

Deployment Guide

VLAN Management in NIOS 8.4

Table of Contents

Executive Summary	2
Features	2
Instructions	2
API Calls	11
Reports	12

Executive Summary

This deployment guide shows how to implement VLAN Management on NIOS 8.4. This feature allows the administrator to compare assigned/unassigned VLANs with Network Insight discovered VLANs. However, you do not need Network Insight to take advantage of the VLAN Management feature

Features

- No additional licenses are needed to use this feature.
- Can be configured using the GUI or API.
- VLAN data can be exported to a .CSV file.
- There are three different constructs for VLAN Management:
 - o VLAN view container that holds VLAN ranges and/or VLAN objects.
 - o VLAN range (optional) contains VLAN objects and IDs.
 - o VLAN object contains VLAN names and IDs.
- With the new VLAN management feature, there are two new reports:
 - o VLAN Conflict Report. This report details the following:
 - Assigned VLAN ID and Discovered VLAN ID are not equal.
 - Assigned VLAN name and discovered VLAN name are equal.
 - Discovered VLAN but no assigned VLAN in Network.
 - Assigned VLAN but no discovered VLAN.
 - o VLAN Inventory Report.
 - Shows all existing VLANs created in NIOS

Instructions

- 1. Log into the GUI.
- 2. Navigate to Data Management VLANs. By default there is a view called "default".

In	lfob	lox 📚		Dashbo	ards	Data Management	Smart Fol	ders	Reporting	Grid	Administ	ration	Q Sea	arch	admin	
				IPAM	VLAN	Super Host	Devices	DHCP	DNS	File Distrib	ution					
	VL	ANs	R												*	? «
	Qui	ck Filter	None	~	Off Filte	r On Show Filte	r									
	+	8	💼 🔔 -								Go to			Go		
			NAME			START VLAN ID	END VLAN ID		COMMENT	ALLOW	RANGE O	SITE				
			default			1	4094			Yes						
			working vlans			1000	1050			Yes						
		=	eng vlans			3000	3200		this is a test	Yes						
		=	no pre create			3300	3400		this is a test	Yes						
		=	lab vlans			2000	2200			Yes						
			NIC													

3. To create a VLAN view, click on the '+' button to add a view in the View wizard

Add VLAN View W	/izard > Step 1 of 2	×
*VLAN View Name	eng vlans	?
*Start VLAN ID	3000	
*End VLAN ID	3200	
Pre-create VLANs		
VLAN Name Prefix	engvlan	
Allow VLAN Range overlapping		
Comment	this is a test	
Cancel	Previous Next Save	& Close 🔹

4. Type in the VLAN view name, starting VLAN ID, and end VLAN ID.

5. When selecting pre-create vlans, the system will create the VLAN names, type, VLAN ID, and the status of unassigned. Otherwise, the system will just create the view with nothing populated.

lr	nfoblox 📚		Dashbo	ards D	ata Management	Smart Fol	ders	Reporting	Grid	Administ	ration	Q Search	admin	-
			IPAM	VLANs	Super Host	Devices	DHCP	DNS	File Distrib	ution				
1 >	VLANs Home eng vlans	S VlanView	R										4	? «
	Quick Filter	None	Y	Off Filter C	on Show Filter									
	+• 🗷	💼 🗘 -								Go to		Go		
		NAME			ТҮРЕ	VLAN ID		START VLAN ID	END VL	AN ID	STATUS 🔺	COMMENT	1	
		engvlan3002			VLAN	3002					Assigned			
		engvlan3000			VLAN	3000					Unassigned			
		engvlan3001			VLAN	3001					Unassigned			
		engvlan3003			VLAN	3003					Unassigned			
	. =	engvlan3004			VLAN	3004					Unassigned			
	. =	engvlan3005			VLAN	3005					Unassigned			
		engvlan3006			VLAN	3006					Unassigned			
		N B												

6. VLAN ranges are used to group VLAN objects. For example, if you have VLANs for your IT department, you could group VLANs for the network engineering department and group other VLANs for IT applications group. Click Save and Close after adding VLAN Range Name, Start VLAN ID and End VLAN ID.

