

EVE-NG Professional Cookbook

Version 1.0

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Preface

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

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

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

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

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

Christian Scholz @chsjuniper



1 Introduction

1.1 What is EVE-NG?

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

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

1.2 What is EVE-NG used for?

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

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

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

It is not just for networking, EVE 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 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 process 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

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

Warning: Using VMware vMotion or upgrading ESXi to the next version can break the structure of your EVE VM which may cause the license to become invalid.





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 V 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 ZBack 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 Inux Novell NetWare Solaris V Wware ESX O Other Version Ubuntu 64-bit Help Help 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



otep 7: As	sign desirat	ble memory	Step 8: Set Processors "Number of processors" and "Number of cores per processor". Set Intel VT-x/EPT Virtualization		
Device	Summary 10 1 1 1 Auto detect NAT Present Auto detect Present Auto detect	Menory Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4466. Memory for this virtual machine: 15384 (2) MB 4 GB 2 GB 1 G	 engine to ON (checked). NOTE: VMware Player will display only one CPU option: Number of processors. NOTE: Plan your EVE CPU settings. After your EVE license has been received, only the "Number of processors" setting may be changed. Changing "Cores per socket" after a license request has been completed can cause EVE license issues 		
		Close Help	Device Summary We kenory 16 GB Processors 8 We kenory 16 GB Watch CO/DIO (STAT) Number of processors (SE) We kenory Auto detect Sound Card Auto detect Windlike CPU performance counters Virtualize CPU performance counters Display Auto detect		

Step 9a: Select your desirable Network Adapter. Laptop PC	Step 9b: Select your desirable Network Adapter. Desktop PC
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	NOTE: Desktop PC EVE management interface can be either NAT or Bridged to home LAN subnet.



ordware	Laptop or D	esktop PC	× Hardware		Desktop PC		
Device III Memory : ■ Processors ■ New CO/DVD (SATA) III Lebook Adds © Sound Card ■ Sound Card ■ Display	Summary 16 GB 8 Auto detect MAT Present Auto detect Present Auto detect Auto detect Auto detect Auto detect Auto detect Auto detect Auto detect Auto detect	Levice status Connected Connect at power on Petwork connection Project: Connected affectly to the physical network Royal and the physical network connection state NAT: Used to share the host's IP address Detact-ody: A physical network connection state Outers: Specific vitual network Undet-ody: A physical network with host Outers: Specific vitual network Undet-ody: A physical network connection state Outers: Specific vitual network Undet-ody: A physical ne	Device IIII Menory Process Same C Same C IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Summary 16 GB BVD (SATA) Auto detect Body (SATA) Auto detect Auto detect Auto detect Auto detect Auto detect Auto detect Auto detect Auto detect Auto detect	Remove	vice staba Connected Connect at power on twork connection Bredgetic Connected directly to the physi Exelocited physical heroix for ancel Direct only: A private network shared with Contom: Specific virtual network (Meet) LAV segment:	cal network in state s h the host
		Close Hel	>			Close	Help

Step 10: Select CD/DVD Option: "use ISO image file." Browse to your downloaded EVE-PRO.iso (actual name can be different) file			Step 11: Confirm VM Settings.
Hardware		×	
Device ■Memory Processors Wew CDD/D0 (SATA) Buetwork Adapter Sound Card ■Printer ■Daplay	Summary 16 GB 8 Auto detect Auto detect Present Auto detect Auto detect Auto detect Auto detect	Device status Connected Connect at power on Connection Use provide drive: Mute detect © Use 250 mage file: GripUE NG [PUE PROJAG V Browse Advanced	
		Close Help	
		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 1: Power ON EVE VM. Chose English and confirm with Enter.			VM. Chos	e English	Step 2: Be sure that "Install EVE PRO VM" is highlighted. Confirm with Enter.
☆ Home ×	🗗 EVE-PRO 🗙				Home × Breve-PRO ×
		Lar	nguage		
	Amharic Arabic Asturianu Беларуская Български Bengali Tibetan Bosanski Català Čežitan	Français Gaeige Galego Gujarati mrlu Hindi Hrvatski Magyar Bahasa Indonesia	Македонски Malayalam Marathi Burmese Nepali Nederlands Norsk bokmål Norsk nynorsk Punjabi (Gurmukhi) Dalavi	Tamil ざ [®] Doxto Thai Tagalog Türkçe Uyghur VxpalHctka Tiếng Việt 中文(简体)	ubuntu®
F1 Help F	Densk Dentsch Dzongkha Eλληνικά Enstlish Esperanto Español Español Euskara Juges Suomi 2 Language F3	Isteliana Italiana 日本語 Jo6mygeo Kasaak Khmer đズ [*] スペ ゼ국이 Kurdî Lao Lietuviškai Latviski Keymap F4 Modes	Português do Brasil Português Română Pyccxwi Sâmegilli w(~sob Slovenčina Slovenčina Shqip Cpncku Svenska F¢ Accessibility F6 0	ther Options	Install Eve PRO VM Install Eve PRO Bare Rescue a broken system Fi Help F2 Language F3 Keymap F4 Modes F5 Accessibility F6 Other Options



Step 5: DHCP ENABLED , EVEs hostname	Step 6: DHCP DISABLED /Static IP setup. If
by default is 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.
and confirm with Enter. Continue to Step 14	Confirm Continue with Enter.







Home × 🖧 EVE-PRO ×	Generation of the test of test
[11] Configure the network	[1] Configure the network
The netmask is used to determine which machines are local to your network. Consult your	The dateway is an IP address (four numbers separated by periods) that indicates the
network administrator if you do not know the value. The netmask should be entered as four numbers separated by periods.	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.
255.255.255.0	Gateway:
<go back=""> RContinue</go>	192.168.217.2
	<go back=""> (Continue)</go>
(Tab) moves: (Space) selects: (Enter) activates buttons	
	<tab> moves; <space> selects; <enter> activates buttons</enter></space></tab>







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

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



EVE VM Installation Phase 2 (EVE installation)



Home × B tVE-PRO ×	Virtual Machine Settings
	Hardware Options
(1) Finish the installation Installation corplete Installation corplete, so it is line to boot info your new system. Make sure to remove the installation media (CD-ROM, Finpples), so that you boot into the new system rather than restallation. (Go Back)	Hardware (options Device stabul Processor (SSR) 2007 file (PVE MCVEE PRO Loo Processor (SSR) 2007 file (PVE MCVEE PRO Loo PVE PRO LOO
(Tab) moves; (Space) selects; Ænter) 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 × B IVE FRO ×	Ordered × OF EVE-PRO × Eue-NG (default root password is 'eve') Use http://122.168.217.123/ eve-ng login:
[11] Finish the installation Installation complete Installation is complete, so it is time to boot into your new system. Make sure to remove the installation media (CD-R0K, Hoppies), so that you boot into the new system rather then restarling the installation. (do Back) Continues	
(Tab) moves: <space> selects: <enter> activates buttons</enter></space>	

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 the EVE CLI and type:
Follow steps in section :	apt update
3.4.1 for static IP, 3.4.2 for DHCP IP	



Step 23: After update, Step 22 is completed, continue by typing:	Step 24: After Step 23 is completed and EVE CLI prompt back to cli,
apt install eve-ng-dockers	Reboot EVE with type:
It can take some time depending on your Internet connection speed.	reboot

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: <u>http://www.eve-ng.net/downloads/eve-ng</u>

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.

NOTE: Plan your EVE CPU settings. After EVE license is loaded, only "CPU Cores" settings can be changed. Changing "Cores per socket" after a license request has been completed can cause EVE license issues



Step 6: **Laptop PC** Select your desirable Network Adapter.

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



Step 7: Desktop PC S Network Adapter. NOTE: Desktop PC E interface can be eithe home LAN subnet.	Select your desirable VE management r NAT or Bridged to	Step 8: Power ON your EVE VM and follow Management IP setup instructions described in section 3.4.1 for Static IP or 3.4.2 for DHCP IP.
Hardware Desktop PC	×	
Device Summary Immercessor 15.00 Processor 5 New CD/DVD (SATA) Ando detect Immercessor 8 Sound Card Register Sound Card Auto detect Printer Display Auto detect Market Sata Display Auto detect	Device status Connected Connected Connected Connected areactly to the physical network Connected directly to the physical network Connected directly to the physical network Contextor state Contextor spreader network Connected to state Contextor spreader network Connected Contextor Spreader Network Connected Contextor Spreader Network Contextor Netwo	

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: http://www.eve-ng.net/downloads/eve-ng



		 New virtual machine Select creation type 	Select creation type	
VmtVarge ESXI VmtVarge ESXI VmtVarge Ministre - Distance Ministre -	Accessed	2 Select a same and great 03 3 Select forage 4 Casimire antitings 5 Isody to complete	Hor would you line to crashe a Misua Wachen ^o <u>Onaria e ever without machine</u> Destry a shaal machine in the and Orlif and Orlin the Register an existing install machine	This option guides you through creating a new vitual muchine, Yu will be able to outsmice processes, mercelly indexic connections, and sittings. You will need to install a guest genering system after creation.
 If therearing If therearing If there is a strategy of the strategy of	(C) - M (vm ware:		Back Heat Firsth Cancel

3.2.1.1 EVE-NG ESXi VM Setup and Settings

nux and	d version:	: Ubuntu 64-	bit	New virtual machine - EVE-PRO-	VM (ESXi 6.0 virtual machine)							
				 1 Select creation type 2 Select a name and guest OS 3 Select storage 	Select storage Select the datastore in which the	store the configurati	on and d	isk files.				
v virtual machine - EVE-PRC	O-VM (ESXi 6.0 virtual machine)			4 Customize settings 5 Ready to complete	The following datastores are a the virtual machine configuration	ccessible from the de on files and all of the v	stination intual dis	resource that iks.	you selected.	Select the desti	nation dat	astor
ect creation type	Select a name and	d guest OS			Name	✓ Capa	icity v	Free v	Type	Thin pro <	Access	
lect storage	Specify a unique name and	105			datastore1	264.3	75 GB	231.79 GB	VMFS5	Supported	Single	
istomize settings	Name				HDD_A	930.3	75 GB	431.63 GB	VMFS5	Supported	Single	
eady to complete	EVE-PRO-VM				HDD_B	930.	75 GB	149.61 GB	VMFS5	Supported	Single	
omware'	the appropriate defaults for Compatibility Guest OS family Guest OS version	the operatory option installation. ESIS 6 9 virtual machine Linux Ubortle Linux (54-00)	• •	vmware				8	ick 1	Next Fin	sh]	Ca





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

Select creation type Select a name and guest OS	Customize settings Configure the virtual machine hard	ware and virtual machine additional options
Select storage Customize settings Ready 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, laally zeroed Thick provisioned, eagerly zeroed
	Shares	Normal V 1000 V
vm ware [.]	Limit - IOPs	Tatala I
		Back Net Finish Ca





טיט/כ					File" and PRO.iso.	browse Make sure	your upload that Status is	ed E s cheo	EVE Cke
w virtual machine - EVE-PRO- elect creation type elect a name and guest OS	VIII (ESXi 6.0 virtual machine) Customize settings Continue the virtual machine have	tware and vite	al marbine additional relicos		ON, "Conr	nect at pow	ver on"		
elect storage estomize settings				721					
eady to complete	Virtual Hardware VM Option	s	-	Î	CP New virtual machine - EVE-PRO-V	M (ESXi 6.0 virtual machine)			
	Add hard disk ME Add her	work adapter	Add other device		 1 Select creation type 2 Select a name and guest OS 	Customize settings	use and other marking additional options		
	* Memory	24	Existing hard disk		 3 Select storage 4 Customize settings 	EZE USB controller 1		2317	
	RAM	64	🛤 Network adapter		5 Ready to complete		018 2.0		
	Reservation		G Floppy drive	•		Status	Management 90 UD		0
			🔤 Serial port			Adapter Time			
	Limit	Un	Parallel port			MAC Address			
	Shares	No	USB controller	*			Automatic + automatica autor		
	Memory Hot Plug	De	Sound controller			 W New CD/DVD Drive 	Datastore ISD file		0
	• 23 Heat day 1	1	ta PCLANICA			Status	Connect at power on		
vm ware		200	SCSI controller	· ·		CDIDVD Media	[datastore1] EVE-PRO.iso	Browse	
			SATA controller	lest Finish Cancel		Virtual Device Node	SATA combolior 0 • SATA (0:0)	•	
				*		a III Mideo Card			

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 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



If (i) Configure the network From here you can choose to retry DKP network antoonfiguration (which may succeed if your DKP server's require a DKP hostmate to be sent by the client, so you can also choose to retry DKP network succeed iguration with a hostmate that you provide. Network configuration method: Retry network succeed provide you can also choose to the sent by the client, so you can also choose to retry DKP network succeed guration with a hostmate that you provide. Network configuration method: Retry network succeed provide you hostmane to be network at this time. Go Back>	[11] Configure the network The IP address is unique to your computer and may be: * Gun runders separated by periods (IPv4); * blocks of hexadelmai characters separated by colons (IPv6). You can also optionally append a CDR network (such a "/24"). If you don't know what to use here, consult your network administrator. IP address: MSC#100MED GD Eaclo
<tab> moves: <space> selects: <enter> activates buttons</enter></space></tab>	(Tab) moves; @pace) selects; @nter) 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 network is used to determine which works administrator if you do not know the value. The network should be entered as four numbers separated by periods. Network: SESSESSES <go back=""> <go back=""> <table <cpace="" moves;=""> selects; <enter> activates buttons</enter></table></go></go>	(1) 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 circumatences, 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: Image: Constraint of the co

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	







Step 15: If you have proxy in use for your internet, assign your network proxy settings. If no proxy in use, with Tab key select Continue and confirm with Enter.	Step 16: Select no automatic updates and confirm with Enter. Security updates can be run later manually from EVE cli.
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 ¥	
[!!] Finish the installation	INIE Network Adapter 1	Management 90 UD 🔹 🗹 Connect	0
Installation complete h is complete, so it is time to boot into your new system. Make sure to remove		Datastore ISO file	0
on media (CD-RUM, floppies), so that you boot into the new system rather g the installation.	Status	Connect at power on	
Continues	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 19: Return back to EVE console screen	Step 20: Once EVE login screen appeared,
and confirm Continue with Enter, EVE VM	login in CLI with root/eve and follow
will reboot and continue Phase 2 installation	installation Phase 3

Г

Eve-NG (default Use http://192.16	pot password is 'eve') 8.90.120/
sve- ng login: _	
[11] 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, floppies), so that you boot into the new system rather than restarting the installation.	
<go back=""></go>	
/Tahi muuae: /Shanai salaete: /Entani activatas huttons	
Viaux moves, vapacex selects, venterx activates buttons	že.

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	
3.4.1 for static IP, 3.4.2 for DHCP IP		

Т

Step 23: After update, Step 22 is completed, continue with type:	Step 24: After Step 23 is completed and yo are back on the EVE CLI prompt, reboot EV by typing		
apt install eve-ng-dockers			
This can take some time depending on your	reboot		
Internet connection and disk speed.			

