EXTREME NETWORKS

Apply Config Template XIQ-SE workflow

Ludovico Stevens

Technical Marketing Engineering

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ADVANCE WITH US

Apply Config Template XIQ-SE workflow

Workflow to apply an ASCII config template containing variables. Works with any device family

The embedded variables can be of three types:

- ${variableName}: XIQ-SE Global or Site specific variables, in this preference order: local site, site parents, global
  - Selected emc_vars can be included by adding them to const_EXPORT_EMC_VARS; currently: deviceIP, serverIP, serverName
- $<csvColumnKey>: Device specific variables extracted from supplied CSV file
- $UD1, $UD2, $UD3, $UD4: Device specific values extracted from device User Data 1-4

For the CSV variables, a CSV file must be provided with the following syntax:

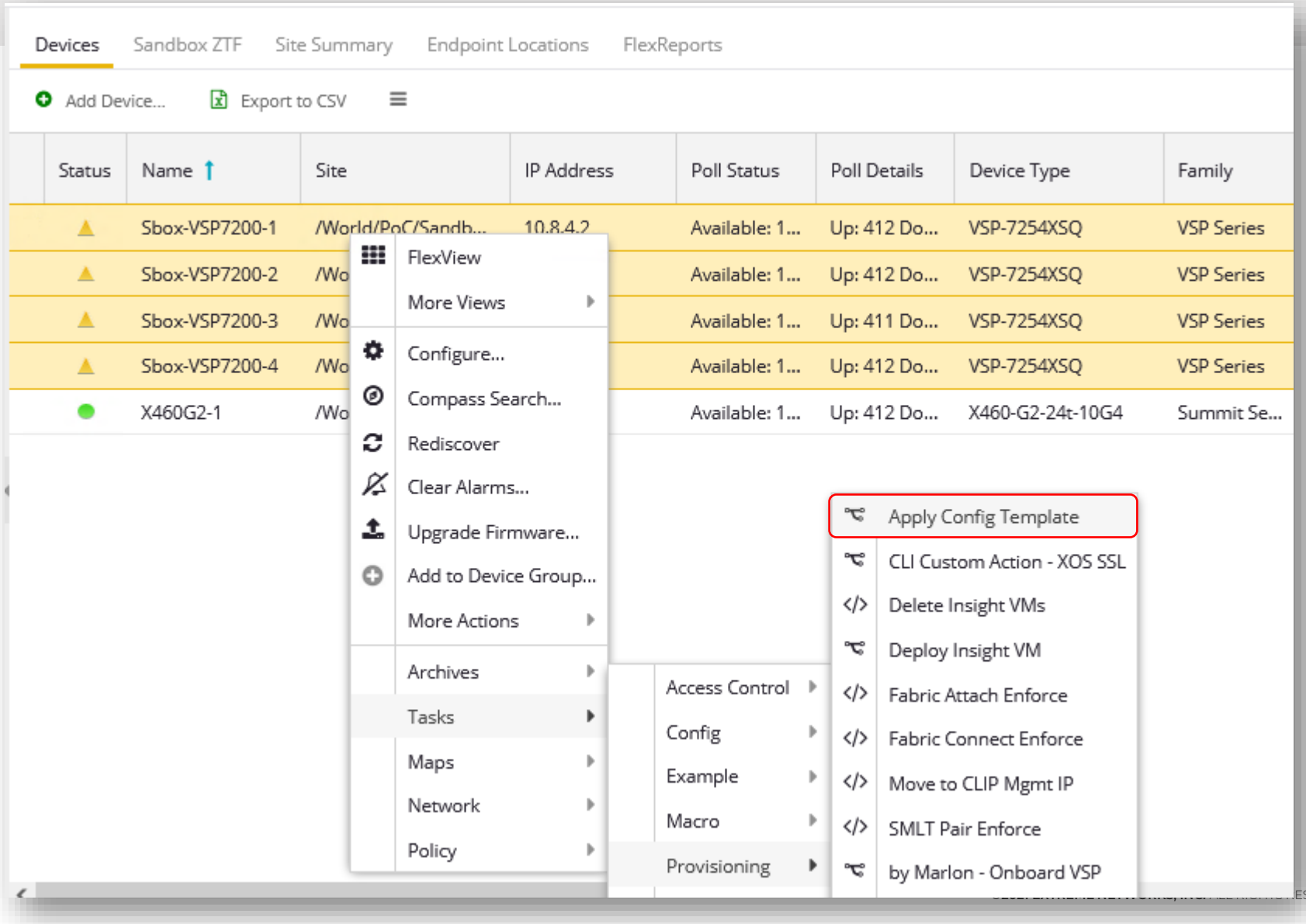
- First row has column labels, which need to match the $<csvColumnKey> variables, without the $<>
- Subsequent rows contain data values for every device, one row per device.
- First column contains the device lookup, either the device IP or Serial Number

