

EVE-NG Professional Cookbook

Version 1.10

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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 cSRX and JATP) and I still test a Lot - but now on EVE-Pro.

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

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

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

Christian Scholz @chsjuniper



1 Introduction

1.1 What is EVE-NG?

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

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

1.2 What is EVE-NG used for?

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

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

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

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

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

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

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

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

1.3 Who is EVE-NG for?

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

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

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

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

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



2 System requirements

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

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

2.1 Hardware requirements

2.1.1 Minimal Laptop/PC Desktop system requirements

Prerequisites:

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

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

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

Example:

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



2.1.2 Recommended Laptop/PC Desktop system requirements

Prerequisites:

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

PC/Laptop HW requirements		
CPU	Intel i7 (8 Logical processors), Enabled Intel virtualization in	
	BIOS	
RAM	32Gb	
HDD Space	200Gb	
Network	LAN/WLAN	
	EVE Virtual machine requirements	
CPU	8/1 (Number of processors/Number of cores per processor) 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 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	



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

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

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

2.1.4 Dedicated Server (bare) system requirements

Prerequisites:

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

Server HW requirements		
CPU	Recommended CPU Intel E5-2650v3 (40 Logical processors) or 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/1J6JIXHcid_A661grBOu73rjFOeoHPhGHi9iJb1zlQp E/edit#gid=0

2.2 Supported virtualization platforms and software

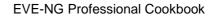
- VMware Workstation 12.5 or later
- VMware Player 12.5 or later
- VMware ESXi 6.0 or later



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

The following are currently not supported:

- AMD CPU based PC or Server
- VirtualBox virtualization
- Citrix XenServer
- Microsoft HyperV
- Ubuntu 17.X or 18.x as platform





3 Installation

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

Download EVE-NG Professional ISO distribution image: http://www.eve-ng.net/downloads/eve-ng

3.1.1.1 EVE VM Setup and Settings

ew Virtual Machine Wizard	×	New Virtual Machine Wizard X
	Welcome to the New Virtual	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?
	Machine Wizard	Install from:
14	What type of configuration do you want?	○ Installer disc:
	Typical (recommended)	
workstation PRO™	Create a Workstation 14.x virtual machine in a few easy steps.	◯ Installer disc image file (iso):
	O Custom (advanced)	G:\Install\Linux\linuxmint-16-cinnamon-dvd-32bit.iso >> 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



Step 3: Select a Guest Operating system: Linux and select the version: Ubuntu 64-bit	Step 4: Enter the name for your EVE-PRO VM and select Location where your EVE VM will be stored on the host PC.
Select a Guest Operating System Which operating system will be installed on this virtual machine?	New Virtual Machine Wizard X Name the Virtual Machine What name would you like to use for this virtual machine?
Guest operating system Microsoft Windows Linux Novell NetWare Solaris VtMware ESX Other Version Ubuntu 64-bit Help < Back Next > Cancel	Virtual machine name: EVE-PRO Location: G: [EVE_PRO-VM The default location can be changed at Edit > Preferences. Virtual machine name: Browse Browse G: [EVE_PRO-VM Browse The default location can be changed at Edit > Preferences. Browse Browse Browse Browse Browse Browse Browse Location Browse Browse

Step 5: Type your desirable HDD size and select "Store virtual disk as single file".	Step 6: Press Customize Hardware
	New Virtual Machine Wizard X
New Virtual Machine Wizard X Specify Disk Capacity	Ready to Create Virtual Machine 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	Name: EVE_PRO Location: G: \EVE_PRO-VM Version: Workstation 14.x Operating System: Ubuntu 64-bit Hard Disk: 200 GB Memorry: 1024 MB Network Adapter: NAT Other Devices: CD/DVD, USB Controller, Printer, Sound Card Customize Hardware✔
Help < Back Next > Cancel	< Back Finish Cancel



Step 7: Assign desirable memory	 Step 8: Set Processors "Number of processors" and "Number of cores per processor". Set Intel VT-x/EPT Virtualization
Device Summary Memory 100 Processors 1 Processors 1 State Color Dia (SATA) Auto detect Processors 1 State Color Dia Present Diagle y Auto detect Processors 1 Diagle y Auto detect Processors 1 Diagle y Auto detect Processors 1 Diagle y Auto detect State Color 1 State Color 1 Diagle y attrap oper. 2	friend Inemory Inemory Inemory It inemory It in memory It in memory It is memo
	Close Help

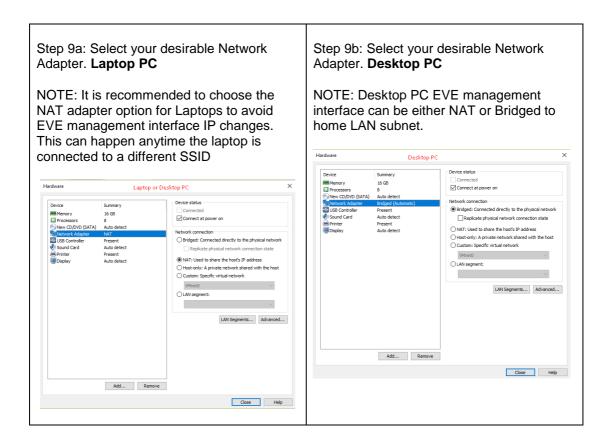




image file.	" Browse to	VD Option: "use ISO your downloaded name can be different)	Step 11: Confirm VM Settings.
Hardware		×	
Device	Summary 16.G8 8 Auto detect Auto detect Present Auto detect Auto detect Auto detect Auto detect Auto detect	Device status Connected Descriptional drive: Muta detect @ Use ISO mage file: G: EDE MG [PIC-PRO.360 V Browse] Advanced	
		Close Help	

3.1.1.2 EVE-NG 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

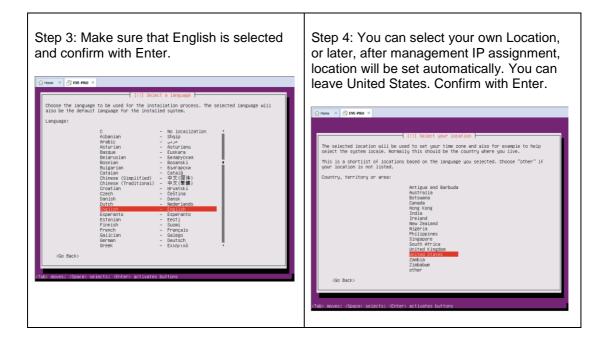
EVE VM Installation from ISO has 3 Phases

Phase 1 (Ubuntu installation)

	Step 2: Be sure that "Install EVE PRO VM"	
and confirm with Enter.	is highlighted. Confirm with Enter.	

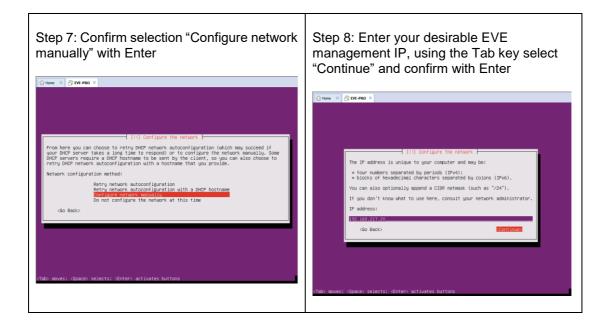


			guage		
	Amharic	Français	Македонски	Tamil	
	Arabic	Gaeilge	Malayalam	ජ"	
	Asturianu	Galego	Marathi	Thai	
	Беларуская	Gujarati	Burmese	Tagalog	
	Български	עברית	Nepali	Türkçe	ubuntu®
	Bengali	Hindi	Nederlands	Uyghur	ubuntu*
	Tibetan	Hrvatski	Norsk bokmål	Українська	
	Bosanski	Magyar	Norsk nynorsk	Tiếng Việt	
	Català	Bahasa Indonesia	Punjabi(Gurmukhi)	中文(简体)	
	Čeština	Íslenska	Polski	中文(繁體)	Install Eve PRO VM
	Dansk	Italiano	Português do Brasil		Install Eve PRO Bare
	Deutsch	日本語	Português		Rescue a broken system
	Dzongkha	ქართული	Română		Rescue a proken system
	Ελληνικά	Казақ	Русский		
	English	Khmer	Sámegillii		
	Esperanto	ಕನ್ ನೆಡ	ຮີ∘ຫັ©		
	Español	한국어	Slovenčina		
	Eesti	Kurdî	Slovenščina		
	Euskara	Lao	Shqip		
	ىرەن	Lietuviškai	Српски		
	Suomi	Latviski	Svenska		
ln F2	Language ES	Keymap F4 Modes	F5 Accessibility F6 O	ther Options	F1 Help F2 Language F3 Keymap F4 Modes F5 Accessibility F6 Other Options



		1
Step 5: DHCP ENABLED, EVEs hostname	Step 6: DHCP DISABLED/Static IP setup. If	I
by default is eve-ng . You can change it if	you have not enabled DHCP in the network,	
you wish. Using the Tab key select continue	you must assign an IP address manually.	l
and confirm with Enter. Continue to Step 14	Confirm Continue with Enter.	l
		i

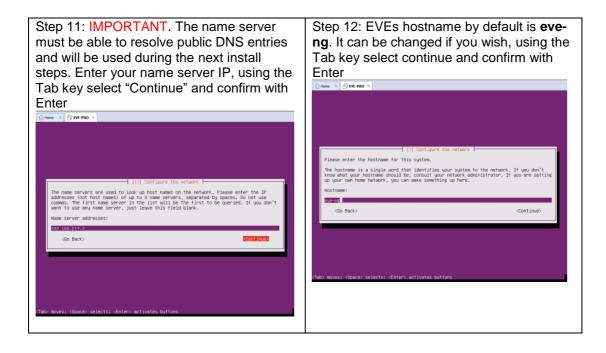




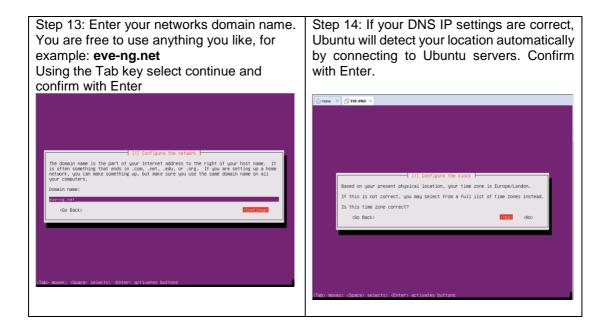
Step 9: Enter your subnet mask, using the Tab key select "Continue" and confirm with Enter	Step 10: Enter your Gateway IP, using the Tab key select "Continue" and confirm with Enter
--	--



Home × Bre-PRO ×	G Home × B EVE-PRO ×
[11] Configure the network	[!!] Configure the network
The netwask is used to determine which machines are local to your network. Consult your network administrator if you do not know the value. The netwask should be entered as four numbers separated by periods.	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 LAN (for instance, to the Internet) is sent through this router. In rare circumstances, you
Netmask:	may have no router; in that case, you can leave this blank. If you don't know the proper answer to this question, consult your network administrator.
255.255.0	Gateway:
<pre><go back=""></go></pre>	192.168.217.2
	<pre><go back=""></go></pre>
<tab> moves; <space> selects; <enter> activates buttons</enter></space></tab>	<tab> moves; <space> selects; <enter> activates buttons</enter></space></tab>

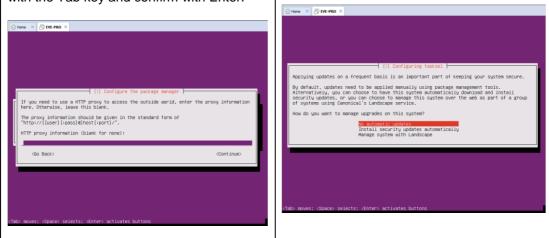






Step 15: If you have a proxy in use for your internet access, enter your network proxy settings. If no proxy is used, select Continue with the Tab key and confirm with Enter.

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



EVE VM Installation Phase 2 (EVE installation)



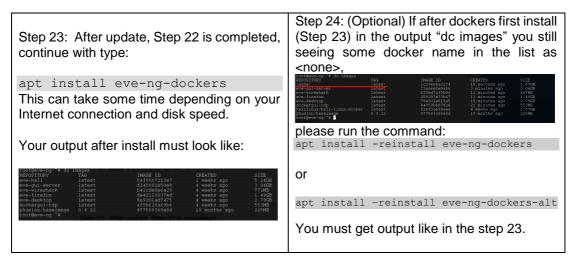
G Home × B LVE-PRO ×	Virtual Machine Settings ×
	Hardware Options
(11) Finish the installation Installation coreplete Installation is complete, so it is line to boot into your new system. Make sure to remove the installation media (CD=ROM, Fiopples), so that you boot into the new system rather than restallation. (Go Back)	Hed dovid® (Options) Device Summary Im Memory 16 GB Im Memory 10 GC Im Memory 10 GC
(Tab> moyes: «Spaco> selects: «Enter» activates buttons	Add Remove

Step 19: Return to the EVE console screen and continue with Enter, the EVE VM will reboot and finish the installation phase 2	Step 20: Once the EVE login screen appears, login to the CLI with root/eve and continue with installation phase 3
O Hone × Ø IVIE FRO ×	C Home X S EVE-PRO X Eve=N6 (default root password is 'eve') Use http://192.168.217.129/ eve=ng login:
(II) Finish the installation Installation is complete, so it is time to boot into your new system. Make sure to remove the installation media (CD-ROM, floppins), so that you boot into the new system rather than restarling the installation. (Go Back)	
(Tab) moves: «Space) selects: «Enter» activates buttons	

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

Step 21: Setup EVEs Management IP address. A Static IP address setup is preferred.	Step 22: After your EVE is rebooted, 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



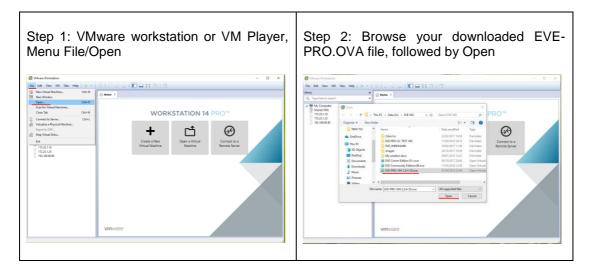


Step 25: Proceed to section 4 "Obtain EVE-NG Professional license"

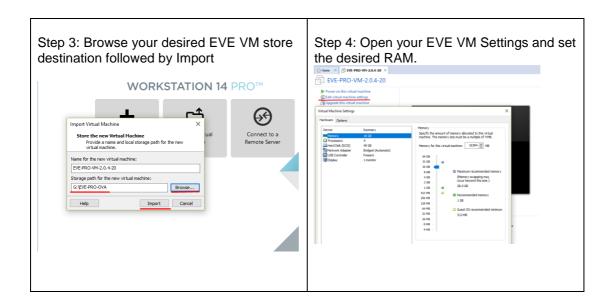
- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 16
- 3.1.2 VMware workstation OVA deployment

Download EVE-NG Professional OVA image: http://www.eve-ng.net/downloads/eve-ng

3.1.2.1 Deployment and VM machine settings







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

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

Step 6: Laptop PC Select your desirable Network Adapter.

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

Davisa	Cumming of the	Processors	Hardware	Laptop or De	sktop PC
Jevice Memory ■ Processors ■ Hard Dak (SCSI) ■ Vetwork Adapter © USC Controller ■ Display	Sumary Jungary 40 GB Bridget (Automatic) Present 1 monitor	Number of orcessors: 0 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	Device ■Memory Prev CO/VID (SATA) Net Wetwork Adapter ■ Use Schröder ● Isound Card ■ Printer ■ Depiley	Summary 16 GB 8 Auto detect MT Present Auto detect Present Auto detect Auto detect	Device status Connected Connected ones Connected drectly to the physical network Debuged: Connected drectly to the physical network Debuged: Connected drectly to the physical network Debuged: Debug drectly to the physical network Debug drectly drectly drectly drectly Debug drectly drectly drectly Debug drectly
	Add Remove	OK Cancel Help		Remove	Close Help

Step 7: Desktop PC Select your desirable	Step 8: Power ON your EVE VM and follow	
	Management IP setup instructions described	



	an be eithe	VE management r NAT or Bridged to		in section DHCP IP.	3.5.1	for	Static	IP	or	3.5.2	for
Hardware	Desktop PC		×								
Device	Summary 16 G8 8 Bródge (Automate) Present Auto detect Present Auto detect	Device status Connected Connected Connect at power on Pethorsk connected directly to the physical network. Detwork connection state OHAT: Used to share the host's IP address OHAT: Used to share the host's OHAT: OHAT: Used to share the host's OHAT: OHAT:	1								
	Add Remove										
		Close Help									

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

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

3.1.2.2 OVA VM update to the latest EVE version

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

3.1.2.3 OVA VM HDD Size expansion

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

3.2 VMware ESXi

3.2.1 VMware ESXi EVE installation using ISO image (preferred)

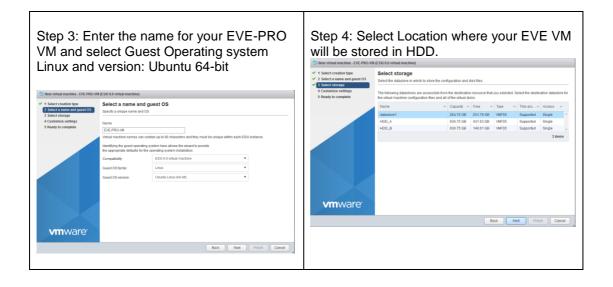
Download EVE-NG Professional ISO installation image: <u>http://www.eve-ng.net/downloads/eve-ng</u>

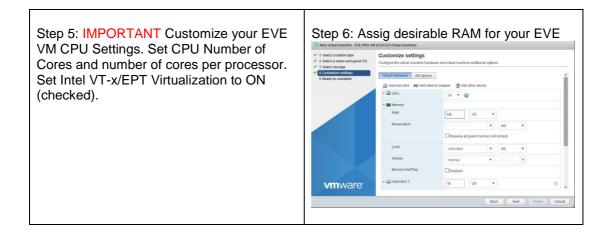
3.2.1.1 EVE-NG ESXi VM Setup and Settings

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



vmware esxi		S New virtual machine	
- Q most	13 Administrat gP Regular a VM SQ Datative browser 35 Intrasse capacity, C Reflech, Q Adars	Select creation type Select a name and guest OS	Select creation type How would you like to create a Virtual Machine?
A Range Born → U Vand Akarons → U Vand → U Vand	Statistical units Marcine units	Select strarge Select s	Diply visual matches to an OV in OV.B This option guides poul hough resulting a new what matches. You will be able to option by processing the matches the second processing and the secon

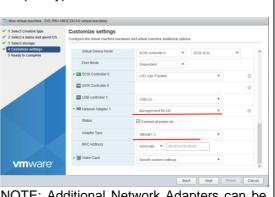




	Customize settings Configure the virtual machine hardware	e and virtual machine additional options	
4 Customize settings 5 Ready to complete	Virtual Hardware VM Options		^
	Add hard disk. Mil Add network:		- 1
		24 •	- 11
	Cores per Socket	1 V Sockets: 24	
	CPU Hot Plug	Enable CPU Hot Add	
	Reservation	• MHz •	
	Limit	Unimited	
	Shares	Normal • 1000 •	
	Hardware virtualization	Expose hardware assisted virtualization to the guest OS 🌒	
	Performance counters	Enable virtualized CPU performance counters	
vm ware [®]	Scheduling Affinity	Hyperthreading Status: Active	~
		Back Next Finish	Cancel
		Back Nett Philon	Cancer

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

	Customize settings Configure the virtual machine hard	aware and virtual machine additional options
ustomize settings eady to complete		Reserve all guest memory (All locked)
	Limit	Unlimited
	Shares	Normal • 1000 •
	Memory Hot Plug	Enabled
	* 🛄 Hard disk 1	200 GB ¥
	Maximum Size	231.79 GB
	Location	[datastore1] EVE-PRO-VM Browse
	Disk Provisioning	Thin provisioned Thick provisioned, latily zeroed Thick provisioned, eagerly zeroed Thick provisioned, eagerly zeroed
	Shares	Normal ¥ 1000 ¥
m ware [.]	Limit - IOPs	Testinger .



Step 8: Set your Management network.

Adapter type VMXNET3

NOTE: Additional Network Adapters can be added for further use.

Step 9: Ac CD/DVD		evic	e to you	ur EVE VM,	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"
✓ 1 Select creation type	Customize settings				ON, Connect at power on
 ✓ 2 Select a name and guest OS ✓ 3 Select storage 	Configure the virtual machine hards	ware and virtua	í machine additional options		
✓ 4 Customize settings	Virtual Hardware VM Options			^	
5 Ready to complete	Add hard disk 🗰 Add netw	work adapter	Add other device		
	P CPU	24	New hard disk.		
	* 🗰 Memory		Existing hard disk		
	RAM	64	Network adapter		
	Reservation		CD/DVD drive		
			Floppy drive		
		DR	i senal por		
	Umit	Uni	Parallel port	•	
	Sharez	Nor	ER. CON COMOS	*	
	Memory Hot Plug	DEn	Sound controller		
vm ware	• 🛄 Hard disk 1	200	In POLANICA	0	
Vinivare			SCSI controller	· ·	
			SATA controller	eat Finish Cancel	1



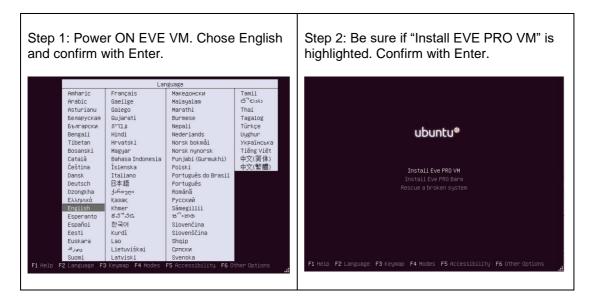


3.2.1.2 EVE-NG ESXi VM Installation steps

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

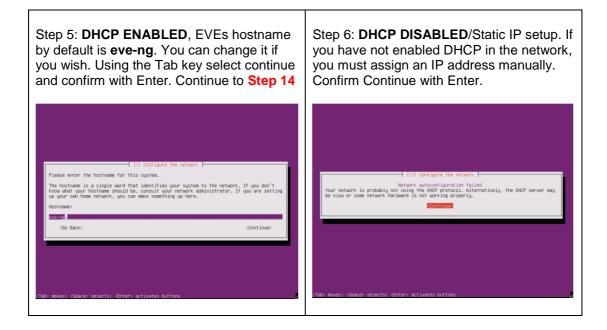
Phase 1 (Ubuntu installation)



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
--	--



uage:			The selected location will be used to set your time zone and also for example to help select the system locale. Normally this should be the country where you live.
	C Albanian Arabic Arabic Besque Belarusian Bonian Bonian Chinese (Simplified) Chinese (Traditional) Croatian Crach Duth Bouth Esternato Estonian Franch Galician Gerean	- No localization - Shald - Astru Janu - Astru Janu - Euskara - Benanyccan - Benanyccan - Benanyccan - Benanyccan - Benanyccan - Catala - 中文(何年) - 中文(何年) - Katina - K	This is a shortlist of locations based on the language you selected. Choose "other" if your location is not listed. Country, territory or area: Antigua and Barbuda matriala Canada Hong Kong India Tre land Higeria Philippines Surgeporte South Africa Data Landawe Canada Higeria Philippines Surgeporte Subth Africa Data Landawe Canada Higeria Philippines Surgeporte Canada Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Surgeporte Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Canada Higeria Philippines Surgeporte Surgeporte Canada Higeria Surgeporte
<go back=""></go>			(GO BBCK)



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
---	--



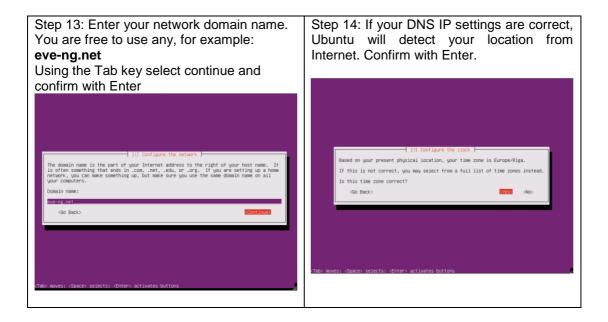
(1) Configure the network From here you can choose to retry DHCP network autoconfiguration (which may succeed if your DHCP servers require a DHCP hostmae to be sent by the client, so you can also choose to retry DHCP network autoconfiguration by the client, so you can also choose to retry DHCP network autoconfiguration method: Network configuration method: Betry network autoconfiguration with a DHCP hostname bot configure the network at this time (Bo Back)	[11] Configure the network The IP address is unique to your computer and may be: * four numbers separated by periods (IPv4); * blocks of headschmail characters separated by colons (IPv6). You can also optionally append a CIDR network (such as "/24"). If you don't know what to use here, consult your network administrator. IP address: B23105850128 Gio Back>
(Tab) moves: Gpace) selects: «Enter) activates buttons	(Tab) noves; (Space) selects; (Enter) activates buttons

Step 9: Correct your subnet mask, using the Tab key select "Continue" and confirm with Enter	Step 10: Correct your Gateway IP, using the Tab key select "Continue" and confirm with Enter
[11] Configure the network The netmask is used to determine which machines are local to your network. Consult your network administrator if you do not know the value. The netmask should be entered as four numbers separated by periods. Netmask: Segsessesses Go Back> Continue> (Tab) moves; <space> selects; <enter> activates buttons</enter></space>	(ii) 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 treffic that goes outside your LAN (for intrance, to the internet) is sent through this router. In rare circumatines, you may have no router; in that case, you can leave this blank. If you don't know the proper answer to this question, consult your network addinistrator. Gateway: Periodswood (Go Back) (Continue) (Tab) moves: (Space) selects: (Enter) activates buttons

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







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





EVE VM Installation Phase 2 (EVE installation)

Step 17: After the "Finish the installation" screen appears, DO NOT remove CD ISO from VM or hit Enter continue. We have to verify settings for EVE installation Phase 2. Follow step 9.

Step 18: Without powering off the EVE VM, open the EVE VM settings and make sure that CD/DVD ISO "Device status connected" and "Connect at power on" is checked. Confirm with OK.