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



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3.2.2.1 ESXi OVA VM Setup and Settings

Step 1:	ES	Xi Host, C	Create/Register VM	Step 2: So from an C	et option Deploy VF or OVA file	a virtual machine
Navigator		iocalhost.localdomain				
- Host				😂 New virtual machine		
Manage Monitor	6	Get VCenter Server To Create Iocalhost.Local Verser: 6.6.0 State: Normal Uptime: 38.53 c	Antropauro Maria (antro Antrona) (antropauro Antropauro Antropauro Antropauro Antropauro Antropauro Antropauro General Antropauro	 Select Creation type Select OVF and VMDK files Select storage License agreements Deployment options Additional settings Ready to complete 	Select creation type How would you like to create a Virbual Machine? Create a new Virbual machine Display available machine for man an OVF or OVA file	This option pushes you through the process of creating a whust machine from an OVP and VMDK Nex.
More Vills • 📑 Storage • 📑 datastore1 More storage • 👷 Networking	3	You are running Dell Customiz Hardware Manufacturer	nd Image E.Sti 6.0.6 Add (based on E.Sti 6.0.9 VMKernet Release Build 2494585) Dell Inc.			
		Model	PowerEdge R610			
		P CPU	12 CPUs x Intel(R) Xeon(R) CPU X5680 @ 3.33GHz			
		Memory .	95.99 CB			
		 Virtual flash O Matematika 	0 B used, 0 B capacity	-		
		Hostname	Institution in the second se			
_				vm ware [.]		Back Next Firsth Cancel

Step 3: Type the name for your new EVE VM and browse to select your downloaded EVE OVA file	Step 4: Select the stor VM will be deployed.	rage where your EVE
	1 Select creation type Select storage	
TJJ New writeal machine - EVE-3400	2 Select OVF and VMDK files Select the datastore in which to store the	e configuration and disk files.
1 Select creation type Select OVF and VMDK files Select foreae Select foreae	4 License agreements 5 Deployment options The following datastores are accessible the virtual machine configuration files an	from the destination resource that you selected. Select the destination datastore for d all of the virtual disks.
4 License agreements Enter a name for the virtual machine.	6 Additional settings 7 Ready to complete	✓ Capacity ✓ Free ✓ Type ✓ Thin pro ✓ Access ✓
5 Deployment options EVE-PRO	datastore1	264.75 GB 234.02 GB VMFS5 Supported Single ^
A Realized and the complete Virtual machine names can contain up to 80 characters and they must be unique within each ESX0 instance.	HDD_A	930.75 GB 471.63 GB VMFS5 Supported Single
	HDD_B	930.75 GB 149.61 GB VMFS5 Supported Single v
× 🖀 EVE-PRO-VM-2.0.420.078	vm ware:	2 Jams
vm ware		Back Next Finish Cancel
Box Red Front Carol		

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).	
	NOTE: Plan your EVE CPU settings! After you received your EVE license, only the CPU quantity setting can be changed. Changing the "Cores per socket" after a license request has been completed can	



Set control to the control to the set control t	1 New virtual machine - EVE-PRO			cause EVE li	cense issues	
Windt Hadragenger Management 60 UD Management 60 UD Management 60 UD Management 60 UD	 ✓ 1 Select creation type ✓ 2 Select OVF and VMDK files ✓ 3 Select storage 	Deployment options Select deployment options		Edit settings - EVE-PRO (ESXI 6.0 virtu	al machine)	
Dat previousing O then 9 thus Cores per Sociat 1 Societs: 24 CPU Hot Add Reservation Imit Unit Unit Back Imit Back Imit Performance counters Brande industration of Partice Adirect Schadeline Adlock Hearthroadion Ritelits Adloce	4 Deployment options 5 Ready to complete	Network mappings	Management 90 UD	Virtual Hardware VM Options	danter 🗧 Add offser devine	î
Bass Net Plands		Disk provisioning	O Thin ® Thick	- CPU		
Reservation Maria Maria				Cores per Socket	Sockets: 24 Enable CPU Hot Add	
BitX Med Freink Cancer BitX Freink Cancer Schaddion Athink Heinstein Schiss Athink V Schaddion Athink Heinstein Schiss Athink V V V				Reservation	V MHz V	
Base Normal 1000 Base Ned Presh Cancer				Limit	Unlimited V MHz V	
Back Net Perior Cancer Performance counters				Shares Hardware vidualization	Normal • 1000 •	
Bax Int Front Cancel Schaddon Allow Hearthradion Solars Adva v	vm ware [.]			Performance counters	Expose hardware assisted vinualization to the guest US	
Save Cancel		_	Back Net Finish Cancel	Scheduling Affinity	Hyperthreading Status: Active	~
					Sa	ve Cancel

Step 7: Set d	esirable 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 virtu Virtual Hardware VM Options Add hard disk Mit Add network a Add net disk Mit Add network a	sapter Add other device	in section 3.4.1 for Static IP or 3.4.2 for DHCP IP.
	24 🔻 🚺	
* Memory		
RAM	32 GB 🔻	
Reservation	MB Reserve all guest memory (All locked)	
Limit	Unlimited	
Shares	Normal	
Memory Hot Plug	Enabled	
Hard disk 1	40 GB 🔹 💿	
	Save Cancel	

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

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

3.2.2.2 ESXi OVA VM update to the latest EVE version

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

3.2.2.3 ESXi OVA VM HDD Size expansion

INOTE: 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 16.04.4 LTS ISO image:



https://www.ubuntu.com/download/server

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 5: Configure the keyboard, leave "No"	Step 6: Leave English (US) as selection,
selected and confirm with enter	confirm with Enter










	-
Step 11: Select "Configure network manually" and confirm with Enter	Step 12: Enter your desirable EVE management IP, using the Tab key select "Continue" and confirm with Enter
III) Configure the network From here you can choose to retry DMCP network autoconfiguration (which may succeed if your DMCP server takes a long time to respond) or to configure the network manually. Some DMCP servers require a DMCP hostmare to be sent by the client, so you can also choose to retry DMCP network autoconfiguration with a hostname that you provide. Network configuration method: Metry network metork autoconfiguration intriv network autoconfiguration with a DMCP hostname bo not configure the network at this time (GD Back) (Heb: moves: <concept @nter="" selects:=""> activates buttons</concept>	(11) Configure the network The IP address is unique to your computer and may be: * four numbers separated by periods (IPv4); * blocks of hexaderizant characters separated by colons (IPv6). You can also optionally append a CICR netwask (such as "724"). If you don't know what to use here, consult your network administrator. IP address: 192.408.616.80. (Go Back) Chabu moves: dipace/ selects; dinter> activates buttom

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
[11] Configure the network The network is used to determine which machines are local to your network. Consult your network administrator if you do not know the value. The network should be entered as four numbers separated by periods. Netmask: Messages Go Back> Continue>	(11) Configure the network The gateway is an IP address (four numbers separated by periods) that indicates the gateway router, also known as the default noter. All trefic that goes outside your L&H (for instance, to the Internet) is sent through this router. In rare circumstances, you may have no noters in that case, you can leave this blank. If you don't know the proper answer to this question, consult your network administrator. Gateway: Tex. 155(2166)
(Tab) moves; «Space) selects; «Enter» activates buttons	<pre></pre>

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



Enter	
[11] Configure the network The name servers are used to look up host names on the network. Please enter the IP addresses fort host names of up to 3 name servers, separated by spaces. On ont use commas. The first name erver in the list uill be the first to be queried. If you don't usen to use any name server, just leave this field blank. Name server addresses: USEISDE10610 Gb Back>	[1] Configure the network Please enter the hostname for this system. The hostname is a single word that identifies your system to the network. If you don't know what your hostname should be, consult your network administrator. If you are setting up your our home network, you can make something up here. Hostname: Bowennet Go Back>
(Tab) moves: «Space) selects: «Enter» activates buttons	(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
[1] Configure the network. The domain name is the part of your Internet address to the right of your host name. It is often something that needs in .com, .cow, co.vow, If you are setting up a home network, you can make something up, but make sure you use the same domain name on all your comments. Domain name: eventratet Go Back>	[1] Set up users and passwords A user account will be created for you to use instead of the root account for non-administrative activities. Please entre the real name of this user. This information will be used for instance as default origin for emails sent by this user as well as any program which displays or uses the user's real name. Your full name is a reasonable choice. Full name for the new user: User dGo Back>
cTably noves: <pre>cTable noves: <pre>cTable noves: <pre>cTable noves: </pre> <pre>cTable noves: </pre> <pre>cTable nove</pre> <pre>nove</pre> <pre>nove</pre></pre></pre>	(Tab) moves: (Space) selects; (Enter) activates buttons



















Ill Software selection At the moment, only the core of the system is installed. To turne the system to your needs, you can choose to install one or more of the following predefined collections of software. Choose software to install: I Manual installer I Manual instage selection I Manual is prover I Manual is prover Saturd file server Virtual Mohine host Virtual Mohine host
(Tab) noves; (Space) selects; (Enter) activates buttons



Step 35: Login in to your Ubuntu with the username created above (user/Test123 was	Step 36: Continue as root user. Enter the commands below, each followed by the enter
the example)	key.
Ubuntu 16.04.4 LTS eve-ng tty1	
eve-ng login: Ubantu 16.04.4 LTS eve-ng tty1	sudo su
ewe-ng legin: user Parsword: ⊎elcome to Ubanta 16.04.4 LTS (GNU/Linux 4.4.0-116-generic x86_64)	Test123
= Documentation: http://hdlp.ubundt.com = Management: http://landscape.commical.com = Support: http://landscape.commical.ge	
32 packages can be updated. 7 updates are security updates.	cd
The programs included with the Ubants system are free software; be some distribution terms for each program are described in the following of the in any share/doc/coupyright. Ubants comes with ARSUDIZER NO MARMATY. To the extent permitted by	user@eve-ng:~\$ sudo su [sudo] passuord for user: root@eve-ng:/home/user# cd
appircable law. To run a command as administrator (user "root"), use "sudo (command)". See "man sudo_root" for detalls.	root@eve-ng:~# _
user9eve-ng∶^\$	

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



sudo passwd root	
	nano /etc/hostname
Repeat your desirable password twice; 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	
	<pre>nano /etc/ssh/sshd_config</pre>
Your assigned static IP will be bound to your	
server hostname and domain	Find and edit PermitRootLogin to "yes"
127.0.0.1 localhost 192.168.217.50 eve-ng.eve-ng.net eve-ng The following lines are desirable for IPv6 capable hosts 11 localhost ip6-localhost ip6-locaback fr02:1:1 jp6-allrouters NOTE: in case if DHCP IP address is used, you will see 127.0.0.1 IP vs hostname	# Authentication: LoginGraceTime 120 PermitRootLogin yes_ StrictNodes yes Confirm edit with ctrl+o followed by enter And ctrl+x for Exit Restart ssh service:
Confirm edit with ctrl+o followed by enter And ctrl+x for Exit	sudo service ssh restart

Step 41: 🔺 IMPORTANT

SSH 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

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

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

nano /etc/network/interfaces



After edit:



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

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

Reboot the EVE server

reboot

3.3.2 EVE Installation Phase 2

Step 43: Obtain EVEs repository key with the following one-line command and hit enter

wget -O - http://www.eve-ng.net/repo/eczema@ecze.com.gpg.key | sudo apt-key add -

Step 44: Get the latest repository content with the line below and hit enter

apt-get update

Step 45: Enter the one-liner below to add EVEs repository and hit enter

sudo add-apt-repository "deb [arch=amd64] http://www.eve-ng.net/repo xenial main"

Step 46: Get the latest repository content again

apt-update

Step 47: Enter this one-liner followed by the enter key to start the installation

DEBIAN_FRONTEND=noninteractive apt-get -y install eve-ng

3.3.3 EVE Professional Installation Phase 3

Step 48: After the installation is completed, reboot EVE and follow the Management IP	Step 49: Update repositories:
setup instructions in section 3.4.1 . It is strongly recommended for bare-metal installations to use a static IP address. After the IP address setup, continue with Step 49	apt update

Step 50: Upgrade from the repositories:	Step 51: Reboot EVE
apt upgrade	reboot



NOTE:	At	this	stage	we	have	finished
installing	g E\	/E Co	ommuni	ty ve	rsion	

Step 52: Run EVE-NG Professional installation	Step 53: Reboot
	reboot
apt install eve-ng-pro	

Step 54: Update repositories	Step 55: The following command will begin the second part of the EVE-NG Professional
apt update	installation, confirm the installation with "y"
	apt install eve-ng-dockers

Step 56: Reboot	Step 57: Continue to section 4 to obtain your EVE-NG Professional license
reboot	

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

3.4 EVE Management IP Address setup

3.4.1 Management static IP address setup (preferred)

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

Step 1: Log into the EVE CLI using the default login 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.	

















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.

3.4.2 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	Step 4: Type your domain name for your EVE VM. By default, it is example.com. The default value can be used as well. 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.

3.4.3 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 **3.4.1** for Static IP or **3.4.2** for DHCP IP.

3.5 EVE-NG Community upgrade to EVE-NG Professional

- 3.5.1 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

3.5.1.1 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%	1
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

3.5.1.2 Verify current EVE Community version

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

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



dpkg -l eve-	ng					
root@eve-ng:~# dpkg · Desired=Unknown/Inst& Status=Not/Inst/Con / Err?=(none)/Reinst	-l eve-ng all/Remove/Pu: nf-files/Unpac t-required (S	rge∕Hold cked∕halF-con tatus,Err: ug	nf/Half ppercas	`-inst∕trig-a₩ait∕T e=bad)	rig-pend	
/ Name	Version i	Architecture	Descri	ption		
ii eve-ng	2.0.3-86	amd 64	A new	generation softwar	e for networ	

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

	e ∨e	🖶 Main	🗲 Management 🗸	🖴 System 👻	G Information -
System status				 System st System k 	tatus
Lall System status				X Stop All N	iodes
8% Criana			6 Merry	% wy used	
		run	ning IOL nod	es	running Dyna
			0		0
			ru	nning Docl	ker nodes
Qemu version: 2.4.0					
Current API version: 2.0.3-86					
UKSM status:					
CPULimit status:					

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

3.5.1.3 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

3.5.2 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.

3.6 Native telnet console management setup

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

3.6.1 Windows Native Console





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 Choose	
<u>R</u> emember my choice for telnet links.	
Cancel Open lin	k

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

3.6.2 Linux Native Console

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

Step 1: Go to the EVE Linux Side integration pack download page:	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 NOTE: An internet connection is required. E other	d enter the commands below: 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>

3.6.3 MAC OSX Native Console

Telnet Protocol:

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

Do you want to allow this page to open "Terminal"?



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).

[Command not found: telnet] [Could not create a new process and open a pseudo-tty.]] +	tainet 192.168.198.43 -	192.168.198.43		¢	(<u>6</u>)(<u>0</u>)
	Command not found: telnet) [Could not create a new process and open a pseud		8		
			1		

Procedure to install a previous telnet binary:

Download telnet and ftp binaries from eve: http://<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

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:



3.7 Login to the EVE WEB GUI

Login to the EVE management UI:

http://<your_eve_ip>/



Default user access:

User: admin

Password: eve

- **MOTE:** 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	accounts can be logged into the Web GUI simultaneously. If a third Admin account logs into the Web GUI, the first active
Admins: 2	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.