ASCII config template file and the CSV file must be placed on the XIQ-SE filesystem.

Commands which generate a confirmation prompt enter as example: "no spanning-tree mstp\ny"

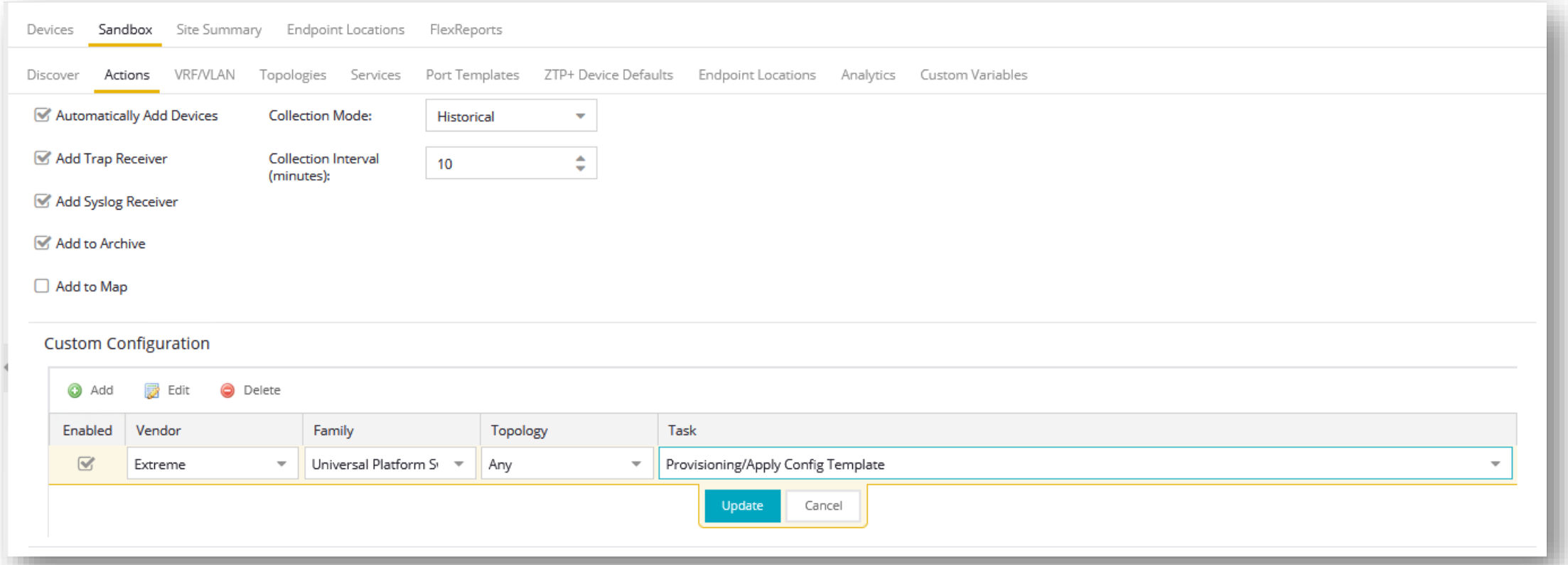
Workflow manual execution

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



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



Workflow inputs, with CSV values

Run Workflow - Apply Config Template

Workflow Inputs

Custom Inputs

Notes:

Inputs below can be set either with absolute values or can be provided as ${<site-custom-variable>} if the workflow is to derive a site specific value for those inputs. The site of the device, and parent sites, will apply.

ASCII config template:

/root/Ludo/template.cfg

CSV data file:

/root/Ludo/variable-values.csv

Index into CSV file:

IP address

IP address

Serial Number

are not actually made. Debug: enable if you need to report a problem to the script author.