	▶ → Hard disk 1 100 GB ▼		0
	SCSI Controller 0	LSI Logic Parallel	0
	SATA Controller 0		0
	USB controller 1	USB 2.0 ¥	
[11] Finish the installation	INE Network Adapter 1	Management 90 UD 🔹 🗹 Connect	0
Installation complete on is complete, so it is time to boot into your new system. Make sure to remove lation media (CD-ROM, Hopples), so that you boot into the new system rather	✓ S CD/DVD Drive 1	Datastore ISO file	0
ion media (CD-KOM, floppies), so that you boot into the new system rather ng the installation.	Status	Connect at power on	
(Continue)	CD/DVD Media	[datastore1] EVE-PRO.iso Browse	
	Virtual Device Node	SATA controller 0 SATA (0:0) CD/DVD Media	
	Video Card	Specify custom settings	

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

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

Step 21: Setup EVE Management IP address. A Static IP address setup is preferred	Step 22: 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

Т

Step 23: After update, Step 22 is completed, continue with type:	Step 24: (Optional) If after dockers first install (Step 23) 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.	Tooleway-tog's a'c langes Tooleway-tog's a'c langes wa-aliesever wa-
Your output after install must look like:	apt install -reinstall eve-ng-dockers
rotleve-ng:"# dc images EECSTTOMP TAG EECSTTOMP TAG Note: 1	or
ww-dashtop latest 809201a47475 4 weeks ago 2 7908 dockergul-tdp latest 869501a47475 4 weeks ago 2 753MB phusion-baseimage 0.9.3.2 877509368a8d 18 months ago 225MB tootBawe-ng:"#	apt install -reinstall eve-ng-dockers-alt
Alterundate. Sien 22 is considered a	You must get output like in the step 23.
Step 25: After Steps 23-24 are completed and you are back on the EVE CLI prompt, reboot EVE by typing	
reboot	

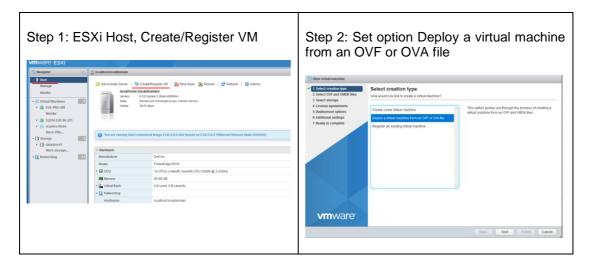


Step 25: Go to section 4 to obtain a license for EVE-NG Professional

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

Download EVE-NG Professional OVA image: http://www.eve-ng.net/downloads/eve-ng

3.2.2.1 ESXi OVA VM Setup and Settings



Step 3: Type the name for your new EVE VM and browse to select your downloaded EVE OVA file		Step 4: Se VM will be		torage where your EVE d.
.		✓ 1 Select creation type	Select storage	
New virtual machine - EVE-PRO		 2 Select OVF and VMDK files 3 Select storage 	Select the datastore in which to	store the configuration and disk files.
 1 Select creation type 2 Select OVF and VMDK files 3 Select storage 	Select OVF and VMDK files Select the OVF and VMDK files or OVA for the VM you would like to deploy	4 License agreements 5 Deployment options	The following datastores are ac the virtual machine configuration	cossible from the destination resource that you selected. Select the destination datastore for n files and all of the virtual disks.
4 License agreements	Enter a name for the virtual machine.	6 Additional settings 7 Ready to complete	Name	✓ Capacity ✓ Free ✓ Type ✓ Thin pro ✓ Access ✓
5 Deployment options 6 Additional settings	EVE-PRO		datastore1	264.75 GB 234.02 GB VMFS5 Supported Single ^
7 Ready to complete	Virtual machine names can contain up to 80 characters and they must be unique within each ESXi instance.		HDD_A	930.75 GB 471.63 GB VMFS5 Supported Single
	¥ 🖀 ENE-PRO-104-20.4-20 ma	vm ware [.]	H00_B	930/568 1484/68 W#55 Supported Single , 3 ikems
vm ware [•]				Back Next Finish Cancel
	Back Net Prish Cancel			



Step 5: Select your Management network and Thick Disk provisioning . EVE OVA HDD is only 40Gb large. It is recommended after installation to add extra HDD. Section 15.2		Step 6: IMPORTANT Open VM Settings. Set the quantity of CPUs and number of cores per socket. Set Intel VT-x/EPT Hardware Virtualization engine to ON (checked).		
1 New virtual machine - EVE-PRO			🔂 Edit settings - EVE-PRO (E SXi 6.0 vin	tual machino)
 1 Select creation type 2 Select OVF and VMDK files 3 Select storage 	Deployment options Select deployment options		Virtual Hardware VM Options	aaar macumey
4 Deployment options 5 Ready to complete	Network mappings	Management 90 UD Management 90 UD *	Add hard disk M Add network and a start of the start o	adapter 🗧 Add other device
	Disk provisioning		- 🔲 CPU	24 🔻 👔
			Cores per Socket	1 V Sockets: 24
			CPU Hot Plug	Enable CPU Hot Add
			Reservation	MHz V
			Limit	Unlimited V MHz V
			Shares	Normal V 1000 V
			Hardware virtualization	Expose hardware assisted virtualization to the guest OS 🁔
vm ware			Performance counters	Enable virtualized CPU performance counters
			Scheduling Affinity	Hynerthreading Status: Artive
		Back Next Finish Cancel		Save Cancel
				4

Step 7: Set desirable 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 virtual machine)	in section 3.5.1 for Static IP or 3.5.2 fo DHCP IP.
Virtual Hardware VM Options	
🔜 Add hard disk 🗰 Add network adapter 🛛 🚍 Add other device	
▶ 🖬 CPU 24 💌 👔	
- Memory	
RAM 32 GB •	
Reservation	
Limit Unlimited	
Shares Normal Interview	
Memory Hot Plug Enabled	
▶ 🔄 Hard disk 1 40 GB 💌 💿 🗸	
Save Cancel	

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

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

3.2.2.2 ESXi OVA VM update to the latest EVE version

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



3.2.2.3 ESXi OVA VM HDD Size expansion

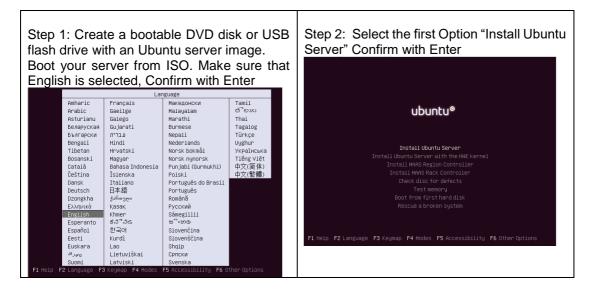
NOTE: IMPORTANT! DO NOT expand the current EVE OVA HDD. To expand your EVEs system disk size, please follow the troubleshooting section **15.2**

3.3 Bare hardware server EVE installation

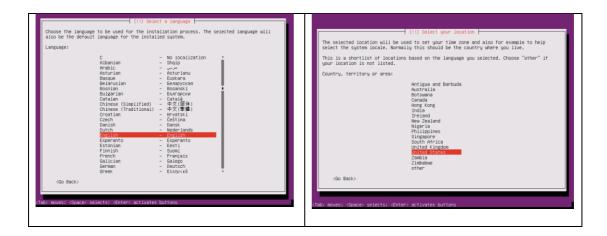
Download Ubuntu Server 16.04.5 LTS ISO image: http://tw.archive.ubuntu.com/ubuntu-cd/16.04/ubuntu-16.04.6-server-amd64.iso

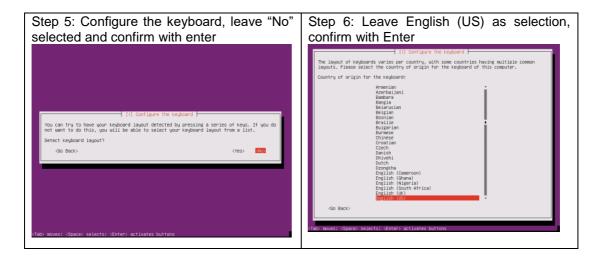
Andatory Prerequisites: Internet must be reachable from your PC and VMware. EVE ISO installation requires internet access to get updates and install the latest EVE-PRO version from the EVE-NG repository. DNS must work as well, to check it, do a named ping, for example ping www.google.com

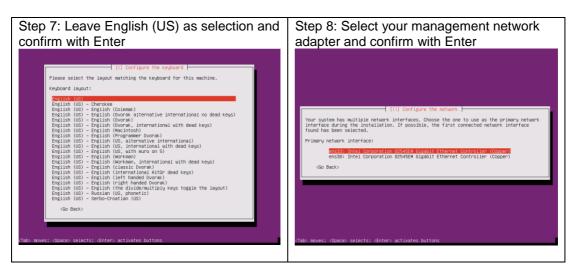
3.3.1 Ubuntu Server Installation Phase 1











Step 9: DHCP ENABLED	Step 10: DHCP DISABLED/Static IP setup.
	If have not enabled DHCP in the network,



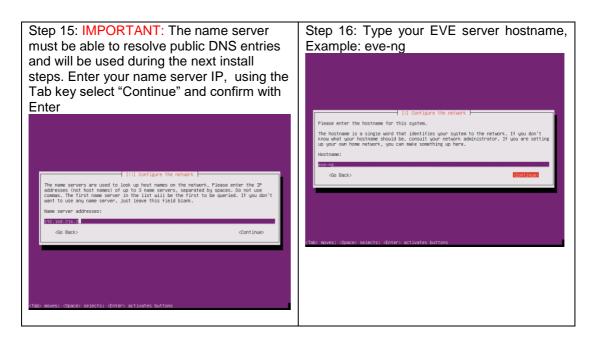
Continue with Step 16	you must assign an IP address manually. Continue with Enter.
(1) Configure the network Please enter the hostname for this system. The hostname is a single used that identifies your system to the network. If you are setting up your out home network, you can make something up here. Hostname: Weendo Go Bach> (Continue)	[11] Configure the network Network autoconfiguration failed Your network is probably not using the DHCP protocol. Alternatively, the DHCP server may be slow or some network hardware is not working properly. Constitutes
	(Tab> moves; <space> selects; <enter> activates buttons</enter></space>

Step 11: Select "Configure network manually" and confirm with Enter	Step 12: Enter your desirable EVE management IP, using the Tab key select
Imanually" and confirm with Enter Imanually " and confirm with Enter Image: the stars of the sthe stars of the stars of the stars of the sta	<pre>management IP, using the Tab key select "Continue" and confirm with Enter " [] [onfigure the networ!</pre>

Step 13: Enter your subnet mask, using the Tab key select "Continue" and confirm with Enter	Step 14: Enter your Gateway IP, using the Tab key select "Continue" and confirm with Enter
The netwask is used to determine which machines are local to your network. Consult your network administrator if you do not know the value. The netwask should be entered as four matters separated by periods.	
Netmask:	
<go back=""> <continue></continue></go>	
(Tab) moves; «Space) selects; «Enter) activates buttons	



[11] Configure the network The gateway is an IP address (four numbers separated by periods) that indicates the gateway route, also known as the default router, will traffic that goes outside your LAN may have no noter; in that case, you can leve this lawk. If you don't know the proper answer to this question, consult your network administrator. Gateway: ESCAGAREAG (Go Back) (Continue)
(Tab) moves: (Space) selects: (Enter) activates buttons



Step 17: Type your domain name. You are	Step 18: Type your Ubuntu username,
free to use any. Example: eve-ng.net	Example: user
(i) Configure the network. (i) 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 .comnetedu, or .org. If you are setting up a home your computers. Domain name: Workingtenet (Go Back)	

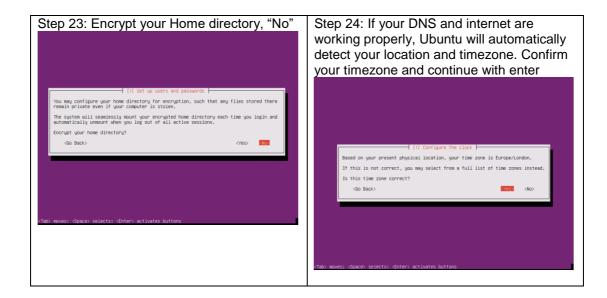


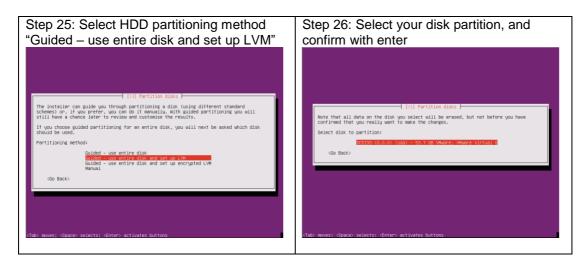
<tab> moves: <space> selects: <enter> activates buttons</enter></space></tab>

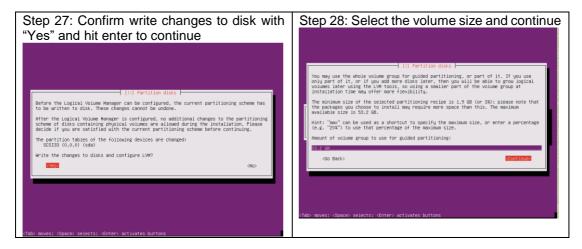
Step 19: Select a username (e.g. "user") for	Step 20: Enter a password for your new
Start a username for the new scourt, Your first name is a reasonable choice. The username for the new scourt, Your first name is a reasonable choice. The username should start with a lower-case letter, which can be followed by any combination of username for your account:	(11) Set up users and passwords f good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals. Those a password for the new user: Instance (In these password in clears (Go Back)
(Tab) moves; <space) activates="" buttons<="" selects;="" td="" «enter)=""><td>(Tab) moves: «Space) selects: «Enter) activates buttons</td></space)>	(Tab) moves: «Space) selects: «Enter) activates buttons

Step 21: Re-enter your password and continue	Step 22: If you want to use a weak password, click "Yes" on this screen.
[1] Set up users and passwords Please enter the same user password again to verify you have typed it correctly. Re-enter password to verify: ICELES ICELES (do Back)	III] Set up users and passuords You entered a password that consists of less than eight characters, which is considered too weak. You should choose a stronger password. Use weak password? <go back=""></go>
(Tab) moves: (Space) selects: (Enter> activates buttons	(Tab) moves: «Space) selects: «Enter» activates buttons

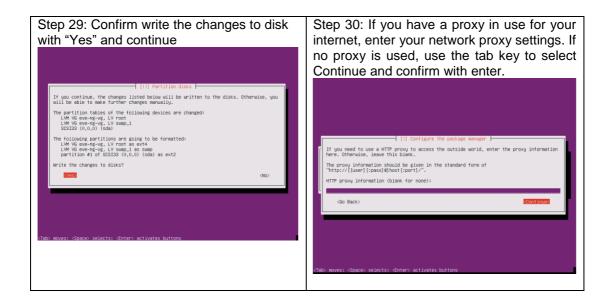


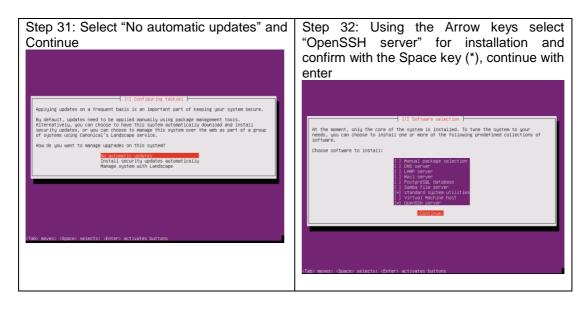






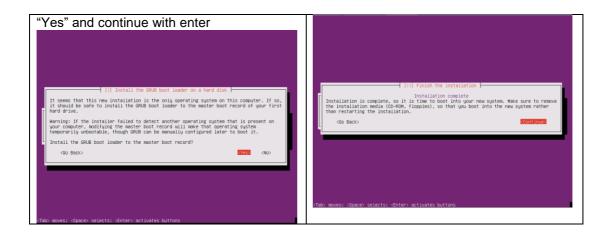






Step 33: Confirm "Install the GRUB	Step 34: REMOVE CD/DVD installation
bootloader to the master boot record" with	media and continue with enter





Step 35: Login in to your Ubuntu with the username created above (user/Test123 was the example)	Step 36: Continue as root user. Enter the commands below, each followed by the enter key.
Ubuntu 16.04.4 LTS eve-ng tty1	
eve-ng login: Ubuntu 16.04.4 LTS eve-ng tty1	sudo su
ewe-ng login: user Pasword: ⊎elcome to Ubuntu 16.04.4 LTS (GNU/Linux 4.4.0-116-generic x86_64)	Test123
■ Documentation: https://help.ub/ntu.com = Management: https://andscape.canonical.com = Saupport: https://andscape.canonical.gom	
32 packages can be updated. 7 updates are security updates.	cd
The programs included with the UManda system are free software; the exact distribution terms for each program are described in the individual files in surgerbaredox-excopyingHt. UManta comes with ABSOLUTELY NO WARMWITY, to the extent permitted by applicable law. To run a comeand as administrator (user "root"), use "sudo command)". See "man sudo_root" for details. user@eve-ng:~\$	user@eve-mg:~\$ sudo su [sudo] password for user: root@eve-mg:/home/user# cd root@eve-mg:~# _

Step 37: Create root password	Step 38: Verify and set your hostname if you haven't set it before
sudo passwd root	
	nano /etc/hostname
Repeat your desirable password twice; Example: eve	Edit it if necessary: eve-ng
root@eve-ng:~# sudo passwd root Enter new UNIX password: Retype new UNIX password: passwd: password updated successfully root@eve-ng:~#	Confirm edit with ctrl+o followed by Enter And ctrl+x for Exit

Step 39: Verify your host settings	Step 40: Edit permissions for root user to allow SSH access to EVE server
nano /etc/hosts	
	nano /etc/ssh/sshd config
Your assigned static IP will be bound to your	—
server hostname and domain	Find and edit PermitRootLogin to "yes"



127.0.0.1 localhost	# Authentication:
192.168.217.50 eve-ng.eve-ng.net eve-ng	LoginGraceTime 120
# The following lines are desirable for IPv6 capable hosts	PernitRootLogin yes_
::1 localhost ip6-localhost ip6-loopback	StrictModes yes
fr02::2 ip6-allhouters	Confirm edit with ctrl+o followed by enter
NOTE: in case if DHCP IP address is used,	And ctrl+x for Exit
you will see 127.0.0.1 IP vs hostname	Restart ssh service:
Confirm edit with ctrl+o followed by enter And ctrl+x for Exit	sudo service ssh restart

Step 41: 🔔 IMPORTANT

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

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

Update GRUB, Followed by Enter

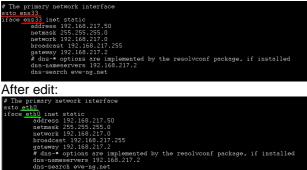
update-grub

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

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

```
nano /etc/network/interfaces
```

Before edit:



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

Reboot the EVE server

reboot



3.3.2 EVE Professional Installation Phase 2

Step 43: Start EVE Professional installation with the following one-line command and hit enter

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

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

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

Step 44: Reboot EVE

reboot

3.3.3 EVE Professional Installation Phase 3

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

Step 47: After update, Step 46 is completed, continue with type:	Step 48: (Optional) If after dockers first install (Step 47) 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.	Toolsworkey 2 C Langes Toolsworkey 2 C Langes Tools Tools
Vour output ofter install must look like:	please run the command: apt install -reinstall eve-ng-dockers
Your output after install must look like:	or apt install -reinstall eve-ng-dockers-alt You must get output like in the step 47.



Step 49: Update repositories	Step 50: 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 section 16

3.4 Google Cloud Platform

3.4.1 Google account

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

⊗ Getting started -Google Co.: x +	- 0 ×
$\leftarrow \rightarrow \mathcal{C} \widehat{\omega}$ $\bigcirc \widehat{\bullet}$ https://console.cloud.google.com/getting-started $\cdots \boxtimes \widehat{\Delta}$	lin\ © ≡
Your free trial is waiting activate now to get \$300 credit to explore Google Cloud products. Learn more	DISMISS ACTIVATE
≡ Google Cloud Platform	🗊 😨 SIGN IN
Get Started with Google Cloud Platform 12 month, S300 free trial to get you started. Always Free products to keep you goop 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 S My First Project ▼	٩	÷	5 9 9 🕕 i 🙆
	7 Welcome! Ort started with Google Cloud Platform TOUR CONSOLE		· · · · ·

Step 2. Next pop up window, click "NEW PROJECT"

Select a project	NEW PROJECT
Search projects and folders	
RECENT ALL	
Name	ID
V Se My First Project 🕖	t-dragon-238421



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

≣ Go	oogle Cloud Platform		C
lew Pro	oject		
A	You have 10 projects remaining in your quota. Required delete projects. Learn more	est an increase or	
	MANAGE QUOTAS		
Project na			
	-PROJECT	0	
Project ID:	: eve-pro-project. It cannot be changed later. EDIT		
Locat	ion *		
🚹 No or	ganization	BROWSE	
Parent org	ganization or folder		
ODEATE	CANCEL		
CREATE	CANCEL		

This will take some time.

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

=	Google Cloud Platform	🗣 EVE-PRO-PROJECT 👻		۹	
^	Home	VM instances			
(+)	Pins appear here 🔞	Instance groups			
<u>کې</u>	Marketplace	Instance templates Sole tenant nodes	: Af	PI APIS Requests (requests/sec)	:
	Billing	Disks			1.50
API	APIs & Services	Snapshots Images			
Ť	Support >	TPUs			0.75
θ	IAM & admin >	Committed use discounts Metadata			
	Getting started	Health checks	10	0 PM 10:15 10:30	10:45
•	Security >	Zones	•	Requests: 0.017	
COM	PUTE	Network endpoint groups Operations	•	Go to APIs overview	
۰Ô۰	App Engine 🕢 🔹 🔹	Security scans			
	Compute Engine >	Settings	:		

Step 5. Navigate: top bar and select your Project

≡	Google Cloud Platform	🕈 EVE-PRO-PROJECT 🔫	٩	
۲	Compute Engine	VM instances		
A	VM instances			
.A.	Instance groups			



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



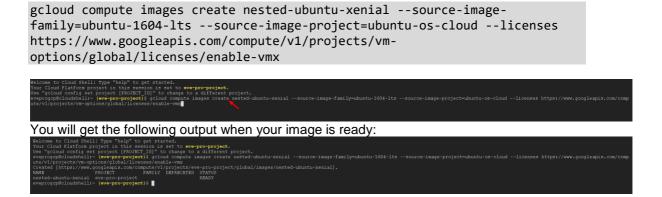
3.4.3 Preparing Ubuntu boot disk template

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

≡	Google Cloud Platform	Seve-pro-project 👻		۹
۲	Compute Engine	VM instances		
B	VM instances			
Go	ogle Cloud Shell			
Free	, pre-installed with the tools you need	I for the Google Cloud Platform. Learn Mor	2	
ev NA	ME ZONE	loud compute instances list MACHINE_TYPE PREEMPTIBLE	INTERNAL_IP E	AXTERNAL_IP S
ex ex	ample-vm-1 asia-east1- ample-vm-2 europe-west ample-vm-3 us-central1 eprogcp@cloudshell:~\$	1-b f1-micro	10.240.160.142 1 10.240.119.112 1 10.240.57.1 1	04.155.36.122 p
ev	eprogcp@cloudshell:~\$ gi			~
< Rea	Linux environment	Configured for Google Cloud	Popular langu	ane support
• Li	nux Debian-based CS B persisted home directory	Google Cloud SDK Google App Engine SDK	 Python Java 	age addition
	ld, edit and save files	 Docker Git 	= Go = Node.js	
		 Text editors Build tools View more L² 		
			_	
			CANCEL	START CLOUD SHELL

≡	Google Cloud Platform	🐓 EVE-PRO-PROJECT 👻		5 🛛 🖉 🗎 E 🤗
۲	Compute Engine	VM instances		
B	VM instances			
ца Ra	Instance groups			
	Instance templates		Compute Engine VM instances	
日	Sole tenant nodes			
	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		windows, of other standard images. Create your inst vivi instance, 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			
26	Committed use discounts			
营	Marketplace			
<1				
=	(eve-pro-project) × +	•	/	
Your	me to Cloud Shell! Type "he Cloud Platform project in t goloud config set project [ogcp@cloudshell:~ (eve-pro-	Jp" to get started. his sestion is set to <u>everproproject</u> . PROJECT [D]" to change to a different project. project]\$ ■		

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



3.4.4 Creating VM

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



=	Google Cloud Platform	n 🕏 EVE-PRO-PROJECT 👻			
۲	Compute Engine	VM instances			
E	VM instances				
ដឹង	Instance groups				
	Instance templates		Compute Engine VM instances		
8	Sole tenant nodes		Vivi instances		
0	Disks		infrastructure. Create n	ou use virtual machines that run on Google's nicro-VMs or larger instances running Debian,	
0	Snapshots			dard images. Create your first VM instance, ion service, or try the quickstart to build a	
[10] [10]	Images			t or Take the quickstart	
8	TPUs				
1%1	Committed use discounts				
*	Marketplace	~			
Ħ	warketplace				

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

eve-pro			
egion 🕜		Zone 🕜	
europe-west2 (London)	-	europe-west2-c	
8 vCPUs 🔹	30 G	B memory	<u>Customize</u>
8 vCPUs Upgrade your account to create		,	
		,	

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

Step 3: Select Boot disk. Press Change

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

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



Boot disk Select an image or snapshot to create a boot disk; or attach an existing disk OS images Application images Custom images Snapshots Existing disks Show images from EVE-PRO-PROJECT nested-ubuntu-xenial Created from EVE-PRO-PROJECT on Apr 22, 2019, 11:10:28 PM Can't find what you're looking for? Explore hundreds of VM solutions in Marketplace Boot disk type 📀 Size (GB) 🕜 SSD persistent disk 100 Select Cancel Step 5: Allow https traffic and create VM Identity and API access 🕧 Service account Compute Engine default service account -Access scopes Allow default access Allow full access to all Cloud APIs Set access for each API Firewall 🕜 Add tags and firewall rules to allow specific network traffic from the Internet Allow HTTP traffic Mallow HTTPS traffic * X Management, security, disks, networking, sole tenancy Your free trial credit will be used for this VM instance. GCP Free Tier Cancel

3.4.5 EVE-NG-PRO installation

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



Name 个	Zone	Recommendation	In use by	Internal IP	External IP	Conne	ect					
🥑 eve-pro	europe-west2-c			10.154.0.2 (<u>nic0</u>)	35.246.119.90 🖾	SSH		•	:			
								Open Open View (in bi in bi gelo	rowser window on custom port rowser window on custom port rowser window using provided pr ud command ner SSH client	ivate SSH kej	у
ۏ eveprogcp@ev	e-pro: ~ - Mozilla Fir	efox								_		×
(i) 🔒 https://s	ssh.cloud.google.d		o-project/zon	es/europe-west2-c	/instances/eve-pro?	authus	ser	=1&h	nl=e	n_US&projectNumber=84	⊠ ☆	Ξ
:09:B4:AA:4B: Welcome to Ubu * Documentat: * Management * Support: Get cloud su http://www 0 packages ca	2D:FC:46:82:9A untu 16.04.6 I ion: https:// : https:// https:// upport with Uk	: ssh-csa 0 AB: :D2:65:0C:38:AA TS (GNU/Linux 4: help.ubuntu.com landscape.canoni ubuntu.com/advar untu Advantage (usiness/services tes.	:F6:78:9B:F .15.0-1029- ical.com ntage Cloud Guest	'6 ∙gcp x86_64)	7:EF:29:17:25							¢-
the exact dis individual fi	tribution term les in /usr/sh with ABSOLUTEI w.	the Ubuntu systa is for each progr are/doc/*/copyri Y NO WARRANTY, 4	ram are des ight.	cribed in the	у							

Step 2: Launch installation with:

Type the below command to become root: sudo -i

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

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

apt upgrade Confirm with Y

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

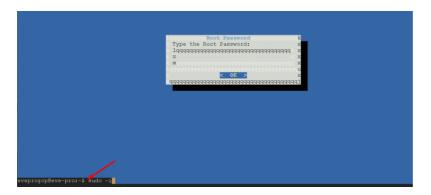


Step 5: IMPORTANT: Setup IP

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

sudo -i





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

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

Type command to become root: sudo -i

Type command to update EVE apt update

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

3.4.6 Access to Google Cloud EVE-PRO

Use your public IP for accessing EVE via https.

= Filter VM ins	stances					0	C	olumr	IS 🔻
Name ^	Zone	Recommendation	In use by	Internal IP	External IP	Co	nne	ct	
🥑 eve-pro	europe-west2-c			10.154.0.2 (nic0)	35.246.119.90 🖾	SS	H	•	:



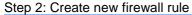
Default web login: admin/eve



3.4.7 Optional: GCP Firewall rules for native console use

	Google Cloud Platfor	_	
♠	Home		M instances 🔹 CREATE IN
Ŧ	Pins appear here 🔞	>	×
STOR	AGE		Filter VM instances
	Bigtable		Name A Zone Recomm
	Datastore	>	Seve-pro europe-west2-c
((*	Firestore	>	
	Storage	>	
())	SQL		
20	Spanner		
2	Memorystore		
Ē	Filestore		
NETW	ORKING		
11	VPC network	>	VPC networks
æ	Network services	>	External IP addresses
÷	Hybrid Connectivity	>	Firewall rules
0	Network Service Tiers		VPC network peering

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





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

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



Direction of traffic @ Ingress Egress Action on match @						
Allow Deny						
Targets 🕖						
All instances in	All instances in the network					
Source filter 🔞	Source filter 💿					
IP ranges	*					
Source IP ranges	0					
0.0.0.0/0 😢						
Second source filt	Second source filter 📀					
None	•					
Protocols and por Allow all Specified pro						
🗹 tep :	0-65535					
udp :						
Other pro	Other protocols					
protoc	protocols, comma separated, e.g. ah, sctp					
🗧 Disable rule	> Disable rule					
Create Cancel						

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

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



Direction of traffic							
🖲 Egress 🔫	• Egress						
Action on match Allow Deny	0						
Targets 🕜							
All instances in	the network						
Destination filter	0						
IP ranges	•						
Destination IP ran	ges 🖗 🖌						
0.0.0/0 🙁							
Protocols and por Allow all	ts 💿						
🗹 tep :	0-65535						
udp :							
Other pro	ptocols						
protoc	ols, comma separated, e.g. ah, sctp						
Solution Create Canal	sel						

Summary FW rules.