Licens	se infor	mation	
	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: \$140.6 2



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)

(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.

e∨e		🚮 Main	🗲 Management 👻	🖉 System 👻	🚯 Information 👻	i Licensing -	@2018 Eve-NG	
🛔 File manager	Current po	sition / root				License Inf License Re	ormation quest	
New Name						📧 License Up	load	



LICENSE FILE DATA	
85SU8849wgFDZYXYXWF6RivM4qDiu3Xe	
5JQDojmre+iu79o+kBqjNHlgVrcJQM5m	
SrMJ1IOCFmExwkgU3Q4jzwYsJh/OTIN3	
yC4FufEh9y/8lwh9UT7hilLvvYoWT2o2	
SalM9wYD6iyoN6X9fAfiu4gW1onCLW1F	
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



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

		🖶 Main	🗲 Management 🛨	🗐 System 👻	 Information + 	🕄 Licensing 🗸	©2018 Eve-NG
🎄 File manager	Current po	sition / root				E License Inf	formation quest
New Name						🖽 License Up	oload

Paste your licence and click on Upload

X26X8Y28jraqm9g6gwQ7SFSBKDeyKnWX	
92ep0MvFVeX8jngmD5XmEHQczkmSEmEt	
SFWpZm5odlck8+YOztEVEO8C5UlPepY2	
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	
0ICaEToaoJ3XxQAU2iQxyXr7qxfdo0Jt	
HO0AROVV1VOnsjAjciUIWmrm6i6=	



5 EVE-NG Professional Update & Upgrade

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

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.

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

reboot

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



6 Types of EVE management consoles

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

EVE Pro supports three different console types.

6.1 Native console



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

6.1.1 Native Console: telnet

Windows OS: You can use your preferred telnet program like Putty, SecureCRT or others. Example: Putty as native telnet client on Windows. To setup Windows native telnet client please follow section 3.6.1



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

Example: Telnet client from the native terminal on Linux Mint. To setup Linux native telnet client please follow section 3.6.2





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

Example: Telnet client from the native terminal on MAC OSX. To setup MAC OSX native telnet client please follow section 3.6.3

6.1.2 Native Console: Wireshark

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

Windows OS: Integrated Windows RDP for Wireshark capture Example: Windows live interface capture.



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



Linux OS: Integrated RDP Session for Wireshark Capture

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



6.1.3 Native Console: VNC

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

Example: UltraVNC as Native VNC client on Windows. To setup Windows native VNC client please follow section 3.6.1



Linux OS: Remote Desktop Viewer for VNC Sessions.

Example: Remote Desktop Viewer for VNC sessions on Linux Mint. To setup Linux native Remote Desktop Viewer please follow section 3.6.2



MAC OSX: Preferred VNC program: Chicken VNC Example: Chicken VNC as Native VNC client on MAC OSX. To setup MAC OSX native RDP Viewer client please follow section 3.6.3

6.1.4 Native Console: RDP

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





Linux OS: Remote Desktop Viewer as RDP session to lab Win10 host. Example: RDP session to Win10 host in the lab. To setup Linux native Remote Desktop Viewer please follow section 3.6.2



MAC OSX: Remote Desktop Viewer as RDP session to lab Win10 host. Example: RDP session to Win10 host in the lab. To setup MAC OSX native RDP Viewer client please follow section 3.6.3

6.2 HTML5 console



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



6.2.1 HTML5 Console: Telnet

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



Option: The new Chrome clipboard extension allows the use of the copy/paste function inside the HTML session. This extension is available for the Chrome browser only.

https://chrome.google.com/webstore/detail/clipboard-permissionmana/ipbhneeanpgkaleihlknhjiaamobkceh?hl=en

6.2.2 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



6.2.3 HTML5 Console: VNC

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



6.2.4 HTML5 Console: RDP

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



IMPORTANT NOTE: For all nodes using Windows versions newer than Windows 7, 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.


ADD A NE	W NODE	:
Template		
Windows		•
Number of nodes to ad	d Image	
1	win-10-x64-LTS	•
Name/prefix		-
Win		
Icon		
B Desktop.png		•
UUID		
CPU Limit	RAM (MB)	Ethernets
CPU Limit CPU 1	RAM (MB) 4096	Ethernets 1
CPU Limit CPU 1 QEMU Version	RAM (MB) 4096 QEMU Arch	Ethernets 1 QEMU Nic
CPU Limit CPU 1 2 CPU 2 EMU Version tpl(2.0.2) *	RAM (MB) 4096 QEMU Arch tpl(x86_64) -	Ethernets 1 QEMU Nic tp!(e1000) ~
CPU Limit CPU 1 QEMU Version tpl(2.0.2) CPU	RAM (MB) 4096 QEMU Arch tpl(x86_64) ~	Ethernets 1 QEMU Nic tpl(e1000) ~
CPU Limit CPU 1 QEMU Version tpl(2.0.2) ~ QEMU custom options -machine type=pc1.0,	RAM (MB) 4096 QEMU Arch tpl(x86_64) accel=kvm -cpu qemu64,+fsgsb	Ethernets 1 QEMU Nic tpl(e1000) ase -vga std -usbdevice tabl.
CPU Limit CPU 1 2 QEMU Version (pl(2.0.2) ~ QEMU custom options -machine type=pc-1.0, Startup configuration	RAM (MB) 4095 QEMU Arch tpl(x86_64) cccel=kvm -cpu qemu64_+fsgsb	Ethernets 1 QEMU Nic tpl(e1000) - ase -vga std -usbdevice tabl.
CPU Limit CPU 1 2 QEMU Version (pl(2.0.2) QEMU castom options -machine type=pc-1.0, Startup configuration None	RAM (MB) 4995 QEMU Arch tpl(x86_64) • accel=kvm <pu qemu64,+fsgsb<="" td=""><td>Ethernets 1 QEMU Nic tpl(e1000) • ase -vga std -usbdevice table</td></pu>	Ethernets 1 QEMU Nic tpl(e1000) • ase -vga std -usbdevice table
CPU Limit CPU 1 1 1 (pl(2.0.2) - (pl(2.0) -	RAM (MB) 4995 QEMU Arch tpl(x86_64) • accel=kvm <pu qemu64,+fsgsb<="" td=""><td>Ethernets 1 QEMU Nic tpl(e1000) • ase -vga std -usbdevice tabl</td></pu>	Ethernets 1 QEMU Nic tpl(e1000) • ase -vga std -usbdevice tabl
CPU Limit CPU Limit CPU 1 1 1 (pl(2.0.2) - (RAM (MB) 4096 QEMU Arch tpl(x86_64) • accel=kvm <pu qemu64_+fsgsb<="" td=""><td>Ethernets 1 QEMU Nic tpl(e1000) ase -vga std -usbdevice tabl</td></pu>	Ethernets 1 QEMU Nic tpl(e1000) ase -vga std -usbdevice tabl
CPU Limit CPU Limit CPU Limit CPU 1 1 1 QEMU Version QEMU Version wachine type=pc-1.0, Startup configuration None Delay(5) 0 Console Console	RAM (MB) 4096 QEMU Arch tpl(x86_64) • accel=kvm <pu qemu64,+fsgsb<="" td=""><td>Ethernets 1 QEMU Nic tpl(e1000) ase «yga std -usbdevice tabl</td></pu>	Ethernets 1 QEMU Nic tpl(e1000) ase «yga std -usbdevice tabl
CPU Limit CPU 1 CPU 1 CPU 2 CP	RAM (MB) 4096 QEMU Arch tpl(x86_64) • accel=kvm -cpu cemu64,+fsgsb	Ethernets 1 QEMU NIC tpl(e1000) - ase -vge std-usbdevice tabl
CPU Limit CPU 1 CPU 1 CPU 2 CP	RAM (MB) 4096 QEMU Arch tpl(x86_64) - accel+kvm <pu qemu64,+fsgsb<="" td=""><td>Ethernets 1 QEMU Nic tp:(e1000) - ase -vga std -usbdevice tabl</td></pu>	Ethernets 1 QEMU Nic tp:(e1000) - ase -vga std -usbdevice tabl

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 ×
🗲 -> 🖸 🚺 172.22.7.18/html5/#/client/NDIA4MDMAYw8te09kbA==?token=682A278EE34284219FC6107A3C48EF16D828210646D4629F75D80C268AC4F877
🕲 Applications Places System 🧃 🌜 📶
Source Section 2015
task later (reg blackare, dow
in indication in the second se

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

CVC Professional # Main PN	lanagement • 🖉 System • 🛈 Information •	O Licensing • C2018 Eve-NG - Management Table	08547 🛓 uldis (Sign ou
New Name	Add folder	test	
	Management Buttons		Scale
🗆 🖿 Running			
🗆 🖿 DC	04 May 2018 14:40		
🗆 🖿 JP	19 Apr 2018 00:35		
🗆 🖿 Juniper	22 Mar 2018 22:18	-	
🗆 🖿 Miscelaneous	25 Mar 2018 21:18	-	
🗆 🖿 RS	23 Mar 2018 06:38	Lab preview	
🗆 🖿 SEC	18 May 2018 08:22		
🗆 🖿 Shared	17 May 2018 15:51		
🗆 🖿 SP	14 Feb 2018 22:10	Lab Path: /test.unl Description:	
🗆 🖿 Users	17 May 2018 14:54	Version: 1 UUID: 85<2c14c-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
	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.

Ē	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
±	Export EVE lab or folder. Select folder(s) and/or labs you wish to export and select this option. The export is saved to your local PC in .zip format and is ready to import to another EVE.
	Toggle the sorting folders and labs between alphabetical and last edit date (ascending/descending cannot be changed currently).
<i>c</i>	Refresh current folder content

7.1.2 Management tabs

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

Tab	Description
🖀 Main	Returns back to the EVE Home Management screen.
🗲 Management 👻	Management dropdown, opening the management submenu.
 Wser management Ande management Ab 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 Information License Request License 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.

New Name	Add folder
□ ≥ × ≥ ± ± 0 2	
•	
test_lab1	18 May 2018 12:58
Lest_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	
	Add folder	Files selected to move:	
		test_lab2.unl	
🗆 🖿 Shared	23 Mar 2018 02:41	Current files position /	
Users	18 May 2018 12:48	New path	
✓☑ Lest_lab1.unl	18 May 2018 12:58	/	~
test_lab2.unl	18 May 2018 13:36	Running Lroudery Shared	
		Users	Move Cancel

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.

-		10 100 2020 2 1101	
	Shared	18 May 2018 15:16	
	Users	18 May 2018 14:31	

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

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



File manager Current position / root / Users	
New Name	Add folder
b	
🗆 🖿 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
	Users

7.2.1.7 Export Folder

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

File manager Current position / root	
New Name Export	Add folder
🗉 🖿 Running	
🗸 🖻 MyLabFolder	18 May 2018 14:07
Shared	18 May 2018 15:16

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



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				
← → ~ ↑ □ → T	his PC > Desktop > Exports >		✓ Ö Search Ex	ports o
Organize 👻 New fold	der			📰 🕶 🔲 🔇
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
	EIGRP cfg set.zip	15/03/2018 12:10	WinRAR ZIP archive	4 KB
Develoada	Firepower_poc_623.zip	12/04/2018 11:16	WinRAR ZIP archive	51 KB
Downloads	📜 UD_lab_folder.zip 🔪	18/05/2018 23:31	WinRAR ZIP archive	258 KB
J Music				
Pictures				
Videos	N N			
🏪 System (C:)				
👝 Donna (E:)				
👝 Data (G:) 🗸 🗸			× 1	
File	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			Upload	×
New Name Add folder					

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

File manager Current position / root				
Name		Size	Progress Sta	tus Actions
UD_lab_folder.zip		0.25 MB	Sur	CRSS © Uplowd
New Name	Add folder			
0 1 / 1 2 1 0 0				
🗆 🖿 Running			Choose a lab for more info	
MyLabFolder	18 May 2018 17:24			
Shared	18 May 2018 15:16			
🗆 🖿 UD Labs	19 May 2018 01:32			
🗆 🖿 Users	18 May 2018 14:31			
FirePower FTD 623 PoC Multihomed HA.unl	12 Apr 2018 11:16			

7.2.2 Lab files Management

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



CVC Professional # Hain / Manag	gement + 🖉 System + 🕕 Information +	Licensing - ©2018 Eve-NG		14:02	🛔 admin	🕒 Sign out
File manager Current position / root						
New Norne	Add folder					
0 8 / 2 8 8 4 4 8 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					
🗉 📑 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 create labs only within his personal folder or in the Shared folder

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

Professional	🖁 Main 🏾 🎤 Management 🗸	🛢 System 👻 🚯 Information 🗸	Licensing -	©2018 Eve-NG
File manager Current position	n / root			
New Name Delete selected items		Add folder		
	• • 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 🥆	% 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_mynew_	_clone.unl
	Current files position /	
	New path	
	1	×
	Running	Folder/
	MyLabFolder	
	Shared	Move Cancel
	Users	HOLE CALLES

7.2.2.5 Export Lab

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

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
✓☑ Lest_lab1.unl	18 May 2018 12:58
✓ ☑ Lest_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_eve-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 Firefox do with this file?								
O Open with	WinRAR archiver (default)							
Save File								
Do this automatically 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.



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

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	der				•
	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	
- <u>-</u>	🖀 Firepower_poc_623.zip	12/04/2018 11:16	WinRAR ZIP archive	51 KB	
> 👝 Donna (E:)	\sim				
> 💣 Network		•			
-					
			× ×		
File	name: Firenower noc 623 zin		All Files (5.5)	~
110	Thepower_poc_ocs.ap		- Contract (.,	
			 Ope 	n C	ancel

Step 3: Press the Upload Button

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

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

A File manager Current position / root	
Name	
Pirepower_poc_623.zip	
New Name	Add folder
🗆 🖿 Running	
MyLabFolder	18 May 2018 17:24
Shared	18 May 2018 15:16
🗆 🖿 Users	18 May 2018 14:31
FirePower FTD 623 PoC Multihomed HA.unl	12 Apr 2018 11:16
E test_lab1.unl	18 May 2018 12:58
E test_lab2.unl	18 May 2018 13:36



7.3 EVE Management Dropdown Menu

7.3.1 EVE User management



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

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

7.3.1.1 Creating a new EVE User

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

<u> ୧</u> \/୧	Professional 🛛 🕷 Mai	n 🎤 Management 🗸	🖨 System 👻	Information +	O Licensing +	©2018 Eve-NG					10:02 🛔 admin 🛛 😣 Sign out
User manage	ment here you can	manage EVE-NG users									
Database of us	sers										+Add user More Info 👻
Username	Emai	I		Name			Role	Valid From	Expiration	POD	Actions
admin	root	Nocalhost		Eve-NG Administrator	r		admin			0	C# Edit 🔒

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

Add N	lew User					
User Nan	ne*					
test						
Use only [A	-Za-z0-9]chars					
Passwore	d*					
•••••	••					
Passwore	d Confirmation*					
•••••	••					
Email						
test@e	ve.lab					
Please ente	er an valid email					
Name						
John Te	ester					
Role Adr	ministrator 🗸					
Account	Validity					
From	-1	0	to	-1		0
POD*						
1						
* - Requ	ired Fields					
					Add	Cancel



Step 3: If you have bought other EVE licenses, you can choose the preferred user role. For licensing and user roles please refer to section **4**

Name						
John Teste	r					
Role Admini Adminis	strator 🗸					
From User		0	to	-1	0	
POD*						
1						

Step 4: 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.

0 01:00

Cancel

Step 5: 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 6: Press ADD

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.

