

EXTREME NETWORKS

Onboard Mgmt VLAN XIQ-SE workflow

Ludovico Stevens

Technical Marketing Engineering

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Onboard Mgmt VLAN XIQ-SE workflow



- Workflow to onboard a VOSS/Fabric Engine switch onto a dedicated switch mgmt VLAN/L2VSN
- Mgmt VLAN / I-SID and IP data extracted from CSV file previously placed on XIQ-SE
- Ability to change the switch sysname (SNMP and ISIS) at the same time
- Ability to set the auto-sense ISIS Hello authentication key during the IP mgmt change
- Ability to re-add the device into a different XIQ-SE site after the mgmt VLAN IP change
- Ability to send a custom set of CLI commands at the same time, with logical operators
- Ability to launch a follow up workflow once this workflow has finished
- Requires minimum VOSS 8.5 (for mgmt convert support)

Workflow manual execution



- Workflow can be manually run against 1 or many switches simultaneously

The screenshot displays the 'Devices' tab in the management interface. A table lists various network devices with columns for Status, Name, Site, IP Address, Poll Status, Poll Details, Device Type, Family, and Firmware. A context menu is open over the table, showing options like 'FlexView', 'Configure...', 'Rediscover', and 'Add to Device Group...'. The 'Add to Device Group...' option is expanded, showing a list of categories: Access Control, Config, Example, Macro, Provisioning, System, and VLAN. The 'VLAN' category is further expanded, showing options like 'Apply Config Template', 'CLI Custom Action - XOS SSL', 'Deploy Insight VM', 'Fabric Attach Enforce', 'Fabric Connect Enforce', 'Onboard Mgmt VLAN' (highlighted with a red box), and 'onboard CLI'.

Status	Name ↑	Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware
▲	5320-16P-4XE-DC-FabricEngi...	/World/CTC/Reading/Campus/Universal-Hw-Access	20.0.48.14	Available: 1...	Up: 949 Do...	5320-16P-4XE-DC-F...	Universal P...	8.8.0.0
▲	5320-24T-8XE-FabricEngine	/World/CTC/Reading/Campus/Universal-Hw-Access	20.0.48.13	Available: 1...	Up: 949 Do...	5320-24T-8XE-Fabri...	Universal P...	8.8.0.0
▲	5420F-48P-4XL-FabricEngine	/World/CTC/Reading/Campus/Universal-Hw-Access	20.0.48.10	Available: 1...	Up: 949 Do...	5420F-48P-4XL-Fab...	Universal P...	8.8.0.0
▲	5420M-24W-4YE-FabricEngine	/World/CTC/Reading/Campus/Universal-Hw-Access	20.0.48.11	Available: 1...	Up: 949 Do...	5420M-24W-4YE-Fa...	Universal P...	8.8.0.0
●	5520-24W-SwitchEngine	/World/CTC/Reading/Campus/Universal-Hw-Access	10.8.3.10	Available: 1...	Up: 949 Do...	5520-24W-SwitchEn...	Universal P...	32.1.1.6
●	5520-STK	/World/CTC/Reading/Campus/Universal-Hw-Access	20.0.48.12	Available: 1...	Up: 949 Do...	Switch Engine ARM ...	Universal P...	31.7.1.4
▲	5720-24MXW-FabricEngine	/World/CTC/Reading/Campus/Universal-Hw-Access	20.0.48.16	Available: 1...	Up: 949 Do...	5720-24MXW-Fabri...	Universal P...	8.8.0.0
●	CTC-410C-3/45	/World/CTC/Reading/Campus/Universal-Hw-Access	20.0.203.52	Available: 9...	Up: 948 Do...	XIQ AP	XIQ Native	10.5r1
▶	VSP7448-1	/World/CTC/Reading/Campus/Universal-Hw-Access	20.0.20.76	Available: 1...	Up: 949 Do...	VSP-7400-48Y-8C	VSP Series	8.8.0.0
▶	VSP7448-2	/World/CTC/Reading/Campus/Universal-Hw-Access	20.0.20.77	Available: 9...	Up: 948 Do...	VSP-7400-48Y-8C	VSP Series	8.8.0.0