Sanity:

Debug:

« Previous | Next » | Cancel

*template.cfg - Notepad

File Edit Format View Help

```
link-state group 1 enable
link-state group 1 upstream interface gigabitEthernet $UD1
link-state group 1 downstream interface gigabitEthernet $<tuni port>
router vrf fabext
   ip route 0.0.0.0 0.0.0.0 $UD2 weight 10
   ip route ${tunnelDest} 255.255.255.255 $UD2 weight 10
exit
router isis
   ip-tunnel-source-address ${deviceIP} vrf fabext
   manual-area $<isis area>
exit
logical-intf isis 255 dest-ip ${tunnelDest} name $<tunnel name>
   isis
   isis spbm 1
   isis spbm 1 l1-metric $<vxlan nni metric>
   isis enable
exit
filter acl 1 type inPort
filter acl port 1 $<tuni port>
filter acl ace 1 1001
filter acl ace action 1 1001 permit remark-dot1p $<macsec qos remark>
filter acl ace action 1 1001 permit count
filter acl ace action 1 1001 permit internal-qos $<macsec qos remark>
filter acl ace ethernet 1 1001 dst-mac mask 00:00:00:00:00:00 0xffffffffffff
filter acl ace 1 1001 enable
i-sid $<tuni isid> elan-transparent
   port $<tuni port>
exit
```

AutoSave Off variable-values.csv Search (Alt+Q)

File Home Insert Draw Page Layout Formulas Data Review View Help

A1 ip

Not set Public Internal Confidential Highly Confid

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	ip	mask	macsec nni	macsec nni metric	tuni port	tunnel dest	isis area	tunnel name	vxlan nni metric	macsec qos remark	tuni isid	macsec key	macsec parity
2	10.8.4.2	255.255.255.0	Jan-21	20	Jan-22	10.10.10.10	47	DC1	10	4	15000001	1234567890	odd
3	10.8.4.3	255.255.255.0	Jan-21	20	Jan-22	10.10.10.20	47	DC2	10	4	15000002	1234567890	odd
4	10.8.4.4	255.255.255.0	Jan-21	20	Jan-22	10.10.10.10	47	DC1	10	4	15000003	1234567890	odd
5	10.8.4.5	255.255.255.0	Jan-21	20	Jan-22	10.10.10.20	47	DC2	10	4	15000004	1234567890	odd

Workflow, site variables

- Template can also take ${var} variables
- Values for these variables are looked up in the Site Custom variables, in this preference order:
  - Site of device
  - Parent Site of device
  - Parent sites up to Root site
  - Global variable

*template.cfg - Notepad

File Edit Format View Help

```
link-state group 1 enable
link-state group 1 upstream interface gigabitEthernet $UD1
link-state group 1 downstream interface gigabitEthernet $<tuni port>
router vrf fabext
   ip route 0.0.0.0 0.0.0.0 $UD2 weight 10
   ip route ${tunnelDest} 255.255.255.255 $UD2 weight 10
exit
router isis
   ip-tunnel-source-address ${deviceIP} vrf fabext
   manual-area $<isis area>
exit
logical-intf isis 255 dest-ip ${tunnelDest} name $<tunnel name>
   isis
   isis spbm 1
   isis spbm 1 l1-metric $<vxlan nni metric>
   isis enable
exit
filter acl 1 type inPort
filter acl port 1 $<tuni port>
filter acl ace 1 1001
filter acl ace action 1 1001 permit remark-dot1p $<macsec qos remark>
filter acl ace action 1 1001 permit count
filter acl ace action 1 1001 permit internal-qos $<macsec qos remark>
filter acl ace ethernet 1 1001 dst-mac mask 00:00:00:00:00:00 0xffffffffffff
                                ace 1 1001 enable
                               ni isid> elan-transparent
                               tuni port>
```

Devices | Sandbox ZTF | Site Summary | Endpoint Locations | FlexReports

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

Add | Edit | Delete

Scope			Variable		
Category	Site ↓	Type	Name	Type	Value
Site	/World/PoC/Sandbox ZTF		locationGroup	String	PhysicalSandbox
Site	/World/PoC/Sandbox ZTF		dataIsid	String	0
Site	/World/PoC/Sandbox ZTF		tunnelDest	String	20.120.10.20
Site	/World/PoC/Sandbox ZTF		dataVlan	String	0
Site	Global		Auto Sync VLANs in...	String	Done
Site	Global		nacEnable	String	enable
Site	Global		locationGroup	String	0

