

EVE-NG Professional Cookbook

Version 5.10

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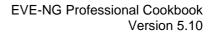
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Preface

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

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

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

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

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

Christian Scholz @chsjuniper



1 Introduction

1.1 What is EVE-NG?

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

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

1.2 What is EVE-NG used for?

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

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

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

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

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

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

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

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

1.3 Who is EVE-NG for?

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

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

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

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

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



2 System requirements

EVE-NG is available in the OVF or ISO file format. The Open Virtualization Format (OVF) is an open standard for packaging and distributing virtual appliances. It can be used to deploy a VM in hypervisors like VMware Workstation, Player and ESXi. Please note that installing EVE as a Virtual Machine (VM) will mean any nodes deployed within EVE will be nested. Nested virtualization causes degraded performance in deployed nodes. This should be fine for lab purposes as long as the host meets or exceeds the resource requirements for the deployed nodes.

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

2.1 Hardware requirements

2.1.1 Minimal Laptop/PC Desktop system requirements

Prerequisites:

CPU: Intel CPU supporting Intel® VT-x /EPT virtualization Operating System: Windows 10, 11 or Linux Desktop VMware Workstation 15.0 or later VMware Player 15.0 or later

PC/Laptop HW requirements		
CPU Intel i7 (4 Logical processors), Enabled Intel virtualization in BIOS		
RAM 8Gb		
HDD Space 50Gb		
Network LAN/WLAN		
EVE Virtual machine requirements		
CPU 4/1 (Amount of processors/Number of cores per processo Enabled Intel VT-x/EPT virtualization engine		
RAM 6Gb or more		
HDD	HDD 50Gb or more	
Network VMware NAT or Bridged network adapter		

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

Example:

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



2.1.2 Recommended Laptop/PC Desktop system requirements

Prerequisites:

CPU: Intel CPU supporting Intel® VT-x /EPT virtualization Operation System: Windows 10, 11 or Linux Desktop VMware Workstation 15.0 or later VW Ware Player 15.0 or later

PC/Laptop HW requirements			
CPU	Intel i7 (16 Logical processors), Enabled Intel virtualization in BIOS		
RAM	32Gb		
HDD Space 200Gb			
Network LAN/WLAN			
	EVE Virtual machine requirements		
CPU 16/1 (Amount of processors/Number of cores per proces 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 E5-2650v4 (48 Logical processor or better supporting Intel® VT-x with Extended Page Table (EPT) Minimum CPU is any Intel Xeon CPU supporting Intel® VT- with Extended Page Tables (EPT)			
RAM	128Gb		
HDD Space 2Tb			
Network	LAN Ethernet		
EVE Virtual machine requirements			
CPU 48/1 (Amount of processors/Number of cores per proces Enabled Intel VT-x/EPT virtualization engine			
RAM	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 metal BM) system requirements

Prerequisites:

CPU: Intel Xeon CPU supporting Intel® VT-x with Extended Page Tables (EPT) Operation System: Ubuntu Server 20.04 LTS x64

Server HW requirements			
CPU	Recommended CPU Intel E5-2650v4 (48 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://www.eve-ng.net/index.php/download/#CALC

2.1.6 EVE Management Networks

NOTE: Please make sure if these subnets are NOT used in your network outside of EVE.

172.29.129.0/24 (NAT Interface) 172.29.130.0/24 (Cluster VPN subnet, wg0 interface) 172.17.0.0/16 (Dockers consoles)

To change these networks please refer chapter 7.4.1

2.2 Supported virtualization platforms and software

- VMware Workstation 15.0 or later
- VMware Player 15.0 or later
- VMware ESXi 6.0 or later



- Ubuntu Server 20.04 LTS as platform for bare metal
- Google Cloud Platform
- AMD CPU based PC or Server (the Newest AMD CPU versions are supported)
- 2.3 Unsupported hardware and systems

The following are currently not supported officially:

- VirtualBox virtualization
- Citrix XenServer
- Microsoft HyperV
- Proxmox
- MAC OSX M1, M2, M3 CPU



3 Installation

3.1 VMware Workstation or VM Player

3.1.1 VMware workstation ISO image deployment (preferred)

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

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

3.1.1.1 EVE VM Setup and Settings

Step 1: Create a N	New Virtual machine	Step 2: Select "I will install the operating system later"	
New Virtual Machine Wizard	×	New Virtual Machine Wizard X	
	Welcome to the New Virtual Machine Wizard	Guest Operating System Installation A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?	
^{PR0™} 16	What type of configuration do you want?	O Installer disc:	
	 Typical (recommended) Create a Workstation 16.2.x virtual machine in a few easy steps. 	◯ Installer disc image file (iso):	
	Custom (advanced) Create a virtual machine with advanced options, such as a SCSI controller type, virtual disk type and compatibility with virtual disk type and compatibility with	G:\Install\Linux\linuxmint-16-cinnamon-dvd-32bit.iso ∨ Browse	
	older VMware products.	I will install the operating system later. The virtual machine will be created with a blank hard disk.	
Help	< Back Next > Cancel	Help < Back Next > Cancel	

Step 3: Select a Guest Operating system: Linux and select the version: Ubuntu 64-bit	Step 4: Enter the name for your EVE-PRO VM and select Location where your EVE VM will be stored on the host PC.
---	---



Select a Guest Operating System Which operating system Microsoft Windows O Linux Novell NetWare Solaris Which operating system Ubuntu 64-bit Help < Back Next > Cancel	New Virtual Machine Wizard	×	New Virtual Machine Wizard	×
Microsoft Windows Linux Novel NetWare Solaris Other Version Ubuntu 64-bit				
© Linux ○ Novell NetWare ○ Solaris ○ Other Version Ubuntu 64-bit ✓	Guest operating system		Virtual machine name:	
ONovell NetWare Solaris O VMware ESX Other Version G: [FVE_PRO-VM Ubuntu 64-bit ✓			EVE-PRO	
O VMware ESX G: EVE_PRO-VM Browse O other The default location can be changed at Edit > Preferences.	O Novell NetWare		Location:	
Other The default location can be changed at Edit > Preferences. Version Ubuntu 64-bit			G:\EVE_PRO-VM	Browse
Ubuntu 64-bit			The default location can be changed at Edit > Preferences.	
	Version			
Help <back< td=""> Next > Cancel</back<>	Ubuntu 64-bit	~		
Help < Back				
Help < Back				
Help <back< td=""> Next > Cancel</back<>				
Help < Back				
Help < Back Next > Cancel < Back Next > Cancel				
	Help < Back Next > Can	cel	< Back Next >	Cancel

Step 5: Select Number of processors, maximum what your PC supports and set Number of cores per processor as =1.	Step 6: Assign desirable memory New Virtual Machine Wizard ×
New Virtual Machine Wizard × Processor Configuration Specify the number of processors for this virtual machine. Processors Image: Image: Ima	Memory for the Virtual Machine How much memory would you like to use for this virtual machine? Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB. 128 GB Memory for this virtual machine: 16 GB Maximum recommended memory: 2 GB 27.8 GB 16 GB Recommended memory: 4 GB Guest OS recommended minimum: 2 GB GB 16 MB Guest OS recommended minimum: 2 GB GB Help < Back

Step 7a: Select your desirable Network	Step 7b: Select your desirable Network
Adapter. Laptop PC	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	NOTE: Desktop PC EVE management interface can be either NAT or Bridged to



connected to a different SSID.	home LAN subnet.
New Virtual Machine Wizard ×	New Virtual Machine Wizard X
Network Type What type of network do you want to add?	Network Type What type of network do you want to add?
Network connection	Network connection
 Use bridged networking Give the guest operating system direct access to an external Ethernet network. The guest must have its own IP address on the external network. Use network address translation (NAT) Give the guest operating system access to the host computer's dial-up or external Ethernet network connection using the host's IP address. Use host-only networking Connect the guest operating system to a private virtual network on the host computer. Do not use a network connection 	Use bridged networking Give the guest operating system direct access to an external Ethernet network. The guest must have its own IP address on the external network. Use network address translation (NAT) Give the guest operating system access to the host computer's dial-up or external Ethernet network connection using the host's IP address. Use host-only networking Connect the guest operating system to a private virtual network on the host computer. Do not use a network connection
Help < Back Next > Cancel	Help < Back Next > Cancel

Step 8: Leave I/O controller Type as recommended (LSI Logic).	Step 9: Leave recommended Disk Type: SCSI New Virtual Machine Wizard ×
New Virtual Machine Wizard X Select I/O Controller Types Which SCSI controller type would you like to use for SCSI virtual disks?	Select a Disk Type What kind of disk do you want to create?
I/O controller types SCSI Controller: BusLogic (Not available for 64-bit guests) (a) LSI Logic (Recommended) LSI Logic SAS Paravirtualized SCSI	Virtual disk type DDE SCSI (Recommended) SATA NVMe
Help < Back Next > Cancel	Help < Back Next > Cancel



ew Virtual Machine Wizard X	select "Store virtual disk as single file". It is
Select a Disk Which disk do you want to use?	recommended to set not less than 200GB
	HDD. Click Next 2 times.
Disk	New Virtual Machine Wizard ×
Create a new virtual disk	Specify Disk Capacity
A virtual disk is composed of one or more files on the host file system, which will appear as a single hard disk to the guest operating system. Virtual disks can easily be copied or moved on the same host or between hosts.	How large do you want this disk to be?
can easily be copied of moved on the same nost of between nosts.	Maximum disk size (GB): 200
O Use an existing virtual disk	Recommended size for Ubuntu 64-bit: 20 GB
Choose this option to reuse a previously configured disk.	
O Use a physical disk (for advanced users)	Allocate all disk space now.
Choose this option to give the virtual machine direct access to a local hard disk. Requires administrator privileges.	Allocating the full capacity can enhance performance but requires all of the physical disk space to be available right now. If you do not allocate all the space now, the virtual disk starts small and grows as you add data to it.
	Store virtual disk as a single file
	O Split virtual disk into multiple files
	Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.
Help < Back Next > Cancel	
	Help < Back Next > Cancel

ew Virtual Machin	e Wizard	×			
	Virtual Machine o create the virtual machine. Then you can install Ubuntu		Hardware	Summary	Memory
	will be created with the following settings:		Processors CD/DVD (SATA)	1 GB 1 Auto detect NAT	Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB. Memory for this virtual machine: 16384 💭 MB
Name: Location: Version: Operating System: Hard Disk: Memory: Network Adapter: Other Devices: Customize Hard	200 GB 16384 MB NAT 8 CPU cores, CD/DVD, USB Controller, Printer, Sound Carc	1	i US Controller ♥ Sound Card ⇒innite ■ Display	Present Auto detect Present Auto detect	64 GB 23 GB 16 GB Imaximum recommended memory 2 GB 23.0 GB 2 GB 23.0 GB 1 GB Imaximum recommended memory 2 GB 23.0 GB 1 GB Imaximum recommended memory 1 GB Imaximum recommen
				Add Remove	The virtual machine will use up to 768 MB of this mem for graphics memory. You can change this amount in Display settings page. Close Help
	< Back Finish Cance				



	Player will display only one mber of processors.	Device I Memory Processors New CD/DVD (SATA) Network Adapter	Summary 16 GB 8 Auto detect NAT	Connected Connect at power on Connect on
Device Summary Immediate 6 GB Immediate 8 I	Processors Number of processors: Number of cores per processor: 1 Totala processor cores: 8 Virtualization engine Virtualization engine Virtualization engine Virtualization engine	© USS Controler ♥ Sourd Card eliPinter ♥ Doplay	Present Auto detect Present Auto detect Auto detect	Oue physical drive: Auto detact @ Use 150 image file: G:EVE-HG/EVE-PRO.80 Advanced Advanced
Add	Remove			
	Close Help			

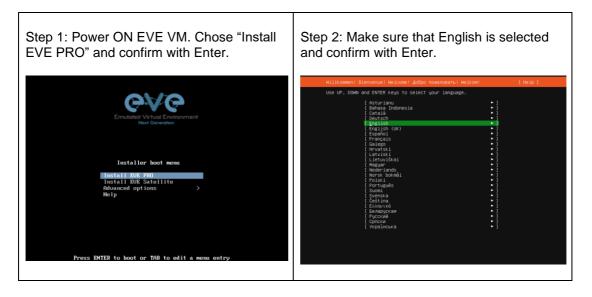
Step 16: Confirm VM Settings.

3.1.1.2 EVE-NG VM Installation steps

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

EVE VM Installation from ISO has 3 Phases

Phase 1 (Ubuntu installation)

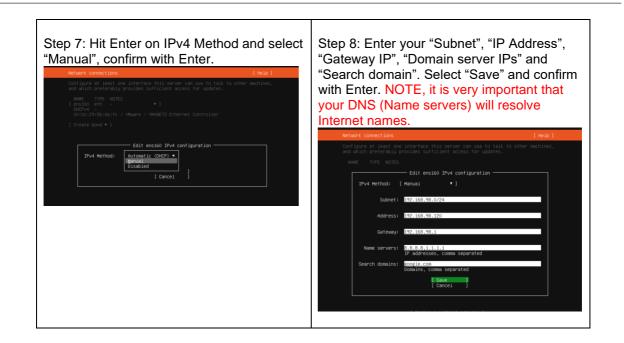


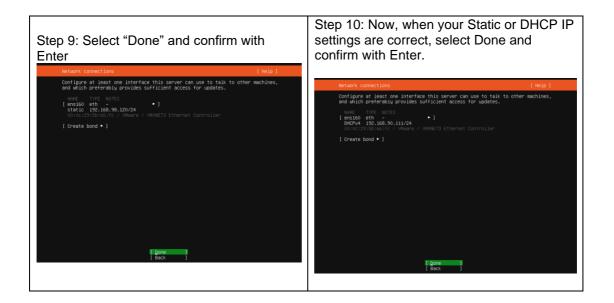


Step 3: Make sure that Englis is selected and confirm with E		Step 4: If your network has DHCP ENABLED , Continue to Step 10
Please select your keyboard layout below, or select detect your layout automatically.	"Identify keyboard" to	
Layout: [English (US)	• 1	
Variant: [English (US)	• 1	
[Identify keyboard]		
[Done] [Back]		

Step 5: If your network has not DHCP . Static IP setup. If you have not enabled DHCP in the network, you must assign an IP address manually. Use arrow UP key to	Step 6: Confirm interface selection with Enter, select "Edit IPv4" and confirm with Enter again.
select your interface for IP	Network connections [Help] Configure at least one interface this server can use to talk to other machines,
address.assignment.	and which preferably provides sufficient access for updates.
Address.assignment.	New Type NoTES ConcEve - (close) ConcEve - (close
[Continue without network] [Back]	

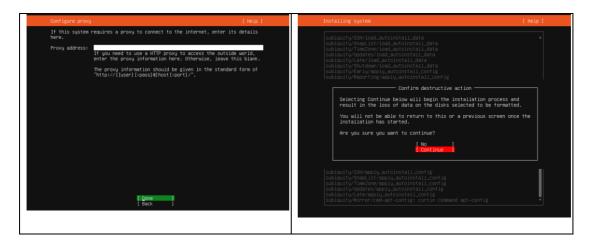




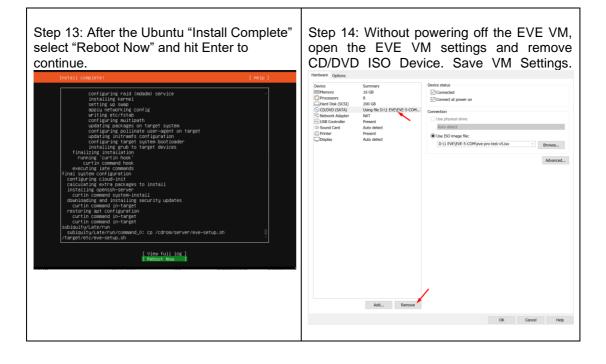


Step 11: If you have proxy in use for your internet, assign your network proxy settings. If no proxy in use, with Tab key select Continue and confirm with Enter.	Step 12: Select "Continue" and confirm with Enter.
---	--





EVE VM Installation Phase 2 (EVE installation)



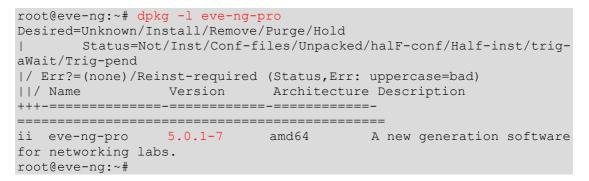
Step 15: Return back to EVE console screen and confirm Continue with Enter, EVE VM will reboot and continue Phase 2 installation [MILEO Failed unmounting /cdrom. Please remove the installation medium, then press ENTER: [AILEO Failed unmounting /cdrom. [AILEO Failed unmounting /cdrom.	Step 16: Depending on your internet speed EVE installation will take some time. After installation EVE VM will auto reboot and EVE login screen will appear, login in CLI with root/eve and follow installation Phase 3 Very (defailt root password is 'ver') Bentiser.VEI.stellation 2002 Big Houd-bill (2005): Cloud-Init V. 21.4-Outoutul'20.04.1 running 'nodules Install et won, classword big Houd-bill (2005): Cloud-Init V. 21.4-Outoutul'20.04.1 running 'nodules Install et won, classword big Houd-bill (2005): Cloud-Init V. 21.4-Outoutul'20.04.1 running 'nodules Install et won, classword big Houd-bill (2005): Cloud-Init V. 21.4-Outoutul'20.04.1 running 'nodules ('17.583961) cloud-Init (2005): 2022-05-23 18:32:48,590 - cc_final_message.py(DMMIND): Used failbud c datasource
---	--



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

Step 17: Setup EVEs Management IP address. A Static IP address setup is preferred.	Step 18: After your EVE is rebooted, Login to EVE CLI and type:
Follow steps in section:	apt update apt upgrade
3.5.1 for static IP, 3.5.2 for DHCP IP	If required, follow steps in section: 5.1 , 5.2

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



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

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

Launch EVE-PRO installation manually

<pre>root@eve-ng:~# cd /etc root@eve-ng:~# ./eve-setup</pre>	
Step 19: After update, and Step 18 is completed, continue with type:	seeing some docker name in the list as <none>,</none>
apt update apt install eve-ng-dockers	TootBays-ng:"# dc images TAG IMAGE ID CIENTED SIZE PERDON CANDAP CSAR4648274 If Social appoint SIZE ave-gli-server If SET flass609356 3 minutes app 3.0426 ave-gli-server If SET flass609356 3 minutes app 3.0426 ave-glisekarp Istest 25923073260 11 minutes app 1.4406 ave-glisekarp Istest 25923073607 13 minutes app 1.4406



This can take some time depending on your Internet connection and disk speed.	<pre>please run the command: apt installreinstall eve-ng-dockers</pre>
Your output after install must look like:	You must get output like in the step 19.
root@www.ng;"# dc images REFOSITORY TAS INAGE ID CREATED SIZE evw-desktop latest cs1336521bd7 12 hours ago 3.6568 evw-equi-merver latest 9db10e879a17 2 days ago 3.8468 evw-lirector latest 9db10e879a17 2 days ago 3.8468 evw-lirector latest 9db20e879a17 2 days ago 1.8608 evw-miroshark latest 82a005773a03 7 weeks ago 1.5608 root@wrw-ng;"#	

Step 21: Proceed to section 4 "Obtain EVE-NG Professional license"

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

3.1.2 VMware workstation OVF deployment

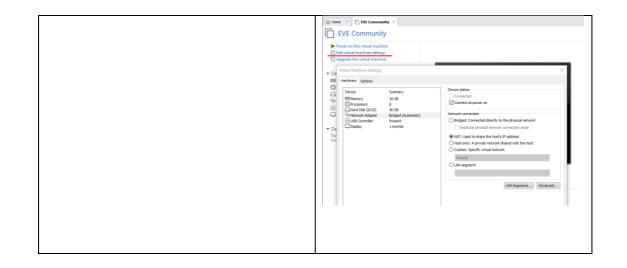
Download EVE-NG Professional OVF image zip file, place it in the dedicated HDD storage for EVE VM and unzip it: https://www.eve-ng.net/index.php/download/

3.1.2.1 Deployment and VM machine settings

Open Virt	ual M		station o	or VM Player,	Step 2: Br unzipped I followed by 0	EVE-PRC			
D Type here to search ▼	☆ Home ×								
C My Computer					🔁 Open				×
		WOR	STATION 16	S PRO [™]	← → × ↑ 🖡 - Data (D:) >	1 EVE > EVE-5 > EVE-PRO-	5.0.1-10 🗸	・ ひ Search EVE-PRO-	·5.0.1-10
			-7		Organize • New folder			. ·	• •
		(+)		$\stackrel{\rightarrow}{\leftarrow}$	3D Objects	^ Name	^	Date modified	Тур
		Create a New Virtual Machine	Open a Virtual Machine	Connect to a Remote Server	besktop	📢 EVE-P	RO-5.ovf	5/23/2022 12:51	PM Op
					Documents				
					Music				
					E Pictures				
					Tideos				
					Local Disk (C:)	_			
					Network	~ <			
					Network				
	vm ware				File name:			 All supported files 	~
								Open	Cancel

Step 3: Give VM name (Example: EVE- PRO) and browse your desired EVE VM store destination followed by Import			Step 4: Open your EVE VM Settings and set the desired RAM.
Denny × @ He		TATION 16 PRO*	





Step 5: IMPORTANT Se Cores and number of con Set Intel VT-x/EPT Virtua ON (checked). NOTE: VMware Player w CPU option: Number of p	Network A NOTE: It i NAT adap EVE mana This can h	dapter. s recommer ter option fo agement into	elect your desirable nded to choose the or Laptops to avoid erface IP changes. ime the laptop is nt SSID.	
Hardware Options		Hardware	Laptop or Des	litan RC X
Tetra UK (S.A) Order Tetra Present Order Order Tetra Present Order Order	s per processor: 1 v cores: 8	Device Memory Processor Proces	Laptop of Des Sumary 16 60 8 Auto detect Auto detect Auto detect	Perice status Connected C
			Add Remove	
Add Remove				Close Help
	OK Cancel Help			

Network Adapter. Manag	p 8: Power ON your EVE VM and follow nagement IP setup instructions described section 3.5.1 for Static IP or 3.5.2 for CP IP.
------------------------	---



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

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

3.1.2.2 OVF VM update to the latest EVE version

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

3.1.2.3 OVF VM HDD Size expansion

IMPORTANT NOTE: DO NOT expand the current EVE OVF HDD. To expand your EVE system size, please follow Troubleshooting section **15.3**

- 3.2 VMware ESXi
- 3.2.1 VMware ESXi EVE installation using ISO image (preferred)
 - Mandatory Prerequisites: Internet must be reachable from your Server and ESXi. EVE ISO installation requires internet access to get updates and install the latest EVE-PRO version from the EVE-NG repository. DNS must work as well, to check it, do a named ping, for example ping www.google.com
 - ▲ **IMPORTANT NOTE:** Make sure that you have set Security Policy (Promiscuous mode, forged transmits and MAC changes) settings on the vSwitch and Port group to Accept.
 - IMPORTANT NOTE: For EVE VMs running on ESXi, with NIC Teaming Network, please follow the steps below to edit the reverse path settings
 - From the Navigator window select Manage > System > Advanced settings.
 - Scroll down or use the search bar to go to the Net.ReversePathFwdCheckPromisc option.
 - Select Net. ReversePathFwdCheckPromisc and click Edit option.
 - In the Edit option Net.ReversePathFwdCheckPromisc window update the New value field to 1 and click Save.



- IMPORTANT NOTE: For EVE VMs running on ESXi, with NIC Teaming Network, managed by vCenter and VDS Network please follow the steps below to edit the reverse path settings
 - From the Side Inventory select the ESXi host where the EVE VM is installed Configure > System > Advanced System Settings.
 - Edit Advanced System Setting
 - Scroll down to find **Net**. **ReversePathFwdCheckPromisc** option.