Workflow automatic execution during onboarding



- Workflow can be automatically run after ZTP+ onboarding, under XIQ-SE Site Actions
- In this case script will always run against 1 switch only, the onboarding switch

Devices **Sandbox** Site Summary Endpoint Locations FlexReports

Discover **Actions** VRF/VLAN Topologies Services Port Templates ZTP+ Device Defaults Endpoint Locations Analytics Custom Variables

☒ Automatically Add Devices Collection Mode: Historical

☒ Add Trap Receiver Collection Interval (minutes): 10

☒ Add Syslog Receiver Map Name: /World/CTC/Reading/Sandbox/Sandbox

☒ Add to Archive

☒ Add to Map

Custom Configuration

+ Add Edit - Delete

Enabled	Vendor	Family	Topology	Task
<input checked="" type="checkbox"/>	Extreme	Universal Platform Fabric Engine	Any	Provisioning/Onboard Mgmt VLAN

Update Cancel

Onboard Mgmt VLAN XIQ-SE workflow inputs



- A CSV file is uploaded to XIQ-SE beforehand
- CSV file has device data which can be device specific
- CSV data is looked up either by device initial (dhcp) IP or Serial Number or MAC Address
- CSV data can be referenced as \$<name> or \$(name) in workflow inputs
- Site variables can still also be referenced but as \${name}
- The CSV variable names are case sensitive

- If your XIQ-SE was installed without “root” access, place the CSV file here instead:
/usr/local/Extreme_Networks/NetSight/appdata/logs/scripting/NetSight_Server

The screenshot displays the XIQ-SE workflow editor for the 'Onboard Mgmt VLAN' workflow. The main canvas shows a simple flow: Start -> 'Move to VLAN mgmt IP' activity -> End. The 'Details' panel on the right is configured with the following inputs:

- CSV data file:** /root/mgmtdata.csv
- Index into CSV file:** Serial Number
- Mgmt VLAN and re-add Site Notes:** Provide new mgmt I-SID, IP, Mask and Default Gateway. The VLAN id is optional and can be omitted. Is not used on DVR Leaf and can be auto-allocated otherwise. A system name can be configured for both SNMP and ISIS at the same time, if provided. The Site to re-add is optional, if not provided the device will get re-added to the same Site.
- Mgmt VLAN ID:** \$<mgmt vlanid>
- Mgmt VLAN I-SID:** \$<mgmt isid>
- Mgmt VLAN IP:** \$<mgmt ip>
- Mgmt VLAN Mask:** \$<mgmt mask>
- Mgmt VLAN Default Gateway:** \$<mgmt gateway>
- System Name to configure on device:** \$<sysname>
- Auto-sense ISIS Authentication key:** (password field)
- Site to re-add device using mgmt VLAN IP:** (text field)

Below the workflow editor, a preview of the 'mgmtdata.csv' file is shown. The file contains the following data:

serial number	mgmt vlanid	mgmt isid	mgmt ip	mgmt mask	mgmt gateway	sysname	site name
JA092041G-01023	209	2800209	20.0.209.54	255.255.255.0	20.0.209.1	5420-bld1	/World/building1
TB062139K-H0210	209	2800209	20.0.209.53	255.255.255.0	20.0.209.1	5320-bld1	/World/building1
TB022131K-H0059	209	2800209	20.0.209.52	255.255.255.0	20.0.209.1	5320-bld2	/World/building2
JA102040G-00003	209	2800209	20.0.209.55	255.255.255.0	20.0.209.1	5420-bld2	/World/building2

CSV data file input



CSV data file:

```
%rootDir%/sitePath%/siteName%.csv
```

- Available path variables: **%rootDir%**, **%sitePath%**, **%siteName%**
 - %rootDir% by default is /root/; can be changed via workflow variable const_ROOT_PATH_VAR
 - %sitePath% and %siteName% are set based on site path of device; e.g. if device is in "/World/CTC-Reading/VSP Sandbox" then %sitePath% = "World/CTC-Reading" and %siteName% = "VSP Sandbox"
- Can use these to have different CSV per site

