

Deployment Guide

VLAN Management in NIOS 8.4



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Executive Summary

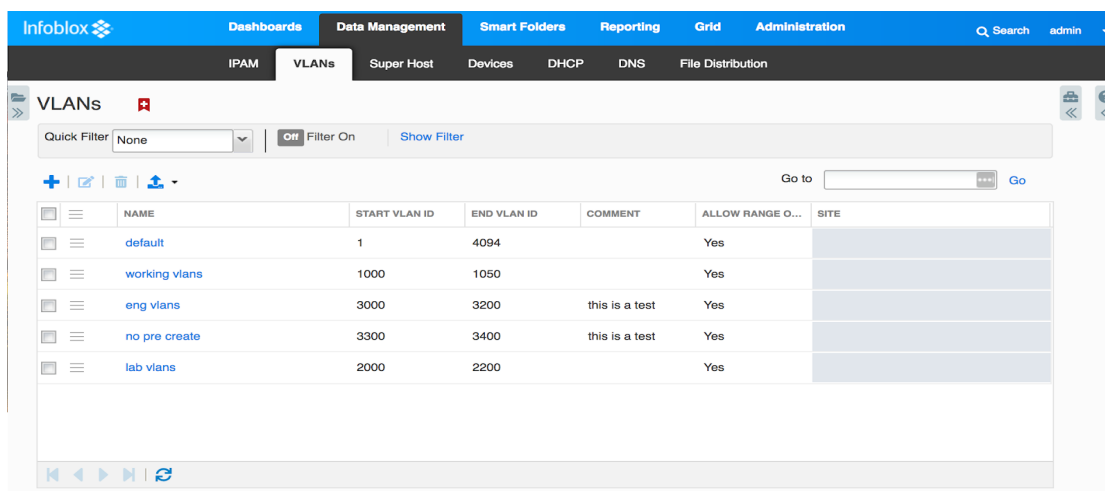
This deployment guide shows how to implement VLAN Management on NIOS 8.4. This feature allows the administrator to compare assigned/unassigned VLANs with Network Insight discovered VLANs. However, you do not need Network Insight to take advantage of the VLAN Management feature

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”.



	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	

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

Add VLAN View Wizard > Step 1 of 2

*VLAN View Name

*Start VLAN ID

*End VLAN ID

Pre-create VLANs

VLAN Name Prefix

Allow VLAN Range overlapping

Comment

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

- 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.

NAME	TYPE	VLAN ID	START VLAN ID	END VLAN ID	STATUS	COMMENT
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	

- 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:

Buttons: Cancel, Previous, Next, Save & Close

The screenshot shows the Infoblox IPAM interface. The top navigation bar includes 'Dashboards', 'Data Management', 'Smart Folders', 'Reporting', 'Grid', and 'Administration'. Below this, a secondary navigation bar highlights 'IPAM' and 'VLANs', with other options like 'Super Host', 'Devices', 'DHCP', 'DNS', and 'File Distribution'. The breadcrumb path is 'VLANs Home > lab vlans'. The main heading is 'lab range 2' with a 'VlanRange' tag. A 'Quick Filter' dropdown is set to 'None', with 'Filter On' and 'Show Filter' options. Below the filter is a toolbar with icons for adding, editing, deleting, and uploading, along with a 'Go to' search field. The main content is a table with the following columns: NAME, VLAN ID, DESCRIPTION, CONTACT, DEPARTMENT, STATUS, and COMMENT. The table lists seven VLANs, all with a status of 'Unassigned':