Net.ReversePathFwdCheckPromisc

- In the Edit option Net. ReversePathFwdCheckPromisc window update the New value field to 1 and click Save.
- Reboot ESXi host
- Select the VDS Workgroup used for EVE VM networking

1

Edit VDS Workgroup security setting to allow promiscuous traffic

Distributed Port Group - Edit Settings DPortGroup-VLAN10

Traffic shaping	Forged transmits	Accept ~
Security		
VLAN	MAC address changes	Accept ~
Advanced	Promiscuous mode	Accept ~
General		

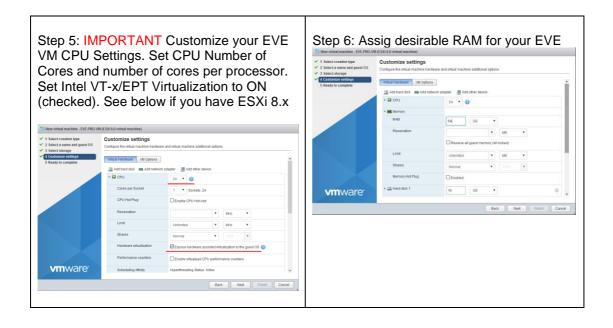
Download EVE-NG Professional ISO distribution image: <u>https://www.eve-ng.net/index.php/download/</u>

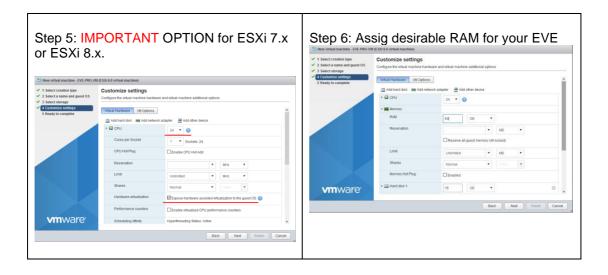
3.2.1.1 EVE-NG ESXi VM Setup and Settings

Step 1: Upload EVE ISO image to the ESXi store.	Step 2: Create NEW VM	
VmWare/ESX/	Select creation type Select anner anguestos Select strape	
Interd () particular Interd () particular <th>A catalonies senting Curled a treat what introduce Delay a shall introduce itom as Orl if or Owner Delay a shall interval interval Delay a shall inter</th> <th></th>	A catalonies senting Curled a treat what introduce Delay a shall introduce itom as Orl if or Owner Delay a shall interval interval Delay a shall inter	

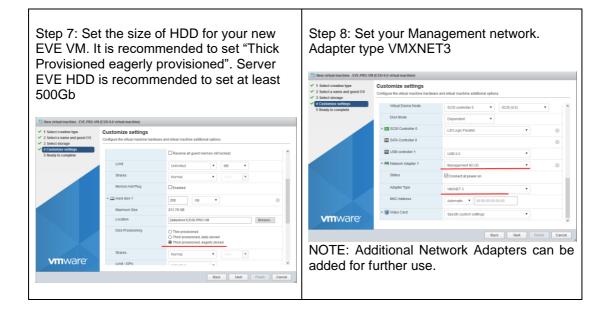


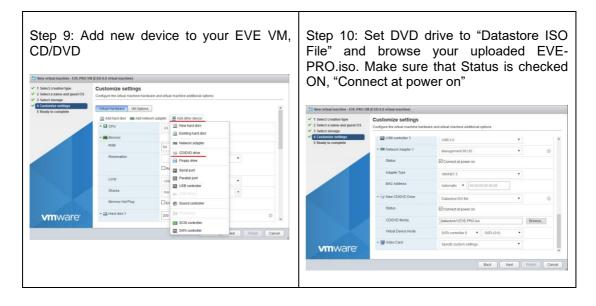
VM and s	select Gu	name for your EVE-PRO est Operating system Ubuntu 64-bit	Step 4: Se will be stol	red in HD	ation where your EVE VM DD.
			 2 Select a name and guest OS 3 Select storage 	Select the datastore in which	to store the configuration and disk files.
New virtual machine - EVE-PR	IO-VM (ESXI 6.0 virtual machine)		4 Customize settings 5 Ready to complete		accessible from the destination resource that you selected. Select the destination datastore for fion files and all of the virtual disks.
 1 Select creation type 2 Select a name and guest OS 3 Select storage 	Select a name and Specify a unique name and	5		Name datastore1	✓ Capacity ✓ Free ✓ Type ✓ Thin pro ✓ Access ✓ 284.75.6B 231.79.6B VMFS5 Supported Single ↑
4 Customize settings 5 Ready to complete	Name EVE-PRO-VM			HDD_A HDD_B	930.75 GB 431.63 GB VMF35 Supported Single 930.75 GB 149.61 GB VMF55 Supported Single
	Identifying the guest operation	contains up tal o character and the runs to te unique within scatil. ESD instance, on particular has a state, or two large provide the spenting system installation. ESDS 6.0 state machine ELIstee Unum Linux (64-bit)	vmware		Steves
vmware		Back Neet Projsh Cancel			











3.2.1.2 EVE-NG ESXi VM Installation steps

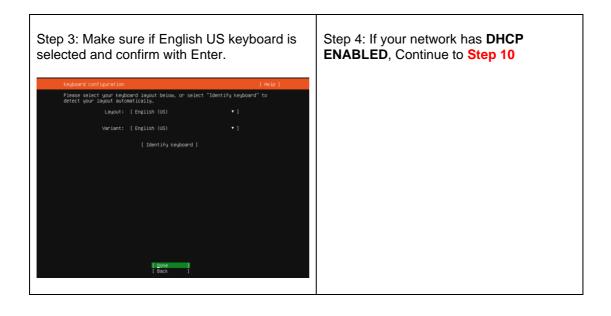
Mandatory Prerequisites: Internet must be reachable from your PC and VMware. EVE ISO installation requires internet access to get updates and install the latest EVE-PRO version from the EVE-NG repository. DNS must work as well, to check it, do a named ping, for example ping www.google.com

EVE ESXi VM Installation from ISO has 3 Phases

Phase 1 (Ubuntu installation)



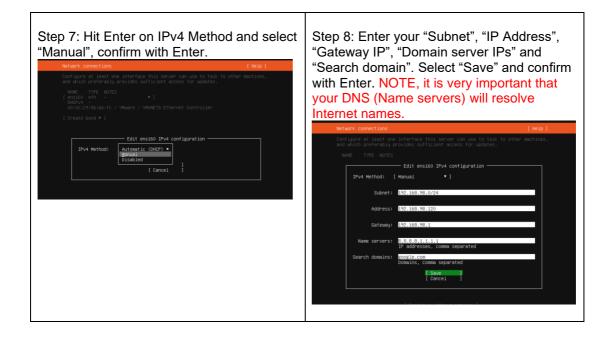
Step 1: Power ON EVE VM. Chose Install EVE PRO Server and confirm with Enter.	Step 2: Select English language. Confirm with Enter.
Description Description Description Description Description Press ENTER to boot or TAB to edit a nemu entry	Hilkomeni Blenveruel Helcomel Joñdon noxanomarbi Helkomi [Help] Use UP, DOHN and ENTER Keys to select your language. [sturianu [catală

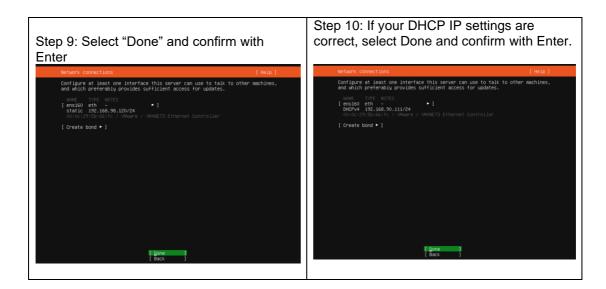


Step 5: If your network has not DHCP. Static IP setup. If you have not enabled DHCP in the network, you must assign an IP address manually. Use arrow UP key to	Step 6: Confirm interface selection with Enter, select "Edit IPv4" and confirm with Enter again.		
select your interface for IP	Network connections [He Configure at least one interface this server can use to talk to other machine interface the i		

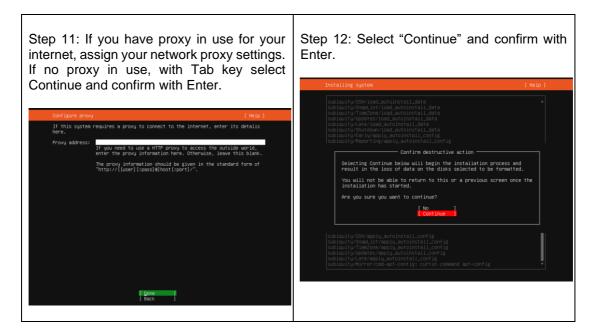




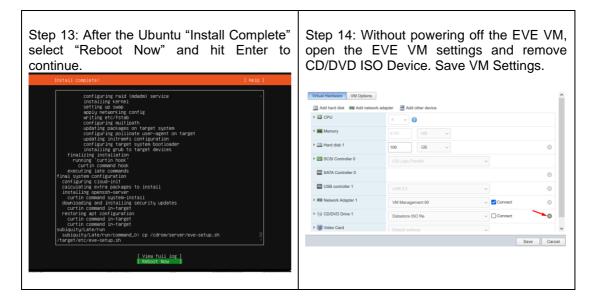








EVE VM Installation Phase 2 (EVE installation)



Step 15: Return back to EVE console screen	Step 16: Depending on your internet speed
and confirm Continue with Enter, EVE VM	EVE installation will take some time. After
	installation EVE VM will auto reboot and EVE
	login screen will appear, login in CLI with



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will reboot and continue Phase 2 installation	root/eve and follow installation Phase 3
<pre>will reboot and continue Phase 2 installation ["Alled] Failed unmounting /cdrom. Plasse remove the installation medium, then press ENTER: ["Alled] Failed unmounting /cdrom. ["Alled] Failed unmounting /cdrom.</pre>	root/eve and follow installation Phase 3 Twe-Ni (default root passurd is 'we') ise http://si2.68.00.110(be?4/d Twe-Ni (default root passurd is 'we') ise http://si2.68.00.110(be?4/d Twe-Ni (default root passured is 'we') ise http://si2.68.00.0

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

Step 17: Setup EVE Management IP address. A Static IP address setup is preferred	Step 18: After your EVE is rebooted, Login to EVE CLI and type:
Follow steps in section :	apt update apt upgrade
3.5.1 for static IP, 3.5.2 for DHCP IP	apt upgrade

Step 19: On the EVE CLI prompt, reboot EVE by typing
reboot

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

root@eve-ng:~# dpkg -1 eve-ng-p	ro		
Desired=Unknown/Install/Remove/	Purge/Hold		
Status=Not/Inst/Conf-fi	les/Unpacked/hal	lF-conf/Half-i	nst/trig-
aWait/Trig-pend			
<pre> / Err?=(none)/Reinst-required / Name Description +++-==================================</pre>	Version	Arc	hitecture
<pre>ii eve-ng-pro new generation software for net root@eve-ng:~#root@eve-sat01:~#</pre>	-	amd64	A

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



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

Launch EVE-PRO installation manually

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

Step 21: IMPORTANT: After update, Step 20 is completed, continue with type:	Step 22: (Optional) If after dockers first install
apt install eve-ng-dockers	(Step 21) in the output "dc images" you still
This can take some time depending on your	seeing some docker name in the list as
Internet connection and disk speed.	<none>,</none>
Your output after install must look like:	
dc images root@www-mg:"# dc images REPOSITORY TAG root@www-mg:"# dc images REPOSITORY TAG root@www-gul=server latest 0d19608/001 2 days ago www-estrefox latest 0d19608/001 2 days ago www-wireBark latest root@www-mg:"# latest	You must get output like in the step 21.
Step 23: After Steps 20-22 are completed	NOTE: If you are installing EVE in the locked
and you are back on the EVE CLI prompt,	environment and cannot install dockers
reboot EVE by typing	online, please contact with us: <u>info@eve-</u>
reboot	ng.net for offline dockers installation option.

Step 24: Go to section 4 to obtain a license for EVE-NG Professional

- IMPORTANT NOTE: If your Network interfaces order has been changed, please follow instruction to section 16.6
- 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 OVF deployment

- ▲ **IMPORTANT NOTE:** Make sure that you have set Security Policy (Promiscuous mode, forged transmits and MAC changes) settings on the vSwitch and Port group to Accept.
- IMPORTANT NOTE: For EVE VMs running on ESXi, with NIC Teaming Network, please follow the steps below to edit the reverse path settings
 - From the Navigator window select Manage > System > Advanced settings.



- Scroll down or use the search bar to go to the Net.ReversePathFwdCheckPromisc option.
- Select Net. ReversePathFwdCheckPromisc and click Edit option.
- In the Edit option Net. ReversePathFwdCheckPromisc window update the New value field to 1 and click Save.
- ▲ **IMPORTANT NOTE:** For EVE VMs running on ESXi, with NIC Teaming Network, managed by *vCenter and VDS Network* please follow the steps below to edit the reverse path settings
 - From the Side Inventory select the ESXi host where the EVE VM is installed Configure > System > Advanced System Settings.
 - Edit Advanced System Setting
 - Scroll down to find **Net**. **ReversePathFwdCheckPromisc** option.

Net.ReversePathFwdCheckPromisc 1

- In the Edit option Net. ReversePathFwdCheckPromisc window update the New value field to 1 and click Save.
- Reboot ESXi host
- Select the VDS Workgroup used for EVE VM networking
- Edit VDS Workgroup security setting to allow promiscuous traffic

Distributed Port Group - Edit Settings DPortGroup-VLAN10

Traffic shaping	Forged transmits	Accept ~
Security		
VLAN	MAC address changes	Accept ~
Advanced	Promiscuous mode	Accept ~
General		

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

3.2.2.1 ESXi OVF VM Setup and Settings

vmware' esxi'			Create/Register VM	Step 2: Set option Deploy a virtual ma from an OVF or OVA file	achine
To Navigator	- 0	localhost.localdomain		P2 New virtual machine	
Monitor	2	State: Normal Uptree: 30.53 c	Ipdate 2 (Build 4600944) # (not connected to any vCenter Server)	Select orange to the work of the transmission of the select orange	
datastore1 More storage		- Hardware			
• 😥 Networking	13	Manufacturer	Dell Inc.		
	_	Model	PowerEdge R610		
		> 🖬 CPU	12 CPUs x Intel(R) Xeon(R) CPU X5680 @ 3.33GHz		
		Memory	95.99 GB		
		> 🄚 Virtual flash	0 B used, 0 B capacity		
		* 👥 Networking			
		Hostname	localhost localdomain		
				vmware Bac Net Fred	Cancel



Step 3: Type the name for your new EVE VM and browse to select all your downloaded and unzipped EVE files .		Step 4: Select the storage where your EVE VM will be deployed.						
1 New virtual machine - EVE-PRO-1		 1 Select creation type 2 Select OVF and VMDK files 3 Select storage 	Select storage Select the datastore in which to store the	he configuration and disk files.				
 1 Select creation type 2 Select OVF and VMDK files 3 Select storage 	Select OVF and VMDK files Select the OVF and VMDK files or OVA for the VM you would like to deploy	Shelts Storage 4 License agreements The following datastores are accessible from the destination resource that y 5 Deployment options The virtual machine configuration files and all of the virtual disks.				ted. Select the desti	nation datast	tore for
4 License agreements 5 Deployment options	Enter a name for the virtual machine.	6 Additional settings 7 Ready to complete	Name	~ Capacity ~ Free	~ Type	 Thin pro 	Access	~
6 Additional settings	EVE-PRO-VM		datastore1	264.75 GB 234.02 G		Supported	Single	
7 Ready to complete	Virtual machine names can contain up to 80 characters and they must be unique within each ESX instance.		HDD_A HDD_B	930.75 GB 471.63 G 930.75 GB 149.61 G		Supported Supported	Single	
	× ■ EVE-PRO-VM.ovf × EVE-PRO-VM-0.vmdx	vm ware [,]					3 8	ms
vm ware [®]					Back	Next	ish Ci	ancel
	Back Rest Printh Carcel							

Step 5: Select your Management network and Thick Disk provisioning . EVE OVF HDD is only 40Gb large. It is recommended after installation to add extra HDD. Section 15.3			Step 6: IMPORTANT Open VM Settings. Set the quantity of CPUs and number of cores per socket. Set Intel VT-x/EPT Hardware Virtualization engine to ON (checked).							
1 New virtual machine - EVE-PRO				🔂 Edit settings - EVE-PRO (ESXi	6.0 virtual machine)					
 1 Select creation type 2 Select OVF and VMDK files 3 Select storage 4 Deployment options 5 Ready to complete 	Deployment options Select deployment options			Virtual Hardware VM Options						
	Network mappings	Management 90 UD Manag	ment 90 LID	🛄 Add hard disk 🗰 Add network adapter 🛛 🚍 Add other device						
				- 🖬 CPU						
	Disk provisioning	O Thin ® Thick		Cores per Socket	1 • Sockets: 24					
				CPU Hot Plug	Enable CPU Hot Add					
				Reservation		•	MHz	•		
				Limit	Unlimited	•	MHz	×		
				Shares	Normal	•		¥		
				Hardware virtualization	ation Expose hardware assisted virtualization to the guest OS ()					
vm ware				Performance counters	Enable virtualized CPU	performar	nce counte	rs		
				Scheduling Affinity	Hyperthreading Status: Act	tve		~		
			Back Next Finish Cancel					Save Cancel		

Step 7: Set du		Step 8: Power ON your EVE VM and follow Management IP setup instructions described in section 3.5.1 for Static IP or 3.5.2 for DHCP IP.
P CPU	24 • ()	
- Memory		
RAM	32 GB 🔻	
Reservation	Reserve all guest memory (All locked)	
Limit	Unlimited	
Shares	Normal • 1000 •	
Memory Hot Plug	Enabled	
► 🔚 Hard disk 1	40 GB ¥ © v	
	Save Cancel	



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

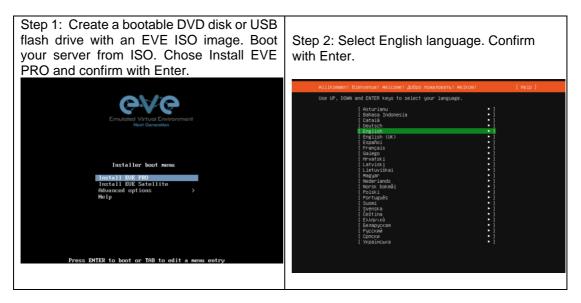
- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 16
- 3.2.2.2 ESXi OVF VM update to the latest EVE version

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

- 3.2.2.3 ESXi OVF VM HDD Size expansion
 - NOTE: IMPORTANT! DO NOT expand the current EVE OVF HDD. To expand your EVEs system disk size, please follow the troubleshooting section 15.3
 - IMPORTANT NOTE: If your Network interfaces order has been changed, please follow instruction to section 16
- 3.3 Bare hardware (BM) server installation
- 3.3.1 BM Server installation EVE ISO
 - Mandatory Prerequisites: Internet must be reachable from your Server. This ISO installation requires internet access to get updates and install the latest EVE-PRO version from the EVE-NG repository. DNS must resolve names!

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

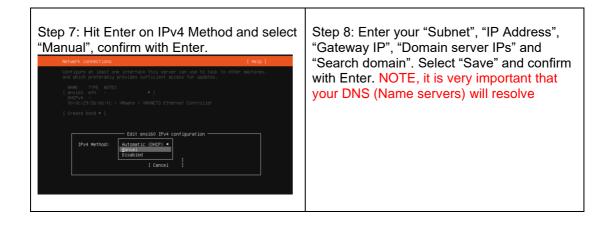
Phase 1 (Ubuntu installation)



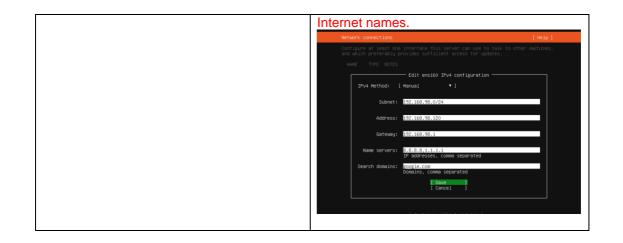


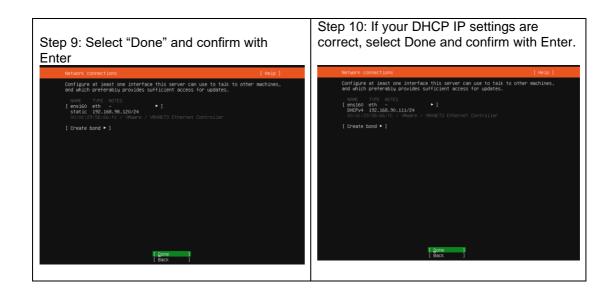
Step 3: Make sure if English U selected and confirm with Ente		Step 4: If your network has DHCP ENABLED, Continue to Step 10
Keyboard configuration	[Help]	
Please select your keyboard layout below, or select "Id detect your layout automatically.	entify keyboard" to	
Layout: [English (US)	• 1	
Variant: [English (US)	• 1	
[Identify keyboard]		
(i gone) (Back)		

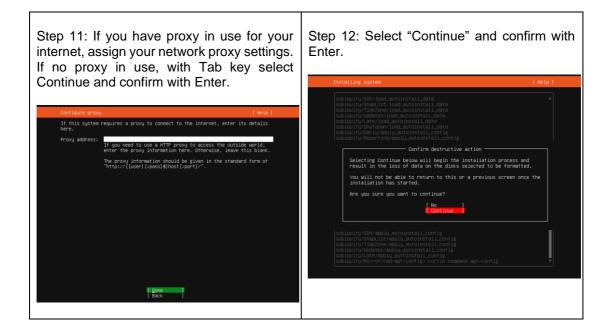
Step 5: If your network has not DHCP . Static IP setup. If you have not enabled DHCP in the network, you must assign an IP address manually. Use arrow UP key to	Step 6: Confirm interface selection with Enter, select "Edit IPv4" and confirm with Enter again.
select your interface for IP	Network connections [Help]
address.assignment.	Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates.
Select your interface for if address.assignment. Network concection	Image: Second
[Continue without network] [Back.]	













EVE VM Installation Phase 2 (EVE installation)



and confirm Continue with Enter, EVE VM will reboot and continue Phase 2 installation [raited] Failed unmounting /cdrom. [raited] Failed unmounting /cdrom.	vi 20 17:24:18 cloud-init: 3072 SHR255:LUHIAGROWIT2J03084F493IMT5P/J11g3IhV0ha rooteeve-ng vi 20 17:24:18 cloud-init: several EUS SH H02T KY F THEERRENTS
--	---

EVE Installation Phase 3 (Management IP setup and updates)

Step 17: After the installation is completed, reboot EVE and login as root first time: root/eve. Follow the Management IP setup instructions in section 3.5.1 . It is strongly recommended for bare-metal installations to use a static IP address.	Step 18: After your EVE is rebooted, Login to EVE CLI and type:
	apt update apt upgrade



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

<pre>root@eve-ng:~# dpkg -l eve-ng-pro Desired=Unknown/Install/Remove/Purge/Hu Status=Not/Inst/Conf-files/Unpacked/3 / Err?=(none)/Reinst-required (Status)</pre>	halF-conf/Half-inst/t	trig-aWait/Trig-	pend
/ Name	Version		Architecture
Description			
+++-===================================			
			=
ii eve-ng-pro	5.0.1-20	amd64	A
new generation software for networking	labs.		
root@eve-ng:~#			

Step 19: IMPORTANT After update, Step 18 is completed, continue with type:	Step 20: (Optional) If after dockers first install (Step 19) in the output "dc images" you still seeing some docker name in the list as <none>,</none>
apt install eve-ng-dockers	root@vve-ng:"# dc images REPOSITORY TAG IMAGE ID CREATED SIZE <none> cc286e6ac274 16 seconds ago 1.87GB</none>
This can take some time depending on your Internet connection and disk speed.	<pre>eve_gii.acrvet latest flaasGo09356 3 minutes apo 3.34GB www_liepMark latest 6384d7f5b01 3 minutes apo 837MD www_liepfox latest 25933d7b07 3 minutes apo 1.900 www_leartop latest 78972d7b07 3 minutes apo 2.7903</pre>
	please run the command:
Your output after install must look like:	apt installreinstall eve-ng-dockers
root@eve-ag:"# dc images REFOSITORY TÃO IMAGE ID CREATED SIZE eve-desktop latest cal333621bd7 12 hours ago 3.6508 eve-eirefox latest 04016679e17 2 days ago 3.6508 eve-eirefox latest 02660108.bb 7 weeks ago 2.1208 eve-eirefox latest 022661083.bb 7 weeks ago 1.5608 root@eve-agi:#	NOTE: If you are installing EVE in the locked environment and cannot install dockers online, please contact with us: <u>info@eve-</u> ng.net for offline dockers installation option.
dc images	

Step 21: Continue to section 4 to obtain	
your EVE-NG Professional license	

- IMPORTANT NOTE: If your Network interfaces order has been changed, please follow instruction to section 16
- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 16
- 3.3.2 BM Server Installation Ubuntu legacy ISO
 - Mandatory Prerequisites: Internet must be reachable from your Server. This ISO installation requires internet access to get updates and install the latest EVE-PRO version from the EVE-NG repository. DNS must resolve names!

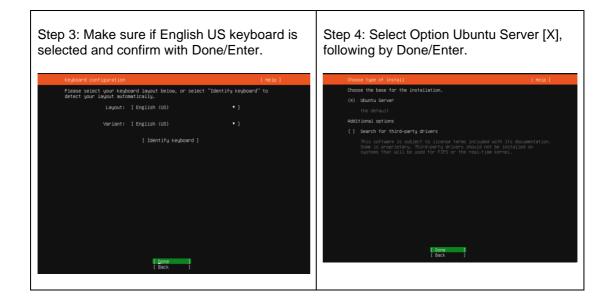
Download Ubuntu Legacy Server installation image/ISO <u>https://releases.ubuntu.com/focal/</u>

Phase 1 (Ubuntu installation)

Step 1: Create a bootable DVD disk or USB	
flash drive with an Ubuntu server image. Boot	Step 2: Select Option Update to the new
your server from ISO. Select English	installer, following by Enter.
language. Confirm with Enter.	



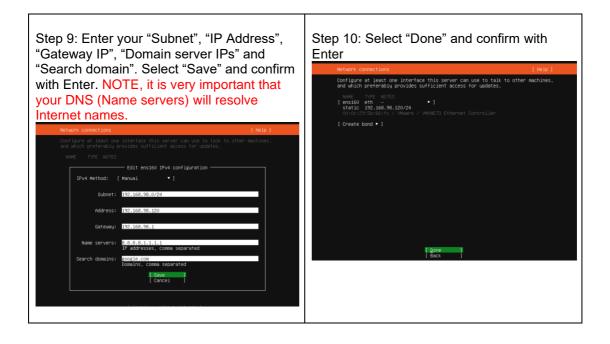
	[Help]		
Use UP, DOWN and ENTER keys to select your language.		Version 23.02.1 of the installer is now available running).	(22.07.2 is currently
[Asturianu [Bahasa Indonesia		You can read the release notes for each version at	
[Català		https://github.com/canonical/subig	uitu/releases
[Deutsch Filler		If you choose to update, the update will be downlo	
[English (UK)	1	will continue from here.	aueu anu (ne installation
[Español [Français	1		
[Galego 🕨	1		
[Hrvatski [Latviski ►	1		
[Lietuviškai 🕨	1		
[Magyar [Nederlands	1		
[Norsk bokmål 🕨 🕨	i		
[Polski [Português	1		
[Suomi	i		
[Svenska [Čeština	1		
[Ελληνικά	i		
[Беларуская [Русский	1		
[Српски			
[Українська	1		
		[<u>U</u> pdate to the new instal	ler]
		[Continue without updatin [Back	g]
		L DOON	



Step 5: If your network has DHCP ENABLED , Continue to Step 11	Step 6: If your network has not DHCP. Static IP setup. If you have not enabled DHCP in the network, you must assign an IP address manually. Use arrow UP key to select your interface for IP
--	---

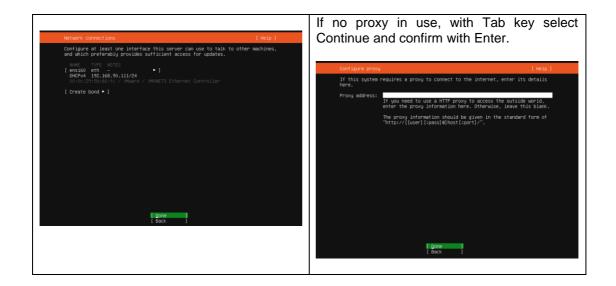


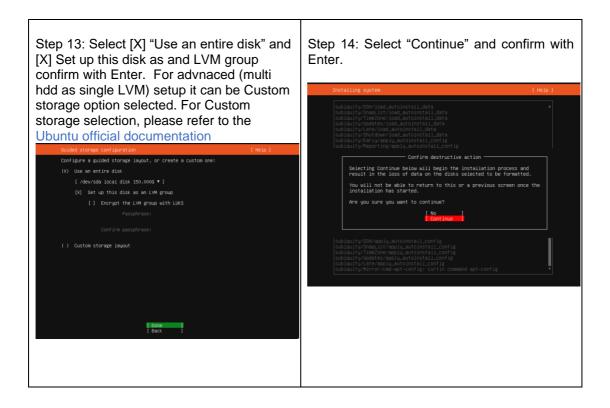
unk connections [Help] gure at least one interface this server can use to talk to other machines, hich preferably provides sufficient access for updates.
er Trope NoTES } Pe4
<pre>[Continue without network] [Eack</pre>
B: Hit Enter on IPv4 Method and "Manual", confirm with Enter.
ork connections [Help]
igure at least one interface this server can use to talk to other machines, which preferably provides sufficient access for updates.
eE TYPE NOTES 1400 eth
Edit ensi60 IPv4 configuration



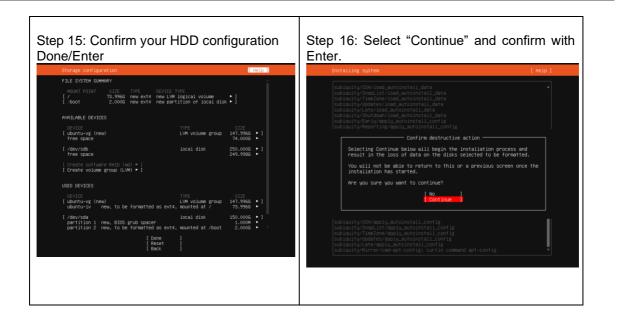
Step 11: If your DHCP IP settings are	
	Step 12: If you have proxy in use for your
	internet, assign your network proxy settings.