Workflow, emc_vars as variables

- Selected emc_vars can also be fed into the same ${var} space, by adding them to workflow variable const_EXPORT_EMC_VARS

*template.cfg - Notepad

File Edit Format View Help

```
link-state group 1 enable
link-state group 1 upstream interface gigabitEthernet $UD1
link-state group 1 downstream interface gigabitEthernet $<tuni port>
router vrf fabext
   ip route 0.0.0.0 0.0.0.0 $UD2 weight 10
   ip route ${tunnelDest} 255.255.255.255 $UD2 weight 10
exit
router isis
   ip-tunnel-source-address ${deviceIP} vrf fabext
   manual-area $<isis area>
exit
logical-intf isis 255 dest-ip ${tunnelDest} name $<tunnel name>
   isis
   isis spbm 1
   isis spbm 1 l1-metric $<vxlan nni metric>
   isis enable
exit
filter acl 1 type inPort
filter acl port 1 $<tuni port>
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filter acl ace action 1 1001 permit count
filter acl ace action 1 1001 permit internal-qos $<macsec qos remark>
filter acl ace ethernet 1 1001 dst-mac mask 00:00:00:00:00:00 0xffffffffffff
filter acl ace 1 1001 enable
i-sid $<tuni isid> elan-transparent
```

Workflow Dashboard | Scheduled Tasks | Saved Tasks | Scripts | Workflows

Palette | /Workflows/Ludovico/Apply Config Template

Activities

Verify | Save | Run

Start → Apply Config Template → Signal - Config Applied → End

Details

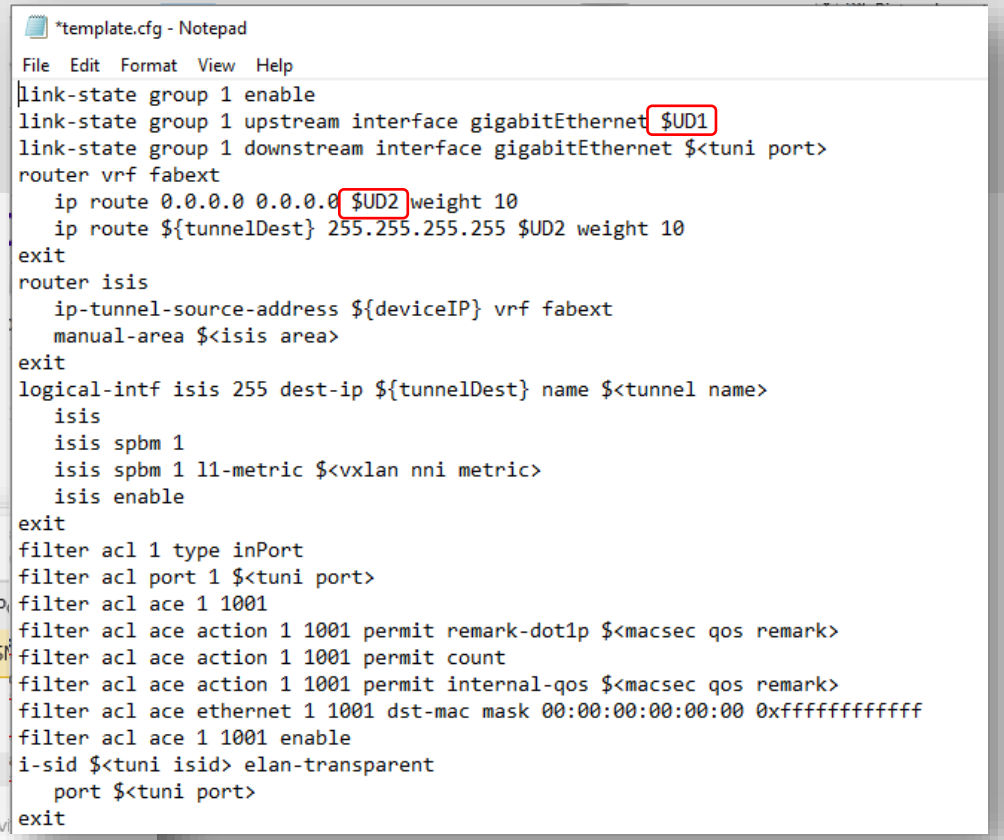
General | Variables | Inputs | Outputs | Menus | Network OS

