

EXTREME NETWORKS

Onboard Mgmt CLIP XIQ-SE workflow

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September 2022

Onboard Mgmt CLIP XIQ-SE workflow



- Workflow to onboard a VOSS/Fabric Engine switch onto a dedicated switch mgmt CLIP
- Mgmt CLIP 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 shows the 'Uni-Hw-Campus-map' interface with a table of devices. A context menu is open over the table, showing various actions. The 'Onboard Mgmt CLIP' option is highlighted with a red box.

Status	Name ↑	Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware
▲	5320-16P-4XE-DC-FabricEngine...	World/CTC/Reading/Campus/Universal-Hw-Access	20.0.48.14	Available: 1...	Up: 1212 D...	5320-16P-4XE-DC-F...	Universal P...	8.8.0.0
▲	5320-24T-8XE-FabricEngine	us/Universal-Hw-Access	20.0.48.13	Available: 1...	Up: 1213 D...	5320-24T-8XE-Fabri...	Universal P...	8.8.0.0
▲	5420F-48P-4XL-FabricEngine	us/Universal-Hw-Access	20.0.48.10	Available: 1...	Up: 1212 D...	5420F-48P-4XL-Fab...	Universal P...	8.8.0.0
▲	5420M-24W-4YE-FabricEngine	us/Universal-Hw-Access	20.0.48.11	Available: 1...	Up: 1212 D...	5420M-24W-4YE-Fa...	Universal P...	8.8.0.0
●	5520-24W-SwitchEngine	us/Universal-Hw-Access	10.8.3.10	Available: 1...	Up: 1212 D...	5520-24W-SwitchEn...	Universal P...	32.1.1.6
●	5520-STK	us/Universal-Hw-Access	20.0.48.12	Available: 1...	Up: 1213 D...	Switch Engine ARM ...	Universal P...	31.7.1.4
▲	5720-24MXW-FabricEngine	us/Universal-Hw-Access	20.0.48.16	Available: 1...	Up: 1213 D...	5720-24MXW-Fabri...	Universal P...	8.8.0.0
●	CTC-410C-3/45	us/Universal-Hw-Access	20.0.203.52	Available: 9...	Up: 1208 D...	XIQ AP	XIQ Native	10.5r1
▶	VSP7448-1	us/Universal-Hw-Access		Up: 1213 D...		VSP-7400-48Y-8C	VSP Series	8.8.0.0
▶	VSP7448-2	us/Universal-Hw-Access		Up: 1212 D...		VSP-7400-48Y-8C	VSP Series	8.8.0.0

Context Menu Options:

- FlexView
- More Views
- Configure...
- Compass Search...
- Rediscover
- Clear Alarms...
- Upgrade Firmware...
- Add to Device Group...
- More Actions
- Archives
- Tasks
- Maps
- Network
- Policy
- Access Control
- Config
- Example
- Macro
- Provisioning
- System
- VLAN
- Apply Config Template
- CLI Custom Action - XOS SSL
- Deploy Insight VM
- Fabric Attach Enforce
- Fabric Connect Enforce
- Move to CLIP Mgmt IP
- Onboard Mgmt CLIP**
- Onboard Mgmt VLAN
- onboard CLI

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 CLIP

Update Cancel

Onboard Mgmt CLIP 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

	A	B	C	D
1	serial number	mgmt clip	sysname	site name
2	JA092041G-01023	20.0.209.54	5420-bld1	/World/building1
3	TB062139K-H0210	20.0.209.53	5320-bld1	/World/building1
4	TB022131K-H0059	20.0.209.52	5320-bld2	/World/building2
5	JA102040G-00003	20.0.209.55	5420-bld2	/World/building2

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Activities

Start → Move to CLIP mgmt IP → End

Gateways

Boundary

Events

General Variables Inputs Outputs Menus Network OS

Manage Inputs...

CSV data file:
/root/mgmtdata.csv

Index into CSV file:
Serial Number

Mgmt CLIP and re-add Site Notes:
Provide new mgmt CLIP and associated VRF. The VRF is optional and can be omitted in which case GRT will apply. It is assumed that initially the switch will have 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

Mgmt CLIP VRF:
GlobalRouter

Mgmt CLIP IP:
\$<mgmt clip>

Existing mgmt VLAN IP:
Delete

System Name to configure on device:
\$<sysname>

Auto-sense ISIS Authentication key:

Site to re-add device using mgmt CLIP:

Follow on workflow notes:
If it is desired to launch another workflow after this one has completed, provide the workflow path/name like for example (without the quotes): "Provisioning/Onboard VSP"

Follow on workflow to execute:

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



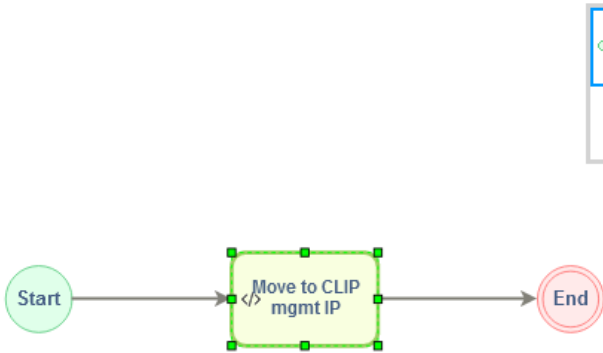
Dashboard Devices Discovered Firmware Archives Configuration Templates Reports **Onboard Mgmt CLIP (26863)**

Summary

Status	Start Date/Time	Name	Version	Source	# Devices	Started By	End Date/Time	Message	Path
✓	9/8/2022 9:22:54 AM	Onboard Mgmt CLIP	5	Workflow Designer ...	1	Istevens	9/8/2022 9:23:11 AM	Re-added device using mgmt CLIP 20.0.66.6...	/Workflows/Ludovico/Onboard Mgmt CLIP

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		9/8/2022 9:22:...	9/8/2022 9:23:...	Re-added device using mgmt CLIP 20.0.66.66 to XIQ-SE Site '/World/CTC/Reading/Campus/Universal-Hw-Access'

```
The following configuration was successfully performed on switch:
-> config term
-> mgmt clip vrf GlobalRouter
->   ip address 20.0.66.66/32
->   enable
-> exit
-> config term
-> mgmt vlan
->   no ip address 20.0.48.10
-> exit
-> 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 '20.0.66.66' to XIQ-SE Site '/World/CTC/Reading/Campus/Universal-Hw-Access' with admin profile 'PoC Profile'
Exit code SUCCESS
```

Close

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 CLIP 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
```

