

# EVE-NG Professional Cookbook

Version 4.6

Author: Uldis Dzerkals

Editors: Michael Doe Christopher Lim

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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 **17**.

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 OVF or ISO file format. The Open Virtualization Format (OVF) is an open standard for packaging and distributing virtual appliances. 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:**

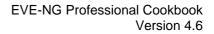
CPU: Intel CPU supporting Intel® VT-x /EPT virtualization Operating System: Windows 7, 8, 10 or Linux Desktop VMware Workstation 14.0 or later VMware Player 14.0 or later

PC/Laptop HW requirements		
CPU Intel i5/i7 (4 Logical processors), Enabled Intel virtualiza in BIOS		
RAM 8Gb		
HDD Space	50Gb	
Network	LAN/WLAN	
EVE Virtual machine requirements		
CPU 4/1 (Number of processors/Number of cores per pr Enabled Intel VT-x/EPT virtualization engine		
RAM 6Gb or more		
HDD 50Gb 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 14.0 or later VW Ware Player 14.0 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 pro Enabled Intel VT-x/EPT virtualization engine			
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 proc or better supporting Intel® VT-x with Extended Page (EPT) Minimum CPU is any Intel Xeon CPU supporting Inte 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 proces 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 18.04 LTS x64

Server HW requirements			
CPU	Recommended CPU Intel E5-2650v3 (40 Logical processors) or better supporting Intel® VT-x with Extended Page Tables (EPT) Minimum CPU is any Intel Xeon CPU supporting Intel® VT-x 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 14.0 or later
- VMware Player 14.0 or later
- VMware ESXi 6.0 or later
- Ubuntu Server 18.04 LTS as platform for bare metal
- Google Cloud Platform
- AMD CPU based PC or Server (the Newest AMD CPU versions are supported)



# 2.3 Unsupported hardware and systems

## The following are currently not supported officially:

- VirtualBox virtualization
- Citrix XenServer
- Microsoft HyperV
- Ubuntu 20.x
- Proxmox



# **3** Installation

# 3.1 VMware Workstation or VM Player

3.1.1 VMware workstation EVE VM installation using ISO image (preferred)

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

Download EVE-NG Professional ISO distribution image: <a href="https://www.eve-ng.net/index.php/download/">https://www.eve-ng.net/index.php/download/</a>

#### 3.1.1.1 EVE VM Setup and Settings

Step 1: Create a	New Virtual machine	Step 2: Select "I will install the operating system later"
New Virtual Machine Wizard	×	New Virtual Machine Wizard X
VMWARE WORKSTATION	Welcome to the New Virtual Machine Wizard	Guest Operating System Installation A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system? Install from:
<sup>PRO<sup>-</sup></sup> 15.5	What type of configuration do you want?	O Installer disc:
	Typical (recommended)	
	Create a Workstation 15.x virtual machine in a few easy steps.	◯ Installer disc image file (iso):
	Custom (advanced)	G:\Install\Linux\linuxmint-16-cinnamon-dvd-32bit.iso $\checkmark$ Browse
	Create a virtual machine with advanced options, such as a SCSI controller type, virtual disk type and compatibility with older VMware products.	I will install the operating system later. The virtual machine will be created with a blank hard disk.
Help	< Back Next > Cancel	Help < Back Next > Cancel



	VM will be stored on the host PC.
ew Virtual Machine Wizard	X
Select a Guest Operating System	New Virtual Machine Wizard X
Which operating system will be installed on this virtual machine?	Name the Virtual Machine What name would you like to use for this virtual machine?
) Microsoft Windows	Virtual machine name:
) Linux ) Novell NetWare	EVE-PRO
) Solaris	
) VMware ESX ) Other	Location: G:VEVE_PRO-VM Browse
	G: EVE_PRO-VM Browse The default location can be changed at Edit > Preferences.
lersion	The default location can be changed at Edit > Preferences.
Ubuntu 64-bit	
Help < Back Next > Can	

	New Virtual Machine Wizard
New Virtual Machine Wizard X Specify Disk Capacity	Ready to Create Virtual Machine Click Finish to create the virtual machine. Then you can install Ubuntu 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. Maximum disk size (GB): 200 . Recommended size for Ubuntu 64-bit: 20 GB Store virtual disk as a single file Split virtual disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.	Name:       EVE-PRO         Location:       G:\EVE_PRO-VM         Version:       Workstation 14.x         Operating System:       Uburtu 64-bit         Hard Disk:       200 GB         Memory:       1024 MB         Network Adapter:       NAT         Other Devices:       CD/DVD, USB Controller, Printer, Sound Card         Customize Hardware
Help < Back Next > Cancel	< Back Finish Cancel

Step 8: Set Processors "Number of processors" and "Number of cores per
processors and Number of cores per



rdware				/T-x/EPT Virtualization
Device ■ Metro y Processors ● New COUVYO (SATA) © Sound Card ● Sound Card ● Sound Card ■ Display	Summary 100 1 Auto detect NAT Present Auto detect Auto detect Auto detect Auto detect	Memory Specify the amount of memory allocated to this virtual medine. The memory size must be a multiple of 4 MB. Memory for this virtual machine: 15384 MB 6 GB 8 GB 8 GB 8 GB 9 GB 9 GB 9 GB 9 GB 9 GB 9 GB 9 GB 9		ed). er will display only one of processors.
			Add Remove	
				Close Help

Step 9a: Select your desirable Network Adapter. Laptop PC				Select your c Desktop PC	lesirable Network	
NAT adapt EVE mana This can h	er option fo	Ided to choose the r Laptops to avoid erface IP changes. me the laptop is		can be eithe	VE management r NAT or Bridged to	
connected				Ссякорто		
Hardware	Laptop or De		Device Memory Processors New CD/DVD (SATA)	Summary 16 GB 8 Auto detect	Device status Connected Connect at power on Network connection	
Device	Summary 16 GB Auto detect Heist Present Auto detect Present Auto detect	Device status Connected Connected Connect at power on Network connection Bridged: Connected directly to the physical network Bridged: Connected directly to the physical network Bridged: Connected directly to the physical network White the physical network durated with the host Custom: Specific visual network Network LAN Segments Advanced;	Retwork Adapter	Bridged (Autonatic) Present Auto detect Present Auto detect Auto detect Auto detect	Retroit connection     Gendradic Connection directly to the physical network     Gendradic Connection state     NAT: Used to share the hosts IP address     OHat-only, a howate network shared with the host     OLation: Specific virtual network     Wheetb     LAN segments:     LAN Segments     Advanced	
					Close Help	
	Add Remove					
		Close Help				

Step 10: Select CD/DVD Option: "use ISO image file." Browse to your downloaded	Step 11: Confirm VM Settings.
--	-------------------------------



#### 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 1: Power ON EVE VM. Chose English and confirm with Enter.			e English	Step 2: Be sure that "Install EVE PRO VM" is highlighted. Confirm with Enter.
Home × EVE-PRO ×				l Home × I I EVE-PRO ×
	Lar	nguage		
Amharic Arabic Asturianu Bengali Tibetan Bosanski Català Čeština Dansk Deutsch Dzongkha Exhnyukå Envilsh Esperanto E	Français Gaeige Gaiego Gujarati mhui Hrvatski Hagyar Bahasa Indonesia Íslenska Italiano 日本語 JaSengeo Kasak Khmer Kasak Kurdi Latviški	MacapoHcKM Malayalam Marathi Burmese Nepali Norsk Nokmål Norsk Nokmål Norsk Nokmål Norsk Normask Purjabl (Gurmukhi) Polski Portugués Gomanä Porcugués Gomanä Pycckvi Silovenčina Slovenčina Slovenčina Shqip Cpncku Svenska F5 Hccessibility F6 0	Tamii G <sup>*</sup> Evaxa Thai Tagalog Türkçe Uyghur YKpaliteka Tiếng việt 中文(衛体) 中文(繁體) ther Options	Liburitu® Install Eve PRO MM Install Eve PRO Bare (HHE) Install Eve PRO Bare (HHE) Rescue a broken system

	Step 4: You can select your own Location, or later, after management IP assignment,



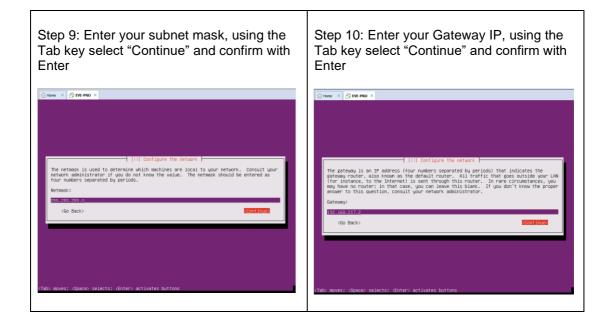
Concer X Creeneo X (11) Select a language (11	location will be set automatically. You can leave United States. Confirm with Enter.
Language: C - No Localization Albonian - Shalo Albonian - Shalo Albonian - Shalo Begare - Luskara Begare - Luskara Begare - Luskara Begare - Bonanki Begare - Bonanki Begare - Bonanki Chinese (Stapilide) Chinese (Stapilide) Chin	<pre>() The selected location will be used to set your location The selected location will be used to set your time zone and also for example to help select the system locate. Normally this should be the country where you live. This is a shortlist of locations based on the language you selected. Choose "other" if your location is not listed. Country, territory or area:</pre>
	<go back=""> &lt;7ab&gt; moves; <space> selects; <enter> activates buttons</enter></space></go>

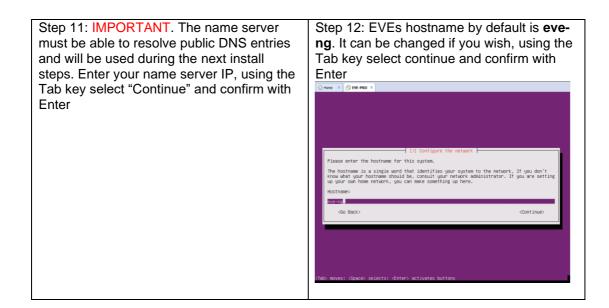


Step 7: Confirm selection "Configure network manually" with Enter	Step 8: Enter your desirable EVE management IP, using the Tab key select "Continue" and confirm with Enter
---	--



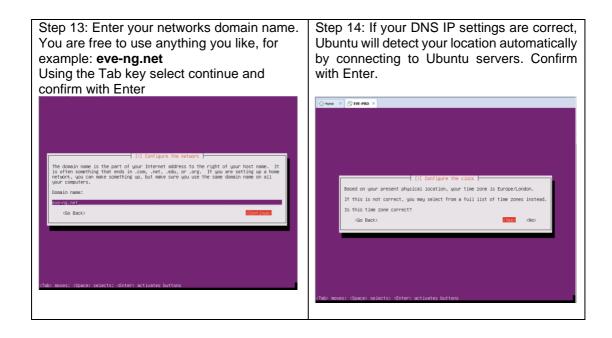
(11) Configure the network         From here you can choose to retry (MCP network worconfiguration (which may succeed if your DMCP server takes a long tile to respond) or to configure the network manually. Some pretry DMCP network wutcoonfiguration with a hostname that you provide.         Network configuration with a cMCP hostname Denoid Configure the network at this time         (Go Back)         (Go Back)         (Tab) moves; (Space) selects; (Enter) activates buttons	C Home × B TVE-PRO ×	Mome × B EVE-PRO ×
From here you can choose to retry GHCP network autoconfiguration (which may succeed if your DHCP server takes a long time to respond) or to configure the network menually. Some retry DHCP network with the to configuration with a hostname there you thank autoconfiguration method: Metry network autoconfiguration metry network autoconfiguration metry network autoconfiguration method: Betry network autoconfiguration metry network autoconfiguration to AUCP hostname bon out configure the network at this time (do Back)		
<pre>igin DRCP Server takes a long time to respond) or to configure the methors manually. Some DRCP Server readure a DRCP hostname to be sent by the client, so you can also choose to retry DRCP network autoconfiguration with a hostname that you provide. Network configuration method: Retry network autoconfiguration with a DRCP hostname <u>Retry network autoconfiguration with a DRCP hostname</u> <u>Retry network autoconfiguration with a DRCP hostname</u> <u>R</u></pre>	[11] Configure the network	[!!] Configure the network
Didfy servers require a DHCP hostmale to be sent by the client, so you can also choice to         Perty DHCP servers require a DHCP hostmale to be sent by uprovide.         Network configuration with a hostmale that you provide.         Retry network accoordiguation with a PHCP hostmale bound of the metwork at this time         Go Back>         Go Back>	From here you can choose to retry DHCP network autoconfiguration (which may succeed if	The IP address is unique to your computer and may be:
Retry network autoconfiguration Aetry network autoconfiguration with a DHCP hostname <u>Another settors</u> moving Go Back> If you don't know what to use here, consult your network administrator. IP address: <u>B22:159:217.50</u> <u>Go Back&gt;</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constrained</u> <u>Constr</u>	DHCP servers require a DHCP hostname to be sent by the client, so you can also choose to	<ul> <li>* four numbers separated by periods (IPv4);</li> <li>* blocks of hexadecimal characters separated by colons (IPv6).</li> </ul>
Refry network autoconfiguration with a DHEP hostname Do not configure the network at this time (Go Back) Configure the network at this time Configure the network at this time Configure the network at this time	Network configuration method:	You can also optionally append a CIDR netmask (such as "/24").
	Retry network autoconfiguration with a DHCP hostname Configure network manually	IP address:
(Tab) moves: (Space) selects: «Enter» activates buttons	<go back=""></go>	
(Tab) moves: (Space) selects; (Enter) activates buttons		
cTab: moves: <pre>dpace&gt; selects: <pre>cEnter&gt; activates</pre> buttons</pre> <pre>(Tab: moves: <pre>dpace&gt; selects: <pre>cEnter&gt; activates</pre> buttons</pre></pre>		
	<pre><tab> moves; <space> selects; <enter> activates buttons</enter></space></tab></pre>	<tab> moves; <space> selects; <enter> activates buttons</enter></space></tab>











|--|--|



G Home × B tvE-PRO ×	Home × 🗗 EVE-PRO ×
(1) Configure the package manager If you need to use a HTP proxy to access the outside world, enter the proxy information here. Otherwise, lever with blank. The proxy information should be given in the standard form of "http://[user][:pass]@host[:port]/". HTP proxy information (blank for none): (Go Back) (Continue)	111 Configuring tasksel         Applying updates on a frequent basis is an important part of keeping your system secure.         By default, updates need to be applied manually using package management tools.         Alternatively, you can choose to have this system avomatically download and install security updates, or you can choose to manage this system over the web as part of a group of system using chonical's landscape service.         How do you want to manage upgrades on this system?         Install security updates matomatically download in install security wanage system with Landscape
(Tab) moves; <space) <enter="" selects;=""> activates buttons</space)>	(Tab) moves; (Space) selects; (Enter) activates buttons

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



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

Step 19: Setup EVEs Management IP address. A Static IP address setup is preferred.	Step 20: After your EVE is rebooted, Login to EVE CLI and type:
Follow steps in section:	apt update apt upgrade
	apt upgrade
3.5.1 for static IP, 3.5.2 for DHCP IP	
	Follow steps in section: 5.1, 5.2

*NOTE:* Verify your EVE-NG server installation, type "dpkg -l eve-ng-pro" command, it must display latest EVE Pro version

```
root@eve-ng:~# dpkg -l eve-ng-pro
Desired=Unknown/Install/Remove/Purge/Hold
| Status=Not/Inst/Conf-files/Unpacked/halF-conf/Half-inst/trig-
aWait/Trig-pend
|/ Err?=(none)/Reinst-required (Status,Err: uppercase=bad)
```

Г

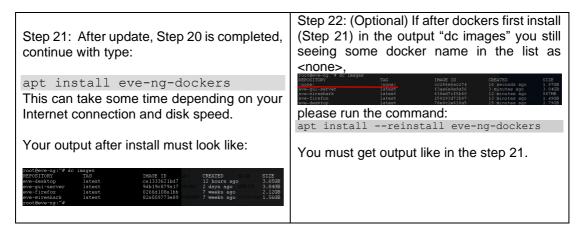
/ Name Description +++-==================================	Version		Architecture
<pre>ii eve-ng-pro new generation software root@eve-ng:~#root@eve-</pre>	2	amd64	A

NOTE: If your newly installed EVE-PRO shows nothing like above, you must check your internet reachability and verify DNS configuration on your EVE-PRO server.

```
root@eve-ng:~# ping www.google.com
PING www.google.com (172.217.22.164) 56(84) bytes of data.
64 bytes from arn09s11-in-f164.1e100.net (172.217.22.164): icmp seq=1
ttl=120 time=8.84 ms
64 bytes from arn09s11-in-f164.1e100.net (172.217.22.164): icmp seq=2
ttl=120 time=8.84 ms
^C
--- www.google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 8.848/8.848/8.849/0.094 ms
root@eve-ng
```

#### Launch EVE-PRO installation manually

root@eve-ng:~# cd /etc root@eve-ng:~# ./eve-setup



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 17

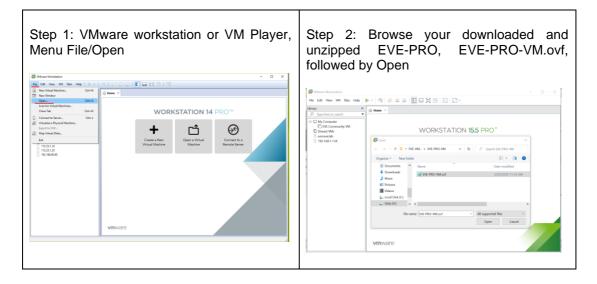
#### 3.1.2 VMware workstation OVF deployment

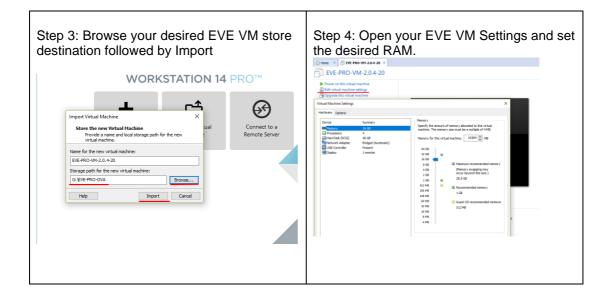
Download EVE-NG Professional OVF image zip file, place it in the dedicated HDD storage for EVE VM and unzip it:

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



### 3.1.2.1 Deployment and VM machine settings

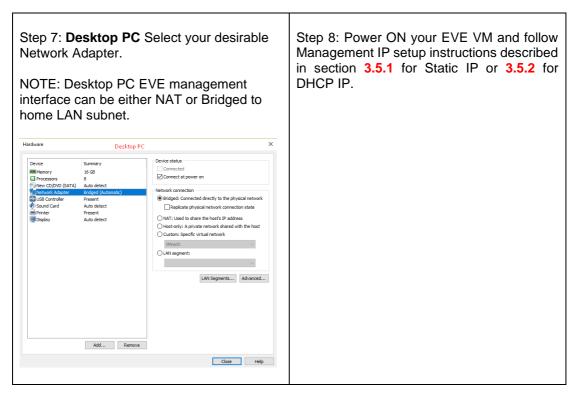




Step 5: IMPORTANT Set CPU Number of Cores and number of cores per processor. Set Intel VT-x/EPT Virtualization engine to	Step 6: Laptop PC Select your desirable Network Adapter.
ON (checked). NOTE: VMware Player will display only one CPU option: Number of processors.	NOTE: It is recommended to choose 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.



robuse     Device   Summary   16 GB   Nuche of processors:   In both of forces per processor:   In both of forces per	tual Machine Settings			×	Hardware	Laptop or De	isktop PC	×
	Memory Processors Hard Disk (SCSI) Network Adapter USB Controller	16 G8 8 40 G8 Bridged (Automatic) Present	Number of processors:         8         ~           Number of cores per processor:         1         ~           Total processor cores:         8         ~           Virtualization engine		Memory Processors New CD/DVD (SATA) New CD/DVD (SATA) Network Adapter SUSB Controller SusB Controller Sound Card Printer	16.08 S Auto detect MT Mito detect Present Auto detect Auto detect	Connected Connect at power on Network connection Bridgedi Connected directly to the physical network Replicate physical network connection table NAT: Used to share the host's IP address Hast-only: A physien tetwork share and with the host Coaston: Specific virtual network Used State State State State State State State LAN segment:	
OK Cancel Help		Add Remove					Close Help	
			OK Cancel H	elp				



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 17

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

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



#### 3.1.2.3 OVF VM HDD Size expansion

**IMPORTANT NOTE:** DO NOT expand the current EVE OVF HDD. To expand your EVE system size, please follow Troubleshooting section **16.2** 

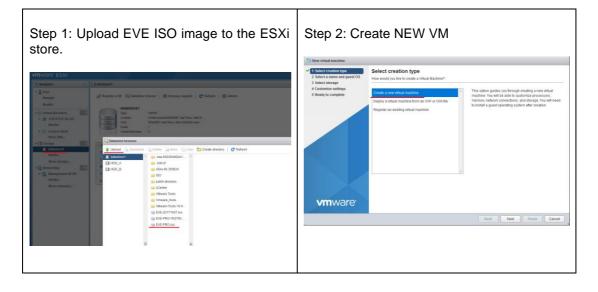
# 3.2 VMware ESXi

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

▲ Mandatory Prerequisites: Internet must be reachable from your Server and ESXi. 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

Download EVE-NG Professional ISO distribution image: https://www.eve-ng.net/index.php/download/

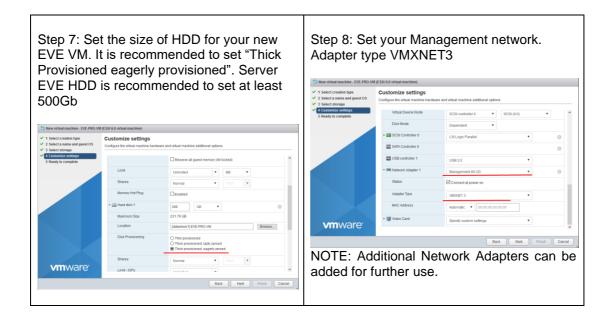
#### 3.2.1.1 EVE-NG ESXi VM Setup and Settings



VM and se	elect Gue	ame for your st Operating Ubuntu 64-b	l system	Step 4: Se will be stor	ed in HE		ere y	our	· EV	E VM
Entax and	voroion.			<ul> <li>1 Select creation type</li> <li>2 Select a name and guest OS</li> <li>3 Select storage</li> </ul>	Select storage Select the datastore in which	h to store the configuration and	liskfiles.			
1 New virtual machine - EVE-PRO-V	M (ESXi 6.0 virtual machine)			4 Customize settings 5 Ready to complete		accessible from the destinatio ation files and all of the virtual di		u selected. S	Select the destin	ation datastore for
<ul> <li>1 Select creation type</li> <li>2 Select a name and quest OS</li> </ul>	Select a name and g				Name	~ Capacity ~	Free v	Type ~	Thin pro ~	Access ~
3 Select storage	apecity a unique name and Od				datastore1	264.75 GB		/MFS5	Supported	Single ^
4 Customize settings 5 Ready to complete	Name				HDD_A HDD_B	930.75 GB 930.75 GB		/MFS5 /MFS5	Supported Supported	Single
	EVE-PRO-VM	ntain up to 80 characters and they must be uniqu	e vilkin each EQVi instance		HDD_B	930.75 GB	142.01 GB	/wras	adpported	3 items
<b>vm</b> ware <sup>.</sup>		spann-have Ne kdord (prodo) spann Aney Seatan ESG 8.0 kdud machine Lina Uturk (84-bit)	•	vmware <sup>,</sup>			Back	< No.	ed Fini	ah Cancel
		Back	Next Finish Cancel							



VM CPU S Cores and Set Intel V (checked).		et CPU Nu cores per	mber of processo		Step 6: Ass Control of the second se		are and virtual machine additional	Î
S New virtual machine - EVE-PRO-VI						Reservation		• MB •
<ul> <li>1 Select creation type</li> <li>2 Select a name and guest OS</li> </ul>	Customize settings Configure the virtual machine hardwar	e and virtual machine additional option	15				Reserve all guest mem	rory (All locked)
<ul> <li>3 Select storage</li> <li>4 Customize settings</li> </ul>						Limit	Unlimited	• 18 •
5 Ready to complete	Virtual Hardware VM Options	-		î		Shares	Normal	• [ and [ 4]
	Add hard disk M Add network					Memory Hot Plug	Enabled	
	Cores per Socket	24 🔻 🚺		- 1.1		> 🖾 Hard disk 1		
		1 V Sockets: 24			vmware <sup>-</sup>	<ul> <li>Maro disk 1</li> </ul>	16 GB	• •
	CPU Hot Plug	Enable CPU Hot Add						Back Next Finish Cancel
	Reservation	•	MHz •					Back Nets Prist Cancel
	Linit	Unlimited	MHz ¥					
	Shares	Normal	1000					
	Hardware virtualization	Expose hardware assisted virt	valization to the guest OS 🕕					
	Performance counters	Enable virtualized CPU perform	nance counters					
<b>vm</b> ware <sup>.</sup>	Scheduling Affinity	Hyperthreading Status: Active						
univer c	our adding Attinity	reparation easing status. Active		~				
		Bac	x Next Finish	Cancel				



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"
---	---



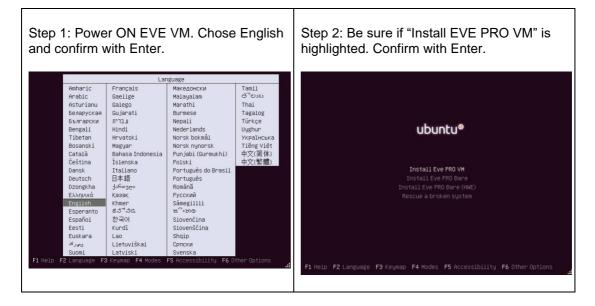
Select creation type     Customize settings     Select a name and guest OS     Select storage     Configure the virtual machine hardware and virtual			machine additional options		<ul> <li>✓ 1 Select creation type</li> <li>✓ 2 Select a name and guest OS</li> <li>✓ 3 Select storage</li> </ul>	Customize settings Configure the vehual machine hardware and vehual machine additional options				
Customize settings Ready to complete	Virtual Hardware VM Options			*	4 Customize settings 5 Ready to complete	USB controller 1	U58 2.0	•		1
	🔜 Add hard disk 🗰 Add neb	work adapter	Add other device			* IIII Network Adapter 1	Management 90 UD		0	
	· 🖬 CPU	24	<ul> <li>New hard disk</li> <li>Existing hard disk</li> </ul>			Status	Connect at power on			
	- 🛲 Memory		IN Network adapter			Adapter Trpe				
	RAM	64					WIDINET 3			
	Reservation		CD/D//D drive     Floppy drive	•		MAC Address	Automatic • 00.00.00.00.00.00			
			Serial port			* 🗐 New CD/DVD Drive	Datastore ISD file		0	
	Umit	Uni	Parallel port	· •		Status	Connect at power on			
	Shares	Nor	Las CON control of	*		CD/DVD Media	[datastore1] EVE-PRO iso		Browse	
	Memory Hot Plug	DEn	Sound controller			Virtual Device Node	SATA controller 0 • SATA (0:0)	•		
<b>vm</b> ware	+ 🛄 Hant disk 1	200	In POInter	0	<b>vm</b> ware <sup>.</sup>	• 📑 Video Card	Specify custom settings	٠		
· · · · · · ·			SCSI controller		<b>WITTWARC</b>					
			SATA controller	lext Finish Cancel			Back	Next	Finish Ca	ancel

#### 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

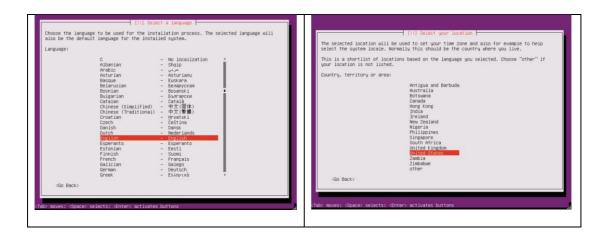
#### EVE ESXi VM Installation from ISO has 3 Phases

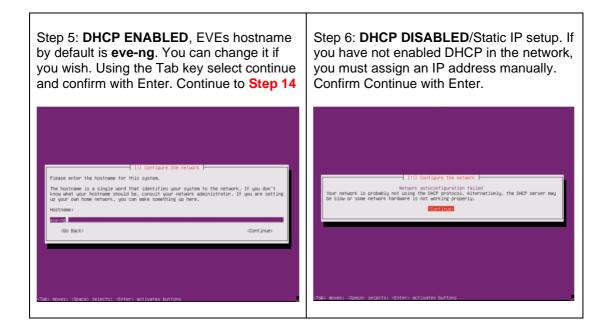
#### Phase 1 (Ubuntu installation)

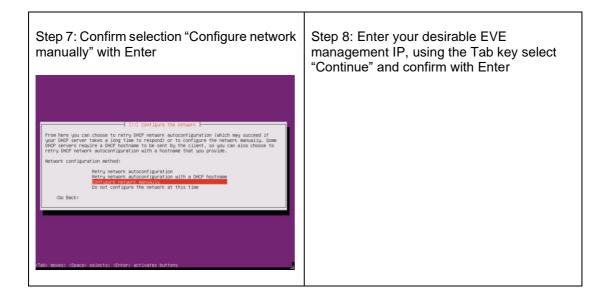


Step 3: Make sure if English is selected and confirm with Enter.	Step 4: You can select your own Location, or later, after management IP assignment, location will be set automatically. You can leave United States. Confirm with Enter
--	--









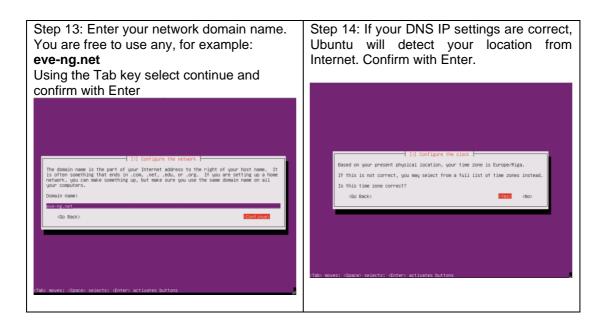


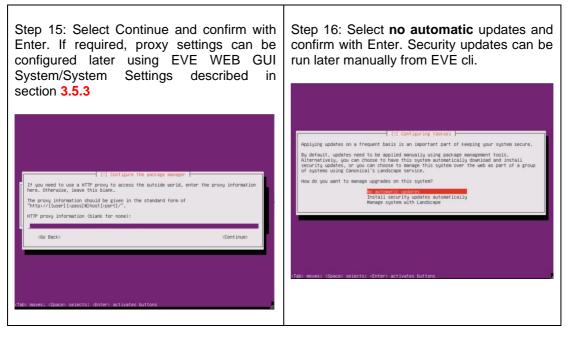
	[11] Configure The IP address is unique to your com * four numbers separated by periods * blocks of hexadecimal characters s	outer and may be: (IPv4); separated by colons (IPv6).
	You can also optionally append a CID If you don't know what to use here, o IP address: 1920/1694504102	
	<go back=""></go>	<continue></continue>

Step 9: Correct your subnet mask, using the Tab key select "Continue" and confirm with Enter	Step 10: Correct your Gateway IP, using the Tab key select "Continue" and confirm with Enter
The network is used to detemine which machines are local to your network. Consult your network. administrator if you do not know the value. The network should be entered as four numbers separated by periods.         Network:       BSSUSSESSES         GG Back>	IIII Configure the network       The gateway is an IP defeets (for numbers separated by periods) that indicates the gate of the second sec
(Tab> moves: ≪Space> selects; ≪Enter> activates buttons	(Tab) moves; (Space) selects; (Enter) activates buttons

Step 11: IMPORTANT. Name server must respond to the Internet and will be used during the next install steps. Enter your name server IP. Using the Tab key select "Continue" and confirm with Enter	Step 12: EVE hostname by default is <b>eve-</b> <b>ng</b> . It can be changed if you wish. Using the Tab key select continue and confirm with Enter
The name servers are used to look up host names on the network. The name servers are used to look up host names on the network. Please enter the IP addresses (not host names) of up to 3 name servers, separated by spaces. Do not use commas. The first name server in the list will be the trijst to be queried. If you don't want to use any name server, just leave this field blank. Name server addresses:	[1] Configure the network Please enter the hostname for this system. The hostname is a single word that identifies your system to the network. If you don't know what your hostname should be, consult your network administrator. If you are setting up your can home network, you can make something up here. Hostname:
122:150.90:201 (Go Back) (Continue)	Go Back> (Cont Inve>
ctabo moves: dipaceo selects: dintero activates buttons	(Tab) moves: dipace> selects; dinter> activates buttons



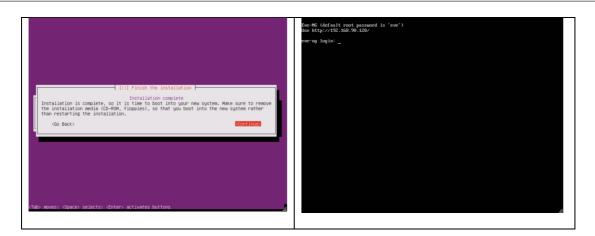




### EVE VM Installation Phase 2 (EVE installation)

	Step 18: Once EVE login screen appeared, login in CLI with root/eve and follow installation Phase 3
--	---





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

Step 19: Setup EVE Management IP address. A Static IP address setup is preferred	Step 20: After your EVE is rebooted, Login to EVE CLI and type:
Follow steps in section :	apt update apt upgrade
3.5.1 for static IP, 3.5.2 for DHCP IP	Follow steps in section: 5.1, 5.2

**NOTE:** Verify your EVE-NG server installation, type "dpkg -l eve-ng-pro" command, it must display latest EVE Pro version

root@eve-ng:~# dpkg -1 eve-ng-pro Desired=Unknown/Install/Remove/Purge/Hold Status=Not/Inst/Conf-files/Unpacked/halF-conf/Half-inst/trig-aWait/Trig-pend |/ Err?=(none)/Reinst-required (Status,Err: uppercase=bad) ||/ Name Version Architecture Description ii eve-ng-pro 4.0.1-3 amd64 Α new generation software for networking labs. root@eve-ng:~#root@eve-sat01:~#

**NOTE:** If your newly installed EVE-PRO shows nothing like above, you must check your internet reachability and verify DNS configuration on your EVE-PRO server.

```
root@eve-ng:~# ping www.google.com
PING www.google.com (172.217.22.164) 56(84) bytes of data.
64 bytes from arn09s11-in-f164.1e100.net (172.217.22.164): icmp_seq=1
ttl=120 time=8.84 ms
64 bytes from arn09s11-in-f164.1e100.net (172.217.22.164): icmp_seq=2
ttl=120 time=8.84 ms
^C
--- www.google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 8.848/8.848/8.849/0.094 ms
```



#### root@eve-ng

#### Launch EVE-PRO installation manually

root@eve-ng:~# cd /etc
root@eve-ng:~# ./eve-setup

Step 21: After update, Step 20 is completed, continue with type: apt install eve-ng-dockers This can take some time depending on your Internet connection and disk speed.	Step 22: (Optional) If after dockers first install (Step 21) in the output "dc images" you still seeing some docker name in the list as <none>, ************************************</none>
internet connection and disk speed.	please run the command:
Your output after install must look like:	apt installreinstall eve-ng-dockers
dc images       root@vvv-ag:*# dc images       REPOSITORY     TA0       evv-desktop     latest       ode1333621bd7     12 hours ago       3.6588       evv-dgui-server     latest       ode26019773bd3     7 weeks ago       evo-dustries     020009773bd3       root@vve-rg:?#	You must get output like in the step 21.
Step 23: After Steps 20-22 are completed and you are back on the EVE CLI prompt, reboot EVE by typing	NOTE: If you are installing EVE in the locked environment and cannot install dockers online, please contact with us: <u>info@eve-</u> ng.net for offline dockers installation option.
reboot	

Step 24: 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 17

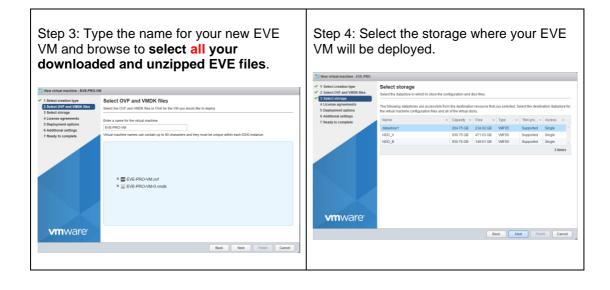
#### 3.2.2 VMware ESXi OVF deployment

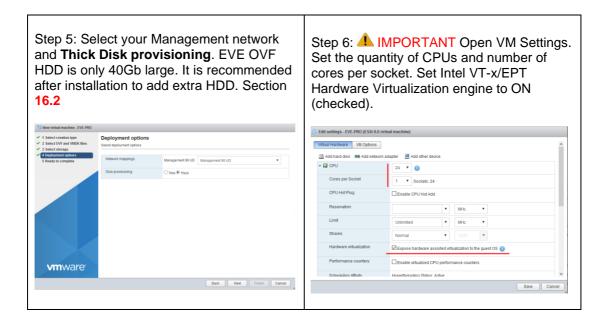
Download EVE-NG Professional OVF image zip file, and unzip it: <a href="https://www.eve-ng.net/index.php/download/">https://www.eve-ng.net/index.php/download/</a>

#### 3.2.2.1 ESXi OVF VM Setup and Settings

Step 1: ES	SXi Host, C	create/Register VM	Step 2: Set option Deploy a virtual machine from an OVF or OVA file
Ta Navigator	localhost.localdomain		
	Iccalhost.locald Versier: 6.6.0 State: Normal Optime: 36.53 d	pdate 2 (Build 4600944) (not connected to any vCenter Server)	
More storage	- Hardware		
Networking 53	Manufacturer	Dellinc.	
	Model	PowerEdge R610	
	P CPU	12 CPUs x Intel(R) Xeon(R) CPU X5580 @ 3.33GHz	
	Memory	95.99 GB	
	Virtual flash	0 B used, 0 B capacity	
	* 🤮 Networking		
	Hostname	localhost localdomain	









Step 7: Set c	lesirable RAM for your EVE.	Step 8: Power ON your EVE VM and follow Management IP setup instructions described
🔁 Edit settings - EVE-PRO (ESXi 6.0 vir	tual machine)	in section 3.5.1 for Static IP or 3.5.2 for
Virtual Hardware VM Options	^	DHCP IP.
🔜 Add hard disk 🛛 🛤 Add network :	adapter 🗧 Add other device	DITOF IF.
CPU	24 🔻 🚺	
* 🛲 Memory		
RAM	32 GB 🔻	
Reservation	MB     Reserve all guest memory (All locked)	
Limit	Unlimited • MB •	
Shares	Normal • 1000 •	
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 17

#### 3.2.2.2 ESXi OVF VM update to the latest EVE version

Make sure that your EVE OVF 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 OVF VM HDD Size expansion

**INOTE:** IMPORTANT! DO NOT expand the current EVE OVF HDD. To expand your EVEs system disk size, please follow the troubleshooting section **16.2** 

# 3.3 Bare hardware server EVE installation

Download Ubuntu 18 Server ISO distribution image:

https://releases.ubuntu.com/18.04/ubuntu-18.04.5-live-server-amd64.iso

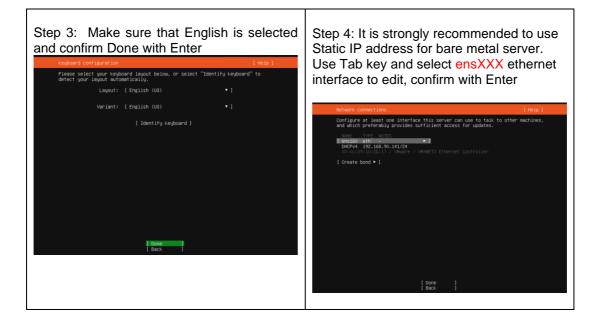
A Mandatory Prerequisites: Internet must be reachable from your Server. This ISO installation requires internet access to get updates and install the latest EVE-PRO version from the EVE-NG repository. DNS must resolve names!

