

EXTREME NETWORKS

Onboard Mgmt OOB XIQ-SE workflow

Ludovico Stevens

Technical Marketing Engineering

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Onboard Mgmt OOB XIQ-SE workflow



- Workflow to onboard a VOSS/Fabric Engine switch onto a dedicated switch mgmt OOB IP
- Mgmt OOB IP 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 segmented mgmt support)

Workflow manual execution



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

The screenshot displays a network management interface with a table of devices and a context menu for manual workflow execution.

Devices Table:

Status	Name	Site	Adm
▶	X670G2-1	/World/CTC-Readin...	PoC
▶	X670G2-2	rd/CTC-Readin...	PoC
▶	X460G2-1	rd/CTC-Readin...	PoC
▶	X460G2-2	rd/CTC-Readin...	PoC
▼	5520-48S	rd/CTC-Readin...	PoC
●	Switch 55	rd/CTC-Readin...	PoC
●	Sbox-VSP	rd/CTC-Readin...	PoC
●	Sbox-VSP	rd/CTC-Readin...	PoC
●	Sbox-VSP	rd/CTC-Readin...	PoC
●	Sbox-VSP	rd/CTC-Readin...	PoC
●	Sbox-VSP	rd/CTC-Readin...	PoC
●	Sbox-VSP	rd/CTC-Readin...	PoC
●	Sbox-VSP	rd/CTC-Readin...	PoC
●	Sbox-VSP	rd/CTC-Readin...	PoC
●	VSP-4900	rd/CTC-Readin...	PoC

Context Menu (Left):

- Device View
- Terminal
- WebView
- FlexView
- More Views
- Configure...
- Compass Search...
- Rediscover
- Clear Alarms...
- Upgrade Firmware...
- Add to Device Group...
- More Actions
- Archives
- Tasks
- Maps
- Network
- Policy

Context Menu (Right):

- Configure MACsec Link
- Configure SSH
- Delete Insight VMs
- Deploy Insight VM
- Disable Beta NVO IQagent
- Enable Beta NVO IQagent
- Enable Beta NVO IQagent v2
- Enforce Config after Onboard
- Fabric Extend Onboard
- Fabric MultiArea Migrate
- Novant Clinic IPsec Backup
- Novant Onboard Clinic
- Onboard Mgmt CLIP
- Onboard Mgmt CLIP ctc
- Onboard Mgmt OOB**
- Onboard Mgmt VLAN
- Onboard Mgmt VLAN ctc
- Onboard VSP
- Onboard VSP ctc
- SMLT Pair Enforce
- Sync Syslog SNMP server ctc
- Update DHCP relay forwarder

Table on the right:

Poll Status	Poll Details	Device Type	Family ↑
Available: 1...	Up: 4069 D...	X670-G2-48x-4q	Summit Series
Available: 1...	Up: 4069 D...	X670-G2-48x-4q	Summit Series
Available: 1...	Up: 4069 D...	X460-G2-24t-10G4	Summit Series
Available: 1...	Up: 4069 D...	X460-G2-24t-10G4	Summit Series
Available: 0...	Up: 0 Dow...	5520-48SE-FabricEn...	Universal Platform Fabric...
Available: 1...	Up: 4069 D...		
Available: 9...	Up: 4069 D...	VSP-7254XSQ	VSP Series
Available: 9...	Up: 4068 D...	VSP-7254XSQ	VSP Series
Available: 9...	Up: 4068 D...	VSP-7400-48Y-8C	VSP Series
Available: 0...	Up: 0 Dow...	VSP-7400-48Y-8C	VSP Series
Available: 1...	Up: 4069 D...	VSP-7254XSQ	VSP Series
Available: 9...	Up: 4068 D...	VSP-7400-48Y-8C	VSP Series
Available: 9...	Up: 4067 D...	VSP-7400-48Y-8C	VSP Series
Available: 1...	Up: 4069 D...	VSP-4900-24XE	VSP Series

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

VSP Sandbox

Site Summary

Endpoint Locations

FlexReports

Discover

Actions

VRF/VLAN

Fabric Connect

Services

Port Templates

ZTP+ Device Defaults

Endpoint Locations

Analytics

Custom Variables

XIQ Locations

☒ Automatically Add Devices

Collection Mode:

Historical

☒ Add Trap Receiver

Collection Interval (minutes):

10

☒ Add Syslog Receiver

Map Name:

/World/CTC-Reading/VSP Sandbox/Sandbox-map

☒ Add to Archive

☒ Add to Map

Custom Configuration

Add

Edit

Delete

Enabled	Vendor	Family	Topology	Task
<input checked="" type="checkbox"/>	Extreme	VSP Series	Any	Provisioning/Onboard Mgmt OOB

Update

Cancel

Onboard Mgmt OOB 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 OOB' workflow. The main canvas shows a simple flow: Start -> 'Move to OOB mgmt IP' -> 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 OOB and re-add Site Notes:** Provide new mgmt OOB IP, Mask and Default Gateway. If the switch initially has a mgmt IP on the onboarding VLAN this mgmt VLAN IP can be kept or deleted. 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 OOB IP:** \$<mgmt ip>
- Mgmt OOB Mask:** \$<mgmt mask>
- Mgmt OOB Default Gateway:** \$<mgmt gateway>
- Existing mgmt VLAN IP:** Delete
- System Name to configure on device:** \$<sysname>
- Auto-sense ISIS Authentication key:** (empty)
- Site to re-add device using mgmt OOB:** (empty)

Red arrows point from the workflow inputs to the corresponding fields in the 'Details' panel. Below the workflow editor, a preview of the 'mgmtdata.csv' file is shown.