Add VLAN Range	Wizard > Step 1 of 2	×
*VLAN View	lab vlans Select VLAN View	@ «
*VLAN Range Name	lab range 2	
*Start VLAN ID	2051	
*End VLAN ID	2060	
Pre-create VLANs		
VLAN Name Prefix		
Comment		
Cancel	Previous Next Sav	e & Close 🔻

In	fob	lox 📚		Dashbo	ards	Data Management	Smart Fold	ers	Reporting	Grid	Administ	ration	Q Search	admir	•
				IPAM	VLAN	Super Host	Devices	DHCP	DNS	File Distribu	ution				
1 »	vlai Iab	ns Home	> lab vlans 2 VlanRan	ge 其										4	? «
	Qu	ck Filter	None	•	Off Filter	On Show Filter									
	+		🛅 🧘 -								Go to		Go		
		=	NAME			VLAN ID	DESCRIPTION		CONTACT	DEPART	MENT	STATUS	COMMENT	1	
		\equiv	lab2051			2051						Unassigned			
		≡	lab2052			2052						Unassigned			
		\equiv	lab2053			2053						Unassigned			
		≡	lab2054			2054						Unassigned			
		≡	lab2055			2055						Unassigned			
		≡	lab2056			2056						Unassigned			
		=	lab2057			2057						Unassigned			
	K		N I C												

7. To assign a VLAN ID to a network, navigate to Data Management IPAM.

nfoblox 📚	Dashboards	Data Management	Smart Fo	olders Reporti	ng Grid A	Administration	Q Search	adm
	IPAM VLA	Ns Super Host	Devices	DHCP DNS	File Distribution	ı		
default Network	/iew 其							5
Quick Filter None	• 0#	Filter On Show F	Filter 📜	Toggle flat view				
→ + • ☑ 茴	- + 1 - +					Go to	Go	
	÷ C	OMMENT IPAM	UTILIZATION	DISCOVER NOW	DISCOVERY ENGINE	DISCOVERED VLAN ID	DISCOVERED VLA	A
🔲 🗏 🔛 10.60	0.0/16		2.0%		None			
🔲 🗏 🛛 📫 10.61	0.0/16		0.0%		Network Insight			
🔲 🗏 🛛 📫 10.66	0.0/24		0.0%		Network Insight			
🔲 🗏 📫 📫 10.66	1.0/24		0.0%		Network Insight			
🔲 🗮 📫 10.66	2.0/24		0.0%		Network Insight			3(
🔲 🗏 📫 10.66	5.0/24		0.0%		Network Insight			
🔲 📃 📫 10.66	60.0/24		0.0%		Network Insight			

8. Select a network by clicking on a check box.

In	ioblox 📚	Dashboard	s Data Manager	ment Smart Fo	olders Reportin	ıg Grid A	dministration	Q Search	ad	min 🚽
		IPAM	VLANs Super Ho	ost Devices	DHCP DNS	File Distribution	n			
*	default	Network View								
	Quick Filter	None	Filter On	Show Filter	Toggle flat view					
	→ + •	┏ 亩 • ⊕ 土 •	0				Go to	Go		
		NETWORK 🛋	COMMENT	IPAM UTILIZATION	DISCOVER NOW	DISCOVERY ENGINE	DISCOVERED VLAN ID	DISCOVERED VLA	A٩	
		🔜 10.60.0.0/16		2.0%		None				
		+ 10.61.0.0/16		0.0%		Network Insight				
		+ 10.66.0.0/24		0.0%		Network Insight				
		4 10.66.1.0/24		0.0%		Network Insight				
		+ 10.66.2.0/24		0.0%		Network Insight			3(
		+ 10.66.5.0/24		0.0%		Network Insight				
		+ 10.66.60.0/24		0.0%		Network Insight				
	K • •	M I B								