## 3.3.1 Ubuntu Server Installation Phase 1

Step 1: Create a bootable DVD disk or USB flash drive with an Ubuntu server image. Boot your server from ISO. Make sure that English is selected, Confirm with Enter	Step 2: Select "Update to the new installer" Confirm with Enter
---	--



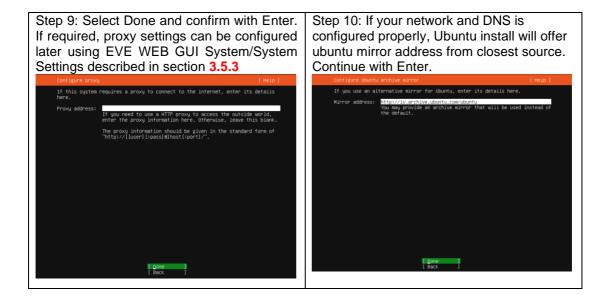
is now available (20.07.1+git2.5de9df3e is
∽ each version at:
/CanonicalLtd/subiquity/releases
will be downloaded and the installation
to the new installer ] e without updating ]
te t inue

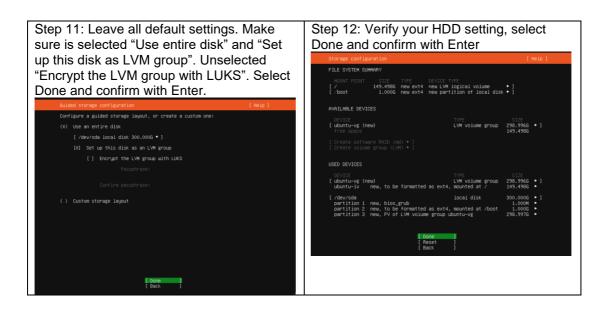


Step 5: Select "Edit IPv4", confirm with enter.	Step 6: Hit Enter, to select IPv4 method. Use down arrow key to select Manual. Confirm
Configure at least one interface this server can use to talk to other machines, and which preferences sufficient access for updates.	with Enter
[Create bond • ] Edit IPv6 • Add a VLAW tag •	Edit ens160 IPv4 configuration
	[ Save ] [ Cancel ]
	Edit ensi60 IPv4 configuration IPv4 Method: Automatic (DHCP) • Banual Disabled [ Cancel ]

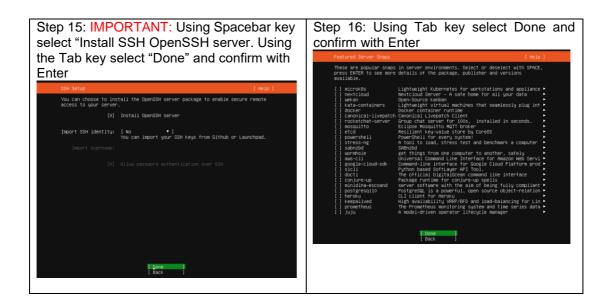


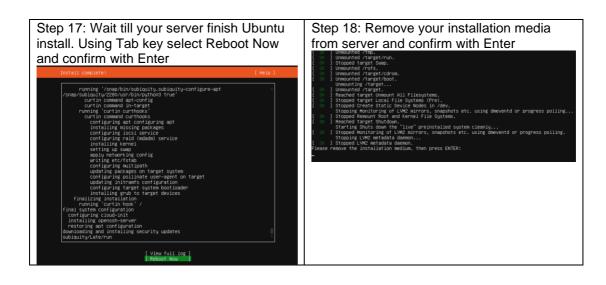
Step 7: Using Tab key fill your network settings. Select Save and confirm with Enter. The name server must be able to	Step 8: Using Tab key select "Done" and confirm with Enter		
resolve public DNS entries!	Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates.		
Network connections [Heip] Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates.	NAME TYPE NOTES [ ers160 eth - 1 static 192.166.90.44/24 00100:25:10:26:17 / WHWARE / MONET3 Ethernet Controller -00100:25:10:26:17 / WHWARE / MONET3 Ethernet Controller		
NAME TYPE NOTES	[Create bond ► ]		
Edit ensitö IPv4 configuration			
Subnet: 192.168.90.0/24			
Address: 192.168.90.44			
Gateway: 192.168.90.1			
Name servers: 3.8.8.8,8.8.4.4 IP addresses, comma separated			
Search domains: Domains, comma separated			
[Save ] [Cancel ]	[ pone ] [ Back ]		













Step 19: Use your previously created	Step 20: Login in the server as root:	
username and password to login in server.	sudo su	
Example in this how steps was user/eve	[sudo] password for user: eve	
Ubuntu 18.04.5 LTS eve-ng ttyi		
eve−ng login: user Password:		
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0–135-generic x86_64)	ucoplaus part orde ou	
<pre>* Documentation: https://helo.ubuntu.com * Management: https://landscape.canonical.com * Support: https://ubuntu.com/advantage</pre>	user@eve−ng:~\$ sudo su [sudo] password for user:	
System information as of Sun Feb 7 00:58:02 UTC 2021	root@eve-ng:/home/user# cd	
System load: 0.61 Processes: 241 Usage of : 3.9% of 146,1508 Users logged in: 0 Memory usage: 1% IP address for ens160: 192,168,90.44 Suap usage: 0%	root@eve-ng:~# _	
40 packages can be updated. 0 updates are security updates.		
The programs included with the Ubuntu system are free software; the exact distribution terms for each program are described in the Individual files in <i>runrshare/doc/*cogn</i> ight.		
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.		
To run a command as administrator (user "root"), use "sudo <command/> ". See "man sudo_root" for details.		
usen@eve-ng:~^\$ _		

Step 21: Create root user password.	Step 22: Allow SSH access for root user.		
passwd root	nano /etc/ssh/sshd config		
Enter new UNIX password: eve			
Retype new UNIX password: eve	Navigate with arrow down key to		
<u> </u>	uncomment		
root@eve−ng:~# passwd root	PermitRootLogin prohibit-password		
Enter new UNIX password:	Change to		
Retype new UNIX password:	PermitRootLogin yes		
passwd: password updated successfully root@eve–ng:~# _			
1001@cvc-lig. # _	To save edited sshd_config use keys		
	combo:		
	[Ctrl]+[o] Letter o (oscar)		
	Enter		
	[Ctrl]+[x] Letter x (x-ray) for exit		
	# Ciphers and keying		
	#RekeyLimit default none # Logging		
	#SysiogFacility AUTH #LogLevel INFO		
	# Authentication:		
	₩LoginGraceTime 2m PermitRootLogin yes		
	₩StrictModes yes #MaxAuthTries 6 #MaxSesions 10		
	WHAXSESSIONS IO		
	<pre># Expect .ssh/authorized_keys2 to be disregarded by default in future. #AuthorizedKeysFile .ssh/authorized_keys .ssh/authorized_keys2</pre>		
	#AuthorizedPrincipalsFile none		
	#AuthorizedKeysCommand none		
	#AuthorizedkeysCommandUser nobody # For this to work you will also need host keys in /etc/ssh/ssh_known_hosts		
	#HostbasedAuthentication no		

Step 23: Restart SSH service on the server.
service sshd restart

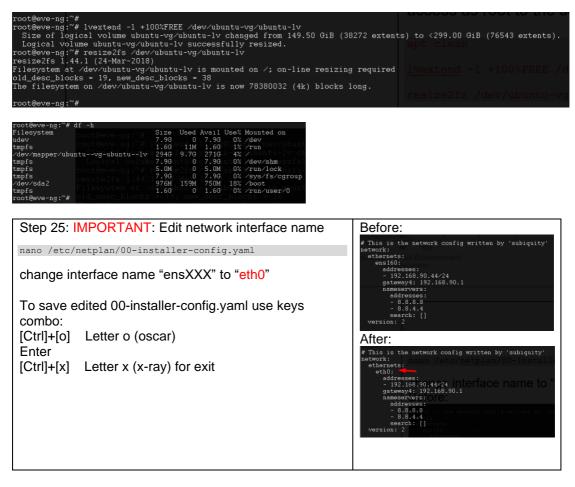
Step 24. **IMPORTANT**: expand your server LVM partition to use all size of the HDD volume. Use Putty or other native terminal access as root to the server:

apt clean

lvextend -1 +100%FREE /dev/ubuntu-vg/ubuntu-lv



resize2fs /dev/ubuntu-vg/ubuntu-lv



Step 26: Update interface names with single line command:

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

### Step 27: Update GRUB

update-grub

Step 28: Reboot your server	Step 29: use Putty or other SSH terminal, login in your Server as root. Run update	
reboot	and upgrade commands	
	apt update	
	apt upgrade	
	Confirm "y"	

## 3.3.2 EVE Professional Installation Phase 2

Step 30: Launch EVE-PRO Internet installation

wget -O - https://www.eve-ng.net/repo-bionic/install-eve-pro.sh | bash -i



*Verification:* Verify your EVE-NG server installation, type "dpkg -l eve-ng-pro" command, it must display latest EVE Pro version

<pre>root@eve-ng:~# dpkg -l eve-ng-pro Desired=Unknown/Install/Remove/Purge/Hold   Status=Not/Inst/Conf-files/Unpacked/hall  / Err?=(none)/Reinst-required (Status,Err)</pre>		c/Trig-pend
/ Name	Version	Architecture
Description		
+++-===================================		
ii eve-ng-pro 4.	0.1-3 amd64	A
<pre>new generation software for networking lab root@eve-ng:~#</pre>	DS.	

Step 31: After the installation is completed, <b>reboot EVE</b> and login as root first time: <b>root/eve</b> . Follow the Management IP setup instructions in section <b>3.5.1</b> . It is strongly recommended for bare-metal installations to	Step 32: After your EVE is rebooted, Login to the EVE CLI and type:
use a static IP address. After the IP address setup, continue with Step 32	apt update apt upgrade Follow steps in section: <b>5.1, 5.2</b>
	apt upgrade

Step 33: After update, Step 32 is completed, continue with type:	Step 34: (Optional) If after dockers first install (Step 33) in the output "dc images" you still seeing some docker name in the list as <none>,</none>		
apt install eve-ng-dockers This can take some time depending on your Internet connection and disk speed.	TootBow-ng:"# do images FXG INAGE ID CENTED STEP ECONST. C.		
Your output after install must look like:	<pre>please run the command:     apt installreinstall eve-ng-dockers</pre>		
root@eve-ng:"# do images REPOSITORY TAO IMAGE ID SIZE eve-desktop latest cal33861bd7 12 hours ago 3.650B eve-desktop latest tablec09a17 2 doys ago 3.650B eve-wirebark latest tablec09a17 2 doys ago 3.650B eve-wirebark latest 828009773e89 7 weeks ago 1.560B root@eve-ng:"#	environment and cannot install dockers		
dc images			

Step 31: Update repositories	Step 32: Continue to section 4 to obtain your EVE-NG Professional license
apt update	
apt upgrade	

IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 17



# 3.4 Google Cloud Platform

## 3.4.1 Google account

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

11	Your free trial is waiting: activate now to get \$300 credit to explore Google Cloud products. Learn more	DISMISS	ACTIVATE
1	: Google Cloud Platform	0	SIGN IN
Na	Wigation meno Get Started with Google Cloud Platform 12 month, \$300 free trial to get you started. Always Free products to keep you going TRY 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"

Google Cloud Platform Select a pro	ect - Q Search resources and products		22 🛛 🌲 i
		•	
o 2. Next pop up w	indow, click "NEW PROJECT"		
ect a project	NEW PROJECT		
Search projects and folders			
ENT ALL			
Name	ID		
Name	ID ID		

Step 3. Enter your project name, and confirm "CREATE"



≡ G	oogle Cloud Platform	٩	Search resources and products
New Pr	oject		
<b>A</b>	You have 22 projects remaining in your quota. Request an increase or delete projects. Learn more MANAGE QUOTAS		
Project n EVE Tes			
- Locat	tion * BROWSE		
	rganisation or folder		
CREATE	CANCEL		

This will take some time.

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

Google Cloud Platform	VM instances
Home	Instance groups
ocounty /	Instance templates
Anthos	Sole-tenant nodes
Antilos	Machine images
reCAPTCHA Enterpri	Disks
	Snapshots
PUTE	Images
App Engine >	TPUs
Compute Engine 🔫 >	Committed use discounts
	Metadata
Kubernetes Engine >	Health checks
Cloud Functions	Zones Other popular compute entires
Cloud Run	Vetwork endpoint groups
	Kubernetes Engine
	Home Scourny , Anthos , reCAPTCHA Enterpri PUTE App Engine , Compute Engine , Kubernetes Engine , Cloud Functions

Step 5. Navigate: top bar and select your newly created Project

=	Google Cloud Platform	Select a project	۹	•
۲	Compute Engine	Select or create a project		
A	VM instances			
ц <mark>П</mark> а	Instance groups			
	Instance templates			

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



$\widehat{}$ Compute Engine is getting ready. This may take a minute or more. Compute Engine documentation $\mathbb{L}^{2}$					
		Compute Engine VM instances			
		Compute Engine lets you use virtual machines that run on Google's infrastructure. Create micro-WMs 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

	Google Cloud Platforn	n 🔹 EVE Test 👻		· • • • • • • • •
۲	Compute Engine	VM instances		Activate Cloud Shell
A	VM instances			
		-		
	Google Cloud Platform		۹	3 9 9 <b>4</b> E 🙆
۲	Compute Engine	VM instances		
日	VM instances			
昂	Instance groups			
	Instance templates		Compute Engine VM instances	
8	Sole tenant nodes			
٥	Disks		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,	
0	Snapshots		import it using a migration service, or try the quickstart to build a sample app.	
[::]	Images		Create or Import or Take the quickstart	
8	TPUs			
25	Committed use discounts			
- 14	Marketplace			
<1				
8				
Welcon Your ( Use "g evepro	es to cloud Shelli Type Thelp Cloud Flatform proyect in th cloud config set project (P) grop@cloudshellr= (eve-pro-pa	p" to get started. is session is zet to <b>everpro-project</b> . MORUT_10]" to change to a different project. <b>espectis</b>		

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

Step 2: create a nested Ubuntu 18.04 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:

2	CLOUD SHELL Terminal	(eve-test-276509) × + •				🖍 Open editor		8 ھ		_	⊠ ×
Your C Use "g uldis_ ww.goc Create NAME nested	loud Platform cloud config dzerkals@clou gleapis.com/c d [https://ww -ubuntu-bioni	<pre>well Type "Welp" to get started spoject in this seesion is set set project [PROJECT ID]" to ch adhell: « <u>Cww-test-278509</u>) § gclo compute/v1/projects/we-options/g1 PROJECT</pre>	to eve-test-276509. nge to a different project. ud compute images create ne obal/licenses/enable-vmx		family=ubuntu-1004-lts	source-image-proj	ect=ubi	intu-os-c	loud1:	icenses	https://w

# 3.4.4 Creating VM

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

₹	Google Cloud Platform	:	• EVE Test 🔻				۶.	•	2	1	9
♠	Home		M instances								
۲	Compute Engine	>	VM instances								
٢	Kubernetes Engine	>	Instance groups								
()	Cloud Functions	÷	Instance templates		Compute Engine						
			Sole-tenant nodes		VM instances						
)>	Cloud Run		Machine images		Compute Engine lets you use virtual machines that run on Google's						
STOR	405	ł	Disks		infrastructure. Create micro-VMs or larger instances running Debia Windows or other standard images. Create your first VM instance,	in,					
5108	POE.		Snapshots	import it using a migration service or try the quickstart to build a sample app.							
Ŵ	Bigtable		Images								
522	Datastore	>	TPUs		Create or Import or Take the quickstart						
ŝ	Firestore	,	Committed use discounts								

Step 2: Assign the name for your VM

Step 3: Set your own region and zone

Step 4: Edit your Machine Configuration. General-Purpose. Choose the series of CPU platform, Use *Intel CPUs Skylake or Cascade*.

Step 5: Choose your desirable CPU and RAM settings. IMPORTANT: "Deploy a container image" must be UNCHECKED.



Name 😮 Name is permanent							
eve-1							
Labels 🕐 (Optional)							
+ Add label							
<b>Region ②</b> Region is permanent		Zone ② Zone is permanent					
europe-west2 (Londo	on) 🗸 🗸	europe-west2-c					
Machine configuration Machine family							
General-purpose	Memory-optimised	d Compute-optimised					
Machine types for co	mmon workloads, opt	imised for cost and flexibility					
Series N1		•					
Powered by Intel Skyl	ake CPU platform or o	one of its predecessors					
Machine type							
n1-standard-16 (1	6 vCPU, 60 GB mem	lory)					
	vCPU 16	Memory 60 GB					

Container 😨

Step 6: Select Boot disk. Press Change

Boot disk 🥡		
	New 10 GB standard persistent disk	
6	Image	
	Debian GNU/Linux 9 (stretch)	Change

Step 7. Select Custom images and the *custom boot image you created previously*. Choose HDD disk type and size. HDD size can vary depends of your needs.

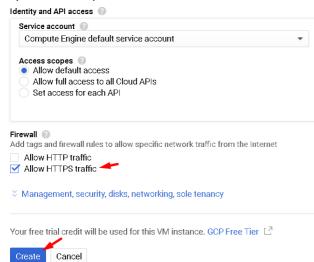


#### Boot disk

Select an image or snapshot to create a boot disk; or attach an existing disk. Can't find what you're looking for? Explore hundreds of VM solutions in Marketplace.

Public images	Custom images	Snapshots	Existing disks	
Show images from	1			
EVE Test				
Show deprec	ated images			
Image 💊				
nested-ubuntu-	pionic			
Created on 22 Ju	n 2020, 22:50:36			
Boot disk type 🛞	×		Size (GB) 💿 🔪	
SSD persistent	diek	-	60	

#### Step 7: Allow https traffic and create VM



# 3.4.5 EVE-NG-PRO installation

Step 1	· Connect to	the VM with	the first	ontion "	Onen in	browser window"
Step 1				option	Openin	





📦 uldis_dzerkals@eve-pro: ~ - Mozilla Firefox –		$\times$			
🗊 🖴 https://ssh.cloud.google.com/projects/eve-test-276509/zones/europe-west2-a/instances/eve-pro?authuser=0&hl=+ ••••	⊠ ☆	≡			
<pre>* Documentation: https://help.ubuntu.com * Management: https://landscape.canonical.com * Support: https://ubuntu.com/advantage</pre>		<b>\$</b> -			
System information as of Mon Jun 22 21:57:41 UTC 2020					
System load:1.14Processes:147Usage of /:3.0% of 48.29GBUsers logged in:0Memory usage:1%IP address for ens4:10.154.0.3Swap usage:0%					
0 packages can be updated. O updates are security updates.					
The programs included with the Ubuntu system are free software; the exact distribution terms for each program are described in the ndividual files in /usr/share/doc/*/copyright.					
buntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by pplicable law.					
ildis_dzerkals@eve-pro:~\$ [					

#### Step 2: Launch installation with:

#### Type the below command to become root:

sudo -i

#### Start EVE-PRO installation

wget -O - https://www.eve-ng.net/repo-bionic/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: VERY IMPORTANT: Setup IP

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

	Root Password         k           Type the Root Password:         x           1qqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqq
eveprogcp@eve-prot-5 faudo -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

REPOSITORY	TAG	IMAGE ID	CREATED 50 GB	SIZE
ave-desktop	latest	ca1333621bd7	12 hours ago	3.65GB
eve-gui-server	latest	9db19c879a17	2 days ago USB 2.0	3.84GB
eve-firefox	latest	0266d108a1bb	7 weeks ago	2.12GB
eve-wireshark	latest	82a009773e89	7 weeks ago VM Manac	1.56GB
root@eve-ng:~#				

# 3.4.6 Access to Google Cloud EVE-PRO

Use your public IP for accessing EVE via https.

= Filter VM in	stances					0	Co	lumn	s •
Name ^	Zone	Recommendation	In use by	Internal IP	External IP	Co	nnec	t	
🗌 🔮 eve-pro	europe-west2	2-c		10.154.0.2 (nic0)	35.246.119.90 🗋	SS	H	•	:



Default web login: admin/eve

## 3.4.7 Optional: GCP Firewall rules for native console use

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



=	Google Cloud Platfo	rm	♣ EVE-PRO-PROJECT
Â	Home		M instances 🔹 CREATE IN
T STOR	Pins appear here 🔞	>	Filter VM instances
٥١٠٥٨	Bigtable		Name A Zone Recomm
	Datastore	>	europe-west2-c
<b>((</b> *	Firestore	>	
	Storage	>	
<b>(</b> )}	SQL		
2	Spanner		
0	Memorystore		
Ē	Filestore		
NETW	ORKING		
11	VPC network	>	VPC networks
æ	Network services	>	External IP addresses
Ð	Hybrid Connectivity	>	Firewall rules Routes
0	Network Service Tiers		VPC network peering

## Step 2: Create new firewall rule



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

Create a firewall rule
 Firewall rules control incoming or outgoing traffic to an instance. By default, incoming traffic from outside your network is blocked. Learn more
 Name 
 Ingress-eve



Direction of traffi Ingress Egress	c 🕖			
Action on match Allow Deny	0			
Targets 🕜				
All instances in	the network			
Source filter 📀				
IP ranges	•			
Source IP ranges	0			
0.0.0/0 😢	0.0.0.0/0 🔇			
Second source fi	tar Ø			
None				
Protocols and po Allow all Specified pro	rts 🕖			
🗹 top :	0-65535			
udp :				
Other protocols				
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

	control incoming or outgoing traffic to an instance. By default, fic from outside your network is blocked. Learn more
Name 🕜	
egress-eve	



<ul> <li>Egress </li> <li>Action on match</li> <li>Allow</li> <li>Deny</li> </ul>	0	
Targets 🕐		
All instances in	the network	-
Destination filter	0	
IP ranges		-
Destination IP ra	nges 🔞	
0.0.0.0/0 😢	-	
Protocols and po Allow all Specified pr	rts 🕖	
🗹 tep :	0-65535	
udp :		
Other p	otocols	
	cols, comma separated, e.g. ah, sctp	

#### 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

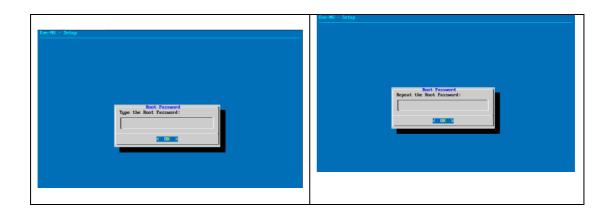
3.5.1 Management static IP address setup (preferred)

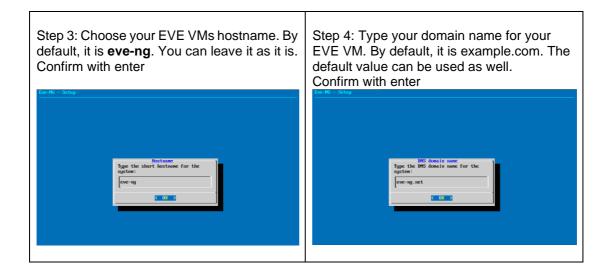
▲ IMPORTANT NOTE: EVE Docker stations for html console access are using network 172.17.0.0/16. Please avoid use this network on the EVE management or other clouds or interfaces.

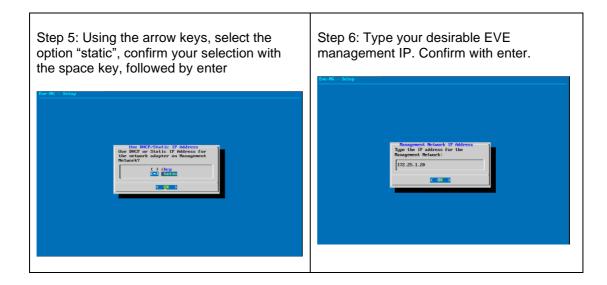
The steps below will walk you through the network setup and assign a static management IP for EVE.

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



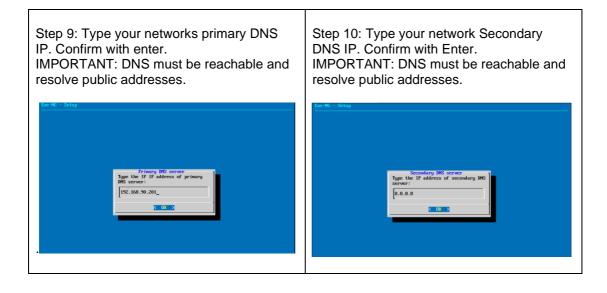


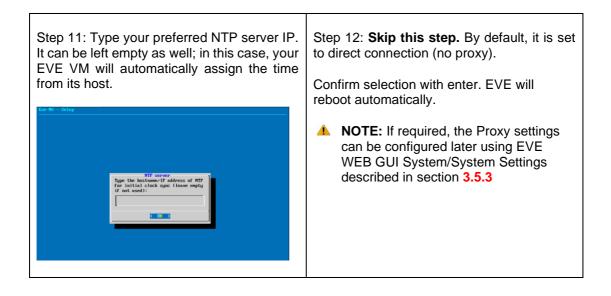




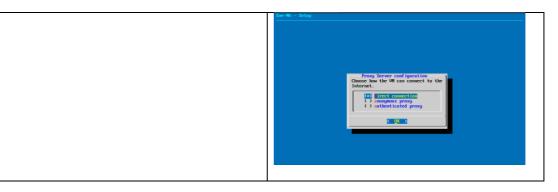


Step 7: Type the subnet mask of your EVE management network. Confirm with enter.	Step 8: Type your networks gateway IP. Confirm with enter.
Twe-NG - Setup Ranagement Metaork Subnet Rask Type the Subnet Rask for the Ranagement Hetaork ZS5. ZS5. 255. 0 COS C	Renagement Return Default Gateau) - T Type the Default Gateau) or the Banagement Return: 172, 25, 1, 1 C OK 2







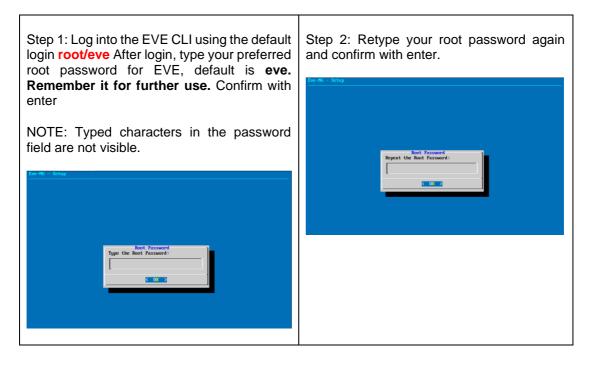


IMPORTANT NOTE: If you are setting up your management IP for the first time (fresh EVE installation), please return to the install section and complete installation Phase 3.

## 3.5.2 EVE Management IP address setup via DHCP

▲ IMPORTANT NOTE: EVE Docker stations for html console access are using network 172.17.0.0/16. Please avoid use this network on the EVE management or other clouds or interfaces.

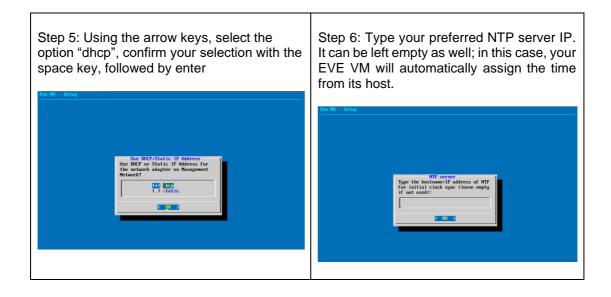
The steps below will walk you through the network setup and assign a management IP for EVE via DHCP.



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	



Type the short hostname for the system:         system:         [eve-ng]         (< D)	Eve-NG - Setup	Eve-NG - Setup
	Nostenane Type the short hostnane for the system: eve-ng	Type the DKS domain name system: eve-ng.net



	-
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 can be configured later using EVE WEB GUI System/System Settings 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>Information</li>	mation <del>•</del>	🚯 Licensing 🗸	©2019 Eve-NG
📥 File manag	er Current po	sition / root			n Settings Istatus			
New Name				<ul> <li>System</li> <li>X Stop Al</li> </ul>		Add fold	er	

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	Passwor	d
	0.0.0.0	8080	•			
Template visibility Disk critical size	unprovisioned images   Disable     Minimal free space (GB)   5	~				
Html 5 terminal setting	Color scheme     gray-black     \vee       Font name     monospace       Font size     12					
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 Native telnet console management setup

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

### 3.6.1 Windows Native Console

Step 1: Download the EVE Windows Client integration pack: <u>http://www.eve-ng.net/downloads/windows-</u> <u>client-side-pack</u>	Step 2: Install it as administrator           Open           Image: Run as administrator           Troubleshoot compatibility           Pin to Start           7-7in
Step 3: Leave the option for UltraVNC hecked. UltraVNC is very tiny and the prefered UNC client for Windows by EVE.         Image: Setup - EVE-NG-Win-Client-Pack         Image: Setup - EVE-NG-Win-Client-Pack         Image: Setup - EVE-NG-Win-Client-Pack         Setect Components         Which components should be installed?         Image: Setup - EVE-NG-Win-Client-Pack         Setect Components wou want to install; clear the components you do not want to install. Clear the components you do not want to install. Clear the components you do not want to install. Clear the components you do not want to install. Clear the components you do not want to install. Clear the components you do not want to install. Clear the components you do not want to install. Clear the components you do not want to install. Clear the components you do not want to install. Clear the components you do not want to install. Clear the components you do not want to install. Clear the components you want to install. Clear the components you do not want to install. Clear the way are ready to continue.         Image: putty 0.68       Image: putty 0.68         Image: putty 0.68	Step 4: Continue with Next. When it asks to choose Ultra VNC Options, only leave the UltraVNC Viewer checked, the rest is not needed.



|--|

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. Send to:					
SecureCRT Application					
Choose other Application <u>Choose</u>					
<u>R</u> emember my choice for telnet links.					
Cancel Open line	¢				

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

## 3.6.2 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 integration pack download page: <u>http://www.eve-ng.net/downloads/linux- client-side</u>	Step 2: Open the link to GitHub https://github.com/SmartFinn/eve-ng- integration
Step 3: Scroll down to the installation part	



#### Installation

Ubuntu and derivatives You can install eve-ng-integration from the official PPA: sudo add-apt-repository ppa:smartfinm/eve-ng-integration sudo apt-get update sudo apt-get install eve-ng-integration

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>

#### 3.6.3 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

# 3.7 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

- A 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 17



# 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	<u>Example1 EVE-Professional:</u> The license information page shows 2 Admin accounts. This means 2 Admin role-based
Expirity Date: 20190507 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
Users: 0	128 accounts, but active sessions to the Web GUI are restricted to the number of purchased licenses.

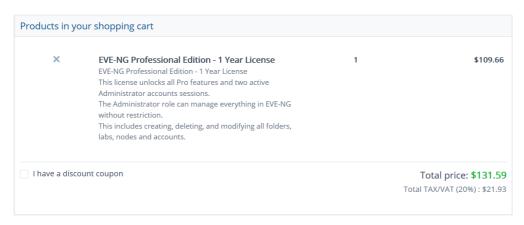
License information	<u>Example2 EVE Learning Centre</u> : The license information page shows 2 Admin and 3 Lab-user role accounts. This means 2 Admin and 3 User accounts can be logged into the
Expirity Date: 20190507 Admins: 2	Web GUI simultaneously. If a fourth User account or third Admin account logs into the Web GUI, the first User or
Editors: 0	Admin session will be disconnected. Started labs will keep running. EVE-NG Learning Center can have up to 128
Users: 3	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.



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.

County of the Co	EVE-NG Professional Base - 1 Year License This license unlocks all Pro features and two active Administrator accounts sessions. EVE-PRO allows up to 128 accounts to be created but restricts the number of active sessions, per role, to the licensed amount. To increase the number of simultaneous account sessions, please purchase additional licenses below.	1 Minimum Mandatory Base I	99,00 € license Remove from order if no need this option
Cover the Lower Witness	Optional Licenses EVE-NG PRO Administrator - 1 Year License This license unlocks one additional active session for the Administrator role. The Administrator role can manage everything in EVE- NG without restriction. This includes creating, deleting, and modifying all folders labs, nodes and accounts. The Administrator is the only role that can create or modify accounts.		99,00 € 🚡
County With County	<b>EVE-NG PRO Lab Editor - 1 Year License</b> This license unlocks one additional active session for the Editor role. The Editor role is restricted to a personal folder and is authorized to create, delete, or modify additional folders, labs, and nodes within it.		350,00 € 💼
Course Vinde Courses	<b>EVE-NG PRO Lab User - 1 Year License</b> This license unlocks one additional active session for the User role. The User role is restricted to a personal folder and is only authorized to start, stop, and wipe nodes. An Administrator account is required to manage folders and labs within a Users folder.		300,00 € 💼

## 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 / 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.

CONC.	<b>EVE-NG Professional Base - 1 Year License</b> This license unlocks all Pro features and two active Administrator accounts sessions. EVE-PRO allows up to 128 accounts to be created but restricts the number of active sessions, per role, to the licensed amount. To increase the number of simultaneous account sessions, please purchase additional licenses below.	1	99,00 €
Control of the Control of Control	EVE-NG PRO Lab Editor - 1 Year License This license unlocks one additional active session for the Editor role. The Editor role is restricted to a personal folder and is authorized to create, delete, or modify additional folders, labs, and nodes within it.	- 1 +	350,00 € 👘
Construction of the Construction	EVE-NG PRO Lab User - 1 Year License This license unlocks one additional active session for the User role. The User role is restricted to a personal folder and is only authorized to start, stop, and wipe nodes. An Administrator account is required to manage folders and 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 <u>https://www.eve-ng.net/index.php/buy-corporate/</u> 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.

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



Lab objects management add			
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
EVE Cluster administration	Yes	No	No

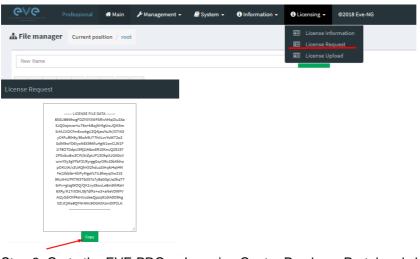
# 4.5 License purchasing and activation

- 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.





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.

to shopping	-	~			
				PayPal	
			•		

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

Bill	ing	Infor	mation	

< Back

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,

	Professional	🚮 Main	🗲 Management 🗝	🗐 System 👻	<ol> <li>Information -</li> </ol>	<ol> <li>Licensing -</li> </ol>	©2018 Eve-NG
🚠 File manage	er Current po	osition / root				<ul> <li>License Inf</li> <li>License Re</li> </ul>	
New Name						💷 License Up	oload

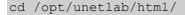
#### Paste your licence and click on Upload



# 4.6 License deactivation

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

Go to EVE CLI and type:





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	Fie-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 ms <sup>err</sup>
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=2 ttl=58 time=1	9.5 ms
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=3 ttl=58 time=9	.50 ms
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=4 ttl=58 time=9	.56 ms
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=5 ttl=58 time=9	.56 ms

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 **16.1.1**. You can verify your current EVE version from the System/System Status tab on the top menu of the WEB GUI as well.