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

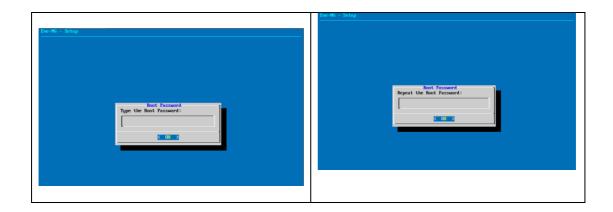
3.5 EVE Management IP Address setup

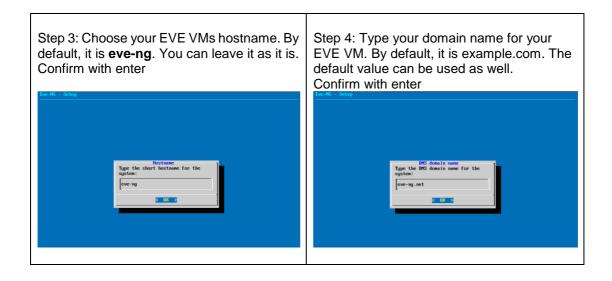
3.5.1 Management static IP address setup (preferred)

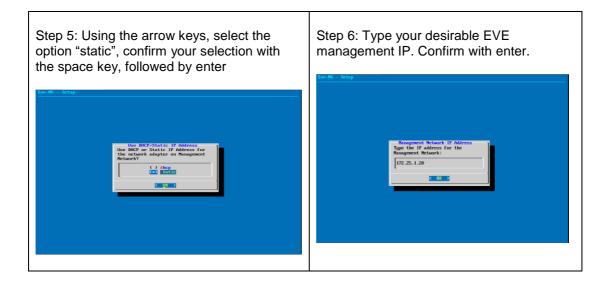
The steps below will walk you through the network setup and assign a static management $\ensuremath{\mathsf{IP}}$ for $\ensuremath{\mathsf{EVE}}$.

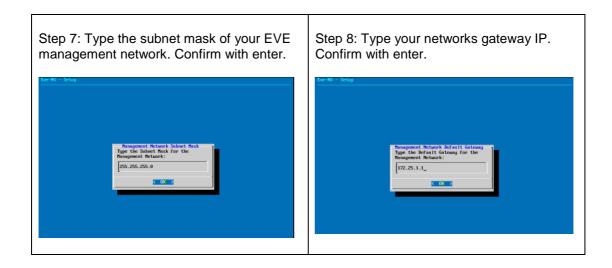
Step 1: Log into the EVE CLI using the default login root/eve After login, type your preferred root password for EVE, default is eve. Remember it for further use. Confirm with enter	Step 2: Retype your root password again and confirm with enter.
NOTE: Typed characters in the password field are not visible.	

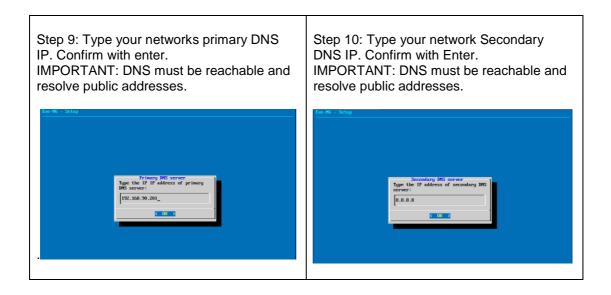






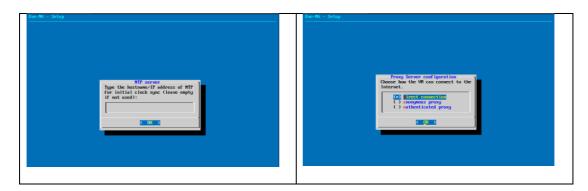






Step 11: Type your preferred NTP server IP. It can be left empty as well; in this case, your EVE VM will automatically assign the time from its host.	Step 12: If you have a proxy in use for your Internet, select the respective proxy option and configure your proxy settings. By default, it is direct connection (no proxy). Confirm your selection with enter. EVE will reboot automatically.
--	---

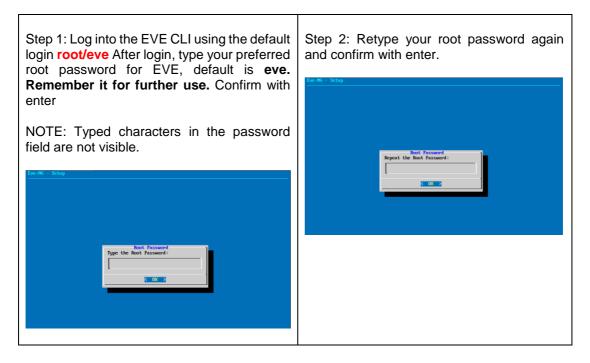




IMPORTANT NOTE: If you are setting up your management IP for the first time (fresh EVE installation), please return to the install section and complete installation phase 3.

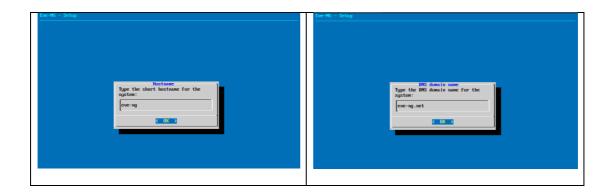
3.5.2 EVE Management IP address setup via DHCP

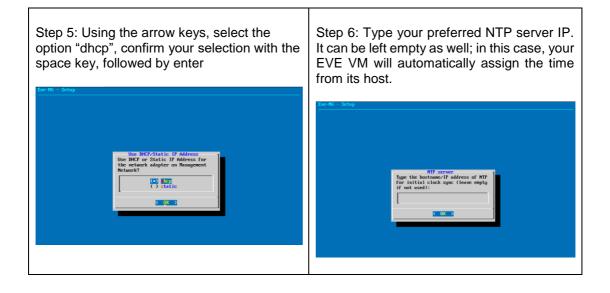
The steps below will walk you through the network setup and assign a management IP for EVE via DHCP.

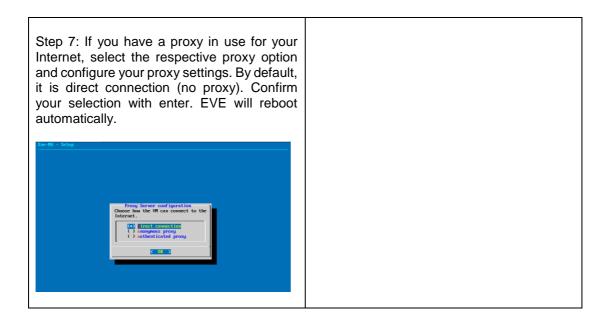


Step 3: Choose your EVE VMs hostname. By default, it is eve-ng . You can leave it as it is. Confirm with enter	











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

3.6 EVE-NG Community upgrade to EVE-NG Professional

3.6.1 Mandatory Prerequisites

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

3.6.1.1 EVE Community disk space

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

df -h

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

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

apt autoremove

3.6.1.2 Verify current EVE Community version

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

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



dpkg -l ev	/e-ng				
1 2	2				
root@eve-ng:~# d					
Desired=Unknown/					
				lf-inst/trig-aWait/	Trig-pend
/ Err?=(none)/R	einst-required	(Status,Ern	: upperc	ase=bad)	
/ Name	Version	Architect	ure Desc	ription	
+++-=============					
ii eve-ng	2.0.3-86	amd64	A ne	w generation softwa:	re for networ
root@eve-ng:~#					

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

	@\/@	🖶 Main	🗲 Management 🗸	🖨 System 👻	G Information +	ł
System status				 System st System li 		
Lull. System status				X Stop All N		
8% O'trand				i% ery used		
		run	ning IOL nod	es	running Dyn	5
			0		(C
			ru	nning Docl 0	ker nodes	
Qemu version: 2.4.0						
Current API version: 2.0.3-86						
OR3M status,						
O'V and		run	ning IOL nod	es nning Docl	(

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

3.6.1.3 Steps to upgrade to the latest EVE Community version

Type the following commands below and hit enter after each.

apt update

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

apt upgrade

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

reboot

3.6.2 Upgrading EVE Community to EVE-NG Professional

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

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

apt update



apt install eve-ng-pro

reboot

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

apt install eve-ng-dockers

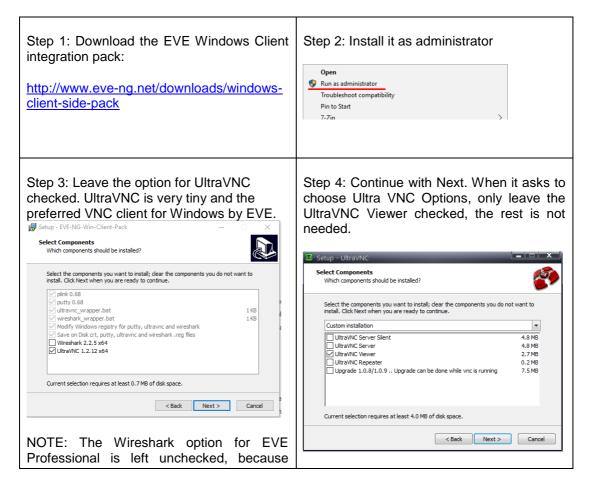
reboot

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

3.7 Native telnet console management setup

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

3.7.1 Windows Native Console





Wireshark is already integrated into EVE PRO.	
Step 5: Continue with Next and finish the installation.	

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

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

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

Step 2: Set your default Telnet program:



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

Example: Firefox browser:

Launch Application	×
This link needs to be opened with an application. Send to:	
SecureCRT Application	
Choose other Application <u>Choose</u> .	
Remember my choice for telnet links.	
Cancel Open lin	nk

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

3.7.2 Linux Native Console

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

Step 1: Go to the EVE Linux Side integration pack download page:	Step 2: Open the link to GitHub

٦



http://www.eve-ng.net/downloads/linux- client-side	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:	
<pre>sudo add-apt-repository ppa:smartfinn/eve-ng-integration sudo apt-get update sudo apt-get install eve-ng-integration</pre>	
Step 4: Login as root to your Linux system an	d enter the commands below:
NOTE: An internet connection is required. E other	nter each command line below one after the
sudo add-apt-repository ppa:smartfinn/eve-	ng-integration
sudo apt-get update	
sudo apt-get install eve-ng-integration	

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

3.7.3 MAC OSX Native Console

Telnet Protocol:

OSX Sierra (and older releases) is ready to use for the telnet protocol.

> Switch			
Do you want to allow this page	to open "T	erminal"? Cancel	Allow

For High Sierra, a telnet binary must be added (Apple decided to remove it and it is not present anymore on the latest OSX releases).



		192.168.198.43	Ċ		
	telnet 192.168.198.43 - 80×24				
[Command not found: [Could not create a	telnet) new process and open a pseudo-tty.)	•			

Procedure to install a previous telnet binary:

Download telnet and ftp binaries from eve: https://<your_eve_ip>/files/osx.zip

Step 1: Reboot the Mac and hold down the "Command" and "R" key simultaneously after you hear the start-up chime, this will boot OSX into Recovery Mode

Step 2: When the "OSX Utilities" screen appears, pull down the 'Utilities' menu at the top of the screen instead, and choose "Terminal"

Step 3: Type the following command into the terminal then hit enter:

crutil disable; reboot

Step 4: When the OSX reboot is done, extract the osx.zip to your home directory

• a terminal o		👔 user — sh — 80×24	
	Last login: Sun May 27 16: Users-Mac-mini:~ user\$ sud Password: Users-Mac-mini:~ root#	:46:55 on console do −i]
<mark>₽</mark> © Ø Ø ¶ ∰ ⊠ T L + + + = = 0 © © @ <u>■</u> T			

Step 5: Copy the files to /usr/bin and set the permissions using the terminal utility:

sudo -i

cp telnet ftp /usr/bin ; chmod 555 /usr/bin/telnet; chmod 555 /usr/bin/ftp

chown root:wheel /usr/bin/telnet /usr/bin/ftp

- 1. Reboot the Mac and hold down Command + R keys simultaneously after you hear the startup chime, this will boot OSX into Recovery Mode
- 2. When the "OSX Utilities" screen appears, pull down the 'Utilities' menu at the top of the screen instead, and choose "Terminal"



Type the following command into the terminal then hit enter:

crutil enable; reboot

VNC Protocol:

Download Chicken of VNC at: <u>https://sourceforge.net/projects/chicken/files/Chicken-</u>2.2b2.dmg/download

Install and use it as default VNC Client

RDP Protocol:

Download and install the Microsoft Remote Desktop on the App Store:





3.8 Login to the EVE WEB GUI

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 16



4 EVE-NG Professional Licensing

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

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

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

License information	<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			
	Expirity Da	te: 20190507	
	Admins:	2	
	Editors:	0	
	Users:	3	

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

4.1 EVE-NG Professional Base license

EVE-NG Professional Edition - 1 Year License

http://www.eve-ng.net/buy/eve-ng-professional-edition

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

Products in your shopping cart		
EVE-NG Professional Edition - 1 Year License EVE-NG Professional Edition - 1 Year License This license unlocks all Pro features and two active Administrator accounts sessions. The Administrator role can manage everything in EVE-NG without restriction. This includes creating, deleting, and modifying all folders, labs, nodes and accounts.	1	\$117.18
I have a discount coupon		Total price: \$140.62



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

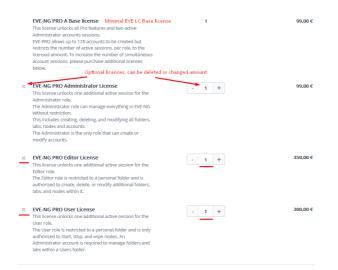
4.2 EVE-NG Learning Centre licenses

EVE-NG Learning Centre Edition - 1 Year License

http://www.eve-ng.net/buy/eve-ng-learning-edition

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

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



EVE-NG PRO – A Base License (Mandatory)

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

The following licenses below can vary per your needs.

EVE-NG PRO - Administrator License

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

EVE-NG PRO - Editor License

This license unlocks one additional active session for the Editor role. The 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 - User License



This license unlocks one additional active session for the User role.

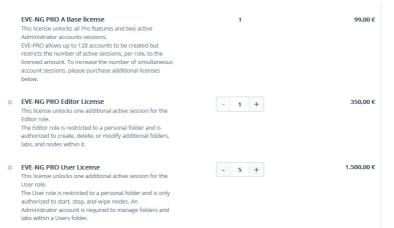
The User role is restricted to a personal and the Shared folder and is only authorized to start, stop, and wipe nodes. An Administrator account is required to manage folders and labs within a User's personal folder. An Editor account may manage labs in the Shared folder.

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 Editor-role based account, assigned to the teacher to create/manage labs and assign them to the Shared folder for Students use. The 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 Editor account for the teacher can also be replaced by an Administrator account instead.

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



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

4.3 EVE-NG Corporate licenses

Essentially, this is EVE Learning Centre edition with 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 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

http://www.eve-ng.net/buy/eve-ng-learning-edition

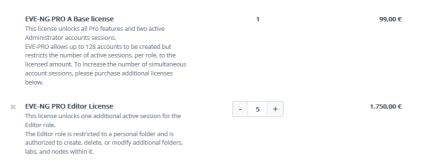
EVE-NG Corporate features multi user support and assigns accounts as Administrators or Editors.

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 Editor users. License model below includes:



- Two administrator accounts necessary for EVE Corporate labs and other user accounts management
- Five Editor-role based accounts. The 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 Corporate role rights, please follow section 4.4.

4.4 User roles comparison chart

Feature	Administrator Role	Editor/Teacher role	User/Student role
User accounts management	yes	no	no
User Accounts visibility	yes	yes	no
User edit modal visibility	yes	yes	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
access	yes	yes	running nodes)
Lab management module			yes (only own
access	yes	yes	running 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	yes
System/Stop all nodes	yes	yes	no
Information tab access	yes	yes	no
Work with more than one lab	yes	yes	no
Lab timer function	yes	yes	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.

		🏕 Main	🗲 Management 👻	🗐 System 👻	3 Information +	🕄 Licensing 👻	©2018 Eve-NG
📥 File manag	er Current po	sition / root				License Inf License Re	
New Name						📧 License Up	load



LICENSE FILE DATA	
85SU8849wgFDZYXYXWF6RIvM4qDiu3Xe	
5JQDojmre+iu79o+kBqjNHlgVrcJQM5m	
SrMJ1IOCFmExwkgU3Q4jzwYsJh/OTIN3	
yC4FufEh9y/8lwh9UT7hilLvvYoWT2o2	
SalM9wYD6iyoN6X9fAflu4gW1onCLW1F	
1i78O7DdpU5Rj2iA6zx6R10KnuQ2915Y	
2PGxbu8w3CYt/biZptJP13OkpXJGAGeV	
wrnYXy3gYFbF31RyrggGqrORx10bKkho	
pOKUiA/x3UAQhKll2hduzSiHqki4qt4M	
Fe1Xkbfa+KliPyMgaYcTiL8heyqOw31E	
9KutHiUPXTW3Tb0S7s7y8aG0pUa3kqT7	
6rFv+glsgWOQ/QK1nyt9wxLe8m9ihRzH	
6XRy/K1TrX5NJ9j7dfFz+w3+aNeVDWFV	
Ai2y3diOVf4sHUcdeeQpzq91diA0D9Ag	
XZUCJMa8QFNHWn9OGKXFzmDtP2LK	

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

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

EVE-PRO Purchase Portal

EVE-Learning Centre or Corporate Purchase Portal

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

< Back to shopping	



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

Billing Information		
	Licensed to:	Person Ocompany
	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.



Step 8: Copy Content of your received License

LICENSE FILE DATA	
(26X8Y28jraqm9g6gwQ7SFS	
2ep0MvFVeX8jngmD5XmEH	
FWpZm5odlck8+YOztEVEO8	
70ddXr0ADjIsSKKVdpSPvo	
'ESgjgXncOU/58Ki1SUe5x26	
TQD8S+AP/AM8T4CAeZ0ual	EioeLkuAgS
x/d13uaONkeALTSdniKNjs4	hXIAkfcq
G9x6lZkwOClYwGo6kbGvVx	cj8JtlXpD8
6Wt84iCWPItYbsIqtwguMJiA	K1IQQgO
prut/YELc8uPTV0m8QDH/I20	GJ0IXRpo
vacuHdg/kEv89zL02Z7ywrM	JOIZRnRK
As78C5ERv9XQJB5rTZI3AQ	8FjlVvAOy
gvuHTgWjfm/9mTisf7GOTIP	oxfKqJT7
OG+dlhyveFFi3BuLdjTDXsB	wX48HF1L
4nzQFDUSL0PvL4uLCx8V1r	
+RNz9K/yR42EeLOhrWFQwl	HIUQs0aigs
nIng+JMr0le7djyxkh/R8cnxC	
ICaEToaoJ3XxQAU2iQxyXr7	
100AROVV1VOnsjAjciUIWm	

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

	Professional	🚮 Main	🗲 Management 🗸	🗐 System 👻	Information -	Licensing •	©2018 Eve-NG
📥 File manag	er Current po	osition / root				License Inf License Re	
New Name						💷 License Up	oload

Paste your licence and click on Upload

LICENSE FILE DATA	
26X8Y28jraqm9g6gwQ7SFSBKDeyKnWX	
2ep0MvFVeX8jngmD5XmEHQczkmSEmEt	
SFWpZm5odlck8+YOztEVE08C5UlPepY2	
Z70ddXr0ADjlsSKKVdpSPvo9p9MYO/7b	
7ESgjgXncOU/58Ki1SUe5x26HlLKrKdz	
1TQD8S+AP/AM8T4CAeZ0uaEioeLkuAgS	
1x/d13uaONkeALTSdniKNjs4hXIAkfcq	
hG9x6IZkwOCIYwGo6kbGvVxj8JtlXpD8	
n6Wt84iCWPltYbsIqtwguMJiAK1lQQgO	
8prut/YELc8uPTV0m8QDH/I2GJ0IXRpo	
evacuHdg/kEv89zL02Z7ywrMJOIZRnRK	
1As78C5ERv9XQJB5rTZl3AQ8FjIVvAOy	
agvuHTgWjfm/9mTisf7GOTlPoxfKqJT7	
60G+dlhyveFFi3BuLdjTDXsBwX48HF1L	
34nzQFDUSL0PyL4uLCx8V1rrYYaRxUct	
a+RNz9K/yR42EeLOhrWFQwHIUQs0ajqs	
mInq+JMr0le7djyxkh/R8cnxClmKn5VX	
DICaEToaoJ3XxQAU2iQxyXr7qxfdo0Jt	
HO0AROVV1VOnsjAjciUIWmrm6i6=	

4.6 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-R
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 tim	e=9.11 ms ^{ern}
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=2 ttl=58 tim	
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=3 ttl=58 tim	e=9.50 ms
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=4 ttl=58 tim	e=9.56 ms
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=5 ttl=58 tim	e=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.

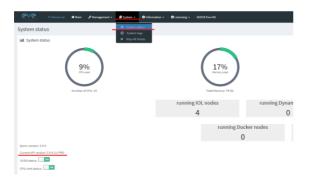
OPTION for bare EVE installations which has **bnx2x Broadcom Ethernet** drivers, please rewrite your driver to the newest linux-firmware:

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

5.1 EVE-NG Professional Update

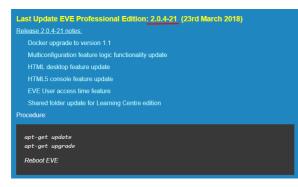
It is strongly recommended to keep your EVE-NG up to date. To update and upgrade, SSH to your EVE CLI.

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



The newest version of EVE-NG can be verified by checking the official website: <u>http://www.eve-ng.net</u>. The main page will display the latest EVE-NG version and correct steps to update.





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

Type commands followed by Enter

apt upgrade

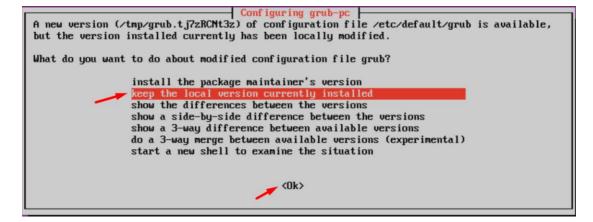
In case the prompt asks to confirm with Y/N, answer Yes.

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"





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

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

reboot

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



6 Types of EVE management consoles

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

EVE Pro supports three different console types.

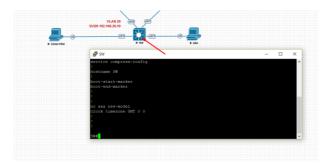
6.1 Native console



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

6.1.1 Native Console: telnet

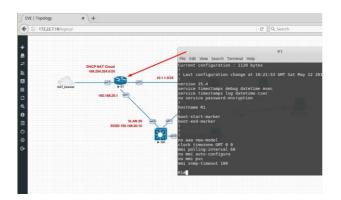
Windows OS: You can use your preferred telnet program like Putty, SecureCRT or others. Example: Putty as native telnet client on Windows. To setup Windows native telnet client please follow section **3.7.1**



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

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



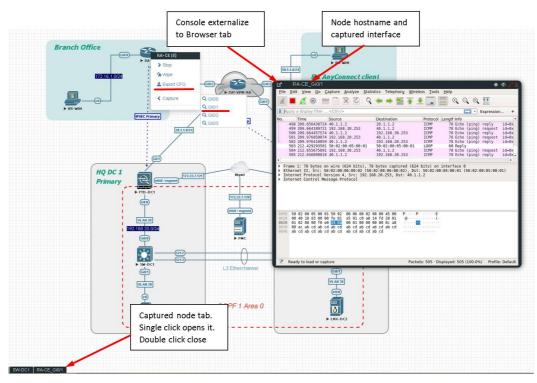


MAC OSX: You can use your preferred telnet program like the native Terminal, SecureCRT, or others.

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

6.1.2 Native Console: Wireshark

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



Integrated HTML RDP for Wireshark capture

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

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



6.1.3 Native Console: VNC

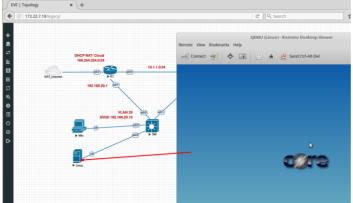
Windows OS: Recommended and tested is UltraVNC but any other compatible one can be used.

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



Linux OS: Remote Desktop Viewer for VNC Sessions.

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

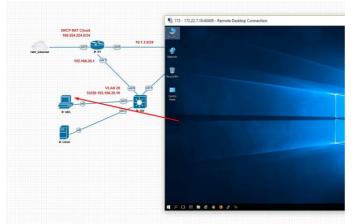


MAC OSX: Preferred VNC program: Chicken VNC Example: Chicken VNC as Native VNC client on MAC OSX. To setup MAC OSX native RDP Viewer client please follow section 3.7.3

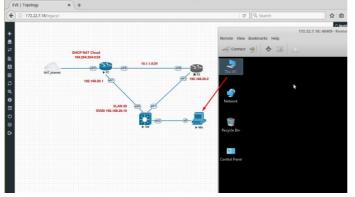
6.1.4 Native Console: RDP

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





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



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

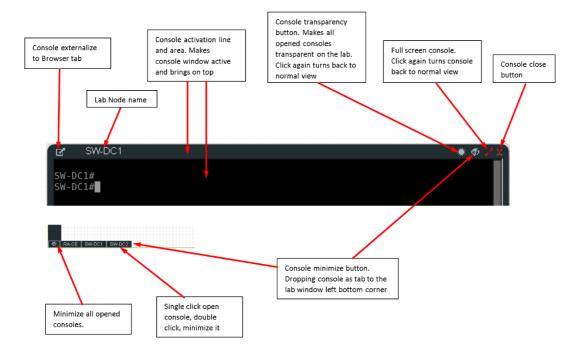
6.2 HTML5 console



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



6.2.1 HTML5 Console window functions



6.2.2 HTML5 Console: Telnet

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





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

Settings × +		
← → C (Chrome chrome//settings/content/clipboard		
≡ Settings		
	← Clipboard	
	Ask when a site wants to see text and images copied to the clipboard (recommended)	
	Block Add	
	No sites added	
	Allow	
	(%) https://172.22.7.18:443	

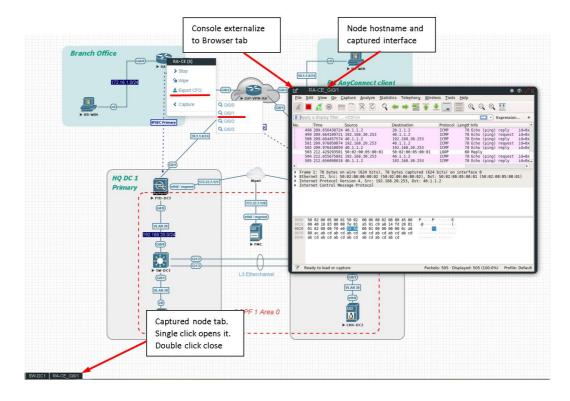
Option: The new Firefox v63.0.3 and higher allows the use of the copy/paste function inside the HTML session. Type in your Firefox browser "**about:config**" and enable clipboard values below:

\leftrightarrow \rightarrow C' \textcircled{a} \textcircled{b} Firefox aboutconfig			
Search: 🔎 clipboard			
Preference Name	▲ Status	Туре	Valu
clipboard.autocopy	modified	boolean	true
clipboard.plainTextOnly	modified	boolean	true
devtools.screenshot.dipb.card.enabled	default	boolean	false
dom.event.clipb.oardevents.enabled	default	boolean	true
dom.events.asyn.cClipb.oard	default	boolean	true
dom.events.asyncClipboard.dataTransfer	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.

