

Juniper Open Learning
TECHNICAL SERIES WEBCAST



**Building a Juniper
EVE-NG Lab Environment
for Daily Usage
Part 2/3**

Wednesday, February 16th
7AM Pacific Time

About:

Christian Scholz ( @chsjuniper)

„That guy who loves Juniper and IPv6“

Sr. Consultant - Network & Security
[Axians Networks & Solutions]

JNPR Ambassador | JNCIE-SEC #374

Blog: www.jncie.eu

Mail: chs@ip4.de

Youtube: www.youtube.com/netchron/



The road so far...

Fetches the EVE-NG image (Community and Pro)

Installed EVE-NG on a Bare Metal Server

Changed initial password (Web-UI) and Install-Wizard (CLI)

Current State: „Empty“ EVE-NG Server with no images (nodes)

Our Goal

- ▶ Obtain the vMX, vSRX and vQFX from Juniper
- ▶ Upload the Files to eve-ng / convert the files to work with eve-ng
- ▶ Create a basic lab
- ▶ Changing the vSRX „base“ config and use the commit system
- ▶ Upload custom icons to make the lab look nice
- ▶ Show how to modify templates

Fetching images

- ▶ 3 „base“ images: vMX (Router), vSRX (Firewall/Secure-Router), vQFX (Switch)
- ▶ Need an active Juniper account → can be created for free
- ▶ vMX:
<https://www.juniper.net/us/en/dm/vmx-trial-download.html>
Convert:
<https://www.eve-ng.net/index.php/documentation/howtos/howto-add-juniper-vmx-16-x-17-x/>
- ▶ vSRX:
<https://www.juniper.net/us/en/dm/download-next-gen-vsrx-firewall-trial.html>
Already qcow2 - upload and use :)
- ▶ vQFX:
<https://www.juniper.net/us/en/dm/free-vqfx10000-software.html>
Rename the PFE from qcow to qcow2 - that's it :)

Our Goal

- ▶ Obtain the vMX, vSRX and vQFX from Juniper ✓
- ▶ Upload the Files to eve-ng / convert the files to work with eve-ng
- ▶ Create a basic lab
- ▶ Changing the vSRX „base“ config and use the commit system
- ▶ Upload custom icons to make the lab look nice
- ▶ Show how to modify templates

Uploading to your Server

- ▶ `/opt/unetlab/addons/qemu/` → Main Folder for images (nodes)
- ▶ Files / Filenames / Folders need to have a certain format:
vmxvcp-
vmxvfp-
vqfxre-
vqfxpfe-
vsrxng-
- ▶ `virtioa.qcow2` or `hda.qcow2` (depends on the image) → `driver.kvmfile(qemu)`
- ▶ <https://www.eve-ng.net/index.php/documentation/howtos/>
Explains in detail how to convert the images
- ▶ `/opt/unetlab/wrappers/unl_wrapper -a fixpermissions`
makes sure the linux host permissions are correct (internally)

Uploading to your Server

- ▶ ssh/scp → upload either downloaded file or converted file
- ▶ Needs to be done for every version needed
- ▶ Don't use „update packages“ - updates can be installed but not used as „start“
- ▶ Use the commit system and name your devices accordingly

Labbing for Certification

- ▶ Use Labs provided by Juniper Courses
- ▶ Use Labs / Topologies from the www
- ▶ Re-Create scenarios seen at work
- ▶ Re-Create scenarios from books
- ▶ Almost all Features can be done in EVE-NG

Our Goal

- ▶ Obtain the vMX, vSRX and vQFX from Juniper ✓
- ▶ Upload the Files to eve-ng / convert the files to work with eve-ng ✓
- ▶ Create a basic lab
- ▶ Changing the vSRX „base“ config and use the commit system
- ▶ Upload custom icons to make the lab look nice
- ▶ Show how to modify templates

Creating a Lab

- ▶ Start with a „blank“ canvas
- ▶ Start small - get bigger - don't go „all in“
- ▶ Design your lab - think about startup times, delay, „visuals“
- ▶ Use the „Picture“ (Logical Maps) function to upload a topology
- ▶ Use the „Auto-NAT“ Feature to access external Devices
- ▶ discover your v-Devices from an external server if needed

Our Goal

- ▶ Obtain the vMX, vSRX and vQFX from Juniper ✓
- ▶ Upload the Files to eve-ng / convert the files to work with eve-ng ✓
- ▶ Create a basic lab ✓
- ▶ Changing the vSRX „base“ config and use the commit system
- ▶ Upload custom icons to make the lab look nice
- ▶ Show how to modify templates

Commit system

- ▶ EVE-NG has (like JunOS) a commit system
 - ▶ Change the Device to match your „startpoint“ (DC, Exchange, Space etc.)
 - ▶ Commit the changes
 - ▶ Next time you add the node, the changes are already in place 😊
 - ▶ Very handy if multiple labs with a similar „baseline“ are used
-
- ▶ Start by uploading / copying your desired image
 - ▶ Re-Name it to fit your needs and start from there
 - ▶ Repeat if multiple „baselines“ are needed