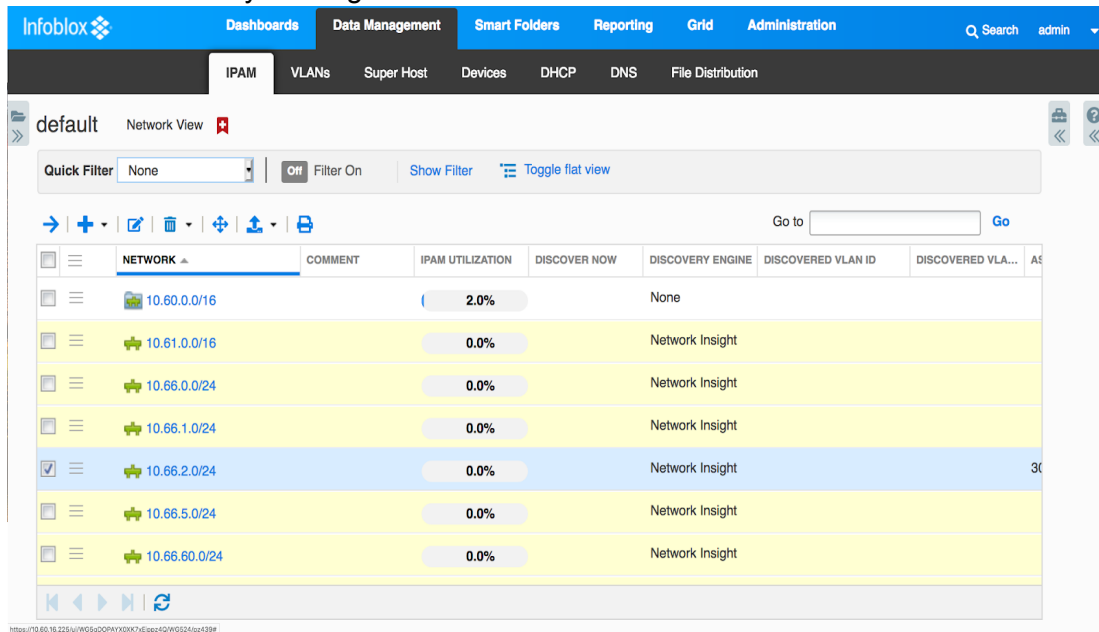
NAME	VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT	STATUS	COMMENT
lab2051	2051				Unassigned	
lab2052	2052				Unassigned	
lab2053	2053				Unassigned	
lab2054	2054				Unassigned	
lab2055	2055				Unassigned	
lab2056	2056				Unassigned	
lab2057	2057				Unassigned	