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



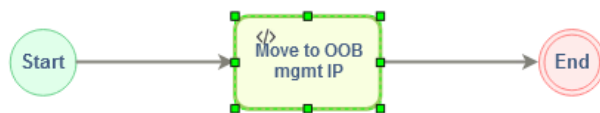
Workflow Dashboard Scheduled Tasks Saved Tasks Scripts Workflows **Onboard Mgmt OOB (336)** ✕

Summary

Status	Start Date/Time	Name	Version	Source	# Devices	Started By	End Date/Time	Message	Path
✓	10/11/2024 9:48:03...	Onboard Mgmt OOB	4	Site Discover Action...	1	NetSight Server	10/11/2024 9:49:07...	2128Q-40009: Re-added device using mgmt ...	/Workflows/Ludovico/Onboard Mgmt OOB

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	10.8.4.8		10/11/2024 9:48:...	10/11/2024 9:...	2128Q-40009: Re-added device using mgmt OOB 10.8.15.73 to XIQ-SE Site '/World/CTC-Reading/VSP Sandbox'

```
The following configuration was successfully performed on switch:
-> config term
-> snmp-server name Sbox-VSP7400-3
-> router isis
->   sys-name Sbox-VSP7400-3
-> exit
-> mgmt oob
->   convert ip 10.8.15.73 255.255.224.0 gateway 10.8.0.1 rollback 240
-> config term
-> mgmt convert-commit
-> end
-> save config
Deleted IP '10.8.4.8' from XIQ-SE's database
Added new device IP '10.8.15.73' to XIQ-SE Site '/World/CTC-Reading/VSP Sandbox' with admin
profile 'PoC SNMPv2 Profile'
Initiated XIQ-SE rediscovery of newly added device 10.8.15.73
Initiated XIQ-SE config reload of newly added device 10.8.15.73
Exit code SUCCESS
```

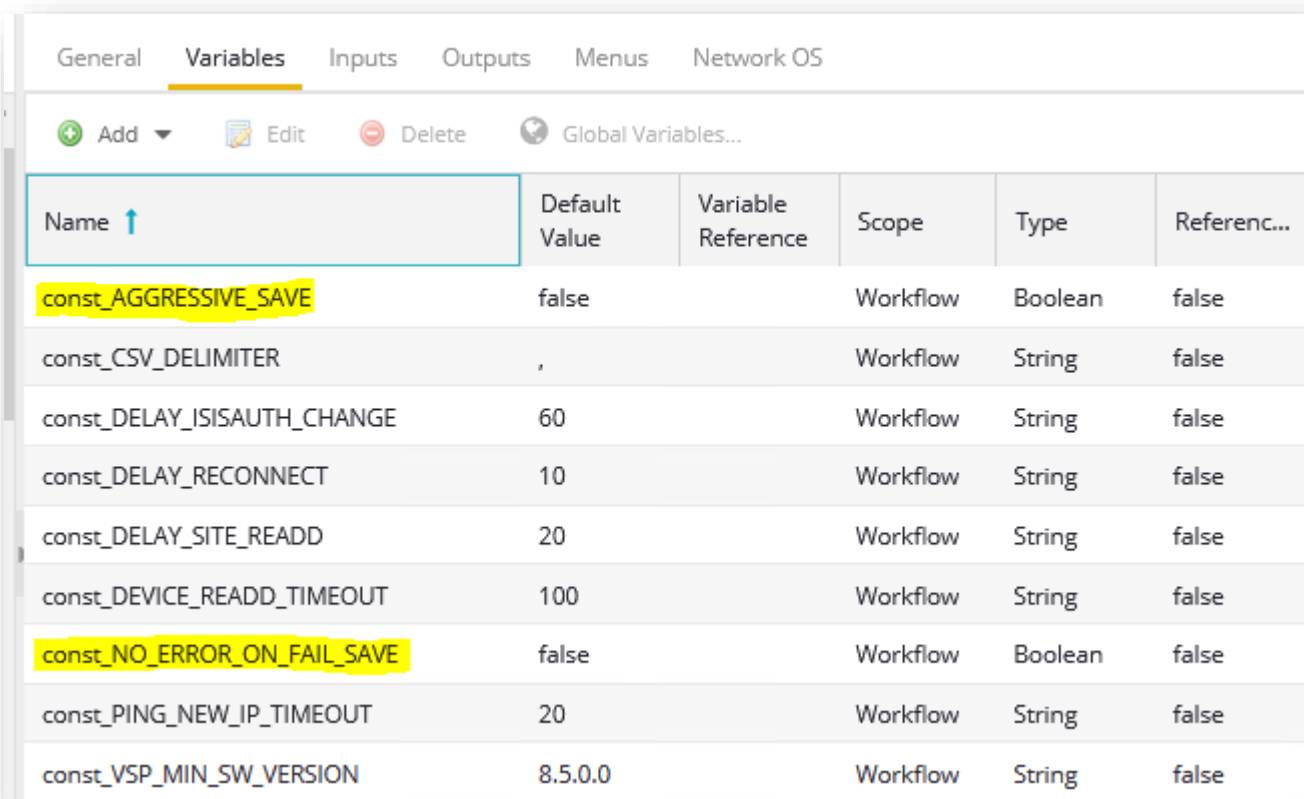
Close

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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...
<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_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

Workflow tuning 2



- Workflow variables:
- 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
- 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
const_CSV_DELIMITER	,		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_GRACEFUL_EXIT_IF_NO_IP	false		Workflow	Boolean	false
const_GRACEFUL_EXIT_IF_NO_SN	false		Workflow	Boolean	false
const_NO_ERROR_ON_FAIL_SAVE	false		Workflow	Boolean	false
const_PING_NEW_IP_TIMEOUT	45		Workflow	String	false
const_XOS_MIN_SW_VERSION	22.4		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
```