<b>ଜ∀</b> ୧		🖷 Main	≠ Hanagament -	🖉 System +	O Information +	O Licensing +	@2018 Eve-NG	
System stat	us		-	O System o O System i				
Lill. System st	itus			N Stop All h				
	(	90 CPU					17% Berray und Total Mannary: 79 Gb.	
						running	; IOL nodes	running Dynam
							4	0
							-	ocker nodes 0
Qemu version: 2.4								
Current API versio	CN .							
<b>CPULImit status</b>	000							

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) To Update and Upgrade your EVE-NG Professional to the newest version, please follow the steps in the <u>Upgrade</u> <u>section (reboot required)</u>
Release 2.0.6-17 notes:
IMPORTANT NOTE: III Before this upgrade please stop all running labs and nodes III
– Important security update – New HTML5 Console engine Guacamole 1.0 – HTML5 console background color change option
Bugfixe(s): – 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 <u>https://www.eve-ng.net/index.php/1845-2/</u>

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 O : 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.
*** issue (Y/I/N/O/D/Z) [default=N] ? _
Progress: [ 0%] [

Answer for prompt above is "N"



Configuring grub-pc A new version (/tmp/grub.tj7zRCNt3z) of configuration file /etc/default/grub is available, but the version installed currently has been locally modified.
What do you want to do about modified configuration file grub?
install the package maintainer's version keep the local version currently installed show the differences between the versions show a side-by-side difference between the versions show a 3-way difference between available versions do a 3-way merge between available versions (experimental) start a new shell to examine the situation
<0k>

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.

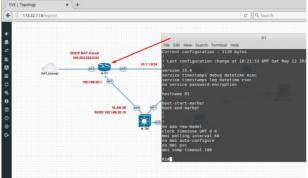
### 6.1.1 Native Console: telnet

**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 3.6.1



**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 3.6.2





**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 3.6.3

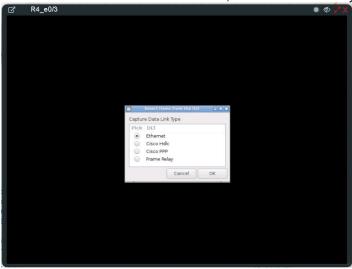
### 6.1.2 Native Console: Wireshark

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.

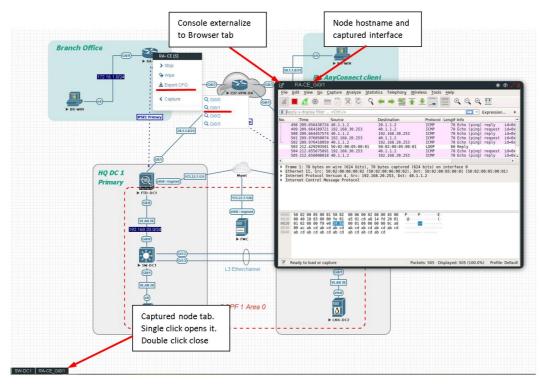
EVE-PRO supports packet captures on ethernet and serial interfaces. Select the interface frame type which will be captured:

- 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 3.6.1



**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 3.6.2



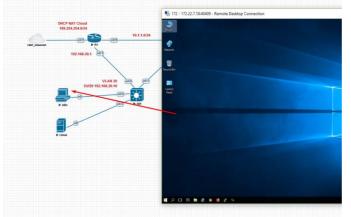
) ③   172.22.7.18/legacy/	C Q Search	
DHCP NAT Cloud 198354356.024	Remote View Bookmarks Help         GEMU (Linux) - Remote Deskt           Image: Send Ctri Alk         Image: Send Ctri Alk	
NLT Jeamer 192:162:01 950:01:20 950:	10.1.1.024	
+ No.		9

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 3.6.3

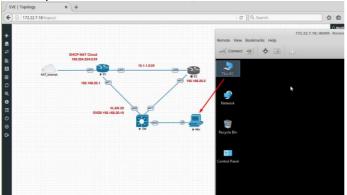
### 6.1.4 Native Console: RDP

**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 3.6.2



**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 3.6.3

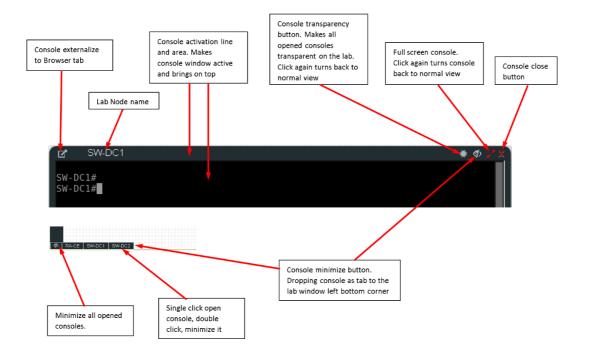


# 6.2 HTML5 console



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.



ti III III III III III III III III III II	Telnet console node name	SW1 Sw1tch> Sw	• \$ \$ • \$ • \$ • \$ • \$ • \$ • \$ • \$
● □ □ □	DHCP POOL VLAN 10 DHCP POOL VLAN 10 DHCP POOL VLAN 10 DHCP POOL VLAN 20 DHCP POOL VLAN 20 True VLAN 20 True VLAN 20 Telnet con	Sole node tab,	
SW1	Double clic minimize c		

**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/clipboard      ←		
E 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	
	Allow	
	M 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:

← → ♂ ŵ	Sirefox aboutconfig			
Search: 🔎 clipboard				
Preference Name		▲ Status	Туре	Valu
clipboard.autocopy		modified	boolean	true
clipboard.plainTextOnly		modified	boolean	true
levtools.screenshot.dipboard.enabled		default	boolean	false
lom.event.clipboardevents.enabled		default	boolean	true
dom.events.asyn.cClipb.oard		default	boolean	true
dom.events.asyncClipboard.dataTra	nsfer	modified	boolean	true
dom.events.testing.asyncClipboard		modified	boolean	true

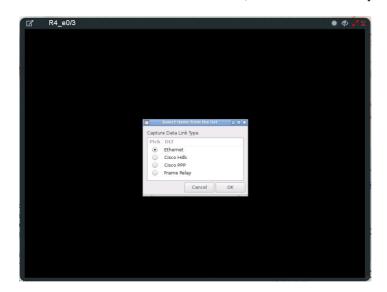
# 6.2.3 HTML5 Console: Wireshark

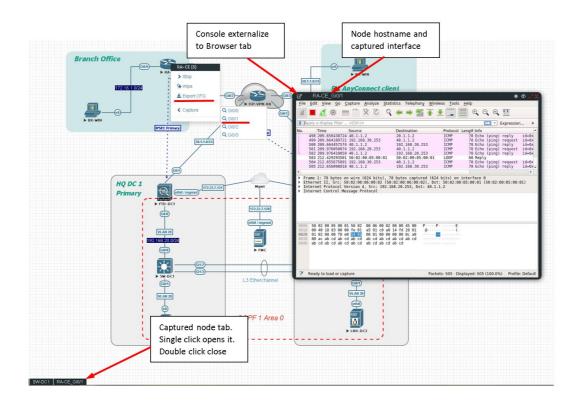
Right click on the node you wish to capture, choose capture and the interface. Capture Session will open in a new browser window.



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.



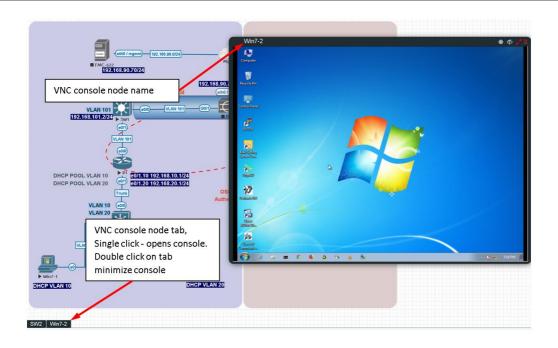


To save captured file to your local PC, please refer section 12.2

# 6.2.4 HTML5 Console: VNC

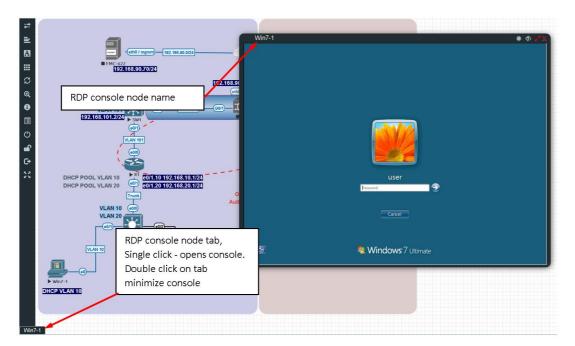
HTML5 VNC console is integrated and opens VNC sessions in the browser.





# 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.



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

	DE			
Template				
Windows				*
ID				
7				
Image				
win-10-x86-20H2v3				*
Name/prefix				
HQ-PC				
lcon				
📕 Desktop2.png				•
UUID				
2c938db1-a889-4d70-ac	4b-17ab622e74c6			
CPU Limit				
CPU	RAM (MB)		Ethernets	
2	4096		1	
First Eth MAC Address				
50:0a:00:07:00:00				
QEMU Version	QEMU Arch		QEMU Nic	
4.1.0 -	x86_64	•	tpl(e1000)	*
QEMU custom options				
-machine type=pc,accel=	kvm -cpu host,+pc	id,+kvm_pv_	unhalt,+kvm_pv_ec	oi,hv_sp
		e . II:		
Startup configuration	_	satellite		-
	·	SOLI		·
Delay (s)				
0				
Console				
rdp-tls				*
RDP Username				
user				
RDP Password				
Test123				
Left		Тор		



# 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.

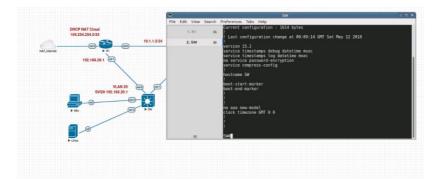


Inside of the integrated docker station, it will open another session to EVE. All features inside of the Docker Desktop will work as you are used to with the Native console.



# 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.

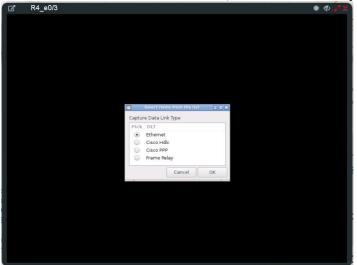


# 6.3.3 HTML5 Desktop Console: Wireshark

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.



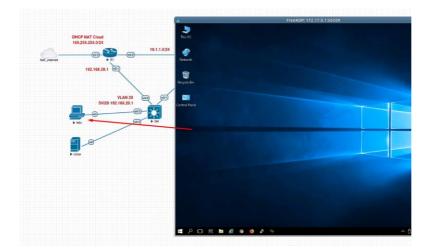
The integrated management docker station Wireshark client allows you to capture and save captured files onto the docker station. For instructions on how to save files to your local PC, please refer to section 12.3



	6		
DHCP NAT Cloud		statistics Telephony Wireless Tools Help	
169.254.254.0/24	P 15 X 11 🔲 0 💆 📕 🔟	. 🖛 🗯 🖉 🗿 💆 📃 📃 🍳 🍳 🍳 🖽 .	
	10.1.1.0/ Apply a display filter <ctrl-></ctrl->		Expression +
(002) R1	No. Time Source	Destination Protocol Length Info	
192.168.20.1	1 0.00000000 and bbrcc100.031 2 2.00000568 and bbrcc100.031 3 3.555559237 and bbrcc100.031 4 4.004259200 and bbrcc100.031 5 6.000255116 and bbrcc100.031	00         Spanning-tree-(forSTP         60 Conf. Root           10         aa:bb:cc:00:01:10         LOOP         60 Reply           00         Spanning-tree-(forSTP         60 Conf. Root	= 32768/20/astbircc100-03100 Cost = 0 = 32768/20/astbircc100:03100 Cost = 0 = 32768/20/astbircc100:03100 Cost = 0 = 32768/20/astbircc100:03100 Cost = 0
VLAN 29 SV220 192.168.20.1	T Trane 1: 66 bytes on wire (480 bits) T B T B T B T B T B T B T B T B	, 60 bytes captured (400 bits) on interface 0	
B B			
	0000 01.00 c2 00 00 00 as b5 cc 00 0 0110 03 00 00 00 00 00 01 4 as b6 0120 00 00 00 14 as b6 cc 00 0 0130 02 00 01 14 as b6 cc 00 03 00 0	c 00 03 00 00 00	

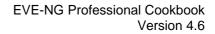
### 6.3.4 HTML5 Desktop Console: RDP

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

CVC Professional # Hain / Management	• BSystem • O Information • O Licensing •	€2020 €++ NG	23:26 👗 sideis 🕬 Sign
A File manager Current position / root			
Non Nires	add toking	C SD-WAN Lab	
0	Management buttons		Scale
🔲 🐚 Running	^		
CCNP_TS_LAB	12 Apr 2020 08:31		
Cisco	03 Feb 2020 09:34		
D DC	11 Jun 2020 09:35	Averaging 1	
imported	07 Apr 2020 20:41		
📋 🐂 Juniper	22 Jun 2020 17:28		
Miscelaneous	22 May 2020 21:39		
D POC Customer Projects	08 Apr 2020 23:34	The second secon	
D POC Technology	18 Jun 2020 17:35	Lab Paths / 30-WWW.C 50-WWW.C blues	
🗋 🍋 RS	07 Apr 2020 20:40	UUID: 75509bce-3743-418b-b751-beb9225588#4 Author	
D SD-WAN	22 Jun 2020 23:12		
🔲 🖿 SEC	04 Apr 2020 22:22	Open	
🔲 🖮 Shared	17 Jun 2020 14:44	Description:	

The lab preview actual picture appears after 3-5 seconds.

# 7.1.1 Management buttons

		ø	8<	Û	*	<b>±</b>	▣	C
--	--	---	----	---	---	----------	---	---

Button	Description
	Select All or Deselect All folders or labs in the EVE tree
•	Create/Add new Lab
1	Change selected item name. To use this option, please select the folder or lab that you want to rename. You must not rename the Shared folder, the Users folder or any folder inside the Users folder.
%	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.
留	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.
T	Toggle the sorting folders and labs between alphabetical and last edit date (ascending/descending cannot be changed currently).
8	Refresh current folder content

# 7.1.2 Management tabs

Main	🗲 Management 👻	🗐 System 👻	i Information 🗸	i Licensing 🗸	©2018 Eve-NG

Tab	Description
A 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>Cluster Management</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
	Information submenu, for details see section 7.5



<ul> <li>About</li> <li>Forum</li> <li>YouTube Channel</li> <li>Help on EVE-NG LiveChat</li> </ul>	
O Licensing →	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

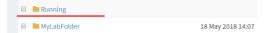
EVE Professional has three default folders used for various operations. These must not be deleted or renamed (see below).



- 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.



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.



<b>File manager</b> Current position / root / Running	
New Name	Add folder
<b>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).

File manager Current position / root		Move files to	
New Name 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/	
		Users	Move Can

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

@\/@		🐠 Main	🖌 Management 🗸	🖴 System 👻	Information +	©2018 Eve-NG	11:45	🛔 test2	🕞 Sign out
👍 File mana	ger Current pr	sition / roo	t / Shared						
New Name					Add folder				
• • /	× 8 ¥	1 0	Ø						
•						Choose a lab for more info			
🗆 📑 test_	lab1.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.

- mytabi olaci	10 May 2010 14.01
🔲 🖿 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
• • *	ê <b>± ±</b> • <i>C</i>	
<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

La File manager Current position / root An Admin or Editor user account is required. Myfolder 🗸 Type the new folder name and click "Add Folder" 🗆 🖿 Running NOTE: Editors can only create folders 🗆 🖿 Shared 18 May 2018 13:49 within their own profile folder or in the Shared folder 7.2.1.5 Delete folder An Admin or Editor user account is required. File manager Current position / root Delete selected items Select the folder you wish to delete and press Delete. 🗆 🖿 Running 🗸 🔄 MyLabFolde 18 May 2018 14:07 NOTE: All folder content will be deleted as 🗆 🖿 Shared 18 May 2018 13:49 🗆 🖿 Users 18 May 2018 12:48 well. test\_lab1.unl

test lab2.unl

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

18 May 2018 12:58
18 May 2018 13:36



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

Select the target destination for your folder and

File manager Current position / root	
New Folder Mane Move to	Add folder
🗆 🖿 Running	
😰 🖿 MyLabFolder	18 May 2018 14:07
🗆 🖿 Shared	18 May 2018 13:49
🗆 🖿 Users	18 May 2018 12:48
test_lab1.unl	18 May 2018 12:58
test_lab2.unl	18 May 2018 13:36

Move files to				
Files selected	to move:			
🖿 MyLabFolder				
Current files position /				
New path				
1			~	
Running	tFolder/			
MyLabFolder	/			
Shared				
Users			Move Cancel	

### 7.2.1.7 Export Folder

confirm by clicking on Move.

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

File manager Current position / root	
New Name Export	Add folder
🗉 🖿 Running	
🗸 🗷 🖿 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.

Opening _Exports_ev	e-ng_export-20180518-172551.zip	×		
You have chosen to	open:			
Exports_eve	-ng_export-20180518-172551.zip			
which is: Win	RAR ZIP archive (749 bytes)			
from: http://1	92.168.90.23			
What should Firefo	x do with this file?			
Open with	WinRAR archiver (default)			
Save File				
Do this auto	matically for files like this from now on.			
	OK Cancel			

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	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.

→ ^ ↑	> Thi	s PC > Desktop > Exports >		✓ Ö Search Ex	ports	,
rganize 👻 Ne	w folde	r				
This PC	^	Name	Date modified	Туре	Size	
3D Objects		EIGRP cfg set 2	15/03/2018 12:10	File folder		
Desktop	11	🔚 EIGRP cfg set 2.zip	15/03/2018 12:11	WinRAR ZIP archive	2 KB	
Documents	- 11	🔚 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		$\sim$				
Pictures						
Videos		×				
🏪 System (C:)						
🕳 Donna (E:)						
👝 Data (G:)	~			× 1		
	File na	me: UD_lab_folder.zip		<ul> <li>✓ All Files (</li> </ul>	*.*)	

### Step 3: Press the Upload Button

lame		Size	Progress	Status	Actions	
JD_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	
UD_lab_folder.zip	
New Name	Add folder
🗅 🖿 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

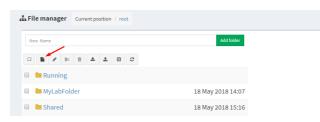
Professional A Main & Management	System      O Information	O Licensing + 02018 Eve NG 14:02 4	admin 🕞 Sign
File manager Current position / root			
New Name	Add folder		
0 1 1 1 1 1 1 1 1 0 0			
🔋 🖿 Running		Choose a lab for more info	
🔋 🖿 MyLabFolder	18 May 2018 14:07		
📔 Shared	18 May 2018 15:16		
Users 📔 Users	18 May 2018 14:31		
🛿 📑 test_lab1.unl	18 May 2018 12:58		
i 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 / Manageme	nt 🔹 🖉 System 👻 🛛 Information 👻 🌒 Licensing 👻 ©2018 Eve-NG
File manager Current position / root	
New Name 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.

Current 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 2018 12:58
test_lab1_1526649330089.unl	\$≪Move to 🖉 Rename 🗇 Clone 💼

Step 4: Rename it, and click OK to confirm

	<b>t</b> e	st_lab1.unl	18 May 2018 12:58
•		test_lab1_mynew_clone	Ok

### 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 🥆	9≪Move to @ Rename C Clone 💼
🗆 📑 test_lab2.unl	18 May 2018 13:36



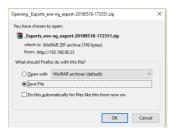
Step 2: Choose the path to the new destination and confirm by clicking Move	Move files to		
	Files selected to move:		
	test_lab1_myne	w_clone.unl	
	Current files position /		
	New path		
	1	×	
	Running	tFolder/	
	MyLabFolder		
	Shared	Move Cancel	
	Users	Move Cancer	

### 7.2.2.5 Export Lab

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

La File manager Current position / root	
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.



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	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.



is PC > Desktop > Exports >		✓ ບັ Search Eq	oorts	P
er			100 - 10	. ()
Name	Date modified	Туре	Size	
EIGRP cfg set 2	15/03/2018 12:10	File folder		
EIGRP cfg set 2.zip	15/03/2018 12:11	WinRAR ZIP archive	2 KB	
EIGRP cfg set.zip	15/03/2018 12:10	WinRAR ZIP archive	4 KB	
Firepower_poc_623.zip	12/04/2018 11:16	WinRAR ZIP archive	51 KB	
	N			
ame: Firepower_poc_623.zip		<ul> <li>All Files (</li> </ul>	57)	~
		Que Ope	n Car	ncel
	Name EIGRP cfg set 2 EIGRP cfg set 2.zip EIGRP cfg set.zip	Name         Date modified           B GRP dg set 2         15/02/2018 12-10           B GRP dg set 2.ip         15/02/2018 12-10           B GRP dg set 2.ip         15/02/2018 12-10           B GRP dg set 2.ip         12/02/2018 12-10           B GRP dg set 2.ip         12/02/2018 12-10           B GRP dg set 2.ip         12/02/2018 11-16	Name         Date modified         Type           BGRP Crg set 2         15/03/2018 12:10         File folder           BGRP Crg set 2.ip         15/02/2018 12:11         WinRAX 2P archive           BGRP Crg set 2.ip         15/02/2018 12:11         WinRAX 2P archive           BGRP Crg set 2.ip         12/04/2018 11:16         WinRAX 2P archive	Name         Date modified         Type         Size           IS 606P dg st 2         1503/2018 12:10         File folder           IS 606P dg st 2:ap         1503/2018 12:11         WinRAR Z/P archive         2 KB           IS 606P dg st 2:ap         1503/2018 12:10         WinRAR Z/P archive         4 KB           IS 606P dg st 2:ap         12/04/2018 11:16         WinRAR Z/P archive         4 KB           IF frepower.poc.623.sip         12/04/2018 11:16         WinRAR Z/P archive         5 I KB

### Step 3: Press the Upload Button

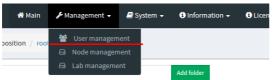
File manager Current position / root						
Name		Size	Progress	Status	Actions	
Firepower_poc_623.zip		0.05 MB			Upload	×
New Name	Add folder					
🗆 🖿 Running			Choose a lab for more info			
MyLabFolder	18 May 2018 17:24					

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

Name	
firepower_poc_623.zip	
New Name	Add folder
🗆 🖿 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
E test_lab1.unl	18 May 2018 12:58
E 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



ser management here you ca	n manage EVE-NG users						
							n > 产Management > 營User manager
Database of users							+Add user More Info •
Username Em	ail	Name	Role	Valid From	Expiration	POD	Actions
admin roo	t@localhost	Eve-NG Administrator	admin			0	Ef Edit 🔋

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

Add	lew User	
User Na	ne*	
testu	rt	8
Jse only	-Za-z0-9@]chars	
Externa	Auth ( Radius )	
Passwo	d	
••••	••	٩
Passwo	d Confirmation	
••••	••	٩
Email		
user(	eve.nat	
Please ei	er an valid email	
Name		
Test l	er	
Role L	uuser 🗸	
Consol	any ×	
Lab No	e	
Satellit	any 🗸	
Accoun	Validity	
From	-1 0 <b>to</b> -1 0	
POD*		
7		
Quotas		
CPU	-1 RAM -1 (GB)	
* - Red	ired Fields	
	Add Cance	ł

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:17.1



Add New User
kaa new User
iser Name*
test
se only [A-Za-z0-9]chars
xternal Auth ( Radius ) 🗹 🔹
assworu
************
assword 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** 

Joł	hn Tester					
Role	Administrator 🗸	/	_			
Acco	Administrator Editor					
	Editor			to		
From						

Step 5: Set the Console type for the user. If Console type is set exact: Native, HTML or HTM5 Desktop, user after login in the EVE will be forced to use selected Console Type. If Console Type is set to "any", user is able to choose Console type on Login page which Console will be used.

Role La	b User 🗸 🗸	
Console	any 🗸	
	any	
Lab Nor	native	$\sim$
Satellite	html5	
Succint	Desktop	

Step 6: **Sticky Lab.** Applies for User role only. Set the specific Lab for the user "sticky lab". After login in the EVE User will directed only to this lab. He cannot close the lab to get in main Lab management page. User can Start/Stop/Wipe lab, as well save his lab work on the lab devices. Follow Section: **7.3.1.5** 

Lab	None 🗸	
	None	
Sate	/Shared/A1.unl	
Acco	/Shared/F SD-WAN Kids Lab.unl	
Fror	/Shared/RS CCNP TS Lab_test.unl	
FIU	-1 0	



Step 8: Set the Cluster Satellite for the user. This applies for Editor and User roles. User will stick to selected Satellite. Editor or User will be forced to use only selected Satellite server.

If the value is set to "any", Editor role can select or change Satellite on the lab himself. User role will use Satellites set by admin on the lab.

The value "any" is set y default.

Satellite	any 🗸				
	any				
Account	master				
From	sat1	0	to	-1	0
POD*	sat2				

Step 9: 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.

Accoun	t Validity					
From	-1		0	to	-1	0
POD*						
1						
Quotas	i					
CPU	-1	RAM (GB)	-1	H		

Step 10: 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 11: 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 (GB) 8 Success • Error • VIOS1: User's CPU quota violation X Step 12: Press ADD

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.

Jser manageme	nt here you can manage EVE-NG user	rs					希 > 产Management > 智User manage
Database of users							+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\* editor

### External Auth ( Radius )

Password					
•••••					
Password Confirmation					
•••••					
Email					
admin@eve-ng.net					
Please enter an valid email					
Name					
Editor uldis					
Use only [A-Za-z0-9 ]chars					
Role Lab Editor 🗸 🗸					
Console any 🗸					
Satellite sat1 🗸					
Account Validity					
From -1	0	to	-1		0
POD*					
2					
Quotas					
CPU 16 (GB)	32				
* - Required Fields					
				Save	Cancel

### 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.

<b>€</b> √€ Professional	# Hain 🗲 Management -	System - Ø Information - Ø Lio	msing - 02000 Eve-NG								22:08 👗 uldis 🕞 Sign o
User management have	you can manage EVE-NG users										a > ≯Management > ∰Usermanagement
Database of users											+Add user Nore info +
Username	Authenticator	Email	Name	Dole	Disk Usage	Valid From	Expiration	Max CPU	Max RAM (GD)	POD	Actions
admin	internal	adming/eve-ng.net	EVE Administrator	admin	0.0168			Unlimited	Unlimited	0	TEER ONICE



### 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.

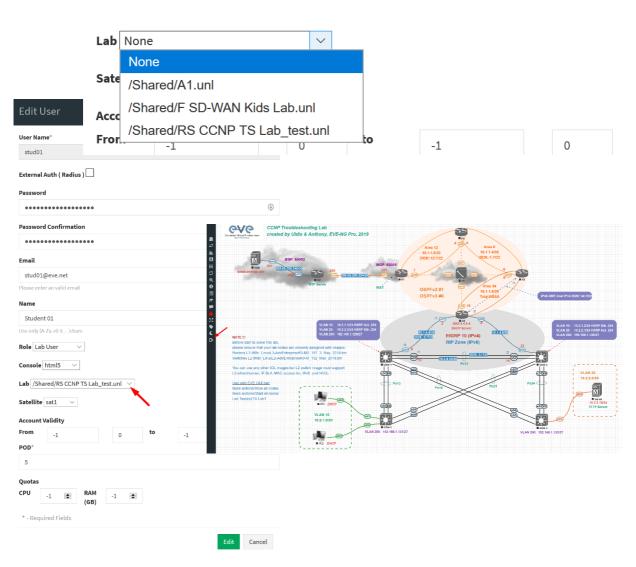
Database of	users									1	1	+Add user More Info +
lsemame	Authenticator	Email	Name	Role	Disk Usage	Valid From	Expiration	Last session time	Last session ip	Current folder	Current lab	Last session time
-user1	racifus	auser1@eve.lab	Auser User	user	0 GB	2018-11-22.05:30	2018-11-28 07:00	N/A	N/A	N/A	N/A.	Last session ip
dmin	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
dmin2	radius	admins2@eve.lab	Admin2 User	admin	0 GB			N/A	N/A	N/A	N/A	Current lab

### 7.3.1.5 User role sticky lab

**Sticky Lab.** Applies for User role only. Set the specific Lab for the user, "sticky lab". After login in the wEB, EVE User will directed only to this lab. He cannot close the lab to get in main Lab management page. User can Start/Stop/Wipe lab, as well save his lab work on the lab devices.

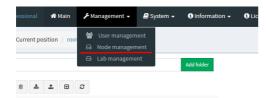
Pre-requisites for this feature: For Lab selection from the list, the Lab must be upload in the Shared folder by admin first. If Lab Menu is selected to "None", User can close the Lab and open another shared Lab for him.

The value "None" is set as default.





# 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

le management here you can	manage EVE-NG running nodes				$\Psi > FM$	nagement > @Nodes mar
unning 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	- ×	
/Users/test2/Shared/test_lab3	3	test2	R2	iol	- ×	
/Users/test3/Shared/test_lab3	4	test3	R2	iol	- ×	
/test_lab1	1	admin	R2	iol	🖵 ×	
/Users/test4/Shared/test_lab3	2	test4	R1	iol	- ×	
/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 or sort sign that will allow you to filter the list to only display information related to the entered value.

**Example**: Click on "CPU Usage" The CPU column will sort running nodes with most CPU consummation on the top.

ode management	here you can manage EVE	-NG running nodes							₩ > ≯Management >	Who des managem
Running node(s)					1					
Labname	Lab ID	Username	Sat	Node Name	CPU usage (%) -	RAM usage (%)	Disk usage (GB)	~ Template	Action	
ASAv Site to Site Basic	1	uldis •	master	ASAv1	2.08	0.42	0.0032	asav	🖵 🗙	^
/ASAv Site to Site Basic	1	uldis •	master	ASAv2	1.9	0.46	0.0033	asav	- ×	
/ASAv Site to Site Basic	1	uldis •	master	SW2	0.02	0.05	0.001	iol	🖵 🗶	
/ASAv Site to Site Basic	1	uldis •	master	ISP-R	0.02	0.05	0.001	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)										
abname	Lab ID	Username 🔺	Sat	Node Name	CPU usage (%)	RAM usage (%)	Disk usage (GB)	Template     Template	Action	
A1	2	ecze •	master	SW	0.02	0.07	0.001	ial	🖵 🗶	
A1	2	ecze •	master	Mgmt	0	0.03	0.0033	docker	<b>—</b> ×	
41	2	ecze •	set1	Win	0.13	4.85	0.3188	win	- ×	
41	2	ecze •	master	ISR	0.02	0.08	0.001	iel	🖵 🗙	
ASAv Site to Site Basic	1	uldis •	master	ASAv1	0.27	0.64	0.0036	asav	- ×	

# 7.3.3 EVE Lab management

🖀 Main	۶ <b>E</b> N	lanagement 🗸	🗐 Sy	/stem 🛨	<li>Information</li>	ion <del>-</del>	6
osition / root		User managem Node managen					
± 🗉	2	Lab manageme	int		Add folder		

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 yo	i can manage l	EVE-NG Running Labs						# FManapement	> Wiedes manage
unning Lab(s)									
Labname	State 🔺	Lab UUID	Satellite	Username	CPU usage (%)	Memory usage (%)	Disk usage (GB)	Action	
DC/EVPN-BGP-NXOS9K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	sat1	uldis•	3.84	34.34	4.9088	🗮 🗙	
DC/EVPN-BGP-NXOS9K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	sat2	uldis •	1.47	17.41	2.4736	= ×	
DC/EVPN-BGP-NXOS9K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	master	uldis •	0	0	4.9687	<b>*</b>	
Users/editor/test		00239193-3ffe-4b62-bd24-3a07890593a1	sat2	editor •	0	0	0.0002	= 💁	
Users/editor/test		00239193-3ffe-4b62-bd24-3a07890593a1	master	editor •	0	0	0.0002	= 💽	
FTD Policy Lab v1		04b55e95-281f-4b6c-8d40-bfcf88e3c193	master	uldis •	0	0	2.6455	= 💽	
FTD Policy Lab v1		04b55e95-281f-4b6c-8d40-bfcf88e3c193	sat2	uldis •	0	0	12.5594		
/FTD Policy Lab v1		04b55e95-281f-4b6c-8d40-bfcf88e3c193	catl	uldis•			0.7695		

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

Example: Enter username in the field to filter labs created by "admin"

unning Lab(s)									
abname	State	Lab UUID	Satellite	Username	CPU usage (%)	Memory usage (%)	Disk usage (GB) 🔻	Action	
				admin ×					
Security/ISE dot1x mab lab new iron		35549188-e3e3-4c21-a5fc-6675df3f0809	master	admin •	0	0	0.0124	🗮 🤒	
41		516ba4d5-b43e-4dd1-a1c2-6ea1358dd	master	admin •	0	0	0.002	🗮 💁	
SD-WAN/C SD-WAN Lab		79509bce-37e3-410b-b751-beb922956	master	admin •	0	0	0.001	🗯 🤒	
Wiscelaneous/OTV_Unicast		9772442a-b05e-4237-9bb7-5c4570061	master	admin •	0	0	0.0002	🗮 💁	

Example: Click State to sort running labs on the top.

Running Lab(s)									
Labname	State .	Lab UUID	Satellite	Username	CPU usage (%)	Memory usage (%)	Disk usage (GB)	Action	
/DC/EVPN-BGP-NXO59K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	set1	uldis •	3.25	34,34	4.9086	= *	
DC/EVPN-BGP-NXO59K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	master	uldis •	0	0	4.9687	= ×	
DC/EVPN-BGP-NXO59K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	set2	uldis+	2.97	\$7.45	2.4735	= ×	
Users/editor/test		00239193-3ffe-4b62-bd24-3a07890593a1	sat2	editor •	0	0	0.0002	= 🔛	
/Users/editor/test		00239193-3ffe-4b62-bd24-3a07890593a1	mester	editor•	0	0	0.0002	- 23	
/FTD Policy Lab v1		04b55e95-281f-4b6c-8d40-bfcf88e3c193	master	uldis •	0	0	2.6455	- 2	
/FTD Policy Lab v1		04b55e95-281F4b6c-8d40-bfcf88e3c193	set1	uldis •	0	0	0.7696	= 🖸	

Example: Click on "Disk Usage" sorting labs with most HDD usage on the top



unning Lab(s)								
abname	State	Lab UUID	Satellite	Username	CPU usage (%)	Memory usage (%)	Disk usage (GB)	Action
POC Technology/Firepower 6-6 VRF P	•	dd700ee7-f03b-4fd5-8ed8-40d1ad2e6f4f	master	uldis•	0	0	64.1963	= 😒
POC Technology/FirePower 6-6 DUO		4d3dbf7b-ce22-4d27-90e9-daaaac65d	master	uldis •	0	0	62.0853	<b>a</b>
TrustSec SXP Lab Book	•	fb30cf2c-e617-492b-aa01-e5a72057475d	master	uldis •	0	0	40.7793	🗮 💁
Security/dot1x ISE Lab w Android Bo	•	18a8a660-253e-49a4-a5d5-01e2ac47c	master	uldis •	0	0	30.6903	= 💁
SD-WAN/B SD-WAN FTD Lab		d270f515-a1e8-425a-ac1a-5bbfee0b9801	master	uldis •	0	0	30.637	= 💁

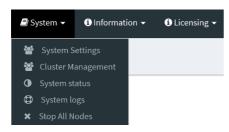
### 7.3.3.1 Lab management actions

Button	Action
틎	Open the running or stopped lab.
×	Stop the running lab. The running labs will be displayed on top of list.
	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, Cluster Management, system utilization status, log files, and an option to stop all running nodes on the server.



# 7.4.1 System Settings

stem 👻 🚯	Information -	🚯 Licensing 👻	The System Sett EVE System sett	ings page, under ings for:	the Sys	stem Dr	opdov	wn, will sho	w
	ement		System settings						
Stop All Nodes			Radius Server #1	IP		Port		Secret	
				0.0.0.0		1812	\$	•••••	
			Radius Server #2	IP 0.0.0.0		Port 1812	۲	Secret	
			Proxy Server	IP 0.0.0.0_	Port 0	\$	User	Passv	vord
			Template visibility Licence check	unprovisioned images Disabl	e ~				
			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 template	s
Nothing selected	•	
		L
Nothing selected	^	
Apple OSX		
Arista vEOS		
Aruba ClearPass 🔫		
Aruba OS-CX Virtual Switch <		

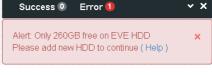
- License check is value where you can set EVE user session login behave.
  - ✓ The Value Strict does not allow user login if all available licenses have active sessions (screenshot below, Insufficient Licenses). If user has finished work with EVE server and closed browser, EVE server will clear this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

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



Licence check	User's login control	Strict  Strict Auto logout		rtual Environment
			2.	0.6-41-PRO
			Sign in to	start your session
			user1	Ŧ
			••••••	۵
			Html5 console	~
				Sign In
			Insuf	

• **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. Recommended is set 3-5 GB value.