User man	agement here you can manage EVE-NG user	5					希 > 予Management > 營User managemen
Database	of users						+Add user More Info +
Username	Email	Name	Role	Valid From	Expiration	POD	Actions
admin	root@localhost	Eve-NG Administrator	admin			0	Gf Edit 🔋
test	test@eve.lab	John Tester	user	2018-05-20 00:00	2018-05-30 18:00	1	G# Edit 🔒
Test2	test@eve.lab	Jenny Tester	editor	2018-05-19 00:00	2018-05-20 23:00	2	lif Edit

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



Edit U	lser			
User Nan	1e*			
Test2				
Password	l*			
•••••	•••••			
Password	d Confirmation*			
•••••	•••••			
Email				
test@e	ve.lab			
Please ente	er an valid email			
Name				
Jenny T	Fester			
Use only [A	-Za-z0-9]chars			
Role Edit	tor ~			
Account \	/alidity			
From	2018-05-19	00:00 to	2018-05-20	23:00
POD*				
2				
" - Requ	ired Fields			
			Edit	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.

User manage	ement here you can r	nanage EVE-NG users								₩ > 矛Management > 營User manaj
Database of u	isers					~				+Add user More Info +
Username	Email	Name	Role	Valid From	Expiration	Last session time	Last session ip	Current folder	Current lab	POD 🗹 Last session time
admin	root@localhost	Eve-NG Administrator	admin			18 May 2018 14:26:21	172.25.1.5	1	N/A	0 Last session ip
test	test@eve.lab	John Tester	admin		2018-05-30 18:00	N/A	N/A	N/A	N/A	Current folder
Test2	test@eve.lab	Jenny Tester	editor	2018-05-19 00:00	2018-05-20 23:00	N/A	N/A	N/A	N/A	2

7.3.2 EVE Node management

essional	希 Main	۶ ^C N	lanagement 🗸	🗗 Sj	ystem 👻	(i) Information	🗸 🚯 Lia
Current po	sition / root	*	User managem Node managen	ient ient			
		A	Lab manageme	nt		Add folder	
a	± 🛡	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

management here you can	manage EVE-NG running nodes				a - 7	Management > @Nodes m
ining node(s)						
abname	Lab ID	Username	Node Name	Template	Action	
isers/test3/Shared/test_lab3	4	test3	R1	iol	- ×	
isers/test2/Shared/test_lab3	3	test2	R1	iol	🖵 🗶	
isers/test2/Shared/test_lab3	3	test2	R2	iol	- ×	
isers/test3/Shared/test_lab3	4	test3	R2	iol	- ×	
est_lab1	1	admin	R2	iol	🖵 🗶	
isers/test4/Shared/test_lab3	2	test4	R1	iol	P ×	
est_lab1	1	admin	R1	Iol	🖵 🗶	
isers/test4/Shared/test_lab3	2	test4	R2	iol	🖵 🗙	

7.3.2.1 Node management actions

Button	Action
₽	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

nning node(s)						
abname	Lab ID	Username	Node Name	Template	Action	
		test4	×			
Jsers/test4/Shared/test_lab3	2	test4	R1	iol	🖵 ×	
isers/test4/Shared/test_lab3	2	test4	R2	Iol	🖵 🗙	

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

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

Running node(s)			
Labname	Lab ID	Username 🔺	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

者 Main	🗲 Management 🗸	🗐 System 👻	 Information - 	6
osition / root	嶜 User manage	ment ment		
	🖨 Lab managen	nent	Add folder	

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

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

CVC Professional # Main & Management •	System • O Information • O Licensing •	©2018 Eve-NG			19:44 🔺 admin 🕀 Sign out
Node management here you can manage EVE-NG running no	des				希 > 矛Management > 管Nodes management
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/testZ/Shared/test_lab3	3	test2	R2	iol	- ×

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.

✓ test4	
+ Add an object	
L Nodes	
🛤 Networks	
■ Startup-configs	
Configured objects	
III More actions	
C Refresh topology	<u>~</u>
@	▶ R1

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 / Management - B Syste	m • O Information • O Licensing • ©	2018 Eve-NG		21:15 🛔 admin 🛛 🖨 Sign out
System status				# > #Logs > @ System status
Led System status				
Linear Burnher of CPU-4	14% Memory and Total Memory: 8 Ob.		0% Despued	33% Distant
	running IOL nodes	running Dynamips node	running QEMU n	odes
	8	0	0	
	running Doc 0	ker nodes runnir	g VPCS nodes	
Qemu version: 2.4.0				
Current API version: 2.0.4-55-PRO UKSM status: 0				
CPULimit status: OH				

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

Template			
Cisco vIOS			*
Number of nodes to add	Image		
1	vios-adventerpr	risek9-m-15.6.2T	*
Name/prefix			
vIOS			
Icon			
沓 Router.png			*
UUID			
CPU Limit 🔲 🖌			
CPU RAM	(MB)	Ethernets	
1 102	4	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.



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

Information -	 Licensing ▼ 	©2018 Eve-NG
	 License Inf License Re 	ormation quest
Add folder	🔤 License Up	load

License information display:

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

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

7.7 Other Tab line info

22:24	占 admin	🕩 Sign out

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

7.8 Lab preview and global settings

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

Professional # Main / Managem	ent 🗸 🖉 System 👻 🛈 Information 👻	O Licensing • 02018 Eve NG	22:44 👗 admin (Signout
The manager Current position / root			
New Name	Add folder	test_lab2	
			Scale
🗆 🖿 Running			
🗆 🖿 MyLabFolder	18 May 2018 17:24	88	
🗆 🖿 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		
		Lab Path: /test_lab2.unl Description:	
		Version: 1 UUD: 7dab0723-4c04-495e-8269-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		
		Scale
		1:2
		1:3
		1:4
	2323	1:5
		· · ·
Lak Paths (see Jak 2 and	Description:	
Lab Patht /test_lab2.uni Version: 1	*Coptin	
UUID: 7dab0723-4c04-495e-8269-e4a6da411ff6		
Author:		

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



Editlab		• *
Path* /test_lab1.unl	Description 6.	Here is short description of Lab
Name* 1. test_lab1 Use only (A-Za-z0-9)chars		
Version* 2. 12 Must be interger (0-9)chars)		
Author 3. Tohn Tester	Tasks 7,	Here are tasks for you: tab. Task 1, Please configure Routers with IP addressing Task 2, Configure IGR, EGRP routing on all nodes
Config Script Timeout 4. 300 Seconds		Task 3. Configure windows Host to receive DHCP IP address
Lab Countdown Timer 5, 120 Seconds		
* - Regulred Fields		Save: Cancel

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

- 1. Lab name.
- 2. Version: Version numbers allow a lab author to assign a value to a unique state of a lab. Increase the number to correspond to new developments in the lab. If left unfilled, EVE will assign a value of 1 automatically.
- 3. Author: You can add a lab author name in this field
- 4. Config Script Timeout: It is the value in seconds used for the "Configuration Export" and "Boot from exported configs" operations. Refer to section **11.1** 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.





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

TEST_LAB1

Here is short description of Lab

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

А	DD A NEW NODE	×
	Femplate	
	Nothing selected 👻	
-	1	
	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 **11.3**

ADD PICTURE *								
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 and circles. For details, refer to section **11.2**

ADD CUSTOM SHAPE							
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 text elements onto the topology. For details, refer to section **11.2**

ADD TEXT		;
Text		
		.i
Font Size	12	۲
Font Style	normal	~
Font Color		
Background Color		
Save	Cancel	

8.1.2 Nodes

	Nodes		The No	des	objec	t in t	he sid	ebar	ор	ens	the "	Configure	d Node	s" winc	low
CON	IFIGURE	D NODES													• ×
ID	NAME	TEMPLATE	BOOT IMAGE	CPU	CPU LIMIT	IDLE PC	NVRAM (KB)	RAM (MB)	ETH	SER	CONSOLE	ICON	STARTUP-CONFIG	ACTIONS	
1	ASA	asa	asa-915-16-k8-CL-L	~ 1	\checkmark	n/a	n/a	4096	6	n/a	telnet \vee	SA.png	None	▶■७४ ⊭©	Ť
2	vEOS2	weos		~ 1	\checkmark	n/a	n/a	2048	13	n/a	telnet \vee	Switch L3.png	None ~	▶∎≙± ≓©	ß
э	vEOS1	veos		~ 1	\checkmark	n/a	n/a	2048	13	n/a	telnet \vee	Switch L3.png	None 🗸	▶∎≌± ≓⊘	Ť
6	Winserver	winserver		~ 2	\checkmark	n/a	n/a	8192	1	n/a	rdp 🗸	Server.png*	None ~	▶∎≙± ≓©	18
7	Corporate	win	win-7-x86	~ 1	\checkmark	n/a	n/a	4096	1	n/a	rdp 🗸 🗸	B Desktop.png*	None ~	►∎≙± ≓⊘	Ť
8	WinMGMNT	win	win-7-x86	~ Z	\checkmark	n/a	n/a	8192	1	n/a	rdp 🗸	B Desktop.png*	None	▶∎∿± ≓⊘	ŵ
9	vIOS-SW1	viosl2	viosl2-adventerprisek9-n	~ 1		n/a	n/a	768	8	n/a	$telnet \succeq$	Switch.png*	Default	▶∎∿± ≓©	Ť
10	vIOS-SW2	viosl2	viosl2-adventerprisek9-n	v 1		n/a	n/a	768	8	n/a	telnet	Switch.png*	Default	▶■७₹≍७	Î

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:

ACTIONS

▶■७±₩৫ 前

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

8.1.3 Networks

🛱 Networks

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

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





CONFIG	CONFIGURED NETWORKS							
ID	NAME	туре	ATTACHED NODES	ACTIONS				
1	NAT	nat0	1	G 1				
2	Mgmt	pnet0	1	C 1				
э	vSwitch	bridge	3	C 1				

ACTIONS

c î

🖹 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 **11.1**.

STARTUP-C	ONFIGS		• ×
		Config Set Default	
ASA	4 ON	1 A	Ace Editor
vEOS2	4 ON	: 	^
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	
		hostname ASA enable pasword SRyZYJUyT/RXUI24 encrypted xiate per-ession deny top any4 any6 xiate per-ession deny top any6 any6 xiate per-ession deny udp any4 any6 eq domain xiate per-ession deny udp any4 any6 eq domain xiate per-ession deny udp any6 any6 eq domain interface EthernetO amel [®] outside security-level O ip address dhop setroute i interface Ethernet1 channel-group 1 mode active	
		Channet-group I mode active Save Cancel	4

8.1.5 Pictures

Pictures

NOTE: The Pictures object will only appear in the sidebar after you have uploaded a custom topology picture to the lab EVE lab (Please The Pictures object in the sidebar opens the "Picture Management"

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 11.3

8.1.6 Configured Objects

A Configured objects section 11.2

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

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

CONF	CONFIGURED OBJECTS					
ю	NAME	туре	TEXT		ACTIONS	
1	bit 1	text	Tepology xtx		8	
2	square2	square			ii .	

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 **11.1**

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 11.1

8.1.7.6 Edit lab

🖍 Edit lab

Opens the Edit lab window. Refer to section: 0



EDIT LA	λB			×
Path*	/UD Labs/Arista MLAG Integration.un/	Description	Arista mLAG and ASA Lab	
Name*	Arista MLAG integration Use only (A-Za-20-9) chars			
Version*	1 Must be interger ([0-9]chars)			
Author Config So	UD ript Timeout 800 Seconds	Tasks	LAB Scenario 1. Corfigure ASA ports in ethercharnets (mode active) and vlan interfaces per design, name & as DM2 and Corporate respectively 2. Corfigure ASA et with DHCP B; must receive IP from home LAN and name this port as outside 3. Corfigure ASA management on port eS, and WHY Reput host per design, ASA must be reachable from Mgmt PC over ASDM	Î
Lab Coun	tdown Timer 0 Seconds		4. Corrigere Aritat «COS milag and ansign ports in etherchannels per delign 5. Corrigere Verso Etherchannel ports fangt to ASA: Netherchannel mode active 6. Corrigere VEOS etherchannels facing to VIOS-SVIs to etherchannel mode on	•
"- Requ	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 11.1

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 11.1

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



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

8.1.9 Lab page zoom/unzoom



This action is used to zoom or unzoom a large topology in EVE.





8.1.10 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				◆ 8
EVE-NG version: 2.0.4-37-PRO QEMU version: 2.4.0 UKSM Status: 🔤 CPU Limit Status: 💷	12% CPU usage	14% Memory usage	0% Swap usage	16% Disk usage on /
Role: admin POD: 0	0 running IOL nodes	o running Dyna	amips nodes ar	3 running QEMU nodes
	o running Dock	er nodes	running	o g VPCS nodes

ARISTA MLAG INTEGRATION

8.1.11 Lab details



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

LAB DETAILS

Arista mLAG and ASA Lab

- LAB Scenario: Configure ASA ports in etherchannels (mode active) and vian interfaces per design, name it as DMZ and Corporate
- Configure ASA e0 with DHCP IP, must receive IP from home LAN and name this port as outside
 Configure ASA management on port aS and Min7 Memory boot nee design. ASA must be reachable from Memory BC or

Configure ASA management on port e5, and Win7 Mgmnt host per design, ASA must be reachable from Mgr
 Configure Arista VEOS in mlag and assign ports in etherchannels per design

5. Configure vEDS etherchannel ports facing to ASA in etherchannel mode active 5. Configure vEDS etherchannels facing to VEDS-SWE to etherchannel mode on

7. Configure vIOS SWs etherchannels in mode on

Configure and assign vIOS-SW's switchports in V
 Configure Hosts IPs per design

10. Configure NAT on the ASA, you have to reach internet from DMZ and Corporate zones11. Corporate Zone must reach DMZ server


8.1.12 Close lab

Close lab Close lab Close sthe 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

8.1.13 Lock Lab

"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**



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

8.1.14 Logout

🕒 Logout

Log out from the EVE WEB GUI session. Please refer to section 7.7

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

Add a nev	v object
📥 Node	
🕶 Networ	k
Picture	
Custon	n Shape
A Text	
🖬 Auto A	lign

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

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



8.2.2 Connection menu



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

8.2.3 Cloud or Bridge network menu

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



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

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

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



8.2.4 Stopped node menu

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



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

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

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

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

EDIT NO	DDE				
Template					
Cisco CSR 1000	V				-
ID					
3					
Image					
csr1000v-univer	salk9.03.	17.04.S.156-1.S4			-
Name/prefix					
CSR3					
lcon					
👸 CSRv1000.p	ng				-
UUID					
67fea887-b30d-	4ad0-b3	14-828808b3853	3		
CPU Limit					
CPU		RAM (MB)		Ethernets	
1		3072		4	
QEMU Version		QEMU Arch		QEMU Nic	
tpl(2.12.0)	*	tpl(x86_64)	*	tpl(e1000)	*
QEMU custom o	options				
-machine type=	pc-1.0,ac	cel=kvm -serial m	iontstdio -ni	ographic -nodefconfig -	nodef
Startun configu	ration				
None	acion				-
Delay (s)					
0					
Console					
telnet					-
Left			Ton		
472			365		
	Sa	ve Cancel			

8.2.5 Running node menu



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





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

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

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

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

Export CFG: This function is used to export the saved running configuration to the EVE startup configuration sets. Reference section **11.1**



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 **11.1**

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 **11.1**

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 **11.1**



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 **11.1**

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:

■ vIOS1

■ viOS2

VIOS1	¥1052		MOSS M	¥1056	VIOS7	VIOS8	€ ∎ vi059	23 VI0518
icture	after:							
50	50	60 6	0 60		50	50	SS	50

■ vIOS6

■ viOS5

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.

