Type Import Script Saved Tasks Wor Modified By Python Select File Python Python File Name Override Script Name (options) Python Python Python Python Python Python Python Python Python</th> <th>Workflow Dashboard Schedule Tasks Saved Workflows Workflows Image: Add with the product of the product of</th> <th>Workflow Debug Schedule Tasks Scripts Workflows Workflow Zeropt Add -</th> <th>Workflow Johnson Schedule Tasks Saved Tasks Scripts Workflows Add Bela Reno Reno Select File Select File Select File Select File Select File Select File Select File Select File Select File Select File Select File Select File Select File Select File Python Reno File Name (optional) Size Status Information Python Select File Select File<th>Workflow Juber Schedule Tasks Scripts Workflows Workflow Juber Refree Import. Seport Script Juber Name Delece Refree Import. Seport Script Juber Name Category Saved Tasks Workflows Modified By Comments Script Juber Import Script Import. Seport Seport Seport Python Import Script Import. Seport Seport Seport Python Refree Refree Seport Seport Seport Python Refree Refree Seport Seport Seport Python Refree Refree Seport Seport Seport Python Refree File Verride Script Name (optional) Size Status Information Python Refree Seport Seport Seport Status Information Python Seport Seport Seport Seport Seport Seport Seport Python Seport Seport Seport<!--</th--></th></th>	Workflow Dashboard Schedule Tasks Savet Tasks Savet Tasks Soript Type Name Category Savet Tasks Script Type Name Category Savet Tasks Python Import Script Select File Select File Python Overwrite existing scripts P Python File Name Category Python File Name Category Python Select File Category Python Overwrite existing scripts Category Python File Name Category Python Select File Select File Python Select Fi	Workflow Dashboard Schedule Tasks Saved Tasks Scripts Image: Add with the field of the fie	Workflow Dashboard Schedule Tasks Saved Tasks Scripts Workflows Import Script Name Category Saved Tasks Wor Modified By Script Type Name Category Saved Tasks Wor Modified By Script Type Import Script Saved Tasks Wor Modified By Python Select File Python Python File Name Override Script Name (options) Python Python Python Python Python Python Python Python Python	Workflow Dashboard Schedule Tasks Saved Workflows Workflows Image: Add with the product of	Workflow Debug Schedule Tasks Scripts Workflows Workflow Zeropt Add -	Workflow Johnson Schedule Tasks Saved Tasks Scripts Workflows Add Bela Reno Reno Select File Select File Select File Select File Select File Select File Select File Select File Select File Select File Select File Select File Select File Select File Python Reno File Name (optional) Size Status Information Python Select File Select File<th>Workflow Juber Schedule Tasks Scripts Workflows Workflow Juber Refree Import. Seport Script Juber Name Delece Refree Import. Seport Script Juber Name Category Saved Tasks Workflows Modified By Comments Script Juber Import Script Import. Seport Seport Seport Python Import Script Import. Seport Seport Seport Python Refree Refree Seport Seport Seport Python Refree Refree Seport Seport Seport Python Refree Refree Seport Seport Seport Python Refree File Verride Script Name (optional) Size Status Information Python Refree Seport Seport Seport Status Information Python Seport Seport Seport Seport Seport Seport Seport Python Seport Seport Seport<!--</th--></th>	Workflow Juber Schedule Tasks Scripts Workflows Workflow Juber Refree Import. Seport Script Juber Name Delece Refree Import. Seport Script Juber Name Category Saved Tasks Workflows Modified By Comments Script Juber Import Script Import. Seport Seport Seport Python Import Script Import. Seport Seport Seport Python Refree Refree Seport Seport Seport Python Refree Refree Seport Seport Seport Python Refree Refree Seport Seport Seport Python Refree File Verride Script Name (optional) Size Status Information Python Refree Seport Seport Seport Status Information Python Seport Seport Seport Seport Seport Seport Seport Python Seport Seport Seport </th

Then by selecting the XML file downloaded from GitHub, selecting the **Import** button, and selecting **Close**.

Import	Script					×		
Import a r	new script. elect File rrite existing scripts							
Remo	File Name 🕇	Override Script Name (optional)	Size	Status	Information			
0	Move_to_CLIP_Mgmt_IP.xml		34.7 KB					
9	Move_to_CLIP_Mgmt_I	P.xml	34.7 KB					
4								
					Import	Close		

The workflow named *ZTP+ Change the persona to VOSS* is downloaded and then imported under ExtremeCloud IQ - Site Engine **Tasks** > **Workflows**.

A Network	Workflow Dashboard Schedul	led Tasks Saved Tasks Scripts Workflows 2
🔔 Alarms & Events	User Workflows –	No data to display
Control	Workflows	
Analytics	Create Group	
🗢 Wireless	O Create Workflow	
LIII Reports	Import	
📑 Tasks 📘		

The file just downloaded is selected, followed by Import and then Close.

Import	Workflow					×
Import a r	new workflow. elect File vrite existing workflow					
Remo	File Name 🕇	Override Workflow Name (optional)	Size	Status	Information	
9	Change_persona_to_VC	055-8	7.6 KB			
					Imp	oort Close

Finally, the workflow named *Onboard VSP* is downloaded and then imported under ExtremeCloud IQ - Site Engine **Tasks** > **Workflows**.



The file just downloaded is selected, followed by Import and then Close.

ct File					
ile Name 🕇	Override Workflow Name (optional)	Size	Status	Information	
Onboard VSP-8.5.4.23v5	55.xwf	31 KB			
	e existing workflow ile Name 1 Inboard VSP-8.5.4.23V	t File e existing workflow ile Name	t File e existing workflow ile Name î Override Workflow Name (optional) Size mboard VSP-8.5.4.23v55.xwf 31 KB	t File e existing workflow ile Name 1 Override Workflow Name (optional) Size Status 31 KB	t File e existing workflow ile Name t Override Workflow Name (optional) Size Status Information anboard VSP-8.5.4.23v55.xwf 31 KB



VSP Core Preparation for Automated VSP Edge

Site Selection

When deploying VSP edge across multiple buildings, the goal is to have the switches automatically added to the correct ExtremeCloud IQ - Site Engine Site without any operator action.

To achieve this, it is sufficient to position the VSP core switches into the correct ExtremeCloud IQ - Site Engine Site and then let ZTP+ auto allocate VSP edge switches based on their LLDP neighbors to the core/distribution VSPs. How to configure ZTP+ to achieve this is covered in the ZTP+ configuration topic.

Navigate to the **Network > Devices > World** site. Select both VSP core switches, rightclick, and then select **Configure**.

Alarms & Events	Dashboard Devices Discovered Firmware	Arc	hives	Configuration Te	mpla	tes Reports						
	Name	0	Add De	vice 🔀 Exp	oort to	csv ≡	ns Hexkeports					
Se Wireless	World Suilding1		Status	Name 🕇		Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware
Lill Reports	Guilding2 Topology Definitions	▼	•	Fabric NAC 5		/World /World	10.9.203.7	Available: 1 Available: 1	Up: 4 Dow Up: 1 Dow	FABRICMGR Virtual Access Cont	Fabric Man Extreme C	21.9.10.4
答 Administration	Fabric Connect Service Definitions		•	VSP-core1 VSP-core2		/World FlexView	10.9.193.131	Available: 1 Available: 1	Up: 1 Dow Up: 1 Dow	VSP-4450GSX-PWR+ VSP-4450GSX-PWR+	VSP Series	8.4.0.0
					0	More Views						
		4			0	Compass Search	1					

Assign both switches to the Building1 site.

compare Device		-1		1		*
Device ID	System Name	Device Nickname	Device Type	Poll Type	Site Precedence	Site
0.9.193.132	VSP-core2	VSP-core2	VSP-4450GSX-PW	SNMP		/World
0.9.193.131	VSP-core1	VSP-core1	VSP-4450GSX-PW	SNMP		/World
1						
Device Device Anr	notation VRF Definitions	VLAN Definitions CLIP A	Addresses Topology	Services LAGs	Ports	
ystem Name:		Default Site:	/World	~ 2		
ontact:	http://www.extremenety	Poll Group:	/World			
	naparitimexa emenear		/World/Building1			
ocation:		Poll Type:	/World/Building2	Ψ		
dministration	Fabric Edge 🛛 🔻	SNMP Timeout:	5	\$		
rome:		SNMP Retries:	3	<u>^</u>		
eplacement Serial umber:				•		
emove from Service.	Π	Topology Layer:	L2 Access	*		
	0	Collection Mode:	Historical	-		
se Default WebView RL:		Collection Interval				
(ab)/(au) 11PL	https:///iiiiD	(minutes):	15	÷		
VEDVIEW URL:						

Select **Yes** in the confirmation popup.

0	Do you want to import the site configuration?	
U	WARNING: The existing VLAN Definition, Ports, and ZTP+ Device Settings configuration will be overwritten.	

Then select **Save** to commit.

Now navigate to the Building1 site that has been selected and make sure both VSP cores have been added.

Dashboard Devices Discovered Firmware	e Archives	Configuration Te	empla	ates Reports							
Sites 💌 🗮	Devices	Devices Building1 Site Summary Endpoint Locations FlexReports									
Name	O Add De	• Add Device 🗟 Export to CSV 🗮									
🔻 🗇 World											
Building1	Status	Name 1	•	Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware	
Building2	•	VSP-core1		/World/Building1	10.9.193.131	Available: 1	Up: 2 Dow	VSP-4450GSX-PWR+	VSP Series	8.4.0.0	
▼ 📓 Topology Definitions	•	VSP-core2		/World/Building1	10.9.193.132	Available: 1	Up: 2 Dow	VSP-4450GSX-PWR+	VSP Series	8.4.0.0	

Next, right-click on both VSP cores again and select Maps > Add to Map...

Dashboard Devices Discovered Firmware	Archives Configuration	Tem	plates Reports						
Sites 💌 🗮	Devices Building1	Site	Summary Endpoint Loo	ations FlexRepor	ts				
Name	• Add Device	Expor	t to CSV 🛛 🔳						
- I World	Status Name 1		Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware
Building1	status nome p		Site	in riddress				· unity	- minutes c
Building2	VSP-core1		/World/Ruilding1	10.9.193.131	Available: 1	Up: 2 Dow	VSP-4450GSX-PWR+	VSP Series	8.4.0.0
▼ 📓 Topology Definitions	VSP-core2		FlexView	10.9.193.132	Available: 1	Up: 2 Dow	VSP-4450GSX-PWR+	VSP Series	8.4.0.0
Fabric Connect			More views 🕨						
Service Definitions		٥	Configure						
		0	Compass Search						
		C	Rediscover						
		K	Clear Alarms						
		±.	Upgrade Firmware						
		0	Add to Device Group						
			More Actions 🔹 🕨						
			Archives 🕨						
			Tasks 🕨						
			Maps	Add to Map					
			Naturali	Carata Mag					
			Network	create Map					
			Policy 🕨	Create Map for	Locations				
	4			Search Maps					

Then enter the Building site that was chosen. Select **OK**.

Add	to Map		×
Map:	/World/Building1/Building1		
		ОК	Cancel

The VSP cores have now been added to the map.

Add to Map	Х
The devices were successfully added to /World/Building1/Building1	

Applying DVR Controller, VLAN and IP Configuration

The VSP cores need to route IP traffic across a number of VLANs/L2 VSNs. These VLANs do not exist on the VSP cores and must be created.

Because the VSP edge is onboarded as DVR Leaf nodes, the VSP cores also need to be configured as DVR Controllers and a DVR-GW IP is configured on the voice and data VLANs.



The above configuration is accomplished via SSH CLI.

Open an SSH session to both the VSP cores and paste the following commands:

VSP-core1	VSP-core2
enable config term dvr controller 1 vlan create 195 name "Voice" type port-mstprstp 0	enable config term dvr controller 1 vlan create 195 name "Voice" type port-mstprstp 0
<pre>vlan i-sid 195 2100195 interface Vlan 195 dvr gw-ipv4 10.9.195.1 dvr enable ip address 10.9.195.2/24 ip dhcp-relay fwd-path 10.9.255.130 ip dhcp-relay fwd-path 10.9.255.130 enable ip dhcp-relay fwd-path 10.9.255.130 mode bootp_dhcp ip dhcp-relay fwd-path 10.9.255.131 ip dhcp-relay fwd-path 10.9.255.131 enable ip dhcp-relay fwd-path 10.9.255.131 enable ip dhcp-relay fwd-path 10.9.255.131 enable ip dhcp-relay fwd-path 10.9.255.131 mode bootp_dhcp exit vlan create 196 name "Data" type port-mstprstp 0</pre>	<pre>vlan i-sid 195 2100195 interface Vlan 195 dvr gw-ipv4 10.9.195.1 dvr enable ip address 10.9.195.3/24 ip dhcp-relay ip dhcp-relay fwd-path 10.9.255.130 ip dhcp-relay fwd-path 10.9.255.130 enable ip dhcp-relay fwd-path 10.9.255.130 mode bootp_dhcp ip dhcp-relay fwd-path 10.9.255.131 ip dhcp-relay fwd-path 10.9.255.131 ip dhcp-relay fwd-path 10.9.255.131 enable ip dhcp-relay fwd-path 10.9.255.131 enable ip dhcp-relay fwd-path 10.9.255.131 mode bootp_dhcp exit vlan create 196 name "Data" type port-mstprstp 0</pre>
<pre>vlan i-sid 196 2100196 interface Vlan 196 dvr gw-ipv4 10.9.196.1 dvr enable ip address 10.9.196.2/24 ip dhcp-relay fwd-path 10.9.255.130 ip dhcp-relay fwd-path 10.9.255.130 mode bootp_dhcp ip dhcp-relay fwd-path 10.9.255.131 mode bootp_dhcp ip dhcp-relay fwd-path 10.9.255.131 mode bootp_dhcp ip dhcp-relay fwd-path 10.9.255.131 mode bootp_dhcp exit end</pre>	<pre>vlan i-sid 196 2100196 interface Vlan 196 dvr gw-ipv4 10.9.196.1 dvr enable ip address 10.9.196.3/24 ip dhcp-relay ip dhcp-relay fwd-path 10.9.255.130 ip dhcp-relay fwd-path 10.9.255.130 enable ip dhcp-relay fwd-path 10.9.255.130 mode bootp_dhcp ip dhcp-relay fwd-path 10.9.255.131 ip dhcp-relay fwd-path 10.9.255.131 ip dhcp-relay fwd-path 10.9.255.131 enable ip dhcp-relay fwd-path 10.9.255.131 mode bootp_dhcp exit end</pre>

Open ExtremeCloud IQ - Site Engine Device View against both core VSPs and verify that the VLANs and L2 VSNs have been configured.

statut manager parager bernard To													
VSP Series VSP-4450GSX-PWR+ (2 modules) 4450GSX-PWR+	VLAN	Table											
Slot 1 4450GSX PWR+	IP Addr	ess † In	nstance	System Name	VLAN ID	VLAN Name	Status	VLAN Status	VLAN Spanning Tree MSTP ID	VLAN I-SID Mapping	VLAN Type	VLAN Color	Virtual Router
	10.9.19	3.131 1		VSP-core1	1	Default	 active 	active	1	0	byPort	0	0
VSP-core1 10.9.193.131	10.9.19	3.131 19	95	VSP-core1	195	Volce	 active 	active	1	2100195	byPort	0	0
Contact Established 0 Days 00:34:30	10.9.19	3.131 19	96	VSP-core1	196	Data	 active 	active	1	2100196	byPort	0	0
315:47:E4:23:00 JP335E5081	10.9.19	3.131 40	051	VSP-core1	4051	B-VLAN-1	 active 	active	63	0	spbm-bvlan	0	0
1.0.0	10.9.19	3.131 40	052	VSP-core1	4052	R-VI AN-2	 active 	active	63	0	sobm-bylan	0	0
Dashboard Devices Discovered Firmware	Archives	Configuratio	on Template	es Reports	DeviceView	- VSP-core1							
Dashboard Devices Discovered Firmware	Archives	Configuratio	on Template Historical Pe	rformance [DeviceView	- VSP-core1	Device Port Con	ifiguration VLA	IN IS-IS VRF I	P Interfaces	Fabric Attach	I-SID-L2	/SN SPB
Dashboard Devices Discovered Firmware	Archives	Configuration Ports F	on Template Historical Pe	rformance E	DeviceView	- VSP-core1 ×	Device Port Con	figuration VLA	IN IS-IS VRF I	P Interfaces	Fabric Attach	I-SID-L2	/SN SPB
Dashboard Devices Discovered Firmware	Archives	Configuration Ports H -SID L2VSI Address 1	on Template Historical Pe N	rformance [DeviceView Device and Mo	- VSP-core1 *	Device Port Con Row Status	figuration VLA Service Status	N IS-IS VRF I	P Interfaces imit Servic Enabl	Fabric Attach	I-SID-L2	V5N SPB1
Dashboard Devices Discovered Firmware Itili more some 248 VSP Sene VSP-445053F-PMR+ (2 modules) 459050F-WR+ Set 1/45053F-PMR+	Archives	Configuration Ports F -SID L2VSI Address 1 -9.193.131	on Template Historical Pe N I-SID 2100'	rformance [I-Si 95 Aut	DeviceView Device and Mo D Name to-sense V	- VSP-core1 X solule information Service Type elan	Device Port Con Row Status active	figuration VLA Service Status • active	N IS-IS VRF I Service Max MAC LI 32000	P Interfaces imit Servic Enabl false	Fabric Attach	I-SID-L2 ⁴ Service C config	VSN SPB1
USP-core1 10.9.193.131	Archives	Configuration Ports F -SID L2VSI Address 1 0.9.193.131	on Template Historical Pe N 1-SID 2100' 2100'	rformance E 1-51 95 Aut 96 ISII	DeviceView Device and Mo D Name to-sense V D-2100196	- VSP-core1 × solule information Service Type elan I2vsn	Device Port Con Row Status active active	figuration VLA Service Status • active • active	N IS-IS VRF I Service Max MAC LI 32000 32000	P Interfaces imit Servia Enabl false	Fabric Attach ee MAC Limit e	I-SID-L2 Service C config config	/5N SPBI
Dashboard Devices Discovered Firmware	Archives	Configuration Ports F -SID L2VSI Address † 0.9.193.131 0.9.193.131 0.9.193.131	on Template Historical Pe N 1-SID 2100' 2100' 15995	rformance [I-Si 95 Au 96 ISI 999 On	DeviceView Device and Mo D Name to-sense V D-2100196 boarding	- VSP-core1 × solule information Service Type elan l2vsn elan	Device Port Con Row Status active active active	figuration VLA Service Status	N IS-IS VRF 1 Service Max MAC LI 32000 32000 32000	P Interfaces imit Servic Enabl false false false	Fabric Attach	I-SID-L2 Service C config config config	vigin

Applying Seed Configuration for Zero Touch Fabric

Before the VSP edge can automatically join the fabric further down, the VSP core first needs to be configured in these areas:

1. Nickname server: This is so that unique SPB nicknames can be assigned to VSP edge switches as they join the fabric. An SBP node needs a nickname to create multicast I-SID trees, which in turn are needed for transmitting BUM (Broadcast/Unknownunicast/Multicast) traffic in fabric VSNs. Without a nickname, a VSP edge switch cannot transmit a DHCP Discovery on the onboarding I-SID to get an IP address. The VSP cores (or any pair of core/distribution VSPs) must be set up as nickname servers. It is sufficient to have two nickname servers per fabric (and in VOSS 8.4, with multi-area support, a pair of nickname servers is required for each ISIS area). Both nickname servers can be set up to assign nickname server to assign nicknames is essentially identical to how a DHCP server works, with the exception that nicknames are assigned instead of IP addresses.