- **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

Html 5 terminal setting	Color sche	me	gray-black	$\sim$
	Font name	r	nonospace	$\sim$
	Font size	12		\$

Management Interface setting

Enable IPV6

### 7.4.2 Cluster Management

🖻 S	ystem 👻	<li>Informati</li>	on 👻	i Licensing 🗸
쓭				
**				
•				
¢				
×				

The Cluster Management page, under the System Dropdown, will show Cluster Management options, and cluster members resources utilization. Please refer to Chapter EVE Cluster System 15

### 7.4.3 System status

<b>₽</b> s	ystem 👻	<li>Informati</li>	on 👻	🕄 Licensing 🗸
쓭				
•				
¢				
×				

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 - PSystem -	Information -      O Licensing -      D2	2018 Eve-NG		21:15 🔺 admin 🛛 🕀 Sign out
System status				# > #Logs > @ System status
네. System status				
Lower of CPU-4	14% Memory and Total Memory: 8 Gb.		0% Inter unit	33% Internet
	running IOL nodes	running Dynamips nodes	running QEMU nodes	
	8	0	0	
	running Docl	ker nodes running VF	PCS nodes	
	0	C	)	
Qemu version: 2.4.0				
Current API version: 2.0.4-33-PRO UKSM status:				
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-advent	erprisek9-m-15.6.2T	*
Name/prefix			
vIOS			
Icon			
Router.png			*
UUID			
CPU Limit 🛛 🗸			
СРИ	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

# 7.4.4 System logs

🗐 S	ystem 👻	i Information -		i Licensing 🗸
**	System S	ettings		
썉	Cluster M	anagement		
•	System S	tatus		Add folder
0	System L	ogs		Add folder
×	Stop All N	odes		

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.



ystem logs			# Blogs - Olisstemilogi		
iystem log viewer					
elect log file	Number of Lines	Search text			
access.txt	20	View			
access.bd					
api.txt					
error.bit		File output start			
php_errors.txt	/api/auth HTTP/1.1*200.557 "http://192.108.90.23/" "Mozilla/S.0 (Windows NT 3.02; Win64; x064; rvc80.0) Gecka/20100101 Firefox/60.0*				
unl_wrapper.bd	10000000000000000000000000000000000000				
cpulmit.log					
		html HTTP/1.1" 200 1402 "http://192.168.90.23/" "Mozilia/5.0 (Windows NT 10.0; Win64; x64; rv:80.0) Gecko/201001			
172.25.1.5 [19/May/2018:00:04:2-	4 +0300] *GET /themes/adminLTE/unl_data/js/angular	ontrollers/syslogCtrl.js HTTP/1.1" 200 921 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:50.	).0) Gecko/20100101 Firefax/60.0"		
172.25.1.5 [19/May/2018:00:02:3	5 +0300] "GET /themes/adminLTE/unl_data/img/Logo	E_Color.png HTTP/1.1" 200 108800 "http://192.168.90.23/" "Mozilia/5.0 (Windows NT 10.0; Win64; x64; nc60.0) Geck	.ko/20100101 Firefox/00.0"		
172.25.1.5 [19/May/2018:00:02:3	5 +0300] "GET /themes/adminLTE/unl_data/pages/cor	nt/header.html HTTP/1.1" 200 1864 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gec	cko/20100101 Firefax/60.0*		
172.25.1.5 [19/May/2018:00:02:3	5 +0300] "GET /themes/adminLTE/unl_data/pages/cor	nt/labView.html HTTP/1.1" 200 1800 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Ger	acko/20100101 Firefox/60.0"		
172.25.1.5 [19/May/2018:00:02:3:	5 +0300] "GET /api/folders/ HTTP/1.1" 200 900 "http://	.158.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rx:60.0) Gecko/20100101 Firefox/60.0"			
172.25.1.5 [19/May/2018:00:02:3-	4 +0300] "GET /api/auth HTTP/1.1" 200 557 "http://192	8.90.23/" "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-	4 +0300] "GET /themes/adminLTE/dist/js/app.js?_=152	77354513 HTTP/1.1" 200 6501 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/201	J100101 Firefox/60.0"		
172.25.1.5 (19/May/2018:00:02:3/	4 +0300] *GET /themes/adminLTE/dist/css/skins/skin-l	n.css HTTP/1.1" 200 1153 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/2010010	(01 Firefox/60.0*		
		ss HTTP/L1" 200 2748 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; n::60.0) Gecko/20100101			

# 7.4.5 Stop All Nodes

🗐 S	ystem 👻	<li>Informati</li>	on <del>-</del>	i Licensing 🗸
성 성	System S Cluster M	ettings anagement		
• •	System S System L Stop All N	ogs		Add folder

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.

Same can be achieved issuing cli command:

/opt/unetlab/wrappers/unl wrapper -a stopall

# 7.5 EVE Information Dropdown menu

🗐 System 👻	<li>Information -</li>	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:

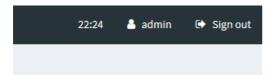
License info	rmation
Expirity D	ate: 20190518
Admins:	2
Editors:	1
Users:	1





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

# 7.7 Other Tab line info



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.

The actual lab topology appears after 3-5 seconds.

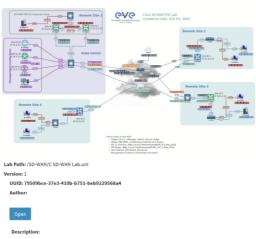
CVC Professional # Main / Management -	E System + O Information + O Licensing +	©2028 Even NG	23:30 👗 uldis 🕞 Sign out
& File manager Current position root / 50-WAV			
hey have	Addition	C SD-WAN Lab	
			Scale
	^		
A SD-WAN HA POC Public.unl	04 Jun 2020 15:40		
A SD-WAN HA POC.uni	16 Jun 2020 23:00		
B SD-WAN FTD Lab.unl	04 May 2020 19:13	Averagina (	
C SD-WAN Lab Public.unl	14 May 2020 01:36		
C SD-WAN Lab.unl	22 Jun 2020 23:12		
D SD-WAN FTD TLOC.unl	18 May 2020 20:55		
Daniel SD-WAN Lab.unl	30 Apr 2020 09:33	Line         Line and the second	
E SDWAN Lab Community Public uni	16 May 2020 21:40	Lab Path: /SD-WANIC SD-WANILab uni Version 1	
E SD-WAN 20 lab.unl	08 May 2020 00:43	UUID:79509bcs-37e3-410b-b751-beb9229568a4 Aethori	
F SD-WAN Light 20.unl	30 Apr 2020 09:32		
D-WAN KBITSv1.unl	15 Jun 2020 10:12	Cpen	
D SD-WAN KBITSv1_Community.unl	11 Jun 2020 18:07	Description:	

### 7.8.1 Lab preview window

The lab preview window displays the schematic position of nodes and their connectivity. The actual lab topology appears after 3-5 seconds. The Scale option allows you change the lab preview size.



### C SD-WAN Lab





# 7.8.2 Lab preview buttons

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

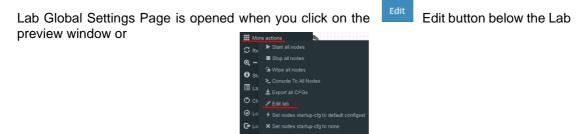
Button	Description
Open	Opens the Lab to the Topology Canvas
Edit	Opens the Labs Global Settings. Refer to section 7.8.4 for more info.
Delete	Deletes the lab

# 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





from		the		Topology	page	Side	bar:
Editlab							• ×
Path*	/test_lab1.unl			Description 6.	Here is short description of Lab		
Name <sup>*</sup> 1.	test_lab1 Use only [A-Za-z0-9 ]cha						
	12	13					
	Must be interger ([0-9]char	5)		Tasks <mark>7</mark> ,	Here are tasks for your lab.		
Author 3.	Tohn Tester				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 address		
Config Script 1		300	Seconds				
		120	Seconds				Save Cancel
* - Required F	reids						General

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.

E 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

TEST\_LAB1

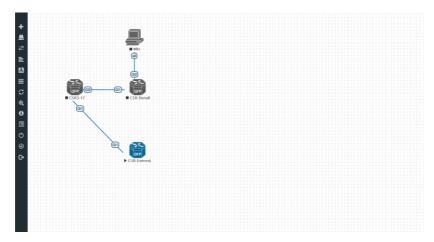
ID: 95692558-5acb-4308-ab66-64f9b40bd31f Here is short description of Lab

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 address



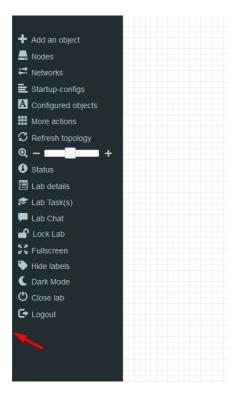
# 8 EVE WEB Topology page

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



# 8.1 Side bar functions

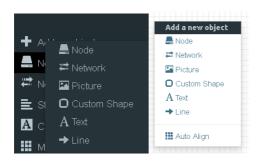
Move your mouse pointer over to the left on top of the minimized sidebar to expand the interactive sidebar as shown in below screenshot



# 8.1.1 Add an object

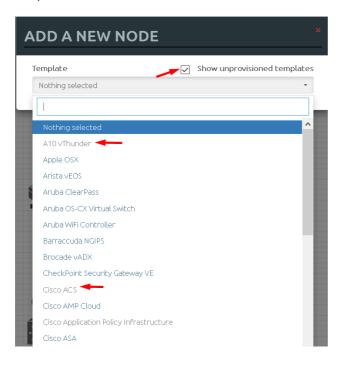
The "Add an object" menu can be accessed in two different ways, from the sidebar and by rightclicking on the Topology Page





## 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 Error! Reference source not found.



## 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 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	MyTopology										
Picture	Browse anycon_lab.PNG										
	Add Cancel										

		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- D	
		AND AND AND	A CONTRACTOR OF THE OWNER OWNER OF THE OWNER OWNE	
SP 201 ords co 105 XE Software, Versian 16.06.07 ce 105 Software [Eversei], Virtual XE Software (XE_64_ Version 16.6-7, BELASE SOFTWARE (16.2) http://www.clisto.com/tensupport http://bupport.http://www.clisto.com/tensupport http://bupport.http://www.clisto.com/tensupport bilder Mon 235-289 [0] [4331] bu profession, 14.2.				1
pilot Mon 73 Sep 10 14:33 by mepre ca 105 ME software, Copyright (5 2005-2010 by cisca Sep rights reserved, certaid components of Caso 105-38 a rights reserved, certaid components of Caso 105-38 a burne code licensed under 69 Version 2.4 a free asth ASSOUTELY NO WARWARY, You can restrictive and/or code under the terms of GPL Version 2.4 a free more det	softwore are sion 2.8. The ware that comes modify such			

# 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 SHA	DE		×
Туре	square	~	
Name	Name		
Border-type	solid	~	
Border-width	5		
Border-color			
Background- color			
Save Cancel			

## 8.1.1.5 Text object

dd a ann abl

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	
ANode	
## Network	□ □ × □ @ @ @ < > ■ \$
Picture	
Custom Shape	B I U S x₂ x²   🖋 I <sub>x</sub>   ≔ ≔   非 非 )
A Text	Styles • Format • Font • Size • 🗛 🔯
→Line	New Text
🖬 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			
Width	2	٥	
Arrow Style	→ single arrow	•	
Paint Style	Solid	•	
Line Style	Straight	•	
Line Color			
Line Label			
Save Cance	el		

# 8.1.2 Nodes

📕 Nodes

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



0	NFIGURED NODES																				
ID	NAME	TEMPLATE	BOOT IMAGE		an	CPU USAGE	CPU LIMIT	IDLE PC	NVRAM (KB)	RAM (MB)	RAM USAGE	ETH	SER	CONSOLE		ICON		STARTUP-CC	ONFIG	ACTIONS	
2	ISP	iol	IB6bl_LinuxL3-AdvEnterpriseK9-M2_157_3_May_2018.bin	1	n/a	1.5%	n/a	r/a	1024	2048	8.8%	2	0	telnet		Router2.png	*	Default	$\sim$	<b>□=</b> 9±0	8
3	Mgmt_CA	docker	eve-gui-serveniatest	14	4	0%	n/a	r/e	n/a	4096	0.9%	1	n/a	rdp	14	📲 Desktop3.png	٠	Default	$\sim$	<b>□=</b> 9±0	÷
4	SWDC1	iel	186bi_linux_l2-adventerprisek9-ms.55A.high_iron_20190423.bin	$\vee$	n/a	25	n/a	n/a	1024	1024	2.9%	4	0	telnet		Switch L32.png	*	Default	$\sim$	Q = 9± 0	î
5	SW2	ial	186bi_linux_12-adventerprisek9-ms.SSA.high_iron_20190423.bin	$\sim$	n/a	0.8%	n/a	n/a	1024	1024	2.6%	4	0	telnet		Switch2.png	*	Default	$\sim$	Q=9±6	8
6	SW3	iol	iB6bi_linux_l2-adventerprisek9-ms.SSA.high_iron_20190423.bin	$\mathbb{V}$	n/a	1.4%	n/a	n/e	1024	1024	2.6%	4	0	telnet		Switch2.png	*	Default	$\sim$	<b>₽=9±</b> S	÷
7	cEdge11	csr1000vng	csr1000vng-ucmk9.16.12.3-sdwan	14	2	46.13		n/a	n/a	4096	100.2%	4	n/a	teinet	V	Edge.png	*	None	$\sim$	<b>□</b> =9≠ 0	÷.
8	vManage	vtngnt	vtmgmt-19.2.2	v	4	<b>P</b> 5		n/a	n/a	24576	77.1%	2	n/a	telnet	$\vee$	vManage.png	•	None	$\vee$	<b>□</b> =9±0	ŵ
9	vSmart	vtsmart	vtsmart-19.2.2	w.	2	3%		n/a	n/a	2048	37.1%	2	n/a	teinet	$\sim$	😌 vSmart.png		None	$\sim$	<b>□=</b> 9± 0	8
10	vBond	vtbood	vtband-19.2.2	14	1	1.5%		n/a	n/a	1024	94%	2	n/a	telnet	1	vBond.png		None	$\sim$	O =9± 0	

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
- Live CPU usage
- Enable or disable CPU Limit (Refer to section 7.4.3)
- IDLE PC for Dynamips node
- NVRAM in Kbyte
- RAM in Mbyte
- Live RAM usage
- 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

#### 

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

Actions Buttons (Running node):



# ACTIONS



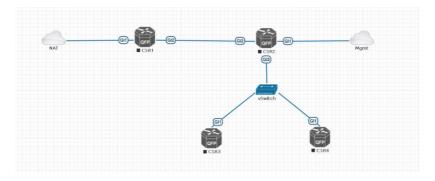
- Console to the node
- Stop node
- Wipe node
- Export the nodes config
- Edit node
- Delete Node

## 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	CONFIGURED NETWORKS										
ID	NAME	туре	ATTACHED NODES	ACTIONS							
1	NAT	nat0	1	G 11							
2	Mgmt	pnet0	1	C fi							
з	vSwitch	bridge	3	C B							



c 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-C	ONFIGS		• x
		Config Set Default ~	
ASA	4 ON	٤ 4	Ace Editor
vEOS2	4 ON	:	^
vEOS1	4 ON	: Serial Number: 123456789AB : 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 !	
VIOS-SW2	4 ON	ASA Version 9.1(5)16	
		hostmam ASA enable password BRy2Y1jVTRRXU24 encrypted xiate per-ession deny top any4 any4 xiate per-ession deny top any6 any6 xiate per-ession deny uop any4 any6 eq domain xiate per-ession deny uop any6 any6 eq domain interface Ethernet1 channel-group 1 mode active	×

# 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								
ю	NAME	TYPE	TEXT		ACTIONS				
1	tot 1	text	Tepology xtx		8				
2	square2	square			10 E				

# 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

► 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

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

≙ 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" will open a console to all of your running ► Console To All Nodes 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	dit lab		Opens the Edit lab window. Refer to section: 7.8.4		ction: 7.8.4		
EDIT L	AВ					×	
Lab Cour	AD Labs/Anst Arista MLAG in Use only (A 2e db 1 Must be interger UD cript Time out tdown Timer ired Fields		3 Seconds Seconds	Description	Antisa mLAC and ASA Lab LAB Somarios 1. Configure ASA ports in etherstharnets (mode active) and vian interfaces per design, name 2. Configure ASA ports in etherstharnets (mode active) and vian interfaces per design, name 3. Configure ASA while DACP (must receive P from home LAN and name the port as ou 3. Configure ASA and while DACP (must receive P from home LAN and name the port as ou 3. Configure ASA and ASCs in million and usings i ports in defectionnels per design. As an use in 4. Configure ASCs in million and usings i ports in defectionnels per design 5. Configure 45CS ethernitarinels facing to vi20-39% to etherchannel mode on	utside	
8.1.7		-	creenshot	_	o export actual topology in It	Opening screenshot.png You have chosen to open: ■ screenshot.png which is: PVIC file (1.7 km) form: Blob: ■ Other Lawold (Infox do with this file? ■ Other Lawold (Infox do with this file? ■ Other Lawold (Infox) ■	v 4

#### 8.1.7.8 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 startupconfig in its NVRAM in case the node was started before already.



## Please refer to section 11.3

## 8.1.7.9 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

## 8.1.7.10 Delete default startup-cfgs

😉 Delete default startup-cfgs

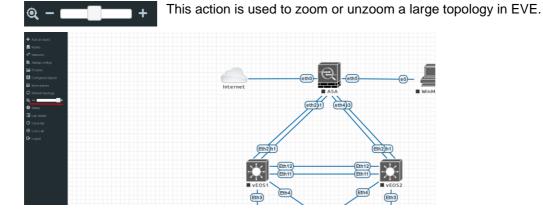
 ${\cal G}$  Refresh topology

A 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

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 7.4.3



STATUS				♦ ¥
EVE-NG version: 2.0.4-37-PRO QEMU version: 2.4.0 UKSM Status: CPU Limit Status: Role: admin	12% CPU usage	14% Memory usage	0% Swap usage	16% Disk usage on /
POD: 0	0 running IOL node:	o s running Dyna		3 nning QEMU nodes
	o running Dock	ker nodes	running	o /PCS 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 7.6

section 7.8.4 and 8.1.7.6

🔳 Lab details

AB DETAILS	×
ARISTA MLAG INTEGRATION	
ID: a8ct996e9-673c-4de3-8e64-b52a9c986400	
Arista mLAG and ASA tab	
LAB Scenario	
1. Configure ASA ports in etherchannels (mode active) and vian interfaces per design, name it as DMZ and Corporate respectively	
2. Configure ASA e0 with DHCP IP, must receive IP from home LAN and name this port as outside	
3. Configure ASA management on port e5, and Win7 Mgmrk host per design, ASA must be reachable from Mgmnt PC over ASDM	
4. Configure AristavEOS in mlag and assign ports in etherchannels per design	
5. Configure vEOS etherchannel ports facing to ASA in etherchannel mode active	
6. Configure vEOS etherchannels facing to MOS-SNB to etherchannel mode on	
7. Configure xIOS SWs etherchannels in mode on	
8. Configure and assign WDS-SW's switchports in VLANs accordingly design	
9. Configure Hosts Ps per design	
10. Configure NAT on the ASA, you have 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	LOCK LAB
Lab is unlocked and all operations are working	Password Confirm password Lock 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 Fullscreen screen. To get back to normal web screen hit "ESC" or press

"Fullscreen" again.

### Hide interface labels 8.1.16

Hide labels	Show labels	
Hide interface labels for lab nodes	Show interface labels for lab nodes	

### 8.1.17 Dark mode or Light mode

C Dark Mode	🕸 Light Mode
Sets your lab background to the dark mode	Sets your lab background to light mode



# 8.1.18 Close lab

Close lab Close lab Close 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

🕞 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.





EDIT NET	WORK	
ID	2	
Name/Prefix	Mgmt	
Туре	Management(Cloud0) •	
Left		
Тор	bridge NAT	
	Management(Cloud0) 🖌 🗸	
	Cloud1	
	Cloud2	
	Cloud3	
	Cloud4	
	Cloud5	
	Cloud6	
	Cloud7	
	Cloud8	
	Cloud9	

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.

	Ξ	
Template		
Cisco CSR 1000V		*
ID		
З		
Image		
csr1000v-universalk9.03	l.17.04.S.156-1.S4	•
Name/prefix		
CSR3		
lcon		
🍘 CSRv1000.png		*
UUID		
67fea887-b30d-4ad0-b3	314-828808b38533	
CPU Limit		
CPU	RAM (MB)	Ethernets
1	3072	4
QEMU Version	QEMU Arch	QEMU Nic
tpl(2.12.0) 👻	tpl(x86_64) •	tpl(e1000) -
QEMU custom options		
-machine type=pc-1.0,a	ccel=kvm -serial mon:stdio -n	ographic -nodefconfig -nodef
Startup configuration		
None		
Delay (s)		
0		
		Ŧ
Console	Тор	•



# 8.2.5 Running node menu

	Right-
CSR1 (1)	
▶ C > Stop	
Se Wipe	
Ł Export CFG	
> Capture	
3	
CSR2 (2)	6
🕨 CS 🔥 Stop 🛹 🗕	Mgmt
Gia 💊 Wipe	Shutdown
± Export CFG	O Power off
	II Hibernate

> Capture

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.

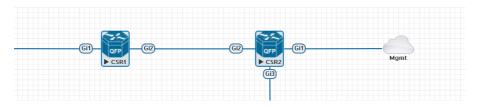




 Image: Signed Control of Cart, Cart, Cart

 Image: Signed Control of Cart

## 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

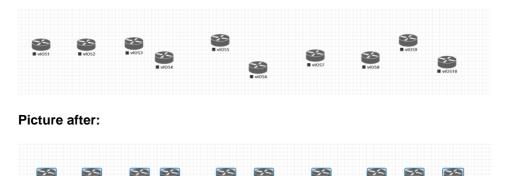
Please refer to section 11.3

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:

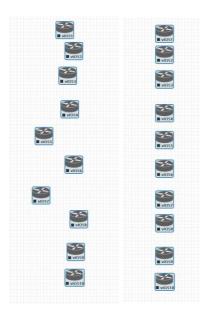


Vertical Align: Aligns the nodes in one vertical line.

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

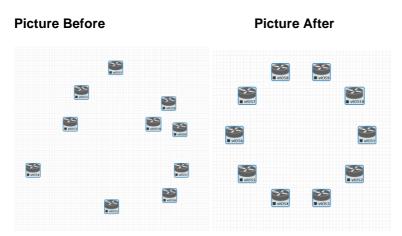


Circular Align: Aligns the nodes in a circle.



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.



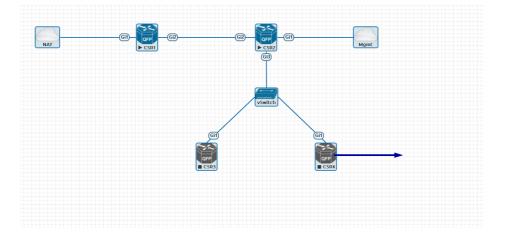
## Delete nodes startup-config.

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

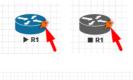


A running node with a turning red gear symbol means that the node is either in the process of hibernating the node or it has sent the shutdown signal to the node and is waiting for it to turn off. Once this process has successfully finished, the symbol will turn into a grey node with a black square symbol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



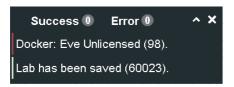
# 8.4 Other

# 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 notifications. To wrap notifications, click to the ball again or click at any point of topology
~	Unwrap or wrap notifications bar.
×	Close notifications bar. Note: Notifications bar appears automatically on any EVE topology activity.

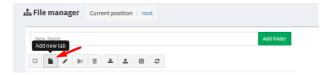


# 9 Working with EVE labs

IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 17

# 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



Step 2:

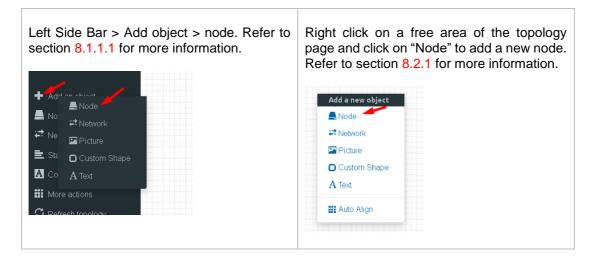
Fill out the lab information. Name and Version are required fields. Next hit Save. Refer to section 7.8.4 for more information about the different fields in the Edit lab window.

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
			2. configure EIGRP AS 20		
Config Script Ti	meout	300	Seconds		3. configure static default route to the Internet
Lab Countdown Timer		0	Seconds		Save Cancel
			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





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

mplate	Template
Nothing selected	➡ Nothing selected
-	ciscol
Nothing selected	Cisco AMP Cloud
A10 vThunder	Cisco ASA
Apple OSX	Cisco ASAv
Aruba ClearPass	Cisco Application Policy Infrastructure
Aruba WiFi Controller	Cisco Context Directory Agent
Arista vEOS	Cisco CSR 1000V
Barraccuda NGIPS	Cisco CSR 1000V (Denali and Everest)
Brocade vADX	Cisco IPS
CheckPoint Security Gateway VE	Cisco CUCM
Cyberoam FW	Cisco ISE
Dockerio	Cisco IOS 1710 (Dynamips)
	Cisco IOS 3725 (Dynamips)
Cisco AMP Cloud	Cisco IOS 7206VXR (Dynamips)
Cisco ASA	Cisco IOL
Cisco ASAv	Cisco NX-OSv (Titanium)
Cisco Application Policy Infrastructure	Cisco NX-OSv 9K
Cisco Context Directory Agent Cisco CSR 1000V	Cisco FirePower
Cisco CSR 1000V 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 XRv
Cisco NX-OSv 9K Cisco FirePower	Cisco XRv 9000

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



# ADD A NEW NODE

Template 1.				
Cisco CSR 1000V				*
Number of nodes to a	add <mark>2</mark> . Im	nage <mark>3</mark> .		
1		csr1000v-unive	rsalk9.03.17.04.S.156-1.	. S4 🕶
Name/prefix 4.				
CSR				
Icon 5.				
😭 CSRv1000.png				•
UUID <mark>6</mark> .				
CPU Limit 7.				
сри <mark>8.</mark>	RAM (ME	3) <mark>9</mark> .	Ethernets 10.	
1	3072		4	
QEMU Version 11.	QEMU A	rch 12.	QEMU Nic 13.	
tpl(2.12.0) •	tpl(×86	_64) •	tpl(e1000)	*
QEMU custom option:	s 14.			
-machine type=pc-1.0,	accel=kvm -se	erial mon:stdio	-nographic -nodefconfi	ig -no
	15			
Startup configuration	15.			
Delay (s) 16.				
0				
Console 17.				
Console 17. telnet				*
		Тор		•

9.1.1.1 Node values Table

Number		Description
1.	ADD A NEW NODE Template Circs CSR today Anaba CircsPlass Anaba ViPi Controllar AstraveCos Barraceula NDPS Brocade VADX	Template menu. Choose which node template to add to the topology



2.	Number of nodes to add Chose the number of nodes of this type you want to add to the topology
3.	Choose your preferred version from preloaded images csr1000v-universalk9.03.17.04.5.156-1.54 Choose your preferred version from preloaded images list (if you have more than one image loaded for a 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>Apic.png</li> <li>AristaSW.png</li> <li>AristaSW.png</li> <li>Aruba_ctrtpng</li> <li>CSRv1000.png</li> </ul> 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
6.	UUID The UUID number is assigned automatically after a node is created. You may also set it manually in case you are using a license that is tied to a particular UUID.
7.	CPU Limit CPU Limit per node. This option is already set (checked/unchecked) per EVE recommendations. Refer to section 7.4.3
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 with vendor requirements. This value is displayed in MB and may be changed per your needs.
10.	Ethernets       4       The number of ethernets interfaces.



	▲ NOTE for IOL nodes:
	Ethernet interfaces for IOL nodes are placed into groups of 4. A value of 1 for Ethernet means your node will have 4 interfaces.
	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.         Ethernet portgroups (4 int each)         1
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 for each node template. This value can be changed per your needs.
13.	QEMU Arch tpl(x86_64)  Qemu architecture is pre-set per image vendor recommendations. This value can be changed per your needs
14.	QEMU Nic tpl(umxnet3)  Virtio-net-pci e1000 e1000-82545em vmxnet3 tpl(umxnet3) tpl(umxnet3)
15.	QEMU custom options -machine type=pc-1.0, accel=kvm -cpu Nehalem -serial mon:stdio -nographic -r 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 be used to delay a node from booting after it is started. Example: if the value is set to 30, the node will wait 30 seconds before processing its boot sequense. This feature is useful in conjunction with the "Start all nodes" function if your lab requires certain nodes to start up before others or to avoid a mass-start of very heavy nodes.



18.	Console telnet The setting can be changes per your needs.	<ul> <li>Console types for each template are pre-set with recommended settings.</li> </ul>					
	▲ NOTE: 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.						
	First Eth MAC Address	OPTIONAL: Templates for Cisco FirePower, F5, Linux,					
19.	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.

- A 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.



Template				
Cisco vIOS				
ID				
1				
Image				
vios-adventerprisek9-m	-15.6.2T			,
Name/prefix				
hos				
lcon				
a Router.png				
UUID				
b5fa3320-98ed-4ea4-ad	121-627d427b8a6a			
CPU Limit	RAM (MB)		Ethernets	
	<b>RAM (MB)</b> 1024		Ethernets	
CPU				
CPU 1	1024	•	4	
CPU 1 QEMU Version	1024 <b>QEMU Arch</b> tpl(i386)	•	4 QEMU Nic	
CPU 1 QEMU Version tpl(default 2.4.0) •	1024 <b>QEMU Arch</b> tpl(i386)	• edio -nog	4 <b>QEMU Nic</b> tpl(e1000)	·node
CPU 1 QEMU Version tpl(default 2.4.0)  QEMU custom options -machine type=pc-1.0,a	1024 <b>QEMU Arch</b> tpl(i386)	• cdio -nog	4 <b>QEMU Nic</b> tpl(e1000)	, node
CPU 1 QEMU Version tpl(default 2.4.0)  QEMU custom options -machine type=pc-1.0,a Startup configuration	1024 <b>QEMU Arch</b> tpl(i386)	• cdio -noș	4 <b>QEMU Nic</b> tpl(e1000)	-node
CPU 1 QEMU Version tpl(default 2.4.0)  QEMU custom options -machine type=pc-1.0,a Startup configuration None	1024 <b>QEMU Arch</b> tpl(i386)	rdio -noș	4 <b>QEMU Nic</b> tpl(e1000)	, node
CPU 1 QEMU Version tpl(default 2.4.0)  QEMU custom options -machine type=pc-1.0,a Startup configuration	1024 <b>QEMU Arch</b> tpl(i386)	rdio -nos	4 <b>QEMU Nic</b> tpl(e1000)	-node
CPU 1 QEMU Version tpl(default 2.4.0)  QEMU custom options -machine type=pc-1.0,a Startup configuration None Delay (s) 0	1024 <b>QEMU Arch</b> tpl(i386)	• tidio -noș	4 <b>QEMU Nic</b> tpl(e1000)	, node
CPU 1 CPU 1 CPU Utersion Cpl(default 2.4.0)  C	1024 <b>QEMU Arch</b> tpl(i386)	tidio -neg	4 <b>QEMU Nic</b> tpl(e1000)	-node
CPU 1 QEMU Version tpl(default 2.4.0)  QEMU custom options -machine type=pc-1.0,a Startup configuration None Delay (s) 0	1024 <b>QEMU Arch</b> tpl(i386)		4 <b>QEMU Nic</b> tpl(e1000)	-node

# 9.1.3 Wipe Node

viOS (1) Start	
► Start	_
Se Wipe	
🕑 Edit	
💼 Delete	

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

Cancel

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





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.

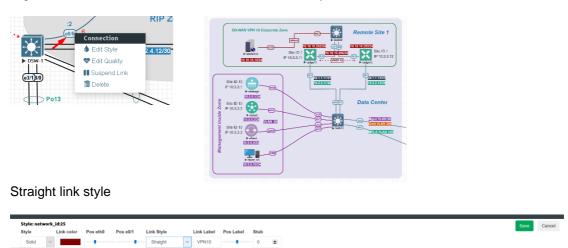


The connection window will appear. Choose the interface you want to use to interconnect the nodes. Click Save when finished.

ADD CONI AND R2	NECTION BETWEEN R1	*		5	23
	Source ID: 1 Source Name: R1 type - Node	R1	-Gi0/0	Gi0/0)	R2
	Choose Interface for R1 G0/0 G0/1 G0/2 G0/3	•			
R2	Gi0/0 Destination ID: 2	Ĭ			
	Destination ID: 2 Destination Name: R2 type - Node				

# 9.1.5 Edit connection link style

Right click on the connection link and choose Edit Style



Bezier link style



Save Cancel

Style: iface:node23:1									
Style		Link color	Pos ge0/0	Pos n/a	Link Style		Link Label	Pos Label	Curviness
Solid	$\sim$				Bezier	$\sim$			150 🔹

### Flowchart link style

**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.

Pos "interface" label: Allows move and position interface label

**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.

Pos Label: Allows move and position Link label, position it on the link

Curviness: Link curviness feature for Bezier style link

Midpoint: Link mid point change, Flowchart style only

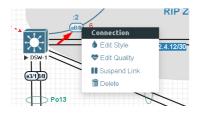
Round: Link round angles, Flowchart style only

Stub: Stub link connection beside node, Straight style only

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.

Link Quality:	vEdgez	- 544															
													Loss (%				
ge0/2	0	٠	0	٥	25	0	٠	e0/0	0	٠	0	٠	25	0	0	٠	

Apply Save Close

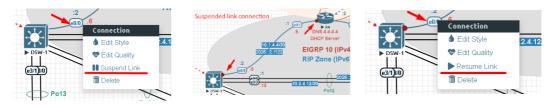


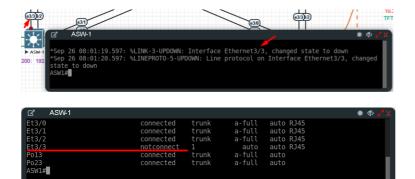
# 9.1.7 Suspend or resume link connection

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 vIOS XRv9K CSR CSR SD-WAN ASAv Firepower FTD Juniper vSRX 12.1X47 Juniper vSRX NG Juniper vMX VCP/VFP Juniper VRR Nokia Timos SR 19.5.1 Windows All Linux All Apple OSX Mikrotik Palo Alto F5 Fortigate Checkpoint Cumulus Cyberoam FW Sophos FW SonicWall FW Viptela Velocloud Versa Networks sd-wan pfSense Brocade vADX Barracuda NGFW HP VSR1000	Arista NXOS 9k ASA ported XRv Old Juniper vMX Juniper vQFX 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.

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

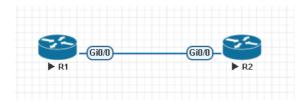
A IMPORTANT. Starting all the nodes at once can result in major spikes in CPU utilization. Please make sure you are not using the "Start all nodes" option for heavy labs. Instead, it is recommended to start nodes in small groups.

Starting a node or group of nodes:

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

R1 (1) - GIUD				
► Start ◄	50	50		
Se Wipe		Gi0/0	Group of R1, R2	
🖸 Edit			Start Selected	
🛅 Delete			Shutdown Selected	
			<b>^</b>	

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





# 9.2.2 Interconnecting running nodes (hotlinks)

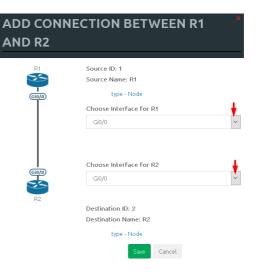
Eve Professional offers the hotlinks feature which allows you to interconnect node in the running state.



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

<del>5</del> 5	-1-
▶ R1	▶ R2



# 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.

**MARNING:** 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

File manager Current position / root	System • O Information • O Licensing •	@2018 Eve-NG
New Name	Add folder	test_lab1
📄 🖿 Running		7
MyLabFolder	18 May 2018 17:24	
📄 Shared	18 May 2018 15:16	
📄 UD Labs	22 May 2018 11:00	
📄 Users	18 May 2018 14:31	
FirePower FTD 623 PoC Multihomed HA.unl	19 May 2018 01:49	
mylab4.unl	23 May 2018 02:06	
test_lab1.unl	22 May 2018 01:19	
test_lab2.unl	22 May 2018 11:15	Lab Path: /test_lab1.unl Version: 12
test_lab3.unl	22 May 2018 12:59	UUID: 95692558-5acb-4308-ab66-64f9b40bd31f
	_	Author: John Tester
		Open Edit Delete

# 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



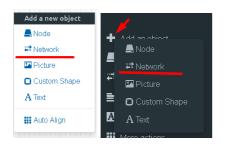
# **10 EVE Clouds and Networks**

# 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

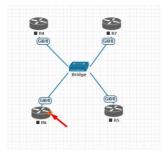
Step 1: Add a Bridge Network onto the topology. There are two ways to do this: Right-clicking on the topology area and selecting "Add Network" or in the sidebar click "Add an Object" and then select "Network." Please refer to sections 8.2.3 and 8.1.1.2



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 NE	W NETWORK *
Number of 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





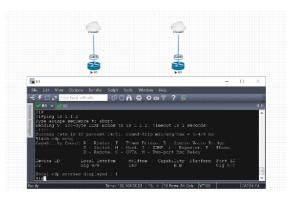
# **10.2** Internal Network

Internal cloud network is used as an extended connector between nodes inside of one lab. It is 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 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.

