

# EVE-NG Professional Cookbook

Version 1.31

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# Preface

When I first heard about EVE-NG I was skeptical. Back then I used to Lab mainly with ESX by deploying many virtual Devices and connecting them manually by separate vSwitches for Point-to-Point connections. The Problem with that was, that it was extremely time-consuming and did not scale - for every new Device I had to create multiple vSwitches to interconnect them with the virtual Machines - a Nightmare. I was in the middle of my JNCIE-Exam-Prep when I first saw EVE-NG on Twitter - I downloaded the Community Edition, which was the only Edition back then and I was amazed how easy Labbing all of a sudden was. No more deploying of vSwitches to interconnect nodes and boy did it Scale...

If you follow me on Twitter you know, that I'm one of the hardest Juniper Fanboys and of course my Goal was to "Juniperize" EVE. I started to get in touch with UD and Alain and found myself into the Position as one of the Juniper Test Guys. Meanwhile I added nearly all Juniper related Devices (including vSRX and JATP) and I still test a Lot - but now on EVE-Pro.

The Pro-Edition was a big step forward for the Project. It added some nice Features like "hotadd-interconnect" and the Ability to use EVE-NG with multiple Users. Especially Companies will love EVE as it is THE Solution for Labs and PoC's. I have successfully run over 30 PoC's in EVE and over 100 Labs (Job-Related and Personal Labs) - and I still enjoy it every day thanks to EVE and the amazing Team behind it. When the Guys asked me to write the Introduction I was of course honored and now this Book is finally coming out to help you on your Quest to Setup, Run and Manage EVE-NG in a lot of possible ways.

Well - enough from my Side. I hope you enjoy this Cookbook and use it wisely for your Everyday EVE Work. If you have Problems there is always the EVE-Forum and Live-Helpdesk - you will also find me there from time to time ;)

I wish you happy reading and if you think, that this Product is amazing feel free to support it by buying the PRO-Edition or Donating a bit – it helps to expand this already cool Product even more and it also honors all the work that the Guys spent in it.

Christian Scholz @chsjuniper



### **1** Introduction

#### 1.1 What is EVE-NG?

To describe what Emulated Virtual Environment – Next Generation (EVE-NG) is without solely stating dry facts about features, we need to elaborate more on what EVE-NG can be used for and whom it would be useful for.

In some trivial dry words, EVE-NG gives you tools to use around virtual devices and interconnect them with other virtual or physical devices. Many of its features greatly simplify the usabilities, re-usability, manageability, interconnectivity, distribution and therefore the ability to understand and share topologies, work, ideas, concepts or simply "labs". This can simply mean it will reduce the cost and time to set up what you need or it might enable you to do tasks you would not have thought could be done this simple.

#### 1.2 What is EVE-NG used for?

This is the real question but there is no finite answer, the possibilities are almost limitless and depends on what you want to use it for.

It can be used for studying all kinds of technologies. You can learn about general technologies or vendor specific topics. You can test new technologies like network automation, SDN, etc.

It can be used to recreate corporate networks and test changes before putting them into production. You can create proof of concepts for clients. You can troubleshoot network issues by recreating them and e.g. use Wireshark to inspect packets.

It is most definitely not just for networking, it can be used to test software in simulated networks, test out security vulnerabilities of any kind, system engineering like LDAP and AD servers and many more areas.

You could set it up to automate sandboxing unknown files/software and use software to analyse short and long term behaviour for malicious intent much simpler than without EVE-NG.

The list of what EVE-NG can be used for could go on indefinitely, possibilities are limited by knowledge and imagination only. Both of which can be improved with EVE-NG.

To get a very small idea of what can be done with EVE-NG, check out the tested/<u>supported</u> <u>images</u> (many have not been tested, almost everything virtual should run on EVE-NG) and refer to section **16**.

EVE-NG helps you achieve what you want to and more.

#### 1.3 Who is EVE-NG for?

EVE-NG is for everyone working in the Information Technology Sector, period.

It is for very large enterprise companies, training facilities, service providers, consultants, people who want to train themselves; it is for everyone, it is for YOU!

Use-cases that are more than worth it, almost priceless even, can be found everywhere.

The EVE-NG community version is free for everyone; while the paid professional version adds a few things that make your life easier. Almost everything can still be done with the free version, just less conveniently and therefore more time-consuming.

However, with the free version, the possibility to train yourself with technologies, hone your skills and become an expert even with very no monetary possibilities. For some this is and has been life changing.



# 2 System requirements

EVE-NG is available in the OVA or ISO file format. The Open Virtual Appliance (OVA) format is an archive (TAR) which packages disks and configuration files that are used to describe a virtual machine. It can be used to deploy a VM in hypervisors like VMware Workstation, Player and ESXi. Please note that installing EVE as a Virtual Machine (VM) will mean any nodes deployed within EVE will be nested. Nested virtualization causes degraded performance in deployed nodes. This should be fine for lab purposes as long as the host meets or exceeds the resource requirements for the deployed nodes.

EVE-NG can also be installed directly on physical hardware, without a hypervisor, using the provided ISO image. This is referred to as a "bare metal" install and is the most recommended method of installing EVE-NG.

#### 2.1 Hardware requirements

#### 2.1.1 Minimal Laptop/PC Desktop system requirements

#### **Prerequisites:**

CPU: Intel CPU supporting Intel® VT-x /EPT virtualization Operating System: Windows 7, 8, 10 or Linux Desktop VMware Workstation 12.5 or later VMware Player 12.5 or later

| PC/Laptop HW requirements |  |
|---------------------------|--|
| CPU                       | Intel i5/i7 (4 Logical processors), Enabled Intel virtualization in BIOS                                 |
| RAM                       | 8Gb  |
| HDD Space                 | 40Gb   |
| Network                   | LAN/WLAN   |
|                           | EVE Virtual machine requirements   |
| CPU                       | 4/1 (Number of processors/Number of cores per processor)<br>Enabled Intel VT-x/EPT virtualization engine |
| RAM                       | 6Gb or more  |
| HDD                       | 40Gb or more   |
| Network                   | VMware NAT or Bridged network adapter  |

Note: Minimal PC Desktop/Laptop will be able to run small Labs. The performance and quantity of nodes per lab depend on the types of nodes deployed in the lab.

#### Example:

IOL image-based nodes: up to 40-50 nodes per lab Dynamips image-based nodes: up to 20-25 nodes per lab vIOS image-based nodes: up to 8-10 nodes per lab CSRv1000 or XRv image-based nodes: up to 2-3 per lab



#### 2.1.2 Recommended Laptop/PC Desktop system requirements

#### **Prerequisites:**

CPU: Intel CPU supporting Intel® VT-x /EPT virtualization Operation System: Windows 7, 8, 10 or Linux Desktop VMware Workstation 12.5 or later VW Ware Player 12.5 or later

| PC/Laptop HW requirements |  |
|---------------------------|--|
| CPU                       | Intel i7 (8 Logical processors), Enabled Intel virtualization in   |
|                           | BIOS   |
| RAM                       | 32Gb   |
| HDD Space                 | 200Gb  |
| Network                   | LAN/WLAN   |
|                           | EVE Virtual machine requirements   |
| CPU                       | 8/1 (Number of processors/Number of cores per processor)<br>Enabled Intel VT-x/EPT virtualization engine |
| DANA                      | •  |
| RAM                       | 24Gb or more   |
| HDD                       | 200Gb or more  |
| Network                   | VMware NAT or Bridged network adapter  |

Note: PC Desktops/Laptops will be able to run small to medium Labs. Performance and quantity of nodes per lab depend on the type of nodes deployed in the lab.

Example: IOL image-based nodes: up to 120 nodes per lab vIOS image-based nodes: up to 20-40 nodes per lab CSR image-based nodes: up to 10 per lab

2.1.3 Virtual Server system requirements

#### Prerequisites:

CPU: Intel Xeon CPU supporting Intel® VT-x with Extended Page Tables (EPT) Operation System: ESXi 6.0 or later

| Server HW requirements |  |
|------------------------|--|
| CPU                    | Recommended CPU 2x Intel E5-2650v3 (40 Logical processors)<br>or better supporting Intel® VT-x with Extended Page Tables<br>(EPT)<br>Minimum CPU is any Intel Xeon CPU supporting Intel® VT-x<br>with Extended Page Tables (EPT) |
| RAM                    | 128Gb  |
| HDD Space              | 2Tb  |
| Network                | LAN Ethernet   |



|         | EVE Virtual machine requirements  |
|---------|---|
| CPU     | 32/1 (Number of processors/Number of cores per processor)<br>Enabled Intel VT-x/EPT virtualization engine |
| RAM     | 64Gb or more  |
| HDD     | 800Gb or more   |
| Network | vSwitch/VMnet   |

Note: Performance and quantity of nodes per lab depends from the type of nodes used in the lab.

Example: 120 IOL image-based lab 20 CSRv1000 image-based nodes per lab

#### 2.1.4 Dedicated Server (bare) system requirements

#### **Prerequisites:**

CPU: Intel Xeon CPU supporting Intel® VT-x with Extended Page Tables (EPT) Operation System: Ubuntu Server 16.04.4 LTS x64

| Server HW requirements |  |
|------------------------|--|
| CPU                    | Recommended CPU Intel E5-2650v3 (40 Logical processors) or<br>better supporting Intel® VT-x with Extended Page Tables (EPT)<br>Minimum CPU is any Intel Xeon CPU supporting Intel® VT-x<br>with Extended Page Tables (EPT) |
| RAM                    | 128Gb  |
| HDD Space              | 2Tb  |
| Network                | LAN Ethernet   |

Note: Performance and quantity of nodes per lab depends from type of nodes used in the lab.

#### 2.1.5 Nodes per lab calculator

It is recommended to use the "nodes per lab calculator" to achieve best performance and avoid overloading your EVE system.

https://docs.google.com/spreadsheets/d/1Rbu7KDNSNuWiv\_AphWx0vCek8CKVB1WI/edit#g id=2010030751

#### 2.2 Supported virtualization platforms and software

- VMware Workstation 12.5 or later
- VMware Player 12.5 or later
- VMware ESXi 6.0 or later



- Ubuntu Server 16.04 LTS as platform for bare metal
- Google Cloud Platform
- 2.3 Unsupported hardware and systems

#### The following are currently not supported:

- AMD CPU based PC or Server (the Newest AMD CPU versions are supported)
- VirtualBox virtualization
- Citrix XenServer
- Microsoft HyperV
- Ubuntu 17.X or 18.x as platform



# **3** Installation

- 3.1 VMware Workstation or VM Player
- 3.1.1 VMware workstation EVE VM installation using ISO image (preferred)

Download EVE-NG Professional ISO distribution image: <a href="http://www.eve-ng.net/downloads/eve-ng">http://www.eve-ng.net/downloads/eve-ng</a>

#### 3.1.1.1 EVE VM Setup and Settings

| v Virtual Machine Wizard | ×  | New Virtual Machine Wizard  |
|--------------------------|--|---|
|                          | Welcome to the New Virtual   | Guest Operating System Installation<br>A virtual machine is like a physical computer; it needs an operating<br>system. How will you install the guest operating system? |
|                          | Machine Wizard   | Install from:   |
| 1/                       | What type of configuration do you want?  | ○ Installer disc:   |
|                          | Typical (recommended)  |   |
| WORKSTATION<br>PRO™      | Create a Workstation 14.x virtual machine<br>in a few easy steps.  | ◯ Installer disc image file (iso):  |
|                          | O Custom (advanced)  | G:\Install\Linux\linuxmint-16-cinnamon-dvd-32bit.iso V Browse   |
|                          | Create a virtual machine with advanced<br>options, such as a SCSI controller type,<br>virtual disk type and compatibility with<br>older VMware products. | I will install the operating system later.  |
|                          |  | The virtual machine will be created with a blank hard disk.   |

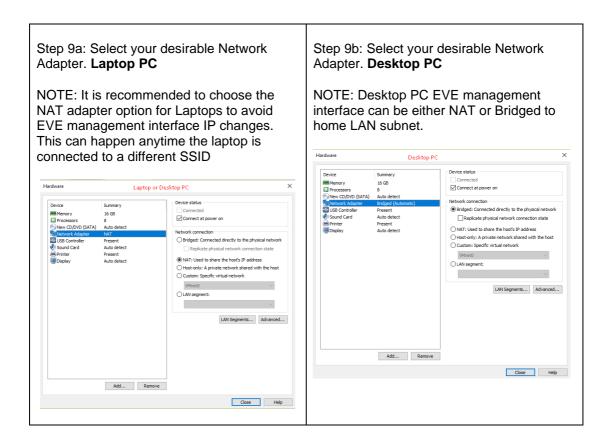


| New Virtual Machine Wizard   | VM will be stored on the host PC.                          |
|--|--|
| Select a Guest Operating System<br>Which operating system will be installed on this virtual machine? | New Virtual Machine Wizard A                               |
| Guest operating system O Microsoft Windows O Linux   | Virtual machine name:                                      |
| O Novell NetWare Solaris VMware ESX  | EVE-PRO  |
| Other  | G:\EVE_PRO-VM Browse                                       |
| Version<br>Ubuntu 64-bit   | The default location can be changed at Edit > Preferences. |
| Help < Back Next > Cancel  | < Back Next > Cancel                                       |

| Step 5: Type your <b>desirable</b> HDD size and select "Store virtual disk as single file".  | Step 6: Press Customize Hardware  |
|--|---|
|  | New Virtual Machine Wizard X  |
| New Virtual Machine Wizard X Specify Disk Capacity   | Ready to Create Virtual Machine<br>Click Finish to create the virtual machine. Then you can install Ubuntu<br>64-bit.   |
| How large do you want this disk to be?   | The virtual machine will be created with the following settings:  |
| The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.<br>Maximum disk size (GB): 200<br>Recommended size for Ubuntu 64-bit: 20 GB<br>Store virtual disk as a single file<br>Split virtual disk into multiple files<br>Split virtual disk into multiple files<br>Split may reduce performance with very large disks. | Name:       EVE_PRO         Location:       G: {EVE_PRO-VM         Version:       Workstation 14.x         Operating System:       Ubuntu 64-bit         Hard Disk:       200 GB         Memorry:       1024 MB         Network Adapter:       NAT         Other Devices:       CD/DVD, USB Controller, Printer, Sound Card         Customize Hardware✔ |
| Help < Back Next > Cancel  | < Back Finish Cancel  |



| dware  |   | ×  | processors" and "Number of cores per<br>processor". Set Intel VT-x/EPT Virtualizati |  |  |
|--------|---|--|---|--|--|
| Device | Summary I GI I I Summary I GI I I I I I I I I I I I I I I I I I | Memory         Specify the amount of memory allocated to this virtual machine:         Memory for this virtual machine:         12:00         13:00         14:00         14:00         15:00         16:00         10:00 <td>NOTE: VI</td> <td></td> <td>ed).<br/>er will display only or<br/>of processors.<br/>Processors<br/>Number of processors:<br/>Number of processors:<br/>Total processor cores:<br/>Wtuliatoon engine<br/>Wtuliatoon en</td> | NOTE: VI  |  | ed).<br>er will display only or<br>of processors.<br>Processors<br>Number of processors:<br>Number of processors:<br>Total processor cores:<br>Wtuliatoon engine<br>Wtuliatoon en |





| image file.  | " Browse to  | VD Option: "use ISO<br>your downloaded<br>name can be different)  | Step 11: Confirm VM Settings. |
|--|--|---|-------------------------------|
| Hardware   |  | ×   |                               |
| Device<br>■ Memory<br>Processors<br>● New CD/DVD (SATA)<br>Sound Card<br>● Printer<br>■ Dapley | Auto detect<br>Auto detect<br>Present<br>Auto detect<br>Auto detect<br>Auto detect<br>Auto detect<br>Auto detect | Device status<br>Connected<br>Connecton<br>Use physical drive:<br>Auto detect<br>© Use ISO mage file:<br>G:[Pit:=MG[Pit:=PRO.Jso V]<br>Advanced |                               |
|  |  | Close Help  |                               |
|  |  |   |                               |

#### 3.1.1.2 EVE-NG VM Installation steps

Andatory Prerequisites: Internet must be reachable from your PC and VMware. EVE ISO installation requires internet access to get updates and install the latest EVE-PRO version from the EVE-NG repository. DNS must work as well, to check it, do a named ping, for example ping www.google.com

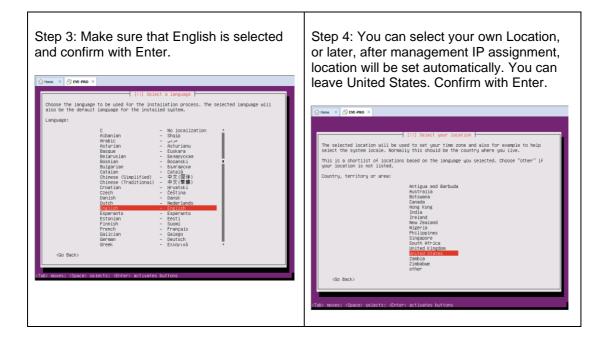
#### **EVE VM Installation from ISO has 3 Phases**

#### Phase 1 (Ubuntu installation)

|  | Step 2: Be sure that "Install EVE PRO VM" is highlighted. Confirm with Enter. |  |
|--|---|--|
|  | is highlighted. Commit with Enter.  |  |



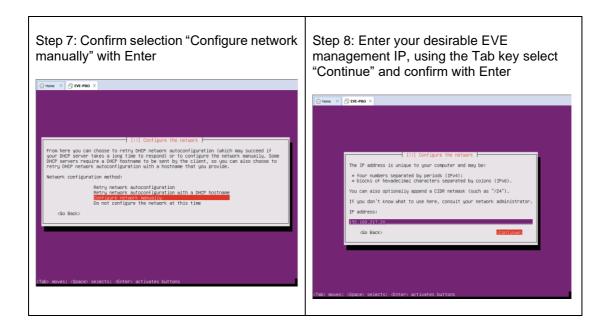
|                  | 1                 | nguage                |              |  |
|------------------|-------------------|-----------------------|--------------|--|
| Amharic          | Français          | Македонски            | Tamil        |  |
| Arabic           | Gaeilge           | Malayalam             | ජිවාහා       |  |
| Asturianu        | Galego            | Marathi               | Thai         |  |
| Беларуская       | Gujarati          | Burmese               | Tagalog      |  |
| Български        | עברית             | Nepali                | Türkçe       | <b>.</b>   |
| Bengali          | Hindi             | Nederlands            | Uyghur       | ubuntu®  |
| Tibetan          | Hrvatski          | Norsk bokmål          | Українська   |  |
| Bosanski         | Magyar            | Norsk nynorsk         | Tiếng Việt   |  |
| Català           | Bahasa Indonesia  | Punjabi(Gurmukhi)     | 中文(简体)       |  |
| Čeština          | Íslenska          | Polski                | 中文(繁體)       | Install Eve PRO VM   |
| Dansk            | Italiano          | Português do Brasil   |              | Install Eve PRO Bare   |
| Deutsch          | 日本語               | Português             |              |  |
| Dzongkha         | ქართული           | Română                |              | Rescue a broken system   |
| Ελληνικά         | Казақ             | Русский               |              |  |
| English          | Khmer             | Sámegillii            |              |  |
| Esperanto        | ಕನ್ ನಡ            | ສິ∘ທ⊚                 |              |  |
| Español          | 한국어               | Slovenčina            |              |  |
| Eesti            | Kurdî             | Slovenščina           |              |  |
| Euskara          | Lao               | Shqip                 |              |  |
| ىسراف            | Lietuviškai       | Српски                |              |  |
| Suomi            | Latviski          | Svenska               |              |  |
| lo F2 Language F | 3 Keymap F4 Modes | F5 Accessibility F6 0 | ther Options | F1 Help F2 Language F3 Keymap F4 Modes F5 Accessibility F6 Other Options |



| Step 5: DHCP ENABLED, EVEs hostname                | Step 6: DHCP DISABLED/Static IP setup. If |
|--|---|
| by default is <b>eve-ng</b> . You can change it if | you have not enabled DHCP in the network, |
| you wish. Using the Tab key select continue        | you must assign an IP address manually.   |
| and confirm with Enter. Continue to Step 14        |   |
|  |   |



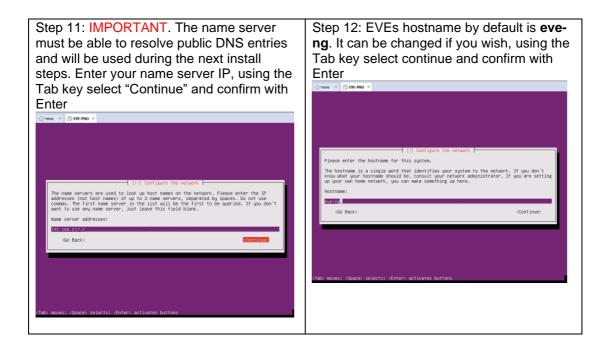




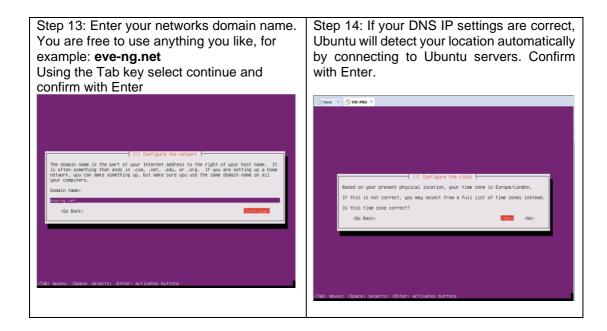
| Step 9: Enter your subnet mask, using the  | Step 10: Enter your Gateway IP, using the  |
|--|--|
| Tab key select "Continue" and confirm with | Tab key select "Continue" and confirm with |
| Enter                                      | Enter                                      |



| Home × Brut-PRO ×   | Home × Brv-PRO ×   |
|---|--|
| Image: the network       Image: the network         The network addinistration if you do not know the value. The network should be entered as four numbers separated by periods.         Network:       the network should be entered as four numbers separated by periods.         Network:       the network should be entered as four numbers separated by periods.         Network:       the network should be entered as four numbers separated by periods.         Network:       the network should be entered as four numbers separated by periods.         Go Back>       the network should be entered as four numbers separated by periods. | [11] Configure the network.         The gateway is an IP address (four numbers separated by periods) that indicates the sateway router, also incur as the default router. All traffic that goes outside your LAW stream we network in that case, you can leave this blank. If you don't know the proper answer to this question, consult your network administrator.         Gateway:       ES3.158.217.8.         (do Back)       Continues |
| (Tab) moves; (Space) selects; (Enter) activates buttons   | <tab> moves; <space> selects: <enter> activates buttons</enter></space></tab>  |

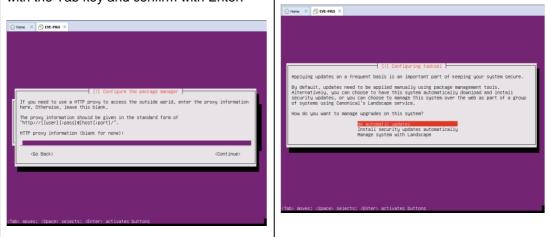






Step 15: If you have a proxy in use for your internet access, enter your network proxy settings. If no proxy is used, select Continue with the Tab key and confirm with Enter.

Step 16: Select no automatic updates and confirm with Enter. Security updates can later be run manually from EVE cli.



#### EVE VM Installation Phase 2 (EVE installation)



| Home × B EVE-PRO ×  | Virtual Machine Settings ×  |
|---|---|
| (11) Finish the installation<br>Installation is complete, so it is time to boot into your new system. Hake sure to remove<br>the installation media (CD+ROM, flopples), so that you boot into the new system rather<br>than restarting the installation.<br>(Go Back) | Hardware Options  Device Summary  Memory 16 GB  Connected Connect |
| <tab> moves: <space> selects: <enter> activates buttons</enter></space></tab>   | Add Remove  |



#### EVE VM Installation Phase 3 (Management IP setup and updates)

| Step 21: Setup EVEs Management IP address. A Static IP address setup is preferred. | Step 22: After your EVE is rebooted,<br>Login to EVE CLI and type: |
|--|--|
| Follow steps in section:   | apt update<br>apt upgrade  |
| <b>3.5.1</b> for static IP, <b>3.5.2</b> for DHCP IP                               | Follow steps in section: 5.1, 5.2                                  |



| Step 23: After update, Step 22 is completed, continue with type:   | Step 24: (Optional) If after dockers first install<br>(Step 23) in the output "dc images" you still<br>seeing some docker name in the list as<br><none>,</none>  |
|--|--|
| apt install eve-ng-dockers<br>This can take some time depending on your<br>Internet connection and disk speed.   | rootewards) = 1 do langee<br>(dote<br>we-global across for the constraints of the constraints |
| Your output after install must look like:  | apt installreinstall eve-ng-dockers Of   |
| ava-tirafoz: istent delti1007nd twoktago 1.4900<br>ave-deskrop latent e0920lad3475 twoktago 2.7900<br>dockergul-tdp latent e05920lad3475 twoktago 2.7900<br>dockergul-tdp ange 0.9.2 7559954eetd 18 aonthe go 223MB<br>cottere-agg-2<br>cottere-agg-2<br>cottere-agg-2 | apt installreinstall eve-ng-dockers-<br>alt<br>You must get output like in the step 23.  |
|  |  |

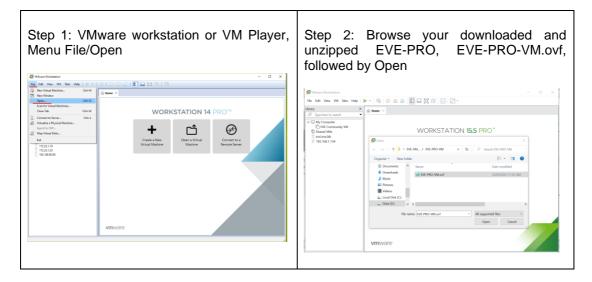
Step 25: Proceed to section 4 "Obtain EVE-NG Professional license"

IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 16

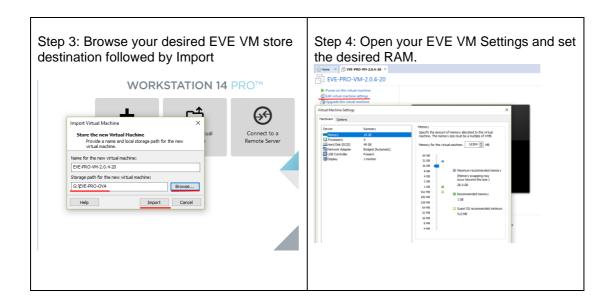
#### 3.1.2 VMware workstation OVF deployment

Download EVE-NG Professional OVF image zip file, place it in the dedicated HDD storage for EVE VM and unzip it: http://www.eve-ng.net/downloads/eve-ng

#### 3.1.2.1 Deployment and VM machine settings





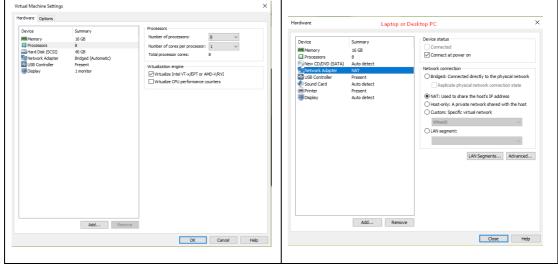


Step 5: IMPORTANT Set CPU Number of Cores and number of cores per processor. Set Intel VT-x/EPT Virtualization engine to ON (checked).

NOTE: VMware Player will display only one CPU option: Number of processors.

Step 6: Laptop PC Select your desirable Network Adapter.

NOTE: It is recommended to choose the NAT adapter option for Laptops to avoid EVE management interface IP changes. This can happen anytime the laptop is connected to a different SSID.



| Step 8: Power ON your EVE VM and follow<br>Management IP setup instructions described |
|---|
|   |



| NOTE: Desktop PC E<br>interface can be either<br>home LAN subnet. |   | in section<br>DHCP IP. | 3.5.1 | for | Static | IP | or | 3.5.2 | for |
|---|---|------------------------|-------|-----|--------|----|----|-------|-----|
| Hardware Desktop PC   | Ever catabas     Connected     Connected     Connect at power on     Network connection state     Parageast: Connected directly to the physical network     Connected directly to the physical network     NAT: Used to share the host's Debates     Host-only: A physical network shared with the host     List-only: A physical network shared with the host     List segments:     LAN segments:     LAN segments:     LAN segments: |                        |       |     |        |    |    |       |     |
| Add Remove  |   |                        |       |     |        |    |    |       |     |
|   | Close Help  |                        |       |     |        |    |    |       |     |

Step 9: Proceed to section 4 "Obtain EVE-NG Professional license"

IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 16

#### 3.1.2.2 OVA VM update to the latest EVE version

Step 9: Make sure if your EVE OVA VM is up to date to the newest EVE version. Follow the steps described in section **5**.

#### 3.1.2.3 OVA VM HDD Size expansion

**IMPORTANT NOTE:** DO NOT expand the current EVE OVA HDD. To expand your EVE system size, please follow Troubleshooting section **15.2** 

#### 3.2 VMware ESXi

#### 3.2.1 VMware ESXi EVE installation using ISO image (preferred)

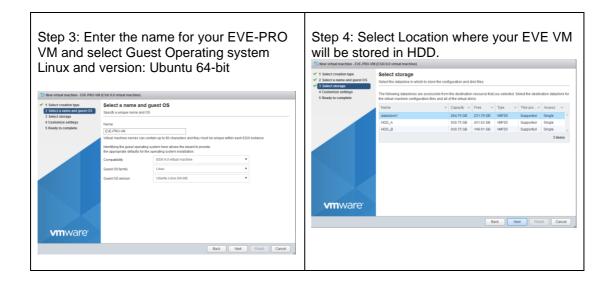
Download EVE-NG Professional ISO installation image: <u>https://www.eve-ng.net/index.php/download/</u>

#### 3.2.1.1 EVE-NG ESXi VM Setup and Settings

| Step 1: Upload EVE ISO image to the ESXi | Step 2: Create NEW VM |
|--|-----------------------|
| store.                                   |                       |



| vmware' Esxi   |   | 🔁 New virtual machine  |   |
|--|---|--|---|
| Control Control     Contro     Control     Control     Control     Contr | Province of Contract or contract (Contract or contract)     Province of Contract or contract (Contract or contract or con | V 9 Sect create very<br>2 Sect analysis<br>2 Sect analysis<br>3 Sect analysis<br>3 Sector Se<br>Sector Sector Sect | Select creation type<br>How wold you like to create a virtual Machines <sup>15</sup><br>They so that a nonzero that an above and DM'er Olon like<br>Register an existing influent machine<br>Interpretation of the selection of the |
|  |   |  |   |



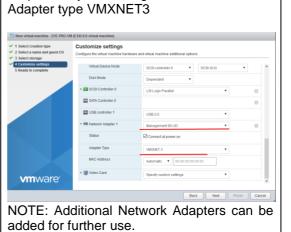




| 1 Selectoration type     2 Selectoration type     2 Selectoration agree and generations     Custopure the vitual machine hardware and vitual machine additional options     3 Select Service |                             |                        |             |                              |            |       |       |
|--|-----------------------------|------------------------|-------------|------------------------------|------------|-------|-------|
| 4 Customize settings     5 Ready to complete   | Virtual Hardware VM Options |                        |             |                              |            |       | ^     |
|  | Add hard disk 🛤 Add network | adapter 🗧 Add other de | ice         |                              |            |       |       |
|  | - 🖬 CPU                     | 24 🔻 🚺                 |             |                              |            |       |       |
|  | Cores per Socket            | 1 V Sockets: 24        |             |                              |            |       |       |
|  | CPU Hot Plug                | Enable CPU Hot Add     |             |                              |            |       |       |
|  | Reservation                 |                        | ٠           | MHz                          | •          |       |       |
|  | Linit                       | Unlimited              | ٠           | MHz                          | •          |       |       |
|  | Shares                      | Normal                 | ٠           |                              | w          |       |       |
|  | Hardware virtualization     | Expose hardware as     | sisted virt | ualization to the guest OS 🕕 |            |       |       |
|  | Performance counters        | Enable virtualized CF  | U perform   | nance counte                 | HS .       |       |       |
| <b>vm</b> ware <sup>®</sup>  | Scheduling Affinity         | Hyperthreading Status: | lictive     |                              |            |       | ~     |
|  |                             |                        | Bac         | K N                          | and Finite | h Can |       |
|  |                             |                        | Bac         |                              | eit Pinis  | n Can | Cel J |

Step 7: Set the size of HDD for your new EVE VM. It is recommended to set "Thick Provisioned eagerly provisioned". Server EVE HDD is recommended to set at least 500Gb

| Select creation type<br>Select a name and guest OS<br>Select storage | Customize settings<br>Configure the virtual machine hard | ware and virtual machine additional options  |
|--|--|--|
| Customize settings<br>Ready to complete                              |  | Reserve all guest memory (All locked)  |
|  | Limit  | Unlimited • MB •   |
|  | Shares   | Normal V 1000 V  |
|  | Memory Hot Plug  | Enabled  |
|  | * 📇 Hard disk 1  | 200 GB • ©   |
|  | Maximum Size   | 231.79 GB  |
|  | Location   | [datastore1] EVE-PRO-VM Browse   |
|  | Disk Provisioning  | Thin provisioned Thick provisioned, lazly zeroed Thick provisioned, eagerly zeroed |
|  | Shares   | Normal V 1000 V  |
| <b>vm</b> ware <sup>*</sup>  | Limit - IOPs   | Televis a a  |

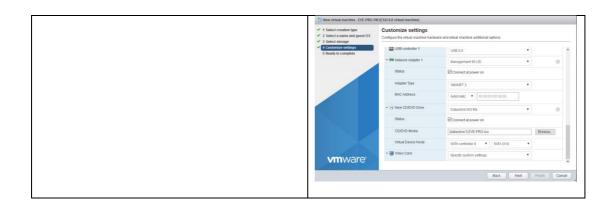


Step 8: Set your Management network.

 Step 9: Add new device to your EVE VM, CD/DVD

 Step 10: Set DVD drive to "Datastore ISO File" and browse your uploaded EVE-PRO.iso. Make sure that Status is checked ON, "Connect at power on"



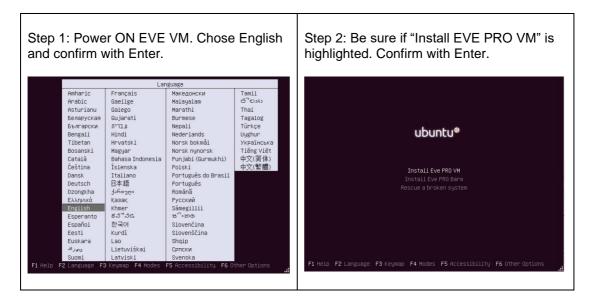


#### 3.2.1.2 EVE-NG ESXi VM Installation steps

Mandatory Prerequisites: Internet must be reachable from your PC and VMware. EVE ISO installation requires internet access to get updates and install the latest EVE-PRO version from the EVE-NG repository. DNS must work as well, to check it, do a named ping, for example ping www.google.com

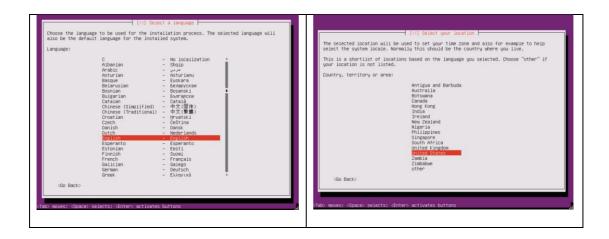
#### EVE ESXi VM Installation from ISO has 3 Phases

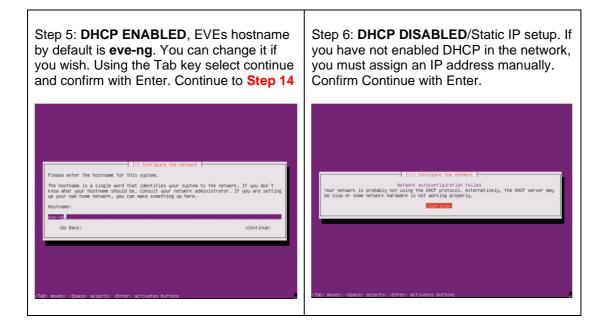
#### Phase 1 (Ubuntu installation)



| Step 3: Make sure if English is selected and confirm with Enter. | Step 4: You can select your own Location,<br>or later, after management IP assignment,<br>location will be set automatically. You can<br>leave United States. Confirm with Enter |
|--|--|
|--|--|







| Step 7: Confirm selection "Configure network manually" with Enter | Step 8: Enter your desirable EVE<br>management IP, using the Tab key select<br>"Continue" and confirm with Enter |
|---|--|
|   |  |



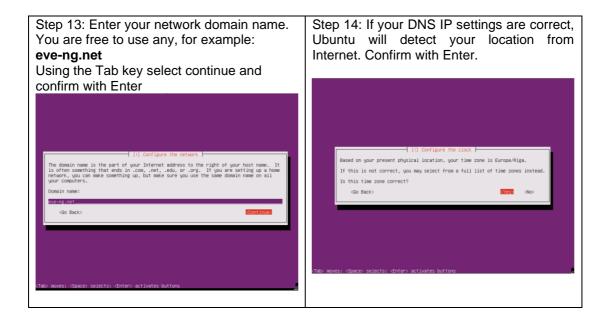
| [11] Configure the network         Prom here you can choose to retry (DUP network autocom figuration (which may success) if<br>you there servers require a DECP hostname to be sent by the client, so you can also choose to<br>retry DEP network, autoconfiguration with a hostname that you provide.         Network configuration method:         Retry network autoconfiguration<br>before network autoconfiguration<br>before network autoconfiguration<br>before network autoconfiguration<br>before network autoconfiguration<br>bo not configure the network at this time         Go Back> | [11] Configure the nature.         The IP address is unique to your computer and may be:         * four numbers separated by periods (IPv4):         * blocks of hexadcimal characters separated by colons (IPv6).         You can also optionally append a CIDR netmask (such as "24").         If you don't know what to use here, consult your network administrator.         IP address:         IS281038504E8         GG0 Back>       Continue> |
|--|--|
| eb moves; (Space) selects; (Enter) activates buttons   | (Tab) moves; (Space) selects; (Enter) activates buttons  |

| Step 9: Correct your subnet mask, using the Tab key select "Continue" and confirm with Enter   | Step 10: Correct your Gateway IP, using<br>the Tab key select "Continue" and confirm<br>with Enter   |
|--|--|
| [11] Configure the network         The network administrator i you do not know the value. The network should be entered as four numbers separated by periods.         Network:         Beck:         Go Back:         (Go Back:)         (Tab: moves; <space> selects; <enter> activates buttons</enter></space> | (11) Configure the network.         The gateway is an IP address (Four numbers assumed by periods) that indicates the greater rotter, also known as the default rotter. All treffic that goes outside your LAN (for intrance, to the Internet) is sent through this router. In rare circumatence, you may have no router: in that case, you can leave this blank. If you don't know the proper answer to this guestion, consult your network addinistrator.         Gasteway:       Image: Constraint of the con |

| Step 11: IMPORTANT. Name server must      | Step 12: EVE hostname by default is eve-     |
|---|--|
| respond to the Internet and will be used  | ng. It can be changed if you wish. Using the |
| during the next install steps. Enter your | Tab key select continue and confirm with     |
| name server IP. Using the Tab key select  | Enter  |
| "Continue" and confirm with Enter         |  |







| internet, assign your network proxy settings.<br>If no proxy in use, with Tab key select |  |
|--|--|
| Continue and confirm with Enter.   |  |





#### EVE VM Installation Phase 2 (EVE installation)

Step 17: After the "Finish the installation" Step 18: Without powering off the EVE VM, screen appears, DO NOT remove CD ISO open the EVE VM settings and make sure from VM or hit Enter continue. We have to that CD/DVD ISO "Device status connected" verify settings for EVE installation Phase 2. and "Connect at power on" is checked. Follow step 9. Confirm with OK. Edit settings - EVE-PRO-VM (ESXi 6.0 virtual machine) 
 Hard disk 1
 100
 CB
 •

 • K08 SCSI Controller 0
 LSI Logic Parallel
 0 0 SATA Controller 0 0 USB controller 1 USB 2.0 v D Connect IN Network Adapter 1 Management 90 UD 0 Installation complete Installation is complete, so it is time to boot into your new system. Make sure to remove the installation media (CD-ROM, flopples), so that you boot into the new system rather than restarting the installation. • 🗐 CD/DVD Drive 1 • Datastore ISO file 0 Status Connect at power on
[datastore1] EVE-PRO.iso
Browse... <Go Back> ue> CD/DVD Media Virtual Device Node SATA controller 0 

SATA (0:0) 

CD/DVD Media 🜉 Video Card tom settings 🔻 Specify cus Save Can

|  | Step 20: Once EVE login screen appeared,<br>login in CLI with root/eve and follow<br>installation Phase 3 |
|--|---|
|--|---|



Г



#### EVE VM Installation Phase 3 (Management IP setup and updates)

| Step 21: Setup EVE Management IP<br>address. A Static IP address setup is<br>preferred | Step 22: After your EVE is rebooted,<br>Login to EVE CLI and type: |
|--|--|
| Follow steps in section :  | apt update<br>apt upgrade  |
| 3.5.1 for static IP, 3.5.2 for DHCP IP   | Follow steps in section: 5.1, 5.2                                  |

| Step 23: After update, Step 22 is completed, continue with type:   | Step 24: (Optional) If after dockers first install<br>(Step 23) in the output "dc images" you still<br>seeing some docker name in the list as<br><none>,</none>   |
|--|---|
| apt install eve-ng-dockers<br>This can take some time depending on your<br>Internet connection and disk speed.   | Proclements         7.4 JE (BARNES)         TAG         TAG <thtag< th="">         TAG         <thtag< th=""></thtag<></thtag<> |
| Your output after install must look like:  | <pre>please run the command:   apt installreinstall eve-ng-dockers</pre>  |
| Climages     TMAGE ID     CREATED     STZE       Fordeweage/STTONY     TAG     TMAGE ID     CREATED     STZE       eve-wireMark     latest     413ae0243011     2 months ago     1.620B       eve-wireMark     latest     843ar626011     2 months ago     2.150B       eve-wireMark     latest     843ar626011     2 months ago     2.150B       eve-wireMark     latest     043ar624012     2 months ago     2.150B       eve-wireMark     latest     b43a1274692     2 months ago     1.290B       tooldewa-ng.**     latest     be03f3b46439     2 months ago     1.290B | You must get output like in the step 23.  |
| Step 25: After Steps 23-24 are completed<br>and you are back on the EVE CLI prompt,<br>reboot EVE by typing<br>reboot  | NOTE: If you are installing EVE in the locked<br>environment and cannot install dockers<br>online, please contact with us: <u>info@eve-</u><br><u>ng.net</u> for offline dockers installation option.   |

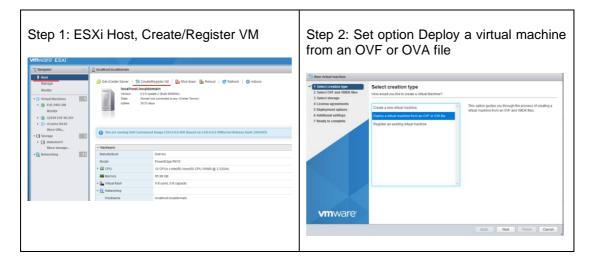
Step 25: Go to section **4** to obtain a license for EVE-NG Professional



- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 16
- 3.2.2 VMware ESXi OVA deployment

Download EVE-NG Professional OVF image zip file, and unzip it: <a href="http://www.eve-ng.net/downloads/eve-ng">http://www.eve-ng.net/downloads/eve-ng</a>

#### 3.2.2.1 ESXi OVA VM Setup and Settings



| Step 3: Type to<br>VM and brows<br>downloaded a          | Step 4: Select the storage where your EVE VM will be deployed.                                |   |  |                  |                        |                |                  |              |              |
|--|---|---|--|------------------|------------------------|----------------|------------------|--------------|--------------|
| 1 New virtual machine - EVE-PRO-VM                       |   | <ul> <li>1 Select creation type</li> <li>2 Select OVF and VMDK files</li> </ul> | Select storage   |                  |                        |                |                  |              |              |
|  | OVF and VMDK files<br>OVF and VMDK files or OVA for the VM you would like to deploy           | Select storage     License agreements     Deployment options                    | Select the datastore in which to store the con-<br>The following datastores are accessible from<br>the virtual machine configuration files and all | n the destinatio | n resource that        | you selecte    | d. Select the de | stination da | stastore for |
| 4 License agreements Enter a nam<br>5 Deployment options | ne for the virtual machine.   | 6 Additional settings<br>7 Ready to complete                                    | Name ~   | Capacity ~       | Free                   | Type           | ~ Thin pro       | ~ Acces      | is ~         |
| 6 Additional settings                                    |   |   | datastore1   | 264.75 GB        |                        | VMFS5          | Supported        | -            |              |
| 7 Ready to complete Virtual mach                         | hine names can contain up to 80 characters and they must be unique within each ESXI instance. |   | HDD_A<br>HDD_B   | 930.75 GB        | 471.63 GB<br>149.61 GB | VMFS5<br>VMFS5 | Supported        |              |              |
|  | EVE-PRO-Maor<br>⊒EVE-PRO-Mao.ymdx   | <b>vm</b> ware:   |  |                  |                        |                | Copporter        |              | 3 items      |
| <b>vm</b> ware <sup>®</sup>                              |   |   |  |                  | E                      | ack            | Next             | inish ]      | Cancel       |
|  | Box Net Front Caver   |   |  |                  |                        |                |                  |              | A            |

| Step 5: Select your Management network and <b>Thick Disk provisioning</b> . EVE OVA | Step 6: |
|---|---------|
|---|---------|



| HDD is or<br>after insta<br>15.2  |   | cores per so<br>Hardware Vi<br>(checked). |                                       |                       |            |                |                |          |      |
|---|---|---|---------------------------------------|-----------------------|------------|----------------|----------------|----------|------|
| 1 New virtual machine - EVE-PRO   |   |   | 🔂 Edit settings - EVE-PRO (ESXi 6.0 v | irtual machine)       |            |                |                |          |      |
| <ul> <li>1 Select creation type</li> <li>2 Select OVF and VMDK files</li> <li>3 Select storage</li> </ul> | Deployment options<br>Select deployment options |   | Virtual Hardware VM Options           | _                     |            |                |                |          | ^    |
| 4 Deployment options<br>5 Ready to complete   | Network mappings                                | Management 90 UD Management 90 UD *       | Add hard disk Mi Add network          |                       | vice       |                |                |          |      |
|   | Disk provisioning                               | O Thin ® Thick                            | Cores per Socket                      | 24 • ()               |            |                |                |          | -    |
|   |   |   | CPU Hot Plug                          | Enable CPU Hot Add    | 1          |                |                |          |      |
|   |   |   | Reservation                           |                       | •          | MHz            | •              |          | 1    |
|   |   |   | Limit                                 | Unlimited             | ۲          | MHz            | •              |          |      |
|   |   |   | Shares                                | Normal                | ٠          |                | ¥              |          |      |
|   |   |   | Hardware virtualization               | Expose hardware as    | sisted vir | tualization to | the guest OS 👔 |          |      |
|   |   |   | Performance counters                  | Enable virtualized C  | PU perfor  | mance count    | ers            |          |      |
| vmware <sup>•</sup>   |   |   | Scheduling Affinity                   | Hyperthreading Status | Artive     |                |                |          | ~    |
|   |   | Back Next Finish Cancel                   |                                       |                       |            |                |                | Save Can | ncel |
|   |   |   |                                       |                       |            |                |                |          |      |

|  | esirable RAM for your EVE.                | Step 8: Power ON your EVE VM and follow<br>Management IP setup instructions described |
|--|---|---|
| Edit settings - EVE-PRO (ESXI 6.0 virtu     Virtual Hardware VM Options     Add hard disk MM Add network a     D CPU | dapter 🚊 Add other device                 | in section <b>3.5.1</b> for Static IP or <b>3.5.2</b> for DHCP IP.                    |
|  | 24 🔻 🚺                                    |   |
| <ul> <li>Memory</li> </ul>   |   |   |
| RAM  | 32 GB 🔻                                   |   |
| Reservation  | MB  Reserve all guest memory (All locked) |   |
| Limit  | Unlimited                                 |   |
| Shares   | Normal                                    |   |
| Memory Hot Plug  | Enabled                                   |   |
| Hard disk 1  | 40 GB 🔹 💿                                 |   |
|  | Save Cancel                               |   |

Step 9: Proceed to section 4 "Obtain EVE-NG Professional license"

IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 16

3.2.2.2 ESXi OVA VM update to the latest EVE version

Make sure that your EVE OVA VM is up to date with the newest EVE version. Follow the steps described in section **5** for upgrade instructions

3.2.2.3 ESXi OVA VM HDD Size expansion

A NOTE: IMPORTANT! DO NOT expand the current EVE OVA HDD. To expand your EVEs system disk size, please follow the troubleshooting section **15.2** 

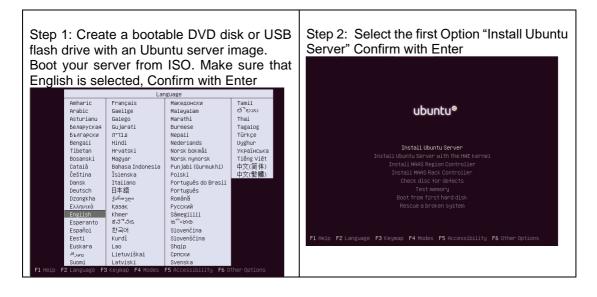


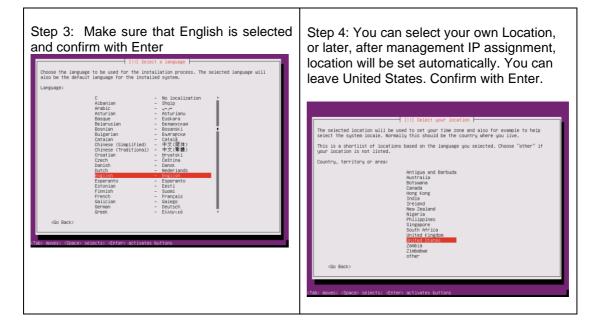
# 3.3 Bare hardware server EVE installation

Download Ubuntu Server 16.04.5 LTS ISO image: http://tw.archive.ubuntu.com/ubuntu-cd/16.04/ubuntu-16.04.6-server-amd64.iso

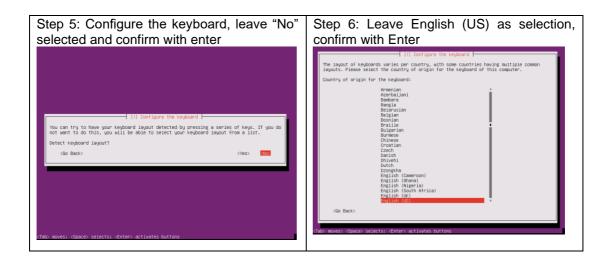
Andatory Prerequisites: Internet must be reachable from your PC and VMware. EVE ISO installation requires internet access to get updates and install the latest EVE-PRO version from the EVE-NG repository. DNS must work as well, to check it, do a named ping, for example ping www.google.com

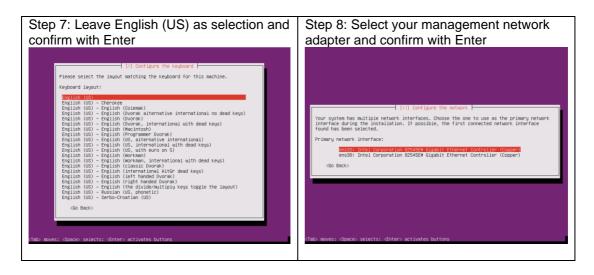
# 3.3.1 Ubuntu Server Installation Phase 1

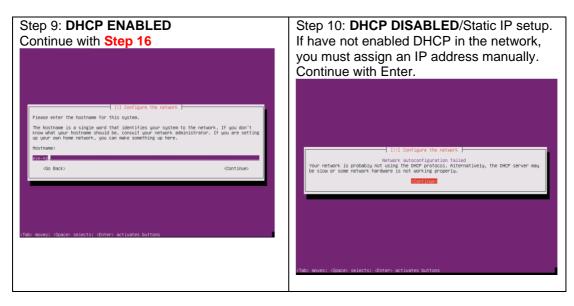




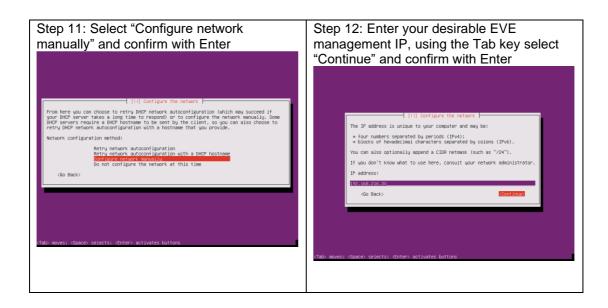


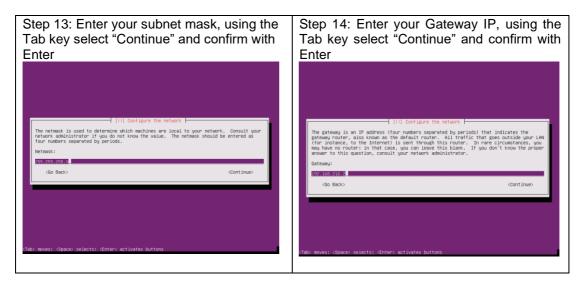










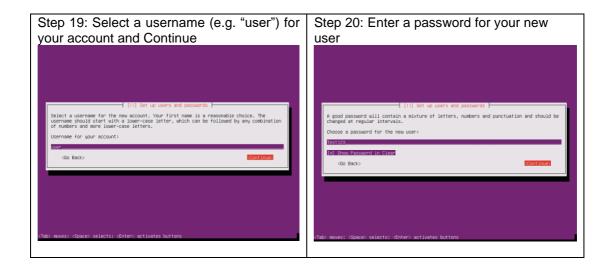


| Step 15: IMPORTANT: The name server<br>must be able to resolve public DNS entries<br>and will be used during the next install<br>steps. Enter your name server IP, using the | Step 16: Type your EVE server hostname,<br>Example: eve-ng |
|--|--|
| Tab key select "Continue" and confirm with   |  |



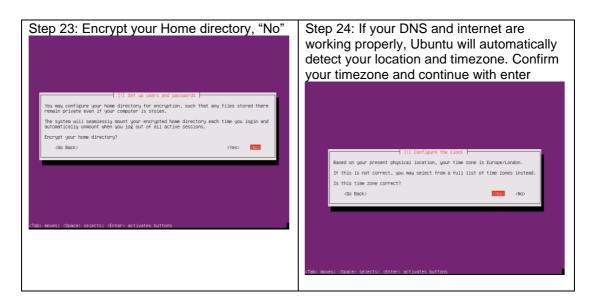
| Enter<br>[1] configure th<br>[1] configure th<br>defesses (not host names) of up to 3 name serve<br>commas. The first name server in the list will i<br>want to use any name server. Just leave this file<br>Name server addresses:<br>Exercise field | on the network. Please enter the IP<br>rs, separated by spaces. Do not use<br>e the first to be queried. If you don't | [1] Configure the network         Please enter the hostname for this system.         The hostname is a single word that identifies upon system to the network. If you don't know what your hostname should be, consult your network administrator. If you are setting up your on home network, you can make something up here.         Hostname:         Werne         GB Back> |
|---|---|---|
| (Tab) moves: «Space) selects; «Enter» activates buttor  | 3   | (Tab) moves: <gpace) <enter="" selects:=""> activates buttons</gpace)>  |

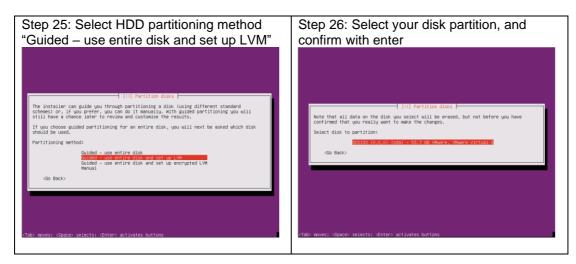
| Step 17: Type your domain name. You are   | Step 18: Type your Ubuntu username,  |
|---|--|
| free to use any. Example: eve-ng.net  | Example: user  |
| [1] Configure the network.         The domain name is the part of your Internet address to the right of your host name. It is often something that ends in .com, and .com, .et you are setting up home your computers.         Domain name:         Vour computers.         (do Back)         WorkEnset | [11] Set up users and passurds         A user account will be created for you to use instead of the root account for non-instructive activities.         Please enter the real name of this user. This information will be used for instance as default origin for emails sent by this user as well as any program which displays or uses the user's real name. Your full name is a reasonable choice.         Full name for the new user:         Macro         Go Back>         Constance         Thab moves: Gpace selects; (Enter> activates buttons |



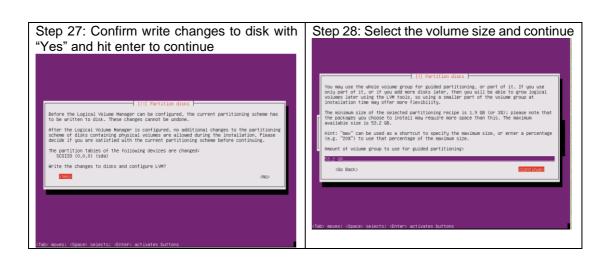


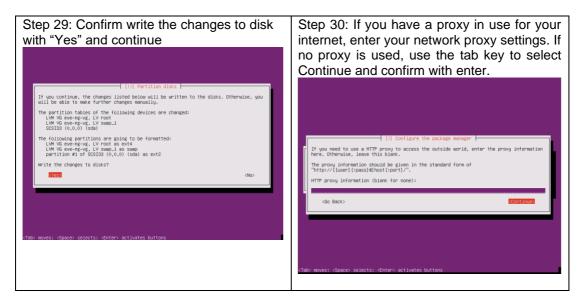


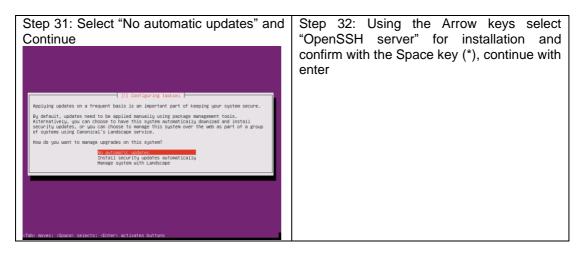






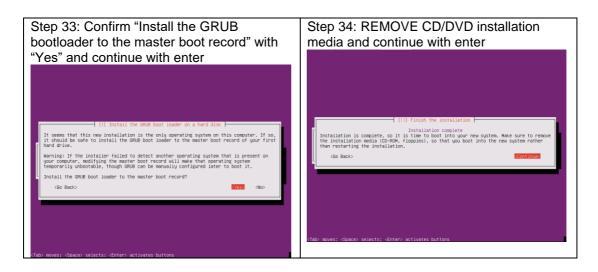












| Step 35: Login in to your Ubuntu with the username created above (user/Test123 was the example)  | IMPORTANT Step 36: Continue as root<br>user. Enter the commands below, each<br>followed by the enter key. |
|--|---|
| Ubuntu 16.04.4 LTS eve-ng tty1   |   |
| eve-ng login:  | sudo su   |
| Ubuntu 16.04.4 LTS eve-ng tty1   | 5440 54   |
| eve≕ng login: user<br>Rasswark:<br>Welcome to Ubuntu 16.04.4 LTS (GMU/Linux 4.4.0-116-generic x86_64)  | Test123   |
| <ul> <li>Documentation: http:://blp.uhuntu.com</li> <li>Management: http://landscape.canonical.com</li> <li>Support: http://buntu.com/advantage</li> </ul>   |   |
| 32 packages can be updated.<br>7 updates are security updates.   | cd  |
| The programs included with the UBunta system are free software;<br>the coact distribution terms for each program are described in the<br>individual files in varsy-that-doc-x-copyFile.<br>UBunta comes with MESOLUTELY NO WARRANTY, to the extent permitted by<br>applicable law.<br>To run a command as administrator (user "root"), use "sudo (command)".<br>See "man audo_root" for details. | user@eve-ng:~\$ sudo su<br>[sudo] password for user:<br>root@eve-ng:/home/user# cd<br>root@eve-ng:~# _    |

| Step 37: Create root password | Step 38: Verify and set your hostname if you |
|-------------------------------|--|
|                               | haven't set it before                        |



| sudo passwd root  |   |
|---|---|
|   | nano /etc/hostname  |
| Repeat your desirable password twice;<br>Example: eve   | Edit it if necessary: eve-ng                                      |
| root@eve-ng:~# sudo passwd root<br>Enter new UNIX password:<br>Retype new UNIX password:<br>passwd: password updated successfully<br>root@eve-ng:~# | Confirm edit with ctrl+o followed by Enter<br>And ctrl+x for Exit |

| Step 39: Verify your host settings   | Step 40: Edit permissions for root user to allow SSH access to EVE server |
|--|---|
| nano /etc/hosts  |   |
|  | <pre>nano /etc/ssh/sshd_config</pre>                                      |
| Your assigned static IP will be bound to your  |   |
| server hostname and domain   | Find and edit PermitRootLogin to "yes"                                    |
| 127.0.0.1 localhost<br>192.168.217.50 eve-ng.eve-ng.net eve-ng   | # Authentication:<br>LoginGraceTime 120<br>PermitRootLogin yes_           |
| # The following lines are desirable for IPv6 capable hosts<br>::1 localhost ip6-localhost ip6-loopback<br>ff02::1 ip6-allnodes<br>Ff02::2 ip6-allnouters | Strictholes yes<br>Confirm edit with ctrl+o followed by enter             |
| NOTE: in case if DHCP IP address is used,  | And ctrl+x for Exit   |
| you will see 127.0.0.1 IP vs hostname  | Restart ssh service:  |
| Confirm edit with ctrl+o followed by enter<br>And ctrl+x for Exit  | sudo service ssh restart  |

#### Step 41: 🔔 IMPORTANT

SSH as **root** to your EVE server with Putty or any other telnet client program. Update the Ubuntu grub CMD Line with the following customized command. Make sure you enter this command below in a single line and confirm it with the enter key.

sed -i -e 's/GRUB\_CMDLINE\_LINUX\_DEFAULT=.\*/GRUB\_CMDLINE\_LINUX\_DEFAULT="net.ifnames=0
noquiet"/' /etc/default/grub

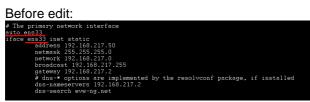
#### Update GRUB, Followed by Enter

update-grub

A WARNING: DO NOT REBOOT your Ubuntu/EVE yet, proceed to step 42!