To enable nickname server functionality on a VSP, the VSP must already be configured with a static nickname. (The VSP core switches were already preconfigured with a static nickname.)

- 2. The **onboarding I-SID 15999999** must be set up on the core VSPs so that it can handle DHCP requests, from the universal-hardware edge and from other onboarding devices. Two approaches are possible:
 - a. The VSP cores are configured simply to bridge the onboarding I-SID onto an existing segment where DHCP is available.

Redundantly bridging a segment out of two VSP cores requires that those VSPs are configured as a Virtual-IST cluster and also require the use of SMLT links. That approach is not covered here.

b. The onboarding I-SID is created into a new dedicated IP subnet for which both VSP cores act as default gateways and DHCP-relay agent. This is the approach used here, as it is a better design approach.

If the VSP cores were originally built from VOSS 8.2 (or later) default values, the default onboarding private-VLAN 4048 is already be present and needs to be deleted and re-created as a regular port-based VLAN (because VOSS currently does not support IP configuration on PVLANs [this will become possible in VOSS8.5]). In this case, the VSP cores do not have private-VLAN 4048, so a regular port-based VLAN needs to be created with a DHCP relay configuration and then assigned to the onboarding I-SID.

3. If the VSP core was not originally built from VOSS 8.3 default values (for example, it was upgraded from a pre-VOSS 8.3 release), it also needs to have auto-sense enabled on the interfaces connecting to the VSP edge.

The VSP core configurations were built from pre-VOSS 8.2 default values. As a result, they have no onboarding I-SID defined, all unused ports are disabled, no ports are auto-sense enabled, and there is no nickname server. Thus, the three configuration areas enumerated above need to be applied to these VSP Cores.

VSP-core1 VSP-core2 enable enable config term
interface gigabitEthernet 1/10 config term interface gigabitEthernet 1/11 auto-sense enable auto-sense enable no shutdown no shutdown exit exit vlan create 4048 name "onboarding-vlan" type port-mstprstp 0 vlan create 4048 name "onboarding-vlan" type port-mstprstp 0 vlan i-sid 4048 15999999 vlan i-sid 4048 15999999 auto-sense onboarding i-sid 15999999 interface Vlan 4048 auto-sense onboarding i-sid 15999999 interface Vlan 4048 ip address 10.9.192.2/24 ip address 10.9.192.3/24 ip vrrp version 3 ip vrrp address 1 10.9.192.1 ip vrrp version 3
ip vrrp address 1 10.9.192.1
ip vrrp 1 enable ip vrrp 1 enable ip dhcp-relay ip dhcp-relay ip dhop-relay fwd-path 10.9.255.130 ip dhop-relay fwd-path 10.9.255.130 mode dhop ip dhcp-relay fwd-path 10.9.255.130 ip dhcp-relay fwd-path 10.9.255.130 mode dhcp ip dhcp-relay fwd-path 10.9.255.130 enable ip dhcp-relay fwd-path 10.9.255.131 ip dhcp-relay fwd-path 10.9.255.130 enable ip dhcp-relay fwd-path 10.9.255.131 ip dhcp-relay fwd-path 10.9.255.131 mode dhcp ip dhcp-relay fwd-path 10.9.255.131 mode dhcp ip dhcp-relay fwd-path 10.9.255.131 enable ip dhcp-relay fwd-path 10.9.255.131 enable exit exit spbm nick-name server prefix a.10.00 spbm nick-name server prefix a.10.00 spbm nick-name server spbm nick-name server end end

Apply the following configuration to both core VSPs:



Preparing ExtremeCloud IQ - Site Engine for Fully Automated Edge Deployment

Configuration of ZTP+

Confirm the ZTP+ configuration for these sites is correct before onboarding the universalhardware edge into either Building1 or Building2. Go to the selected site and select the ZTP+ Device Defaults tab.

Under Basic Management set options as follows:

- Use Discovered: IP and Management Interface
- Admin Profile: Fabric Edge
- Poll Type: SNMP
- NTP Server: 10.9.255.155

Devices Building1 Site	Devices Building1 Site Summary Endpoint Locations FlexReports											
Discover Actions VRF/VLAN Topologies Services Port Templates ZTP+ Device Defaults Endpoint Locations Analytics Custom Variables												
Basic Management												
Use Discovered:	IP and Managemen	Domain Name:		System Contact:								
Subnet Address:		DNS Server:		System Location:								
Starting IP Address:		DNS Server 2:		Admin Profile:	Fabric Edge	*						
Ending IP Address:		DNS Server 3:		Poll Group:	Default	Ŧ						
Gateway Address:	Gateway Address:			Poll Type:	SNMP	*						
Management Interface:	Default	NTP Server:	10.9.255.155	Site Assignment Precedence:	None	Ψ.						
CLI Recovery Mode Only:	Enabled	NTP Server 2:										

Initiate the onboarding of the VSP edge switches by using the same DHCP IP address that they initially acquired on the onboarding I-SID. To do this, set **Use Discovered** to **IP and Management Interface**. After the switches are onboarded, there are steps on how to move them to their final Mgmt CLIPs.

Under **Configuration/Upgrade**, **Configuration Updates** can be left to **Always** (this setting is not applicable in SNMP Poll Type).

The value for **Firmware Upgrades** depends on how the universal-hardware OS conversion is performed (next topic). If you are using the ExtremeCloud IQ - Site

Engine workflow *Change persona to VOSS*, set **Firmware Upgrades** to **None** because the workflow is configured with the desired VOSS software version from the start. On the other hand, if you are using ExtremeCloud IQ for the OS conversion, **Firmware Upgrades** can be left enabled if the desired VOSS image to use is not the same version of the VOSS image that ExtremeCloud IQ will use for the OS conversion (currently 8.4.0.0).

Configuration/Upgrad	de					
Configuration Updates:	Always	-	Firmware Upgrades:	Never	~	
Update Date:	ate: 6/23/2021		Upgrade Date:	6/23/2021		
Update Time:	09:30 AM	v	Upgrade Time:	09:30 AM	×	
Update UTC Offset:	UTC-04:00		Upgrade UTC Offset:	UTC-04:00		

In the **Device Protocols** section, clear the **MVRP** check box because ZTP+ attempts to apply the default port templates during switch onboarding. (The templates can be inspected on the Port Template tab.)

Note that SSH is automatically enabled on the VSP – not because of the setting below but because the IQAgent running on the switch always attempts to activate it.

Device Protocols			
Telnet: 🕑 Enabled	HTTP: 🧭 Enabled	LACP: 🗌 Enabled	MSTP: 🕑 Enabled
SSH: 🕑 Enabled	HTTPS: 📝 Enabled	LLDP: 🕑 Enabled	POE: 🗹 Enabled
SNMP: 😿 Enabled	FTP: 🕑 Enabled	MVRP: DEnabled	VXLAN: C Enabled

Select **Save** to commit changes to the site.

A Network	Dashboard Devices Discovered Fire	mware Archives	Configuration	Templates Reports									
Alarms & Events	Sites 👻 🗏	Devices Bui	ilding1 Site Sun	nmary Endpoint Locations	FlexReports								
Control	Name	Disease A.	NOTAG AL	a territoria territoria	Com Tamalana 2004 Da		Sector 1	antin Com	- Unitables				
Analytics	🕶 💠 World	Discovers Ac											
🗢 Wireless	Suilding1	Port Templat	Templates										
will Reports	Suilding2	O Add	Edit 🕹 Dei	te Local Only									
Tasks	 Topology Definitions 	Source	Configuration	PVID	Default Role	Span Guard	Loop Protect	MVRP	SLPP	SLPP Guard	SLPP Guard	PoE Enable	PoE Priority
Mainistration	Service Definitions	World	AP	Default [1]	None						60		LOW
≓ Connect		/World	Access	Default [1]	None						60		LOW
		Global	AutoSense	0	None						60		LOW
		/World	Interswitch	Default [1]	None						60	1	LOW
		1 /World	loT	Default [1]	None						60		LOW
		/World	Management	Default [1]	None						60	1	LOW
		/World	Other	Default [1]	None						60		LOW
		/World	Phone	Default [1]	None						60	1	LOW
		/World	Printer	Default [1]	None						60	*	LOW
		/World	Router	Default [1]	None		*				60	*	LOW
		/World	Security	Default [1]	None		4				60		LOW
		/World	vSwitch	Default [1]	None		*				60	1	LOW

The default AP, Access, Interswitch, and Phone port templates are automatically applied by ZTP+ when onboarding a new switch. The logic is that the AP and Phone port templates are applied on ports where an AP or Phone was LLDP discovered. Likewise, the Interswitch port template is applied on ports where a Bridge/Switch neighbor was LLDP discovered, and the Access port template is applied to all other ports. Some of the port-based features enabled by the default port templates can be detrimental to the successful deployment of universal hardware VSP edge. Two such features are Span Guard and MVRP.

MVRP has effect only when the universal hardware is onboarded in EXOS mode. In some topologies, it can cause a MAC learning issue because the EXOS switches generate MVRP PDUs with the switch's MAC out of Spanning Tree Blocked ports, which cause the VSP cores to learn those MACs on the wrong ports, causing intermittent connectivity to the EXOS DHCP IP address. Disabling the MVRP Protocol ensures that MVRP does not get activated by any port templates.

Span Guard is also a problem because it results in BPDU-Guard being enabled on VOSS autosense ports when the universal hardware is onboarded in VOSS mode. If those ports are then used to interconnect VSPs together, BPDU-Guard conflicts with some auto-sense states which trigger self-generated BPDUs to prevent loops and also result in auto-sense ports going offline. To avoid these issues, ExtremeCloud IQ - Site Engine 21.9 introduces a new Global AutoSense port template which is automatically applied to VOSS universal hardware devices via a ZTP+ Automated Templates entry:

A Network	Dashboard Devices Discovered Firm	mware Archives Configuration	Templates Reports									
🔔 Alarms & Events	Sites 👻 🗏	Devices Building1 Site Sum	imary Endpoint Locations	FlexReports								
Control	Name	Discover Artiges VREALAN	Actions VRFMAN Topologies Services PortTemplaces 2IP+ Device Defaults Endpoint Locations Analytics Custom Variables									
Analytics	💌 🔷 World		The second s									
🗢 Wireless	Building1	Port Templates	mplates									
Land Reports	A Building2	🔾 Add 🔝 Edit 🤤 Dele	te Local Only									
🧱 Tasks	 Topology Definitions 	Source Configuration	PVID	Default Role	Authentication	VLAN Trunk	Tagged	Untagged	Fabric Enable			
😁 Administration	Senice Definitions	AWarld 4D	Default [1]	None	None			Default [1]	Noce			
≓ Connect		/World Access	Default [1]	None	None			Default [1]	None			
		Global AutoSense	0	None	None				Auto Sense			
		World Interswitch	Default [1]	None	None			Default [1]	None			
		(
		ZTP+ Automated Templates										
		Device Mappings						Port Mappings				
		🗿 Add 🛛 😡 Edit 🥥 Dele	te ^ ~					🗿 Add 🛛 💭 Edit 🤤 Delete	· ·			
		Priority Name	Enabled Fam	ily Devices	IP Range	•		Priority Template	Ports			
		1 AutoSense VOSS	✔ Unif	ied Switching VOSS Any Uni	fied Switching VOSS			1 AutoSense	•			

The ZTP+ Automated Templates entries allow for overriding the automatic application of the default port templates described above.

Note that the ZTP+ Automated Templates entry exist only on new sites created in ExtremeCloud IQ - Site Engine. If an older version of ExtremeCloud IQ - Site Engine or XMC is upgraded to ExtremeCloud IQ - Site Engine 21.9 or later, then that entry does not exist and needs to be created (or the Site deleted and re-created).

Also note that the default entry only covers VOSS universal hardware switches. If you onboard a VSP4900 or other VSP switch model, it is necessary to create a similar entry with Family set to **VSP Series**.

Now move to the Actions tab, and verify that all of these actions are set:

- Automatically Add Devices
- Add Trap Receiver
- Add Syslog Receiver
- Add to Archive
- · Add to Map (and the correct map is selected)

Devi	ces Building1 Site Summ	ary Endpoint Locations	FlexReports				
Disc	over Actions 2 VRF/VLAN	Topologies Services	Port Templates	ZTP+ Device Defaults	Endpoint Locations	Analytics	Custom Variables
	Automatically Add Devices	Collection Mode:	Historical	*			
V	Add Trap Receiver	Collection Interval (minutes):	15	÷			
V	Add Syslog Receiver Map Name: //World/Building1/Building1 👻						
V	Add to Archive						
V	Add to Map						

Now configure ExtremeCloud IQ - Site Engine so that it can automatically onboard the universal-hardware edge to the correct site Building1/2 and thus perform all of that site's ZTP+ configuration as well as the Site Actions setup mentioned above.

The VSP cores have been manually added to the Building1 ExtremeCloud IQ - Site Engine site. For the universal-hardware edge this is not a manual process but is automated by ExtremeCloud IQ - Site Engine.

To do this, access ExtremeCloud IQ - Site Engine's global ZTP+ configuration located under the root world site, and select the **ZTP+ Device Defaults** tab.

Locate the **Site Assignment Precedence** dropdown and set its value to **LLDP Only**. Note that this dropdown is configurable only from the root site World.

Dashboard Devices Discovere	d Firmware Archives Cor	nfiguration Templates	Repo	orts				
Sites 💌 🗏	Devices World Site Su	immary Endpoint Lo	ocation	5 FlexReports				
Name	Discover Actions VRF/	VLAN Topologies	Servio	es Port Templates	ZTP+ Device Defaults	3 Endpoint Locations Analytics	Custom Variables	
World Building1	Basic Management							
Building2	Use Discovered:	Disabled	*	Domain Name:		System Contact:		
👻 📓 Topology Definitions	Subnet Address:			DNS Server:		System Location:		
Fabric Connect	Starting IP Address:			DNS Server 2:		Admin Profile:	public_v2_Profile	-
Q Service Definitions	Ending IP Address:			DNS Server 3:		Poll Group:	Default	*
	Gateway Address:			DNS Search Suffix:		Poll Type:	SNMP	*
	Management Interface:	Default	*	NTP Server:		Site Assignment	LLDP Only	~
	CLI Recovery Mode Only:	Enabled		NTP Server 2:		in accounce.		4

Now, when ExtremeCloud IQ - Site Engine discovers the universal-hardware edge switches, it examines their LLDP neighbor tables, and when it finds one of the VSP core switches, it assumes that this access switch must automatically be onboarded into the same ExtremeCloud IQ - Site Engine Site as the VSP cores.

Save the change.

Preparing Universal Hardware Edge OS Conversion

Because you are deploying a fabric with VSP edge, the universal-hardware switches need to be converted into running VOSS. Two approaches are possible here: using ExtremeCloud IQ or using an ExtremeCloud IQ - Site Engine workflow. In each case, the process involves three switch restarts. Doing the OS conversion via ExtremeCloud IQ:

- 1. Initial boot as EXOS
 - a. Switch onboards ExtremeCloud IQ
 - b. In ExtremeCloud IQ, the switch serial number is associated with VOSS OS
 - c. ExtremeCloud IQ converts the switch to VOSS
 - d. Currently, ExtremeCloud IQ converts the switch to VOSS using 8.4.0.0
- 2. Switch boots as VOSS with 8.4.0.0
 - a. Switch onboards ExtremeCloud IQ Site Engine via ZTP+
 - b. Switch is added to ExtremeCloud IQ Site Engine Site, but in read-only state

Manual action required:

- On ExtremeCloud IQ: delete the device from ExtremeCloud IQ
- On ExtremeCloud IQ Site Engine: re-add the device to ExtremeCloud IQ via ExtremeCloud IQ - Site Engine
- c. Onboard VSP workflow is triggered
- d. ExtremeCloud IQ Site Engine workflow sets the DVR Leaf configuration and reboots the switch a final time
- 3. Switch boots as DVR Leaf with final configuration

Caution

Currently, with ExtremeCloud IQ - Site Engine, the above steps 2c and 2d do not happen automatically if the switch is already added to ExtremeCloud IQ, because ExtremeCloud IQ - Site Engine is designed not to manage or configure a device already added to ExtremeCloud IQ. Manual action is required to first delete the switch from ExtremeCloud IQ and then force ExtremeCloud IQ - Site Engine to re-add the same switch to ExtremeCloud IQ (details follow). Then, the above steps 2c and 2d resume automatically. This manual action is somewhat impractical and is no longer required after a monitoronly profile is added to ExtremeCloud IQ in a future release.

Doing the OS conversion via ExtremeCloud IQ - Site Engine workflow:

- 1. Initial boot as EXOS
 - a. Switch onboards ExtremeCloud IQ Site Engine via ZTP+
 - b. Switch is added to ExtremeCloud IQ Site Engine Site and the "Convert Persona to VOSS" workflow is executed
 - c. The VOSS image configured on the workflow (8.3 or later) is downloaded to the switch as part of OS conversion to VOSS.
- 2. Switch boots as VOSS
 - a. Switch re-onboards ExtremeCloud IQ Site Engine via ZTP+
 - b. Switch is added to ExtremeCloud IQ Site Engine site and "Onboard VSP" workflow is triggered
 - c. ExtremeCloud IQ Site Engine workflow sets the DVR Leaf configuration and reboots the switch a final time
- 3. Switch boots as DVR Leaf with final configuration.

To proceed, decide which approach to use by following the relevant sections below.

Preparing via ExtremeCloud IQ

Log in to ExtremeCloud IQ and add a new switch using the serial number of the relevant universal-hardware switch. **Under Manage**, **Devices**, select + (add), then select **Quick Add Devices**.

Extrem	neC	loud IQ Pi	lot											۹	0	• • •	abric Edge	10
	0 5	CONNECTION ST	ATUS 10	C TOTAL APPS	0		CLIENTS	5		USERS O			ALARMS	11010		O Rogue A	SECURITY Ps 0 Rogue C	lients
Ŧ		Default View												Showing 5 o	f 5 0 Sel	ected Select	All Pages, N	lone
	1	+ ± ×	ii ii								MAC Addr of Ser	al # Q	UTILITIES	ACTIONS	UPD	ATE DEVICES	m (3
2	2	Advanced Onb	oarding IME . POLICY	UPTIME	MGT IP ADDRESS	CLIENTS	MAC	LOCATION	SERIAL #	FEATURE LICENSE	MODEL	NTP STATE	OS VERSION	IQAGENT UPDATE	D	WIFIO	WIFIO	V C
		• •	10.9.203.5	Od Oh 45m	10.9.203.5		00505680CC	1	XIQSE- IAF39BD9CC24-	Not Supported	XIQSE	N/A	21.9.10.4 (2	N/A		N/A	N/A	Þ
		• •	Fabric	Od Oh 47m	10.9.203.7		00505680451		VMware- 4200f46592f8f3 e627cd18742713-	Not Supported	FABRICMGR	N/A	21.9.10.4 (2	N/A		N/A	N/A	4
		0	NAC	0d 0h 44m	10.9.203.6		00505680455	5	00505680455E	Not Supported	Virtual Access Control Engine IA-V	N/A	21.910.4 (2	N/A		N/A	N/A	4
		• •	VSP-core1	0d 3h 34m	10.9.193.131		F81547E4230		14JP335E5081	Not Supported	VSP- 4450GSX- PWR+	N/A	8.4.0.0 (8	N/A		N/A	N/A	Ν
		0	VSP-core2	0d 3h 34m	10.9.193.132		14612FEE7B00		17JP0230E58J	Not Supported	VSP- 4450GSX- PWR+	N/A	8.4.0.0 (8	N/A		N/A	N/A	٨

In the **Device Add** banner that is revealed, set the **Device Make** to **VOSS**, paste the universalhardware edge serial number into the serial number text box, and select the appropriate location.