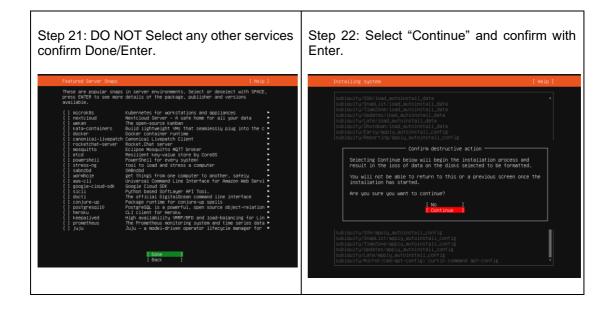


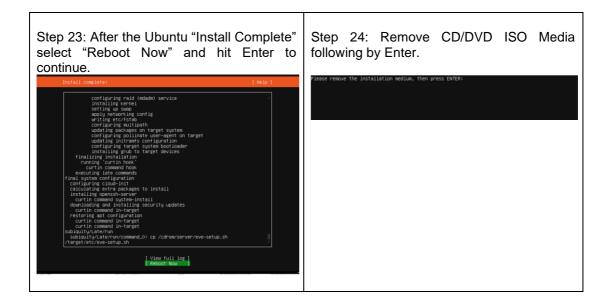
Step 17: Fill the non-root user profile following by Done/Enter	Step 18: Skip Ubuntu Pro installation Continue confirm with Enter.
configure SSH access on the next screen but a password is still needed for sudo.	Upgrade to Ubuntu Pro [Help]
Your name: eveuser	Upgrade this machine to Ubuntu Pro for security updates on a much wider range of packages, until 2022. Assists with FedRMMP, FIPS, STIG, HIPAA and other compliance on hardening requirements.
Your server's name: <u>eve-ng</u> The name it uses when it talks to other computers.	[About Ubuntu Pro ▶]
Pick a username: eveuser	() Enable Ubuntu Pro
Choose a password: ########	(X) Skip for now
Choose a password: www.wax	You can always enable Ubuntu Pro later via the 'pro attach' command.
Confirm your password: *******	
	[Continue] [Back]

Stop 10: Soloct [V] "Install OpenSSU	Step 20: Select "Continue" and confirm with
Server" and confirm Done/Enter.	Enter.

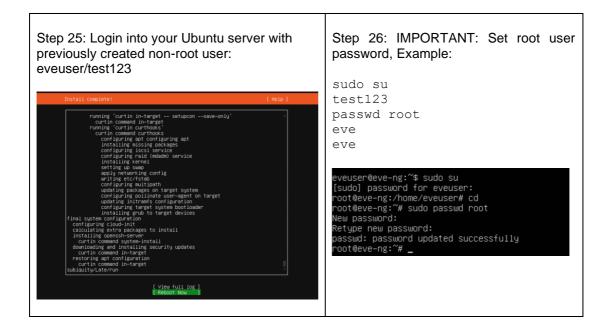


You can choose to install the OpenSSH server package to enabl access to your server. [1] Install OpenSSH server Import SSH identity: [No		<pre>sublquity/SSV/load_autoinstall_data sublquity/SmapList/load_autoinstall_data sublquity/SimeZont load_autoinstall_data sublquity/pdates/load_autoinstall_data sublquity/Apatdoautoinstall_data sublquity/Sartdoautoinstall_data sublquity/Sartdoautoinstall_data sublquity/Sartdoautoinstall_contig sublquity/Sartdoautoinstall_contig</pre>
Import SSH identify: [No •] You can import your SSH keys from GitHe Import Username:	ub or Launchpad.	sublquity/ImeZone/Load_autoinstall_data sublquity/Load_autoinstall_data sublquity/Load_autoinstall_data sublquity/Sutdown/Load_autoinstall_data sublquity/Sutdown/Load_autoinstall_data
	ub or Launchpad.	subiquity/Late/load_autoInstall_data subiquity/Shutdown/load_autoInstall_data subiquity/Early/opply_autoInstall_config
		Confirm destructive action
		Selecting Continue below will begin the installation process and result in the loss of data on the disks selected to be formatted.
		You will not be able to return to this or a previous screen once the installation has started.
		Are you sure you want to continue?
		[No] [Continue]
		subiquity/SSH/apply_autoinstail_config subiquity/SSH/apply_autoinstail_config subiquity/Instarter/apply_autoinstail_config subiquity/Instarter/apply_autoinstail_config subiquity/Aito/config.autoinstail_config
[Done] [Back]		sublauty/Mirror/cmd-apt-config: eurtin command apt-config •









Step 26: Allow permissions for root administrator user SSH to your server.	Step 27: IMPORTANT: Set root user password, Example:
<pre>nano /etc/ssh/sshd_config Edit to: PermitRootLogin yes ctrl+o Enter for save crlr+x for exit restart ssh service service sshd restart * **********************************</pre>	<pre>sudo su test123 passwd root eve eve eve eveuser@eve-ng:~\$ sudo su [sudo] password for eveuser: root@eve-ng:/home/eveuser# cd root@eve-ng:~# sudo passwd root New password: Retype new password: passwd: password: password updated successfully root@eve-ng:~# _</pre>



EVE Installation Phase 2 (EVE installation)

Step 28: SSH to your EVE IP using Putty or other SSH client. Log in as root user execute:	
apt update	
apt upgrade	
Step 29: Run EVE Pro online installation script. (it is single lin	e command below)
<pre>wget -0 - https://www.eve-ng.net/focal/instal</pre>	l-eve-pro.sh bash -i
At the end of eve server installation, reboot eve	

EVE Installation Phase 3 (Management IP setup and updates)

Step 30: After reboot SSH to your EVE IP as root and Setup EVE Management IP address. A Static IP address for BM setup is preferred.	Step 31: After your EVE is rebooted, Login to EVE CLI and type:
Follow steps in section : 3.5.1 for static IP, 3.5.2 for DHCP IP	apt update apt upgrade

Т

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

<pre>root@eve-ng:~# dpkg -l eve-ng-pro Desired=Unknown/Install/Remove/Purge/Hd Status=Not/Inst/Conf-files/Unpacked/I / Err?=(none)/Reinst-required (Status) / Name Description +++-==================================</pre>	halF-conf/Half-inst/tr	ig-aWait/Tri	g-pend Architecture
<pre>ii eve-ng-pro new generation software for networking root@eve-ng:~#</pre>	5.0.1-XX labs.	amd64	-=== A

Step 32: IMPORTANT After update, Step 32 is completed, continue with type:	Step 33: (Optional) If after dockers first install (Step 32) in the output "dc images" you still seeing some docker name in the list as <none>,</none>
apt install eve-ng-dockers	REPOSITORY TAG INAGE ID CREATED SIZE (none) co286e6ac274 16 seconds ago 1.87GB eve-qui-server latest f3aa6e0e9a56 3 minutes ago 3.04GB
This can take some time depending on your Internet connection and disk speed.	eve-ditembark latest 638ed7cf5b80 12 minutes app 887MB eve-fire(x) latest 255290707 13 minutes app 1.49GB eve-deaktop latest 78e9c2e61885 15 minutes app 2.79GB
	please run the command:
Your output after install must look like:	apt installreinstall eve-ng-dockers

٦



root@eve-ng:"# dc images REPOSITORY TAO CALL CALL CALL CALL CALL CALL CALL CA	NOTE: If you are installing EVE in the locked environment and cannot install dockers online, please contact with us: <u>info@eve-</u> ng.net for offline dockers installation option.
dc images	ng.net for online dockers installation option.

Step 34: Continue to section 4 to obtain your EVE-NG Professional license	

- IMPORTANT NOTE: If your Network interfaces order has been changed, please follow instruction to section 16.6
- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 16

3.4 Google Cloud Platform

3.4.1 Google account

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

⊗ Getting startid=Coogle Coui x +	- a ×
$(\overleftarrow{\bullet}) \rightarrow @ \texttt{ (a) } = \texttt{https://console.cloud.google.com/getting-started} \qquad \cdots \boxdot \bigstar$	lin\ © ≡
Your free trial is waiting: activate now to get \$300 credit to explore Google Cloud products. Learn more	DISMISS ACTIVATE
	🗊 🔮 SIGN IN
Get Started with Google Cloud Platform 12 month, S300 free trial to get you started. Always Free products to keep you going ITY FOR FREE	

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

3.4.2 Goggle Cloud project

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

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

	Google Cloud Platform	Select a project 👻	Q Search resources and products	
				•
Ste	p 2. Next pop	up window, c	lick "NEW PROJECT"	
	ect a project	1 <i>,</i>	NEW PROJECT	
٩	Search projects and folders ——			
REC	CENT ALL			
	Name		ID	
✓ \$	 My First Project Ø 		t-dragon-238421	



Step 3. Enter your project name, and confirm "CREATE"		
\equiv Google Cloud Platform	٩	Search resources and products
New Project		
 You have 22 projects remaining in your quota. Request an increase or delete projects. <u>Learn more</u> MANAGE QUOTAS 		
Project name * EVE Test		
Project ID: eve-test-276509. It cannot be changed later. EDIT Location * BROWSE BROWSE		
Parent organisation or folder CREATE CANCEL		
This will take some time.		

3.4.3 Preparing Ubuntu boot disk template

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

	Google Cloud Platform	EVE Test ▼ Q Search resources and products	-		2	÷ 🙆
۲	Compute Engine	VM instances		Activate Cloud Si	ell	
A	VM instances					
	Google Cloud Platform	EVE Test Q Search Products, resources, docs (/)	``	2	• ?	: U
٢	Compute Engine	VM instances CREATE INSTANCE LIMPORT VM CREFRESH > START/RESUME		HELP ASSISTANT	SHOW I	NFO PANEL
Virtual	machines	Filter Enter property name or value			0	
A	VM instances	□ Status Name ↑ Zone Recommendations In use by Internal IP External IP Connect				
臝	Instance templates					
日	Sole-tenant nodes					
固	Machine images					
8	TPUs	$\mathcal{A}(\mathcal{A})$				
%	Committed-use discounts					
*	Marketplace					
Ē	Release notes	•				
<		VM instances				
2	CLOUD SHELL Terminal (eve-test-27650) x + ·	Open editor	* • - :	\$	⊠ ×
(our C. Jse "g	e to Cloud Shell! Type "hel loud Platform project in th	* to get started, eve-test-376509 . GNGCF 1D! to change to a different project.				_

Step 2: create a nested Ubuntu 20.04 image model. Copy and paste the below command into the shell. Use copy/paste. crtl +c/ctrl +v. **It is single line command**. Confirm with "enter":

gcloud compute images create nested-ubuntu-focal --source-imagefamily=ubuntu-2004-lts --source-image-project=ubuntu-os-cloud --licenses



https://www.googleapis.com/compute/v1/projects/vmoptions/global/licenses/enable-vmx

Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to ever-test-275509. Use "geloud config set project [PROXET ID]" to change to a different project.
udis dzerkalskioudokali: (previst-275509) \$ pcloud compute images create nested-ubuntu-focalsource-image-family-ubuntu-2004-ltssource-image-project-ubuntu-os-cloudlicenses https://
www.googleapis.com/compute/v1/projects/vm-options/global/licenses/enable-vmx
You will get the following output when your image is ready:
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to ever-test-276509. Use "ecloud config set project FROXET IDI" to change to a different project.
uldis_dzerkals@cloudshell:~ (eve-test-276509)\$ gcloud compute images create nested-ubuntu-focalsource-image-family-ubuntu-2004-ltssource-image-project-ubuntu-os-cloudlicenses https://
www.googleapis.com/compute/v1/projects/vm-options/global/licenses/enable-vmx
Created [https://www.googleapis.com/compute/v1/projects/eve-test-276509/global/images/nested-ubuntu-focal]. NMME: nested-ubuntu-focal
PROJECT: eve-test-276509
FAILUY
DEPRECATED:
uidis dzerkals@cloudshell:~ (eve-test-276509)\$

3.4.4 Creating VM

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

₹	Google Cloud Platform	🕹 EVE Test 👻			2.	0 2	: 🔒
♠	Home	M instances					
۲	Compute Engine 🕴 🔻	VM instances					
٢	Kubernetes Engine >	Instance groups					
()	Cloud Functions	Instance templates	Compute Engine VM instances				
		Sole-tenant nodes	VMInstances				
)≽	Cloud Run	Machine images	Compute Engine lets you use virtual mach	hines that run on Google's			
STOR	AGE	Disks	infrastructure. Create micro-VMs or larger Windows or other standard images. Creat	r instances running Debian,			
	NOL	Snapshots	import it using a migration service or try to sample app.				
Ŵ	Bigtable	Images					
522	Datastore >	TPUs	Create or Import or Take the	quickstart			
ŝ	Firestore >	Committed use discounts					

Step 2: Assign the name for your VM

Step 3: Set your own region and zone

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

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



Name * eve-pro1			0
Labels 😯			
+ ADD LABELS			
Region *		ne *	- 0
europe-west2 (London) Region is permanent		rope-west2-c ne is permanent	• 0
Machine configu	Iration		
Machine family			
GENERAL-PURPOSE	COMPUTE-OPTIMISED	MEMORY-OPTIMISED	GPU
Machine types for commor	n workloads, optimised for c	ost and flexibility	
Series N2			•
Powered by Intel Cascad	e Lake and Ice Lake CPU pla	tforms	
A Machine type			
n2-standard-4 (4 vCPU,	16 GB memory)		•
	vCPU	Memory	
	4	16 GB	
CPU PLATFORM AND	GPU		
Display device			
Enable to use screen captu	ring and recording tools.		
Enable display device	e		
en 6. Select Boo	t disk. Press Char	nae	

Boot disk 🛛

CHANGE	
Image	😯 Debian GNU/Linux 11 (bullseye)
Size	10 GB
Туре	New balanced persistent disk
Name	eve-com-5

Step 7. Select Custom images, Select Project (EVE-test) and the *custom boot images you created previously*. Choose HDD disk type and size. HDD size can vary depends of your needs.



Boot disk

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

PUBLIC IMAGES	CUSTOM IMAGES	SNAPSHOTS	EXISTING DISKS
SELECT A PROJECT			
Show images from: EVE Te	st		
Show deprecated	images		
Image *			
nested-ubuntu-focal			•
Created on 21 May 2022,	10:10:47		
Boot disk type *	Size	e (GB) *	
	- 50		

Step 8: Allow https traffic and create VM

CANCEL

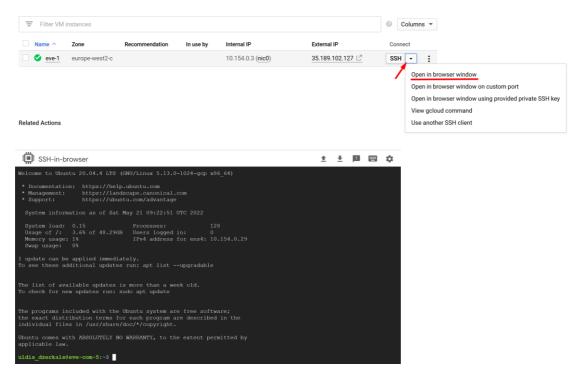
Identity and API access 🛛
Service accounts ?
Compute Engine default service account
Requires the Service Account User role (roles/iam.serviceAccountUser) to be set for users who want to access VMs with this service account. Learn more
Access scopes 😮
Allow default access
Allow full access to all Cloud APIs
O Set access for each API
Firewall 🛛
Add tags and firewall rules to allow specific network traffic from the Internet Allow HTTP traffic

Allow HTTPS traffic

3.4.5 EVE-NG Pro installation

Step 1: Click VM Instances to get access SSH to your VM, Connect to the VM with the first option "Open in browser window"





Step 2: Launch installation with:

Type the below command to become root: sudo -i

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

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

apt upgrade **Confirm with Y**

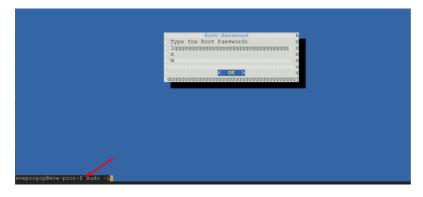
Step 4. Reboot EVE. Allow some time for reboot and then press "Reconnect"



Step 5: IMPORTANT: Setup IP

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





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

Step 6: Reboot

Step 7: Dockers installation. After EVE is rebooted, reconnect the SSH session:

Type command to become root: sudo -i

Type command to update EVE apt update

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

root@eve-ng:~# do	: images			
REPOSITORY	TĀG	IMAGE ID	CREATED 50 GB	
eve-desktop	latest	ca1333621bd7	12 hours ago	3.65GB
eve-gui-server	latest	9db19c879a17	2 days ago USB 2.0	3.84GB
eve-firefox	latest	0266d108a1bb	7 weeks ago	2.12GB
eve-wireshark	latest	82a009773e89	17 weeks ago VM Manar	1.56GB
mont Borro-na . ~ #				

3.4.6 Access to Google Cloud EVE-PRO

Use your public IP for accessing EVE via https.

= Filter VM in	stances					0	Colum	ns 🔻
Name ^	Zone	Recommendation	In use by	Internal IP	External IP	Cor	nect	
🗌 🥑 eve-pro	europe-west2-	-c		10.154.0.2 (nic0)	35.246.119.90 🗋	SSI	н -	:



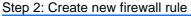
Emulated Virtual Environment Next Generation	
5.0.1-7-PRO	
Sign in to start your session	
Username	16
Password	6
Native Console	~
Sign In	

Default web login: admin/eve

3.4.7 Optional: GCP Firewall rules for native console use

	Google Cloud Platfo	-		
â	Home		M instances	CREATE IN
T STOR	Pins appear here 🔞	×	Filter VM instances	
	Bigtable		Name A Zone	Recomm
	Datastore	>	🗌 🤡 eve-pro europe-v	vest2-c
{ (^	Firestore	>		
	Storage	>		
	SQL			
ale.	Spanner			
2	Memorystore			
	Filestore			
NETW	ORKING			
н	VPC network	>	VPC networks	
æ	Network services	>	External IP addresses	
•	Hybrid Connectivity	> -	Firewall rules Routes	
0	Network Service Tiers		VPC network peering	
Stop	2: Create new fi			

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







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

	e a firewall rule
	ontrol incoming or outgoing traffic to an instance. By default, r from outside your network is blocked. Learn more
Name 🕜	
ingress-eve	
Direction of traff Ingress Egress	c 🖗
Action on match	0
Allow Deny	
Targets 🕜	1
All instances ir	n the network
Source filter 💿	•
Source IP ranges	
0.0.0.0/0	
Second source fi	lter 😨
	lter 🕖 👻
Second source fi None Protocols and po Allow all	•
Second source fr None Protocols and po Allow all Specified pr V top :	orts @ otocols and ports 0-65535
Second source fi None Protocols and po Allow all Specified pr Tcp : udp :	orts ② otocols and ports 0-65535 all
Second source fi None Protocols and po Allow all Specified pr Top : udp : Other p	orts ② otocols and ports 0-65535 all

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





Action on match Allow Deny	0	
Targets 🕜		
All instances in	the network	-
Destination filter	0	
IP ranges		-
Destination IP rai	nges 🔞 🔔	
0.0.0/0 🔞		
Protocols and po Allow all	rts 💿	
Opecane provide pro	0-65535	
udp:	all	
Other pi		
	cols, comma separated, e.g. ah, sctp	
pioto	cois, comina separatea, e.g. an, scip	

Summary FW rules.

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

3.5 EVE Management IP Address setup

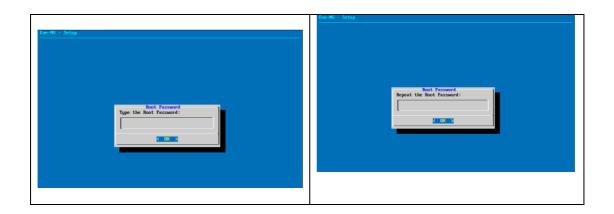
3.5.1 Management static IP address setup (preferred)

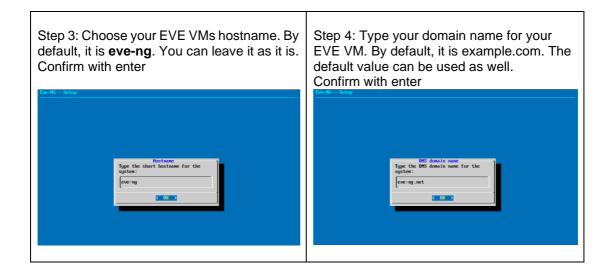
▲ IMPORTANT NOTE: EVE Docker stations for html console access are using network 172.17.0.0/16. Please avoid use this network on the EVE management or other clouds or interfaces.

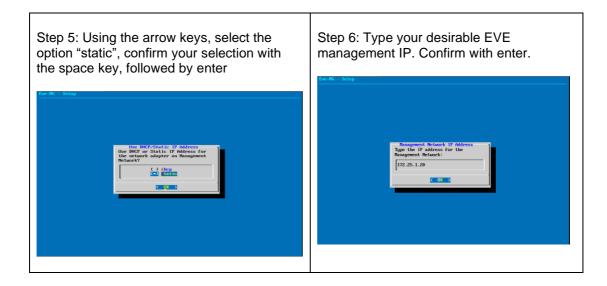
The steps below will walk you through the network setup and assign a static management IP for EVE.

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



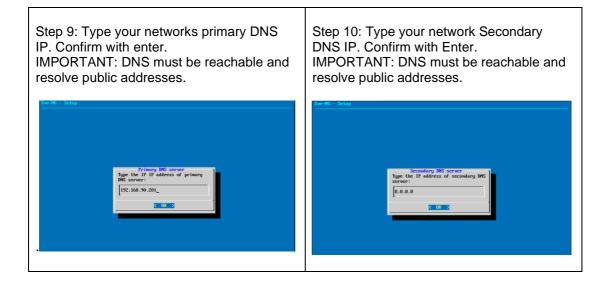


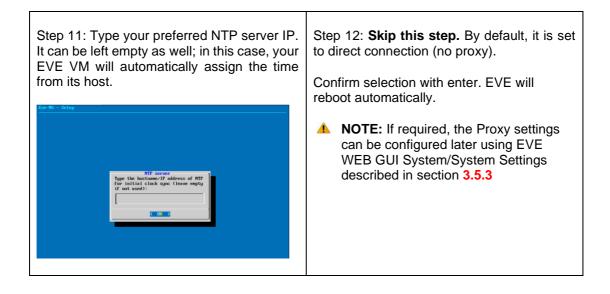




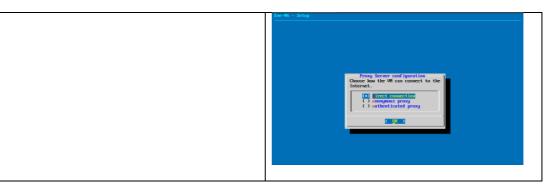


Step 7: Type the subnet mask of your EVE management network. Confirm with enter.	Step 8: Type your networks gateway IP. Confirm with enter.
Reagement Hetaurk Sobact Hask	Twe HG - String
Tage the Subact Rask for the	Tensorement Returnsk Default Gateway
Rangement Hetaurk Sobact Hask	Tanagement Network:
255,255,0	[172.25.1.1_
255,255,0	C 0K >







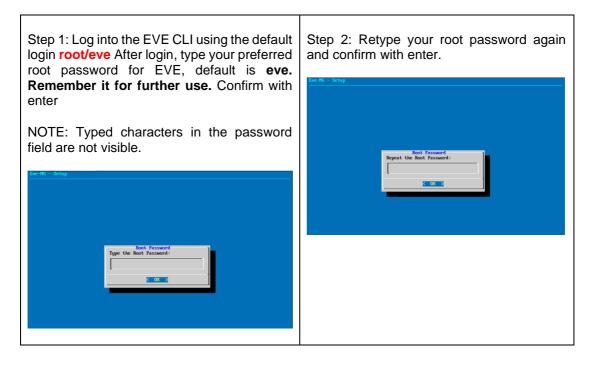


IMPORTANT NOTE: If you are setting up your management IP for the first time (fresh EVE installation), please return to the install section and complete installation Phase 3.

3.5.2 EVE Management IP address setup via DHCP

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

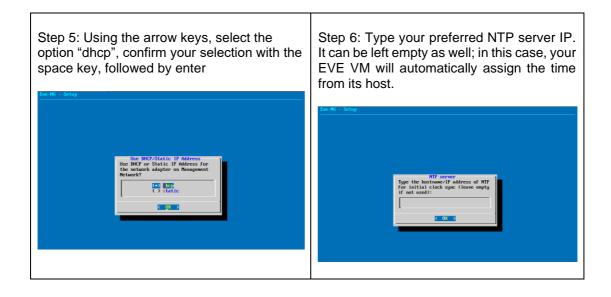
The steps below will walk you through the network setup and assign a management IP for EVE via DHCP.



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



Eve-NG - Setup	Eve-NG - Setup
Type the short hostsame for the system: eve-mg	Type the DPS domain name Type the DPS domain name for the sputter: eve-ng.net (0.021 p)



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



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

3.5.3 Internet proxy setup

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

Default username: admin Password: eve

Step 2: Select Tab: System/System Settings

		🎢 Main	🖋 Management 🗸	🖻 System 🗸	Information	mation •	🚯 Licensing 🗸	©2019 Eve-NG
📥 File manag	er Current po	sition / root			n Settings Istatus			
New Name				 System X Stop Al 		Add fold	er	

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

System settings						
Radius Server #1	IP		Port		Secret	
	0.0.0.0		1812	\$	•••••	
Radius Server #2	IP 0.0.0.0		Port 1812	٢	Secret	
	0.01010		1011			
Proxy Server	IP	Port		User	Passwo	rd
	0.0.0.0	8080	•			
Template visibility Disk critical size	unprovisioned images Disable Minimal free space (GB)	V	•			
Html 5 terminal setting	Color scheme gray-black \vee Font name monospace Font size 12					
Management Interface setting	Enable IPV6					
					Submit	Cancel



3.5.4 EVE Management IP address reset

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

rm -f /opt/ovf/.configured

Then type:

su -

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

3.6 Native telnet console management setup

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

3.6.1 Windows Native Console

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



|--|

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

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

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

Step 2: Set your default Telnet program:



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

Example: Firefox browser:

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

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

3.6.2 Linux Native Console

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

Step 1: Go to the EVE Linux Side integration pack download page: <u>http://www.eve-ng.net/downloads/linux- client-side</u>	Step 2: Open the link to GitHub https://github.com/SmartFinn/eve-ng- integration
Step 3: Scroll down to the installation part	



Installation

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

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

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

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

sudo apt-get update

sudo apt-get install eve-ng-integration

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

3.6.3 MAC OSX Native Console

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

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

3.7 Login to the EVE WEB GUI

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

https://<your_eve_ip>/

Default user access:

User: admin

Password: eve

- A NOTE: You can change your EVE Admin password, please refer to section 7.3.1.2
- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 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 **32000 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
Editors: 0	128 accounts, but active sessions to the Web GUI are
Users: 0	restricted to the number of purchased licenses.