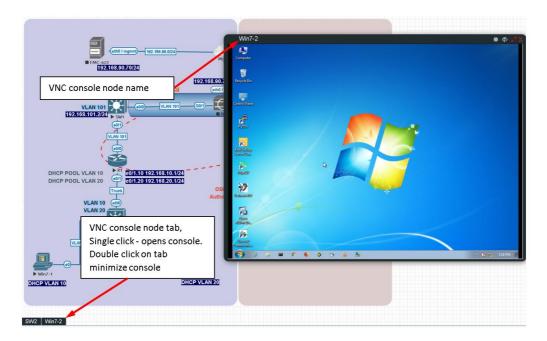




To save captured file to your local PC, please refer section 12.2

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.

#		
	etto / mgmm _ 192.165.90.074	Win7-1 ● Φ ⊀ X
Ω @ €	RDP console node name	
0 6	VIAN OF	
*	DHCP POOL VLAN 10 DHCP POOL VLAN 20 DHCP POOL VLAN 20 Trusk Aut	user Proved
	VLAN 10 VLAN 20 RDP console node tab,	Cancel
	Single click - opens console. Double click on tab	D 🗞 Windows7 Ultimate
	MIN7-1 minimize console	
Win7-		

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

Example below, Edit node, Win10, Console type rdp-tls.



Template		
Windows		•
Number of nodes to add	Image	
1	win-10-x64-LTS	•
Name/prefix		-
Win		
Icon		
B Desktop.png		•
UUID		
1 QEMU Version	4096	1
	QEMU Arch	QEMU Nic
tpl(2.0.2) *	tpl(x86_64) -	tpl(e1000) +
tpl(2.0.2) • QEMU custom options	tpl(x86_64) -	tpl(e1000) -
tpl(2.0.2) • QEMU custom options		tpl(e1000) -
tpl(2.0.2) • QEMU custom options -machine type=pc-1.0,acc	tpl(x86_64) -	tpl(e1000) -
tpl(2.0.2) • QEMU custom options -machine type=pc-1.0,acc	tpl(x86_64) -	tpl(e1000) -
tpl(2.0.2) • QEMU custom options •machine type=pc-1.0,acc Startup configuration None	tpl(x86_64) -	tpl(e1000) -
tpl(2.0.2) • QEMU custom options •machine type=pc-1.0,acc Startup configuration None	tpl(x86_64) -	tpl(e1000) -
tpl(2.0.2) • QEMU custom options machine type=pc1.0,acc Startup configuration None Delay (s) 0	tpl(x86_64) -	tpl(e1000) -
tpl(2.0.2) • QEMU custom options machine type=pc1.0,acc Startup configuration None Delay (s) 0	tpl(x86_64) -	tpl(e1000) -
tp((2.0.2)	tpl(x86_64) -	tpl(e1000) -

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).

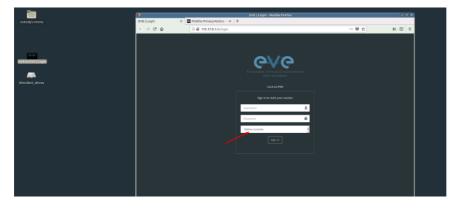
6.3.1 Login to HTML5 Desktop console

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.



— 172:17.194.139 ×
🗲 -> 🖸 🚺 172.222.7.18/html5/#/client/NDIA4MDMAYw8te09kbA==?token=682A278EE34284219FC6107A3C48EF16D828210646D4629F75D80C268AC4F877
🕲 Applications Places System 🧃 🌜 📶
Source Section 2015
task later (reg blackare, dow
inclustored

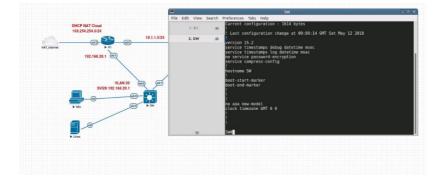
Step 2: Double-click the "Link to EVE | Login" icon and log into EVE using NATIVE console.



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.

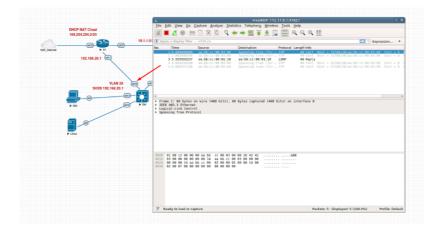




6.3.3 HTML5 Desktop Console: Wireshark

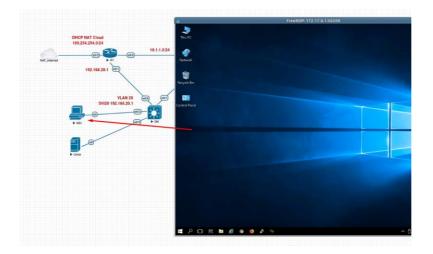
Right click on the node you wish to capture, choose capture and select the relevant interface. The capture will open in an RDP session window.

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



6.3.4 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

	Vanagement Buttons			
	nanagement earters			Scale
🗅 🖿 Running				*
3 🖿 DC	04 May 2018 14:40			
J 🖿 JP	19 Apr 2018 00:35			
🕽 🖿 Juniper	22 Mar 2018 22:18	-		
🛯 🖿 Miscelaneous	25 Mar 2018 21:18	-		
) 🖿 RS	23 Mar 2018 06:38	Lab preview		
SEC SEC	18 May 2018 08:22			
🗅 🖿 Shared	17 May 2018 15:51			
) 🖿 SP	14 Feb 2018 22:10	Lab Path: /test.unl	Description:	
🛯 🖿 Users	17 May 2018 14:54	Version: 1 UUID: 85c2c14c-2568-468f-8789-a695f8b63183		
🗋 🖹 dockers lab.unl	08 May 2018 07:57	Author:		
test.unl	18 May 2018 08:47	Open Edit Delete		

7.1.1 Management buttons



Button	Description
	Select All or Deselect All folders or labs in the EVE tree
h	Create/Add new Lab
1	Change selected item name. To use this option, please select the folder or lab 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.

E	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
Ţ	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).
C	Refresh current folder content

7.1.2 Management tabs

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

Tab	Description
# Main	Returns back to the EVE Home Management screen.
🗲 Management 🗸	Management dropdown, opening the management submenu.
 ✓ User management G Node management G Lab management 	Management submenu, refer to sections: 7.3, 7.3.2, 7.3.3
🗐 System 👻	System dropdown.



 System status System logs Stop All Nodes 	System submenu, refer to section 7.4
Information →	Information dropdown
 About Forum YouTube Channel Help on EVE-NG LiveChat 	Information submenu, for details see section 7.5
€ Licensing ◄	Licensing dropdown
License InformationLicense RequestLicense Upload	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.

File manager Current position / root / Running	Add folder
•	
Lest_lab1	18 May 2018 12:58
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		•
Lab2.unl	18 May 2018 13:36	Running tFolder/ Shared	
		Users	Canc

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

	e \/e		🖶 Main	🗲 Management 👻	🖉 System 👻	Information +	©2018 Eve-NG	11:45	👗 test2	😔 Sign out
à	File manage	er Current po	sition / roo	t / Shared						
	New Name					Add folder				
	• • •	¥ 8 4	1	σ						
	•						Choose a lab for more info			
	🗆 📑 test_la	ib1.unl			18 May 2	2018 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.

_	<u> </u>	10 1107 2020 2 1107	
	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**



Current position / root / Users	
New Name	Add folder
🖿	
🗆 🖿 test2	18 May 2018 14:30
🗆 🖿 test3	18 May 2018 14:29
🗆 🖿 test4	18 May 2018 14:31

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

7.2.1.4 Create folder

An Admin or Editor user account is required.

Type the new folder name and click "Add Folder"

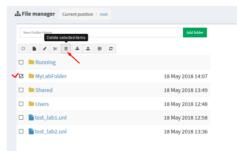
NOTE: Editors can only create folders within their own profile folder or in the Shared folder

7.2.1.5 Delete folder

An Admin or Editor user account is required.

Select the folder you wish to delete and press Delete.

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



18 May 2018 13:49

La File manager Current position / root

□ 🖹 🖊 ೫ 🗄 📥 🗷 🛛 3

Myfolder 🗸

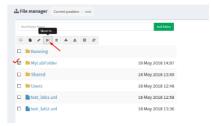
🗆 🖿 Running

7.2.1.6 Move Folder

An Admin or Editor user account is required.

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

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



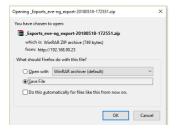
	Move files to
	Files selected to move:
Select the target destination for your folder and	MyLabFolder
confirm by clicking on Move.	Current files position /
	New path
	1
	Running tFolder/
	MyLabFolder
	Shared Move Cancel

7.2.1.7 Export Folder

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

🚠 File manager 🛛 Curr	rent position / root	
New Name	Export	Add folder
	* * • *	
🗉 🔚 Running	N	
✓ ☑ 🖿 MyLabFolder		18 May 2018 14:07
Shared		18 May 2018 15:16

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



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

7.2.1.8 Import Folder

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

Step 1: Press the Import button.



File manager Current position / root	
New Name	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.

ۏ File Upload					×
	This PC > Desktop > Exports >		✓ ひ Search Exp	ports 🖌	p
Organize 🔻 New fo	older			== - (?
This PC	^ Name	Date modified	Туре	Size	
3D Objects	EIGRP cfg set 2	15/03/2018 12:10	File folder		
Desktop	EIGRP cfg set 2.zip	15/03/2018 12:11	WinRAR ZIP archive	2 KB	
Documents	EIGRP cfg set.zip	15/03/2018 12:10	WinRAR ZIP archive	4 KB	
Downloads	Firepower_poc_623.zip	12/04/2018 11:16	WinRAR ZIP archive	51 KB	
	📜 UD_lab_folder.zip 🔪	18/05/2018 23:31	WinRAR ZIP archive	258 KB	
Music					
Pictures					
Videos	N N				
🏪 System (C:)					
🕳 Donna (E:)					
🕳 Data (G:)	~		× 1		
Fil	e name: UD_lab_folder.zip		 All Files (Ope 		~

Step 3: Press the Upload Button

File manager Current position / root					
Name	Size	Progress	Status	Actions	
UD_lab_folder.zip	0.25 MB			(1) Upload	×
New Name Add Kolder					

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

ame		Size	Progress	Status	Ad
D_lab_folder.zip		0.25 MB		Success	
iew Name	Add folder				
1 / K 8 ± ± 0 0					
Running			Choose a lab for more in	nfo	
MyLabFolder	18 May 2018 17:24				
Shared	18 May 2018 15:16				
DD Labs	19 May 2018 01:32				
Mu 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



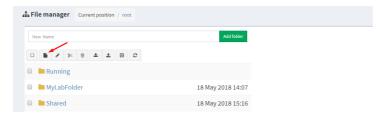
File manager Current position / root			
New Name	Add folder		
0 1 1 1 1 1 1 1 1 0 0			
🛛 🖿 Running		Choose a lab for more info	
🛛 🖿 MyLabFolder	18 May 2018 14:07		
🗎 🔚 Shared	18 May 2018 15:16		
🛯 🖿 Users	18 May 2018 14:31		
0 📑 test_lab1.unl	18 May 2018 12:58		
test_lab2.unl	18 May 2018 13:36		

7.2.2.1 Create Lab

The Admin or Editor user account is required.

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

Click on the New Lab button and refer to section 9.1



7.2.2.2 Delete Lab

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

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

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

Professional Professional	🖶 Main 🛛 🎤 Management 🗸	System • 🚯 Information •	CLicensing - ©2018 Eve-NG	
File manager Current po	osition / root			
New Name Delete selected item	15	Add folder		
	± 0 2			
🗉 🖿 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.

File manager 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 🥆	3< Move to 🕜 Rename 🖺 Clone 🧃
test_lab2.unl	18 May 2018 13:36

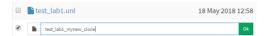
Step 2: Your lab will be cloned with all your exported configurations or configuration sets with a new name.

test_lab1.unl	18 May 2018 12:58
🖿 test_lab1_1526649330089.unl 🗸	18 May 2018 16:15

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

test_lab1.unl		18 May 2	2018 12:	58
💾 test_lab1_1526649330089.unl 🥆	9≪Move to	🕼 Rename	Clone	Û

Step 4: Rename it, and click OK to confirm



7.2.2.4 Move Lab

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

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

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





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

7.2.2.5 Export Lab

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

'	å, Fi	le manager Current position / root	
	N	ew Name	Add folder
	0	► / 3< = ± 0 C	
		Running	
		MyLabFolder	18 May 2018 17:24
		Shared	18 May 2018 15:16
		Users 🗧	18 May 2018 14:31
•	2	test_lab1.unl	18 May 2018 12:58
~	Ø	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.

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 <u>a</u> uto	matically for files like this from now on.	
	OK Cancel	

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.

ۏ File Upload					×
← → ~ ↑ <mark> </mark> > 1	This PC > Desktop > Exports >		マ ひ Search Eq	ports	P
Organize 👻 New fol					•
	Name	Date modified	Туре	Size	
> 📌 Quick access	EIGRP cfg set 2	15/03/2018 12:10	File folder		
> 🐔 OneDrive	EIGRP cfg set 2.zip	15/03/2018 12:11	WinRAR ZIP archive	2 KB	
> 💷 This PC	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	
> 👝 Donna (E:)	\sim				
> 💣 Network		•			
-					
			× ×		
File	name: Firepower_poc_623.zip		~ All Files (5.5)	~
110	Thepower_poc_ocs.ap			_	
			 Ope 	n C	ancel

Step 3: Press the Upload Button

Life manager Current position / root						
Name		Size	Progress	Status	Actions	
Firepower_poc_623.zip		0.05 MB			(1) Uploed	
New Name	Add folder					
🗆 🖿 Running			Choose a lab for more in	nfo		
🗆 🖿 MyLabFolder	18 May 2018 17:24					

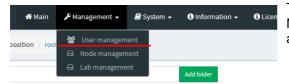
Step 4: After you made sure your lab is imported, you can close the upload session.

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



7.3 EVE Management Dropdown Menu

7.3.1 EVE User management



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

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

7.3.1.1 Creating a new EVE User

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

₽V ₽ Prol	essional 🖷 Main 🎤 Manager	ent • 🖉 System • 🕜 Information •	O Licensing - O2018 Eve-NG				10:02 🛔 admin 🛛 🔂 Sign out
User manageme	nt here you can manage EVE-NG u	sers					n ⇒ ≯Management > ∰User management
Database of users							+Add user More Info 👻
Username	Email	Name	R	e Valid From	Expiration	POD	Actions
admin	root@localhost	Eve-NG Administrator	ac	lmin		0	(FEdit 🔒

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

Add New User	
User Name*	
test	
Use only [A-Za-z0-9]chars	
External Auth (Radius)	
Password	
Enter password	
Password Confirmation	
Enter password	
Email	
Enter email	
Please enter an valid email	
Name	
Enter name	
Role Administrator V	
Account Validity	
From -1 0 to -1	0
POD≜	
4	
* - Required Fields	
	Add Cancel



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

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

Password Confirmation	

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

User 0 to -1 0		
cco Editor rom User 0 to -1 0	e Administrator 🗸	
rom User 0 to -1 0		
From User 0 to -1 0	Di Editor	
	m to	
POD*	D*	

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.

Account	Validity				
From	2018-05-18	00:00	to	2018-05-20	01:00
POD*					
1					
1					

Step 6: The POD number is a value assigned to user accounts automatically. POD numbers are like user profiles inside of EVE and are a unique value for every user Think of PODs like a virtual rack of equipment for each user. Admins can assign a preferred number between 1-128. Please keep POD numbers unique between users!

Step 7: Press ADD

Add	Cance
-	

7.3.1.2 Edit EVE User

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

lser managemei	nt here you can manage EVE-NG user	rs					♣ > ≯ Management > 營 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.

Add N	lew User				
User Nan	ne*				
test					
Use only [A	-Za-z0-9]chars				
External	Auth (Radius) 🗹				
Passwor	d				
Passwor	d Confirmation				
Email					
test@e	ve.test				
Please ente	er an valid email				
Name					
Tester					
Role Adr	ministrator 🗸				
Account	Validity				
From	2018-11-22	0	to	2018-12-30	0
POD*					
4					
* - Reau	ired Fields				
				Ac	d Cancel

7.3.1.3 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.

atabase of a	users				1 1	1	1	1	1	1	1	+Add user More Info +
sername	Authenticator	Email	Name	Role	Disk Usage	Valid From	Expiration	Last session time	Last session ip	Current folder	Current lab	Last session time
-user1	racius	auser1@eve.lab	Auser User	user	0 GB	2018-11-22 05:30	2018-11-28 07:00	N/A	N/A	N/A	N/A	Last session ip
imin	internal	uldis@eve-ng.net	Eve-NG Administrator	ədmin	1 GB			16 Nov 2018 0:35:34	172.22.10.101	1	N/A	Current folder

7.3.2 EVE Node management

essional	<table-of-contents> Main</table-of-contents>	<i>₽</i> M:	anagement 👻	🗐 Sj	/stem 👻	i Informatio	n -	1 Lie
Current po	sition / root		User managem Node managen					
		a	Lab manageme	nt		Add folder		
±	1	C						

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

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

e management here you can	manage EVE-NG running nodes				n > PMar	agement > @Nodes mar
inning 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 that will allow you to filter the list to only display information related to the entered value.

Example: The Username column filters for test4



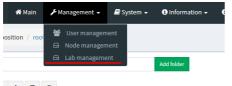
inning node(s)						
Labname	Lab ID	Username	Node Name	Template	Action	
		test4	×			
/Users/test4/Shared/test_lab3	2	test4	R1	Iol	- ×	
/Users/test4/Shared/test_lab3	2	test4	R2	IO	🖵 🗶	

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.

Labname	Lab ID	Username A	Node Name
/test_lab1	1	admin	R2
/test_lab1	1	admin	R1
/Users/test2/Shared/test_lab3	3	test2	R1
/Users/test2/Shared/test_lab3	3	test2	R2
/Users/test3/Shared/test_lab3	4	test3	R1
/Users/test3/Shared/test_lab3	4	test3	R2
/Users/test4/Shared/test_lab3	2	test4	R1
/Users/test4/Shared/test_lab3	2	test4	R2

7.3.3 EVE Lab management



The Lab Management page, under the Management Dropdown, displays running labs for all users. In this menu an Admin account can manage or even open up any user's running labs.

1 2 2

A NOTE: Editor and User accounts are able to see and open their own running labs only

MOTE: Admin accounts are able to see, open, and join any users running lab.

de management here you can manage EVE-NG running no	des				⋪ > ⊁Management > @Nodes manage
Running node(s)					
Lab Name	Lab Id	Username	Node Name	Node template	Actions
'test_lab1	1	admin	R2.	iol	— ×
/test_lab1	1	admin	R1	iol	— ×
/Users/test4/Shared/test_lab3	2	test4	R1	iol	🖵 🗙
/Users/test4/Shared/test_lab3	2	test4	R2	iol	₩ ×
/Users/test2/Shared/test_lab3	3	test2	R1	iol	🖵 🗶
/Users/test2/Shared/test_lab3	3	test2	R2	iol	V ×

7.3.3.1	Lab	management	actions
---------	-----	------------	---------

Button	Action
—	Open the running lab
×	Stop the running lab



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 utilization status, log files, and an option to stop all running nodes on the server.

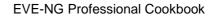
7.4.1 System status



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

Professional # Main P Management - B Syst	tem - O Information - O Licensing - C	D2018 Eve-NG		21:15 👗 admin 🖙 Sign out
System status				# > #Logs > @ System status
네. System status				
4% Cruiner Fumber of CPU: 4	14% Menory and Total Memory: 8 Ob.		0% Bage used	33% Dataset
	running IOL nodes	running Dynamips nodes	running QEMU nodes	
	8	0	0	
	running Doo	cker nodes running	VPCS nodes	
	0	-	0	
Qemu version: 2.4.0	0		0	
Current API version: 2.0.4-33-PRO				
UKSM status: ON				
CPULimit status: ON				

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		mage		
1		vios-adventerp	risek9-m-15.6.2T	-
Name/prefix				
vIOS				
Icon				
Router.png				*
UUID				
CPU Limit 🛛 🖌				
СРИ	RAM (M	B)	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

7.4.2 System logs



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

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

₽VP rufessional	🖷 Main 🗲 Management - 🖉 System -	O Information + O Licensing + 02018 Eve-NG	22:05 📥 admin 😝 Sign out
System logs			# Blags O System logs
System log viewer			
Select log file	Number of Lines	Search text	
access.txt	~ 20	Verv	
access.bxt			
apitot			
error.bit		File output start	
php_errors.bit	/api/auth HTTP/1.1" 200 557 "http://192	8.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rx:80.0) Gecko/20100101 Firefox/60.0"	
unl_wrapper.bd	/themes/adminLTE/dist/js/app.js?_=153	77354514 HTTP/1.1" 200 6501 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/2010	10101 Firefox/60.0"
	24 +0300] "GET /themes/adminLTE/unl_data/pages/sys	html HTTP/1.1" 200 1402 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/2010010	1 Firefox/80.0"
172.25.1.5 [19/May/2018:00:04:2	24 +0300] "GET /themes/adminLTE/unl_data/js/angula	controllers/syslogCtrl.js HTTP/1.1" 200 921 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rc50.0)) Gecko/20100101 Firefox/60.0"
172.25.1.5 [19/May/2018:00:02:3	35 +0300] "GET /themes/adminLTE/unl_data/img/Logo	/E_Color.png HTTP/1.1" 200 108800 "http://192.168.90.23/" "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	35 +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; rx60.0) Gecke	o/20100101 Firefox/60.0"
172.25.1.5 [19/May/2018:00:02:3	35 +0300] "GET /themes/adminLTE/unl_data/pages/cor	int/labView.html HTTP/1.1" 200 1800 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; nv:60.0) Geck	xo/20100101 Firefax/60.0*
172.25.1.5 [19/May/2018:00:02:3	35 +0300] "GET /api/folders/ HTTP/1.1" 200 900 "http://	L168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0"	
172.25.1.5 [19/May/2018:00:02:3	34 +0300] "GET /apl/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	34 +0300] "GET /themes/adminLTE/dist/js/app.js?_=15	77354513 HTTP/1.1" 200 6501 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/2010	10101 Firefox/60.0"
172.25.1.5 [19/May/2018:00:02:3	34 +0300] "GET /themes/adminLTE/dist/css/skins/skin-	e.css HTTP/1.1" 200 1153 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101	. Finefox/60.0*
172.25.1.5 [19/May/2018:00:02:3	34 +0300] "GET /themes/adminLTE/unl_data/css/unl_la	ss HTTP/1.1" 200 2748 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; n::60.0) Gecko/20100101 Fi	irefox/60.0*
		8.90.23/" "Mozilla/5.0 (Windows NT 10.0: Win64: x64: rv:60.0) Gecko/20100101 Firefox/60.0"	

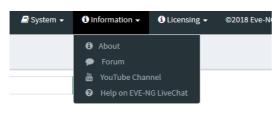


7.4.3 Stop All Nodes



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

7.5 EVE Information Dropdown menu



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.

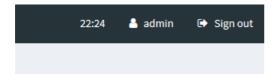
The License Information Window will display the expiration date along with the number of licenses that have been activated

License information display:



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.

i Information 🗸	i Licensing 🗸	©2018 Eve-NG
	License Inf License Re	
Add folder	📧 License Up	oload



7.8 Lab preview and global settings

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

Professional # Main / Management -	System - Oinformation -	O Licensing - ©2018 Eve-NG	22:44	🛔 admin	🕒 Sign out
La File manager Current position / root					
New Name	Add folder	test_lab2			
					Scale
🗆 🖿 Running					
MyLabFolder	18 May 2018 17:24	8			
Shared	18 May 2018 15:16				
🗆 🖿 Users	18 May 2018 14:31				
Ext_lab1.unl	18 May 2018 12:58				
test_lab2.unl	18 May 2018 13:36				
		Lab Path: /test_lab2.unl Description: Version: 1			
		UUID: 7dab0723-4c04-495e-8200-e4a6da411ff6 Author:			
		Open Edit Delete			

7.8.1 Lab preview window

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

test_lab2	<u>8</u> 8	50486 12 13 13 13 15
Lab Path:/test_lab2.unl Version: 1 UUID: ?dab0723-4c94-4856-4269-e4a8da411ff6 Author:	Description:	

7.8.2 Lab preview buttons

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

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



7.8.3 Lab preview information

Description, version, UUID etc.

Lab Path: /test_lab1.unl Version: 12 UUID: 95692558-5acb-4308-ab66-64f9b40bd31f Author: John Tester Description: Here is short description of Lab

7.8.4 Lab Global Settings

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



Edit button below the Lab

from the Topology page Side bar:

Edit lab		• ×
Path* /test_lab1.unl	Description 6.	Here is short description of Lab
Name* 1. test_lab1 Use only (% Za z0 0,)chores		
Version* 2. 12 Must be interger (0-9)shars) Author 3. Tohn Tester	Tasks 7.	Here are tasks for your lab. Task 1, Please configure Routers with IP addressing
Config Script Timeout 4. 300 Seconds		Task 2. Configure IGP, EIGRP routing on all nodes Task 3. Configure windows Host to receive DHCP IP address
Lab Countdown Timer 5, 120 Seconds		Style Cancel
* - Required Fields		Sweet Carrier

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

- 1. Lab name.
- 2. Version: Version numbers allow a lab author to assign a value to a unique state of a lab. Increase the number to correspond to new developments in the lab. If left unfilled, EVE will assign a value of 1 automatically.
- 3. Author: You can add a lab author name in this field



- 4. Config Script Timeout: It is the value in seconds used for the "Configuration Export" and "Boot from exported configs" operations. Refer to section 11.3 for more information.
- 5. Lab Countdown Timer: It is the value in seconds to provide a time limit (countdown timer) for completing a lab. Refer to section 11.4 for more information.
- 6. Description: In the Description field you can write a short description of the lab.
- 7. Tasks: In the Tasks field you can write the task for your lab.

Lab details

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

LAB DETAILS

TEST_LAB1

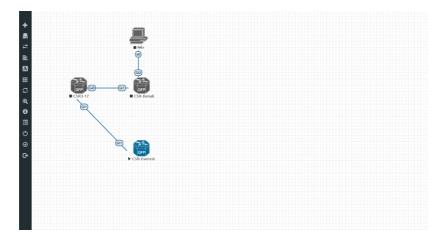
ID: 95692558-5acb-4308-ab66-64f9b40bd31f Here is short description of Lab

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

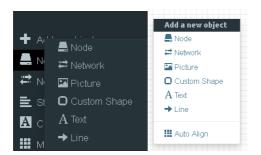
Move your mouse pointer over to the left on top of the minimized sidebar to expand the interactive sidebar as shown in below screenshot





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.