	Extren	meCloud IQ Pilot					۹	© 📫 ⊖ Fabr	ic Edge E
۵		CONNECTION STATUS	C TOTAL APPS 0	CLIENTS 5	USERS 0	ALARMS	11010	0 Rogue APs	URITY 0 Rogue Clients
•	Ŧ	Default View					Showing 5	of 5 O Selected Select: A	ll Pages, None
*		+ ± / ■			Enter Hostname, MAC Addr or Sertal # Q	UTILITIES	ACTIONS	UPDATE DEVICES	0
di >		Device Type Device Make Entry	Type SB012050G-00079,SB032050G-00102 2	Add Location	CANCEL				
		Real * VOSS * Ma	anual *		ADD DEVICES 3				



Note

The desired OS for the universal hardware edge is specified to be VOSS. When the universal hardware onboards to ExtremeCloud IQ, if it is found to be in EXOS mode (which it is out of the box) then ExtremeCloud IQ immediately converts it to VOSS.

Preparing via ExtremeCloud IQ - Site Engine Workflow

To use ExtremeCloud IQ - Site Engine to convert a universal-hardware switch from EXOS to VOSS, the **Change Persona to VOSS** workflow will be used. This workflow is available on GitHub.

This workflow has already been imported into ExtremeCloud IQ - Site Engine, but it needs to be configured to use the desired VOSS image for the OS conversion.

Under ExtremeCloud IQ - Site Engine Network, go to the **Firmware** tab and locate the universalhardware VOSS image to use. Use VOSS 8.4.0.0 or later.

A Network 1	Dashboard Devices Discovered	Firmware	Archives Configura	tion Templates Rej	ports			
🜲 Alarms & Events	Q							
Control	Name	Referenced	Image Name	Image Filename	Image Path	Date/Time	Image Size	Status
Analytics	 Device Type (5 images) 	ſ	5520.8.4.0.0.voss	5520.8.4.0.0.voss	/tftpboot/firmw	6/23/2021 10:25:19	97.62 MB	File Found
奈 Wireless	 Avaya (Rapid City) (2 images) 		107 ⁻					
Reports	 Extreme (3 images) 							
📑 Tasks	 Fabric Manager (1 image) 							
	 Unified Switching EXOS (
	 Unified Switching VOSS (
Connect	 5520 (1 image) 							

Copy and paste the desired image name. Note that the workflow uses FTP to transfer the image, and so the image must be located in /tftpboot/firmware/images.

Then navigate to the ExtremeCloud IQ - Site Engine Tasks > Workflows tab, select the Change persona to VOSS workflow, and under the workflow details, view the Inputs tab.

A Network	Workflow Dashboard Scheduled Ta	isks – Saved Ta	isks Scripts Workflows 2			
🌲 Alarms & Events	User Workflows -	Palette	/Workflows/Change persona to VOSS		Details	
Gontrol	✓ Workflows	Activities	Q Q []] %	🖌 Verify 🔚 Save 🕨 Run	Ceneral Variables Innuts Outputs Me	nus Ni >
Analytics	℃ Change persona to EXOS			B		
< Wireless	🐨 Change persona to VOSS	«» >		box	wanage inputs	
Lilil Reports	TONboard VSP 3	1 🛛	Start Check the		Timeout Properties	•
📰 Tasks 📘			OS OS		Timeout:	
曫 Administration					4 \$ hr	(s) *
≓ Connect		Gateways			Custom Inputs	
		\odot	Wrong OS		Firmware file name:	
		Boundary	Pinnware Pinnware Gevice from Gevice from Comparison Compari		5520.8.4.0.0.voss	
		0	Persona changed Device Removed			

In the **Firmware file name** field, paste the 5520 VOSS image name to use. Then select **Save** and **OK** the confirmation popup.

Success		×
Workflow w	vas saved successfully.	
	ОК	

Now go to the selected Building1/2 Site, **Actions Tab**, and under **Custom Configuration** add an entry pointing to the workflow:

- Vendor: Extreme
- Family: Unified Switching EXOS
- Topology: Any
- Task: Provisioning/Change persona to VOSS

Select **Update** and then select **Save**.

Devices Building1 Site Summa	ary Endpoint Locations I	FlexReports				
Discover Actions 2 VRF/VLAN	Topologies Services Pe	ort Templates ZTP+ Device Default	ts Endpoint Locations Analytics Custom Variables			
Automatically Add Devices	Collection Mode:	Historical 💌				
Stand Add Trap Receiver	Collection Interval (minutes):	15 🌲				
In Add Syslog Receiver	Add Syslog Receiver Map Name: //////Building1/Building1 👻					
I Add to Archive	♂ Add to Archive					
I Add to Map						
Custom Configuration						
🕥 Add 🔯 Edit 🥥 🛙	Delete					
Enabled Vendor	Family	4 Topology	Task			
Extreme	3 - Unified Switching EX	🗢 Any 👻	Provisioning/Change persona to VOSS 5			
		6	Update Cancel			

The onboarding section describes how this workflow kicks in after the universalhardware switch initially booting as EXOS gets added to the site in the following sections.

Configuration of ExtremeCloud IQ - Site Engine workflow for VSP onboarding

The following configurations need to be performed on ExtremeCloud IQ - Site Engine in order to fully automate the onboarding of the VSP edge switches and deploy a set of network infrastructure and service parameter as a starter configuration:

- 1. Configure any of the VSP auto-sense parameters, such as:
 - a. Voice I-SID
 - b. Data I-SID
 - c. ISIS Hello authentication
 - d. FA Message authentication
- 2. Convert the VSP into a DVR Leaf

With the current release 21.4.11.3, ExtremeCloud IQ - Site Engine cannot natively perform the above, so to fully automate the VSP edge onboarding process the ExtremeCloud IQ - Site Engine Workflow named *Onboard VSP* is used. This workflow is available on GitHub and needs to be configured for use. Go to ExtremeCloud IQ - Site Engine **Tasks** then the **Workflow** tab and select the **Onboard VSP** workflow. Under the workflow details, view the **Input** tab.

Jser Workflows –	Palette /Workflows/Onboard VSP		Details 3
 Workflows 	Activities Q Q D %	🖋 Verify 🛛 Save 🕨 Run	General Variables Inputs Outputs Menus Network OS
Change persona to EXOS	\$		Manage Inputs
T Onboard VSP 2	Start	Read Site Inputs	Notes:
			Inputs below (including the enable) disable pull downs and excluding the CLI commands to the cat either with absolute values or can be provided as \$500 to writer
		♦	variable>) if the workflow is to derive a site specific value for those inputs. The site of the
	$\bigcirc \rightarrow $	Enable NAC on VSP	onboarded VSP will apply.
			If enabling DVR Leaf, make sure a DVR Domain id is assigned to the Site via Topology Definition
	cu .	Add VSP to	in choosing of the car ware sare a price and the subgreate and the site in the party are interest.
	·	NAC Engine) DVR Lear:
			usaure
	Gateways	Auto-sense and CLI script	Network Access Control - NAC:
	ô Ĭ	Å	disable
	÷		NAC Notes:
	÷ ()	Make VSP	Inputs below are required if NAC is enabled. Location Group name is optional
	Boundary	DVR Lear	NAC Engine Group name:
		End End	Default
System Workflows +			

Provide the following inputs:

- DVR Leaf: enable
- Network Access Control (NAC): disable
- NAC Engine Group name:
- RADIUS Attributes Template name:
- RADIUS Shared Secret:
- On switch create RADIUS for:
- Location Group name:
- Auto-sense Voice I-SID: 2100195
- Auto-sense Voice VLAN-ID only if tagged: 195
- Auto-sense Data I-SID: 2100196
- Auto-sense Data platform VLAN-ID:
- Auto-sense ISIS Authentication key:
- Auto-sense FA Authentication key:
- · Additional CLI commands:
 - clock time-zone US Eastern

NAC is not used in this deployment guide, so the **NAC** dropdown is set to disable and all the workflow NAC related inputs can be ignored and left empty.



Save the modified workflow, and select **OK** the confirmation popup.

Workflow was saved successfully.	
ОК	

Now go to the ExtremeCloud IQ - Site Engine site where the core VSPs have been onboarded, under the **Actions** tab. Under **Custom Configuration**, add an additional entry with the following:

- Vendor: Extreme
- Family: Unified Switching VOSS
- Topology: Any
- Task: Provisioning/Onboard VSP

If the **Provisioning/Onboard VSP** workflow is not listed, cancel out and refresh the ExtremeCloud IQ - Site Engine page.

Note

000

If you are using a recent non-universal VSP hardware model (such as VSP 4900 or VSP 7400), an additional entry for: Extreme / VSP Series needs to be set. Older VSP models require creating an entry for: Avaya / VSP Series. A good way to determine a family type is by configuring the device in ExtremeCloud IQ - Site Engine and inspecting the **Vendor Profile** tab.

Devices Building1 Site Summ	mary Endpoint Locations F	lexReports					
Discover Actions VRF/VLAN	Topologies Services Po	rt Templates ZTP+ Device Defaul	Its Endpoint Locations Analytics Custom Variables				
Generatically Add Devices	Automatically Add Devices Collection Mode:						
S Add Trap Receiver	Collection Interval , (minutes):	15 🐥					
Add Syslog Receiver	Add Syslog Receiver Map Name: //World/Building1/Building1						
Add to Archive	₫ Add to Archive						
😴 Add to Map							
Custom Configuration							
🗿 Add 🛛 🔯 Edit 🥥	Delete						
Enabled Vendor	Family	4 Topology	Task				
Extreme	3 Unified Switching VO	ISS Any	Provisioning/Onboard VSP 5				
🗹 Extreme	Unified Switching EX	OS Any	Provisioning/Change persona to VOSS				

Select **Save** to commit changes.

Manual Run of ExtremeCloud IQ - Site Engine Workflow on VSP Core Nodes

This step is not necessarily required, but it might be needed if any of the settings performed by the workflow on the VSP edge switches are also required on the VSP core nodes.

For example, are auto-sense Voice/Data I-SID settings required on them? That depends on whether phones and end-stations are going to be directly connected on the VSP core nodes

The VSP core nodes will never need to be made DVR Leaf nodes, but there might be a need to set the auto-sense ISIS Hello authentication key if ISIS authentication is required before new edge VSPs are allowed to perform Zero-Touch-Fabric. For example, in this use case, the autosense ISIS Authentication key is required, so the *Onboard VSP* workflow must be executed manually to configure the VSP Cores with this parameter. Here are the steps to do this.

Navigate to the ExtremeCloud IQ - Site Engine Site where the VSP cores were onboarded. Select both VSP cores and select **Tasks** > **Provisioning** > **Onboard VSP**.
Devices Add De	Building1 !	Site Sur	nmary Endpoint Loc	ation	s FlexRepor	ts						
Status	Name 🕇		Site	IP A	ddress	Poll	Status	;	Poll Details	Device Type	Family	Firmware
•	VSP-core1		FlexView	10.9	9.193.131	Avai	lable:	1	Up: 34 Do	VSP-4450GSX-PWR+	+ VSP Series	8.4.0.0
•	V5P-core2		More Views	10.9	9.193.132	Avai	lable:	1	Up: 34 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0
		* © C & +	Configure Compass Search Rediscover Clear Alarms Upgrade Firmware Add to Device Group More Actions	•								
			Tasks I		Config	•						
			Maps Network	· ·	Provisioning CLI Comma	g 🕨	y Y	Ch On	ange persona to board VSP	EXOS 3		
			Policy	1			-					

Accept the switch selection of both VSP cores. Then select **Next**.

un Workflow - Onboard VSP			2
Device Selection			
• 🖲 My Network (4 devices)		Name	Туре
All Devices (4 devices)		VSP-core1	VSP-4450GSX
Grouped By (4 devices)		VSP-core2	VSP-4450GSX
 Extended Bridges (0 devices) 			
 Wireless Controllers (0 devices) 			
	•		
			Next » Cance

The same workflow inputs is shown, but this time any change made for those inputs do not persist beyond this run of the workflow. That is, if any changes are made here, those changes do not override the workflow input settings that have been set on the workflow.

This time set the inputs to:

- DVR Leaf: disable
- Network Access Control (NAC): disable
- NAC Engine Group name: <ignore>
- RADIUS Attributes Template name: <leave empty>
- RADIUS Shared Secret: <leave empty>
- On switch create RADIUS for: <ignore>
- Location Group name: <leave empty>
- Auto-sense Voice I-SID: 2100195
- Auto-sense Voice VLAN-ID only if tagged: 195
- Auto-sense Data I-SID: 2100196
- · Auto-sense Data platform VLAN-ID: <leave empty, will be auto-allocated>
- Auto-sense ISIS Authentication key: <leave empty, or set a key for ISIS auth>
- Auto-sense FA Authentication key: <leave empty for this sandbox>
- Additional CLI commands:
 - clock time-zone US Eastern

Basically, this means you will only change the **DVR Leaf** dropdown to disable. The rest is left the same—though the **DVR Leaf** could have been left untouched as well, because the workflow does not try to convert the switch into a DVR leaf if it detects that the VSP is already configured as a DVR Controller.

DVR Leaf:	
disable	Ψ.
Network Access Control - NAC:	
disable	▼
NAC Notes:	
Inputs below are required if NAC is enabled. Location Group name is option	nal
NAC Engine Group name:	
Default	
RADIUS Attributes Template name:	
RADIUS Shared Secret:	
	Þ
On switch create RADIUS server for:	
eapol	▼
Location Group name:	

Select Next.

Run Workflow -	Onboard VSP						2* X
Schedule Task							
Task Details							
Task Name:	Scheduled Task	- 6/23/2021 12:21:	57 PM				
Description:							
Enabled:	0						
				« Previous	Run	🖺 Save Task	Cancel

Then select **Run** and **Yes** to view the workflow as it runs.

Success		×
Workflow started. Navi Details view?	igate to Workf	low
Yes	No	

Wait for the workflow to complete. On completion, the status rotating cog changes to a checkmark if the workflow is completed successfully and to an exclamation mark otherwise.



When the workflow has completed, inspect the various workflow activity boxes by selecting them and then selecting **Show Output** to see the detail of the actions performed.

The auto-sense configuration was applied.

Summ	ary			Output - 10.9.193.132	2 ×					
tatus	Start Date/Time	Name	Versi	· · · · · · · · · · · · · · · · · · ·			Path			
~	8/24/2021 8:58:25	Onboard VSP	79	VSP-core2:1(config)#auto-sense data i-sid 2100196 VSP-core2:1(config)#	•	onfig	. /Workfle	ows/Onboard VSP		
Graph \	View Table View			VSP-core2:1(config)#i-sid name 2100196 "Auto-sense Data" VSP-core2:1(config)#						
Q (2 00			VSP-core2:1(config)#end				2	Show Output	Show Variable
				A2h-cole5:1m		0	utput Path	Start Date/Time	End Date/Time	Message
Cern		CO Constanting	_	VSP-core2:1#save config		2		8/24/2021 8:5	8/24/2021 8:5	
(Jun			*	CP-1: Save config to file /intriash/config.crg successful.		1		8/24/2021 8:5	8/24/2021 8:5	
	+		↔	VSP-core2:1#						
		Enable NAC on VSP	-	The following configuration was successfully performed on switch:						
				-> auto-sense voice i-sid 2100195 c-vid 195						
		Add VSP to	-	-> clock time-zone US Eastern						
		NAC Engine	Å	-> auto-sense data i-sid 2100196						
	*	0	∇	-> 1-Sid name 2100196 Auto-sense Data -> end						
	•	and CLI script	7	-> save config						
		à	÷	Exit code SUCCESS						
	**	45	~		×					
	\$	Make VSP DVR Leaf			Close					

Notice that the activity blocks named *Enable NAC on VSP*, *Add VSP to NAC Engine*, and *Make VSP DVR Leaf* did not run.



Deployment of Edge Switches

Everything is now ready to accept the automated deployment of universal-hardware switches as VSP edge.

It will be sufficient for a technician to unbox the switches, rack the switches into their wiring closet rack, connect the fabric uplinks into the VSP core, connect any fabric side links into adjacent units in the same wiring closet rack, and power on the switches.

The rest the deployment is zero-touch, and there is no need for the technician to connect via the serial console of the switch. Nor is there any need to pre-stage the switches before deploying them in their final wiring closet rack.



Caution

The exception is non universal hardware that ships with a VOSS version earlier than 8.3.0.0. This is currently the case for the VSP 4900. Going forward, the VSP 4900 will ship with VOSS 8.3.1.0, but there is always a chance that the units were shipped from a distributor, in which case the shipped software might not be 8.3.1.0.



Onboarding of VSP Edge Switches

OS Conversion via ExtremeCloud IQ

If the universal-hardware serial numbers have been added to ExtremeCloud IQ in the previous section, then as soon as the switches come online as EXOS switches they are able to join ExtremeCloud IQ.

An activity bar in the **UPDATED** column displays the switch's firmware update status.