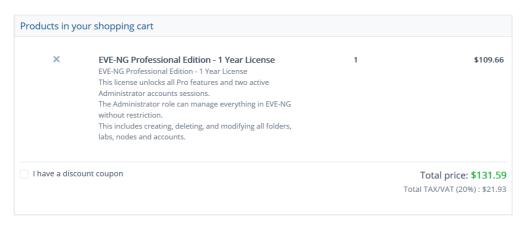
License information	<u>Example2 EVE Learning Centre</u> : The license information page shows 2 Admin and 3 Lab-user role accounts. This means 2 Admin and 3 User accounts can be logged into the
Expirity Date: 20190507 Admins: 2	Web GUI simultaneously. If a fourth User account or third Admin account logs into the Web GUI, the first User or
Editors: 0	Admin session will be disconnected. Started labs will keep
Users: 3	running. EVE-NG Learning Center can have up to 32K accounts, but active sessions to the Web GUI are restricted by the number of licenses purchased.

4.1 EVE-NG Professional Base license

EVE-NG Professional Edition - 1 Year License

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

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



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



4.2 EVE-NG Learning Centre licenses

EVE-NG Learning Centre Edition - 1 Year License

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

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

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

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

EVE-NG PRO – A Base License (Mandatory)

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

The following licenses below can vary per your needs.

EVE-NG PRO - Administrator License

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

EVE-NG PRO – Lab-Editor License



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

EVE-NG PRO – Lab-User License

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

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

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

replaced by an Administrator account instead.
 Five Lab-User role-based Student accounts allowing running a class with 5 simultaneous students connected to the EVE HTML GUI.

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

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

4.3 EVE-NG Corporate licenses

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

EVE-NG Learning Centre Edition - 1 Year License <u>https://www.eve-ng.net/index.php/buy-corporate/</u> EVE-NG Corporate features multi user support and assigns accounts as Administrators or Lab-Editors. The first (mandatory) Base A license allows for 2 simultaneous Admin users. It is necessary



to have an Administrator account to create or manage EVE LC and other user's role-based accounts.

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

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

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

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

4.4 User roles comparison chart

Feature	Administrator Role	Lab-Editor/Teacher role	Lab-User/Student role
User accounts management	yes	no	no
User Accounts visibility	yes	no	no
User edit modal visibility	yes	no	no
User Folder's management	yes	no	no
Full EVE root folder tree			
access	yes	no	no
Licencing module access	yes	no	no
Nodes management module		yes (only own running	yes (only own running
access	yes	nodes)	nodes)
Lab management module		yes (only own running	yes (only own running
access	yes	nodes)	nodes)
Shared lab folder			
management	yes	yes	no
Shared folder access	yes	yes	yes
Rename Folders	yes	yes	no
Create labs	yes	yes	no
Delete labs	yes	yes	no
Edit Custom topology			
mapping	yes	yes	no
Use only Custom topology			
mapping	yes	yes	yes



Lab objects management add text, drawing on labs	yes	yes	no
Export/import labs	yes	yes	no
Nodes list management	yes	yes	yes, read-only
Networks management	yes	yes	yes, read-only
Start labs	yes	yes	yes
Stop labs	yes	yes	yes
Search labs	yes	yes	yes
Wipe nodes	yes	yes	yes
Console to all nodes	yes	yes	yes
Export all configs	yes	yes	no
Edit lab	yes	yes	no
Set nodes startup-cfg to default configset	yes	yes	no
Set nodes startup-cfg to none	yes	yes	no
Topology refresh	yes	yes	yes
Topology zoom	yes	yes	yes
EVE status	yes	yes	yes
Lab details UUID	yes	yes	yes
See startup configs	yes	yes	no
Delete default startup configs	yes	yes	no
Create and manage multiconfig sets	yes	yes	no
Close labs	yes	yes	yes
Lock labs	yes	yes	no
System/Stop all nodes	yes	no	no
Information tab access	yes	yes	yes
Work with more than one lab	yes	yes	yes
Lab timer function	yes	yes	no
Lab background dark mode	yes	yes	yes
Hide node labels	yes	yes	yes
EVE Cluster administration	yes	no	no
EVE Cluster servers' assignment per user	yes	no	no

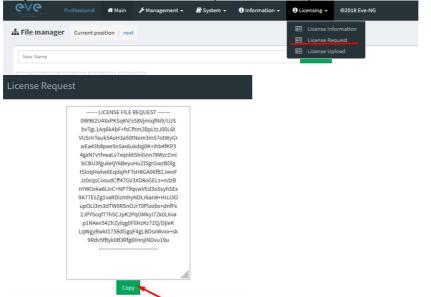
4.5 License purchasing and activation

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

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



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



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

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

EVE-PRO Purchase Portal

EVE-Learning Centre or Corporate Purchase Portal

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





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

Billing Information					
Licen	sed to:	Person Company			
First	name*:				
Last r	name*:				
Addre	ess*:				

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



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

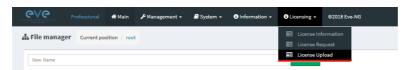
Step 7: After a while (usually 10-30 mins), your license is sent to the E-Mail used in the order form.

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

Step 8: Copy ALL Content of your received License. Important: License key mut include header and bottom lines as well.



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



Paste your licence and click on Upload





4.6 License deactivation

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

▲ Go to EVE CLI and type:

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

4.7 License Rehosting.

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

A Pre-requisites:

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

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

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

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

Step 4. Reboot your new EVE

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

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



5 EVE-NG Professional Update & Upgrade

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

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

ping www.google.com

r	oot@eve-ng:~# ping www.google.com	FIC-R
P	ING www.google.com (216.58.207.228) 56(84) bytes of data.	
6	4 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=1 ttl=58 time=9.11	msern
6	4 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=2 ttl=58 time=19.5	ms
	4 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=3 ttl=58 time=9.50	
6	4 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=4 ttl=58 time=9.56	ms
6	4 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=5 ttl=58 time=9.56	ms

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

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

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

5.1 EVE-NG Professional Update

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

To verify your current EVE-NG version, please follow "CLI diagnostic information display commands" in section **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.

ଜ ∖ଜ	Professional	🖷 Main	Atlanagament -	🖉 System +	O Information +	O Licensing +	@2018 Eve-NG	
System state	us		-	O System o O System i				
Lill. System sta	tus			X Stop All N				
	(90 Orus Namber of					17% Merroy unit Total Memory: 79 Ch.	
						running	IOL nodes	running Dynam
							4	0
							-	ocker nodes O
Qemu version: 2.4.								
Current APT version UKSM status:								
CPULImit status:	CH .							

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



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

Type the below commands followed by Enter

apt update

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

5.2 EVE-NG Professional Upgrade

IMPORTANT NOTE: Make sure you have stopped all your running labs. All nodes in the EVE must be stopped before upgrade!

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

Type commands followed by Enter

apt upgrade

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

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

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

Answer for prompt above is "N"



Configuring grub-pc A new version (/tmp/grub.tj?zRCNt3z) of configuration file /etc/default/grub is available, but the version installed currently has been locally modified.
What do you want to do about modified configuration file grub?
install the package maintainer's version keep the local version currently installed show the differences between the versions show a side-by-side difference between the versions show a 3-way difference between available versions do a 3-way merge between available versions (experimental) start a new shell to examine the situation
<0k>

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

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

reboot

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



6 Types of EVE management consoles

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

EVE Pro supports three different console types.

6.1 Native console



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

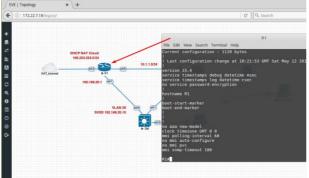
6.1.1 Native Console: telnet

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



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

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





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

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

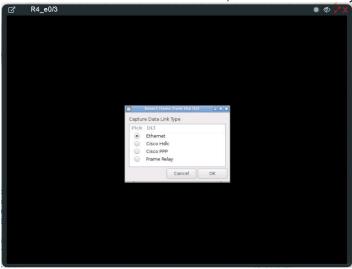
6.1.2 Native Console: Wireshark

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

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

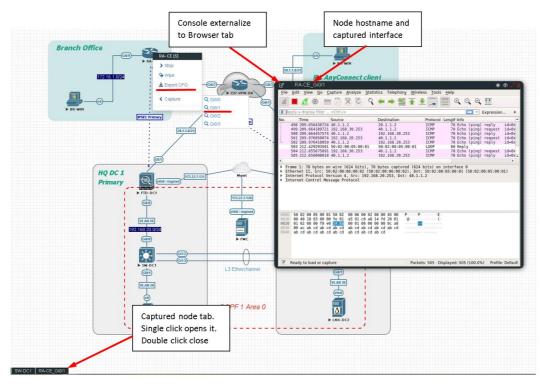
EVE-PRO supports packet captures on ethernet and serial interfaces. Select the interface frame type which will be captured:

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



Integrated HTML RDP for Wireshark capture





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

To save the captured file on your local PC, please refer to section 11.1

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



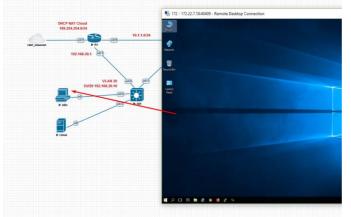
) (i) 172.22.7.18/legacy/			C Q Search	
	DHCP NAT Cloud 100354356.024	Remote View Bookmarks Help	QEMU (Linux) - Remote Deskto	
NAT_jstamet	10.11.024			
		_	000	9

MAC OSX: Preferred VNC program: Chicken VNC

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

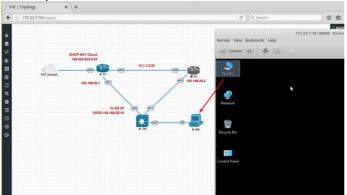
6.1.4 Native Console: RDP

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



Linux OS: Remote Desktop Viewer as RDP session to lab Win10 host.

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



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

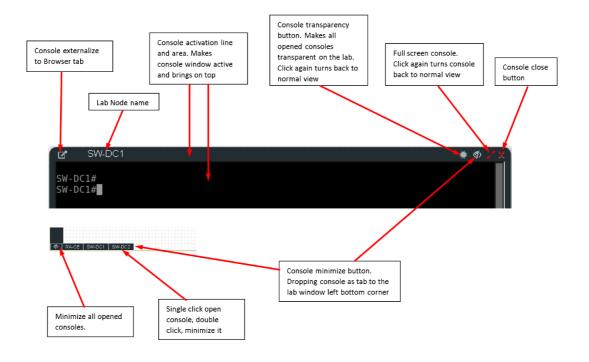


6.2 HTML5 console



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

6.2.1 HTML5 Console window functions



6.2.2 HTML5 Console: Telnet

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



ti ⊫ ⊠ Ⅲ ♡ @ ⊕	Telnet console node name	Switch> Sw	SW2 vitch> vitch> vitch>	• 0	• • •
	[manufacture]	Authen sole node tab, - opens console. :k on tab			
SW1	SW2				

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

Settings × +		
← → C Chrome chrome://settings/content/clipboard		
≡ Settings		
	← Clipboard	
	Ask when a site wants to see text and images copied to the clipboard (recommended)	•
	Block	Add
	No sites added	
		Add
	https://172.22.7.18.443	I

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

← → ♂ ☆	😜 Firefox about:config			
Search: O clipboard				
Preference Name		▲ Status	Туре	Valu
clipboard.autocopy		modified	boolean	true
clipboard.plainTextOnly		modified	boolean	true
devtools.screenshot.dipboard.enabled		default	boolean	false
dom.event.clipboardevents.enabled		default	boolean	true
dom.events.asyncClipb.oard		default	boolean	true
dom.events.asyncClipboard.dataTransf	er	modified	boolean	true
dom.events.testing.asyncClipboard		modified	boolean	true

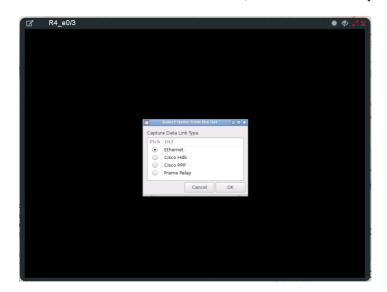
6.2.3 HTML5 Console: Wireshark

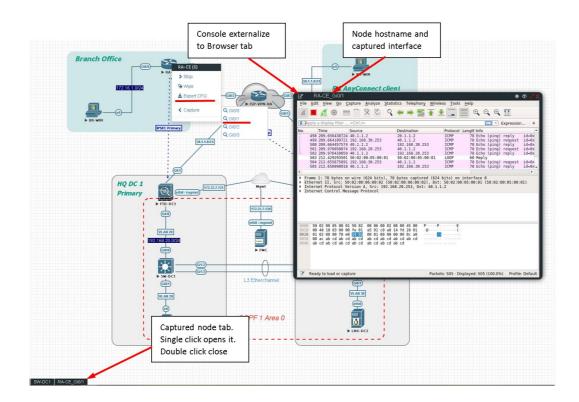
Right click on the node you wish to capture, choose capture and the interface. Capture Session will open in a new browser window.



EVE-PRO supports packet captures on ethernet and serial interfaces.

- Select the interface frame type which will be captured:
 - Ethernet for Ethernet, Fast Ethernet, Gigabit Ethernet.Serial interface frames: HDLC, PPP or Frame Relay.



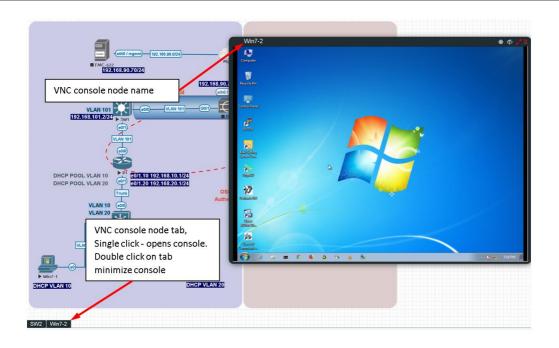


To save captured file to your local PC, please refer section 11.2

6.2.4 HTML5 Console: VNC

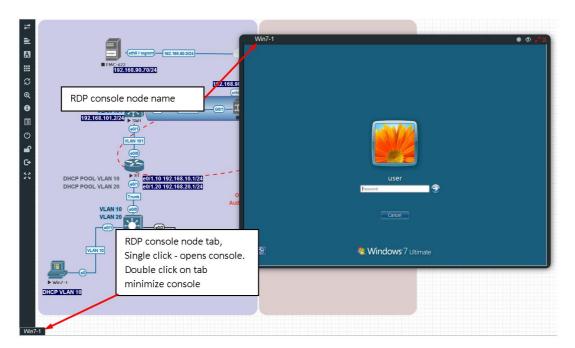
HTML5 VNC console is integrated and opens VNC sessions in the browser.





6.2.5 HTML5 Console: RDP

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



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

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



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

DIT NO	DE			\$
Template				
Windows				•
D				
7				
mage				
win-10-x86-20H2v3				*
Name/prefix				
HQ-PC				
con				
🎍 Desktop2.png				•
JUID				
2c938db1-a889-4d70-	-ac4b-17ab622e74	c6		
CPU Limit				
CPU	RAM (MB)		Ethernets	
2	4096		1	
First Eth MAC Address				
50:0a:00:07:00:00				
QEMU Version	QEMU Arch		QEMU Nic	
4.1.0 -	x86_64	*	tpl(e1000)	*
QEMU custom options				
-machine type=pc,acc	el=kvm -cpu host,+	pcid,+kvm_p	v_unhalt,+kvm_pv_eoi,	hv_sr
tastup configuration		Satellite		
Startup configuration	-	sat1		-
		Saci		
Delay (s)				
Console				_
rdp-tls				Ť
RDP Username				
user				
RDP Password				
Test123				
60		Top 573		



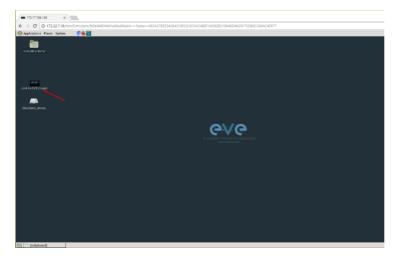
6.3 HTML5 Desktop console



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

6.3.1 Login to HTML5 Desktop console

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



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

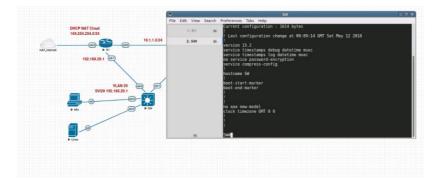


Inside of the integrated docker station, it will open another session to EVE. All features inside of the Docker Desktop will work as you are used to with the Native console.



6.3.2 HTML5 Desktop Console: telnet

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

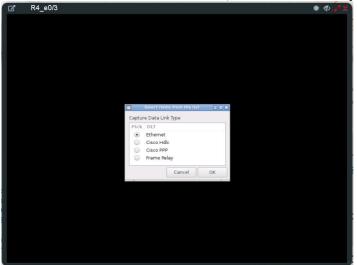


6.3.3 HTML5 Desktop Console: Wireshark

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

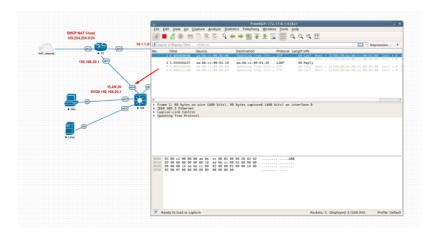
EVE-PRO supports packet captures on ethernet and serial interfaces. Select the interface frame type which will be captured:

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



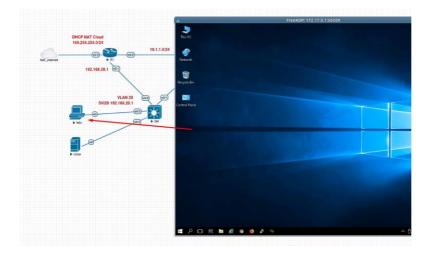
The integrated management docker station Wireshark client allows you to capture and save captured files onto the docker station. For instructions on how to save files to your local PC, please refer to section 11.3





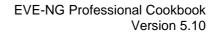
6.3.4 HTML5 Desktop Console: RDP

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 12



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 12 for detailed instructions.





7 EVE WEB GUI Management

7.1 EVE Management Page

The Main EVE management window

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

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

7.1.1 Management buttons

		Sant	≫	圃	*	1	◙	2	Q
--	--	-------------	---	---	---	---	---	---	---

Button	Description
	Select All or Deselect All folders or labs in the EVE tree
h	Create/Add new Lab
1	Change selected item name. To use this option, please select the folder or lab that you want to rename. You must not rename the Shared folder, the Users folder or any folder inside the Users folder.
×	Move selected item(s) to a different location. To use this option, please select the folder(s) or lab(s) that you want to move.
۲	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.
۵	Toggle the sorting folders and labs between alphabetical and last edit date (ascending/descending cannot be changed currently).
3	Refresh current folder content
Q	Lab Search function, case insensitive and match directory as well Find Lab Find Lab Find Lab name containing: nat

7.1.2 Management tabs

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

Tab	Description
# Main	Returns back to the EVE Home Management screen.
🗲 Management 🗸	Management dropdown, opening the management submenu.
 ✓ User management A Node management A Lab management 	Management submenu, refer to sections: 7.3, 7.3.2, 7.3.3
🗐 System 👻	System dropdown.
	System submenu, refer to section 7.4



 System Settings Cluster Management System status System logs Stop All Nodes 	
● Information -	Information dropdown
 About Forum YouTube Channel Help on EVE-NG LiveChat 	Information submenu, for details see section 7.5
Sticensing ▼	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.

💷 🖿 Running	
MyLabFolder	18 May 2018 14:07



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.

□ ► < < < < < < < < < < < < < < < < < <
Image: bit st_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.

The Shared Lab is recommended to set "any" Cluster Satellite

Step 1: Create a lab, refer to section 8.1

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).

New Name	Add folder		
Move to □ ■ 2 2 3 1 1 2 2		Files selected to move:	
Running		test_lab2.unl	
🗆 🖿 Shared	23 Mar 2018 02:41	Current files position /	
🗆 🖿 Users	18 May 2018 12:48	New path	
🖾 📑 test_lab1.unl	18 May 2018 12:58	/ Bunning tFolder/	~
test_lab2.unl	18 May 2018 13:36	Running trotder/ Shared	
		Users	Move Cance

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



e ∨e	Professional	🕫 Main	🗲 Management 👻	🖉 System 👻	Information +	©2018 live-NG	11:45	🛔 test2	🕞 Sign ou
👍 File manage	er Current pos	ition / root	/ Shared						
New Name					Add folder				
•						Choose a lab for more info			
🗆 🖺 test_la	b1.unl			18 May 2	018 12:58				

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

7.2.1.3 Default folder Users

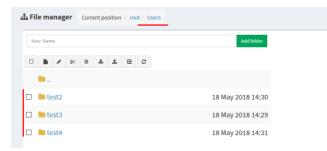
To manage the Users folder, an Admin user account is required.

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

- mycoorolaci	10 may 2010 14.01
🔲 🖿 Shared	18 May 2018 15:16
🔲 🖿 Users	18 May 2018 14:31

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

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



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.	La File manager Current position / root	
Type the new folder name and click "Add Folder"	Myfoldef 🗸	Add folder
	🗆 🖿 Running	
NOTE: Editors can only create folders within their own profile folder or in the Share	ed folder	18 May 2018 13:49



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

New Folder Name. Delete selected items	Add folder
🗆 🖿 Running	
🗹 🖿 MyLabFolder	18 May 2018 14:07
Shared	18 May 2018 13:49
🗆 🖿 Users	18 May 2018 12:48
test_lab1.unl	18 May 2018 12:58
test_lab2.unl	18 May 2018 13:36

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

New Folder Name Move to	Add folder
Running	
😰 🖿 MyLabFolder	18 May 2018 14:07
🗆 🖿 Shared	18 May 2018 13:49
🗆 🖿 Users	18 May 2018 12:48
test_lab1.unl	18 May 2018 12:58
test_lab2.unl	18 May 2018 13:36

Select the target destination for your folder and confirm by clicking on Move.

Files selecte	d to move:	
Files selecte	a to move.	
🖿 MyLabFolde	r	
New path		*
	tFolder/	
Running MyLabFolder		
Running MyLabFolder Shared	/	<u> </u>

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	Add folder
🗉 🖿 Running	
🗸 🖻 MyLabFolder	18 May 2018 14:07
Shared	18 May 2018 15:16

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



Opening _Exports_ev	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 Firefo	x do with this file?					
Open with WinRAR archiver (default)						
Save File						
Do this auto	matically for files like this from now on.					
	OK Cancel					

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

7.2.1.8 Import Folder

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

Step 1: Press the Import button.

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

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

→ ^ ↑	This PC > Desktop > Exports >		✓ ひ Search Exp	ports	
rganize 👻 New fo	lder				
This PC	Name	Date modified	Туре	Size	
3D Objects	EIGRP cfg set 2	15/03/2018 12:10	File folder		
Desktop	EIGRP cfg set 2.zip	15/03/2018 12:11	WinRAR ZIP archive	2 KB	
Documents	EIGRP cfg set.zip	15/03/2018 12:10	WinRAR ZIP archive	4 KB	
Downloads	Firepower_poc_623.zip	12/04/2018 11:16	WinRAR ZIP archive	51 KB	
- T	📜 UD_lab_folder.zip 🔪	18/05/2018 23:31	WinRAR ZIP archive	258 KB	
Music					
Pictures					
Videos	× •				
🏪 System (C:)					
🕳 Donna (E:)					
👝 Data (G:)	v		× 1		
F 3.			~ All Files (* *)	
File	e name: UD_lab_folder.zip		 All Files (n.n)	

Step 3: Press the Upload Button

A File manager Current position / root					
Name	Size	Progress	Status	Actions	
UD_lab_folder.rip	0.25 MB			Upload	×
New Name Add folder					

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



Name		Size	Progress	Status	Action
_lab_folder.zip		0.25 MB		Success	(O Uplo
un Name	Add folder				
■ / % 8 ± ± 0 0					
] 🖿 Running			Choose a lab for more inf	D	
🗋 🖿 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

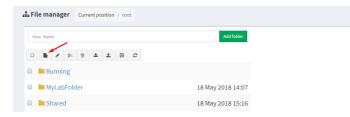
CVC Professional # Main / Mana	gement + 🖉 System + 🕕 Information + 🕕 I	censing + #2018 Eve NG	14:02 🛔 admin 🕞 Sign
File manager Current position / root			
New Name	Add folder		
0 8 / % 8 4 1 8 0			
🗉 🖿 Running		Choose a lab for more info	
🗉 🖿 MyLabFolder	18 May 2018 14:07		
🗉 🖿 Shared	18 May 2018 15:16		
🗉 🖿 Users	18 May 2018 14:31		
test_lab1.unl	18 May 2018 12:58		
E 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 8.1



7.2.2.2 Delete Lab

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

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

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



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

7.2.2.3 Clone Lab

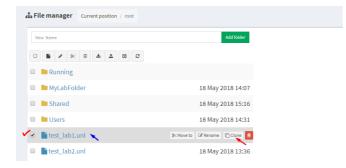
The Admin or Editor user account is required to clone labs.

MOTE: 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 **10.3** 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.



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.

E test_lab1.unl 18 Ma			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

test_lab1.unl			18 May 2018 12:58
		test_lab1_mynew_clone	Ok



7.2.2.4 Move Lab

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

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

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

test_lab1.unl	18 May 2018 12:58
🖉 🖺 test_lab1_mynew_clone.unl 🥆	≫ Move to 🕜 Rename 🗋 Clone 🔒
test_lab2.unl	18 May 2018 13:36

Step 2: Choose the path to the new destination and confirm by clicking Move

Files selecte	ed to move:	
Thes select	d to move.	
test_lab1_n	iynew_clone.unl	
Current files position /		
Newseth		
New path		
/		~
/ Running	tFolder/	~
1	tFolder/	*
/ Running	tFolder/	Move Cancel

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
E test_lab1.unl	18 May 2018 12:58
🗹 📄 test_lab2.unl	18 May 2018 13:36

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

Exports_eve	-ng_export-20180518-172551.zip	
which is: Win	RAR ZIP archive (749 bytes)	
from: http://	192.168.90.23	
What should Firefo	x do with this file?	
O Open with	WinRAR archiver (default)	~
Save File		
Do this auto	matically for files like this from now on.	