■ v1057

■ vIOS8

■ vIO59

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**

🚠 File manager	Current position / root	
Add new lab	Add folder	
*	* ± ± 0 2	

Step 2:

Fill out the lab information. Name and Version are required fields. Next hit Save. Refer to section **0** 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-20-9]chars					
Version*	1					
	Must be interger ([0-9]chars)			. Buda	1 configure IP addressine	~
Author	John Tester			Tasks	2. configure 10/00 kP 20	
Config Script Ti	meout	300	Seconds		2. Computer Elone As 20	v
Lab Countdown	Timer	0	Seconds		a. comigure static default foure to the internet	4
					Save Cance	1
* - 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



+ Add as akiast	Add a new object
💻 No 🛲 Network	#* Network
The Picture	Picture
🖻 Sté 🛛 Custom Shape	
A Co A Text	A lext
More actions	III Auto Align
C Refreshtopology	

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 16.2

DD A NEW NODE	* ADD A NEW NODE
femplate	Template
Nothing selected	• Nothing selected
	ciscol
Nothing selected	
A10 vThunder	Cisco ASA
Apple OSX	Cisco ASAv
Aruba ClearPass	Cisco Application Policy Infrastructure
Aruba WiFi Controller	Cisco Context Directory Agent
Arista vEOS	Cisco CSR 1000V
Barraccuda NGIPS	Cisco CSR 1000V (Denali and Everest)
Brocade vADX	Cisco IPS
CheckPoint Security Gateway VE	Cisco CUCM
Cyberoam FW	Cisco ISE
Docker.io	Cisco IOS 1710 (Dvnamios)
Cisco ACS	Cisco IOS 3725 (Dynamics)
Cisco AMP Cloud	Cisco IOS 7206VXR (Dvnamios)
Cisco ASA	Cisco IOL
Cisco ASAv	Cisco NX-OSv (Titanium)
Cisco Application Policy Infrastructure	Cisco NX-OSV 9K
Cisco Context Directory Agent	Cisco FirePawer
Cisco CSR 1000V	Cisco FirePower 6
Cisco CSR 1000V (Denali and Everest)	Cisco vIOS
Cisco IPS	Cisco vIOS12
Cisco CUCM	CiscovNAM
Cisco ISE	Cisco WIC
Cisco IOS 1710 (Dynamips)	CisconWAAS
Cisco IOS 3725 (Dynamips)	Cisco Prime Infra
Cisco IOS 7206VXR (Dynamips)	Cisco Finnie Inna Cisco Finail Security Appliance (ESA)
Cisco IOL	Cisco Errait Security Appliance (CSA)
Cisco NX-OSv (Titanium)	Cisco Web securicy Appliance (wsA)
Cisco NX-OSv 9K	
Cisco FirePower	



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

	/ NOD	E		3
Template 1				
Cisco CSR 1000V				•
Number of nodes to a	dd 2. Im	age 3.		
1	c	sr1000v-univer	salk9.03.17.04.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 Ar	ch 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 -ser	ial mon:stdio -i	nographic -nodefconfig -	n(
Startup configuration	15			
None	10.			•
Delay (s) 16				
0				
Console 17				
				_
telnet				*
telnet Left		Тор		•



9.1.1.1 Node values Table

Number	Description
1.	ADD A NEW NODE
2.	Number of nodes to add Chose the number of nodes of this type you want to add to the topology
3.	Choose your preferred version from preloaded images csr1000v-universalk9.03.17.04.S.156-1.S4 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.	 CSKv1000.png CSKv1000.png AristaSW.png AristaSW.png Aruba_ctrt.png CSKv1000.png CSKv1000.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.	The UUID number is assigned automatically after a node is created. You may also set it manually in case you are using a license that is tied to a particular UUID.



7.	CPU Limit CPU limit per node. This option is already set (checked/unchecked) per EVE recommendations. Refer to section 7.4.1
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.
10.	Ethernets 4 The number of ethernets interfaces. A NOTE for IOL nodes: Ethernet interfaces for IOL nodes are placed into groups of 4. A value of 1 for Ethernet means your node will have 4 interfaces. The serial interface option is available for IOL nodes only and follows the same grouping structure as ethernet interfaces. A value of 1 for Serial means your node will have 4 serial interfaces. Ethernet portgroups (4 int each) Serial portgroups (4 int each) 1 1
11.	QEMU VersionEVE will pre-set the best recommended QEMU version for each node template. This value can be changed per your needs.
12.	QEMU Arch (tpl(x86_64) Qemu architecture is pre-set per image vendor recommendations. This value can be changed per your needs
13.	QEMU Nic tpl(vmxnet3) Type of Qemu NIC is pre-set per image vendor virtio-net-pcl e1000 e1000-82545em vmxnet3 tpl(vmxnet3)



14.	QEMU custom options Qemu custom options are pre-set -machine type=pc-1.0,accel=kvm -cpu Nehalem -serial mon:stdio -nographic -r Qemu custom options are pre-set per image vendor per image vendor recommendations. This value can be changed per your needs
15.	Startup configuration Startup configuration: Value can be changed to set your node to boot from saved configurations. Refer to section 11.1 for more details.
16.	^{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.
17.	Console types for each template are pre-set with recommended settings. The setting can be changes per your needs. MOTE: The Docker template contains a wide variety of images, therefore, please refer to section 14.1.3 for recommended console types for each docker image. Windows nodes can use either RDP or VNC but RDP needs to be enabled in Windows itself.
18.	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-	15.6.2T		•				
Name/prefix							
µos							
lcon							
睯 Router.png			•				
UUID							
b5fa3320-98ed-4ea4-ad	21-627d427b8a6	ia					
CPU Limit							
CPU	RAM (MB)		Ethernets				
1	1024		4				
QEMU Version	QEMU Arch		QEMU Nic				
tpl(deFault 2.4.0) 🔹	tpl(i386)	*	tpl(e1000) 🔹				
QEMU custom options							
-machine type=pc-1.0,ac	:cel=kvm -serial n	non:stdio -no	ographic -nodefconfig -nodef				
Charling and Bauarbian							
None			•				
Delay(s)							
Capcala							
telnet							
Loft		Top					
839		218					
Sa	we 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 **11.1**



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 Delete connection between nodes



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

9.1.6 Delete Node



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

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



9.2 Running labs

9.2.1 Starting lab

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

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

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

Starting a node or group of nodes:

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



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





9.2.2 Interconnecting running nodes (hotlinks)

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



Connector symbol. Moving the mouse over a node will make an orange male plug appear. The male plug is used to connect nodes on the topology, drag and drop style. Release the

- D1

mouse pointer on the second node



9.3 Saving labs

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

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

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

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

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

9.4 Stopping labs

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

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

Stopping a node or group of nodes:

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

For individual node Stop options refer to section 8.2.5



9.5 Start saved lab

Select the lab you want to start and click "Open"

Professional # Main / Management -	🖨 System 🗸	Information -	O Licensing -	@2018 Eve-NG
La File manager Current position / root				
New Name		Ad	ld folder	test_lab1
🗌 🖿 Running				7
🔲 🖿 MyLabFolder		18 May 201	18 17:24	8 8
Shared		18 May 201	18 15:16	
🔲 🖿 UD Labs		22 May 201	18 11:00	
Users		18 May 201	18 14:31	
FirePower FTD 623 PoC Multihomed HA.unl		19 May 201	18 01:49	
🔲 🖹 mylab4.unl		23 May 201	18 02:06	
Est_lab1.unl		22 May 201	18 01:19	
test_lab2.unl		22 May 201	18 11:15	Lab Path: /test_lab1.unl
test_lab3.unl		22 May 201	18 12:59	Version: 12 UUID: 95692558-5acb-4308-ab66-64f9b40bd31f Author: John Tester
			-	Open Edit Delete

9.6 Working with multiple running labs

Refer to section 7.2.1.1

9.7 Importing labs

Refer to section 7.2.2.6

9.8 Exporting labs

Refer to section 7.2.2.5

9.9 Deleting labs

Refer to section 7.2.2.2

9.10 Moving labs

Refer to section 7.2.2.4



10 EVE Clouds and Networks

10.1 Bridge Network

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

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

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

Add a new object	
📥 Node	
₩ Network	📕 Node
Picture	📕 🕶 Network
Custom Shape	🗧 🔛 Picture
A Text	E O Custom Shape
🔛 Auto Align	A Text
	100 A.

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					
Number of networks to add	1				
Name/Prefix	NAT				
Туре	NAT				
Left	935				
Тор	340				
	Save Cancel				

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

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

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



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

EVE NAT Gateway IP is: 172.29.129.254/24

DHCP is enabled on the EVE NAT Cloud.

10.3 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 Reject			
Forged transmits	Accept Reject			
▶ 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



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:~#	route ^{packets:146}	errors:0/dropped:0/	overrui	is:0ycar	rier:0		
Kernel IP routi	ng table						
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
172.29.129,0jat	ewav IP type: – I	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.

	EW 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 Virbut machines: 2 Virbut machines: 2 Virbut machines: 2 Virbut machines: 0 Active ports: 0			
		* Security policy	
		Allow promiscuous mode	Yes
Q WSA-MGMT	No physical adapters	Allow forged transmits	Yes
Virtual Machines (2)		Allow MAC changes	Yes
EVE-PROv24 Decession - 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 / S Type Port Uplin	Edit settings C writch5 % S t groups: 1 inks:	🛃 Refresh 🔰 🏠 Actions			
MTU		1500			(1
Ports		4352 (4319 available)	WSA-MGMT		No physical adapters
Link discovery		Unknown	Virtual Machines (2)		
Attached VMs		2 (0 active)	B EVE-PROv24	-0	
* NIC teaming police	icy		D COEDS-10-1-3-039-3000V		
Notify switches		Yes			
Policy		Route based on originating port ID			
Reverse policy		Yes			
Rolling order		No			
* Security policy					
Allow promiscuous	mode	Yes			
Allow forged transm	mits	Yes			
Allow MAC change	24	Yes			

EVE and WSA VMs settings

EVE VM, second p portgroup WSA-M EVE topology.	oort is assigned to GMT. It is Cloud1 on the	Cisco Web security Management port i WSA-MGMT.	y appliance (WSA), is assigned in portgroup
* Hardware Configuration		✓ Hardware Configuration	
CPU	16 vCPUs	PL CPU	1 vCPUs
🚟 Memory	32 GB	🛲 Memory	4 GB
Hard disk 1	40 GB	Hard disk 1	250 GB
Hard disk 2	150 GB	Metwork adapter 1	WSA-MGMT (Connected)
USB controller	USB 2.0	Metwork adapter 2	UNUSED (Connected)
Network adapter 1	Management 90 UD (Connected)	Network adapter 3	UNUSED (Connected)
Network adapter 2	WSA-MGMT (Connected)	Metwork adapter 4	UNUSED (Connected)
Video card	4 MB	Metwork adapter 5	UNUSED (Connected)
Others	Additional Hardware		

EVE Lab connected to the WSA (Cloud1)

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





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	SW VLAN 10 SVI 10 192.168.10.1 as GW DHCP POOL VLAN 10	Cloiud2 WSA VM Workstation DHCP IP 192.168.10.3 GW 192.188 10.1 Cloud2 as connection to Exter	nal VM
172 - 172.25.1.21:33285 - Remote I	Desktop Connection		- 🗆 X
Cisco Web Security V ×			
→ C A Not secure https://192.168.10	0.3:8443/monitor/wsa_user_report		☆ :
IIIII Cisco S000V 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	
> Overview. System Overview Overview > Web Proxy Traffic Characteristics	∑ Overview > System R	esource Utilization	
Average transactions per seco Average bandwidth (by Average response time (m Total cu	nd in past minute: 0 ps) in past minute: 0 1s) in past minute: 0 rrent connections: 0	CPU: 7.5% RAM: 50.4%	-
Average transactions per seco Average bandwidth (by Average response time (n Total cu	nd in past minute: 0 ps) in past minute: 0 ns) in past minute: 0 rrent connections: 0 System Status Details	CPU: 7.5%	
Average transactions per seco Average bandwidth (by Average response time (r Total cu Time Range: Day	nd in past minute: 0 ps) in past minute: 0 ns) in past minute: 0 rrent connections: 0 System Status Details	CPU: 7.5%	
Average transactions per seco Average bandwidth (b) Average response time (r Total cu Time Range: Day 7 22 May 2018 20:00 to 23 May 2018 20:10 (GMT)	nd in past minute: 0 ps) in past minute: 0 ps in past minute: 0 rrent connections: 0 System Status Details	CPU: 7.5%	
Average transactions per seco Average bandwidth (U) Average response time (n Total cu Time Range: Day 22 May 2018 20:00 to 23 May 2018 20:10 (GMT) Overview > Total Web Proxy Activity	nd in past minute: 0 ps) in past minute: 0 ps) no past minute: 0 rrent connections: 0 System Status Details	CPU: 7.5%	

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.

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



a vSwitch1

🔜 Add uplink 🥜 Edit settings	C Refresh 🛛 🌞 Actions	
VSwitch1 Type: Port groups: Uplinks:	Standard vSwitch 2 1	
vSwitch Details		* vSwitch topology
MTU	1500	
Ports	4352 (4317 available)	Management 90 UD million Physical adapters
Link discovery	Listen / Cisco discovery protocol (CDP)	VLAN ID: 4095 Virtual Machines (7)
Attached VMs	7 (4 active)	@ vCentre 90.95
Beacon interval	1	S2016 EVE 90.201 MAC Address 00 Bc 29 b0 c4 5b
NIC teaming policy		Teve-PR0.98.100
Notify switches	Yes	WAC Address UJ tic 28 dJ aa 9e
Policy	Route based on originating port ID	M4C Address 00 0c 28 3d ae b8
Reverse policy	Yes	B EVE COMM 89
Rolling order	No	Cisco Identity Services Engine
Security policy		MAC Address 00 50 56 x2 0F fb MAC Address 00 50 56 x2 79 40
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

Cdi settings C Refresh C Refresh C Refresh Management 9 UD Ves Virtual matchines 7 Virtual watchines 7 Virtual watchini Accessable VLAN ID: 4005 Active ports: 5
Management 90 UD Accessible Yes Virtual machines 7 Virtual switch: 4095 Active ports 5
v Switch topology v Security policy
Allow promiscuous mode Yes
Management 90 UD Million Physical adapters Allow forged transmits Yes
VLAN ID: 4095 VIII Machines (7) Allow MAC changes Yes
A vCentre 90.95
The S2016 EVE 90.201
MAC Address 00 0c 29 b0 c4 5b Ves
BUE-PRO.98.100 Policy Route based on originating port ID
MAC Address 00 0c 29 d0 as 9e
BevE-PROv24 Reverse policy Yes
MAC Address 00.0c.29.33 are b8
B EVE COMM 89
B Cisco identity Services Engine

EVE VM Settings

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

 Hardware Configuration 	
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: March Ma	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			×
le Edit View Options Transfer Script Tools Window Help			
🗲 🛱 🖓 Enter host <alt+r></alt+r>			
🖌 Switch 🗙	d 🕨 🛹 887N	×	
EVE_LAB_SW##h cdp neig Capability Codes: R - Router. T - Trans Bridge. B S - Switch. H - Host. I - IGNE. D - Remote. C - CVTA. M - Two-p Device_ID Local Intrice Holdtme Cap.	- Source Route Bridge r - Repeater. P - Phone. Drt Mac Relay sbility Platform Port ID R S I 807M Fag 3	X1# X1# X1#sh cdp neig lity Codes: R - Router. T - Trans: S - Switch. H - Host. D - Remote. C - CVTA. 1	Bridge, B - Source Route Bridge I - IGMP, r - Repeater, P - Phone, M - Two-port Mac Relay
LAB ESX1.18.1V G1g 0/0 125			

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

VMnet0 VMnet1	Type Bridged Bridged	External Connection Intel(R) PRO/1000 PT Dual Port Server Adapter Intel(R) PRO/1000 PT Dual Port Server Adapter #2	Host Connection Connected	DHCP - -	- -
VMnet8	NAT	NAT	Connected	- Enabled	192
					>
		Add Network	nove Network R	ename Netw	ork
VMnet Inf	formation				
Bridge	ed (connect V	Ms directly to the external network)			
Bridg	ed to: Intel(R) PRO/1000 PT Dual Port Server Adapter	 Autor 	natic Setting	s
	(shared host's	IP address with VMs)	NA	T Settings	
	only (connect	VMs internally in a private network)			
O Host-		and a dealers to this as triade			
O Host-	ect a host virt	ual adapter to this network			
Conn Host	ect a host virt virtual adapte	r name:			
Conn Host	ect a host virt virtual adapte ocal DHCP ser	uai adapter to this network ir name: vice to distribute IP address to VMs	DHO	CP Settings	
Host- Host Use k	ect a host virt virtual adapte ocal DHCP ser P:	ua adopter to this network r name: vice to distribute IP address to VMs Subnet mask:	DHG	CP Settings	

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

Device	Summary	Memory
Metanovy Metanovy Metanov Hard Dak (SGSI) DD/VD (SATA) Wetwork Adapter 3 Wetwork Ad	Summary 24 GB 8 100 GB Auto detect Custom (Whet0) Custom (Whet1) Custom (Whet1) Custom (Whet1) Custom (Whet1) Present Auto detect Present Auto detect	Specify the answer of memory allocated to this virtual machine: The memory size must be a multiple of 4 MB. Memory for this virtual machine: 24576 🐼 MB 4468 - 4 5668 - 4 568 - 4 568 - 4 568 - 4 568 - 4 568 - 5 512 MB - 4 512
		16 MB SLE HO 8 MB - 4 MB - (i) The virtual machine will use up to 768 MB of this memory for graphics memory. You can change this amount in the Displic settings page.