9. Click on the menu button and select Edit or Convert.

D Toggle Advanced Mode Basic Basic Basic Address Address Address 10.66.2.0 Netmask /24 (255.255.255.0) Comment iscovery iscovery Exclusions iscovery Blackout HCP Forwarding xtensible Attributes emissions Disable for DHCP Disabling large amounts of data may take a longer time to execute.	10.66.2.0/24 (IPv4 Net	work)		
ieneral Address 10.66.2.0 tember Assignment Netmask /24 (255.255.255.0) 2v4 DHCP Options Comment	D Toggle Advanced Mode	Basic		i
LAN Assignment iscovery iscovery Exclusions iscovery Blackout HCP Forwarding xtensible Attributes ermissions Disable for DHCP Disabling large amounts of data may take a longer time to execute.	General Member Assignment Active Directory Sites Pv4 DHCP Options	Address Netmask Comment	10.66.2.0 /24 (255.255.255.0)	
xtensible Attributes Disabling large amounts of data may take a longer time to execute. ermissions	(LAN Assignment Jiscovery Discovery Exclusions Discovery Blackout DHCP Forwarding	Disable for DHCP		
	ixtensible Attributes Permissions		Disabling large amounts of data may take a longer time to execute.	
	0 mml			

10. Select VLAN Assignment.

10.66.2.0/24 (IPv4 Netv	work)						×
Toggle Advanced Mode	Basic						₩ () ()
General Member Assignment Active Directory Sites		NS VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT		
IPv4 DHCP Options VLAN Assignment Discovery Discovery Exclusions Discovery Blackout DHCP Forwarding Extensible Attributes Permissions	No data						
Cancel						Save & C	Close 🔻

11. Click on the '+' button to add a VLAN.

10.66.2.0/24 (IPv4 Netw	vork)						×
Toggle Advanced Mode	Basic					曲	3 «
General Member Assignment Active Directory Sites IPv4 DHCP Options VLAN Assignment Discovery Discovery Exclusions Discovery Blackout DHCP Forwarding Extensible Attributes Permissions	ASSIGNED VLANS Add VLAN VLAN Parent Type VLAN Parent VLAN Name VLAN ID	VLAN View Select VL	Next Availa	Die VLAN		+ 2 8	
	NAME No data	VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT	COMMENT	
Cancel						Save & Close	•

12. Select the parent type. Your choices are VLAN View or VLAN Range.

						苗
Toggle Advanced Mode	Basic					
General						
lember Assignment	ASSIGNED VLANS					+ 🗹 🛍
ctive Directory Sites	Add VLAN					×
V4 DHCP Options	VLAN Parent Type	VLAN Vie	W			
LAN Assignment		VLAN Ra	nge			
iscovery Exclusions	VLAN Parent	Select VLA	N View Clear			
iscovery Blackout						
HCP Forwarding	VLAN Name	Select VLA	N Next Availabl	e VLAN		
xtensible Attributes						
Permissions	VLAN ID					
						Add Cancel
	NAME	VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT	COMMENT
	No data					
	No data					
	No data					
	No data					
	No data					
	No data					

13. In this example, we will use VLAN view. Depending upon your selection the VLAN parent will show 'Select VLAN View' or 'Select VLAN Range'. Click on 'Select VLAN View and the following screen will appear. Click on the VLAN view name and click OK.

Select VLAN	View					×
Off Filter On	Show Filter					8 «
					→ Find Go	
NAME 🔺	START VLAN ID	END VLAN ID	ALLOW RANGE O	COMMENT	SITE	
default	1	4094	Yes			
eng vlans	3000	3200	Yes	this is a test		
lab vlans	2000	2200	Yes			
no pre create	3300	3400	Yes	this is a test		
working vlans	1000	1050	Yes			
	S					
Close						ОК

14. Click on 'Select VLAN' or 'Next Available VLAN'.

10.66.2.0/24 (IPv4 Netv	vork)						×
Toggle Advanced Mode	Basic					曲	? «
General Member Assignment Active Directory Sites IPv4 DHCP Options VLAN Assignment Discovery Discovery Exclusions Discovery Blackout DHCP Forwarding Extensible Attributes	ASSIGNED VLANS Add VLAN VLAN Parent Type VLAN Parent VLAN Name	VLAN View eng vlans Select VLA	Select VLA N Next Availab	IN View Clear)	+ 2' 1	
Permissions		VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT	Add Cancel)
	No data	rudi iv			U.PARIMENT		
Cancel						Save & Close	•