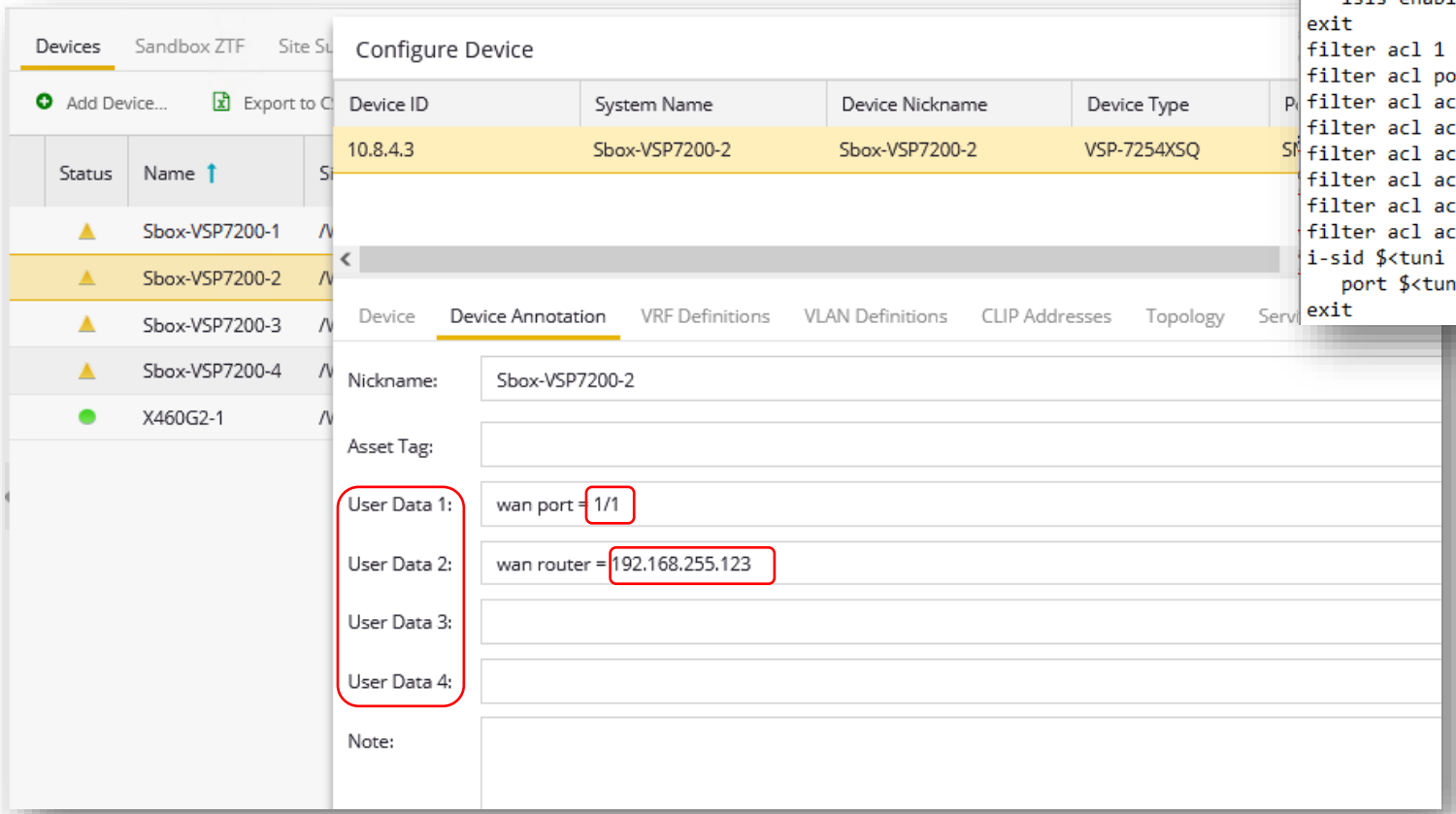
Add | Edit | Delete | Global Variables...