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

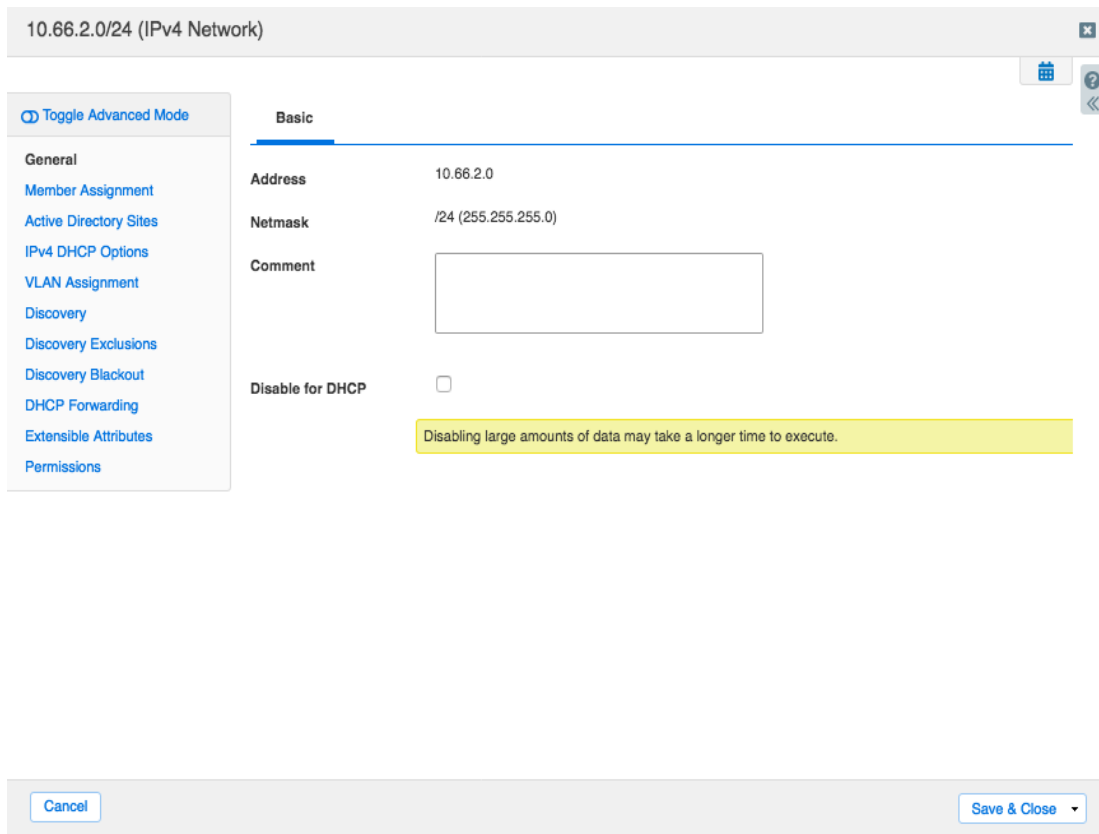
The screenshot shows the Infoblox IPAM interface. The top navigation bar is the same as in the previous screenshot. The secondary navigation bar highlights 'IPAM' and 'VLANs'. The breadcrumb path is 'default'. The main heading is 'default' with a 'Network View' tag. A 'Quick Filter' dropdown is set to 'None', with 'Filter On' and 'Show Filter' options, and a 'Toggle flat view' button. Below the filter is a toolbar with icons for navigation and actions, along with a 'Go to' search field. The main content is a table with the following columns: NETWORK, COMMENT, IPAM UTILIZATION, DISCOVER NOW, DISCOVERY ENGINE, DISCOVERED VLAN ID, and DISCOVERED VLA... The table lists several networks, all with 0.0% IPAM utilization and 'Network Insight' as the discovery engine:

NETWORK	COMMENT	IPAM UTILIZATION	DISCOVER NOW	DISCOVERY ENGINE	DISCOVERED VLAN ID	DISCOVERED VLA...
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		30
10.66.5.0/24		0.0%		Network Insight		
10.66.60.0/24		0.0%		Network Insight		

