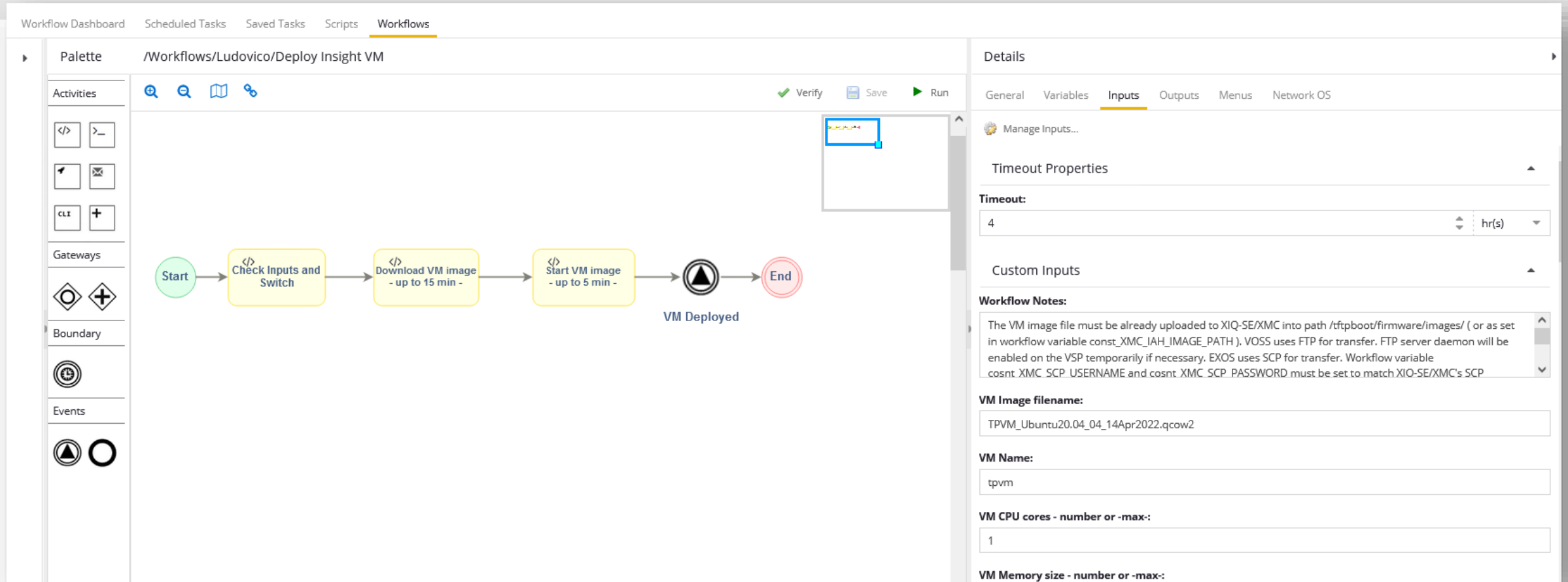


EXTREME NETWORKS

XIQ-SE workflow: Deploy Insight VMs

Ludovico Stevens, April 2022

The workflow

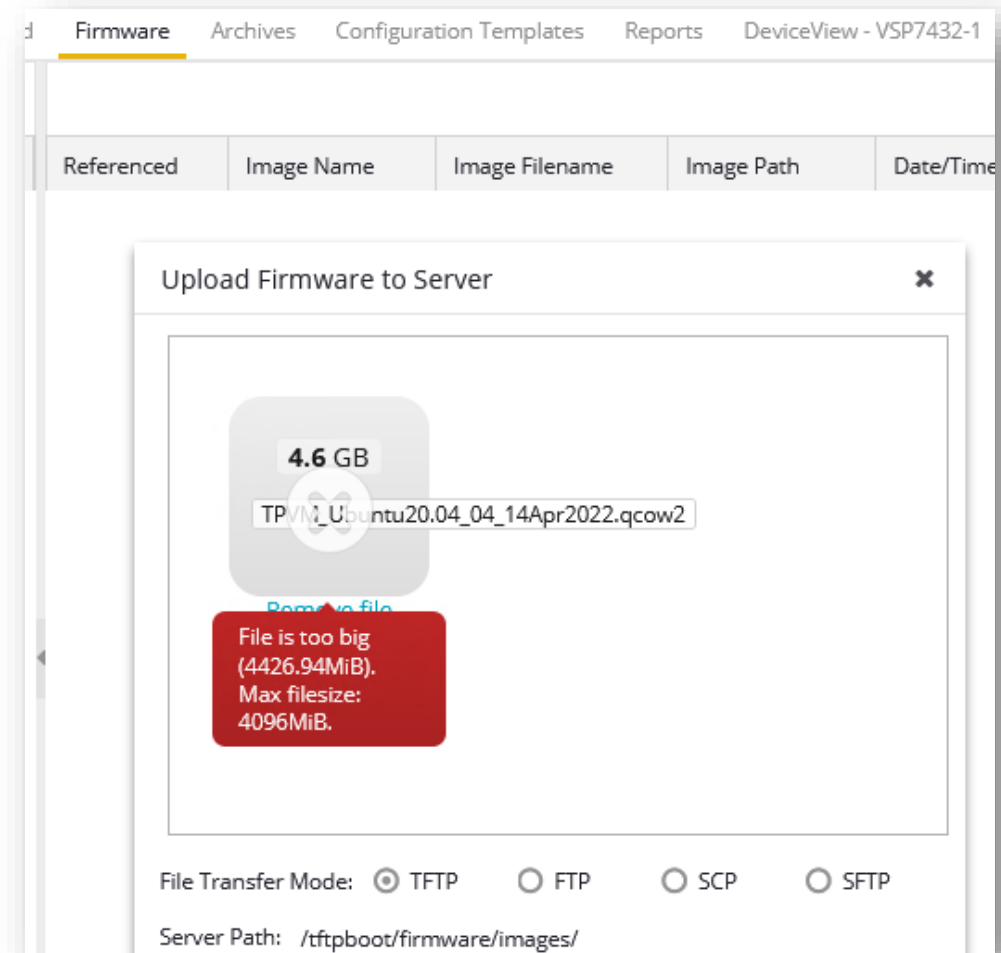


Workflow allows deploying an IAH VM to a VOSS/EXOS capable switch or EXOS capable Stack
VM Image is stored on XIQ-SE. Workflow takes care of transferring the image to the switch, then installing, configuring and starting the VM

Uploading the VM image to XIQ-SE



- **Transfer the VM image directly to XIQ-SE path:**
- `/tftpboot/firmware/images/`
- **But the VM images will typically be larger than 4096MB which is the limit for the Web upload**



Uploading the VM image to XIQ-SE



- **Transfer the VM image directly to XIQ-SE path:**
- /tftpboot/firmware/images/
- **So SFTP the image files directly onto XIQ-SE**

The screenshot shows the FileZilla SFTP client interface. The top status bar indicates the connection to 'XMC - sftp://root@10.8.255.15'. The left pane shows the local site 'N:\Switch\TPVM\'. The right pane shows the remote site '/tftpboot/firmware/images'. The status window on the right displays the following log:

```
Status: Retrieving directory listing of "/tftpboot/firmware/images"...
Status: Listing directory /tftpboot/firmware/images
Status: Directory listing of "/tftpboot/firmware/images" successful
Status: Connecting to 10.8.255.15...
Status: Using username "root".
Status: Connected to 10.8.255.15
Status: Starting upload of N:\Switch\TPVM\TPVM_Ubuntu20.04_04_14Apr2022.qcow2
Status: File transfer successful, transferred 4,641,982,464 bytes in 70 seconds
Status: Retrieving directory listing of "/tftpboot/firmware/images"...
Status: Listing directory /tftpboot/firmware/images
Status: Directory listing of "/tftpboot/firmware/images" successful
```