A	DD A NEW NODE *	
1	mplate	٦
	Nothing selected 👻	
	Nothing selected	
	A10 vThunder	
	Apple OSX	
	Aruba ClearPass	
	Aruba WiFi Controller	
	Arista vEOS	
	Barraccuda NGIPS	
	Brocade vADX	
	CheckPoint Security Gateway VE	
	Cyberoam FW	
	Docker.io	
	Cisco ACS	
	Cisco AMP Cloud	
	Cisco ASA	
	Cisco ASAv	
	Cisco Application Policy Infrastructure	

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 PICTUR	E	*
Name	MyTopology	
Picture	Browse anycon_lab.PNG	
	Add Cancel	

8.1.1.4 Custom shape object

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

ADD CUSTOM SHA	PE	*
Туре	square ~	
Name	Name]
Border-type	solid ~	
Border-width	5	
Border-color		
Background- color		
Save Cancel		



8.1.1.5 Text object

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

Add a new object	
A Network	
Picture	□ □ % ♂ @ @ @ ◆ → 漕 像・
Custom Shape	B I U 5 × ×² < I ↓ ⊑ ≣ ⊕ ⊕ 19 Β ≡ Ξ Ξ •1 1• π 話· ∞ ∞ ₱ □ ⊞ ≣ Ω ⑤ □
A Text	Styles • Format • Font • Size • 🛕 • 🔕
→ Line	New Text
🖬 Auto Alian	

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

The Nodes object in the sidebar opens the "Configured Nodes" window. 📕 Nodes CONFIGURED NODES BOOT IMAGE CPU LIMIT IDLE PC NVRAM (KB) RAM (MB) ETH SER Q = 9 ± 0 I-VL19 1 \sim 📕 Desktop.png R2 iol i86bi_LinuxL3-AdvEnterpri: V n/a n/a n/a 1024 1024 0 teinet Router.png None > ▶=9±0 0 n/a 1024 1024 1 0 teinet 3 R3 iol i86bi_LinuxL3-AdvEnterpri: V n/a n/a Router.png None ✓ Q = 9±0 0 R4 186bi_LinuxL3-AdvEnterpri: v n/a n/a n/a 1024 1 0 teinet 🚳 Router.png ✓ Q = 9± 0 iol None eve-ostinato:latest ∨ n/a rdp 🕥 👩 Network Analyzer.png• > ► ■ 9 ± G n/a n/a n/a 256 Default æ n/a × 1 rdp-tls * None 6 win win-7-x86-IPCC n/a n/a 4096 n/a Desktop.png > ▶■9±0 8

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

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

You can change the following values:



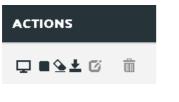
- Node Name
- Boot image
- Number of CPUs for the node
- Enable or disable CPU Limit (Refer to section 7.4.1)
- IDLE PC for Dynamips node
- NVRAM in Kbyte
- RAM in Mbyte
- Ethernet quantity. **NOTE:** The Node must be disconnected from any other nodes to make this change. You cannot change the interface quantity if the node is connected to any other node.
- Serial interface quantity, IOL nodes only. You cannot change Serial interface quantity if the node is connected to any other node.
- Type of Console
- Node Icon that appears on the Topology
- Startup configuration to boot from

Actions Buttons (Stopped node):



Delete Node

Actions Buttons (Running node):



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

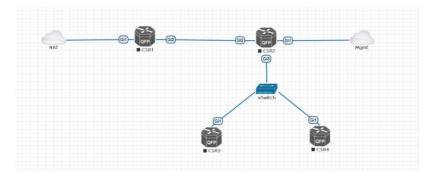


8.1.3 Networks

Hetworks

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



 D
 NAME
 TYPE
 ATTACHED HODES
 ACTIONS

 1
 NAT
 axt0
 1
 0
 1

 2
 Mgmk
 paet0
 1
 0
 1

 3
 vsuitch
 bridge
 3
 0
 1

ACTIONS

c İ

🖹 Startup-configs

- Edit Network
- Delete Network

8.1.4 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		• ×
		Config Set Default - Config Set	
ASA	4 ON	2 4	Ace Editor
VEOS2	4 ON	: : Serial Number: 123456789AB	^
vEOS1	4 ON	: 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	
		enable password BR/27/11/7FR/UIZ4 encrypted xitate per-ession deny top any4 any6 xitate per-ession deny top any6 any6 xitate per-ession deny utop any6 any6 any6 xitate per-ession deny utop any6 any6 eq domain xitate per-ession deny utop any6 any6 eq domain xitate per-ession deny utop any6 any6 eq domain xitate per-ession deny utop any6 any6 eq domain names I interface Ethernet0 nameif outside security-level 1 interface Ethernet1 channel-proup 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

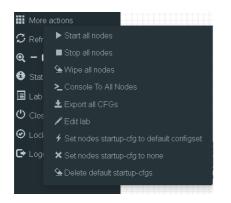
NOTE: You will not see any objects in this window if none have been added to the lab yet.

CON	FIGURED	OBJECTS			×
ID	NAME	туре	TEXT	Астоня	
1	bit 1	text	Tepology xtx	8	
2	square2	square		1	

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

8.1.7.5 Export all CFGs

```
🛓 Export all CFGs
```

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

Export configurations are supported for:

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

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

8.1.7.6 Edit lab

∦ E	Edit lab Opens the Edit lab window. Refer to section: 7.8.4						
EDIT LA	AB			×			
Path*	/UD Labs/Arista MLAG Integration unl	Description	Arista mLAG and ASA Lab				
Name*	Arista MLAG integration Use only (A-Za-30-93chars						
Version*	1 Must be interper (10-9)chars)						
Author	UD	Tasks	LAB Scenario: 1. Corrigure ASA ports in ethershamels (mode actue) and vian interfaces per design, name it as DMZ and Corporate respectively 2. Corrigure ASA e0 with DHOP (P, must receive IP from home LAN and name this port as outside	^			
Config Sc	ript Timeout 800 Seconds		 Configure ASA management on port e5, and Win7 Mgmnt host per design, ASA must be reachable from Mgmnt PC over ASDM Configure Arista vEOS in mlag and assign ports in etherchannels per design 				
Lab Coun	tdown Timer 0 Seconds		 ConFigure vEOS etherchannel ports facing to ASA in etherchannel mode active ConFigure vEOS etherchannels facing to vEOS-9Ws to etherchannel mode on 	▼ ⊴			
*- Regu	ired Fields			Save Cancel			

8.1.7.7 Set node's startup-cfg to default configset

* Set nodes startup-cfg to default configset 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



8.1.7.8 Set node's startup-cfg to none

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

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

Please refer to section 11.3

8.1.7.9 Delete default startup-cfgs

😉 Delete default startup-cfgs

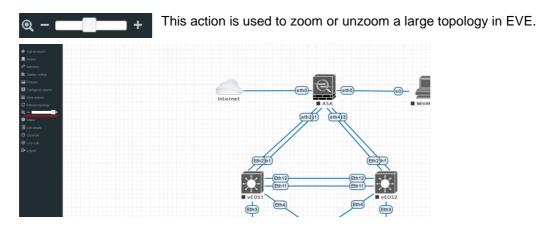
▲ WARNING: this action will delete all configurations saved to your saved default config set. Please make sure that is what you want to do before you execute this.

8.1.8 Refresh Topology

🗯 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 7.4.1



STATUS				• ×
EVE-NG version: 2.0.4-37-PRO QEMU version: 2.4.0 UKSM Status: CPU Limit Status: Role: admin	CPU usage	14% Memory usage	0% Swap usage	16% Disk usage on /
ROLE: ACMIN	0 running IOL nodes	o running Dyna		3 nning QEMU nodes
	o running Docke	r nodes	running ^v	o VPCS nodes

8.1.11 Lab details

Lab details Lab details display information about a lab, its UUID, description and lab tasks. To edit the lab description and lab tasks, please refer to section 7.8.4 and 8.1.7.6

LAB DETAILS	×
ARISTA MLAG INTEGRATION	
1D: a8c898e9-873c-4a63-8e04-b52x9c988400	
Arista mLAG and ASA Lab	
LAB Scenario	
1. Configure ALA posts in elementamente (mode astella) una d'una interferess par de las DLA d'Orgozate respectivaly 2. Configure ALA management enceme Phon hones Luta da nome his poi ante a studiale 3. Configure ALA management o poi et si, est Win ¹⁷ March hots per design. ALA muse he resubable from Mgrent PC over ASDM 4. Configure MLA management poi et his est herbander de das participants	
5. Configure 4005 etherchannel ports Facing to ASA in etherchannel mode active 6. Configure 4005 etherchannels facing to XIO5-0H8 to etherchannel mode on	
7. Configure 405 SWe etherdnamels in mode on 8. Configure and assign W05 SWe therdnamels in MUANE accordingly design 9. Configure 4045 Expert design	
10. Configure NAT on the ASA, you have to reach internet from DMZ and Corporate Zone must reach DMZ 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



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 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

8.1.15 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 Lab is unlocked and all operations are working	Enter password to lock lab 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.

8.1.16 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

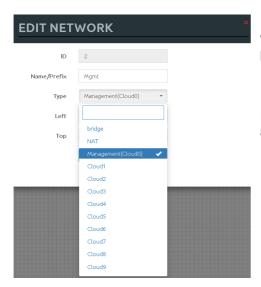


Right-clicking on the connection between nodes allows you to delete this connection.

8.2.3 Cloud or Bridge network menu

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





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.

	E.			
Template				
Cisco CSR 1000V				*
ID				
З				
Image				
csr1000v-universalk9.0	3.17.04.S.156-1.S4	ļ.		*
Name/prefix				
CSR3				
lcon				
📋 CSRv1000.png				*
UUID				
67fea887-b30d-4ad0-b	314-828808b385	33		
CPU Limit			Discussion	
1	RAM (MB) 3072		Ethernets 4	
QEMU Version	QEMU Arch		QEMU Nic	
tpl(2.12.0)	tpl(×86_64		tpl(e1000)	-
QEMU custom option		,		
		mon:stdio -no	ıgraphic -nodefconfig -n	odef
			5.4	
Startup configuration				
None				*
Delay (s)				
0				
Console				
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				*
telnet				
Left		Тор		

8.2.5 Running node menu



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





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

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

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

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

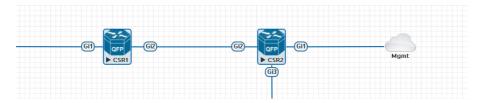
Export CFG: This function is used to export the saved running configuration to the EVE startup configuration sets. Reference section 11.3



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

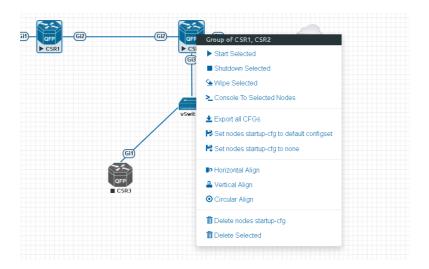
8.2.6 Selected nodes menu and features

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



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





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

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

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

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

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

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

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

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

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

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

Please refer to section 11.3



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

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

Please refer to section 11.3

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

Step 1: Select the nodes you wish to align.

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

Picture before:

MOST

VIOS1	VI052	¥1053	VIOS4	VI055	¥1056	VIO57	• viosa	¥1059	VIOS10
Picture	after:								

VIOS

Vertical Align: Aligns the nodes in one vertical line.

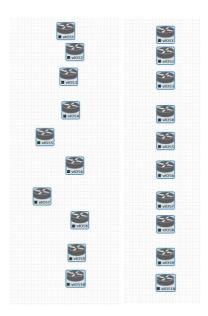
Step 1: Select the nodes you wish to align.

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

MIOSZ

Picture before Picture after

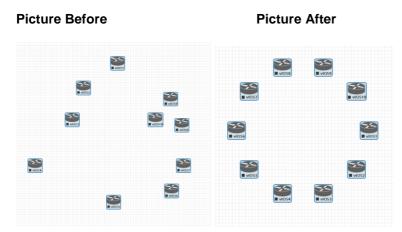




Circular Align: Aligns the nodes in a circle.

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.

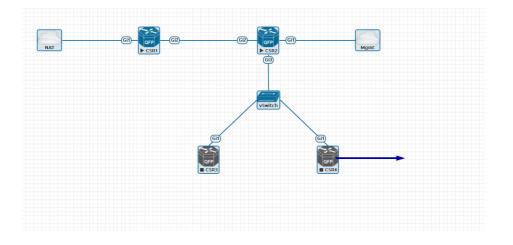
WARNING, this action will delete the configurations of the selected nodes that are saved to your Default config set. Please make sure that is what you want to do before you execute this.

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 color 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 color 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



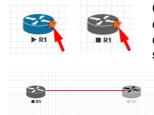
A running node with a turning red gear symbol means that the node is either in the process of hibernating the node or it has sent the shutdown signal to the node and is waiting for it to turn off. Once this process has successfully finished, the symbol will turn into a grey node with a black square symbol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

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



9 Working with EVE labs

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

9.1 Creating a lab

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

攝 File manager	Current position / root	
Add new lab	Add folder	
*		

Step 2:

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

Add New Lab						
Name*	mylab4			Description	It is my new lab	
	Use only [A-Za-z0-9]chars					
Version*	1					
	Must be interger ([0-9]chars)			Tasks	1. configure IP addressing	~
Author	John Tester			Tasks	2. configure El GRP AS 20	
Config Script Ti	meout	300	Seconds		-	÷
Lab Countdown	Timer	0	Seconds		3. comigure statut derauit route to the internet	4
					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

section 8.1.1.1 for more information.	Right click on a free area of the topology page and click on "Node" to add a new node. Refer to section 8.2.1 for more information.
---------------------------------------	---



+ Add op object	Add a new object
No Retwork	₩ Network
	Picture Picture
■ Sta O Custom Shape	Custom Shape
A Co A Text	A Text
III More actions	🔛 Auto Align
Cr. Refresh topology	

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 17.2

nplate	Template
Iothing selected	- Nothing selected
	cisco
iothing selected	Cisco AMP Cloud
A10 vThunder	Cisco ASA
pple OSX	Cisco ASAv
Aruba ClearPass	Cisco Application Policy Infrastructure
Aruba WiFi Controller	Cisco Application Policy Innasciaciae
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
Dockenio	Cisco IOS 1710 (Dynamips)
Cisco ACS	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 FirePower
Cisco CSR 1000V	Cisco FirePower 6
Cisco CSR 1000V (Denali and Everest)	Cisco vIOS
Cisco IPS	Cisco vIOS L2
Cisco CUCM	Cisco vNAM
Cisco ISE	Cisco WILC
Cisco IOS 1710 (Dynamips)	Cisco vWAAS
Cisco IOS 3725 (Dynamips)	Cisco Prime Infra
Cisco IOS 7206VXR (Dynamips)	Cisco Prime Infra Cisco Email Security Appliance (ESA)
Cisco IOL	Cisco Email Security Appliance (ESA) Cisco Web Security Appliance (WSA)
Cisco NX-OSv (Titanium)	Cisco Web Security Appuance (WSA) Cisco XRv
isca NX-OSv 9K	Cisco XRV 9000
Cisco FirePower	CISCO XKV 9000



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

	NODE	\$
Template 1.		
Cisco CSR 1000V		•
Number of nodes to a	dd <mark>2</mark> . Image <mark>3</mark> .	
1	csr1000v-univ	versalk9.03.17.04.S.156-1.S4 🔻
Name/prefix <mark>4</mark> .		
CSR		
Icon 5.		
資 CSRv1000.png		•
uuid <mark>6.</mark>		
CPU Limit 7.		
сри <mark>8</mark> .	RAM (MB) 9.	Ethernets 10.
1	3072	4
QEMU Version 11.	QEMU Arch 12.	QEMU Nic 13.
tpl(2.12.0) •	tpl(×86_64) •	tpl(e1000) •
QEMU custom options	14.	
-machine type=pc-1.0,a	iccel=kvm -serial mon:stdio	o -nographic -nodefconfig -no
Startup configuration	15.	
None		Ŧ
Delay (s) 16.		
0		
Console 17.		
telnet		•
ceanee		
Left	Тор	



9.1.1.1 Node values Table

Number	Description
1.	ADD A NEW NODE Template Template Menu. Choose which node template to add to the topology The topology 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.	Csr1000v-universalk9.03.17.04.S.156-1.S4 Csr1000v-universalk9.03.17.04.S.156-1.S4 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.	 CSRv1000.png ArktaSW.png ArktaSW.png CSRv1000.png CSRv1000.png 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 CPU limit per node. This option is already set (checked/unchecked) per EVE recommendations. Refer to section 7.4.1								
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.								
	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.								
10.	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								
	Ethernet portgroups (4 int each) Serial portgroups (4 int each) interfaces. 1 1								
	Custom MAC address for Qemu nodes only. You can define your own MAC address for first interface:								
11.	First Eth MAC Address								
	aa:bb:cc:00:de:ad								
	QEMU Version EVE will pre-set the best recommended QEMU version								
12.	QEMU Version EVE will pre-set the best recommended QEMU version tpl(2.12.0) for each node template. This value can be changed per your needs.								
	QEMU Arch Qemu architecture is pre-set per image vendor								
13.	recommendations. This value can be changed per your needs								



14.	QEMU Nic tpl(vmsnet3) Type of Qemu NIC is pre-set per image vendor virtio-net-pci recommendations. This value can be changed per your e1000-82545em reeds. vmsnet3 tpl(vmsnet3)
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.	Delay(s) 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 types for each template are pre-set with recommended settings. The setting can be changes per your needs. 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.
19.	First Eth MAC Address OPTIONAL: Templates for Cisco FirePower, F5, Linux, and Citrix have the option to manually set the MAC address for the first ethernet interface. This will enable the use of licenses that are tied to a particular MAC address. MAC Address format must be like: 00:50:0a:00:0b:00

9.1.2 Edit node

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



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

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



9.1.2.2 Edit node individually.



Right click on the node and click Edit

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



EDIT NODE

Template			
Cisco vIOS			*
ID			
1			
Image			
vios-adventerprisek9-m-1	5.6.2T		-
Name/prefix			
hos			
lcon			
🗉 Router.png			-
UUID			
b5fa3320-98ed-4ea4-ad21	1-627d427b8a6a		
CPU Limit			
CPU	RAM (MB)	Ethernet	s
1	1024	4	
QEMU Version	QEMU Arch	QEMU N	ic
tpl(default 2.4.0) 👻	tpl(i386)	▪ tpl(e10	DO) -
QEMU custom options			
-machine type=pc-1.0,acc	el=kvm -serial mon:std	io -nographic -nodef	config -nodef
Charling and Bauaching			
Startup configuration			•
Delay (s)			
Console			
telnet			-
Left	T		
839	Top	3	
	210	, 	
Savi	e Cancel		

9.1.3 Wipe Node

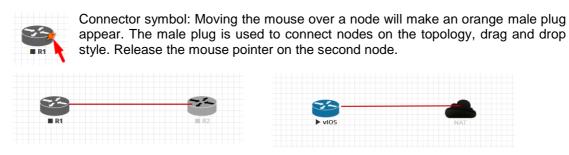


The "Wipe node" function will clear the NVRAM of the node. Each time a node setting is changed (CPU, RAM, boot image or startup configuration) a wipe must be issued on that node. For more information refer to section 11.3

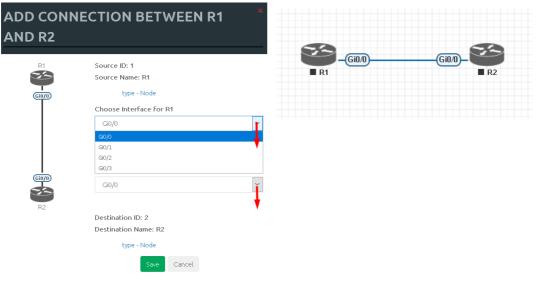


9.1.4 Interconnecting nodes

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

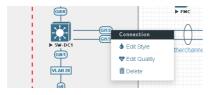


The connection window will appear. Choose the interface you want to use to interconnect the nodes. Click Save when finished.



9.1.5 Edit connection link style

Right click on the connection link and choose Edit Style



Style: net	twork_id:8		
Style	Link color	Link Style	Link Label
Solid	~	Flowchart	VLAN 20



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

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

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

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

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

9.1.6 Edit connection link quality

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

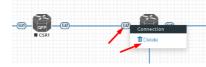


It is recommended to apply value divided by 2 on both link interfaces to achieve precise connection quality. In the example below is applied 25% and 25% packet loss, which gives result of 50% packet loss in connection between nodes.

Link Quality	SW-DC	2 - S₩	-DC1				/										
Interface	Delay	(ms)	Jitter	(ms)	Loss (s) 💅	Rate(kbps)	Interface	Delay	(ms)	Jitter	(ms)	Loss (5) 🗡	Rate((kbps)
Gi1/2	0	۹	0	۵	25	٥	0	۹	Gi1/2	0	٥	0	۹	25	٥	0	٥

Apply Save Cancel

9.1.7 Delete connection between nodes



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

9.1.8 Delete Node



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

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



9.2 Running labs

9.2.1 Starting lab

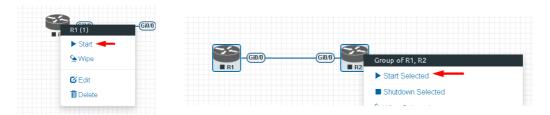
Nodes inside a lab may be started individually, in groups, or all at once.

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

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

Starting a node or group of nodes:

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



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

	53
	Gi0/0
▶ R1	▶ R2

9.2.2 Interconnecting running nodes (hotlinks)

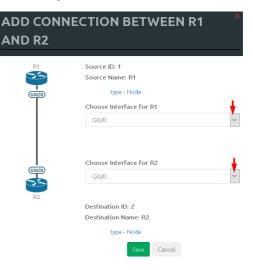
Eve Professional offers the hotlinks feature which allows you to interconnect node in the running state.



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

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







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

Please refer to Section 9.1.6

9.3 Saving labs

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

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

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

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

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

9.4 Stopping labs

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

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

Stopping a node or group of nodes:

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

For individual node Stop options refer to section 8.2.5

9.5 Start saved lab

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



File manager Current position / root		
New Name	Add folder	test_lab1
Running		7
MyLabFolder	18 May 2018 17:24	8 8
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

9.6 Working with multiple running labs

Refer to section 7.2.1.1

9.7 Importing labs

Refer to section 7.2.2.6

9.8 Exporting labs

Refer to section 7.2.2.5

9.9 Deleting labs

Refer to section 7.2.2.2

9.10 Moving labs

Refer to section 7.2.2.4



10 EVE Clouds and Networks

10.1 Bridge Network

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

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

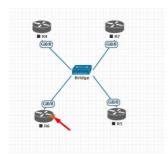
Step 1: Add a Bridge Network onto the topology. There are two ways to do this: Right-clicking on the topology area and selecting "Add Network" or in the sidebar click "Add an Object" and then select "Network." Please refer to sections 8.2.3 and 8.1.1.2

Add a new object	1
📥 Node	
₩ Network	📕 Mode
Picture	Network
Custom Shape	Ficture
A Text	E O Custom Shape
🔛 Auto Align	A Text
	III Mana antina

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

ADD A NEW NETWORK					
Number of 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 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.

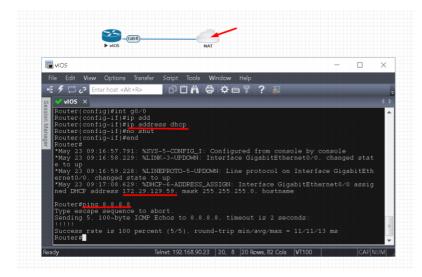
To add a NAT Cloud onto the EVE topology:

ADD A NEW NETWORK					
1					
NAT	-				
NAT	_				
935					
340					
Save Cancel					
	1 NAT 935 340	1 NAT 935 340			

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



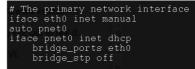
If your EVE management is connected to the Internet, adding a NAT cloud onto the EVE lab enables you to have internet access from within your EVE lab using NAT.

EVE NAT Gateway IP is: 172.29.129.254/24

DHCP is enabled on the EVE NAT Cloud.

10.3 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.



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

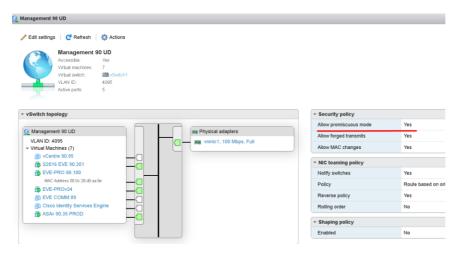


▲ **IMPORTANT NOTE:** For EVE VMs running on ESXi, make sure your management interface bridged with the vSwitch (Port group) has the security settings for Promiscuous Mode set to Accept. Any port group or vSwitch used to connect an external network to an EVE Cloud network needs to have the Promiscuous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

vSwitch Settings

Edit standard virtual switch - vSwitch1					
📇 Add uplink					
MTU	1500 🔄				
Uplink 1	vmnic1 •				
Link discovery	Click to expand				
▼ Security					
Promiscuous mode	Accept CReject				
MAC address changes	Accept Creject				
Forged transmits	Accept Creject				
▶ NIC teaming	Click to expand				
▶ Traffic shaping	Click to expand				

Portgroup Settings



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.
--	--

A 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 docker0
172.29.129;0ja	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					

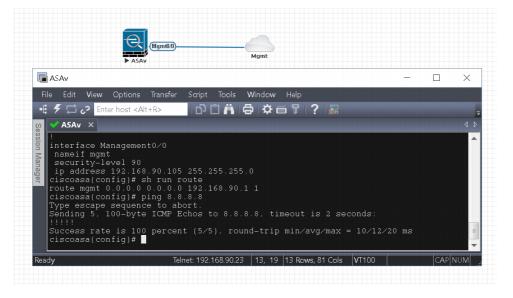
Step 1: Add A New Network onto the topology. There are two ways to do this: Right-clicking on topology area and selecting "Network" or in the sidebar, "Add an Object" and then select "Network."

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

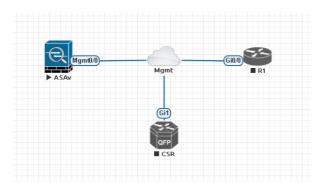
Step 3: Connect your ASAv using the drag and drop connector to the Cloud0 network. Refer to sections 9.1.4 and 8.2.3

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.





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



10.4 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



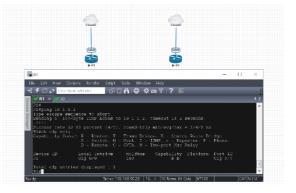
						management network in the labs.
Cloud1	Pnet1	bridged	Network adapter 2	Network Adapter 2	Second ethernet Eth1	Cloud1 can be bridged with your EVE second ethernet port to achieve connection to another network or device. The IP address is not required to be configured on it. It will act like a pure bridge 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

Example: Cloud7 network is used as an extended connector between nodes:

Step 1: Add two Cloud7 networks onto the topology.



Step 2: Connect your lab nodes to Cloud7. Your configured nodes will work like being connected to the same switch (or the same bridge in EVE). Even 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.





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 10.3

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.

10.5 Connecting external VM machines to the EVE Lab

10.5.1 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:

2 WSA-MGMT			
🧪 Edit settings 📔 🤁 Refresh 🛛 🏠 Actions			
WSA-MGMT Accessible Yes Virtual machines: 2 Virtual eveltch: Volutions VLAN IID: 0 Active ports: 0			
		* Security policy	
		Allow promiscuous mode	Yes
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 VSwitch5 Type: Pot groups: Uplinis:	C Refresh Actions Standard vSwitch		
MTU	1500		
Ports	4352 (4319 available)	Q WSA-MGMT VLAN ID: 0	No physical adapters
Link discovery	Unknown	Virtual Machines (2)	
Attached VMs	2 (0 active)	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		
* Security policy			
Allow promiscuous mode	Yes		
Allow forged transmits	Yes		
Allow MAC changes	Vac		

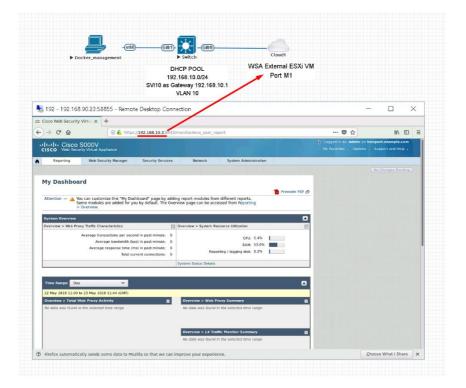
EVE and WSA VMs settings

	port is assigned to IGMT. It is Cloud1 on the		rrity appliance (WSA), rt is assigned in portgroup
Hardware Configuration		✓ Hardware Configuration	
CPU	16 vCPUs	Del Central de la central d	1 vCPUs
🌃 Memory	32 GB	I 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)
Metwork adapter 2	WSA-MGMT (Connected)	Network adapter 4	UNUSED (Connected)
🖳 Video card	4 MB	Metwork adapter 5	UNUSED (Connected)
0 Inters	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.