-	Extrem	neClou	IQ Pilot											م	0	• •	Fabric Edg	le
۵	ES	C	CONNECTION S	TATUS	C TOTAL APPS 0			CLIENTS 6			USERS O		ALARMS	11010		0 Ro	SECURIT gue APs 0 Roj	Y gue Clients
¢>	DEVIC	Ŧ	Default View											Showing	7 of 7 0 Sel	ected Se	lect: All Page	es, None
*>	Manage		+ ± /	1							ostname, MAC Add	r or Sertal # Q	UTILITIES	ACTIONS	UPD	ATE DEVI	CES	5 III
dt>	MAN		STATUS	HOST NAME	POLICY UPTIME	MGT IP ADDRESS	CLIENTS	MAC	UPDATED	LOCATION	SERIAL #	FEATURE LICENSE	MODEL	NTP STATE	OS VERSION	IQAGENT	WIFIO CHANNEL	WIFI0 POWEI
				10.9.203.5	0d 3h 32m	10.9.203.5		00505680CC2			XIQSE- 1AF39BD9CC24	Not Supported	XIQSE	N/A	21.9.10.4 (2	N/A	N/A	N/A
€ >			•	Fabric	0d 3h 33m	10.9.203.7		00505680451			VMware- 4200f46592f8f3 e627cd18742713	Not Supported	FABRICMGR	N/A	21.9.10.4 (2	N/A	N/A	N/A
ж			000	HOSTNAME	Assign Polic ₃ N/A	10.9.192.104	0	F06426A8E40	IQ Engine Firmw	Assign Loc	SB012050G- 00079	Not Supported	EXOS-5520- 12MW-36W	N/A	31.1.1.3	0.4.5	N/A	N/A
			000	HOSTNAME	Assign Policy N/A	10.9.192.103	3	F06426AA800	IQ Engine Firmw	Assign Loc	SB032050G- 00102	Not Supported	EXOS-5520- 24W	N/A	31.1.1.3	0.4.5	N/A	N/A
6			• •	NAC	0d 3h 30m	10.9.203.6		00505680455			00505680455E	Not Supported	Virtual Access Control Engine IA-V	N/A	21.9.10.4 (2	N/A	N/A	N/A
•			• •	VSP-core1	0d 6h 20m	10.9.193.131		F81547E42300			14JP335E5081	Not Supported	VSP- 4450GSX- PWR+	N/A	8.4.0.0 (8	N/A	N/A	N/A
			0	VSP-core2	0d 6h 20m	10.9.193.132		14612FEE7BOC			17JP0230E58J	Not Supported	VSP- 4450GSX- PWR+	N/A	8.4.0.0 (8	N/A	N/A	N/A
			1										1. 10000		_			

ExtremeCloud IQ currently does the OS conversion using VOSS 8.4.0.0.

The switch is rebooted and comes back as a VOSS switch.

The conversion to VOSS takes about 8 minutes and it takes VOSS a further 3 minutes to join the Fabric, obtain a nickname, obtain a DHCP address, and call into ExtremeCloud IQ - Site Engine for the first time as a VOSS switch.

OS Conversion via ExtremeCloud IQ - Site Engine Workflow

Another method is to automate the universal-hardware OS conversion via ExtremeCloud IQ - Site Engine. This process begins as soon as the universal-hardware edge onboards to ExtremeCloud IQ - Site Engine using ZTP+ as an EXOS switch.

Monitor the ExtremeCloud IQ - Site Engine **Discovered** tab.

A Network	Dashboard Devi	ces Discovered Firmw	are Archives	Configuration T	emplates Reports								
🔔 Alarms & Events	🐵 Dear Al Devices 🛛 🕲 Pre-Register Device. 🕘 Load Configuration. 🕼 Add Devices 🔯 Configure Devices												
Control	IP Address	Connected IP Address	Family	Туре	Serial Number	Base MAC	Profile	Status	Details	Firmware	System Description		
Analytics													
🗢 Wireless													
Reports													
Tasks													
🐸 Administration													
≓ Connect													

.

While waiting, tune the **Discovery** tab to show the site path, which is useful information to see.

Select any of the columns, select the dropdown triangle, then select **Columns** and enable (check) **Site Path**.

▲ Alarms & Events	A Network	Dashboard I	Devices Discovered Firm	ware Archive	s Configurati	on Templates Reports					
Address Connected IP Address Family Type Serial Number Base MAC Site Path Profile Sart Ascending 12 Sort Ascending 1 Sort Operation 1 Sort	🔔 Alarms & Events	🔾 Clear 😋	Clear All Devices O Pre-	Register Device	🎲 Load Cor	nfiguration 🔕 Add De	vices 👩 Config	ure Devi	:es		
✓ Analytics ♥ Wireless Image: Reports Image: Tasks Image: Administration ✓ Administration ✓ Connect Image: Reports Image: Reports <t< th=""><th>Gentrol</th><th>IP Address</th><th>Connected IP Address</th><th>Family</th><th>Туре</th><th>Serial Number</th><th>Base MAC</th><th>-</th><th>Site Path</th><th></th><th>Profile</th></t<>	Gentrol	IP Address	Connected IP Address	Family	Туре	Serial Number	Base MAC	-	Site Path		Profile
♥ Wireless Lid. Reports Image: Tasks Image: Administration Image	Analytics							12	Sort Ascending	1	
Lind Reports	🗢 Wireless							\downarrow_2'	Sort Descending		ID Address
Image: Tasks Image: Group by This Field Image: Group	Lalal Reports							2 🔳	Columns		Discovered ID
☆ Administration ∅ Show in Groups ∅ ramily ☆ Connect □ Filters ∅ Type ∅ Serial Number ∅ Serial Number ∅ Source □ Source ∅ Site Path ∅ Site Path ∅ Source ∅ Source	Tasks							-E	Group by This Field	V	Connected IP Address
	😤 Administration								Show in Groups	Ø	Family
Serial Number Base MAC Source Source Site Path Profile Status Status Details Firmware	≓ Connect							C	Filters	V	Туре
 ✓ Base MAC ○ Source ✓ Site Path ✓ Profile ✓ Status ✓ Status ✓ Details ✓ Firmware 										V	Serial Number
Source 3 ✓ Star Path ✓ Profile ✓ Status ✓ Details ✓ Firmware										Ø	Base MAC
3 ✓ Site Path ✓ Profile ✓ Status ✓ Details ✓ Firmware											Source
Image: Second secon									3		Site Path
Generation Status Generation Status Generation Status Generation Status Firmware										V	Profile
Image: Second secon										V	Status
🗹 Firmware										V	Details
										Ø	Firmware

Then, in the top right-hand corner, set auto refresh to 30 seconds

Q	0	()	4	2 2 0 0	0	root XIQ-SE Administ	trator
					7. 2	Q	Refresh Off
Status		Deta	ils	Firmware	System	n Description	Refresh Off
							Refresh 30 secs
							Refresh 1 min
							Refresh 5 mins
							Refresh 10 mins
							Refresh 30 mins

When the universal-hardware switches finally register with ExtremeCloud IQ - Site Engine, the switches appear in the **Discovered** tab.

Dashboard D	evices Discovered Firm	ware Archives	Configuration Te	emplates Reports							
🥥 Clear 🤤	Clear All Devices O Pre-I	Register Device	Load Configure	ation 🧿 Add Devic	ces 🔯 Configure De	evices				T.,	🔯 Q Refresh 30 secs 👻
IP Address	Connected IP Address	Family	Туре	Serial Number	Base MAC	Site Path	Profile	Status	Details	Firmware	System Description
Discovered IE	: SB012050G-00079										
N/A	10.9.192.104	Unified Swi	5520-12MW-3	SB012050G-00079	F0:64:26:A8:E4:00	/World	public_v2_Profile	ZTP+ Pending		31.1.1.3	ExtremeXOS (5520-12MW-36W-EXOS)
Discovered IE): SB032050G-00102										
N/A	10.9.192.103	Unified Swi	5520-24W-EXOS	SB032050G-00102	F0:64:26:AA:80:00	/World	public_v2_Profile	ZTP+ Pending		31.1.1.3	ExtremeXOS (5520-24W-EXOS) version

And it takes about 3 minutes before the ZTP+ onboarding stages the configuration and adds the EXOS switch into the ExtremeCloud IQ - Site Engine site.

Dashboard D	Devices Discovered Firmw	are Archives	Configuration Te	mplates Reports										
🔘 Clear 🛛 🤤	😑 Clear 😂 Clear All Devices 🤄 Pre-Register Device 🕼 Load Configuration 🧔 Add Devices 🕼 Configure Devices													
IP Address	Connected IP Address	Family	Туре	Serial Number	Base MAC	Site Path	Profile	Status	Details	Firmware	System Description			
Discovered II	D: SB032050G-00102													
10.9.192.103	10.9.192.103	Unified Swi	5520-24W-EXOS	5B032050G-00102	F0:64:26:AA:80:00	/World/Building1	Fabric Edge	ZTP+ Staged	Configurati	31.1.1.3	ExtremeXOS (5520-24W-EXOS) version			

As soon as the switches are deleted from the **Discovered** tab, they are added and can be found on the onboarded site. At the same time, the site's actions are performed. Quickly go to ExtremeCloud IQ - Site Engine **Tasks** > **Workflow Dashboard**. There is a chance the workflows are still running (they run for a couple of minutes).



If a non-zero count is displayed in the Active chart, click on the chart to list the currently active workflows. Double-click on the workflow entry to reveal the workflow details as it is running.



Green activity boxes have run and have completed successfully; red activity boxes have run and failed; blue activity boxes are still running.

When the workflow has completed successfully, the EXOS universal-hardware switches reboot into VOSS and are deleted from ExtremeCloud IQ - Site Engine.

The conversion to VOSS takes about 8 minutes, and it takes VOSS a further 3 minutes to join the Fabric, obtain a Nickname, obtain a DHCP address, and call into ExtremeCloud IQ - Site Engine again as a VOSS switch.

VSP Edge Onboarding Steps

The order of events should be as follows. There are two possibilities.

If the Auto-sense ISIS Hello Authentication key was not specified on the VSP cores:

- 1. ISIS adjacency form with neighboring VOSS switches
- 2. Nickname is dynamically assigned by nickname servers (VSP core)
- 3. DHCP obtains IP address on onboarding I-SID 15999999
- 4. DHCP provides default gateway, DNS servers, domain name
- 5. Switch does a DNS lookup for *extremecontrol*.
- 6. DNS lookup must return ExtremeCloud IQ Site Engine's IP address
- 7. Switch calls in to ExtremeCloud IQ Site Engine, and now appears in the **Discovered** tab (provided it does not already exist in ExtremeCloud IQ Site Engine's database)
- 8. If ExtremeCloud IQ Site Engine can allocate the switch to a site, then the site's ZTP+ configuration is pushed. If not, the switch remains in the **Discovered** tab until an administrator manually configures or adds the switch to a site.
- 9. When the switch is allocated to an ExtremeCloud IQ Site Engine site, the site's actions are performed; this is when the *Onboard VSP* workflow is executed
- 10. Onboard VSP applies final Auto-sense configuration as well as DVR-Leaf conversion

If the Auto-sense ISIS Hello Authentication key was specified on the VSP cores:

- 1. ISIS adjacency does not form with neighboring VSP core switches because there is no ISIS authentication key on the booting edge switches
- 2. But the auto-sense ports get untagged connectivity into the onboarding VLAN 4048 on the VSP cores
- 3. DHCP obtains IP address on untagged UNI management onboarding VLAN4048
- 4. DHCP provides default gateway, DNS servers, domain name
- 5. Switch does a DNS lookup for extremecontrol.
- 6. DNS lookup must return ExtremeCloud IQ Site Engine's IP address
- 7. Switch calls in to ExtremeCloud IQ Site Engine, and now appears in the **Discovered** tab (provided it does not already exist in ExtremeCloud IQ Site Engine's database)
- 8. If ExtremeCloud IQ Site Engine can allocate the switch to a site, then the site's ZTP+ configuration is pushed. If not, the switch remains in the **Discovered** tab until an administrator manually configures or adds the switch to a site.
- 9. When the switch is allocated to an ExtremeCloud IQ Site Engine site, the site's Actions are performed; this is when the *Onboard VSP* workflow will be executed
- 10. *Onboard VSP* applies final Auto-sense configuration as well as DVR-Leaf conversion. Only now the onboarded VSP edge switch gets the Auto-sense ISIS Hello authentication key
- 11. ISIS adjacency can now form with neighboring VSP core switches
- 12. Nickname is dynamically assigned by nickname servers (VSP core)
- 13. There is a brief period where the onboarding switch is unreachable as its connectivity into the onboarding I-SID 15999999 transitions from a UNI connection to a fabric NNI connection

When the configuration is saved, the switch disappears from ExtremeCloud IQ - Site Engine **Discovered** tab. It is added to the final site and to the corresponding site map.

Devices	Building1 Site Summary	Endpoint Locations	FlexReports					
• Add De	vice 😰 Export to CSV	=						
Status	Name †	Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware
•	5520-12MW-36W-VOS5	/World/Building1	10.9.192.104	Available: 1	Up: 192 Do	5520-12MW-36W-V	Unified Swi	8.4.0.0
•	5520-24W-VOSS	/World/Building1	10.9.192.103	Available: 1	Up: 2 Dow	5520-24W-VOSS	Unified Swi	8.4.0.0
٠	VSP-core1	/World/Building1	10.9.193.131	Available: 1	Up: 193 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0
	VSP-core2	/World/Building1	10.9.193.132	Available: 1	Up: 193 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0

Manual Steps Required if OS Conversion Was Done via ExtremeCloud IQ

If the OS conversion of the universal-hardware was performed by the ExtremeCloud IQ - Site Engine workflow, this section can be skipped.

If, on the other hand, ExtremeCloud IQ made the OS conversion, the universal hardware is added to ExtremeCloud IQ - Site Engine by ZTP+. But ExtremeCloud IQ - Site Engine detects that these devices are already present in ExtremeCloud IQ and does not attempt to manage the devices. The devices are in a read-only mode where they cannot be configured, and no ExtremeCloud IQ - Site Engine script or workflow can be executed against them. As a result, the *Onboard VSP* workflow does not execute.

This can be seen by inspecting the **ExtremeCloud IQ Onboarded** device column, which has a missing check mark.

-	evices Add De	Building1 Site S	ummary Endpoint L	ocations FlexRep	orts							
	Status	Name 1	Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware	Reference	Connector	XIQ Onboarded
-		5520-12MW-36	/World/Building1	10.9.192.101	Available: 1	Up: 18 Do	5520-12MW-36W-V	Unified Swi	8.4.0.0			\square
	٠	5520-24W-VOSS	/World/Building1	10.9.192.103	Available: 1	Up: 1 Dow	5520-24W-VOSS	Unified Swi	8.4.0.0			
	٠	VSP-core1	/World/Building1	10.9.193.131	Available: 1	Up: 52 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0			1
		VSP-core2	/World/Building1	10.9.193.132	Available: 1	Up: 52 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0			~

To allow ExtremeCloud IQ - Site Engine to fully manage these devices, two manual actions are required.

First, the devices must be deleted from ExtremeCloud IQ. Select the universal hardware switches in ExtremeCloud IQ (these should now be seen as VOSS devices), and select **Delete**.

	Extrem	eClou	ud IQ F	Pilot												۹	* (۰	e Fab	ric Edge
۵		CON 7 On	NECTION S	TATUS line		13 T	OTAL APPS	o		CLIENTS	7		USERS O		ALARM	IS 2 0	0		SE O Rogue AP:	CURITY
¢>	т	Def	ault View													s	howing 7 of 7	2 Selecte	d Select: /	All Pages, None
*>		+	1										Enter Hostnamo, M	AC Addr or Serial II	UTILITIES	A	CTIONS	UPDATE	DEVICES	III C
di >			STATUS	HOST NAME	· POLICY	r i	IPTIME	MGT IP ADDRESS	CLIENTS	MAC	UPDATED	LOCATION	SERIAL #	FEATURE LICENSE	MODEL	NTP STATE	OS VERSION	IQAGENT	WIFIO CHANNEL	WIFI0 POWER
-			0	10.9.203.5		c	d 4h 15m	10.9.203.5		00505680CC;			XIQSE- CEDIAA197832	A Not Supported	XIQSE	N/A	21.9.10.50	N/A	N/A	N/A
0			00	5520-12MW 36W-VOSS	- Assign	Policy (d 1h 30m	10.9.192.101	3	F06426A8E40	2021-08-24 09:42:29	Assign Lo	sB012050G- 00079	None	VSP 5520- 12MW-36W	N/A	8.4.0.0	0.4.13	N/A	N/A
Δ.			00	5520-24W- VOSS	Assign	Policy C	0d Oh 39m	10.9.192.103	3	F06426AA800	2021-08-24 10:33:10	Assign Lo	SB032050G- 00102	None	VSP 5520- 24W	N/A	8.4.0.0	0.4.13	N/A	N/A

Confirm the deletion by selecting Yes.



Second, ExtremeCloud IQ - Site Engine needs to be instructed to re-synch its devices with ExtremeCloud IQ. Navigate ExtremeCloud IQ - Site Engine to Administration > Diagnostics, select level Advanced then select the ExtremeCloud IQ Device Message Details folder under the System main folder.

ExtremeClo	oud IQ Site Engine									90	₽ 4
A Network	Profiles Users Server Information	Licenses Certificat	es Options Device T	ypes Backup/Restore	Diagnos	tics Client	API Access				
🔔 Alarms & Events	Level: Advanced 👻 3	ExtremeClou	d IQ Device Message	Details		_	-				
🔓 Control	 Beta Features 	* Refresh	Reset Auto Onbo	ard ExtremeCloud IQ - Site	Engine	Force Onboar	o to ExtremeCli	oud IQ	Send Statistics to	ExtremeCloud IQ Sho	w ExtremeCloui
Analytics	▶ Client	_			L	0	aboard all dev	ices to Ext	remeCloud IO. Thi	s will also send all alarms	
🗢 Wireless	 Experimental Features 										
III Reports	 Historical Statistic Collector 	IP Address	Туре	Serial Number	Quality	Total	Success	Failed	Onboard	Onboard Status	License Stat
Tacke	▶ Server	10.9.203.7	FABRICMGR	VMware-4200f4659	100	3	3	0	true	DEVICE_ALREADY_R	XIQ_PILOT
	Support	10.9.203.6	Virtual Access Cont	00505680455E	100	3	3	0	true	DEVICE_ALREADY_R	XIQ_PILOT
Administration	🔻 System	10.9.203.5	XIQ_SE	XIQSE-CED1AA1978	100	2	2	0	true	SUCCESS	XIQ_PILOT
Connect	Add Device Thread	10.9.193.132	VSP-4450GSX-PWR+	17JP0230E58J	100	3	3	0	true	DEVICE_ALREADY_R	XIQ_PILOT
i i i	Alarm/Event Details	10.9.193.131	VSP-4450GSX-PWR+	14JP335E5081	100	3	3	0	true	DEVICE_ALREADY_R	XIQ_PILOT
	Device Status Details	10.9.192.103	5520-12MW-36W-V	SB012050G-00079	50	2	H	1	true	SUCCESS	XIQ_PILOT
	Endpoint Cache	10.9.192.101	5520-24W-VOSS	SB032050G-00102	50	2	1	1	true	SUCCESS	XIQ_PILOT
	4 ExtremeCloud IQ Device Message De	et .									

Select the **Force Onboard to ExtremeCloud IQ** button. Then select **OK** in the confirmation popup.

. or co	onboarding of devices		
A	This request will force onboard all the Are you sure you want to continue?	devices and their alarms to	ExtremeCloud IQ.

Allow a few seconds for ExtremeCloud IQ - Site Engine to re-submit all devices to ExtremeCloud IQ. Then inspect the devices. They should now have a check mark in the **XIQ Onboarded** column.

Devices	Building1 Site S	ummary Endpoint L	ocations FlexRep	orts							
O Add De	vice 🔀 Export	to CSV 🛛 🗮									
<mark>Status</mark>	Name 🕇	Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware	Reference	Connector	XIQ Onboarded
٠	5520-12MW-36	/World/Building1	10.9.192.101	Available: 1	Up: 22 Do	5520-12MW-36W-V	Unified Swi	8.4.0.0			1
۲	5520-24W-VOSS	/World/Building1	10.9.192.103	Available: 1	Up: 4 Dow	5520-24W-VOSS	Unified Swi	8.4.0.0			4
•	VSP-core1	/World/Building1	10.9.193.131	Available: 1	Up: 56 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0			1
•	VSP-core2	/World/Building1	10.9.193.132	Available: 1	Up: 56 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0			1

Inspection of ExtremeCloud IQ also shows the same switches are re-added to ExtremeCloud IQ, but this time by ExtremeCloud IQ - Site Engine.