Step 42: IMPORTANT Rename your Server interface name to **eth0** 

nano /etc/network/interfaces



After edit:



| # The primary network interface<br>auto eth0                            |
|---|
| iface eth0 inet static  |
| address 192.168.217.50  |
| netmask 255.255.255.0   |
| network 192.168.217.0   |
| broadcast 192.168.217.255   |
| gateway 192.168.217.2   |
| # dns-* options are implemented by the resolvconf package, if installed |
| dns-nameservers 192.168.217.2   |
| dns-search eve-ng.net   |

Confirm your edit with ctrl+o followed by enter And ctrl+x to exit

Reboot the EVE server

reboot

### 3.3.2 EVE Professional Installation Phase 2

IMPORTANT: Make sure you are logged in EVE as **root**! Step 43: Start EVE Professional installation with the following one-line command and hit enter

wget -0 - http://www.eve-ng.net/repo/install-eve-pro.sh | bash -i

Step 43.1: OPTIONAL for Broadcom NetExtreme II ethernet drivers in your server. NOT necessary for regular servers. DO NOT reboot EVE before you did Broadcom driver installation below !!

apt install firmware-bnx2x -o Dpkg::Options::="--force-overwrite"

#### Step 44: Reboot EVE

reboot

# 3.3.3 EVE Professional Installation Phase 3

| Step 45: After the installation is completed,<br>reboot EVE and follow the Management IP<br>setup instructions in section <b>3.5.1</b> . It is<br>strongly recommended for bare-metal<br>installations to use a static IP address. After | Step 46: After your EVE is rebooted,<br>Login to the EVE CLI and type: |
|--|--|
| the IP address setup, continue with Step 46  | apt update   |
|  | apt upgrade  |
|  | Follow steps in section: 5.1, 5.2                                      |

| Step 47: After update, Step 46 is completed, continue with type: | Step 48: (Optional) If after dockers first<br>install (Step 47) in the output "dc images"<br>you still seeing some docker name in the list<br>as <none>,</none> |
|--|---|
| apt install eve-ng-dockers                                       |   |



| This can take some time depending on your Internet connection and disk speed.  | Incollightmendop "# doc images         TAG         IMAGE 1D         CREATED         SIZE           Information         + GODB -         cc264efac274         16 second apo         1 sTGD           Information         - Classic         Classic         - |
|--|---|
| Your output after install must look like:  | <pre>please run the command: apt installreinstall eve-ng-dockers</pre>  |
| TootBave-ng."# diagage<br>MAGE ID CEEATED SIZE<br>eve-wireshork Size Size<br>eve-wireshork Size Size Size<br>eve-wireshork Size Size Size Size Size Size Size Size | NOTE: If you are installing EVE in the locked<br>environment and cannot install dockers<br>online, please contact with us: info@eve-  |
| dc images  | ng.net for offline dockers installation option.   |

| Step 49: Update repositories | Step 50: Continue to section <b>4</b> to obtain your EVE-NG Professional license |
|------------------------------|--|
| apt update<br>apt upgrade    |  |

#### IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer section 16

# 3.4 Google Cloud Platform

3.4.1 Google account

Step 1: Connect to Google Cloud Platform (GCP <u>https://console.cloud.google.com/getting-started</u>

| Getting started - Google Cloud X   | +   | -       | ø >      |
|------------------------------------|---|---------|----------|
| ← → ♂ ŵ                            | 🛈 🔒 https://console.cloud.google.com/getting-started 🚥 🖂 🥸                              |         |          |
| Your free trial is waiting: activa | ate now to get \$300 credit to explore Google Cloud products. Learn more                | DISMISS | ACTIVATE |
|                                    | orm   | 9 0     | SIGN IN  |
|                                    | Get Started with<br>Google Cloud Platform<br>Products to keep you going<br>TRV FOR FREE |         |          |

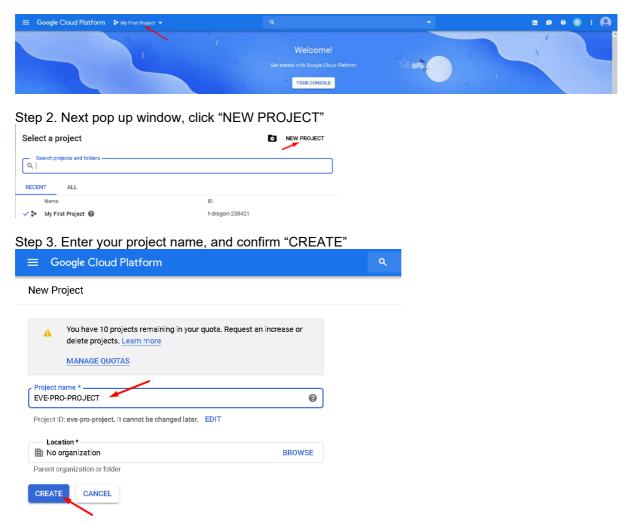
Step 2: Sign into GCP. Create a new GCP account if you do not already have one.

# 3.4.2 Goggle Cloud project

Create new project. By default, GCP will offer you a project named "My First Project". It can be used as well.

Step 1. GCP top bar, click on "My First Project"





This will take some time.

Step 4. Navigate: Navigation Menu/Compute Engine/VM Instances



| =        | Google Cloud Platform | EVE-PRO-PROJECT 👻       | ۹                       |
|----------|-----------------------|-------------------------|-------------------------|
| A        | Home                  | VM înstances            |                         |
| Ŧ        | Pins appear here 🛛 🔞  | Instance groups         |                         |
|          |                       | Instance templates      | : API APIS :            |
| <u>\</u> | Marketplace           | Sole tenant nodes       | Requests (requests/sec) |
|          | Billing               | Disks                   | 1.50                    |
| API      | APIs & Services       | Snapshots               |                         |
|          |                       | Images                  |                         |
| Ť        | Support >             | TPUs                    | 0.75                    |
| θ        | IAM & admin >         | Committed use discounts |                         |
| •        | <b>•</b> • • • • •    | Metadata                |                         |
| 5        | Getting started       | Health checks           | 10 PM 10:15 10:30 10:45 |
| •        | Security >            | Zones                   | Requests: 0.017         |
|          |                       | Network endpoint groups | Go to APIs overview     |
| COMP     | PUTE                  | Operations              |                         |
| ۰Ô۲      | App Engine            | Security scans          |                         |
|          | Compute Engine >      | Settings                | :                       |

#### Step 5. Navigate: top bar and select your Project

| ≡  | Google Cloud Platform | 🕈 EVE-PRO-PROJECT 👻 |
|----|-----------------------|---------------------|
| ۲  | Compute Engine        | VM instances        |
| A  | VM instances          |                     |
| J. | Instance groups       |                     |

Preparation of your Project can take some time. Wait until the VM Instance window finishes deployment and then press the "Create button."

| Compute Engine is getting rea | Compute Engine is getting ready. This may take a minute or more. Compute Engine documentation $L^2$  |  |  |  |  |  |
|-------------------------------|--|--|--|--|--|--|
|                               | Compute Engine<br>VM instances   |  |  |  |  |  |
|                               | Compute Engine lets you use virtual machines that run on Google's infrastructure. Create micro-VMs or larger instances running Debian, Windows or other standard images. Create your first VM instance, import it using a migration service or try the quickstart to build a sample app. Create or Import or Take the quickstart |  |  |  |  |  |

3.4.3 Preparing Ubuntu boot disk template

Step 1: Open the google cloud shell and press: "START CLOUD SHELL"



| ≡                                      | Google Cloud Platform  | 🕯 EVE-PRO-PROJECT 👻   |   |   | <b>0</b> 0 0 1 <b>0</b>             |
|--|--|---|---|---|-------------------------------------|
| ۲                                      | Compute Engine   | VM instances  |   |   |                                     |
| 8                                      | VM instances   |   |   |   |                                     |
|  |  |   |   |   |                                     |
| Go                                     | ogle Cloud Shell   |   |   |   |                                     |
| Free,                                  | , pre-installed with the tools you need  | for the Google Cloud Platform. Learn More                           |   |   |                                     |
| ev                                     | eprogcp@cloudshell:~\$   |   | ^   |   |                                     |
| NA                                     | ME ZONE<br>ample-vm-1 asia-east1   | MACHINE_TYPE PREEMPTIBLE I<br>a f1-micro :                          | NTEINAL IP EXTERNAL IP S<br>10.240.160.142 104.155.216.228 P<br>10.240.199.112 104.155.36.122 P<br>10.240.51.9 104.154.76.241 P   |   |                                     |
|  | ME ZONE<br>ample-vm-1 asia-east1<br>ample-vm-2 europe-west<br>ample-vm-3 us-central1-<br>eprogcp@cloudshell:~\$<br>eprogcp@cloudshell:~\$ gi                             |   | 10.240.119.112 104.155.36.122 F<br>10.240.57.1 104.154.76.241 F   |   |                                     |
|  | sbrodchaciongsueii:∽⊅ di   | c ci  | ~   |   |                                     |
| <<br>Real                              | l Linux environment  | Configured for Google Cloud   | Popular language support  |   |                                     |
| = 5G                                   | nux Debian-based CS<br>3B persisted home directory   | <ul> <li>Google Cloud SDK</li> <li>Google App Engine SDK</li> </ul> | = Python<br>= Java  |   |                                     |
| = Ad                                   | dd, edit and save files  | <ul> <li>Docker</li> <li>Git</li> <li>Text editors</li> </ul>       | = Go<br>= Node.js   |   |                                     |
|  |  | Exit editors     Build tools     View more                          |   |   |                                     |
|  |  |   |   |   |                                     |
|  |  |   | CANCEL START CLOUD SHELL  |   |                                     |
|  |  |   | I   |   |                                     |
|  |  |   |   |   |                                     |
|  |  |   |   |   |                                     |
| ≡                                      | Google Cloud Platform  | Seve-pro-project 👻  | ٩   | •   | • • • • <b>•</b>                    |
| =                                      |  | <ul> <li>► EVE-PRO-PROJECT 	</li> <li>VM instances</li> </ul>       | ۹,  | •   | <b>9 9 4 : A</b>                    |
|  |  |   | ۹   | •   | <b>□ 9 9 4 E</b> (A)                |
| ۲                                      | Compute Engine   |   |   | •   | <b>□ 0 0 4 E (A)</b>                |
|  | Compute Engine VM Instances Instance groups Instance templates   |   | Q<br>Compute Engine<br>VM Instances   | •   | <b>d d a i (A</b> )                 |
| ······································ | Compute Engine VM instances Instance groups Solie tenant nodes   |   | Compute Engine<br>VM instances<br>Compute Engine lets you use virtual   | machines that run on Google's   | 3 Ø Ø A E <table-cell></table-cell> |
|  | Compute Engine VM instances Instance groups Instance tempiates Sole tenant nodes Disks   |   | Compute Engine<br>VM instances<br>Compute Engine lets you use virtual<br>infrastructure. Create micro VMs or<br>Windows, or other standard micro  | mschines that run on Google's<br>arger intences numing Delana,<br>Creater van frat Winstoon,                                    | <b>₽ 0 4 : (A)</b>                  |
| ······································ | Compute Engine VM instances Instance groups Solie tenant nodes   |   | Compute Engine<br>VM instances<br>Compute Engine lets you use virtual<br>infrastructure. Create micro-VMs or<br>Windows, creater standard micro-VMs or<br>Windows, creater standard micro-<br>mont holing a migration service, or<br>sample ap. | machines that run on Google's<br>anger instances noming Deban,<br>Creater your first Windowe,<br>Very the quickstant to build a | ■ Ø ¥ ÷ 🗛                           |
|  | Compute Engine VM instances Instance groups Instance templates Sole tenant nodes Disks Snepshots   |   | Compute Engine<br>VM Instances<br>Compute Engine lats you are virtual<br>inforstructure, Create micro-VMC of<br>Windows, or other standard images,<br>import if using a migration service, or   | machines that run on Google's<br>anger instances noming Deban,<br>Creater your first Windowe,<br>Very the quickstant to build a | ■ Ø Ø A I 🕰                         |
|  | Compute Engine VM instances Instance groups Instance templates Sole tenant nodes Disks Snapshots Images  |   | Compute Engine<br>VM instances<br>Compute Engine lets you use virtual<br>infrastructure. Create micro-VMs or<br>Windows, creater standard micro-VMs or<br>Windows, creater standard micro-<br>mont holing a migration service, or<br>sample ap. | machines that run on Google's<br>anger instances noming Deban,<br>Creater your first Windowe,<br>Very the quickstant to build a | E Ø Ø A E <table-cell></table-cell> |
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|  | Compute Engine VM Instance groups Instance tempiates Solie temant nodes Disks Snapshots Images TPUs Committed use discounts  |   | Compute Engine<br>VM instances<br>Compute Engine lets you use virtual<br>infrastructure. Create micro-VMs or<br>Windows, creater standard micro-VMs or<br>Windows, creater standard micro-<br>mont holing a migration service, or<br>sample ap. | machines that run on Google's<br>anger instances noming Deban,<br>Creater your first Windowe,<br>Very the quickstant to build a | D O A I                             |
|  | Compute Engine VM instances Instance groups Instance tempiates Solie temant nodes Disks Snapshots Images TPUs Committed use discounts Merketpliace  (reepto project) × + | VM instances  | Compute Engine<br>VM instances<br>Compute Engine lets you use virtual<br>infortstructure. Create micro-VMS of<br>Windows, or other standard images,<br>micro thr using a migration service, o<br>sample app.<br>Database or imagent or Tak      | machines that run on Google's<br>anger instances noming Deban,<br>Creater your first Windowe,<br>Very the quickstant to build a |                                     |
|  | Compute Engine VM instances Instance groups Instance tempiates Solie temant nodes Disks Snapshots Images TPUs Committed use discounts Merketpliace  (reepoproject) × +   | VM instances  | Compute Engine<br>VM instances<br>Compute Engine lets you use virtual<br>infortstructure. Create micro-VMS of<br>Windows, or other standard images,<br>micro thr using a migration service, o<br>sample app.<br>Database or imagent or Tak      | machines that run on Google's<br>anger instances noming Deban,<br>Creater your first Windowe,<br>Very the quickstant to build a |                                     |
|  | Compute Engine VM instances Instance groups Instance tempiates Solie temant nodes Disks Snapshots Images TPUs Committed use discounts Merketpliace  (reepoproject) × +   | VM instances  | Compute Engine<br>VM instances<br>Compute Engine lets you use virtual<br>infortstructure. Create micro-VMS of<br>Windows, or other standard images,<br>micro thr using a migration service, o<br>sample app.<br>Database or imagent or Tak      | machines that run on Google's<br>anger instances noming Deban,<br>Creater your first Windowe,<br>Very the quickstant to build a |                                     |
|  | Compute Engine VM instances Instance groups Instance tempiates Solie temant nodes Disks Snapshots Images TPUs Committed use discounts Merketpliace  (reepoproject) × +   | VM instances  | Compute Engine<br>VM instances<br>Compute Engine lets you use virtual<br>infortstructure. Create micro-VMS of<br>Windows, or other standard images,<br>micro thr using a migration service, o<br>sample app.<br>Database or imagent or Tak      | machines that run on Google's<br>anger instances noming Deban,<br>Creater your first Windowe,<br>Very the quickstant to build a |                                     |
|  | Compute Engine VM instances Instance groups Instance tempiates Solie temant nodes Disks Snapshots Images TPUs Committed use discounts Merketpliace  (reepoproject) × +   | VM instances  | Compute Engine<br>VM instances<br>Compute Engine lets you use virtual<br>infortstructure. Create micro-VMS of<br>Windows, or other standard images,<br>micro thr using a migration service, o<br>sample app.<br>Database or imagent or Tak      | machines that run on Google's<br>anger instances noming Deban,<br>Creater your first Windowe,<br>Very the quickstant to build a |                                     |

Step 2: create a nested Ubuntu 16.04 image model. Copy and paste the below command into the shell. Use copy/paste. crtl +c/ctrl +v. It is single line command (copy all command below in cli). Confirm with "enter":



You will get the following output when your image is ready:





# 3.4.4 Creating VM

Step 1: Navigate: Navigation Menu/Compute Engine/VM Instances and press "Create"

| =    | Google Cloud Platform   | ₽ EVE-PRO-PROJECT | ۹ | •   | - |
|------|-------------------------|-------------------|---|---|---|
| ۲    | Compute Engine          | VM instances      |   |   |   |
| B    | VM instances            |                   |   |   |   |
| 品    | Instance groups         |                   |   |   |   |
|      | Instance templates      |                   |   | Compute Engine<br>VM instances  |   |
| 8    | Sole tenant nodes       |                   |   | VIVI INSTANCES  |   |
| 0    | Disks                   |                   |   | Compute Engine lets you use virtual machines that run on Google's<br>infrastructure. Create micro-VMs or larger instances running Debian,                 |   |
| 0    | Snapshots               |                   |   | Windows, or other standard images. Create your first VM instance,<br>import it using a migration service, or try the quickstart to build a<br>sample app. |   |
|      | Images                  |                   |   | Create or Import or Take the quickstart   |   |
| 8    | TPUs                    |                   |   |   |   |
| 1961 | Committed use discounts |                   |   |   |   |
|      | Marketplace             |                   |   |   |   |

Step 2: Edit your VM settings. Use your own region and zone. Choose your desirable CPU and RAM settings.

IMPORTANT: "Deploy a container image" must be UNCHECKED.

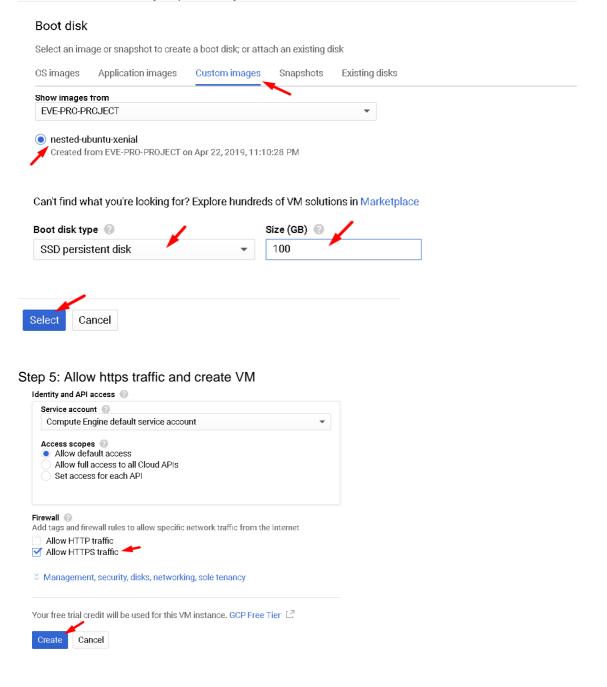
| eve-pro                                  |         |                        |
|--|---------|------------------------|
| Region 😨                                 | Zo      | ne 🕜                   |
| europe-west2 (London)                    | 6       | urope-west2-c          |
|  | -       |                        |
|  |         |                        |
| 8 vCPUs 👻                                | 30 GB m | emory <u>Customize</u> |
| 8 vCPUs   Upgrade your account to create |         | ,                      |

Step 3: Select Boot disk. Press Change



| Boot disk 🕜 |   |        |
|-------------|---|--------|
| $\bigcirc$  | New 10 GB standard persistent disk<br>Image<br>Debian GNU/Linux 9 (stretch) | Change |

Step 4. Select the custom boot images you created previously. Choose HDD disk type and size. HDD size can vary depends of your needs





# 3.4.5 EVE-NG-PRO installation

#### Step 1: Connect to the VM with the first option "Open in browser window"

| Name 🔿                                       | Zone                    | Recommendation   | In use by      | Internal IP        | External IP         | Conne  | ct  |
|--|-------------------------|--|----------------|--------------------|---------------------|--------|---|
| 🥑 eve-pro                                    | europe-west2-c          |  |                | 10.154.0.2 (nic0)  | 35.246.119.90       | SSH    |   |
|  |                         |  |                |                    |                     |        | Open in browser window                                |
|  |                         |  |                |                    |                     |        | Open in browser window on custom port                 |
|  |                         |  |                |                    |                     |        | Open in browser window using provided private SSH key |
|  |                         |  |                |                    |                     |        | View gcloud command                                   |
|  |                         |  |                |                    |                     |        | Use another SSH client                                |
| 🍯 eveprogcp @eve                             | e-pro: ~ - Mozilla Fire | fox  |                |                    |                     |        | - 🗆 X   |
| 🛈 🔒 https://s                                | sh.cloud.google.c       | om/projects/eve-pro                                      | o-project/zone | es/europe-west2-c/ | instances/eve-pro?a | authus | er=1&hl=en_US&projectNumber=& 🚥 🛛 🚖 😑                 |
| :09:B4:AA:4B:2                               |                         | : ssh-rsa 0 AB:3<br>:D2:65:0C:38:AA:<br>IS (GNU/Linux 4. |                |                    | 7:EF:29:17:25       |        | <u>⇒</u> ¢-   |
| * Documentati<br>* Management:<br>* Support: | https://                | help.ubuntu.com<br>landscape.canoni<br>ubuntu.com/advar  |                |                    |                     |        |   |
|  |                         | untu Advantage C<br>usiness/services                     |                |                    |                     |        |   |
| 0 packages can<br>0 updates are              |                         | tes.   |                |                    |                     |        |   |
| the exact dist                               | ribution term:          | the Ubuntu syste<br>s for each progr<br>are/doc/*/copyri | ram are des    |                    |                     |        |   |
| Ubuntu comes w<br>applicable law             |                         | Y NO WARRANTY, t   | to the exte    | nt permitted by    |                     |        |   |
| eveprogcp@eve-                               | pro:~\$                 |  |                |                    |                     |        |   |

#### Step 2: Launch installation with:

```
Type the below command to become root:
sudo -i
Start EVE-PRO installation
```

```
wget -0 - http://www.eve-ng.net/repo/install-eve-pro.sh | bash -i
```

Step 3: Update and upgrade your new EVE-PRO apt update

apt upgrade **Confirm with Y** 

#### Step 4. Reboot EVE. Allow some time for reboot and then press "Reconnect"



Step 5: IMPORTANT: Setup IP



Once the IP wizard screen appeares, press ctrl +c and type the below command to become root: sudo -i

|                              | Root Password k<br>Type the Root Password k<br>x<br>a<br>m<br>k<br>core password k<br>x<br>m<br>core password k<br>core password k<br>x<br>m<br>core password k<br>core |
|------------------------------|--|
| eveprogep8eve-proi-6 audo -1 |  |

Now follow the IP setup wizard, section: 3.5.2. **IMPORTANT**: set IP as DHCP!

Step 6: Dockers installation. After EVE is rebooted, reconnect the SSH session:

Type command to become root: sudo -i

Type command to update EVE apt update

Type command to Install Dockers apt install eve-ng-dockers

# 3.4.6 Access to Google Cloud EVE-PRO

Use your public IP for accessing EVE via https.

| = Filter VM ins | stances        |                |           |                   |                 | 0   | Co  | olumr | is 🔻 |
|-----------------|----------------|----------------|-----------|-------------------|-----------------|-----|-----|-------|------|
| Name 🔿          | Zone           | Recommendation | In use by | Internal IP       | External IP     | Coi | nne | ct    |      |
| 🗌 🔮 eve-pro     | europe-west2-c |                |           | 10.154.0.2 (nic0) | 35.246.119.90 🛛 | SS  | н   | •     | :    |



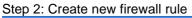


#### Default web login: admin/eve

# 3.4.7 Optional: GCP Firewall rules for native console use

| -           | Google Cloud Platfo   | orm | EVE-PRO-PROJECT 👻             |
|-------------|-----------------------|-----|-------------------------------|
| 1           | Home                  |     | M instances CREATE IN         |
| Ŧ           | Pins appear here 🔞    |     | ×                             |
| STOR        | AGE                   |     | Filter VM instances           |
|             | Bigtable              |     | Name A Zone Recomm            |
|             | Datastore             | >   | ☐ ✓ eve-pro europe-west2-c    |
| <b>(</b> ;  | Firestore             | >   |                               |
|             | Storage               | >   |                               |
| <b>(</b> )) | SQL                   |     |                               |
| 20          | Spanner               |     |                               |
| 2           | Memorystore           |     |                               |
|             | Filestore             |     |                               |
| NETW        | ORKING                |     |                               |
| 8-8<br>8-8  | VPC network           | >   | VPC networks                  |
| æ           | Network services      | >   | External IP addresses         |
| -           | Hybrid Connectivity   | >   | Firewall rules                |
| 9           | Network Service Tiers |     | Routes<br>VPC network peering |

## Step 1: Navigate: Navigation menu/VPC Network/Firewall rules





#### Step 3: Create an ingress FW rule; allow TCP ports 0-65535

| ÷    | Create a firewall rule  |
|------|---|
|      | all rules control incoming or outgoing traffic to an instance. By default,<br>ning traffic from outside your network is blocked. Learn more |
| Name |   |
| ing  | ess-eve   |



| Direction of traffic             | • <b>0</b>                           |
|----------------------------------|--------------------------------------|
| Egress                           |                                      |
| Action on match<br>Allow<br>Deny | 0                                    |
| Targets 📀                        |                                      |
| All instances in                 | the network                          |
| Source filter 🕐                  |                                      |
| IP ranges                        | ▼                                    |
| Source IP ranges                 | 0                                    |
| 0.0.0/0 😣                        | ×                                    |
| Second source fil                |                                      |
| None                             | ter 👽                                |
| None                             |                                      |
| Protocols and por                | rts 🕜                                |
|                                  | otocols and ports                    |
| 🗹 tep :                          | 0-65535                              |
| udp:                             |                                      |
| Other pr                         | otocols                              |
| protoc                           | cols, comma separated, e.g. ah, sctp |
| S Disable rule                   |                                      |
|                                  |                                      |
| Create Can                       | cel                                  |

Step 4: Create an egress FW rule; allow TCP ports 0-65535

|        | ules control incoming or outgoing traffic to an instance. By default,<br>traffic from outside your network is blocked. <mark>Learn more</mark> |
|--------|--|
| Name ( |  |
| egress | eve  |



| Direction of traffic                         | 0                                   |
|--|-------------------------------------|
| <ul> <li>Ingress</li> <li>Egress </li> </ul> | _                                   |
| Action on match                              | ର                                   |
| <ul> <li>Allow</li> </ul>                    | <b>T</b>                            |
| O Deny                                       |                                     |
| Targets 🕜                                    |                                     |
| All instances in                             | the network                         |
| Destination filter                           | 0                                   |
| IP ranges                                    | <b>▼</b>                            |
| Destination IP ran                           | aes 🤉                               |
|  |                                     |
| 0.0.0.0/0 😢                                  |                                     |
| Protocols and por                            | ts 🚱                                |
| Allow all                                    |                                     |
| Specified pro                                | tocols and ports                    |
| 🗹 top :                                      | 0-65535                             |
| udp :  |                                     |
| Other pro                                    | otocols                             |
| protoc                                       | ols, comma separated, e.g. ah, sctp |
| S Disable rule                               |                                     |
|  |                                     |
| Create Can                                   | cel                                 |
|  |                                     |

Summary FW rules.

| Name                | Туре    | Targets      | Filters              | Protocols / ports | Action | Priority | Network $\uparrow$ |
|---------------------|---------|--------------|----------------------|-------------------|--------|----------|--------------------|
| egress-eve          | Egress  | Apply to all | IP ranges: 0.0.0.0/0 | tcp:0-65535       | Allow  | 1000     | default            |
| default-allow-https | Ingress | https-server | IP ranges: 0.0.0.0/0 | tcp:443           | Allow  | 1000     | default            |
| ingress-eve         | Ingress | Apply to all | IP ranges: 0.0.0.0/0 | tcp:0-65535       | Allow  | 1000     | default            |

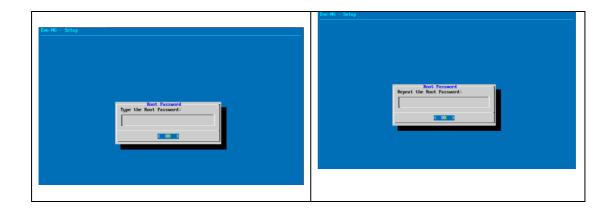
# 3.5 EVE Management IP Address setup

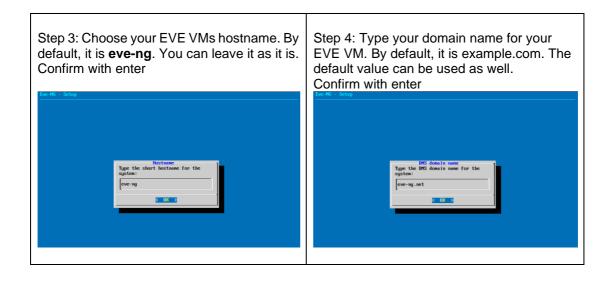
# 3.5.1 Management static IP address setup (preferred)

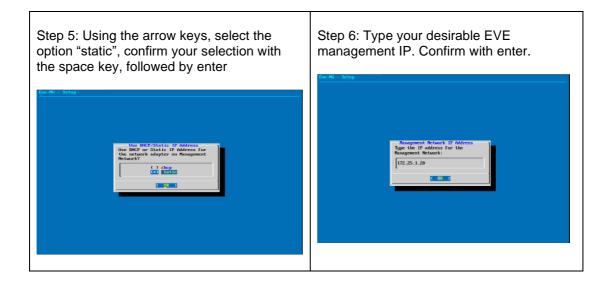
The steps below will walk you through the network setup and assign a static management IP for  $\ensuremath{\mathsf{EVE}}$  .

| Step 1: Log into the EVE CLI using the default<br>login <b>root/eve</b> After login, type your preferred<br>root password for EVE, default is <b>eve.</b><br><b>Remember it for further use.</b> Confirm with<br>enter | Step 2: Retype your root password again and confirm with enter. |
|--|---|
| NOTE: Typed characters in the password field are not visible.  |   |

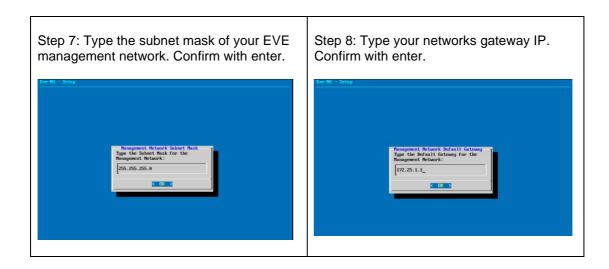


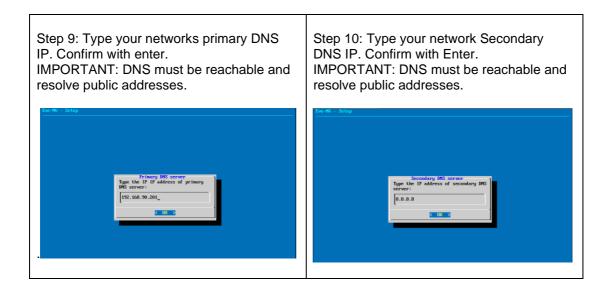






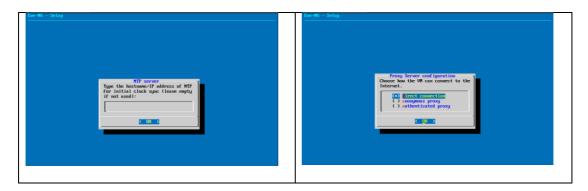






| from its host.       Confirm selection with enter. EVE will reboot automatically. <ul> <li>NOTE: If required, the Proxy settings can be configured later using EVE WEB GUI System/System Settings described in section 3.5.3</li> </ul> |
|---|
|---|

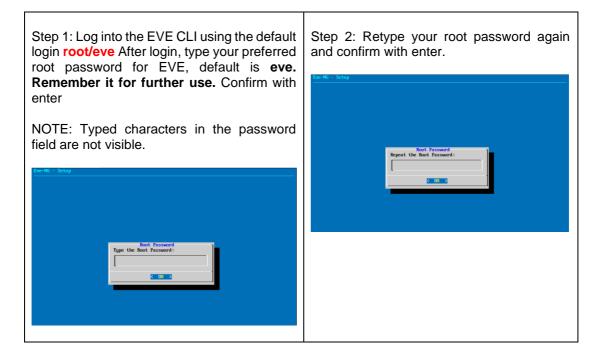




IMPORTANT NOTE: If you are setting up your management IP for the first time (fresh EVE installation), please return to the install section and complete installation Phase 3.

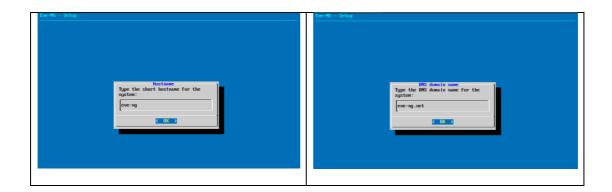
#### 3.5.2 EVE Management IP address setup via DHCP

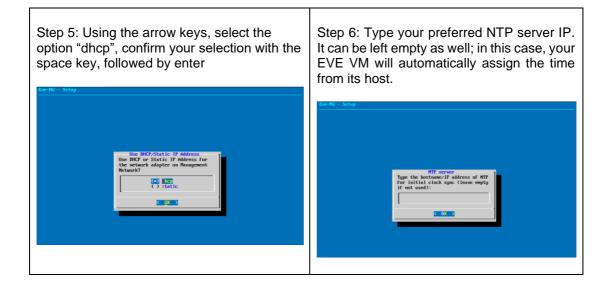
The steps below will walk you through the network setup and assign a management IP for EVE via DHCP.



| Step 3: Choose your EVE VMs hostname. By default, it is <b>eve-ng</b> . You can leave it as it is. Confirm with enter | Step 4: Type your domain name for your<br>EVE VM. By default, it is example.com. The<br>default value can be used as well.<br>Confirm with enter |
|---|--|
|---|--|

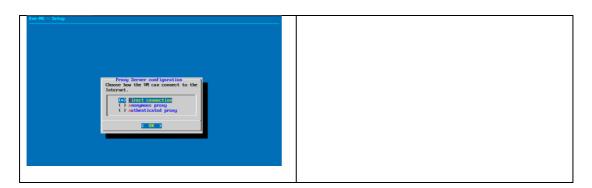






| Step 7: <b>Skip this step.</b> By default, it is set to direct connection (no proxy).  |  |
|--|--|
| Confirm selection with enter. EVE will reboot automatically.   |  |
| NOTE: If required, the Proxy settings<br>can be configured later using EVE<br>WEB GUI System/System Settings<br>described in section 3.5.3 |  |





IMPORTANT NOTE: If you are setting up your management IP for the first time (fresh EVE installation), please return to the install section and complete installation Phase 3.

#### 3.5.3 Internet proxy setup

Step 1: If you have a proxy in use for your Internet, login into your EVE WEB GUI using your EVE IP <u>https://aaa.aaa.aaa.aaa</u>

Default username: admin Password: eve

Step 2: Select Tab: System/System Settings

|               |               | 🎢 Main         | 🖋 Management 🗸 | 🖻 System 🗸                 | <li>Inform</li> | nation <del>-</del> | 🚯 Licensing 👻 | @2019 Eve-NG |
|---------------|---------------|----------------|----------------|----------------------------|-----------------|---------------------|---------------|--------------|
| 🚓 File manage | er Current po | osition / root |                | 😤 System S<br>🛈 System s   | J.              |                     |               |              |
| New Name      |               |                |                | 🛈 System l<br>🗙 Stop All N | 9               | Add fold            | ler           |              |

Step 3: Enter your Proxy IP and Port following by "Submit". For authenticated Proxy, use your username and password.



| System settings                           |   |                                      |      |       |               |
|---|---|--------------------------------------|------|-------|---------------|
| Radius Server #1                          | IP  |                                      | Port |       | Secret        |
|   | 0.0.0.0   | 1812                                 |      | ••••• |               |
| Radius Server #2                          | IP  |                                      | Port |       | Secret        |
|   | 0.0.0.0   |                                      | 1812 | \$    | •••••         |
| Proxy Server                              | IP  | Port                                 |      | User  | Password      |
|   | 0.0.0.0   | 8080                                 | ٢    |       |               |
| Template visibility<br>Disk critical size | unprovisioned images     Disable       Minimal free space (GB)       5                    | e V                                  |      |       |               |
| Html 5 terminal setting                   | Color scheme     gray-black     \vee       Font name     monospace       Font size     12 | <ul><li></li><li></li><li></li></ul> |      |       |               |
| Management Interface setting              | Enable IPV6   |                                      |      |       |               |
|   |   |                                      |      |       | Submit Cancel |

# 3.5.4 EVE Management IP address reset

If for any reason you need to change these settings after the installation, you can rerun the IP setup wizard. Type the following command in the CLI and hit enter:

rm -f /opt/ovf/.configured

Then type:

su -

Once you log into the CLI again, EVE will go through the network setup again. Please follow the steps in section **3.5.1** for Static IP or **3.5.2** for DHCP IP.

# 3.6 EVE-NG Community upgrade to EVE-NG Professional

#### 3.6.1 Mandatory Prerequisites

Mandatory Prerequisites: Internet must be reachable from your PC and VMware. EVE ISO installation requires internet access to get updates and install the latest EVE-PRO



version from the EVE-NG repository. DNS must work as well, to check it, do a named ping, for example ping www.google.com

#### 3.6.1.1 EVE Community disk space

You must have enough HDD space available. The main eve--ng--vg-root partition must have at least 10GByte free space while the boot partition must have at least 50Mbyte. To check how much space is available on your HDD, enter the following command into the CLI of EVE:

df -h

| root@eve-ng:~# df -h     |      |      |       |      |                |
|--------------------------|------|------|-------|------|----------------|
| Filesystem               | Size | Used | Avail | Use% | Mounted on     |
| udev                     | 7.9G | 0    | 7.9G  | 0%   | ⁄dev           |
| tmpfs                    | 1.6G | 22M  | 1.6G  | 2%   | /run           |
| /dev/mapper/evengvg-root | 71G  | 29G  | 38G   | 44%  | /              |
| tmpfs                    | 7.9G | 0    | 7.9G  | 0%   | /dev/shm       |
| tmpfs                    | 5.OM | 0    | 5.OM  | 0%   | /run/lock      |
| tmpfs                    | 7.9G | 0    | 7.9G  | 0%   | /sys/fs/cgroup |
| /dev/sda1                | 472M | 155M | 294M  | 35%  | /boot          |
| root@eve-ng:~#           |      |      |       |      |                |

To free up space on the /boot, enter the following command, hit enter and confirm with "y"

apt autoremove

#### 3.6.1.2 Verify current EVE Community version

You have to make sure that your EVE Community Edition is of version (v2.0.3-86) or later. You must be able to reach the internet from your PC, VMware or Server.

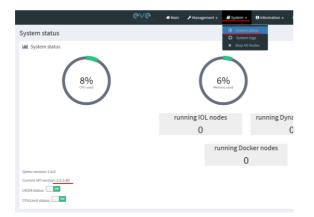
To check your current EVE-NG version, enter the following command

dpkg -l eve-ng



You can also verify your current EVE version from the WEB GUI. Top menu bar, System, System status.





You can check the version number of the newest currently available Community version on the EVE-NG Community site: <u>http://www.eve-ng.net/community</u>.

3.6.1.3 Steps to upgrade to the latest EVE Community version

Type the following commands below and hit enter after each.

apt update

In case of any Y/N prompt, answer Yes.

apt upgrade

In case of any Y/N prompt, answer Yes.

reboot

3.6.2 Upgrading EVE Community to EVE-NG Professional

WARNING: Please be ready to purchase a license when upgrading, as you will not be able to start any nodes until a valid license has been activated on your EVE.

To upgrade to EVE-NG Pro, issue the following commands into the CLI of EVE followed by enter.

apt install eve-ng-pro

reboot

After the reboot continue with the below commands, followed by enter apt update

apt install eve-ng-dockers

reboot



Continue to the EVE-NG Pro license purchase section of the website and follow the remaining instructions.

# 3.7 Native telnet console management setup

If you prefer to use a natively installed telnet client to manage nodes inside EVE, follow the steps below:

# 3.7.1 Windows Native Console

| Step 1: Download the EVE Windows Client<br>integration pack:<br><u>http://www.eve-ng.net/downloads/windows-</u><br><u>client-side-pack</u> | Step 2: Install it as administrator   |
|--|---|
| <text></text>  | Step 4: Continue with Next. When it asks to choose Ultra VNC Options, only leave the UltraVNC Viewer checked, the rest is not needed. |
| Step 5: Continue with Next and finish the installation.  |   |

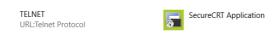
By default, EVE Windows Client Integration will install **Putty** as your Telnet Client. The default location for the EVE Windows Client Integration software and .reg files is: "C:\Program Files\EVE-NG"

Set the default telnet program manually in Windows 10. Example: SecureCRT



Step 1: Go to: Windows Settings/Apps/Default Apps/Choose Default Apps by Protocol

Step 2: Set your default Telnet program:



NOTE: The first time click on the type of link that is used to access a running node inside EVE via telnet, the browser will ask to choose the telnet program. If you have prepared your default telnet program with the instructions above, you have to choose your default Telnet program.

#### Example: Firefox browser:

| Launch Application  | ×         |  |  |  |
|---|-----------|--|--|--|
| This link needs to be opened with an application.<br>Send to: |           |  |  |  |
| SecureCRT Application   |           |  |  |  |
| Choose other Application Choose                               |           |  |  |  |
|   |           |  |  |  |
| Cancel  | Open link |  |  |  |

Set your default application, check the box "Remember my choice telnet links" and click Open link

### 3.7.2 Linux Native Console

The steps below will show how to setup the native consoles pack for Linux Mint 18 (Ubuntu):

| Step 1: Go to the EVE Linux Side<br>integration pack download page:<br><u>http://www.eve-ng.net/downloads/linux-<br/>client-side</u>    | Step 2: Open the link to GitHub<br>https://github.com/SmartFinn/eve-ng-<br>integration |
|---|--|
| Step 3: Scroll down to the installation part  |  |
| Installation  |  |
| Ubuntu and derivatives<br>You can install eve-ng-integration from the official PPA:   |  |
| <pre>sudo add-apt-repository ppa:smartfinn/eve-ng-integration<br/>sudo apt-get update<br/>sudo apt-get install eve-ng-integration</pre> |  |
|   |  |



Step 4: Login as root to your Linux system and enter the commands below:

NOTE: An internet connection is required. Enter each command line below one after the other

sudo add-apt-repository ppa:smartfinn/eve-ng-integration

sudo apt-get update

sudo apt-get install eve-ng-integration

▲ For other Linux native console setup options please refer to: <u>https://github.com/SmartFinn/eve-ng-integration</u>

#### 3.7.3 MAC OSX Native Console

Download the EVE MAC OSX Client integration pack and install it:

https://www.eve-ng.net/index.php/download/#DL-OSX

# 3.8 Login to the EVE WEB GUI

EVE PRO is using https 443. Login to the EVE management UI:

https://<your\_eve\_ip>/

Default user access:

#### User: admin

#### Password: eve

- **I** NOTE: You can change your EVE Admin password, please refer to section **7.3.1.2**
- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 16



# 4 EVE-NG Professional Licensing

EVE-NG Professional and Learning Centre editions require purchasing and uploading a license to activate its features. Licenses are based on an annual subscription.

EVE-NG permits up to **128 accounts** to be created but restricts the number of simultaneous sessions per role to the licensed amount. To increase the number of active sessions, please purchase additional licenses on top of the base license as shown below.

# ▲ **Definition:** Simultaneous session (1 license) means one active connection to the EVE-NG Web GUI.

| License information                  | Example1 EVE-Professional: The license information page shows 2 Admin accounts. This means 2 Admin role-based   |
|--------------------------------------|---|
| Expirity Date: 20190507<br>Admins: 2 | accounts can be logged into the Web GUI simultaneously. If a third Admin account logs into the Web GUI, the first active Admin session will be disconnected. Please note that the first |
| Editors: 0                           | Admin's labs will keep running. EVE-NG PRO can have up to 128 accounts, but active sessions to the Web GUI are  |
| Users: 0                             | restricted to the number of purchased licenses.   |

| License information |               |             |  |  |
|---------------------|---------------|-------------|--|--|
|                     | Expirity Date | e: 20190507 |  |  |
|                     | Admins:       | 2           |  |  |
|                     | Editors:      | 0           |  |  |
|                     | Users:        | 3           |  |  |
|                     |               |             |  |  |

<u>Example2 EVE Learning Centre:</u> The license information page shows 2 Admin and 3 Lab-user role accounts. This means 2 Admin and 3 User accounts can be logged into the Web GUI simultaneously. If a fourth User account or third Admin account logs into the Web GUI, the first User or Admin session will be disconnected. Started labs will keep running. EVE-NG Learning Center can have up to 128 accounts, but active sessions to the Web GUI are restricted by the number of licenses purchased.

# 4.1 EVE-NG Professional Base license

# EVE-NG Professional Edition - 1 Year License

#### https://www.eve-ng.net/index.php/buy/

EVE-NG PRO features multi user support and assigns all accounts as Administrators. The license allows for 2 simultaneous users.

| Products in y | our shopping cart  |   |   |
|---------------|--|---|---|
| ×             | <b>EVE-NG Professional Edition - 1 Year License</b><br>EVE-NG Professional Edition - 1 Year License<br>This license unlocks all Pro features and two active<br>Administrator accounts sessions.<br>The Administrator role can manage everything in EVE-NG<br>without restriction.<br>This includes creating, deleting, and modifying all folders,<br>labs, nodes and accounts. | 1 | \$109.66  |
| I have a disc | ount coupon  |   | Total price: <b>\$131.59</b><br>Total TAX/VAT (20%) : \$21.93 |



For EVE-PRO Administrator role permissions, please see section 4.4.

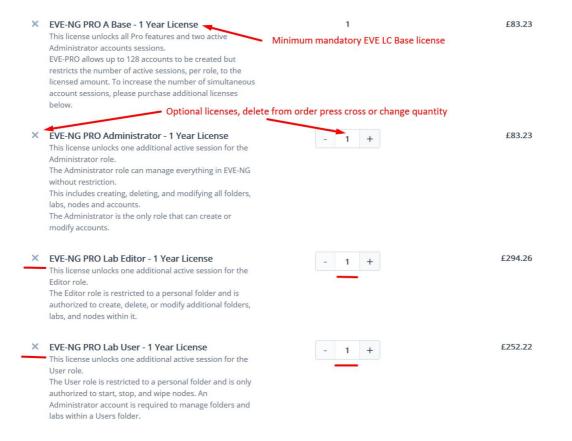
# 4.2 EVE-NG Learning Centre licenses

# EVE-NG Learning Centre Edition - 1 Year License

https://www.eve-ng.net/index.php/buy-corporate/

EVE-NG LC features multi user support and assigns accounts as Administrators, Lab-Editors or Lab-Users.

The first minimal Base A license allows for 2 simultaneous Admin users. It is necessary to use an Administrator account to create or manage EVE LC and other user's role-based accounts.



#### EVE-NG PRO – A Base License (Mandatory)

This license unlocks all Pro features and two active Administrator accounts sessions. This license is mandatory for EVE LC edition.

The following licenses below can vary per your needs.

EVE-NG PRO - Administrator License



This license unlocks one additional active session for the Administrator role. The Administrator role can manage everything in EVE-NG without restrictions. This includes creating, deleting, and modifying all folders, labs, nodes and accounts. The Administrator is the only role that can create or modify accounts.

#### EVE-NG PRO – Lab-Editor License

This license unlocks one additional active session for the Lab-Editor role. The Lab-Editor role is restricted to a personal and the Shared folder and is authorized to create, delete, or modify additional folders, labs, and nodes within them.

#### EVE-NG PRO – Lab-User License

This license unlocks one additional active session for the Lab-User role. The Lab-User role is restricted to a personal and the Shared folder and is only authorized to start, stop, and wipe nodes. An Administrator account is required to manage folders and labs within a User's personal folder.

*Example: EVE Learning Centre Licensing* for 1 Teacher and a 5 Students class. Licence model below includes:

- Two administrator accounts, necessary for EVE LC labs and other user account management
- One Lab-Editor-role based account, assigned to the teacher to create/manage labs and assign them to the Shared folder for Students use. The Lab-Editor role is restricted to a personal folder and is authorized to create, delete, or modify additional folders, labs, and nodes within it.
   Optional: If wanted / peeded, the Lab-Editor account for the teacher can also be

Optional: If wanted / needed, the Lab-Editor account for the teacher can also be replaced by an Administrator account instead.

 Five Lab-User role-based Student accounts allowing running a class with 5 simultaneous students connected to the EVE HTML GUI.

| × | EVE-NG PRO A Base - 1 Year License<br>This license unlocks all Pro features and two active<br>Administrator accounts sessions.<br>EVE-PRO allows up to 128 accounts to be created but<br>restricts the number of active sessions, per role, to the<br>licensed amount. To increase the number of simultaneous<br>account sessions, please purchase additional licenses<br>below. |   | 1 |   | 99,00 €    |
|---|--|---|---|---|------------|
| × | EVE-NG PRO Lab Editor - 1 Year License<br>This license unlocks one additional active session for the<br>Editor role.<br>The Editor role is restricted to a personal folder and is<br>authorized to create, delete, or modify additional folders,<br>labs, and nodes within it.   | - | 1 | + | 350,00 €   |
| × | EVE-NG PRO Lab User - 1 Year License<br>This license unlocks one additional active session for the<br>User role.<br>The User role is restricted to a personal folder and is only<br>authorized to start, stop, and wipe nodes. An<br>Administrator account is required to manage folders and<br>labs within a Users folder.  | - | 5 | + | 1.500,00 € |

For EVE-LC role permissions, please see section 4.4.



# 4.3 EVE-NG Corporate licenses

Essentially, this is EVE Learning Centre edition with Lab-Editor role-based accounts only. This is recommended for corporate use to allow full permissions for EVE labs but to restrict being able to manage other user accounts or labs. The Lab-Editor role is restricted to a shared and a personal folder and has permissions to create, delete, or modify additional folders, labs, and nodes within them.

EVE-NG Learning Centre Edition - 1 Year License

https://www.eve-ng.net/index.php/buy-corporate/

EVE-NG Corporate features multi user support and assigns accounts as Administrators or Lab-Editors.