Physical connection scheme and VMware bridging.

EVE Lab scheme.

Connection to Real SW	3750G
- vitos stw - Cloudt	
Console - SecureCRT	- 0
File Edit View Options Transfer Script Tools Window Help	
🏗 🔀 🕼 🗙 Enter host < Alt+R>	
Console x	4 ₽ ✓vios_sw x
<pre>EVE-C3750# EVE-C3750# EVE-C3750# EVE-C3750# EVE-C3750#h dp neig EVE-C3750#h dp neig EVE-C3750#h dc ne</pre>	Total cdp entries displayed : 1 VIOS-58Webh cdp meng Capability Codes: A = Switch, H - Host, I - 1000, F - Repeater, P - Fhose, D = Remote, C - CVTA, M - Two-port Mac Relay Device ID Local Intrice Holdtme Capability Platform Port ID FVE-C3750.avw.lab
PVE-C3750# PVE-C3750# PVE-C3750# PVE-C3750# PVE-C3750# PVE-C3750# PVE-C3750# PVE-C3750# PVE-C3750# PVE-C3750# D - Remote, C - CVTA, M - Two-port Mac Rolay D - Remote, C - CVTA, M - Two-port Mac Rolay Device ID Local lattfee Holdtme Capability Platform Port ID PVE-C3750#	Total cdp entries displayed : 1 VIOS-SW#sh cdp meig VIOS-SW#sh cdp meig - VIOS-SW#sh cdp meig - Capability Codes: R - Roter, T - Trans Bridge, B - Source Route Bridge S - Switch, H - Host, I - 1040; r - Repeater, P - Phone, D - Remote, C - CVTA, M - Two-port Mac Relay Pevice ID Local Intrice FVE-C3750.eww.lab Gig 0/0 175 R S I WOC-SNW Total cdp entries displayed : 1

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 ×	۹ ۵
	A
Switchwan cop heig	
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge NAV Bale EVE SCS/ElSwitch H H Host II-H [GMVLT - Repeater] P - Phone, D - Remote, C - CVTA, M - Two-port Mac Relay	
Device ID Local Intrfce Holdtme Capability Platform Port ID NottsCoreRackSwitchl.DataServices.local	
Gig 0/0 140 R S I WS-C3750E Gig 1/0/25	
Total cdp entries displayed : 1	_
Switch# EVE Server	-



11 Advanced EVE Lab features

11.1 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 ~	
8	R1	611		
2	R2	orr		
۵	SW1	OFF		
۵	SWZ	Q.F.F		

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.

11.1.1 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

11.1.2 Startup config management

11.1.2.1 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.

11.1.2.2 Individual node commands

Select node, right click



Wipe: Wipes the NVRAM for a single node

Export CFG: Exports the configuration for a single node

11.1.2.3 Multiple selected nodes commands

555 610	s10	Group of R1, R2
	- RZ	Start Selected
- Comp		Stop Selected
\mathbf{X}		Selected
		≥ Console To Selected Nodes
		± Export all CFGs
		Set nodes startup-cfg to default configset
► SW1	► SW2	R Set nodes startup-cfg to none
		P Horizontal Align
		Vertical Align
		O Circular Align
		Delete nodes startup-cfg
		Delete Selected

Wipe Selected: Wipes the NVRAM for selected nodes

Export all CFGs: Exports the configuration for selected nodes

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

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

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



11.1.2.4 Startup-configuration window

No configuration exports or manual configs loaded for nodes

STARTUP-CONI	FIGS			• X
	Config Set	Default v	+ 7 × ± ±	
😂 R1	OFF			
🚳 R2	OFF			
SW1	OFF			
SW2	OFF			

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

STARTUP-CONFIGS				•	×
	Config Set	Default ~	+ 2 1 1	•••	
😫 R1 🛛 📭					
😂 R2 OFF					
SW1 OFF					
SW2					

11.1.2.5 Startup-config window information

Config Set Default ~	Config set menu
🚳 R1	No configuration is available for node. Grey node
😤 R1	Configuration is available and can be used. Blue node. Exported configuration persist
S R2 OFF	Configuration persist but it is disabled. Node will boot from NVRAM or factory default if it is wiped
≊ R1 4 ON	Configuration persists and node will boot from the configuration after being wiped
CONFIG SET Term Add Canol	Add new config set.



CONFIG SET	Denome config est. The Default Config Cat
Rame Tode same	cannot be renamed.
★ Config Set IP Addressing ∨	Select a Config Set and delete it. You cannot delete the Default Config Set. The Default configuration set can be cleaned
	using the sidebar / More options / Delete default configuration set
±	Upload configuration set from your local PC
*	Download configuration set to your Local PC
•	Apply Config Set button: Sets all nodes to boot from the chosen config set.
*	Config Reset button: Sets all nodes to boot from none. Node will check boot order. If the Wipe function is used, nodes will boot from factory default.
Sol B1 C/1 0 R2 1 SW1 1 SW1 1 SW2 1 SW2 1 SW2	Individual node export or import configuration. Configuration export/import file format is .txt.
P Cisco-405 ∨ ♠ Dark ∨ ∰ [12px ∨ Ace Editor 00	Ace Editor. Different vendor configuration edit option. Just Text visual format.

11.1.3 Export Default configuration set

NOTE: The default configuration set is hardcoded. It is mandatory to export a nodes config before you can start building custom configuration sets.

Example:





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

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

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

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



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

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

11.1.4 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-0	CONFIGS			
	Config Set	Default ~	+ 2 × ±	<u> </u>
🍪 R1	4 ON			
2 R2	4ON			
SW1	4 ON			
SW2	4 ON			

Step 3: Wipe nodes. For more information on a nodes boot order, refer to section 11.1

Step 4: Start nodes

11.1.5 Export new custom config set

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

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

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

Config Set Default ~	+ 2 × ± ±
Name it and press Add.	
CONFIG SET	
Name IP Addressing Add Cancel	

The new configuration set is created.

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

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

	IP. Addressing		
	Default		
Config Set	Default 🗸	+ 🛛 🗙 ± ±	

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.



	Ca	onfig Set IP Addressing 🗸	+ 7 x ± ±	•••	
🎦 R1	4 ON	1 4			Ace Editor OFF
🎒 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.



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

11.1.6 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	+ 2 × ± ±	
	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.



Config Set IP Addressing Image: Config Set Image: Config Set Image: Config Set Image:	STARTUP-C	ONFIGS			• ×
Image: State of the state			Config Set IP Addressing V	+ 7 I ± ±	
Image: Signed State Sta	🎦 R1	4 ON	1		Ace Editor OFF
SW1 f Image: SW2 f f Image: SW2 f Image: SW2 f f f f f f f f f f f f f	82 R2	4 ON	1		^
SW2 9 00 address shuddown i i i i keteriaes Seisit/0 description Link to R2 address i asshuddown i i i i i asshuddown i i i i i i i <	SW1	4 ON	interface Ethernet0/3 no shutdown		
shudoon 1 Interface Serial / 0 description Link to R2 no shudoon ip address shudoon on ip address shudoon serial restart-delay 0 1 Interface Serial / 1 no shudoon no ip address shudoon shudoon shudoon serial restart-delay 0 1 Interface Serial / 2 no shudoon shu	SW2	4 ON	no ip address		
in sinulations no ja address shutdown serial restart-delay 0 1 in formaret-norto-ol nd			i interface Serial I/0 description Link to R2 ip address 10.1.1.1255.255.255.255 serial restart delay 0 i interface Serial I/1 no shutdown no ip address shutdown serial restart-delay 0 i interface Serial I/2 no shutdown serial restart-delay 0 i interface Serial I/3 shutdown		
L L L L L L L L L L L L L L L L L L L			no snutorovn no ip address shutdown serial restart-delay 0 I ip forward-protocol nd		•

Step 3: Apply the config set to all nodes with the green "Apply Config Set" button on the right (Set all nodes to selected config set).



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

11.1.7 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 **11.1** 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: 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.

11.1.8 Set lab to boot from none

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

▲ NOTE: If you have created a template image with a custom configuration, then the following steps will reset the node to the base configuration of that template image.

Step 1: Wipe nodes. Refer to section **11.1** 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

11.1.9 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	+ (2) ± ±

11.1.10 Rename a config set

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

Config Set	IP Addressing V	+ 🗷 🗶 🔟
CONFIG SET	¥.	
Name IP Addressing new		

11.1.11 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	wisht	to export	
					,			

Config Set	IP Addressing V	+ 🗷 🗙 ± ±
Opening IP Addressing.zip	×	
You have chosen to open: The Addressing.zip which is: WinRAR ZIP archive (5.7 kB) from: blob:		
What should Firefox do with this file? Qpen with WinRAR archiver (default) Save File Do this <u>a</u> utomatically for files like this from	v and the second	
	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.

11.1.12 Import config set from local PC.

It is possible to import config sets to your lab.

UPLOAD CO	ONFIG FILE		
Name	Name		
File	no file selected		
_	Browse Upload Cancel		
File Upload			×
-> -> 🛧 📙 « Desk	top → Exports v Ö	Search Exports	,P
Organize 👻 New folder		811 -	II 🕜
This PC This PC Desktop Desktop Documents	Name EIGRP cfg set.zip Firepower_poc_623.zip NEW IP Addressing.zip	Date modified 15/03/2018 12:10 12/04/2018 11:16 27/05/2018 00:14 26/05/2018 22:43	Type ^ WinRA WinRA Text Di V
Downloads < <	NFW IP Addressing zin	All Files (*.*)	>

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 **11.1.10**

11.1.13 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	×
			Vou have chosen to open:	_
🎦 R1	4 ON	± ±	What should Firefor do with this file?	
2 R2	4 ON	no ip address shutdown	Open with Notepad (default) (Save File	~
SW1	4 ON	serial restart-delay 0 !	Do this gutomatically for files like this from no	v on.
SW2	4 ON	ip forward-protocol nd	0	Cancel

11.1.14 Import a single nodes config to 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 Browsel Upload Cancel	
		± ±	File Upload ← → ∨ ↑ ○ « Desktop » Exports » ∨ [ð] Organize • New folder	Search Exports
2 R1 -	4 ON	: hostname R1	This PC Name 3 D Objects EIGRP cfg set 2 Desktop Ri.tot	Date modified Type 15/03/2018 12:10 File folde 27/05/2018 00:31 Text Doct
SW1 SW2	7 ON 7 ON	boot-start-marker boot-end-marker !	B Documents ↓ Downloads ∨ < File names 1 ∨ <	Text Document (*.bt) V Open Cancel



NOTE: The configuration must be in txt file format.

11.1.15 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.

0	NFIGUE	RED NODES													
Ð	NAME	TEMPLATE	BOOT IMAGE	CPU	СРО ЦИЛТ	IDLE PC	NVRAM (KB)	RAM (MB)	ETH	SER	CONSOLE	KON	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∓≒Q	8
z	R2	iol	L3-ADVENTERPRISEK9-M-15.4-; ~	n/a	n/a	n/a	1024	1024	1	1	telnet	Router.png*	None Default	▶≡⋟∓ ≍©	8
3	SW1	iol	i86bi_linux_l2-ipbasek9-ms.high ~	n/a	n/a	n/a	1024	1024	4	0	telnet	Switch L3.png*	IP Addressing	▶≡≙∓ ≠©	8
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	▶≡9∓≒Q	

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

Default	×-
None	
IP Addressing	
NEW IP addressing	

11.1.16 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.

1	NOTE: For heavy labs and nodes with			
	long configurations, you can raise this	Config Script Timeout	800	Seconds
	timer to 600 seconds or higher.			

11.2 Lab design objects

EVE Pro has simple drawing elements integrates to add drawings and text information to the lab topology. Objects can be placed on the topology in two ways.

Example below, EVE lab with design elements:





11.2.1 Custom shape

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

Type: Square or circle

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

Border type: Two options: line or dashed



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

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

Border color: Allows you to choose a color for the shape's border. This can be edited later in the "Shape Edit" menu.

Background color: Allows you to choose a color 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).



11.2.2 Text

It is also possible to add text objects to your EVE topology.

Text: Type the text you want to add to the topology

Font Size: Set your font size

Font Color: Set your font color

Background Color: Set your text background color





Example: text objects added to the topology.

11.2.3 Resize square, circle, or text 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)

My information text
Configure nodes

11.2.4 Pictures converted to html

Custom images may be added by converting it to HTML format



Step 1: Convert your picture to the HTML format.

https://www.askapache.com/online-tools/base64-image-converter/

Step 2: Add a text object to the topology and paste the HTML output from the conversion into the form.

DD TEX	т	
Text	m4DUiBLIEtrcFNISkgEUAQI3ANa8VR1AegU2 (retSiIVsaoDof0vEdGQELCVB4pGdHH3)wf1V4 PWmNUbCWH9MGCXIOgmALRKALgiAlghMgLndBE EAXBEQBECAILCEyACXBAREQRCCABHogiAlguAEI EAXBEQBECAILCEyACXBAREQRCABHOgiAlguAEI EAXBEQBECABLogCIIgOAEIDAVBEATBCREUgIC AhOgaAhOgAREQXACRKALgiAlghMgAlQBEEQnA ARBIIGCLIgBIIAFWBEAQnQASSIAICIDgBILAFQRA EwQKQSGYAGIATOAILEEQBEFwelj+D2hyfcqaSLZpA AAAAEIFTKSuQmCC'>	^
Font Size	12	•
Font Style	normal	~
Font Color		
Background Color		

Step 3: To resize a custom picture on the topology, move your mouse pointer to the picture and double click on it. Then press ctrl+ right to set object in resize mode. Now using any corner, you can resize your picture to a suitable format.