-	Extrem	eClo	ud IQ Pi	lot											۹	* 0		e Fa	oric Edge oric Edge
۵		() CON 7 OI	NECTION ST	ATUS		[] TOTAL APPS	0		CLIENTS	4		USERS O		ALARI	MS 0 0	0		O Rogue AF	ECURITY 's O Rogue Clients
¢>	Ŧ	De	ault View												s	howing 7 of 7	0 Select	ed Select:	All Pages, None
*>		+	1 /									Enler Hostname, M/	AC Addr or Serial #	UTILITIES	5 A	CTIONS	UPDATE	DEVICES	- C
di >			STATUS	HOST NAME	POLICY	UPTIME	MGT IP ADDRESS	CLIENTS	MAC	UPDATED	LOCATION	SERIAL #	FEATURE LICENSE	MODEL	NTP STATE	OS VERSION	IQAGENT	WIFIO CHANNEL	WIFIO
-			0	10.9.203.5		0d 4h 44m	10.9.203.5		0050568000	:		XIQSE- CED1AA1978324	Not Supported	XIQSE	N/A	21,9,10,50	N/A	N/A	N/A
0		6	0	5520-12MW- 36W-VOSS		Od Ih 54m	10.9.192.101		F06426A8E4	ic		SB012050G- 00079	Not Supported	VSP 5520- 12MW-36W	N/A	8.4.0.0	N/A	N/A	N/A
Δ.			0	5520-24W- VOSS		N/A	10.9.192.103		F06426AA8	ж		S8032050G- 00102	Not Supported	VSP 5520- 24W	N/A	8.4.0.0	N/A	N/A	N/A
• / *			0	Fabric		0d 4h 43m	10.9.203.7		0050568045	51		VMware- 4200f46592f8f3 e627cd18742713	Not Supported	FABRICMGR	N/A	21.9.10.50	N/A	N/A	N/A
•			0	NAC		Od 4h 45m	10.9.203.6		0050568045	55		00505680455E	Not Supported	Virtual Access Control Engine IA-V	N/A	21.9.10.50	N/A	N/A	N/A
			0	VSP-core1		Od 5h Om	10.9.193.131		F81547E4230	ж		14JP335E5081	Not Supported	VSP- 4450GSX- PWR+	N/A	8.4.0.0	N/A	N/A	N/A
•			0	VSP-core2		Od 5h Om	10.9.193.132		14612FEE7B0	x		17JP0230E58J	Not Supported	VSP- 4450GSX- PWR+	N/A	8.4.0.0	N/A	N/A	N/A

A few moments later, the ExtremeCloud IQ - Site Engine site actions, which had been defined to start the *Onboard VSP* workflow execute automatically without any need for further manual intervention. Follow through into the next section.

Observing ExtremeCloud IQ - Site Engine Onboarding Workflow Completion

If you are quick, you can view the progress of the *Onboard VSP* workflow as it is being executed. Go to ExtremeCloud IQ - Site Engine Tasks and display the **Workflow Dashboard** tab. See if any workflows are actively running; select the **Active** pie chart, then double-click any *Onboard VSP* workflow seen running in the list below.

Summ	ary							
Status	Start Date/Time	Name	Version	Source	# Devices	Started By	End Date/Time	Message
٥	8/24/2021 1:07:05	Onboard VSP	79	Workflow Designer	1	root		
Graph \	/iew Table View							
0 0	2 10				S	top Workflow	Show Output 🛛 🖻 Show	Variables
_		0						
Sta	n);	Read Site Inputs						
		C Enable NAC	∇					
	ŤŤ							
		Add VSP to NAC Engine	Å					
		Auto-sense and CLI script	∇					
	Ŭ		Ť					
	O *	Make VSP DVR Leaf	7					
		>		nd				

If there are no active workflows, the *Onboard VSP* workflow has probably completed. If this is the case, set the dropdown to **Historical** and find the most recently run workflows. There should be some for *Onboard VSP*, you can double-click on them to inspect their execution details.



Note that the last activity of the *Onboard VSP* workflow converts the VSP switch into a DVR leaf, and to do so the switch is automatically rebooted one last time.

Now the VSP edge onboarding process is complete, and the configuration is saved and final. When the switches come back online, there is no more ZTP+ for them and no more site actions. They are fully deployed as VSP edge.

When the switches have come back online, SSH into them and verify that indeed they were made DVR leaf nodes, with the CLI command show dvr.

5520-24W-VOSS:1#% show dvr	
	DVR Summary Info
Domain ID	: 1
Domain ISID	: 16678217
Role	: Leaf
My SYS ID	: f0:64:26:aa:80:84
Operational State	: Up
GW MAC	: 00:00:5e:00:01:25
Inband Mgmt Clip IP	
Virtual Ist local address	
Virtual Ist local subnet mask	
Virtual Ist peer address	
Virtual Ist cluster-id	
Virtual Ist ISID	
5520-24W-VOSS:1#%	

Migrating VSP Edge to Dedicated Switch mgmt CLIP

Both VSP edge switches were onboarded using their DHCP assigned IP addresses (which were made static IPs by ZTP+) and are still using the onboarding VLAN 4048 I-SID 15999999.

We want to transition the management of these VSP edge switches to a mgmt CLIP. To perform this task, the ExtremeCloud IQ - Site Engine Script named *Move to CLIP Mgmt IP* (available from GitHub) will be used.

Select both VSP edge switches, right-click, and select **Task** > **Provisioning** > **Move to CLIP Mgmt IP**.

Status	Name †	Sit	2	IP /	Addre:	55	Poll Statu	s	Poll Details	Device Type	Family	Firmw
•	5520-12MW-36W-VOSS	/W	orld/Building1	10.	.9.192.	.101	Available	1	Up: 2 Dow	5520-12MW-36W-V	Unified Swi	8.4.0.0
•	5520-24W-VO55		FlexView		.192.	.103	Available	1	Up: 1 Dow	5520-24W-VOS5	Unified Swi	8.4.0.0
•	VSP-core1		More Views	Þ	1.193.	.131	Available	:1	Up: 92 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0
•	VSP-core2	٥	Configure		1.193.	132	Available	1	Up: 92 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0
		00 00	Compass Search Rediscover Clear Alarms	•								
		± 0	Upgrade Firmware Add to Device Gro More Actions	e •up ▶								
			Archives	Þ								
		2	Tasks	•		Config	Þ					
			Maps	Þ	3	Provision	ning 🕨	ారి	Change person	a to EXOS		
			Network	Þ	>_	CLI Com	mands		Move to CLIP N	Igmt IP 4		
			Policy	Þ	-		_	¢	Onboard VSP			

In the script input window, we provide the CLIP IP for the VSP edge switches. We allocate a couple of extra CLIPs from the 10.9.193.128/25 subnet that is available.

- VSP-edge1 10.9.193.133/32
- VSP-edge2 10.9.193.134/32

In the script inputs, leave the associated VRF as GlobalRouter (this is the only VRF supported for mgmt CLIP on a DVR Leaf), and set the dropdown to delete the preexisting mgmt VLAN IP. Then provide the new CLIP IP for each VSP edge switch in the table below. Enter only the IP address (not the mask).

Because the script effectively removes and re-adds the same switch to ExtremeCloud IQ - Site Engine, it makes sense to rename the VSP edge switches as part of the same process. To do this, provide the desired switch names in the **System Name** column.

Run Script: N	love to CLIP Mg	gmt IP						2 ×
1. Device Select	ion 2. Device S	ettings 3. Ver						
These paramete	ers (if any) will be p Description	bassed to the scri	pt during exe	ecution. If no param	neters are sh	own, just skip to the	e next step.	
New swite	ch mgmt circui	tless IP (mask	will be 32b	oits)				-
Associated VR	F name (default is	GRT):	G	ilobalRouter				
Existing mgmt	VLAN IP:		D	elete	*			11
Complete	Name	Device IP Address	Mgmt CLIP IP	System Name				
1	5520-12M	10.9.192.101	10.9.193.13	33 VSP-edge1				
4	5520-24W	10.9.192.103	10.9.193.13	34 VSP-edge2				
Sanity / D Sanity: enable first see what i are not execut Debug: enable script author:	iebug if you do not trust it does. In sanity m red: : If you need to rep	t this script and w node config comr port a problem to	vish to nands		*: *:			-
						« Previo	Next »	Cancel

Select Next. Then select Run.

n Script: Move to CLIP Mgmt IP			2
Device Selection 2. Device Settings	3. Verify Run Script 4. Results		
Script Information			
Task Information: Run Now Script Name: Move to CLIP M	gmt IP	ot Task Name: N/A Timeout (sec): 60	
Overall Status			
COMPLETED			
Devices			
Name	IP Address	Start Time/Total Run Time	
✓. 5520-12MW-36W-VOSS	10.9.192.101	8/24/2021 2:41:20 PM/(24 sec)	i
✓. 5520-24W-VOSS	10.9.192.103	8/24/2021 2:41:20 PM/(24 sec)	C
<pre> . 5520-24W-VOS5 esults mg// vion no ip address 10.9.192.101 exit end save config leted IP '10.9.192.101' from XMM</pre>	10.9.192.103	8/24/2021 2:41:20 PM/(24 sec)	C
ded new device IP '10.9.193.133'	to XMC Site '/World/Building1'	with admin profile 'Fabric Edge'	

The script creates the new mgmt CLIP while at the same time deleting any preexisting mgmt CLIP or any pre-existing mgmt VLAN IP. Then it deletes the switch from ExtremeCloud IQ - Site Engine and re-adds it using the new CLIP IP. As part of the

same process, the switch is renamed. The new switch system name is assigned to both SNMP (CLI prompt) and ISIS.

When the script has completed, expand the **Results** window by selecting the *i* button.

Script. Move to CEIF Might IF	*
Script Results	×
v	-
The following configuration was successfully performed on switch:	
-> config term	
-> mgmt clip vrf GlobalRouter	
-> ip address 10.9.193.133/32	
-> enable	
-> exit	
-> boot config flags tftpd	
-> copy "10.9.203.5:root.Move to CLIP_Mgmt_IP.10_9 192 101" /intflash/.script.src -y	
-> source .script.src debug	
-> snmp-server name VSP-edge1	
-> router isis	
-> sys-name VSP-edge1	
-> exit	
-> no boot config flags tftpd	
-> config term	
-> mgmt vlan	
-> no ip address 10.9.192.101	
-> exit	
-> end	
-> save config	
Deleted IP '10.9.192.101' from XMC's database	
Added new device IP '10.9.193.133' to XMC Site '/World/Building1' with admin profile 'Fabric Edge'	
	Close

The script essentially packs up the necessary CLI commands into a text file, which is then positioned on ExtremeCloud IQ - Site Engine's TFTP root directory. The switch then fetches the file via TFTP and executes it locally. Finally, the script deletes and re-adds the switch to ExtremeCloud IQ - Site Engine with the new CLIP IP (In a future VOSS release, single-command management IP conversion options will be made available).

Close the script window

Now confirm that all four VSPs have their final management IP.

Select **Refresh** if necessary.

Dashboard Devices Discovered Fin	mware Arch	lives Configuration	Templates Reports						
Sites 💌 🗏	Devices	Building1 Site Sur	nmary Endpoint Locatio	ns FlexReports					
Name	O Add Der	vice 😰 Export to	csv ≡						
🔻 💠 World									
Building1	Status	Name 1	Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware
🕨 💠 Building2		VSP-core1	/World/Building1	10.9.193.131	Available: 1	Up: 95 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0
 Topology Definitions 		VSP-core2	/World/Building1	10.9.193.132	Available: 1	Up: 95 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0
Fabric Connect		VSP-edge1	/World/Building1	10.9.193.133	Available: 1	Up: 1 Dow	5520-12MW-36W-V	Unified Swi	8.4.0.0
Service Definitions		VSP-edge2	/World/Building1	10.9.193.134	Available: 1	Up: 1 Dow	5520-24W-VOSS	Unified Swi	8.4.0.0

Note that the *Move to CLIP Mgmt IP* script will have caused the *Onboard VSP* workflow to execute again. Verify the workflow execution for the new switch IP under **Tasks**, **Workflow Dashboard**.

Verify the workflow execution for the new switch IP under Tasks, Workflow Dashboard.



The following diagram shows what has been configured so far.





Verification that All End-Devices Are Operational

To verify that the process has worked, here is the same diagram with end stations added.



Inspection of VSP Fabric

Refresh the Site Device view.

Dashboard Devices Discovered Fir	mware Arch	lives Configuration Ten	nplates Reports						
Sites 💌 🗏	Devices	Building1 Site Summa	ary Endpoint Locatio	ns FlexReports					
Name	G Add De	vice 😰 Export to CSV	=						
🔻 💠 World									
Building1	Status	Name †	Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware
Building2		VSP-core1	/World/Building1	10.9.193.131	Available: 1	Up: 95 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0
▼ 📓 Topology Definitions		VSP-core2	/World/Building1	10.9.193.132	Available: 1	Up: 95 Do	VSP-4450GSX-PWR+	VSP Series	8.4.0.0
Fabric Connect		VSP-edge1	/World/Building1	10.9.193.133	Available: 1	Up: 1 Dow	5520-12MW-36W-V	Unified Swi	8.4.0.0
Service Definitions	•	VSP-edge2	/World/Building1	10.9.193.134	Available: 1	Up: 1 Dow	5520-24W-VOSS	Unified Swi	8.4.0.0

The Fabric Edge is now deployed.

Visit the map and arrange the icons.

Sites 💌 🗏	Devices Building1 Site Summary FlexReports
Name	File 👻 View 👻
🗸 🛟 World	0
💌 🛟 Building1	Φ
📓 Building1	1/10 - 1/23
🕨 💠 Buiding2	VSP-¢ore1 VSP-¢dge1 10.9.193.131 10.9.193(33
 Topology Definitions 	122
Fabric Connect	-1/2
Service Definitions	•

Right-click on the site or map and select **More Views > Fabric Topology**.



Then arrange the map.

A Network	Dashboard Devices Discovered Firmware Archives Configuration Templates Reports Fabric - Building1
🔔 Alarms & Events	Fabric Connect
Control	S Fabric Topology
Analytics	Search: SQ Highlight I-SID V (1) Hide/Show Ports 🛣 Clear Highlights 🕷 Save Topology 🕷 Clear Topology 🕼 Import/Export Topology
🗢 Wireless	A Fabric Connect
III Reports	Virtualized Networks
Tasks	> ∧ GRT - IPShortcuts √ A L2-VSNs
🐸 Administration	> ∧ isid-2100195 16:15:47-42205/SP-core1 16:84-288ie-64/VSP-adge1
≓ Connect	> 🔨 isid-2100196 > 🔨 isid-15999999 (Etree) > 🔨 L3-VSNs
	> A Fabric Multicast Routes Image: CFM Globals Image: CFM Globals <t< th=""></t<>

The fabric is up. The fabric services are listed under **L2 VSN** and can be highlighted on the map using the dropdown.

To verify that DVR is operational, SSH to one of the VSPs and execute show ${\tt dvr}$ members.

	DVR Members	(Domain ID: 1)		
System Name	Nick-Name	Nodal MAC	Role	SPB Cost
 VSP-core2	0.00.D2	14:61:2f:ee:7b:65	Controller	10
VSP-edge1	a.10.0b	f0:64:26:a8:e4:84	Leaf	
VSP-edge2	a.10.0a	f0:64:26:aa:80:84	Leaf	0
VSP-core1	0.00.01	f8:15:47:e4:23:65	Controller	
4 out of 4 Total Num of DVF	Members displayed			
acli.pl: Displayed Record (count = 4			

The VSP cores are set up as controllers and the edge VSPs as DVR leaf.

Inspection of Endpoint Auto-Sense

Connect via SSH to both VSP edge switches. Run the CLI command show interfaces gigabitEthernet auto-sense

	l Terminal Launc	ed Sessions	- 0	×
File Ec	dit View Tab	; Help		
		🐘 🐟 🗝 🏹 📆 🚺 🚯 Search 🗸 📆 📆 🎘	66	
VSP-		t Canta		2 3
10000		cuge: 1		
VSP-edg	gel:1#%			^
VSP-edg	gel:l#% sho	v interfaces gigabitEthernet auto-sense		
		Port Auto-sense		
PORT	AUTO-SEN	5E AUTO-SENSE		
NUM	STATUS	STATE		
1/1	Enable			
1/2	Enable			
1/3	Enable			
1/4	Enable			
1/5	Enable			
1/6	Enable	VOICE		
1/7	Enable			
1/8	Enable			
1/9	Enable			
1/10	Enable			
1/11	Enable			
1/12	Enable			
1/13	Enable			
1/14	Enable			
1/15	Enable			
1/16	Enable			
1/17	Enable			
1/18	Enable			
1/19	Enable			
1/20	Enable			
1/21	Enable	NNI-ISIS-UP		
1/22	Enable	NNI-ISIS-UP		
1/23	Enable	NNI-ISIS-UP		
1/24	Enable			
More	(q=Quit, s	pace/return=Continue, ^P=Toggle on/off)		
				~

Note that VSP-edgel has transitioned to voice state on the port where the telephone is connected. Also notice that ports 1/21-1/23 are auto-sense transitioned into NNI-ISIS state. These are the fabric interconnects that are automatically configured.

VSP-	edge1 🔲 VSP-edg	e2 🕱 +
VSP-ed	ge2:1#% show i	nterfaces gigabitEthernet auto-sense
		Port Auto-sense
DODT		
PORI	AUIU-SENSE	AUU-SENSE
NOPI	51A105	SIAIE
1/1	Enable	
1/2	Enable	
1/3	Enable	
1/4	Enable	
1/5	Enable	
1/6	Enable	FA-WAP
1/7	Enable	
1/8	Enable	
1/9	Enable	
1/10	Enable	
1/11	Enable	
1/12	Enable	
1/13	Enable	
1/14	Enable	
1/15	Enable	
1/16	Enable	
1/17	Enable	
1/18	Enable	
1/19	Enable	
1/20	Enable	
1/21	Enable	NNI-ISIS-UP
1/22	Enable	NNI-ISIS-UP
1/23	Enable	
1/24	Enable	NNI-ISIS-UP
	e es seute tra	
VSP-ed	ge2:1#%	

On VSP-edge2, notice that auto-sense transitioned into FA-WAP state where the access aoint is connected.

Verification that WLAN AP Is in Service

Connect to Extreme Campus Controller, and go to **Monitor** > **Devices** > **Access Points**. Make sure the AP is online and green. It must have an IP address on the AP-Mgmt I-SID 2X00194 in the onboarding subnet 10.9.192.0/24.