Workflow execution



Dashboard Devices Discovered Firmware Archives Configuration Templates Reports **Onboard Mgmt VLAN (26787)**

Summary

Status	Start Date/Time	Name	Version	Source	# Devices	Started By	End Date/Time	Message	Path
✓	9/7/2022 10:32:26 ...	Onboard Mgmt VLAN	25	Workflow Designer ...	1	Istevens	9/7/2022 10:32:42 ...	Re-added device using mgmt VLAN IP 20.0.2...	/Workflows/Ludovico/Onboard Mgmt VLAN

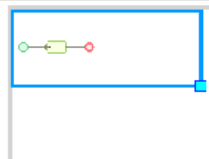
Graph View Table View



Stop Workflow

Show Output

Show Variables



Devices Grid

Show Output

Show Variables

Status	Device IP	Output Path	Start Date/Time	End Date/Time	Message
SUCCESS	20.0.48.10		9/7/2022 10:3...	9/7/2022 10:3...	Re-added device using mgmt VLAN IP 20.0.209.54 on L2 I-SID 2800209 to XIQ-SE Site '/World/CTC/Reading/Campus/Univer

The following configuration was successfully performed on switch:

```
-> config term
-> mgmt vlan
->   convert i-sid 2800209 ip 20.0.209.54 255.255.255.0 gateway 20.0.209.1 rollback 130
-> config term
-> mgmt convert-commit
-> snmp-server name 5420-bld1
-> router isis
->   sys-name 5420-bld1
-> exit
-> end
-> save config
Deleted IP '20.0.48.10' from XIQ-SE's database
Deleted IP '20.0.48.10' in NAC Engine Group
Added new device IP '20.0.209.54' to XIQ-SE Site '/World/CTC/Reading/Campus/Universal-Hw-
Access' with admin profile 'PoC Profile'
Exit code SUCCESS
```

Close

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Workflow tuning



- If the workflow is found to fail, because after all the changes it is unable to perform “save config” on the switch, this is because during onboarding XIQ-SE is also busy making changes and saving the config itself
 - On VOSS / Fabric Engine only 1 user at a time can perform “save config” or “show run”
- To avoid the workflow failures two variables can be set:
- `const_NO_ERROR_ON_FAIL_SAVE`
 - If set, the workflow will still try and save the config at the end, but if unable to, the workflow will complete without any errors
- `const_AGGRESSIVE_SAVE`
 - If set, the workflow will try and save the config as before, 3 tries at 10sec intervals, but if these tries fail, all other CLI sessions will be kicked, and a final save is performed again, which will now succeed

General	Variables	Inputs	Outputs	Menus	Network OS
+ Add ▾ Edit Delete Global Variables...					
Name ↑	Default Value	Variable Reference	Scope	Type	Referenc...
const_AGGRESSIVE_SAVE	false		Workflow	Boolean	false
const_CSV_DELIMITER	,		Workflow	String	false
const_DELAY_ISISAUTH_CHANGE	60		Workflow	String	false
const_DELAY_RECONNECT	10		Workflow	String	false
const_DELAY_SITE_READD	20		Workflow	String	false
const_DEVICE_READD_TIMEOUT	100		Workflow	String	false
const_NO_ERROR_ON_FAIL_SAVE	false		Workflow	Boolean	false
const_PING_NEW_IP_TIMEOUT	20		Workflow	String	false
const_VSP_MIN_SW_VERSION	8.5.0.0		Workflow	String	false