The first (mandatory) Base A license allows for 2 simultaneous Admin users. It is necessary to have an Administrator account to create or manage EVE LC and other user's role-based accounts.

*Example: EVE Corporate Licensing* for 5 Lab-Editor users. License model below includes:

- Two administrator accounts necessary for EVE Corporate labs and other user accounts management (Mandatory Base license)
- Five Lab-Editor role-based accounts. The Lab-Editor role is restricted to a shared and a personal folder and has permissions to create, delete, or modify additional folders, labs, and nodes within them.

| × | <b>EVE-NG PRO A Base - 1 Year License</b><br>This license unlocks all Pro features and two active<br>Administrator accounts sessions.<br>EVE-PRO allows up to 128 accounts to be created but<br>restricts the number of active sessions, per role, to the<br>licensed amount. To increase the number of simultaneous<br>account sessions, please purchase additional licenses<br>below. | 1     | 99,00 €    |
|---|---|-------|------------|
| × | <b>EVE-NG PRO Lab Editor - 1 Year License</b><br>This license unlocks one additional active session for the<br>Editor role.<br>The Editor role is restricted to a personal folder and is<br>authorized to create, delete, or modify additional folders,<br>labs, and nodes within it.   | - 5 + | 1.750,00 € |

#### EVE Corporate role rights, please follow section 4.4.

# 4.4 User roles comparison chart

| Feature                    | Administrator Role | Lab-Editor/Teacher role | Lab-User/Student role |
|----------------------------|--------------------|-------------------------|-----------------------|
| User accounts management   | yes                | no                      | no                    |
| User Accounts visibility   | yes                | no                      | no                    |
| User edit modal visibility | yes                | no                      | no                    |
| User Folder's management   | yes                | no                      | no                    |
| Full EVE root folder tree  |                    |                         |                       |
| access                     | yes                | no                      | no                    |
| Licencing module access    | yes                | no                      | no                    |



| Nodes management module             |     | yes (only own running | yes (only own running |
|-------------------------------------|-----|-----------------------|-----------------------|
| access                              | yes | nodes)                | nodes)                |
| Lab management module               |     | yes (only own running | yes (only own running |
| access                              | yes | nodes)                | nodes)                |
| Shared lab folder                   |     |                       |                       |
| management                          | yes | yes                   | no                    |
| Shared folder access                | yes | yes                   | yes                   |
| Rename Folders                      | yes | yes                   | no                    |
| Create labs                         | yes | yes                   | no                    |
| Delete labs                         | yes | yes                   | no                    |
| Edit Custom topology                |     |                       |                       |
| mapping                             | yes | yes                   | no                    |
| Use only Custom topology<br>mapping | yes | yes                   | yes                   |
| Lab objects management add          | 700 | yes                   | yes                   |
| text, drawing on labs               | yes | yes                   | no                    |
| Export/import labs                  | yes | yes                   | no                    |
| Nodes list management               | yes | yes                   | yes, read-only        |
| Networks management                 | yes | yes                   | yes, read-only        |
| Start labs                          | yes | yes                   | yes                   |
| Stop labs                           | yes | yes                   | yes                   |
| Wipe nodes                          | yes | yes                   | yes                   |
| Console to all nodes                | yes | yes                   | yes                   |
| Export all configs                  | yes | yes                   | no                    |
| Edit lab                            | yes | yes                   | no                    |
| Set nodes startup-cfg to            |     |                       |                       |
| default configset                   | yes | yes                   | no                    |
| Set nodes startup-cfg to none       | yes | yes                   | no                    |
| Topology refresh                    | yes | yes                   | yes                   |
| Topology zoom                       | yes | yes                   | yes                   |
| EVE status                          | yes | yes                   | yes                   |
| Lab details UUID                    | yes | yes                   | yes                   |
| See startup configs                 | yes | yes                   | no                    |
| Delete default startup configs      | yes | yes                   | no                    |
| Create and manage                   |     |                       |                       |
| multiconfig sets                    | yes | yes                   | no                    |
| Close labs                          | yes | yes                   | yes                   |
| Lock labs                           | yes | yes                   | no                    |
| System/Stop all nodes               | yes | no                    | no                    |
| Information tab access              | yes | yes                   | yes                   |
| Work with more than one lab         | yes | yes                   | yes                   |
| Lab timer function                  | yes | yes                   | no                    |
| Lab background dark mode            | yes | yes                   | yes                   |
| Hide node labels                    | yes | yes                   | yes                   |



# 4.5 License purchasing and activation

- A Before purchasing a license, the customer must have **EVE-NG Professional** installed and readily accessible.
- A Recommended browser for license operations are: Chrome or Mozilla Firefox
- A You must be logged in to the EVE WEB GUI as Administrator.

Step 1: Obtain your license request from the Licensing tab of the top menu of the EVE PRO WEB GUI. License requests will work only if the host machine (and hypervisor if running a VM) has **Intel VT-x/EPT** enabled! (See section **3** for details)

Step 2: Copy the content of the license request and keep it ready for the order process at **Step 6**. Orders without a license request cannot be processed.

| Constant for the Constant<br>And Constant |   | 🖀 Main  | 🗲 Management 👻 | 🗐 System 👻 | 🕄 Information 👻 | 🕄 Licensing 👻                                       | ©2018 Eve-NG |
|---|---|---|----------------|------------|-----------------|---|--------------|
| 击 File manage                             | Current po  | sition / root   |                |            |                 | <ul> <li>License Inf</li> <li>License Re</li> </ul> |              |
| New Name                                  |   |   |                |            |                 | 📰 License Up  | load         |
| License Request                           |   |   |                |            |                 |   |              |
| 5J<br>Srt                                 | UICENSE FILE D<br>U8849wgFDZYXYXWF<br>QDojmre+iu79o+kBqjt<br>U1IOCFmExwkgU3Q4                                   | SRIvM4qDiu3Xe<br>IHlgVrcJQM5m<br>jzwYsJh/OTIN3            |                |            |                 |   |              |
| Ss<br>17<br>2P<br>Wr                      | 24FufEh9y/8lwh9UT7h<br>IM9wYD6IyoN6X9fAflu<br>78O7DdpU5Rj2iA6zx6F<br>Gxbu8w3CYt/biZptJP1<br>nYXy3gYFbF31RyrggG  | łgW1onCLW1F<br>10KnuQ2915Y<br>30kpXJGAGcV<br>arOR:10bKkho |                |            |                 |   |              |
| Fe<br>9Ki<br>6rt                          | DKUiA/x3UAQhKll2hdu<br>1Xkbfa+KliPyMgaYcTi<br>1tHiUPXTW3Tb0S7s7y<br>7v+glsgWOQ/QK1nyt9r<br>Ry/K1TrX5NJ9j7dfFz+1 | .8heyqOw31E<br>8aG0pUa3kqT7<br>vxLe8m9ihRzH               |                |            |                 |   |              |
| AL  | 2y3diOVİ4sHUcdeeQp<br>ZUCJMa8QFNHWn9OG  | rq91diA009Ag  |                |            |                 |   |              |
|   | Сору  |   |                |            |                 |   |              |

Step 3: Go to the EVE PRO or Learning Centre Purchase Portal and choose your Licenses and quantity.

Licenses that are unnecessary for your EVE Learning Centre or Corporate Edition licensing needs, can simply be deleted from your order by clicking on the cross next to them to remove them. Refer to sections: **4.2** and **4.3** 

EVE-PRO Purchase Portal

EVE-Learning Centre or Corporate Purchase Portal

Step 4: Choose your preferred payment method. We currently support VISA, Mastercard, Bank/Wire transfer and PayPal.

< Back to shopping



Step 5: Complete the order form. If your license is for commercial/company use, you must select Company option.



| Billing Information |              |                     |  |
|---------------------|--------------|---------------------|--|
|                     | Licensed to: | Person      Company |  |
|                     | First name*: |                     |  |
|                     | Last name*:  |                     |  |
|                     | Address*:    |                     |  |

Step 6: At the end please paste your **license request content** from Step 2 and Please read and confirm the <u>EULA agreement</u>, which contains vital information about licenses. For companies, if necessary, in the Order Notes you can add additional information/reference, e.g. for your accounting department.

| Additional Information    |  |
|---------------------------|--|
| Order Notes               |  |
| Order Notes               |  |
| EVE-NG PRO A Base license |  |
| License Request*          |  |
| LICENSE FILE DATA         |  |
| Accept EULA*              |  |

Step 7: After a while (usually 10-30 mins), your license is sent to the E-Mail used in the order form.

- IMPORTANT: Before loading the purchased license, make sure your EVE has Internet access. Your EVE DNS settings must be configured properly to resolve the FQDN. Internet connection is required to validate your EVE license with our EVE-NG license server.
- IMPORTANT: If your EVE internet is using Proxy, make sure you have set the proxy settings described in section 3.5.3
- ▲ Offline EVE Pro license is supported for Bare EVE installs only. (Dedicated EVE server). VM Ware and Cloud environment EVE installs require Internet connection.

Step 8: Copy Content of your received License



Step 9: On your EVE WEB GUI, click on License Upload,

| Contraction of the second | Professional | 🛠 Main        | 🗲 Management 🗸 | 🗐 System 👻 | Information - | 🕄 Licensing 🗸                                       | ©2018 Eve-NG |
|---------------------------|--------------|---------------|----------------|------------|---------------|---|--------------|
| 📥 File manage             | Current po   | sition / root |                |            |               | <ul> <li>License Inf</li> <li>License Re</li> </ul> |              |
| New Name                  |              |               |                |            |               | 📼 License Up  | load         |



### Paste your licence and click on Upload

| LICENSE FILE DATA  |
|--|
| X26X8Y28jraqm9g6gwQ7SFSBKDeyKnWX<br>92ep0MyFVeX8ingmD5XmEHOczkmSEmEt |
| SFWpZm5odlck8+YOztEVEO8C5UIPepY2                                     |
| Z70ddXr0ADilsSKKVdpSPvo9p9MYO/7b                                     |
| 7ESgigXncOU/58Ki1SUe5x26HlLKrKdz                                     |
| 1TOD8S+AP/AM8T4CAeZOuaEioeLkuAgS                                     |
| 1x/d13uaONkeALTSdniKNis4hXIAkfcg                                     |
| hG9x6lZkwOClYwGo6kbGvVxj8JtlXpD8                                     |
| n6Wt84iCWPltYbslatwguMJiAK1l00g0                                     |
| 8prut/YELc8uPTV0m80DH/I2GJ0IXRpo                                     |
| evacuHdg/kEv89zL02Z7ywrMJOIZRnRK                                     |
| 1As78C5ERv9XQJB5rTZl3AQ8FjIVvAOy                                     |
| agvuHTgWifm/9mTisf7GOTlPoxfKgJT7                                     |
| 60G+dlhvveFFi3BuLdiTDXsBwX48HF1L                                     |
| 34nzQFDUSL0PyL4uLCx8V1rrYYaRxUct                                     |
| a+RNz9K/yR42EeLOhrWFQwHIUQs0ajqs                                     |
| ming+JMr0le7djyxkh/R8cnxClmKn5VX                                     |
| 0ICaEToaoJ3XxQAU2iQxyXr7qxfdo0Jt                                     |
| HO0AROVV1VOnsjAjciUIWmrm6i6=   |
|  |
|  |

# 4.6 License deactivation

If you decide to deactivate EVE-PRO license on the host, please follow the steps below:

**I** Go to EVE CLI and type:

```
cd /opt/unetlab/html/
rm eve-ng.lic
cp eve-ng.nolic eve-ng.lic
```

# 4.7 License Rehosting.

If you decide to re-install EVE-PRO or move it to another host, please follow the steps below:

### A Pre-requisites:

- EVE must have internet access!
- Only ONE EVE host must be turned ON and connected to the internet, do NOT have more than one EVE with the same license turned on at the same time!

Step 1. Make sure that you have only ONE EVE-PRO instance with this license running.

Step 2. Make sure you have unrestricted Internet access with a properly configured DNS server from your EVE server.

Step 3. Load your purchased license onto EVE server you want to rehost to.

Step 4. Reboot your new EVE

Step 5. Wait approximately one hour for the licence validation process to finish on the host.



▲ NOTE: The re-hosted EVE server must have internet access to periodically validate the license. EVE receives a token with a licence validity time of 24 hours. During those 24 hours, the re-hosted EVE can be used offline. After 24 hours the token time expires and you have to get EVE online again (for approximately 30minutes) to receive a new token.



# 5 EVE-NG Professional Update & Upgrade

A Prerequisites: Internet access and working DNS on your EVE-NG is required.

Verify your internet reachability with named ping. Example: ping www.google.com

ping www.google.com

| root@eve_ng:~# ping www.google.com   | ne-n  |
|--|-------|
| PING www.google.com (216.58.207.228) 56(84) bytes of data.                             |       |
| 64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=1 ttl=58 time=9.11 m | isern |
| 64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=2 ttl=58 time=19.5 m |       |
| 64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=3 ttl=58 time=9.50 m | is    |
| 64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=4 ttl=58 time=9.56 m |       |
| 64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=5 ttl=58 time=9.56 m | is    |

If your ping is success, follow next step for update. If named ping has no success, please verify your DNS IP assigned for EVE or firewall. Some cases ping can be blocked by FW, but Internet and DNS are capable to make update/upgrade.

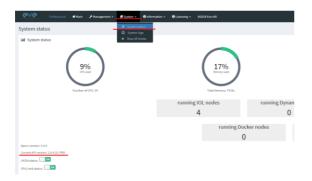
**OPTION** for bare EVE installations which has **bnx2x Broadcom Ethernet** drivers, please rewrite your driver to the newest linux-firmware:

sudo apt-get -o Dpkg::Options::="--force-overwrite" install linux-firmware

# 5.1 EVE-NG Professional Update

It is strongly recommended to keep your EVE-NG up to date. To update and upgrade, SSH to your EVE CLI.

To verify your current EVE-NG version, please follow "CLI diagnostic information display commands" in section **15.1.1**. You can verify your current EVE version from the System/System Status tab on the top menu of the WEB GUI as well.



The newest version of EVE-NG can be verified by checking the official website: <u>http://www.eve-ng.net</u>. For update to the newest EVE-NG Professional version please follow the steps <u>https://www.eve-ng.net/index.php/1845-2/</u>



| The year 2019 Major release, EVE Professional Edition: 2.0.6 – 17 (28 November, 2019)<br>To Update and Upgrade your EVE-NG Professional to the newest version, please follow the steps in the <u>Upgrade</u><br>section (reboot required) |
|---|
| Release 2.0.6-17 notes:   |
| IMPORTANT NOTE: !!! Before this upgrade please stop all running labs and nodes !!!  |
| – Important security update<br>– New HTML5 Console engine Guacamole 1.0<br>– HTML5 console background color change option   |
| Bugfixe(s):<br>– Native console login fix   |

Type the below commands followed by Enter

apt update

In case the prompt asks to confirm with Y/N, answer Yes.

# 5.2 EVE-NG Professional Upgrade

For upgrade to the newest EVE-NG Professional version please follow the steps <a href="https://www.eve-ng.net/index.php/1845-2/">https://www.eve-ng.net/index.php/1845-2/</a>

Type commands followed by Enter

apt upgrade

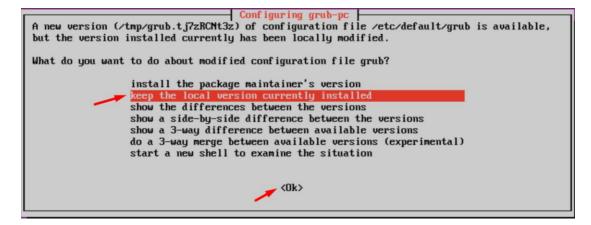
In case the prompt asks to confirm with Y/N, answer Yes.

**IMPORTANT NOTE:** If you are upgrading EVE PRO from older version, the installation may ask you to confirm additional! Information:

| Configuration file '/etc/issue'                          |
|--|
| ==> Modified (by you or by a script) since installation. |
| ==> Package distributor has shipped an updated version.  |
| What would you like to do about it ? Your options are:   |
| Y or I : install the package maintainer's version        |
| N or 0 : keep your currently-installed version           |
| D : show the differences between the versions            |
| Z : start a shell to examine the situation               |
| The default action is to keep your current version.      |
| $\leftrightarrow$ issue (Y/I/N/O/D/Z) [default=N] ?      |
| Progress: [ 0%] [  |

Answer for prompt above is "N"





Answer for grub-pc version is: "Keep the local version currently installed"

After the completion of the update and upgrade, reboot your EVE Server. Type the following command and hit enter.

reboot

**IMPORTANT NOTE:** Do NOT make EVE updates or upgrades from within the HTML5 Desktop console!



# 6 Types of EVE management consoles

▲ IMPORTANT NOTE: EVE Console TCP ports. EVE Pro uses a dynamic port range between 1-65000. Dynamic means that every time you start a node on the lab, EVE assigns any free port from this range for Telnet, VNC or RDP access. Static TCP port assignment for Telnet sessions is not available in EVE PRO.

EVE Pro supports three different console types.

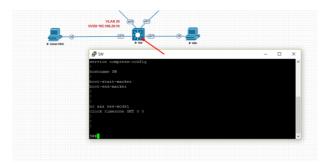
# 6.1 Native console



EVE Native console option requires locally installed software to access your lab nodes. To use the Native console option, you must have Administrator rights on your PC and ensure the TCP port range 1-65000 is not blocked by a firewall or antivirus software.

### 6.1.1 Native Console: telnet

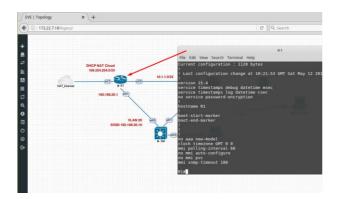
**Windows OS:** You can use your preferred telnet program like Putty, SecureCRT or others. Example: Putty as native telnet client on Windows. To setup Windows native telnet client please follow section **3.7.1** 



**Linux OS:** You can use your preferred telnet program like the Native Terminal, SecureCRT, or others.

Example: Telnet client from the native terminal on Linux Mint. To setup Linux native telnet client please follow section 3.7.2





**MAC OSX:** You can use your preferred telnet program like the native Terminal, SecureCRT, or others.

Example: Telnet client from the native terminal on MAC OSX. To setup MAC OSX native telnet client please follow section 3.7.3

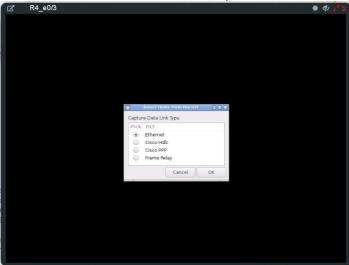
### 6.1.2 Native Console: Wireshark

EVE Professional has an integrated Wireshark Docker station. This allows live captures without having Wireshark installed on the client machine. The EVE Capture console uses an integrated HTML session.

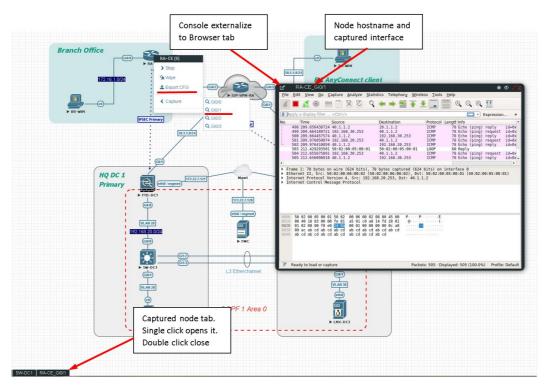
Right click on the node you wish to capture, choose capture and the interface. Capture Session will open in a new browser window.

EVE-PRO supports packet captures on ethernet and serial interfaces. Select the interface frame type which will be captured:

- Ethernet for Ethernet, Fast Ethernet, Gigabit Ethernet.
- Serial interface frames: HDLC, PPP or Frame Relay.



Integrated HTML RDP for Wireshark capture



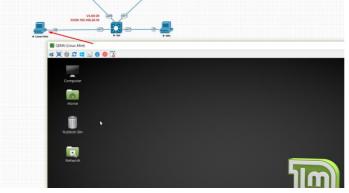
Example: RA-CE live interface G0/1 capture.

To save the captured file on your local PC, please refer to section 12.1

# 6.1.3 Native Console: VNC

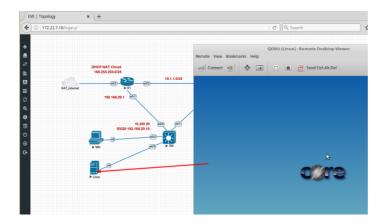
**Windows OS:** Recommended and tested is UltraVNC but any other compatible one can be used.

Example: UltraVNC as Native VNC client on Windows. To setup Windows native VNC client please follow section 3.7.1



**Linux OS:** Remote Desktop Viewer for VNC Sessions. Example: Remote Desktop Viewer for VNC sessions on Linux Mint. To setup Linux native Remote Desktop Viewer please follow section 3.7.2

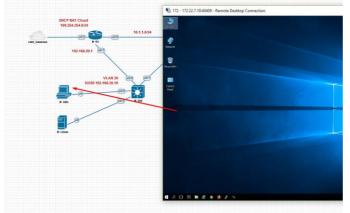




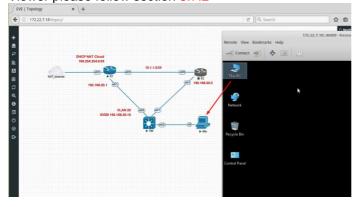
**MAC OSX:** Preferred VNC program: Chicken VNC Example: Chicken VNC as Native VNC client on MAC OSX. To setup MAC OSX native RDP Viewer client please follow section 3.7.3

### 6.1.4 Native Console: RDP

**Windows OS:** Windows Native RDP. Example: Windows RDP session to Win10 host in the lab.



**Linux OS:** Remote Desktop Viewer as RDP session to lab Win10 host. Example: RDP session to Win10 host in the lab. To setup Linux native Remote Desktop Viewer please follow section 3.7.2





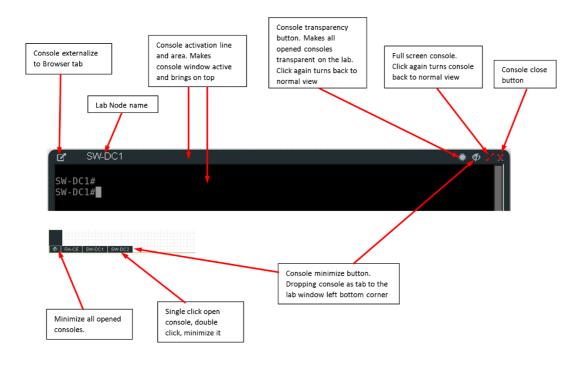
**MAC OSX:** Remote Desktop Viewer as RDP session to lab Win10 host. Example: RDP session to Win10 host in the lab. To setup MAC OSX native RDP Viewer client please follow section 3.7.3

# 6.2 HTML5 console



The EVE PRO HTML5 console provides a clientless solution for managing labs and node sessions. Management is achieved directly through the browser by using the Apache Guacamole HTML5 Engine. It is very convenient for Corporate users with restricted Workstation permissions (Locked Telnet, vnc, rdp).

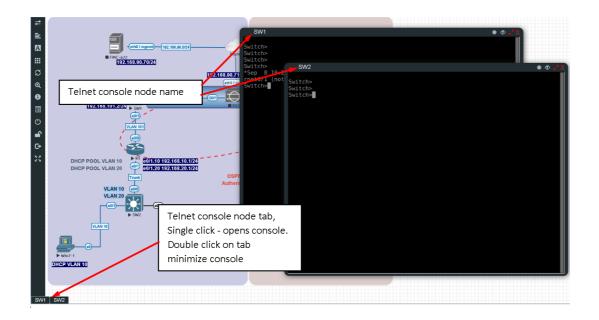
# 6.2.1 HTML5 Console window functions



# 6.2.2 HTML5 Console: Telnet

HTML5 Telnet console is integrated and opens telnet sessions in the browser.





**Option:** The new Chrome v70.0.3538.110 and higher allows the use of the copy/paste function inside the HTML session. Type in your Chrome browser "**chrome://settings/content/clipboard**" and press **Add** to allow the use of the clipboard extension for your EVE Server: https://your\_ip:443

| Settings x +     ← → C      O Chrome   chrome://settings/content/dipboard |  |  |
|---|--|--|
| ≡ Settings  | Q. Search settings   |  |
|   | ← Clipboard  |  |
|   | Ask when a site wants to see text and images copied to the clipboard (recommended) |  |
|   | Block Add  |  |
|   | No sites added   |  |
|   | 0% https://172.22.7.18:443 :   |  |
|   |  |  |

**Option:** The new Firefox v63.0.3 and higher allows the use of the copy/paste function inside the HTML session. Type in your Firefox browser "**about:config**" and enable clipboard values below:

| ← → ♂ ☆                               | Sirefox about:config |          |         |       |
|---------------------------------------|----------------------|----------|---------|-------|
| Search: O clipboard                   |                      |          |         |       |
| Preference Name                       |                      | ▲ Status | Туре    | Valu  |
| clipboard.autocopy                    |                      | modified | boolean | true  |
| clipboard.plainTextOnly               |                      | modified | boolean | true  |
| levtools.screenshot.dipb.card.enabled |                      | default  | boolean | false |
| form.event.clipboardevents.enabled    |                      | default  | boolean | true  |
| dom.events.asyn.cClipb.oard           |                      | default  | boolean | true  |
| dom.events.asyncClipboard.dataTransfe | r                    | modified | boolean | true  |
| dom.events.testing.asyncClipboard     |                      | modified | boolean | true  |

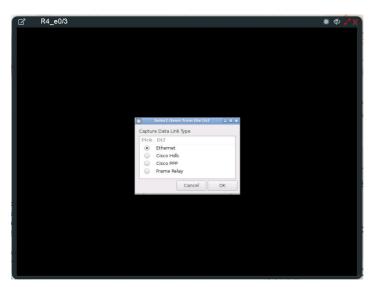


## 6.2.3 HTML5 Console: Wireshark

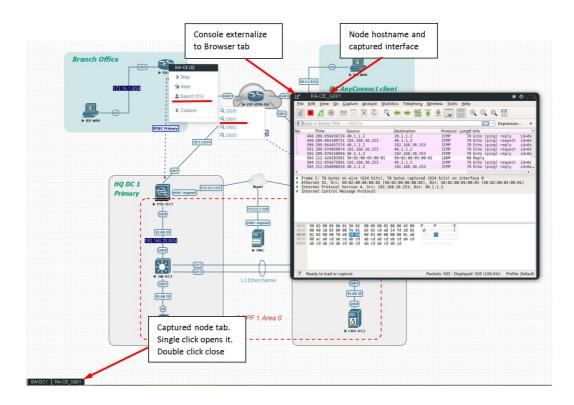
Right click on the node you wish to capture, choose capture and the interface. Capture Session will open in a new browser window.

EVE-PRO supports packet captures on ethernet and serial interfaces. Select the interface frame type which will be captured:

- Ethernet for Ethernet, Fast Ethernet, Gigabit Ethernet.
- Serial interface frames: HDLC, PPP or Frame Relay.







To save captured file to your local PC, please refer section 12.2

# 6.2.4 HTML5 Console: VNC

HTML5 VNC console is integrated and opens VNC sessions in the browser.





## 6.2.5 HTML5 Console: RDP

HTML5 RDP console is integrated and opens RDP sessions in the browser. For Windows 7, 8, 10, Windows Server 2012, 2016 please mind the note below.

| #               |   |                        |
|-----------------|---|------------------------|
|                 | = frc-622<br>192.163.90.7/1/24  | Win7-1 ・ ゆ ノメ          |
| ୟ<br>ବ <b>ଶ</b> | RDP console node name   |                        |
|                 | 1924163.101.2221 SW1  |                        |
| ⊕<br>∷          | DHCP POOL VLAN 10<br>DHCP POOL VLAN 20<br>DHCP POOL VLAN 20                   | user<br>Pannet         |
|                 |   | Cance                  |
|                 | RDP console node tab,<br>Single click - opens console.<br>Double click on tab | 🔊 🍓 Windows 7 Ultimate |
|                 | DECEVITANTO   |                        |
| Win7            |   |                        |

▲ IMPORTANT NOTE: For all Windows nodes, the console type must be set to RDP-TLS in the node template. RDP-TLS node console option is actually only used with HTML5 RDP sessions.

The username and the password can be configured in the node edit settings. This will allow you resize HTML RDP console without re-login in the windows host.

Example below, Edit node, Win10, Console type rdp-tls, username: user and password: Test123



| EDIT | NODE |  |
|------|------|--|
|      |      |  |

| Template            |                    |            |                      |          |
|---------------------|--------------------|------------|----------------------|----------|
| Windows             |                    |            |                      | *        |
| ID                  |                    |            |                      |          |
| 6                   |                    |            |                      |          |
| Image               |                    |            |                      |          |
| win-7-x86-IPCC      |                    |            |                      |          |
| Name/prefix         |                    |            |                      |          |
| Win                 |                    |            |                      |          |
| lcon                |                    |            |                      |          |
| S Desktop.png       |                    |            |                      | -        |
| UUID                |                    |            |                      |          |
| 887953ad-0c5e-4c7   | 5-91ch-c383a0ef9dd | 1          |                      |          |
|                     |                    |            |                      |          |
| CPU<br>Limit        |                    |            |                      |          |
| CPU                 | RAM (MB)           |            | Ethernets            |          |
| 1                   | 4096               |            | 1                    |          |
| First Eth MAC Addr  | ess                |            |                      |          |
| 50:03:00:06:00:00   |                    |            |                      |          |
| QEMU Version        | QEMU Arch          |            | QEMU Nic             |          |
| tpl(2.12.0) -       | tpl(x86_64)        | *          | tpl(e1000)           |          |
| QEMU custom opti    | 0.05               |            |                      |          |
| -machine type=pc,ac |                    | 4,+fsqsbas | se -vga std -usbdevi | ice tabl |
|                     |                    |            | -                    |          |
| Startup configurati | on                 |            |                      |          |
| None                |                    |            |                      | *        |
| Delay (s)           |                    |            |                      |          |
| 0                   |                    |            |                      |          |
| Console             |                    |            |                      |          |
| rdp-tls             |                    |            |                      | -        |
| RDP Username        |                    |            |                      |          |
| user                |                    |            |                      |          |
| RDP Password        |                    |            |                      |          |
| Test123             |                    |            |                      |          |
| Left                |                    | Тор        |                      |          |
| 807                 |                    | 69         |                      |          |
|                     |                    |            |                      |          |
|                     | Save Cancel        |            |                      |          |

# 6.3 HTML5 Desktop console

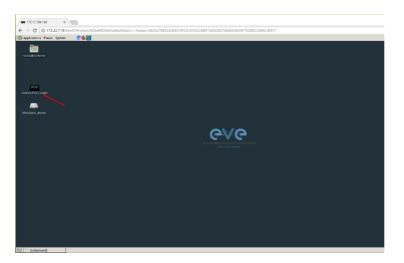


EVE PRO HTML5 Desktop provides a full-featured clientless solution for managing labs and node sessions. Management is achieved directly through the browser by using an integrated docker desktop that is accessed through the Apache Guacamole HTML5 Engine. The docker contains a full featured Linux desktop and is very convenient for corporate users with restricted workstation rights (locked telnet, vnc, rdp).

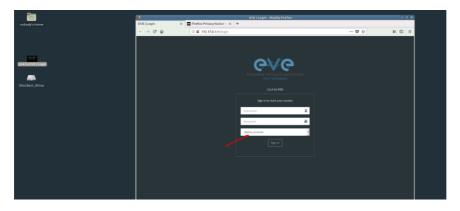


### 6.3.1 Login to HTML5 Desktop console

Step 1: On your first login to the EVE HTML5-Desktop console, EVE will open a new HTML window session to an integrated Docker management station. On the Desktop you will see another EVE login icon.



Step 2: Double-click the "Link to EVE | Login" icon and log into EVE using NATIVE console.

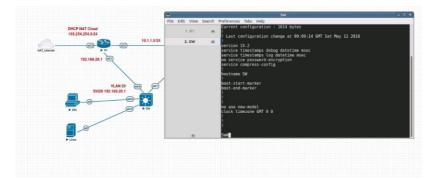


Inside of the integrated docker station, it will open another session to EVE. All features inside of the Docker Desktop will work as you are used to with the Native console.

### 6.3.2 HTML5 Desktop Console: telnet

The integrated management docker station telnet client allows you to telnet to nodes. Telnet sessions are in a tabbed style as shown below.



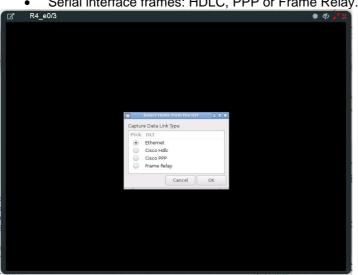


### 6.3.3 HTML5 Desktop Console: Wireshark

Right click on the node you wish to capture, choose capture and select the relevant interface. The capture will open in an RDP session window.

EVE-PRO supports packet captures on ethernet and serial interfaces. Select the interface frame type which will be captured:

- Ethernet for Ethernet, Fast Ethernet, Gigabit Ethernet.
- Serial interface frames: HDLC, PPP or Frame Relay. •



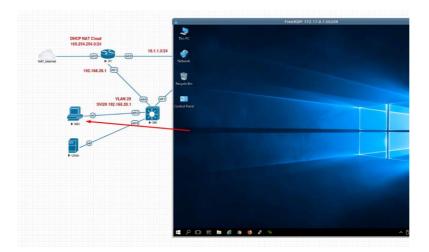
The integrated management docker station Wireshark client allows you to capture and save captured files onto the docker station. For instructions on how to save files to your local PC, please refer to section 12.3



|                  | 6 FreeRDP: 172.17.0.1  |  |
|------------------|--|--|
| DHCP NAT Cloud   | File Edit View Go Capture Analyze Statistics Telephony Wireless Too  |  |
| 169.254.254.0/24 | 🔟 🗮 💰 💿 📰 🗈 🖄 🖸 🍳 🗰 🖷 🖉 💆 🔜 🗮  |  |
| <b></b> 10.      | 1.1.0 <sup>2</sup> Apply a display filter <ctri-></ctri->  | Expression   |
| NAT_INSTANT      | No.         Time         Source         Destination         Proto           1         3.5:55592277         as1bb ccc100:00.10         as1b ccc100: | Coll Length Heb         Coll Length Heb         Coll Coll         Coll Coll <thcoll coll="" coll<="" th="">         Coll Coll</thcoll> |
|                  | T<br>1 Frame 1: 60 bytes on wire (440 bits), 60 bytes captured (440 bits)<br>W # 1 Engle1: Use Control<br>4 Spinstag Trac Protocol   | on interface 0   |
| Þ Jan            |  |  |
|                  | 7 Ready to load or capture   | Packets: 5 - Displayed: 5 (100.0%) Profile: Defa   |

# 6.3.4 HTML5 Desktop Console: RDP

The integrated management docker station RDP client allows you to open Remote Desktop sessions to Windows nodes. For directions on how to transfer files to the local PC, please refer to section 13



## 6.3.5 HTML5 Desktop Console: ThinClient Files exchange

The HTML5-Desktop console offers an amazing feature that allows you to exchange files between your host PC and the EVE management Linux host. Please refer to section 13 for detailed instructions.



# 7 EVE WEB GUI Management

# 7.1 EVE Management Page

The Main EVE management window

| New Name                 | Add folder         | test   |       |
|--------------------------|--------------------|--|-------|
| 0 <b>b</b> / x 8 ± ± 0 0 | Management Buttons |  | Scale |
| 🗆 📁 Running              |                    |  | -     |
| DC DC                    | 04 May 2018 14:40  |  |       |
| 🗆 🖿 JP                   | 19 Apr 2018 00:35  |  |       |
| 🗆 🖿 Juniper              | 22 Mar 2018 22:18  |  |       |
| 🗆 🖿 Miscelaneous         | 25 Mar 2018 21:18  | -  |       |
| 🗆 🖿 RS                   | 23 Mar 2018 06:38  | Lab preview  |       |
| 🗆 🖿 SEC                  | 18 May 2018 08:22  |  |       |
| 🗆 🖿 Shared               | 17 May 2018 15:51  |  |       |
| 🗆 🖿 SP                   | 14 Feb 2018 22:10  | Lab Path: /test.unl Description:                         |       |
| 🗆 🖿 Users                | 17 May 2018 14:54  | Version: 1<br>UUID: 85<2<14<-2568-468f-8789-a695f8b63183 |       |
| 🗆 🖺 dockers lab.unl      | 08 May 2018 07:57  | Author:  |       |
| test.unl                 | 18 May 2018 08:47  | Open Edit Delete   |       |
|                          |                    |  |       |

# 7.1.1 Management buttons

|  |  | ø | ≫ | Û | * | 1 | ▼ | 0 |
|--|--|---|---|---|---|---|---|---|
|--|--|---|---|---|---|---|---|---|

| Button | Description  |
|--------|--|
|        | Select All or Deselect All folders or labs in the EVE tree   |
| h      | Create/Add new Lab   |
| 1      | Change selected item name. To use this option, please select the folder or lab<br>that you want to rename. You must not rename the Shared folder, the Users<br>folder or any folder inside the Users folder. |
| ۶      | Move selected item(s) to a different location. To use this option, please select the folder(s) or lab(s) that you want to move.  |



| 畲        | Delete selected folders or labs. You must not delete the Shared folder, the Users folder or any folder inside the Users folder.  |
|----------|--|
| *        | Import an EVE lab or lab folder from a previous export. Import file must be in .zip format   |
| <b>±</b> | Export EVE lab or folder. Select folder(s) and/or labs you wish to export and select this option. The export is saved to your local PC in .zip format and is ready to import to another EVE. |
|          | Toggle the sorting folders and labs between alphabetical and last edit date (ascending/descending cannot be changed currently).  |
| 2        | Refresh current folder content   |

# 7.1.2 Management tabs

| 希 Main | 🖋 Management 👻 | 🗐 System 👻 | i Information 🗸 | 🤨 Licensing 🗸 | ©2018 Eve-NG |
|--------|----------------|------------|-----------------|---------------|--------------|
|        |                |            |                 |               |              |

| Tab  | Description  |
|--|--|
| <b>#</b> Main  | Returns back to the EVE Home Management screen.          |
| 🗲 Management 🗸   | Management dropdown, opening the management submenu.     |
| <ul> <li>User management</li> <li>Node management</li> <li>Lab management</li> </ul> | Management submenu, refer to sections: 7.3, 7.3.2, 7.3.3 |
| 🗐 System 👻   | System dropdown.   |



| <ul> <li>System Settings</li> <li>System status</li> <li>System logs</li> <li>Stop All Nodes</li> </ul>  | System submenu, refer to section 7.4             |
|--|--|
| € Information -  | Information dropdown                             |
| <ul> <li>About</li> <li>Forum</li> <li>YouTube Channel</li> <li>Help on EVE-NG LiveChat</li> </ul>   | Information submenu, for details see section 7.5 |
| Substant State | Licensing dropdown                               |
| <ul><li>License Information</li><li>License Request</li><li>License Upload</li></ul>   | Licensing management, please see section 4       |

# 7.2 Folders and Lab files management

This section will explain how to manage folders and labs on the EVE management page.

# 7.2.1 Folders Management

EVE Professional has three default folders used for various operations. These must not be deleted or renamed (see below).

| 🗆 🖿 Running |                   |
|-------------|-------------------|
| 🗆 🖿 Shared  | 23 Mar 2018 02:41 |
| 🗆 🖿 Users   | 18 May 2018 12:48 |

- Admins can create additional folders for any user.
- Editors can create or manage folders in their own profile/folder or within the Shared folder



### 7.2.1.1 Default folder Running

EVE professional allows a single user to run multiple labs and switch between them with the Running folder.

| 🗆 🔚 Running |                |
|-------------|----------------|
| MyLabFolder | 18 May 2018 14 |

Example:

- Start a lab and close it
- Open and start another lab and close it

When you open your Running folder, you will see both running labs in it. It is easy to switch between labs.

The example below is showing two running labs in the Running folder.

| La File manager Current position / root / Running |                   |
|---|-------------------|
| New Name  | Add folder        |
|   |                   |
| <b>•</b>  |                   |
| test_lab1   | 18 May 2018 12:58 |
| test_lab2   | 18 May 2018 13:36 |
|   |                   |
|   |                   |

### 7.2.1.2 Default folder Shared

To manage the Shared folder an Admin or Editor user account is required.

The EVE Professional Shared folder is visible to all EVE users. Admin and Editor Accounts can create folders or labs and place them into the Shared folder.

| 🗆 🖿 Shared | 18 May 2018 15:16 |
|------------|-------------------|
| 🗆 🖿 Users  | 18 May 2018 14:31 |

**Example:** An Admin creates a lab and places it into the Shared folder.

Step 1: Create a lab, refer to section 9.1

Step 2: Select the lab you wish to move to the Shared folder and press **Move to** (or create it in the Shared folder from the start).



| La File manager Current position / root |                   | Move files to              |        |
|---|-------------------|----------------------------|--------|
| New Name<br>Move to                     | Add folder        | Files selected to move:    |        |
| Running                                 |                   | test_lab2.unl              |        |
| 🗆 🖿 Shared                              | 23 Mar 2018 02:41 | Current files position /   |        |
| 🗆 🖿 Users                               | 18 May 2018 12:48 | New path                   |        |
| 🖉 📑 test_lab1.unl                       | 18 May 2018 12:58 | /                          | ~      |
| test_lab2.unl                           | 18 May 2018 13:36 | Running tFolder/<br>Shared |        |
|   |                   | Users Move                 | Cancel |

Step 3: Another user account can use the lab placed by the Admin in the Shared folder

|   | 9V@         |               | 🖶 Main       | 🗲 Management 👻 | 🖴 System 👻 | Information + | ©2018 Eve-NG               | 11:45 | 🔺 test2 | 😝 Sign out |
|---|-------------|---------------|--------------|----------------|------------|---------------|----------------------------|-------|---------|------------|
| d | File manage | er Current po | sition / roo | t / Shared     |            |               |                            |       |         |            |
|   | New Name    |               |              |                |            | Add folder    |                            |       |         |            |
|   | • • •       | ¥ 8 4         | 1            | Ø              |            |               |                            |       |         |            |
|   | <b>•</b>    |               |              |                |            |               | Choose a lab for more info |       |         |            |
|   | test_la     | ib1.unl       |              |                | 18 May 2   | 018 12:58     |                            |       |         |            |
|   |             |               |              |                |            |               |                            |       |         |            |

- NOTE: Every user has its own profile; this means that every user has an independent Running folder where this lab runs independently from other users.
- NOTE: Labs can be created and modified (e.g. settings and preconfigs) by an Admin or an Editor user. The User role can use the lab only exactly the way it was configured by an Admin or Editor and is unable to change any settings.
- A NOTE: Admins and Editors can create folders and labs inside the Shared directory

#### 7.2.1.3 Default folder Users

To manage the Users folder, an Admin user account is required.

The Users directory is a default EVE folder where Editors and Users have their personal folders stored.

| - |        | 10 100 2010 1 1101 |  |
|---|--------|--------------------|--|
|   | Shared | 18 May 2018 15:16  |  |
|   | Users  | 18 May 2018 14:31  |  |

Once an Admin has created a new Editor or User account, EVE will automatically create a folder with the user login name under the default directory Users.

**Example:** Below you can see the folders for the users with the following login names: **test2**, **test3 and test4** 



| File manager Current position / root / Users |                   |
|--|-------------------|
| New Name                                     | Add folder        |
|  |                   |
| <b>b</b>                                     |                   |
| 🗆 🖿 test2                                    | 18 May 2018 14:30 |
| 🗆 🖿 test3                                    | 18 May 2018 14:29 |
| 🗆 🖿 test4                                    | 18 May 2018 14:31 |

A NOTE: An Admin can manage any user's folder or place labs in it.

#### 7.2.1.4 Create folder

An Admin or Editor user account is required.

Type the new folder name and click "Add Folder"

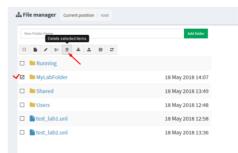
NOTE: Editors can only create folders within their own profile folder or in the Shared folder

#### 7.2.1.5 Delete folder

An Admin or Editor user account is required.

Select the folder you wish to delete and press Delete.

- NOTE: All folder content will be deleted as well.
- NOTE: Editors can only manage their own or the Shared folder



18 May 2018 13:49

La File manager Current position / root

0 🖹 / % 8 ± ± 0 0

Myfolder 🗸

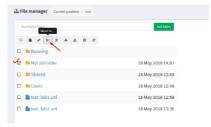
🗆 🖿 Running

### 7.2.1.6 Move Folder

An Admin or Editor user account is required.

Select the folder you wish to move and press the Move to button.

NOTE: Editors can only manage their own or the Shared folder





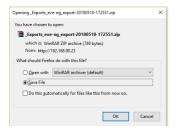
|   | Move files to            |
|---|--------------------------|
|   | Files selected to move:  |
| Select the target destination for your folder and | MyLabFolder              |
| confirm by clicking on Move.                      | Current files position / |
|   | New path                 |
|   | 1                        |
|   | Running tFolder/         |
|   | MyLabFolder              |
|   | Shared Move Cancel       |
|   | Users                    |

### 7.2.1.7 Export Folder

Select the folder(s) you wish to export from your EVE and press Export.

| <b>File manager</b> Current position / root |                   |
|---|-------------------|
| New Name Export                             | Add folder        |
|   |                   |
| 🗉 🖿 Running                                 |                   |
| V 🗷 🖿 MyLabFolder                           | 18 May 2018 14:07 |
| Shared                                      | 18 May 2018 15:16 |

Save the exported file as .zip to your local PC. The exported zip file is ready to import to another EVE instance.



If your browser is set to save downloaded files to a default directory, your exported file will be saved in the browsers default downloads directory.

#### 7.2.1.8 Import Folder

IMPORTANT: Importable file MUST be in .zip format, do NOT unzip the file.

Step 1: Press the Import button.



| File manager Current position / root |                   |
|--------------------------------------|-------------------|
| New Name Import                      | Add folder        |
|                                      |                   |
| 🗆 🖿 Running                          |                   |
| MyLabFolder                          | 18 May 2018 17:24 |
| Shared                               | 18 May 2018 15:16 |
| 🗆 🖿 Users                            | 18 May 2018 14:31 |

Step 2: Choose the zipped file that contains EVE folders with labs.

| 🥑 File Upload    |                                 |                  |                    | ×       |
|------------------|---------------------------------|------------------|--------------------|---------|
|                  | > This PC > Desktop > Exports > |                  | マ ひ Search Exp     | orts ,0 |
| Organize 🔻 Ne    | w folder                        |                  |                    |         |
| 💷 This PC        | ^ Name                          | Date modified    | Туре               | Size    |
| 3D Objects       | EIGRP cfg set 2                 | 15/03/2018 12:10 | File folder        |         |
| Desktop          | EIGRP cfg set 2.zip             | 15/03/2018 12:11 | WinRAR ZIP archive | 2 KB    |
| Documents        | EIGRP cfg set.zip               | 15/03/2018 12:10 | WinRAR ZIP archive | 4 KB    |
| Downloads        | Firepower_poc_623.zip           | 12/04/2018 11:16 | WinRAR ZIP archive | 51 KB   |
|                  | 📜 UD_lab_folder.zip 🔪           | 18/05/2018 23:31 | WinRAR ZIP archive | 258 KB  |
| Music E Pictures | $\mathbf{X}$                    |                  |                    |         |
| Videos           | N N                             |                  |                    |         |
| 🏪 System (C:)    |                                 |                  |                    |         |
| 🕳 Donna (E:)     |                                 |                  |                    |         |
| 🕳 Data (G:)      | ~                               |                  | × 1                |         |
|                  | File name: UD_lab_folder.zip    |                  | → All Files ('     | .*) ×   |
|                  |                                 |                  | Oper               | Cancel  |

#### Step 3: Press the Upload Button

| Tile manager Current position / root |         |          |        |         |   |
|--------------------------------------|---------|----------|--------|---------|---|
| Name                                 | Size    | Progress | Status | Actions |   |
| UD_lab_folder.zip                    | 0.25 MB |          |        | Upload  | × |
| New Name Add folder                  |         |          |        |         |   |
|                                      |         |          |        |         |   |
|                                      |         |          |        |         |   |

Step 4: After you made sure your folder is imported and has all its content (labs), you can close the upload session.

| Name                                    |                   |
|---|-------------------|
| _lab_folder.zip                         |                   |
| New Name                                | Add folder        |
| 0 <b>b</b> / x 8 <b>b</b> ± 0 C         |                   |
| 🗆 🖿 Running                             |                   |
| MyLabFolder                             | 18 May 2018 17:24 |
| 🗅 🖿 Shared                              | 18 May 2018 15:16 |
| 🗆 🖿 UD Labs                             | 19 May 2018 01:32 |
| 🗆 🖿 Users                               | 18 May 2018 14:31 |
| FirePower FTD 623 PoC Multihomed HA.unl | 12 Apr 2018 11:16 |

# 7.2.2 Lab files Management

You can manage created labs from the main EVE file manager window



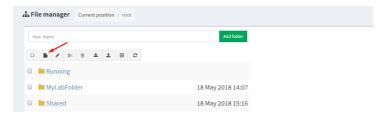
| Professional # Main / Managemen      | t + 🖉 System + 💿 Information + | O Licensing - 62018 Eve NG 14-02 🎍 admit | in 🕞 Sig |
|--------------------------------------|--------------------------------|--|----------|
| File manager Current position / root |                                |  |          |
| New Name                             | Add folder                     |  |          |
|                                      |                                |  |          |
| 🛛 🖿 Running                          |                                | Choose a lab for more info               |          |
| 9 🖿 MyLabFolder                      | 18 May 2018 14:07              |  |          |
| 🔋 🖿 Shared                           | 18 May 2018 15:16              |  |          |
| Users 📔 Users                        | 18 May 2018 14:31              |  |          |
| 🛛 📄 test_lab1.unl                    | 18 May 2018 12:58              |  |          |
| test_lab2.unl                        | 18 May 2018 13:36              |  |          |

### 7.2.2.1 Create Lab

The Admin or Editor user account is required.

A NOTE: An Editor can create labs only within his personal folder or in the Shared folder

Click on the New Lab button and refer to section 9.1



### 7.2.2.2 Delete Lab

The Admin or Editor user account is required to delete labs.

A NOTE: An Editor can delete labs only within his personal folder or in the Shared folder

Step 1: Select the lab or labs you wish to delete and then press the Delete button

| Professional # Main / Management -   | 🖉 System 🔹 🚯 Information 👻 🚯 Licensing 👻 ©2018 Eve-NG |
|--------------------------------------|---|
| File manager Current position / root |   |
| New Name<br>Delete selected items    | Add folder  |
|                                      |   |
| 🗉 🖿 Running                          |   |
| MyLabFolder                          | 18 May 2018 14:07                                     |
| 🗉 🖿 Shared                           | 18 May 2018 15:16                                     |
| 🗉 🖿 Users                            | 18 May 2018 14:31                                     |
| 🗷 📑 test_lab1.unl 🗸                  | 18 May 2018 12:58                                     |
| test_lab2.unl                        | 18 May 2018 13:36                                     |

### 7.2.2.3 Clone Lab

The Admin or Editor user account is required to clone labs.

A NOTE: An Editor can create labs only within his personal folder or in the Shared folder



The cloning feature provides a very convenient way to duplicate original labs to share with others or base another lab on it.

Cloned labs will copy exported configs (on supported nodes) but will not copy saved states/configurations in Qemu nodes like Windows hosts, Cisco ISE, or other Qemu nodes that are not supported by the export config feature. Please refer to section 11.1 for more information on configuration export for labs.

Step 1: Select the lab you wish to clone and move the mouse pointer (blue) to that lab, an extra option will appear. Click on Clone.

| Gurrent position / root |                              |
|-------------------------|------------------------------|
| New Name                | Add folder                   |
|                         |                              |
| 🗉 🖿 Running             |                              |
| MyLabFolder             | 18 May 2018 14:07            |
| Shared                  | 18 May 2018 15:16            |
| 🔲 🖿 Users               | 18 May 2018 14:31            |
| 🖉 🖹 test_lab1.unl 🥆     | % Move to 🕜 Rename 🖺 Clone 🧃 |
| test_lab2.unl           | 18 May 2018 13:36            |

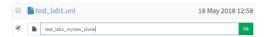
Step 2: Your lab will be cloned with all your exported configurations or configuration sets with a new name.

| test_lab1.unl                   | 18 May 2018 12:58 |
|---------------------------------|-------------------|
| 🖹 test_lab1_1526649330089.unl 🗸 | 18 May 2018 16:15 |

Step 3: The lab has been cloned lab and can be renamed to your liking. Move the mouse pointer to the cloned lab and choose Rename.

| test_lab1.unl               |   |            | 18 May 2 | 2018 12: | 58 |
|-----------------------------|---|------------|----------|----------|----|
| test_lab1_1526649330089.unl | ~ | 9< Move to | C Rename | Clone    | Û  |

Step 4: Rename it, and click OK to confirm



#### 7.2.2.4 Move Lab

The Admin or Editor user account is required to move labs.

A NOTE: An Editor can create labs only within his personal folder or in the Shared folder

Step 1: Select the lab you wish to Move and move the mouse pointer (blue) to that lab, an extra option will appear. Choose Move to.

| test_lab1.unl             |     | 18 May 2018 12:58            |
|---------------------------|-----|------------------------------|
| test_lab1_mynew_clone.unl | × - | % Move to Ø Rename Ĉ Clone 🔒 |
| test_lab2.unl             |     | 18 May 2018 13:36            |



| Step 2: Choose the path to the new destination and confirm by clicking Move | Move files to             |
|---|---------------------------|
| , .   | Files selected to move:   |
|   | test_lab1_mynew_clone.unl |
|   | Current files position /  |
|   | New path                  |
|   | 1                         |
|   | Running tFolder/          |
|   | MyLabFolder               |
|   | Shared Move Cancel        |
|   | Users                     |

### 7.2.2.5 Export Lab

Select the Lab(s) you wish to export from your EVE Server and press Export.

| New Name          | Add folder        |
|-------------------|-------------------|
|                   |                   |
| 🗆 🖿 Running       |                   |
| 🗆 🖿 MyLabFolder   | 18 May 2018 17:24 |
| 🗆 🖿 Shared        | 18 May 2018 15:16 |
| 🗆 🖿 Users         | 18 May 2018 14:31 |
| test_lab1.unl     | 18 May 2018 12:58 |
| 🔽 📄 test_lab2.unl | 18 May 2018 13:36 |

Save exported file as .zip to your local PC. The exported zip file is ready to import into another EVE.

|                      | -ng_export-20180518-172551.zip<br>RAR ZIP archive (749 bvtes) |
|----------------------|---|
| from: http://1       |   |
| What should Firefo   | x do with this file?  |
| O Open with          | WinRAR archiver (default)                                     |
| Save File            |   |
| Do this <u>a</u> uto | matically for files like this from now on.                    |
|                      | · · ·   |

If your browser is set to save downloaded files to default directory, your exported file will be saved in the browsers default downloads directory.