E	Extreme	Cam	ipus Cont	troller										
E Da	ashboard		Acces	s Points	T	¢	Filter visi	ble rows		Q				
0 M	onitor	^	Status	Name		IP A	Address	Site	Version	Model	Radio 1	Radio 2	R1 Clients	R2 Clients
0	Sites		•	Edge-WAP		10.9	9.192.100	Fabric Edge Sandbox	7.4.1.0-016R	AP505i-FCC	Off	Off	0	0
I -0	Devices	>												

On VSP-edge2, inspect what I-SIDs are configured on the AP port 1/6 using the CLI command

show	interface	gigabitEthernet	i-sid	1/6
011011	THCCTTUCC	grgabrenerictiee	T DIG	- , U

								PORT	Isid	i Inf	ō		
PORTNUM	IFINDEX	ISID ID	VLANID	C-VID	ISID TYPE	ORIGIN					ISID NAME	BPDU	MAC SUNI
1/6 1/6	197 197	2100196 15999999	2 4048	196 untag	ELAN ELAN	- D1- 			– A	-	Auto-sense Data Onboarding I-SID	disabled	FALSE FALSE
2 out o acli.pl ORIGIN C: manu M: FA m l: disc	f 2 Tota : Display Legend: ally con anagemen over by	l Num of yed Record figured; 1 t; E: dis local swi	i-sid en d Count D: disco covered tch r:	ndpoint = 2 overed by EAP discov	by FA on by FA on c A: aut	ayed r EPT to-sense; emote VIS1	R: 1	multi itch	-are	ea re	dist		

000

Note

There are two bindings on the port where the AP is connected. The first binding is the onboarding I-SID, which is where the AP performs DHCP initially.

The second binding on the 1/6 port is discovered via fabric attach and is the Data I-SID binding for which the AP received the configuration from Extreme Campus Controller.

it VLA	N		0
Name	Data Building1		
Mode	Fabric Attach*]	
VLAN ID	196	Tagged 🗸	
I-SID	2100196		
	ADVANCED		
			CANCEL

Confirm by inspecting the fabric attach assignments on the switch using the CLI command

show fa assignment

Fabric Attach Assignment Map										
I-SID	Vlan	State	Origin	I-SID Name						
2100196	196	active	client	Auto-sense Data						
	I-SID 2100196	I-SID Vlan 2100196 196	I-SID Vlan State 2100196 196 active	I-SID Vlan State Origin 2100196 196 active client						

The AP is fully operational, and a wireless client is able to associate onto the Data I-SID.

Verification that IP Phone Is in Service

On VSP-edgel, inspect what I-SIDs are configured on phone port 1/6 using the CLI command

show interface gigabitEthernet i-sid 1/6

PORT Isid Info												
PORTNUM	IFINDEX	ISID ID	VLANID	C-VID	ISID TYPE	ORIGIN		ialalai	dalalala	ISID NAME	BPDU	MAC SUNI
1/6 1/6	197 197	2100195 2100196	3 2	195 untag	ELAN ELAN			- A - A		Auto-sense Voice Auto-sense Data	disabled	FALSE FALSE
2 out of acli.pl: ORIGIN L C: manua M: FA ma l: disco	2 Tota Display egend: ally cons magement over by 1	l Num of yed Recor figured; t; E: dis local swi	i-sid e nd Count D: disc covered tch r:	ndpoint = 2 overed by EAP discov	s displa by FA or '; A: aut 'er by re	r EPT to-sense; emote VIST	A: mult switch	ti-an	rea re	dist		

Note there are two bindings on the port where the phone is connected. The first binding is the Voice I-SID 2100195, which was assigned by auto-sense because a telephone was detected via LLDP. This is a tagged binding because it shows a VLAN-ID in the C-VID column.

Inspect the LLDP neighbor details on the same port using the CLI command show lldp neighbor port $1/6\,$

VSP-edge1:1#% s	VSP-edge1:1#5 show lldp neighbor port 1/6										
	LLDP Neighbor										
Port: 1/6	Index : 6977 Protocol : LLDP ChassisId: Network Address 10.9.195.100 PortId : MAC Address 00:08:5d:62:bf:f0 SysName : regDN 4052,MINET_6920 SysCap : BT / BT PortDescr: LAN port SysDescr : regDN 4052,MINET_6920,ver: 01.05.00.075,PxE: 6.5,01/01/1970 10:31:54 Address : 10.9.195.100 Address : 0.9.0.0:0:0000	6 +0000									
 Total Neighbors	: 1										
Capabilities Le	end: (Supported/Enabled)										
B= Bridge, D S= Station, T VSP-edge1:1#%	DOCSIS, O= Other, R= Repeater, Telephone, W= WLAN, r= Router										

Notice the neighbor system capabilities: B = Bridge and T = Telephone. Also notice the IP address, which the phone obtained, is in the expected Voice I-SID subnet.

Verify that the phone can be pinged from either of the VSP cores. The phone must be able to connect to its call server.

```
VSP-corel:1#% ping 10.9.195.100
Sending ping in context grt with source IP 10.9.193.129
10.9.195.100 is alive
VSP-corel:1#%
```

Verification that Client PC Is on Data I-SID

On the PC client, run the browser and verify that it has connectivity to the Internet (hence, over the VSP Fabric).

Verify also that the client VM obtained an IP address in the Data I-SID 2X00196 IP subnet 10.9.196.0/24.



On the same VSP-edge1 port 1/6 where the phone is connected, confirm these I-SID bindings.

PORT Isid Info														
PORTNUM	IFINDEX	ISID ID	VLANID	C-VID	ISID TYPE	ORIGIN					ISID NAME		BPDU	MAC SUNI
1/6 1/6	197 197	2100195 2100196	3 2	195 untag	ELAN ELAN				A A		Auto-sense Voice Auto-sense Data	n na	disabled	FALSE FALSE
2 out of acli.pl: ORIGIN I C: manua M: FA ma 1: disco	2 Tota Display Legend: ally cont magement over by 1	l Num of yed Recor figured; t; E: dis local swi	i-sid e d Count D: disc covered tch r:	ndpoint = 2 overed by EAP discov	s displa by FA or ; A: aut er by re	ayed r EPT to-sense; emote VIS	R: T sw	multi ritch	-ar	ea re	dist			

The second binding is untagged and is the auto-sense Data I-SID which automatically replaces the Onboarding I-SID on auto-sense ports that are in the state UNIONBOARDING and VOICE.

Deployment of Fabric VSP edge is now complete.



Appendix – Final Configurations

Here are the final configurations of all four VSPs.

VSP-corel

```
#
# Wed Aug 25 20:05:01 2021 EDT
# box type : VSP-4450GSX-PWR+
# software version : 8.4.0.0
# cli mode : ECLI
#
#Card Info :
     Slot 1 :
#
                           CardType : 4450GSX-PWR+
                           CardDescription : 4450GSX-PWR+
                           CardSerial# : 14JP335E5081
                           CardPart# :
                           CardAssemblyDate : 20140814
                           CardHWRevision : 01
                            CardHWConfig : none
                           OperStatus : up
#
#!end
#
config terminal
#
# BOOT CONFIGURATION
#
boot config flags sshd
#boot config sio console baud 9600 1
# end boot flags
#
# SPBM CONFIGURATION
#
spbm
spbm ethertype 0x8100
spbm nick-name server prefix A.10.00
spbm nick-name server
#
# CLI CONFIGURATION
#
prompt "VSP-core1"
password password-history 3
#
# CLOCK TIME-ZONE CONFIGURATION
#
clock time-zone US Eastern
#
# SYSTEM CONFIGURATION
#
ip domain-name "FabricEdge.NH.CTC.Local"
ip name-server primary 10.9.255.130
```

```
ip name-server secondary 10.9.255.131
syslog host 1
syslog host 1 address 10.9.203.5
syslog host 1 enable
# LOG CONFIGURATION
#
# LINK-FLAP-DETECT CONFIGURATION
#
# IEEE VLAN AGING CONFIGURATION
# ACCESS-POLICY CONFIGURATION
#
# SSH CONFIGURATION
#
ssh
#
# MCAST SOFTWARE FORWARDING CONFIGURATION
# SNMP V3 GLOBAL CONFIGURATION
#
# SNMP V3 GROUP MEMBERSHIP CONFIGURATION
#
snmp-server user admin group "initial"
snmp-server user snmpuser group "snmpuser"
snmp-server user snmpuser group "snmpuser"
#
# SNMP V3 NOTIFY FILTER CONFIGURATION
#
# SNMP V3 MIB VIEW CONFIGURATION
#
# SNMP V3 GROUP CONFIGURATION
snmp-server group "snmpuser" "" auth-priv notify-view root
# SNMP V3 TARGET ADDRESS CONFIGURATION #
snmp -server host 10.9.203.5 v3 authPriv snmpuser inform
# DDI CONFIGURATION #
# SLOT CONFIGURATION #
# MAC AGING CONFIGURATION #
# SMTP CONFIGURATION #
# WEB CONFIGURATION #
web-server enable
no web-server secure-only
#
# GLOBAL FDB FILTER CONFIGURATION
#
# QOS CONFIGURATION- PHASE I
#
# LACP CONFIGURATION
# VRF CONFIGURATION
# MAINTENANCE-DOMAIN CONFIGURATION
#
# MAINTENANCE-ASSOCIATION CONFIGURATION
#
# MAINTENANCE-ENDPOINT CONFIGURATION
#
# POE GLOBAL CONFIGURATION
#
# PORT CONFIGURATION- PHASE I
#
```

```
interface GigabitEthernet 1/12
encapsulation dot1q
exit
#
# ISIS SPBM CONFIGURATION
#
router isis
spbm 1
spbm 1 nick-name 0.00.01
spbm 1 b-vid 4051-4052 primary 4051
spbm 1 multicast enable
spbm 1 ip enable
exit
#
# SPB-PIM-GW CONFIGURATION
# MLT CONFIGURATION
#
# IP PREFIX LIST CONFIGURATION- GlobalRouter
#
# IP PREFIX LIST CONFIGURATION- VRF
# IPv6 PREFIX LIST CONFIGURATION- GlobalRouter
#
# IPv6 PREFIX LIST CONFIGURATION- VRF
#
# RMON CONFIGURATION
#
# DVR CONFIGURATION
dvr controller 1
#
# VLAN CONFIGURATION
vlan members remove 1 1/1-1/50 portmember
vlan create 195 name "Voice" type port-mstprstp 0
vlan i-sid 195 2100195
interface Vlan 195
dvr gw-ipv4 10.9.195.1
dvr enable
ip address 10.9.195.2 255.255.255.0 1
ip dhcp-relay
exit
vlan create 196 name "Data" type port-mstprstp 0
vlan i-sid 196 2100196
interface Vlan 196
dvr gw-ipv4 10.9.196.1
dvr enable
ip address 10.9.196.2 255.255.255.0 1
ip dhcp-relay
exit
vlan create 4048 name "onboarding-vlan" type port-mstprstp 0
vlan i-sid 4048 15999999
interface Vlan 4048
ip address 10.9.192.2 255.255.255.0 2
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.9.192.1
ip vrrp 1 enable
exit
```

```
vlan create 4051 name "B-VLAN-1" type spbm-bvlan
vlan create 4052 name "B-VLAN-2" type spbm-bvlan
#
# MSTP CONFIGURATION
#
# NLS CONFIGURATION
#
mgmt clip vrf GlobalRouter
ip address 10.9.193.131/32
enable
exit
#
# FHS CONFIGURATION
# MAC ACL CONFIGURATION
# IPv6 FHS ACL CONFIGURATION
# RA-GUARD CONFIGURATION
#
# DHCP-GUARD CONFIGURATION
#
# FHS SNOOPING CONFIGURATION
#
# SFLOW CONFIGURATION
#
# DHCP SNOOPING CONFIGURATION
#
# DHCP SNOOPING BINDING CONFIGURATION
# VIRTUAL IST CONFIGURATION
# MLT INTERFACE CONFIGURATION
# PORT CONFIGURATION - PHASE II
interface GigabitEthernet 1/2
no shutdown
brouter port 1/2 vlan 4000 subnet 10.9.223.2/255.255.255.252 mac-offset 0
ip bfd enable
no spanning-tree mstp force-port-state enable
exit
interface GigabitEthernet 1/10
default-vlan-id 0
auto-sense enable
no shutdown
exit
interface GigabitEthernet 1/12
default-vlan-id 0
no shutdown
isis
isis spbm 1
isis enable
no spanning-tree mstp force-port-state enable
no spanning-tree mstp msti 62 force-port-state enable
exit
interface GigabitEthernet 1/13
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/14
no lldp tx-tlv med extendedPSE
```

```
exit
interface GigabitEthernet 1/15
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/16
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/17
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/18
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/19
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/20
no lldp tx-tlv med extended
PSE
exit
interface GigabitEthernet 1/21
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/22
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/23
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/24
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/25
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/26
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/27
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/28
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/29
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/30
no lldp tx-tlv med extendedPSE
```

```
exit
interface GigabitEthernet 1/31
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/32
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/33
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/34
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/35
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/36
no lldp tx-tlv med extended
PSE
exit
interface GigabitEthernet 1/37
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/38
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/39
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/40
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/41
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/42
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/43
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/44
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/45
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/46
no lldp tx-tlv med extendedPSE
```

exit

```
interface GigabitEthernet 1/47
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/48
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/49
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/50
no lldp tx-tlv med extendedPSE
exit
#
# LINK-STATE TRACKING
#
# IP CONFIGURATION
#
# IP AS LIST CONFIGURATION - GlobalRouter
# IP COMMUNITY LIST CONFIGURATION - GlobalRouter
#
# IP EXTENDED COMMUNITY LIST CONFIGURATION - GlobalRouter
# IP ROUTE MAP CONFIGURATION - GlobalRouter
# IP CONFIGURATION - GlobalRouter
ip route 0.0.0.0 0.0.0.0 10.9.223.1 weight 10
#
# BFD CONFIGURATION - GlobalRouter
router bfd enable
ip route bfd 10.9.223.1
#
# CIRCUITLESS IP INTERFACE CONFIGURATION - GlobalRouter
#
interface loopback 1
ip address 1 10.9.193.129/255.255.255.255
exit
#
# TOPOLOGY-CLIP-IP
#
# MSDP CONFIGURATION - GlobalRouter
# CIRCUITLESS IPV6 INTERFACE CONFIGURATION - GlobalRouter
# VRRP CONFIGURATION - GlobalRouter
# UDP FORWARDING CONFIGURATION - GlobalRouter
#
# UDP FORWARDING CONFIGURATION - VRF
#
# UDP FORWARDING PORT CONFIGURATION
#
# UDP FORWARDING VLAN CONFIGURATION
```

```
VSP-corel
```

```
#
# DHCP CONFIGURATION - GlobalRouter
#
ip dhcp-relay fwd-path 10.9.192.2 10.9.255.130
ip dhcp-relay fwd-path 10.9.192.2 10.9.255.130 enable
ip dhcp-relay fwd-path 10.9.192.2 10.9.255.130 mode dhcp
ip dhcp-relay fwd-path 10.9.192.2 10.9.255.131
ip dhcp-relay fwd-path 10.9.192.2 10.9.255.131 enable
ip dhcp-relay fwd-path 10.9.192.2 10.9.255.131 mode dhcp
ip dhcp-relay fwd-path 10.9.195.2 10.9.255.130
ip dhcp-relay fwd-path 10.9.195.2 10.9.255.130 enable
ip dhcp-relay fwd-path 10.9.195.2 10.9.255.130 mode bootp_dhcp
ip dhcp-relay fwd-path 10.9.195.2 10.9.255.131
ip dhcp-relay fwd-path 10.9.195.2 10.9.255.131 enable
ip dhcp-relay fwd-path 10.9.195.2 10.9.255.131 mode bootp dhcp
ip dhcp-relay fwd-path 10.9.196.2 10.9.255.130
ip dhcp-relay fwd-path 10.9.196.2 10.9.255.130 enable
ip dhcp-relay fwd-path 10.9.196.2 10.9.255.130 mode bootp dhcp
ip dhcp-relay fwd-path 10.9.196.2 10.9.255.131
ip dhcp-relay fwd-path 10.9.196.2 10.9.255.131 enable
ip dhcp-relay fwd-path 10.9.196.2 10.9.255.131 mode bootp dhcp
#
# RIP CONFIGURATION - GlobalRouter
# RIP VLAN CONFIGURATION
#
# IGMP CONFIGURATION - GlobalRouter
# MCAST RESOURCE USAGE CONFIGURATION
# TIMED PRUNE CONFIGURATION - GlobalRouter
# RSMLT CONFIGURATION
# IPV6 CONFIGURATION - GlobalRouter
# MLD CONFIGURATION - GlobalRouter
#
# ISIS CONFIGURATION
#
router isis
sys-name "VSP-core1"
ip-source-address 10.9.193.129
is-type 11
manual-area 49.0000
exit
router isis enable
#
# LOGICAL ISIS CONFIGURATION
#
# VTEP CONFIGURATION
# REMOTE VTEP CONFIGURATIONS
# VLAN NODAL MEP/MIP CONFIGURATION
# QOS CONFIGURATION - PHASE II
#
qos queue-profile 1 member add 1/1-1/50
# CFM CONFIGURATION - PHASE II
cfm spbm enable
```

DIAG CONFIGURATION # # NTP CONFIGURATION # no ntp # # ES CONFIGURATION # # OSPF CONFIGURATION - GlobalRouter # router ospf exit # # OSPF CONFIGURATION - VRF # OSPF ACCEPT CONFIGURATION - GlobalRouter # # OSPF ACCEPT CONFIGURATION - VRF # # BGP CONFIGURATION - GlobalRouter # BGP CONFIGURATION - VRF # # ISIS SPBM IPVPN CONFIGURATION # # IP ISID LIST CONFIGURATION - GlobalRouter # IP ISID LIST CONFIGURATION - VRF # ISIS ACCEPT CONFIGURATION - GlobalRouter # ISIS ACCEPT CONFIGURATION - VRF # ISIS IPv6 ACCEPT CONFIGURATION - GlobalRouter # # ISIS IPv6 ACCEPT CONFIGURATION - VRF # # IP REDISTRIBUTION CONFIGURATION - GlobalRouter router isis redistribute static redistribute static enable redistribute direct redistribute direct enable exit # # IP REDISTRIBUTION CONFIGURATION - VRF # OSPF VLAN CONFIGURATION # OSPF PORT CONFIGURATION # OSPF LOOPBACK CONFIGURATION # # RIP PORT CONFIGURATION # # IPVPN CONFIGURATION # # SLPP CONFIGURATION

```
#
# FILTER CONFIGURATION
#
# APPLICATION TELEMETRY CONFIGURATION
#
# IPV6 TUNNEL CONFIGURATION
#
# IPV6 OSPFV3 CONFIGURATION - GlobalRouter
#
# IPV6 RIPng CONFIGURATION
router rip
exit
#
# IPV6 STATIC ROUTE CONFIGURATION - GlobalRouter
# IPV6 OSPF VLAN CONFIGURATION
# IPV6 OSPF PORT CONFIGURATION
#
# IPV6 RIP VLAN CONFIGURATION
#
# IPV6 RIP PORT CONFIGURATION
# IPV6 VRRP VLAN CONFIGURATION
#
# IPV6 VRRP PORT CONFIGURATION
#
# IPV6 NEIGHBOR CONFIGURATION - GlobalRouter
# IPV6 STATIC ROUTE BFD CONFIGURATION - GlobalRouter
# IPV6 DHCP CONFIGURATION - GlobalRouter
# IPV6 DHCP CONFIGURATION - VRF
# I-SID NAME CONFIGURATION
i-sid name 2100195 "Auto-sense Voice"
i-sid name 2100196 "Auto-sense Data"
i-sid name 15999999 "Onboarding I-SID"
# I-SID CONFIGURATION
#
i-sid 2100195 elan
exit i-sid 15999999 elan
exit
#
# GLOBAL AUTO-SENSE CONFIGURATION
#
auto-sense voice i-sid 2100195 c-vid 195
auto-sense eapol voice lldp-auth
auto-sense data i-sid 2100196
auto-sense onboarding i-sid 15999999
#
# RADIUS CONFIGURATION
#
radius server host 10.9.203.6 key ****** used-by eapol
radius enable
radius dynamic-server client 10.9.203.6 secret ****** enable
```