10.5.2 VMWare workstation machines

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

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

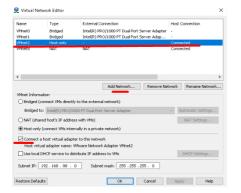
Example: Connecting Web security Appliance (WSA) to the lab using **Cloud2** interface.

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

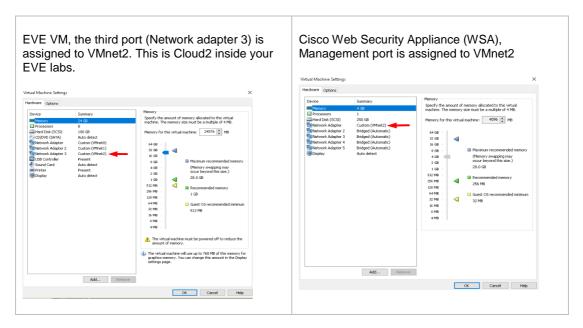
Step 1: Open your VMWare Workstation Virtual Network Editor and configure the VMnet interface for the Cloud and WSA VMs. If necessary add a new VMnet. The example below is showing VMnet2 Settings in VMWare workstation. DHCP must be disabled for VMnet2.

Virtual Network Editor settings:





EVE and WSA VMs settings



EVE Lab connected to the WSA (Cloud2)

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



▶ Mgmt_Docker Chrome Desktop Management Docker station DHCP IP 192.168.10.2	G000 - Switch SW VLAN 10 SVI10 192 168 10.1 as GV DHCP POOL VLAN 10	Ctoiudz WSA VM Workstation DHCP IP 192.168.10.3 GW 192.168 10.1 Cloud2 as connection to Exter	3
172 - 172.25.1.21:33285 - Remote I	Desktop Connection		- 🗆 X
Cisco Web Security 🗸 🔪			٢
→ C A Not secure https://192.168.1	0.3:8443/monitor/wsa_user_report		☆ :
LILLI CISCO SOOOV CISCO Web Security Virtual Appliance			Logged in as: admin on ironport.example.com My Favorites . Options . Support and Help .
Reporting Web Security Manager	Security Services Network	System Administration	
Some modules are added for yo > Overview.	ou by default. The Overview page can be	accessed from Reporting	
Overview > Web Proxy Traffic Characteristics Average transactions per seco Average bandwidth (by Average response time (m	ps) in past minute: 0 ns) in past minute: 0	Resource Utilization	2
Overview > Web Proxy Traffic Characteristics Average transactions per seco Average bandwidth (by Average response time (m	ind in past minute: 0 ps) in past minute: 0 ns) in past minute: 0	Resource Utilization CPU: 7.5% RAM: 50.4% Reporting / logging disk: 5.2%	
Overview > Web Proxy Traffic Characteristics Average transactions per seco Average bandwidth (by Average response time (m	nd in past minute: 0 ps) in past minute: 0 ns) in past minute: 0 rrrent connections: 0	Resource Utilization CPU: 7.5% RAM: 50.4% Reporting / logging disk: 5.2%	
Overview > Web Proxy Traffic Characteristics Average transactions per seco Average bandwidth (b) Average response time (n Total cu Time Range: Day 22 May 2018 20:00 to 23 May 2018 20:10 (GMT)	nd in past minute: 0 ps) in past minute: 0 ns) in past minute: 0 rrrent connections: 0 System Status Detai	Resource Utilization	
Average bandwidth (by Average response time (n Total cu Time Ranges: Day	nd in past minute: 0 ps) in past minute: 0 ns) in past minute: 0 rrent connections: 0 System Status Detai	Resource Utilization	

10.6 Connecting EVE Lab to a physical device

10.6.1 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:

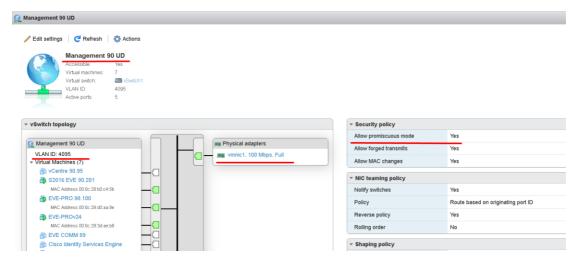
EVE Lab Cloud0 →Portgroup "Management 90 UD" →vSwitch 1→Physical Adapter eth1



Add uplink / Edit settings Add uplink / Edit settings vSwitch1 Type Port groups: Upinis:	Refresh	
		* vSwitch topology
MTU	1500	
Ports	4352 (4317 available)	Management 90 UD Walk 10:4095 VLAN ID:4095
Link discovery	Listen / Cisco discovery protocol (CDP)	VLAN ID: 4095 Vitual Machines (7)
Attached VMs	7 (4 active)	vCentre 90.95
Beacon interval	1	S2016 EVE 90.201 MAC Address 00 00 28 b0 04 5b
* NIC teaming policy		C EVE-PRO.98.100 MCC Address 00 Sc 29 dl an Be
Notify switches	Yes	KAU ADDRESS OU UC 28 OF 35 SP
Policy	Route based on originating port ID	MAC Address 00 0c 29 3d ae b8
Reverse policy	Yes	
Rolling order	No	Cisco Identity Services Engine ASAv 90.35 PROD
* Security policy		MAC Address 00 50 56 s2 0f fb
Allow promiscuous mode	Yes	
Allow forged transmits	Yes	

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

Portgroup "Management 90 UD" Settings associated with vSwitch1



EVE VM Settings

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

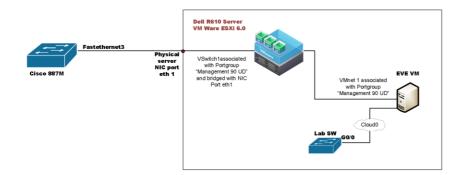


 Hardware Configuration 	
F 🔲 CPU	16 vCPUs
🚟 Memory	32 GB
Hard disk 1	40 GB
Hard disk 2	150 GB
🐨 USB controller	USB 2.0
Network adapter 1	Management 90 UD (Connected)
Network adapter 2	WSA-MGMT (Connected)
▶ 🛄 Video card	4 MB
• Image: Contract of the second se	Additional Hardware

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

	► switch	Cloud0			
887M					
ile Edit View Options Transfer Script Tools Window	Help				
🗲 🛱 🖓 Enter host <alt+r></alt+r>	5 🗗 ? 📓				
		4 🕨 💙 887M 🗙			
EVE_LAB_SW#sh cdp neig Capability Codes: R - Router. T - Trans Bridg S - Switch. H - Host. I - I D - Remote. C - CVTA. M - T	SMP. r - Repeater. P - Phone.	LAB_ESXI# LAB_ESXI# LAB_ESXI# Capability Code	es: R - Router. T · S - Switch. H ·	- Trans Bridge, B - Sou - Host, I - IGMP, r - R - CVTA, M - Two-port Ma	epeater, P - Phone,



10.6.2 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 VMnet1 VMnet2 VMnet8	Type Bridged Bridged Host-only NAT	External Connection Intel(R) PRO/1000 PT D Intel(R) PRO/1000 PT D - NAT	ual Port Server Adapter ual Port Server Adapter #2	Host Connection - 2 - Connected Connected	DHCP - - Enabled	Subi - 192 192
< VMnet In	formation		Add Network R	emove Network	lename Netw	> ork
Bridg	ed (connect V	Ms directly to the external				
		ha directly to the external	l network)			
Bridg		R) PRO/1000 PT Dual Port		~ Auto	matic Setting:	s
	ed to: Intel(F				matic Setting: AT Settings	_
	ed to: Intel(F shared host's	R) PRO/1000 PT Dual Port	Server Adapter			_

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:

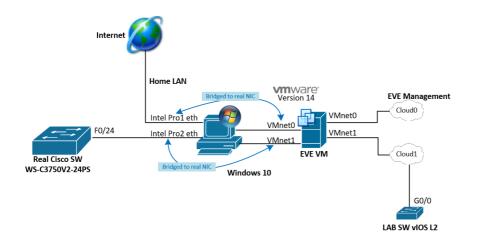
Cloud0→Network Adapter→VMnet0→IntelPro

Cloud1→Network Adapter 2→VMnet1→IntelPro#2

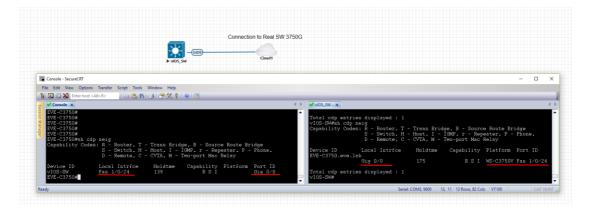


Memory Processor Construction CD/DD (CST) CD/DD (CSTA) Pletwork Adapter 2 Pletwork Adapter 3 CST Controller Social Controller Social Card Printer Diplay	24 CB 8 No GB Auto detect Custom (MinetD) Custom (MinetD) Present Auto detect Present Auto detect	Specify the amount of memory alcoated to this vitual machine. The memory size analysis of A MB. Memory for this vitual machine: 24576 Memory for this vitual machine (Memory for subaphy may to caure beyond this size.) 266 - 268 - 28.0 GB - 268 - 268 - 268 - 28.0 GB - 268 - 28.0 GB -
---	--	--

Physical connection scheme and VMware bridging.



EVE Lab scheme.





The following solution allows Windows hosts to transmit tagged packets over ethernet. This has been used in the example above.

Warning. You are making changes to your Windows registry files! This is at your own risk.

https://www.intel.co.uk/content/www/uk/en/support/articles/000005498/network-and-io/ethernet-products.html

10.6.3 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 10.4

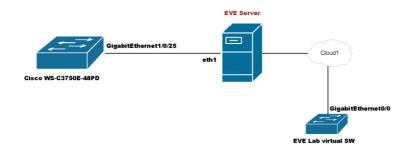


cat /etc/network/interfaces

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 10.4

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 🛛 🗙					<	4 Þ
Switch#sh cdp ne Capability Codes		Hosti iea	IGMP, r → Rep	eater, P -		Î
Device ID NottsCoreRackSwi			Capability R S I			
Total cdp entrie Switch#	s displayed : 1 EVE Server					¥



11 Advanced EVE Lab features

11.1 Lab design objects

Custom Shape

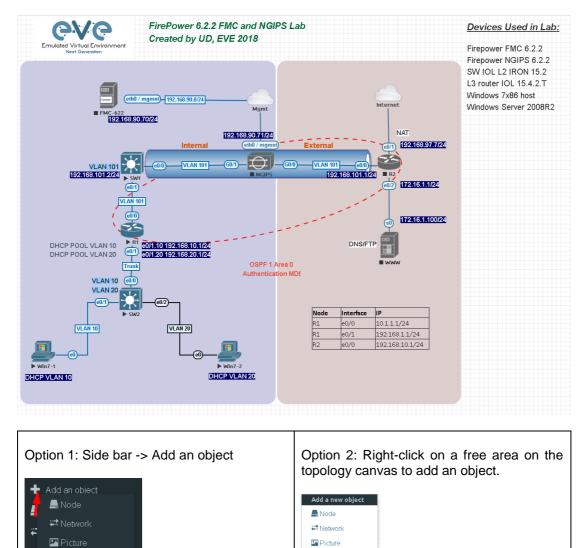
A Text

→ Line

A

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:



Custom Shape

A Text

→ Line

🔛 Auto Align



11.1.1 Custom shape

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

Type: Square, round square or circle

Name: This field can be filled with your preferred shape's name. If the field is left empty, EVE will generate a name for the shape.

Border type: Two options: line or dashed

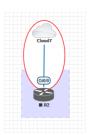
ADD CUSTOM SI	HAPE		
Туре	square	~	
Name	Name		
Border-type	solid	~	
Border-width	5	×.	
Border-color			
Background- color			
Save Cancel			

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.

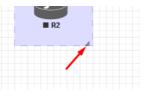
Background colour: Allows you to choose a colour to fill your shape with. This can be edited later in the "Shape Edit" menu.

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)

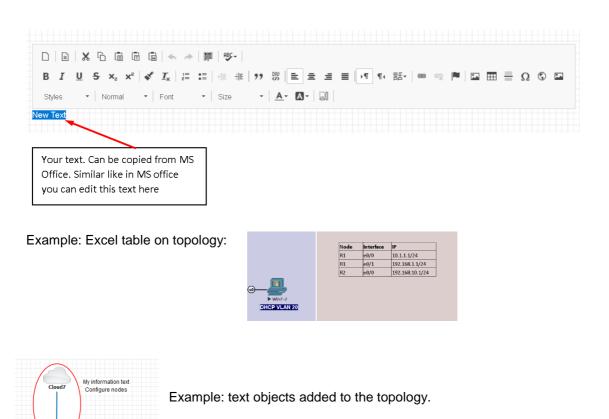


11.1.3 Text

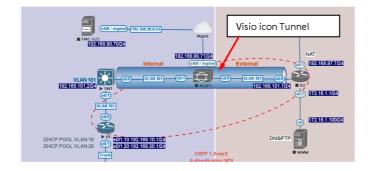
It is also possible to add text or other MS Office objects to your EVE topology. Rich HTML Office option allows you to copy texts from MS Word, Excel or Visio.

Add a	new ob	ect	
📕 No	de		
₽ ‡ Ne	twork		
Pic	ture		
🗆 Cu	stom Shi	pe	
A Te:	đ		
⇒ Lin	е		
🖬 Au	to Align		
-			





Example: Visio object added to the topology



11.1.4 Add picture to the topology

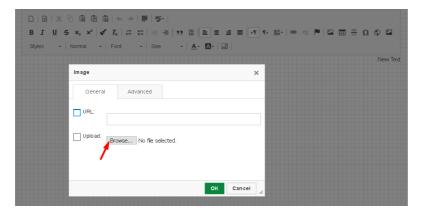
Custom images may be added by using HTML editor:

Step 1: Add a text object to the topology and press Image button for import.





Step 2: User browse to import your image.



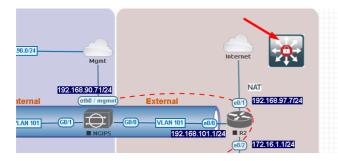
Step 3: Double click on object you wish to resize, then click another time to activate resizing. Drag your mouse to change object size or style (HTML Picture)



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**

□ □ X 0 0 0 0 4 ~ > 1 B I U 5 × × × 4 √ Ix : :: Styles - Normal - Fort -	: 淮淮 ?? 器 ≧ ╧ ≛ ≡ [•¶ ¶• 話•]∞ 咳 ■	· ■ ⊞ ≣ Ω © ■
	Link	×
	Link Info Target Advanced	
	Display Text	
	Link Type URL	
	Protocol URL	-
	OK Car	ncel

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

□ □ × ∞ □ □ ∞ ∞ □ B I U S × × ² √ I _x I I	·# # >> ₩ E = = = •¶ ¶• 話• ∞ ∞	≣≣≣Ω©⊑
	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	۲		
Arrow Style	→ single arrow	•		
Paint Style	Solid	•		
Line Style	Straight	•		
Line Color				
Line Label				
Save Cancel				

Width: Increase or decrease the width of the line. This can be edited later in the "Shape Edit" menu.

Arrow Style: Allows you to make arrows to your Line object. Single arrow, Double arrows or no Plain. This can be edited later in the "Shape Edit" menu.

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

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

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

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

Example, Dashed, Bezier, double arrow line with label:

Positioning and moving line object. Line object has invisible connection points at the ends. Use mouse to find that point, drag and drop move line connection point to your preferred lab location. Use mouse to move other line endpoint on lab location.



BGP Peer

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:



 Style: 1

 Width
 Arrow Style
 Paint Style
 Line color
 Line Style
 Line Label

 2
 \$\$
 dblarrow
 V
 Dashed
 V
 Better
 V
 BCP Peer



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.

Cancel

Name: Used to change the object's name.

To save the object, press Save (green button).

11.1.10 Lock objects movement

The "Lock Lab" feature prevents objects from being moved around on the canvas (among other things). For more information about this feature, refer to section 8.1.15.

11.2 Custom design logical topology

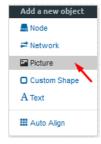
EVE Pro includes a feature to upload your own custom topology picture and map nodes to it for easy access.

11.2.1 Custom design upload

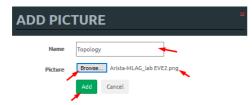
Before you upload a custom picture in the lab, make sure it is in .png or jpg format with resolution 130-150x130-150 pixels.

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 2: Browse your PC for a .png or .jpg file and hit "Add".





Once the picture is added to the topology canvas, the sidebar will display a new option: "Logical maps"

Step 3: Open the "Logical maps" menu item.



Pictures window management

	managomont		
Ē	Delete uploaded picture from the lab		
ũ	Image Map: Map nodes to places in the picture		
Topology	Display uploaded picture. Work with lab and custom topology		
	Zoom/unzoom uploaded custom topology		
*	Makes the window transparent to see the "Topology Canvas" behind it. Clicking again returns to the normal view.		
*	Close "Pictures" window.		

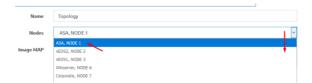
11.2.2 Custom topology mapping

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

Step 1: Open the Image Map window:

📋 🖸 Topology

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

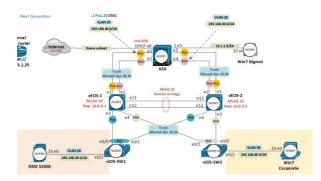


Step 3: Move your mouse over a node icon on the "Image Map" and click to map it. The grey circle means that the node is mapped.



Step 4: Continue mapping the rest of the nodes.





Step 5: OPTIONAL. You can also add a mapping for a device external to your EVE server in order to telnet, VNC, or RDP to it. This way you can open sessions to all your devices (whether external or internal) in one place.

Select from menu:	Nodes	CUSTOM , NODE outside lab	
And map with node on top	oology.	External home-couter costor teinet:// 172.25.1.25	

Change image map adding protocol, IP and port.

Image MAP	<area alt="img" coords="102,286,30" href="proto://CUSTOM_IP:CUSTOM_PORT" shape="circle"/>	
		:
Image MAP	<area alt="img" coords="102,286,30" href="telnet://172.22.7.18:23" shape="circle"/>	
Step 6: Save	e your mapping and refresh the browser with F5.	

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.

t Cin	opology
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.

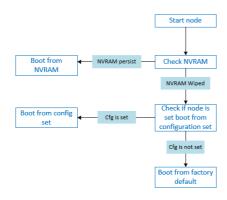
IMPORTANT NOTE: Before you start using the "Multi-configuration Set" feature, you must complete at least one configuration export.



ST	STARTUP-CONFIGS			
		Config Set	Default v	
8	R1	OFF		
8	R2	OFF		
	SW1	OFF		
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 XRv Cisco XRv9K Juniper VRR Juniper VMX Juniper vMX-NG JunipervQFX JunipervSRX Juniper vSRX-NG Mikrotik PFsense FW **Timos Alcatel** vEOS Arista

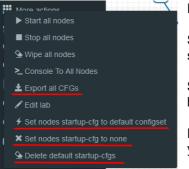
11.3.2 Startup config management

11.3.2.1 Global commands



Configurations can be managed via the "Startup-configs window which can be accessed from the sidebar menu while on the Topology page.

Topology page, More Options:



Export all CFGs – Exports all supported node configurations.

Set nodes startup-cfg to default configset- Sets all supported nodes to boot from the default configuration set.

Set nodes startup-cfg to none - Sets all supported nodes to boot from NVRAM configuration.

Delete default configuration set. Warning, this will delete your exported default configuration set for all nodes.

11.3.2.2 Individual node commands

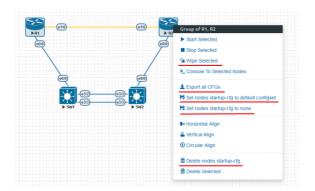
Select node, right click



Wipe: Wipes the NVRAM for a single node Export CFG Capture

Wipe: Wipes the NVRAM for a single node

11.3.2.3 Multiple selected nodes commands



Wipe Selected: Wipes the NVRAM for selected nodes

Export all CFGs: Exports the configuration for selected nodes

Set nodes startup-cfg to default configs set: Set selected nodes to the default config set

Set nodes startup-cfg to none: Set nodes to boot from NVRAM or from factory default if wiped.

Delete nodes startup cfg: Delete selected node's startup cfg. (clean default set)

11.3.2.4 Startup-configuration window

No configuration exports or manual configs loaded for nodes

STARTUP-CO	ONFIGS			• ×
	Config Set Default ~	+ 7 1 ± ±	1	
😂 R1	OFF			
😂 R2	OFF			
SW1	OFF			
SW2	OFF			

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



STARTUP-CONFIGS			* X		
	Config Set	Default ~	+ 2 = ± ±		
😂 R1	OFF				
資 R2	OFF				
SW1	OFF				
SW2	OFF				

11.3.2.5 Startup-config window information

Config Set Default \vee	Config set menu
🚳 R1	No configuration is available for node. Grey node
😂 R1	Configuration is available and can be used. Blue node. Exported configuration persist
8 R2 OFF	Configuration persist but it is disabled. Node will boot from NVRAM or factory default if it is wiped
8 R1 4 00	Configuration persists and node will boot from the configuration after being wiped
CONFIG SET	Add new config set.
CONFIG SET Name Node name	Rename config set. The Default Config Set cannot be renamed.
X 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 / Delete default configuration set
*	Upload configuration set from your local PC

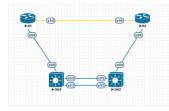


*	Download configuration set to your Local PC
2	Apply Config Set button: Sets all nodes to boot from the chosen config set.
•	Config Reset button: Sets all nodes to boot from none. Node will check boot order. If the Wipe function is used, nodes will boot from factory default.
B2 CO Introduction change at 19521 Introduction c	Individual node export or import configuration. Configuration export/import file format is .txt.
ド OscoHOS シ 命 Dark シ 石 [12px ン]Ace Editor 100	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 configuration sets.

Example:



Step 1: MANDATORY: Configure your nodes and make sure you applied the vendor specific command to save the running configuration to NVRAM. If you do not save the configuration, it will not be exported and in the notification area, you will receive an error message stating the node cannot be exported.

In this example the nodes have been configured with hostnames only and the configurations have been saved to NVRAM.

Step 2: Chose any method to export configurations to the Default Config Set. You can use export a single node, a group of nodes, or all nodes. Only supported nodes configurations will be exported.

Step 3: In the example below a group of nodes were selected to export configurations.



				×
S10	<u>\$1/0</u>	Group of R1, R2, SW1, SW2	Export All: done	×
		Group of R1, R2, SW1, SW2 > Start Selected Stop Selected Wipe Selected Console To Selected Nodes Export all CFGs Set nodes startup-cfg to default configset Set nodes startup-cfg to none Horizontal Align Vertical Align Circular Align Circular Align	Export All: done R1: config exported R1: Starting export, please wa R2: config exported R2: Starting export, please wa SW1: config exported SW1: Starting export	a x a x
		Delete nodes startup-cfg Delete Selected	SW2: config exported	×
			SW2: Starting export, please v	wait 🗙

Default configuration set is completed. The notification area will display "Export All: done" when complete.

NOTE: you can configure your nodes with your preferred configuration and make it the default configuration set.

11.3.4 Boot nodes from exported Default config set

Step 1: Stop all nodes

Step 2: Open sidebar and click Startup-configs. Make sure your config is set to default and the nodes config switch is green (switch on/off beside node). Press the green "Apply Config Set" button (Set all nodes to selected config set) and all your nodes will boot with the default config set after wiping them.

STARTUP-CONFIGS				
	Config Set	Default 🗸	+ 🛛 🗴 🔺	, n •
錔 R1	4 NO			
2 R2	4 ON			
SW1	4 ON			
SW2	4 ON			

Step 3: Wipe nodes. For more information refer to section 9.1.3

Step 4: Start nodes

11.3.5 Export new custom config set

This section will describe how to create a new custom configuration set for the same example above.

A Make sure your nodes are running and booted from the default set.

×

Export Selected: Starting

Step 1: Create new custom named (e.g. "IP Addressing") configuration set, Press Add new config set.

Config Set Default ~		+ 🛛 🗶 ± ±
Name it and	l press Add.	

CONFIG SET			
Name	IP Addressing	•	
	Add Cancel		

The new configuration set is created.

NOTE: It will duplicate the default configuration set under your IP Addressing config set.

Step 2: Select newly created Config set IP Addressing and hit the green confirm button (Set all nodes to selected config set) on the right.

Config Set	Default 🗸	+ 22 x ± ±	•
	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 ~	+ 7 1 ± ±	•	
25 R1	4 ON	±		Ace Editor	
8 R2	4 ON	no ip address shutdown			^
SW1	4 ON	serial restart-delay 0			
SW2	4 ON	ip forward-protocol nd !			

Step 4: Return back to your lab and continue configuring nodes until your preferred configuration is complete. In this Example, the IP addresses are configured on the nodes.

Step 5: IMPORTANT: YOU MUST save the configuration on all nodes, even if the configuration was not changed.

Step 6: Use any method (individual, group or all) to export the new configurations to the IP Addressing set.

Step 7: You can verify that the configs were exported by re-opening the "Startup-config" window.

Make sure the correct config set is selected, and check if the configuration is exported for the node or nodes.



STARTUP-CONFIGS					
		Config Set IP Addressing 💉	+ 2 ± ±		
25 R1	4 ON	± ±			
睯 R2	4 ON	1			
 SW1 	* ON	interface Ethernet0/3 no shutdown			
 SW2 	f or	no ip address shutdown i netrace Serial 1/0 no shutdown ip address 10.1.1.1255.255.255.252 serial restar-felay 0 i linterface Serial1/1 no is hutdown no ip address shutdown serial restar-delay 0			

Repeat steps 1-7 of this section for the next configuration set.

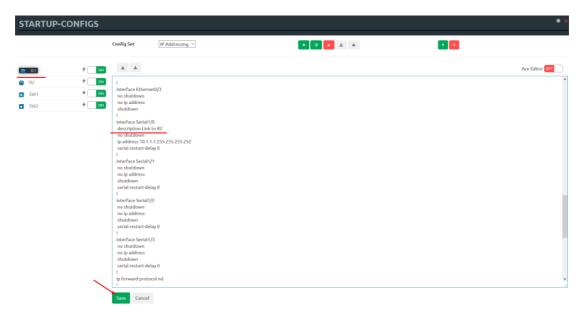
11.3.6 Edit exported configurations

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 🗸	+ C × ± ±	•
	Default		
	IP Addressing		

Step 2: Select the node you want to edit the configuration of and make your changes. Click "Save" when you are finished.



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).

7



▲ NOTE: you can manually copy/paste any configuration into the config set editor and apply it to your node. Make sure your configuration interfaces match the lab node's interface names.

11.3.7 Set lab to boot from config set

To set your lab nodes to boot from the exported configuration, follow the steps below:

Step 1: Wipe nodes. Refer to section 11.3 for information about wiping nodes and the order of operations during boot.

Step 2: Open the "Startup-configs" window from the left sidebar.

Step 3: Select your preferred config set and apply it by pressing the green "Apply Config Set" button on the right (Set all nodes to selected config set).

Step 4: Start nodes.

11.3.8 Set lab to boot from none

To reset your lab nodes' configuration to factory default follow the steps below:

Step 1: Wipe nodes. Refer to section 11.3 for information about wiping nodes and the order of operations during boot.

Step 2: Open the "Startup-config" window from the left sidebar

Step 3: Press the red "Config Reset" button on the right (Set all nodes to no startup-config).