#### 7.2.2.6 Import Labs

**IMPORTANT:** Importable file MUST be in .zip format, do NOT unzip the file.

Step 1: Press the Import button.



| File manager Current position / root |                   |
|--------------------------------------|-------------------|
| New Name Import                      | Add folder        |
|                                      |                   |
| Running                              |                   |
| MyLabFolder                          | 18 May 2018 17:24 |
| 🗆 🖿 Shared                           | 18 May 2018 15:16 |
| 🗆 🖿 Users                            | 18 May 2018 14:31 |

Step 2: Choose the zipped file which contains the EVE labs.

| ←         →         ↑         ►         > Exports         ↓         ▷         Search Exports           Organize ←         New folder         IIII         IIIII         IIIIIII         IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII   | م<br>  |
|--|--------|
| Name         Date modified         Type         Size           BGRP dg set 2         15/01/2018 12:10         File folder         File folder           Conditive         BGRP dg set 2 ip         15/01/2018 12:10         WinRAR ZP archive           This PC         BGRP dg set 2 ip         15/01/2018 12:10         WinRAR ZP archive  |        |
| > p <sup>*</sup> Quick access         Name         Date modified         Type         Size           > △ Ondbrive         In GRP dg set 2 in 50/02/018 12/10         File folder         File folder           > △ This PC         In GRP dg set 2 in 50/02/018 12/10         WinAlAZ 2P archive         WinAlAZ 2P archive  | · 💷 🔞  |
| > ▲ OndDrive         □ GRP dg set 2         15/07/2018 12/0         File Folder           > ▲ OndDrive         ■ GRP dg set 2.sip         15/07/2018 12/11         WinRAR 2/D archive           > ■ This PC         ■ GRP dg set 2.sip         15/07/2018 12/10         WinRAR 2/D archive           ■ GRP dg set 2.sip         15/07/2018 12/10         WinRAR 2/D archive           ■ GRP dg set 2.sip         12/04/2018 11:10         WinRAR 2/D archive |        |
| Image: Section performance         15/03/2018 12-10         WinRAR 20 archive           Image: Section performance         15/03/2018 12-10         WinRAR 20 archive           Image: Section performance         12/04/2018 11-16         WinRAR 20 archive  |        |
| Firepower_poc_623.zip 12/04/2018 11:16 WinRAR ZIP archive  | 2 KB   |
| Firepower_poc_623.zip 12/04/2018 11:16 WinRAR ZIP archive  | 4 KB   |
| Doppa (Fr)   | 51 KB  |
| · · · · · · · · · · · · · · · · · · ·  |        |
| >  |        |
|  |        |
|  |        |
|  |        |
|  |        |
|  |        |
|  |        |
| File name: Firepower_poc_623.zip   | ~      |
| Open   | Cancel |

Step 3: Press the Upload Button

| File manager Current position / root |                   |         |                       |        |         |  |
|--------------------------------------|-------------------|---------|-----------------------|--------|---------|--|
| Name                                 |                   | Size    | Progress              | Status | Actions |  |
| Firepower_poc_623.zip                |                   | 0.05 MB |                       |        | Upload  |  |
| New Name                             | Add folder        |         |                       |        |         |  |
| 0 1 2 2 2 2 2 2 2                    |                   |         |                       |        |         |  |
| 🗆 🖿 Running                          |                   |         | Choose a lab for more | info   |         |  |
| 🗆 🖿 MyLabFolder                      | 18 May 2018 17:24 |         |                       |        |         |  |

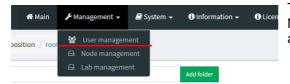
Step 4: After you made sure your lab is imported, you can close the upload session.

| me                                      |                   |
|---|-------------------|
| vepower_poc_623.zip                     |                   |
| New Name                                | Add folder        |
| ■ / × 8 ± ± 8 C                         |                   |
| Running                                 |                   |
| MyLabFolder                             | 18 May 2018 17:24 |
| Shared                                  | 18 May 2018 15:16 |
| Users                                   | 18 May 2018 14:31 |
| FirePower FTD 623 PoC Multihomed HA.unl | 12 Apr 2018 11:16 |
| test_lab1.unl                           | 18 May 2018 12:58 |
| test_lab2.unl                           | 18 May 2018 13:36 |



# 7.3 EVE Management Dropdown Menu

# 7.3.1 EVE User management



The User Management page, under the Management dropdown, will allow Admin accounts to manage other user accounts.

**A** Only the **Admin** role is allowed to create or edit user accounts.

### 7.3.1.1 Creating a new EVE User

Step 1: Open the User management submenu. Management>User management and click Add user

| <u>୧</u> \/୧   | Professional 🛛 🖶 Main | 📕 Management 🗸     | 🖨 System 👻 | O Information -      | O Licensing - | ©2018 Eve-NG |       |            |            |     | 10:02 🔺 admin 🛛 🚱 Sign out |
|----------------|-----------------------|--------------------|------------|----------------------|---------------|--------------|-------|------------|------------|-----|----------------------------|
| User manager   | ment here you can m   | anage EVE-NG users |            |                      |               |              |       |            |            |     |                            |
| Database of us | ers                   |                    |            |                      |               |              |       |            |            |     | +Add user More Info 👻      |
| Username       | Email                 |                    |            | Name                 |               |              | Role  | Valid From | Expiration | POD | Actions                    |
| admin          | root@l                | ocalhost           |            | Eve-NG Administrator |               |              | admin |            |            | 0   | C# Edit 🔒                  |
|                |                       |                    |            |                      |               |              |       |            |            |     |                            |
|                |                       |                    |            |                      |               |              |       |            |            |     |                            |
|                |                       |                    |            |                      |               |              |       |            |            |     |                            |

Step 2: The Add New User management window will pop up. Fill in the main information about your EVE user

| Edit User   |
|---|
| User Name <sup>®</sup><br>uklis-edit  |
| External Auth ( Radius )  |
| Password  |
| Password Confirmation   |
| Email   |
| uldis@eve-ng.net Please enter an valid email  |
| Name<br>Uldis Editor  |
| Use only [A-2a-u0]ohars Role Editor   |
| Account Validity           From         -1         0         to         -1         0           POD*         O |
| 1   |
| Quotas<br>CPU -1 (€) RAM -1 (€)<br>(GB) -1 (€)  |
| Edit Cancel   |



Step 3: If your user will be Radius authenticated please enable Radius checkbox. Passwords will be striped off, because authenticator will look Radius server for user password. How to setup radius server IP and Shared secret please follow Section:**16.1** 

| Add New User               |  |
|----------------------------|--|
| User Name*                 |  |
| test                       |  |
| Use only [A-Za-z0-9]chars  |  |
| External Auth ( Radius ) 🗹 |  |
| Password                   |  |
| ****                       |  |
| Password Confirmation      |  |
| •••••                      |  |
|                            |  |

Step 4: If you have bought other EVE licenses, you can choose the preferred user role. For licensing and user roles please refer to section **4** 

| User 0 to -1 0   |                  |
|--|------------------|
| cco Editor<br>rom User 0 to -1 0                           | tor 🗸            |
| rom         User         0         to         -1         0 | or               |
| From User 0 to -1 0  |                  |
|  | 0 <b>to</b> -1 0 |
| POD*   |                  |

Step 5: Set the access date and time From - to. If the fields are left empty (untouched), your user will have no time restrictions for accessing the EVE Server. Account validity with time settings is available for Editor and User roles only.

Admin accounts have no time limit for account validity and resource, and Account Validity time or resource cannot be set.

| Account | t Validity |             |    |    |    |   |
|---------|------------|-------------|----|----|----|---|
| From    | -1         |             | 0  | to | -1 | 0 |
| POD*    |            |             |    |    |    |   |
| 1       |            |             |    |    |    |   |
| Quotas  |            |             |    |    |    |   |
| CPU     | -1 🖨       | RAM<br>(GB) | -1 | •  |    |   |

Step 6: The POD number is a value assigned to user accounts automatically. POD numbers are like user profiles inside of EVE and are a unique value for every user Think of PODs like a



virtual rack of equipment for each user. Admins can assign a preferred number between 1-128. Please keep POD numbers unique between users!

Step 7: Set user limitation to use eve resources. "-1" value is unlimited EVE resource. Only editor and User roles can be set for EVE resource limitation, Quota.

**Example:** editor user is allowed to run/create labs for x4 CPU and 8Gb RAM.

| Quotas    |          |         |              |   |        |    |   |
|-----------|----------|---------|--------------|---|--------|----|---|
| CPU       | 4        | •       | RAM<br>(GB)  | 8 | 3      | \$ |   |
| Succ      | ess 0    | Erro    | • 1          |   |        | ~  | < |
| VIOS1: U  | Jser's C | CPU quo | ta violation |   |        | ×  |   |
| Step 8: P | ress A   | .DD     | Ado          | ł | Cancel |    |   |

In case of violation these settings, user will receive alert message in the notification area:

### 7.3.1.2 Edit EVE User

Step 1: Open the User management submenu. Management -> User management and choose which user you want to edit.

| lser manageme     | ent here you can manage EVE-NG user | rs                   |        |                  |                  |     | n 🕞 🎤 Management 🕞 👹 User managem |
|-------------------|-------------------------------------|----------------------|--------|------------------|------------------|-----|-----------------------------------|
| Database of users | 3                                   |                      |        |                  |                  |     | +Add user More Info +             |
| Username          | Email                               | Name                 | Role   | Valid From       | Expiration       | POD | Actions                           |
| admin             | root@localhost                      | Eve-NG Administrator | admin  |                  |                  | 0   | 🕼 Edit 😗                          |
| test              | test@eve.lab                        | John Tester          | user   | 2018-05-20 00:00 | 2018-05-30 18:00 | 1   | 🕼 Edit 🔒                          |
| Test2             | test@eve.lab                        | Jenny Tester         | editor | 2018-05-19 00:00 | 2018-05-20 23:00 | 2   | Edit 🔒                            |
|                   |                                     |                      |        |                  |                  | -   |                                   |

Step 2: The Edit user management window will pop up. Now you can edit necessary user information, roles, or access time. Confirm settings by pressing Edit at the bottom of the window.



| Edit User                           |      |
|-------------------------------------|------|
| User Name*                          |      |
| uldis-user                          |      |
| External Auth ( Radius )            |      |
| Password                            |      |
| *****                               |      |
| Password Confirmation               |      |
| ***********                         |      |
| Email                               |      |
| uldis@eve-ng.net                    |      |
| Please enter an valid email         |      |
| Name                                |      |
| Uldis-user                          |      |
| Use only [A-Za-20-9]chars           |      |
| Role User V                         |      |
| Account Validity                    |      |
| From -1 0 to -1 0                   |      |
| POD*                                |      |
| 4                                   |      |
| Quotas<br>CPU -1 🐑 RAM<br>(GB) -1 🐑 |      |
| * - Required Fields                 |      |
| Edit Ca                             | ncel |

### 7.3.1.3 User session termination

Administrator has rights to terminate active user session to the EVE server. Press Kick to disconnect user from EVE HTML session.

| ₽V@ Professional  | 🖷 Hais 🗲 Management -         | System • O Information • O Lice | ising + 02020 Eve-NG |       |            |            |            |           |              |     | 2018 🛔 uldis \varTheta Sign    |
|-------------------|-------------------------------|---------------------------------|----------------------|-------|------------|------------|------------|-----------|--------------|-----|--------------------------------|
| Jser management   | e you can manage EVE-NG users |                                 |                      |       |            |            |            |           |              |     | ● > ≯Nanagement > @Usermanagem |
| Database of users |                               |                                 |                      |       |            |            |            |           |              |     | +Add user Hore info +          |
| Username          | Authenticator                 | Email                           | Name                 | Dole  | Disk Usage | Valid From | Expiration | Max CPU   | Max RAM (GD) | POD | Actions                        |
| admin             | internal                      | admingleve-ng.net               | EVE Administrator    | admin | 0.01 68    |            |            | Unlimited | Unlimited    | 0   | CHEAR QUICK B                  |

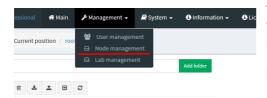
### 7.3.1.4 User monitoring

There is a dropdown menu next to "Add User" called "More Info" that can provide additional information about your users. Click the checkbox next to the relevant information that you would like displayed. Additional columns will be added for each checkbox that is chosen.

| Database of | users         |                  |                      |       | 1 1        | 1                | 1                | 1                   | 1               | 1              | 1           | +Add user More Info- |
|-------------|---------------|------------------|----------------------|-------|------------|------------------|------------------|---------------------|-----------------|----------------|-------------|----------------------|
| lsemame     | Authenticator | Email            | Name                 | Role  | Disk Usage | Valid From       | Expiration       | Last session time   | Last session ip | Current folder | Current lab | Last session tim     |
| -user1      | racius        | auser1@eve.lab   | Auser User           | user  | 0 GB       | 2018-11-22.05:30 | 2018-11-28 07:00 | N/A                 | N/A             | N/A            | N/A         | Last session ip      |
| imin        | internal      | uldis@eve-ng.net | Eve-NG Administrator | ədmin | 1 GB       |                  |                  | 16 Nov 2018 0:35:34 | 172.22.10.101   | 1              | N/A         | Current folder       |
| amin2       | racius        | admins2@eve.lab  | Admin2 User          | admin | 0 GB       |                  |                  | N/A                 | N/A             | N/A            | N/A         | Current lab          |



## 7.3.2 EVE Node management



The Management dropdown has a submenu called "Node Management." The Node management menu displays all currently running nodes within EVE. Within this menu, an Admin account can manage or even console to any user's nodes.

- NOTE: Editor and User accounts are able to see and open console sessions to their own running nodes only
- NOTE: Admin accounts are able to see and open console session to all users running nodes

| e management here you can     | manage EVE-NG running nodes |          |           |          | $n > F_1$  | tanagement > @Nodes mana |
|-------------------------------|-----------------------------|----------|-----------|----------|------------|--------------------------|
| nning node(s)                 |                             |          |           |          |            |                          |
| Labname                       | Lab ID                      | Username | Node Name | Template | Action     |                          |
|                               |                             |          |           |          |            |                          |
| /Users/test3/Shared/test_lab3 | 4                           | test3    | R1        | iol      | 🖵 🗙        |                          |
| /Users/test2/Shared/test_lab3 | 3                           | test2    | R1        | iol      | <b>v</b> × |                          |
| /Users/test2/Shared/test_lab3 | 3                           | test2    | R2        | iol      | 🖵 ×        |                          |
| /Users/test3/Shared/test_lab3 | 4                           | test3    | R2        | iol      | <b>v</b> × |                          |
| /test_lab1                    | 1                           | admin    | R2        | iol      | 🖵 ×        |                          |
| /Users/test4/Shared/test_lab3 | 2                           | test4    | R1        | iol      | <b>v</b> × |                          |
| /test_lab1                    | 1                           | admin    | R1        | iol      | 🖵 ×        |                          |
| /Users/test4/Shared/test_lab3 | 2                           | test4    | R2        | iol      | 🖵 🗙        |                          |

#### 7.3.2.1 Node management actions

| Button | Action                                     |
|--------|--|
| Ţ      | Open a console session to the running node |
| ×      | Stop the running node                      |

#### 7.3.2.2 Node management filtering function

Each column in the Node Management Menu has a field that will allow you to filter the list to only display information related to the entered value.

Example: The Username column filters for test4

| inning node(s)                |        |          |           |          |        |  |
|-------------------------------|--------|----------|-----------|----------|--------|--|
| Labname                       | Lab ID | Username | Node Name | Template | Action |  |
|                               |        | test4    | ×         |          |        |  |
| /Users/test4/Shared/test_lab3 | 2      | test4    | R1        | iol      | 🖵 ×    |  |
| /Users/test4/Shared/test_lab3 | 2      | test4    | R2        | Iol      | - ×    |  |

Each column can be sorted alphanumerically by clicking on the column name.



**Example:** click on the column Username and EVE will sort all running nodes in alphabetic order by username.

| unning node(s)   |        |            |           |  |
|--|--------|------------|-----------|--|
| Labname  | Lab ID | Username A | Node Name |  |
| /test lab1   |        | admin      | R2        |  |
| /test_lab1   | 1      | admin      | R1        |  |
| /Users/test2/Shared/test_lab3                                  | 3      | test2      | R1        |  |
| /Users/test2/Shared/test_lab3                                  | 3      | test2      | R2        |  |
| /Users/test3/Shared/test_lab3                                  | 4      | test3      | R1        |  |
| /Users/test3/Shared/test_lab3<br>/Users/test4/Shared/test_lab3 | 4      | test3      | R2<br>R1  |  |
| /Users/test4/Shared/test_lab3                                  | 2      | test4      | R2        |  |

## 7.3.3 EVE Lab management

| 🎢 Main         | M عمر   | anagement 🗸                  | 🗐 Sy | stem 🚽 | <ol> <li>Information</li> </ol> | tion <del>-</del> |
|----------------|---------|------------------------------|------|--------|---------------------------------|-------------------|
| osition / root | **<br>= | User managem<br>Node managen |      |        |                                 |                   |
|                | 8       | Lab manageme                 | nt   |        | Add folder                      |                   |
| <u>±</u> 🛡     | C       |                              |      |        |                                 |                   |

The Lab Management page, under the Management Dropdown, displays running or stopped labs for all users. In this menu an Admin account can manage or even open up any user's running labs. In the columns CPU and Memory usage will be displayed actual running lab CPU and RAM utilization.

- A NOTE: Only labs which are using space on EVE HDD will be displayed.
- A NOTE: Editor and User accounts are able to see and open their own running labs only
- NOTE: Admin accounts are able to see, open, and join any users running or stopped lab.

| o(s) management here ye              | ou can manage EVE-NG Running Labs |            |               |                  |            | ₩ 🕞 🖌 Management 🗧 🖥 Nodes manage |
|--------------------------------------|-----------------------------------|------------|---------------|------------------|------------|-----------------------------------|
| Running Lab(s)                       |                                   |            |               |                  |            |                                   |
| Labname                              | Lab UUID                          | Username   | CPU usage (%) | Memory usage (%) | Disk usage | Action                            |
|                                      |                                   |            |               |                  |            |                                   |
| /1 CCNA Labs V3 Initial device confi | 0bfe29b5-f967-45c9-9122-fe50376a  | uldis      | .80           | .6               | 3.1M       | 🕎 🗶                               |
| SEC/ISE dot1x mab lab new iron       | 35f49188-e3e3-4c21-a5fc-6675df3f0 | admin      | 0             | 0                | 13M        | 📼 💁                               |
| /Miscelaneous/OTV_Unicast            | 9772442a-b05e-4237-9bb7-5c45700   | admin      | 0             | 0                | 208K       | 📼 💁                               |
| /Users/uldis-edit/test               | becaf4da-2a7f-4527-9735-813d348   | uldis-edit | 0             | 0                | 2.3M       | 💻 💁                               |
| AXLAN VPC                            | 05d878fb-75b0-4b8a-9ba9-a91efd9   | uldis      | 0             | 0                | 4.0K       | ·                                 |

Several columns in the Lab Management Menu has a field that will allow you to filter the list to only display information related to the entered value.

**Example**: The Disk usage column filters for **G**. Labs which are using size in Gigs.

| o(s) management here yo            | u can manage EVE-NG Running Labs |          |               |                  |            | ★ → 矛 Management → 蕾Nodes manageme |
|------------------------------------|----------------------------------|----------|---------------|------------------|------------|------------------------------------|
| Running Lab(s)                     |                                  |          |               |                  |            |                                    |
| Labname                            | Lab UUID                         | Username | CPU usage (%) | Memory usage (%) | Disk usage | Action                             |
|                                    |                                  |          |               |                  | c 🗡        | ×                                  |
| SEC/Mastering AnyConnect LAB_new   | 2971df8e-ea2b-4ebe-b496-f1c5c1e  | uldis    | 0             | 0                | 5.3G       | = 🔁 🔿                              |
| RS/INE RS Full 2019 - CSR and IOL/ | 6fa36064-5a7c-4d1d-8363-0a25e5fd | uldis    | 0             | 0                | 2.8G       | = <u>S</u>                         |
| SEC/Extender_Hunter_SEC            | 7be05f88-deca-442c-96eb-f664ab5  | uldis    | 0             | 0                | 37G        | 📼 💁                                |



#### 7.3.3.1 Lab management actions

| Button   | Action  |
|----------|---|
| <b>—</b> | Open the running or stopped lab.  |
| ×        | Stop the running lab. The running labs will be displayed on top of list.              |
| <u>\</u> | Wipe lab. Clean up HDD space. NOTE: this action will delete saved lab configurations. |

Once an admin has opened another user's running lab, that user's username will be displayed at the top of the left menu to help the admin keep track of which user's lab was opened.



## 7.4 EVE System Dropdown menu



The EVE System dropdown contains the system settings, system utilization status, log files, and an option to stop all running nodes on the server.



## 7.4.1 System Settings

| System → ① Information → ①  | The System Settings p<br>System settings for: | bage, under the System I   | Dropdown, w | ill show EVE  |  |  |
|---|---|--|-------------|---------------|--|--|
| <ul> <li>System Settings</li> <li>System status</li> <li>System logs</li> </ul> | System settings                               |  |             |               |  |  |
| X Stop All Nodes  | Radius Server #1                              | IP   | Port        | Secret        |  |  |
|   | Radius Server #2                              | 0.0.0.0  | 1812        | •••••         |  |  |
|   |   | IP   | Port        | Secret        |  |  |
|   |   | 0.0.0.0  | 1812        | •••••         |  |  |
|   | Proxy Server                                  | IP Port  | User        | Password      |  |  |
|   |   | 0.0.0.00   |             |               |  |  |
|   |   |  |             |               |  |  |
|   | Template visibility                           | unprovisioned images Disable ~   |             |               |  |  |
|   | Licence check                                 | User's login control Strict ~  |             |               |  |  |
|   | Disk critical size                            | Minimal free space (GB)  |             |               |  |  |
|   | Html 5 terminal setting                       | Color scheme     gray-black       Font name     monospace       Font size     14 |             |               |  |  |
|   | Management Interface setting                  | Enable IPV6  |             |               |  |  |
|   |   |  |             | Submit Cancel |  |  |

- External Radius Server, IP port and shared secret key
- Proxy server IP and port, for authenticated proxy use username and password
- **Template visibility** is default settings for templates list on topology. Disable state (default) will not show on topology Nodes list with unloaded images. In the Nodes list will appear only uploaded images. The checkbox "Show unprovisioned templates" will show all available image templates.

| ADD A NEW NODE                 |                              |
|--------------------------------|------------------------------|
| Template                       | Show unprovisioned templates |
| Nothing selected               | •                            |
| 1                              |                              |
| Nothing selected               | ^                            |
| Apple OSX                      |                              |
| Arista vEOS                    |                              |
| Aruba ClearPass 🔫              |                              |
| Aruba OS-CX Virtual Switch 🛛 🗲 |                              |

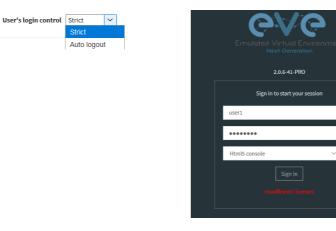
- License check is value where you can set EVE user session login behave.
  - ✓ The Value Strict does not allow user login if all available licenses have active sessions (screenshot below, Insufficient Licenses). If user has finished work with EVE server and closed browser, EVE server will clear this user connection session automatically after 1 minute.
  - ✓ The Auto logout will terminate oldest connected user session to the EVE server.

1 •

×



Licence check



#### Note: Administrator has rights terminate any user session, please refer Section: 7.3.1.3

- Disk critical size is value when EVE will start . alert you about HDD space limit is reached. If you will set 5Gb value, your EVE will start show warning messages in notification area. Example is showing limit set to 500GB.
- HTML5 Terminal settings Option to . change console colour scheme, fonts, font size and backgrounds.
- Management interface settings . Option to enable IPv6 on the EVE Management interface

| . Recommended is set        | 3-5 GB value.               |
|-----------------------------|-----------------------------|
| Html 5 terminal setting     | Color scheme gray-black 🛛 🗠 |
|                             | Font name monospace ~       |
|                             | Font size 12                |
|                             |                             |
| Management Interface settir | Enable IPV6                 |
|                             |                             |

Error 1

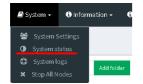
. . . . .

Alert: Only 260GB free on EVE HDD Please add new HDD to continue (Help)

Success 0

. . .

#### 7.4.2 System status



The System Status page, under the System Dropdown, will show EVE server resource utilization, the number of running nodes per template, current running versions of EVE and Qemu, and the current status of the UKSM and CPU Limit options.



| Professional Main & Management - @ Syste            | em • ) Information • ) Licensing • ) | 02018 Eve-NG           |                    | 21:15 🛔 admin 🕞 Sign out     |
|---|--------------------------------------|------------------------|--------------------|------------------------------|
| System status                                       |                                      |                        |                    | # > # Logs > @ System status |
| Land System status                                  |                                      |                        |                    |                              |
| 4%<br>CV unit<br>Sumber of CPU A                    | L4%<br>Memory used                   | )                      | 0%<br>June und     | 33%<br>Dot uted              |
|   | running IOL nodes                    | running Dynamips nodes | running QEMU nodes |                              |
|   | 8                                    | 0                      | 0                  |                              |
|   | running Do                           | cker nodes running     | VPCS nodes         |                              |
|   | C                                    | )                      | 0                  |                              |
| Qemu version: 2.4.0                                 |                                      |                        |                    |                              |
| Current API version: 2.0.4-33-PRO<br>UKSM status: 0 |                                      |                        |                    |                              |
| CPULimit status:                                    |                                      |                        |                    |                              |
|   |                                      |                        |                    |                              |

UKSM – "Ultra KSM (kernel same-page merging) is a Linux kernel feature that allows the KVM hypervisor to share identical memory pages among different process or virtual machines on the same server." It can be disabled globally for EVE on this page. It is recommended to keep UKSM **enabled**.

| Template               |            |                      |   |
|------------------------|------------|----------------------|---|
| Cisco vIOS             |            |                      | * |
| Number of nodes to add | Image      |                      |   |
| 1                      | vios-adven | terprisek9-m-15.6.2T | * |
| Name/prefix            |            |                      |   |
| vIOS                   |            |                      |   |
| lcon                   |            |                      |   |
| 🕙 Router.png           |            |                      | * |
| UUID                   |            |                      |   |
|                        |            |                      |   |
| CPU Limit 🛛 🗸          |            |                      |   |
| СРО                    | RAM (MB)   | Ethernets            |   |
| 1                      | 1024       | 4                    |   |

CPU Limit – CPU limit is used to limit CPU overloads during the nodes run time. It acts like a smart CPU usage option. If a running node reaches 80% CPU utilization, the CPU Limit feature throttles CPU use for this node to 50% until process usage drops under 30% for a period of 1 minute.

It is recommended to keep the Global CPU Limit option enabled.

CPU Limit can be turned for individual nodes in a lab. EVE node templates are set, by default, with the recommended CPU limit settings. An Unchecked CPU Limit option means that this node will boot without CPU

limit.

Reference:

https://searchservervirtualization.techtarget.com/definition/KSM-kernel-samepage-merging

## 7.4.3 System logs



The System logs page, under the System Dropdown, will display EVE server log information

In the menu you can select a specific log file for inspection.



| <b>₽VP</b> rufessional          | 🕈 Main 🖌 Management + 🖉 System +                          | Dinformation + O Licensing + ©2018 Eve-NG  | 22:05 👗 admin 🚺 Sign ou            |
|---------------------------------|---|--|------------------------------------|
| ystem logs                      |   |  | # Blogs - Disterning               |
| System log viewer               |   |  |                                    |
| Select log file                 | Number of Lines   | Search text  |                                    |
| access.txt                      | 20  | View   |                                    |
| access.bxt                      |   |  |                                    |
| api.txt                         |   |  |                                    |
| error.bit                       |   | File output start  |                                    |
| php_errors.bit                  | /api/auth HTTP/1.1" 200 557 "http://192.1                 | .90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0"                          |                                    |
| unl_wrapper.bd<br>coulimit.koo  | /themes/adminLTE/dist/js/app.js?_=1526                    | /354514 HTTP/1.1" 200 6501 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20    | 0100101 Firefox/60.0"              |
|                                 | 24 +0300] "GET /themes/adminLTE/unl_data/pages/sysle      | tml HTTP/1.1" 200 1402 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100     | 0101 Firefox/60.0"                 |
| 172.25.1.5 [19/May/2018:00:04:2 | 24 +0300] "GET /themes/adminLTE/unl_data/js/angularjs     | mtrollers/syslogCtrl.js HTTP/1-1" 200 921 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60 | 30.0) Gecko/20100101 Firefox/60.0" |
| 172.25.1.5 [19/May/2018:00:02:] | 15 +0300] "GET /themes/adminLTE/unl_data/img/Logo_I       | _Color.png HTTP/1.1" 200 108800 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gec    | scko/20100101 Firefax/60.0"        |
| 172.25.1.5 [19/May/2018:00:02:3 | 35 +0300] "GET /themes/adminLTE/unl_data/pages/cons       | t/header.html HTTP/1.1" 200 1864 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Ger   | ecko/20100101 Firefox/60.0"        |
| 172.25.1.5 [19/May/2018:00:02:3 | 35 +0300] "GET /themes/adminLTE/unl_data/pages/cons       | t/labView.html HTTP/1.1" 200 1800 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Ge   | jecko/20100101 Firefox/60.0*       |
| 172.25.1.5 [19/May/2018:00:02:] | 35 +0300] "GET /api/folders/ HTTP/1.1" 200 900 "http://1! | 158.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0"                       |                                    |
| 172.25.1.5 [19/May/2018:00:02:3 | 34 +0300] "GET /api/auth HTTP/1.1" 200 557 "http://192.1  | 90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0"                           |                                    |
| 172.25.1.5 [19/May/2018:00:02:3 | 34 +03001 "GET /themes/adminLTE/dist/is/app.is? =1526     | 7354513 HTTP/1.1* 200 6501 "http://192.168.90.23/" "Mozilia/5.0 (Windows NT 10.0: Win64: x64: rv:60.0) Gecko/20    | 0100101 Firefox/80.0"              |
| 172.25.1.5 [19/May/2018:00:02:1 | 34 +0300] *GET /themes/adminLTE/dist/css/skins/skin-bl    | css HTTP/1.1" 200 1153 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/201001    | 101 Firefox/60.0*                  |
|                                 |   | s HTTP/1.1" 200 2748 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0: Win64: x64: rv:60.0) Gecko/20100101    |                                    |
|                                 |   | 90,23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0"                           |                                    |

## 7.4.4 Stop All Nodes



The Stop All Nodes option, under the System Dropdown, is an option that stops all running nodes on the EVE server. This option is accessible only by Admin users.

## 7.5 EVE Information Dropdown menu

| ┛ System 👻 | i Information 🗸           | i Licensing 🗸 | ©2018 Eve-N |
|------------|---------------------------|---------------|-------------|
|            | <ol> <li>About</li> </ol> |               |             |
|            | 🗩 Forum                   |               |             |
|            | 🎳 YouTube Char            | nel           |             |
|            | Help on EVE-N             | IG LiveChat   |             |

The Eve Information Dropdown contains links to the EVE Website, EVE forum, EVE YouTube channel, and the web-based EVE Live Help chat.

To join the EVE Forum, in order to make posts or download materials, a forum user account must be created.

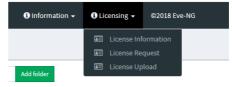
To join the EVE Live Chat for support, please use your Google account for access, or create a new user account for this chat. Please note the forum and live chat use separate user accounts.

## 7.6 EVE Licensing Dropdown menu

The EVE Licensing dropdown contains options for managing your EVE license.

The License Information Window will display the expiration date along with the number of licenses that have been activated

License information display:





| License information |          |  |  |  |
|---------------------|----------|--|--|--|
| Expirity Date:      | 20190518 |  |  |  |
| Admins:             | 2        |  |  |  |
| Editors:            | 1        |  |  |  |
| Users:              | 1        |  |  |  |

For License Request and License Upload, please refer to section 4.5 for more information.

## 7.7 Other Tab line info

| 22:24 | 🐣 admin | 🕞 Sign out |
|-------|---------|------------|
|       |         |            |

Other items on the top menu are: Real-time clock, a shortcut to edit the currently logged in user, and a sign-out button.

# 7.8 Lab preview and global settings

Once you click on a lab in the folder tree, a main window on the right side will display schematic content of the lab as well as lab management options like open, edit, and delete.

| Professional # Main / Management -   | System - O Information - | O Licensing    O 2018 Eve-HG   | 22:44 | 🛔 admin | 🕒 Sign out |
|--------------------------------------|--------------------------|--|-------|---------|------------|
| File manager Current position / root |                          |  |       |         |            |
|                                      | Add folder               | test_lab2  |       |         | Scale      |
| Running                              |                          |  |       |         | *          |
| MyLabFolder                          | 18 May 2018 17:24        | <b>00</b>  |       |         |            |
| Shared                               | 18 May 2018 15:16        |  |       |         |            |
| 🗆 🖿 Users                            | 18 May 2018 14:31        |  |       |         |            |
| E test_lab1.unl                      | 18 May 2018 12:58        |  |       |         |            |
| test_lab2.unl                        | 18 May 2018 13:36        |  |       |         |            |
|                                      |                          | Lab Putic /test_lab2.unl Description:<br>Venient 1<br>UUD: 1:da0r12.4c04-456-4209-etadda111f6<br>Author: |       |         |            |
|                                      |                          | Open E& Delete   |       |         |            |

#### 7.8.1 Lab preview window

The lab preview window displays the schematic position of nodes and their connectivity. The Scale option allows you change the lab preview size.



| test_lab2  |              |              |
|--|--------------|--------------|
|  |              | Scale<br>1:2 |
|  |              | 1:3          |
|  |              | 1:4          |
|  | <u>e</u>     | 1:5          |
|  |              |              |
|  |              |              |
|  |              |              |
|  |              |              |
|  |              |              |
| Lab Path: /test_lab2.unl<br>Version: 1   | Description: |              |
| UUID: 7dab0723-4c04-495e-8269-e4a6da411ff6<br>Author:  |              |              |
| PROCESSION OF THE PROCESSION O |              |              |

#### 7.8.2 Lab preview buttons

In the lab preview, these buttons allow you to manage the selected lab.

| Button | Description   |
|--------|---|
| Open   | Opens the Lab to the Topology Canvas                                  |
| Edit   | Opens the Labs Global Settings. Refer to section 7.8.4 for more info. |
| Delete | Deletes the lab   |

## 7.8.3 Lab preview information

#### Description, version, UUID etc.

Lab Path: /test\_lab1.unl Version: 12 UUID: 95692558-5acb-4308-ab66-64f9b40bd31f Author: John Tester **Description:** Here is short description of Lab

## 7.8.4 Lab Global Settings

Lab Global Settings Page is opened when you click on the preview window or



Edit button below the Lab



| from                    |   | the |         | Topology               | page   | Side | bar:        |
|-------------------------|---|-----|---------|------------------------|--|------|-------------|
| Edit lab                |   |     |         |                        |  |      | • ×         |
| Path*                   | /test_lab1.unl                          |     |         | Description 6.         | Here is short description of Lab   |      |             |
| Name <sup>*</sup> 1.    | test_lab1<br>Use only [A-Za-z0-9 )chars |     |         |                        |  |      |             |
| Version <sup>*</sup> 2. | 12<br>Must be interger {[0-9]chars)     |     |         |                        |  |      |             |
| Author 3.               | Tohn Tester                             |     |         | Tasks <mark>7</mark> , | Here are tasks for your lab.<br>Task 1, Please configure Routers with IP addressing<br>Task 2. Configure IGP, EIGRP routing on all nodes |      |             |
| Config Script           | Timeout 4.                              | 300 | Seconds |                        | Task 3. Configure windows Host to receive DHCP IP address  |      |             |
| Lab Countdo             | wn Timer 5.                             | 120 | Seconds |                        |  |      |             |
| * - Required            | Fields                                  |     |         |                        |  |      | Save Cancel |

This page allows you to fill out important information about the lab. The red numbers in the picture correlate with the numbers listed below

- 1. Lab name.
- 2. Version: Version numbers allow a lab author to assign a value to a unique state of a lab. Increase the number to correspond to new developments in the lab. If left unfilled, EVE will assign a value of 1 automatically.
- 3. Author: You can add a lab author name in this field
- 4. Config Script Timeout: It is the value in seconds used for the "Configuration Export" and "Boot from exported configs" operations. Refer to section 11.3 for more information.
- 5. Lab Countdown Timer: It is the value in seconds to provide a time limit (countdown timer) for completing a lab. Refer to section 11.4 for more information.
- 6. Description: In the Description field you can write a short description of the lab.
- 7. Tasks: In the Tasks field you can write the task for your lab.

🔳 Lab details

The Lab details window can be opened from the Topology Canvas page sidebar during labbing, to read the Tasks for the lab.

#### LAB DETAILS

ID: 95692558-5acb-4308-ab66-64f9b40bd31f

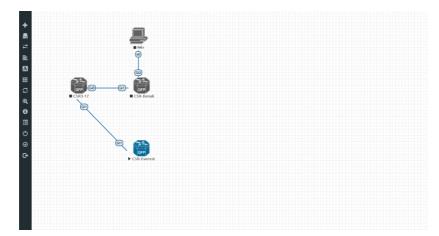
#### TEST\_LAB1

Here is short description of Lab Here are tasks for your Lab. Task 1, Please configure Routers with IP addressing Task 2, Configure IGP, EIGRP routing on all nodes Task 3. Configure windows Host to receive DHCP IP add



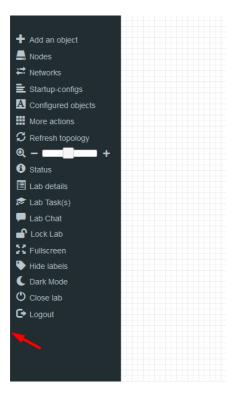
# 8 EVE WEB Topology page

Once you open a lab, the topology page for that lab will open.



## 8.1 Side bar functions

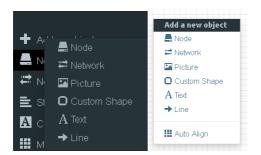
Move your mouse pointer over to the left on top of the minimized sidebar to expand the interactive sidebar as shown in below screenshot





## 8.1.1 Add an object

The "Add an object" menu can be accessed in two different ways, from the sidebar and by rightclicking on the Topology Page



#### 8.1.1.1 Node object

The Node object opens the "Add a new node" window. Only nodes that appear blue in the dropdown menu can be added. A grey image name signifies that you have not yet properly uploaded an image to the proper folder. A blue image name means that at least one image exists in the proper folder for this template. If the "Show unprovisioned templates" is checked, EVE will display unloaded image templates. To hide it, uncheck "Show unprovisioned templates" checkbox or follow section **7.4.1** 

| ADD A NEW NODE                          | ×                            |
|---|------------------------------|
| Template                                | Show unprovisioned templates |
| Nothing selected                        | ×                            |
|   |                              |
| Nothing selected                        | ^                            |
| A10 vThunder 🔫 —                        |                              |
| Apple OSX                               |                              |
| Arista vEOS                             |                              |
| Aruba ClearPass                         |                              |
| Aruba OS-CX Virtual Switch              |                              |
| Aruba WiFi Controller                   |                              |
| Barraccuda NGIPS                        |                              |
| Brocade vADX                            |                              |
| CheckPoint Security Gateway VE          |                              |
| Cisco ACS                               |                              |
| Cisco AMP Cloud                         |                              |
| Cisco Application Policy Infrastructure |                              |
| Cisco ASA                               |                              |

#### 8.1.1.2 Network object

The Network object opens the "Add a new network" window. This function is used to add any kind of network (Cloud, Bridge or NAT). For details on these, please refer to section **10** 



| ADD A NEW                    | NETWORK     | × |
|------------------------------|-------------|---|
| Number of<br>networks to add | 1           |   |
| Name/Prefix                  | Net         |   |
| Туре                         | bridge 🔹    |   |
| Left                         | 0           |   |
| Тор                          | 0           |   |
|                              | Save Cancel |   |
|                              |             |   |

#### 8.1.1.3 Picture object

The picture object opens the "Add Picture" window and allows you to upload custom topologies in jpg or png format. After uploading, you can edit these pictures and map selected areas to nodes from the topology to use your own designs as a lab topology from which you can directly connect to the nodes. For details, refer to section 11.2

| ADD PICTURE |                       |  |  |  |
|-------------|-----------------------|--|--|--|
| Name        | МуТороlogy            |  |  |  |
| Picture     | Browse anycon_lab.PNG |  |  |  |
|             | Add Cancel            |  |  |  |



#### 8.1.1.4 Custom shape object

The Custom shape object allows you to add shape elements onto the topology; these currently include squares, round squares and circles. For details, refer to section 11.1



| ADD CUSTOM SHAPE ×   |          |   |  |  |
|----------------------|----------|---|--|--|
| Туре                 | square ~ |   |  |  |
| Name                 | Name     | ] |  |  |
| Border-type          | solid ~  |   |  |  |
| Border-width         | 5        |   |  |  |
| Border-color         |          |   |  |  |
| Background-<br>color |          |   |  |  |
| Save Cancel          |          |   |  |  |

#### 8.1.1.5 Text object

The Text object allows you to add MS Office elements onto the topology. For details, refer to section 11.1.3

| Add a new object |   |
|------------------|---|
| 🕶 Network        |   |
| Picture          |   |
| Custom Shape     | B I U S ×₂ x²   ✔ I <sub>x</sub>   ≔ ≔ i≡ i ≠ i≡ i 19 18   ≡ ≡ ≡ i ×1 14 話·   ∞ ∞ ⊫ i ⊡ ⊞ ≣ Ω © ⊡ |
| A Text           | Styles • Format • Font • Size • 🛕 🕢   |
| →Line            | New Text  |
| III Auto Align   |   |

#### 8.1.1.6 Line object

The Line object allows you to add line elements onto the topology; these currently include single arrow, double arrows and simple lines. For details, refer to section 11.1

| ADD LINE    |                |   | 1 | × |
|-------------|----------------|---|---|---|
| Width       | 2              | ٥ |   |   |
| Arrow Style | ➡ single arrow | · |   |   |
| Paint Style | Solid          | · |   |   |
| Line Style  | Straight       | • |   |   |
| Line Color  |                |   |   |   |
| Line Label  |                |   |   |   |
| Save Cancel |                |   |   |   |
|             |                |   |   |   |
| 8.1.2       | Nodes          |   |   |   |

The Nodes object in the sidebar opens the "Configured Nodes" window.

📕 Nodes



| :01 | NFIGUR | ED NODES |                              |     |           |         |            |          |     |     |         |   |                       |             |                 |                  | • • |
|-----|--------|----------|------------------------------|-----|-----------|---------|------------|----------|-----|-----|---------|---|-----------------------|-------------|-----------------|------------------|-----|
| ID  | NAME   | TEMPLATE | BOOT IMAGE                   | CPU | CPU LIMIT | IDLE PC | NVRAM (KB) | RAM (MB) | ЕТН | SER | CONSOLE |   | ICON                  | STARTUP-CON | FIG             | ACTIONS          |     |
| 1   | Win    | win      | win-10-x64-VL19              | 1   |           | n/a     | n/a        | 8192     | 1   | n/a | rdp-tls | ~ | Desktop.png *         | None        | ~               | <b>□</b> ■9∓ ©   | î   |
| 2   | R2     | iel      | i86bi_LinuxL3-AdvEnterpri: 🗸 | n/a | n/a       | n/a     | 1024       | 1024     | 1   | 0   | teinet  |   | 🚳 Router.png 🔹        | None        | ~               | ▶■9∓ ©           | ŵ   |
| 3   | R3     | iol      | i86bi_LinuxL3-AdvEnterpri: 🗠 | n/a | n/a       | n/a     | 1024       | 1024     | 1   | 0   | teinet  |   | 8 Router.png *        | None        | ~               | □∎∿± ©           | 8   |
| 4   | R4     | iol      | i86bi_LinuxL3-AdvEnterpri: 🗠 | n/a | n/a       | n/a     | 1024       | 1024     | 1   | 0   | teinet  |   | 8 Router.png *        | None        | ~               | <b>□</b> = 9 ± 6 | 8   |
| 5   | Docker | docker   | eve-ostinato:latest          | n/a | n/a       | n/a     | n/a        | 256      | 1   | n/a | rdp     | ~ | Metwork Analyzer.png* | Default     | $\mathbf{\vee}$ | ▶■⋺∓ ©           | 8   |
| 6   | Win    | win      | win-7-x86-IPCC V             | 1   |           | n/a     | n/a        | 4096     | 1   | n/a | rdp-tls | ~ | 🎩 Desktop.png 👻       | None        | $\sim$          | ▶■9∓Q            | ŧ   |

In this window, you can make changes for nodes that are on the lab topology. More options can be found in the detailed node specific menu, for details refer to section 9.1.2.

NOTE: Running nodes are highlighted in Blue, their settings cannot be changed. You can only change settings of nodes that are not currently running.

You can change the following values:

- Node Name
- Boot image
- Number of CPUs for the node
- Enable or disable CPU Limit (Refer to section 7.4.2)
- IDLE PC for Dynamips node
- NVRAM in Kbyte
- RAM in Mbyte
- Ethernet quantity. **NOTE:** The Node must be disconnected from any other nodes to make this change. You cannot change the interface quantity if the node is connected to any other node.
- Serial interface quantity, IOL nodes only. You cannot change Serial interface quantity if the node is connected to any other node.
- Type of Console
- Node Icon that appears on the Topology
- Startup configuration to boot from

Actions Buttons (Stopped node):

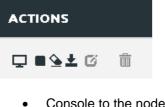
## ACTIONS

#### ▶■�±≈ơ m

- Start node
- Stop node
- Wipe node
- Export the nodes config
- Networks
- Edit node
- Delete Node

Actions Buttons (Running node):





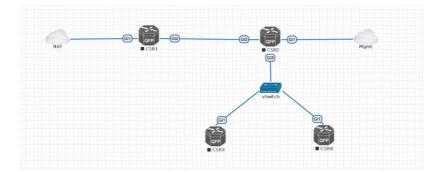
- Console to the node
- Stop node .
- Wipe node
- Export the nodes config •
- Edit node .
- Delete Node

#### 8.1.3 **Networks**



The Networks object in the sidebar will open the "Configured Networks" window.

The "Configured Networks" window will only show networks that were specifically added to the topology; it will not show node interconnections. The example below is showing information for networks on the Topology. For Cloud networks and how to connect EVE labs to a network external to EVE, please refer to section 10



| CONFIG | URED NETWORKS |        |                | ٠       |
|--------|---------------|--------|----------------|---------|
| ID     | NAME          | туре   | ATTACHED NODES | ACTIONS |
| 1      | NAT           | nat0   | 1              | G 1     |
| 2      | Mgmt          | pnet0  | 1              | G 1     |
| з      | vSwitch       | bridge | 3              | G 1     |

#### ACTIONS

ø Î

- Edit Network
- **Delete Network**



## 8.1.4 Startup-configs

🖹 Startup-configs

The Startup-configs object in the sidebar opens the "Startup-configs" window.

This window will show you startup-config for each node (for PRO it shows the startup configs of the current config set) and if the node is set to boot from it (ON) or not (OFF).

The "Startup-configs" window in the EVE Professional version contains additional features, please refer to section 11.3.

| STARTUP-CC | ONFIGS      |  | • ×        |
|------------|-------------|--|------------|
|            |             | Config Set Default -   |            |
| ASA        | 4 ON        | a a  | Ace Editor |
| vEOS2      | 4 ON        | :  | ^          |
| vEOS1      | 4 ON        | : Serial Number: 123456789AB<br>: Hardware: ASA5520, 3584 MB RAM, CPU Pentium II 1000 MHz  |            |
| vios-sw1   | 4 ON        | : Written by enable_15 at 17:47:17.629 UTC Wed Jul 26 2017<br>!  |            |
| avios-sw2  | 4 <b>ON</b> | ASA Version 9.1(5)16<br>I hostname ASA<br>enable password BRy2YJJyt7RRXU24 encrypted<br>xate per-session deny tcp any4 any4<br>xate per-session deny tcp any6 any4<br>xate per-session deny tcp any6 any4<br>xate per-session deny tcp any6 any4                                   |            |
|            |             | x kate per-session deny udp any4 any6 eq domain<br>x kate per-session deny udp any6 any6 eq domain<br>x kate per-session deny udp any6 any6 eq domain<br>x kate per-session deny udp any6 any6 eq domain<br>names<br>I<br>interface Ethernet0<br>namei outside<br>security-level 0 |            |
|            |             | ip address dhcp setroute I thereas dhcp setroute Channel-group 1 mode active Cancel  | <b>v</b>   |

#### 8.1.5 Logical Maps

Pictures NOTE: The Logical Maps object will only appear in the sidebar after you have uploaded a custom topology picture to the lab EVE lab (Please refer to section 8.1.1.3). The Pictures object in the sidebar opens the "Picture Management" window.

For details on the Picture / custom topology feature, refer to section 11.2

## 8.1.6 Configured Objects

A Configured objects

The "Configured Objects" window will display a list of all objects that are added onto the topology. For details on different objects, refer to

section 11.1

NOTE: You will not see any objects in this window if none have been added to the lab yet.

| CONF | CONFIGURED OBJECTS |        |             |  |         |  |  |
|------|--------------------|--------|-------------|--|---------|--|--|
| ID   | NAME               | Түре   | TEXT        |  | ACTIONS |  |  |
| 1    | tot 1              | text   | Topologyxtx |  | Ξ.      |  |  |
| 2    | square2            | square |             |  | Ŷ       |  |  |



## 8.1.7 More actions

The More actions menu in the sidebar has a submenu with the following functions.



#### 8.1.7.1 Start all nodes

The "Start all nodes" action will start all nodes on your topology, taking the (configurable) startup delay of each node into consideration.

▲ IMPORTANT. Starting many nodes at once can seriously spike your CPU utilization. Please make sure that you are not using the "Start all nodes" option for heavy labs or that you have configured a proper delay between the nodes. For heavy nodes and large quantities, it is recommended to start them in smaller groups, wait for them to finish booting and then start another small group of nodes.

#### 8.1.7.2 Stop all nodes

Stop all nodes

Stopping all nodes will power off all nodes on your topology.

NOTE: It is recommended to save your (running) configurations on the nodes in your lab before you stop the lab if you want to continue where you left off the next time. Stopping the nodes will leave the images in a temporary folder and will take up space on your drive until they have been wiped.

#### 8.1.7.3 Wipe all nodes

The "Wipe all nodes" action will wipe the NVRAM or currently saved image of all your nodes in the current lab.

Example: You have saved the nodes configuration by saving the running configuration to the startup configuration. The Wipe command will delete the saved NVRAM startup configuration and on the next boot it will boot from factory defaults.

The same applies to images without configurations, e.g. a linux node. If you make modifications to the system and afterwards wipe this node, the next time it will boot from the original base image again as the modified image was deleted.



The "Wipe node" action is commonly used with initial startup configuration modifications. The Wipe node action does not delete configured startup configurations or sets. Please refer to section 11.3

#### 8.1.7.4 Console to All Nodes

Console To All Nodes "Console to all nodes" will open a console to all of your running nodes in the current lab. This includes all different kinds of configured console types for lab nodes like VNC, Telnet and RDP.

#### 8.1.7.5 Export all CFGs

🛓 Export all CFGs

The "Export all configurations" action will export current configs to the EVE startup-configs.

Export configurations are supported for:

| Cisco Dynamips all nodes | Juniper VRR     |
|--------------------------|-----------------|
| Cisco IOL (IOS on Linux) | Juniper VMX     |
| Cisco ASA                | Juniper vMX-NG  |
| Cisco ASAv               | Juniper vQFX    |
| Cisco CSR1000v           | Juniper vSRX    |
| Cisco Nexus 9K           | Juniper vSRX-NG |
| Cisco Nexus Titanium     | Mikrotik        |
| Cisco vIOS L3            | PFsense FW      |
| Cisco vIOS L2            | Timos Alcatel   |
| Cisco XRv                | vEOS Arista     |
| Cisco XRv9K              |                 |

For a full explanation of exporting configurations, please refer to section 11.3

#### 8.1.7.6 Edit lab

| N E      | Edit lab  | Opens the E | Edit lab window. Refer to section: 7.8.4  |        |
|----------|---|-------------|---|--------|
| EDIT L   | AB  |             |   | ×      |
| Path*    | /UD Labs/Arista MLAG integration unl                  | Description | Arista mLAG and ASA Lab   |        |
| Name*    | Arista MLAG integration<br>Use only (A-2a-2b-9) Chars |             |   |        |
| Version* | 1<br>Must be interper ([0-9]chars)                    |             |   |        |
| Author   | UD  | Tasks       | LAB Scenario:<br>1. Configure ASA ports in etherchannels (mode active) and vianinterfaces per design, name it as DMZ and Corporate respectively<br>2. Configure ASA ed with DHCP IP, must neceive IP from hone. LAN and name this port as outside | ^      |
| Config S | cript Timeout 800 Seconds                             |             | <ol> <li>Configure ASA management on port e5, and Win7 Mgmnt host per design, ASA must be reachable from Mgmnt PC over ASDM</li> <li>Configure AristavEOS in mlag and assign ports in etherchannels per design</li> </ol>                         | - 11   |
| Lab Cour | ntdown Timer 0 Seconds                                |             | <ol> <li>Configure vEOS etherchannel ports facing to ASA in etherchannel mode active</li> <li>Configure vEOS etherchannels facing to vIOS-SWs to etherchannel mode on</li> </ol>  | ×      |
| *- Reg   | uired Fields  |             | Sov   | Cancel |

#### 8.1.7.7 Set node's startup-cfg to default configset

Sets nodes to the default startup-config. NOTE: If you have nothing saved in the default config set for any node, that node will boot from factory default instead. This is commonly used with the wipe nodes function so



the node will boot from the configured startup-config on next boot and not from the startup-config in its NVRAM in case the node was started before already.

Please refer to section 11.3

#### 8.1.7.8 Set node's startup-cfg to none

Setting all lab nodes to boot from factory default. Used commonly with the wipe nodes function. The example below shows the steps to set a lab to boot from factory default.

Step 1: Wipe all nodes Step 2: Set all nodes to startup-cfg none

Please refer to section 11.3

#### 8.1.7.9 Delete default startup-cfgs

😉 Delete default startup-cfgs

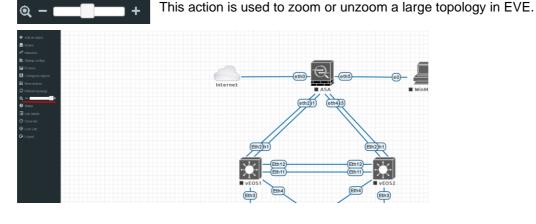
▲ WARNING: this action will delete all configurations saved to your saved default config set. Please make sure that is what you want to do before you execute this.

#### 8.1.8 Refresh Topology

 ${\cal G}$  Refresh topology

Sometimes it is necessary to refresh the topology if many objects are added on the topology.

8.1.9 Lab page zoom/unzoom



#### 8.1.10 Status

# Status

Opens the EVE Status window.



Especially useful while working with labs to monitor your EVE's resource utilization. It shows EVEs CPU, RAM and disk utilization in real time. You can also see the number of running nodes per node type. For details on UKSM and CPU Limit, please refer to section 7.4.2

| STATUS  |                        |                     |                  | ¢ x                    |
|---|------------------------|---------------------|------------------|------------------------|
| EVE-NG version: 2.0.4-37-PRO<br>QEMU version: 2.4.0<br>UKSM Status: | 12%<br>CPU usage       | 14%<br>Memory usage | 0%<br>Swap usage | 16%<br>Disk usage on / |
| Role: admin<br>POD: 0   | 0                      | ,<br>,              | )                | 3                      |
|   | running IOL node:<br>0 | s running Dyna      | amips nodes      | running QEMU nodes     |
|   | running Dock           | ker nodes           | runnin           | g VPCS nodes           |

## 8.1.11 Lab details

| Lab details display information about a lab, its UUID, description and lab tasks. To edit the lab description and lab tasks, please refer to section 7.8.4 and 8.1.7.6   |  |  |  |  |  |
|--|--|--|--|--|--|
| AB DETAILS   |  |  |  |  |  |
| ARISTA MLAG INTEGRATION  |  |  |  |  |  |
| ID: #8c898c9-073c-44c3-8c94-b52a9c988d00   |  |  |  |  |  |
| Arista mLAC and ASA Lab  |  |  |  |  |  |
| LAB Scenario   |  |  |  |  |  |
| 1. Configure ASA ports in etherchannels (mode active) and share herefaces per design, name it as DMZ and Corporate respectively  |  |  |  |  |  |
| 2. Configure ASA of with DHCPR Prust receive P Trom home LNA and name this port as outside<br>3. Configure ASA measurement on our S-S and WrYY Adama Name the import as outside  |  |  |  |  |  |
| 4. Configure transmission and assign port of the relation and the relation of the relation |  |  |  |  |  |
| 5. Configure vEDS etherchannel ports Facing to ASA in etherchannel mode active   |  |  |  |  |  |
| 6. Configure VEDS etherchannels facing to wIDS-SNR to etherchannel mode on   |  |  |  |  |  |
| 7. Configure VOS 5% etherchannels in mode on   |  |  |  |  |  |
| Configure and usign v05-01/01 subtraction in VLAbia accordingly design     Configure Host Space design     Configure Host Space design   |  |  |  |  |  |
| s. Cutingue manue region computer<br>10. Configure Manue to reach internet from DM2 and Corporate zones11. Corporate Zone must reach DM2 server  |  |  |  |  |  |

#### 8.1.12 Lab Tasks

Copens a Lab Task feature. The EVE LabTasks is a feature that allows users (including admins and editors) to to create task or workbook for the Labs. Detailed how to create lab workbooks please refer Secton 11.5

## 8.1.13 Lab Chat

# 🟴 Lab Chat

Opens a Lab chat session between users on the same EVE server. To activate the chat, click "Lab Chat" on the sidebar. To close and exit from the chat, click "Lab Chat" on the sidebar again. The EVE Lab

chat is a feature that allows users (including admins/teachers) to communicate with each other during lab sessions.