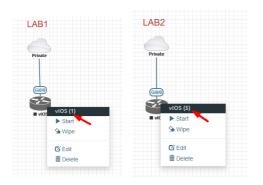
Step 2: Add private cloud network onto the topology Lab2.

ADD A NEW NETWORK						
Number of 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.

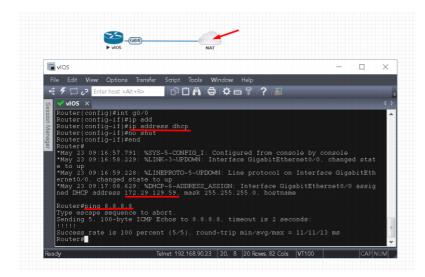
To add a NAT Cloud onto the EVE topology:

ADD A NEW NETWORK							
Number of networks to add	1						
Name/Prefix	NAT						
Туре	NAT						
Left	935						
Тор	340						
	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 NAT network. Make sure your network type is set to NAT.

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 - vSwite	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**

Aanagement 90 UD		
🖊 Edit settings 📔 🤁 Refresh 📔 🎄 Actions		
Management 90 UD       Accessible     Veis       Virbal machines     7       Virbal switch:     — Voetch1       VLAN ID:     4005       Active ports:     5		
vSwitch topology	* Security policy	
	Allow promiscuous mode	Yes
🤮 Management 90 UD 📧 Physical adapters	Allow forged transmits	Yes
VLAN ID: 4095 VItual Machines (7)	Allow MAC changes	Yes
+ virtual infactimes (7)		
B vCentre 90.95		
vCentre 90.95     S2016 EVE 90.201	* NIC teaming policy	
	<ul> <li>NIC teaming policy</li> <li>Notify switches</li> </ul>	Yes
S201F EVE 90 201     EVE-P0.09.100     MiC Address 00 0: 29.40 as 6e		
S2016 EVE 90.201 B EVE-PRO.98.100 MACA-dates:0.00:20 d0:as 9e B EVE-PROv24 B EVE-PROv24	Notify switches Policy	Route based on o
• S2016 EVE 90.201                • MC Advers 00.02 20 as 0e                • MC Advers 00.02 20 as ae                • EVE PROV24                • EVE COMM 89	Notify switches Policy Reverse policy	Route based on o
S2016 EVE 90 201           B EVE-PRO 38.100           Mick-dates 100 C2 ad as fee           B EVE-PRO x4           B EVE-ORX 49           Citcc Oldmithy Services Engine	Notify switches Policy	Route based on o
• S2016 EVE 90.201                • MC Advers 00.02 20 as 0e                • MC Advers 00.02 20 as ae                • EVE PROV24                • EVE COMM 89	Notify switches Policy Reverse policy	Route based on o

EVE Cloud0 bridging table.



Lab name	EVE interface name (inside)	Туре	Notes
Cloud0	pnet0	Bridged	Cloud0/pnet0 is bridged with your primary EVE ethernet port. It is assigned a management IP address used for WEB GUI access. The EVE management subnet can be used as a management 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:~#							
Kernel IP rout							
Destination	Gateway	Genmask	Flags	Metric	Ref	Use Iface	
default	192.168.90.1	0.0.0.0	UG	0	0	0 pnet0	
172.17.0.0	*	255.255.0.0	U	0	0	0 docke	r0
172.29.129.0 <sub>13</sub>	teway IP type:	255.255.255.0	U	0	0	0 nat0	
192.168.90.0		255.255.255.0	U	0	0	0 pnet0	
root@eve-ng:"#							

**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 NEW NETWORK						
Number of networks to add	1					
Name/Prefix	Mgmt					
Туре	Management(Cloud0) -					
Left	737					
Тор	163					
	Save Cancel					

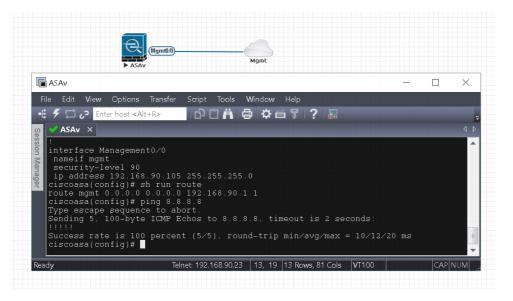
Step 1: Add A New Network onto the topology. There are two ways to do this: Right-clicking on topology area and selecting "Network" or in the sidebar, "Add an Object" and then select "Network."

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.

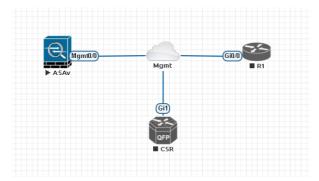




The native management host (home PC) can be used to manage nodes in the EVE lab over https. Example below showing http connection to Fortigate FW node in the EVE lab from native PC using Chrome browser.

▶ ng	<ul> <li>← → C △ ○ Not set</li> </ul>		+ 192.168.90.116/ng	s/system/dashboard/1		- \$ 0 (	D Paused 🕕
FGT	FortiGate VM64-KVM					Q • >_ [] @O AO	🕗 adm
To any endparation and any endparation of any endpa	Top Usage LAN/DMZ Security System Events Security Fabric Forti/View Forti/View Network System Policy & Objects	✓ ▲ ↓ <p< th=""><th>System Inform Hostname Serial Number Firmware Mode System Time Uptime WAN IP</th><th>nation FortiGate-VM64-KVM FGVMEVTX/NN9OGC7 v6.22.build1010(GA) NAT 2019/11/29.14:13:21 00:00:03:10 Unknown</th><th>I.</th><th>Licenses FortiCare Support Firmware &amp; General Updates PIS AntiVirus Web Filtering FortiToken 102</th><th>0/0</th></p<>	System Inform Hostname Serial Number Firmware Mode System Time Uptime WAN IP	nation FortiGate-VM64-KVM FGVMEVTX/NN9OGC7 v6.22.build1010(GA) NAT 2019/11/29.14:13:21 00:00:03:10 Unknown	I.	Licenses FortiCare Support Firmware & General Updates PIS AntiVirus Web Filtering FortiToken 102	0/0
0 enable root static 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	Security Profiles  VPN User & Device  M. Log & Report	> > >	Virtual Machi	icense	/1	FortiGate Cloud Status O Not Supported	·-

**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 name	EVE interface name (inside)	Туре	ESXi VM corresponding interface	VMware Workstation corresponding interface	Bare HW Server	Notes
Cloud0	Pnet0	bridged	Network adapter 1	Network Adapter	First ethernet Eth0	Cloud0/pnet0 is bridged with your primary EVE ethernet port. It is assigned a management IP address used for WEB GUI access. The EVE management subnet can be used as management network in the labs.
Cloud1	Pnet1	bridged	Network adapter 2	Network Adapter 2	Second ethernet Eth1	Cloud1 can be bridged with your EVE second ethernet port to achieve connection to another network or device. The IP address is not required to be configured on it. It will act like a pure bridge your external connection with EVE lab node.
Cloud2	Pnet2	bridged	Network adapter 3	Network Adapter 3	Third ethernet Eth2	Same as Cloud1
Cloud3	Pnet3	bridged	Network adapter 4	Network Adapter 4	Fourth ethernet Eth3	Same as Cloud1
Cloud4-9	Pnet4-9	bridged	Network adapter 5-10	Network 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.

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

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

Q WSA-MGMT			
🥒 Edit settings 🕴 🤁 Refresh 🕴 🏠 Actions			
WSA-MGMT           Accessible:         Yes           Virtual monchines:         2           Virtual switch:         0			
vSwitch topology		<ul> <li>Security policy</li> </ul>	
		Allow promiscuous mode	Yes
Q WSA-MGMT VLAN ID: 0	No physical adapters	Allow forged transmits	Yes
Virtual Machines (2)		Allow MAC changes	Yes
EVE-PROv24     Coeus-10-1-3-039-S000V		▼ NIC teaming policy	
		Notify switches	Yes
		Policy	Route based on originating port ID
		Reverse policy	Yes
		Rolling order	No
		- Shaping policy	
		Enabled	No

#### Parent vSwitch5 settings:

wSwitch5			
Add uplink / Edit settings C vSwitch5 Type St Port groups 1 Uplinta:	Reflesh   🏠 Actions		
		✓ vSwitch topology	
MTU	1500	G WSA-MGMT	No physical adapters
Ports	4352 (4319 available)	VLAN ID: 0	No prysical adapters
Link discovery	Unknown	- Virtual Machines (2)	
Attached VMs	2 (0 active)	B EVE-PROv24	
* NIC teaming policy			
Notify switches	Yes		
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



	nd port is assigned to A-MGMT. It is Cloud1 on the	Cisco Web security appliance (WSA), Management port is assigned in portgro WSA-MGMT.		
<ul> <li>Hardware Configuration</li> </ul>				
F 🔲 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	Network adapter 1	WSA-MGMT (Connected)	
🚭 USB controller	USB 2.0	Network adapter 2	UNUSED (Connected)	
Metwork 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	Network adapter 5	UNUSED (Connected)	
• 📴 Others	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.

- <u>eth0</u> ► Docker_management	-GIP - Kitch - Clouds DHCP POOL WSA External ES	Xi VM	
SVI	192.168.10.0/24 Port M1 0 as Gateway 192.168.10.1 VLAN 10		
3 192 - 192.168.90.23:58855 - Remote Deskto	p Connection	-	
Cisco Web Security Virtua × +			
→ C @ () & https://192.168.1	10.3:8443/monitor/wsa_user_report	… 🖸 🕁	li∧ co ≡
cisco SOOOV Cisco Web Security Virtual Appliance		<ul> <li>Logged in as admin on irre</li> <li>My Favorites , Options ,</li> </ul>	
Attention — 🍐 You can customize this "My Dashboard" page Some modules are added for you by default > Overview.	. The Overview page can be accessed from Reporting		
Attention — A You can customize this "My Dashboard" par Some modules are added for you by default > Overview.	by adding report modules from different reports.     The Overview page can be accessed from Reporting      Overview > System Resource Utilization      mate: 0		
Some modules are added for you by defaul System > Overview - System > Web Proxy Traffic Characteristics Average transactions per second in past m Average bandwetth (basi) in past m Average persone time (m) in past m	by Julian groups modulus from different reports.     The Overview page can be accessed from Agriculture     Overview > System Resource Utilization     more: 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.

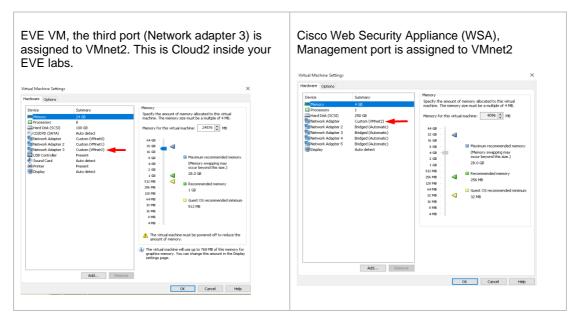
**NOTE:** VMs must be in a powered off state to assign network interfaces.

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:

	Туре	External Connection	Ho	t Connection
Mnet0	Bridged	Intel(R) PRO/1000 PT Dual Por	rt Server Adapter	
Mneti	Bridged	Intel(R) PRO/1000 PT Dual Por		
Mnet2 Mnet8	Host-only NAT	NAT		mected
_			_	>
		Add Network	Remove Network	Rename Network
Mnet Inform	nation	_		
) Bridged (	connect VMs direct	y to the external network)		
Bridged	:0: Intel(R) PRO/1	000 PT Dual Port Server Adapter	$\sim$	Automatic Settings
○NAT (sha	red host's IP addre	ss with VMs)		NAT Settings
	(connect VMs inte	mally in a private network)		
Host-only				
Connect	a host virtual adapi ual adapter name:	er to this network Wware Network Adapter Whnet2		
Connect Host virt	ual adapter name:			DHCP 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.



Mgmt_Docker Chrome Desktop Management Docker station SV	> switch         WSA VM           SW VLAN 10         WSA VM           1/10 192,168.10.1 as GW         DHCP IP 1           DHCP POOL VI AN 10         GW 192	Diudz Workstation 192.168.10.3 2.168.10.1 ction to External VM
172 - 172.25.1.21:33285 - Remote Desktop	Connection	- 🗆 X
Cisco Web Security V ×		
C A Not secure   https://192.168.10.3:8443/r	nonitor/wsa_user_report	\$
IIIIII Cisco S000V CISCO Web Security Virtual Appliance Reporting Web Security Manager Security	Services Network System Administration	Logged in as: admin on Ironport.example.com My Favorites . Options . Support and Help .
My Dashboard		Printable PDF 49
		Printable PDF A
Attention — A You can customize this "My Dashboard" par Some modules are added for you by defaul > Overview.	•	Printagie PDF CY
Some modules are added for you by defaul > Overview. System Overview	ge by adding report modules from different reports. t. The Overview page can be accessed from Reporting	
Some modules are added for you by defaul Overview System Overview Overview Web Proxy Traffic Characteristics	ge by adding report modules from different reports. The Overview page can be accessed from Reporting Overview > System Resource Utilization	
Some modules are added for you by defaul Overview System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second in past mi	ge by adding report modules from different reports. The Overview page can be accessed from Reporting  Overview > System Resource Utilization mute: 0  CPU: 7.5%	
Some modules are added for you by defaul > Overview.  System Overview Overview Web Proxy Traffic Characteristics	ge by adding report modules from different reports. The Overview > System Resource Utilization nute: 0 CPU: 7.5% CPU	
Some modules are added for you by defaul > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second in past mi Average bandwidth (bps) in past mi	pe by adding report modules from different reports.     The Overview page can be accessed from Reporting      Overview > System Resource Utilization     rute: 0         Reporting (Domining 4%: 5.7%)         Reporting (Domining 4%: 5.7%)	
Some modules are added for you by defaul > Overview. System Overview Overview > Web Praxy Traffic Characteristics Average transactions per second in past mi Average response time (ms) in past mi	pe by adding report modules from different reports.     The Overview page can be accessed from Reporting      Overview > System Resource Utilization     rute: 0         Reporting (Domining 4%: 5.7%)         Reporting (Domining 4%: 5.7%)	
Some modules are added for you by defaul System Overview. Overview > Web Pravy Traffic Characteristics Average transactions per second in past mi Average bandwidth (bas) in past mi Average response time (mis) in past mi Total current connec	ge by adding report modules from different reports.     The Overview page can be accessed from Reporting     Overview > System Resource Utilization     rute: 0         Red         R	
Some modules are addeed for you by defaul > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second in past mi Average handwidth (bps) in past mi Total current connect Time Range: Day	ge by adding report modules from different reports.     The Overview page can be accessed from Reporting     Overview > System Resource Utilization     rute: 0         Red         R	
Some modules are added for you by defaul System Overview Overview > Web Praxy Traffic Characteristics Average transactions per second in past mi Average homkisht (bps) in past mi Total current connec Time Range: Day • 22 May 2018 20:00 to 23 May 2018 20:01 (GMT)	ge by adding report modules from different reports. The Overview page can be accessed from Reporting           Image: 0         Overview > System Resource Utilization           Image: 0         CPU- 7.5%           Image: 0         RAM: 50.4%           Image: 0         Reporting / logging disk: 5.2%           System Status Details         System Status Details	
Some modules are added for you by defaul System Overview - Overview > Web Proxy Traffic Characteristics Average transactions per second in past mi Average bandwidth (bps) in past mi Average resonate time (ms) in past mi Time Ranger: Day 22 May 2018 20:00 to 23 May 2018 20:10 (GMT) Overview > Total Web Proxy Activity	pe by adding report modules from different reports.     The Overview page can be accessed from Reporting     Overview > System Resource Utilization     CPU: 7.5%     Reporting / logging disk: 5.2%     System Status Details      Overview > Web Proxy Summary	
Some modules are added for you by defaul System Overview Overview > Web Praxy Traffic Characteristics Average transactions per second in past mi Average homkisht (bps) in past mi Total current connec Time Range: Day • 22 May 2018 20:00 to 23 May 2018 20:01 (GMT)	ge by adding report modules from different reports. The Overview page can be accessed from Reporting           Image: 0         Overview > System Resource Utilization           Image: 0         CPU- 7.5%           Image: 0         RAM: 50.4%           Image: 0         Reporting / logging disk: 5.2%           System Status Details         System Status Details	
Some modules are added for you by defaul Soverview.  System Overview Overview > Web Praxy Traffic Characteristics Average transactions per second in past mi Average transactions per second in in ast mi Average response time (ms) in ast mi Total current connect Time Ranges: Day	pe by adding report modules from different reports.     The Overview page can be accessed from Reporting     Overview > System Resource Utilization     CPU: 7.5%     Reporting / logging disk: 5.2%     System Status Details      Overview > Web Proxy Summary	
Some modules are added for you by defaul System Overview - Overview > Web Proxy Traffic Characteristics Average transactions per second in past mi Average bandwidth (bps) in past mi Average resonate time (ms) in past mi Time Ranger: Day 22 May 2018 20:00 to 23 May 2018 20:10 (GMT) Overview > Total Web Proxy Activity	22 by adding report modules from different reports.     The Overview > System Resource Utilization     The overview > System Resource Utilization     CPU: 7.5%     RAM: 50.4%     Reporting / logging disk: 5.2%     System Status Details      Overview > Web Proxy Summary     Ho data was found in the selected time range	
Some modules are added for you by defaul System Overview - Overview > Web Proxy Traffic Characteristics Average transactions per second in past mi Average bandwidth (bps) in past mi Average resonate time (ms) in past mi Time Ranger: Day 22 May 2018 20:00 to 23 May 2018 20:10 (GMT) Overview > Total Web Proxy Activity	By System Status Details     Overview > L4 Traffic Monitor Summary     Overview > L4 Traffic Monitor Summary	
Some modules are added for you by defaul     System Overview      Overview > Web Praxy Traffic Characteristics     Average transactions per second in past mi     Average bandwidth (bgs) in past mi     Average response time (ms) in past mi     Time Ranges: Day     Y  22 May 2018 20:00 to 23 May 2018 20:10 (GMT)     Overview > Total Web Proxy Activity	22 by adding report modules from different reports.     The Overview > System Resource Utilization     The overview > System Resource Utilization     CPU: 7.5%     RAM: 50.4%     Reporting / logging disk: 5.2%     System Status Details      Overview > Web Proxy Summary     Ho data was found in the selected time range	
Some modules are added for you by defaul     System Overview      Overview > Web Praxy Traffic Characteristics     Average transactions per second in past mi     Average bandwidth (bgs) in past mi     Average response time (ms) in past mi     Time Ranges: Day     Y  22 May 2018 20:00 to 23 May 2018 20:10 (GMT)     Overview > Total Web Proxy Activity	By System Status Details     Overview > L4 Traffic Monitor Summary     Overview > L4 Traffic Monitor Summary	

# **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



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

switch1		
📇 Add uplink 🥜 Edit settings 🛛	C Refresh 🕴 🏠 Actions	
v\$witch1 Type: Port groups: Uplinies:	Standard vSwitch 2 1	
✓ vSwitch Details		* vSwitch topology
MTU Ports Link: discovery Attached VMs Beacon interval  VRU teaming policy Notify switches Policy	1600 4352 (4317 available) Listen / Cisco discovery protocol (CDP) 7 (4 active) 1 Yes Route based on originating port ID	
Reverse policy Rolling order	Yes No	B EVE COMM 89     Cost Sterily Services Engine     Assev 30.3 SPROD
Security policy     Allow promiscuous mode	Yes	MAC Address 00 50 56 a2 07 fb 40 40 40 40 50 56 a2 78 e0
Allow forged transmits	Yes	

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

Management 90 UD			
🥖 Edit settings 🛛 🤁 Refresh 🛛 🏠 Actions			
Management 90 UD           Accessible         Ves           Virtual metrines:         7           Virtual switch:         • vSwitch1           VLAN ID:         4005           Active ports:         5			
vSwitch topology		- Security policy	
		Allow promiscuous mode	Yes
Management 90 UD	Physical adapters	Allow forged transmits	Yes
VLAN ID: 4095 Virtual Machines (7)	m vmnic1, 100 Mbps, Full	Allow MAC changes	Yes
VCentre 90.95			
S2016 EVE 90.201		<ul> <li>NIC teaming policy</li> </ul>	
MAC Address 00:0c:29:b0:c4:5b		Notify switches	Yes
Teve-PRO.98.100		Policy	Route based on originating port ID
MAC Address 00:0c:29:d0:aa:9e		Reverse policy	Yes
		reverse policy	162
B EVE-PROV24			
EVE-PROV24     MAC Address 00.0: 29:3d ae:b8     EVE COMM 89		Rolling order	No

#### **EVE VM Settings**

EVE VM Cloud0 is connected to Portgroup "Management 90 UD"

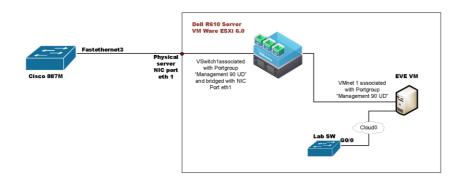
<ul> <li>Hardware Configuration</li> </ul>	
F 🔲 CPU	16 vCPUs
🌉 Memory	32 GB
Hard disk 1	40 GB
Hard disk 2	150 GB
🖶 USB controller	USB 2.0
Network adapter 1	Management 90 UD (Connected)
Network adapter 2	WSA-MGMT (Connected)
▶ 📃 Video card	4 MB
Image:	Additional Hardware

#### 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				-	- 🗆 🗡
File Edit View Options Transf	ar Script Tools Window Help				
Enter host <alt+r></alt+r>	DÜÄƏ¢67? 🛛				
💙 Switch 🗙			4 Þ 💙 887M ×		
S – Sw	uter. T - Trans Bridge. B - Sourd itch. H - Host. I - IGMP. r - Reg mote. C - CVTA. M - Two-port Mac	peater. P - Phone.	▲ LAB_ESXI# LAB_ESXI# LAB_ESXI#Sh cdp neig Capability Codes: R - Router. T Capability Codes: R - Switch H	- Trans Bridge, B - Source Route - Host, I - IGMP, r - Repeater, F	Bridge
Device ID Local I		Platform Port ID	D - Remote, C	- CVTA. M - Two-port Mac Relay	1 110110 /
LAB_ESXi.is.lv Gig 0/0			Device ID Local Intrice	Holdtme Capability Platfor	

### **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



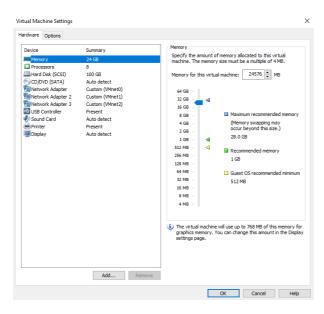
Name VMnet0	Type Bridged	External Connection Intel(R) PRO/1000 PT Dual Port Server Adapter	Host Connection	DHCP	Sub
VMnet1	Bridged	Intel(R) PRO/1000 PT Dual Port Server Adapter Intel(R) PRO/1000 PT Dual Port Server Adapter #2	-	1	2
VMnet2	Host-only	-	Connected	-	192
VMnet8	NAT	NAT	Connected	Enabled	19
<					3
		Add Network Re	move Network R	lename Netw	ork
VMnet Inf	formation				
		Ms directly to the external network)			
		Ms directly to the external network) R) PRO/1000 PT Dual Port Server Adapter	<ul> <li>✓ Autor</li> </ul>	natic Setting	s
Bridg	ed to: Intel(			matic Setting	_
Bridg	ed to: Intel(	R) PRO/1000 PT Dual Port Server Adapter			_
Bridg	ed to: Intel( (shared host's only (connect	R) PRO/1000 PT Dual Port Server Adapter IP address with VMs) VMs internally in a private network)			_
Bridg NAT ( Host-	ed to: Intel( (shared host's only (connect	R) PRO/1000 PT Dual Port Server Adapter IP address with VMs) VMs internally in a private network) Lual adapter to this network			_
Bridg NAT ( Host-	ed to: Intel( (shared host's only (connect ect a host virt virtual adapte	R) PRO/1000 PT Dual Port Server Adapter IP address with VMs) VMs internally in a private network) Lual adapter to this network	NA		

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:

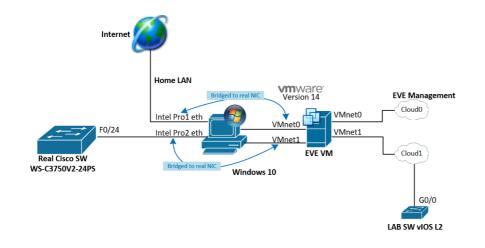
Cloud0→Network Adapter→VMnet0→IntelPro

Cloud1→Network Adapter 2→VMnet1→IntelPro#2



Physical connection scheme and VMware bridging.





EVE Lab scheme.

		( ► vios_sw	Connection to Real SW 37	750G
Console - SecureCRT File Edit View Option:	s Transfer Script Tools Wind	ow Help		- 0
Console x	(Altero			4 Þ 🖌 🖉 MOS_SW 📪
EVE-C3750# EVE-C3750# EVE-C3750# EVE-C3750# EVE-C3750# EVE-C3750#sh cd Capability Code	s: R - Router, T - Tr S - Switch, H - Ho	ans Bridge, B - Source R st, I - IGMP, r - Repeat TA, M - Two-port Mac Rel	er, P - Phone,	Total dge entries displayed : 1 vIGS-Steffs hot paug Capability Codes: R - Bouter, T - Trens Bridge, B - Source Route Bridge Capability Codes: R - Bouter, H - Host, I - IGMP, r - Repeater, P - Phone, D - Remote, C - CVTA, M - Two-port Mac Relay Pewrice ID Local Intrice Holdtme Capability Platform Port ID EVE-C3750.eve.leb cal m 0/0 175 R S I W-C37500 Fas 1/0/24
Device ID	Local Intrfce H	oldtme Capability Pl	atform Fort ID	Gig 0/0 175 R S I WS-C3750V Fas 1/0/24

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



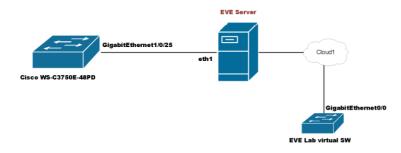
cat /etc/network/interfaces

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 🛛 🗙						
Contentente este a	- 1 -					A
Switch#sh cdp n						
	s: R - Router, T SOS/O SwitchOH D - Remote, C	∣⊃hasthirea	ÍGMP, r - Rep	eater, P -		
Device ID	Local Intrfce	Holdtme	Capability	Platform	Port ID	
NottsCoreRackSw	itch1.DataServic	es.local				
		140		WS-C3750E		
Total cdp entri	es displayed : 1					
Switch#						
						~

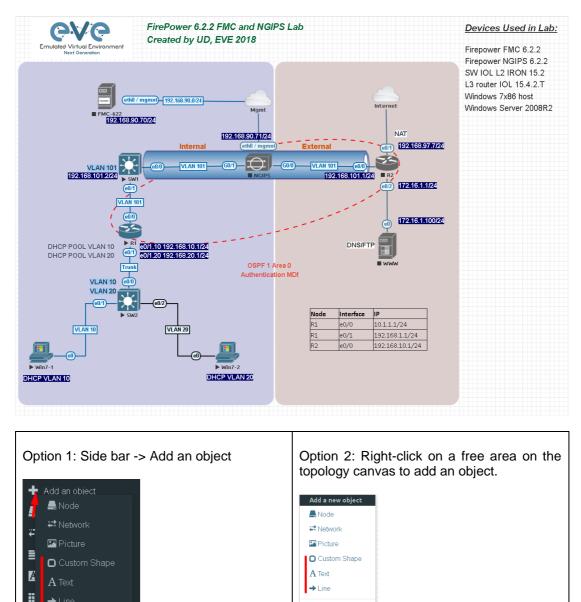


# 11 Advanced EVE Lab features

# 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:



### 11.1.1 Custom shape

→ Line

There are three custom shapes that can be added to the topology: square, round square and circle (sphere).

🔛 Auto Align



#### 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

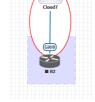
ADD CUSTOM SHAPE *			
Туре	square 🗸		
Name	Name		
Border-type	solid 🗸		
Border-width	5		
Border-color			
Background- color			
Save Cancel			

**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)

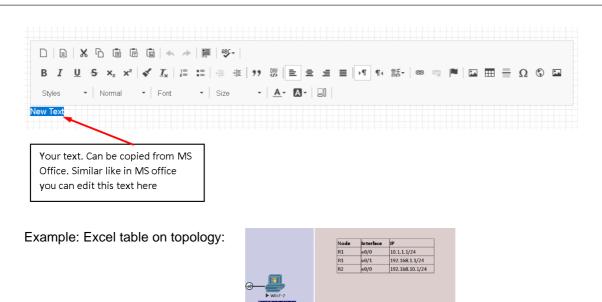


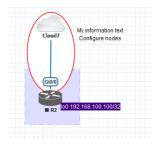
#### 11.1.3 Text

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.



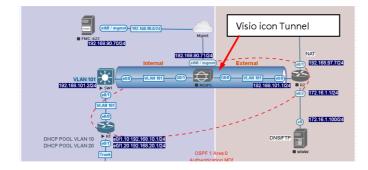






Example: text objects added to the topology.

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.



□ □ X □ 面 面 面 ★ → 厚 哆· B I U S X X I X I = = = = 10 𝔅 = = = 0 ℃ □ Styles · Format · Font · Size · A· □·□ New Text

Step 2: User browse to import your image.

BIUS	通 通 通 (+ ) 第 (学・) x, x <sup>2</sup> ( ズ ) 二 二 ( * 本 ) 33 ( ) 重 日 Normal -   Font -   Size -   <u>▲</u> - 〇・		≈ PI⊒ ⊞ ≣ Ω © ⊒
			New Text
	Image	×	
	General Advanced		
	URL:		
	Upload: Browse No file selected.		
	он	Cancel	

Step 3: Double click on object you wish to resize, then change width and height.

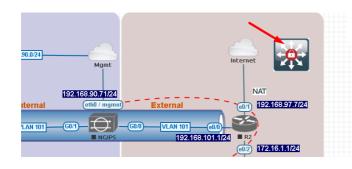
D   B   X D B B B B   ★ →   ♥   ♥+   B I U S ×, ×*   ✔ I <sub>k</sub>   □ □   ± ±   ± ±   Shies +   Normal +   Font +   Size	יי ≜• ⊠- ╗
	Emulated Virtual Environment Next Generation
Image General Advanced	×
Alternative Text	
Widh Height 240 96 Lock Ratio Align VSpace HSpace	Border
Angn     vspace     Hspace <notset> ✓     0     0</notset>	0 0 CK 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.

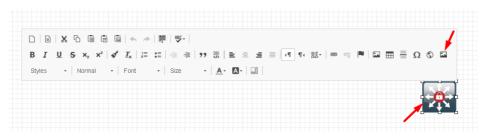




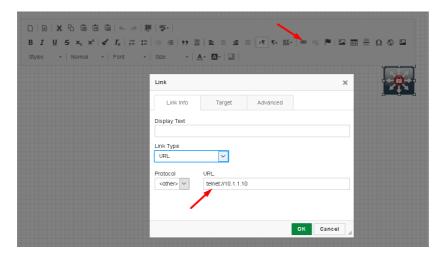
Example: Custom icon added from MS Visio.

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



Step 4. Tab Target, Example: Target/New Window

□       □       X       □       □       □        >                         B       I       U       S       × <sub>e</sub> × <sup>e</sup>         ✓       I <sub>x</sub>         :::       :::       :: <td::< td="">       ::       <td::< td=""></td::<></td::<>	● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	
	Link Link info Target Advanced Target New Window (_blank)	×



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.



### 11.1.6 Line 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 Cance		

**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:





Save Cancel

Style: ifac	e:nod	e23:1								
Style		Link color	Pos ge0/0	Pos n/a	Link Style	Link	Label	Pos Label	Curvines	8
Solid	$\sim$				Bezier	$\sim$			150	٥

### 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.



Save Cancel



Rotate: Used to rotate the object on the	topology.
Name: Used to change the object's name	e.
To save the object, press Save (green bu	utton).

### 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.

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."



•

ontal 🗌 Flip vertica

~

~

The line

- Flip ha

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
	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	v management
4E	Delete uploaded picture from the lab
Ŭ	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 "Topology Canvas" behind it. Clicking again returns to the normal view.

Close "Pictures" window.

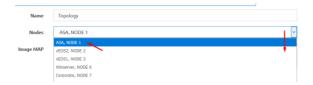
### 11.2.2 Custom topology mapping

This feature allows you to map the lab nodes to your custom topology picture.

Step 1: Open the Image Map window:



Step 2: Select a node, from the dropdown menu, that you want to map to the topology.

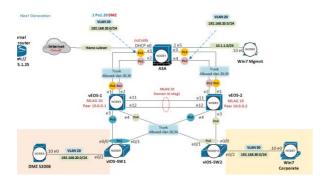


Step 3: Move your mouse over a node icon on the "Image Map" and click to map it. The grey circle means that the node is mapped.









Step 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	menu: Nodes	CUSTOM , NODE outside lab	~	
And map wit	h node on topology	External home.couter currow tellmet:// 172.25.1.25		
Change ima	ge map adding prot	ocol, IP and port.		
Image MAP	<area <="" alt="i&lt;/th&gt;&lt;th&gt;mg" coords="102,286,30" href="proto://CUS" shape="circle" th=""/> <th></th> <th></th>			
Image MAP	<area alt="ir&lt;/th&gt;&lt;th&gt;ng" coords="102,286,30" href="telnet://172.2&lt;/th&gt;&lt;th&gt;2.7.18:23" shape="circle"/>			
Step 6: Save	e 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	C Topology
	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.

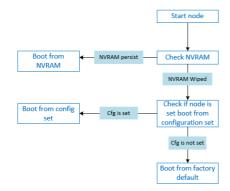
IMPORTANT NOTE: Before you start using the "Multi-configuration Set" feature, you must complete at least one configuration export.



STARTUP-CONFIGS					
		Config Set	Default v		
8	R1	OFF.			
3	R2	OFF			
۵	SW1	067			
۵	SWZ	OFF			

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**

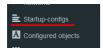
Cisco Dynamips all nodes Cisco IOL (IOS on Linux) Cisco ASA Cisco ASAv Cisco CSR1000v Cisco Nexus 9K Cisco Nexus Titanium Cisco vIOS L3 Cisco vIOS L2



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

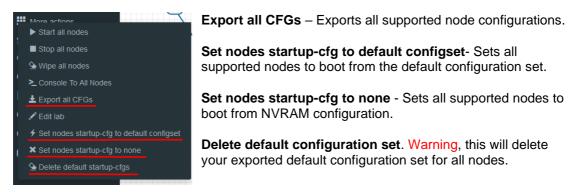
## 11.3.2 Startup config management

#### 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:



#### 11.3.2.2 Individual node commands

#### Select node, right click

<u>-</u>	
- 6	R1 (1)
2	Stop
C	Se Wipe
	Ł Export CFG
	> Capture

**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

\$1/0	\$1/0	Group of R1, R2
0		Start Selected
×	e	Stop Selected
	/	Selected
(600)	(60/0)	Console To Selected Nodes
<u> </u>	_	Ł Export all CFGs
		Set nodes startup-cfg to default configset
► SW1	► SW2	Set nodes startup-cfg to none
		P Horizontal Align
		🚨 Vertical Align
		<ul> <li>Circular Align</li> </ul>
		Delete nodes startup-cfg
		Delete Selected

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-CONFIGS				
	Config Set Default ~	+ 7 z ± ±		
😂 R1	CH#			
🚳 R2	OFF			
SW1	on			
SW2	OFF			

Startup-configs are exported and the "Configuration Export" feature can be used.

STARTUP-CONFIGS				
	Config Set	Default v	+ 0 x ± ±	•
🗃 R1 0ff				
😂 R2 OFF				
SW1 OFF				
SW2 OFF				

#### 11.3.2.5 Startup-config window information

Config Set Default $\vee$	Config set menu
---------------------------	-----------------



S R1	No configuration is available for node. Grey node
😂 R1	Configuration is available and can be used. 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
🕾 R1 🗲 🗖 🕅	Configuration persists and node will boot from the configuration after being wiped
CONFIG SET	Add new config set.
CONFIG SET Name Rode named	Rename config set. The Default Config Set cannot be renamed.
★ Config Set IP Addressing ✓	Select a Config Set and delete it. You cannot delete the Default Config Set. The Default configuration set can be cleaned using the sidebar / More options / <b>Delete</b> <b>default configuration set</b>
÷	Upload configuration set from your local PC
*	Download configuration set to your Local PC
•	Apply Config Set button: Sets all nodes to boot from the chosen config set.
	Config Reset button: Sets all nodes to boot from none. Node will check boot order. If the Wipe function is used, nodes will boot from factory default.
50     60       62     60       7     50/1       6     50/2       7     50/2       6     60       7     50/2	Individual node export or import configuration. Configuration export/import file format is .txt.

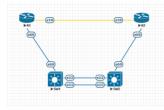


 P Cisco-IOS V & Dark V II 12px V Ace Editor 08	Ace Editor. Different vendor configuration
	edit option. Just Text visual format.

### 11.3.3 Export Default configuration set

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.

			↓ Notifications
S10	<u>(\$1/0</u>	Group of R1, R2, SW1, SW2	Export All: done
▶R1		► Start Selected	
e0/0	e0/0	Stop Selected	R1: config exported
<b>\</b>	/	Wipe Selected	
$\sim$	/		R1: Starting export, please wait
(e0/0)	60/0	Console To Selected Nodes	
		Ł Export all CFGs	R2: config exported
-63/2	e3/2	Set nodes startup-cfg to default configset	Tal. comg orportou
-e3/3	e3/3		
IF SW1	► SWZ	Set nodes startup-cfg to none	R2: Starting export, please wait
		P Horizontal Align	
		Levertical Align	SW1: config exported
		O Circular Align	SW1: Starting export, please wait
		💼 Delete nodes startup-cfg	
		Delete Selected	SW2: config exported
			Over. coming exported
			SW2: Starting export, please wait

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.