#

TACACS CONFIGURATION # # LLDP CONFIGURATION # # EAP CONFIGURATION # eapol enable # # MACSEC CONFIGURATION # # GLOBAL MACSec CA Configured # # FABRIC ATTACH CONFIGURATION # DVR IP REDISTRIBUTION CONFIGURATION - GlobalRouter # # DVR IP REDISTRIBUTION CONFIGURATION - VRF # SPB -PIM-GW CONFIGURATION # # SOFTWARE CONFIGURATION # # APPLICATION CONFIGURATION # # IPSEC CONFIGURATION # # IPSEC POLICY TABLE CONFIGURATION # # IPSEC SA TABLE CONFIGURATION # # IPSEC SA POLICY LINK TABLE CONFIGURATION # IPV6 OSPFV3 IPSEC CONFIGURATION # IPV6 IPSEC INTERFACE CONFIGURATION # IP IPSEC INTERFACE CONFIGURATION # # IKE CONFIGURATION # # SYSTEM CONFIGURATION Phase 2 # end # # IP REDISTRIBUTE APPLY CONFIGURATIONS # isis apply redistribute static isis apply redistribute direct # # IP ECMP APPLY CONFIGURATIONS

VSP -core2

```
# Wed Aug 25 22:32:22 2021 EDT
# box type
# software version
# cli mode
#
```

: VSP-4450GSX-PWR+

: 8.4.0.0

: ECLI

#
```
#Card Info :
# Slot 1 :
#
                                   CardType : 4450GSX-PWR+
                                   CardDescription : 4450GSX-PWR+
#
                                   CardSerial# : 17JP0230E58J
#
                                   CardPart# : EC4400A05-E6
                                   CardAssemblyDate : 20170110
                                   CardHWRevision : 03
#
                                   CardHWConfig : none
#
                                   OperStatus : up
#
#!end
#
config terminal
#
# BOOT CONFIGURATION
boot config flags sshd
#boot config sio console baud 9600 1
# end boot flags
#
# SPBM CONFIGURATION
#
spbm
spbm ethertype 0x8100
spbm nick-name server prefix A.10.00 spbm nick-name server
# CLI CONFIGURATION
#
prompt "VSP-core2"
password password-history 3
#
# CLOCK TIME-ZONE CONFIGURATION
#
clock time-zone US Eastern
#
# SYSTEM CONFIGURATION
ip domain-name "FabricEdge.NH.CTC.Local" ip name-server primary 10.9.255.130
ip name-server secondary 10.9.255.131 syslog host 1
syslog host 1 address 10.9.203.5
syslog host 1 enable
#
# LOG CONFIGURATION
#
# LINK-FLAP-DETECT CONFIGURATION
#
# IEEE VLAN AGING CONFIGURATION
# ACCESS-POLICY CONFIGURATION
#
# SSH CONFIGURATION
#
ssh
#
# MCAST SOFTWARE FORWARDING CONFIGURATION
#
# SNMP V3 GLOBAL CONFIGURATION
#
# SNMP V3 GROUP MEMBERSHIP CONFIGURATION
#
snmp-server user admin group "initial" snmp-server user snmpuser group "snmpuser" snmp-
server user snmpuser group "snmpuser"
#
# SNMP V3 NOTIFY FILTER CONFIGURATION
```

SNMP V3 MIB VIEW CONFIGURATION # # SNMP V3 GROUP CONFIGURATION # snmp-server group "snmpuser" "" auth-priv notify-view root # SNMP V3 TARGET ADDRESS CONFIGURATION # snmp-server host 10.9.203.5 v3 authPriv snmpuser inform # # DDI CONFIGURATION # # SLOT CONFIGURATION # MAC AGING CONFIGURATION # SMTP CONFIGURATION # # WEB CONFIGURATION # web-server enable no web-server secure-only # # GLOBAL FDB FILTER CONFIGURATION # # QOS CONFIGURATION - PHASE I # # LACP CONFIGURATION # # VRF CONFIGURATION # # MAINTENANCE-DOMAIN CONFIGURATION # MAINTENANCE-ASSOCIATION CONFIGURATION # MAINTENANCE-ENDPOINT CONFIGURATION # POE GLOBAL CONFIGURATION # # PORT CONFIGURATION - PHASE I # interface GigabitEthernet 1/12 encapsulation dot1q exit # # ISIS SPBM CONFIGURATION # router isis spbm 1 spbm 1 nick-name 0.00.02 spbm 1 b-vid 4051-4052 primary 4051 spbm 1 multicast enable spbm 1 ip enable exit # # SPB-PIM-GW CONFIGURATION # # MLT CONFIGURATION # # IP PREFIX LIST CONFIGURATION - GlobalRouter # # IP PREFIX LIST CONFIGURATION - VRF

```
# IPv6 PREFIX LIST CONFIGURATION - GlobalRouter
#
# IPv6 PREFIX LIST CONFIGURATION - VRF
#
# RMON CONFIGURATION
#
# DVR CONFIGURATION
#
dvr controller 1
#
# VLAN CONFIGURATION
#
vlan members remove 1 1/1-1/50 portmember
vlan create 195 name "Voice" type port-mstprstp 0
vlan i-sid 195 2100195
interface Vlan 195
dvr gw-ipv4 10.9.195.1
dvr enable
ip address 10.9.195.3 255.255.255.0 1
ip dhcp-relay
exit
vlan create 196 name "Data" type port-mstprstp 0
vlan i-sid 196 2100196
interface Vlan 196
dvr gw-ipv4 10.9.196.1
dvr enable
ip address 10.9.196.3 255.255.255.0 1
ip dhcp-relay
exit
vlan create 4048 name "onboarding-vlan" type port-mstprstp 0 vlan i-sid 4048 15999999
interface Vlan 4048
ip address 10.9.192.3 255.255.255.0 2
ip dhcp-relay
ip vrrp version 3
ip vrrp address 1 10.9.192.1
ip vrrp 1 enable
exit
vlan create 4051 name "B-VLAN-1" type spbm-bvlan
vlan create 4052 name "B-VLAN-2" type spbm-bvlan
#
# MSTP CONFIGURATION
#
# NLS CONFIGURATION
#
mgmt clip vrf GlobalRouter
ip address 10.9.193.132/32
enable
exit
#
# FHS CONFIGURATION
#
# MAC ACL CONFIGURATION
# IPv6 FHS ACL CONFIGURATION
# RA-GUARD CONFIGURATION
# DHCP-GUARD CONFIGURATION
#
# FHS SNOOPING CONFIGURATION
#
# SFLOW CONFIGURATION
#
# DHCP SNOOPING CONFIGURATION
```

```
#
# DHCP SNOOPING BINDING CONFIGURATION
#
# VIRTUAL IST CONFIGURATION
#
# MLT INTERFACE CONFIGURATION
#
# PORT CONFIGURATION - PHASE II
#
interface GigabitEthernet 1/2
no shutdown
brouter port 1/2 vlan 4000 subnet 10.9.223.6/255.255.255.252 mac-offset 0 ip bfd enable
no spanning-tree mstp force-port-state enable
exit
interface GigabitEthernet 1/11
default-vlan-id 0
auto-sense enable
no shutdown
exit
interface GigabitEthernet 1/12
default-vlan-id 0
no shutdown
isis
isis spbm 1
isis enable
no spanning-tree mstp force-port-state enable
no spanning-tree mstp msti 62 force-port-state enable
exit
interface GigabitEthernet 1/13
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/14
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/15
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/16
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/17
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/18
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/19
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/20
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/21
no lldp tx-tlv med extendedPSE
```

```
exit
interface GigabitEthernet 1/22
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/23
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/24
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/25
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/26
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/27
no lldp tx-tlv med extended
PSE
exit
interface GigabitEthernet 1/28
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/29
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/30
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/31
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/32
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/33
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/34
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/35
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/36
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/37
no lldp tx-tlv med extendedPSE
```

```
exit
interface GigabitEthernet 1/38
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/39
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/40
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/41
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/42
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/43
no lldp tx-tlv med extended
PSE
exit
interface GigabitEthernet 1/44
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/45
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/46
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/47
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/48
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/49
no lldp tx-tlv med extendedPSE
exit
interface GigabitEthernet 1/50
no lldp tx-tlv med extendedPSE
exit
#
# LINK-STATE TRACKING
#
# IP CONFIGURATION
#
# IP AS LIST CONFIGURATION - GlobalRouter
#
# IP COMMUNITY LIST CONFIGURATION - GlobalRouter
#
# IP EXTENDED COMMUNITY LIST CONFIGURATION - GlobalRouter
```

```
# IP ROUTE MAP CONFIGURATION - GlobalRouter
#
# IP CONFIGURATION - GlobalRouter
#
ip route 0.0.0.0 0.0.0.0 10.9.223.5 weight 10
# BFD CONFIGURATION - GlobalRouter
router bfd enable
ip route bfd 10.9.223.5
#
# CIRCUITLESS IP INTERFACE CONFIGURATION - GlobalRouter
#
interface loopback 1
ip address 1 10.9.193.130/255.255.255.255
exit
# TOPOLOGY-CLIP-IP
# MSDP CONFIGURATION - GlobalRouter
#
# CIRCUITLESS IPV6 INTERFACE CONFIGURATION - GlobalRouter
#
# VRRP CONFIGURATION - GlobalRouter
# UDP FORWARDING CONFIGURATION - GlobalRouter
#
# UDP FORWARDING CONFIGURATION - VRF
# UDP FORWARDING PORT CONFIGURATION
# UDP FORWARDING VLAN CONFIGURATION
# DHCP CONFIGURATION - GlobalRouter
ip dhcp-relay fwd-path 10.9.192.3 10.9.255.130
ip dhcp-relay fwd-path 10.9.192.3 10.9.255.130 enable
ip dhcp-relay fwd-path 10.9.192.3 10.9.255.130 mode dhcp
ip dhcp-relay fwd-path 10.9.192.3 10.9.255.131
ip dhcp-relay fwd-path 10.9.192.3 10.9.255.131 enable
ip dhcp-relay fwd-path 10.9.192.3 10.9.255.131 mode dhcp
ip dhcp-relay fwd-path 10.9.195.3 10.9.255.130
ip dhcp-relay fwd-path 10.9.195.3 10.9.255.130 enable
ip dhcp-relay fwd-path 10.9.195.3 10.9.255.130 mode bootp dhcp ip dhcp-relay fwd-path
10.9.195.3 10.9.255.131
ip dhcp-relay fwd-path 10.9.195.3 10.9.255.131 enable
ip dhcp-relay fwd-path 10.9.195.3 10.9.255.131 mode bootp_dhcp ip dhcp-relay fwd-path
10.9.196.3 10.9.255.130
ip dhcp-relay fwd-path 10.9.196.3 10.9.255.130 enable
ip dhcp-relay fwd-path 10.9.196.3 10.9.255.130 mode bootp_dhcp ip dhcp-relay fwd-path
10.9.196.3 10.9.255.131
ip dhcp-relay fwd-path 10.9.196.3 10.9.255.131 enable
ip dhcp-relay fwd-path 10.9.196.3 10.9.255.131 mode bootp dhcp
# RIP CONFIGURATION - GlobalRouter
# RIP VLAN CONFIGURATION
# IGMP CONFIGURATION - GlobalRouter
#
# MCAST RESOURCE USAGE CONFIGURATION
#
# TIMED PRUNE CONFIGURATION - GlobalRouter
```

RSMLT CONFIGURATION # # IPV6 CONFIGURATION - GlobalRouter # # MLD CONFIGURATION - GlobalRouter # # ISIS CONFIGURATION # router isis sys-name "VSP-core2" ip-source-address 10.9.193.130 is-type l1 manual-area 49.0000 exit router isis enable # LOGICAL ISIS CONFIGURATION ŧ # VTEP CONFIGURATION # REMOTE VTEP CONFIGURATIONS # # VLAN NODAL MEP/MIP CONFIGURATION # # QOS CONFIGURATION - PHASE II # qos queue-profile 1 member add 1/1-1/50 # # CFM CONFIGURATION - PHASE II # cfm spbm enable # # DIAG CONFIGURATION # NTP CONFIGURATION # no ntp # # ES CONFIGURATION # # OSPF CONFIGURATION - GlobalRouter # router ospf exit # # OSPF CONFIGURATION - VRF # # OSPF ACCEPT CONFIGURATION - GlobalRouter # OSPF ACCEPT CONFIGURATION - VRF # # BGP CONFIGURATION - GlobalRouter # BGP CONFIGURATION - VRF # ISIS SPBM IPVPN CONFIGURATION # IP ISID LIST CONFIGURATION - GlobalRouter # # IP ISID LIST CONFIGURATION - VRF # # ISIS ACCEPT CONFIGURATION - GlobalRouter # # ISIS ACCEPT CONFIGURATION - VRF

ISIS IPv6 ACCEPT CONFIGURATION - GlobalRouter # # ISIS IPv6 ACCEPT CONFIGURATION - VRF # # IP REDISTRIBUTION CONFIGURATION - GlobalRouter # router isis redistribute static redistribute static enable redistribute direct redistribute direct enable exit # # IP REDISTRIBUTION CONFIGURATION - VRF # OSPF VLAN CONFIGURATION # OSPF PORT CONFIGURATION # OSPF LOOPBACK CONFIGURATION # # RIP PORT CONFIGURATION # # IPVPN CONFIGURATION # # SLPP CONFIGURATION # # FILTER CONFIGURATION # APPLICATION TELEMETRY CONFIGURATION # IPV6 TUNNEL CONFIGURATION # IPV6 OSPFV3 CONFIGURATION - GlobalRouter # IPV6 RIPng CONFIGURATION router rip exit # # IPV6 STATIC ROUTE CONFIGURATION - GlobalRouter # IPV6 OSPF VLAN CONFIGURATION # # IPV6 OSPF PORT CONFIGURATION # # IPV6 RIP VLAN CONFIGURATION # IPV6 RIP PORT CONFIGURATION # IPV6 VRRP VLAN CONFIGURATION # IPV6 VRRP PORT CONFIGURATION # IPV6 NEIGHBOR CONFIGURATION - GlobalRouter # IPV6 STATIC ROUTE BFD CONFIGURATION - GlobalRouter # IPV6 DHCP CONFIGURATION - GlobalRouter # IPV6 DHCP CONFIGURATION - VRF # # I-SID NAME CONFIGURATION

```
#
i-sid name 2100195 "Auto-sense Voice"
i-sid name 2100196 "Auto-sense Data"
i-sid name 15999999 "Onboarding I-SID"
# I-SID CONFIGURATION
#
i-sid 2100195 elan
exit
i-sid 15999999 elan
exit
#
# GLOBAL AUTO-SENSE CONFIGURATION
#
auto-sense voice i-sid 2100195 c-vid 195
auto-sense eapol voice lldp-auth
auto-sense data i-sid 2100196
auto-sense onboarding i-sid 15999999
#
# RADIUS CONFIGURATION
#
radius server host 10.9.203.6 key ****** used-by eapol radius enable
radius dynamic-server client 10.9.203.6 secret ****** enable
# TACACS CONFIGURATION
#
# LLDP CONFIGURATION
#
# EAP CONFIGURATION
#
eapol enable
#
# MACSEC CONFIGURATION
# GLOBAL MACSec CA Configured
# FABRIC ATTACH CONFIGURATION
# DVR IP REDISTRIBUTION CONFIGURATION - GlobalRouter
# DVR IP REDISTRIBUTION CONFIGURATION - VRF
#
# SPB-PIM-GW CONFIGURATION
# SOFTWARE CONFIGURATION
#
# APPLICATION CONFIGURATION
# IPSEC CONFIGURATION
# IPSEC POLICY TABLE CONFIGURATION
# IPSEC SA TABLE CONFIGURATION
# IPSEC SA POLICY LINK TABLE CONFIGURATION
# IPV6 OSPFV3 IPSEC CONFIGURATION
# IPV6 IPSEC INTERFACE CONFIGURATION
#
# IP IPSEC INTERFACE CONFIGURATION
#
# IKE CONFIGURATION
#
```

```
# SYSTEM CONFIGURATION Phase 2
#
end
#
# IP REDISTRIBUTE APPLY CONFIGURATIONS
isis apply redistribute static isis apply redistribute direct
#
# IP ECMP APPLY CONFIGURATIONS
```

VSP -edgel

```
# Thu Aug 26 03:01:28 2021 EDT
# box type : 5520-12MW-36W-VOSS
# software version
                                        : 8.4.0.0
# cli mode
                                        : ECLI #
#Card Info :
# Slot 1 :
                                   CardType : 5520-12MW-36W-VOSS
                                   CardDescription : 5520-12MW-36W-VOSS
                                   CardSerial# : SB012050G-00079
                                   CardPart# : 800990-00-AB
                                   CardAssemblyDate : 20201216
                                   CardHWRevision : AB
                                   CardHWConfig :
                                  AdminStatus : up
#
                                   OperStatus : up
#
#
#!end
#
config terminal
#
# BOOT CONFIGURATION
#
boot config flags dvr-leaf-mode
boot config flags ftpd
boot config flags sshd
boot config flags telnetd
#boot config sio console baud 115200 1
# end boot flags
#
# SPBM CONFIGURATION
#
spbm
spbm ethertype 0x8100
#
# CLI CONFIGURATION
#
prompt "VSP-edge1"
password password-history 3
# CLOCK TIME-ZONE CONFIGURATION
#
clock time-zone US Eastern
#
# SYSTEM CONFIGURATION
ip domain-name "FabricEdge.NH.CTC.Local" ip name-server primary 10.9.255.130
ip name-server secondary 10.9.255.131 syslog host 1
syslog host 1 address 10.9.203.5
syslog host 1 enable
#
```