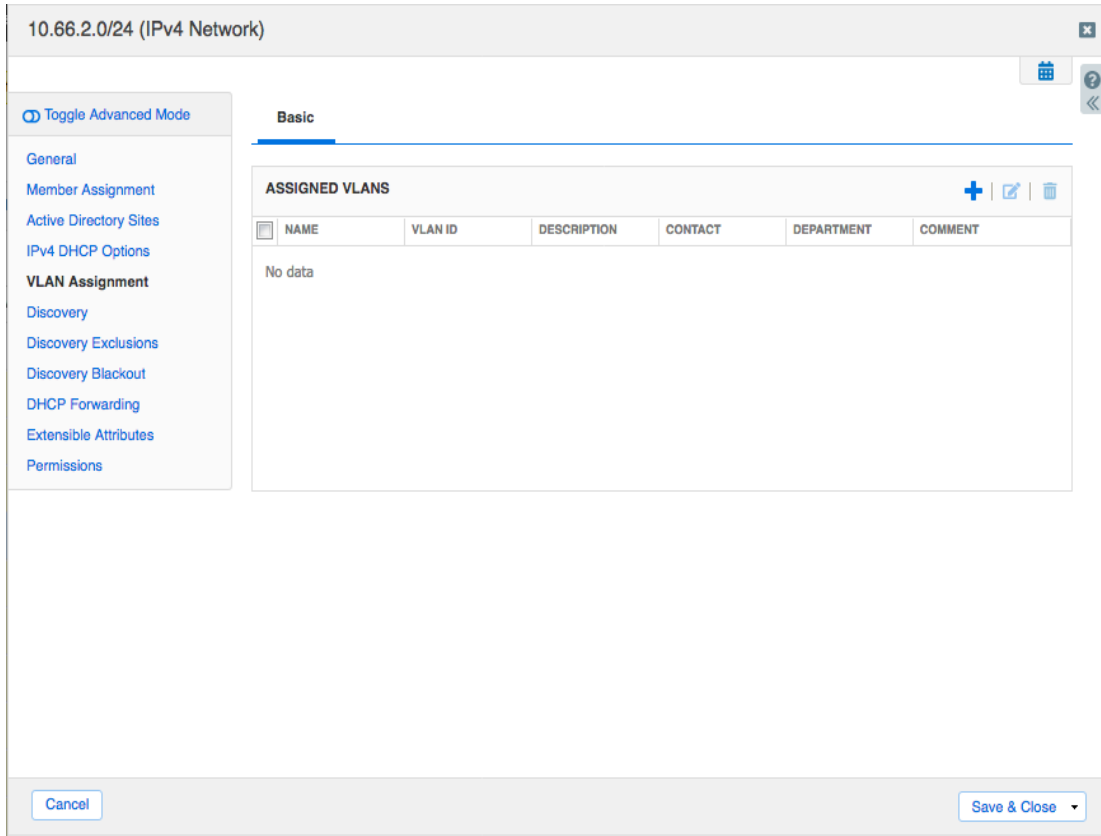
8. Select a network by clicking on a check box.



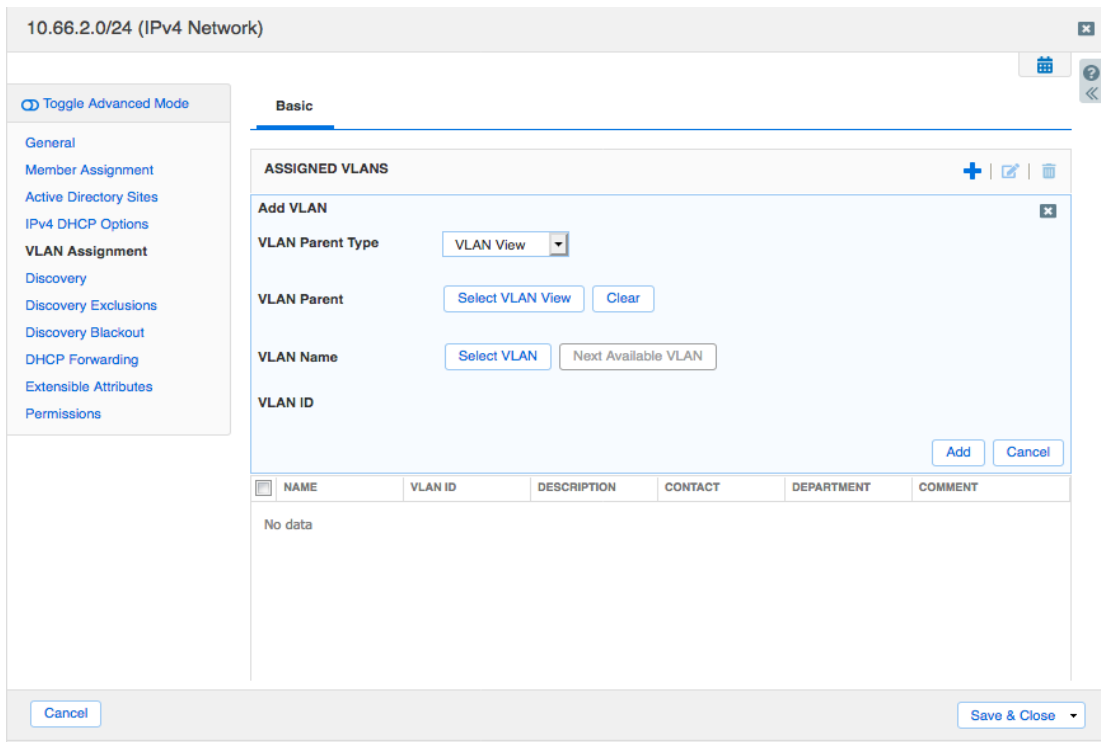
9. Click on the menu button and select Edit or Convert.