The local site pane shows a directory tree with folders: SLX, TPVM, VDX, VOSS, Tools, velociraptor, and VMware. The remote site pane shows a directory tree with folders: root, tftpboot, firmware, images, and usr. The file list pane shows the following files:

Filename	Filesize	Filetype	Last modified	Permissions
summitX-30.3.1.6-vpex_controlling_bridge.lst	136,990,720	LST File	10/17/2020 2:10:07 PM	-rw-r--r--
summitX-30.3.1.6.xos	86,132,534	XOS File	10/17/2020 2:10:06 PM	-rw-r--r--
summitX-30.4.1.2-vpex_controlling_bridge.lst	137,328,640	LST File	10/17/2020 2:10:02 PM	-rw-r--r--

The bottom pane shows the transfer progress of the file 'TPVM_Ubuntu20.04_04_14Apr2022.qcow2' from the local site to the remote site. The transfer is successful, with a size of 4,641,982,464 bytes and a completion time of 4/19/2022 5:36:56 PM.

Setting up, for SCP file transfers



The screenshot shows the ExtremeCloud IQ Site Engine interface. On the left is a navigation menu with categories: Network, Alarms & Events, Control, Analytics, Wireless, Reports, Tasks, Administration (highlighted), and Connect. The main area has a top bar with tabs: Profiles, Users, Server Information, Licenses, Certificates, Options (selected), Device Types, Backup/Restore, Diagnostics, Vendor Profiles, and Client API Access. Below the tabs is a search bar containing 'scp'. A left sidebar shows a tree view: Options (expanded) > Inventory Manager > File Transfer > SCP Server Properties > Login Information (highlighted). The right pane shows the 'Login Information' configuration for 'scp'. It includes an 'Anonymous' checkbox (unchecked) with a default value of 'true'. Below it are 'Username' and 'Password' fields, both highlighted with a red box. The 'Username' field contains 'scp' (default: anonymous) and the 'Password' field contains 'scpscp' (default: ****). There is also an eye icon for password visibility.

- **Under XIQ-SE Administration / Options / Inventory Manager / File Transfer / SCP**
- Make sure SCP credentials are set (disable anonymous)
- Record the credentials, as these need setting in the workflow

Setting up, for SCP file transfers



Workflow Dashboard Scheduled Tasks Saved Tasks Scripts **Workflows**

Palette /Workflows/Ludovico/Deploy Insight VM

Activities

-
-
-

Gateways

-
-

Boundary

-

Events

Start → Check Inputs and Switch → Download VM image - up to 15 min - → Start VM image - up to 5 min - → VM Deployed → End

Verify Save Run

Details

General **Variables** Inputs Outputs Menus Network OS

Add Edit Delete Global Variables...

Name	Default Value	Variable Reference	Scope	Type	Referenced
const_EXOS_IAH_IMAGE_P...	/usr/local/v...		Workflow	String	false
const_VOSS_IAH_IMAGE_P...	/var/lib/insig...		Workflow	String	false
const_XMC_IAH_IMAGE_PA...	/tftpboot/fir...		Workflow	String	false
cosnt_EXOS_MIN_SW_VERS...	30.1		Workflow	String	false
cosnt_EXOS_SCP_TIMEOUT	900		Workflow	String	false
cosnt_EXOS_VM_INSTALL_...	360		Workflow	String	false
cosnt_VOSS_MIN_SW_VERS...	8.4.2		Workflow	String	false
cosnt_XMC_SCP_PASSWORD	scpscp		Workflow	String	false
cosnt_XMC_SCP_USERNAME	scp		Workflow	String	false

- **In the workflow Variables tab, locate variables:**
- cosnt_XMC_SCP_USERNAME & cosnt_XMC_SCP_PASSWORD
- Set them with the same credentials from XIQ-SE
- **Workflow only uses SCP with EXOS**
- **On VOSS FTP is used instead (which will use VSP CLI credentials)**

Running the workflow



- **One or more switches can be selected**
- **Supported on VOSS and EXOS (including Stacks)**
- **Workflow will error if run on non-IAH capable EXOS/VOSS switches**

The screenshot displays the 'Devices' tab in the management console. A table lists two devices, X695-1 and X695-2, both with a green status indicator. A context menu is open over the table, showing various actions. The 'Tasks' menu item is expanded, and the 'Provisioning' sub-menu is open, where the 'Deploy Insight VM' option is highlighted with a red rectangle.