Workflow tuning 2



- If it is desired to allocate both mgmt VLAN IP and mgmt CLIP IP to devices onboarded into the same XIQ-SE site, both workflows “Onboard Mgmt VLAN” and “Onboard Mgmt CLIP” can be assigned to the same site for the same Fabric Engine/VOSS platforms.
- Then either configure each workflow to use a different CSV file, and ensure that a given switch is only found in one of the CSV files; and also set:
- `const_GRACEFUL_EXIT_IF_NO_SN`
 - If set, the workflow will gracefully exit if the device lookup key was not found in the provided CSV file
- Or configure both workflows to use the same CSV file and ensure that in the CSV file a given switch is only allocated either a mgmt CLIP or a mgmt VLAN IP (not both); and also set:
- `const_GRACEFUL_EXIT_IF_NO_IP`
 - If set, the workflow will gracefully exit if no Mgmt VLAN IP value was obtained from Site or CSV inputs

General Variables Inputs Outputs Menus Network OS					
Add Edit Delete Global Variables...					
Name ↑	Default Value	Variable Reference	Scope	Type	Referenced
<code>const_AGGRESSIVE_SAVE</code>	false		Workflow	Boolean	false
<code>const_CSV_DELIMITER</code>	,		Workflow	String	false
<code>const_DELAY_ISISAUTH_CHANGE</code>	60		Workflow	String	false
<code>const_DELAY_RECONNECT</code>	10		Workflow	String	false
<code>const_DELAY_SITE_READD</code>	20		Workflow	String	false
<code>const_DEVICE_READD_TIMEOUT</code>	100		Workflow	String	false
<code>const_GRACEFUL_EXIT_IF_NO_IP</code>	false		Workflow	Boolean	false
<code>const_GRACEFUL_EXIT_IF_NO_SN</code>	false		Workflow	Boolean	false
<code>const_NO_ERROR_ON_FAIL_SAVE</code>	false		Workflow	Boolean	false
<code>const_PING_NEW_IP_TIMEOUT</code>	20		Workflow	String	false
<code>const_VSP_MIN_SW_VERSION</code>	8.5.0.0		Workflow	String	false

Additional CLI commands input / sample →

Additional CLI commands:

```
#No need to start with enable, config term; commented lines are ignored
#clock time-zone US Eastern
#snmp-server location ${location}
#snmp-server contact "Master of Disaster!"
```

- The additional CLI commands input can make use of the following variables:
 - Site variables **\${var}**: Useful to apply same values to all devices in same XIQ-SE Site. Or to apply same values to all devices in same sub-Sites
 - **Emc_vars** \${deviceIP}: Useful to feed some of these values into the same space as Site variables
 - CSV variables **\$<var>**: Useful to provide device specific values
 - Eval variables **\$_[var]**: Useful to compute new values within the template file and be able to store and re-use these values via a variable
- The additional CLI commands input can make use of the following pragmas
 - **#if/#elseif/#else/#end, #error fail|stop|continue, #eval / #eval <varname>=(), #sleep, #last**
 - but not: #block start|execute
- Please refer to documentation of the Apply Config Template workflow here:
 - https://github.com/extremenetworks/ExtremeScripting/blob/master/XMC_XIQ-SE/oneview_workflows/xwf/Apply_Config_Template_Workflow.pdf

```
#No need to start with enable, config term; commented lines are ignored
clock time-zone US Eastern
snmp-server location ${location}
snmp-server contact "Master of Disaster!"
no snmp-server community-by-index first
no snmp-server community-by-index second
router isis; spbm 1 multicast enable; exit
auto-sense eapol voice lldp-auth
ip dhcp-snooping enable
web-server password ro user // password // password
web-server password rwa admin // password // password
#if ("5520-24" in ${deviceType} or "5420-24" in ${deviceType})
    interface gigabitEthernet 1/1-1/24
        no snmp trap link-status
        slpp-guard enable timeout 0
        spanning-tree bpduguard enable timeout 0
        eapol re-authentication enable re-authentication-period 36000
    exit
#elseif("5520-48" in ${deviceType} or "5420-48" in ${deviceType})
    interface gigabitEthernet 1/1-1/48
        no snmp trap link-status
        slpp-guard enable timeout 0
        spanning-tree bpduguard enable timeout 0
        eapol re-authentication enable re-authentication-period 36000
    exit
#end
```