### 8.1.14 Lock Lab with password

"Lock Lab" disables some of the functions on the lab topology. If the lab is locked, you cannot move any node or object nor edit any node settings. Basically, the whole lab will be in readonly mode except for the lab settings itself, which you can still edit as Administrator or Editor from the main menu. The Lock Lab function is also used in conjunction with the countdown timer function, for details on this please refer to section 11.4

| Lock Lab<br>Lab is unlocked and all operations are<br>working | Enter password to look lab Password Confirm password took Cancel |
|---|--|
|   | Enter and confirm your lab lock password                         |

To unlock a Lab, simply press on the red "Unlock Lab" button with an Administrator or Editor account.

| 🦰 Unlock Lab                                    | UNLOCK LAB  |
|---|---|
| Lab is locked and all operations are restricted | Enter password to unlock lab Password UnLock Cancel |
|   | Enter lab unlock password to unlock lab.            |

Warning: Please remember your Lab lock password. In case of a lost password, you will not be able to recover it. Unlocking a lab / removal of password can be done by EVE-NG support only.

#### 8.1.15 Fullscreen

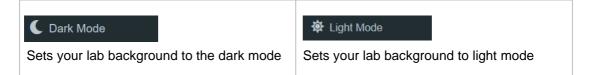
"Fullscreen" Fullscreen function is stretching your lab to the full monitor screen. To get back to normal web screen hit "ESC" or press

#### 8.1.16 Hide interface labels





## 8.1.17 Dark mode or Light mode



## 8.1.18 Close lab

Close lab Close lab Closes the lab topology. The lab can be closed while the nodes in the lab are still running as well. It will appear as running lab under the Running folder. Please refer to section 7.2.1.1

#### 8.1.19 Logout

Log out from the EVE WEB GUI session.

## 8.2 EVE Lab topology menus

Right-clicking within the EVE topology can open new menus with various functions and options for managing nodes.

#### 8.2.1 Lab topology menu

Right-clicking on the (free/unused) canvas of the EVE topology opens a new menu. (Add-) Node, Network, Picture, Custom Shape and Text are the same functions referred to in section 8.1.1.

**Auto Align.** This function will help align objects on the topology. The lab creator does not need to worry about small displacements of objects. AutoAlign will align all objects to a virtual grid with a single click and can make neatly arranged labs look even neater.

## 8.2.2 Connection menu



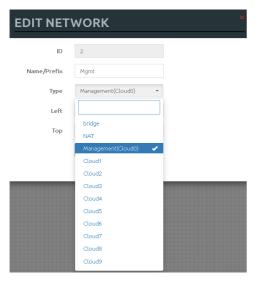
Right-clicking on the connection between nodes allows you to delete this connection.

#### 8.2.3 Cloud or Bridge network menu

Right-clicking on a Cloud or Bridge network allows you to edit or delete it.







If you have chosen Edit, the Network edit window will open a window where you can change the placement, network type or name/prefix.

For details on how to operate EVE Cloud networks and external connections, please refer to section 10



## 8.2.4 Stopped node menu

Right-clicking on a stopped node also opens a menu:



Start node: This will start the selected node in this lab

**Wipe node:** Wiping a node will erase the NVRAM (running config) or the temporary image snapshot depending on the type of node. This option is used to clean up a node in order to boot it from factory defaults or a custom set of configurations.

**Edit node:** Opens the Edit node window (picture on the right). For details please refer to section 9.1.2

**Delete node**. Deletes the node from the lab. It is recommended to disconnect (delete connections to it) the node before you delete it.

| EDIT NC          | DE         |                  |              |                      | \$        |
|------------------|------------|------------------|--------------|----------------------|-----------|
| Template         |            |                  |              |                      |           |
| Cisco CSR 1000\  | /          |                  |              |                      | *         |
| ID               |            |                  |              |                      |           |
| З                |            |                  |              |                      |           |
| Image            |            |                  |              |                      |           |
| csr1000v-univer  | salk9.03.1 | 7.04.S.156-1.S4  |              |                      | *         |
| Name/prefix      |            |                  |              |                      |           |
| CSR3             |            |                  |              |                      |           |
| lcon             |            |                  |              |                      |           |
| 🍘 CSRv1000.pr    | ng         |                  |              |                      | *         |
| UUID             |            |                  |              |                      |           |
| 67fea887-b30d-   | 4ad0-b31   | 4-828808b385     | 33           |                      |           |
| CPU Limit        |            | RAM (MB)<br>3072 |              | Ethernets<br>4       |           |
| QEMU Version     |            | QEMU Arch        |              | QEMU Nic             |           |
| tpl(2.12.0)      | *          | tpl(x86_64       | ) •          | tpl(e1000)           | *         |
| QEMU custom o    | ptions     |                  |              |                      |           |
| -machine type=p  | oc-1.0,acc | el=kvm -serial r | non:stdio -r | nographic -nodefconf | ig -nodef |
| Startup configur | ation      |                  |              |                      | •         |
| Delay (s)        |            |                  |              |                      |           |
| 0                |            |                  |              |                      |           |
| Console          |            |                  |              |                      |           |
| telnet           |            |                  |              |                      | *         |
| Left             |            |                  | Тор          |                      |           |
| 472              |            |                  | 365          |                      |           |
|                  | Sav        | e Cancel         |              |                      |           |

## 8.2.5 Running node menu



Right-clicking on a running node also opens a menu:





**Stop.** Blue arrow: clicking on Stop will stop the node depending on the method the node supports (power off / shutdown are auto-selected based on the template)

**Stop menu.** Red arrows: There are more options to stop a node, clicking on the chevron on the left side of "Stop" opens a submenu.

- **Shutdown**: Perform an orderly shutdown of the node if that node supports it (shutdown signal is sent down to the node)
- Power off: Kills the running nodes process within EVE (hard poweroff).
- **Hibernate.** Save Node state (Disk and Memory are saved in an internal snapshot). Used for fast boot of a node. The hibernation process can take some time. Once the hibernation process is completed, the node will turn grey (shutdown state).

**Wipe node**: Wiping a node will erase the NVRAM (running config) or the temporary image snapshot depending on the type of node. This option is used to clean up a node in order to boot it from factory defaults or a custom set of configurations.

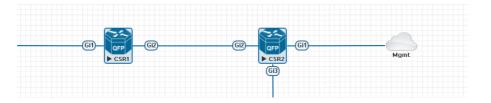
**Export CFG:** This function is used to export the saved running configuration to the EVE startup configuration sets. Reference section 11.3



**Capture**. Integrated live Wireshark capture. Select the interface which you wish to capture. Reference section 12

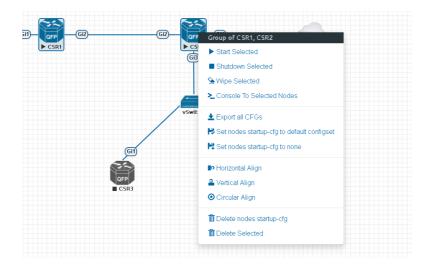
#### 8.2.6 Selected nodes menu and features

It is possible to select many objects or nodes at once in EVE. Using your mouse, you can select an area which will cover your nodes and/or you can click on nodes while holding the CTRL key on your keyboard.



A right-click on any of the selected nodes opens a group menu:





Start Selected: This will start the selected nodes in this lab.

Stop Selected: This will stop the selected nodes in this lab

**Wipe Selected**: The Wipe Selected nodes action will wipe the NVRAM or currently saved image of the selected nodes in the current lab.

Example: You have saved the nodes configuration by saving the running configuration to the startup configuration. The Wipe command will delete the saved NVRAM startup configuration and on the next boot it will boot from factory defaults.

The same applies to images without configurations, e.g. a linux node. If you make modifications to the system and afterwards wipe this node, the next time it will boot from the original base image again as the modified image was deleted.

The Wipe node action is commonly used with initial startup configuration modifications. The Wipe node action does not delete configured startup configurations or sets. Please refer to section 11.3

**Console To Selected Nodes:** Console To Selected Nodes will open a console to all selected running nodes in the current lab. This includes all different kinds of configured console types for lab nodes like VNC, Telnet and RDP

**Export all CFGs:** The Export all configurations action will export current configs of selected nodes to the EVE startup-configs.

For a full explanation of exporting configurations, please refer to section 11.3

**Set nodes startup-cfg to default configset:** Sets nodes to Default startup config, used commonly with the wipe nodes function. NOTE: If you have nothing saved in the default config set for any node, that node will boot from factory default instead. This is commonly used with the wipe nodes function so the node will boot from the configured startup-config on next boot and not from the startup-config in its NVRAM in case the node was started before already.

Please refer to section 11.3



**Set nodes startup-cfg to none.** Setting selected lab nodes to boot from factory default. Used commonly with the wipe nodes function. The example below shows the steps to set selected nodes to boot from factory default.

Step 1: Wipe selected nodes Step 2: Set nodes startup-cfg to none

Please refer to section 11.3

Horizontal Align. Aligns the selected nodes in one horizontal line.

Step 1: Select the nodes you wish to align.

Step 2: Right click on one of the selected nodes and choose Horizontal align, this will align all nodes to the selected node.

#### Picture before:

30

| MOS1    | VI052  | ₩IO53 | € <del>3</del><br>∎vioss | VIOS6 | VIOS7 | ¥<br>∎ vios8 | 8059<br>• VIOS9 |  |
|---------|--------|-------|--------------------------|-------|-------|--------------|-----------------|--|
| Picture | after: |       |                          |       |       |              |                 |  |

MOSE

30

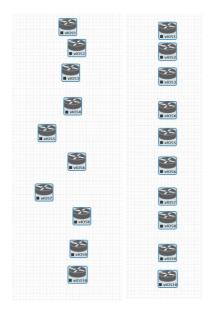
Vertical Align: Aligns the nodes in one vertical line.

Step 1: Select the nodes you wish to align.

Step 2: Right click on one of the selected nodes and choose Vertical align, this will align all nodes to the selected node.

Picture before Picture after

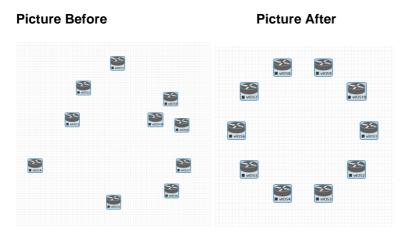




Circular Align: Aligns the nodes in a circle.

Step 1: Select the nodes you wish to align.

Step 2: Right click on one of the selected nodes and choose Circular Align, this will align all nodes in a circle, the midpoint of the circle will be at the coordinates the selected node was at before.



#### Delete nodes startup-config.

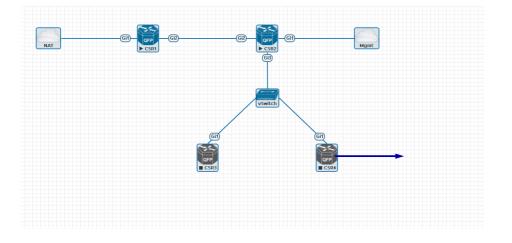
WARNING, this action will delete the configurations of the selected nodes that are saved to your Default config set. Please make sure that is what you want to do before you execute this.

Delete selected: This will delete the selected nodes from your current lab.

Selected nodes can be moved as a group across the topology.

Example: You can select nodes and objects to better position them on the Topology.





#### 8.3 EVE Lab node states and symbols

#### 8.3.1 Stopped (non-running) nodes



Grey colour and a square symbol below a node means that the node is stopped and not running. Once you will start it, the node will change to one of the running states below.



A grey node with an exclamation mark inside a triangle below the node means that there was a problem during the boot process, this could be a corrupted boot image, insufficient resources or problems with the initial configuration. A node in this state cannot be started again.

Workaround: Right-click on the node and wipe it, the symbol will then change to a grey colour with a square symbol below it. Then edit the node and make sure you have configured sufficient resources and the correct settings for this node, if it has startup-configs you can check them as well. Afterwards start the node again.

#### 8.3.2 Running nodes



The blue color and black Play triangle symbol means that the node is started and running, the node is in a working/functional state.

A running node with a clock symbol below the node means that the node is waiting to finish loading from the set exported/startup configuration. Once the configuration has been successfully applied, the node symbol will change to a Play triangle symbol. If the node has finished booting but the clock symbol does not change to

the Play triangle symbol, the problem could be in the uploaded startup configuration. For how to use exported configurations and boot nodes from them, please refer to section 11.1



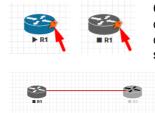
A running node with a turning red gear symbol means that the node is either in the process of hibernating the node or it has sent the shutdown signal to the node and is waiting for it to turn off. Once this process has successfully finished, the symbol will turn into a grey node with a black square symbol below it (stopped state).



NOTE: If the node does not support a system shutdown or does not recognize the shutdown signal (example: Cisco router), after clicking on Shutdown, the node can stay with a turning red gear symbol below it indefinitely.
Workaround: Use Stop or Stop/PowerOff to stop the node.

Example nodes where Stop/Shutdown is supported: Microsoft Windows and most Linux nodes as well as a lot of appliances based on linux.

#### 8.3.3 Node connector symbol



Connector symbol: If you move your mouse pointer on top of a running or stopped node, an orange connector symbol appears. It is used to connect nodes on the topology in a drag and drop style. Drag the symbol from one node and release the mouse pointer on the second node. A new window will appear where you can select the interfaces the link should connect to.

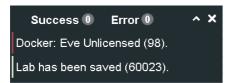
## 8.4 Other

#### 8.4.1 Notifications area



The Notification area in the top right is displaying informational or error messages.

Unwrapped notifications:



The Notification messages bar appears automatically for any EVE-PRO activity made on Topology.

| Success 4 | Success message counter. For review, click on green ball to unwrap notifications. To wrap notifications, click to the ball again or click at any point of topology   |
|-----------|--|
| Error 1   | Error message counter. For review, click on red ball to unwrap<br>notifications. To wrap notifications, click to the ball again or click at any<br>point of topology |
| ~         | Unwrap or wrap notifications bar.  |





Close notifications bar. Note: Notifications bar appears automatically on any EVE topology activity.



# **9 Working with EVE labs**

IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 16

## 9.1 Creating a lab

Step 1: Click Add new lab. For more information on creating new labs, please refer to section 7.2.2.1

| 攝 File manager | Current position / root |  |
|----------------|-------------------------|--|
| Add new lab    | Add folder              |  |
| *              | * ± ± • <i>C</i>        |  |

Step 2:

Fill out the lab information. Name and Version are required fields. Next hit Save. Refer to section 7.8.4 for more information about the different fields in the Edit lab window.

| Add New Lab      |                               |     |         |                            |   | ×. |
|------------------|-------------------------------|-----|---------|----------------------------|---|----|
| Name*            | mylab4                        |     |         | Description                | It is my new lab                                  |    |
|                  | Use only [A-Za-z0-9]chars     |     |         |                            |   |    |
| Version®         | 1                             |     |         |                            |   |    |
|                  | Must be interger ([0-9]chars) |     |         |                            |   | 4  |
| Author           | John Tester                   |     | Tasks   | 1. configure IP addressing | Ì.  |    |
| Config Script Ti | noout                         | 300 | Seconds |                            | 2. configure EIGRP AS 20                          |    |
| coming acript in | neout                         | 300 | aeconus |                            | 3. configure static default route to the Internet | ¥  |
| Lab Countdown    | Timer                         | 0   | Seconds |                            | Save Cancel                                       |    |
| * - Required Fie | lds                           |     |         |                            |   |    |

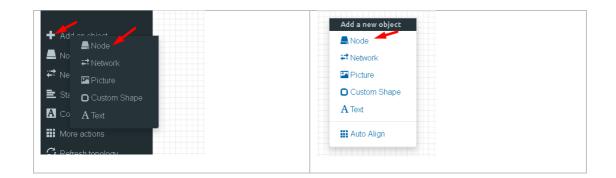
## 9.1.1 Adding nodes to the lab

The new Topology page will open. There are two different ways to add nodes to the topology canvas:

Step 1: Object/Add Node

| Left Side Bar > Add object > node. Refer to section $8.1.1.1$ for more information. | Right click on a free area of the topology page and click on "Node" to add a new node. Refer to section 8.2.1 for more information. |
|---|---|
|---|---|





Step 2: The Add new node window will appear. You can scroll down to choose which node you wish to add to the lab topology, or you can type the node name to filter through the node list.

NOTE: It will only be possible to select and add nodes that have images preloaded in EVE. These nodes will be displayed in a blue font. To prepare images for EVE, refer to section 0

| nplate   | Template                                |
|--|---|
| lothing selected                               | Nothing selected                        |
|  | cisco k                                 |
| Nathing sological                              | Cisco AC3                               |
| Nothing selected<br>A10 vThunder               | Cisco AMP Cloud                         |
| ATU VI hunder<br>Apple OSX                     | Cisco ASA                               |
| Apple OSX<br>Aruba ClearPass                   | Cisco ASAv                              |
| Aruba ClearPass<br>Aruba WiFi Controller       | Cisco Application Policy Infrastructure |
| Aruba WiFi Controller<br>Arista vEOS           | Cisco Context Directory Agent           |
| Arista VEUS<br>Barraccuda NGIPS                | Cisco CSR 1000V                         |
| Barraccuda NGIPS<br>Brocade vADX               | Cisco CSR 1000V (Denali and Everest)    |
| Brocade VADX<br>CheckPoint Security Gateway VE | Cisco IPS                               |
| CheckPoint security Gateway VE<br>Cyberoam FW  | Cisco CUCM                              |
| Cyberoam Pw<br>Docker.io                       | Cisco ISE                               |
| Cisco ACS                                      | Cisco IOS 1710 (Dynamips)               |
| Cisco AMP Cloud                                | Cisco IOS 3725 (Dynamips)               |
| Cisco ASA                                      | Cisco IOS 7206VXR (Dynamips)            |
| Cisco ASA                                      | Cisco IOL                               |
| Cisco Application Policy Infrastructure        | Cisco NX-OSv (Titanium)                 |
| Cisco Context Directory Agent                  | Cisco NX-OSv 9K                         |
| Cisco CSR 1000V                                | Cisco FirePower                         |
| Cisco CSR 1000V (Denali and Everest)           | Cisco FirePower 6                       |
| Cisco IPS                                      | Cisco vIOS                              |
| Cisco CUCM                                     | Cisco vIOS L2                           |
| Cisco ISE                                      | Cisco vNAM                              |
| Cisco IOS 1710 (Dynamips)                      | Cisco vWLC                              |
| Cisco IOS 3725 (Dynamips)                      | Cisco vWAAS                             |
| Cisco IOS 7206VXR (Dynamips)                   | Cisco Prime Infra                       |
| Cisco IOL                                      | Cisco Email Security Appliance (ESA)    |
| Cisco NX-OSv (Titanium)                        | Cisco Web Security Appliance (WSA)      |
| Cisco NX-OSV (Heaning)                         | Cisco XRv                               |



Step 3: Edit "Add a new node" settings. Please refer to the picture and table below.

| ADD A NEW                    |                       | DE                    |                             | ×        |
|------------------------------|-----------------------|-----------------------|-----------------------------|----------|
| Template <u>1</u> .          |                       |                       |                             |          |
| Cisco CSR 1000V              |                       |                       |                             | <b>,</b> |
| Number of nodes to ad        | d <mark>2</mark> . In | nage <mark>3</mark> . |                             |          |
| 1                            |                       | csr1000v-univers      | salk9.03.17.04.S.156-1.S4 • | <b>,</b> |
| Name/prefix <mark>4</mark> . |                       |                       |                             |          |
| CSR                          |                       |                       |                             |          |
| Icon 5.                      |                       |                       |                             |          |
| 🎒 CSRv1000.png               |                       |                       |                             | -        |
| UUID <mark>6</mark> .        |                       |                       |                             |          |
|                              |                       |                       |                             |          |
| CPU Limit 7.                 |                       |                       |                             |          |
| cpu <mark>8</mark> .         | RAM (MI               | 3) <mark>9</mark> .   | Ethernets 10.               |          |
| 1                            | 3072                  |                       | 4                           |          |
| QEMU Version 11.             | QEMU A                | rch <mark>12</mark> . | QEMU Nic 13.                |          |
| tpl(2.12.0) •                | tpl(×86               | _64) •                | tpl(e1000)                  | ,        |
| QEMU custom options          | 14.                   |                       |                             |          |
| -machine type=pc-1.0,ac      | cel=kvm -se           | erial mon:stdio -n    | ographic -nodefconfig -n    | (        |
| Startup configuration        | 15.                   |                       |                             |          |
| None                         |                       |                       |                             | -        |
| Delay (s) 16.                |                       |                       |                             |          |
| 0                            |                       |                       |                             |          |
| Console 17.                  |                       |                       |                             |          |
| telnet                       |                       |                       |                             | ,        |
| Left                         |                       | Тор                   |                             |          |
| 839                          |                       | 210                   |                             |          |
| Sa                           | ve Canc               | el                    |                             |          |



## 9.1.1.1 Node values Table

| Number | Description  |
|--------|--|
| 1.     | ADD A NEW NODE   |
| 2.     | Number of nodes to add<br>Chose the number of nodes of this type you want to add<br>to the topology  |
| 3.     | Choose your preferred version from preloaded images<br>list (if you have more than one image loaded for a<br>single template).   |
| 4.     | Name/prefix       Type your preferred node name. If you are adding more than one, EVE will automatically append numbers to the nodes name.         Example. We are adding 5 CSR nodes with the name R. On the topology they will appear as R1, R2, R3, R4, R5. Later using the the Nodes window, you can edit the node names per your needs. Refer to section 8.1.2 or edit the node individually, refer to section 9.1.2. |
| 5.     | <ul> <li>CSRv1000.png</li> <li>AktsaSW.png</li> <li>Andba_ctrl.png</li> <li>CSRv1000.png</li> <li>CSRv1000.png</li> <li>Node icons can be changed from the default per your preference, simply choose the preferred icon from the dropdown list. Node icons can be changed later per your needs. Refer to section 8.1.2</li> </ul>   |
| 6.     | The UUID number is<br>assigned automatically after<br>a node is created. You may<br>also set it manually in case you are using a license that is tied to a particular<br>UUID.   |



| 7.  | CPU Limit CPU limit per node. This option is already set<br>(checked/unchecked) per EVE recommendations. Refer to<br>section 7.4.2  |
|-----|---|
| 8.  | CPU       Each node template has a pre-set CPU value that aligns with vendor requirements. This value can be changed per your needs.  |
| 9.  | RAM (MB)Each node template has a pre-set RAM value that aligns<br>with vendor requirements. This value is displayed in MB<br>and may be changed per your needs.   |
| 10. | Ethernets       4       The number of ethernets interfaces.         Image: A state of the number of ethernet interfaces into groups of 4. A value of 1 for the serial interfaces for IOL nodes are placed into groups of 4. A value of 1 for the serial interface option is available for IOL nodes only and follows the same grouping structure as ethernet interfaces. A value of 1 for Serial means your node will have 4 serial interfaces.         Image: A serial portgroups (4 int each)       Image: Serial portgroups (4 int each)         Image: A serial portgroups (4 int each)       Image: Serial portgroups (4 int each)         Image: A serial portgroups (4 int each)       Image: Serial portgroups (4 int each) |
| 11. | Custom MAC address for Qemu nodes only. You can define your own MAC address for first interface:          First Eth MAC Address         aa:bb:cc:00:de:ad   |
| 12. | QEMU VersionEVE will pre-set the best recommended QEMU version<br>for each node template. This value can be changed per<br>your needs.  |
| 13. | QEMU Arch<br>(pl(x86_64)  Qemu architecture is pre-set per image vendor<br>recommendations. This value can be changed per your<br>needs   |



| 14. | QEMU Nic         tpl(vmxnet3)         virtio-net-pcl         r         e1000-82545em         vmxnet3         tpl(vmxnet3)  |
|-----|--|
| 15. | QEMU custom options         -machine type=pc-1.0,accel=kvm -cpuNehalem -serial mon:stdio -nographic -r         per image vendor         recommendations. This value can be changed per your needs  |
| 16. | Startup configuration         None         Startup configuration: Value can be changed to set your node to boot from saved configurations. Refer to section 11.3 for more details.   |
| 17. | The Delay value is set in seconds and can<br>be used to delay a node from booting after<br>it is started. Example: if the value is set to 30, the node will wait 30 seconds<br>before processing its boot sequense. This feature is useful in conjunction with<br>the "Start all nodes" function if your lab requires certain nodes to start up before<br>others or to avoid a mass-start of very heavy nodes. |
| 18. | Console types for each template are pre-set with recommended settings.<br>The setting can be changes per your needs.<br>MOTE: The Docker template contains a wide variety of images, therefore, please refer to section 14.1.3 for recommended console types for each docker image. Windows nodes can use either RDP or VNC but RDP needs to be enabled in Windows itself.                                     |
| 19. | First Eth MAC Address       OPTIONAL: Templates for         Cisco FirePower, F5, Linux, and Citrix have the option to         manually set the MAC address for the first ethernet interface. This will enable         the use of licenses that are tied to a particular MAC address.         MAC Address format must be like: 00:50:0a:00:0b:00  |

## 9.1.2 Edit node

EVE provides two ways to edit nodes after being added to the topology canvas.



- ▲ NOTE: A node must be wiped each time an image or startup configuration has been changed.
- 9.1.2.1 Edit nodes globally

From the Topology page. Click "Nodes" from the left sidebar to bring up the nodes list. Refer to section 8.1.2 for more details.



9.1.2.2 Edit node individually.



Right click on the node and click Edit

The "Edit node" window will appear. It is very similar to the window that is displayed when you add a new node. To change values for the node, refer to the nodes value table in section 9.1.1.1.



## EDIT NODE

| Template                  |                  |              |                    |            |
|---------------------------|------------------|--------------|--------------------|------------|
| Cisco vIOS 🔹              |                  |              |                    |            |
| ID                        |                  |              |                    |            |
| 1                         |                  |              |                    |            |
| Image                     |                  |              |                    |            |
| vios-adventerprisek9-m-1  | 5.6.2T           |              |                    | •          |
| Name/prefix               |                  |              |                    |            |
| Mos                       |                  |              |                    |            |
| lcon                      |                  |              |                    |            |
| 答 Router.png              |                  |              |                    | *          |
| UUID                      |                  |              |                    |            |
| b5fa3320-98ed-4ea4-ad21   | 1-627d427b8a6    | а            |                    |            |
| CPU Limit                 |                  |              |                    |            |
| CPU                       | RAM (MB)         |              | Ethernets          |            |
| 1                         | 1024             |              | 4                  |            |
| QEMU Version              | QEMU Arch        |              | QEMU Nic           |            |
| tpl(default 2.4.0) 🔹      | tpl(i386)        | -            | tpl(e1000)         | -          |
| QEMU custom options       |                  |              |                    |            |
| -machine type=pc-1.0,acce | el=kvm -serial n | non:stdio -n | ographic -nodefcon | fig -nodef |
|                           |                  |              |                    |            |
| Startup configuration     |                  |              |                    |            |
|                           |                  |              |                    |            |
| Delay (s)                 |                  |              |                    |            |
|                           |                  |              |                    |            |
| Console                   |                  |              |                    |            |
| telnet                    |                  |              |                    | •          |
| Left                      |                  | Тор          |                    |            |
| 839                       |                  | 218          |                    |            |
| Save                      | e Cancel         |              |                    |            |

## 9.1.3 Wipe Node

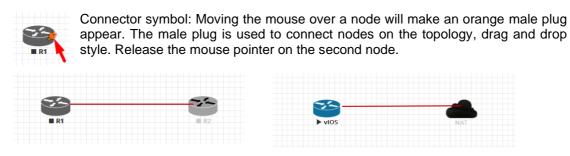


The "Wipe node" function will clear the NVRAM of the node. Each time a node setting is changed (CPU, RAM, boot image or startup configuration) a wipe must be issued on that node. For more information refer to section 11.3

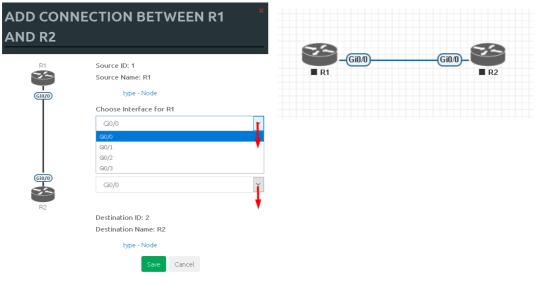


## 9.1.4 Interconnecting nodes

To connect nodes on the lab, use the drag and drop style method

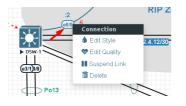


The connection window will appear. Choose the interface you want to use to interconnect the nodes. Click Save when finished.



## 9.1.5 Edit connection link style

Right click on the connection link and choose Edit Style



| Style | Link color | Link Style |        | Link Label |
|-------|------------|------------|--------|------------|
| Solid | ~          | Flowchart  | $\sim$ | VLAN 20    |

Save Cancel



**Style**: Allows you to choose solid or dashed style for link. This can be edited later in the "Shape Edit" menu.

**Link colour**: Allows you to choose a colour for the link. This can be edited later in the "Shape Edit" menu.

**Link Style**: Allows you to choose a style Straight, Bezier, Flowchart or StateMachine for the link. This can be edited later in the "Shape Edit" menu.

Link label: Allows you to add a label on the link. This can be edited later in the "Shape Edit" menu.

For edit Link style use mouse right click on link to call out link style editor.

#### 9.1.6 Edit connection link quality

Right click on the connection link and choose Edit Quality. This function will allow apply on live connection Delay in ms, Jitter in ms, Packet loss in % and rate in kbs.



It is recommended to apply value divided by 2 on both link interfaces to achieve precise connection quality. In the example below is applied 25% and 25% packet loss, which gives result of 50% packet loss in connection between nodes.

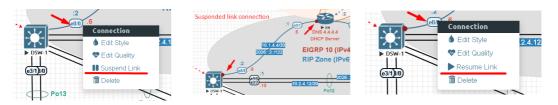


#### 9.1.7 Suspend or resume link connection

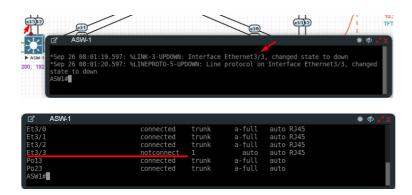
The EVE-Pro has integrated feature to detect connection state on the interface.

Right click on the connection link and choose Suspend Link. This function will suspend connection between the two nodes. Literally, it will act like disconnected cable from the node, and interface will detect it as no connection. Suspended link will be marked with red dots.

To resume link connection, right click on the link connection and choose Resume Link







Supported nodes with suspend/resume feature:

| Supported nodes for Link Suspend/resume  | Not supported   |
|--|---|
| IOL<br>vIOS<br>XRv9K<br>CSR<br>CSR SD-WAN<br>ASAv<br>Firepower FTD<br>Juniper vSRX 12.1X47<br>Juniper vSRX NG<br>Juniper vMX VCP/VFP<br>Juniper VRR<br>Nokia Timos SR 19.5.1<br>Windows All<br>Linux All<br>Apple OSX<br>Mikrotik<br>Palo Alto<br>F5<br>Fortigate<br>Checkpoint<br>Cumulus<br>Cyberoam FW<br>Sophos FW<br>SonicWall FW<br>Viptela<br>Velocloud<br>Versa Networks sd-wan<br>pfSense<br>Brocade vADX<br>Barracuda NGFW<br>HP VSR1000 | Arista<br>NXOS 9k<br>ASA ported<br>XRv<br>Old Juniper vMX<br>Juniper vQFX<br>Dynamips |

**NOTE**: Avoid use Link suspend feature if you have configured:

IOL L3 router image with:

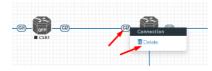


If the IOL L3 node interface is configured as DHCP client (ip dhcp), IOL node is attempting to bring up interface in up/up state. If you have enabled Link suspend feature on such configured interface, the node will flap link connection up/down/up. Same behave is observed if your Serial interface is configured with PPP encapsulation.

#### Other observations:

vIOS L2 image has minor internal issue. LACP protocol does not detect interface state as down/down

#### 9.1.8 Delete connection between nodes



To delete a connection, right click on it and hit "Delete."

#### 9.1.9 Delete Node



To delete a node, right click it and hit "Delete." This is a non-reversable function

NOTE: It is strongly recommended to delete connections from a node before deleting the node itself.

## 9.2 Running labs

#### 9.2.1 Starting lab

Nodes inside a lab may be started individually, in groups, or all at once.

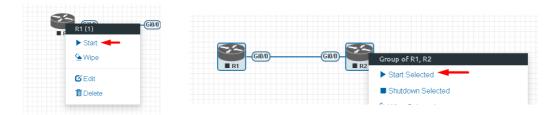
▶ Start all nodes The Start all nodes option will start all nodes on your topology.

IMPORTANT. Starting all the nodes at once can result in major spikes in CPU utilization. Please make sure you are not using the "Start all nodes" option for heavy labs. Instead, it is recommended to start nodes in small groups.

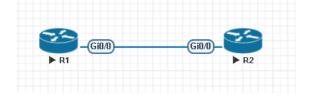
Starting a node or group of nodes:

Right click on single node or node group and hit "Start."





Running nodes will turn blue. Refer to section 8.3 for node states



### 9.2.2 Interconnecting running nodes (hotlinks)

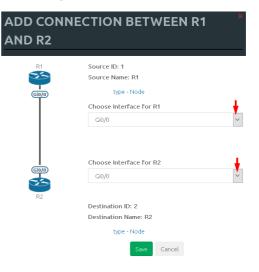
Eve Professional offers the hotlinks feature which allows you to interconnect node in the running state.



Connector symbol. Moving the mouse over a node will make an orange male plug appear. The male plug is used to connect nodes on the

topology, drag and drop style. Release the mouse pointer on the second node





## 9.2.3 Link quality delay, packet loss, jitter and rate feature

Please refer to Section 9.1.6

## 9.3 Saving labs

To save a running lab, refer to the vendor recommended save commands for each node.

Example: Cisco: "copy run start" Juniper "commit"

Your current work will be saved in the nodes' NVRAM and the lab can be stopped safely. Starting the lab again will allow you to pick up from where you left off.



**WARNING:** Using the wipe action on a node will clear its NVRAM. This is similar to doing a factory reset on a device.

The configurations of nodes can be exported and used as initial or startup configurations for your labs. To export configurations and configuration sets for labs refer to section **11.1** 

## 9.4 Stopping labs

The Stop all nodes option will stop all nodes on your topology.

NOTE: It is recommended to save your running configurations before you stop your nodes.

Stopping a node or group of nodes:

Right click on single node or node group and hit "Stop."

For individual node Stop options refer to section 8.2.5

## 9.5 Start saved lab

Select the lab you want to start and click "Open". To start Lab refer section 9.2.1

| Verse Nume       Vdf Num       test_lab1            • NayLabFolder           18 May 2018 17:24           • Shared           18 May 2018 17:24             • MyLabFolder           18 May 2018 17:24           • Shared           18 May 2018 17:24             • UD Labs           22 May 2018 11:00           • Users           18 May 2018 01:49             • Urgers           18 May 2018 01:49           19 May 2018 01:49           • Est_lab1unt             • Est_lab1unt           22 May 2018 01:49           • Est_lab2unt           Lab Pathy /tsst_lab1ant             • Etst_lab2unt           22 May 2018 11:55           Lab Pathy /tsst_lab1ant             • Etst_lab2unt           22 May 2018 12:59           Lab Pathy /tsst_lab1ant             • Etst_lab2unt           22 May 2018 12:59           Lab Pathy /tsst_lab1ant   | Professional & Main / Management -      | System • O Information • O Licensing • | €2018 Eve-NG                               |
|--|---|--|--|
| Brunning         Brunning           MyLabFolder         18 May 2018 17:24           Shared         18 May 2018 17:25           UD Labs         22 May 2018 11:00           USers         18 May 2018 12:10           BrirePower FTD 623 F0C Multihomed HA.uni         19 May 2018 01:49           BritesLiabLuni         22 May 2018 01:49           BtesLiabLuni         22 May 2018 01:50           Etst_labLuni         22 May 2018 01:19           BtesLiabLuni         22 May 2018 01:19           BtesLiabLuni         22 May 2018 11:55           ItesLiabLuni         22 May 2018 11:55  |   | Add felder                             | test_lab1                                  |
| Image: Shared         18 May 2018 15:16           Image: Shared         22 May 2018 11:00           Image: Shared         22 May 2018 11:00           Image: Shared         18 May 2018 11:00           Image: Shared         18 May 2018 11:00           Image: Shared         18 May 2018 11:00           Image: Shared         19 May 2018 11:00           Image: Shared Maxwell         19 May 2018 01:49           Image: Shared Maxwell         22 May 2018 11:15           Image: Shared Maxwell         22 May 2018 11:15           Image: Shared Maxwell         22 May 2018 11:15           Image: Shared Maxwell Maxwell         22 May 2018 11:15           Image: Shared Maxwell Maxwel   |   |  | 7  |
| > UD Labs         22 May 2018 11:00           > Users         18 May 2018 14:31           > FirePower FTD 623 PoC Multihomed HA.uni         19 May 2018 01:49           > mrylab4.uni         23 May 2018 01:49           > test_lab1.uni         22 May 2018 11:15           > test_lab2.uni         22 May 2018 11:15  | MyLabFolder                             | 18 May 2018 17:24                      | 8  |
| busers     18 May 2018 14:31     FirePower FTD 623 PoC Multihomed HA.uni     FirePower FTD 623 PoC Multihomed HA.uni     19 May 2018 01:49     mylab4.uni     21 May 2018 01:49     test_lab2.uni     22 May 2018 01:19     test_lab2.uni     22 May 2018 11:15     test_lab2.uni     22 May 2018 11:15     test_lab2.uni     22 May 2018 11:15     tubPath; //test_lab1.uni  | Shared                                  | 18 May 2018 15:16                      |  |
| Image: Fire Power FTD 623 PoC Multihomed HA.uni         19 May 2018 01:49           Image:                                    | DD Labs                                 | 22 May 2018 11:00                      |  |
| Immylab4.uni         23 May 2018 02:06           Immylab4.uni         23 May 2018 02:06           Immylab4.uni         22 May 2018 01:19           Immylab4.uni         22 May 2018 01:19           Immylab4.uni         22 May 2018 01:19           Immylab4.uni         22 May 2018 11:15           Immylab4.uni         22 May 2018 12:59           Immylab4.uni         22 May 2018 12:59           Immylab4.uni         22 May 2018 12:59  | Users                                   | 18 May 2018 14:31                      |  |
| <ul></ul>  | FirePower FTD 623 PoC Multihomed HA.unl | 19 May 2018 01:49                      |  |
| Image: Intest_lab2.uni         22 May 2018 11:15         Lab Path//test_lab1.unit           Image: Imag  | mylab4.unl                              | 23 May 2018 02:06                      |  |
| Image: Second | ] test_lab1.unl                         | 22 May 2018 01:19                      |  |
| Lab3.unl 22 May 2018 12:59 UUID: 95692558-5acb-4308-ab66-64fsb40bd31f  | ] test_lab2.uni                         | 22 May 2018 11:15                      |  |
|  | test_lab3.unl                           | 22 May 2018 12:59                      | UUID: 95692558-5acb-4308-ab66-64f9b40bd31f |

## 9.6 Working with multiple running labs

Refer to section 7.2.1.1

### 9.7 Importing labs

Refer to section 7.2.2.6



9.8 Exporting labs

Refer to section 7.2.2.5

9.9 Deleting labs

Refer to section 7.2.2.2

9.10 Moving labs

Refer to section 7.2.2.4



# **10 EVE Clouds and Networks**

## **10.1 Bridge Network**

The EVE Bridge interface acts like an unmanaged Switch. It supports passing along tagged dot1q packets.

**Example:** We have to connect many nodes in a flat (dot1q) network

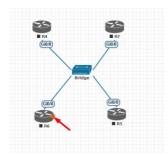
Step 1: Add a Bridge Network onto the topology. There are two ways to do this: Right-clicking on the topology area and selecting "Add Network" or in the sidebar click "Add an Object" and then select "Network." Please refer to sections 8.2.3 and 8.1.1.2

| Add a new object | 1                   |
|------------------|---------------------|
| 📥 Node           |                     |
| <b>₽</b> Network | 📕 Node              |
| Picture          | Network             |
| Custom Shape     | Ficture             |
| A Text           | E O Custom Shape    |
| 🔛 Auto Align     | A <sub>A Text</sub> |
|                  | Mara actiona        |

Step 2: Name/prefix can be changed in order to rename your Bridge network. Make sure your network type is set to bridge.

| ADD A NEW NETWORK            |             |  |  |
|------------------------------|-------------|--|--|
| Number of<br>networks to add | 1           |  |  |
| Name/Prefix                  | Net         |  |  |
| Туре                         | bridge      |  |  |
| Left                         | 1089        |  |  |
| Тор                          | 476         |  |  |
|                              | Save Cancel |  |  |

Step 3: Connect your nodes using the drag and drop connector. Refer to sections 9.1.4 and 8.2.3





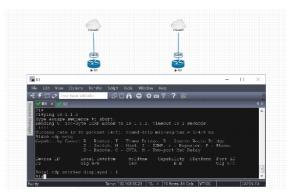
## **10.2** Internal Network

Internal cloud network is used as an extended connector between nodes inside of one lab. It isolated cloud which not visible for other labs or users.

Step 1: Add two internal cloud networks onto the topology.

| ADD A NEW NETWORK            |             |  |  |
|------------------------------|-------------|--|--|
| Number of<br>networks to add | 2           |  |  |
| Name/Prefix                  | internal    |  |  |
| Туре                         | internal •  |  |  |
| Left                         | 1345        |  |  |
| Тор                          | 306         |  |  |
|                              | Save Cancel |  |  |

Step 2: Connect your lab nodes to internal cloud. Your configured nodes will work like being connected to the same switch (or the same bridge in EVE). CDP works. It is convenient if it is necessary to have connections across the lab and you don't want to have connections going from one end of the lab to the other.



## **10.3 Private Network**

Private cloud network is used as an extended connector between labs in the one user POD. Private cloud is isolated and not visible for other users.

**Example**: one user is running multi labs (Lab1 and Lab2), and want interconnect it.

Step 1: Add private cloud network onto the topology Lab1.

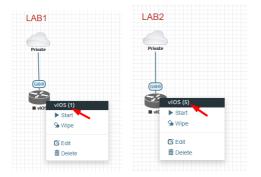
Step 2: Add private cloud network onto the topology Lab2.

| ADD A NEW NETWORK            |             |  |  |  |
|------------------------------|-------------|--|--|--|
| Number of<br>networks to add | 1           |  |  |  |
| Name/Prefix                  | Private     |  |  |  |
| Туре                         | private •   |  |  |  |
| Left                         | 1345        |  |  |  |
| Тор                          | 306         |  |  |  |
|                              | Save Cancel |  |  |  |

Step 3: Connect your lab node to Private cloud. Your connected nodes in Lab1 and Lab2 will work like being connected to the same network. CDP works. It is convenient if it is necessary to have connections across the multi labs.



NOTE: Using Private cloud, avoid to connect nodes with same ID to it. It will raise MAC address collision in your connection. Pic below shows correctly interconnected Node ID1 in Lab1 and Node ID5 in Lab2.



## 10.4 NAT Network

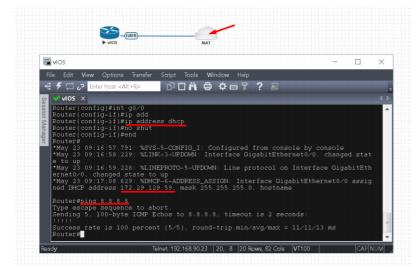
EVE-NG PRO has an embedded NAT interface with the subnet 172.29.129.0/24. This feature is similar to the VMWare NAT interface, but EVE is translating the 172.29.129.0/24 (this subnet is hardcoded in EVE and is not configurable) subnet to EVE's management interface pnet0.

To add a NAT Cloud onto the EVE topology:

| ADD A NEW NETWORK            |      | Step 1: Add A New Network onto the topology. There are two ways to do this: Right-clicking on topology area |
|------------------------------|------|---|
| Number of<br>networks to add | 1    | and selecting "Network" or in the sidebar, "Add an  |
| Name/Prefix                  | NAT  | Object" and then select "Network."  |
| Туре                         | NAT  | Step 2: Name/prefix can be changed in order to rename   |
| Left                         | 935  | your NAT network. Make sure your network type is set  |
| Тор                          | 340  | to NAT.   |
|                              | Save |   |

Step 3: Connect your nodes using the drag and drop connector. Refer to sections 9.1.4 and 8.2.3





If your EVE management is connected to the Internet, adding a NAT cloud onto the EVE lab enables you to have internet access from within your EVE lab using NAT.

EVE NAT Gateway IP is: 172.29.129.254/24

DHCP is enabled on the EVE NAT Cloud.

## **10.5** Management Cloud0 interface

EVE management interface is also known as the Cloud0 network for labs. The Cloud0 interface is bridged with your EVEs first NIC. "Cloud" is used as an alias to pnet. Pnet is the bridge interface name inside of EVE.

| # The primary network interface |
|---------------------------------|
| iface eth0 inet manual          |
| auto pnet0                      |
| iface pnet0 inet dhcp           |
| bridge_ports eth0               |
| bridge_stp off                  |

Cloud0 is commonly used inside EVE labs to get management access to nodes running inside EVE from a host machine external to EVE.

▲ **IMPORTANT NOTE:** For EVE VMs running on ESXi, make sure your management interface bridged with the vSwitch (Port group) has the security settings for Promiscuous Mode set to Accept. Any port group or vSwitch used to connect an external network to an EVE Cloud network needs to have the Promiscuous mode set to "Accept"!

#### vSwitch Settings

| 🥖 Edit standard virtual switch - vSwit | ch1                |
|--|--------------------|
| 🔜 Add uplink                           |                    |
| MTU                                    | 1500 🗢             |
| Uplink 1                               | vmnic1             |
| Link discovery                         | Click to expand    |
| ▼ Security                             |                    |
| Promiscuous mode                       | Accept     CReject |
| MAC address changes                    | Accept      Reject |
| Forged transmits                       | ● Accept ○ Reject  |
| ▶ NIC teaming                          | Click to expand    |
| ▶ Traffic shaping                      | Click to expand    |

#### **Portgroup Settings**

| <sup>e</sup> Edit settings 🛛 🤁 Refresh 🛛 🌞 Actions  |                   |   |                                     |
|---|-------------------|---|-------------------------------------|
| Management 90 UD           Accessible:         Yes           Virbal switch:         3           VIrbal switch:         3           VLN ID:         4005           Active ports:         5 |                   |   |                                     |
| vSwitch topology  |                   | ✓ Security policy   |                                     |
|   |                   |   |                                     |
|   |                   | Allow promiscuous mo  | de Yes                              |
| Management 90 UD  | Physical adapters | Allow promiscuous mo<br>Allow forged transmits  |                                     |
| VLAN ID: 4095   | Physical adapters | Allow forged transmits  |                                     |
|   |                   |   | : Yes                               |
| VLAN ID: 4095<br>VIrtual Machines (7)   |                   | Allow forged transmits  | Yes<br>Yes                          |
| VLAN ID: 4095<br>• Virtual Machines (7)<br>B vCentre 90.95  |                   | Allow forged transmits<br>Allow MAC changes   | Yes<br>Yes                          |
| VLAN D: 4095<br>• Virtual Machines (7)<br>© VCentre 90.95<br>© \$2016 EVE 90.201<br>© EVE-PRO.98.100<br>McCAdress D0.629 dl as le   |                   | Allow forged transmits<br>Allow MAC changes<br>~ NIC teaming policy   | Yes<br>Yes<br>Yes                   |
| VLAN D: 4095<br>* Virtual Machines (7)<br>#) Centre 90.95<br>#) S2016 EVE 90.201<br>#) EVE-PRO 98.100<br>MCA dates 100:239 dias 9e<br>#) EVE-PROV24                                       |                   | Allow forged transmits<br>Allow MAC changes<br>• NIC teaming policy<br>Notify switches<br>Policy                    | Yes<br>Yes<br>Yes<br>Route based on |
| VLAN ID: 4095<br>• Virtual Machines (7)<br>⊕ Vcente 90.35<br>⊕ 2016 EVE 90.251<br>⊕ EVE-PR0-98 100<br>McC-Address 00:0-29 d0 as 8e<br>⊕ EVE-PR0-94<br>⊕ EVE-PR0-94                        |                   | Allow forged transmits<br>Allow MAC changes<br>• NIC tearning policy<br>Notify switches<br>Policy<br>Reverse policy | Yes Yes Yes Route based on Yes Yes  |
| VLNID: 4095<br>VVrluil Machines (7)<br>WCentre 90.95<br>S2016 EVE 90.201<br>EVE-PRO.98 100<br>MAC.4dress 00.020 dt as fe<br>EVE-PRO.94<br>EVE COMM 59<br>Ctsco Lentity Services Engine    |                   | Allow forged transmits<br>Allow MAC changes<br>• NIC teaming policy<br>Notify switches<br>Policy                    | Yes<br>Yes<br>Yes<br>Route based on |
| VLAN ID: 4095<br>• Virtual Machines (7)<br>⊕ Vcente 90.35<br>⊕ 2016 EVE 90.251<br>⊕ EVE-PR0-98 100<br>McC-Address 00:0-29 d0 as 8e<br>⊕ EVE-PR0-94<br>⊕ EVE-PR0-94                        |                   | Allow forged transmits<br>Allow MAC changes<br>• NIC tearning policy<br>Notify switches<br>Policy<br>Reverse policy | Yes Yes Yes Route based on Yes Yes  |

### EVE Cloud0 bridging table.

| Lab name | EVE<br>interface<br>name (inside) | Туре    | Notes  |
|----------|-----------------------------------|---------|--|
| Cloud0   | pnet0                             | Bridged | Cloud0/pnet0 is bridged with your primary<br>EVE ethernet port. It is assigned a<br>management IP address used for WEB<br>GUI access. The EVE management<br>subnet can be used as a management<br>network in labs. |

▲ **Question:** How can I obtain my Cloud0 subnet and gateway IP. Many EVE VMs only have a DHCP address assigned on the pnet0 interface.

**Answer:** SSH to EVE and type the following from the CLI:

| route          |                      |                    |        |          |       |       |         |
|----------------|----------------------|--------------------|--------|----------|-------|-------|---------|
| root@eve-ng:~# | t politolacketsul 46 | errors.U dropped.U | overru | ns.U.can | nersu |       |         |
| Kernel IP rout |                      |                    |        |          |       |       |         |
| Destination    |                      | Genmask            | Flags  | Metric   | Ref   | Use ] | Iface   |
| default        | 192.168.90.1         | 0.0.0.0            | UG     | 0        | 0     | 0 p   | onetO   |
| 172.17.0.0     | ×                    | 255.255.0.0        | U      | 0        | 0     | 0 0   | locker0 |
| 172.29.129,012 | iteway IP type:      | 255.255.255.0      | U      | 0        | 0     | 0 r   | nat0    |
| 192.168.90.0   |                      | 255.255.255.0      | U      | 0        | 0     | 0 p   | onet0   |
| root@eve-ng:"# | ţ                    |                    |        |          |       |       |         |

**Example:** We want to use Cloud0 as a management network for an ASAv node in an EVE lab. From the above-obtained information, we know that our Cloud management subnet is 192.168.90.0 with a mask of 255.255.255.0 and the Gateway IP is 192.168.90.1.



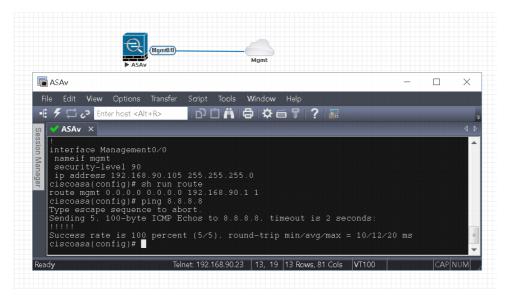
| ADD A NE                     | W NETWORK            |
|------------------------------|----------------------|
| Number of<br>networks to add | 1                    |
| Name/Prefix                  | Mgmt                 |
| Туре                         | Management(Cloud0) - |
| Left                         | 737                  |
| Тор                          | 163                  |
|                              | Save Cancel          |

Step 1: Add A New Network onto the topology. There are two ways to do this: Right-clicking on topology area and selecting "Network" or in the sidebar, "Add an Object" and then select "Network."

Step 2: Name/prefix can be changed in order to rename your Cloud0 network. Make sure your network type is set to Management(Cloud0).

Step 3: Connect your ASAv using the drag and drop connector to the Cloud0 network. Refer to sections 9.1.4 and 8.2.3

Step 4: Start the node and configure the interface connected to Cloud0 with an IP address from the management subnet (192.168.90.0/24 in this example). Make sure you do not assign duplicate IPs.

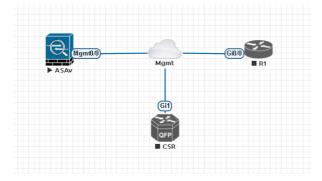


The native management host (home PC) can be used to manage nodes in the EVE lab over https. Example below showing http connection to Fortigate FW node in the EVE lab from native PC using Chrome browser.

|   |   | FortiGate - FortiGate-VM64  | -KVM ×      | +                                     |                            |  |          |
|---|---|---|-------------|---------------------------------------|----------------------------|--|----------|
|   | b rist  | ← → C △ ③ No  | st secure   | 192.168.90.116/ng                     | y/system/dashboard/1       | \$ Q   | Paused 🕕 |
|   |   | FortiGate VM64-KV   | M Fort      | iGate-VM64-KVM                        | 1                          | Q+ >_ [] @0 A  | 🛛 🔍 adm  |
| FGT   | Log configuration.<br>Router configuration.   | 🕫 Dashboard   | × ^         | System Inform                         | nation                     | Licenses   | 0 1-     |
|   | 594 filter configuration.<br>External FortSwitch configuration.<br>System operation configuration.<br>Authentication configuration.<br>Yest configuration.<br>Yest configuration.<br>West opplication.<br>Memory optimization configuration.<br>Memory configuration. | Status<br>Top Usage LAN/DMZ<br>Security<br>System Events                  | \$          | Hostname<br>Serial Number<br>Firmware | FortiGate-VM64-KVM         | FortiCare Support     Firmware & General Updates     IPS |          |
| ilter<br>less-controller<br>-configuration<br>iGate-VM64-KVM #<br>Name.     | Web filter configuration.<br>Mireless access point configuration.<br>show full configuration<br>show system interface   | i Security Fabric<br>i FortiView  | ><br>>      | Mode<br>System Time                   | NAT<br>2019/11/29 14:13:21 | AntiVirus     Web Filtering                              |          |
| dhcp 0.0.0<br>ical 0 0 enai<br>static 0.0<br>enable<br>static 0.0<br>enable | .8.0 8.0.8.0 0.8.0.0 0.8.0.8 up disable physical<br>.8.0 8.0.8.0 0.8.0.6 0.8.0.8 up disable physical  | <ul> <li>Network</li> <li>System</li> <li>Policy &amp; Objects</li> </ul> | ><br>><br>> | Uptime<br>WAN IP                      | 00:00:03:10<br>Unknown     | FortiToken   | 0/0      |
| mable<br>ot static<br>enable  | .0.0 0.0.0.0 0.0.0.0 0.0.0.0 up disable physical<br>0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 up disable tunnel<br>show system interface  | Security Profiles     VPN   | ><br>>      | Virtual Machi                         |                            | FortiGate Cloud     Status     Not Supported             | 1-       |
|   |   | User & Device     Lat. Log & Report     Monitor                           | >           | Allocated vCPU                        |                            |  | <        |



**NOTE:** Cloud interfaces can be used to connect multiple nodes to a single cloud instance on the topology.



## **10.6** Other cloud interfaces

Other cloud interfaces can be used to extend a lab connection inside of EVE or bridged with other EVE interfaces to connect external networks or devices.