Export Selected: Starting



### 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 ~	+ 27 × ±	,po		
🚰 R1	4 N					
2 R2	4 ON					
SW1	4 ON					
SW2	4 N					

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 2	± ±	
Name it a	nd press Add.				
CONFIG SE	т				
Name	IP Addressing				

The new configuration set is created.

Add Cancel

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	+ 2 × ± ±	•
	Default		
	IP 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 🗸	+ 2 ± ±	<b>• •</b>	
🎽 R1	∲ ± ≜		Ace Edito	r OFF
🙆 R2	✤ ON no ip address shutdown			^
SW1	4 ON serial restart-delay 0			
SW2	★ 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.

STARTUP-	CONFIGS				
		Config Set	IP Addressing 🗸	+ 0	× ± ±
25 R1	4 ON	± 4			
😂 R2	4 ON	1			
<ul> <li>SW1</li> </ul>	4 ON	interface Ethernet0/ no shutdown	3		
SW2	4 ON	no ip address shutdown			
		1			
		interface Serial1/0 no shutdown			
		ip address 10.1.1.1 2	255.255.255.252		
		serial restart-delay 0			
		1			
		interface Serial1/1			
		no shutdown			
		no ip address			
		shutdown			
		serial restart-delay 0	3		

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 🗸		+ 🛛 🗙 🛓	*	•
	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 ~	+ 7 1 ± ±	
1       Image: square squ	<pre>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</pre>		Ace Editor

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).



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	+	<b>₽</b> ×	±	¥	

#### 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 ~	+ 🖉 💌	± ±
CONFIG SET Name P Addressing rand rade Cancel	ж.		

### 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 V	+ 2 × ± ±
Opening IP Addressing.zip	×	
You have chosen to open: Tou have chosen to open: P Addressing.zip which is: WinRAR ZIP archive (5.7 kB) from: blob:		
What should Firefox do with this file? Qpen with WinRAR archiver (default Save File		
Do this <u>a</u> utomatically for files like this f	frem now on.	

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.

It is possible to import config sets to your lab.

+	Ø	×	±	*
			1	



File	no file selected		
	Browse Upload Cancel		
File Upload			×
⇒ ~ ↑ 📙 « D	esktop → Exports v č	Search Exports	P
ganize 🔻 New fold	fer	Bii 👻 🛄	0
This PC	Name	Date modified Typ	e ^
	EIGRP cfg set.zip	15/03/2018 12:10 Win	RA
	Firepower_poc_623.zip	12/04/2018 11:16 Win	RA
Desktop	NEW IP Addressing.zip	27/05/2018 00:14 Win	RA
This PC 3D Objects	<ul> <li>EIGRP cfg set.zip</li> <li>Firepower_poc_623.zip</li> </ul>	15/03/2018 12:10 Wir 12/04/2018 11:16 Wir	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	>
25 R1	4 <b>0</b> 0	± ±	You have chosen to open:	
2 R2	4 ON	no ip address shutdown	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 !	ОК	Cancel

### 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 Browse Upload	Cancel
		<b></b>	<ul> <li>File Upload</li> <li>         → → ↑ □ ≪ Desktop → Exports →      </li> </ul>	× v v Search Exports P
🦉 R1	4 ON	* *	Organize  New folder	iii • 🔟 💡
8 R2	4 ON	: hostname R1 !	This PC This	Date modified         Type           15/03/2018 12:10         File folde           27/05/2018 00:31         Text Doct
SW1 SW2	4 ON	boot-start-marker boot-end-marker	™ Documents ↓ Downloads v < File name:	> Text Document (*.txt)
		1		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)	ЕТН	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	▶∎≙±≓⊘	ŝ
z	R2	iol	L3-ADVENTERPRISEK9-M-15.4-	n/a	n/a	n/a	1024	1024	1	1	telnet	Router.png*	None Default	▶≡≙± ≓©	8
1	SW1	iol	i86bi_linux_l2-ipbasek9-ms.high	n/a	n/a	n/a	1024	1024	4	0	telnet	Switch L3.png	IP Addressing	▶■⋟∓ ≒©	ŝ
4	SW2	iol	i86bi_linux_l2-ipbasek9-ms.high ~	n/a	n/a	n/a	1024	1024	4	0	telnet	Switch L3.png*	NEW IP addressing NEW IP addressi M	▶∎≙±≓©	

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				
P 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			
	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.

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.





O Lock Lab

### 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

**MOTE:** 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.

🕄 Refresh topology
@ +
Status
🔳 Lab details
🖈 Lab Task(s)
🟴 Lab Chat
😃 Close lab
🚅 Lock Lab
—

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.

LAB TASK	(S)		
+ New Task			
LAB TASK		×	
Name	1. Switching Add Cancel		

### 11.5.2 Edit a simple task

Step 1: Press the edit button next to the name of the newly created 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.



AB TASK(S)										
C 1. Switching	🖨 Source 🖯 🖯		6	<b>◆</b> ≫   ₩	₩Ç-					
New Task	B I U S X, x <sup>1</sup>   x <sup>2</sup>   x <sup>2</sup>									
	Objectives  • Configure switches' hostnames accordingly diagram.									
	Access area									
	Device	VTP mode	Version 2	VTP domain	VTP password					
	SW-DMZ DLS	transparent	2	evelab	eve					
	S-ALS1	client	2	evelab	eve					
	S-ALS2	client	2	evelab	eve					
						1				
	body div table thody t	r tel p span span span s	pan							
	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)

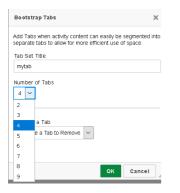
Step 1: Press the edit button next to the name of the newly created task.

1	LAB TASK(S)
	m C 1 Switching
l	+ New Task

Step 2: Click on the "Insert tabs" button.

LAB TASK(S)	
🛍 🕑 🚺 . Switching	© Source 🗟 D Q 👨 D X G @ @ @   ← →   票   ♥
+ New Task	B I U 5 x <sub>z</sub> x <sup>1</sup>   √ I <sub>x</sub>   □ □   ⊕ ⊕   17 ℝ   E Ξ Ξ ≡   +1 5 E   ⊕ ⊕ ₱   □ ⊞ Ξ Ω € □ □ Styles -   Format -   Fort -   Size -   <u>Δ</u> - <u>Δ</u> -   <u>X</u> = □
	New Test

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.



Step 4: To save your your tabbed task, press "Save".

LAB TASK(S)	
<ul> <li></li></ul>	◎ Source   □ □ 尿 奇   回   X □ 茴 茴 茴 ▲ →   睅   Ÿ-   B I U S x <sub>e</sub> x <sup>2</sup>   ダ I <sub>X</sub>   ≔ ≔ 非 北 ) >> ※   主 主 ≡   1 1+ 話・  ∞ 및 ■   回 亜 Ξ Ω © ⊡ C Styles -   Narmal -   Fort -   Sze -   <u>A</u> - [ <b>A</b> - [ <b>A</b> -] X ] =
	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)					
m 🗹 1. Switching	Tab 1 Name	Tab 2 Name	Tab 3 Name	Tab 4 Name	
🕂 New Task	Tab 1 Content New Text				

#### Step 2: Rename your tab,

1 C 🖍 1 Switching	B Source         日
	Tab 2 Name Tab 3 Name Tab 4 Task 1.1 Basic configuration
	Objectives
	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.

					Image: Image	=	¶4 話• ®	ez 🋤 🖪	⊞ ≣ Ω	2 ©
Sty	yles	• Norma	l ( 🝷   Fon	t 🔹   Size	- <u>A</u> - <b>E</b>	J-   X 🔲 🕇	•			
DB	U					f Show B	locks			
	Task 1	1.1 Basic c	onfiguration	Tab 2 Name	Tab 3 Name	Tab 4 Name				
	DIV DIV DIV Tab	1 Content								
	P New Tex	t								

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

Step 1: create new Task and name it and press Add:



LAB TASK	(S)	
♣ New Task	LAB TASK Name EVE cookBook Add Cancel	2

Step 2: Press edit Task and locate PDF button, Press it



Step 3: Navigate to your pdf document, Press OK.

OK Cancel



Step 4: 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)

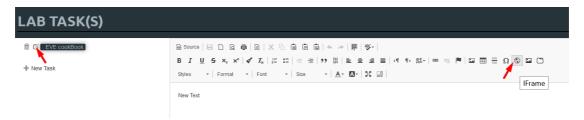
Step 1: Have ready your link to online web site or document. Example:

https://www.eve-ng.net/images/EVE-COOK-BOOK-latest.pdf

Step 2: create new Task and name it and press Add:

LAB TAS	5K(S)	
+ New Task	LAB TASK	×
	Name Online PDF	

Step 3: Press edit Task and locate iFrame button, Press it

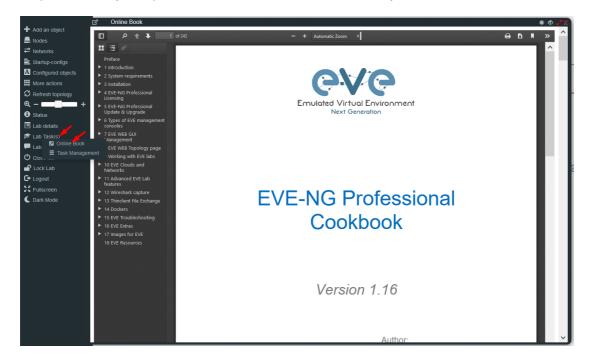


Step 4: Type the path to your online document, set Width to 100%, and Height resolution to 10000.

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

IFrame Propertie	s		×
General	Advanced		
https://www.eve-n	g.net/images/EV	E-COOK-BOOK-latest.po	lf
Width	Height	Align <not set=""> 🗸</not>	
Enable scroll	bars	Show frame border	
Name	Adv	visory Title	
100%	1(	0000	
Long Description	URL		
		OK Cancel	Π.





#### 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.

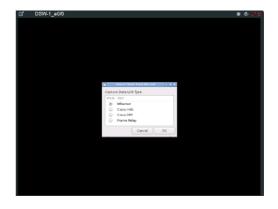
EVE-NG Professional currently supports ethernet interface capturing only.

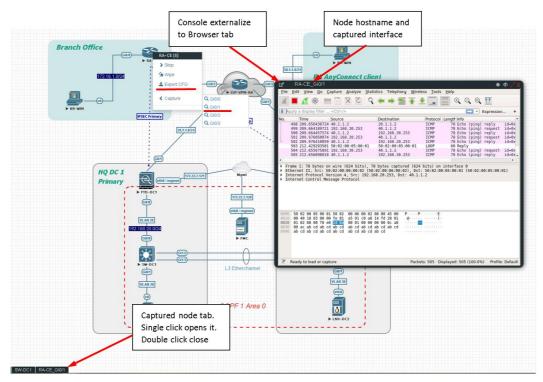
# **12.1 Native Console Wireshark capturing**

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



oply a display filter <ctrl< th=""><th></th><th></th><th></th><th></th><th></th></ctrl<>					
Time Source	e b:cc:00:01:00	Destination aa:bb:cc:08:01:00	Protocol Length Info		
2 4.665564570 aa:bl	b:cc:00:02:00	CDP/VTP/DTP/PAgP/UD_	CDP 369 Device ID: R2	Port ID: Ethernet0/0	
3 5.559412451 aa:bl 4 5.919304670 aa:bl	b:cc:00:01:00 b:cc:00:02:00	CDP/VTP/DTP/PAgP/UD_ aa:bb:cc:00:02:00	CDP 383 Device ID: R1 LOOP 68 Reply	Port ID: Ethernet0/0	
	b:cc:00:01:00	aa:bb:cc:00:01:00	LOOP 68 Reply		
Frame 1: 60 bytes on wire	(480 bits), 60	bytes captured (480	its) on interface 0		
Ethernet II, Src: aa:bb:c Configuration Test Protoc		bb:cc:00:01:00), Dst:	aa:bb:cc:00:01:00 (aa:bb:cc:)	00:01:00)	
Data (40 bytes)	or (coopsack)				
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Open Open Recent Merge Import from Hex Dump Close	Ctrl+O Ctrl+W		ocol Length Info		
Open Open Recent Merge Import from Hex Dump Close Save Save As	Ctrl+O Ctrl+W Ctrl+S		ocol Length Info		
Open Open Recent Merge Import from Hex Dump Close Save Save Save File Set	Ctrl+O Ctrl+W Ctrl+S		ocol Length Info		
Open Open Recent Merge Import from Hex Dump Close Save Save As File Set Export Specified Packets	Ctrl+O Ctrl+W Ctrl+S		ocol Length Info		
Open Open Recent Merge Import from Hex Dump Close Save Save As File Set Export Packet Dissections Export Packet Dissections	Ctrl+O Ctrl+W Ctrl+S Ctrl+Shift+S		ocol Length Info		
Open Open Recent Merge Import from Hex Dump Close Save Save Save Save Save Save Export Specified Packets Export Packet Bytes	Ctrl+O Ctrl+W Ctrl+S		ocol Length Info		
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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

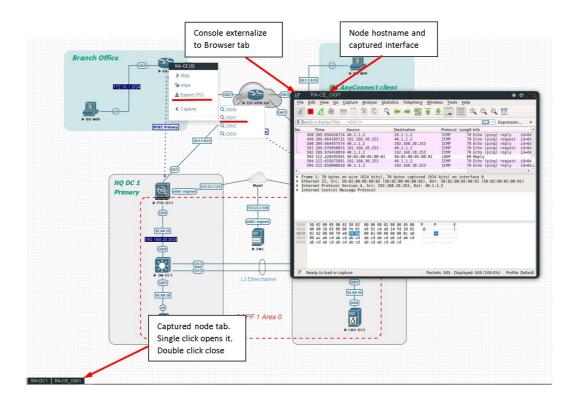
Step 1: Right click on the node you wish to capture, choose "Capture" and then the relevant interface. The capture will open in an HTML session. EVE-PRO supports capture for ethernet and serial interfaces.

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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Canture Data Leik Bys Prote 102* ⊕ Casa Ida
Canture Data Leik Bye  Pick: 102  0 thoma:  0 thoma:
Canture Data Leik Bye  Pick: 102  0 thoma:  0 thoma:
Canatana Data Lak Biga Parka 1007 ⊕ Casarida ⊕ Casarida
Pick DIT B Hhamit Cisco Hide
Ethanist     Cisco Hids
Cisco Hdlc
Frame Belay
Cancel OK





Step 2: To save the captured file to your PC, stop the capture and choose File/Save As

Eile Edit View Go Capture	Analyze Statistics Telephony Wireless Tools Help
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Apply a display filter <ctrl- :<="" td=""><td>&gt;</td></ctrl->	>
No. Time Source	Destination Protocol Length Info
1 0.000000000 aa:bb: 2 4.665564570 aa:bb:	:cc:08:01:00 aa:bb:cc:09:01:00 LOOP 60 Reply :cc:08:02:00 CDP/VTP/DTP/PAgP/UD_ CDP 369 Device ID: R2 Port ID: Ethernet8/0
3 5.559412451 aa:bb:	cc:00:01:00 CDP/VTP/DTP/PAgP/UD_ CDP 383 Device ID: R1 Port ID: Ethernet0/0
	:cc:08:02:08 aa:bb:cc:08:02:08 LOOP 68 Reply :cc:08:01:08 aa:bb:cc:08:01:08 LOOP 68 Reply
5 10.000505000 44.00.	ccloseles association con or hepry
Frame 1: 60 bytes on wire	(480 bits), 60 bytes captured (480 bits) on interface 0
Configuration Test Protoco	::00:01:00 (aa:bb:cc:00:01:00), Dst: aa:bb:cc:00:01:00 (aa:bb:cc:00:01:00)
Data (40 bytes)	
Ele Edit View Go Capture A	analyze Statistics Telephony Wireless Tools Help
Open	Ctri+0 👂 🚈 🐺 💻 🗨 🔍 🔍 🔍 🎹
Open Recent	
Merge	
I Import from Hex Dump	tination Protocol LengthInfo
Close	bb:cc:09:01:00 LOOP 60 Reply
Save	Ctrl+S
Save As	Ctrl+Shift+S
File Set	
Export Specified Packets	
Export Packet Dissections	<b>b</b>
Export Packet Bytes	Ctrl+H
Export PDUs to File	
Export SSL Session Keys	
Export Objects	<b>&gt;</b>
Print	Ctrl+P
Quit	Ctrl+Q
▶ Frame 1: 60 bytes on wire (4	480 bits), 60 bytes captured (480 bits) on interface 0
Ethernet II, Src: aa:bb:cc:0 Configuration Test Protocol	00:02:00 (aa:bb:cc:00:02:00), Dst: aa:bb:cc:00:02:00 (aa:bb:cc:00:02:00)
<ul> <li>Data (40 bytes)</li> </ul>	(coppack)

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.

Elle Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help	
∡ ■ ∅ ◎ ■ 🖹 🛛 🗿 ٩ 🗢 ⇒ 🖀 🖡 보 📃 🔍 ٩, ٩, Ħ	
Apply a display filter <ctri-></ctri->	
No. Time Source Destination Protocol Length Info	
10.000000000 aa:bb:cc:00:01:00 aa:bb:cc:00:01:00 LOOP 60 Reply 2 4.665564570 aa:bb:cc:00:02:00 CDP/VTP/DTP/PAgP/UD_ CDP 369 Device ID:	R2 Port ID: Ethernet0/0
3 5.559412451 aa:bb:cc:00:01:00 CDP/VTP/DTP/PAgP/UD., CDP 383 Device ID:	R1 Port ID: Ethernet0/0
4 5.919304670 aa:bb:cc:00:02:00 aa:bb:cc:00:02:00 LOOP 60 Reply 5 10.000389088 aa:bb:cc:00:01:00 aa:bb:cc:00:01:00 LOOP 60 Reply	
6 15.922998290 aa:bb:cc:00:02:00 aa:bb:cc:00:02:00 LOOP 60 Reply	
7 20.004233085 aa:bb:cc:00:01:00 aa:bb:cc:00:01:00 LOOP 60 Reply 8 25.927447959 aa:bb:cc:00:02:00 aa:bb:cc:00:02:00 LOOP 60 Reply	
9 30.004695844 aa:bb:cc:00:01:00 aa:bb:cc:00:01:00 LOOP 60 Reply	
10 35.935243118 aa:bb:cc:00:02:00 aa:bb:cc:00:02:00 LOOP 60 Reply	
Wireshark - Save Capture File As	
in the second	
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nobody	
Frame 1: 6 Ethernet I	
Configurat:	
Data (40 b)	
File name: mycapturedfile	Save
	Cancel
Save as: Wireshark/ pcapng	* Help
Compress with azip	
compress with ggip	and the second
0000 aa bb cc 00 01 00 aa bb cc 00 01 00 90 00 00 00	
0010 01 00 00 00 00 00 00 00 00 00 00 00	
0030 00 00 00 00 00 00 00 00 00 00 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.

01	a mycapturedf	ïle.pcapng	
	which is: Wir	eshark capture file	
	from: http://	172.22.7.18	
W	hat should Firefo	ox do with this file?	
	● Open with	Wireshark (default)	~
	○ <u>S</u> ave File		
	Do this <u>a</u> uto	matically for files like this from now on.	

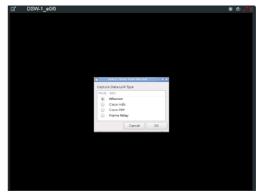


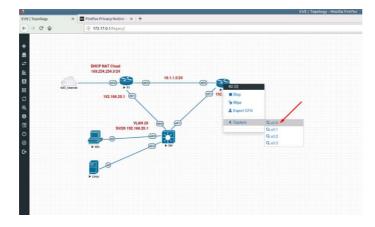
# 12.3 HTML5 Desktop Console Wireshark capturing

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.

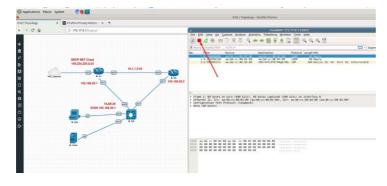
Select the interface frame type which will be captured:

- 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

e	Edit View Go Capture	Analyze Statistics								
	Open Open Recent	ctri+0	) 🖀 🚹 :	Ł 📜 📕	0.0.0	**				
	Merge	,							<b>-</b>	xpression
	Merge Import from Hex Dump		tination	Deater	ol Length Info					
1			bb:cc:00:02		68 Repl	v				_
_	Close	Ctrl+W	bb:cc:00:01	:00 LOOP	60 Repl	.y				
1	Save	Ctrl+S	VTP/DTP/PA	gP/UD CDP			R2 Port	ID:	Ethernet0/0	
	Save As	Ctrl+Shift+S	bb:cc:00:02 bb:cc:00:01		60 Repl					
			bb:cc:00:01		60 Repl 60 Repl					
_	File Set	•	bb:cc:00:02		60 Rep1					
	Export Specified Packets		bb:cc:00:02		60 Repl					
	Export Packet Dissections		bb:cc:00:01		60 Repl					
			P/VTP/DTP/PA				R1 Port	ID:	Ethernet0/0	
	Export Packet Bytes	Ctrl+H	bb:cc:00:02		60 Repl					
	Export PDUs to File		bb:cc:00:01	:00 LOOP	60 Repl	.y				•
	Export SSL Session Keys			(	on interface	-				
					cc:00:02:00		cc.00.03			
_	Export Objects	•	C:00.02.00)	, DSC: dd:DD	. cc.00.02.00	(aa.bb.	CC:00:02	.00)		
	Print	Ctrl+P								
	Quit	Ctrl+Q								

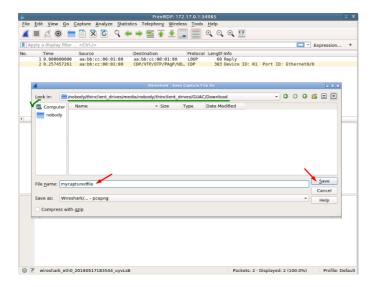


Step 4: Chose the path to save the captured file,

### **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.

	bu have chosen to open:
	mycapturedfile.pcapng
	which is: Wireshark capture file from: http://172.22.7.18
-\	What should Firefox do with this file?
	● <u>Open with</u> Wireshark (default) ~
	⊖ <u>S</u> ave File
	Do this <u>a</u> utomatically for files like this from now 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.

Docker-server-gui Applications Places System 6		* 🚸 🦯 🗙 Tue Dec 18, 17:59 🔝
root's Home	(a)	
TEIP	Create Folder test.tx Create Launcher Create Document No templates in Organize Desktop by Name Empty File	
_	Keep Aligned     Paste     Change Desktop Background	<b>N</b>
thinclient_drives		
<b>N</b> WW		
		<b></b> §

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.



🗹 Docker-serve	r-gui		* 🚸 🦯 X
Discretion Pl	laces System 실		Tue Dec 18, 18:03 🔳
	_		
	Θ	Download 🕒 🖯 🖯	
root's Home	File Edit View G	o Bookmarks Help	
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TFTP	Computer		
	a root		
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	Trash		_
	🖾 thinclie 🛆		test.txt
	Network		
<b>~</b>	Browse Net		
thinclient_drives			
_			
www			
*****			
		0 items	
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.

ocker-server-gui ications Places System 🍉		ی 🕸 🗮 Tue Dec 18, 18:04
John Colored and C		
	Download	000
File Edit View Go		
Se Back ▼ Sor	ward 🔻 🎓 🍥 🕃 🛛 📴 📃 💿 100% 💿 Icon View 🛛 🔽 🔍	
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Computer IFTP		
loot loo		
🛅 Desktop 🖾 File System	[test.txt]	test
Trash		
🖾 thinclie 🚔		test.txt
Network	Opening test.txt	×
Browse Net	opening contact	~
-	You have chosen to open:	
	test.txt	
ww	which is: Text Document	
vvv	from: https://eve-pro.alora.lv	
	What should Firefox do with this file?	
	•re Open with Notepad (default)	~
	⊖ <u>S</u> ave File	
	Do this <u>a</u> utomatically for files like this from now on.	
Download		
	OK	Cancel

**NOTE:** Please refer to section 12 for downloading Wireshark capture files from EVE HTML5 consoles.

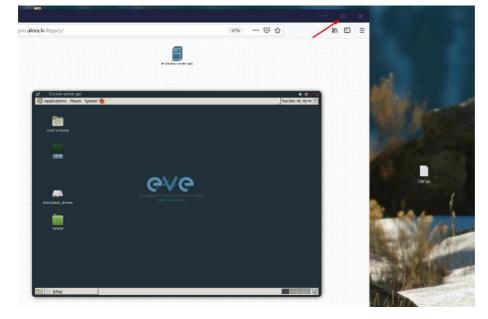
# 13.2 Thinclient File upload

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.

	oro.alora.lv/legacy/		67% 🗵 🟠	lii\ ⊡ ≡	
Image: State stat					
Concerned       Include         Include       Include <t< td=""><td></td><td></td><td></td><td></td><td></td></t<>					
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Step 3: Next you will see a notification in the bottom right corner.



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		FILE TRANSFERS	Clear
🗟 🗋 GUACFS		eve to do. txt	3.2 KB

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.

🗹 Docker-serve	r-gui		* 🔷 🦯 X
Applications Pl	aces System 🕹		Tue Dec 18, 17:47 🔳
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		2 items	
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# **13.3** Other Thinclient file operations

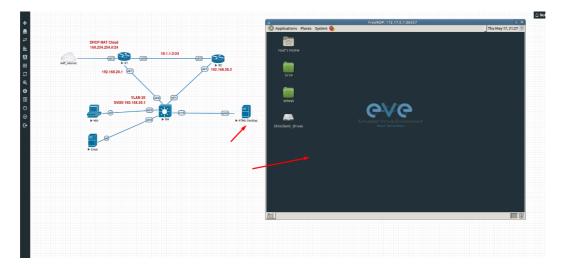
Files that have been uploaded via the thinclient feature can also be transferred to nodes inside your EVE labs via TFTP. In the example below we have uploaded a config file (sw.txt) and would like to transfer it to node R1.

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/

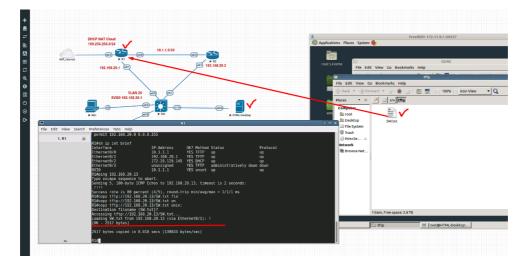
Next, drag and drop your file to the desktop folder named TFTP.



ව Applications Places System 🍉				Tue Dec 18, 18:09
-	0	GUACFS	000	
	File Edit View G	o Bookmarks Help		
root's Home	्रि॰ Back 🝷 💮 For	ward 🔻 🥎 🍥 😋 🛛 📷	💻 🗇 100% 💿 🔻	
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TETP thinclient_drives	Computer Cost cot Cost cop File System Trash thinclie A Network Browse Net	Download	Sw1.txt	
in a start www.		2 items	ii.	
) 🕞 GUACFS 📄 [tftp]				

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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.

▲ IMPORTANT NOTE: EVE Docker stations for html console access are using network 172.17.0.0/16. Please avoid use this network on the EVE management or other clouds or interfaces.

### 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
- python
- 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



t ASAv				* Ø / X	-	cker				* đ
5Av913(config)# end 5Av913# 5Av913# wr µilding configuration ryptochecksum: eb3b2d81 2	e421125 21940f	70 44d7c889			0	ications Places	_	Warning: Potential Security Risk Ahead - Mozilia	Firefox	Fri Nov 29, 22:
60 bytes copied in 0.90					€⇒	C' 🏠	0	https://10.1.1.5/admin/public/asdm.jnlp	🖾 🕁	± ⊪\ ⊡ ®
)K] 6Av913# sh int ip brief					0			Cisco ASDM 7.13(1) for ASA - 10.1.1.5		888
terface				Protoco		View Tools W			e topic to search	o ahaha
gabitEthernet0/0 gabitEthernet0/1 gabitEthernet0/2 gabitEthernet0/3 gabitEthernet0/3 gabitEthernet0/5 gabitEthernet0/6 nagement0/0 Av913# ∎	unassigned unassigned unassigned unassigned unassigned unassigned unassigned 10.1.1.5	YES unset a YES unset a YES unset a YES unset a YES unset a	ndministratively dow ndministratively dow ndministratively dow ndministratively dow ndministratively dow ndministratively dow ndministratively dow np	n down n down n down n down n down		Home Wa Conny Povice Setup Startup With Ratifus Xie Ratifus Xie Startup With Startup With Startup With Startup With System Time	대 문 ttings e/Password	Noncorror () and San & Terreth & Back () Forward () Configuration 2: Device Setup 2: Startup Witzerd Click the "Lawnch Startup Witzerd" button to start the wo Santary Witzerd The Cost Add(M Santap Witzerd" button to start the wo Santary Space Cost Addeption Startup Addplaces configuration and controls to the two words to configuration and controls the two words to configuration in power therein.	•	cisco න්
						A Device Setup		The Startup Wizard can be run at any time and will be initialized with values from the current running configuration.		
						Firewall		running configuration.		
						Remote Acce	ss VPN			
						🔗 Ste-to-Site V	PN			
						Device Mana	trement			

#### 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 14.5)

- 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 14.5)

- 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
- Where 192.168.100.5 is the ASA IP for ASDM connection



DApplications Places System			Fri Nov 29, 22
🕌 Usual applications	•		
• 01 - Information Gathering	•		
🕞 02 - Vulnerability Analysis	•		
💮 03 - Web Application Analysis	•		
🕞 04 - Database Assessment	,		
05 - Password Attacks	Offline Attacks	•	
🔛 06 - Wireless Attacks	A • Online Attacks	×	
👮 07 - Reverse Engineering	A      Passing the Hash tools	•	
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(추종) 09 - Sniffing & Spoofing	🕨 🛃 cewl		
🏃 10 - Post Exploitation	crunch		
🖐 11 - Forensics	hashcat		
12 - Reporting Tools	🕨 💽 john		
🏃 13 - Social Engineering Tools	Incrack		
	OS ophcrack		
	🔧 wordlists		

### eve-ostinato (extra install, section 14.5)

- 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	* () -* )
1	File View Help	₩ \/ <b>*</b>
· <b>R</b>	Ports and Streams	
eng der Ostinato	B ● Port Group 0: [127.0.0	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 <sup>a</sup> next to it, then double click the port group to show or hide the ports in the port of 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? <u>Get Help!</u>
	Port Statistics	S Capture ARP/ND C Capture
	Pr Link State Transmit State Capture State	off 0f 0f 0f 0f 10 10

### 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 14.2 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 NO	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	

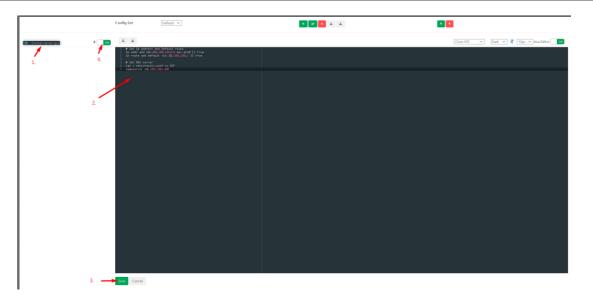
## 14.1.3 Docker Static IP address setup

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 14.2 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
```





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 14.2 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 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 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
nameserver 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 14.2 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>
<img
       width="596" height="239" src="data:image/png;base64,---
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-CONFIGS

Step 3: Press the Save button below and switch the node to boot from the startup-config.





# 14.2 Docker Consoles

To set consoles for EVE Docker stations, right click on node and click Edit. Set the required console type



EDIT NODE		
Template		
Docker.io		*
ID		
7		
Image		
eve-gui-server:latest		•
Name/prefix		
Docker		
lcon		
Server.png		-
RAM (MB)		
256		
Enable DHCP on Eth0		
Ethernets		
1		
Startup configuration		
Default		-
Delay (s)		
0		
Console		
rdp		-
Left	Тор	
1283	247	
Save Cancel		

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

# 14.3 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** 

## 14.4 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			
REPOSITORY	TĀG	IMAGE ID	CREATED 50 GB	SIZE
eve-desktop	latest	ca1333621bd7	12 hours ago	3.65GB
eve-gui-server	latest	9db19c879a17	2 days ago USB 2.0	3.84GB
eve-firefox	latest	0266d108a1bb	7 weeks ago	2.12GB
eve-wireshark	latest	82a009773e89	17 weeks ago VM Manac	er1ei56GBC
root@eve-ng:~#				

If you still see some docker line with <none>

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
<none></none>	<none></none>	cc286e6ac274	16 seconds ago	1.87GB
eve-gui-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

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>

### 14.5 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 update apt install eve-ng-kali-large

Chromium Linux http, to install issue CLI command:

apt update



#### apt install eve-ng-chrome

Ostinato docker, to install issue CLI command:

```
apt update
apt install eve-ng-ostinato
```

Docker-in-docker (DinD) docker. This docker is dedicated for complex docker stacks. Refer section: **14.6.2**. To install issue CLI command:

```
apt update
apt install eve-ng-dind
```

To verify Installed dockers, issue CLI command

dc images				
root@eve-ng:~# do	c images			
REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
eve-dind	latest	6e067b53b145	3 days ago	747MB
eve-gui-server	latest	0c764bb836f9	2 months ago	3.69GB
eve-kali-large	latest	6982b7fa25e1	2 months ago	11.8GB
eve-wireshark	latest	413aae02d43d	4 months ago	1.62GB
eve-firefox	latest	8882ac260c1f	4 months ago	2.15GB
eve-ostinato	latest	63497fd2da4d	4 months ago	1.79GB
eve-desktop	latest	b041a187ded9	4 months ago	3GB
dockergui-rdp	latest	be03f3b46439	4 months ago	1.29GB
root@eve-ng:~#				

# 14.6Third parties dockers

Starting EVE-NG Pro version 2.0.6-52, the third party dockers can be installed on the EVE. However, some limitation still exists. You are free to evaluate by yourself if a specific one is working.

Two main categories of dockers require each a specific method for EVE integration:

- Simple Docker
- Docker's Stack

#### 14.6.1 Simple docker installation

Simple docker is the classic docker running in a standalone mode. You could find large choice of docker images on https://hub.docker.com or create the Docker by yourself.

Complete guide about dockers can be found on https://docs.docker.com/

Note: Internet access is a must. For simple docker, you only have to use:

dc pull <dockername>

Note: "dc" is EVE-NG alias for docker -H tcp://127.0.0.1:4243 which simplify docker operations in the EVE.

Once your new docker is pulled, you are able to use it in EVE-NG topologies. EVE-NG will start it using correct parameters automatically.

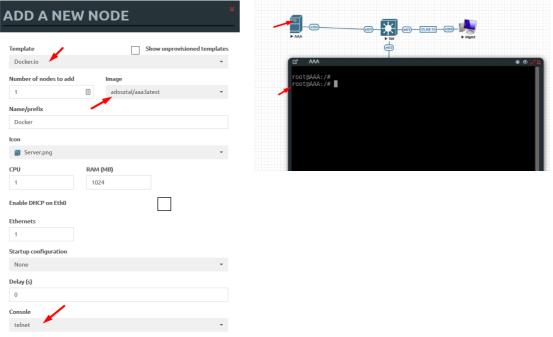
Example: SSH to your EVE. Install adosztal AAA docker:

root@eve-ng:~# dc pull adosztal/aaa



root@eve-ng:~#	dc images			
REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
eve-dind	latest	6e067b53b145	3 days ago	747MB
adosztal/aaa	latest	862d42a1c8f5	8 weeks ago	311MB
eve-gui-server	latest	0c764bb836f9	2 months ago	3.69GB
eve-kali-large	latest	6982b7fa25e1	2 months ago	11.8GB
eve-wireshark	latest	413aae02d43d	4 months ago	1.62GB
eve-firefox	latest	8882ac260c1f	4 months ago	2.15GB
eve-ostinato	latest	63497fd2da4d	4 months ago	1.79GB
eve-desktop	latest	b041a187ded9	4 months ago	3GB
dockergui-rdp	latest	be03f3b46439	4 months ago	1.29GB
root@eve-ng:~#				

New docker use: Open a new lab, add docker and select adosztal/aaa with console in tenet mode.



### 14.6.2 Docker stack installation

Docker's Stack is a complex structure of multi intercommunicating dockers. For example, a Web service docker is using another Database Docker service.

To avoid involve EVE host internal process and network, the new add-on docker is provided: "eve-dind". This add-on is a dedicated docker container allowing to build complex stack. The classic method is based on docker-compose.

The example below illustrates how to build complex docker LibreNMS, Network Management System.

Note: Internet access is a must. SSH to your EVE as root.

Sample: Step 1: On eve cli, type:

apt update apt install eve-ng-dind

Note: install eve-ng-dind add-on docker and is required only once.



#### Step 2: Create a new lab

- Step 3: Add on the lab:
- a. NAT network
  - b. Docker eve-dind (set console to 'telnet' and enable dhcp)
- Step 4: Connect docker to NAT network
- Step 5: Start Docker
- Step 6: Open Docker Console
- Step 7: Type in console:

git clone https://github.com/librenms/docker.git librenms-src

cp -r librenms-src/examples/compose librenms

rm -fr librenms-src

cd librenms