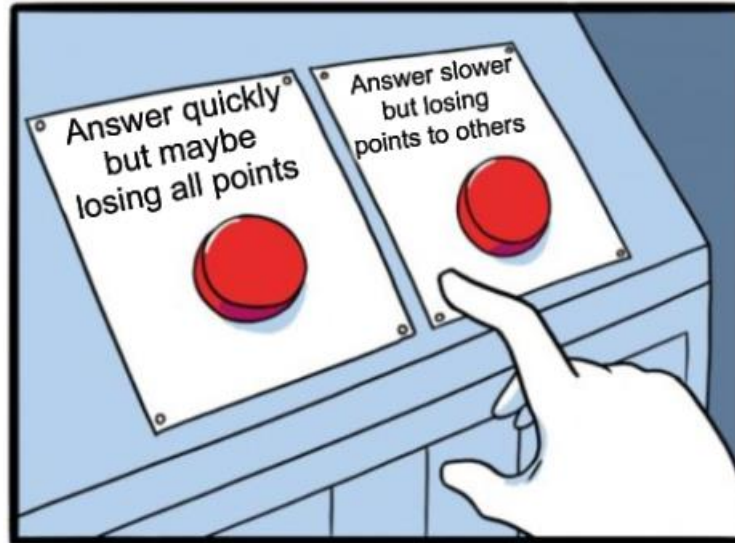
Commit system

- ▶ Fetch Pod Number (admin is pod 0)
- ▶ Fetch Lab-ID (Lab Details)
- ▶ Fetch node Number (right click node)

- ▶ `cd /opt/unetlab/tmp/POD-NUMBER/LAB-ID/NODE-ID/`
Example: `/opt/unetlab/tmp/0/6063860d-0767-4a73-a628-1d31d9564a7a/34`

- ▶ Commit: `/opt/qemu/bin/qemu-img commit virtioa.qcow2 (or hda.qcow2)`

Game Time!



Our Goal

- ▶ Obtain the vMX, vSRX and vQFX from Juniper ✓
- ▶ Upload the Files to eve-ng / convert the files to work with eve-ng ✓
- ▶ Create a basic lab ✓
- ▶ Changing the vSRX „base“ config and use the commit system ✓
- ▶ Upload custom icons to make the lab look nice
- ▶ Show how to modify templates

Customized Icons

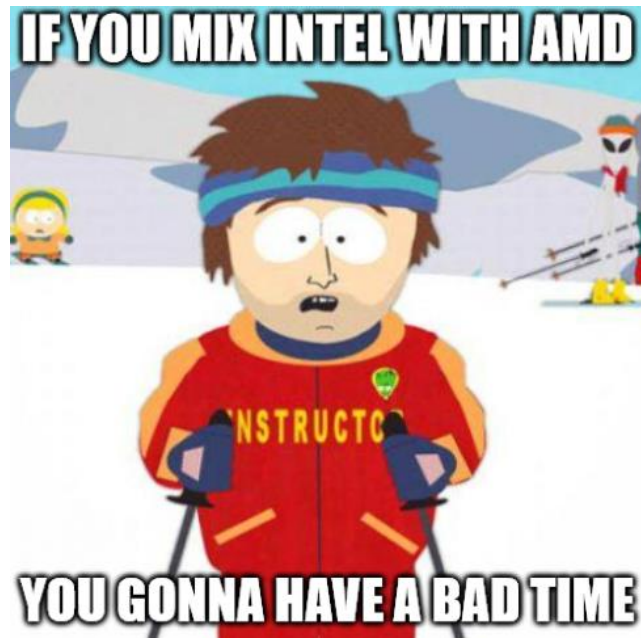
- ▶ Make your Topology „nice“ ;)
- ▶ Upload to `/opt/unetlab/html/images/icons`
- ▶ Upload in png format, 32x32 or 64x64 pixels
- ▶ Can be selected when adding / editing a node

Our Goal

- ▶ Obtain the vMX, vSRX and vQFX from Juniper ✓
- ▶ Upload the Files to eve-ng / convert the files to work with eve-ng ✓
- ▶ Create a basic lab ✓
- ▶ Changing the vSRX „base“ config and use the commit system ✓
- ▶ Upload custom icons to make the lab look nice ✓
- ▶ Show how to modify templates

Modify Templates

- ▶ `/opt/unetlab/html/templates/intel/` (for Intel CPUs)
- ▶ `/opt/unetlab/html/templates/amd/` (for AMD CPUs)



Modify Templates

- ▶ Modify with sanity and care! Don't go „too low“ on Resources
Weird side effects - not supported - hassle, oh the hassle...
- ▶ You can copy templates to create a „new“ Device
- ▶ For JunOS + Space + Apstra + JATP: Start with Linux Template

Our Goal

- ▶ Obtain the vMX, vSRX and vQFX from Juniper ✓
- ▶ Upload the Files to eve-ng / convert the files to work with eve-ng ✓
- ▶ Create a basic lab ✓
- ▶ Changing the vSRX „base“ config and use the commit system ✓
- ▶ Upload custom icons to make the lab look nice ✓
- ▶ Show how to modify templates ✓

- ▶ Time to fetch a Beer (Cola or similar) - we did it ☺

Show your Labs

- ▶ Share your Labs on social / elevate forums / eve forums
- ▶ Seek help in the community forums / eve helpdesk
- ▶ If you lab often - consider Pro (Hot-Lik-Add, Logical maps, Link Quality, Desktop)
- ▶ If your Labs get too big → build clusters and balance the load (more in session 3)

Q&A

Christian Scholz ( @chsjuniper)

„That guy who loves Juniper and IPv6“

Sr. Consultant - Network & Security
[Axians Networks & Solutions]

JNPR Ambassador | JNCIE-SEC #374

Blog: www.jncie.eu

Mail: chs@ip4.de

Youtube: www.youtube.com/netchron/