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

7.2.2.6 Import Labs

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



Step 1: Press the Import button.

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

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

• → • ↑ 🔒 •	This PC > Desktop > Exports >		マ ひ Search Eq	ports	P
Organize 👻 New f	older				
	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	
- more	Firepower_poc_623.zip	12/04/2018 11:16	WinRAR ZIP archive	51 KB	
🕳 Donna (E:)					
Network		N			
- HELHOIK					
Fil	e name: Firepower_poc_623.zip		 All Files () 	57)	~

Step 3: Press the Upload Button

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

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

Name	
firepower_poc_623.zip	
New Name	Add folder
0	
🗆 🖿 Running	
🗆 📁 MyLabFolder	18 May 2018 17:24
Shared	18 May 2018 15:16
🗆 🖿 Users	18 May 2018 14:31
FirePower FTD 623 PoC Multihomed HA.unl	12 Apr 2018 11:16
test_lab1.unl	18 May 2018 12:58
E test_lab2.unl	18 May 2018 13:36



7.3 EVE Management Dropdown Menu

7.3.1 EVE User management

者 Main	🗲 Management 👻	🗐 System 👻	i Information 🗸	1 Licen
position / root	嶜 User managem	ent		
Josition / Tool	🖨 Node managem	ient		
	🖨 Lab manageme	nt	Add folder	

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

e\/e	Professional 🚮 👪	in 🎤 Management 🗸	🖉 System 👻	Information +	O Licensing -	©2018 Eve-NG					10:02 🛔 admin 🕞 Sign
er manage	ment here you car	n manage EVE-NG users									♠ > ≯Management > 營User management
Database of us	sers										+Add user More Info +
Username	Ema	a		Name			Role	Valid From	Expiration	POD	Actions
admin	root	@localhost		Eve-NG Administrator	r		admin			0	(Ftdit

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



Add New User

User Name*
testuser
Use only [A-Za-z0-9@]chars
Authentication internal V
Password

Password Confirmation

Email
test@eve-ng.net
Please enter an valid email
Name
Test User
Role Administrator ~
Console any V
Satellites
any ×
Account Validity
From -1 0 to -1 0
POD*
4
Quotas
CPU -1 RAM -1
(GB)
* - Required Fields

Cancel

Add



Step 3: If your user will be Radius authenticated, please Select Radius from Authentication menu. Passwords will be stripped off, because authenticator will look Radius server for user password. How to setup radius server IP and Shared secret please follow Section:16.1

Add New User	
User Name*	
testuser	83
Use only [A-Za-z0-9@]chars	
Authentication radius	
Password	
•••••	(ii) (iii)
Password Confirmation	
•••••	

Step 4: If your user will be Active Directory (LDAP) authenticated, please enable Active Directory from Authentication Menu. Passwords will be stripped off, because authenticator will look Active Directory server for user password. How to Active Directory server IP please follow

NOTE: Username for Active Director must contain domain at the end of username. Example: labuser@eve.lab

Add New User	
User Name*	
labuser@eve.lab	EB
Use only [A-Za-z0-9@]chars	
Authentication active directory \vee	
Password	
•••••	
Password Confirmation	
•••••	

Step 5: If you have bought other EVE licenses, you can choose the preferred user role. For licensing and user roles please refer to section **4**

JOI	hn Tester				
Role	Administrator 🗸	_			
	Administrator				
Ассо	Editor				
From	User	0	to	-1	0

Step 6: Set the Console type for the user. If Console type is set exact: Native, HTML or HTM5 Desktop, user after login in the EVE will be forced to use selected Console Type. If Console Type is set to "any", user is able to choose Console type on Login page which Console will be used.



Role La	o User 🗸 🗸	
Console	any 🗸	
	any	
Lab Nor	native	~
Satellite	html5	
Jatenne	Desktop	

Step 7: **Sticky Lab.** Applies for User role only. Set the specific Lab for the user "sticky lab". After login in the EVE User will directed only to this lab. He cannot close the lab to get in main Lab management page. User can Start/Stop/Wipe lab, as well save his lab work on the lab devices. Follow Section: **7.3.1.5**

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

Step 8: Satellites assignment per user (Editor or User) require Administrator account

Satellites

any ×			
any			
master			
SAT01B			

The User Cluster Server value "any" is set by default.

Set the Cluster Satellites for the Lab Editor. This applies for Lab Editor roles. Lab Editor will stick to selected Satellites. Lab Editor will be forced and allowed to use only selected Satellite server or choose between the Satellite servers if it is assigned more than one server. If the Lab has set to use any satellite server, then Lab Editor will be assigned to use lowest satellite ID.

Example: Lab Editor has assigned to use SAT1 (ID1) and SAT2 (ID2). The Lab has set to use "any" satellite. This Editor lab will be automatically assigned to use first available Satellite with lowest ID1, SAT1.

Editor has rights to change Satellite per node for own created Labs.

Editor cannot change satellite assignments for Shared Lab. The Shared Lab is recommended to set "any" Cluster Satellite,

If the Lab is created on the Satellite servers which are NOT in the Lab Editor allowed Satellites list, this lab will not start.



Example: Lab is created to use Master server only, but Lab Editor is allowed to use only SAT1 Server. Lab Editor will not be allowed to start this Lab.

If the Lab contains nodes which are assigned to run on the Satellite server which is NOT in Lab Editor allowed Satellites list, this node will not start.

Example: Lab several nodes are assigned to use Master server only, but Lab Editor is allowed to use only SAT1 Server. Lab Editor will not be allowed to start these nodes.

Set the Cluster Satellites for the Lab User. This applies for Lab User roles. Lab User will stick to selected Satellites. Lab User will be forced and allowed to use only selected Satellite server or servers.

Example: Lab User has assigned to use SAT1 (ID1) and SAT2 (ID2). The Lab has set to use "any" satellite. This Lab User lab will be automatically assigned to use first available Satellite with lowest ID1, SAT1.

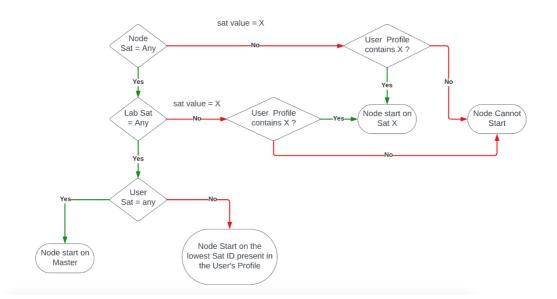
If the Lab is created on the Satellite servers which are NOT in the Lab User allowed Satellites list, this lab will not start.

Example: Lab is created to use Master server only, but Lab User is allowed to use only SAT1 Server. Lab User will not be allowed to start this Lab.

If the Lab contains nodes which are assigned to run on the Satellite server which is NOT in Lab User allowed Satellites list, this node will not start.

Example: Lab several nodes are assigned to use Master server only, but Lab User is allowed to use only SAT1 Server. Lab User will not be allowed to start these nodes.

User Profile and Lab nodes Satellite use hierarchy



Step 9: Set the access date and time From - to. If the fields are left empty (untouched), your user will have no time restrictions for accessing the EVE Server. Account validity with time settings is available for Editor and User roles only.

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



Account	: Validity					
From	-1		0	to	-1	0
POD*						
1						
Quotas						
CPU	-1	RAM (GB)	-1			

Step 10: The POD number is a value assigned to user accounts automatically. POD numbers are like user profiles inside of EVE and are a unique value for every user Think of PODs like a virtual rack of equipment for each user. Admins can assign a preferred number between 1-128. Please keep POD numbers unique between users!

Step 11: Set user limitation to use eve resources. "-1" value is unlimited EVE resource. Only Editor and User roles can be set for EVE resource limitation, Quota.

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

Quotas CPU RAM 4 8 \$ (GB) Success 0 ~ X Error 1 vIOS1: User's CPU quota violation × Cancel Add Step 12: Press ADD

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

7.3.1.2 Edit EVE User

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

User manageme	nt here you can manage EVE-NG use	rs					🐐 🕞 差 Hanagement 🕫 👹 User manageme
Database of users							+Add user More Info +
Usemame	Email	Name	Role	Valid From	Expiration	POD	Actions
admin	root@localhost	Eve-NG Administrator	admin			0	🕼 Edit 🔒
test	test@eve.lab	John Tester	user	2018-05-20 00:00	2018-05-30 18:00	1	🕼 Edit 🔒
Test2	test@eve.lab	Jenny Tester	editor	2018-05-19 00:00	2018-05-20 23:00	2	🕼 Edit 🔒

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



	ame*					
edito	r					
Extern	al Auth (Radiu	ıs) 🗌				
Passwo	ord					
•••••	•••••					
Passwo	ord Confirmati	ion				
•••••	•••••					
Email						
admi	in@eve-ng.net					
Please e	nter an valid ema	iil				
Name						
Edito	or uldis					
Use only	r [A-Za-z0-9]cha	ars				
Role L	ab Editor 🔉	~				
		 1				
Consol	e any 🗸					
Satelli	te sat1 🗸 🗸					
Accour	t Validity					
	-1		0	to	-1	0
From						
From POD*						
POD *						
POD* 2 Quotas	5	DAM				
POD*	16	RAM (GB)	32			

7.3.1.3 User session termination

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

₽V₽ Professional	🖷 Hain 🎤 Management -	System - O Information - O	Liomsing - 02020 Eve-NG								22:08 🛔 uldis 🕞 Sign e
User management have	i you can manage EVE-NG users										▲ > ≯Hanagement > ∰Usermanagem
Database of users											+Add user More info +
Username	Authenticator	Email	Name	Dole	Disk Usage	Valid From	Expiration	Max CPU	Max RAM (GD)	POD	Actions
admin	internal	admingleve-ng.net	EVE Administrator	admin	0.01 08			Unlimited	Unlimited	0	CHEER ONICE B



7.3.1.4 User monitoring

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

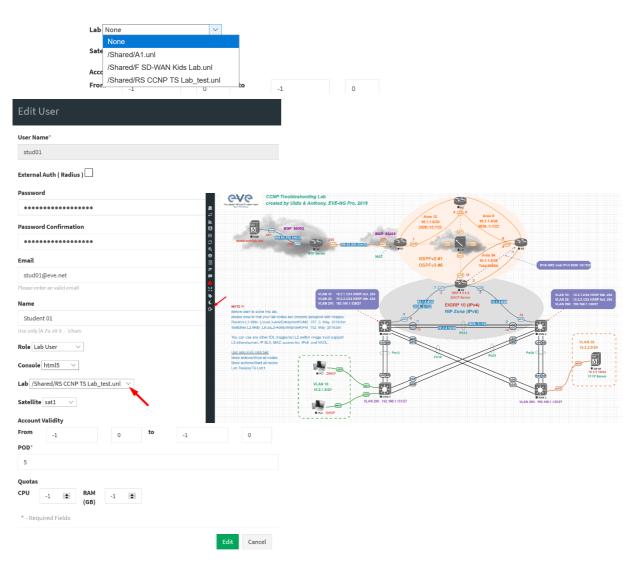
Database of users					1 1	1 1		1		1	+Add user More Info +	
lsemame	Authenticator	Email	Name	Role	Disk Usage	Valid From	Expiration	Last session time	Last session ip	Current folder	Current lab	Last session time
-user1	racius	auser1@eve.lab	Auser User	user	0 GB	2018-11-22.05:30	2018-11-28 07:00	N/A	N/A	N/A	N/A	Last session ip
dmin	internal	uldis@eve-ng.net	Eve-NG Administrator	ədmin	1 GB			16 Nov 2018 0:35:34	172.22.10.101	1	N/A	Current folder
dmin2	racius	admins2@eve.lab	Admin2 User	admin	0 GB			N/A	N/A	N/A	N/A	Current lab

7.3.1.5 User role sticky lab

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

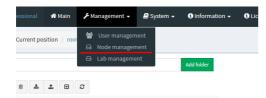
Pre-requisites for this feature: For Lab selection from the list, the Lab must be upload in the Shared folder by admin first. If Lab Menu is selected to "None", User can close the Lab and open another shared Lab for him.

The value "None" is set as default.





7.3.2 EVE Node management



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

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

le management here you can	manage EVE-NG running nodes				$H > FM_2$	nagement > @Nodes man
unning node(s)						
Labname	Lab ID	Username	Node Name	Template	Action	
/Users/test3/Shared/test_lab3	4	test3	R1	iol	- ×	
/Users/test2/Shared/test_lab3	3	test2	R1	iol	— ×	
/Users/test2/Shared/test_lab3	3	test2	R2	iol	- ×	
/Users/test3/Shared/test_lab3	4	test3	R2	iol	- ×	
/test_lab1	1	admin	R2	iol	— ×	
/Users/test4/Shared/test_lab3	2	test4	R1	iol	- ×	
/test_lab1	1	admin	R1	iol	🖵 ×	
/Users/test4/Shared/test_lab3	2	test4	R2	iol	🖵 🗙	

7.3.2.1 Node management actions

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

7.3.2.2 Node management filtering function

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

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

ode management	here you can manage EVE	-NG running nodes							₩ > ≯Management >	Who des managem
Running node(s)					1					
Labname	Lab ID	Username	Sat	Node Name	CPU usage (%) -	RAM usage (%)	Disk usage (GB)	~ Template	Action	
ASAv Site to Site Basic	1	uldis •	master	ASAv1	2.08	0.42	0.0032	asav	🖵 🗙	^
/ASAv Site to Site Basic	1	uldis •	master	ASAv2	1.9	0.46	0.0033	asav	- ×	
/ASAv Site to Site Basic	1	uldis •	master	SW2	0.02	0.05	0.001	iol	🖵 🗶	
/ASAv Site to Site Basic	1	uldis •	master	ISP-R	0.02	0.05	0.001	iol	🖵 🗙	

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

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



unning node(s)										
abname	Lab ID	Username 🔺	Sat	Node Name	CPU usage (%)	RAM usage (%)	Disk usage (GB)	Template Template	Action	
A1	2	ecze •	master	SW	0.02	0.07	0.001	ial	🖵 🗶	
A1	2	ecze •	master	Mgmt	0	0.03	0.0033	docker	— ×	
41	2	ecze •	set1	Win	0.13	4.85	0.3188	win	- ×	
41	2	ecze •	master	ISR	0.02	0.08	0.001	iel	🖵 🗙	
ASAv Site to Site Basic	1	uldis •	master	ASAv1	0.27	0.64	0.0036	asav	- ×	

7.3.3 EVE Lab management

😚 Main	🗲 Management 🔸	🗐 Syste	m 🛨 🚯 Informa	tion 🗕 📢
osition / root	 User manag Node manag Lab manage 	ement		
± 🖻	C		Add folder	

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

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

(s) management here yo	u can manage l	EVE-NG Running Labs						# > #Management	- Wiedes manag
unning Lab(s)									
abname	State 🔺	Lab UUID	Satellite	Username	CPU usage (%)	Memory usage (%)	Disk usage (GB)	Action	
DC/EVPN-BGP-NXOS9K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	sat1	uldis•	3.84	34.34	4.9088	₩ ×	
DC/EVPN-BGP-NXOS9K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	sat2	uldis •	1.47	17.41	2.4736	= ×	
C/EVPN-BGP-NXOS9K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	master	uldis•	0	0	4.9687	= ×	
Jsers/editor/test		00239193-3ffe-4b62-bd24-3a07890593a1	sat2	editor.	0	0	0.0002	= 🕥	
Users/editor/test		00239193-3ffe-4b62-bd24-3a07890593a1	master	editor •	0	0	0.0002	a	
TD Policy Lab v1		04b55e95-281f-4b6c-8d40-bfcf88e3c193	master	uldis •	0	0	2.6455	a	
FTD Policy Lab v1		04b55e95-281f-4b6c-8d40-bfcf88e3c193	sat2	uldis•	0	0	12.5594	- <u>S</u>	
FTD Policy Lab v1		04b55e95-281f-4b6c-8d40-bfcf88e3c193	sati	uldis •	0	0	0.7695	🗮 💁	

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

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

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

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

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

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



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

7.3.3.1 Lab management actions

Button	Action
틎	Open the running or stopped lab.
×	Stop the running lab. The running labs will be displayed on top of list.
	Wipe lab. Clean up HDD space. NOTE: this action will delete saved lab configurations.

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



7.4 EVE System Dropdown menu

₽ S	ystem 👻	 Informati 	on 👻	i Licensing 🗸
*	System S	ettings		
	Cluster M	anagement		
•	System st	atus		
٩	System lo	ogs		
×	Stop All N	odes		

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

7.4.1 System Settings



The System Settings page, under the System Dropdown, will show EVE System settings for:



System settings					
Cluster Network	172.29.130.0				
Docker Network	172.17.0.0				
NAT Network	172.29.129.0				
Radius Server #1	IP		Port	Secret	
Radius Server #2	192.168.70.201 IP 0.0.0.0		1812 \$ Port 1812 \$	Secret	
Active Directory Server	IP 192.168.70.200		Port 389 ♀	Enable TLS	
Base DN dc=eve,dc=lab EVE-NG Active Directory Grou					
EVE Users					
Proxy Server	IP 0.0.0.0	Port 0	0ser	P	assword
emplate visibility	unprovisioned images Disabl	le v			
icence check	User's login control Strict	~			
Disk critical size	Minimal free space (GB)				
Hml 5 terminal setting	Color scheme gray-black v Font name monospace Font size 11	v			
Management Interface setting	Enable IPV6 🗌				
Neb service setting	Enable Caching 🗹				
CPU/Memory settings	Dedicated CPU for Services (Re Numa Balancing 🗌	eboot required) 2	\$		
				Sub	omit Cancel



- Cluster Network. EVE-NG cluster members VPN network, used for intercommunication between EVE-NG cluster members. Customizable, please, change the first three octets to your preferred network. Format of network A.B.C.0/24. The mask /24 is hardcoded. (Value example: 192.168.90.0). The master EVE server IP of wg0 interface will be assigned: A.B.C.254. Rest Cluster members IPs of wg0 interface will be assigned accordingly EVE satellite ID, First EVE satellite ID1 IP will be A.B.C.1. NOTE, after changes of this network, the whole EVE cluster members reboot is required!
- **Docker Network**. EVE-NG Dockers network. Used for dockers and docker consoles. Customizable, please, change the first two octets to your preferred network. Format of network A.B.0.0/24. **The mask /16 is hardcoded**. (Value example: 172.18.0.0). The master EVE server IP of docker0 interface will be assigned: A.B.C.1 NOTE, after changes of this network, the whole EVE cluster members reboot is required!
- NAT Network. EVE-NG NAT Network, "Natting" internal EVE NAT network to the management pnet0/cloud0 EVE management interface IP. Used to have Internet in the labs with different network. DHCP service is enabled on this interface automatically. Customizable, please, change the first three octets to your preferred network. Format of network A.B.C.0/24. The mask /24 is hardcoded. (Value example: 192.168.100.0). The gateway and DNS IP of the NAT network interface will be assigned: A.B.C.254. NOTE, after changes of this network, the master EVE server reboot is required!
- External Radius Server, IP port and shared secret key
- Active Directory Authentication support
 - ✓ IP address of AD and port 389 or 3268 (TLS)
 - ✓ For TLS Active directory communication option, select TLS
 - ✓ DN: Example if domain is eve.lab, then DN syntax is: dc=eve,dc=lab
 - ✓ EVE-NG Active Directory Group: Example: EVE Users. EVE will search Your Group name in whole domain folder tree.

us Server #1	IP	Port		Secret
	0.0.0.0_	1812	i e i	•••••
Server #2	IP	Port		Secret
	0.0.0.0	1812		••••• (9)
Directory Server	IP	Port		Enable TLS
	192.168.90.27	389	le!	
4				
e,dc=lab				
Active Directory Grou	p			

Note: The username in of the Active directory user account must match with AD username. Username must have domain at the end of username. Example: evelabuser@eve.lab



Add New User	
User Name*	
labuser@eve.lab	E
Use only [A-Za-z0-9@]chars Authentication active directory Password	
•••••	٩
Password Confirmation	
•••••	

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

ADD A NEW NO	DE
Template	Show unprovisioned templates
Nothing selected	~
1	
Nothing selected	^
Apple OSX	
Arista vEOS 🔫	
Aruba ClearPass 🔫	
Aruba OS-CX Virtual Switch	4

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

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

Licence check	User's login control	Strict	\sim
		Strict	
		Auto logou	t





.

- alert you about HDD space limit is read you will set 5Gb value, your EVE will show warning messages in notification Example is showing limit set to 5 Recommended is set 3-5 GB value.
- HTML5 Terminal settings Option to change console colour scheme, fonts, font size and backgrounds.
- Management interface settings Option to enable IPv6 on the EVE Management interface

alert you about HDD space limit is ready you will set 5Gb value, your EVE w show warning messages in notification	ill start n area.	Alert: Only 260GB Please add new Hl	free on EVE HDD DD to continue (Help)	×	
Example is showing limit set to 5	500GB.				
Recommended is set 3-5 GB value.					
HTML5 Terminal settings Option to change console colour scheme, fonts, font size and backgrounds.	Html 5 term	inal setting	Color scheme gray-black Font name monospace Font size 12	× ×	
Management interface settings Option to enable IPv6 on the EVE	Managemer	nt Interface settin	g Enable IPV6		
Management interface	abla				
WEB Service caching. Option to en		service setting	Enable Caching 🔽		
WEB caching EVE for Managen	nent				

CPU/Memory Settings dedicated cores for EVE services. Suitable for EVE machine with more than 8 vCPU cores. Select the dedicated amount of CPU cores for system use.

CPU/Memory settings

interface

Dedicated CPU for Services (Reboot required) 2

CPU NUMA Balancing enables or disables CPU NUMA balancing settings. Suitable for EVE machines with up to x6 vCPU cores. If your EVE has 8 or more vCPU cores disabling this option will force to use of CPUs if full scale and you will achieve better and more nodes to start in your labs.

Numa Balancing 🗌

7.4.2 Cluster Management



The Cluster Management page, under the System Dropdown, will show Cluster Management options, and cluster members resources utilization. Please refer to Chapter EVE Cluster System 14

7.4.3 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 - @ System	rm + 🛈 Information + 🛈 Licensing + @	2018 Eve-NG		21:15 🎍 admin 🛛 😂 Sign out
System status				# > #Logs > @ System status
네. System status				
A% Oversit Number of CPUL 4	14% Monory and Total Memory: 6 Gb.		0% Interview	33% Internet
	running IOL nodes	running Dynamips nodes	running QEMU nodes	
	8	0	0	
	running Doc	ker nodes running Vi	PCS nodes	
	0	()	
Qemu version: 2.4.0				
Current API version: 2.0.4-33-PRO UKSM status:				
CPULimit status: ON				

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

Template			
Cisco vIOS			*
Number of nodes to add	Image		
1	vios-advent	erprisek9-m-15.6.2T	*
Name/prefix			
vIOS			
Icon			
Router.png			*
UUID			
CPU Limit 🛛 🗸			
СРИ	RAM (MB)	Ethernets	
1	1024	4	

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

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

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

limit.

Reference:

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

7.4.4 System logs

🗐 Sy	/stem 🗸	 Informati 	on -	i Licensing 🗸
*	System S	ettings		
쓥	Cluster M	luster Management		
•	System S	m Status		Add folder
Ø	System L	ogs		Add folder
×	Stop All N	odes		

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

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



ystem logs			🕷 — 🖉 Logs — 💭 System Io
System log viewer			
Select log file	Number of Lines	Search text	
access.txt	20	Vew	
xcess.bd			
spi.bd			
error.bit	•	File output start	
hp_errors.bit	/api/auth HTTP/1_1" 200.557 "http://192	8.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; nx60.0) Gecko/20100101 Firefox/60.0"	
inl_wrapper.bd		77354514 HTTP/1.1° 200 6501 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/201	
cpulimit.log			
172.25.1.5 [19/May/2018:00:04:	:24 +0.300] "GET /themes/adminLTE/unl_data/pages/sysb	html HTTP/1.1" 200 1402 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/201001	101 Firefox/60.0"
172.25.1.5 [19/May/2018:00:04:	:24 +0300] "GET /themes/adminLTE/unl_data/js/angularj	controllers/syslogCtrl.js HTTP/1.1" 200 921 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:50.	1.0) Gecko/20100101 Firefox/60.0"
172.25.1.5 [19/May/2018:00:02:	:35 +0300] *GET /themes/adminLTE/unl_data/img/Logo_	/E_Color.png HTTP/1.1" 200 108800 "http://192.168.90.23/" "Mozilia/5.0 (Windows NT 10.0; Win64; x64; rx:60.0) Geck	:ko/20100101 Firefax/60.0"
172.25.1.5 [19/May/2018:00:02:	:35 +0300] "GET /themes/adminLTE/unl_data/pages/cons	nt/header.html HTTP/1.1" 200 1864 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gec	cko/20100101 Firefox/60.0"
172.25.1.5 [19/May/2018:00:02:	:35 +0300] "GET /themes/adminLTE/unl_data/pages/con:	nt/labView.html HTTP/1.1" 200 1800 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Ger	acko/20100101 Firefox/60.0*
172.25.1.5 [19/May/2018:00:02:	:35 +0300] "GET /api/folders/ HTTP/1.1" 200 900 "http://1	L168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rx60.0) Gecko/20100101 Firefox/60.0"	
172.25.1.5 [19/May/2018:00:02:	:34 +0300] "GET /api/auth HTTP/1.1" 200 557 "http://192.	8.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0"	
172.25.1.5 [19/May/2018:00:02:	:34 +0300] *GET /themes/adminLTE/dist/js/app.js?_=1526	77354513 HTTP/L1* 200 6501 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/201	/100101 Firefox/60.0"
172.25.1.5 [19/May/2018:00:02:	:34 +0300] "GET /themes/adminLTE/dist/css/skins/skin-b	e.css HTTP/1.1" 200 1153 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/2010010	01 Firefox/60.0*
172.25.1.5 [19/May/2018:00:02:	:34 +0300] "GET /themes/adminLTE/unl_data/css/unl_lat	ss HTTP/1.1" 200 2748 "http://192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101	Firefox/60.0"

7.4.5 Stop All Nodes

🗐 S	ystem 👻	Informati	on 👻	i Licensing 🗸
성 상	System S Cluster M	ettings anagement		
0	System Si System L	ogs		Add folder
×	Stop All N	odes		

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

Same can be achieved issuing cli command:

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

7.5 EVE Information Dropdown menu

 Information → 	i Licensing 🗸	©2021 EVE-NG
┛ Cookbook		
About		
🗩 Forum		
🛗 YouTube Chan	nel	
Help on EVE-N	IG LiveChat	

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

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

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

7.6 EVE Licensing Dropdown menu

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

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

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

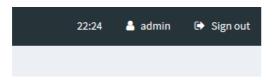
License information display:



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



7.7 Other Tab line info



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

7.8 Lab preview and global settings

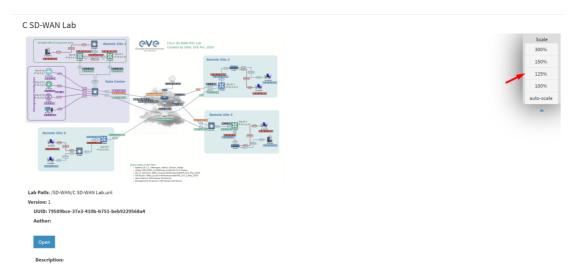
Once you click on a lab in the folder tree, a main window on the right side will display schematic content of the lab as well as lab management options like open, edit, and delete.