10. Select VLAN Assignment.



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



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

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.

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		

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

10.66.2.0/24 (IPv4 Network)

Toggle Advanced Mode

Basic

ASSIGNED VLANS

Add VLAN

VLAN Parent Type: VLAN View

VLAN Parent: eng vlans (Select VLAN View, Clear)

VLAN Name: (Select VLAN, Next Available VLAN)

VLAN ID

Add Cancel

NAME	VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT	COMMENT
No data					

Cancel Save & Close

15. Click on the VLAN name.

Select VLAN

Filter On Show Filter

Find Go

NAME	VLAN VIEW	VLAN PARENT	VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT	STATUS
engvlan3000	eng vlans	eng vlans(3000....	3000				Unassigned
engvlan3001	eng vlans	eng vlans(3000....	3001				Unassigned
engvlan3002	eng vlans	eng vlans(3000....	3002				Unassigned
engvlan3003	eng vlans	eng vlans(3000....	3003				Unassigned
engvlan3004	eng vlans	eng vlans(3000....	3004				Unassigned
engvlan3005	eng vlans	eng vlans(3000....	3005				Unassigned
engvlan3006	eng vlans	eng vlans(3000....	3006				Unassigned

Close OK

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

10.66.2.0/24 (IPv4 Network)

Basic

ASSIGNED VLANS

Add VLAN

VLAN Parent Type: VLAN View

VLAN Parent: eng vlans [Select VLAN View] [Clear]

VLAN Name: engvlan3002 [Select VLAN] [Next Available VLAN]

VLAN ID: 3002

[Add] [Cancel]

NAME	VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT	COMMENT
No data					

[Cancel] [Save & Close]

17. Click on 'Save & Close'.

10.66.2.0/24 (IPv4 Network)