Status	Name	Site	IP Address	Poll Status	Poll Details	Device Type	Family	Firmware
●	X695-1	/World/CTC/Readin...	10.8.10.5	Available: 1...	Up: 697 Do...	X695-48Y-8C	Summit Se...	31.4.1.5
●	X695-2		10.8.10.6	Available: 1...	Up: 697 Do...	X695-48Y-8C	Summit Se...	31.4.1.5

Context Menu Options:

- FlexView
- More Views
- Configure...
- Compass Search...
- Rediscover
- Clear Alarms...
- Upgrade Firmware...
- Add to Device Group...
- More Actions
- Archives
- Tasks
 - Access Control
 - Config
 - Example
 - Macro
 - Provisioning
 - Delete Insight VMs
 - Delete Zone
 - Deploy Insight VM
- Maps
- Network
- Policy

Running the workflow



Run Workflow - Deploy Insight VM

Workflow Inputs

Custom Inputs

Workflow Notes:

The VM image file must be already uploaded to XIQ-SE/XMC into path /tftpboot/firmware/images/ (or as set in workflow variable const_XMC_IAH_IMAGE_PATH). VOSS uses FTP for transfer. FTP server daemon will be enabled temporarily if necessary. EXOS uses SCP for transfer. Workflow variable const_XMC_SCP_USERNAME and const_XMC_SCP_PASSWORD must be set to match XIQ-SE/XMC's SCP credentials under Administration / Options.

VM Image filename:

TPVM_Ubuntu20.04_04_14Apr2022.qcow2

VM Name:

tpvm

VM CPU cores - number or -max-:

1

VM Memory size - number or -max-:

4096

Switch Slot number - EXOS Stacks only:

1

VM Vport-mgmt - on switch OOB port:

enable

VM Vport-1 Notes:

A Vport-1 Type must be provided as well as a switch slot number. If a switch slot number is not provided, it will be assigned to the sideband port. For type C, if a switch slot number is provided only the 1st VLAN is configured on the sideband port. For all other types, the sideband port will be configured as untagged. For all other types, the sideband port will be configured as untagged.

VM Vport-1 Type:

SRIOV

VM Vport-1 Sideband port:

1:57

VM Vport-1 VLANs on Sideband port:

12

VM Vport-1 VLANs respective I-SIDs:

2800012

VM Vport-2 Notes:

A Vport-2 is optional. It may be applicable if deploying a VM which uses two sideband ports on the same switch. If a Vport-2 is required, both Type and Sideband inputs must be provided. Same syntax applies as for Vport-1 inputs.

VM Vport-2 Type:

VTD

VM Vport-2 Sideband port:

1:58

VM Vport-2 VLANs on Sideband port:

VM Vport-2 VLANs respective I-SIDs:

VM VNC Display 0-15 - EXOS only:

1

Sanity and Debug Notes:

Sanity: enable if you do not trust this workflow and wish to first see what it does. In sanity mode configuration changes are not actually made. Debug: enable if you need to report a problem to the script author.

Sanity:

Debug:

- Provide the required inputs
- Note that both VLAN & I-SID can be provided for IAH VM attachment VLANs

Running the workflow



- **Hit Run**

The screenshot shows a dialog box titled "Run Workflow - Deploy Insight VM". Inside, there is a section titled "Schedule Task". Under this section, there is a sub-section titled "Task Details". This section contains three fields: "Task Name" with the value "Scheduled Task - 4/19/2022 2:16:09 PM", "Description" which is empty, and "Enabled" which is an unchecked checkbox. At the bottom of the dialog, there are four buttons: "« Previous", "Run" (highlighted in blue), "Save Task" (with a save icon), and "Cancel".