CVC Professional # Main / Management -	System - O Information - O Licensing -	\$2020 5v≠ №5	23:30 🛔 uldis 🕀 Sign out
A File manager Current position root 10-WAN			
New Name	Addition	C SD-WAN Lab	
			Scale
	^		
A SD-WAN HA POC Public.unt	04 Jun 2020 15:40		
A SD-WAN HA POC.unl	16 Jun 2020 23:00		
B SD-WAN FTD Lab.unl	04 May 2020 19:13	Aver In J	
C SD-WAN Lab Public.unl	14 May 2020 01:36		
C SD-WAN Lab.unl	22 Jun 2020 23:12		
D SD-WAN FTD TLOC.unl	18 May 2020 20:55		
Daniel SD-WAN Lab.unl	30 Apr 2020 09:33	I NERVES - I NERV	
E SDWAN Lab Community Public.unl	16 May 2020 21:40	Lab Pathy /SD-WARK SD-WAR Lab.uml Version: 1	
F SD-WAN 20 lab.unl	08 May 2020 00:43	UUID: 79509bce-37e3-410b-b753-beb9229568a4 Authori	
F SD-WAN Light 20.unl	30 Apr 2020 09:32		
SD-WAN KBITSv1.unl	15 Jun 2020 10:12	Open	
SD-WAN KBITSv1_Community.unl	11 Jun 2020 18:07	Description:	

The actual lab topology appears after 3-5 seconds.

7.8.1 Lab preview window

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





7.8.2 Lab preview buttons

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

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

7.8.3 Lab preview information

Description, version, UUID etc.

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

7.8.4 Lab Global Settings

Lab Global Settings Page is opened when you click on the Edit button below the Lab preview window.

Edit lab					• *
Path*	/A1.unl			Description	8.
Name*	A1	1.]	
Version*	Use only [A-Za-z0-9]char 1 2.				4
Author	Must be interger ([0-9]char 3.			Tasks	9.
Satellite		any v 4.			
Shared with	Select users	5.			
Config Script 1	limeout	1800 6 .	Seconds		Save Cancel
Lab Countdow	n Timer	0 7.	Seconds		

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

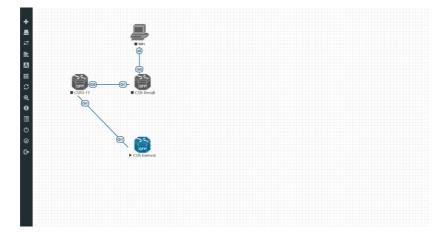


- 4. EVE Cluster Satellite choice. By default, EVE will assign a value of "any" automatically. For cluster hierarchy please follow: Chapter 14.9.2
- 5. Lab sharing Feature, please follow Chapter 8.11
- 6. Config Script Timeout: It is the value in seconds used for the "Configuration Export" and "Boot from exported configs" operations. Refer to section 10.3 for more information.
- 7. Lab Countdown Timer: It is the value in seconds to provide a time limit (countdown timer) for completing a lab. Refer to section 10.4 for more information.
- 8. Description: In the Description field you can write a short description of the lab.
- 9. Tasks: In the Tasks field you can write the task for your lab.

LAB DETAILS	×
TEST_LAB1	
ID: 95692558-5acb-4308-ab66-64f9b40bd31f	
Here is short description of Lab	
Here are tasks for your lab. Task 1, Please configure Routers with IP addressing Task 2. Configure IGP, EIGRP routing on all nodes Task 3. Configure windows Host to receive DHCP IP address	

EVE WEB Topology page

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

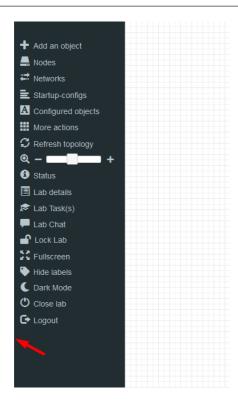


7.9 Side bar functions

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

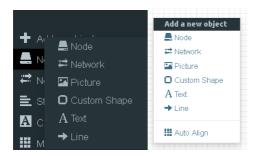
The Lab details window can be opened from the Topology Canvas page sidebar during labbing, to read the Tasks for the lab.





7.9.1 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



7.9.1.1 Node object

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



Template Show t	unprovisioned template
Nothing selected	÷
1	
Nothing selected	^
A10 vThunder	
Apple OSX	
Arista vEOS	
Aruba ClearPass	
Aruba OS-CX Virtual Switch	
Aruba WiFi Controller	
Barraccuda NGIPS	
Brocade vADX	
CheckPoint Security Gateway VE	
Cisco ACS	
Cisco AMP Cloud	
Cisco Application Policy Infrastructure	

7.9.1.2 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 9

ADD A NEW NETWORK								
Number of networks to add	1							
Name/Prefix	Net							
Туре	bridge 👻							
Left	0							
Тор	0							
	Save Cancel							

7.9.1.3 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 10.2

ADD PICTUR	RE	×
Name	МуТороlogy	
Picture	Browse anycon_lab.PNG	
	Add Cancel	





7.9.1.4 Custom shape object

The Custom shape object allows you to add shape elements onto the topology; these currently include squares, round squares and circles. For details, refer to section 10.1

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

7.9.1.5 Text object

The Text object allows you to add MS Office elements onto the topology. For details, refer to section 10.1.3

Add a new object	
📥 Node	
🕶 Network	□ ■ × ₽ @ @ @ < > ■ ♥ .
Picture Picture	
Custom Shape	B I U S ×₂ x² ✔ I _x ≔ ≔ 非 非 ?? ♡ È È ≦ ≣ ·1 ¶· 話· ∞ ∞ № □ ☶ ≣ Ω ③ ⊡
A Text	Styles • Format • Font • Size • 🛕 🕢
→ Line	New Text
🗰 Auto Align	

7.9.1.6 Line object

The Line object allows you to add line elements onto the topology; these currently include single arrow, double arrows and simple lines. For details, refer to section 10.1



ADD LINE			
Width	2	٥	
Arrow Style	➡ single arrow	•	
Paint Style	Solid	•	
Line Style	Straight	•	
Line Color			
Line Label			
Save Cance	el		

7.9.2 Nodes

📕 Nodes

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

0	NFIGL	JRED NO	ODES																
D	NAME	TEMPLATE	BOOT IMAGE		CPU	CPU USAGE	CPU LIMIT	IDLE PC	NVRAM (KB)	RAM (MB)	RAM USAGE	ЕТН	SER	CONSOLE		ICON		STARTUP-CONFIG	ACTIONS
2	ISP	iol	IB6bl_LinuxL3-AdvEnterpriseK9-M2_157_3_May_2018.bin	V	n/a	1.5%	n/a	n/a	1024	2048	B.8%	2	0	telnet		Router2.png	•	Default	⊽≣9± © i
3	Mgmt_CA	docker	eve-gui-server:latest	\sim	4	95	n/a	n/a	n/a	4096	0.9%	1	n/a	rdp	\sim	Desktop3.png	۰.	Default 🗸	□= 9±0 i
4	SWDC1	iat	186bi_linux_12-adventerprisek9-ms.SSA.high_iron_20190423.bir	1	n/a	2%	n/a	n/a	1024	1024	2.9%	4	0	telnet		Switch L32.png	•	Default 🔍	Q=9±0 i
5	SW2	iol	186bi_linux_12-adventerprisek9-ms.SSA.high_iron_20190423.bir	V	n/a	0.8%	n/a	n/a	1024	1024	2.6%	4	0	telnet		Switch2.png	•	Default 🗸	Q=9±0 i
6	sw3	iol	IB6bl_llnux_l2-adventerprisek9-ms.SSA.high_iron_20190423.bir	V	n/a	1.4%	n/a	n/a	1024	1024	2.6%	4	0	telnet		Switch2.png	•	Default 🗸	Ģ∎9±6 i
7	cEdge11	csr1000vng	csr1000vng-ucmk9.16.12.3-sdwan	\sim	2	46.1%		n/a	n/a	4096	100.2%	4	n/a	teinet	\sim	Edge.png	•	None	Ç∎9±6 i
8	vManage	vtngnt	vtmgmt-19.2.2	v	4	P %		n/a	n/a	24576	77.1%	2	n/a	telnet	\vee	vManage.png	•	None	Q∎9±0 i
9	vSmart	vtsmart	vtsmart-19.2.2	14	2	3%		n/a	n/a	2048	37.1%	2	n/a	teinet	v	😒 vSmart.png	*	None	Q=9±0 i
10	vBond	vtbond	vtbond-19.2.2	14	1	1.5%		n/a	n/a	1024	94%	2	n/a	teinet	14	vBond.png		None	□=9± 0 i

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 8.1.2.

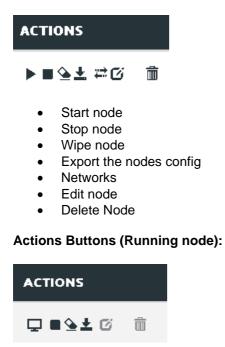
▲ NOTE: Running nodes are highlighted in Blue, their settings cannot be changed. You can only change settings of nodes that are not currently running.

You can change the following values:

- Node Name
- Boot image
- Number of CPUs for the node
- Live CPU usage
- Enable or disable CPU Limit (Refer to section 7.4.3)
- IDLE PC for Dynamips node
- NVRAM in Kbyte
- RAM in Mbyte
- Live RAM usage
- Ethernet quantity. **NOTE:** The Node must be disconnected from any other nodes to make this change. You cannot change the interface quantity if the node is connected to any other node.
- Serial interface quantity, IOL nodes only. You cannot change Serial interface quantity if the node is connected to any other node.
- Type of Console
- Node Icon that appears on the Topology
- Startup configuration to boot from



Actions Buttons (Stopped node):



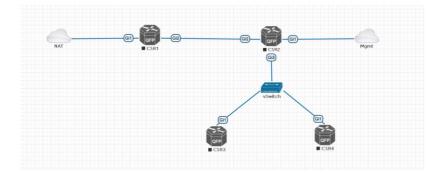
- Console to the node
- Stop node
- Wipe node
- Export the nodes config
- Edit node
- Delete Node

7.9.3 Networks

Hetworks

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

The "Configured Networks" window will only show networks that were specifically added to the topology; it will not show node interconnections. The example below is showing information for networks on the Topology. For Cloud networks and how to connect EVE labs to a network external to EVE, please refer to section 9





CONFIG	URED NETWORKS			• x
ID	NAME	түре	ATTACHED NODES	ACTIONS
1	NAT	nat0	1	G 11
2	Mgmt	pnet0	1	G fi
з	vSwitch	bridge	3	C 1

ACTIONS

c î

- Edit Network
- Delete Network

7.9.4 Startup-configs

🖹 Startup-configs

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

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

The "Startup-configs" window in the EVE Professional version contains additional features, please refer to section 10.3.

STARTUP-C	ONFIGS		* ×
		Config Set Default -	
S VEOS2	4 ОN 4 ОN		Ace Editor
vEOS1	4 ON	: Serial Number: 123456789AB : Hardware: ASAS520, 3584 MB RAM, CPU Pentium II 1000 MHz : Writen by enable: Ts at 174717.029 UTC Wed Jul 26 2017	
 vlos-sw1 vlos-sw2 	✓ ON ✓ ON	A Version 9. (15) 16 I hostname ASA enable password 8P;2Y)(yTRPXU24 encrypted xlate per-session demy top any4 any6 xlate per-session demy top any4 any6 xlate per-session demy top any6 any4 xlate per-session demy utop any6 any6 xlate per-session demy utop any6 any6 eq domain xlate per-session demy utop any6 any6 eq domain xlate per-session demy utop any6 any6 eq domain xlate per-session demy utop any6 any6 eq domain	
		Interface EthernetO mameif outside security-level 0 ip address of hop setroute Interface Ethernet1 channel-group 1 mode active	¥ A

7.9.5 Logical Maps

Pictures NOTE: The Logical Maps object will only appear in the sidebar after you have uploaded a custom topology picture to the lab EVE lab (Please refer to section 7.9.1.3). The Pictures object in the sidebar opens the "Picture Management" window.

For details on the Picture / custom topology feature, refer to section 10.2



7.9.6 Configured Objects

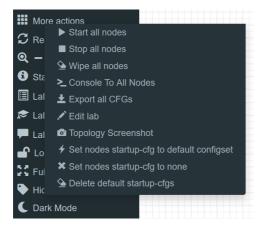
A Configured objects The "Configured Objects" window will display a list of all objects that are added onto the topology. For details on different objects, refer to section 10.1

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

CONF		OBJECTS			
ю	NAME	туре	TEXT	ACTIONS	
1	bit 1	text	Topologyxtx	1	
2	square2	square		1	

7.9.7 More actions

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



7.9.7.1 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.

7.9.7.2 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.

7.9.7.3 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 10.3

7.9.7.4 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.

7.9.7.5 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 Viptela vEdge, vSmart, vBond, till	vEOS Arista
version 18.4 only, version 19.x and later is	Aruba CX Switch
not supported due implemented password	
setup feature on the first boot.	
Cisco XRv	
Cisco XRv9K	

For a full explanation of exporting configurations, please refer to section 10.3

7.9.7.6 Edit lab

🖋 Edit lab		Opens the E	Edit lab window. Refer to section: 7.8.4	
EDIT LA	λB			×
Path*	/UD Labs/Arista MLAG integration.unl	Description	Arista mLAG and ASA Lab	1
Name*	Arista M_AG integration Use only (A-Za-20-93chars			
Version*	1 Must be interger ([0-9]chars)			4
Author Config Sc	LD ript Timeout 800 Seconds	Tasks	UAB Scinario: 1. Corfigure ASIa of units DHCPF must receive Financian Unit interfaces per design, same k as DM2 and Corporate respectively 2. Corfigure ASIa of units DHCPF must receive Financian Cont ANI and same this post as outside 3. Corfigure ASIa must and another and the outside of outside ASIA must be reachable from Mymat PC our ASDM 4. Corfigure ASIA and Sci maling and anging post is relevance and endormal beam design. ASIA must be reachable from Mymat PC our ASDM 4. Corfigure ASIA and Sci maling and anging post is relevance and endormal per design.	î
	tdown Timer 0 Seconds ired Fields		S. Configure 405 attendaments ports faining to ADA in attendament mode abble 6. Configure 405 attendaments faining to 405-404 to attendament mode on Too Current Too Current	h. 4



🖸 Topolog

7.9.7.7 Topology screenshot

- · · ·	Feature to export actual topology in
/ Screenshot	png format

ou have chosen t	to open:	
screenshot.	png	
which is: PN	G file (3.7 kB)	
from: blob:		
	f ox do with this file? Photos (default)	~
Qpen with		

7.9.7.8 Set node's startup-cfg to default configset

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

Please refer to section 10.3

7.9.7.9 Set node's startup-cfg to none

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

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

Please refer to section 10.3

7.9.7.10 Delete default startup-cfgs

∕⊆ Delete default startup-cfgs

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

7.9.8 Refresh Topology

 ${\cal G}$ Refresh topology

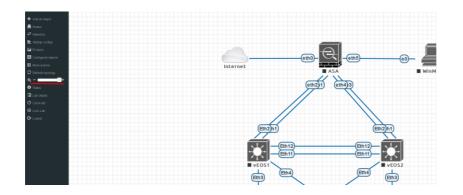
Sometimes it is necessary to refresh the topology if many objects are added on the topology.

7.9.9 Lab page zoom/unzoom

+

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





7.9.10 **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 7.4.3

STATUS				* ×
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		3 running QEMU nodes
	ہ running Dock	er nodes	runnin	o g VPCS nodes

7.9.11 Lab details

Lab details display information about a lab, its UUID, description and 🔳 Lab details lab tasks. To edit the lab description and lab tasks, please refer to section 7.8.4 and 7.9.7.6 LAB DETAILS ARISTA MLAG INTEGRATION



7.9.12 Lab Tasks

🔊 Lab Task(s)

Opens a Lab Task feature. The EVE LabTasks is a feature that allows users (including admins and editors) to to create task or workbook for the Labs. Detailed how to create lab workbooks please refer Secton 10.5



7.9.13 Lab Chat

Lab Chat

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

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



7.9.14 Lock Lab with password

"Lock Lab" disables some of the functions on the lab topology. If the lab is locked, you cannot move any node or object nor edit any node settings. Basically, the whole lab will be in readonly mode except for the lab settings itself, which you can still edit as Administrator or Editor from the main menu. The Lock Lab function is also used in conjunction with the countdown timer function, for details on this please refer to section 10.4

Lock Lab	LOCK LAB
Lab is unlocked and all operations are working	Password Confirm password Loo: Cancet
	Enter and confirm your lab lock password

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

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

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



7.9.15 Locked Labs Access rules

File manager Current Position / root / Shared			
New Name	Add folder	001 FTD Policy Lab v1 for students	
		Cisco Security Firepower Threat Defense Policies Lab Created by Uldis, EVE Pro, 2021	Modes used in the Late • Prepawer FMC 6:7.0-65
•		- 100 - 100	Fingpower FTD 6,7.9-65 Router: IRR01, Linux1,3-Ark/EnterpriseK9-M2, 157, 3, May, 2018 Settches: IRR01, Illux, Q: adventerpriseK9-ms, SSA.high.iron, 20190423.htm Administrative FC: UVE Docker evenuel-server
O1 FTD Policy Lab v1 for students.unl	10 May 2023 16:46	Company Office	Administrative PL, the booker everyal server Ho/2 Ferver IVE Docker everyal-server Kali Linux EVE Docker everyal-server
Arista02.unl	16 May 2022 20:27	P PRI IP 26.1.1.10.27	Untrusted Internet Zone
E SD-WAN ZTP Lab_Student.unl	19 Dec 2022 15:31	- 100 - 100	C C C C C C C C C C C C C C C C C C C
Firepower 6-6 VRF POC Lab_For Others.unl	10 Feb 2022 10:19	VLAZED DM2 VAXED Cirposito	Internet internet
Firepower DEAC PoC 002 no SW Shared.unl	09 May 2023 07:40	Comparing and a second and	
Full Scale Lab3 CSRNG Shared for all users.unl	03 Mar 2023 16:16	a supe	eti(2.101.254 eti(1.173.254 VLAVI275 internet) eti(2.102.34 eti(1.173.254 VLAVI275 internet) eti(2.102.34 eti(1.273.254 VLAVI276 internet)
JNCIA-01-NAT-Internet_for engineers.unl	01 Jul 2022 22:16		tur evelati 20.1.1.20

- Administrator CAN delete locked lab including shared folder. No unlock password is required.
- ✤ Lab Editor CAN NOT delete locked labs, including shared folder. Editor CAN unlock Shared folder Lab and delete it, if the unlock password is known.

Professional # Main / Management -	System - Information - @2023 EVE-NG	EVE Version 5.0.1-103 17.50 👗 editor02 👄 Sign Du
File manager Current Position / root / Shared		Forer tot enough access privileges for this operation (9002).
New Name	Add folder	
•		Choose a lab for more info
O1 FTD Policy Lab v1 for students.unl	10 May 2023 16:46	

✤ Lab User CAN NOT delete locked labs at any location.

7.9.16 **Fullscreen**

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

"Fullscreen" again.

Hide interface labels 7.9.17

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

7.9.18 Dark mode or Light mode

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



7.9.19 Close lab

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

7.9.20 Logout

🕒 Logout

Log out from the EVE WEB GUI session.

7.10 EVE Lab topology menus

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

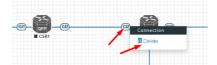
7.10.1 Lab topology menu



Right-clicking on the (free/unused) canvas of the EVE topology opens a new menu. (Add-) Node, Network, Picture, Custom Shape and Text are the same functions referred to in section 7.9.1.

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.

7.10.2 Connection menu



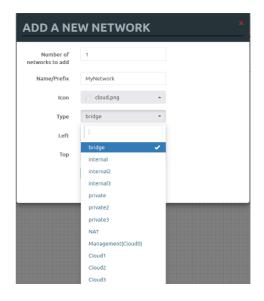
Right-clicking on the connection between nodes allows you to delete this connection.

7.10.3 Network Adding



When you have chosen Add a Network, the ADD A NETWORK window will open where you can change the placement, **network type** or name/prefix.

NOTE: You can add multiple networks (clouds) on your EVE topology, which will act as same cloud but in different locations on your EVE. Literally, like, the ethernet socket in the wall.





7.10.4 Bridge or Internal network menu

	<u></u> ≽	
в	Bridge	
	🖸 Edit	
	🗲 Manage	
	Delete	

Right-clicking on a Bridge or Internal network allows you to Edit, Manage or Delete it.

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

For details on how to operate EVE Cloud networks and external connections, please refer to section 9

Bridge	EDIT NETV	*	
	ID	1	
	Name/Prefix	Bridge	
	lcon	Switch2.png •	
	Туре	bridge -	
	Left	1119	
	Тор	543	
		Save Cancel	



If you have chosen Manage, the Network Manage window will open a window where you can change Port assignments or protocol used for the bridge network.

For details on how to operate EVE Cloud networks and external connections, please refer to section 9

7.10.5 Cloud and Private network menu

When you have chosen Add a Network, the ADD A NETWORK window will open where you can change the placement, **network type** or name/prefix.

NOTE: You can add multiple networks (clouds) on your EVE topology, which will act as same cloud but in different locations on your EVE. Literally, like, the ethernet socket in the wall.



For details on how to operate EVE Cloud networks and external connections, please refer to section 9

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



7.10.6 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 8.1.2

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

EDIT NODE	-	
w. 1.		
Cisco CSR 1000V		
ID		
3		
Image		
csr1000v-universalk9.03	1.17.04.S.156-1.S4	•
Name/prefix		
CSR3		
lcon		
🎒 CSRv1000.png		•
UUID		
67fea887-b30d-4ad0-b3	314-828808b38533	
CPU Limit		
CPU	RAM (MB)	Ethernets
1	3072	4
QEMU Version	QEMU Arch	QEMU Nic
tpl(2.12.0) 👻	tpl(×86_64) •	tpl(e1000) 🔹
QEMU custom options		
-machine type=pc-1.0,a	ccel=kvm -serial mon:stdio -no	graphic -nodefconfig -nodef
Startup configuration		
Delay (s)		
0		
Console		
		•
Console	Тор	•

7.10.7 Running node menu

vios (4) > Stop ⊘ Details ⊗ Wipe ± Export CFG > Capture > Graph 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 autoselected 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)



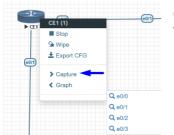
- Power off: Kills the running nodes process within EVE (hard poweroff).
- **Hibernate.** Save Node state (Disk and Memory are saved in an internal snapshot). Used for fast boot of a node. The hibernation process can take some time. Once the hibernation process is completed, the node will turn grey (shutdown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

Details: Details of running node template and graphical resource usage.

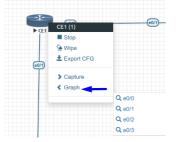
paraentaga	100.0 50.0	CPU (100	% = 1 CPU)			M	user .	ercentage 7.6
par	0.0	17:42:00 Memory	17:44:00	17-46:00	17:48:00	17:50:00	Mon, 10 Apr 2023	
EH	200.0						m cache	MiB 0.0 32.0
		17:42:00	17:44:00	17:48:00	17:48:00	17:50.00	<< ▶ >> +	
				т	emplate			
0	iscow		er	т	emplate			
C	isco v	IOS Rout	er	т	emplate			Ŧ
C	isco v	IOS Rout	er	т	emplate ID			•
Ci	isco v	IOS Rout	er	т				•
	isco v	IOS Rout	er			ath		•
4					ID instance p		2f10c/4	Ŧ
4				Node i 57149-6cd2	ID instance p		'2f10c/4	•
4	opt/u	netlab/tn	np/10/6aa6	Node i 57149-6cd2	ID instance p 2-43ab-92b Image		'2f10c/4	•
4	opt/u	netlab/tn	np/10/6aa6	Node i 57149-6cd2 °A.159-3.M	ID instance p 2-43ab-92b Image 6		'2F10c/4	*
4 /c	opt/u	netlab/tn	np/10/6aa6	Node i 57149-6cd2 °A.159-3.M	ID instance p 2-43ab-92b Image		'2f10c/4	•
4 /c	opt/u	netlab/tn	np/10/6aa6	Node i 57149-6cd2 °A.159-3.M	ID instance p 2-43ab-92b Image 6 me/prefix		2f10c/4	Ţ
4 /c	opt/ui ios-ad	netlab/tn	np/10/6aat isek9-m.SP	Node i 57149-6cd2 °A.159-3.M	ID instance p 2-43ab-92b Image 6		2f10c/4	•

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 10.3



Capture. Integrated live Wireshark capture. Select the interface which you wish to capture. Reference section **11**



Graph. Integrated live interface activity monitoring. Displaying live interface utilization activity.





7.10.8 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.

50	50	
GI]GI2	GIGI	6
► CSR1	► CSR2	Mgmt
	Gi3	

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

Si) ► CSR1	Gi2	G2		Croup of CSR1, CSR2 > Start Selected = Shutdown Selected
				Wipe Selected Console To Selected Nodes
		GI	vSwit	
		QFP CSR3		Horizontal Align Vertical Align Oricular Align
				Delete nodes startup-ofg Delete Selected

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 10.3



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

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

For a full explanation of exporting configurations, please refer to section 10.3

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

Please refer to section 10.3

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

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

Please refer to section 10.3

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

Step 1: Select the nodes you wish to align.

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

SS VIOSI	MOS2	SCON LINES VIOSA	₩OSS ■ WOSS ■ WOSS	¥1057	 ¥059 • vi0510
Picture	after:				
VIOS1	VIO52			VIOS7	

Picture before:

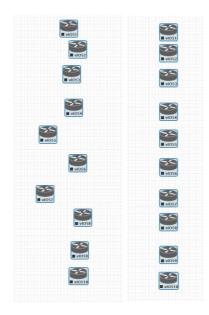
Vertical Align: Aligns the nodes in one vertical line.

Step 1: Select the nodes you wish to align.

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

Picture before Picture after

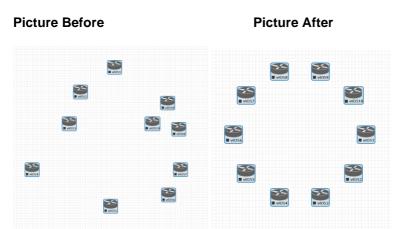




Circular Align: Aligns the nodes in a circle.

Step 1: Select the nodes you wish to align.

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



Delete nodes startup-config.