15. Click on the VLAN name.

Select VLAN							
Off Filter On	Show Filter						
					\rightarrow Find		Go
IAME 🔺	VLAN VIEW	VLAN PARENT	VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT	STATUS
ngvlan3000	eng vlans	eng vlans(3000	3000				Unassigned
ngvlan3001	eng vlans	eng vlans(3000	3001				Unassigned
ngvlan3002	eng vlans	eng vlans(3000	3002				Unassigned
engvlan3003	eng vlans	eng vlans(3000	3003				Unassigned
ngvlan3004	eng vlans	eng vlans(3000	3004				Unassigned
ngvlan3005	eng vlans	eng vlans(3000	3005				Unassigned
	eng vlans	eng vlans(3000	3006				Unassigned

16. Click on the 'Add' button to add the VLAN to the subnet.

10.66.2.0/24 (IPv4 Netv	vork)						E
Toggle Advanced Mode	Basic					苗	
General Member Assignment	ASSIGNED VLANS					+	_
Active Directory Sites IPv4 DHCP Options VLAN Assignment	Add VLAN VLAN Parent Type	VLAN View	•			×	I
Discovery Discovery Exclusions Discovery Blackout	VLAN Parent	eng vlans	Select VL/	AN View Clear]		
DHCP Forwarding Extensible Attributes Permissions	VLAN Name VLAN ID	engvlan3002 3002	Select V	LAN Next Avai	lable VLAN		
	NAME	VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT	Add Cancel)
	No data						-
Cancel						Save & Close	

17. Click on 'Save & Close'.

10.66.2.0/24 (IPv4 Netv	work)						×
Toggle Advanced Mode	Basic					曲	
General Member Assignment	ASSIGNED VLAN	S				+ 121	ī
Active Directory Sites IPv4 DHCP Options	NAME	VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT	COMMENT	
VLAN Assignment	engvlan3002	3002					
Discovery Exclusions							
Discovery Blackout DHCP Forwarding							
Extensible Attributes							
remissions							
Cancel						Save & Close	•

18. The VLAN name and the VLAN ID has been added to the subnet.

	Infoblox 📚)	Dashboards	Data Manageme	nt Smart	Folders	Reporting	Grid	Administration					Q Search	admin	-
			IPAM VLAN	is Super Host	Devices	DHCP	DNS	File Distributio	n							
1															Clos	se
l	Network Insig	nt has detected unas	signed VHI-s. Go	to the Data Manag	ement tab -> De	ivices tab and	d launch the	VHF Mapping e	ditor to assign the VHI-s to i	network views.						
1 2	default	Network View	l												*	e «
	Quick Filte	r None	▼ 011 F	ilter On Sho	w Filter	Toggle flat v	view									
	→ + -	⊠ ≣ + ∳	1 🕹 - 1 🖨										Go to	Go		
		NETWORK A	co	IP IP	AM UTILIZATION	DISCOVER	NOW DI	SCOVERY ENGINE	E DISCOVERED VLAN ID	DISCOVERED VLA	ASSIGNED VLAN ID	ASSIGNED VLAN NAME				
		10.60.0.0/16			2.0%		N	one								
		+ 10.61.0.0/16			0.0%		N	etwork Insight								
		d 10.66.0.0/24			0.0%		N	etwork Insight								
		d 10.66.1.0/24			0.0%		N	etwork Insight								
		or the second se			0.0%		N	etwork Insight			3002	engvlan3002				
	m =				0.0%		N	etwork Insight								