Name	Default Value	Variable Reference	Scope	Type
const_EXPORT_EMC_VARS	["deviceIP", "serverIP", "serverName"]		Workflow	Json
devices			Workflow	Json
input_configFile			Workflow	String
input_csvFile			Workflow	String
input_csvKey			Workflow	String
input_notes			Workflow	String

Workflow, UserData1-4 variables

- Values unique to each device can also be fetched from the device UserData1-4 fields
- Only value after "=" is used



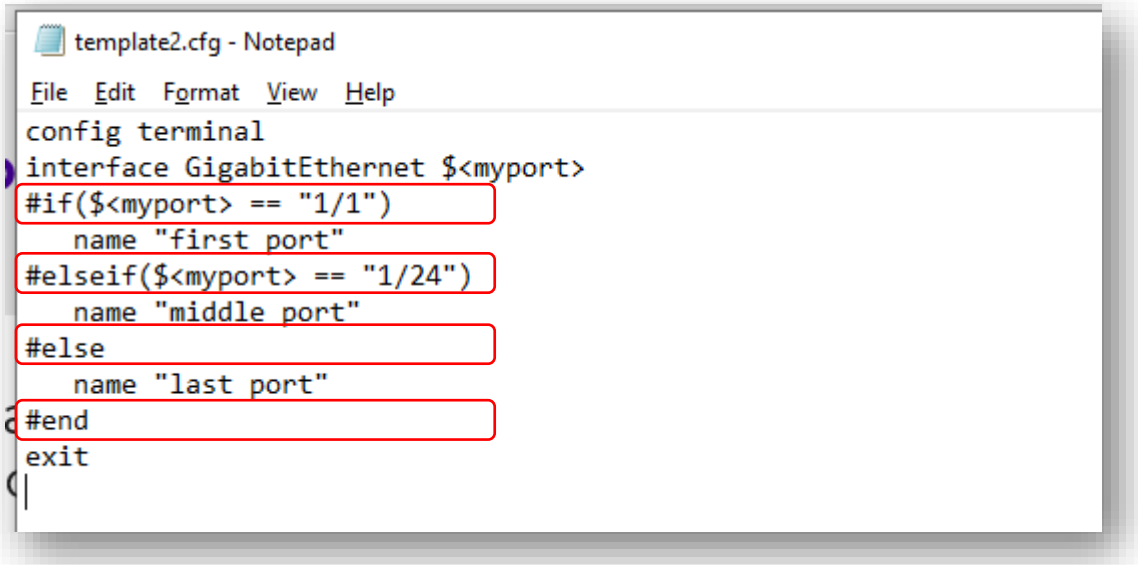


Comparison of template variables

- 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
- CSV variables $<var>: Useful to provide device specific values
- UserData variables $UD1-4: Useful to provide device specific values, but for values obtained dynamically from the device itself (by another workflow or activity) and then make these available in this Apply Config Template workflow
- Emc_vars ${deviceIP}: Useful to feed some of these values into the same space as Site variables

Cisco velocity type statements: #if/#elseif/#else/#end

- The template file can also include #if/#elseif/#else/#end statement blocks
- To match Cisco velocity type statements
- The conditional string, inside "(" ")" will be evaluated using Python's eval() function, so any valid Python expression may be used
- Any of CSV variables [$<var>], Site variables [${var}] or UserData variables [$UD1-4] can be inserted inside the conditional string, but they will always be evaluated as String values.
- For instance, to evaluate an integer value, insert the variable inside Python's int() method like this:
  - `#if ( int($<myvar>) > 10)`



Worflow execution

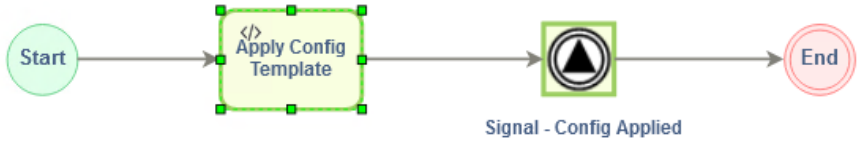
Workflow Dashboard | Scheduled Tasks | Saved Tasks | Scripts | Workflows | Apply Config Template (26110)

Summary

Status	Start Date/Time	Name	Version	Source	# Devices	Started By	End Date/Time	Message	Path
✔	7/18/2022 2:11:04 ...	Apply Config Templ...	32	Workflow Designer ...	4	lstevens	7/18/2022 2:11:09 ...	Applied Config Template on devices 10.8.4.5...	/Workflows/Ludovico/Apply Config Template