11.2.5 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.

11.2.6 Objects Editing

Right click the object and choose "Edit" for additional options.



	R2 100 192.168.100.100/32
4	Edit: 2
/	Duplicate
	± Send To Back
	1 Send To Front
	🖌 🖸 Edit
	a Delete

At the bottom of the "Topology Canvas" page, additional object options will appear

-1 😧 1 😰 dashed V 🚺 Off

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 color: Used to change the color of the object's border

Background color: Used to change the background color of the object

Transparent: Turns off background color (filling) and makes the object transparent.



Save Cancel

Rotate: Used to rotate the object on the



Name: Used to change the object's name.

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

11.2.7 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 8.1.13.

11.3 Custom design topology

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



11.3.1 Custom design upload

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

TIP: It is best is to create a topology in the MS Visio and after convert it to the .png picture format with resolution 140x140.

Step 1: Open "Add an Object" and then "Pictures" from the left sidebar or right click on a free area on topology canvas and hit "Add Picture."





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

ADD PICTURE					
Name	Topology				
Picture	Browse Arista-MLAG_lab EVE2.png				
	Add Cancel				

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

Step 3: Open the "Pictures" menu item.



Pictures window management

4	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.
*	

11.3.2 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 costron) telnet:// 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.	

11.3.3 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.

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 c	ountdov	wn time	r will b	be display	ed on the	"Topol	ogy
Page" ir	the to	p left co	orner.					



🕑 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

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



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 RDP session.



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





Merge					
71171 M 877					
import from Hex Dump		tination Protocol Length Info			
Close	Ctrl+W	bb:cc:00:02:00 LOOP 60 Reply			
Save	Ctrl+S	DD:CC:D0:01:D0 LOOP 60 RepLy			
Save As	Ctrl+Shift+S				
File Set		•			
Export Specified Packets					
Export Packet Dissections		•			
Export Packet Bytes	Ctrl+H				
Export PDUs to File					
Export SSL Session Keys					
Export Objects		•			
Print	Ctrl+P				
Quit	Ctrl+Q				
Frame 1: 60 bytes on wire (400 bits), 60 bytes captured (400 bits) on interface 0 Ethernet II, Src: antbhcce00002000 (astbhccc00002000), Dst: astbhccc00002200 (astbhccc00002200) Configuration Terrorool (1000bck)					

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

IMPORTANT:

/nobody/thinclient_drives/

The RDP Session will list your client PC's HDDs where you can save your captured file. Enter a name for your captured file and press Save.

₩ 172 - 172.22.7.18:58553 - Remote Desktop Connection	- 🗆 X
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help	
◢ ■ ∅ ◎ ■ 🗄 🗙 🖉 ♀ ⇔ 🛎 🖗 🖢 💂 🔲 역 역 ۹ 🏪	
Apply a display filter <ctrl-></ctrl->	Expression +
No. Time Source Destination Protocol Length Info. 1.6.00000000 aachbircc:00:01:00 Long Mindo Viresherk-Swe Cepture FireAs	
Look in: Inobody/thindient_drives v O O Ø 1 II II	
C C C C C C C C C C C C C C C C C C C	
File name: mycapturedfile	
Save as: Wireshark/ pcapng	
Compress with ggip	
② wireshark_eth0_20180517193949_DxdAle Packets: 1 · Displayed: 1 (100	0.0%) Profile: Default

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

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
M L 4 6 - 7 7 7 9 4 4 7 7 7 8 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Apply a displatifier < Ctrl->
No. Time Source Destination Protocol Length Info 1.0.090000000 antibucce.00.01:00 antibucce.00.01:00 L008 6.0 Real v
2 4.665564570 aa:bb:cc:00:02:00 CDP/VTF/D1P/D1DL.CDP 369 Device ID: R2 Port ID: Ethernet8/0
3 5.559412451 as:bb:cc:00:02:00 CDP/VTP/DTP/PAgP/UDCDP 383 Device ID: R1 Port ID: Ethernet0/0 4 5.919304670 as:bb:cc:00:02:00 as:bb:cc:00:02:00 as:bb:cc:00:02:00 LOOP 60 RepLy
5 10.000389088 aa:bb:cc:00:01:00 aa:bb:cc:00:01:00 LOOP 60 Reply
Frame 1: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface 0
Ethernet II, Src: aa:bb:cc:00:01:00 (aa:bb:cc:00:01:00), Dst: aa:bb:cc:00:01:00 (aa:bb:cc:00:01:00) Configuration Test Personal (Lapphark)
bata (46 bytes)
File_Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Open Recent
Merge
Import from Hex Dump Protocol Length Info
Close Ctrl+W bb:cc:09:02:09 L00P 60 Reply bb:cc:09:02:09 60 Reply
Save Ctrl+S
Save As Ctrl+Shift+S
File Set
Export Specified Packets
Export Packet Dissections
Export Packet Bytes Ctrl+H
Export PDUs to File
Export SSL Session Keys
Export Objects
Print Ctrl+P
Print Ctrl+P Quit Ctrl+Q
Print Cbrl+P Out Cbrl+Q
Print Cbri+P Quit Cbri+Q
Pint Cbi+P Ouit Cbi+O > Frame 1: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface 0
Print Cbri+P Quit Cbri+Q > Frame 1: 60 byres on wire (480 bits), 60 bytes captured (480 bits) on interface 0 > Ethernint II, Src: abshorcc(400 62:00) (abshbrcc(400 62:00) (abshbrcc(400 62:00) > Ethernint II, Src: abshbrcc(400 62:00) (abshbrcc(400 62:00)
Print. Cbi+P Ouit Cbi+O > Frame 1: 00 bytes on kdrs (480 bits), 60 bytes captured (480 bits) on interface 0 > Frame Transfer camble:cc:00/02:00 (an00cc:00/02:00), 601; an bbrcc:00/02:00 (an bbrcc:00/02:00) > Data (40 bytes inversion(loggeck)
Pint Cbi+P Out Cbi+P Frame 1: 60 bytes on wire (400 bits), 60 bytes captured (400 bits) on interface 0 > Frame II., 5rc: anibiccc000.02100 (as bb:cc:00.02100), 0st: anibiccc00.02100 (as:bb:cc:00.02100) > Onta (40 bytes)

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

IMPORTANT:

/nobody/thinclient_drives/GUAC/Download

Enter a name for you captured file and press Save.



Eile	Edit Vi	ew <u>G</u> o <u>C</u> a	apture	Analyz	e <u>S</u> t	atistics	s Tele	ephony	<u>Wire</u>	less <u>T</u> o	ols <u>H</u>	elp							
		۲	X	3	9	۰ پ	•	2	<u>.</u>		0	Θ	Θ,						
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	3 5.5	59412451	aa:bb:	c:08:	01:00	Ċ	DP/VT	P/DTP	PAgP/L	ID CDP		383	Device	ID: R1	Por	t ID:	Ethe	rnet0/0	
	4 5.9	19304670 360389088	aa:bb:	c:00: c:00:	02:00) a	a:bb:	cc:00: cc:00:	02:00	L00	2	60 60	Reply						
	6 15.9	22998298	aa:bb:	c:08:	02:00	a	a:bb:	cc:00:	02:00	L00	2	60 60	Reply						
	8 25.9	27447959	aa:bb:	c:00	02:00	a	a:bb:	cc:00	02:00	L00	2	60	Reply						
	9 30.0	304695844 35243118	aa:bb:	c:00: c:00:	01:00) a) a	a:bb:	cc:00: cc:00:	01:00	L00	>	60 60	Reply						
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> Et	thernet I																		
► Da	nta (40 b																		
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6666	aa bb	cc 00 01 0	0 aa bh		00.01	00 00	1 A A A	0 00											
0010	01 00	00 00 00 0	0 00 00	60	00 00	00 00	0000	0 00											
0036	00 00	00 00 00 00 0 00 00 00 0	0 00 00	00	UU 08 00 08	00 00	9 99 6	10 60											

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.

You have chosen to	open:	
🚡 mycaptured	ile.pcapng	
which is: Wir	eshark capture file	
from: http://	172.22.7.18	
What should Firef	ox do with this file?	
Open with	Wireshark (default)	~
○ <u>S</u> ave File		
Do this <u>a</u> uto	matically for files like this from now on.	

12.3 HTML5 Desktop Console Wireshark capturing

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



/E Topology	×	Firefox Privacy Notice - X +			-
- 0 0	1	(0) 172 17 0 Menand			
		() Tactractingery			-
		DHCP NAT Cloud 169.254.254.0/24			
	0-		53	_	
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		192.168.20.1 (41)	S Wipe	1	
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		VI AN 20 (COD) (COT)	< Capture	Q e00	
		SVI20 192.168.20.1	- C	Q.e0/1	
				Q.e0/2 Q.e0/2	
		▶ Win (003) ▶ SW			
		► Linux			

Step 2: Stop capturing with the STOP button.

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EVE Topology X 🔤 Fin	efox PrivacyNotice X +	
← → ♂ @ [0	172.17.0.1/ingec)/	FreeRDP 172 17.0.1122025
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] .8	

Step 3: Chose File/Save As

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+	Expression												Merge.	1
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			eply	60 Rep	LOOP	92:00	bb:cc:00:	1+W	Ctr				Close	
	Ethernet0/0	ID: R2 Port ID:	epty evice ID:	60 Rep 369 Dev	CDP	31:00 PAgP/UD	bb:cc:00:	1+5	Ctr	-			Save	
- 1			eply	60 Rep	LOOP	92:00	bb:cc:00:	L+Chi0+C	Chr	·		-	Save	
			eply.	60 Rep	LOOP	31:00	bb:cc:00:	IT SHITCES	cu			a	Dave H	
			epty	60 Rep	LOOP	31:00	bb:cc:00:	•				t	File Se	
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	Ethernet0/0	ID: R1 Port ID:	evice ID:	383 Dev	CDP	PAgP/UD	P/VTP/DTP/	•		ections	Diss	Packet	Export	
			eply	60 Rep	LOOP	32:00	bb:cc:00:	1+H	Ctr	·s	<u>Byte</u>	Packet	Export	
			eply.	60 Rep	LOOP	31:00	bb:cc:00:			·	o File	PDUs t	Export	
			ce A	interface	its) or	d (480 b	es canture			Keys	ssion	SSL Se	Export	1
		:bb:cc:00:02:00)	90 (aa:bb	c:00:02:00	aa:bb:c), Dst: #	c:00:02:00				s	Object	Export	
								1+P	Ctr				Print	
								1+Q	Ctr				Quit	
							60 60 60	02 00 90	ob cc 00	2 00 aa b	00 0	bb cc	0 01	080
	Ethernet0/0	ID: R1 Port ID:	eply eply eply eply evice ID: eply evice ID: eply ce 0 00 (aa:bb	60 Kep 60 Rep 60 Rep 60 Rep 60 Rep 60 Rep 60 Rep 60 Rep 60 Rep 1 Interface c:00:02:00	LOOP LOOP LOOP LOOP LOOP LOOP LOOP LOOP	22:00 11:00 12:00 12:00 12:00 12:00 10:000	Db cc:00: bb cc:00: bb cc:00: bb cc:00: bb cc:00: bb cc:00: bb cc:00: bb cc:00: bb cc:00: cc:00: cc:00: bb cc:00: bb	I+Shift+S I+H I+H I+P I+Q 02 06 90 aa aa aa	Ctr Ctr Ctr Ctr	2 00 aa b	eed Pa t Diss t Byte co File ession s	s t Specifi Packet PDUs t SSL Se Object	Save A File Se Export Export Export Export Export Print Quit	

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

IMPORTANT:

/nobody/thinclient_drives/media/nobody/thinclient_drives/GUAC/Download/

Enter a name for captured file. Press Save.



Edit View						U. C.
	<u>So C</u> apture <u>A</u> nalyze <u>S</u> ta	atistics Telephony <u>W</u> in	eless <u>T</u> ools	Help		
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pply a display f	ilter <ctrl-></ctrl->					Expression
Time	Source	Destination	Protoco	l Length info		
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2 0.237437	201 aa.bb.cc.00.01.00	CDF/VIF/DIF/FAGE/	OD CDP	S85 Device 10. P	CI POIL ID. Ether	necoyo
4		Wireshark · Sa	ive Capture F	lle As		
Look in:	/nobody/thinclient_drives	/media/nobody/thinclient	_drives/GUA	C/Download	- 0 0	0 % 🗉 🗉
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nobody						
	1					
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File <u>n</u> ame: n Save as: V Compress	vycapturednie – Vireshark/ pcapng with g <u>z</u> ip					Cancel • Help
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File <u>n</u> ame: n Save as: V Compress	vireshark/ pcapng with gzip					Cancel • Help
File <u>n</u> ame: n Save as: V Compress	Vireshark/ pcapng with g <u>z</u> ip					Cancel • Help
File <u>n</u> ame: n Save as: V	Vireshark/ pcapng with <u>gz</u> ip					Cancel • Help
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File <u>n</u> ame: n Save as: V Compress	vycaptureonie ~ vycapng					Cancel Help
File name: n	ycaptureonie ~ Vireshark/ pcapng with gzip					Cancel • Help
File name: n	ycaptureonie 🦟 ycapng Vireshark/ pcapng with gzip					Cancel • Help
File <u>n</u> ame: n Save as: V Compress	ycapturednie – vycapng Vireshark/ pcapng with gzip					Cancel Help
File <u>n</u> ame: n Save as: V Compress	ycapturednie ~ //reshark/ pcapng with gzip					Cancel Help
File name: n Save as: V Compress	ycaptureenie ~ //reshark/ pcapng with gzip itho_20180517183544_uyy	118		Packets: 2	? • Displayed: 2 (100.	Cancel Help

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.

🚮 myca	oturedfile.pcap	ong		
which	is: Wireshark o	apture file		
from:	http://172.22.7	.18		
What shou	ld Firefox do wi	ith this file?		
<u> О</u> ре	n with Wiresl	hark (default)		\sim
◯ <u>S</u> ave	File			
🗌 Do t	his <u>a</u> utomatica	lly for files like this from	now on.	



13 Thinclient File Exchange

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 Desktop console: We want to export our EVE lab and download it to our client PC over HTML5.



Step 1: Export your lab to your HTML5 Desktop

Step 2: Save it to the HTML5 desktop station. Your exported file will be saved in the Downloads Directory of HTML5 desktop station.



🗧 Downloads 📃	
File Edit View Go Bookmarks Help	
🖑 Back 🔻 🚸 Forward 🔻 🤣 🧶 🕞 🛛 🔜 🖳 🗖 100% 🖸 Icon View 🛛 🔽	
Places 🔻 🗶 📝 📢 🖾 nobody Downloads	
Computer in nobody Desktop File System Trash In thincle A Network Browse Net	
	- ///

Step 3: Navigate to the desktop of the HTML5 desktop station and double click thinclient_drives



Step 4: Once opened navigate to: thinclient_drives/GUAC/Download/



Step 5: Drag and drop the exported lab file from right to left.