19. On the VLANs page, the VLAN ID will show it is assigned.

	Infoblox 📚	Das	hboards E	Data Management	Smart Fo	olders	Reporting	Grid	Administ	ration	Q Search	admin	
		IPAN	VLANs	Super Host	Devices	DHCP	DNS	File Distribu	tion				
1	VLANs Home eng vlan	S VlanView 📮										∄ ≪	? «
	Quick Filter	None	Off Filter C	On Show Filte	r								
	+ • 🗹	💼 🛓 -							Go to		Go		
		NAME		TYPE	VLAN ID	1	START VLAN ID	END VLA	N ID	STATUS 🔺	COMMENT	1	
		engvlan3002		VLAN	3002					Assigned			
		engvlan3000		VLAN	3000					Unassigned			
		engvlan3001		VLAN	3001					Unassigned			
					0000								

API Calls

The following is a list of API calls that can be used to configure the VLAN management feature:

- Creating VLAN view
 - o curl -H "Content-Type: application/json" -k1 -u admin:infoblox -X POST https://10.35.117.6/wapi/v2.10/vlanview -d '{"name":"wapi_command","start_vlan_id":100,"end_vlan_id":200,"vlan_na me prefix":"shekhar@123","pre create vlan":true}'
- Creating VLAN range
 - o curl -H "Content-Type: application/json" -k1 -u admin:infoblox -X POST https://10.35.132.2/wapi/v2.10/vlanrange -d '{"vlan_view":"vlanview/ZG5zLnZsYW5fdmlldyR3YXBpX3ZsYW5fdmlldy4x MDAuMjAw","name":"wapi_range-2","start_vlan_id":151,"end_vlan_id":15 5,"pre_create_vlan":true,"vlan_name_prefix":"","comment":"test comment"}'
- Creating VLAN object

- o curl -H "Content-Type: application/json" -k1 -u admin:infoblox -X POST https://10.35.147.19/wapi/v2.10/vlan -d '{"parent":"vlanview/ZG5zLnZsYW5fdmlldyRzaGVraGFyLjEuMjAw:shekha r/1/200","id":"func:nextavailablevlanid:vlanview/ZG5zLnZsYW5fdmlldyRza GVraGFyLjEuMjAw:shekhar/1/200","name":"vlan"}'
- Assign VLAN information to IPAM network
 - o curl -H "Content-Type: application/json" -k1 -u admin:infoblox -X POST https://10.35.147.19/wapi/v2.10/network -d '{"network_view":"default","network":"61.0.0.0/24","vlans":[{"vlan": "vlan/ZG5zLnZsYW4kLmNvbS5pbmZvYmxveC5kbnMudmxhbl92aWV3JH NpbmdoLjEuMTAwMC4z:singh/0003/3" }] }'

Reports

The VLAN management feature comes with two reports and one enhanced report: VLAN Conflict, VLAN Inventory and Network Inventory.

The VLAN Inventory database shows all of the VLANs that are created and discovered. Here is an example of the VLAN Inventory report.

Infoblox 📚		Dashboards	Data Manager	ment Sn	nart Folders	Reporting	Grid	,	Administra	ation		Q	Search	admin	
App: Infoblox Repo	rting & Analyt	ics ~		infoblo	x-admin I	Messages 🗸	Settings	~	Activity	~ ⊦	lelp ~	Find			
Home Dashboard	Dashbo	ards Repo	rts Alerts	Search	Pivot	Administratio	n			Info	blox Re	eporting	& Ana	alytics	5
Reporting Help															
VLAN Inv System-created re Custom time ~	Pentory	clone before ed	iting.						Edi	t∽	More Inf	o∽ Add	to Dasł	nboard	
✓ 10,968 events (1/15/19 1:38:	:15.000 PM to 1	/16/19 1:38:15.0	000 PM)						J	lop 🗸 🛛	•	ð	* 💩	
10,968 results	20 per page	~					< Prev	1	2 3	4	5 6	789		Next >	
Time 🗘	VLAN ID ≎	VLAN Name ≎	VLAN View ≎	VLAN Range ≎	Status 🌣	Assign To ≎	ed	Com	nment 🌣	Desci	ription ¢	Contact 🗘	Depa	irtment 0	2
2019-01-16 13:36:47	999	tme	default		UNASSIC	GNED				first n	iame		tme		
2019-01-16 13:36:47	1000	test1000	working vlans		UNASSIC	GNED									
2019-01-16 13:36:47	1001	test1001	working vlans		UNASSIC	GNED									
2019-01-16	1002	test1002	working		UNASSIC	GNED									