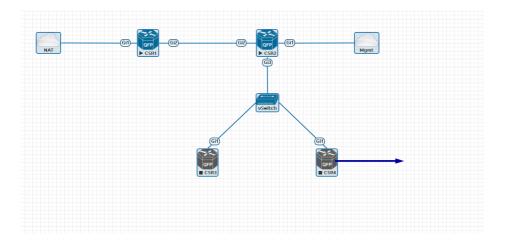
WARNING, this action will delete the configurations of the selected nodes that are saved to your Default config set. Please make sure that is what you want to do before you execute this.

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

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

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





7.11 EVE Lab node states and symbols

7.11.1 Stopped (non-running) nodes



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



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

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

7.11.2 **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 10.1



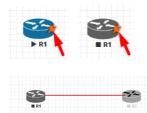
A running node with a turning red gear symbol means that the node is either in the process of hibernating the node or it has sent the shutdown signal to the node and is waiting for it to turn off. Once this process has successfully finished, the symbol will turn into a grey node with a black square symbol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

A 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.

7.11.3 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.

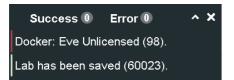
7.12 Other

7.12.1 Notifications area



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

Unwrapped notifications:



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

Success 4	Success message counter. For review, click on green ball to unwrap notifications. To wrap notifications, click to the ball again or click at any point of topology
Error 1	Error message counter. For review, click on red ball to unwrap notifications. To wrap notifications, click to the ball again or click at any point of topology
~	Unwrap or wrap notifications bar.
×	Close notifications bar. Note: Notifications bar appears automatically on any EVE topology activity.

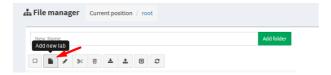


8 Working with EVE labs

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

8.1 Creating a lab

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



Step 2:

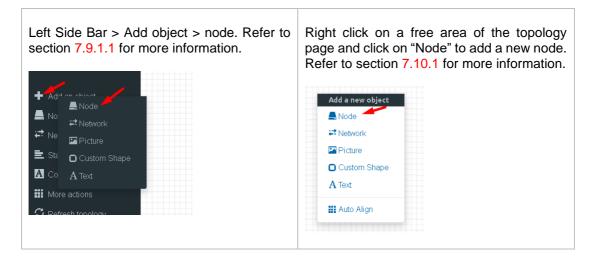
Fill out the lab information. Name and Version are required fields. Next hit Save. Refer to section 7.8.4 for more information about the different fields in the Edit lab window.

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

8.1.1 Adding nodes to the lab

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

Step 1: Object/Add Node





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

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

mplate	Template
Nothing selected	➡ Nothing selected
- -	ciscol
Nothing selected	Cisco AMP Cloud
A10 vThunder	Cisco ASA
Apple OSX	Cisco ASAv
Aruba ClearPass	Cisco Application Policy Infrastructure
Aruba WiFi Controller	Cisco Context Directory Agent
Arista vEOS	Cisco CSR 1000V
Barraccuda NGIPS	Cisco CSR 1000V (Denali and Everest)
Brocade vADX	Cisco IPS
CheckPoint Security Gateway VE	Cisco CUCM
Cyberoam FW	Cisco ISE
Dockerio	Cisco IOS 1710 (Dynamips)
	Cisco IOS 3725 (Dynamips)
Cisco AMP Cloud	Cisco IOS 7206VXR (Dynamips)
Cisco ASA	Cisco IOL
Cisco ASAv	Cisco NX-OSv (Titanium)
Cisco Application Policy Infrastructure	Cisco NX-OSv 9K
Cisco Context Directory Agent Cisco CSR 1000V	Cisco FirePower
Cisco CSR 1000V Cisco CSR 1000V (Denali and Everest)	Cisco FirePower 6
Cisco IPS	Cisco vIOS
Cisco CUCM	Cisco vIOS L2
Cisco ISE	Cisco vNAM
Cisco IOS 1710 (Dynamips)	Cisco vWLC
Cisco IOS 3725 (Dynamips)	Cisco vWAAS
Cisco IOS 7206VXR (Dynamips)	Cisco Prime Infra
Cisco IOL	Cisco Email Security Appliance (ESA)
Cisco NX-OSv (Titanium)	Cisco Web Security Appliance (WSA)
	Cisco XRv
Cisco NX-OSv 9K Cisco FirePower	Cisco XRv 9000

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



ADD A NEW NODE

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

8.1.1.1 Node values Table

Number		Description
1.	ADD A NEW NODE	Template menu. Choose which node template to add to the topology



2.	Number of nodes to add Chose the number of nodes of this type you want to add to the topology
3.	Image csr1000v-universalk9.03.17.04.S.156-1.S4 csr1000v-universalk9.03.17.04.S.156-1.S4 Choose your preferred version from preloaded images list (if you have more than one image loaded for a single template).
4.	Name/prefix Type your preferred node name. If you are adding more than one, EVE will automatically append numbers to the nodes name. Example. We are adding 5 CSR nodes with the name R. On the topology they will appear as R1, R2, R3, R4, R5. Later using the the Nodes window, you can edit the node names per your needs. Refer to section 7.9.2 or edit the node individually, refer to section 8.1.2.
5.	 CSRv1000_png AristaSW.png AristaSW.png AristaSW.png CSRv1000_png CSRv1000_png Node icons can be changed from the default per your preference, simply choose the preferred icon from the dropdown list. Node icons can be changed later per your needs. Refer to section 7.9.2
6.	UUID The UUID number is assigned automatically after a node is created. You may also set it manually in case you are using a license that is tied to a particular UUID.
7.	CPU Limit CPU limit per node. This option is already set (checked/unchecked) per EVE recommendations. Refer to section 7.4.3
8.	CPU Each node template has a pre-set CPU value that aligns with vendor requirements. This value can be changed per your needs.
9.	RAM (MB)Each node template has a pre-set RAM value that aligns with vendor requirements. This value is displayed in MB and may be changed per your needs.
10.	Ethernets 4 4 The number of ethernets interfaces.



	▲ NOTE for IOL nodes:							
	Ethernet interfaces for IOL nodes are placed into groups of 4. A value of 1 for Ethernet means your node will have 4 interfaces.							
	The serial interface option is available for IOL nodes only and follows the same grouping structure as ethernet interfaces. A value of 1 for Serial means your node will have 4 serial Ethernet portgroups (4 int each) Serial portgroups (4 int each) interfaces							
	Ethernet portgroups (4 int each) Serial portgroups (4 int each) interfaces. 1 1							
	Custom MAC address for Qemu nodes only. You can define your own MAC address for first interface:							
11.	First Eth MAC Address							
	aa:bb:cc:00:de:ad							
12.	QEMU VersionEVE will pre-set the best recommended QEMU version for each node template. This value can be changed per your needs.							
13.	QEMU Arch Ltpl(x86_64) Qemu architecture is pre-set per image vendor recommendations. This value can be changed per your needs							
14.	QEMU Nic tpl(unvenet3) virtio-net-pci e1000 e1000-82545em vmxnet3 tpl(unvenet3)							
15.	QEMU custom options -machine type=pc-1.0, accel=kvm -cpu Nehalem -serial mon:stdio -nographic -r per image vendor recommendations. This value can be changed per your needs							
16.	Startup configuration None Startup configuration: Value can be changed to set your node to boot from saved configurations. Refer to section 10.3 for more details.							
17.	The Delay value is set in seconds and can be used to delay a node from booting after it is started. Example: if the value is set to 30, the node will wait 30 seconds before processing its boot sequense. This feature is useful in conjunction with the "Start all nodes" function if your lab requires certain nodes to start up before others or to avoid a mass-start of very heavy nodes.							



18.	Console telnet The setting can be changes per your needs. NOTE: The Docker template contains a therefore, please refer to section 14.1.3 types for each docker image. Windows r VNC but RDP needs to be enabled in W	for recommended console nodes can use either RDP or
19.		AC address.

8.1.2 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.
- 8.1.2.1 Edit nodes globally

From the Topology page. Click "Nodes" from the left sidebar to bring up the nodes list. Refer to section 7.9.2 for more details.



8.1.2.2 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 8.1.1.1.



Template				
Cisco vIOS				
ID				
1				
lmage				
vios-adventerprisek9-m	n-15.6.2T			
Name/prefix				
wos.				
lcon				
沓 Router.png				
UUID				
b5fa3320-98ed-4ea4-a	d21-627d427b8a6a			
	RAM (MB)		Ethernets	
	RAM (MB) 1024		Ethernets 4	
CPU 1				
CPU 1	1024	•	4	
CPU 1 QEMU Version tpl(default 2.4.0) •	1024 QEMU Arch tpl(i386)	•	4 QEMU Nic	
CPU 1 QEMU Version tpl(default 2.4.0) QEMU custom option:	1024 QEMU Arch tpl(i386)	• dio -nogra	4 QEMU Nic tpl(e1000)	-node
CPU 1 QEMU Version tpl(default 2.4.0) QEMU custom option: -machine type=pc-1.0,6	1024 QEMU Arch tpl(i386)	• dio -nogra	4 QEMU Nic tpl(e1000)	-noda
CPU 1 QEMU Version tpl(default 2.4.0) QEMU custom option: -machine type=pc-1.0,6	1024 QEMU Arch tpl(i386)	• dio -nogra	4 QEMU Nic tpl(e1000)	-node
CPU 1 QEMU Version tpl(default 2.4.0) QEMU custom options -machine type=pc-1.0,4 Startup configuration None	1024 QEMU Arch tpl(i386)	• dio -nogra	4 QEMU Nic tpl(e1000)	-node
CPU 1 QEMU Version tpl(default 2.4.0) CPU	1024 QEMU Arch tpl(i386)	tio -nogra	4 QEMU Nic tpl(e1000)	-node
CPU 1 QEMU Version tpl(default 2.4.0) QEMU custom option: -machine type=pc-1.0,4 Startup configuration None Delay (s) 0	1024 QEMU Arch tpl(i386)	• dio -nogra	4 QEMU Nic tpl(e1000)	-node
QEMU Version tpl(default 2.4.0) ▼ QEMU custom option: -machine type=pc-1.0,a Startup configuration None Delay (s)	1024 QEMU Arch tpl(i386)	tio -nogra	4 QEMU Nic tpl(e1000)	-node

8.1.3 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 10.3

8.1.4 Interconnecting nodes

Save Cancel

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





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

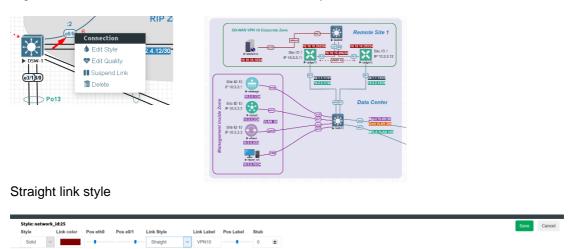
	S	
R2	► vios	NAT
	#2	

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

ADD CONN AND R2	IECTION BETWEEN R1	63		53
R1	Source ID: 1 Source Name: R1 type - Node		(Gi0/0 - ■ R2
GINTE	Choose Interface For R1 Gi0/0 G0/0 G0/1 G0/2			
Gio/O R2	Gio/3			
	Destination ID: 2			
	Destination Name: R2			
	type - Node Save Cancel			

8.1.5 Edit connection link style

Right click on the connection link and choose Edit Style



Bezier link style



Save Cancel

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

Flowchart link style

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

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

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

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

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

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

Curviness: Link curviness feature for Bezier style link

Midpoint: Link mid point change, Flowchart style only

Round: Link round angles, Flowchart style only

Stub: Stub link connection beside node, Straight style only

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

8.1.6 Edit connection link quality

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



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

Link Quality:	vEdge21	- 5447	2															
Interface	Delay (r													Loss (%				
ge0/2	0	٠	0	٥	25	۰	0	٠	e0/0	0	٥	0	٠	25	•	0	٠	

Apply Save Close

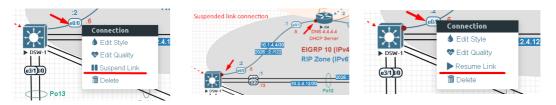


8.1.7 Suspend or resume link connection

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

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

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





🗹 AS	SW-1					* 4	
Et3/0		connected	trunk	a-full	auto RJ45		
Et3/1		connected	trunk	a-full	auto RJ45		
Et3/2		connected	trunk	a-full	auto RJ45		
Et3/3		notconnect		auto	auto RJ45		
Po13		connected	trunk	a-full	auto		
Po23		connected	trunk	a-full	auto		
ASW1#							



Supported nodes with suspend/resume feature:

Supported nodes for Link Suspend/resume	Not supported
IOL vIOS XRv9K CSR CSR SD-WAN ASAv Firepower FTD Juniper vSRX 12.1X47 Juniper vSRX NG Juniper vMX VCP/VFP Juniper VRR Nokia Timos SR 19.5.1 Windows All Linux All Apple OSX Mikrotik Palo Alto F5 Fortigate Checkpoint Cumulus Cyberoam FW Sophos FW SonicWall FW Viptela Velocloud Versa Networks sd-wan pfSense Brocade vADX Barracuda NGFW HP VSR1000	Arista NXOS 9k ASA ported XRv Old Juniper vMX Juniper vQFX Dynamips Titanium Nexus 7.x

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

IOL L3 router image with:

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

Same behave is observed if your Serial interface is configured with PPP encapsulation.

Other observations:

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

8.1.8 Delete connection between nodes



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



8.1.9 Delete Node



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

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

8.2 Running labs

8.2.1 Starting lab

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

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

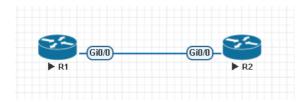
A IMPORTANT. Starting all the nodes at once can result in major spikes in CPU utilization. Please make sure you are not using the "Start all nodes" option for heavy labs. Instead, it is recommended to start nodes in small groups.

Starting a node or group of nodes:

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

R1 (1) -600				
Start 🔫	50	52		
Se Wipe		Gi0/0	Group of R1, R2	
C Edit			Start Selected	
🛅 Delete			Shutdown Selected	
			A	

Running nodes will turn blue. Refer to section 7.11 for node states





8.2.2 Interconnecting running nodes (hotlinks)

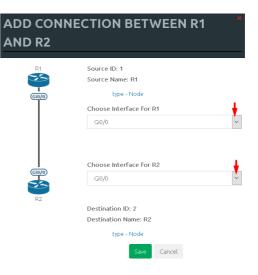
Eve Professional offers the hotlinks feature which allows you to interconnect node in the running state.



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

mouse pointer on the second node

35	
▶ R1	► R2
P KI	p ne



8.2.3 Link guality delay, packet loss, jitter and rate feature

Please refer to Section 8.1.6

8.3 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 10.1

8.4 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 7.10.7



8.5 Start saved lab

Select the lab you want to start and click "Open". To start Lab refer section 8.2.1

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

8.6 Working with multiple running labs

Refer to section 7.2.1.1

8.7 Importing labs

Refer to section 7.2.2.6

8.8 Exporting labs

Refer to section 7.2.2.5

8.9 Deleting labs

Refer to section 7.2.2.2

8.10 Moving labs

Refer to section 7.2.2.4

8.11 Shared Project/Lab

EVE-NG provide an option to share single running lab between users. It is designed to run single lab for many users who can participate in lab session and configure it.

Note: Lab sharing option can be used between any of EVE NG User roles.

- ✓ Administrator can share lab for other Administrators, Lab Editors or Lab Users.
- ✓ Lab Editor can share lab for Administrators, other Lab Editors or Lab Users



✓ Lab User can share lab for Administrators, Lab Editors or other Lab Users.

8.11.1 Create Lab share

Step 1. Navigate to EVE main Lab tree and select which lab you want to share with others. *Do not create shared Project lab from Shared folder to avoid lab names duplication.*

Professional # Main / Managen	nent 👻 🖉 System 👻 🕕 Inform	nation • O Licensing • 02021 EVE-NG 08:	3 🛔 uldis	G Sign Out
File manager Current Position / root				
New Name	Add folder	FTD Policy Lab v1		
		Citico Security Firepower Threat Defense Policies Lab Created by Uidis, LVE Pro, 2021 Trepower HDC 4.3-65		Scale
🗌 🖿 Wireless	25 Apr 2021 01:41 ^	Router: IRED(LinuxL3 AdvEnterpriseR942) 137, 3 (May 2018 Finder: IRED(LinuxL3 AdvEnterpriseR942) 137, 3 (May 2018		
🗆 🖿 XLabs	28 Feb 2021 22:03	Company Office Iss		
🗆 📑 1 VRRP.unl	26 Apr 2021 02:43	Company Office	_	
🗆 🖹 7200.unl	26 Apr 2021 16:37	Untrusted Internet Zone		
🗆 🗎 A1.unl	28 Apr 2021 09:21			
🗆 🖺 A_Trunka.unl	02 Apr 2021 13:57			
DC-UD-ASA-Cluster.unl	10 Dec 2020 00:16			
DUAL ISP.unl	23 Apr 2021 12:57	462.331.332 497 691.1372.345 VAA173 Internet1 902.332.34 692 691.1372 439 VAA173 Internet1 902.332.34 692 691.132 691 VAA174 Internet2 for example 201.130		
🗹 눹 FTD Policy Lab v1.unl 🛛 🛶 🛶	11 Feb 2021 22:36	Lab Path: /FTD Policy Lab v1.unl		
🗆 🖺 FTD Policy Lab v1_dark.unl	28 Feb 2021 16:19	Version: 1		
🗆 🖹 FTDv AnyConnect kids lab.unl	26 Apr 2021 04:51	UUID: 04b55e95-281f-4b6c-8d40-bfcf88e3c193 Author: Uldis		
migration_lab_master_sat.unl	17 Mar 2021 18:29			
MPLS-LDP Lab.unl	14 Feb 2021 12:02	Open Edit Delete		
Multicast Cisco with VLC 01.unl	18 Apr 2021 17:40	Description: Cisco Firepower Threat Defense (FTD) Basic Lab		

Step 2: From menu "Shared with" select Users to whom you want to share lab

Edit lab			• •
Path*	/FTD Policy Lab v1.unl	Description	Cisco Firepower Threat Defense (FTD) Basic Lab
Name*	FTD Policy Lab v1		
Version*	Use only [A-Za-z0-9] chars		
Author	Must be interger ([0-0]chars) Uldis	Tasks	
Satellite	any v		
Shared with	Select users		
Config Script Ti	evenser?@eve lab		Save Cancel
Lab Countdowr	augure and Davis Jah		
* - Required Fie	olga		

8.11.2 Remove Lab share

Note: Only owner of lab share can remove sharing.

Step 1. Navigate to EVE main Lab tree and select shared and click "Edit"

Edit lab					• 4
Path*	/FTD Policy Lab v1.ur	1		Description	Cisco Firepower Threat Defense (FTD) Basic Lab
Name*	FTD Policy Lab v1				
Version*	Use only [A-Za-z0-9]cham	S			
	Must be interger ([0-9]chars			Tasks	b.
Author	Uldis				
Satellite Shared	eveuser1@eve.lab ×	any v			
with		`			4
Config Script	Timeout	900	Seconds		Save Cancel



8.11.3 Working with shared lab

Step 1: Owner of shared lab starts the lab.

Step 2: Other user to whom this lab is shared, log into EVE with his account

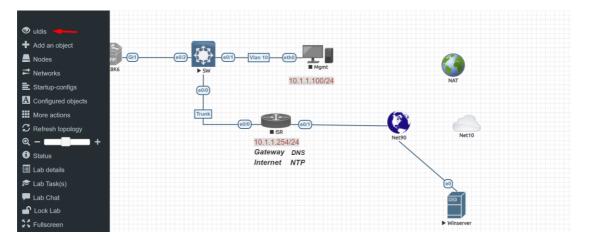
Step 3: Open Shared Lab folder, the lab shared to him will appear as shared lab with owner user in brackets.

eve Professional # Main & Manageme	nt + 📓 System + 🛛 Information + @2021 EVE-NG		09:02 🛔 uldisuser
L File manager Current Position / root / Shared			
Rew Name	Add folder		
0 8 / 2 8 4 4 8 0			
• 2		Choose a lab for more info	
🖸 📑 A1.unt (uldis)	28 Apr 2021 09:21		
🖸 📲 F SD-WAN Kids Lab.unl	30 Jan 2021 16:30		
D FTDv AnyConnect kids lab.unl	26 Apr 2021 04:15		
🖸 📑 MPLS - LDP.unl	22 Apr 2021 10:19		
Multicast Cisco with VLC 01.unl	22 Apr 2021 10:17		
RS CCNP TS Lab_test.unl	01 Feb 2021 05:51		

Accordingly, permissions of user roles:

- ✓ Administrator can start, stop or edit lab.
- ✓ Lab Editor can start, stop or edit lab.
- ✓ Lab user can start and stop lab

When you join in the shared lab, on the top of left side bar menu, you will notice the name of lab owner.



Note: If the Lab is been edited by Administrator, changed links connections or nodes, other shared lab users must refresh this lab topology to obtain changes.

Note: Parallel Consoles

Telnet Consoles: can be opened parallelly for any user

VNC Console: can be opened parallelly for any user

RDP Console: Only one user at same time can use RDP console to the node

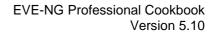


8.12 Sticky lab

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

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

Lab None	
None Sate (Charactication)	
/Shared/A Lulii	
/Shared/RS CCNP TS Lab_test.unl	
-1 0 -1	0
Edit User	
User Name*	
stud01	
External Auth (Radius)	
Password	
•••••	٩
Password Confirmation	
•••••	٩
Email	
stud01@eve.net	
Please enter an valid email	
Name	
Student 01	
Use only [A-Za-z0-9]chars	
Role Lab User 🗸	
Console html5 V	
Lab /Shared/RS CCNP TS Lab_test.unl	
Satellite sat1 V	
Account Validity	
From -1 0 to -1	0
POD*	
5	
Quotas	
CPU -1 (GB)	
* - Required Fields	
F	dit Cancel





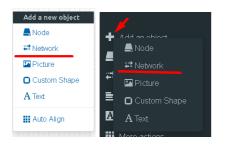
9 EVE Clouds and Networks

9.1 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

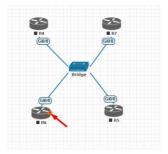
Step 1: Add a Bridge Network onto the topology. There are two ways to do this: Right-clicking on the topology area and selecting "Add Network" or in the sidebar click "Add an Object" and then select "Network." Please refer to sections 7.10.5 and 7.9.1.2



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

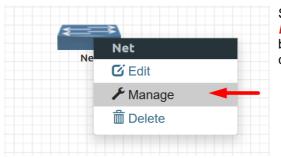
ADD A NE	W NETWORK *
Number of networks to add	1
Name/Prefix	Net
Туре	bridge
Left	1089
Тор	476
	Save Cancel

Step 3: Connect your nodes using the drag and drop connector. Refer to sections 8.1.4 and 7.10.5





9.2 The experimental Smart Bridge feature.



Smart bridge feature is available for EVE *Bridge and Internal Networks*. Using smart bridge feature, you are able to assign connected bridge ports with VLAN ID.

S-S	W3					×	VL nat ass
		ID 6					
	Sma	art Bridge (E	kperimental)				Sm opt
	Enabl	e 802.1ad (E	kperimental)				En
	NODE ID	NODE NAME	INTERFACE ID	INTERFACE	NAME VLAN ID		bri
	9	SW-IOL1	0	e0/0	0		
	10	SW-IOL2	0	e0/0	0		
	11	R-IOL1	0	e0/0	101		
		Save	Cancel				

VLAN ID 0 – untagged port with native VLAN 1, used for trunk assignment.

Smart Bridge, enables 802.1q option.

Enable 802.1ad option allows to use bridge for QinQ mode.

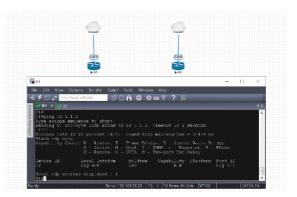
9.3 Internal Network

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

EVE Pro is offering 3 independent Internal clouds/domains. It is isolated from each other. Inside of single lab you can have up to 3 isolated cloud/domain networks. Example of Internal cloud usage below:

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

ADD A N	EW NETWORK
Number of networks to add	2
Name/Prefix	internal
Туре	internal 🔹
Left	1345
Тор	306
	Save Cancel



Step 2: Connect your lab nodes to internal cloud. Your configured nodes will work like being connected to the same switch (or the same bridge



in EVE). CDP works. It is convenient if it is necessary to have connections across the lab and you don't want to have connections going from one end of the lab to the other.

9.4 **Private Network**

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

EVE Pro is offering 3 independent Private clouds/domains. It is isolated from each other. Inside of single user POD you can have up to 3 isolated Private cloud/domain networks. Example of Private cloud usage below:

ADD A N	EW NETWORK	×
Number of networks to add	1	
Name/Prefix	Private	
Туре	private -	
Left	1345	
Тор	306	
	Save Cancel	

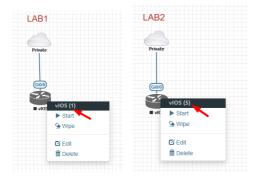
Example: Single user is running multi labs (Lab1 and Lab2), and want interconnect it.

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

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

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

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



9.5 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. NAT network can be changed per your needs, please refer 7.4.1

To add a NAT Cloud onto the EVE topology:

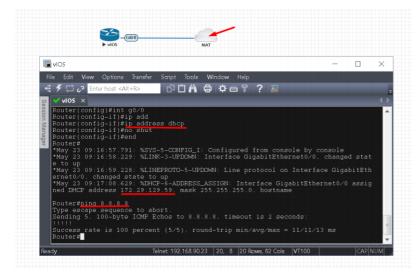


ADD A NEW NETWORK					
Number of networks to add	1				
Name/Prefix	NAT				
Туре	NAT				
Left	935				
Тор	340				
	Save Cancel				

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 8.1.4 and 7.10.5



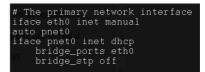
If your EVE management is connected to the Internet, adding a NAT cloud onto the EVE lab enables you to have internet access from within your EVE lab using NAT.

EVE NAT Gateway IP is: 172.29.129.254/24

DHCP is enabled on the EVE NAT Cloud.