```
docker-compose up -d
```

#### Commit your created docker with new name.

Step 8: Open a cli access to your EVE server

Step 9: Type within the EVE cli: Find your current running container ID using eve-dind image

dc ps -a				
root@eve-ng:~# dc CONTAINER ID	ps -a IMAGE	COMMAND <sup>Q</sup> . Type within t	CREATED	STATUS
PORTS	NAMES	contappos. Type within t	CURATED	STATUS
b96743436dd8	eve-dind:latest 9a4f9db1-4ab2-4e8c	"dockerd-entrypoint.…" -b066-0d25ceeb540b-10-4	About a minute ago	*
7d83609410aa	eve-gui-server:latest 9a4f9db1-4ab2-4e8c-b	"/sbin/my_init"> IINO 066-0d25ceeb540b-10-2	10 hours agol runni	ngpoinhairs rusing eve
13ee6dc804ae	eve-gui-server:latest dd700ee7-f03b-4fd5-8	"/sbin/my_init" ed8-40d1ad2e6f4f-10-14	8 days ago	Exited (0) 16 hours ago

Step 10: *IMPORTANT:* On the Lab UI stop docker. Do not wipe, but stop. Step 11: Commit your created docker with custom name.

dc commit <containerid> eve-librenms

Step 12: On LAB UI: Stop all nodes, Close Lab, Delete Lab

Note, when you add newly created docker in lab, use vendor advised settings, x4 CPU and 8GB Ram for librenms docker. Console: Telnet. Graphic Interface https.



		Mgmt ) Applications Places System 🍅
libreN	MS O C	LibreNMS - Mozilla Firefox
Ibreni	inet addr:172.18.0.1 Bcast:172.18.255.255 Mask:255.255.0.	Problem loading page         x         T           →         C*         Q         Ø
	UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1 RX packets:4 errors:0 dropped:0 overruns:0 frame:0 TX packets:6 errors:0 dropped:0 overruns:0 frame:0 collisions:0 txqueuelen:0 RX bytes:10 (0.0 B)	
	Link encap:Ethernet HWaddr 02:42:22:30:68:49 inet addr:172.17.0.1 Bcast:172.17.255.255 Mask:255.255.0.	LibreNMS
	UP BROADCAST MULTICAST MTU:1500 Metric:1 RX packets:0 errors:0 dropped:0 overruns:0 frame:0 TX packets:0 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:0 RX bytes:0 (0.6 B) TX bytes:0 (0.0 B)	Inertaine           Pissavoid
	Link encap:Ethernet HWaddr 50:0A:00:04:00:00 inet addr:10.1.1.14 Bcast:10.1.1.259 Mask:255.255.255.0 UP ROAD/CST NUMIUG MULTICAST HTU:1500 Metric:1 RX packets:25 errors:0 dropped:0 overruns:0 frame:0 FX packets:25 errors:0 dropped:0 overruns:0 arrier:0 FX packets:2378 (2.3 KiB) TX bytes:1353 (1.3 KiB)	Remember Me     Section     Chaudhortsed access or use shall render the user lable to criminal and/or chill prosecution.

# 14.7 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.

EC	DIT NETV	WORK *
<b>a</b>	ID	2
► Docker	Name/Prefix	NAT
× ×	Туре	NAT
⊠* Docker	Left	462
🔊 Applications Places System 😓	Тор	219
root@Docker:~ File Edit View Search Terminal Help	100	
Bullding dependency tree Reading state information Done Suggested packages: wordtn cdrktt-doc the state information Done generation and the state of the state of the state of upgraded. I newly installed, 0 to renove and 81 not upgraded. Need to get 316 kB of archives. After this operation, 1,598 kB of additional disk space will be used. Get:1 ntror://mitrors.ubutu.con/mitrors.txt xental/main ando4 genisoinage 4 9:11.11:3.Ubutul [316 kB (of 3) Selecting previously unselected package genisoinage. (Reading database ingenisoinage_9X331.1.11:3.ubuntul_and64.deb Unpacking genisoinage (9:1.1.11:3.ubuntu] Processing triggers for nan-db (2.7.5-1) Setting operioding (9:1.1.11:3.ubuntul) root@bocker:=#	and6	
www		

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

lnoot0ovo nav~# da	20				
root@eve-ng:~# dc CONTAINER ID	DS IMAGE	COMMAND	CREATED	STATUS	PORTS
NAMES	THOL	CONTRACE	ORDATED	SIRIOS	101(15
0d4b3f8c314c	eve-gui-server:latest		33 hours ago	Up 2 minutes	
	cb-b838-10d877ecce78-10-5				
root@eve-ng:~# ^C					
root@eve-ng:~#	In the screen above I did	install gentsotmage packa	ige		

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-ng:~# dc	images			
REPOSITORY	TAG	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	a13cb401c8dd	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	0.9.22	877509368a8d	2 years ago	225MB
root@eve-ng:~#				

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

# 14.8 Delete docker image from EVE

Step 1. From EVE CLI issue command to check docker ID to be removed.

dc images

root@eve-ng:~# de	c images			
REPOSITORY	TÃG	IMAGE ID	CREATED	SIZE
eve-geniso	latest	e6dd56c3b26c 🔫 🛌	4 seconds ago	3.19GB
eve-kali	latest	d1fda568e8a0	3 weeksEago <sup>T</sup> GI	Professio4al77GBb
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 Cluster System

The EVE-NG cluster refers to a group of EVE-NG nodes working together as a single entity to provide users with better scalability and availability.

The EVE-NG cluster model is designed to work as a one + many systems, the EVE-NG management server is acting as "Master" node, EVE-NG installations as "Satellite" can be members of this cluster.

One "Master" EVE-NG can have several satellites joined into its cluster but each satellite can only be joined to one Cluster/Master.

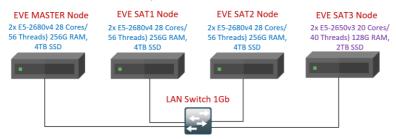
Any existing EVE-NG Pro installation is already a EVE-NG "Master", cluster members will need to be installed as "satellite" and can then easily be joined.

# **15.1 EVE Cluster design models**

### 15.1.1 Bare metal servers cluster

#### Design 1 EVE-NG Cluster Bare HW servers, recommended

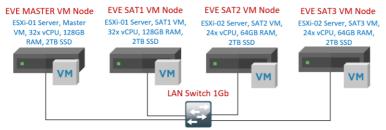
EVE Cluster 208 vCPU, 896GB RAM, 16TB SSD. Cluster members can be different HW configuration. The 1GB LAN connection or better is required



# 15.1.2 ESXi Virtual Machines cluster



EVE Virtual ESXi Cluster 112 vCPU, 384GB RAM, 8TB SSD. Cluster members can be different VM configuration and located on same or different ESXi servers

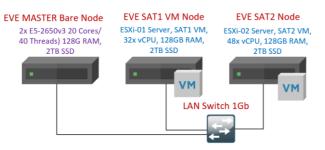




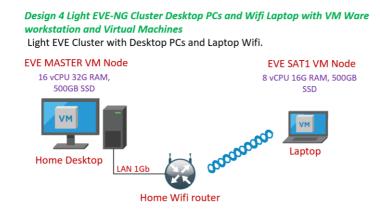
# 15.1.3 Hybrid cluster

#### Design 3 Hybrid EVE-NG Cluster Bare metal and VM Ware ESXi Virtual Machines

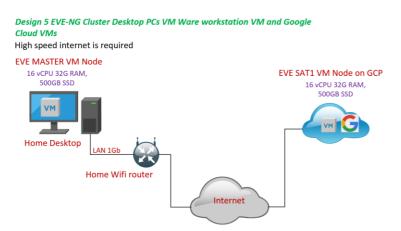
EVE Hybrid Bare HW and ESXi Cluster 120 vCPU, 384GB RAM, 6TB SSD. Cluster members can be different VM configuration and located on same or different ESXi servers



#### **15.1.4 VM Ware workstation light cluster**



# 15.1.5 Google Cloud cluster





# **15.2EVE Cluster pre-requisites**

15.2.1 Firewal	l rules k	between	Master	and	Satellite nodes	5
----------------	-----------	---------	--------	-----	-----------------	---

Node	Protocol	Port	Direction	Source	Destination
MASTER	ТСР	22	ingress and egress	MASTER node IP	SATELLITE nodes IPs
MASTER	UDP	all	ingress and egress	MASTER node IP	SATELLITE nodes IPs
SATELLITE	ТСР	22	ingress and egress	SATELLITE node IP	MASTER Node IP
SATELLITE	UDP	all	ingress and egress	SATELLITE node IP	MASTER Node IP

15.2.2 EVE Cluster internal management network

An EVE Cluster for internal management is using network 172.29.130.0/24. Please avoind use it in your network

15.2.3 EVE Cluster Member's hardware requirements

Any suitable Hardware or virtual device. Please refer Chapter 2

# **15.3 EVE Cluster MASTER Node Installation**

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

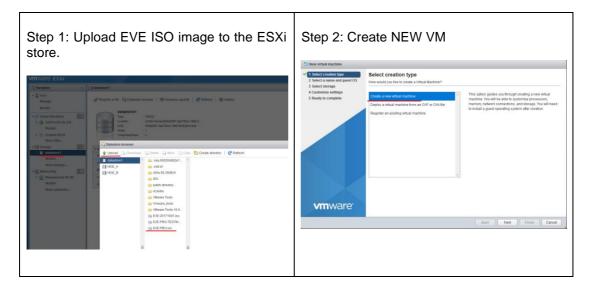
Any existing EVE-NG Pro installation is already a EVE-NG "Master", cluster members will need to be installed as "Satellite" and can then easily be joined. Please refer Chapter 3

**15.4ESXi EVE Satellite VM installation** 

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



# 15.4.1 EVE-NG Satellite ESXi VM Setup and Settings

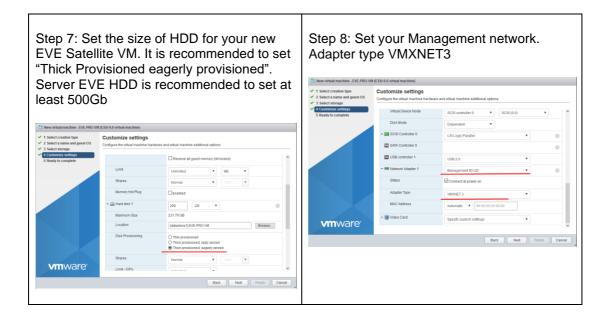


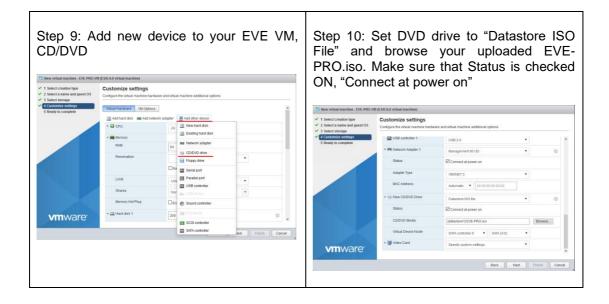
Step 3: Enter the name for your EVE- SAT01 VM and select Guest Operating system Linux and version: Ubuntu 64-bit			Step 4: Se will be stor	red in HE (ESX 6.0 virtual machine) Select storage		
				✓ 3 Select storage	Select the datastore in whic	ch to store the configuration and disk files.
S New virtual machine - EVE-SAT01	(ESXi 6.7 virtual machine)			4 Customize settings 5 Ready to complete		re accessible from the destination resource that you selected. Select the destination datastore for ration files and all of the virtual disks.
<ul> <li>1 Select creation type</li> <li>2 Select a name and guest OS</li> </ul>	Select a name and guest O	9S			Name	✓ Capacity ✓ Free ✓ Type ✓ Thin pro ✓ Access ✓
3 Select storage	Specify a unique name and OS				datastore1	264.75 GB 231.79 GB VMFS5 Supported Single ^
4 Customize settings 5 Ready to complete	Namo				HDD_A	930.75 GB 431.63 GB VMFS5 Supported Single
s Ready to complete	EVE-SAT01				HDD_B	930.75 GB 149.61 GB VMFS5 Supported Single J 3 Items
vmware		0 denotine and they much a unique with each EAD initial actions the stated to provide the appropriate defaults of the the ESO(8.2 related models) Unions Unions (64-bit) Back Next		<b>vm</b> ware		Box Med Proce Caron

Step 5: IMPORTANT Customize your EVE VM CPU Settings. Set CPU Number of Cores and number of cores per processor.	Step 6: As Satellite	Ū	ble RAM for your EVE
	<ul> <li>✓ 1 Select creation type</li> <li>✓ 2 Select a name and guest OS</li> </ul>	Customize settings	vare and virtual machine additional options
Set Intel VT-x/EPT Virtualization to ON	3 Select storage     4 Customize settings     5 Ready to complete	Virtual Hardware VM Options	-
(checked).	o newy to comprete	Add hard disk 🗰 Add netw	iork adapter 🗧 Add other device
		+ 🖬 CPU	24 • 🕡
		- III Memory	
		RAM	84 GB •
		Reservation	• N8 •
			Reserve all guest memory (All locked)
		Limit	Unimited • MB •
		Shares	Normal • nico •
		Memory Hot Plug	Enabled
	<b>vm</b> ware <sup>.</sup>	• 🛄 Hard disk 1	16 GB • 0 •
			Back Net Firsth Cancel



S New virtual machine - EVE-PRO-VM	I (ESXi 6.0 virtual machine)					
<ul> <li>✓ 1 Select creation type</li> <li>✓ 2 Select a name and guest OS</li> <li>✓ 3 Select storage</li> </ul>	Customize settings Configure the virtual machine hardware	and virtual machine additional	options			
4 Customize settings     5 Ready to complete	Virtual Hardware VM Options	-				^
	Add hard disk Mil Add network					
	■ CPU	24 🔻 🚺				
	Cores per Socket	1 V Sockets: 24				
	CPU Hot Plug	Enable CPU Hot Add				
	Reservation		•	MHz •		
	Limit	Unlimited	•	MHz ¥		
	Shares	Normal	•	1000		
	Hardware virtualization	Expose hardware assis	ed virtuali	ization to the gue	# 0S 🚺	
	Performance counters	Enable virtualized CPU	erformar	ce counters		
<b>vm</b> ware <sup>.</sup>	Scheduling Affinity	Hyperthreading Status: Act	/0			v
		l	Back	Next	Finish Ca	ncel





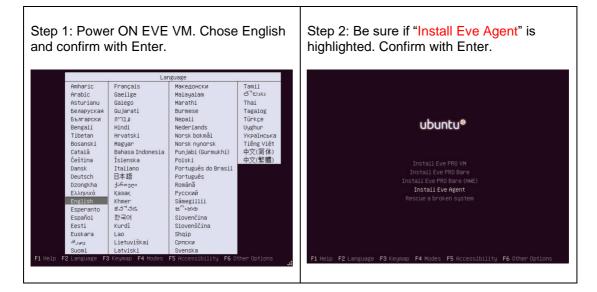


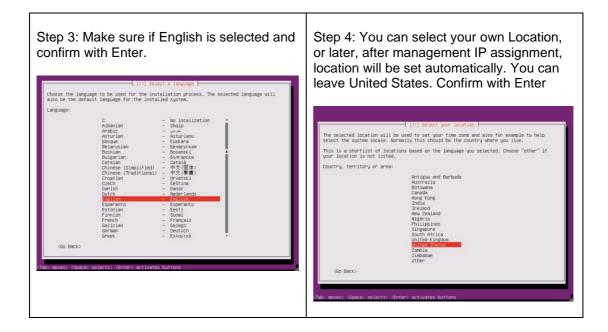
### 15.4.2 EVE-NG Satellite ESXi VM Installation steps

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

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

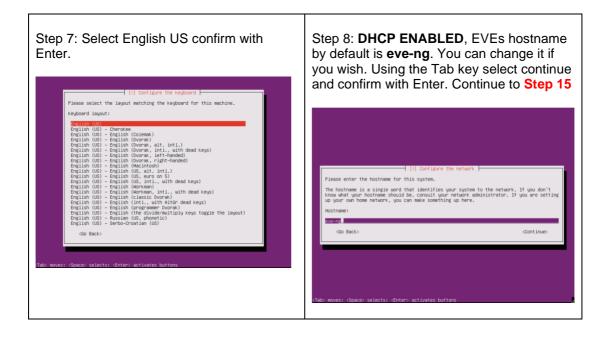
#### Phase 1 (Ubuntu installation)





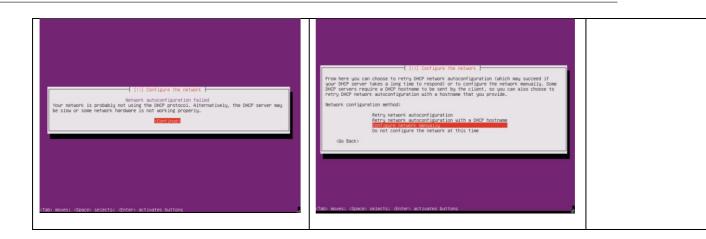


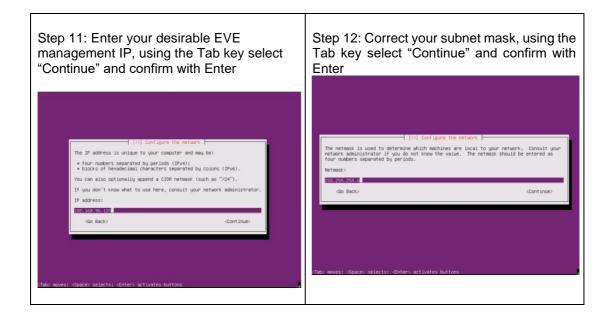




Step 9: <b>DHCP DISABLED</b> /Static IP setup. If you have not enabled DHCP in the network, you must assign an IP address manually. Confirm Continue with Enter.	Step 10: Confirm selection "Configure network manually" with Enter	
---	--	--







Step 13: Correct your Gateway IP, using the Tab key select "Continue" and confirm with Enter	Step 14: IMPORTANT. Name server must respond to the Internet and will be used during the next install steps. Enter your name server IP. Using the Tab key select "Continue" and confirm with Enter
[11] Configure the network         The gateway is an IP address (four numbers separated by periods) that indicates the gateway router, also known as the default router. All traffic that goes outside your LNN (for instance, to the firstered is sent through this router. In rare crumstances, you may have no router: In that case, you can leave this blank. If you don't know the proper senser to this question, consult your network saministrater.         Gateway:         House the proper senser to this question, consult your network saministrater.         Gateway:         Gateway:         Gateway:         (Go Bacc)	[11] Configure the network         The name servers are used to load up host names on the retwork. Plasse enter the JP addresses for host names) of up to 3 name servers, separated by saces, bo not use comes. The first name server in the list uilb be the first to be queried. If you don't want to use any name server, just leave this field blank.         Name server addresses:         1024145/2016011         Gio Back>
(Tab) moves; (Space) selects; (Enter) activates buttons	(Tab) moves; (Space) selects; (Enter) activates butions



Step 15: EVE hostname by default is <b>eve-</b> <b>ng</b> . It can be changed if you wish. Using the Tab key select continue and confirm with Enter	Step 16: Enter your network domain name. You are free to use any, for example: eve-ng.net Using the Tab key select continue and confirm with Enter	
[1] Configure the network.]         Please enter the hostname for this system.         The hostname is a single word that identifies your system to the network. If you don't know what your hostname should be, consult your network administrator. If you are setting up your oun home network, you can make something up here.         Hostname:         Second         Go Bach>         (Continue)         (Go Bach>         (Continue)         (Tabb moves: <gonco> selects: <enter> activates buttons</enter></gonco>	[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 conv. end, edu, orgy. If you are setting up a home your computers.         Domain name:         Weining net         Go Back>         Tabb moves: <space> selects: <enter> activates buttons</enter></space>	

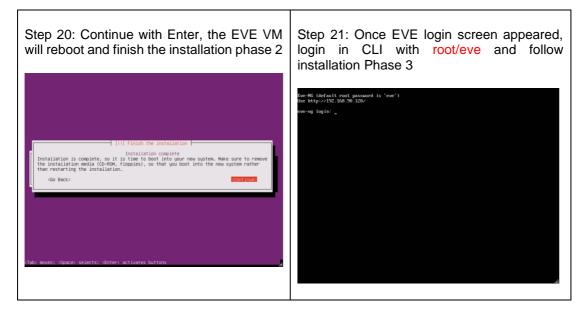
Step 17: If your DNS IP settings are correct, Ubuntu will detect your location from Internet. Confirm with Enter.	Step 18: Select Continue and confirm with Enter.	
[1] Configure the clost.         Based on your present physical location, your time zone is Europe/Riga.         If this is not correct, you may select from a full list of time zones instead.         Is this time zone correct?         GB Back>         (Go Back>         (Tabbu moves; (Space) selects; (Enterp. activates buttons	[1] Configure the package manager         If you need to use a HTT proxy to access the outside world, enter the proxy information here. Otherwise, laves this blank.         The proxy information should be given in the standard form of "http://[user]:pass]@lost[:port]/".         HTTP proxy information (blank for none):         (Go Back)          (Go moves: <space) <enter="" selects:=""> activates buttoms</space)>	

|--|





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



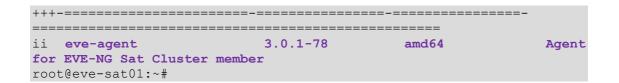
#### EVE Satellite VM Installation Phase 3 (Management IP setup and updates)

Step 19: Setup EVE Management IP address. A Static IP address setup is preferred	Step 20: After your EVE is rebooted, Login to EVE Satellite CLI and type:
Follow steps in section <b>3.5.1</b> for static IP	apt update apt upgrade

**NOTE:** To verify your EVE Satellite server installation type "dpkg -l eve-agent" it should display latest EVE Agent/Satellite version:

```
root@eve-sat01:~# dpkg -l eve-agent
Desired=Unknown/Install/Remove/Purge/Hold
| Status=Not/Inst/Conf-files/Unpacked/halF-conf/Half-inst/trig-
aWait/Trig-pend
|/ Err?=(none)/Reinst-required (Status,Err: uppercase=bad)
||/ Name Version Architecture Description
```





**NOTE:** If your newly installed satellite shows nothing like above, you must check your internet reachability and verify DNS configuration on your Satellite server.

```
root@eve-sat01:~# ping www.google.com
PING www.google.com (172.217.22.164) 56(84) bytes of data.
64 bytes from arn09s11-in-f164.1e100.net (172.217.22.164): icmp_seq=1
ttl=120 time=8.84 ms
64 bytes from arn09s11-in-f164.1e100.net (172.217.22.164): icmp_seq=2
ttl=120 time=8.84 ms
^C
--- www.google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 8.848/8.848/8.849/0.094 ms
root@eve-sat1:~#
```

#### Launch Satellite installation manually

```
root@eve-sat01:~# cd /etc
root@eve-sat01:~# ./eve-setup
```

# **15.5 Bare metal server EVE Satellite installation**

Download Ubuntu 18 Server ISO distribution image:

https://releases.ubuntu.com/18.04/ubuntu-18.04.5-live-server-amd64.iso

Andatory Prerequisites: Internet must be reachable from your Server. This ISO installation requires internet access to get updates and install the latest EVE-PRO version from the EVE-NG repository. DNS must resolve names!

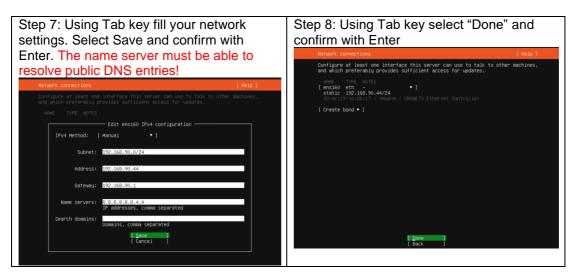
15.5.1 Ubuntu Server Installation Phase 1

Step 1: Create a bootable DVD disk or USB flash drive with an Ubuntu server image. Boot your server from ISO. Make sure that English is selected, Confirm with Enter	Step 2: Select "Update to the new installer" Confirm with Enter Installer update available [Heip] Version 21.01.2 of the Installer is now available (20.07.1+git2.5de9df3e is conferently rounding). You creat the release notes for each version at:
Willkommen! Bienverue! Helcome! Добро пожаловать! Helkom! [ Help ]	https://github.com/CanonicalLtd/subiquity/releases
Use UP, DOAN and ENTER Keys to select your language.	If you choose to update, the update will be downloaded and the installation will continue from here.

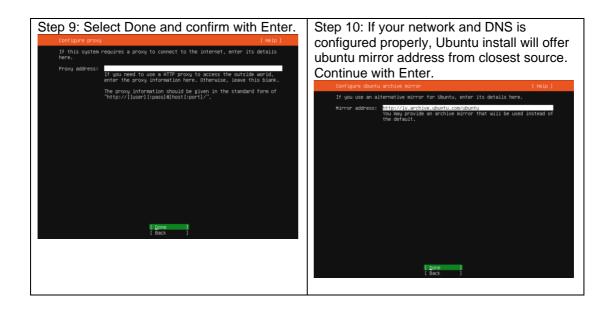


Step 3: Make sure that English is sele and confirm Done with Enter	Static IP address for bare metal server.
Please select your keyboard layout below, or select "Identify keyboard" to detect your layout automatically.	Use Tab key and select ensXXX ethernet interface to edit, confirm with Enter
Layout: [English (US) • ]	
Variant: [ English (US) • ]	Network connections [ Help ]
[ identify keyboard ] <b>Done</b> [ Back ]	Configure at least one interface this server can use to taik to other machines, and which preferably provides sufficient access for updates. Media Trie Auto Tendow acts as 90,44/24 Official Signal 2, Mediane / Woole To Ethernet Controller [ Create bond • ]
	[ Done ] [ Back ]

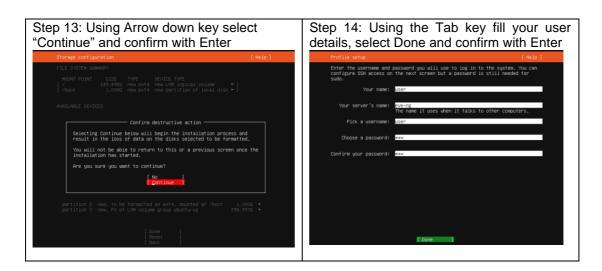




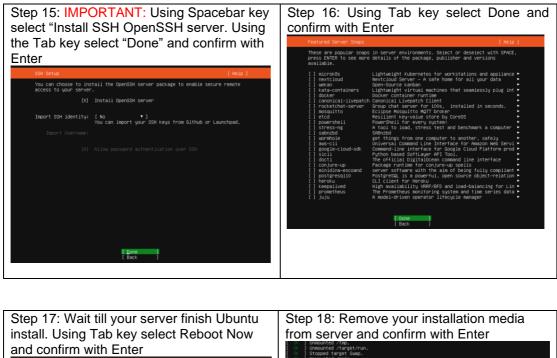


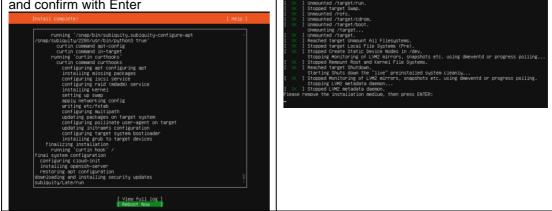


Step 11: Leave all default settings. Make Step 12: Verify your HDD setting, select sure is selected "Use entire disk" and "Set Done and confirm with Enter up this disk as LVM group". Unselected FILE SYSTEM SUMMARY "Encrypt the LVM group with LUKS". Select MOUNT POINT SIZE TYPE DEVICE TYPE: [/ 149.4986 new ext4 new LVM logical volume > ] [/boot 1.0006 new ext4 new partition of local disk > ] Done and confirm with Enter. Configure a guided storage layout, or create a custom one: LVM volume group 298.996G + ] 149.4986 [X] Set up this disk as an LVM group USED DEVICES UPTC SIZE [ubuntu-vg (new) LVM volume group 298.9966 ►] ubuntu-iv new, to be formatted as ext4, mounted at / 149.4986 ► /dev/sda local disk partition 1 new, bios\_grub local disk partition 2 new, to be formatted as ext4, mounted at /boot partition 3 new, PV of LVM volume group ubuntu-va () Custom storage layout [ Don [ Bac













Step 21: Create root user password.	Step 22: Allow SSH access for root user.
passwd root	<pre>nano /etc/ssh/sshd config</pre>
Enter new UNIX password: eve	
Retype new UNIX password: eve	Navigate with arrow down key to
	uncomment
root@eve–ng:~# passwd root Enter new UNIX password:	PermitRootLogin prohibit-password Change to
Retype new UNIX password: passwd: password updated successfully	PermitRootLogin yes
root@eve_ng:~# _	To save edited sshd_config use keys
	combo:
	[Ctrl]+[o] Letter o (oscar)
	Enter
	[Ctrl]+[x] Letter x (x-ray) for exit
	# Ciphers and keying
	#RekeyLimit default none # Logging
	#SyslogFacility AUTH #LogLevel INFO
	# Authentication:
	#LoginGraceTime 2m PermitRootLogin yes #StrictModes yes #MaxWestInTirles 6 #MaxWestInsn 10
	#PubkeyAuthentication yes
	<pre># Expect .ssh/authorized_keys2 to be disregarded by default in future. #AuthorizedKeysFile .ssh/authorized_keys .ssh/authorized_keys2</pre>
	#AuthorizedPrincipalsFile none
	AAuthorizedKeysCommand none #AuthorizedKeysCommandUser nobody
	# For this to work you will also need host keys in /etc/ssh/ssh_known_hosts #HostbasedAuthentication no

Step 23: Restart SSH service on the server.
service sshd restart

Step 24. **IMPORTANT**: expand your server LVM partition to use all size of the HDD volume. Use Putty or other native terminal access as root to the server:

apt clean

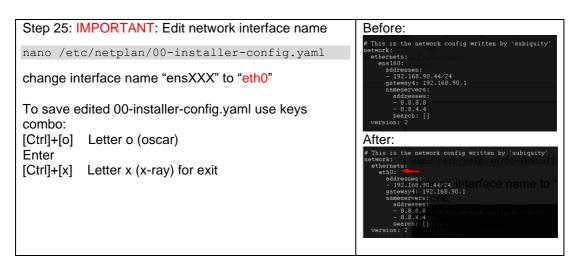
lvextend -1 +100%FREE /dev/ubuntu-vg/ubuntu-lv

resize2fs /dev/ubuntu-vg/ubuntu-lv

root@eve-ng:~#	
root@eve-ng:~# lvextend -l +100%FREE /dev/ubuntu-vg/ubuntu-lv	
Size of logical volume ubuntu-vg/ubuntu-lv changed from 149.50 GiB (38272 extend	ts) to <299.00 GiB (76543 extents).
Logical volume ubuntu-vg/ubuntu-lv successfully resized.	apt clean
root@eve-ng:~# resize2fs /dev/ubuntu-vg/ubuntu-lv	*
resize2fs 1.44.1 (24-Mar-2018)	
Filesystem at /dev/ubuntu-vg/ubuntu-lv is mounted on /; on-line resizing required	lvextend -l +100%FREE /d
old_desc_blocks = 19, new_desc_blocks = 38	
The filesystem on /dev/ubuntu-vg/ubuntu-lv is now 78380032 (4k) blocks long.	
	resize2fs /dev/ubuntu-vg
root@eve-ng:~#	
root@eve-ng:~# df -h	
rootesto ng. a di n	

root@eve-ng:~# d	lf -h					
Filesystem		Size	Used	Avail	Use%	Mounted on
udev		7.9G		7.9G	0%	/dev
tmpfs		1.6G	11M	1.6G		run devzubunt
/dev/mapper/ubu	ntuvg-ubuntulv	294G	9.7G	271G	4%	Abuntu-lv ch
tmpfs		7.9G		7.9G	nt <b>0%</b>	/dev/shmessful
tmpfs		5.OM		5.OM	0%	/run/lock
tmpfs		7.9G		7.9G	0%	/sys/fs/cgroup
/dev/sda2		976M	159M	750M	18%	/boot
tmpfs		1.6G		1.6G	0%	/run/user/0
root@eve-ng:~#						cks = 38





Step 26: Update interface names with single line command:

```
sed -i -e 's/GRUB_CMDLINE_LINUX_DEFAULT=.*/GRUB_CMDLINE_LINUX_DEFAULT="net.ifnames=0
noquiet"/' /etc/default/grub
```

#### Step 27: Update GRUB

update-grub

Step 28: Reboot your server	Step 29: use Putty or other SSH terminal, login in your Server as root. Run update and upgrade commands
	apt update
	apt upgrade
	Confirm "y"

#### **15.5.2 EVE Satellite Installation Phase 2**

Step 30: Launch EVE-Satellite (agent) Internet installation

wget -0 - https://www.eve-ng.net/repo-bionic/install-eve-agent.sh | bash -i

**Verification:** Verify your EVE-Satellite server installation, type "dpkg -l eve-agent" command, it must display latest EVE Satellite version

<pre>root@eve-sat01:~# dpkg Desired=Unknown/Install   Status=Not/Inst/Conf-  / Err?=(none)/Reinst-r</pre>	/Remove/Purge/Ho files/Unpacked/H	halF-conf/Half-inst/	5 5 1
/ Name	Version	Architecture	Description
+++-==================================	4.0.1-3	amd64	Agent for EVE-NG Sat Cluster

Step 31: Reboot EVE-Satellite (agent)



reboot

Step 32: After your Satellite is rebooted, login to the Satellite CLI and type:

apt update apt upgrade

# **15.6 Google Cloud EVE Satellite installation**

15.6.1 Preparing Ubuntu boot disk template

Step 1: Navigate: Navigation Menu/Compute Engine/VM Instances

Step 2: Open the google cloud shell and press: "START CLOUD SHELL"



	Google Cloud Platform	EVE-PRO-PROJECT 👻			5 Ø Ø 🔺 E 🤮
٢	Compute Engine	VM instances			
B	VM instances				
品	Instance groups				
	Instance templates			Compute Engine VM instances	
8	Sole tenant nodes			VWI IIIstalices	
0	Disks			Compute Engine lets you use virtual machines that run on Google's infrastructure. Create micro-VMs or larger instances running Debian,	
٥	Snapshots			Windows, or other standard images. Create your first VM instance, import it using a migration service, or try the quickstart to build a sample kapp.	
	Images			Create or Import or Take the quickstart	
8	TPUs				
35	Committed use discounts				
Ŵ	Marketplace				
a					
<b>в</b> ,	(eve-pro-project) × +	•	/		
ur C e "c	e to Cloud Shell! Type "he Cloud Platform project in t cloud config set project [ gcp@cloudshell:- (eve-pro-	his session is set to eve-pro-project. PROJECT ID1" to change to a different project.			

Step 3: create a nested Ubuntu 18.04 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":

gcloud compute images create nested-ubuntu-bionic --source-imagefamily=ubuntu-1804-lts --source-image-project=ubuntu-os-cloud -licenses https://www.googleapis.com/compute/v1/projects/vmoptions/global/licenses/enable-vmx

Terminal (eve-test-276509) × + -	🖍 Open editor 🔤 😵 🔯 🗄 🔤 🔀
Welcome to Cloud Shell! Type "help" to get started. Your Cloud Platform project in this session is set to <b>eve-test-276509</b> . Uses "gcloud config set project [HROMET.10]" to change to a different project.	
uldig_dzerkal#Bcloudshell:- (eve-test-276509) gcloud compute images create nested-ubuntu-bionicsource-image-family-ub ww.googlaapia.com/computs/vi/projects/vm-options/gloub/licenses/enable-vmg	untu-1804-ltaaource-image-project≃ubuntu-os-cloudiidenses https://w

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





## 15.6.2 Creating VM

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

-	Google Cloud Platform	n	• EVE Test 👻	۹	Search	n resources and products	-	۶.	0	2	÷	9
A	Home		M instances									
۲	Compute Engine	>	VM instances									
٢	Kubernetes Engine	>	Instance groups									
()	Cloud Functions		Instance templates			Compute Engine						
			Sole-tenant nodes		``	VM instances						
)>	Cloud Run		Machine images			Compute Engine lets you use virtual machines th	hat run on Google's					
STOP	405		Disks	infrastructure. Create micro-VMs or larger instances running Debian, Windows or other standard images. Create your first VM instance,								
5108	AGE		Snapshots		ir	import it using a migration service or try the quick sample app.						
۲	Bigtable		Images									
522	Datastore	>	TPUs			Create or Import or Take the quicks	start					
~	Firestore	,	Committed use discounts									

Step 2: Assign the name for your VM

Step 3: Set your own region and zone

Step 4: Edit your Machine Configuration. General-Purpose. Choose the series of CPU platform, Preferred are *Intel CPUs Skylake or Cascade*.

Step 5: Choose your desirable CPU and RAM settings. IMPORTANT: "Deploy a container image" must be UNCHECKED.



Name ② Name is permanent						
eve-1						
Labels 🕐 (Optional)						
	+ Add	label				
<b>Region (?)</b> Region is permanent		<b>Zone 🕜</b> Zone is permanent				
europe-west2 (Lond	on) 🗸 🗸	europe-west2-c				
Machine configuration						
Machine family						
General-purpose	Memory-optimised	ed Compute-optimised				
Machine types for co	mmon workloads, opti	nised for cost and flexibility				
Series						
N1		•				
Powered by Intel Sky	lake CPU platform or o	ne of its predecessors				
Machine type						
n1-standard-16 (1	6 vCPU, 60 GB memo	pry)				
	vCPU	Memory				
	16	60 GB				

Container 
Container mage to this VM instance. Learn more

Step 6: Select Boot disk. Press Change

Boot disk 🔞		
$\bigcirc$	New 10 GB standard persistent disk Image Debian GNU/Linux 9 (stretch)	Change

Step 7. Select Custom images and the *custom boot image you created previously*. Choose HDD disk type and size. HDD size can vary depends of your needs.

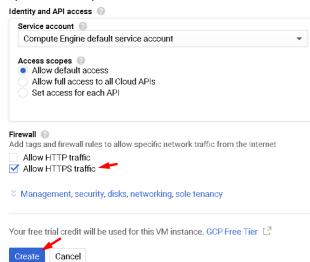


#### Boot disk

Select an image or snapshot to create a boot disk; or attach an existing disk. Can't find what you're looking for? Explore hundreds of VM solutions in Marketplace.

Public images	Custom images	Snapshots	Existing disks	
r abno intageo	ouotonningoo	onaponoto	Externing dione	
Show images from	1			
EVE Test				
Show deprec	ated images			
Image 💊				
nested-ubuntu-	oionic			
Created on 22 Ju	ın 2020, 22:50:36			
Boot disk type 📀	×		Size (GB) 🕜 🔪	
SSD persistent	diale	_	60	

#### Step 7: Allow https traffic and create VM



## 15.6.3 EVE GCP Satellite installation

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





📦 uldis_dzerkals@eve-pro: ~ - Mozilla Firefox –		$\times$
🛛 🚔 https://ssh.cloud.google.com/projects/eve-test-276509/zones/europe-west2-a/instances/eve-pro?authuser=0&hl=+ ••••	⊠ ☆	≣
<pre>* Documentation: https://help.ubuntu.com * Management: https://landscape.canonical.com * Support: https://ubuntu.com/advantage</pre>		<b>\$</b> -
System information as of Mon Jun 22 21:57:41 UTC 2020		
System load:1.14Processes:147Usage of /:3.0% of 48.29GBUsers logged in:0Memory usage:1%IP address for ens4:10.154.0.3Swap usage:0%0%		
0 packages can be updated. O updates are security updates.		
The programs included with the Ubuntu system are free software; the exact distribution terms for each program are described in the individual files in /usr/share/doc/*/copyright.		
Jountu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.		
Ildis_dzerkals@eve-pro:~\$		

Step 2: Launch installation with:

Type the below command to become root:

sudo -i

#### Start EVE-Satellite installation

wget -O - https://www.eve-ng.net/repo-bionic/install-eve-agent.sh | bash -i

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

apt upgrade **Confirm with Y** 

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



#### Step 5: VERY IMPORTANT: Setup IP

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

	Boot Password k Type the Root Password: x Iqqqqqqqqqqqqqqqqqqq x x
eveprogcp0eve-pro:∼\$ sudo -i	

Now follow the IP setup wizard, section: 3.5.2.



#### **IMPORTANT:** set IP as **DHCP**!

Your EVE-Satellite public IP will be used for join satellite to the MASTER node.

= Filter VM instances									. •
Name 🔿	Zone	Recommendation	In use by	Internal IP	External IP	Co	onnec	t	
🗌 🔮 eve-pro	europe-west2-c			10.154.0.2 (nic0)	35.246.119.90 🗋	ss	SH	•	:

## 15.6.4 GCP Firewall rules for Cluster

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

=	Google Cloud Platform	m	EVE-PRO-PROJECT	-	
♠	Home		M instances	CREATE IN	
T STOP	Pins appear here 🔞	>	Filter VM instances		
	Bigtable		Name A Zone	Recomm ∺west2-c	
		>	Coropie Garop		
(* 88		>			
<b>(</b> )}	SQL				
*	Spanner				
ű	Memorystore Filestore				
NETV	VORKING				
Ħ	VPC network	>	VPC networks		
品		>	External IP addresses Firewall rules		
9	Network Service Tiers	,	Routes VPC network peering		
Step	2: Create new fire	ew	all rule		
			ATE FIREWALL RULE	C REFRESH	
inco	wall rules control incoming or outg ming traffic from outside your netv 2: App Engine firewalls are manage	work	is blocked. Learn more	ault,	

Step 3: Create an ingress and egress FW rules; allow UDP ports all and TCP 22



	Name	Туре	Targets	Filters	Protocols/ports	Action	Priority	Network 个	Logs
	egress-eve	Egress	Apply to all	IP ranges: 0.0.0.0/0	tcp:0-65535	Allow	1000	default	Off
<ul> <li>Image: A set of the set of the</li></ul>	sat-1-rule-egress	Egress	Apply to all	IP ranges: 0.0.0.0/0	udp	Allow	1000	default	Off
	default-allow-http	Ingress	http-server	IP ranges: 0.0.0.0/0	tcp:80	Allow	1000	default	Off
	default-allow-https	Ingress	https-server	IP ranges: 0.0.0.0/0	tcp:443	Allow	1000	default	Off
	ingress-eve	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:0-65535	Allow	1000	default	Off
<ul> <li>Image: A set of the set of the</li></ul>	sat-rule-ingress	Ingress	Apply to all	IP ranges: 0.0.0.0/0	udp	Allow	1000	default	Off
	default-allow-icmp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	icmp	Allow	65534	default	Off
	default-allow-internal	Ingress	Apply to all	IP ranges: 10.128.0.0/9	tcp:0-65535 udp:0-65535 icmp	Allow	65534	default	Off
	default-allow-rdp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:3389	Allow	65534	default	Off
<ul> <li></li> </ul>	default-allow-ssh	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:22	Allow	65534	default	Off

# **15.7 Cluster Management**

## 15.7.1 Join Satellite nodes to the Master

Step 1: Make sure that you have reachability between Master and Satellite nodes and firewall rules are configured in your network if FW is set between them. Firewall rules Section 15.2.1

#### Step 2: Navigate: System/Cluster Management

Errodi			🏦 Main	🗲 Management 🗸	🗐 System 👻	Information -	i Licensing 🛨	©2021 Eve-NG					
4	File manage	r Current posit	tion / root		<ul> <li>Cluster Ma</li> <li>System sta</li> <li>System lo</li> </ul>	<ul> <li>Cluster Management</li> <li>System status</li> <li>System logs</li> </ul>							
	Cluster management terps canange for to cluster												
Clu	ster members										+Add member		
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action			
	master •	48		157	4	1		1689	55		^		
	sat1 • sat2 •	32 32	1	63		1		308	10	0 0 0 8 0 0			
<		34									>		

Step 3: Press Add Member and fill your Satellite details:

- Member's Name: use any suitable name for your satellite node
- IP address: Your satellite IP. In GCP version it will be public IP
- Member's Root Password: Your Satellite node password
- Press Add Member

Add New Cluster Member	
Member's Name*	
sat01	
IP address	
10.1.1.10	
Member's Root Password*	
•••••	
	Add Cancel



Step 4: After certain of time Satellite will join to the Master

uster manageme	nt here you can manage EVE-F	NG Cluster							# 🖉 Kystern	- 🗑 Clusterman
Cluster members										(Add memb
Id Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
0 master-	48		157	4	1		1689	55		
1 sati.	32	8	63		1		308	18	8 0 C	
2 sat2 •	32		63		1		308	-11	800	

## 15.7.2 Remove Satellite nodes from the Master

Step 1: Navigate: System/Cluster Management

#### Step 2: Press Remove Member

uster manageme	ent here you can manage EVE-I	NG Cluster							# - 🗲 System -	₩Cluster mana
Cluster members										(Add member
Id Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
o master •	48		157		1		1689	55		,
1 satl.	32	8	63		1		308	18	8 0 C	
2 sat2.	32		63		1		308		8 0 C	
<									Remove memb	er >

15.7.3 Re-join Satellite nodes from the Master

Step 1: Navigate: System/Cluster Management

Step 2: Press Remove Member

uster manageme	ent here you can manage EVE-	NG Cluster							# > ÆSystem >	Cluster manageme
Cluster members										(Add member
Id Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
o master •	48		157	4	1		1689	56		^
1 satl.	32	8	63		1		308	16	8 0 C	
2 sat2.	32		63		1		308	11	8 0 C	$\sim$
<									Remove memb	er >

Step 3: Go to Satellite node CLI and rest IP address. It is necessary to refresh SSH key for rejoin Satellite to the Master.

CLI:

Login as root to the Satellite node and type:

rm -f /opt/ovf/.configured
su -

EVE Satellite will initiate IP setup wizard. Follow Section 3.5.1

Step 4: Join Satellite accordingly Section 15.7.1

15.7.4 Users assignment to the dedicated Satellite

Step 1: Navigate to Management/User Management

E	CALL Conference of the second		Main	🖋 Management 🗸	🗐 System 🛨	🕄 Information 👻	🕄 Licensing 🛨	©2021 Eve-NG
	luster mana	agement	here you can	曫 User managen 🗇 Node manager				
	Cluster mem	bers		🖨 Lab manageme	ent			

Step 2: Create or Edit existing user



@\	Professio	nal 🐗 Main 🌙	Management + 🖉 System + 🕚	Information - OLicensing - ©2	021 Eve-NG								23:40 🛔 uldis 🕪 Sign e
Jser	management	here you can manage	EVE-NG users										希 - チManagement - 管Usermanageme
Dat	abase of users												≪Add user Nore info <del>▼</del>
	Username	Authenticator	Email	Name	Role	Sat	Disk Usage	Valid From	Expiration	Max CPU	Max RAM (GB)	POD	Actions
•	admin	internal	admin@eve-ng.net	EVE Administrator	admin	any	0.02 GB			Unlimited	Unlimited	0	🕼 Edit 🖉 Nick 🔒
	chris	internal	chris@eve.test	Chris	editor	any	0 GB			Unlimited	Unlimited	1	Car Edit @ Kick 🔒

Step 3: Choose the Satellite to be assigned for this user.

Step 4. User will be locked and will use only selected Satellite node. Editor and User roles cannot change or choose other satellite members.

Use only [A	-Za-z0-9 Jchars				
Role Lab	Editor $\vee$				
Satellite	any 🗸				
	any				
Account	master				
From	sat1	0	to	-1	0
POD*	sat2				

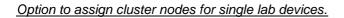
# **15.8Creating EVE labs in Cluster**

Step 1: Create new or edit your existing lab

Step 2: On lab Node right click/edit

Step 3: Select preferred Satellite node and click save

Default	•		master	•
Delay (s)		$\cdot$	master	
0		1	sat1	
Left		1	sat2	
1434		1	any	



Lab Side bar/Nodes, column SATELLITE, Select your cluster satellites for devices in the lab.

:0	NFIC	iUR	ED N	IODES																•
ID	NAME	\$	ATELLITE	TEMPLATE	BOOT IMAGE	CPU	CPU USAGE	CPU LIMIT	IDLE PC	NVRAM (KB)	RAM (MB)	RAM USAGE	ЕТН	SER	CONSOLE		ICON	STARTUP-CONFIG	ACTIONS	
	SW-H1		master 🗸	iol	i86bi_linux_12-adventerprisek9-ms.SSA $^{\vee}$	n/a	0%	n/a	n/a	1024	1024	0%	4	0	teinet		Switch L32.png 🔹	Default $\vee$	►∎%± 0	÷
	SW-I		master 🗸	iol	i86bi_linux_l2-adventerprisek9-ms.SSA $\vee$	n/a	0%	n/a	n/a	1024	1024	0%	4	0	teinet		Switch2.png •	Default $\vee$	▶■9∓ Q	8
	Admin-F	c	master 🗸	docker	eve-gui-serventatest $\sim$	2	0%	n/a	n/a	n/a	4096	0%	1	n/a	rdp	~	📲 Desktop3.png 🔹	Default $\vee$	▶∎9∓Q	8
	FTD		master 🗸	firepower6	Firepower6-FTD-6.7.0-65	4	0%	n/a	n/a	n/a	8192	0%	5	n/a	vnc	~	ASA2.png -	None	▶ <b>■</b> 97∓ Q	8
	ISP-R		master 🗸	iol	i86bi_LinuxL3-AdvEnterpriseK9-M2_15 ${\scriptstyle\checkmark}$	n/a	0%	n/a	n/a	1024	1024	0%	1	0	teinet		Router2.png *	Default 🔍	► <b>=</b> 9 ∓ 0	ŝ
	DMZ-Se	rver	master 🗸	docker	eve-gul-server:latest	1	0%	n/a	n/a	n/a	1024	0%	1	n/a	rdp	$\sim$	Server_WEB1.png*	Default $\vee$	▶■9∓ Q	8
	HQ-PC		sat1 🗸	win	win-10-x86-20H2v3 🗸	2	0%	n/a	n/a	n/a	4096	0%	1	n/a	rdp-tis	$\sim$	🛔 Desktop2.png 🔹	None 🗸	▶■ <u>9</u> ±0	8
	SW-H2		master ~	ial	i86bi_linux_l2-adventerprisek9-ms.SSA $^{\vee}$	n/a	0%	n/a	n/a	1024	1024	0%	1	0	telnet		Switch2.png 🔹	Default 🗸	▶■ <u>9</u> ±0	
	FMC		sat2 🗸	firepower6	Firepower6-FMC-6.7.0-65	4	0%	n/a	n/a	n/a	28672	0%	1	n/a	vnc	~	🗐 FMC.png 🔹	None 🗸	▶ <b>■</b> 9±0	8
)	Internet	PC	master 🗸	docker	eve-gui-server:latest 🔍	1	0%	n/a	n/a	n/a	1024	0%	1	n/a	rdp	~	🛔 Desktop2.png 🔹	Default 🗸	►∎⊕± ©	8
1	Kali		sat1 🗸	docker	eve-kali-large:latest $\vee$	4	0%	n/a	n/a	n/a	8192	0%	1	n/a	rdp	~	🕎 Kəli.png 🔹	Default 🗸	▶ <b>■</b> 9±0	

	Ľ	
-e0/0-	SW-I (2)	
VLAN173 I	Start	
VLAN174 I	Se Wipe	
	🕑 Edit 🔶	
	🛱 Delete	



#### 15.8.1 Master images synchronization with Satellites

Once you have assigned certain lab device to use cluster Satellite node and start it, the automatic rsync process is initiated from Master node copy necessary image to the Satellite cluster member. During rsync process between Master and Satellite lab device will display "Clock" sign beside device. After image rsync process is completed, Lab device will turn sign to "Play", running state.



Large size lab devices/images, rsync process can take some time. It depends of the network speed between the cluster members.

Once the image is copied into Satellite node, lab device will start immediately. RSYNC process initiates only once if particular device image does not exist on Satellite node.

## 15.9 Cluster system monitoring

#### **15.9.1 Cluster Monitoring page**

#### Navigate: System/Cluster Management

Information columns displaying live information about cluster members utilization Satellite nodes have option to reboot or shutdown.

If the cluster is healthy and fully functional, the Status column will display "GREEN" dot beside the cluster members.

lus	ster members	5								+Add :	member
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
)	master •	48		157	4	1		1689	55		^
L	sat1 •	32		63	10	1		308	18	8 U C	
2	sat2 •	32		63		1		308	11	8 U C	

If the Satellite node is down or not reachable, the Status column will display "RED" dot

Clus	ster members									+Add	member
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
0	master •	48		157	4	1		1689	55		· · · · · · · · · · · · · · · · · · ·
1	sat1•	32		63	10	1		308	18	0 C	
2	sat2 • 🔫	32		63		1		308	11	<b>B</b>	

If the Satellite node is reachable but malfunctioning, Agent service is stopped or crashed, Status will be displayed as Yellow DOT. (stop/reboot possible)

iste	er management -	iere you can manage EVE-NG	Cluster						*	○ 🗡 System > 留Cli	ustor manag
Clus	ter members									+4	dd membe
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
0	master •	24	6	63	5	4		205	79		
-	satl.	a		31	1	1		40	40	2	
	sat2 • gcp-sat •	4		29		0		40	12	50C	



#### 15.9.2 Satellite disaster recovery

Use case: If a satellite node crashed, was powered off while lab devices were running on it or the connection to the satellite was lost, the Master node will still have these nodes in a running state even if this is no longer the case.

To remediate this situation, you have to purge the local state information about the satellite before recovering the satellite, booting it back up or recovering the connection.

#### Step 1: To verify status of lab nodes:

Navigate Management/Nodes management. If you observing that crashed Satellite nodes are still alive and visible follow Step 2

Running node	(s)								
Labname	Lab ID	Username	Sat	Node Name	CPU usage (%)	RAM usage (%)	Disk usage (GB) 🛛 🗸	Template	Action
/A_Trunka	1	uldis•	master	PC5-2	0	0.03	0.0035	docker	<b>x</b>
/A_Trunka	1	uldis •	master	PC5-1	0	0.02	0.0035	docker	🖵 🗙
/A_Trunka	1	uldis •	master	PC10-2	0	0.02	0.0035	docker	🖵 🗙
/A_Trunka	1	uldis •	master	PC10-1	0	0.02	0.0035	docker	<b>—</b> ×
/A_Trunka	1	uldis •	sat2	SW2	0.72	0.63	0.0101	viosl2	🖵 🗙
/A_Trunka	1	uldis •	master	PC5-1	0	0.02	0.0031	docker	🖵 🗙
/A_Trunka	1	uldis•	sat2	SW4	0.63	0.58	0.0101	viosl2	<b>—</b> ×
/A_Trunka	1	uldis•	master	PC10-1	0	0.03	0.0035	docker	<b>—</b> ×
/A_Trunka	1	uldis•	master	PC5-2	0	0.02	0.0031	docker	<b>—</b> ×
/A_Trunka	1	uldis •	master	SW3	0.4	0.24	0.0101	viosl2	<b>—</b> ×
/A_Trunka	1	uldis •	master	SW1	0.38	0.23	0.0101	viosl2	<b>—</b> ×
/A_Trunka	1	uldis •	sat2	PC10-2	0	0.13	0	docker	🖵 🗙

#### Step 2. Navigate: System/Cluster Management

Use Purge Button to clean crashed Satellite devices from the Master.

lus	ster members									+Add mer
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action
)	master •	48		157	1	1		1689	55	
í	sat1 •	32		63	1	1		308	17	0 C
	sat2 •	32		63		1		308	12	8 3

Are you sure you want to remove all running consoles satellite 2?

OK	Cancel	

15.9.3 EVE Cluster Status

Navigate: System/Cluster Management



Cover the Cover Professional # Main & Management •	System • 8 Information • 8	Licensing - ©2021 Eve-	NG		00:41 🍶 uldis 😝 Sign out
System status	<ul> <li>쓸 System Settings</li> <li>쓸 Cluster Management</li> </ul>				🕷 -> 🖉 Logs -> 🕲 System status
Like System status	System status     System logs     System logs     Stop Al Nodes     Solog Al Nodes     Solog Al Nodes     Total Memory: 281 0			0% Smap used al Swap: 3 Gb.	44% Disk usel Total Disk: 2304 Gb.
	running IOL nodes	running Dyna	mips nodes r	running QEMU nodes	
	5	0		6	
	running D	Docker nodes	running VPCS	nodes	
Qemu version: 2.4.0					
Current API version: 3.0.1-78-PRO Server UID: 634565efe6db7292303f7e87cc32ef65					
UKSM status:					
CPULimit status: 01					

15.9.4 Cluster monitoring cli commands

#### On EVE Master: Cluster System CLI Commands:

#### Check Cluster status:

# SSH to the Satellite node from the Master status:

```
ssh 172.29.130.<satId>
```

```
#####Example SSH to SAT1#####
root@eve-ng:~# ssh 172.29.130.1
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.20.17-eve-ng-uksm-wg+
x86_64)
```

```
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
```

```
* Canonical Livepatch is available for installation.
- Reduce system reboots and improve kernel security. Activate at:
    https://ubuntu.com/livepatch
Last login: Sun Jan 31 22:24:06 2021 from 10.6.6.14
root
root@eve-sat1:~#
```

# 15.10Cluster system upgrade

Pre-requisites: The Master node must reach internet and resolve DNS.

On the EVE Master CLI run commands:



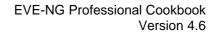
apt update apt upgrade

The cluster Satellites will upgrade automatically with EVE master. There no need any extra upgrade run for Satellite nodes.

To update manually Satellite nodes from Master EVE:

```
root@eve-ng:~# unl_wrapper -a updatesat
```

Feb	01	00:03:24	Feb	01	00:03:24	Online	Check	state:	Va	lid		
Feb	01	00:03:24	upda	te	sat 1							
ii	eve	e-agent		3.	0.1-71	amd6	4	Age	ent	for	EVE-NG	Sat
Clus	ster	member										
Feb	01	00:03:24	upda	te	sat 2							
ii	eve	e-agent		3.	0.1-71	amd6	4	Age	ent	for	EVE-NG	Sat
Clus	ster	member										
root	c@ev	re−ng:~#										





# 16 EVE Troubleshooting

16.1 CLI diagnostic information display commands

16.1.1 Display full EVE Pro diagnostic

eve-info

16.1.2 Display the currently installed EVE Pro version:

dpkg -l eve-ng-pro

root@eve-ng:~# dpkg -1	eve-ng-pro		
Desired=Unknown/Instal		1	
Status=Not/Inst/Conf	files/Unpacked/ha	F-conf/Half-inst/tr	rig-aWait/Trig-pend
// Err?=(none)/Reinst-	-required (Status,En	rr: uppercase=bad)	
/ Name	Version	Architecture	Description
+++-===================================			
ii eve-ng-pro _	2.0.4-21	amd64	A new generation software for networking labs.
root@eve-ng:~#			

16.1.3 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:~#

16.1.4 Display EVEs CPU INFO:

 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

 Socket(s):
 24

 NUMA node(s):
 4

 Wodel:
 44

 Model:
 44

 Model:
 1

 Stepping:
 2

 CPU Miz:
 3324.053

 BogMIPS:
 6650.00

 Virtualization:
 VT-x

 Hypervisor vendor:
 WMware

16.1.5 Display EVEs CPU manufacturer:

lsmod | grep ^kvm\_ root@eve-ng:~# lsmod | grep ^kvm\_ **kvm\_**intel 212992 74 root@eve-ng:~#



### 16.1.6 Display EVEs HDD utilization.

If the /boot only has a little space left you can refer to section **Error! Reference source not found.** 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 16.1

df -h				
root@eve-ng:~# df -h				
Filesystem	Size	Used	Avail	l Use% Mounted on
udev	40G	0	40G	3 0% /dev
tmpfs	7.9G	52M	7.9G	3 1% /run
/dev/mapper/evengvg-root	681G	370G	283G	3_57% /
tmpfs	40G	0	40G	3 0% /dev/shm
tmpfs	5.OM	0	5.OM	4 0% /run/lock
tmpfs	40G	0	40G	3 0% /sys/fs/cgroup
/dev/sda1	472M	83M	365M	
root@eve-ng:~#				

# 16.1.7 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	

#### 16.1.8 Display EVEs system services status

systemcti	list-unit-files	sstate=enabled	
root@eve-ng:~# sy	ystemctl 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	
ureadahead.service	enabled
dm-event.socket	enabled
docker.socket	enabled
lvm2-lvmetad.socket	enabled
lvm2-lvmpolld.socket uuidd.socket	enabled enabled
uuldd.socket remote-fs.target	enabled enabled
	enabled
apt-daily-upgrade.timer	enabled
apt-daily.timer	enderted

# 16.2 Expand EVEs System HDD

IMPORTANT NOTE: DO NOT expand your current/existing HDD on your EVE VM!



#### **16.2.1 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.

Notifications	>
vIOS: Insufficient disk space (80090).	×
Alert: Only 2GB free on EVE HDD Please add new HDD to continue ( Help )	×

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 0.0.0.0	Port 8080	H	
Template visibility	unprovisioned images Disable	×		
Disk critical size	Minimal free space (GB)			
			Submit	Cancel

### 16.2.2 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.

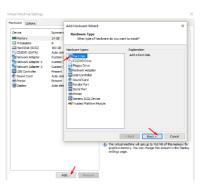
Step 3: Leave the recommended SCSI HDD option and then click Next

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 16.1.5

#### 16.2.3 Expand your HDD on ESXi

Expanding your EVEs system HDD is achieved by adding an additional HDD to your EVE VM.

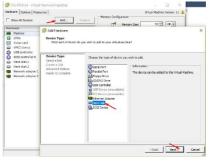
Step 1: Stop all your labs and shutdown EVE.

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 16.1.5

#### 16.2.4 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.

## **16.3 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-instalIIP address setup wizard. Please follow the steps in section 3.5.1 for Static IP or 3.5.2 for DHCP IP setup.

## 16.4 EVE PRO SQL Database recovery

Starting EVE PRO version 3.0.1-21 and later, you can recover SQL user database in case of disaster:



#### unl wrapper -a restoredb

Below is SINGLE LINE Command to restore SQL Database.

```
unl_wrapper -a restoredb ; grep -q default_time_zone
/etc/mysql/mysql.conf.d/mysqld.cnf || echo
"default_time_zone='+00:00'" >> /etc/mysql/mysql.conf.d/mysqld.cnf ;
systemctl restart mysql
```

**16.5EVE PRO Migration from host to host** 

Step 1: On newly installed EVE navigate to:

#### cd /opt/unetlab/scripts

Step 2: Run migration script migrate.sh where source IP is your old EVE host IP and root password of old EVE. [./migrate.sh -s <old eve ip> -p <root password>]

Example:

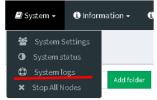
root@eve-ng:/opt/unetlab/scripts# ./migrate.sh -s 192.168.1.100 -p eve

Step 3: After migration is completed, deactivate EVE license on old host, and load license in the new EVE machine.

https://www.eve-ng.net/index.php/documentation/howtos/recover-rehosting-eve-ng/

## **16.6 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.

System log viewer			
Select log file	Number of Lines	Search text	
access.txt	20		View
access.txt			
ipi.txt	$\sim$		
error.txt	<b>`</b>		
php_errors.txt			
unl_wrapper.txt			
cpulimit.log		N	ull

# 16.7 EVE cli diagnostic info

Use EVE cli to obtain your EVE information:



eve-info



# 17 EVE Extras

**17.1 EVE Pro Radius server setup for user authentication** 

**Mandatory Prerequisites:** Updated EVE-PRO version 2.0.6-1 or later.

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	*****

17.1.1 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)dhars
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** 

ame					
John Tester					
Role Administrator 🗸	 _				
Administrator					
Accol Editor					
From User	0	to	-1	0	
POD*					
1					
1					

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.

rom	2018-05-18	00:00	to	2018-05-20	01:00
OD*					

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

Step 8. The username created inside EVE must match the username on the Radius server

Cancel

Example: EVE user authenticated with ISE 2.1 Radius server.

		@\/@	Professional	# Main	🗲 Management 🔹	🖉 System 🗸	3 Information -	C Licensing +	@2018 Eve-NG
		User mana	gement here	you can m	anage EVE-NG users				
		Database of	fusers						
		Username		Authenticat	or	Email		Name	
EVE Pro Radius user		admin internal			root@locallhast		Eve-N0	Administrator	
		uclise		ra clius		uldis@ttt	Ltv	Uldis R	aciius
Authentication Details									
Source Timestamp	2018-11-21 1	18:59:48.211							
Received Timestamp	2018-11-21 1	18:59:48.214							
Policy Server	ISE2-1								
Event	5200 Authen	tication succeeded							
Username	udise								
User Type	User	ISE	2.1 EVE Aut	thentica	ited user				
Authentication Identity Store	Internal User	15							
Authentication Method	PAP_ASCII								
Authentication Protocol	PAP_ASCI								
Network Device	EVE90-228								
Device Type	All Device Ty	pes							
Location	All Locations								
NAS IPv4 Address	192.168.90.2	228							
Authorization Profile	PermitAccess	s							
Response Time	206								

# 17.2 Lab Chat





# 17.3 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.

EDIT NODE		×
Template		
Cisco vIOS		•
ID		
15		
Image		
vios-adventerprisek9-m.	SPA.156-1.T	•
Name/prefix		
VIOS		
lcon		
Router.png		•
UUID		
314c922c-9d95-42d3-83	3c1-187994390538	
CPU Limit		
CPU	RAM (MB)	Ethernets
1	1024	4
First Eth MAC Address		
aa:bb:cc:00:de:ad		
QEMU Version	QEMU Arch	QEMU Nic
tpl(default 2.4.0) 🔻	tpl(i386) 👻	tpl(e1000) •
QEMU custom options		
-machine type=pc-1.0,ac	cel=kvm -serial mon:stdio -nog	graphic -nodefconfig -nodef
Startup configuration		
None		*
Delay (s)		
0		
Console		
telnet		*

# 17.4 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



root	t@eve	≥-ng:~#	lsus	D		
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 I	Reader				
				ID	ld6b:0001	Linux Foundation 1.1 root hub
root	t@eve	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						
🎩 Desktop.png						*
UUID						
eee724a7-53f9-	45cb-81b	1-c1fec67de63	30			
CPU Limit						
CPU		RAM (MB)			Ethernets	
1		4096			1	
First Eth MAC A	ddress					
50:0a:00:06:00:0	0					
QEMU Version		QEMU Arcl	h		QEMU Nic	
		tpl(×86_64			tpl(e1000)	*
tpl(2.0.2)	*					
	• ptions (		plate value	)		
QEMU custom o		reset to tem			ga std -usbdevice	tablet
QEMU custom o		reset to tem			ga std -usbdevice	tablet
QEMU custom o	q35,accel:	reset to tem			ga std -usbdevice	tablet
QEMU custom o	q35,accel:	reset to tem			ga std -usbdevice	tablet •
QEMU custom o -machine type=c Startup configur None	q35,accel:	reset to tem			ga std -usbdevice	tablet •
QEMU custom o -machine type=c Startup configur None	q35,accel:	reset to tem			ga std -usbdevice	tablet •
QEMU custom o -machine type=c Startup configur None Delay (s) 0	q35,accel:	reset to tem			ga std -usbdevice	tablet •
QEMU custom o -machine type=c Startup configur None Delay (s) 0	q35,accel:	reset to tem			ga std -usbdevice	tablet •
QEMU custom o -machine type=c Startup configur None Delay (s) 0 Console	q35,accel:	reset to tem			ga std -usbdevice	tablet •



# 18 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

## 18.1 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/gemu-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 Bemu	Versions Ssional Cookbook
1.3.1	Version 4.6
2.0.2	
2.2.0	
2.4.0	
2.5.0	
2.6.2	
2.12.0	
3.1.0	
4.1.0	

# 18.2 How to prepare images for EVE

How to add EVE-NG images please refer to:

https://www.eve-ng.net/index.php/documentation/howtos/

# 18.3 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!

#### **18.3.1 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/"

#### **18.3.2 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)



/opt/unetlab/html/templates/intel/
Name
🔊 kerio.yml
Iinux.yml
mikrotik.yml
🧻 newimage.yml 🔫 💳
Insvpx.yml
Insx.yml
Inxosv9k.yml
olive.yml
🥏 ostinato.yml
🦪 osx.yml
And a second sec

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.

noo+Qouo ngu~# a	n (ont (unotlab /b	tml/templates/inte	l/notrimogo_tml /	ont (unot lob (html)	tomplatog (intal /n	aina iml	
		itml/templates/inte		opt/unetiab/ntmi/	templates/intel/n	gips.ymi ample: Using CL	
		mplates/intel# ls					
al0.yml	c7200.vml	cumulus.yml	iol.ymls.yml	osx.yml	sterra.yml	versadir.yml	vtedge.yml
acs.ýml	c9800cĺ.yml	cup.yml '	ise.vml	paloalto.yml	timoscpm.yml	versafvnf.yml	vtmqmt.yml
alteon.yml	cda.yml	cyberoam.yml/opt/	urjspace.yml/templ	apfsense.ymlimage	.timosiom.ymlab/ht	nviosl2.yml/int	• vtsmart.yml
ampcloud.yml	cexpresw.yml	dcnm.yml	junipervrr.yml	phoebe.yml	timos.yml	vios.yml	vwaas.yml
apicem.yml	cips.yml	docker.yml	kerio.yml	prime.yml	titanium.yml	vmxvcp.yml	vwlc.yml
arubacx.yml	clearpass.yml	esxi.yml You car	ı tinuxeymlw temp	olpulsesym1 Win SC	Ptrendmivtps:yml/	vmxvfp.yml	vyos.yml
aruba.yml	cms.yml	extremexos.yml	mikrotik.yml	riverbed.yml	uccx.yml	vmx.yml	winserver.yml
asav.yml	coeus.yml	firepower6.yml	newimage.yml 🛹	-scrutinizer.yml	ucspe.yml	vnam.yml	win.yml
asa.yml	cpsg.yml	firepower.yml)PK	lngips.yml— <u>e</u> ew r	nsilveredge.ymlnp	lavcenter ymleiateo	vpçsiymlnage j	oxrv9kaym1. You
barracuda.yml	csr1000vng.yml	fortinet.ymlage fr	nsvpx.yml must a	silverorch.yml	yeloedge.yml	vqfxpfe.yml	xrv.yml
bigip.yml	csr1000v.yml	hpvsr.yml	nsx.yml	sonicwall.yml	"Velogw.yml	vqfxre.yml	*.yml
brocadevadx.yml	ctxsdw.yml	huaweiar1k.yml	nxosv9k.yml	sophosutm.yml	veloorch.yml	vsrxng.yml	
c1710.yml	cucm.yml	huaweiusg6kv.yml	olive.yml <sub>iderna</sub>	sophosxg.yml	wees.ymlns/demu	VSTX Yml sion-1	
c3725.yml	cue.yml	infoblox.yml	ostinato.yml	-stealth.yml	versaana.yml	vtbond.yml	
root@eve-ng:/opt	/unetlab/html/te	mplates/intel#					

**IMPORTANT**: 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/addons/qemu/ root@eve-ng:/opt/unetlab/addons/gemu# ls		
a10-vThunder-411.4.1 KB in 0 of 13 ampcloud-2.3.5-L ampcloud-3.0.2	ise-2.6.0.156.SPA-L junipervrr-19.2R1-S2.2 kerio-control-9.3.2	Bo
arubacx-10.03 arubacx-10.04-1000 aruba-VMC_8.4.0.3 asa-915-16-k8-CL-L asav-9131-100 asav-971-001	linux-mint-18.3-cinnamon-64bit linux-slax-64bit-9.3.0 linux-slax-64bit-9.3.0.tar.gz mikrotik-6.44.5 ngips-6.5.0-115 nsvpx-12.0_53.13	ol. se. spa uni eri inu ikr evi gip

18.3.3 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 example	Will 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 Gi1/1 Gi1/2 Gi1/3 Gi1/4 Gi1/5 Gi1/6 Gi1/7



		Gi2/0 Gi2/1 
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 Ge0/1 Ge0/2 Ge0/3 Ge1/0 Ge1/2 Ge1/3 Ge2/0 Ge2/1 Ge2/2 
eth_format: <prefix>{<first value="">}</first></prefix>	eth_format: Gi{0}	Gi0 Gi1 Gi2 Gi3 
eth_format: <prefix>{<first value="">}</first></prefix>	eth_format: G0/{0}	G0/0 G0/1 G0/2 G0/3 
eth_name: <prefix: custom="" interface="" name=""></prefix:>	eth_name: - M1 - T1 - T2	M1 T1 T2
eth_name: <prefix: custom="" interface="" name=""></prefix:>	eth_name: - MGMT - DATA - TRAFFIC	MGMT DATA TRAFFIC

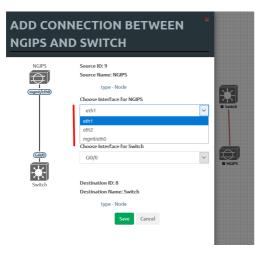
**Combined first named interface following by formatted interfaces Example:** We have to set first node interface name "eth0/mgmt" and next following interfaces must start from eth1 and change sequence accordingly. eth1, eth2,...,ethx

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.





#### 18.3.4 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: 18.3.2

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# # # # # # # #	<pre>this software is provided by the copyright holders and contributors "As is" and any express or implied warranties, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose are disclaimed. In no event shall <copyright holder=""> be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; Loss of use, data, or profits; or business interruption) however caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of this software, even if advised of the possibility of such damage.</copyright></pre>		
na de	→- ype: qemu yme: NGIPS → Node name on the Topology secription: Cisco FirePower NGIPS → Node list name pulimit: 1 ADD A NEW NODE		
ic	con: IPS.png		
-	Main     Template       Main     8192		
	chernet: 3		
	Ch_name: Cisco FirePower NGIPS		
-	eth0/mgmt		
<b></b> +	b format, oth[1]		



```
console: vnc
shutdown: 1
qemu_arch: x86_64
qemu_version: 2.4.0
qemu nic: e1000
gemu_options: -machine type=pc,accel=kvm -serial none -nographic -no-user-config
    -nodefaults -display none -vga std -rtc base=utc -cpu host
...
```

**Note:** Qemu options in the line may vary per image requirements. Please check manufacturer advice how to run KVM image

18.3.5 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/

18.3.6 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

18.4 How to hide unused images in the node list

Please follow section 7.4.1 or 8.1.1.1



# **19EVE Resources**

For additional updated information please follow our web site: <u>https://www.eve-ng.net</u>

How to updates: https://www.eve-ng.net/index.php/documentation/howtos/

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EVE forum: https://www.eve-ng.net/forum/

To access forum resources, please create a new forum account.

EVE YouTube channel: https://www.youtube.com/playlist?list=PLF8yvsYkPZQ0myW7aVMZ80k8FU04UUgjV

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EVE Community version downloads, free: <u>https://www.eve-ng.net/index.php/community/</u>

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