#### EVE Cloud bridging table.

| Lab cloud<br>name | EVE<br>interface<br>name<br>(inside) | Туре    | ESXi VM<br>corresponding<br>interface | VMware<br>Workstation<br>corresponding<br>interface | Bare HW<br>Server          | Notes   |
|-------------------|--------------------------------------|---------|---------------------------------------|---|----------------------------|---|
| Cloud0            | Pnet0                                | bridged | Network<br>adapter 1                  | Network<br>Adapter                                  | First<br>ethernet<br>Eth0  | Cloud0/pnet0 is bridged with<br>your primary EVE ethernet port.<br>It is assigned a management IP<br>address used for WEB GUI<br>access. The EVE management<br>subnet can be used as<br>management network in the<br>labs.  |
| Cloud1            | Pnet1                                | bridged | Network<br>adapter 2                  | Network<br>Adapter 2                                | Second<br>ethernet<br>Eth1 | Cloud1 can be bridged with your<br>EVE second ethernet port to<br>achieve connection to another<br>network or device. The IP<br>address is not required to be<br>configured on it. It will act like a<br>pure bridge your external<br>connection with EVE lab node. |
| Cloud2            | Pnet2                                | bridged | Network<br>adapter 3                  | Network<br>Adapter 3                                | Third<br>ethernet<br>Eth2  | Same as Cloud1  |



| Cloud3   | Pnet3   | bridged | Network<br>adapter 4    | Network<br>Adapter 4    | Fourth<br>ethernet<br>Eth3 | Same as Cloud1 |
|----------|---------|---------|-------------------------|-------------------------|----------------------------|----------------|
| Cloud4-9 | Pnet4-9 | bridged | Network<br>adapter 5-10 | Network<br>Adapter 5-10 |                            | Same as Cloud1 |

If some of the clouds (e.g. Cloud1) are bridged to another ethernet (VMnet) you can connect your EVE lab to an external VM or physical device (like e.g. a switch, IP phone or access point).

▲ For ESXi make sure that you have set Promiscuous mode security settings on the vSwitch and Port group to Accept. Please refer to section 10.5

The next sections will explain how you can use Cloud networks in EVE to connect to other external (e.g. VMWare) VMs or physical devices.

## **10.7** Connecting external VM machines to the EVE Lab

### 10.7.1 ESXi VM machines

External ESXi VM machines can be connected to EVE labs using cloud interfaces.

NOTE: A single Cloud interface can be used to connect more than one external VM to the EVE lab.

**Example:** Connecting a Web Security Appliance (WSA) to the lab using the Cloud1 interface.

Step 1: Create a new or use an existing portgroup on your ESXi and assign it to EVE and WSA VMs as shown below. Make sure you have set Promiscuous mode on the vSwitch (portgroup WSA-MGMT) to Accept.

**I** NOTE: VM machines must be in a powered off state to assign network interfaces.

#### Portgroup WSA-MGMT (with vSwitch5 as parent) settings:



No

| Q WSA-MGMT  |                      |                                     |                                    |  |
|---|----------------------|-------------------------------------|------------------------------------|--|
| 🥖 Edit settlings 🛛 🤁 Refresh 🛛 🌞 Actions  |                      |                                     |                                    |  |
| WSA-MGMT           Accessible:         Yes           Virtual switch:         2           Virtual switch:         3           VLAN ID:         0           Active ports:         0 |                      |                                     |                                    |  |
|   |                      | <ul> <li>Security policy</li> </ul> | ,                                  |  |
|   |                      | Allow promiscuou                    | us mode Yes                        |  |
| Q WSA-MGMT<br>VLAN ID: 0  | No physical adapters | Allow forged tran                   | ismits Yes                         |  |
| Virtual Machines (2)  |                      | Allow MAC chang                     | ges Yes                            |  |
| EVE-PROv24  | -9                   | ▼ NIC teaming po                    | blicy                              |  |
|   |                      | Notify switches                     | Yes                                |  |
|   |                      | Policy                              | Route based on originating port ID |  |
|   |                      | Reverse policy                      | Yes                                |  |
|   |                      | Rolling order                       | No                                 |  |
|   |                      | ▼ Shaping policy                    |                                    |  |
|   |                      | <ul> <li>snaping policy</li> </ul>  |                                    |  |

Enabled

#### Parent vSwitch5 settings:

| wSwitch5  |                                    |                        |                      |
|---|------------------------------------|------------------------|----------------------|
| Add uplink / Edit settings C<br>vSwitch5<br>Type St<br>Port groups: 1<br>Uplinka: | Refresh   🏠 Actions                |                        |                      |
| ✓ vSwitch Details   |                                    | ✓ vSwitch topology     |                      |
| MTU   | 1500                               |                        |                      |
| Ports   | 4352 (4319 available)              | VLAN ID: 0             | No physical adapters |
| Link discovery  | Unknown                            | + Virtual Machines (2) |                      |
| Attached VMs  | 2 (0 active)                       | B EVE-PROv24           |                      |
| * NIC teaming policy  |                                    |                        |                      |
| Notify switches   | Yes                                |                        | 5                    |
| Policy  | Route based on originating port ID |                        |                      |
| Reverse policy  | Yes                                |                        |                      |
| Rolling order   | No                                 |                        |                      |
| * Security policy   |                                    |                        |                      |
| Allow promiscuous mode  | Yes                                |                        |                      |
| Allow forged transmits  | Yes                                |                        |                      |
| Allow MAC changes   | Yes                                |                        |                      |

## EVE and WSA VMs settings

|   | d port is assigned to<br>MGMT. It is Cloud1 on the |                             | rity appliance (WSA),<br>rt is assigned in portgroup |
|---|--|-----------------------------|--|
| ✓ Hardware Configuration  |  | ▼ Hardware Configuration    |  |
| CPU   | 16 vCPUs   | P CPU                       | 1 vCPUs  |
| 🌉 Memory  | 32 GB  | 🌉 Memory                    | 4 GB   |
| Hard disk 1   | 40 GB  | Hard disk 1                 | 250 GB   |
| Hard disk 2   | 150 GB   | Interview Network adapter 1 | WSA-MGMT (Connected)                                 |
| 🚭 USB controller  | USB 2.0  | Network adapter 2           | UNUSED (Connected)                                   |
| Network adapter 1   | Management 90 UD (Connected)                       | Network adapter 3           | UNUSED (Connected)                                   |
| Network adapter 2   | WSA-MGMT (Connected)                               | Network adapter 4           | UNUSED (Connected)                                   |
| ▶ 🛄 Video card  | 4 MB   | Metwork adapter 5           | UNUSED (Connected)                                   |
| Image: | Additional Hardware                                |                             |  |
|   |  |                             |  |
|   |  |                             |  |



#### EVE Lab connected to the WSA (Cloud1)

- NOTE: ESXi WSA VM obtained the IP 192.168.10.3 from the DHCP pool on the lab switch. The gateway is 192.168.10.1
- ▲ NOTE: The Firefox Docker node user for management obtained the IP 192.168.10.2 from the DHCP pool configured on the lab switch.

| ► Docker_management ► Switch Ctow<br>DHCP POOL WSA Extern<br>192.168.10.0/24 Port<br>SVI10 as Gateway 192.168.10.1<br>VLAN 10  | al ESXi VM  |          |
|--|---|----------|
| 5 192 - 192.168.90.23:58855 - Remote Desktop Connection  | i=  | - 🗆 X    |
| © Cisco Web Security Virtu: × +  |   |          |
| - → C û () 6 https://192.168.10.3.8443/monitor/wsa_user_report   | 🛡 ☆   | II/ 6D = |
| III-II-Cisco S000V     Elsco Web security Vetual Applanee     Reporting Web Security Manager Security Services Network System Administration   | Dogged in as admin on in<br>My favorities , Options |          |
| Some modules are added for you by default. The Overview page can be accessed from Reporting<br>> Overview.   |   |          |
| System Overview  | _   |          |
| Overview > Web Proxy Traffic Characteristics  Overview > System Resource Utilization   |   |          |
| Overview > Web Proxy Traffic Characteristics  Overview > System Resource Utilization Average transactions per second in past miniter. 0 Average transactions per second in past miniter. 0 CPU. 5.4%   | _   |          |
| Diverview > Web Proxy Tauffic Characteristics         Overview > System Resource Utilization           Average transactions per second in past minute:         0         CPU, 5.4%         CPU, 5.4%           Average bandwidth (bps) in past minute:         0         RAM, 51.0%         Excerpt reports thm (mps) in past minute:         0           Average transports thm (mps) in past minute:         0         RAM, 51.0%         Excerpt reports thm (mps) in past minute:         0  | _   |          |
| Overview > Web Proxy Traffic Characteristics Diverview > System Resource Utilization Average transactions per second in past minute: Average transactions per second in past minute: Average transactions per second in past minute: Baracteristic resource the (miss) in past minute: Baracteristic res | _   |          |
| Overview > Neb Pravy Traffic Characteristics         Overview > System Resource Utilization           Average transactions per second in past minute:         0           Average transactions time (ms) in past minute:         0           Average transactions time (ms) in past minute:         0           Average transactions time (ms) in past minute:         0           Botal current connections         0           System Sofus Details         5  |   |          |
| Cverview > Web Pravy Temfic Characteristics  Cverview > System Resource Utilization  Average includent Bips) in pair Amounts  System Status Details  Time Ranger  Dy   | _   |          |
| Overview > Web Pravy Toffic Characteristics         Image: Characteristics         Overview > System Resource Utilizations           Average instanctions per second in past minute:         0         CPU: 1.4%         CPU: 1.4%           Average instanctions per second in past minute:         0         CPU: 1.4%         CPU: 1.4%           Average instanctions per second in past minute:         0         CPU: 1.4%         CPU: 1.4%           Boal Current connections:         5         System Solute Details         System Solute Details           Time Range:         Day         22         Pay 2018 11.4% (EART)  | 0   |          |
| Overview > Web Pravy Toffic Characteristics         Image: Characteristics         Overview > System Resource Utilizations           Average instanctions per second in past minute:         0         CPU: 1.4%         CPU: 1.4%           Average instanctions per second in past minute:         0         CPU: 1.4%         CPU: 1.4%           Average instanctions per second in past minute:         0         CPU: 1.4%         CPU: 1.4%           Boal Current connections:         5         System Solute Details         System Solute Details           Time Range:         Day         22         Pay 2018 11.4% (EART)  |   |          |
| Overview > Web Proxy Taffic Characteristics         Overview > System Resource Difficution           Average transactions per second in past minute:         0           Average transactions per second in past minute:         6           Average transactions per second in past minute:         6           Average transactions per second in past minute:         6           System Status Details         5           Time Range:         Duy           22 May 2018 11:00 to 22 May 2018 11:44 (GMT)         Overview > Veb Proxy Summary   | 0   |          |

### **10.7.2** VMWare workstation machines

External (meaning not running inside EVE) VMWare workstation machines can be connected to EVE labs using cloud interfaces.

NOTE: A single Cloud interface can be used to connect more than one external VM to the EVE lab.

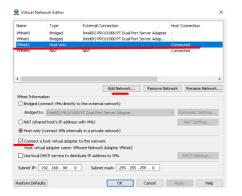
**Example:** Connecting Web security Appliance (WSA) to the lab using **Cloud2** interface.

**NOTE:** VMs must be in a powered off state to assign network interfaces.

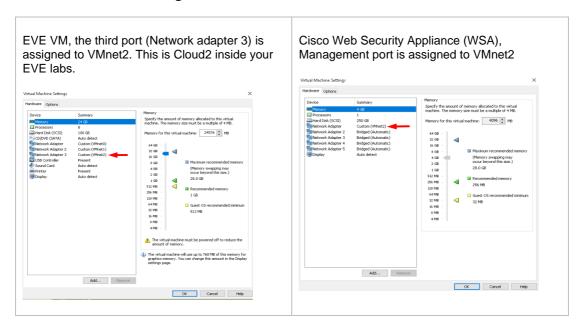
Step 1: Open your VMWare Workstation Virtual Network Editor and configure the VMnet interface for the Cloud and WSA VMs. If necessary add a new VMnet. The example below is showing VMnet2 Settings in VMWare workstation. DHCP must be disabled for VMnet2.

#### Virtual Network Editor settings:





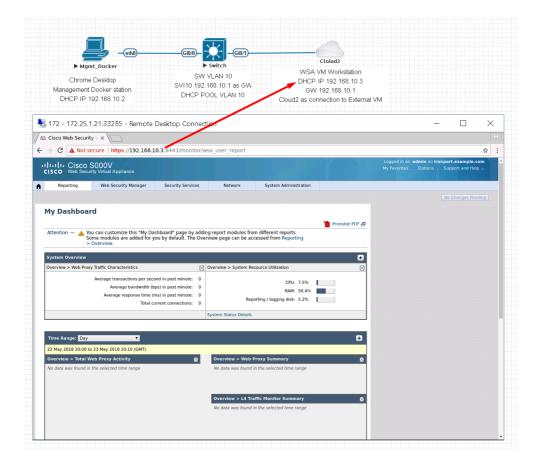
#### **EVE and WSA VMs settings**



#### EVE Lab connected to the WSA (Cloud2)

- NOTE: ESXi WSA VM obtained the IP 192.168.10.3 from the DHCP pool on the lab switch. The gateway is 192.168.10.1
- ▲ NOTE: The Firefox Docker node user for management obtained the IP 192.168.10.2 from the DHCP pool configured on the lab switch.





## 10.8 Connecting EVE Lab to a physical device

### 10.8.1 ESXi EVE

To connect a physical device (e.g. router, switch) to an EVE lab over a cloud interface, we have to bridge the ESXi NICs ethernet port to a VMnet interface.

- IMPORTANT NOTE: Make sure that you have set Promiscuous mode security settings on the vSwitch and Port group to Accept.
- IMPORTANT NOTE: If you are building trunk between EVE lab node to real Switch, please make sure you have set your ESXi vSwitch interface to accept all vlans. Reference: <u>https://kb.vmware.com/s/article/1004074</u>

**The Example** below is showing ESXi Server settings of the virtual network bridged to the physical interface.

Logical chain of the networking bridge:

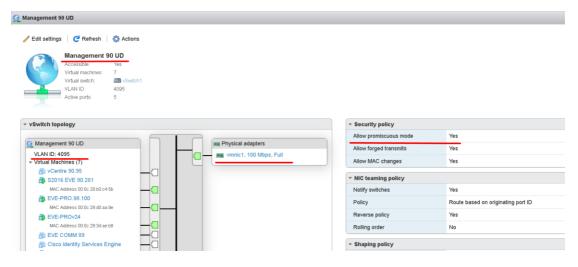
EVE Lab Cloud0 →Portgroup "Management 90 UD" →vSwitch 1→Physical Adapter eth1



| switch1   |  |   |
|---|--|---|
| Add uplink  Edit settings  vSwitch1  Type  Pot groups: Uplinis:                           | Standard vSwitch   |   |
|   |  | ▼ vSwitch topology  |
| MTU<br>Ports<br>Link discovery<br>Attached VMs<br>Beacon Interval<br>V NIC teaming policy | 1500<br>4.552 (4317 available)<br>Listen / Cisco discovery protocol (CDP)<br>7 (4 active)<br>1 | Imagement 90 UD         Imagement 90 UD           VLNN ID: 2095         Imagement 90 UD           VLNUS: 4095         Imagement 90 UD           Imagement 90 UD         Imagement 90 UD           VLNUS: 4095         Imagement 90 UD           Imagement 90 UD         Imagement 90 UD   |
| Notify switches<br>Policy<br>Reverse policy   | Yes Route based on originating port ID Yes   |   |
| Rolling order   | No   | Citics learning Services Engine  C  Citics learning  Cities learning  Citics learning  Cities learning  Cit |
| Security policy     Allow promiscuous mode     Allow forged transmits                     | Yes  | MAC Address 00 50 56 at 27 or d0  |

#### vSwitch1 settings bridged with Server Ethernet port vmnic1 (physical adapter)

#### Portgroup "Management 90 UD" Settings associated with vSwitch1



#### **EVE VM Settings**

EVE VM Cloud0 is connected to Portgroup "Management 90 UD"

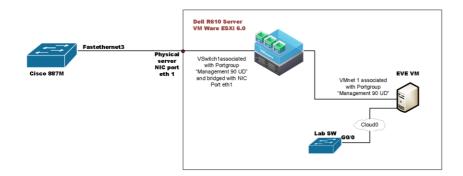


| <ul> <li>Hardware Configuration</li> </ul>  |                              |
|---|------------------------------|
| 🕨 🛄 CPU   | 16 vCPUs                     |
| 🌉 Memory  | 32 GB                        |
| ▶ 🔜 Hard disk 1   | 40 GB                        |
| ▶ 🔜 Hard disk 2   | 150 GB                       |
| 🚭 USB controller  | USB 2.0                      |
| Network adapter 1   | Management 90 UD (Connected) |
| Network adapter 2   | WSA-MGMT (Connected)         |
| ▶ 📃 Video card  | 4 MB                         |
| Image: | Additional Hardware          |

#### EVE Lab Connected to a physical device

#### Physical Topology

Cisco 887M device port Fastethernet 3 is physically connected to Server port eth1.



#### EVE Lab Topology

EVE lab switch port G0/0 is configured as trunk and connected to Cloud0 over bridged chain to the physical Cisco 887M Router switchport Fastethernet 3

| 887M  | -  |        |
|---|--|--------|
| ie Edit View Options Transfer Script Tools Window Help  |  |        |
| 🍠 🛱 🖓 Enter host <alt+r></alt+r>  |  |        |
|   | 4 Þ 🛹 887M 🗙   |        |
| EVELAAB_SWash cdp neig<br>Capability Codes: R - Router. T - Trans Bridge. B - Source Route Bridge<br>S - Switch. H - Host. I - IGMP. r - Repeater. P - Fhone.<br>D - Remote. C - CVTA. M - Two-port Nac Solay<br>Device ID Local Intrice Holdtme Capability Platform Fort ID<br>LAB_ESXiis.lv Gig 0/0 125 R S I 807M Fas 3<br>Total cde entries displayed : 1 | IAB_ESX!#     IAB_ESX!#     IAB_ESX!#     IAB_ESX!##     CopeDilty Code#: R = Router. T = Trans Bridge. B = Source Poute Bridge.     CopeDilty Code#: R = Switch. H = Host. I = IGMP. r = Repeater. P = 1     D = Pemero. C = CVTA. M = Two-port Mac Relay     Device ID Local Intrice Holdtme Capability Platform I     IAB_ESX!#     Iso I = 156 R = 1 | ?hone, |



### 10.8.2 VMWare workstation EVE

Similar to the ESXi connection, it is recommended to have a second ethernet interface on your PC. It can be a USB ethernet extender as well. Not all ethernet adapters fully support a layer2 connectivity over it. MS Windows OS itself strips off any tags added to the packet. Even if your NIC supports 802.1q VLAN tagging, Windows 10 strips these tags off. The example below will show a Windows 10 host connected to a physical 3750G-24 switch. The Windows 10 Host has an Intel (R) PRO/1000 PT Dual port server adapter and is bridged with VMWare workstation (version 14) VMnets.

Virtual Network Editor Settings, Bridged VMnet interfaces with Real NIC Ports

| Name<br>VMnet0<br>VMnet1<br>VMnet2<br>VMnet8 | Type<br>Bridged<br>Bridged<br>Host-only<br>NAT | External Connection<br>Intel(R) PRO/1000 PT Dual Port Serve<br>Intel(R) PRO/1000 PT Dual Port Serve<br>-<br>NAT |       | Host Connection<br>-<br>Connected<br>Connected | DHCP<br>-<br>-<br>Enabled | Subi<br>-<br>192<br>192 |
|--|--|---|-------|--|---------------------------|-------------------------|
| c<br>VMnet In                                | formation                                      | Add Netwo   | rk Re | move Network                                   | Rename Netw               | ><br>ork                |
| Bridg  | ed (connect V                                  | Is directly to the external network)  |       |  |                           |                         |
| Bridg  |  | R) PRO/1000 PT Dual Port Server Adapt   | er    | <ul> <li>✓ Auto</li> </ul>                     | matic Setting             | s                       |
|  | ed to: Intel(i                                 |   | er    |  | matic Setting             | _                       |

EVE VM Settings. Network adapter is bridged to VMnet0 (ethernet Intel Pro 1), and Network adapter 2 is bridged to VMnet1 (ethernet Intel Pro 2).

Responding cloud interfaces on EVE VM:

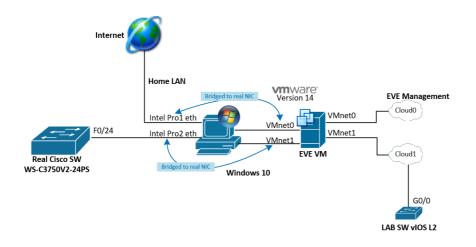
Cloud0→Network Adapter→VMnet0→IntelPro

Cloud1 $\rightarrow$ Network Adapter 2 $\rightarrow$ VMnet1 $\rightarrow$ IntelPro#2

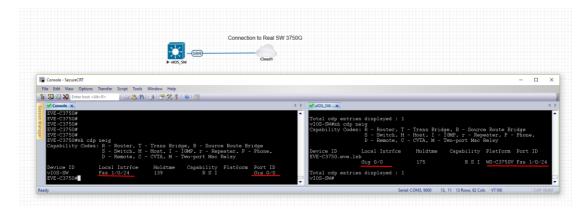


| Device  | Summary  | Memory   |
|---|--|--|
| Memory<br>☐ Processors<br>→ Hard Dak (SCS1)<br>◇ DC/D/D (SATA)<br>◇ DC/D/D (SATA)<br>Network Adapter 2<br>₩ Network Adapter 3<br>Ø US9 Controller<br>Ø Sound Card<br>♥ Drinter<br>♥ Display | 2408<br>8<br>8<br>Auto detect<br>Custom (Wheett)<br>Custom (Wheett)<br>Custom (Wheett)<br>Present<br>Auto detect<br>Present<br>Auto detect | Specify the anount of memory allocated to this virtual<br>machine. The memory size must be a multiple of 468.<br>Memory for this virtual machine: 24576 mm MB<br>46 GB - 268 - 4<br>5 GB - 4<br>5 GB - 4<br>5 GB - 4<br>6 GB - 28.0 GB<br>5 12 MB - 4<br>7 GB - 28.0 GB<br>5 12 MB - 1<br>7 GB - 1<br>7 GB - 28.0 GB<br>5 12 MB - 1<br>7 GB - 1<br>7 GB - 1<br>7 GB - 1<br>7 GB - 28.0 GB<br>5 12 MB - 1<br>7 GB - |
|   | Add Remo   | ve   |

Physical connection scheme and VMware bridging.



EVE Lab scheme.





The following solution allows Windows hosts to transmit tagged packets over ethernet. This has been used in the example above.

Warning. You are making changes to your Windows registry files! This is at your own risk.

https://www.intel.co.uk/content/www/uk/en/support/articles/000005498/network-and-io/ethernet-products.html

#### **10.8.3** Bare metal server EVE

A physical server usually has more than one ethernet port, free ports can be bridged with EVE clouds and used for external connections. EVEs internal interface settings are already bridged in order, pnet0-9 are mapped to eth0-9. Refer to the bridging table in section 10.6

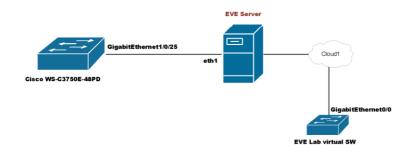


cat /etc/network/interfaces

Basically, your servers physical port eth0 is bridged to pnet0 which is Cloud0 in your labs, eth1 is bridged to pnet1 which is Cloud1 in your labs (and so on). Refer to the bridging table in section 10.6

The example below shows how to connect a bare-metal EVE server with a physical Cisco 3750E switch.

Physical connection topology:



The EVE lab switch's CDP neighbor is the 3750E switch's port Gig 1/0/25: A trunk has been configured between the EVE lab switch and the physical 3750E switch.

| 💙 Switch 🛛 🗙            |                                     |             |              |           |            |   |
|-------------------------|-------------------------------------|-------------|--------------|-----------|------------|---|
| Christelle and a second |                                     |             |              |           |            | A |
| Switch#sh cdp ne        |                                     |             |              |           |            |   |
| Capability Codes        | s: R - Router, T<br>SCS/CISwitch/CH |             |              |           |            |   |
|                         | D - Remote, C                       | - CVTA, M - | Two-port Mac | Relay     |            |   |
|                         |                                     |             |              |           |            |   |
| Device ID               | Local Intrfce                       | Holdtme     | Capability   | Platform  | Port ID    |   |
| NottsCoreRackSwi        | tch1.DataService                    | s.local     |              |           |            |   |
|                         | Gig 0/0                             | 140         | RSI          | WS-C3750E | Gig 1/0/25 |   |
|                         |                                     |             |              |           |            |   |
| Total cdp entrie        | es displaved : 1                    |             |              |           |            |   |
| Switch#                 |                                     |             |              |           |            |   |
|                         |                                     |             |              |           |            |   |

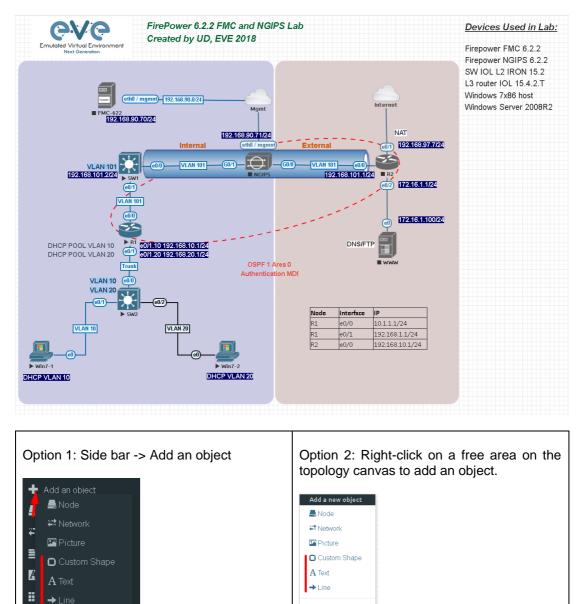


# **11 Advanced EVE Lab features**

## 11.1 Lab design objects

EVE Pro has drawing elements integrates to add drawings and text information to the lab topology. Objects can be placed on the topology in two ways.

Example below, EVE lab with design elements:



🔛 Auto Align



### 11.1.1 Custom shape

There are three custom shapes that can be added to the topology: square, round square and circle (sphere).

**Type**: Square, round square or circle

**Name**: This field can be filled with your preferred shape's name. If the field is left empty, EVE will generate a name for the shape.

Border type: Two options: line or dashed

| ADD CUSTOM SHAPE     |        |   |  |  |
|----------------------|--------|---|--|--|
| Туре                 | square | ~ |  |  |
| Name                 | Name   |   |  |  |
| Border-type          | solid  | ~ |  |  |
| Border-width         | 5      | ٠ |  |  |
| Border-color         |        |   |  |  |
| Background-<br>color |        |   |  |  |
| Save Cancel          |        |   |  |  |

**Border width**: Increase or decrease the width of the border. This can be edited later in the "Shape Edit" menu.

**Border colour**: Allows you to choose a colour for the shape's border. This can be edited later in the "Shape Edit" menu.

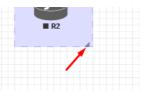
**Background colour**: Allows you to choose a colour to fill your shape with. This can be edited later in the "Shape Edit" menu.

Example: Added a circle and square on the topology. Shapes can be moved around the topology drag and drop style (click and move with mouse).



### 11.1.2 Resize square or circle objects

Move your mouse over the right bottom corner of the object until a corner symbol appears. Left click and drag your mouse to change object size or style (rectangle, sphere)

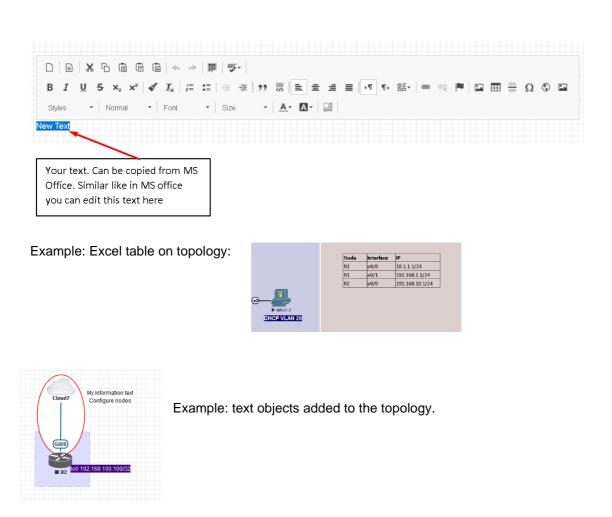


#### 11.1.3 Text

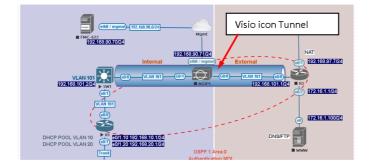
It is also possible to add text or other MS Office objects to your EVE topology. Rich HTML Office option allows you to copy texts from MS Word, Excel or Visio.







Example: Visio object added to the topology



## 11.1.4 Add picture to the topology

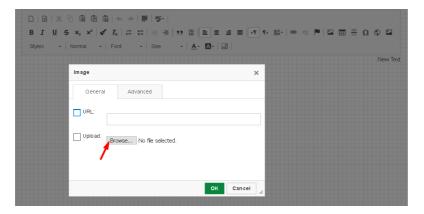
Custom images may be added by using HTML editor:

Step 1: Add a text object to the topology and press Image button for import.





Step 2: User browse to import your image.



Step 3: Double click on object you wish to resize, then change width and height.

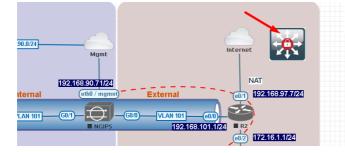
| D B X B B B B ★ →   #<br>B I <u>U</u> S ×, x²              Styles         -   Normal         -   Font         - | ** ** ) ?? 🐰 🖿 🚊 🖆 |  |
|---|--------------------|--|
|   | Emulate            | d Virtual Environment<br>Next Generation |
| Image   | ×                  | ,  |
| General Advanced  |                    |  |
| Alternative Text  |                    |  |
| Width Height<br>240 96 V Lock Ratio   |                    |  |
|   | ISpace Border      |  |
|   | OK Cancel          |  |

11.1.5 Custom object linking with telnet or other protocol

This feature allows you to link your eve topology object with external source. It can be web site or other protocol like Telnet to call out console for external object.

Step 1. Add the text or picture using HTML editor. Sections 11.1.3 or 11.1.4.

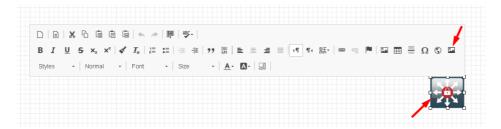




Example: Custom icon added from MS Visio.

Step 2. Position your object in place where you want it to be.

Step 3. Highlight text or activate object.



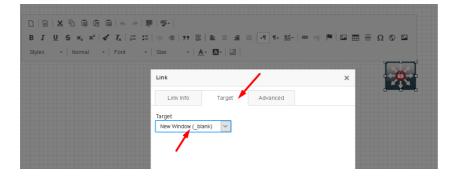
Step 4. Use link button to assign custom protocol for your object. Example: Protocol Other, type in URL: **telnet://10.1.1.10** 

| ₩  ♥-  <br>ニ   ☆ ☆   ** ※   匙 ☆ 孟 ☰ ■ ● ♥・ 話・ ● ♥<br>-   Size -   <u>A</u> ・ <b>집</b> ・   副 | ■ ■ = Ω © ■                           |
|---|---------------------------------------|
| Link  | × •••                                 |
| Link info Target Advanced Display Text Link Type  | · · · · · · · · · · · · · · · · · · · |
| Protocol URL v<br>sother> v teinet.//10.1.1.10  | -                                     |
| ок  | Cancel                                |

Step 4. Tab Target, Example: Target/New Window



7



Step 5. OK for Save.

**NOTE** to edit picture object assigned with link, use mouse mark area of object and it and double click on area beside object.



Line object allows you to draw and design lines on the topology.

Step 1. Add a Line object to the topology

| ADD LINE    |                  | × |
|-------------|------------------|---|
| Width       | 2                |   |
| Arrow Style | → single arrow • |   |
| Paint Style | Solid •          |   |
| Line Style  | Straight -       |   |
| Line Color  |                  |   |
| Line Label  |                  |   |
| Save Cancel |                  |   |

**Width**: Increase or decrease the width of the line. This can be edited later in the "Shape Edit" menu.

**Arrow Style**: Allows you to make arrows to your Line object. Single arrow, Double arrows or no Plain. This can be edited later in the "Shape Edit" menu.

**Paint Style**: Allows you to solid or dashed style for line. This can be edited later in the "Shape Edit" menu.

**Line Style**: Allows you to choose a style Straight, Bezier, Flowchart or StateMachine for the line. This can be edited later in the "Shape Edit" menu.

**Line colour**: Allows you to choose a colour for the line. This can be edited later in the "Shape Edit" menu.

Line label: Allows you to add a label on the line. This can be edited later in the "Shape Edit" menu.

Example, Dashed, Bezier, double arrow line with label:





Positioning and moving line object. Line object has invisible connection points at the ends. Use mouse to find that point, drag and drop move line connection point to your preferred lab location. Use mouse to move other line endpoint on lab location.



To move all line, use CTRL to mark line endpoint and move line over topology to position it.

Edit Line object. Right click on line to call out edit window:



Paint Style Line color Line Style Line Labe BGP Peer ow 🖌 Dashed 🖌 📕 Bezier

11.1.7 Nodes connection links design

Refer Section 9.1.5

### 11.1.8 Cloning objects and overlay positions

Right click on the object you want to clone and choose "Duplicate". You can also change the object's overlay position using the "Send to Back" or "Send to front" options.



11.1.9 Objects Editing

Right click the object and choose "Edit" for additional options.



At the bottom of the "Topology Canvas" page, additional object options will appear





**Z-index**: Used to change the object's overlay position on the "Topology Canvas." An object with a higher numerically valued z-index will cover an object with a lower numerically valued z-indexed.

**Example**: The blue object has a z-index of -1 and the orange object's z-index is 0. Orange object is top over blue object.

**Border width**: Used to change the object's border width.

Border type: Used to change the border style of the object between solid and dashed.

Border colour: Used to change the colour of the object's border

Background colour: Used to change the background colour of the object

**Transparent:** Turns off background colour (filling) and makes the object transparent.



Rotate: Used to rotate the object on the



Name: Used to change the object's name.

To save the object, press Save (green button).



## 11.1.10 Lock objects movement

The "Lock Lab" feature prevents objects from being moved around on the canvas (among other things). For more information about this feature, refer to section 8.1.14.

## 11.2 Custom design logical topology

EVE Pro includes a feature to upload your own custom topology picture and map nodes to it for easy access.

#### 11.2.1 Custom design upload

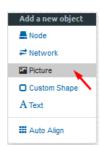
Before you upload a custom picture in the lab, make sure it is in .png or jpg format with resolution 130-150x130-150 pixels.

TIP: It is best is to create a topology in the MS Visio and after convert it to the .png picture format with resolution 140x140.

|                          | Interlace  | Sackground color:   |
|--------------------------|--|---------------------|
| Color formal             | 24-bit color   | Transparency color: |
| Color reduct             | on: None   | V.                  |
| Transformation           |  |                     |
| Rotation: N              | one  | Flip horizontal     |
| Resolution<br>O Screen   | OPrinter OSource   |                     |
| Custom                   | 140 X 140 pixe   | els / in. 🗸         |
|                          |  |                     |
| Size                     |  |                     |
| Size<br>Screen<br>Custom | Printer         Source           5.667         X 2.885         in. |                     |



Step 1: Open "Add an Object" and then "Pictures" from the left sidebar or right click on a free area on topology canvas and hit "Add Picture."



Step 2: Browse your PC for a .png or .jpg file and hit "Add".

| ADD PIC | TURE  | × |
|---------|---|---|
| Name    | Topology                                      |   |
| Picture | Browse Arista-MLAG_lab EVE2.png<br>Add Cancel |   |

Once the picture is added to the topology canvas, the sidebar will display a new option: "Logical maps"

Step 3: Open the "Logical maps" menu item.



Pictures window management

| â        | Delete uploaded picture from the lab  |  |
|----------|---|--|
| ũ        | Image Map: Map nodes to places in the picture   |  |
| Topology | Display uploaded picture. Work with lab and custom topology   |  |
|          | Zoom/unzoom uploaded custom topology  |  |
| *        | Makes the window transparent to see the<br>"Topology Canvas" behind it. Clicking again<br>returns to the normal view. |  |
| ×        | Close "Pictures" window.  |  |

#### 11.2.2 Custom topology mapping

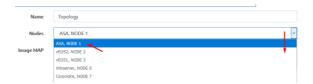
This feature allows you to map the lab nodes to your custom topology picture.



Step 1: Open the Image Map window:

🗂 🕰 Topology

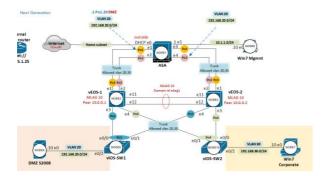
Step 2: Select a node, from the dropdown menu, that you want to map to the topology.



Step 3: Move your mouse over a node icon on the "Image Map" and click to map it. The grey circle means that the node is mapped.



Step 4: Continue mapping the rest of the nodes.



Step 5: OPTIONAL. You can also add a mapping for a device external to your EVE server in order to telnet, VNC, or RDP to it. This way you can open sessions to all your devices (whether external or internal) in one place.

| Select from I | Menu: Nodes   | CUSTOM , NODE outside lab  | ~ |
|---------------|---|--|---|
| And map wit   | h node on topology  | External<br>home.couter<br>(curred)<br>tellref://<br>172.25.1.25 |   |
| Change imag   | ge map adding prot  | ocol, IP and port.   |   |
| Image MAP     | <area alt="ii&lt;/th&gt;&lt;th&gt;mg" coords="102,286,30" href="proto://CUSTOM_IP:CUSTOM_PORT" shape="circle"/> |  |   |
|               |   |  |   |

Image MAP

<area shape='circle' alt='img' coords='102,286,30' href='telnet://172.22.7.18:23'>



Step 6: Save your mapping and refresh the browser with F5.

Save Cancel

### 11.2.3 Delete topology or mapping

To delete a single node mapping, right click on node mapping circle and click "Delete."



To delete the entire custom topology, click delete.

| î Ci   | Γοροίοgy |
|--------|----------|
| Delete |          |

# 11.3 Multi-configuration sets export feature

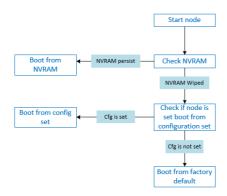
Eve Professional/Learning Center includes a "Multi-configuration Set" feature that allows you to save and manage multiple sets of configurations in a single lab. The "Configuration Export" and "Startup-configs" features will allow you to set these saved configurations as startup configs for your nodes when they boot.

IMPORTANT NOTE: Before you start using the "Multi-configuration Set" feature, you
must complete at least one configuration export.

| S | STARTUP-CONFIGS |     |            |           |
|---|-----------------|-----|------------|-----------|
|   |                 |     | Config Set | Default ~ |
| 8 | R1              | OFF |            |           |
| 8 | R2              | orr |            |           |
| ۵ | SW1             | OFF |            |           |
| ۵ | SWZ             | Off | I          |           |

Nodes will be greyed out without the option to enable "Startupconfigs" until you complete at least one configuration export for each node.

#### Node boot order:



**NVRAM**: NVRAM is used as writable permanent storage for the startup configuration. During the boot process, the node will always check NVRAM for a saved configuration. Saving the configuration to NVRAM requires a vendor specific command. Cisco: copy run startup (wr),



Juniper: commit, etc. It is MANDATORY to save a node's configuration before you can export it.

**Exported configuration**: A node configuration that has been exported from the node. It can be used to backup configurations or to set them as startup-configs.

**Wipe node**: Wiping a node will erase the NVRAM (running config) or the temporary image snapshot, depending on the type of node. Upon a successful wipe, the node will boot with the factory default configuration or the configuration included in the base image you are using. If you have the "Startup-config" feature enabled for the node, then it will boot with the chosen config set. You must wipe a node after changing certain node template settings like the image or startup-config. You also must wipe the node the first time you want to enable the "Startup-config" feature.

Factory default configuration: The base configuration that is applied from the manufacturer.

#### **11.3.1 Supported nodes for configuration exports**

Cisco Dynamips all nodes Cisco IOL (IOS on Linux) Cisco ASA Cisco ASAv Cisco CSR1000v Cisco Nexus 9K Cisco Nexus Titanium Cisco vIOS L3 Cisco vIOS L2 Cisco Viptela vEdge, vSmart, vBond Cisco XRv Cisco XRv9K Juniper VRR Juniper VMX Juniper vMX-NG JunipervQFX JunipervSRX Juniper vSRX-NG Mikrotik PFsense FW **Timos Alcatel** vEOS Arista

#### 11.3.2 Startup config management

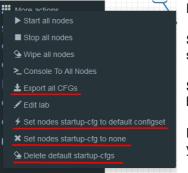
#### 11.3.2.1 Global commands



Configurations can be managed via the "Startup-configs window which can be accessed from the sidebar menu while on the Topology page.



#### **Topology page, More Options:**



**Export all CFGs** – Exports all supported node configurations.

**Set nodes startup-cfg to default configset**- Sets all supported nodes to boot from the default configuration set.

**Set nodes startup-cfg to none** - Sets all supported nodes to boot from NVRAM configuration.

**Delete default configuration set**. Warning, this will delete your exported default configuration set for all nodes.

#### 11.3.2.2 Individual node commands

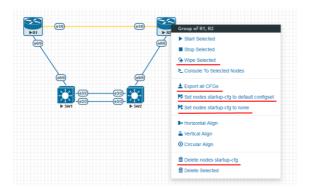
Select node, right click



Wipe: Wipes the NVRAM for a single node

**Export CFG**: Exports the configuration for a single node

**11.3.2.3 Multiple selected nodes commands** 



Wipe Selected: Wipes the NVRAM for selected nodes

Export all CFGs: Exports the configuration for selected nodes

Set nodes startup-cfg to default configs set: Set selected nodes to the default config set

Set nodes startup-cfg to none: Set nodes to boot from NVRAM or from factory default if wiped.

Delete nodes startup cfg: Delete selected node's startup cfg. (clean default set)



### 11.3.2.4 Startup-configuration window

No configuration exports or manual configs loaded for nodes

| STARTUP-CO | ONFIGS     |           |           | • × |
|------------|------------|-----------|-----------|-----|
|            | Config Set | Default ~ | + 7 1 ± ± |     |
| 🎒 R1       | OfF        |           |           |     |
| 🚳 R2       | OFF        |           |           |     |
| SW1        | OFF        |           |           |     |
| SW2        | OFF        |           |           |     |

Startup-configs are exported and the "Configuration Export" feature can be used.

| STARTUP-CONFIGS |            |           |           | • * |
|-----------------|------------|-----------|-----------|-----|
|                 | Config Set | Default ~ | + 2 1 ± ± |     |
| 🎒 R1            | OFF        |           |           |     |
| 🗃 R2            | OFF        |           |           |     |
| SW1             | OFF        |           |           |     |
| SW2             | OFF        |           |           |     |

# 11.3.2.5 Startup-config window information

| Config Set Default ~ | Config set menu   |
|----------------------|---|
| 🚳 R1                 | No configuration is available for node. Grey node   |
| 😂 R1                 | Configuration is available and can be used.<br>Blue node. Exported configuration persist              |
| S R2 OFF             | Configuration persist but it is disabled. Node will boot from NVRAM or factory default if it is wiped |
| 8 R1 4 0N            | Configuration persists and node will boot from the configuration after being wiped                    |
| CONFIG SET           | Add new config set.   |



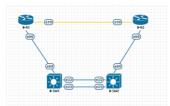
| CONFIG SET Neare Note same tota Carol   | Rename config set. The Default Config Set cannot be renamed.  |
|---|---|
| ★ Config Set IP Addressing ✓  | Select a Config Set and delete it. You<br>cannot delete the Default Config Set. The<br>Default configuration set can be cleaned<br>using the sidebar / More options / <b>Delete</b><br><b>default configuration set</b> |
| ٤   | Upload configuration set from your local PC   |
| *   | Download configuration set to your Local<br>PC  |
| •   | Apply Config Set button: Sets all nodes to boot from the chosen config set.   |
|   | Config Reset button: Sets all nodes to boot<br>from none. Node will check boot order. If the<br>Wipe function is used, nodes will boot from<br>factory default.   |
| R2     R2     R2     R2     R2     R2     R2     Inst configuration change at 19522     Instein 154     service timestamps debug datative i | Individual node export or import<br>configuration. Configuration export/import<br>file format is .txt.  |
| <sup>y</sup> Cisco-405 v ▲ Dark v II 12px v Ace Editor 0  | Ace Editor. Different vendor configuration edit option. Just Text visual format.  |

# 11.3.3 Export Default configuration set

**I**NOTE: The default configuration set is hardcoded. It is mandatory to export a nodes config before you can start building custom configuration sets.

#### Example:



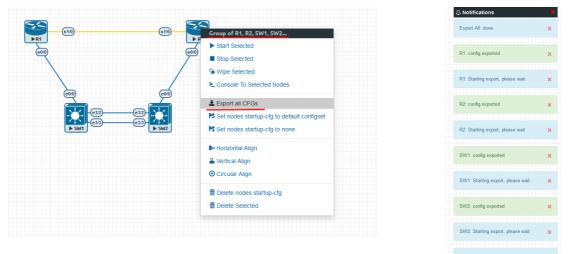


Step 1: MANDATORY: Configure your nodes and make sure you applied the vendor specific command to save the running configuration to NVRAM. If you do not save the configuration, it will not be exported and in the notification area, you will receive an error message stating the node cannot be exported.

In this example the nodes have been configured with hostnames only and the configurations have been saved to NVRAM.

Step 2: Chose any method to export configurations to the Default Config Set. You can use export a single node, a group of nodes, or all nodes. Only supported nodes configurations will be exported.

Step 3: In the example below a group of nodes were selected to export configurations.



Default configuration set is completed. The notification area will display "Export All: done" when complete.

NOTE: you can configure your nodes with your preferred configuration and make it the default configuration set.

#### 11.3.4 Boot nodes from exported Default config set

#### Step 1: Stop all nodes

Step 2: Open sidebar and click Startup-configs. Make sure your config is set to default and the nodes config switch is green (switch on/off beside node). Press the green "Apply Config Set" button (Set all nodes to selected config set) and all your nodes will boot with the default config set after wiping them.



| STARTUP-CONFIGS |            |           |           |             |
|-----------------|------------|-----------|-----------|-------------|
|                 | Config Set | Default 🗸 | + 7 × ± ± | <b>, 10</b> |
| 😂 R1            | 4 ON       |           |           |             |
| 28 R2           | 4 ON       |           |           |             |
| 🔀 SW1           | 4 ON       |           |           |             |
| SW2             | 4 ON       |           |           |             |

Step 3: Wipe nodes. For more information refer to section 9.1.3

Step 4: Start nodes

11.3.5 Export new custom config set

This section will describe how to create a new custom configuration set for the same example above.

A Make sure your nodes are running and booted from the default set.

Step 1: Create new custom named (e.g. "IP Addressing") configuration set, Press Add new config set.

| Config Set Default ~          | + 2 ± ± |
|-------------------------------|---------|
| Name it and press Add.        |         |
| CONFIG SET                    |         |
| Name IP Addressing Add Cancel |         |

The new configuration set is created.

NOTE: It will duplicate the default configuration set under your IP Addressing config set.

Step 2: Select newly created Config set IP Addressing and hit the green confirm button (Set all nodes to selected config set) on the right.

| Config Set | Default 🗸     | + 🛛 🗙 ± ± | <b>_ 7</b> |
|------------|---------------|-----------|------------|
|            | Default       |           |            |
|            | TP Addressing |           |            |

Step 3: Make sure your nodes have the Startup-config slider switched to "ON" and verify the config set menu has the "IP Addressing" set selected.



|       |      | Config Set IP Addressing 🗹 | + 7 1 ± ± |            |
|-------|------|----------------------------|-----------|------------|
| 25 R1 | 4 ON | ± 4                        |           | Ace Editor |
| 20 R2 | 4 ON | no ip address<br>shutdown  |           | ^          |
| SW1   | 4 ON | serial restart-delay 0     |           |            |
| SW2   | 4 ON | ip forward-protocol nd     |           |            |

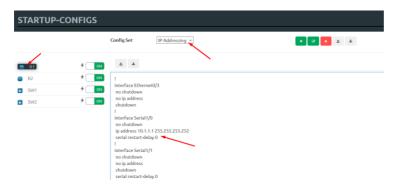
Step 4: Return back to your lab and continue configuring nodes until your preferred configuration is complete. In this Example, the IP addresses are configured on the nodes.

Step 5: IMPORTANT: YOU MUST save the configuration on all nodes, even if the configuration was not changed.

Step 6: Use any method (individual, group or all) to export the new configurations to the IP Addressing set.

Step 7: You can verify that the configs were exported by re-opening the "Startup-config" window.

Make sure the correct config set is selected, and check if the configuration is exported for the node or nodes.



Repeat steps 1-7 of this section for the next configuration set.

#### **11.3.6 Edit exported configurations**

It is possible to edit your configurations for the nodes manually.

Step 1: Select a config set and apply it with the green confirm button (Set all nodes to selected config set) on the right.

| Config Set | Default Y     | + C × ± ± | , , |
|------------|---------------|-----------|-----|
|            | Default       |           |     |
|            | IP Addressing |           |     |

Step 2: Select the node you want to edit the configuration of and make your changes. Click "Save" when you are finished.



| STARTUP  | -CONFIGS                     |   |       |              |
|--|------------------------------|---|-------|--------------|
|  |                              | Config Set IP Addressing ~  | + 2 4 |              |
| %         R1           %         R2           \$\$ \$W1           \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ | * 08<br>* 08<br>* 08<br>* 08 | Interface Ethermet()/3 no shutdown no ip address shutdown if description Link to R2 no shutdown ig address 10.1.1.1255.255.255.255 sefal restart-delay 0 tal                                    |       | Ace Editor ( |
|  |                              | Interface Secial (/ 1<br>no shutdown<br>no ip address<br>shutdown<br>serial restart-delay 0<br>1<br>Interface Secial (/ 2<br>no shutdown<br>no ip address<br>shutdown<br>serial restart-delay 0 |       |              |
|  | ~                            | interface Serial (/)<br>no is hatdrown<br>no is paddress<br>shatdrown<br>serial restart-delay 0<br>1<br>ip forward-protocol nd<br>Store Cancel  |       | <br>×        |

Step 3: Apply the config set to all nodes with the green "Apply Config Set" button on the right (Set all nodes to selected config set).



NOTE: you can manually copy/paste any configuration into the config set editor and apply it to your node. Make sure your configuration interfaces match the lab node's interface names.

#### 11.3.7 Set lab to boot from config set

To set your lab nodes to boot from the exported configuration, follow the steps below:

Step 1: Wipe nodes. Refer to section 11.3 for information about wiping nodes and the order of operations during boot.

Step 2: Open the "Startup-configs" window from the left sidebar.

Step 3: Select your preferred config set and apply it by pressing the green "Apply Config Set" button on the right (Set all nodes to selected config set).

Step 4: Start nodes.

11.3.8 Set lab to boot from none

To reset your lab nodes' configuration to factory default follow the steps below:

Step 1: Wipe nodes. Refer to section 11.3 for information about wiping nodes and the order of operations during boot.

Step 2: Open the "Startup-config" window from the left sidebar

Step 3: Press the red "Config Reset" button on the right (Set all nodes to no startup-config).





Step 4: Start nodes

#### 11.3.9 Delete a config set

Select the config set you want to delete and click the "Delete" button. You cannot delete the default config set.

| Config Set | IP Addressing | + 🛛 📩 ± ± |
|------------|---------------|-----------|
|            | N N           |           |

#### 11.3.10 Rename a config set

Step 1: Select the config set you want to rename. Change the name and hit "Save." You cannot rename the default config set.

| Config Set                            | IP Addressing V | + 🛛 🛨 🔺 |
|---------------------------------------|-----------------|---------|
| CONFIG SET                            | ¥.              |         |
| Name IP Addressing new<br>Edit Cancel |                 |         |

### 11.3.11 Export a config set to your local PC

It is possible to export configuration sets to your local PC.

Step 1: Select the config set you wish to export.

| Config Set   | IP Addressing ~     | + 🛛 🗙 ± ± |
|--|---------------------|-----------|
| Opening IP Addressing.zip  | ×                   |           |
| You have chosen to open:<br>P Addressing.zip<br>which is: WinRAR ZIP archive (5.7 kB)<br>from: blob: |                     |           |
| What should Firefox do with this file? Ogpen with WinRAR archiver (default)                          | ~                   |           |
| Do this automatically for files like this from n   | ow on.<br>OK Cancel |           |

Step 2: Save it on your local PC.

NOTE: You can open this archive and edit your node configs manually. Archived configs are saved in txt format. After editing you can archive it back to .zip format and import it in EVE.



# 11.3.12 Import config set from local PC.

0

It is possible to import config sets to your lab.

All Files (\*.)

UPLOAD CONFIG FILE

File

1 🔤 « De

no file selected

wse Upload Cancel

|          |     | + | * |
|----------|-----|---|---|
| <b>"</b> | L Â | 7 |   |
| <br>     |     | 1 |   |

Browse to the file on your PC, select the archive or config set and upload it.

Uploaded config sets without a Name will appear in the config set menu with the name "Import". To rename config sets, refer to section 11.3.10

# 11.3.13 Export a single nodes config to your local PC

Open the "Startup-configs" window from the Side bar. Select the node that you want to export the configuration of and click the "Export" button.

|       |        |                             | Opening R1.txt   | ×    |
|-------|--------|-----------------------------|--|------|
| 🥙 R1  | 4 🗌 ON | ± ±                         | You have chosen to open:<br>If <b>Itat</b><br>which is: Tet Decument (1.3 MB)<br>from: blobs<br>What should Firsten do with this file? |      |
| 2 R2  | 4 ON   | no ip address<br>shutdown   | O Open with Notepad (default)  | ~    |
| 🐹 SW1 | 4 ON   | serial restart-delay 0      | Do this gutomatically for files like this from now on.   |      |
| SW2   | 4 ON   | ip forward-protocol nd<br>! | ОК Сал   | ncel |

# 11.3.14 Import a single nodes config from your local PC

Open the "Startup-configs" window from the sidebar. Select the node that you want to import the configuration to and click the "Import" button. Browse to the file on your local PC and click "Upload."

|   |              |  | UPLOAD CONFIG FILE   |   |  |
|---|--------------|--|--|---|--|
|   |              |  | File no file selected  | Cancel  |  |
|   |              |  | ● File Upload ← → ✓ ↑  Cesktop > Exports >   | ×<br>v ひ Search Exports の   |  |
| 25 R1   | 4 ON         | ± ±  | Organize 👻 New folder  | 8= <b>- 11 ()</b>   |  |
| <ul> <li>8</li> <li>9</li> <li>8</li> <li>9</li> /ul> | 4 ON<br>4 ON | :<br>hostname R1<br>!                          | This PC  To Digets  Doby Contents  Name  ame | Date modified         Type           15/03/2018 12:10         File folde           27/05/2018 00:31         Text Doct |  |
| SW2   | 4 ON         | boot-start-marker<br>boot-end-marker<br>!<br>! | Downloads v c     File name  | Text Document (*.txt)     Open     Cancel   |  |

**NOTE**: The configuration must be in txt file format.



### 11.3.15 Set lab nodes to boot from different config sets

The "Multi Configuration set" feature allows you to set nodes to boot from different config sets in the same lab.

Option 1: Open the "Nodes" list from the left sidebar. Choose your node and select a config set from the dropdown. Stop the node, wipe it and start it again. Your node will boot from the selected config set.

| D | NAME | TEMPLATE | BOOT IMAGE                        | CPU | СРО ЦІМІТ | IDLE PC | NVRAM (KB) | RAM (MB) | епи | SER | CONSOLE | ICON           | STARTUP-CONFIG    | ACTIONS |   |
|---|------|----------|-----------------------------------|-----|-----------|---------|------------|----------|-----|-----|---------|----------------|-------------------|---------|---|
| 1 | R1   | iol      | L3-ADVENTERPRISEK9-M-15.4-        | n/a | n/a       | n/a     | 1024       | 1024     | 1   | 1   | telnet  | 🚳 Router.png*  | NEW IP addressi 🛰 | ▶≡⋟∓≍©  | 8 |
| 2 | R2   | iol      | L3-ADVENTERPRISEK9-M-15.4-        | n/a | n/a       | n/a     | 1024       | 1024     | 1   | 1   | telnet  | 🚳 Router.png*  | None<br>Default   | ▶∎9∓≒©  |   |
| 8 | SW1  | iol      | i86bi_linux_l2-ipbasek9-ms.high < | n/a | n/a       | n/a     | 1024       | 1024     | 4   | 0   | telnet  | Switch L3.png* | IP Addressing     | ▶■∂∓ ≒© |   |
| 4 | SW2  | iol      | i86bi_linux_l2-ipbasek9-ms.high ~ | n/a | n/a       | n/a     | 1024       | 1024     | 4   | 0   | teinet  | Switch L3.png* | NEW IP addressing | ▶≡≙±≓©  |   |

Option 2: Stop the node, right-click on the node and click "Edit." Select your preferred config set for the node and click "Save."

| Startup configuration |        |  | ~ |
|-----------------------|--------|--|---|
| Default               |        |  |   |
| None                  |        |  |   |
|                       |        |  |   |
| IP Addressing         |        |  |   |
| NEW IP addressing     |        |  |   |
|                       |        |  |   |
| Save                  | Cancel |  |   |

# 11.3.16 Lab config script timeout

Lab config script timeout is used when nodes are waiting to boot from a config set. The node will literally wait during boot until the configuration is applied from the config set.