Graph View | Table View

Stop Workflow | Show Output | Show Variables

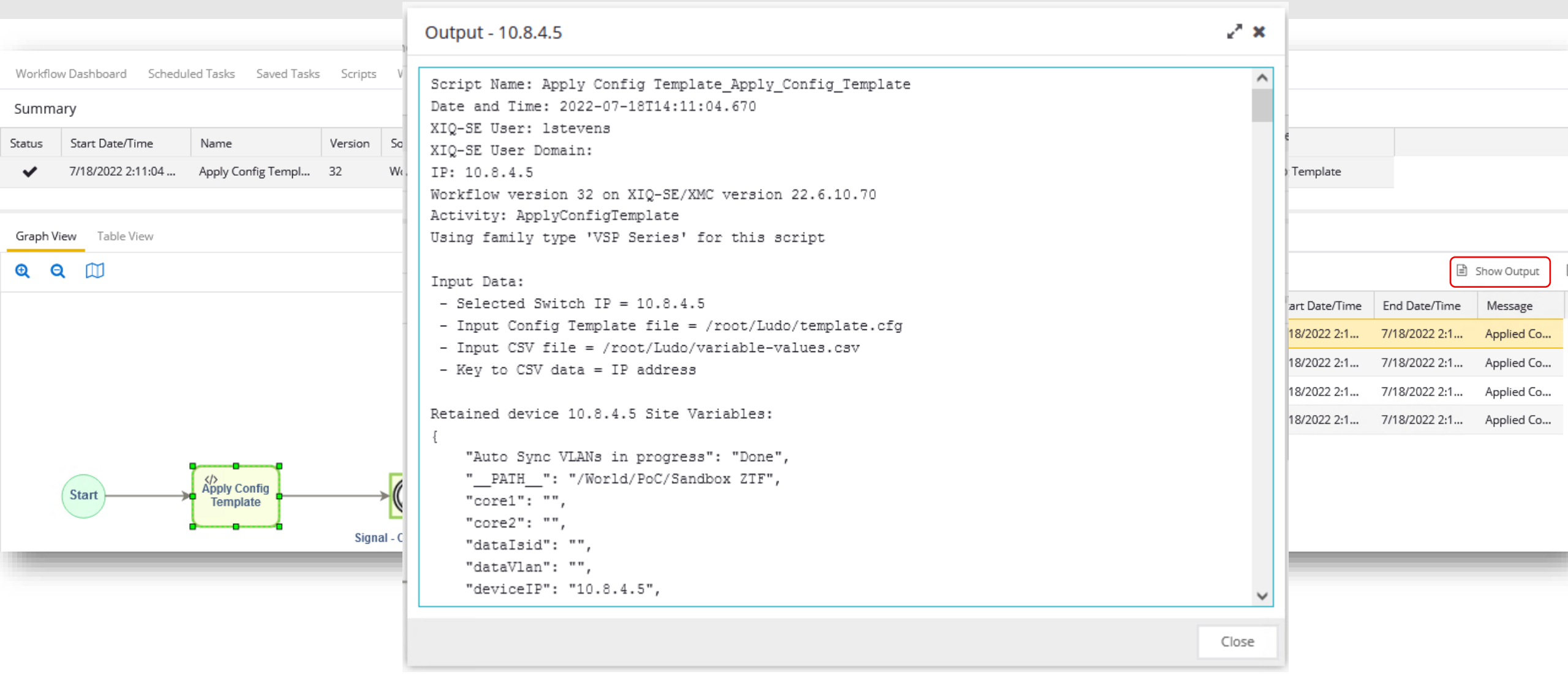


Devices Grid

Show Output

Status	Device IP	Output Path	Start Date/Time	End Date/Time	Message
SUCCESS	10.8.4.5		7/18/2022 2:1...	7/18/2022 2:1...	Applied Co...
SUCCESS	10.8.4.3		7/18/2022 2:1...	7/18/2022 2:1...	Applied Co...
SUCCESS	10.8.4.4		7/18/2022 2:1...	7/18/2022 2:1...	Applied Co...
SUCCESS	10.8.4.2		7/18/2022 2:1...	7/18/2022 2:1...	Applied Co...

Worflow execution



Workflow Event signal