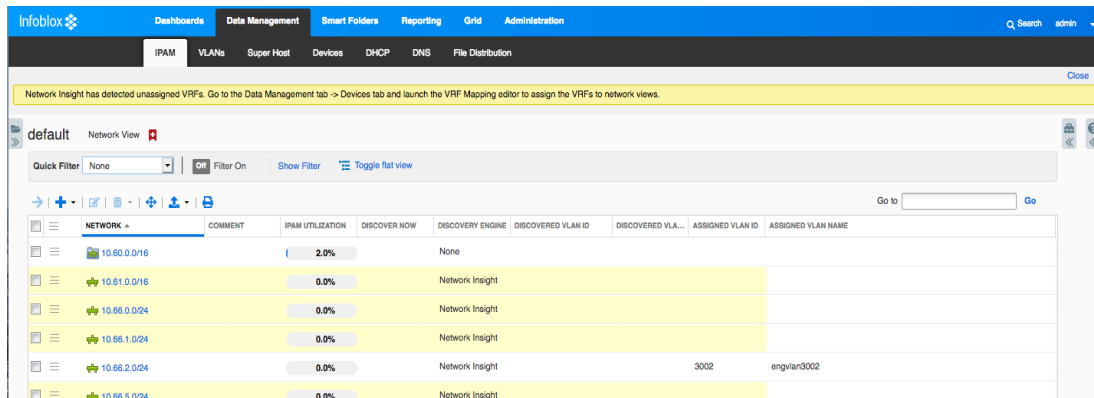
Basic

ASSIGNED VLANS

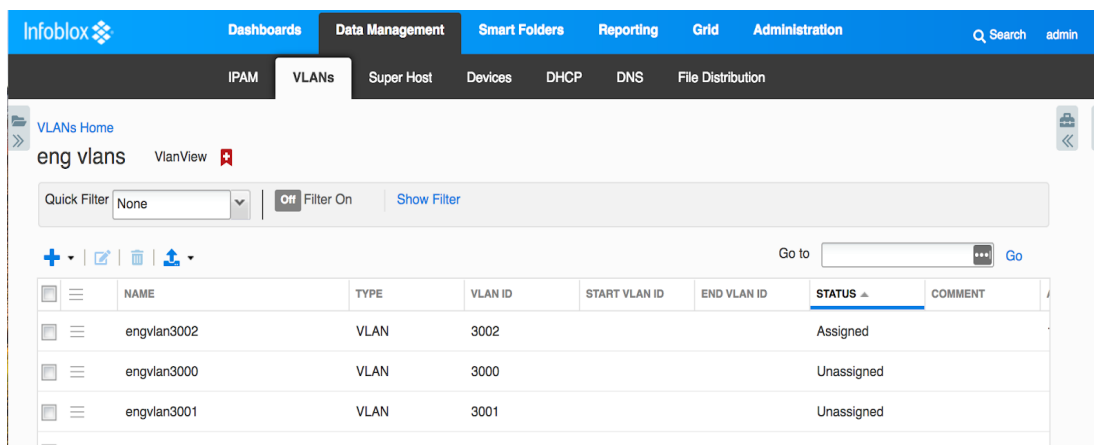
NAME	VLAN ID	DESCRIPTION	CONTACT	DEPARTMENT	COMMENT
engvlan3002	3002				

[Cancel] [Save & Close]

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



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



API Calls

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

- Creating VLAN view
 - `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_name_prefix":"shekhar@123","pre_create_vlan":true}'`
- Creating VLAN range
 - `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/ZG5zLnZsYW5fdmllldyR3YXBpX3ZsYW5fdmllldy4xMDAuMjAw","name":"wapi_range-2","start_vlan_id":151,"end_vlan_id":155,"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/ZG5zLnZsYW5fdmllldyRzaGVraGFyLjEuMjAw:shekharr/1/200", "id": "func:nextavailablevlanid:vlanview/ZG5zLnZsYW5fdmllldyRzaGVraGFyLjEuMjAw:shekharr/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/ZG5zLnZsYW4kLmNvbS5pbmZvYmxveC5kbnMudmxhbl92aWV3JHNpbmdoLjEuMTAwMC4z: 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.

Time	VLAN ID	VLAN Name	VLAN View	VLAN Range	Status	Assigned To	Comment	Description	Contact	Department
2019-01-16 13:36:47	999	tme	default		UNASSIGNED			first name		tme
2019-01-16 13:36:47	1000	test1000	working vlans		UNASSIGNED					
2019-01-16 13:36:47	1001	test1001	working vlans		UNASSIGNED					
2019-01-16	1002	test1002	working		UNASSIGNED					

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

VLAN Conflict
System-created report: Please clone before editing.

Custom time

✓ 222 events (1/15/19 1:41:38.000 PM to 1/16/19 1:41:38.000 PM)

222 results 20 per page

Time	Network View	Network	Netmask	Protocol	Discovered VLAN Name	Discovered VLAN ID	Assigned VLAN Name	Assigned VLAN ID	Conflict Reason	Discovered IP
2019-01-16 13:36:47	default	10.60.0.0	24	IPV4	VLAN2000	2000			Not Assigned	Multiple
2019-01-16 13:36:47	default	10.60.16.0	24	IPV4	VLAN2002	2002			Not Assigned	10.60.16.254
2019-01-16 13:36:47	default	10.60.16.0	24	IPV4	VLAN2016	2016	tme vlan	2016	Name Conflict	Multiple

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

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

Address	Netmask	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 17:03:36	2019-01-16 13:18:13	default	0.3	True	Network Insight	VLAN0050	test1005	50	1005



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