Hit "More actions" and then "Edit lab" from the sidebar. Set the config script timeout in seconds. By default, this timer is set to 300 seconds for new labs.

| NOTE: For heavy labs and nodes with |                       |     |         |
|-------------------------------------|-----------------------|-----|---------|
| 8 8 9                               | Config Script Timeout | 800 | Seconds |
| timer to 600 seconds or higher.     |                       |     |         |

# 11.4 Lab Timer

For self-controlled lab timing, EVE Pro has integrated a "Lab Timer" feature.

#### 11.4.1 Set the Lab Countdown Timer

Step 1: Click "More Options" and then "Edit Lab" from the sidebar.



01:59:57

O Lock Lab

Step 2: Set the "Lab Countdown Timer" in seconds for the time you wish to display on the topology and confirm by clicking "Save". 7200 seconds = 120 minutes.

| Config Script Timeout | 800  |   | Seconds |
|-----------------------|------|---|---------|
| Lab Countdown Timer   | 7200 | - | Seconds |

Step 3: To start your lab, be sure all nodes are running.

Step 4: Hit "Lock Lab" from the sidebar. A red sign means that the lab is locked.

Step 5: When ready to start, click "Refresh Topology" from the sidebar. The countdown timer will be displayed on the "Topology Page" in the top left corner.

#### 11.4.2 Stop the Lab Countdown Timer

Step 1: Click "Unlock Lab" Grey means that the lab is unlocked.

Step 2: Hit "Refresh Topology" from the sidebar

A NOTE: The lab timer does not stop nodes or disconnect sessions from the lab.

# 11.5 Lab Tasks

Lab task or workbook creation feature.

### 11.5.1 Creating a new simple task

Step 1: On the side bar click on "Lab Task(s)" to open the Lab Task(s) management window.



Step 2: Click on the "+" sign to create a new task. Enter the name of the task name and click on "Add" to create the task.







| × |
|---|
|   |
|   |
|   |

# 11.5.2 Edit a simple task

Step 1: Press the edit button next to the name of the newly created task.

| LAB TASK(S)      |  |  |
|------------------|--|--|
| 🗂 🗹 1. Switching |  |  |
| + New Task       |  |  |

Step 2: Use the rich text editor Window to create your Task / Workbook. It is a recommended option to copy/paste task content from MS Word. Save your Task content by clicking on the "Save" button.

| LAB TASK(S)                           |  |                       |         |                  |              |  |
|---------------------------------------|--|-----------------------|---------|------------------|--------------|--|
| 簫 C/ <u>t.Switching</u><br>+ New Task | <ul> <li>Bource</li> <li>□ □ □ □ □ □ × 0</li> <li>□ □ □ □ × 1</li> <li>× □ □ □ □ □ × 1</li> <li>× □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □</li></ul> |                       |         |                  |              |  |
|                                       | Task 1.1 Basic configuration Objectives  |                       |         |                  |              |  |
|                                       | Configure switches' hosthames accordingly diagram.   |                       |         |                  |              |  |
|                                       | Device   | VTP mode              | Version | VTP domain       | VTP password |  |
|                                       | SW-DMZ   | transparent           | 2       | evelab           | eve          |  |
|                                       | DLS<br>S-ALS1  | server                | 2       | evelab<br>evelab | eve          |  |
|                                       | S-ALS1<br>S-ALS2   | client                | 2       | evelab           | eve          |  |
|                                       |  |                       |         |                  |              |  |
|                                       |  |                       |         |                  |              |  |
|                                       | body div table thody tr  | td p span span span s | an      |                  |              |  |
|                                       | Save Cancel  |                       |         |                  |              |  |

#### 11.5.3 Create a multi tabs task (task on multiple tabs/pages)

Step 1: Click on the "+" sign to create a new task. Enter the name of the task name and click on "Add" to create the task.



| LAB TASK(  | (S)                     |     |
|------------|-------------------------|-----|
| + New Task |                         |     |
| LAB TASK   |                         | × - |
| Name       | 1. Switching Add Cancel |     |

11.5.4 Edit a multi tabs task (task on multiple tabs/pages)

Step 1: Press the edit button next to the name of the newly created task.

| LAB TASK(S)      |  |
|------------------|--|
| 🏛 🖆 1. Switching |  |
| + New Task       |  |

Step 2: Click on the "Insert tabs" button.

| LAB TASK(S)  |  |
|--|--|
| <ul> <li>Control 1. Switching</li> <li>+ New Task</li> </ul> | © Source   日 D Q 母   D   X 0 箇 箇 目 ☆ ♪   罪   学  <br>B I U S X, X   ✓ I   二 二 本 本   沙 茨   主 云 르 目   1 1 1 1 話   四 田 田 田 日 Q ⑤ 四 〇<br>Syles -   Format -   Font -   Size -   <u>A</u> · [] 2 □   Insert Tabs |
|  | New Text   |

Step 3: Enter the name of your new task group and choose the number of tabs (must be between 2 and 9). Tab names can be changed later.

| Bootst  | rap Tabs 🗙  |
|---------|---|
|         | s when activity content can easily be segmented into tabs to allow for more efficient use of space. |
| Tab Set | Title   |
| mytab   |   |
| Number  | of Tabs   |
| 3       |   |
| 4       | a Tab   |
| 5       | e a Tab to Remove 🗸   |
| 6       |   |
| 7       |   |
| 8       | OK Cancel   |
| 9       | OK Cancel   |

Step 4: To save your your tabbed task, press "Save".



| LAB TASK(S) |   |  |  |  |
|-------------|---|--|--|--|
|             | 回 Source   금 D Q 奇 D X G 茴 茴 白 本 → 睅 岑-  <br>B I U S X, X'   ✓ J,   二 二 非 非   17 深 主 三 三 「 「 話 ·   ∞ 雨 严 回 亜 Ξ Q ③ 回 □<br>Styles -   Normal -   Font -   Size -   ▲- 집-   ズ 副 |  |  |  |
|             | Tab 1 Name     Tab 2 Name     Tab 3 Name       Tab 4 Content     New Text   |  |  |  |
|             |   |  |  |  |
|             |   |  |  |  |
|             |   |  |  |  |
|             |   |  |  |  |
|             | body div p  |  |  |  |
|             | Save Cancel   |  |  |  |

# 11.5.5 Edit tabs (Multi tabbed task).

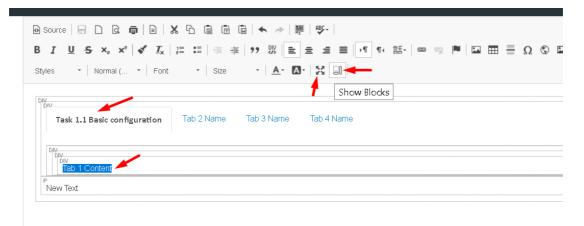
Step 1: Activate the tab for which you want to edit its content and press the edit button.

| LAB TASK(S)   | ·   |                |            |            |  |
|---|---|----------------|------------|------------|--|
| <ul> <li>Witching</li> <li>Switching</li> <li>New Task</li> </ul> | Tab 1 Na<br>Tab 1 Content<br>New Text   | ame Tab 2 Name | Tab 3 Name | Tab 4 Name |  |
|   | new leat  |                |            |            |  |
| Step 2: Rename you  | ır tab,   |                |            |            |  |
| 圖 C ≠ (1-Switching)<br>+ New Task                                 | B Source         □         Q         □         X         □         □         □         ↓         ↓           B I         U         5         x <sub>k</sub> x <sup>k</sup> of         I         □         □         □         ↓         ↓         □         □         ↓         ↓         □         □         ↓         ↓         □         □         ↓ |                |            |            |  |
|   | Task 1.1 Basic configuration Tab 2 Name Tab 3 Name Task 1.1 Basic configuration   | Tab 4          |            |            |  |
|   | Objectives<br>• Configure switches' hostnames accordingly diagram.  |                |            |            |  |



Step 3: Press the "Show Blocks" button, this will help find the right place to create the task tab content. Make sure that you are copying or creating the tabbed task content into the correct place (Tab 1 Content)

NOTE: It is strongly recommended to use "full screen" for the rich html text editor when you are working with tabbed tasks. Press the "full screen" button to work with tasks. Press it again to exit full screen mode.



Step 4: Save your modified task by clicking on "Save". To edit another tab, repeat steps 1-3.

11.5.6 Create a task with your PDF workbook

Offline PDF, uploaded in the EVE

Step 1: Use SFTP to your EVE and upload your PDF document in EVE location:

/opt/unetlab/html/images

| /opt/unetlab/html/images/     |             |                     |  |  |  |
|-------------------------------|-------------|---------------------|--|--|--|
| Name                          | Size        | Changed             |  |  |  |
| 🛀                             |             | 17/10/2019 10:57:25 |  |  |  |
| 📜 icons                       |             | 17/10/2019 10:57:25 |  |  |  |
| 🖻 cloud.png                   | 3 KB        | 04/09/2018 15:15:14 |  |  |  |
| A EVE-COOK BOOK 1.16-2019.pdf | 15,837 KB   | 05/10/2019 16:57:46 |  |  |  |
| 🖻 lan.png                     | 2 KB        | 04/09/2018 15:15:14 |  |  |  |
| 🖻 lan-segment.png             | 2 KB        | 03/12/2018 07:42:49 |  |  |  |
| link_selector.png             | <b>4</b> KB | 04/09/2018 15:15:14 |  |  |  |

Step 2: create new Task and name it and press Add:



| LAB TAS    | K(S)              |   |
|------------|-------------------|---|
| H New Task | LAB TASK          | * |
|            | Name EVE cookBook |   |
|            | Add Cancel        |   |

Step 3: Press edit Task and locate iFrame button, Press it

| LAB TASK(S)                     |  |
|---------------------------------|--|
| 篇 थ EVE cookBook.<br>+ New Task | © Source   ① D Q @ D   X O 函 函 函 ◆ → 第 等・ <br>B I U S x <sub>e</sub> x <sup>a</sup>   √ I <sub>x</sub>   二 二 非 非 ! ?? ※   至 三 三   .* 1* 話・  ∞ ∞ ■ ■ 回 亜 를 Ω ③ 囸 □<br>Styles -   Format -   Font -   Size -   A - 전 -   X □    <br>New Text |

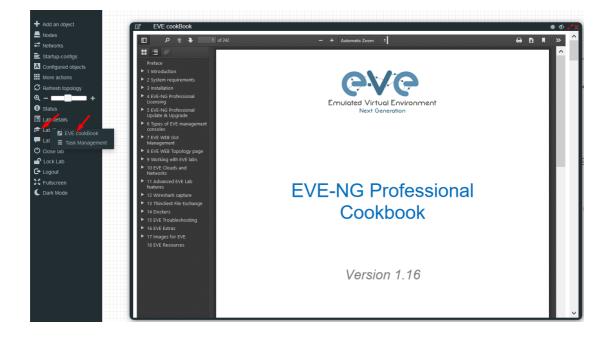
Step 4: Type the path to your pdf document, set Width to 100%, and Height resolution to 10000.

The path location is /images/EVE-COOK BOOK 1.16-2019.pdf, where uploaded pdf document in Step 1. Press OK for iFrame properties and Save Task, Press Save

| IF rame Properties | 5          |             |                    | ×        |
|--------------------|------------|-------------|--------------------|----------|
| General            | Advanc     | ced         |                    |          |
| URL                |            |             |                    |          |
| /images/EVE-COC    | OK BOOK 1. | 16-2019.pd  | if 🔪               |          |
| Width              | Height     |             | Align              | _        |
| 100%               | 10000      |             | <not set=""></not> | <u>/</u> |
| Enable scrollb     | ars        | Show        | v frame border     |          |
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| Long Description ( | JRL        |             |                    |          |
|                    |            |             |                    |          |
|                    |            |             | OK Canc            | el       |

Step 5: To view your uploaded book, use, Side Bar/Tab Tasks/your taskname





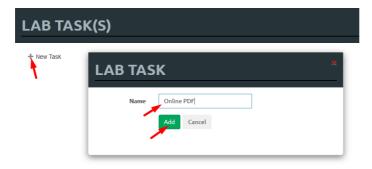
11.5.7 Create a task with Online document (PDF or HTML)

Online document or web site task (https ONLY, iFrame allowing use Secure http only)

Step 1: Have ready your link to online web site or document. Example:

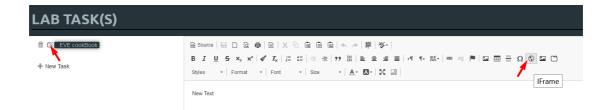
https://www.eve-ng.net/images/EVE-COOK-BOOK-latest.pdf

Step 2: create new Task and name it and press Add:



Step 3: Press edit Task and locate iFrame button, Press it





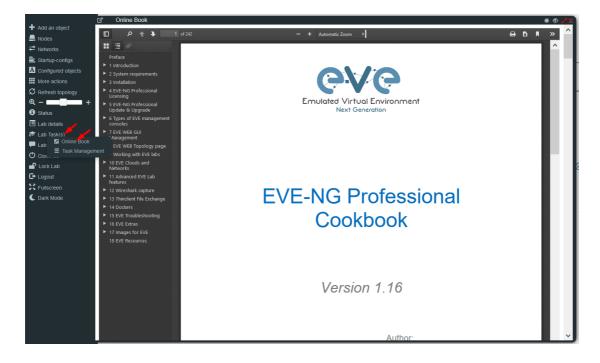
Step 4: Type the path to your online document, set Width to 100%, and Height resolution to 10000.

The path location is <u>https://www.eve-ng.net/images/EVE-COOK-BOOK-latest.pdf</u>, which prepared in Step 1. Press OK for iFrame properties and Save Task, Press Save

| IF rame Propertie | es           |             |                               | ×   |
|-------------------|--------------|-------------|-------------------------------|-----|
| General           | Advan        | ced         |                               |     |
| URL               | 1            |             |                               |     |
| https://www.eve-  | ng.net/image | s/EVE-COO   | K-BOOK-latest.                | pdf |
| Width             | Height       |             | Align<br><not set=""> ~</not> | <   |
| Enable scrol      | llbars       | Show        | v frame border                |     |
| Name              |              | Advis ory T | Title                         |     |
| 100%              |              | 10000       |                               |     |
| Long Description  | URL          |             |                               |     |
|                   |              |             |                               |     |
|                   |              |             | OK Cance                      | el  |

Step 5: To view your uploaded book, use, Side Bar/Tab Tasks/your taskname





# 11.5.8 Delete a task

Step 1: From the Side bar click on "Task Management":



Step 2. Click on the delete symbol next to the task name which you want to delete.





# 12 Wireshark capture

All EVE-NG Professional and Learning Centre console types have the integrated Wireshark capture feature. This means that it is not necessary to have Wireshark installed on the client machine you are using to access EVE with.

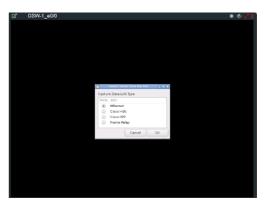
EVE-NG Professional currently supports ethernet interface capturing only.

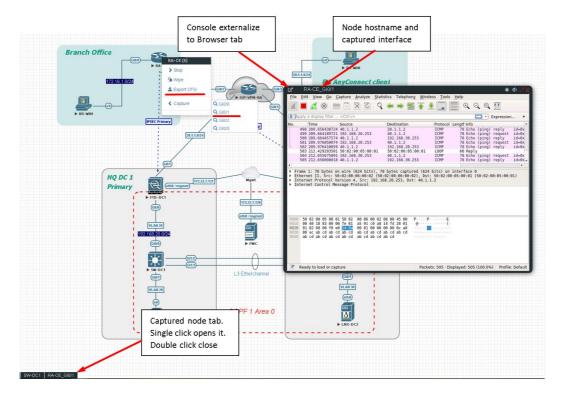
# **12.1 Native Console Wireshark capturing**

Step 1: Right click on the node you wish to capture, choose "Capture" and then the relevant interface. The capture will open in an HTML session. EVE-PRO supports capture for ethernet and serial interfaces.

Select the interface frame type which will be captured:

- Ethernet for Ethernet, Fast Ethernet, Gigabit Ethernet.
- Serial interface frames: HDLC, PPP or Frame Relay.





Step 2: To save the captured file to your client PC, stop the capture and choose File/Save As



|  | display filter   |  |   |                                   |              |                              |             |             |      |
|--|--|--|---|-----------------------------------|--------------|------------------------------|-------------|-------------|------|
|  | rime   | Source<br>aa:bb:cc:00:01   |   | tination                          | Protocol     | Length Info                  |             |             |      |
| 2 4  | 1,665564570  | aa:bb:cc:00:02   | :00 CDP   | /VTP/DTP/PAgP/U                   | D., CDP      | 369 Device ID: R             | 2 Port ID:  | Ethernet0/0 |      |
|  | 5.559412451<br>5.919384670   | aa:bb:cc:00:01<br>aa:bb:cc:00:02   | :00 CDP   | /VTP/DTP/PAgP/U<br>bb:cc:00:02:00 | LOOP         | 383 Device ID: R<br>68 Reply | 1 Port ID:  | Ethernet0/0 |      |
| 5 1  | 10.000389088   | aa:bb:cc:00:01   | :00 aa:   | bb:cc:00:01:00                    | LOOP         | 68 Reply                     |             |             |      |
|  |  |  |   |                                   |              |                              |             |             |      |
|  |  |  |   |                                   |              |                              |             |             |      |
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|  |  |  |   |                                   |              |                              |             |             |      |
|  |  |  |   |                                   |              |                              |             |             |      |
| cane 1   | : 60 bytes or  | wire (480 bit  | <ol> <li>60 byte</li> </ol>   | es captured (48                   | 0 bits) on   | interface 0                  |             |             |      |
| therne   | t II, Src: aa  | a:bb:cc:00:01:0  | aa:bb:c   | c:00:01:00), Ds                   | t: aa:bb:c   | c:00:01:00 (aa:bb:cc         | ::00:01:00) |             |      |
| onfigu   | ration Test R  | Protocol (loopb  | sck)  |                                   |              |                              |             |             |      |
| ata (4   | 8 bytes)   |  |   |                                   |              |                              |             |             |      |
|  |  |  |   |                                   |              |                              |             |             |      |
|  |  |  |   |                                   |              |                              |             |             |      |
|  | <u>V</u> iew <u>G</u> o <u>C</u> aj  | pture <u>A</u> nalyze <u>S</u><br>Ctrl+1                                     |   | lephony Wireless                  |              |                              |             |             |      |
| Open   | <  | pture <u>A</u> nalyze <u>S</u><br>Ctri+i                                     |   | lephony Wireless                  |              | ⊧<br>୧ <b>.</b> ୧ <b>.</b> ፹ |             |             |      |
| Open<br>Open Re  | ecent  |  |   | lephony Wireless                  |              |                              |             |             |      |
| Open<br>Open Ri<br><u>M</u> erge   | ecent  | Ctrl+i   | ` , <u>`</u>  | ≝ <b>∓</b> ± <u>-</u>             |              | ୍ ବ୍ 🎚                       |             |             |      |
| Open<br>Open Ri<br><u>M</u> erge<br>Import I   | ecent  | Ctrl+i   | , itin  | ation                             |              | ୍ ବ୍ 🎚                       |             |             |      |
| Open<br>Open Ri<br>Merge<br>Import I   | ecent  | Ctrl+1   | v bb  | ation                             |              | ୍ ବ୍ 🎚                       |             |             |      |
| Open<br>Open Ri<br>Merge<br>Import I<br>Close  | ecent  | Ctrl+i   | v bb  | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             |      |
| Open<br>Open R/<br>Merge<br>(mport I<br>Close<br>Save  | ecent<br>from Hex Dump   | Ctrl+1   | v bb  | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             |      |
| Open<br>Open Re<br>Merge<br>Import I<br>Close<br>Save<br>Save As   | ecent<br>from Hex Dump   | Ctrl+1   | v bb  | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             |      |
| Open<br>Open Ri<br>Merge<br>Import I<br>Close<br>Save<br>Save<br>Save<br>As<br>File Set  | ecent<br>from Hex Dump   | Ctrl+1<br><br>Ctrl+1<br>Ctrl+1<br>Ctrl+1                                     | v bb<br>shift+S   | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             | <br> |
| Open<br>Open Ro<br>Merge<br>Import 1<br>Close<br>Save<br>Save<br>Save<br>Save<br>Save<br>Save<br>Save<br>Sav   | ecent<br>from Hex Dump<br><br>Specified Packet   | Ctrl+1<br><br>Ctrl+1<br>Ctrl+1<br>Ctrl+3<br>Ctrl+3                           | v bb<br>shift+S   | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             |      |
| Open<br>Open Ro<br>Merge<br>(mport f<br>Close<br>Save As<br>Save As<br>File Set<br>Export f<br>Export f  | ecent<br>from Hex Dump<br><br>Specified Packet<br>Packet Dissectio   | Ctrl+1<br>Ctrl+1<br>Ctrl+3<br>Ctrl+3<br>S                                    | N bb<br>shift+S   | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             |      |
| Open<br>Open Ro<br>Merge<br>Import I<br>Close<br>Save As<br>Save As<br>Save As<br>File Set<br>Export I<br>Export I   | ecent<br>from Hex Dump<br>Specified Packet<br>Packet Bytes   | Ctrl+1<br><br>Ctrl+1<br>Ctrl+1<br>Ctrl+3<br>Ctrl+3                           | N bb<br>shift+S   | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             |      |
| Open Ro<br>Merge<br>Import I<br>Close<br>Save As<br>Save As<br>File Set<br>Export I<br>Export I<br>Export I  | ecent<br>from Hex Dump<br>specified Packet<br>Packet Dissectio<br>Packet Bytes<br>PDUs to File   | Ctrl+1<br><br>Ctrl+1<br>Ctrl+1<br>S<br>S<br>Ctrl+1                           | N bb<br>shift+S   | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             |      |
| Open Ro<br>Merge<br>Import I<br>Close<br>Save As<br>Save As<br>File Set<br>Export I<br>Export I<br>Export I  | ecent<br>from Hex Dump<br>Specified Packet<br>Packet Bytes   | Ctrl+1<br><br>Ctrl+1<br>Ctrl+1<br>S<br>S<br>Ctrl+1                           | N bb<br>shift+S   | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             | <br> |
| Open Ro<br>Merge<br>Import 1<br>Close<br>Save Save<br>Save Save<br>File Set<br>Export 1<br>Export 1<br>Export 1<br>Export 2  | ecent<br>from Hex Dump<br>Specified Packet<br>Dissectio<br>Packet Bytes<br>PDUs to File<br>SSL Session Key   | Ctrl+1<br><br>Ctrl+1<br>Ctrl+1<br>S<br>S<br>Ctrl+1                           | N bb<br>shift+S   | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             |      |
| Open Ro<br>Merge<br>Import 1<br>Close<br>Save Save<br>Save As<br>File Set<br>Export 1<br>Export 1<br>Export 1<br>Export 2<br>Export 2  | ecent<br>from Hex Dump<br>Specified Packet<br>Dissectio<br>Packet Bytes<br>PDUs to File<br>SSL Session Key   | Ctrl+1<br><br>Ctrl+1<br>Ctrl+1<br>S<br>S<br>Ctrl+1                           | D , itin<br>stin<br>bb<br>shift+S<br>,  | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             | <br> |
| Open Ro<br>Merge<br>Import 1<br>Close<br>Save Save<br>Save As<br>File Set<br>Export 8<br>Export 1<br>Export 9<br>Export 0<br>Export 0  | ecent<br>from Hex Dump<br>Specified Packet<br>Dissectio<br>Packet Bytes<br>PDUs to File<br>SSL Session Key   | Ctri+1<br><br>Ctri+1<br>Ctri+1<br>S<br>Ctri+1<br>5<br>Ctri+1                 | D bit itin<br>W bit itin<br>bit n<br>bit itin<br>bit itin<br>bitin<br>bitin | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             |      |
| Open Ro<br>Open Ro<br>Merge<br>Import I<br>Close<br>Save As<br>Save As<br>File Set<br>Export I<br>Export I<br>Export I   | ecent<br>from Hex Dump<br>Specified Packet<br>Dissectio<br>Packet Bytes<br>PDUs to File<br>SSL Session Key   | Ctrl+1<br><br>Ctrl+1<br>Ctrl+1<br>S<br>ns<br>Ctrl+1<br>5                     | D bit itin<br>W bit itin<br>bit n<br>bit itin<br>bit itin<br>bitin<br>bitin | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             | <br> |
| Open Ro<br>Merge<br>Import 1<br>Close<br>Save Save<br>Save As<br>File Set<br>Export 8<br>Export 1<br>Export 9<br>Export 0<br>Export 0  | ecent<br>from Hex Dump<br>Specified Packet<br>Dissectio<br>Packet Bytes<br>PDUs to File<br>SSL Session Key   | Ctri+1<br><br>Ctri+1<br>Ctri+1<br>S<br>Ctri+1<br>5<br>Ctri+1                 | D bit itin<br>W bit itin<br>bit n<br>bit itin<br>bit itin<br>bitin<br>bitin | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             |      |
| Open<br>Open Ro<br>Merge<br>Import I<br>Close<br>Save<br>Save<br>Save<br>Save<br>Export S<br>Export I<br>Export I<br>Export S<br>Export O<br>Export O<br>Export O  | ecent<br>from Hex Dump<br>Specified Packet<br>Dissectio<br>Packet Bytes<br>PDUs to File<br>SSL Session Key   | Ctri+1<br><br>Ctri+1<br>Ctri+1<br>S<br>Ctri+1<br>5<br>Ctri+1                 | D bit itin<br>W bit itin<br>bit n<br>bit itin<br>bit itin<br>bitin<br>bitin | ation                             | Protocol Ler | Q Q Ⅲ                        |             |             |      |
| Open Ru<br>Merge<br>Import I<br>Close<br>Save Save<br>Save Save<br>Export S<br>Export S<br>Export I<br>Export I<br>Export I<br>Quit  | rrom Hex Dump<br><br>Specified Packet<br>Packet Bytes<br>PDUs to File<br>SUBSECTION FOR THE<br>Subsection<br>File<br>Subsection Key<br>Subjects<br>60 bytes on | Ctrl+1<br>Ctrl+1<br>Ctrl+3<br>S<br>Ctrl+1<br>S<br>Ctrl+1<br>Ctrl+1<br>Ctrl+1 | <pre>2</pre>  | 2                                 | Protocol Ler | Q Q III                      |             |             |      |
| Open R<br>Merge<br>Import I<br>Close<br>Save A<br>Save A | rfrom Hex Dump<br>from Hex Dump<br>Specified Packet Bytes<br>SSL Session Key<br>Oblys to File<br>SSL Session Key<br>Oblys to I II. Src: asi                    | Ctrl+1<br>Ctrl+1<br>Ctrl+3<br>S<br>Ctrl+1<br>S<br>Ctrl+1<br>Ctrl+1<br>Ctrl+1 | <pre>0 bits itin W bb is bits itin W bb is bits itin b is contact /pre>   | 2                                 | Protocol Ler | Q Q III                      | 02:00)      |             | <br> |

Step 3: Choose the location where you want to save the captured file

#### **IMPORTANT**:

#### /nobody/thinclient\_drives/GUACFS/Download

Enter a name for your captured file and press Save. Your browser will offer to download your capture fil and save on your local PC. Refer Section 12.2

# 12.2 HTML5 Console Wireshark capturing

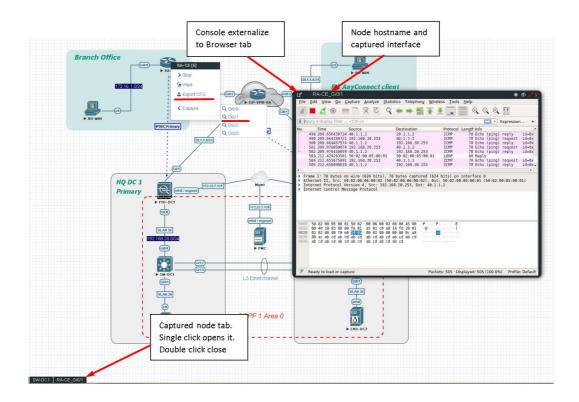
Step 1: Right click on the node you wish to capture, choose "Capture" and then the relevant interface. The capture will open in an HTML session. EVE-PRO supports capture for ethernet and serial interfaces.

Select the interface frame type which will be captured:

- Ethernet for Ethernet, Fast Ethernet, Gigabit Ethernet.
- Serial interface frames: HDLC, PPP or Frame Relay.

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|   |            |                                  |           |
|   |            |                                  |           |
|   |            | Select items from the list _ n x |           |
|   | Capte      | ure Data Link Type               |           |
|   | Pic        | t DLT                            |           |
|   |            | Ethernet                         |           |
|   |            | Cisco Hidle<br>Cisco PPP         |           |
|   |            |                                  |           |
|   |            |                                  |           |
|   |            | Cancel OK                        |           |
|   |            |                                  |           |
|   |            |                                  |           |
|   |            |                                  |           |
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|   |            |                                  |           |
|   |            |                                  |           |
|   |            |                                  |           |





Step 2: To save the captured file to your PC, stop the capture and choose File/Save As

| . Time Sou   | rl-/>  | Destination Protocol Length Info   |
|--|--|--|
| 10.00000000 aa:  | bb:cc:00:01:00<br>bb:cc:00:02:00   | aa:bb:cc:00:01:00 LOOP 60 Reply  |
| 3 5.559412451 aa:  | bb:cc:00:01:00   | CDP/VTP/DTP/PAgP/UD_ CDP 383 Device ID: R1 Port ID: Ethernet0/0  |
| 4 5.919384670 aa:<br>5 10.000389888 aa:  | bb:cc:00:02:00   | aa:bb:cc:00:02:00 LOOP 60 Reply<br>aa:bb:cc:00:01:00 LOOP 60 Reply   |
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| France 1: 68 buttor on unit  | ro (400 bitc) 60   | 0 bytes captured (480 bits) on interface 0   |
| Ethernet II, Src: aa:bb:   | :cc:00:01:00 (aa:  | :bb:cc:00:01:00), Dst: aa:bb:cc:00:01:00 (aa:bb:cc:00:01:00)   |
| Configuration Test Proto<br>Data (40 bytes)  | col (loopback)   |  |
| ata (40 bytes/   |  |  |
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|  |  | cs Telephony Wreless Jools Help  |
| Open   | Analyze Statistic:<br>Ctrl+O   | ka Telephony Wireless Tools Help<br>→ San Telephony Wireless Tools Help  |
| Open<br>Open Recent  |  |  |
| Open<br>Open Recent<br>Merge   |  | , <b>* · ·</b> = = @ @ @ #   |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump   | Ctrl+O   | , 🖀 T 主 📰 🔍 Q. Q. TI<br>Itination Protocol Length Info   |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump<br>Close  | Ctrl+O<br>Ctrl+W   | , <b>* · ·</b> = = @ @ @ #   |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump<br>Close<br>Save  | Ctrl+O<br>Ctrl+W<br>Ctrl+S   |  |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump<br>Close<br>Save<br>Save As   | Ctrl+O<br>Ctrl+W   | Performance Protocol Length Info<br>Structure (0.019.100 - Kool - K |
| Open<br>Open Recent<br>Merge<br>(Import from Hex Dump<br>Close<br>Save<br>Save<br>Save<br>Save<br>Save<br>Save<br>Save   | Ctrl+O<br>Ctrl+W<br>Ctrl+S   |  |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump<br>Close<br>Save As<br>File Set<br>Export Specified Packets   | Ctrl+O<br>Ctrl+W<br>Ctrl+S   |  |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump<br>Close<br>Save<br>Save As<br>File Set<br>Export Specified Packets<br>Export Packet Dissections  | Ctrl+O<br>Ctrl+W<br>Ctrl+S<br>Ctrl+Shift+S   | Performance Protocol Length Info<br>Structure (0.019.100 - Kool - K |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump<br>Close<br>Save<br>Save<br>Save<br>Save<br>Else Save<br>Export Specified Packets<br>Export Packet Dissections<br>Export Packet Dissections   | Ctrl+O<br>Ctrl+W<br>Ctrl+S   |  |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump<br>Close<br>Save As<br>File Set<br>Export Specified Packets<br>Export Packet Bytes<br>Export Packet Dife  | Ctrl+O<br>Ctrl+W<br>Ctrl+S<br>Ctrl+Shift+S   |  |
| Open<br>Open Record<br>Merge<br>Import from Hex Dump<br>Close<br>Save<br>Save As<br>Export Packet Dissections<br>Export Packet Dissections<br>Export Packet Dissections<br>Export Packet Dissections<br>Export Packet Dissections Keys   | Ctrl+O<br>Ctrl+W<br>Ctrl+S<br>Ctrl+Shift+S   | y ■ T I I I I I I I I I I I I I I I I I I  |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump<br>Close<br>Save As<br>File Set<br>Export Specified Packets<br>Export Packet Bytes<br>Export Packet Dife  | Ctrl+O<br>Ctrl+W<br>Ctrl+S<br>Ctrl+Shift+S<br>Ctrl+H                                     |  |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump<br>Close<br>Save<br>Save As-<br>Expert Packet Dissections<br>Export SSL Session Keys<br>Expert Objects<br>Print | Ctrl+O<br>Ctrl+W<br>Ctrl+S<br>Ctrl+Shift+S<br>Ctrl+H<br>Ctrl+P                           | y ■ T I I I I I I I I I I I I I I I I I I  |
| Open<br>Copen Record<br>Merge<br>Import from Hex Dump<br>Close<br>Save As-<br>Export Specified Packets<br>Export Specified Packets<br>Export Racket Dissections<br>Export Racket Dissections<br>Export Racket Dissections<br>Export Racket Dissections<br>Export Racket Dissections<br>Export Racket Dissections                                   | Ctrl+O<br>Ctrl+W<br>Ctrl+S<br>Ctrl+Shift+S<br>Ctrl+H                                     | y ■ T I I I I I I I I I I I I I I I I I I  |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump<br>Close<br>Save Save Association<br>File Set<br>Export Packet Dissections<br>Export Packet Dissections<br>Export Packet Dissections<br>Export Packet Dissections<br>Export Packet Styles<br>Export Stylestion Keys<br>Export Stylestion  | Ctrl+O<br>Ctrl+W<br>Ctrl+S<br>Ctrl+Shift+S<br>Ctrl+H<br>Ctrl+P                           | y ■ T I I I I I I I I I I I I I I I I I I  |
| Open<br>Open Recent<br>Merge<br>Import from Hex Dump<br>Close<br>Save<br>Save As-<br>Expert Packet Dissections<br>Export SSL Session Keys<br>Expert Objects<br>Print | Ctrl+O<br>Ctrl+W<br>Ctrl+S<br>Ctrl+Shift+S<br>Ctrl+H<br>Ctrl+P                           | y ■ T I I I I I I I I I I I I I I I I I I  |
| Open<br>Copen Recert<br>Horge<br>Import from Hes Dump<br>Clear<br>Save<br>Save<br>Save<br>Save<br>Save<br>Save<br>Save<br>Save   | Ctrl+D<br>Ctrl+W<br>Ctrl+S<br>Ctrl+Shift+S<br>Ctrl+Shift+S<br>Ctrl+P<br>Ctrl+P<br>Ctrl+Q | y ■ T I I I I I I I I I I I I I I I I I I  |



Step 3: Choose the location where you want to save the captured file

#### **IMPORTANT**:

#### /nobody/thinclient\_drives/GUACFS/Download

Enter a name for you captured file and press Save.

| Eile Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help   |                        |
|--|------------------------|
| 🥻 🔳 🖉 🕲 🚞 🛅 🖄 🗳 🍳 👄 🌩 🗮 🖣 👱 📃 🔍 Q, Q, M  |                        |
| Apply a display filter <ctrl-></ctrl->   |                        |
| No.         Time         Source         Destination         Protocol         Length Info           1.0.080000000         aa:bb:cc:00:01:00         aa:bb:cc:00:01:00         L00P         60         Benly   |                        |
| 1 a doctor do the second of th | hernet0/0<br>hernet0/0 |
| Wireshark - Save Capture File As   |                        |
|  |                        |
|  | 🛤 🖽 🔳                  |
| Computer Name • Size Type Date Modified  |                        |
| > Franc 1: 6<br>Ethornet 1<br>> Data (40 b)  |                        |
| File name: mycapturedfile  | <u>Save</u>            |
| Save as: Wireshark/ pcapng *   | Cancel                 |
|  | Help                   |
| Compress with ggip   |                        |
|  |                        |
| 0000         aa bb cc 00 01 06 aa bb cc 00 01 06 90 06 00 00   |                        |

Step 4: A window will open that will allow you to save your captured file on your client PC. If the client PC's browser is set to download automatically, your captured file will be saved in the default browser download folder.

| 🔚 mycaptur          | edfile ncanna                                 |
|---------------------|---|
|                     | Vireshark capture file                        |
|                     | ://172.22.7.18                                |
| What should Fi      | refox do with this file?                      |
| Open wit            | h Wireshark (default) ~                       |
| ◯ <u>S</u> ave File |   |
| Do this <u>a</u>    | utomatically for files like this from now on. |
|                     |   |

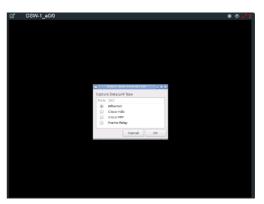


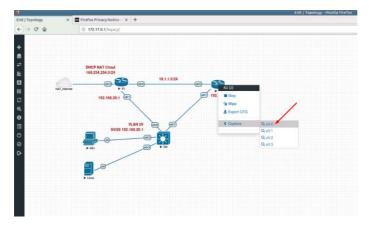
# 12.3 HTML5 Desktop Console Wireshark capturing

Step 1: Right click on the node you wish to capture, choose "Capture" and then the relevant interface. The capture will open in an RDP session. EVE-PRO supports capture for ethernet and serial interfaces.

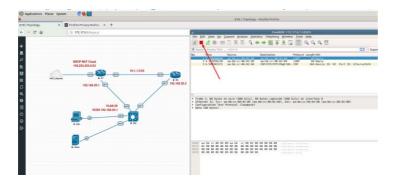
Select the interface frame type which will be captured:

- Ethernet for Ethernet, Fast Ethernet,
- Gigabit Ethernet.Serial interface frames: HDLC, PPP or
  - Frame Relay.





Step 2: Stop capturing with the STOP button.



Step 3: Chose File/Save As



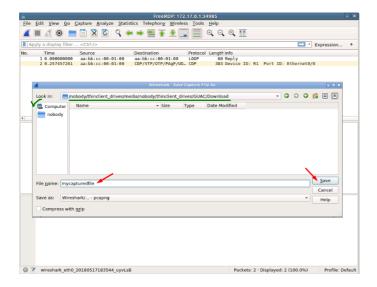
|    |                |        |            |         |              |             |        |       |      |      |       | eeR  |      |       |                | 5202         |      |       |   |       |      |       |      |       |        |       |       |   |
|----|----------------|--------|------------|---------|--------------|-------------|--------|-------|------|------|-------|------|------|-------|----------------|--------------|------|-------|---|-------|------|-------|------|-------|--------|-------|-------|---|
| Ei | e <u>E</u> dit | View   | <u>G</u> o | Captur  | e <u>A</u> n | nalyz       | e s    | tatis | tics | Те   | leph  | ony  | Wi   | reles | s <u>T</u> ool | s <u>H</u> e | р    |       |   |       |      |       |      |       |        |       |       |   |
| 1  | Open<br>Open   | Recent |            |         |              | C           | Ctrl+( | 0     |      |      | )>    | Ť    |      |       |                | ÷,           | Q    | 9     | 1 |       |      |       |      |       |        |       |       |   |
| 1  | Merge          |        |            |         |              |             |        |       |      |      |       |      |      |       |                |              |      |       |   |       |      |       |      |       |        | Expre | ssion | + |
| 1  | Import         | from H | lex Du     | Imp     |              |             |        |       |      | stin | atior | 1    |      |       | Protoc         | ol Lei       | ngth | Info  |   |       |      |       |      |       |        |       |       |   |
|    | Close          |        |            |         |              | 0           | trl+1  | w     |      |      | :cc:  |      |      |       | LOOP           |              |      | Reply |   |       |      |       |      |       |        |       |       |   |
|    |                |        |            |         |              |             | trl+!  |       |      |      | :cc:  |      |      |       | L00P<br>CDP    |              |      | Reply |   | D · F | 22   | Port  | TD - | Ethen | na+0/0 |       |       |   |
|    | Save           |        | /          | ·       |              |             |        | -     |      |      | :cc:  |      |      |       | LOOP           |              |      | Reply |   | U: 1  | 12   | FOIL  | 10.  | Ethen | leto/c | ,     |       |   |
|    | Save <u>A</u>  | s 🔸    |            |         |              | c           | trl+!  | Shift |      |      | :cc:  |      |      |       | LOOP           |              |      | Repl  |   |       |      |       |      |       |        |       |       |   |
|    | File Se        | t      |            |         |              |             |        |       | •    |      | :cc:  |      |      |       | L00P           |              |      | Reply |   |       |      |       |      |       |        |       |       |   |
|    | Export         | Specif | ied Pa     | ckets   |              |             |        |       |      |      | ::    |      |      |       | LOOP           |              |      | Reply |   |       |      |       |      |       |        |       |       |   |
|    |                |        |            | ections |              |             |        |       |      | bb   | :cc:  | 00:0 | 91:0 | 0     | LOOP           |              | 60   | Repl  | ý |       |      |       |      |       |        |       |       |   |
|    |                |        |            |         |              |             |        |       | ,    |      |       |      |      |       | CDP            |              |      |       |   | (D: F | R1   | Port  | ID:  | Ethen | net0/0 | )     |       |   |
|    | Export         |        |            |         |              | C           | Strl+i | н     |      |      | :cc:  |      |      |       | L00P           |              |      | Reply |   |       |      |       |      |       |        |       |       |   |
|    | Export         | PDUs   | to File    |         |              |             |        |       |      | 00   |       | 00.0 |      | 0     | LUUF           |              | 00   | Rep ( | y |       |      |       |      |       |        |       | Þ     |   |
|    | Export         | SSL Se | ession     | Keys    |              |             |        |       |      | 20   | can   | ture | d G  | 488   | bits) d        | n int        | orf  | ace R | 1 |       |      |       |      |       |        |       |       |   |
|    | Export         | Object | s          |         |              |             |        |       |      |      |       |      |      |       | aa:bb:         |              |      |       |   | bb:c  | c:00 | 9:02: | (00  |       |        |       |       |   |
|    | Print          |        |            |         |              | c           | trl+i  | Р     |      |      |       |      |      |       |                |              |      |       |   |       |      |       |      |       |        |       |       |   |
|    | Quit           |        |            |         |              | c           | trl+0  | 0     |      |      |       |      |      |       |                |              |      |       |   |       |      |       |      |       |        |       |       |   |
|    |                |        |            |         |              |             |        |       |      | 1    |       |      |      |       |                |              |      |       |   |       |      |       |      |       |        |       |       |   |
|    |                |        |            |         |              |             |        |       |      |      |       |      |      |       |                |              |      |       |   |       |      |       |      |       |        |       |       |   |
|    |                |        |            |         |              |             |        |       |      |      |       |      |      |       |                |              |      |       |   |       |      |       |      |       |        |       |       |   |
|    |                |        |            |         |              |             |        |       |      |      |       |      |      |       |                |              |      |       |   |       |      |       |      |       |        |       |       |   |
|    |                |        |            |         |              |             |        |       |      |      |       |      |      |       |                |              |      |       |   |       |      |       |      |       |        |       |       |   |
|    |                |        |            |         |              |             |        |       |      |      |       |      |      |       |                |              |      |       |   |       |      |       |      |       |        |       |       |   |
|    |                |        |            |         |              |             |        |       |      |      |       |      |      |       |                |              |      |       |   |       |      |       |      |       |        |       |       |   |
| 08 |                |        |            | 2 00 aa |              |             | 88 83  |       |      |      | 00 0  |      |      |       |                |              |      |       |   |       |      |       |      |       |        |       |       |   |
| 00 | 01             | 00 00  | 00 0       | 0.0 0.0 | 86           | <u>aa</u> ( | 3/2 0  |       | 88   | 86   | 00 0  | 1/2  |      |       |                |              |      |       |   |       |      |       |      |       |        |       |       |   |

Step 4: Chose the path to save the captured file,

#### **IMPORTANT**:

/nobody/thinclient\_drives/media/nobody/thinclient\_drives/GUACFS/Download/

Enter a name for captured file. Press Save.



Step 4: A window will open that will allow you to save your captured file on your client PC. If the client PC's browser is set to download automatically, your captured file will be saved in the default browser download folder.



|   | 🚡 mycapture         | dfile.pcapng        |                          |     |
|---|---------------------|---------------------|--------------------------|-----|
|   | which is: V         | /ireshark capture   | file                     |     |
|   | from: http:         | //172.22.7.18       |                          |     |
| V | What should Fir     | efox do with this   | file?                    |     |
|   | ● Open wit          | Wireshark (de       | fault)                   | ~   |
|   | ◯ <u>S</u> ave File |                     |                          |     |
|   | Do this a           | utomatically for fi | les like this from now o | on. |
|   |                     |                     |                          |     |



# **13** Thinclient File Exchange

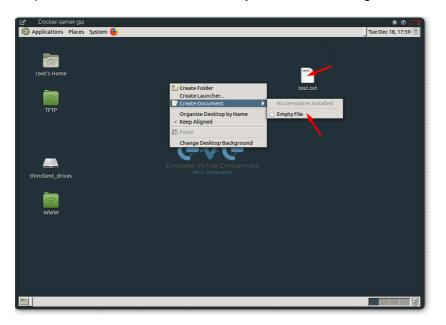
**NOTE**: Thinclient file exchange feature is available for HTML5 or desktop HTML5 consoles only. Make sure you are logged in EVE with one of it.

The Thinclient file exchange feature allows you to transfer files between your native client workstation and the integrated Docker Desktop. It is used when managing EVE via HTML5 consoles. This feature eliminates the need for file transfer software on your client workstation and makes it very easy to import/export labs or download Wireshark captures.

# 13.1 Thinclient files downloading

The Thinclient file exchange feature allows you to download files from your EVE Server over an HTTP/HTTPS session to your client PC. Examples below will show you how to download exported lab files. This feature is not restricted to just lab files or Wireshark captures. It can be used to download or upload any miscellaneous files you may need.

Example: HTML5 console to server-gui Docker node: We want to export our test.txt file and download it to our client PC over HTML5.



Step 1: Create and save test.txt file on your HTML5 server-gui station.

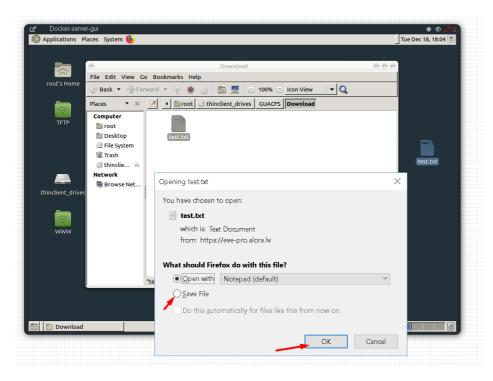
Step 2: Navigate to the desktop of the HTML5 server-gui station and double click thinclient\_drives and navigate to: thinclient\_drives/GUACFS/Download/

Step 3: Drag and drop the test.txt file from right to left.



| C Docket-servet-gui  | * * * * *           |
|--|---------------------|
| 🔊 Applications Places System 😓   | Tue Dec 18, 18:03 👖 |
|  |                     |
| Download   | 000                 |
| File Edit View Go Bookmarks Help   |                     |
| root's Home  |                     |
|  | <u> </u>            |
| Places 🔻 📝 📢 🗟 root 🖻 thinclient_drives GUACFS Download  |                     |
| Computer<br>TFTP   |                     |
| in root  |                     |
| 🛅 Desktop  | test                |
| File System  |                     |
| i and a stand in the stand in the stand is a stand | test.txt            |
| Network  |                     |
| Browse Net   |                     |
| thinclient_drives  |                     |
|  |                     |
|  |                     |
|  |                     |
| www  |                     |
|  |                     |
|  |                     |
|  |                     |
| 0 items  |                     |
| ( CRII)  | ///                 |
|  |                     |
|  |                     |
|  |                     |
| 🛅 🛅 Download   |                     |

Step 4: A window will open that will allow you to save your captured file on your client PC. If the Native PC's browser is set to download automatically, your selected file will be saved in the browsers default download folder.



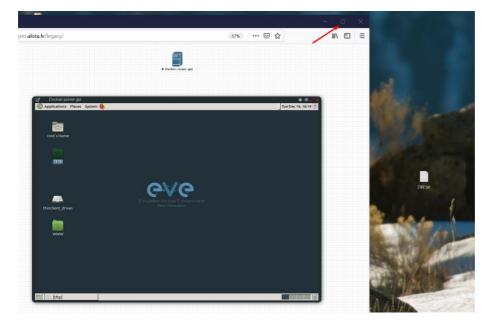
**NOTE:** Please refer to section 12 for downloading Wireshark capture files from EVE HTML5 consoles.



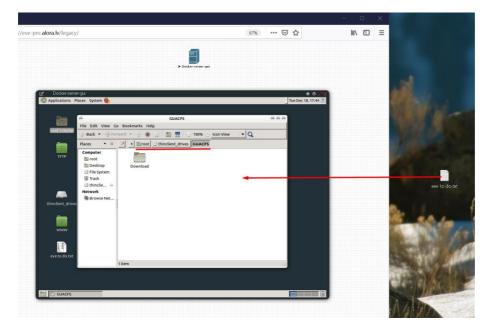
# 13.2 Thinclient File upload

Sometimes it is necessary to upload files to your EVE labs. The Thinclient file exchange feature allows you to upload files from your client PC to the EVE HTML5 server-gui station. The example below will show you how to upload a text file to the EVE HTML5 server-gui station. Any other files can be uploaded the same way.

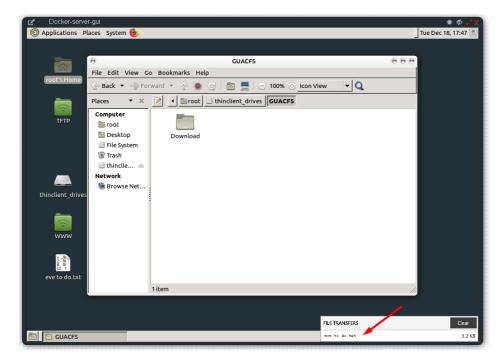
Step 1: Adjust your browser so that you can see it and the file that you want to transfer.



Step 2: On the EVE HTML5 Desktop navigate to: **thinclient\_drives/GUACFS/** and drag and drop the file from your client PC to opened location on HTML5 Desktop.

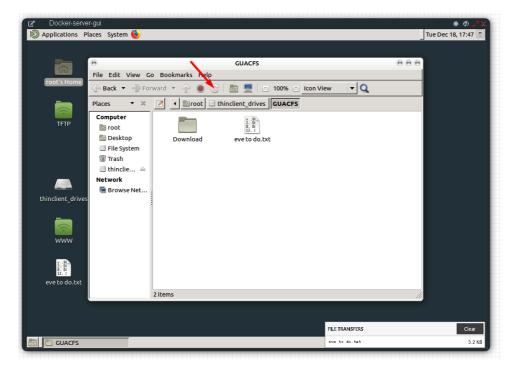






Step 3: Next you will see a notification in the bottom right corner.

Step 4: To finish the operation and see the uploaded file in the HTML desktop station, press the refresh button. Our Text file SW.txt has been uploaded.





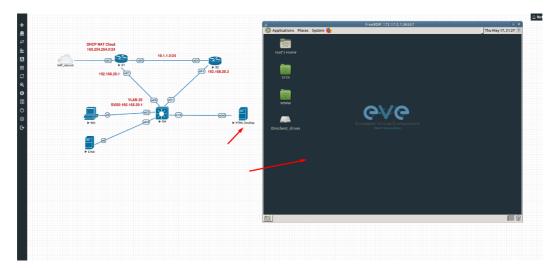
# **13.3** Other Thinclient file operations

Files that have been uploaded via the thinclient feature can also be transferred to nodes inside your EVE labs via TFTP. In the example below we have uploaded a config file (sw.txt) and would like to transfer it to node R1.

Step 1: Add the **eve-gui-server** docker node to your lab and edit its settings. Set the console type to RDP and configure the IP address settings (DHCP or static) accordingly so that the docker node can reach the destination node (R1 in this example). For Docker IP addressing please refer to section 14



Step 2: Click on the **eve-gui-server** docker node to open an RDP session.



Step 3: Open the thinclient\_drives location where you uploaded your file to:

#### /thinclient\_drives/media/nobody/thinclient\_drives/GUACFS/

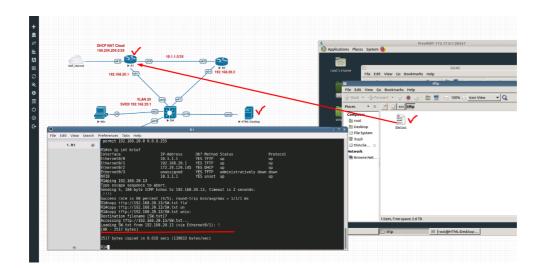
Next, drag and drop your file to the desktop folder named TFTP.



|   |   | 🗮 🛷 🎸 X 👌  |
|---|---|--|
| 🔊 🔊 Applications Places System 😓  |   | Tue Dec 18, 18:09 🔳                                  |
| root's Home   | GUACFS         File Edit View Go Bookmarks Help         Back *         Forward *         Image: State of the state of |  |
|   | (tftp]  |  |
| C Docker-server-gui   | ම guaces ම ම ම  | ی کی 🕹 🖌 🗶 ان کی |
| Applications Places System 6  | 은 GUACFS 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문  |  |
| Applications Places System 6  | File Edit View Go Bookmarks Help  |  |
| Applications Places System  | File Edit View Go Bookmarks Help  |  |
| Applications Places System  rootkstione  File Edit View Go Bookma   | File Edit View Go Bookmarks Help  |  |
| Applications Places System  File Edit View Go Bookma  File Edit View Go Bookma  File State  Computer  Toto  Tash  Computer  Tash  Thindie  Browse Net  Browse Net | File Edit View Go Bookmarks Help  |  |
| Applications Places System  Tool's Home  File Edit View Go Bookma  Places  Network  Browse Net  1ltem, Free   | File Edit View Go Bookmarks Help       ttp       rks Help       Sro Ttp   |  |

Step 4: Open the destination node's (R1) console and use the tftp command to copy your file:







# 14 Dockers

# **14.1 EVE integrated docker stations**

EVE-NG Professional and Learning Centre edition have integrated Docker stations that allows your server to use its resources more efficiently. Dockers offer the advantage of not having to duplicate processes already running on the host system. With a Docker, you run only the processes you need for the hosted application. In comparison, virtual machines have to run a complete guest operating system, including many of the same processes that are already running on the server host.