The VLAN Conflict report shows VLAN assignment conflicts and VLAN Name conflicts

Infoblox 📚		Dashboard	s Data Ma	nagement	Smart Folders	Reporting	Grid	Administra	ition	Q	earch admir	n 🗸
App: Infoblox R	eporting & An	alytics ~		inf	oblox-admin M	Messages 🗸	Settings \vee	Activity	∽ Help ∨	Find		
Home Dashbo	oard Das	hboards R	eports Ale	erts Sear	ch Pivot	Administration	ı		Infoblox	Reporting	& Analytic	cs
Reporting Help)											
VLAN (System-create Custom tim ~ 222 events	Conflict ed report: Plea he (1/15/19 1:41	ase clone before	e editing. /16/19 1:41:38	3.000 PM)			<prev 1<="" td=""><td>Edit</td><td>t ∽ More Job ∽</td><td>Info V Add</td><td>to Dashboard</td><td>i •</td></prev>	Edit	t ∽ More Job ∽	Info V Add	to Dashboard	i •
	zo per page					- 1						
Time 🗘	Network View 🌣	Network 0	Netmask 🗘	Protocol ¢	Discovered VLAN Name ©	Discovere VLAN ID	 Assign Name 	ed VLAN	Assigned VLAN ID ≎	Conflict Reason ≎	Discovered	1
2019-01-16 13:36:47	default	10.60.0.0	24	IPV4	VLAN2000	200	00			Not Assigned	Multiple	
2019-01-16 13:36:47	default	10.60.16.0	24	IPV4	VLAN2002	200)2			Not Assigned	10.60.16.25	54
2019-01-16 13:36:47	default	10.60.16.0	24	IPV4	VLAN2016	201	6 tme vla	n :	2016	Name Conflict	Multiple	

The Network Inventory report has two new columns: Assigned VLAN Name and Assigned VLAN ID.

Infoblox 📚		Dashboards	Data Manag	jement	Smart Folders	s Reportin	g Grid	Administration				
Network Inventory System-created report: Please clone before editing. Custom time × < 29 events (1/15/19 3:17:35.000 PM to 1/16/19 3:17:36.000 PM)												
29 results	20 per page 🗸								<	Prev 1 2	Next >	
Address 🗘	Netmask 0	First Seen ≎	Last Seen ≎	Network View ≎	Utilization % ≎	Managed 🜣	Management Platform ≎	Discovered Vlan Name ≎	Assigned Vlan Name ≎	Discovered Vlan ID 🗘	Assigned Vlan ID \$	
10.60.0.0	24	2018-12-21 13:30:30	2019-01-16 13:18:33	default	12.9	False	Network Insight	VLAN2000		2000		
10.60.3.32	29	2018-12-21 17:03:36	2019-01-16 13:18:13	default	33.3	False	Network Insight					
10.60.3.48	29	2018-12-21 14:18:14	2019-01-16 13:18:33	default	33.3	False	Network Insight					
10.60.16.0	24	2018-12-21 13:30:30	2019-01-16 13:18:37	default	10.2	True	Network Insight	Multiple	tme vlan	Multiple	2016	
10.60.17.0	24	2018-12-21 13:30:30	2018-12-21 14:11:52	default	0.3	True	Network Insight	VLAN2017	vlan2017	2017	2017	
10.60.20.0	24	2018-12-21	2019-01-16	default	0.3	True	Network	VLAN0050	test1005	50	1005	



Infoblox is the leader in modern, cloud-first networking and security services. Through extensive integrations, its solutions empower organizations to realize the full advantages of cloud networking today, while maximizing their existing infrastructure investments. Infoblox has over 12,000 customers, including 70 percent of the Fortune 500.

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