😥 Applications Places System 🛛 🛜 🌜 📶				
ā				
Download -			Downloads	208
File Edit View Go Bookmarks Help		File Edit View G	io Bookmarks Help	
्र Back 🔹 🚽 Forward 👻 👔 🚱 🔄 🛅 🚆 😑 100% 🕑 Icon View 🛛 💌 🔍		- Back * For	rward + 😒 🌒 🔄 🛅 🗮 🖂 100% 🔿 kon View 🔹 🔍	
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Citem:			* Exports_eveing_export-20180517-213504.zip* selected (3.7 kB), Free space: 2.6 TB	1
vicens				
P				

Step 6: 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 desktop station. The example below will show you how to upload a text file to the EVE HTML5 desktop 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/GUAC/** 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

	EDIT NODE		
DHCP NAT Cloud 169 254 254 0/24	Template		
	Dockeria		
wit_jatoret	ID ID		
192.168.20.1	192.168.20.2 5		
	Image		
	eve-gui-server:latest		
VLAN 20 00 00	Name/prefix		
	Docker		
NUC HOLD FIN	Contra Listo		
	Server.png		
a	RAM (MB)		
	256		
P CHW	Enable DHCP on Etho		
	Ethernets		
	1		
	Startup configuration		
	None		
	Delay (s)		
	0		
	Console		
	rdp		
	Left	Тор	
	810	369	
		1	

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/GUAC/

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





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**.
- 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

- 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.
- Telnet console
- DHCP or Static IP address

eve-ansible

- A Docker for scripting and automation in EVE labs. Ansible is software that automates software provisioning, configuration management, and application deployment.
- 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-chrome

- 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

14.1.2 Docker 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.

ADD A NEW NOI	DE	
Template		
Docker.io		•
Number of nodes to add	Image	
1	eve-gui-server:latest	-
Name/prefix		
Docker		
Icon		
Server.png		*
RAM (MB)		
256		
Enable DHCP on Eth0		
Ethernets		
1		
Startup configuration		
None		*
Delay (s)		
0		
Console		
rdp		*
Left	Тор	
1283	247	
Save	Cancel	

Static IP address option.

Step 1: Add the node to the topology and make sure the DHCP option is **enabled** 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:

```
ip addr add 172.22.7.101/24 dev eth0 ip route add default via 172.22.7.1
```



		Config Set Default 🗸
2 R1	4 ON	1 A
R2	4 ON	ip addr add 172.22.7.101/24 dev eth0
SW SW	* ON	ip route add derault via 172.22.7.1
HTML-Desktop	OFF	
Docker	* ON	
	<u>۲</u>	
	\ \	s

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

14.1.3 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	RDP
eve-napalm	Telnet
eve-ansible	Telnet
eve-chrome	RDP
eve-firefox	RDP

14.1.4 Docker cli root access

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

Username: root

Password: eve



15 EVE Troubleshooting

15.1 CLI diagnostic information display commands

15.1.1 Display the currently installed EVE Pro version:

dpkg -l eve-ng-pro

root@eve-ng:~# dpkg -	eve-ng-pro			
Desired=Unknown/Instal	ll/Remove/Purge/Hold	d		
Status=Not/Inst/Cons	files/Unpacked/ha	lF-conf/Half-inst/t	rig-aWait/Trig-pend	
/ Err?=(none)/Reinst-	-required (Status,E:	rr: uppercase=bad)		
/ Name	Version	Architecture	Description	
+++-===================================				
ii eve-ng-pro	2.0.4-21	amd 64	A new generation software for networking labs.	
root@eve-ng:~#				

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

kvm-ok

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

15.1.3 Display EVEs CPU INFO:

 Iscpu

 Architecture:
 x86_64

 CPU op-mode(s):
 32-bit, 64-bit

 Byte Order:
 Little Endian

 CPU(s):
 24

 On-line CPU(s) list:
 0-23

 Thread(s) per core:
 1

 Socket(s):
 24

 NUMA node(s):
 4

 Wendor ID:
 GenuineIntel

 CPU family:
 6

 Model:
 44

 Model name:
 Intel(R) Xeon(R) CPU

 Stepping:
 2

 CPU MTz:
 3324.053

 BogMIPS:
 6650.00

 Virtualization:
 VT-x

 Hypervisor vendor:
 VMware

15.1.4 Display EVEs HDD utilization.

If the /boot only has a little space left you can refer to section **3.5.1.1**. 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		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	0	5.OM	0%	/run/lock
tmpfs	40G	0	40G	0%	/sys/fs/cgi
/dev/sda1	472M	8 3M	365M	19%	/boot
root@eve=nc.~#					

15.1.5 Display EVEs Bridge interface status

brctl show

root@eve-ng:~# brctl show						
bridge name	bridge id	STP enabled	interfaces			
docker0	8000.0242c0db8435	no				
natO	8000.00000000000	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	8000.00000000000	no				
pnet6	8000.00000000000	no				
pnet7	8000.00000000000	no				
pnet8	8000.000000000000	no				
pnet9	8000.000000000000	no				

15.1.6 Display EVEs system services status

systemctl list-unit-files --state=enabled

root@eve-ng:~# systemctl li	st-unit-filesstate=enabled
UNIT FILE	STATE
accounts-daemon.service	enabled
autovt@.service	enabled
capdog.service	enabled
cpulimit.service	enabled
cron.service	enabled
docker.service	enabled
getty@.service	enabled
lvm2-monitor.service	enabled
mysql.service	enabled
networking.service	enabled
open-vm-tools.service	enabled
openvswitch-switch.service	enabled
ovfstartup.service	enabled
resolvconf.service	enabled
rsyslog.service	enabled
ssh.service	enabled
sshd.service	enabled
syslog.service	enabled
systemd-timesyncd.service	enabled
unattended-upgrades.service	enabled
ureadahead.service	enabled
dm-event.socket	enabled
docker.socket	enabled
lvm2-lvmetad.socket	enabled
lvm2-lvmpolld.socket	enabled
uuidd.socket	enabled
remote-fs.target	enabled
apt-daily-upgrade.timer	enabled
apt-daily.timer	enabled

15.2 Expand EVEs System HDD

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

15.2.1 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.

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 **15.1.4**

15.2.2 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.

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

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

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

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

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

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

Step 8: Boot your EVE VM, the HDD size will be expanded automatically. To verify, use the command to verify HDD utilization referenced in section **15.1.4**

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 -

The EVE VM will go through the Management IP address setup wizard. Please follow the steps in section **3.4.1** for Static IP or **3.4.2** for DHCP IP setup.

15.4 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.txt	20			View
access.txt				
api.txt				
error.txt				
php_errors.txt				
unl_wrapper.txt				
cpulimit.log			Null	
			run	



16 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

16.1 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/qemu/acs-5.8.1.4/hda.qcow2

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
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 (15G) satai (10G) satak (10G) satal (10G) satam (100G)
veos-	Arista SW	hda, cdrom.iso
vios-	L3 vIOS Cisco Router	virtioa
viosl2-	L2 vIOS Cisco SW	virtioa
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

16.2 How to prepare images for EVE

How to load IOL (IOS on Linux) Images:	http://www.eve-ng.net/documentation/howto-s/62- howto-add-cisco-iou-iol
How to load Dynamips Images	http://www.eve-ng.net/documentation/howto-s/64- howto-add-dynamips-images-cisco-ios
How to add Cisco Cloud Service Router (CSR1000V NG) Denali and Everest	http://www.eve-ng.net/documentation/howto-s/95- howto-add-cloud-services-csr-1000v-ng-everest-and- denali-routers



How to add Cisco Cloud Service Router (CSR1000V)	http://www.eve-ng.net/documentation/howto-s/61- howto-add-cisco-cloud-service-router-csr1000v
How to add Cisco ACS	http://www.eve-ng.net/documentation/howto-s/119- howto-add-cisco-acs
How to add Cisco ASAv	http://www.eve-ng.net/documentation/howto-s/73- howto-add-cisco-asav
How to add Cisco XRv	http://www.eve-ng.net/documentation/howto-s/63- howto-add-cisco-xrv
How to add Cisco XRv9000 Full	http://www.eve-ng.net/documentation/howto-s/140- howto-add-cisco-xrv9000-full
How to add Cisco FirePower 6.x images set, NGIPS, FTD, FMC	http://www.eve-ng.net/documentation/howto-s/108- howto-add-firepower-6-x-images-set
How to add Images from VIRL, vIOS, XRv	http://www.eve-ng.net/documentation/howto-s/121- howto-add-images-from-virl
How to add Cisco WSA (Web Security Appliance)	http://www.eve-ng.net/documentation/howto-s/115- howto-add-cisco-wsa-web-security-appliance
How to add Cisco ESA (Email Security Appliance)	http://www.eve-ng.net/documentation/howto-s/114- howto-add-cisco-esa-email-security-appliance
How to add Cisco ISE	http://www.eve-ng.net/documentation/howto-s/120- howto-add-cisco-ise
How to add Cisco Prime Infra	http://www.eve-ng.net/documentation/howto-s/117- howto-add-cisco-prime-infra
How to add Cisco vWAAS	http://www.eve-ng.net/documentation/howto-s/72- howto-add-cisco-vwaas
How to add Cisco vWLC (Virtual Wireless LAN Controller)	http://www.eve-ng.net/documentation/howto-s/70- howto-add-cisco-vwlc-virtual-wireless-lan-controller
How to add cisco NEXUS NX9K switch	http://www.eve-ng.net/documentation/howto-s/107- howto-add-nx9k-switch



How to add Juniper vSRX (ver 12.X / FireFly)	http://www.eve-ng.net/documentation/howto-s/66- howto-add-juniper-vsrx-version-12-x-firefly
How to add Juniper vSRX-NG 15.X and later	http://www.eve-ng.net/documentation/howto-s/122- howto-add-juniper-vsrx-ng-15-x-and-later
How to Juniper vMX 16.X, 17.X	http://www.eve-ng.net/documentation/howto-s/109- howto-juniper-vmx-16-x-17-x
How to add Arista Virtual Extensible Operating System (vEOS)	http://www.eve-ng.net/documentation/howto-s/60- howto-add-arista-virtual-extensible-operating-system- veos
How to add Nokia VSR	http://www.eve-ng.net/documentation/howto-s/113- howto-add-nokia-vsr
How to add Alcatel 7750 Service Router	http://www.eve-ng.net/documentation/howto-s/59- howto-add-alcatel-7750-service-router
How to add Aruba Mobility Controller	http://www.eve-ng.net/documentation/howto-s/118- howto-add-aruba-mobility-controller
How to add CheckPoint	http://www.eve-ng.net/documentation/howto-s/125- howto-add-checkpoint
How to add Citrix Netscaler	http://www.eve-ng.net/documentation/howto-s/71- howto-add-citrix-netscaler
How to add Extreme EXOS	http://www.eve-ng.net/documentation/howto-s/144- howto-add-extreme-exos
How to add F5 BIGIP	http://www.eve-ng.net/documentation/howto-s/68- howto-add-f5-bigip
How to add Fortinet images	http://www.eve-ng.net/documentation/howto-s/123- howto-add-fortinet-images
How to add Mikrotik Cloud router	http://www.eve-ng.net/documentation/howto-s/124- howto-add-miktotik-cloud-router
How to add Palo Alto	http://www.eve-ng.net/documentation/howto-s/69- howto-add-palo-alto-vm-100



How to add pfSense FW	http://www.eve-ng.net/documentation/howto-s/131- howto-add-pfssense-fw
How to add Riverbed SteelHead Virtual CX	http://www.eve-ng.net/documentation/howto-s/142- howto-add-riverbed-steelhead-virtual-cx
How to add VMware ESXi	http://www.eve-ng.net/documentation/howto-s/130- howto-add-vm-ware-esxi
How to add VMware vCenter	http://www.eve-ng.net/documentation/howto-s/141- howto-add-vm-ware-vcenter
How to add VyOS Vyatta	http://www.eve-ng.net/documentation/howto-s/129- howto-add-vyos-vyatta
How to create own Linux host image, free prepared images are provided.	http://www.eve-ng.net/documentation/howto-s/106- howto-create-own-linux-image
How to add Linux Ostinato	http://www.eve-ng.net/documentation/howto-s/111- howto-add-linux-ostinato
How to add Linux Netem	http://www.eve-ng.net/documentation/howto-s/110- howto-add-linux-netem
How to create own Windows Host on the EVE. Same procedure for MS Workstation or MS Server	http://www.eve-ng.net/documentation/howto-s/103- how-to-install-own-windows-host-on-the-eve

16.3 How to add custom image template

For advanced users only. SSH to you EVE.

Step 1. Prepare a template file

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

Example:

cp /opt/unetlab/html/templates/linux.php /opt/unetlab/html/templates/freebsd.php

Step 1.1 Edit your new template file:

nano freebsd.php

Step 1.2 Change content; setting for various images can vary depending on vendor requirements:

<?php



```
# vim: syntax=php tabstop=4 softtabstop=0 noexpandtab laststatus=1 ruler
/*
* 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
 * DISCLAIMED. IN NO EVENT SHALL <COPYRIGHT HOLDER> BE LIABLE FOR ANY
 * DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
 * (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
 * ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
 * (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
 * SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
 */
$p['type'] = 'qemu';
$p['name'] = 'FreeBSD';
$p['cpulimit'] = 1;
$p['icon'] = 'BSD.png';
$p['cpu'] = 1;
<p['ram'] = 2048;</p>
p['ethernet'] = 1;
$p['console'] = 'vnc';
$p['qemu arch'] = 'x86 64';
$p['qemu nic'] = 'virtio-net-pci';
$p['qemu options'] = '-machine type=pc-1.0,accel=kvm -vga std -usbdevice tablet -boot
order=dc;;
?>
```

Step 2. Prepare config.php

EVE includes a sample file: /opt/unetlab/html/includes/config.php.distribution

If you don't have the config.php file, copy the sample config.php.distribution to config.php.

cp /opt/unetlab/html/includes/config.php.distribution /opt/unetlab/html/includes/config.php

Step 2.1 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
 */
// $custom_templates = Array(
 // 'mytemplate' => 'My Custom Template1',
 // 'othertemplate' => 'An Other Template'
// );
```

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
 *
 */
   $custom_templates = Array(
    'freebsd' => 'FreeBSD Server'
   );
?>
```

Step 3. Prepare a new icon for your template:

Step 3.1 Use Filezilla or Winscp to copy your custom icon BSD.png (icon we have in freebsd.php - see sample at step 1)

This icon should be about 30-60 x 30-60 in the png format (switch.png for example is 65 x 33, 8-bit/color RGBA)

Step 3.2 Copy this new icon into /opt/unetlab/html/images/icons/



Step 4. Template use

Step 4.1 Create directory /opt/unetlab/addons/qemu/freebsd-11.1

mkdir /opt/unetlab/addons/qemu/freebsd-11.1

Step 4.2 Upload a freebsd image

cd /opt/unetlab/addons/qemu/freebsd-11.1

wget "https://download.freebsd.org/ftp/releases/VM-IMAGES/11.1-RELEASE/amd64/Latest/FreeBSD-11.1-RELEASE-amd64.qcow2.xz" -0 - | xzcat -c > hda.qcow2

▲ NOTE: It is example for FreeBSD image adding. Similar way you can add and try any your preferred image in the EVE. Image upload can be done using WinSCP or FileZilla.



17EVE Resources

For additional updated information please follow our web site: http://www.eve-ng.net

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