## 14.1.1 Docker Machines

#### eve-gui-server (default)

- Fully featured Linux workstation with integrated Thinclient. For more information on the Thinclient operation please refer to section 13.
- napalm
- ansible
- phyton
- RDP console
- DHCP or Static IP address
- WWW Server (web page home directory www is located on desktop)
- TFTP Server (for access to TFTP server, root/eve or nobody/eve, home directory TFTP is located on desktop)
- FTP server (for access to FTP server, root/eve, home directory for ftp is root)
- Java Integration for ASDM access to Cisco ASA/IPS. For access to ASDM where Java is required, please follow this reference link:

https://192.168.100.5/admin/public/asdm.jnlp

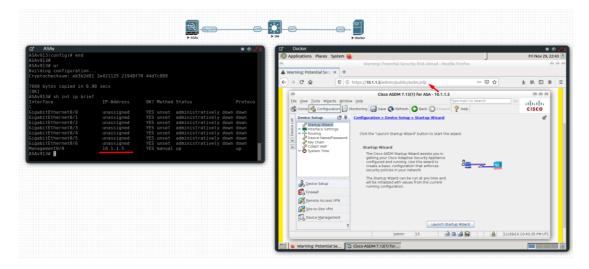
Where 192.168.100.5 is the ASA IP for ASDM connection

NOTE: Older ASA require to configure extra SSL encryption to communicate with Java on the docker station. ASA 9.1.5 CLI:

ssl encryption aes256-shal

Example: Access to ASAv ASDM from Docker server-gui station





#### eve-firefox (default)

- A Docker for hosting a Mozilla Firefox browser. Useful for accessing another nodes management interface using http or https. The browser already has Java integrated so that you can utilize GUIs that require it, like ASDM for Cisco's ASA.
- RDP console
- DHCP or Static IP address

#### eve-wireshark (default)

- Fully featured Wireshark workstation with integrated Thinclient. For more information on the thinclient operation please refer to section 13.
- RDP console

#### eve-chrome (extra install, section 14.1.9)

- A Docker for hosting a Google Chrome browser. Useful for accessing another nodes management interface using http or https. The browser already has Java integrated so that you can utilize GUIs that require it, like ASDM for Cisco's ASA.
- DHCP or Static IP address

#### eve-kali-large (extra install, section 14.1.9)

- A Docker for hosting a Kali Linux. Fully featured Security vulnerability and penetration test machine
- DHCP or Static IP address
- Java Integration for ASDM access to Cisco ASA/IPS. For access to ASDM where Java is required, please follow this reference link:
- https://192.168.100.5/admin/public/asdm.jnlp



| Docker_Kali     Applications Places System |   |                                    |            | 1 | * 🤻 🕅<br>Fri Nov 29, |
|--|---|------------------------------------|------------|---|----------------------|
| Usual applications                         | + |                                    |            |   |                      |
| 01 - Information Gathering                 | • |                                    |            |   |                      |
| 🕞 02 - Vulnerability Analysis              | + |                                    |            |   |                      |
| 🚯 03 - Web Application Analysis            | • |                                    |            |   |                      |
| 🕞 04 - Database Assessment                 | + |                                    |            |   |                      |
| 🕜 05 - Password Attacks                    | D | 🖑 • Offline Attacks                | •          |   |                      |
| 😳 06 - Wireless Attacks                    | + | It • Online Attacks                | - <b>F</b> |   |                      |
| 🛱 07 - Reverse Engineering                 | + | Passing the Hash tools             | •          |   |                      |
| Ø 08 - Exploitation Tools                  | • | 💣 • Password Profiling & Wordlists | • -        |   |                      |
| (추천 09 - Sniffing & Spoofing               | • | 🚑 cewl                             |            |   |                      |
| 2 10 - Post Exploitation                   | + | E crunch                           |            |   |                      |
| 🕊 11 - Forensics                           | • | hashcat                            |            |   |                      |
| 12 - Reporting Tools                       | + | john                               |            |   |                      |
| 🏃 13 - Social Engineering Tools            | × | 💽 ncrack                           |            |   |                      |
|  |   | os ophcrack                        |            |   |                      |
|  |   | 🔧 wordlists                        |            |   |                      |

#### • Where 192.168.100.5 is the ASA IP for ASDM connection

eve-ostinato (extra install, section 14.1.9)

- A Docker for hosting a Ostinato 0.9 GUI. Fully featured Ostinato 0.9 packet generator and network traffic generator machine
- DHCP or Static IP address
- Fully featured Ostinato GUI

| ☑ Docker_Ostinato                        | * 🗘 -   |
|--|---|
| <u>File View H</u> elp                   |   |
| Ports and Streams                        |   |
| └ • Port 0: eth0 ()                      | Welcome to Ostinato The port list on the left contains all the ports on which you can transmit packets. Ports belong to a port group. Make sure the Port Group has a $^{\circ}$ next to it, then double click the port group to show or hide the ports in the port group. To generate packets, you need to create and configure packet streams. A stream is a sequence of one or more packets. To create a stream, select the port on which you want to send packets. Don't see the port that you want (or any ports at all) inside the port group? Get Help! |
| Port<br>Link State U<br>Transmit State C | Capture ARP/ND C  |



## 14.1.2 Docker DHCP IP address setup

EVE integrated Docker stations have two options for setting an IP address.

#### DHCP IP address option.

Step 1: Add the node to the topology and make sure the DHCP option is **enabled** under the edit node window. Refer to section 14.1.6 for the correct console type.

Step 2: Ensure the docker's DHCP request can reach a DHCP server either in your lab or externally through a Cloud Network like Cloud0.

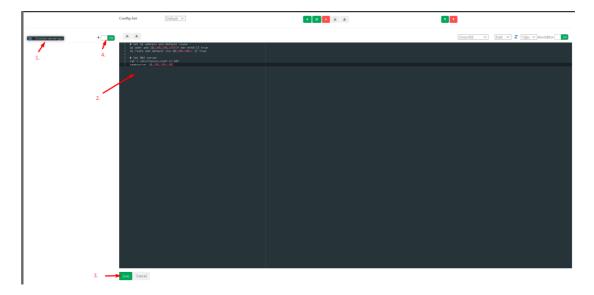
| ADD A NEW NOD          | DE                    |   |
|------------------------|-----------------------|---|
| - ••                   |                       |   |
| Template               |                       |   |
| Docker.io              |                       | * |
| Number of nodes to add | Image                 |   |
| 1                      | eve-gui-server:latest | * |
| Name/prefix            |                       |   |
| Docker                 |                       |   |
| Icon                   |                       |   |
| Server.png             |                       | • |
| RAM (MB)               |                       |   |
| 256                    |                       |   |
| Enable DHCP on Eth0    |                       |   |
| Ethernets              |                       |   |
| 1                      |                       |   |
| Startup configuration  |                       |   |
| None                   |                       | - |
| Delay (s)              |                       |   |
| 0                      |                       |   |
| Console                |                       |   |
| rdp                    |                       | • |
| Left                   | Тор                   |   |
| 1283                   | 247                   |   |
| Save                   | Cancel                |   |

## 14.1.3 Docker Static IP address setup

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 14.1.6 for the correct console type.

Step 2: On the left sidebar menu open Startup-config and use the example syntax below to set the ip for your Docker node. Make sure you are using the exact syntax for your static IP setup:

```
# Set ip address and Default route
ip addr add 10.100.100.103/24 dev eth0 || true
ip route add default via 10.100.100.1 || true
# Set DNS server
cat > /etc/resolv.conf << EOF
nameserver 8.8.8.8
EOF</pre>
```



Step 3: Press the Save button below and switch the node to boot from the startup-config.

## 14.1.4 Docker multi interfaces setup

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 14.1.6 for the correct console type.

Step 2: On the left sidebar menu open Startup-config and use the example syntax below to set the ip for your Docker node. Make sure you are using the exact syntax for your static IP setup. It is recommended to add static routes under interfaces to reach specific networks if required.

```
# Set ip address eth0
ip addr add 192.168.1.200/24 dev eth0 || true
ip route add default via 192.168.1.1 || true
# Set ip address eth1
ip addr add 172.16.1.201/24 via dev eth1 || true
# Set static route for eth1
ip route add 10.100.100.0/24 via 172.16.1.1 dev eth1 || true
# Set ip address eth2
ip addr add 10.1.1.10/24 via dev eth2 || true
# Set static route for eth2
ip route add 10.10.10.0/24 via 10.1.1.1 dev eth2 || true
# Set DNS server
cat > /etc/resolv.conf << EOF</pre>
nameserver 8.8.8.8
EOFnameserver 8.8.8.8
EOF
```



### 14.1.5 Docker server-gui custom WEB page

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 14.1.6 for the correct console type.

Step 2: On the left sidebar menu open Startup-config and use the example syntax below to set the ip and html page for your Docker node. Make sure you are using the exact syntax for your static IP setup and custom HTML values:

```
# Set ip address and Default route
ip addr add 10.100.12.100/24 dev eth0 || true
ip route add default via 10.100.12.10 || true
# Set DNS server
cat > /etc/resolv.conf << EOF</pre>
nameserver 8.8.8.8
EOF
# Create a Default web page
# Use 'EOF' do avoid variable from expanding
# Delete default index page
rm /var/www/html/index.html || true
# Create a Default web page
# Use 'EOF' do avoid variable from expanding
cat > /var/www/html/index.php << 'EOF'</pre>
<center>
<?php
echo gethostname();
?>
<hr>
       width="596" height="239" src="data:image/png;base64,---
<img
imagecode ommittedg==">
<hr>
<?php
//whether ip is from share internet
if (!empty($ SERVER['HTTP CLIENT IP']))
  {
    $ip address = $ SERVER['HTTP CLIENT IP'];
//whether ip is from proxy
elseif (!empty($ SERVER['HTTP X FORWARDED FOR']))
  {
    $ address = $ SERVER['HTTP X FORWARDED FOR'];
//whether ip is from remote address
else
  {
    $ip address = $ SERVER['REMOTE ADDR'];
 }
echo 'Client Address:'.$ip address;
?>
```



#### </center> EOF

| STARTUP-C   | ONFIGS   |
|---|--|
|   | Config Set Default 🗸   |
| <ul> <li>SW1</li> <li>SW2</li> <li>Mgmt-Host</li> <li>ISP</li> <li>SW_M</li> <li>DMZ-S1</li> <li>DMZ-S2</li> <li>NTP</li> </ul> | <pre> f 00  f 2 f 00 f 4 f 2 f addr add 10.100/11.100/21 dev eth0    true f 00 f f oute add default via 10.100/21 dev eth0    true f 00 f conte add default via 10.100/21 dev eth0    true f 00 f conte add default via 10.100/21 dev eth0    true f 00 f conte ide idea idea idea idea idea idea idea</pre> |

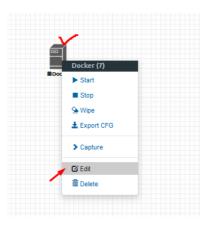
Step 3: Press the Save button below and switch the node to boot from the startup-config.

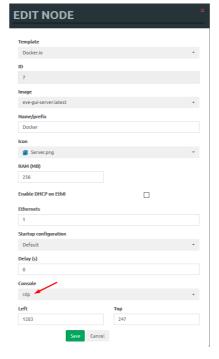




## 14.1.6 Docker Consoles

To set consoles for EVE Docker stations, right click on node and click Edit. Set the required console type







| Docker Station                   | Console type |
|----------------------------------|--------------|
| eve-gui-server (napalm, ansible) | RDP          |
| eve-chrome (optional)            | RDP          |
| eve-wireshark                    | RDP          |
| eve-firefox                      | RDP          |
| eve-kali (optional)              | RDP          |
| eve-kali-large (optional)        | RDP          |
| eve-ostinato (optional)          | RDP          |

## 14.1.7 Docker cli root access

All EVE docker stations have the following configured CLI root account.

#### Username: root

#### Password: eve

**NOTE**: The root login for SSH can be commented in sshd file. Use vi to edit and remove comment "#" for PermitRootLogin

```
vi /etc/ssh/sshd_config
PermitRootLogin yes
```

Regular user (root user) SSH access to EVE Docker:

#### **Username: nobody**

#### **Password: eve**

### 14.1.8 Dockers re-install/update

To install or fix docker stations in the EVE Pro issue the following commands from the CLI of EVE.

When dockers are properly installed, your EVE CLI command dc images output must show:



| root@eve-ng:~# do | : images | <b>3.3.1</b> 101 St | aliu ir , <b>J.J.Z</b> iui |        |
|-------------------|----------|---------------------|----------------------------|--------|
| REPOSITORY        | TĀG      | IMAGE ID            | CREATED                    | SIZE   |
| eve-wireshark     | latest   | 413aae02d43d        | 2 months ago               | 1.62GB |
| eve-firefox       | latest   | 8882ac260c1f        | 2 months ago               | 2.15GB |
| eve-gui-server    | latest   | 35d3676ee350        | 2 months ago               | 3.67GB |
| eve-desktop       | latest   | b041a187ded9        | 2 months ago               | 3GB    |
| dockergui-rdp     | latest   | be03f3b46439        | 2 months ago               | 1.29GB |
| root@eve-ng:~#    |          |                     |                            |        |

If you still see some docker line with <none>

| root@eve-ng:~# dc imag<br>REPOSITORY | TAG           | IMAGE ID     | CREATED        | SIZE   |
|--------------------------------------|---------------|--------------|----------------|--------|
| <none></none>                        | <none></none> | cc286e6ac274 | 16 seconds ago | 1.87GB |
| eve-qui-server                       | latest        | f3aa6e0e9a56 | 3 minutes ago  | 3.04GB |
| eve-wireshark                        | latest        | 638ed7cf5b80 | 12 minutes ago | 887MB  |
| eve-firefox                          | latest        | 259293d73b07 | 13 minutes ago | 1.49GB |
| eve-desktop                          | latest        | 78e9c2e618a5 | 15 minutes ago | 2.79GB |
| dockerqui-rdp                        | latest        | 84059bb87926 | 21 minutes ago | 553MB  |

please use reinstall dockers command:

apt install --reinstall eve-ng-dockers

Reference for Dockers reinstall and upgrade: <u>http://www.eve-ng.net/documentation/eve-ng-upgrade</u>

#### 14.1.9 Extra docker packages,

NOTE: Not included in the default EVE Pro installation. This can take some time depending on your Internet connection and disk speed.

Kali Linux Full, to install issue command:

```
apt install eve-ng-kali-large
```

Chromium Linux http, to install issue CLI command:

apt install eve-ng-chrome

Ostinato docker, to install issue CLI command:

apt install eve-ng-ostinato

To verify Installed dockers, issue CLI command

dc images

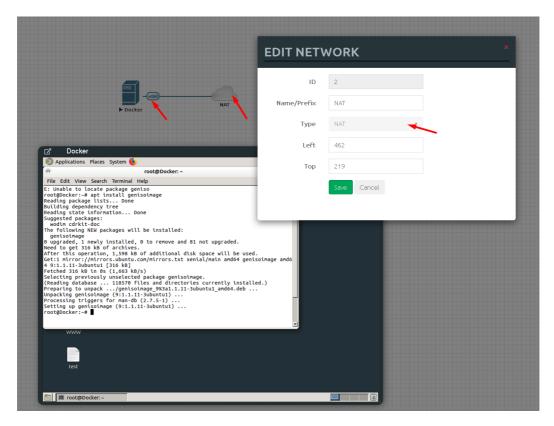
| root@eve-ng:~# dc | : images |              |              |        |
|-------------------|----------|--------------|--------------|--------|
| REPOSITORY        | TAG      | IMAGE ID     | CREATED      | SIZE   |
| eve-gui-server    | latest   | 0c764bb836f9 | 7 days ago   | 3.69GB |
| eve-wireshark     | latest   | 413aae02d43d | 2 months ago | 1.62GB |
| eve-chrome        | latest   | d59959a7ae83 | 2 months ago | 2.21GB |
| eve-firefox       | latest   | 8882ac260c1f | 2 months ago | 2.15GB |
| eve-ostinato      | latest   | 63497fd2da4d | 2 months ago | 1.79GB |
| eve-desktop       | latest   | b041a187ded9 | 2 months ago | 3GB    |
| dockergui-rdp     | latest   | be03f3b46439 | 2 months ago | 1.29GB |
| eve-kali          | latest   | 9c6b21e335e3 | 3 months ago | 7.74GB |
| root@eve-ng:~#    |          |              |              |        |



## 14.1.10 Customize docker image with your own changes.

Step 1. Connect your existing docker node to the internet

Sometimes you may have your own packages to be installed on the docker and kept for future labs. For this connect your docker to the Internet. It can be achieved connecting docker to Management Cloud0 or NAT cloud. **Example below**, Sever-gui docker is connected to Cloud NAT.



Step 2. Make your installs, packages. Example:

In the screen above I did install genisoimage package

apt install genisoimage

Step 3. Obtain your RUNNING docker container ID:

From EVE CLI issue command:

dc ps



| root@eve-ng:~# dc p<br>CONTAINER ID         | s<br>IMAGE                                       | COMMAND                             | CREATED      | STATUS       | PORTS |
|---|--|-------------------------------------|--------------|--------------|-------|
| NAMES<br>0d4b3f8c314c<br>b37bf9cb=0c6f=4bcb | eve-gui-server:latest<br>-b838-10d877ecce78-10-5 | "/sbin/my_init"<br>packages_Ekample | 33 hours ago | Up 2 minutes |       |
| root@eve-ng:~# ^C<br>root@eve-ng:~#         |  | nstallgenisoimage packag            | e            |              |       |

Step 4. Commit your prepared docker image with new name. example below I called it evegeniso

dc container commit <containerid> <newimagename>

dc container commit 0d4b3f8c314c eve-geniso

Step 5 check if new Docker image is created

dc images

| root@eve-nq:~# dc .                 | images |              |               |        |
|-------------------------------------|--------|--------------|---------------|--------|
| REPOSITORY                          | TÃG    | IMAGE ID     | CREATED       | SIZE   |
| eve-geniso                          | latest | e6dd56c3b26c | 4 seconds ago | 3.19GB |
| eve-kali 🦰                          | latest | d1fda568e8a0 | 3 weeks ago   | 4.77GB |
| eve-nso                             | latest | f2a7a3d6a423 | 8 weeks ago   | 3.95GB |
| eve-ostinato                        | latest | e89cad6b1813 | 2 months ago  | 1.34GB |
| eve-gui-server                      | latest | al3cb401c8dd | 3 months ago  | 3.11GB |
| eve-firefox                         | latest | 8900664e9f3b | 4 months ago  | 1.49GB |
| eve-chrome                          | latest | 51fd92216b99 | 4 months ago  | 1.61GB |
| eve-wireshark                       | latest | 0c49fe2dc6bb | 7 months ago  | 888MB  |
| eve-desktop                         | latest | c285d1ec833c | 7 months ago  | 2.39GB |
| dockergui-rdp                       | latest | a65b62fa69b6 | 9 months ago  | 553MB  |
| phusion/baseimage<br>root@eve-ng:~# | 0.9.22 | 877509368a8d | 2 years ago   | 225MB  |

Step 6. Optional, If you want to keep this image and later load in other EVE installs, then you must create exportable .tar image.

dc image save -o /root/mysuperimage.tar <image name>

Step 7 Optional, upload your .tar file in new EVE root, and install it in Dockers location.

dc image load -i /root/mysuperimage.tar

14.1.11 Delete docker image from EVE

Step 1. From EVE CLI issue command to check docker ID to be removed.

dc images

| root@eve-ng:~# d | c images |                  |                      |             |
|------------------|----------|------------------|----------------------|-------------|
| REPOSITORY       | TĀG      | IMAGE ID         | CREATED              | SIZE        |
| eve-geniso       | latest   | e6dd56c3b26c 🔫 🛌 | 4 seconds ago        | 3.19GB      |
| eve-kali         | latest   | d1fda568e8a0     | 3 weeksEagoVG Profes | sio4al77GBb |
| eve-nso          | latest   | f2a7a3d6a423     | 8 weeks ago          | 3/95GB      |
| eve-ostinato     | latest   | e89cad6b1813     | 2 months ago         | 1.34GB      |
| eve-gui-server   | latest   | al3cb401c8dd     | 3 months ago         | 3.11GB      |
| eve-firefox      | latest   | 8900664e9f3b     | 4 months ago         | 1.49GB      |

Step 2. Use command: dc rmi -f <id of docker image>.

dc rmi -f e6dd56c3b26c



Step 3. Check with **dc images** if docker is removed.

Step 4. Finish removal with **apt remove --purge eve-ng-kali**, where eve-ng-kali is your docker repository name.



# 15 EVE Troubleshooting

**15.1 CLI diagnostic information display commands** 

15.1.1 Display full EVE Pro diagnostic

eve-info

**15.1.2 Display the currently installed EVE Pro version:** 

| dpkg -l eve-ne   | g-pro               |              |  |
|--|---------------------|--------------|--|
|  |                     |              |  |
| root@eve-ng:~# dpkg -1<br>Desired=Unknown/Instal<br>  Status=Not/Inst/Conf | 1/Remove/Purge/Hold |              | nig a Wait (Thig hand                          |
| / Err?=(none)/Reinst-  |                     |              | rig-await/filig-pend                           |
| / Name   | Version             | Architecture | Description                                    |
| ii eve-ng-pro<br>root@eve-ng:~#  | 2.0.4-21            | amd64        | A new generation software for networking labs. |

15.1.3 Display if EVEs Intel VT-x/EPT option on/off:

kvm-ok

root@eve-ng:~# kvm-ok INFO: /dev/kvm exists KVM acceleration can be used root@eve-ng:~#

# 15.1.4 Display EVEs CPU INFO:

lscpu

| root@eve-ng:~# lscpu |                                      |
|----------------------|--------------------------------------|
| Architecture:        | x86_64                               |
| CPU op-mode(s):      | 32-bit, 64-bit                       |
| Byte Order:          | Little Endian                        |
| CPU(s):              | 24                                   |
| On-line CPU(s) list: | 0-23                                 |
| Thread(s) per core:  | 1                                    |
| Core(s) per socket:  | 1                                    |
| Socket(s):           | 24                                   |
| NUMA node(s):        | 4                                    |
| Vendor ID:           | GenuineIntel                         |
| CPU family:          | 6                                    |
| Model:               | 44                                   |
| Model name:          | Intel(R) Xeon(R) CPU X5680 @ 3.33GHz |
| Stepping:            | 2                                    |
| CPU MHz:             | 3324.053                             |
| BogoMIPS:            | 6650.00                              |
| Virtualization:      | VT-x                                 |
| Hypervisor vendor:   | VMware                               |

15.1.5 Display EVEs CPU manufacturer:

lsmod | grep ^kvm\_

| root@eve-ng:~#    | lsmod   grep | ^kvm_ |  |
|-------------------|--------------|-------|--|
| <b>kvm_</b> intel | 212992       | 74    |  |
| root@eve-ng:~#    |              |       |  |



-

## 15.1.6 Display EVEs HDD utilization.

If the /boot only has a little space left you can refer to section 3.6.1.1. If the eve—ng—vg—root reaches 99% or 100% then you will need to expand the HDD in order to continue using EVE. The Solution to expand your HDD is described in section 15.1

| df -h                    |      |      |       |      |                |  |  |  |
|--------------------------|------|------|-------|------|----------------|--|--|--|
|                          |      |      |       |      |                |  |  |  |
| root@eve-ng:~# df -h     |      |      |       |      |                |  |  |  |
| filesystem               | Size | Used | Avail | Use% | Mounted on     |  |  |  |
| ldev                     | 40G  |      | 40G   | 0%   | /dev           |  |  |  |
| mpfs                     | 7.9G | 52M  | 7.9G  | 1%   | ⁄run           |  |  |  |
| /dev/mapper/evengvg-root | 681G | 370G | 283G  | 57%  | /              |  |  |  |
| mpfs                     | 40G  | 0    | 40G   | 0%   | /dev/shm       |  |  |  |
| mpfs                     | 5.OM |      | 5.OM  | 0%   | /run/lock      |  |  |  |
| mpfs                     | 40G  |      | 40G   | 0%   | /sys/fs/cgroup |  |  |  |
| /dev/sda1                | 472M | 8 3M | 365M  | 19%  | ∕boot          |  |  |  |
| root@eve-ng:~#           |      |      |       |      |                |  |  |  |

## 15.1.7 Display EVEs Bridge interface status

brctl show

| root@eve-ng:~. | # brctl show      |             |             |  |
|----------------|-------------------|-------------|-------------|--|
| bridge name    | bridge id         | STP enabled | interfaces  |  |
| dockerO        | 8000.0242c0db8435 | no          |             |  |
| natO           | 8000.000000000000 | no          |             |  |
| pnetO          | 8000.000c29d0aa94 | no          | ethO        |  |
| pnet1          | 8000.000c29d0aabc | no          | eth1        |  |
|                |                   |             | vunl1_0_1_0 |  |
| pnet2          | 8000.000c29d0aa9e | no          | eth2        |  |
| pnet3          | 8000.000c29d0aaa8 | no          | eth3        |  |
| pnet4          | 8000.000c29d0aab2 | no          | eth4        |  |
| pnet5          | 8000.000000000000 | no          |             |  |
| pnet6          | 8000.000000000000 | no          |             |  |
| pnet7          | 8000.000000000000 | no          |             |  |
| pnet8          | 8000.000000000000 | no          |             |  |
| pnet9          | 8000.000000000000 | no          |             |  |

### 15.1.8 Display EVEs system services status

systemctl list-unit-files --state=enabled

|                             |                            | _ |
|-----------------------------|----------------------------|---|
|                             | st-unit-filesstate=enabled |   |
| UNIT FILE                   | STATE                      |   |
| accounts-daemon.service     | enabled                    |   |
| autovt@.service             | enabled                    |   |
| capdog.service              | enabled                    |   |
| cpulimit.service            | enabled                    |   |
| cron.service                | enabled                    |   |
| docker.service              | enabled                    |   |
| getty@.service              | enabled                    |   |
| lvm2-monitor.service        | enabled                    |   |
| mysql.service               | enabled                    |   |
| networking.service          | enabled                    |   |
| open-vm-tools.service       | enabled                    |   |
| openvswitch-switch.service  | enabled                    |   |
| ovfstartup.service          | enabled                    |   |
| resolvconf.service          | enabled                    |   |
| rsyslog.service             | enabled                    |   |
| ssh.service                 | enabled                    |   |
| sshd.service                | enabled                    |   |
| syslog.service              | enabled                    |   |
| systemd-timesyncd.service   | enabled                    |   |
| unattended-upgrades.service | enabled                    |   |
| ureadahead.service          | enabled                    |   |
| dm-event.socket             | enabled                    |   |
| docker.socket               | enabled                    |   |
| lvm2-lvmetad.socket         | enabled                    |   |
| lvm2-lvmpolld.socket        | enabled                    |   |
| uuidd.socket                | enabled                    |   |
| remote-fs.target            | enabled                    |   |
| apt-daily-upgrade.timer     | enabled                    |   |
| apt-daily.timer             | enabled                    |   |



# **15.2 Expand EVEs System HDD**

### IMPORTANT NOTE: DO NOT expand your current/existing HDD on your EVE VM!

#### 15.2.1 HDD space alert

**Important:** by default, EVE will trigger alerts if there are 3GB or less HDD space available. Additional nodes will not start until more space is added or freed up. A link is provided in the notification bubble on how to properly add an additional HDD.

| × |
|---|
| × |
| × |
|   |

To edit HDD space threshold for the alert is customizable. please follow section: 7.4.1

| System settings                           |   |              |           |       |
|---|---|--------------|-----------|-------|
| Radius Server #1                          | IP  | Port         | Secret    |       |
|   | 0.0.0.0   | 1812         | *****     |       |
| Radius Server #2                          | IP  | Port         | Secret    |       |
|   | 0.0.0.0   | 1812         |           |       |
| Proxy Server                              | IP<br>0.0.0.0   | Port<br>8080 |           |       |
| Template visibility<br>Disk critical size | unprovisioned images Disable ~<br>Minimal free space (GB) |              |           |       |
|   |   |              | Submit Ca | ancel |

15.2.2 Expand HDD on VMware Workstation

Expanding your EVEs system HDD is achieved by adding an additional HDD to your EVE VM.

Step 1: Stop all your labs and shutdown EVE.

Use EVE CLI command: **shutdown -h now** 

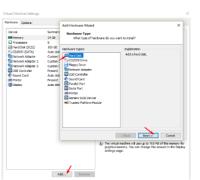


Step 2: Go to edit VM settings and add a new Hard drive. Then click Next.

Step 3: Leave the recommended SCSI HDD option and then click Next

Step 4: Make sure you have selected the option "Create a new Virtual disk."

Step 5: Set your desirable HDD Size; example 200GB.



Step 6: Make sure you have set the option "Store Virtual disk as a single file" and then click Next

Step 7: Optional: Specify the location of where your new HDD will be stored, then click Finish.

Step 8: Boot your EVE VM, HDD size will be expanded automatically. To verify, use the command to verify HDD utilization referenced in section 15.1.5

### 15.2.3 Expand your HDD on ESXi

Expanding your EVEs system HDD is achieved by adding an additional HDD to your EVE VM.

Step 1: Stop all your labs and shutdown EVE.

Use EVE CLI command: **shutdown -h now** 

Step 2: Go to edit VM settings and add a new Hard drive. Then click Next

Step 3: Make sure you have selected the option "Create a new Virtual disk." Then click Next

Step 4: Set your desirable HDD Size; example 200GB.

Step 5: It is recommended to set the Thick Provision Lazy Zeroed HDD option.

Step 6: Specify the location of where your new HDD will be stored and then click Next

Step 7: Leave the recommended SCSI HDD option as is and click Finish.

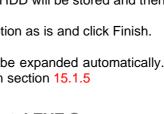
Step 8: Boot your EVE VM, the HDD size will be expanded automatically. To verify, use the command to verify HDD utilization referenced in section 15.1.5

15.2.4 Expand your HDD on a Bare Metal EVE Server

It is a complicated process to expand a HDD for a bare metal EVE server. Please open a ticket in our Live chat support for advice.

https://www.eve-ng.net/index.php/live-helpdesk/

Use a google account to join in the Live Chat or create new chat account.



Jack Next Cancel



# 15.3 Reset Management IP

Type the following commands into the CLI followed by enter:

rm -f /opt/ovf/.configured

su -

http://www.eve-ng.net/documentation/installation/bare-installIP address setup wizard. Please follow the steps in section 3.5.1 for Static IP or 3.5.2 for DHCP IP setup.

**15.4 EVE PRO SQL Database recovery** 

Starting EVE PRO version 107, you can recover SQL user database in case of disaster:

```
unl wrapper -a restoredb
```

# **15.5 EVE Log files**

EVE log Files can be obtained from the System Logs page under the System dropdown menu



Use the menu to collect log file data you are interested in.

| ystem log viewer |                 |             |      |
|------------------|-----------------|-------------|------|
| elect log file   | Number of Lines | Search text |      |
| access.txt       | ~ 20            |             | View |
| access.bxt       |                 |             |      |
| api.txt          |                 |             |      |
| error.txt        | •               |             |      |
| php_errors.txt   |                 |             |      |
| unl_wrapper.txt  |                 |             |      |
| cpulimit.log     |                 |             | Null |

## 15.6 EVE cli diagnostic info

Use EVE cli to obtain your EVE information:

eve-info



# 16 EVE Extras

# **16.1 EVE Pro Radius server setup for user authentication**

**Mandatory Prerequisites**: Updated EVE-PRO version 2.0.6-1 or later.

| Please follow sec | tion: 7.4.1 |      |        |  |
|-------------------|-------------|------|--------|--|
| System settings   |             |      |        |  |
| Radius Server #1  | IP          | Port | Secret |  |
|                   | 0.0.0.0     | 1812 | •••••  |  |
| Radius Server #2  | IP          | Port | Secret |  |
|                   | 0.0.0.0     | 1812 |        |  |

16.1.1 EVE User setup for Radius authentication

Step 1: Open the User management submenu. Management>User management and click Add user

Step 2: The Add New User management window will pop up. Fill in the main information about your EVE user. Make sure that you're the username of the account created in EVE matches with the Radius server database.

Step 3: Enable the External Auth (Radius) checkbox. Any existing password will be removed, because the authenticator will check with the Radius server for credentials.

| Add New User                |
|-----------------------------|
| User Name*                  |
| test                        |
| Use only [A-Za-z0-9]chars   |
| External Auth (Radius ) 🗹 🔨 |
| Password                    |
| •••••                       |
| Password Confirmation       |
| ***********                 |

Step 4: If you have purchased licenses for different EVE user roles, you can choose the preferred user role. For licensing and user roles please refer to section **4** 

| John Tester          |   |    |    |   |
|----------------------|---|----|----|---|
| Role Administrator 🗸 |   |    |    |   |
| Administrator        |   |    |    |   |
| Editor               |   |    |    |   |
| From User            | 0 | to | -1 | 0 |
|                      |   |    |    |   |



Step 5: Set the access date and time From - to. If the fields are left empty (untouched), your user will have no time restrictions for accessing the EVE Server. Account validity with time settings is available for Editor and User roles only.

Admin accounts have no time limit for account validity, and Account Validity time cannot be set.

| From | 2018-05-18 | 00:00 | to | 2018-05-20 | 01:00 |
|------|------------|-------|----|------------|-------|
| POD* |            |       |    |            |       |

Step 6: The POD number is a value assigned to user accounts automatically. POD numbers are like user profiles inside of EVE and are a unique value for every user Think of PODs like a virtual rack of equipment for each user. Admins can assign a preferred number between 1-128. Please keep POD numbers unique between users!

Step 7: Press ADD

Add Cancel

Step 8. The username created inside EVE must match the username on the Radius server

**Example:** EVE user authenticated with ISE 2.1 Radius server.

|                               | _             |                     |              |              |                    |            |               |               |               |
|-------------------------------|---------------|---------------------|--------------|--------------|--------------------|------------|---------------|---------------|---------------|
|                               |               | <u>_</u>            | Professional | 🖷 Main       | 🗲 Management 🗸     | 🖉 System 🗸 | Information - | C Licensing + | @2018 Eve-NG  |
|                               |               | User manag          | gement her   | e you can mi | anage EVE-NG users |            |               |               |               |
|                               |               | Database of         | users        |              |                    |            |               |               |               |
|                               |               | Username            |              | Authenticat  | or                 | Email      |               | Name          |               |
|                               |               | admin               |              | internal     |                    | root@loci  | allhast       | Eve-N0        | Administrator |
| EVE Pro Radius user           |               | udise               |              | raciius      |                    | uldis@ttt. | tv            | Uldis R       | tacijus       |
| Authentication Details        |               |                     |              |              |                    |            |               |               |               |
| Source Timestamp              | 2018-11-21    | 18:59:48.211        |              |              |                    |            |               |               |               |
| Received Timestamp            | 2018-11-21    | 18:59:48.214        |              |              |                    |            |               |               |               |
| Policy Server                 | ISE2-1        |                     |              |              |                    |            |               |               |               |
| Event                         | 5200 Auther   | ntication succeeded |              |              |                    |            |               |               |               |
| Username                      | udise 🔫       |                     |              |              |                    |            |               |               |               |
| User Type                     | User          | ISE 2               | 2.1 EVE Au   | thentica     | ted user           |            |               |               |               |
| Authentication Identity Store | Internal Use  | MS                  |              |              |                    |            |               |               |               |
| Authentication Method         | PAP_ASCII     |                     |              |              |                    |            |               |               |               |
| Authentication Protocol       | PAP_ASCII     |                     |              |              |                    |            |               |               |               |
| Network Device                | EVE90-228     |                     |              |              |                    |            |               |               |               |
| Device Type                   | All Device T  | Types               |              |              |                    |            |               |               |               |
| Location                      | All Locations | IS                  |              |              |                    |            |               |               |               |
| NAS IPv4 Address              | 192.168.90.   | .228                |              |              |                    |            |               |               |               |
| Authorization Profile         | PermitAcces   | 22                  |              |              |                    |            |               |               |               |
| Response Time                 | 206           |                     |              |              |                    |            |               |               |               |

16.2 Lab Chat



Refer section: 8.1.12

| LAB CHATROOM                         |
|--------------------------------------|
| [10:42:52] uldis joined              |
| [10:42:32] admin joined              |
| [10:43:24] <b>admin:</b> hello uldis |
| [10:43:34] uldis: hello admin        |
|                                      |
|                                      |

# **16.3 Custom MAC address for node management**

**NOTE:** Custom first MAC is supported for Qemu nodes only.

Qemu nodes has option to change first interface MAC address.

| DIT NODE                          |                               | ×                           | <u></u>   |
|-----------------------------------|-------------------------------|-----------------------------|---|
|                                   |                               |                             | ► VIOS  |
| ſemplate                          |                               |                             | '⊡' MOS<br>Router>  |
| Cisco vIOS                        |                               |                             | Router>en   |
| D                                 |                               |                             | Router#sh int g0/0<br>GigabitEthernet0/0 is administratively down, line protocol is down  |
| 15                                |                               |                             | <ul> <li>Hardware is iGbE, address is aabb.cc00.dead (bia aabb.cc00.dead)</li> <li>MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,</li> </ul> |
|                                   |                               |                             | reliability 255/255, txload 1/255, rxload 1/255   |
| mage<br>vios-adventerprisek9-m.SF | D8 452 47                     |                             | Encapsulation ARPA, loopback not set<br>Keepalive set (10 sec)  |
| vios-advencerprisek9-m.5F         | -A.156-1.1                    | Ť                           | Auto Duplex, Auto Speed, link type is auto, media type is RJ45<br>output flow-control is unsupported, input flow-control is unsupport           |
| Name/prefix                       |                               |                             | ARP type: ARPA, ARP Timeout 04:00:00  |
| VIOS                              |                               |                             | Last input never, output never, output hang never<br>Last clearing of "show interface" counters never   |
| lcon                              |                               |                             | Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops:   |
| 8 Router.png                      |                               | *                           | Queueing strategy: fifo<br>Output queue: 0/40 (size/max)  |
| UUID                              |                               |                             | 5 minute input rate 0 bits/sec, 0 packets/sec<br>5 minute output rate 0 bits/sec, 0 packets/sec   |
| 314c922c-9d95-42d3-83c            | 1-187994390538                |                             | 0 packets input, 0 bytes, 0 no buffer   |
|                                   |                               |                             | Received 0 broadcasts (0 IP multicasts)<br>0 runts, 0 giants, 0 throttles   |
| CPU Limit                         |                               |                             | 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored<br>0 watchdog, 0 multicast, 0 pause input  |
| CPU                               | RAM (MB)                      | Ethernets                   | 16 packets output, 3570 bytes, 0 underruns  |
| 1                                 | 1024                          | 4                           | Router#   |
| First Eth MAC Address             |                               |                             | Router#<br>Router#  |
| aatbbtcc:00tdetad                 |                               |                             |   |
| QEMU Version                      | QEMU Arch                     | QEMU Nic                    |   |
| tpl(default 2.4.0) 👻              | tpl(i386) -                   | tpl(e1000) -                |   |
| QEMU custom options               |                               |                             |   |
|                                   | el=kvm -serial mon:stdio -no: | graphic -podefcopfig -podef |   |
|                                   |                               | 3                           |   |
| Startup configuration             |                               |                             |   |
| None                              |                               | <b>.</b>                    |   |
| Delay (s)                         |                               |                             |   |
| 0                                 |                               |                             |   |
| Console                           |                               |                             |   |
| telnet                            |                               | •                           |   |

# **16.4 Windows node settings for Wifi dongle**

Using a Wifi USB dongle, you can connect a WiFi-adapter to windows host inside EVE.



Step 1. Connect your USB Wifi dongle to your EVE server.

Step 2. Issue the following command on the EVE CLI to obtain BUS and host numbers which your USB WiFi is connected to:

lsusb

|      | -     | 227     | - 2   |    |           |   |
|------|-------|---------|-------|----|-----------|---|
| root | Geve  | e-ng:~# | lsusb |    |           |   |
| Bus  | 002   | Device  | 002:  | ID | 0cf3:9271 | Atheros Communications, Inc. AR9271 802.11n     |
| Bus  | 002   | Device  | 001:  | ID | ld6b:0002 | Linux Foundation 2.0 root hub                   |
| Bus  | 006   | Device  | 001:  | ID | ld6b:0001 | Linux Foundation 1.1 root hub                   |
| Bus  | 005   | Device  | 001:  | ID | ld6b:0001 | Linux Foundation 1.1 root hub                   |
| Bus  | 001   | Device  | 003:  | ID | 0424:2514 | Standard Microsystems Corp. USB 2.0 Hub         |
| Bus  | 001   | Device  | 001:  | ID | ld6b:0002 | Linux Foundation 2.0 root hub                   |
| Bus  | 004   | Device  | 001:  | ID | ld6b:0001 | Linux Foundation 1.1 root hub                   |
| Bus  | 003   | Device  | 002:  | ID | 04e6:5116 | SCM Microsystems, Inc. SCR331-LC1 / SCR3310 Sma |
| rtCa | ard H | Reader  |       |    |           |   |
| Bus  | 003   | Device  | 001:  | ID | ld6b:0001 | Linux Foundation 1.1 root hub                   |
| root | Geve  | e-ng:∼# |       |    |           |   |

Step 3. Add the windows node onto the topology and edit the Qemu line:

Change the type value: **type=q35** Add a comma and then the following line: **if=virtio -usb -device usb-host,hostbus=2,hostaddr=2** 

Where hostbus is your Bus value and hostaddr is your Device ID as seen in the figure above.

Full Windows host gemu line will look like this:

```
-machine type=q35,accel=kvm -cpu
host,+pcid,+kvm_pv_unhalt,+kvm_pv_eoi,hv_spinlocks=0x1fff,hv_vapic,hv
_time,hv_reset,hv_vpindex,hv_runtime,hv_relaxed,hv_synic,hv_stimer -
vga std -usbdevice tablet -boot order=cd -drive
file=/opt/qemu/share/qemu/virtio-win-
drivers.img,index=1,if=floppy,readonly,if=virtio -usb -device usb-
host,hostbus=2,hostaddr=2
```



| Template              |                  |               |                              |
|-----------------------|------------------|---------------|------------------------------|
| Windows               |                  |               | •                            |
| ID                    |                  |               |                              |
| 6                     |                  |               |                              |
| Image                 |                  |               |                              |
| win-7-x86-IPCC        |                  |               | •                            |
| Name/prefix           |                  |               |                              |
| Win                   |                  |               |                              |
| lcon                  |                  |               |                              |
| I Desktop.png         |                  |               | •                            |
| UUID                  |                  |               |                              |
| eee724a7-53f9-45cb-81 | 1b1-c1fec67de6   | 30            |                              |
| CPU Limit             |                  |               |                              |
| CPU                   | RAM (MB)         |               | Ethernets                    |
| 1                     | 4096             |               | 1                            |
| First Eth MAC Address |                  |               |                              |
| 50:0a:00:06:00:00     |                  |               |                              |
| QEMU Version          | QEMU Arcl        | h             | QEMU Nic                     |
| tpl(2.0.2) -          | tpl(×86_64       | 4) 👻          | tpl(e1000) -                 |
| QEMU custom options   | ( reset to tem   | plate value   | )                            |
| -machine type=q35,acc | el=kvm -cpu qerr | nu64,+fsgsbas | e -vga std -usbdevice tablet |
|                       |                  |               |                              |
| Startup configuration | •                |               |                              |
|                       |                  |               |                              |
| Delay (s)<br>0        |                  |               |                              |
|                       |                  |               |                              |
| Console               |                  |               |                              |
| rdp-tls               |                  |               | ·                            |
| Left                  |                  | Тор           |                              |
| 516                   |                  | 312           |                              |
| s                     | ave Cancel       |               |                              |



# 17 Images for EVE

Images must be uploaded and prepared before they can be used in labs. The best way to upload images is to use the WinSCP tool for Windows environment or FileZilla for MAC OSX and Linux.

Link to download WinSCP:

https://winscp.net/eng/download.php

Link to download FileZilla:

https://filezilla-project.org/

To access EVE, use SSH protocol (port 22).

Supported images for EVE are stored in the three locations:

- IOL (IOS on Linux), /opt/unetlab/addons/iol/bin/
- Dynamips images, /opt/unetlab/addons/dynamips
- Qemu images, /opt/unetlab/addons/qemu

## 17.1 Qemu image naming table

▲ IMPORTANT NOTE: Intel VT-X/EPT must be enabled to run Qemu nodes in EVE. For information on how to enable this option, Refer to section 3: EVE Installation.

The directory names used for QEMU images are very sensitive and must match the table below exactly in order to work.

Ensure your image folder name starts as per the table. After the "-" you can add whatever you like to label the image. We recommend using the version of your image.

Folder name examples:

firepower6-FTD-6.2.1 acs-5.8.1.4

The image hdd inside the folder must be named correctly: Example: hda.qcow2 or virtioa.qcow2

Full path Example: opt/unetlab/addons/qemu/acs-5.8.1.4/hda.qcow2 The table of proper folder names is provided in our website:

https://www.eve-ng.net/index.php/documentation/qemu-image-namings/

Supported HDD formats and Qemu versions for the EVE images:



| HDD Format           | HDD name example |
|----------------------|------------------|
| lsi([a-z]+).qcow     | lsia.qcow        |
| hd([a-z]+).qcow      | hda.qcow         |
| virtide([a-z]+).qcow | virtidea.qcow    |
| virtio([a-z]+).qcow  | virtioa.qcow     |
| scsi([a-z]+).qcow    | scsia.qcow       |
| sata([a-z]+).qcow    | sataa.qcow       |

| Supported Qemu Versions |
|-------------------------|
| 1.3.1                   |
| 2.0.2                   |
| 2.2.0                   |
| 2.4.0                   |
| 2.5.0                   |
| 2.6.2                   |
| 2.12.0                  |
| 3.1.0                   |
| 4.1.0                   |
|                         |

# 17.2 How to prepare images for EVE

How to add EVE-NG images please refer to:

https://www.eve-ng.net/index.php/documentation/howtos/

## 17.3 How to add custom image template

▲ IMPORTANT NOTE: Upgrade from EVE version 2.0.5-XX to 2.0.6.-XX automatically will convert old config.php to new yml formats: If you had already custom templates in old php format, these templates will be automatically converted to custom\_templates.yml file during the upgrade process!

## 17.3.1 Templates folder choice

IMPORTANT NOTE: Starting from EVE-PRO Version 2.0.6-42, EVE installation is autodetecting what kind of CPU manufacturer has your server: Intel or AMD, to choose proper templates set. You can check it manually on EVE cli: example below, showing that EVE has Intel CPU.

root@eve-ng:~# lsmod | grep ^kvm\_
kvm intel 212992 74
root@eve-ng:~#

- If you have Intel CPU, then your template files are in "/opt/unetlab/html/templates/intel/"
- If you have AMD CPU, then your template files are in "/opt/unetlab/html/templates/amd/"

#### 17.3.2 Prepare template file

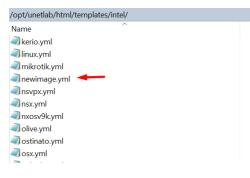
**NOTE:** For templates development use templates folder which is matching your EVE server CPU.

Example below will be based for Intel CPU EVE custom image template. Use EVE cli or WinSCP/Filezilla to create template.



Step 1: Navigate to EVE location: /opt/unetlab/html/templates/intel/

Step 2: Choose your most suitable template from which you want to make copy and create own image template. (example: newimage.yml)



Step 3: Make a copy from source template newimage.yml. Example: Using CLI create template and name it ngips.yml.

cp /opt/unetlab/html/templates/intel/newimage.yml /opt/unetlab/html/templates/intel/ngips.yml

You can create new template using WinSCP or Filezilla as well.

|                |                | tml/templates/inte<br>mplates/intel# ls |                           |                   |                     |                 |                |
|----------------|----------------|---|---------------------------|-------------------|---------------------|-----------------|----------------|
| a10.vml        | c7200.yml      | cumulus.yml                             | ngjingips.ymi             | osx.vml           | sterra.yml          | versadir.yml    | vtedge.yml     |
| cs.vml         | c9800cl.vml    | cup.yml                                 | ise.vml                   | paloalto.vml      | timoscpm.vml        | versafvnf.yml   | vtmamt.vml     |
| lteon.yml      | cda.yml        | cyberoam.yml/opt/                       | urjspace.yml/templa       | pfsense.ymlrimage | .timosiomsymlab/ht  | wiosl2.yml/inte | vtsmart.yml    |
| mpcloud.yml    | cexpresw.yml   | denm.yml                                | junipervrr.yml            | phoebe.yml        | timos.yml           | vios.yml        | vwaas.yml      |
| picem.yml      | cips.yml       | docker.yml                              | kerio.yml                 | prime.yml         | titanium.yml        | vmxvcp.yml      | vwlc.yml       |
| rubacx.yml     | clearpass.yml  | esxi.yml You car                        | n <b>tinuxeyml</b> w temp | opulsesym1WinSC   | Ptrendmivtpscyml/c  | vmxvfp.yml      | vyos.yml       |
| ruba.yml       | cms.yml        | extremexos.yml                          | mikrotik.yml              | riverbed.yml      | uccx.yml            | vmx.yml         | winserver.ym   |
| sav.yml        | coeus.yml      | firepower6.yml                          | newimage.yml 🛹            | scrutinizer.yml   | ucspe.yml           | vnam.yml        | win.yml        |
| sa.yml         | cpsg.yml       | firepower.ymDPR                         | ngips.yml/ 🛛              | silveredgetýml∩p  | lavcenteroymlelated | vpcstymlnage f  | oxrv9kayml. Yo |
| arracuda.yml   | csr1000vng.yml | fortinet.yml                            | nsvpx.yml                 | silverorch.yml    | veloedge.yml        | vqfxpfe.yml     | xrv.yml        |
| igip.yml -     | csr1000v.yml   | hpvsr.yml                               | nsx yml                   | sonicwall.yml     | velogw.yml          | vqfxre.yml      | *.yml          |
| rocadevadx.yml | ctxsdw.yml     | huaweiar1k.yml                          | nxosv9k.yml               | sophosutm.yml     | veloorch.yml        | vsrxng.yml      |                |
| 1710.yml       | cucm.yml       | huaweiusg6kv.yml                        | olive.yml                 | sophosxg.yml      | veos.ymlns/comu     | vsrx yml sign 1 |                |
| :3725.yml      | cue.yml        | infoblox.yml                            | ostinato.yml              | stealth.yml       | versaana.yml        | vtbond.yml      |                |

**IMOPRTANT**: The new name of your template will be related to your image foldername. Your image foldername must start with prefix "ngips- "

Example: image foldername under /opt/unetlab/addons/qemu/ngips-6.5.0-115

| root@eve-ng:~# cd /opt/unetlab/addon;<br>root@eve-ng:/opt/unetlab/addons/gemu |   |
|---|---|
| a10-vThunder-4.1.4.1.4.8 in 0 of 13<br>ampcloud-2.3.5-L                       | ise-2.6.0.156.SPA-L 080<br>junipervrr-19.2R1-S2.2     |
| ampcloud-3.0.2<br>arubacx-10.03   | kerio-control-9.3.2<br>linux-mint-18.3-cinnamon-64bit |
| arubacx-10.04-1000  | linux-slax-64bit-9.3.0                                |
| aruba-VMC_8.4.0.3<br>asa-915-16-k8-CL-L                                       | linux-slax-64bit-9.3.0.tar.gz<br>mikrotik-6.44.5      |
| asav-9131-100<br>asav-971-001   | ngips-6.5.0-115                                       |
| asav-971-001  | IIS VPX-12.0.33.13                                    |

17.3.3 Prepare interface format and name lines

EVE Pro has included option to create various interface names, sequences and numbering. Please refer table below.



| Formula   | Template line format<br>example            | Will<br>produce  |
|---|--|--|
| eth_format: <prefix>{<first example<br="" for="" slot:="" value="">1&gt;}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 8&gt;}</number></first></separator></first></prefix> | eth_format: Gi{1}/{0-8}                    | Gi1/0<br>Gi1/1<br>Gi1/2<br>Gi1/3<br>Gi1/4<br>Gi1/5<br>Gi1/6<br>Gi1/7<br>Gi2/0<br>Gi2/1<br> |
| eth_format: <prefix>{<first example<br="" for="" slot:="" value="">0&gt;}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 4&gt;}</number></first></separator></first></prefix> | eth_format: Ge{0}/{0-4}                    | Ge0/0<br>Ge0/1<br>Ge0/2<br>Ge0/3<br>Ge1/0<br>Ge1/2<br>Ge1/3<br>Ge2/0<br>Ge2/1<br>Ge2/2<br> |
| eth_format: <prefix>{<first value="">}</first></prefix>   | eth_format: Gi{0}                          | Gi0<br>Gi1<br>Gi2<br>Gi3<br>   |
| eth_format: <prefix>{<first value="">}</first></prefix>   | eth_format: G0/{0}                         | G0/0<br>G0/1<br>G0/2<br>G0/3<br>   |
| eth_name: <prefix: custom="" interface="" name=""></prefix:>  | eth_name:<br>- M1<br>- T1<br>- T2          | M1<br>T1<br>T2   |
| eth_name: <prefix: custom="" interface="" name=""></prefix:>  | eth_name:<br>- MGMT<br>- DATA<br>- TRAFFIC | MGMT<br>DATA<br>TRAFFIC  |



**Combined first named interface following by formatted interfaces Example:** We have to set first node interface name "eth0/mgmt" and next following interfaces must start from eth1 and change sequence accordingly. eth1, eth2,....,ethx

As your node first interface will be custom named (eth0/mgmt), therefore in the template "eth\_name:" must be added before "eth\_format:"

eth\_name:
- eth0/mgmt
eth\_format: eth{1}

This adding will produce Node interfaces.

| ADD CONN<br>NGIPS AND                                      | ECTION BETWEEN<br>SWITCH   | × |       |
|--|--|---|-------|
| NGPS<br>CONTROL<br>CONTROL<br>CONTROL<br>CONTROL<br>Switch | Source ID: 9 Source Name: KGIPS type - Node Choose Interface for NGIPS eth1 eth1 eth2 mgnt/eth0 Choose Interface for Switch cia/0 Destination ID: 8 Destination Name: Switch type - Node Sove Cancel | > | Total |

#### 17.3.4 Edit your new template file:

For edit newly created template you can use WinSCP, FileZilla or cli. Example below shows template edit using cli and *nano* editor

cd /opt/unetlab/html/templates/intel/
nano ngips.yml

Change content, setting for various images can vary depends of vendor requirements. The interface name lines please refer Section: 17.3.2

```
# Copyright (c) 2016, Andrea Dainese
# Copyright (c) 2018, Alain Degreffe
# All rights reserved.
#
# Redistribution and use in source and binary forms, with or without
# modification, are permitted provided that the following conditions are met:
# * Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.
# * Redistributions in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in the
documentation and/or other materials provided with the distribution.
# Neither the name of the UNetLab Ltd nor the name of EVE-NG Ltd nor the
names of its contributors may be used to endorse or promote products
# derived from this software without specific prior written permission.
```



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|----------------------------|---|
| na                         | <pre> /pe: qemu ame: NGIPS Node name on the Topology escription: Cisco FirePower NGIPS Node list name</pre>   |
| cp<br>ic<br>cp<br>ra<br>et | ADD A NEW NODE   bu: 4   am: 8192   chernet: 3   chernet: (Construction for the second f |
| et<br>cc<br>sh<br>qe       | <pre>eth0/mgmt th_format: eth{1} onsole: vnc nutdown: 1 emu arch: x86 64 emu_version: 2.4.0</pre>   |
| -                          | emu_nic: e1000<br>emu_options: -machine type=pc,accel=kvm -serial none -nographic -no-user-config<br>-nodefaults -display none -vga std -rtc base=utc -cpu host<br>   |

**Note:** Qemu options in the line may vary per image requirements. Please check manufacturer advice how to run KVM image

17.3.5 Prepare new icon for your template:

**Step 1** Use Filezilla or Winscp to copy your custom icon IPS.png (icon filename IPS.png used in ngips.yml)

This icon should be about 30-60 x 30-60 in the png format (switch.png is for example 65 x 33, 8-bit/color RGBA)

Step 2 Copy this new icon into /opt/unetlab/html/images/icons/

17.3.6 Template use

Step 1 Create directory /opt/unetlab/addons/qemu/ngips-6.5.0-115

mkdir /opt/unetlab/addons/qemu/ngips-6.5.0-115

Step 2 Upload image NGIPS, Refer Section: 0

## 17.4 How to hide unused images in the node list

Please follow section 7.4.1 or 8.1.1.1



# **18EVE Resources**

For additional updated information please follow our web site: https://www.eve-ng.net

How to updates: <a href="https://www.eve-ng.net/index.php/documentation/howtos/">https://www.eve-ng.net/index.php/documentation/howtos/</a>

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EVE forum: <a href="https://www.eve-ng.net/forum/">https://www.eve-ng.net/forum/</a>

To access forum resources, please create a new forum account.

EVE YouTube channel: <u>https://www.youtube.com/playlist?list=PLF8yvsYkPZQ0myW7aVMZ80k8FU04UUgjV</u>

EVE Professional downloads: https://www.eve-ng.net/index.php/download/

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