LOG CONFIGURATION # # LINK-FLAP-DETECT CONFIGURATION # # IEEE VLAN AGING CONFIGURATION # # ACCESS-POLICY CONFIGURATION # # SSH CONFIGURATION # ssh # # MCAST SOFTWARE FORWARDING CONFIGURATION # # SNMP V3 GLOBAL CONFIGURATION # SNMP V3 GROUP MEMBERSHIP CONFIGURATION snmp-server user admin group "initial" snmp-server user snmpuser group "snmpuser" snmpserver user snmpuser group "snmpuser" # # SNMP V3 NOTIFY FILTER CONFIGURATION # # SNMP V3 MIB VIEW CONFIGURATION # # SNMP V3 GROUP CONFIGURATION # snmp-server group "snmpuser" "" auth-priv notify-view root # # SNMP V3 TARGET ADDRESS CONFIGURATION # snmp-server host 10.9.203.5 v3 authPriv snmpuser inform # # DDI CONFIGURATION # SLOT CONFIGURATION # MAC AGING CONFIGURATION # # SMTP CONFIGURATION # # WEB CONFIGURATION web-server enable no web-server secure-only # # GLOBAL FDB FILTER CONFIGURATION # QOS CONFIGURATION - PHASE I # # LACP CONFIGURATION # VRF CONFIGURATION # MAINTENANCE-DOMAIN CONFIGURATION # # MAINTENANCE-ASSOCIATION CONFIGURATION # # MAINTENANCE-ENDPOINT CONFIGURATION # # POE GLOBAL CONFIGURATION # # PORT CHANNELIZE CONFIGURATION

#

```
# PORT CONFIGURATION - PHASE I
#
# ISIS SPBM CONFIGURATION
#
router isis
exit
# SPB-PIM-GW CONFIGURATION
#
# MLT CONFIGURATION
# IP PREFIX LIST CONFIGURATION - GlobalRouter
# IP PREFIX LIST CONFIGURATION - VRF
# IPv6 PREFIX LIST CONFIGURATION - GlobalRouter
# IPv6 PREFIX LIST CONFIGURATION - VRF
# RMON CONFIGURATION
#
# VLAN CONFIGURATION
#
vlan members remove 1 1/1-1/48 portmember
vlan create 4048 name "onboarding-vlan" type pvlan-mstprstp 0 secondary 4049 vlan i-sid
4048 15999999
vlan create 4051 type spbm-bvlan
vlan create 4052 type spbm-bvlan
#
# MSTP CONFIGURATION
#
# NLS CONFIGURATION
#
mgmt oob
exit
mgmt clip vrf GlobalRouter
ip address 10.9.193.133/32
enable
exit
mgmt vlan 4048
mac-offset 0
ip route 0.0.0.0/0 next-hop 10.9.192.1 weight 200
enable
exit
#
# FHS CONFIGURATION
#
# MAC ACL CONFIGURATION
#
# IPv6 FHS ACL CONFIGURATION
# RA-GUARD CONFIGURATION
# DHCP-GUARD CONFIGURATION
# FHS SNOOPING CONFIGURATION
#
# SFLOW CONFIGURATION
#
# DHCP SNOOPING CONFIGURATION
#
# DHCP SNOOPING BINDING CONFIGURATION #
# VIRTUAL IST CONFIGURATION
```

MLT INTERFACE CONFIGURATION # # DVR CONFIGURATION # dvr leaf 1 # PORT CONFIGURATION - PHASE II # interface GigabitEthernet 1/1 auto-sense enable no shutdown exit interface GigabitEthernet 1/2 auto-sense enable no shutdown exit interface GigabitEthernet 1/3 auto-sense enable no shutdown exit interface GigabitEthernet 1/4 auto-sense enable no shutdown exit interface GigabitEthernet 1/5 auto-sense enable no shutdown exit interface GigabitEthernet 1/6 default-vlan-id 0 auto-sense enable no shutdown exit interface GigabitEthernet 1/7 auto-sense enable no shutdown exit interface GigabitEthernet 1/8 auto-sense enable no shutdown exit interface GigabitEthernet 1/9 auto-sense enable no shutdown exit interface GigabitEthernet 1/10 auto-sense enable no shutdown exit interface GigabitEthernet 1/11 auto-sense enable no shutdown exit interface GigabitEthernet 1/12 auto-sense enable no shutdown exit interface GigabitEthernet 1/13 auto-sense enable no shutdown exit interface GigabitEthernet 1/14 auto-sense enable no shutdown exit interface GigabitEthernet 1/15 auto-sense enable no shutdown exit interface GigabitEthernet 1/16 auto-sense enable no shutdown exit interface GigabitEthernet 1/17 auto-sense enable no shutdown exit interface GigabitEthernet 1/18 auto-sense enable no shutdown exit interface GigabitEthernet 1/19 auto-sense enable no shutdown exit interface GigabitEthernet 1/20 auto-sense enable no shutdown exit interface GigabitEthernet 1/21 default-vlan-id 0 auto-sense enable no shutdown exit interface GigabitEthernet 1/22 default-vlan-id 0 auto-sense enable no shutdown exit interface GigabitEthernet 1/23 default-vlan-id 0 auto-sense enable no shutdown exit interface GigabitEthernet 1/24 auto-sense enable no shutdown exit interface GigabitEthernet 1/25 auto-sense enable no shutdown exit interface GigabitEthernet 1/26 auto-sense enable no shutdown exit interface GigabitEthernet 1/27 auto-sense enable no shutdown exit interface GigabitEthernet 1/28 auto-sense enable no shutdown exit interface GigabitEthernet 1/29 auto-sense enable no shutdown exit interface GigabitEthernet 1/30 auto-sense enable no shutdown exit interface GigabitEthernet 1/31 auto-sense enable no shutdown exit interface GigabitEthernet 1/32 auto-sense enable no shutdown exit interface GigabitEthernet 1/33 auto-sense enable no shutdown exit interface GigabitEthernet 1/34 auto-sense enable no shutdown exit interface GigabitEthernet 1/35 auto-sense enable no shutdown exit interface GigabitEthernet 1/36 auto-sense enable no shutdown exit interface GigabitEthernet 1/37 auto-sense enable no shutdown exit interface GigabitEthernet 1/38 auto-sense enable no shutdown exit interface GigabitEthernet 1/39 auto-sense enable no shutdown exit interface GigabitEthernet 1/40 auto-sense enable no shutdown exit interface GigabitEthernet 1/41 auto-sense enable no shutdown exit interface GigabitEthernet 1/42 auto-sense enable no shutdown exit interface GigabitEthernet 1/43 auto-sense enable no shutdown exit interface GigabitEthernet 1/44 auto-sense enable no shutdown exit interface GigabitEthernet 1/45 auto-sense enable no shutdown exit interface GigabitEthernet 1/46 auto-sense enable no shutdown exit interface GigabitEthernet 1/47 auto-sense enable no shutdown exit interface GigabitEthernet 1/48 auto-sense enable no shutdown exit # LINK-STATE TRACKING # # IP CONFIGURATION # # IP AS LIST CONFIGURATION - GlobalRouter # IP AS LIST CONFIGURATION - VRF # IP COMMUNITY LIST CONFIGURATION - GlobalRouter # IP COMMUNITY LIST CONFIGURATION - VRF # IP EXTENDED COMMUNITY LIST CONFIGURATION - GlobalRouter # IP EXTENDED COMMUNITY LIST CONFIGURATION - VRF # # IP ROUTE MAP CONFIGURATION - GlobalRouter # # IP ROUTE MAP CONFIGURATION - VRF # # IP CONFIGURATION - GlobalRouter

IP CONFIGURATION - VRF # # BFD CONFIGURATION - GlobalRouter # # BFD CONFIGURATION - VRF # # CIRCUITLESS IP INTERFACE CONFIGURATION - GlobalRouter # # CIRCUITLESS IP INTERFACE CONFIGURATION - VRF # TOPOLOGY-CLIP-IP # MSDP CONFIGURATION - GlobalRouter # VRRP CONFIGURATION - GlobalRouter # VRRP CONFIGURATION - VRF # UDP FORWARDING CONFIGURATION - GlobalRouter # # UDP FORWARDING CONFIGURATION - VRF # # UDP FORWARDING VLAN CONFIGURATION # DHCP CONFIGURATION - GlobalRouter # # DHCP CONFIGURATION - VRF # RIP CONFIGURATION - GlobalRouter # RIP CONFIGURATION - VRF # RIP VLAN CONFIGURATION # IGMP CONFIGURATION - GlobalRouter # IGMP CONFIGURATION - VRF # MROUTE CONFIGURATION # # MCAST RESOURCE USAGE CONFIGURATION # MCAST RESOURCE USAGE CONFIGURATION # # TIMED PRUNE CONFIGURATION - GlobalRouter # # TIMED PRUNE CONFIGURATION - VRF # IPFIX CONFIGURATION # # RSMLT CONFIGURATION # MLD CONFIGURATION - GlobalRouter # MROUTE6 CONFIGURATION # ISIS CONFIGURATION # router isis sys-name "VSP-edge1" is-type l1 exit router isis enable

LOGICAL ISIS CONFIGURATION # # VLAN NODAL MEP/MIP CONFIGURATION # # QOS CONFIGURATION - PHASE II # qos queue-profile 1 member add 1/1-1/48 # CFM CONFIGURATION - PHASE II cfm spbm enable # # DIAG CONFIGURATION # NTP CONFIGURATION no ntp ntp server 10.9.255.155 # ES CONFIGURATION # # OSPF CONFIGURATION - GlobalRouter # # OSPF CONFIGURATION - VRF # # OSPF ACCEPT CONFIGURATION - GlobalRouter # # OSPF ACCEPT CONFIGURATION - VRF # BGP CONFIGURATION - GlobalRouter # BGP CONFIGURATION - VRF # ISIS SPBM IPVPN CONFIGURATION # IP ISID LIST CONFIGURATION - GlobalRouter # IP ISID LIST CONFIGURATION - VRF # ISIS ACCEPT CONFIGURATION - GlobalRouter # # ISIS ACCEPT CONFIGURATION - VRF # ISIS IPv6 ACCEPT CONFIGURATION - GlobalRouter # # ISIS IPv6 ACCEPT CONFIGURATION - VRF # IP REDISTRIBUTION CONFIGURATION - GlobalRouter router isis exit # # IP REDISTRIBUTION CONFIGURATION - VRF # OSPF VLAN CONFIGURATION # OSPF PORT CONFIGURATION # # OSPF LOOPBACK CONFIGURATION # # RIP PORT CONFIGURATION # # IPVPN CONFIGURATION

SLPP CONFIGURATION # # FILTER CONFIGURATION # # APPLICATION TELEMETRY CONFIGURATION # IPV6 TUNNEL CONFIGURATION # IPV6 OSPFV3 CONFIGURATION - GlobalRouter # # IPV6 RIPng CONFIGURATION # IPV6 MGMT INTERFACE CONFIGURATION # IPV6 STATIC ROUTE CONFIGURATION - GlobalRouter # IPV6 MGMT INTERFACE CONFIGURATION # IPV6 OSPF VLAN CONFIGURATION # # IPV6 OSPF PORT CONFIGURATION # # IPV6 RIP VLAN CONFIGURATION # IPV6 RIP PORT CONFIGURATION # # IPV6 VRRP VLAN CONFIGURATION # # IPV6 VRRP PORT CONFIGURATION # I-SID NAME CONFIGURATION i-sid name 2100195 "Auto-sense Voice" i-sid name 2100196 "Auto-sense Data" i-sid name 15999999 "Onboarding I-SID" # I-SID CONFIGURATION # # GLOBAL AUTO-SENSE CONFIGURATION # auto-sense voice i-sid 2100195 c-vid 195 auto-sense data i-sid 2100196 auto-sense onboarding i-sid 15999999 # VNID CONFIGURATION # # RADIUS CONFIGURATION # TACACS CONFIGURATION # # LLDP CONFIGURATION # EAP CONFIGURATION # MACSEC CONFIGURATION # GLOBAL MACSec CA Configured # FABRIC ATTACH CONFIGURATION # # ENDPOINT TRACKING CONFIGURATION # # SPB-PIM-GW CONFIGURATION

SOFTWARE CONFIGURATION # # APPLICATION CONFIGURATION # # IPSEC CONFIGURATION # # IPSEC POLICY TABLE CONFIGURATION # # IPSEC SA TABLE CONFIGURATION # # IPSEC SA POLICY LINK TABLE CONFIGURATION # # IPV6 OSPFV3 IPSEC CONFIGURATION # # IPV6 IPSEC INTERFACE CONFIGURATION # IP IPSEC INTERFACE CONFIGURATION # # IKE CONFIGURATION # # SYSTEM CONFIGURATION Phase 2 # end # # IP REDISTRIBUTE APPLY CONFIGURATIONS # # IP ECMP APPLY CONFIGURATIONS

VSP -edge2

```
#
# Thu Aug 26 03:01:28 2021 EDT
# box type
                                           : 5520-24W-VOSS
# software version
                                            : 8.4.0.0
                                            : ECLI #
# cli mode
#Card Info :
# Slot 1 :
                                       CardType : 5520-24W-VOSS
                                       CardDescription : 5520-24W-VOSS
                                       CardSerial# : SB032050G-00102
                                       CardPart# : 800992-00-AB
                                       CardAssemblyDate : 20201215
                                       CardHWRevision : AB
                                       CardHWConfig :
                                       AdminStatus : up
#
#
                                       OperStatus : up
#
#!end
#
config terminal
#
# BOOT CONFIGURATION
#
boot config flags dvr-leaf-mode
boot config flags ftpd
boot config flags sshd
boot config flags telnetd
#boot config sio console baud 115200 1
# end boot flags
#
# SPBM CONFIGURATION
#
spbm
```

```
spbm ethertype 0x8100
#
# CLI CONFIGURATION
#
prompt "VSP-edge2"
password password-history 3
# CLOCK TIME-ZONE CONFIGURATION
#
clock time-zone US Eastern
#
# SYSTEM CONFIGURATION
#
ip domain-name "FabricEdge.NH.CTC.Local"
ip name-server primary 10.9.255.130
ip name-server secondary 10.9.255.131
syslog host 1
syslog host 1 address 10.9.203.5
syslog host 1 enable
#
# LOG CONFIGURATION
#
# LINK-FLAP-DETECT CONFIGURATION
#
# IEEE VLAN AGING CONFIGURATION
#
# ACCESS-POLICY CONFIGURATION
#
# SSH CONFIGURATION
#
ssh
#
# MCAST SOFTWARE FORWARDING CONFIGURATION
# SNMP V3 GLOBAL CONFIGURATION
# SNMP V3 GROUP MEMBERSHIP CONFIGURATION
#
snmp-server user admin group "initial"
snmp-server user snmpuser group "snmpuser"
snmp-server user snmpuser group "snmpuser"
#
# SNMP V3 NOTIFY FILTER CONFIGURATION
#
# SNMP V3 MIB VIEW CONFIGURATION
#
# SNMP V3 GROUP CONFIGURATION
snmp-server group "snmpuser" "" auth-priv notify-view root
#
# SNMP V3 TARGET ADDRESS CONFIGURATION
snmp-server host 10.9.203.5 v3 authPriv snmpuser inform
# DDI CONFIGURATION
#
# SLOT CONFIGURATION
#
# MAC AGING CONFIGURATION
#
# SMTP CONFIGURATION
#
# WEB CONFIGURATION
#
```

web-server enable no web-server secure-only # # GLOBAL FDB FILTER CONFIGURATION # # QOS CONFIGURATION - PHASE I # # LACP CONFIGURATION # # VRF CONFIGURATION # # MAINTENANCE-DOMAIN CONFIGURATION # # MAINTENANCE-ASSOCIATION CONFIGURATION # MAINTENANCE-ENDPOINT CONFIGURATION # # POE GLOBAL CONFIGURATION # PORT CHANNELIZE CONFIGURATION # # PORT CONFIGURATION - PHASE I # # ISIS SPBM CONFIGURATION # router isis exit # # SPB-PIM-GW CONFIGURATION # # MLT CONFIGURATION # IP PREFIX LIST CONFIGURATION - GlobalRouter # IP PREFIX LIST CONFIGURATION - VRF # IPv6 PREFIX LIST CONFIGURATION - GlobalRouter # # IPv6 PREFIX LIST CONFIGURATION - VRF # # RMON CONFIGURATION # # VLAN CONFIGURATION # vlan members remove 1 1/1-1/24 portmember vlan create 4048 name "onboarding-vlan" type pvlan-mstprstp 0 secondary 4049 vlan i-sid 4048 15999999 vlan create 4051 type spbm-bvlan vlan create 4052 type spbm-bvlan # # MSTP CONFIGURATION # NLS CONFIGURATION # mgmt oob exit mgmt clip vrf GlobalRouter ip address 10.9.193.134/32 enable exit mgmt vlan 4048 mac-offset 0 ip route 0.0.0.0/0 next-hop 10.9.192.1 weight 200

enable exit # # FHS CONFIGURATION # # MAC ACL CONFIGURATION # # IPv6 FHS ACL CONFIGURATION # # RA-GUARD CONFIGURATION # DHCP-GUARD CONFIGURATION # # FHS SNOOPING CONFIGURATION # SFLOW CONFIGURATION # DHCP SNOOPING CONFIGURATION # DHCP SNOOPING BINDING CONFIGURATION # # VIRTUAL IST CONFIGURATION # # MLT INTERFACE CONFIGURATION # # DVR CONFIGURATION # dvr leaf 1 # # PORT CONFIGURATION - PHASE II # interface GigabitEthernet 1/1 auto-sense enable no shutdown exit interface GigabitEthernet 1/2 auto-sense enable no shutdown exit interface GigabitEthernet 1/3 auto-sense enable no shutdown exit interface GigabitEthernet 1/4 auto-sense enable no shutdown exit interface GigabitEthernet 1/5 auto-sense enable no shutdown exit interface GigabitEthernet 1/6 default-vlan-id 0 auto-sense enable no shutdown exit interface GigabitEthernet 1/7 auto-sense enable no shutdown exit interface GigabitEthernet 1/8 auto-sense enable no shutdown exit

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ISIS ACCEPT CONFIGURATION - GlobalRouter # # ISIS ACCEPT CONFIGURATION - VRF # # ISIS IPv6 ACCEPT CONFIGURATION - GlobalRouter # ISIS IPv6 ACCEPT CONFIGURATION - VRF # # IP REDISTRIBUTION CONFIGURATION - GlobalRouter router isis exit # # IP REDISTRIBUTION CONFIGURATION - VRF # OSPF VLAN CONFIGURATION # OSPF PORT CONFIGURATION # OSPF LOOPBACK CONFIGURATION # # RIP PORT CONFIGURATION # # IPVPN CONFIGURATION # SLPP CONFIGURATION # # FILTER CONFIGURATION # # APPLICATION TELEMETRY CONFIGURATION # IPV6 TUNNEL CONFIGURATION # IPV6 OSPFV3 CONFIGURATION - GlobalRouter # IPV6 RIPng CONFIGURATION # IPV6 MGMT INTERFACE CONFIGURATION # IPV6 STATIC ROUTE CONFIGURATION - GlobalRouter # IPV6 MGMT INTERFACE CONFIGURATION # IPV6 OSPF VLAN CONFIGURATION # # IPV6 OSPF PORT CONFIGURATION # # IPV6 RIP VLAN CONFIGURATION # IPV6 RIP PORT CONFIGURATION # IPV6 VRRP VLAN CONFIGURATION # IPV6 VRRP PORT CONFIGURATION # I-SID NAME CONFIGURATION i-sid name 2100195 "Auto-sense Voice" i-sid name 2100196 "Auto-sense Data" i-sid name 15999999 "Onboarding I-SID" # # I-SID CONFIGURATION # # GLOBAL AUTO-SENSE CONFIGURATION

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