Step 4: Start nodes

11.3.9 Delete a config set

Select the config set you want to delete and click the "Delete" button. You cannot delete the default config set.

Config Set	IP Addressing 🗙	•	<u>±</u>	±	
	N				

11.3.10 Rename a config set

Step 1: Select the config set you want to rename. Change the name and hit "Save." You cannot rename the default config set.

Config Set	IP Addressing V	+ 😰 💌 ± ±





11.3.11 Export a config set to your local PC

It is possible to export configuration sets to your local PC.

Step 1: Select the config set you wish to export.

Config Set	IP Addressing ~	+ 🛛 🗴 ± 🛌
Opening IP Addressing.zip	×	
You have chosen to open: P Addressing.zip which is: WinRAR ZIP archive (5.7 kB) from: blob;		
What should Firefox do with this file? Ogpen with WinRAR archiver (default) @Save File Do this automatically for files like this from		
	OK Cancel	

Step 2: Save it on your local PC.

NOTE: You can open this archive and edit your node configs manually. Archived configs are saved in txt format. After editing you can archive it back to .zip format and import it in EVE.

11.3.12 Import config set from local PC.

It is possible to import config sets to your lab.

	ame	Name			
	File	no file selected			
		Browse Upload Ca	ncel		
File Upload					×
→ * ↑	« Deskt	op > Exports	v ₫ Sea	rch Exports	P
				8:: •	
rganize 👻 🛛 N	lew folder			0 +	
rganize • N This PC 3D Objects		Name		Date modified 15/03/2018 12:10	Type ^ WinR4
This PC 3D Objects		Name		Date modified	Type ^
This PC		Name EIGRP cfg set.zip Firepower_poc_623.zip		Date modified 15/03/2018 12:10 12/04/2018 11:16	Type ^ WinRA WinRA

on to the file on your DC, polect the archive o

🖉 🗶 🛎 🛎

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 ON	± ±	You have chosen to open: Altert which is: Test Decument (13 k8) from blob: What chould inform do with this file?
沓 R2	4 ON	no ip address shutdown	O Open with Notepad (default) ~
SW1	4 ON	serial restart-delay 0	Do this gutomatically for files like this from now on.
SW2	4 ON	ip forward-protocol nd !	OK 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		
			● File Upload $\leftarrow \rightarrow \neg \land \uparrow$ □ « Desktop > Exports > \checkmark \bigcirc 0.	Search Exports	
😤 R1	4 ON	1 × ×	Organize • New folder	💷 🕶 🔲 😮	
 R2 SW1 	4 ON 4 ON	: hostname R1 !	This PC Name 5 3 D Objects ElosPP of g set 2 ElosPP of g set 2 R Ltda	Date modified Type 15/03/2018 12:10 File folde 27/05/2018 00:31 Text Doc	
SW2	4 ON	boot-start-marker boot-end-marker ! !	↓ Downloads v < File name / v	Text Document (*.txt) v 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	СРИ ЦІМІТ	IDLE PC	NVRAM (KB)	RAM (MB)	ETH	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	▶∎9∓≒© ≣
z	R2	iol	L3-ADVENTERPRISEK9-M-15.4-	n/a	n/a	n/a	1024	1024	1	1	teinet	Router.png*	None Default	▶∎≙±≓© ≣
3	SW1	iol	i86bi_linux_l2-ipbasek9-ms.high ~	n/a	n/a	n/a	1024	1024	4	0	teinet	Switch L3.png*	IP Addressing	▶≡≙±≠© ≣
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 V	▶≡≙±≓© ≣

Option 2: Stop the node, right-click on the node and click "Edit." Select your preferred config set for the node and click "Save."



Startup configuration	~
Default	×-
None	
IP Addressing	
NEW IP addressing	
<u></u>	
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			
long configurations, you can raise this	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



I NOTE: The lab timer does not stop nodes or disconnect sessions from the lab.

11.5 Lab Tasks

Lab task or workbook creation feature.

11.5.1 Creating a new simple task

Step 1: On the side bar click on "Lab Task(s)" to open the Lab Task(s) management window.



Step 2: Click on the "+" sign to create a new task. Enter the name of the task name and click on "Add" to create the task.

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.

LAB T	ASK(S)		
1.	Switching		
+ New Ta	k		

Step 2: Use the rich text editor Window to create your Task / Workbook. It is a recommended option to copy/paste task content from MS Word. Save your Task content by clicking on the "Save" button.



LAB TASK(S)						
iii 🖸 📑 Switching) + New Task	© Source		: #		a = 19	
	Task 1.1 Basic con Objectives	figuration	Lamon			
		s arcalantes according e	-€			
	Device	VTP mode	Version	VTP domain	VTP password	
	SW-DMZ DLS	transparent	2	evelab evelab	eve	-
	S-ALS1	client	2	evelab	eve	-
	S-ALS2	client	2	evelab	eve	-
	body div table thody tr Save Cancel	, td p span span span sp	an			

11.5.3 Create a multi tabs task (task on multiple tabs/pages)

Step 1: Click on the "+" sign to create a new task. Enter the name of the task name and click on "Add" to create the task.

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

11.5.4 Edit a multi tabs task (task on multiple tabs/pages)

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

LAB TASK(S)	
â 🗹 1. Switching	
+ New Task	

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



LAB TASK(S)	
谙 び ■1.Switching + New Task	© Source 〒 □ □ □ ● ● > ○ □ ● □ ★ ● ■ ● □ ★ ● ■ ● ● ■ ● ■ ● ■ ● ■ ● ■ ● ■ ● ■ ● ■
	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.

Boot	strap Tabs 🗙 🗙
separa	abs when activity content can easily be segmented into ate tabs to allow for more efficient use of space.
Tab S	et Title
myta	b
Numb	er of Tabs
2	
3	
4	a Tab
5	e a Tab to Remove 🗸
6	
7	
8	OK Cancel
9	UK Cancel

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

LAB TASK(S)	
 C Switching New Task 	回 Source 田 D Q 南 D X 凸 固 団 本 → 第 等・ B I U S X ₂ X ダ J _X 江 江 非 非 ファ 深 主 立 重 「「 f 話・ ∞ 雨 ■ 四 田 三 Ω ③ 回 C Styles ・ Normal ・ Font ・ Szz ・ <u>A</u> ・〇・〇 次 回
	Tab 1 Name Tab 2 Name Tab 3 Name Tab 4 Content New Test
	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 v 1. Switching	Tab 1 Name Tab 1 Content New Text	Tab 2 Name	Tab 3 Name	Tab 4 Name

Step 2: Rename your tab,

1 G / 1 Switching	© Source □ □ □ ◎ ● □ X ℃ 箇 簡 箇 (← → 第 ■ I 型 5 X ₈ X ² ダ I ₄ 二 二 年 非 33 版 金 Styles - Format - Fort - Star - ▲ - 〇 -
	Task 1.1 Basic configuration Tab 2 Name Tab 3 Name Tab 4 Task 1.1 Basic configuration Tab 2 Name Tab 3 Name Tab 4
	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.

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Step 4: Save your modified task by clicking on "Save". To edit another tab, repeat steps 1-3.

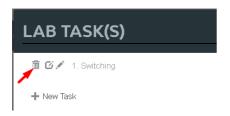


11.5.6 Delete a task

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.





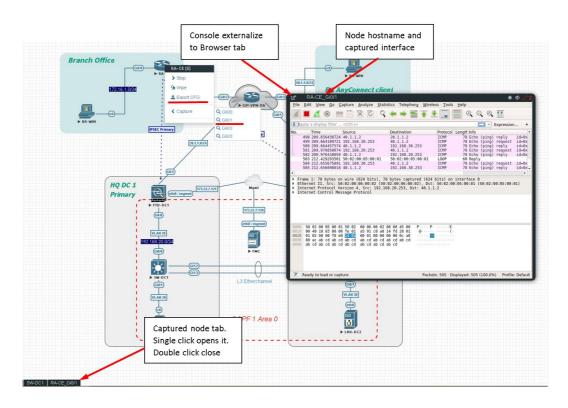
12 Wireshark capture

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.



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



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Step 3: Choose the location where you want to save the captured file

IMPORTANT:

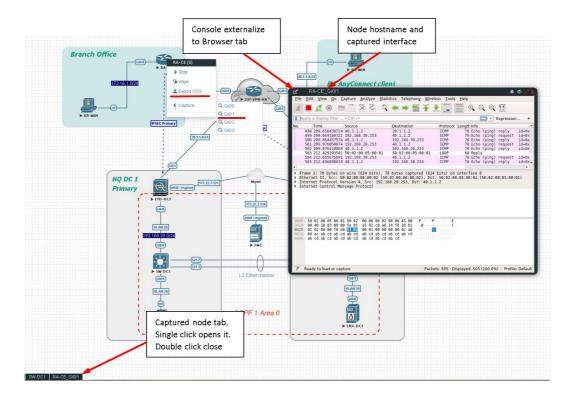
/nobody/thinclient_drives/GUACFS/Download

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 the interface. The capture session will open in the new browser window.





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

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Step 3: Choose the location where you want to save the captured file

IMPORTANT:

/nobody/thinclient_drives/GUACFS/Download

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3 5.559412451 aa:bb:cc:00:01:00 CDP/VTP/DTP/PAgP/UDCDP 383 Device ID: R1 Port ID: E 4 5.919304670 aa:bb:cc:00:02:00 aa:bb:cc:00:02:00 LOOP 60 Reply	thernet0/0
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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	
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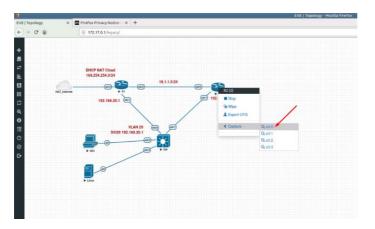
Step 4: A window will open that will allow you to save your captured file on your client PC. If the client PC's browser is set to download automatically, your captured file will be saved in the default browser download folder.

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Do this <u>a</u> ut	omatically for files like this from now on.

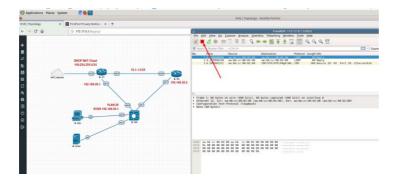


12.3 HTML5 Desktop Console Wireshark capturing

Step 1: Right-click on the node you wish to capture, choose capture and the interface. The capture will open in an RDP session.



Step 2: Stop capturing with the STOP button.



Step 3: Chose File/Save As

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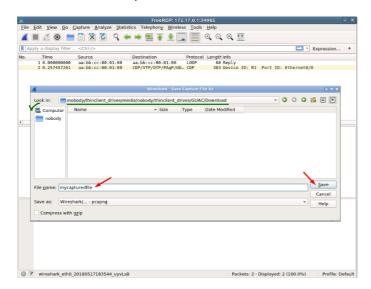
Step 4: Chose the path to save the captured file,

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.

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○ <u>S</u> ave File		
Do this <u>a</u> uto	matically for files like this from now on.	
	matically 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.

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root's Home	101 <u>-</u>	
िंग पाना	Create Folder test.txt Create Launcher Create Document Organize Desktop by Name Keep Aligned Paste	
thinclient_drives	Change Desktop Background Emulated Virtual Environment Next Generation	

Step 1: Create and save test.txt file on your HTML5 server-gui station.

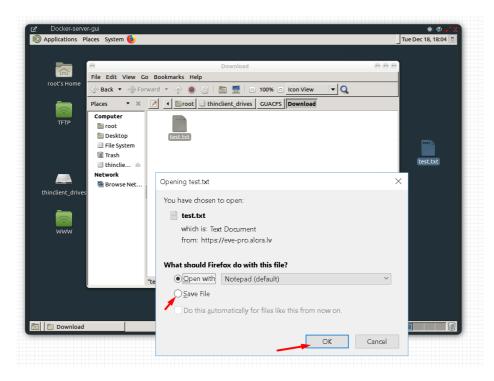
Step 2: Navigate to the desktop of the HTML5 server-gui station and double click thinclient_drives and navigate to: thinclient_drives/GUACFS/Download/

Step 3: Drag and drop the test.txt file from right to left.



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Step 4: A window will open that will allow you to save your captured file on your client PC. If the Native PC's browser is set to download automatically, your selected file will be saved in the browsers default download folder.



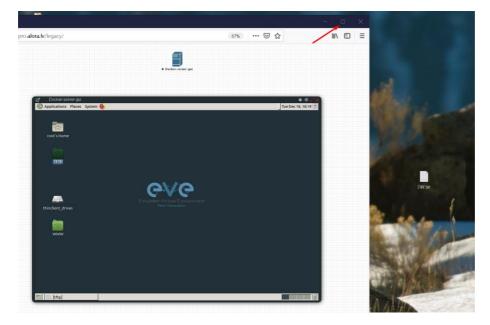
NOTE: Please refer to section 12 for downloading Wireshark capture files from EVE HTML5 consoles.



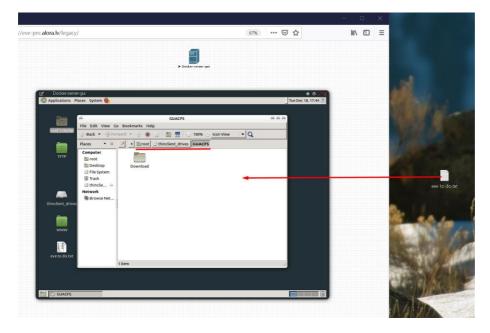
13.2 Thinclient File upload

Sometimes it is necessary to upload files to your EVE labs. The Thinclient file exchange feature allows you to upload files from your client PC to the EVE HTML5 server-gui station. The example below will show you how to upload a text file to the EVE HTML5 server-gui station. Any other files can be uploaded the same way.

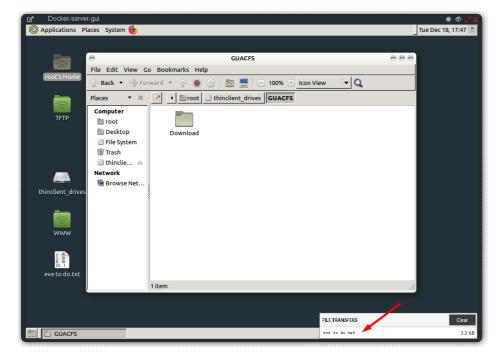
Step 1: Adjust your browser so that you can see it and the file that you want to transfer.



Step 2: On the EVE HTML5 Desktop navigate to: **thinclient_drives/GUACFS/** and drag and drop the file from your client PC to opened location on HTML5 Desktop.

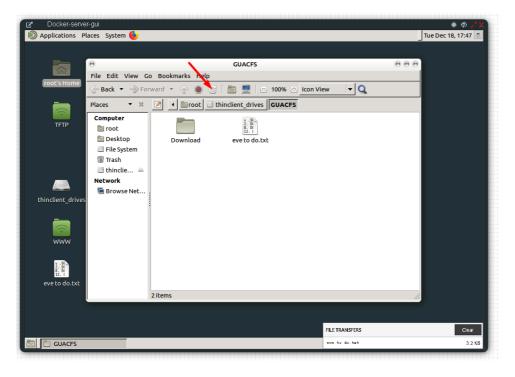






Step 3: Next you will see a notification in the bottom right corner.

Step 4: To finish the operation and see the uploaded file in the HTML desktop station, press the refresh button. Our Text file SW.txt has been uploaded.





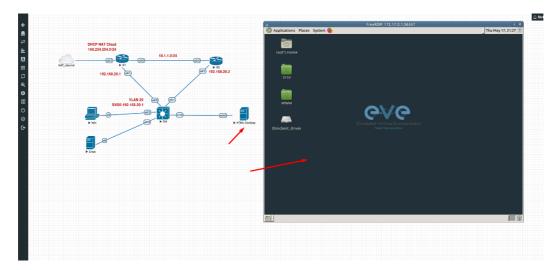
13.3 Other thinclient file operations

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

Step 1: Add the **eve-gui-server** docker node to your lab and edit its settings. Set the console type to RDP and configure the IP address settings (DHCP or static) accordingly so that the docker node can reach the destination node (R1 in this example). For Docker IP addressing please refer to section 14



Step 2: Click on the eve-gui-server docker node to open an RDP session.



Step 3: Open the thinclient_drives location where you uploaded your file to:

/thinclient_drives/media/nobody/thinclient_drives/GUACFS/

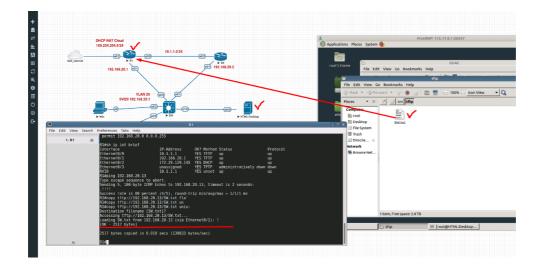
Next, drag and drop your file to the desktop folder named TFTP.



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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.

14.1.1 Docker Machines

eve-gui-server

- Fully featured Linux workstation with integrated thinclient. For more information on the thinclient operation please refer to section 13.
- napalm
- ansible
- RDP console
- DHCP or Static IP address
- WWW Server
- TFTP Server
- 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

eve-napalm (optional)

- A Docker for scripting and automation in EVE labs. NAPALM is a Python library which aims to solve this by providing a unified API across network devices from various vendors. (newer EVE version this docker is eliminated) included in the server-gui docker)
- Telnet console
- DHCP or Static IP address

eve-ansible (optional)

- A Docker for scripting and automation in EVE labs. Ansible is software that automates software provisioning, configuration management, and application deployment. (newer EVE version this docker is eliminated) included in the server-gui docker)
- Telnet console
- DHCP or Static IP address

eve-firefox

- 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
- 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

eve-wireshark

- Fully featured Wireshark workstation with integrated Thinclient. For more information on the thinclient operation please refer to section 13.
- RDP console

eve-chrome (extra install, section 14.1.8)

- 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
- 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

eve-kali (extra install, section 14.1.8)

• 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

eve-ostinato (extra install, section 14.1.8)

- 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

14.1.2 Docker DHCP IP address setup

EVE integrated Docker stations have two options for setting an IP address.

DHCP IP address option.

Step 1: Add the node to the topology and make sure the DHCP option is **enabled** under the edit node window. Refer to section 14.1.3 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.

NDD 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		
rdp -	Тор	

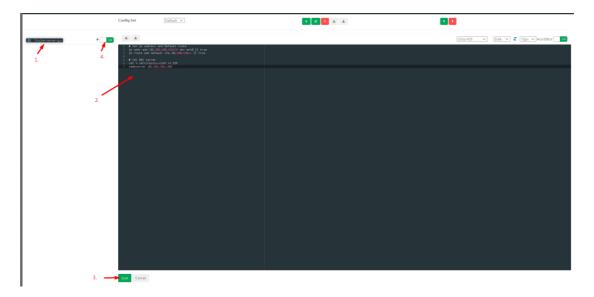


14.1.3 Docker Static IP address setup

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 14.1.3 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 server-gui custom WEB page

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 14.1.3 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:

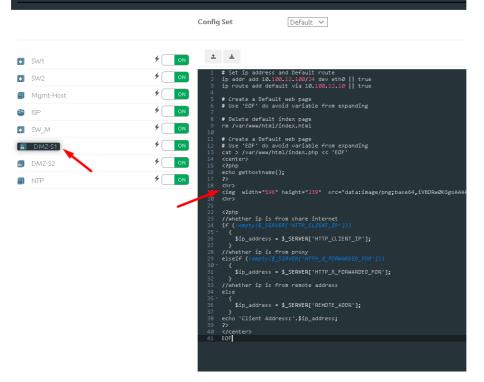
```
# Set ip address and Default route
ip addr add 10.100.12.100/24 dev eth0 || true
ip route add default via 10.100.12.10 || true
# Set DNS server
```



```
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']))
  {
    $ address = $ SERVER['HTTP CLIENT IP'];
  }
//whether ip is from proxy
elseif (!empty($ SERVER['HTTP X FORWARDED FOR']))
  {
    $ $ 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



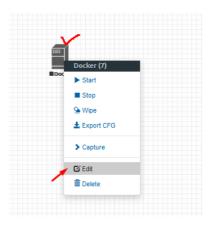
Step 3: Press the Save button below and switch the node to boot from the startup-config.

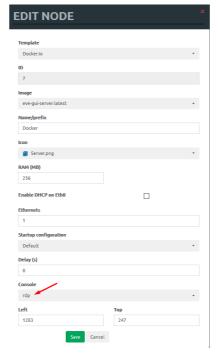


		PoC FirePower ASAv FTD Active/Standby lab v MAB and Dot1x users SGT tagging	vith ISE and SGT SXP	
dmz1.eve.lab	dmz2.eve.lab	Created by UD, EVE-NG, 2018		
	Servers Zone	SGT Policy VLAN 11 Inside Zone Active		
DMZ-S1	► DMZ-52		53	
DM2-ST	s System 👶		T	e Dec 18, 18:53
🜖 Mozilla Firefox			1	
10.100.12.100/	+			
(←) → ୯ ଇ	10.100.12.100		··· 🖂 🕁	
		DMZ-S1		
	E	mulated Virtual Environment Next Generation		
		Client Address:10.100.12.100		
(9) Eirefox automatica	lly cande come data to Mozilla co th	nat we can improve your experience.	Choose W	hat I Share

14.1.5 Docker Consoles

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







Docker Station	Console type
eve-gui-server (napalm, ansible)	RDP
eve-napalm (included in gui-server)	Telnet
eve-ansible (included in gui-server)	Telnet
eve-chrome (optional)	RDP
eve-wireshark	RDP
eve-firefox	RDP
eve-kali (optional)	RDP

14.1.6 Docker cli root access

All EVE docker stations have the following configured CLI root account.

Username: root

Password: eve

14.1.7 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:~# dc	images	To install or fix	docker stations in	n the EVE
REPOSITORY	TÃG	IMAGE ID	CREATED	SIZE
eve-gui-server	latest	a32ef6c9a23e	10 hours ago	3.04GB
eve-wireshark	latest	48a7523f3f99	11 hours ago	772MB
eve-firefox	latest	e2bf071ac59e	11 hours ago	1.49GB
eve-desktop	latest	1fe40543a014	11 hours ago	2.79GB
dockergui-rdp	latest	fa5095b5cb4b	11 hours ago	553MB
phusion/baseimage	0.9.22	877509368a8d	18 months ago	225MB
root@eve-ng:~#				

If you still see some docker line with <none>



root@eve-ng:~# dc images				
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
dockergui-rdp	latest	84059bb87926	21 minutes ago	553MB
kalilinux/kali-linux-docker	latest	f26f3ae90aee	4 weeks ago	1.57GB
phusion/baseimage	0.9.22	877509368a8d	18 months ago	225MB
root@eve-ng:~#				

please use reinstall dockers command:

apt install -reinstall eve-ng-dockers

or

apt install -reinstall eve-ng-dockers-alt

Reference for Dockers reinstall and upgrade: <u>http://www.eve-ng.net/documentation/eve-ng-upgrade</u>

14.1.8 Extra docker packages,

NOTE: Not included in the default EVE Pro installation

Kali Linux, to install issue command:

apt install eve-ng-kali

Chromium Linux http, to install issue CLI command:

apt install eve-ng-chrome

Ostinato docker, to install issue CLI command:

apt install eve-ng-ostinato

To verify Installed dockers, issue CLI command

dc images

This can take some time depending on your Internet connection and disk speed. To verify complete installation, check with command:

root@eve-ng:~# dc3	images	$1 \le 1 \le 1 \le 1$	- 2 - 1 - 3 - 1 - 4 - 1 - 5 - 1 -	6 - 1 - 7 - 1 - 8 - 1 - 9 -	r + r = 10 + r + r = 11 + r + r
REPOSITORY	TĀG		IMAGE ID	CREATED	SIZE
eve-ostinato	latest		139078ae9c45	12 hours ago	1.34GB
eve-gui-server	latest		f16f064c930d	26 hours ago	3.11GB
eve-firefox	latest		8900664e9f3b	27 hours ago	1.49GB
eve-chrome	latest		t51fd92216b99default EV	/E27 hours ago	1.61GB
eve-wireshark	latest		0c49fe2dc6bb	3 months ago	888MB
eve-desktop	latest		c285d1ec833c	3 months ago	2.39GB
eve-kali	latest		0af68c7213e7	5 months ago	5.24GB
dockergui-rdp	latest		a65b62fa69b6	5 months ago	553MB
phusion/baseimage	0.9.22		-877509368à8d ^{a⊥1}	23 months ago	225MB
root@eve-ng:~#					



15 EVE Troubleshooting

15.1 CLI diagnostic information display commands

15.1.1 Display full EVE Pro diagnostic

eve-info

15.1.2 Display the currently installed EVE Pro version:

dpkg -l eve-ng-pro)		
root@eve-ng:~# dpkg -]	l eve-ng-pro		
Desired=Unknown/Instal Status=Not/Inst/Conf			rig-aWait/Trig-pend
// Err?=(none)/Reinst-	-required (Status,Er		
/ Name	Version	Architecture	Description
+++-===================================			
ii eve-ng-pro	2.0.4-21	amd 64	A new generation software for networking labs.
root@eve-ng:~#			

15.1.3 Display if EVEs Intel VT-x/EPT option on/off:

kvm-ok

root@eve-ng:~# kvm-ok INFO: /dev/kvm exists KVM acceleration can be used

15.1.4 Display EVEs CPU INFO:

lscpu

root@eve-ng:~# lscpu					
Architecture:	x86_64				
CPU op-mode(s):	32-bit, 64-bit				
Byte Order:	Little Endian				
CPU(s):	24				
On-line CPU(s) list:	0-23				
Thread(s) per core:	1				
Core(s) per socket:	1				
Socket(s):	24				
NUMA node(s):	4				
Vendor ID:	GenuineIntel				
CPU family:	6				
Model:	44				
Model name:	Intel(R) Xeon(R) CPU	X5680	@ 3.33GHz		
Stepping:					
CPU MHz:	3324.053				
BogoMIPS:	6650.00				
Virtualization:	VT-x				
Hypervisor vendor:	VMware				

15.1.5 Display EVEs HDD utilization.

If the /boot only has a little space left you can refer to section 3.6.1.1. If the eve—ng—vg—root reaches 99% or 100% then you will need to expand the HDD in order to continue using EVE. The Solution to expand your HDD is described in section 15.1

df -h



root@eve-ng:~# df -h								
Filesystem	Size	Used	Avail	Use%	Mounted	on		
udev	40G	0	40G	0%	∕dev			
tmpfs	7.9G	52M	7.9G	1%	⁄run			
/dev/mapper/evengvg-root	681G	370G	283G	57%	/			
tmpfs	40G	0	40G	0%	/dev/shm			
tmpfs	5.OM		5.OM	0%	/run/loc	k		
tmpfs	40G				/sys/fs/	cgroup		
/dev/sda1	472M	8 3M	365M	19%	∕boot			
root@eve-ng:~#								

15.1.6 Display EVEs Bridge interface status

brctl show

bridge name	bridge id	STP enabled	interfaces	
dockerO	8000.0242c0db8435	no		
natO	8000.000000000000	no		
pnetO	8000.000c29d0aa94	no	ethO	
pnet1	8000.000c29d0aabc	no	eth1	
			vunl1_0_1_0	
pnet2	8000.000c29d0aa9e	no	eth2	
pnet3	8000.000c29d0aaa8	no	eth3	
pnet4	8000.000c29d0aab2	no	eth4	
pnet5	8000.000000000000	no		
pnet6	8000.000000000000	no		
pnet7	8000.000000000000	no		
pnet8	8000.000000000000	no		
pnet9	8000.000000000000	no		

15.1.7 Display EVEs system services status

systemctl list-unit-files --state=enabled

	st-unit-filesstate=enabled	
UNIT FILE accounts-daemon.service	STATE enabled	
	enabled	
autovt@.service	enabled	
capdog.service		
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	enabled	
uuidd.socket	enabled	
remote-fs.target	enabled	
apt-daily-upgrade.timer	enabled	
apt-daily.timer	enabled	

15.2 Expand EVEs System HDD

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

15.2.1 HDD space alert

Important: by default, EVE will trigger alerts if there are 3GB or less HDD space available. Additional nodes will not start until more space is added or freed up. A link is provided in the notification bubble on how to properly add an additional HDD.



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

The HDD space threshold for the alert is customizable and can be edited via the config.php file in the following directory:

/opt/unetlab/html/includes/

SSH to your EVE as root and issue the following commands:

```
cd /opt/unetlab/html/includes/
```

ls

You will see an output similar to the one of the screenshots below, check which one applies to you:

Option 1: Both files "**config.php**" and "**config.php.distribution**" exist in the directory. In this case, follow Section: 15.2.1.1

root@eve-ng:/opt/unetla	b/html/includes# ls			W
api_authentication.php	api_networks.php	c7200_i0_log.txt	init.php	network.php ^{xtooje}
api_capture.php	api_nodes.php	cli.php	interfc.php	node.php/ api_authe
api_configs.php	api_pictures.php	config.php	jscode.php	Parsedown.php
api_folders.php	api_status.php	config.php.distribution	lab.php	picture.php
api_html5Desktop.php	api_textobjects.php	configset.php	lineobject.php	Slim 🔤 api_config
api_labs.phpre Meta	api_topology.php	eve-ng.lic	messages_en.php	Slim-Extras
api_lineobjects.php	api_uusers.php	functions.php	messages_zh.php	textobject.php
root@eve-ng:/opt/unetla	b/html/includes#			api_html5

Option 2: Only the config.php.distribution file exists. In this case, follow Section: 15.2.1.2

root@eve-ng:/opt/unetla	ıb∕html∕includes# ls			The second se
api_authentication.php	api_networks.php	c7200_i0_log.txt	interfc.php	node.php ^{[_api_capiu}
api_capture.php	api_nodes.php	cli.php	jscode.php	Parsedown php confid
api_configs.php	api_pictures.php	config.php.distribution		picture.php
api_folders.php	api_status.php	configset.php	lineobject.php	Slim
api_html5Desktop.php	api_textobjects.php	eve-ng.lic	messages_en.php	Slim-Extraspintml5
api_labs.phpre Meta	api_topology.php	functions.php	messages_zh.php	textobject.php
api_lineobjects.php	api_uusers.php	init.php	network.php	
root@eve_ng:/ont/unetla	h/html/includes#			api lineot

15.2.1.1 Edit the existing config.php file

Step 1. Use EVE CLI. Make sure you are in the following EVE directory: /opt/unetlab/html/includes/

Step 2. Use vi or nano file editor to edit your config.php file.

nano config.php

Step 3. Add the following lines to your config.php file (see the screenshot below in the green square).



Hint: you can also open the config.php.distribution file to obtain the correct HDD alert configuration lines. Change the value of MINDISK to the desired value in GB. Example below: 2GB

```
/* Minimal Disk free required default value 3GB */
```

DEFINE('MINDISK',2);

Step 4. Save the config.php file. Your config.php file must look like the screenshot below (green square).



15.2.1.2 Creating new config.php file

If your EVE Server does not have the **config.php** file in the **/opt/unetlab/html/includes/** directory, then it must be created.

Step 1. Use the EVE CLI. Make sure you are in the following EVE directory: /opt/unetlab/html/includes/

Step 2. Rename config.php.distributed (the template) to config.php.

mv config.php.distribution config.php

Step 3. Use vi or nano file editor to edit your config.php file.

nano config.php

Step 4. Edit the config.php file, uncomment and adjust to your Minimum HDD trigger settings (see screenshot below in the green square).



Step 5. Save the config.php file.

pe			Size Changed
php<br /* TEMPLATE M	ODE missing or	r.hided	17/03/2018/09
* _{olo} hided: wi		pplate(not present on,system (no image installed of selectable template not present (no image inst invio-adventerprised-instActSoch)	
G* <u>/</u> IRON_20170			07/08/2015 17
File			
File DEFINE('TEMPL N File	07/04/2017_0917 ATE_DISABLED;,	'.missing') ;	
×∦Minimal Di	sk/free/require	ed default value 3GB *∕	
DEFINE('MINDI	SK',2);	HDD trigger min 2Gb	
∕* RADIUS ext	Auth */		
DEFINE('RADIU DEFINE('RADIU // DEFINE('RA // DEFINE('RA	DIUS_SERVER_POR	, 1812); T', 'secret'); _2', '0.0.0.0');	

15.2.2 Expand HDD on VMware Workstation

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

Step 1: Stop all your labs and shutdown EVE.

Use EVE CLI command: **shutdown -h now**

Step 2: Go to edit VM settings and add a new Hard drive. Then click Next.

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

Step 4: Make sure you have selected the option "Create a new Virtual disk."

Step 5: Set your desirable HDD Size; example 200GB.

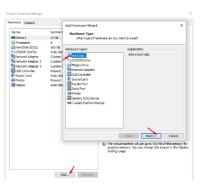
Step 6: Make sure you have set the option "Store Virtual disk as a single file" and then click Next

Step 7: Optional: Specify the location of where your new HDD will be stored, then click Finish.

Step 8: Boot your EVE VM, HDD size will be expanded automatically. To verify, use the command to verify HDD utilization referenced in section 15.1.5

15.2.3 Expand your HDD on ESXi

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





Step 1: Stop all your labs and shutdown EVE.

Use EVE CLI command: shutdown -h now

Step 2: Go to edit VM settings and add a new Hard drive. Then click Next

Step 3: Make sure you have selected the option "Create a new Virtual disk." Then click Next

Step 4: Set your desirable HDD Size; example 200GB.

noware			0Y 5261 32-2 08 *
Hemory CPUs Video card VMCI device USB controllar		lo you wish to add to your virtualmachi	
555 canceller 6 Herd Girk 2 Herd Girk 2 Retwork edepter 1 Network edepter 2	Device Type Solicit 2 City Create a Use Advanced Options Ready to Complete	Chose the type of decise you and for the series of the se	nin to akt. − Information ⊐ The devise as be added to the Winad Machine.

Step 5: It is recommended to set the Thick Provision Lazy Zeroed HDD option.

Step 6: Specify the location of where your new HDD will be stored and then click Next

Step 7: Leave the recommended SCSI HDD option as is and click Finish.

Step 8: Boot your EVE VM, the HDD size will be expanded automatically. To verify, use the command to verify HDD utilization referenced in section 15.1.5

15.2.4 Expand your HDD on a Bare Metal EVE Server

It is a complicated process to expand a HDD for a bare metal EVE server. Please open a ticket in our Live chat support for advice.

http://www.eve-ng.net/live-helpdesk

Use a google account to join in the Live Chat or create new chat account.

15.3 Reset Management IP

Type the following commands into the CLI followed by enter:

rm -f /opt/ovf/.configured

su -

http://www.eve-ng.net/documentation/installation/bare-installIP address setup wizard. Please follow the steps in section 3.5.1 for Static IP or 3.5.2 for DHCP IP setup.

15.4 EVE PRO SQL Database recovery

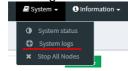
Starting EVE PRO version 107, you can recover SQL user database in case of disaster:

unl wrapper -a restoredb



15.5 EVE Log files

EVE log Files can be obtained from the System Logs page under the System dropdown menu



Use the menu to collect log file data you are interested in.

System logs				
System log viewer				
Select log file	Number of Lines	Search text		
access.bit	~ 20			View
access.txt				
api.txt	\mathbf{X}			
error.txt	•			
php_errors.txt				
unl_wrapper.txt				
cpulimit.log			Null	
			rtatt	

15.6 EVE cli diagnostic info

Use EVE cli to obtain your EVE information:

eve-info



16 EVE Extras

16.1 EVE Pro Radius server setup for user authentication

▲ Mandatory Prerequisites: Updated EVE-PRO version 98 or later. CLI SSH access to the EVE PRO console, External Radius Server.

16.1.1 Radius server IP and shared secret setup in the EVE Pro

First we have to check which of the **config.php** and/or **config.php.distributed** files exist in the following EVE directory

/opt/unetlab/html/includes/

SSH to your EVE as root and issue the following commands:

cd /opt/unetlab/html/includes/

ls

You will see an output similar to the one of the screenshots below, check which one applies to you:

Option 1. Two files: **config.php** and **config.php.distributed** exist in this directory, in this case follow Section: 16.1.1.1

root@eve-ng:/opt/unetla	b/html/includes# ls			
api_authentication.php	api_networks.php	c7200_i0_log.txt	init.php	network.php ^{extoble}
api_capture.php	api_nodes.php	cli.php	interfc.php	node.php(api_authe
api_configs.php	api_pictures.php	config.php	jscode.php	Parsedown.php
api_folders.php	api_status.php	config.php.distribution	lab.php	picture.php
api_html5Desktop.php	api_textobjects.php	configset.php	lineobject.php	Slim 🛛 🖆 api_config
api_labs.phpre Meta	api_topology.php	eve-ng.lic	messages_en.php	Slim-Extras
api_lineobjects.php	api_uusers.php	functions.php	messages_zh.php	textobject.php
noot@ouo_ng:/ont/unotla	h/html/inaludoa#			ani html-

Option 2 Single file: only config.php.distributed exists, in this case follow Section: 16.1.1.2

root@eve-nq:/opt/unetla	b/html/includes# ls			
api_authentication.php	api_networks.php	c7200_i0_log.txt	interfc.php	node.php ^{[api_capit}
api_capture.php	api_nodes.php	cli.php	jscode.php	Parsedown php confid
api_configs.php	api_pictures.php	config.php.distribution	lab.php	picture.php
api_folders.php	api_status.php	configset.php	lineobject.php	Slim
api_html5Desktop.php	api_textobjects.php	eve-ng.lic	messages_en.php	Slim-Extraspintols
api_labs.phpre Meta	api_topology.php	functions.php	messages_zh.php	textobject.php
api_lineobjects.php	api_uusers.php	init.php	network.php	
root@eve-ng:/opt/unetla	b/html/includes#			api_lineot

16.1.1.1 Edit the existing config.php file

Step 1. Use EVE CLI. Make sure you are in the following EVE directory: /opt/unetlab/html/includes/

Step 2. Use vi or nano file editor to edit your config.php file.

nano config.php

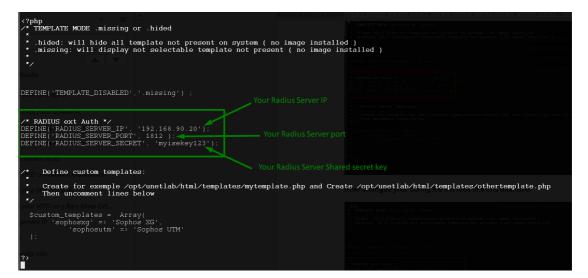


Step 3. Add the following lines to your config.php file (see the screenshot below in the green square).

Hint: you can also open config.php.configured file to obtain correct Radius configuration lines. You will need to put in the correct settings for your radius server (ip/port/secret).

```
/* RADIUS ext Auth */
DEFINE('RADIUS_SERVER_IP', '0.0.0.0);
DEFINE('RADIUS_SERVER_PORT', 1812);
DEFINE('RADIUS_SERVER_SECRET', 'secret');
```

Step 4. Save the config.php file. Your config.php file must look like in the screenshot below (green square).



16.1.1.2 Creating new config.php file

If your EVE does not have the config.php file in the /opt/unetlab/html/includes/

Step 1. Use the EVE CLI. Make sure you are in the following EVE directory: /opt/unetlab/html/includes/

Step 2. Rename config.php.distributed (the template) to config.php.

```
mv config.php.distributed config.php
```

Step 3. Use vi or nano file editor to edit your config.php file.

nano config.php

Step 4. Edit the config.php file and adjust to your Radius server settings (see screenshot below in the green square).



Step 5. Save the config.php file.

<pre><?php /* TEMPLATE MODE .missing or .hided * .hided: will hide all template not present on system (no i * .missing: will display not selectable template not present * .***********************************</th><th>mage installed) (no image installed)</th></pre>	mage installed) (no image installed)
DEFINE('TEMPLATE_DISABLED','.missing') ; Your Radi	
<pre>/* RADIUS ext Auth */ DEFINE('RADIUS_SERVER_IP', '192.168.90.20'); DEFINE('RADIUS_SERVER_PORT', 1812); DEFINE('RADIUS_SERVER_SECRET', 'myisekey123');</pre>	
Your Rac	dius Server Shared secret key
* Create for exemple /opt/unetlab/html/templates/mytemplate * Then uncomment lines below	.php and Create /opt/unetlab/html/templates/othertemplate.php
yon HDD on a Bare Metal EVEL \$custom_templates = Array(when UP 'sophosxg' => 'Sophos XG', 'sophosutm' => 'Sophos UTM');	
20 cinfo	227081 (TERELATE SENANCE (* 1949 og f)

16.1.2 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-20-9]chars
External Auth (Radius) 🗹 📃
Password

Password Confirmation
•••••

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



i

0	to	-1	0
	0	0 to	0 to -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.

Account	Validity			
From	2018-05-18	00:00 to	2018-05-20	01:00
POD*				
1				

Step 6: The POD number is a value assigned to user accounts automatically. POD numbers are like user profiles inside of EVE and are a unique value for every user Think of PODs like a virtual rack of equipment for each user. Admins can assign a preferred number between 1-128. Please keep POD numbers unique between users!

Step 7: Press ADD

dd Cancel

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

Example: EVE user authenticated with ISE 2.1 Radius server.

		e ∨e	Professional	📾 Main	🗲 Management 🗸	🖉 System 🕶	Information +	O Licensing -	@2018 Eve-NG
	1	User mana	gement her	e you can ma	inage EVE-NG users				
		Database of	users						
		Username		Authenticat	or	Email		Name	
DVD Des De discusso		ədmin		internal		root@loc	allhost	Eve-N0	Administrator
EVE Pro Radius user		udise		raciius		uldis@ttt	Ltv	Uldis R	tadius
uthentication 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 Authent	tication succeeded							
Username	udise								
User Type	User	ISE	2.1 EVE Au	thentica	ted user				
Authentication Identity Store	Internal User	5							
Authentication Method	PAP_ASCII								
Authentication Protocol	PAP_ASCII								
Network Device	EVE90-228								
Device Type	All Device Ty	pes							
Location	All Locations								
NAS IPv4 Address	192.168.90.2	28							
Authorization Profile	PermitAccess	s							
Response Time	206								



16.2 Lab Chat

🟴 Lab Chat	Refer section: 8.1.12
LAB CHATROOM	
[10:42:52] uldis joined	
[10:43:19] <i>admin joined</i> [10:43:24] admin: hello uldis	
[10:43:34] uldis: hello admin	

16.3 Custom MAC address for node management

*

NOTE: Qemu nodes only.

.

telnet

Qemu nodes has option to change first interface MAC address.

EDIT NODE				×
Template				
Cisco vIOS				Ŧ
ID				
15				
Image				
vios-adventerprisek9-m.	SPA.156-1.T			*
Name/prefix				
vios				
lcon				
a Routenpng				*
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 -nogi	raphic -nodefconfig -	nodef
Startup configuration				
None				*
Delay (s)				
0				
Console				
CONSOLE				



16.4Windows 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	root@eve-ng:~#		lsusk	0		
Bus	002	Device	002:	ID	Ocf3:9271	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
rtCard Reader						
Bus	003	Device	001:	ID	ld6b:0001	Linux Foundation 1.1 root hub
root	root@eve-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 qemu64,+fsgsbase -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		
lmage		
win-7-x86-IPCC		•
Name/prefix		
Win		
lcon		
Desktop.png		Ŧ
UUID		
eee724a7-53f9-45cb-81l	b1-c1fec67de630	
CPU Limit		
CPU	RAM (MB)	Ethernets
1	4096	1
First Eth MAC Address		
50:0a:00:06:00:00		
QEMU Version	QEMU Arch	QEMU Nic
tpl(2.0.2) -	tpl(×86_64) •	tpl(e1000) 🔹
QEMU custom options ((reset to template value)
-machine type=q35,acce	l=kvm -cpu qemu64,+fsgsba	se -vga std -usbdevice tablet
Startup configuration	•	
None		Ŧ
Delay (s)		
0		
Console		
rdp-tls		Ŧ
Left	Тор	
516	312	
	ve Cancel	



17 Images for EVE

Images must be uploaded and prepared before they can be used in labs. The best way to upload images is to use the WinSCP tool for Windows environment or FileZilla for MAC OSX and Linux.

Link to download WinSCP:

https://winscp.net/eng/download.php

Link to download FileZilla:

https://filezilla-project.org/

To access EVE, use SSH protocol (port 22).

Supported images for EVE are stored in the three locations:

- IOL (IOS on Linux), /opt/unetlab/addons/iol/bin/
- Dynamips images, /opt/unetlab/addons/dynamips
- Qemu images, /opt/unetlab/addons/qemu

17.1 Qemu image naming table

▲ IMPORTANT NOTE: Intel VT-X/EPT must be enabled to run Qemu nodes in EVE. For information on how to enable this option, Refer to section 3: EVE Installation.

The directory names used for QEMU images are very sensitive and must match the table below exactly in order to work.

Ensure your image folder name starts as per the table. After the "-" you can add whatever you like to label the image. We recommend using the version of your image.

Folder name examples:

firepower6-FTD-6.2.1 acs-5.8.1.4

The image inside the folder must be named correctly: Example: hda.qcow2 or virtioa.qcow2

Full path Example: opt/unetlab/addons/gemu/acs-5.8.1.4/hda.gcow2

Qemu folder name EVE	Vendor	Qemu image .qcow2 name
a10-	A10-vthunder	hda
acs-	ACS	hda
asa-	ASA ported	hda



asav-	ASAv	virtioa
ampcloud-	Ampcloud Private	hda, hdb, hdc
barracuda-	Barracuda FW	hda
bigip-	F5	hda, hdb
brocadevadx-	Brocade	hda
cda-	Cisco CDA	hda
cips-	Cisco IPS	hda, hdb
clearpass-	Aruba ClearPass	hda, hdb
aruba-	Aruba Virtual Mobility Controller	hda, hdb
coeus-	Cisco WSA coeus	virtioa
phoebe-	Cisco ESA	virtioa
cpsg-	Checkpoint	hda
csr1000v-	Cisco CSR v1000	virtioa
csr1000vng-	Cisco CSR v1000 Denali & Everest	virtioa
prime-	Cisco Prime Infra	virtioa
cucm-	Cisco CUCM	virtioa
cumulus-	Cumulus	hda
extremexos-	ExtremeOS	hda
firepower-	Cisco FirePower 5.4 NGIPS	scsia
firepower-	Cisco FirePower 5.4 FMC	scsia
firepower6-	Cisco FirePower 6.x NGIPS	scsia
firepower6-	Cisco FirePower 6.x FMC	hda
firepower6-	Cisco FirePower 6.x FTD	hda
fortinet-	Fortinet FW	virtioa
fortinet-	Fortinet SGT	virtioa
fortinet-	Fortinet mail	virtioa, virtiob
fortinet-	Fortinet manager	virtioa
hpvsr-	HP virt router	hda
huaweiusg6kv-	Huawei USG6000v	hda
ise-	ISE 1.x cisco	hda
ise-	ISE 2.x cisco	virtioa
jspace-	Junos Space	hda
infoblox-	Infoblox	virtioa
junipervrr-	Juniper vRR	virtioa
linux-	any linux	hda
mikrotik-	Mikrotik router	hda
nsvpx-	Citrix Netscaler	virtioa
nxosv9k-	NX9K Cisco Nexus (SATA best perf)	sataa
olive-	Juniper	hda
ostinato-	Ostinato traffic generator	hda
OSX-	Apple OSX	hda + kernel.img
paloalto-	PaloAlto FW	virtioa
pfsense-	pFsense FW	hda
riverbed-	vRiverbed	virtioa, virtiob
sonicwall-	DELL FW Sonicwall	hda



sourcefire-	Sourcefire NGIPS	scsia
sterra-	S-terra VPN	hda
sterra-	S-terra Gate	virtioa
timos-	Alcatel Lucent Timos	hda
titanium-	NXOS Titanium Cisco	virtioa
vcenter-	VMWare vCenter	sataa (12G) satab (1.8G) satac (15G) satad (25G) satae (25G) sataf (10G) satag (10G) satai (10G) satai (10G) satal (10G) sataa (10G) satam (100G)
veos-	Arista SW	hda, cdrom.iso
vios-	L3 vIOS Cisco Router	virtioa
viosl2-	L2 vIOS Cisco SW	virtioa
vtbond-	Viptela vBond	hda
vtedge-	Viptela vEdge	hda
vtsmart-	Viptela vSmart	hda
vtmanage-	Viptela vManage	hda, hdb
vmx-	Juniper vMX router	hda
vmxvcp-	Juniper vMX-VCP	hda, hdb, hdc
vmxvfp-	Juniper vMX-VFP	hda
vnam-	Cisco VNAM	hda
vqfxpfe-	Juniper vQFX-PFE	hda
vqfxre-	Juniper vQFX-RE	hda
vsrx-	vSRX 12.1 Juniper FW/router	virtioa
vsrxng-	vSRX v15.x Juniper FW/router	virtioa
vwaas-	Cisco WAAS	virtioa, virtiob, virtioc
vwlc-	vWLC Cisco WiFi controller	megasasa
vyos-	VYOS	virtioa
win-	Windows Hosts (Not Server Editions)	hda or virtioa(using driver)
winserver-	Windows Server Editions	hda or virtioa(using driver)
xrv-	XRv Cisco router	hda
xrv9k-	XRv 9000 Cisco router	virtioa

17.2 How to prepare images for EVE

How to add EVE-NG images please refer to:

https://www.eve-ng.net/documentation/howto-s



17.3 How to add custom image template

For advanced users only. SSH to you EVE.

17.3.1 Prepare template file

All templates files are in "/opt/unetlab/html/templates/" Make a copy the most similar existing template to your new file

Example:

cp /opt/unetlab/html/templates/linux.yml /opt/unetlab/html/templates/**ngips.yml**

17.3.2 Prepare interface format and name lines

EVE Pro has included option to create various interface names, sequences and numbering. Please refer table below.

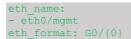
Formula	Template line format example	Will produce
eth_format: <prefix>{<first example<br="" for="" slot:="" value="">1>}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 8>}</number></first></separator></first></prefix>	eth_format: Gi{1}/{0-8}	Gi1/0 Gi1/1 Gi1/2 Gi1/3 Gi1/4 Gi1/5 Gi1/6 Gi1/7 Gi2/0 Gi2/1
eth_format: <prefix>{<first example<br="" for="" slot:="" value="">0>}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 4>}</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



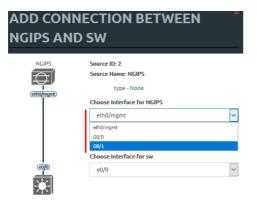
eth_format: <prefix>{<first value="">}</first></prefix>	eth_format: G0/{0}	G0/0 G0/1 G0/2 G0/3
eth_name: <prefix: custom="" interface="" name=""></prefix:>	eth_name: - M1 - T1 - T2	M1 T1 T2
eth_name: <prefix: custom="" interface="" name=""></prefix:>	eth_name: - MGMT - DATA - TRAFFIC	MGMT DATA TRAFFIC

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 G0/0 and change sequence accordingly. G0/0, G0/1,...,G0/X

As your node first interface will be custom named (eth0/mgmt), therefore in the template "eth_name:" must be added before "eth_format:"



This adding will produce Node interfaces.



17.3.3 Edit your new template file:

nano ngips.yml

Change content, setting for various images can vary depends of vendor requirements. The interface name lines please refer Section: 17.3.2

```
# Copyright (c) 2016, Andrea Dainese
# Copyright (c) 2017, Alain Degreffe
# All rights reserved.
```



#

#	Redistribution and use in source and binary forms, with or without				
#	modification, are permitted provided that the following conditions are met:				
#	* Redistributions of source code must retain the above copyright				
#	notice, this list of conditions and the following disclaimer.				
#	* Redistributions in binary form must reproduce the above copyright				
#	notice, this list of conditions and the following disclaimer in the				
#	documentation and/or other materials provided with the distribution.				
#	* Neither the name of the UNetLab Ltd nor the name of EVE-NG Ltd nor the				
#	names of its contributors may be used to endorse or promote products				
#	derived from this software without specific prior written permission.				
#					
#	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				
	GNU nano 2.5.3 File: ngips.yml				
	DISCLAIMED. IN NO EVENT SHALL <copyright holder=""> BE LIABLE FOR ANY</copyright>				
	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.				
#					
+ -	/pe: gemu				
	ame: NGIPS Node name on the Topology				
	pulimit: 1				
-	con: IPS.png				
-	m: 8192				
e	ethernet: 3				
e	ch_name:				
	eth0/mgmt				
	th_format: GO/{0}				
	onsole: vnc				
-	qemu_arch: x86_64				
-	emu_nic: e1000				
q	<pre>qemu_options: -machine type=pc-1.0, accel=kvm -serial none -nographic -nodefconfig</pre>				
	-nodefaults -display none -vga std -rtc base=utc				

17.3.4 Prepare config.php

EVE has installed sample file: /opt/unetlab/html/includes/config.php.distribution

If you don't have already a file /opt/unetlab/html/includes/config.php, just copy sample to config.php

cp /opt/unetlab/html/includes/config.php.distribution /opt/unetlab/html/includes/config.php

Edit config.php

Original file content:

<?php
/* TEMPLATE MODE .missing or .hided
*
* .hided: will hide all template not present on system (no image installed)
* .missing: will display not selectable template not present (no image installed)
*
*/</pre>



```
DEFINE('TEMPLATE DISABLED','.missing') ;
/*
    Define custom templates:
 *
 *
         Create for exemple /opt/unetlab/html/templates/mytemplate.php and Create
/opt/unetlab/html/templates/othertemplate.php
      Then uncomment lines below
 */
11
      $custom templates = Array(
          'mytemplate' => 'My Custom Template1',
'othertemplate' => 'An Other Template',
'othertemplate2' => 'An Other Template2'
//
//
//
11
      );
?>
```

Change to:

```
<?php
/* TEMPLATE MODE .missing or .hided
 \star .hided: will hide all template not present on system ( no image installed )
 \star .missing: will display not selectable template not present ( no image installed )
 *
 */
DEFINE('TEMPLATE DISABLED','.missing') ;
/*
    Define custom templates:
*
 *
        Create for exemple /opt/unetlab/html/templates/mytemplate.php and Create
/opt/unetlab/html/templates/othertemplate.php
   Then uncomment lines below
 */
                                                            ADD A NEW NODE
   $custom templates = Array(
        'ngips' => 'Cisco FirePower NGIPS' <-- Node list name
   ):
    Template name: ngips
?>
```

17.3.5 Prepare new icon for your template:

Step 1 Use Filezilla or Winscp to copy your custom icon IPS.png (icon we have in ngips.php - see sample at Section 17.3.1)

This icon should be about 30-60 x 30-60 in the png format (switch.png is for example 65 x 33, 8-bit/color RGBA)



Step 2 Copy this new icon into /opt/unetlab/html/images/icons/

17.3.6 Template use

Step 1 Create directory /opt/unetlab/addons/qemu/ngips-6.2.83

mkdir /opt/unetlab/addons/qemu/ngips-6.2.83

Step 4.2 Upload image NGIPS, Refer Section: 17.2



18EVE Resources

For additional updated information please follow our web site: http://www.eve-ng.net

How to updates: http://www.eve-ng.net/documentation/howto-s

How to videos: http://www.eve-ng.net/documentation/howto-s-2

FAQ: http://www.eve-ng.net/faq

Live support chat: <u>http://www.eve-ng.net/live-helpdesk</u>

For access to live chat use your Google account or create new chat account.

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

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

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

EVE Professional downloads: http://www.eve-ng.net/downloads/eve-ng

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

EVE Supported images: http://www.eve-ng.net/documentation/supported-images