Running the workflow



- **Wait for workflow completion**

Workflow Dashboard Scheduled Tasks Saved Tasks Scripts Workflows **Deploy Insight VM (25710)** ✕

Summary

Status	Start Date/Time	Name	Version	Source	# Devices	Started By	End Date/Time	Message	Path
✓	4/20/2022 3:54:39 ...	Deploy Insight VM	86	Workflow Designer ...	2	Istevens	4/20/2022 3:58:25 ...	Successfully deployed VM tpvm on selected ...	/Workflows/Ludovico/Deploy Insight VM

Graph View Table View

🔍 🔍 📖 ■ Stop Workflow 📄 Show Output 📄 Show Variables

VM Deployed

Devices Grid

📄 Show Output 📄 Show Variables

Status	Device IP	Out... Path	Start Date/Time	End Date/Time	Message
SUCCESS	10.8.10.6		4/20/2022 3:5...	4/20/2022 3:5...	Validated inputs for deploying VM tpvm on switch 10.8.10.6 X695-48Y-8C
SUCCESS	10.8.10.5		4/20/2022 3:5...	4/20/2022 3:5...	Validated inputs for deploying VM tpvm on switch 10.8.10.5 X695-48Y-8C

- **The middle activity, first check to see whether the requested VM image/OVA is already on the switch in the right path and with the expected file size, and if so, the download is skipped**
- **FTP is used with VOSS**
 - If the FTP daemon is disabled on the switch, the workflow will temporarily enable it, then disable it afterwards
- **SCP is used with EXOS**

Running the workflow



Workflow Dashboard Scheduled Tasks Saved Tasks Scripts Workflows **Deploy Insight**

Summary

Status	Start Date/Time	Name	Version	Source	# D
✓	4/20/2022 3:54:39 ...	Deploy Insight VM	86	Workflow Designer ...	2

Graph View Table View

🔍 🔍 📖

```
graph LR; Start((Start)) --> Check[Check Inputs and Switch]; Check --> Download[Download VM image - up to 15 min -]; Download --> StartVM[Start VM image - up to 5 min -]; StartVM --> VMDeploy[VM Deployed];
```

Output - 10.8.10.6

```
* X695-2.6 # configure vm tpvm add ports mgmt
* X695-2.7 #

* X695-2.7 # disable stpd s0 ports 63
* X695-2.8 #

* X695-2.8 # enable ports 63
* X695-2.9 #

* X695-2.9 # start vm tpvm
* X695-2.10 #
```

The following configuration was successfully performed on switch:

```
-> create vm tpvm image /usr/local/vm/packages/IPVM_Ubuntu20.04_04_14Apr2022.qcow2
-> configure vm tpvm cpus 1 memory 2048 vnc 0
-> enable vm tpvm autostart
-> configure vm tpvm add ports 63
-> configure vm tpvm add ports mgmt
-> disable stpd s0 ports 63
-> enable ports 63
-> start vm tpvm
Exit code SUCCESS
```

Output - 20.0.10.25

The following configuration was successfully performed on switch:

```
-> virtual-service tpvm install package /var/lib/insight/packages
/IPVM_Ubuntu20.04_04_14Apr2022.qcow2
-> config term
-> virtual-service tpvm
-> virtual-service tpvm num-cores 1
-> virtual-service tpvm mem-size 2048
-> virtual-service tpvm vport eth0 connect-type SRIOV
-> virtual-service tpvm vport eth0 port 1/s1
-> virtual-service tpvm vport eth0 vlan 12
-> virtual-service tpvm vport eth1 connect-type VID
-> virtual-service tpvm vport eth1 port 1/s2
-> vlan members remove 1 1/s1
-> interface gigabitEthernet 1/s1
->   encapsulation dot1q
->   no spanning-tree mstp
->   no shutdown
-> exit
-> vlan members remove 1 1/s2
-> interface gigabitEthernet 1/s2
->   encapsulation dot1q
->   no spanning-tree mstp
->   no shutdown
-> exit
```

- Inspect last activity log to view IAH config