9.6 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, with NIC Teaming Network, please follow the steps below to edit the reverse path settings
 - From the Navigator window select Manage > System > Advanced settings.
 - Scroll down or use the search bar to go to the Net.ReversePathFwdCheckPromisc option.
 - Select Net. ReversePathFwdCheckPromisc and click Edit option.
 - In the Edit option Net.ReversePathFwdCheckPromisc window update the New value field to 1 and click Save.
- IMPORTANT NOTE: For EVE VMs running on ESXi, make sure your management interface bridged with the vSwitch (Port group) has the security settings 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: "Accept"
 MAC Address changes: "Accept"
 Forged transmits: "Accept"

vSwitch Settings

🥖 Edit standard virtual switch - vSv	tch0	
🔜 Add uplink		
МТО	1500	
Uplink 1	vmnic2 - Up, 100 mbps 🗸	¢
Link discovery	Click to expand	
 Security 		
Promiscuous mode	Accept Reject	
MAC address changes	Accept Reject	
Forged transmits	Accept Reject	
NIC teaming	Click to expand	
Traffic shaping	Click to expand	

Portgroup Settings

Management 90 UD			
🥖 Edit settings 🔰 🤁 Refresh 🛛 🔅 Actions			
Management 90 UD Accessable Ves Virluat mechnes: 7 Virluat switch: a vSwitch1 VLNN ID 4005 Active ports: 5			
 vSwitch topology 		* Security policy	
		Allow promiscuous mode	Yes
Management 90 UD	Physical adapters	Allow promiscuous mode Allow forged transmits	Yes Yes
VLAN ID: 4095	Physical adapters		
-		Allow forged transmits Allow MAC changes	Yes
VLAN ID: 4095 Virtual Machines (7)		Allow forged transmits	Yes
VLAN ID: 4095		Allow forged transmits Allow MAC changes	Yes
VLAN ID: 4095 • Virtual Machines (7)		Allow forged transmits Allow MAC changes VIC teaming policy	Yes Yes Yes
VLAN ID: 4095 V Idrual Machines (7) (3) VCentre 90.95 (3) S2016 EVE 90.201 (4) EVE-PRO.98.100 MAC Address 00.02.20 dias 9e (5) EVE-PRO.94		Allow forged transmits Allow MAC changes • NIC tearning policy Notify switches Policy	Yes Yes Yes Route based on or
VLAN ID: 4095 • Virtual Machines (7) (2)		Allow forged transmits Allow MAC changes • NIC teaming policy Notify switches Policy Reverse policy	Yes Yes Yes Route based on or Yes
VLAN ID: 4095 • Virtual Machines (7) ⊕ VCentre 90.55 ⊕ S2016 EVE 90.201 ⊕ EVE-PRO 98.100 MACAdress 000: 20 d0 as te ⊕ EVE-PROV24 ⊕ EVE-COM 89 ⊕ EVE COM 89 ⊕ EVE COM 89 ⊕ EVE COM 89		Allow forged transmits Allow MAC changes • NIC tearning policy Notify switches Policy	Yes Yes Yes Route based on or
VLAN ID: 4095 • Virtual Machines (7) (2)		Allow forged transmits Allow MAC changes • NIC teaming policy Notify switches Policy Reverse policy	Yes Yes Yes Route based on or Yes

EVE Cloud0 bridging table.

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



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

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

ip r							
root@eve-nq:~#	rojifolackets 0146	errors.U dropped.U	overru	isil can	rler:0		
Kernel IP rout							
Destination	Gateway	Genmask	^S 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
172.29.129:010	iteway IP type:	255.255.255.0	U	0	0	0	nat0
192.168.90.0		255.255.255.0	U	0	0	0	pnet0
root@eve-ng:"#	ŧ.						

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

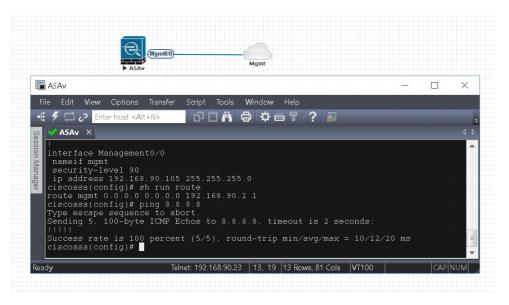
ADD A NEW NETWORK				
Number of networks to add	1			
Name/Prefix	Mgmt			
Туре	Management(Cloud0)			
Left	737			
Тор	163			
	Save Cancel			

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

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

Step 3: Connect your ASAv using the drag and drop connector to the Cloud0 network. Refer to sections 8.1.4 and 7.10.5

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

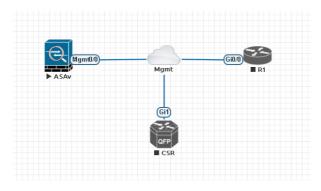


The native management host (home PC) can be used to manage nodes in the EVE lab over https. Example below showing http connection to Fortigate FW node in the EVE lab from native PC using Chrome browser.



		Cuel	 ← → C O O No 			g/system/dashboard/1		- \$ 0	Aused 🕕 🗄
FGT			FortiGate VM64-KV	M Fort	iGate-VM64-KV№	1		۹۰ کے 🕄 🕫 ۵	🕗 admin
g uter h-filter itch.controller stem er h- h- h- h- h- h- toth h-praxy bfilter h- reless.controller h- reless.controller h- reless.controller h- reless.controller h- h- h- h- h- h- h- h- h- h-		physical physical	Bashboard Satus Top Usage LAN/DMZ Security System Events Security Fabric FortiView Network O System Policy & Objects	★	System Inform Hostname Serial Number Firmware Mode System Time Uptime WAN IP	mation FortiGate-VM64-KVI FGVMEVTXJNN9OC v6.2.2 build1010 (GA NAT 2019/11/29 14:13:2 00:00:03:10 Unknown	GC7)	Licenses ProtiCare Support Firmware & General Updates IPS AntiVirus Web Filtering FortTioken 106	0/0
0 enable il.root static (0 enable	.0.0 0.0.0.0 0.0.0.0.0.0.0.0 up disable D.0.0.0 0.0.0 0.0.0.0 0.0.0.0 up disabl show system interface		Security Profiles VPN User & Device M. Log & Report	> > >	Virtual Machi	icense	1/1	FortiGate Cloud Status Not Supported	1. Q

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



9.7 Remove cloud interfaces

For security reasons you can make cloud (Cloud0-9) interfaces invisible for the Lab Editors and Lab Users.

echo -n 1	> /opt/	unetlab/r	atonly
ADD A NE	W NETWO	RK	×
Number of networks to add	1	E3	
Name/Prefix	Net		
lcon	🛆 cloud.png	*	
Туре	bridge	•	
Left			
Тор	bridge internal	~	
	internal2 internal3		
	private		
	private2		
	private3		
	NAT		

To set back Clouds0-9 visible:

```
echo -n 0 > /opt/unetlab/natonly
```



All Clouds 0-9 will remain visible for Admin users.

9.8 Other cloud interfaces

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

EVE Cloud bridging table.

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

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

▲ For ESXi make sure that you have set Promiscuous mode security settings on the vSwitch and Port group to Accept. Please refer to section 9.6



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.

9.9 Connecting external VM machines to the EVE Lab

9.9.1 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:

WSA-MGMT			
🥖 Edit settings 🔰 🤁 Refresh 🕴 🎇 Actions			
WSA-MGMT Accessible: Yes Virtual machines: 2 Virtual switch: Voltach5 VLAN ID: 0 Active ports: 0			
* vSwitch topology		* Security policy	
		Allow promiscuous mode	Yes
VLAN ID: 0	No physical adapters	Allow forged transmits	Yes
Virtual Machines (2)		Allow MAC changes	Yes
EVE-PROv24 Coeus-10-1-3-039-S000V		▼ NIC teaming policy	
		Notify switches	Yes
		Policy	Route based on originating port ID
		Reverse policy	Yes
		Rolling order	No
		- Shaping policy	
		Fnabled	No

Parent vSwitch5 settings:



wSwitch5			
🔜 Add uplink 🥜 Edit settings 🛛 🕻	🤁 Refresh 🏠 Actions		
	Standard vSwitch		
* vSwitch Details			
MTU	1500		
Ports	4352 (4319 available)	WSA-MGMT VLAN ID: 0	No physical adapters
Link discovery	Unknown	VLAN ID: 0 Virtual Machines (2)	
Attached VMs	2 (0 active)	EVE-PROv24 Coous-10-1-3-039-S000V	
▼ NIC teaming policy			
Notify switches	Yes		5
Policy	Route based on originating port ID		
Reverse policy	Yes		
Rolling order	No		
* Security policy			
Allow promiscuous mode	Yes		
Allow forged transmits	Yes		
Allow MAC changes	Yes		

EVE and WSA VMs settings

	d port is assigned to MGMT. It is Cloud1 on the		rity appliance (WSA), rt is assigned in portgroup
 Hardware Configuration 		✓ Hardware Configuration	
🕨 🔲 CPU	16 vCPUs	F 🔲 CPU	1 vCPUs
🌃 Memory	32 GB	🌉 Memory	4 GB
Hard disk 1	40 GB	Hard disk 1	250 GB
Hard disk 2	150 GB	Network adapter 1	WSA-MGMT (Connected)
🚭 USB controller	USB 2.0	Network adapter 2	UNUSED (Connected)
Metwork adapter 1	Management 90 UD (Connected)	Network adapter 3	UNUSED (Connected)
Metwork 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.



1	▶ Switch	Cloud1 External ESXi VM Port M1		
192 - 192.168.90.23:58855 - Remote Desktop Co			-	
Cisco Web Security Virtue X +	/			
→ C @ @ [0 6 https://192.168.10.3:8	43/monitor/wsa user report		··· 🖸 🕁	II\ (D) =
III.III. Cisco S000V CISCO Web Security Virtual Appliance Reporting Web Security Manager Security Service	ts Network System Administrat		 Logged in as admin on iron My Favorites . Options . 1 	
	ddina report modules from different reports	🎦 Printable PDF 🗗		
My Dashboard Attention – Vou can ruitomia: this "My Dashboard" pupe by a Some mobiles are added for you by default. The c System Overview	dding report modules from different reports. verview page can be accessed from Reporting	🎦 Printable POF 🍠		
Some modules are added for you by default. The C > Overview. System Overview Overview > Web Proxy Tarthe Characteristics Average transactions per second in past minute:	Overview page can be accessed from Reporting Overview > System Resource Utilization CPU, 5.43 CPU, 5.43 Besorting / Decode util: 5.23	• •		
Attention -	Overview page can be accessed from Reporting Overview > System Resource Utilization CPU, 5.43 CPU, 5.43 Besorting / Decode util: 5.23	• •		
Attention - Nou can sustaining this "My Dashbayd" page by a Some modules are added for you by default. The C Overview Web Prany Tarthe Characteristics Deriver > Web Prany Tarthe Characteristics Average transactions per second in past minute: Average transactions per second per second in past minute: Average transactions per second per	Overview page can be accessed from Reporting Overview > System Resource Utilization O			
Attention — Wax can customize this "My Daubhoard" pupe by a Some modules are added for you by default. The C Overview. > Web Proxy Tarth Characteristics Arenge semantic the part in part minute: Arenge research the maximum in part minute: Brain research and the maximum in the part minute: Brain research and the part of the part o	Verview page can be accessed from Reporting Overview > System Resource Utilization O O O CPU: 54 Reporting / logging disk: 5.21 System Status Details Overview > Web Proxy Summery			

9.9.2 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.

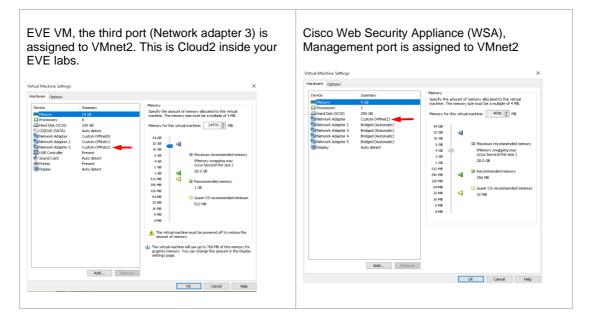
Step 1: Open your VMWare Workstation Virtual Network Editor and configure the VMnet interface for the Cloud and WSA VMs. If necessary add a new VMnet. The example below is showing VMnet2 Settings in VMWare workstation. DHCP must be disabled for VMnet2.

Virtual Network Editor settings:

lame	Туре	External Connection	Host Connection
Mnet0	Bridged	Intel(R) PRO/1000 PT Dual Port Server Adapte	er -
Mneti	Bridged	Intel(R) PRO/1000 PT Dual Port Server Adap	
Mnet2			Connected
Mineta	NAT	NAT	Connected
Minet Inform		Add Network Remove M	Network Rename Networ
) Bridged (connect VMs direct	y to the external network)	
Bridged t	o: Intel(R) PRO/1	000 PT Dual Port Server Adapter	 Automatic Settings
	red host's IP addre	ss with VMs)	NAT Settings
ONAT (shar		mally in a private network)	
0	(connect VMs inte	many in a privace nectionally	
Host-only Connect (a host virtual adap		
Host-only Connect a Host virte	a host virtual adap Jal adapter name:	er to this network	DIHCP 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.

Chrome Desktop Management Docker station DHCP IP 192.168.10.2	GR01 GR01 Claim > switch Claim Claim SW VLAN 10 WSA VM W WSA VM W SV110 192.168.10.1 as GW, DHCP IP 19 GW 192.1 DHCP POOL VLAN 10 Cloud2 as connecting Cloud2 as connecting	Vorkstation 92.168.10.3 168.10.1
🖥 172 - 172.25.1.21:33285 - Remote De	esktop Connection	- 🗆 ×
🛔 Cisco Web Security 🗸 🗙		6
→ C A Not secure https://192.168.10.3	3:8443/monitor/wsa_user_report	\$
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	
	by default. The Overview page can be accessed from Reporting	
> Overview.	uy deladit. The overview page can be accessed noin reporting	
	Overview > System Resource Utilization	•
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second	Image: System Resource Utilization in past minute: 0 CPU: 7.5%	
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second Average bandwidth (bps)	Overview > System Resource Utilization in past minute: 0 CPU: 7.5% CPU: 7.5	
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second Average andwridth (bps) Average response time (ms)	Overview > System Resource Utilization in past minute: 0 CPU: 7.5% CPU: 7.5	
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second Average andwidth (bps) Average response time (ms)	Overview > System Resource Utilization In past minute: 0 In past minute: 0 RAME 50.4% Benotifics (Charling Miss 5.2%)	
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second Average handwidth (bps) Average response time (ms) Total curre	Overview > System Resource Utilization in past minute: 0 in past minute: 0 nast minute: 0 RAM: 50.4% nt connections: 0	
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second Average bandwidth (bps) Average response time (ms) Total curre	Overview > System Resource Utilization in past minute: 0 in past minute: 0 nast minute: 0 RAM: 50.4% nt connections: 0	
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second Average bandwidth (bps) Average response time (ms) Total curre Time Range: Day 22 May 2018 20:00 to 23 May 2018 20:10 (GMT)	Overview > System Resource Utilization in past minute: O repart minute: O repart minute: O reporting / logging disk: Sz% System Status Details	0
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second Average bandwidth (bps) Average response time (ms) Total curre Time Range: Day 22 May 2018 20:00 to 23 May 2018 20:10 (GMT) Overview > Total Web Proxy Activity	Overview > System Resource Utilization in past minute: 0 in past minute: 0 in past minute: 0 not connections: 0 system Status Details	
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second Average transactions per second Average response time (ms) Total curre Time Range: Day 22 May 2018 20:00 to 23 May 2018 20:10 (GMT)	Overview > System Resource Utilization in past minute: O repart minute: O repart minute: O reporting / logging disk: Sz% System Status Details	0
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second Average handwidth (bp) Average handwidth (bp) Average response time (ms) Total curre Time Range: Day Time Range:	Overview > System Resource Utilization in past minute: 0 in past minute: 0 in past minute: 0 not connections: 0 system Status Details	0
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second Average handwidth (bps) Average response time (ms) Total curre Time Range: Day Teleview > Total Web Proxy Activity	Overview > System Resource Utilization in past minute: O in past minute: O in past minute: O in past minute: O System Status Details	
System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second Average handwidth (bp) Average handwidth (bp) Average response time (ms) Total curre Time Range: Day Time Range:	Overview > System Resource Utilization in past minute: 0 in past minute: 0 nast minute: 0 Reporting / logging disk: 5.2% System Status Details Overview > Web Proxy Summary No data was found in the selected time range Overview > L4 Traffic Monitor Summary	



9.10 Connecting EVE Lab to a physical device

9.10.1 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 Security Policy (Promiscuous mode, forged transmits and MAC changes) settings on the vSwitch and Port group to Accept.
- IMPORTANT NOTE: If you are building trunk between EVE lab node to real Switch, please make sure you have set your ESXi vSwitch interface to accept all vlans. Reference: <u>https://kb.vmware.com/s/article/1004074</u>
- ▲ **IMPORTANT NOTE:** For EVE VMs running on ESXi, with NIC Teaming Network, please follow the steps below to edit the reverse path settings
 - From the Navigator window select Manage > System > Advanced settings.
 - Scroll down or use the search bar to go to the Net.ReversePathFwdCheckPromisc option.
 - Select Net. ReversePathFwdCheckPromisc and click Edit option.
 - In the Edit option Net. ReversePathFwdCheckPromisc window update the New value field to 1 and click Save.

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

Logical chain of the networking bridge:

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

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

m 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)	VLAN ID: 4095
Link discovery	Listen / Cisco discovery protocol (CDP)	VLAN ID: 4095 Vitual Machines (7)
Attached VMs	7 (4 active)	B vCentre 90.95
Beacon interval	1	S2016 EVE 90.201 MAC Address 00 0: 28 b0 c4 5b
* NIC teaming policy		6 EVE-PRO.98.100
Notify switches	Yes	B EVE-PROv24
Policy	Route based on originating port ID	MAC Address 00.0::28.3d are b8
Reverse policy	Yes	EVE COMM 89 Cisco Identity Services Engine
Rolling order	No	ASAV 90.35 PROD
▼ Security policy		MAC Address 00 50 56 a2 0f fb MAC Address 00 50 56 a2 79 d0
Allow promiscuous mode	Yes	
Allow forged transmits	Yes	



Portgroup "Management 90 UD" Settings associated with vSwitch1

Aanagement 90 UD			
🖊 Edit settings 🔰 🤁 Refresh 🛛 暮 Actions			
Management 90 UD Accessible Vis Virtual machines 7 Virtual switch: Image: Switch 1 VLAN ID: 4005 Active ports: 5			
 vSwitch topology 		 Security policy 	
		 Allow promiscuous mode	Yes
Management 90 UD	Physical adapters	Allow forged transmits	Yes
		Allow forged transmits	163
VLAN ID: 4095	vmnic1, 100 Mbps, Full	-	Yes
	vmnic1, 100 Mbps, Full	Allow MAC changes	
VLAN ID: 4095 Virtual Machines (7)	mic1, 100 Mbps. Full	-	
VLAN ID: 4095 Virtual Machines (7) Proventre 90.95	w vmnic1. 100 Mbps. Full	Allow MAC changes	
VLAN ID: 4095 • Virtual Machines (7)		Allow MAC changes	Yes
VLAN ID: 4095 VIItual Machines (7) © VCentre 90.55 © S2016 EVE 90.201 MAC Address 000 c.21 b0 c4 5b © EVE-P0.98.100 MAC Address 00.0 c21 d0 as Be	Image: Second	Allow MAC changes VIIC teaming policy Notify switches Policy	Yes Yes Yes Route based on originating port ID
VLAN ID: 4095 Virtual Machines (7) Vortual Machines (7) Vortual Machines (7) Vortual Machines (7) Vortual Machines (7) Machines (7) Machines (7) Vortual Machines (7) Machines (7) Vortual Machines (7) Vortual M	Image: state	Allow MAC changes Not teaming policy Notify switches Policy Reverse policy	Yes Yes Route based on originating port ID Yes
VLAN ID: 4095 Virtual Machines (7) © VCritual Machines (7) © VCriture 90.95 © S2016 EVE 90.201 MAC Address 000 c 28 00 c4 5b © EVE-PRO.98.100 MAC Address 000 c 28 00 as Be		Allow MAC changes VIIC teaming policy Notify switches Policy	Yes Yes Yes Route based on originating port ID

EVE VM Settings

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

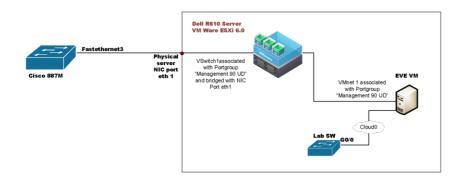
 Hardware Configuration 	
F 🔲 CPU	16 vCPUs
🚟 Memory	32 GB
▶ 🔜 Hard disk 1	40 GB
Hard disk 2	150 GB
🚭 USB controller	USB 2.0
Network adapter 1	Management 90 UD (Connected)
Network adapter 2	WSA-MGMT (Connected)
Video card	4 MB
Others	Additional Hardware

EVE Lab Connected to a physical device

Physical Topology

Cisco 887M device port Fastethernet 3 is physically connected to Server port eth1.





EVE Lab Topology

EVE lab switch port G0/0 is configured as trunk and connected to Cloud0 over bridged chain to the physical Cisco 887M Router switchport Fastethernet 3

887M									-	
File Edit View Optio	ns Transfer Script 1	fools Window He	lp							
Enter host	<alt+r></alt+r>	Ä 🗟 🌣 着 '	7 ? 📰							
					4 Þ	💙 887M 🛛 🗙				
EVE_LAB_SW#sh cd Capability Codes	p neig : R - Router. T - S - Switch. H - D - Remote. C -	Host. I - IGME		er. P - Phone.	^	LAB_ESXi# LAB_ESXi# LAB_ESXi#sh cd Capability Cod	ies: R - Router, T -	- Trans Bridge.	B - Source Route ?, r - Repeater, E	Bridge
	Local Intrfce Gig 0∕0	Holdtme Ca 125	pability Pla RSI 887	atform Port ID 7M Fas 3						
	s displayed : 1					Device ID EVE_LAB_SW	Local Intrice Fas 3	Holdtme Ca 156	apability Platfor RSI	m Port ID Gig 0/0

9.10.2 VMWare workstation EVE

Similar to the ESXi connection, it is recommended to have a second ethernet interface on your PC. It can be a USB ethernet extender as well. Not all ethernet adapters fully support a layer2 connectivity over it. MS Windows OS itself strips off any tags added to the packet. Even if your NIC supports 802.1q VLAN tagging, Windows 10 strips these tags off. The example below will show a Windows 10 host connected to a physical 3750G-24 switch. The Windows 10 Host has an Intel (R) PRO/1000 PT Dual port server adapter and is bridged with VMWare workstation (version 14) VMnets.

Virtual Network Editor Settings, Bridged VMnet interfaces with Real NIC Ports



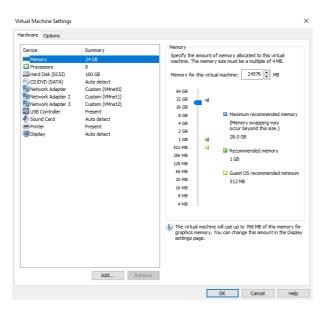
Name VMnet0	Type Bridged	External Connection Intel(R) PRO/1000 PT Dual Port Server Adapter	Host Connection	DHCP	Sub
VMnet1	Bridged	Intel(R) PRO/1000 PT Dual Port Server Adapter Intel(R) PRO/1000 PT Dual Port Server Adapter #2	-	1	2
VMnet2	Host-only	-	Connected	-	192
VMnet8	NAT	NAT	Connected	Enabled	19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

EVE VM Settings. Network adapter is bridged to VMnet0 (ethernet Intel Pro 1), and Network adapter 2 is bridged to VMnet1 (ethernet Intel Pro 2).

Responding cloud interfaces on EVE VM:

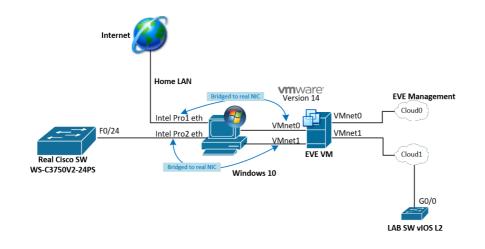
Cloud0→Network Adapter→VMnet0→IntelPro

Cloud1→Network Adapter 2→VMnet1→IntelPro#2



Physical connection scheme and VMware bridging.





EVE Lab scheme.

	Conne	ction to Real SW 3750G	
Console - SecureCRT File Edit View Optio	ns Transfer Script Tools Window Help t <alt+r> 🕼 🍓 🖓 🚽 😤 🌹 🐼 🕅</alt+r>	-	
Console x EVE-C3750# EVE-C3750# EVE-C3750# EVE-C3750# EVE-C3750#	dp nøig	Total cdp estries displayed : 1 VIOS-SWFAL cdp noin Capability Codes: S = Source Route Bridge S = Switch. H = Host, I = IGME, r = Separater, P = Phon D = Remote, C = CVTA, M = Two-port Mac Relay	
EVE-C3750#sh o Capability Coo	les: R - Router, T - Trans Bridge, B - Source Route S - Switch, H - Host, I - IGMP, r - Repeater, I D - Remote, C - CVTA, M - Two-port Mac Relay	P - Phone, Device ID Local Intrfce Holdtme Capability Platform Port EVE-C3750.eve.lab Gig 0/0 175 R S I WS-C3750V Fas	

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

9.10.3 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 9.7



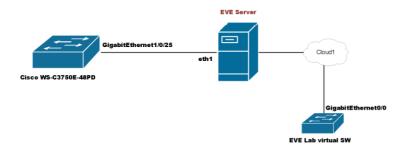
cat /etc/network/interfaces

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 9.7

The example below shows how to connect a bare-metal EVE server with a physical Cisco 3750E switch.



Physical connection topology:



The EVE lab switch's CDP neighbor is the 3750E switch's port Gig 1/0/25: A trunk has been configured between the EVE lab switch and the physical 3750E switch.

✓ Switch ×		4 ▷
Switch#sh cdp neig		^
Capability Codes: R - Router, T - Trans Bridge, Capability Codes: R - Router, H - Host, I - IGM D - Remote, C - CVTA, M - Two-	CG - Repeater / PL Phone.	
Device ID Local Intrfce Holdtme Ca NottsCoreRackSwitch1.DataServices.local	apability Platform Port ID	
Gig 0/0 140		
Total cdp entries displayed : 1 Switch# EVE Berver		.

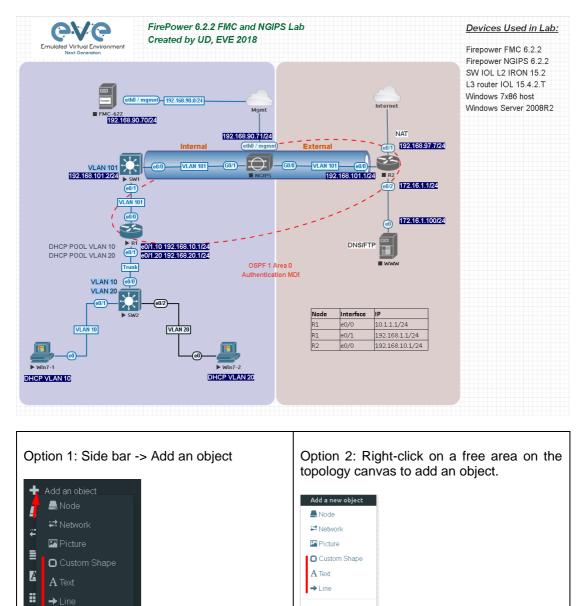


10 Advanced EVE Lab features

10.1 Lab design objects

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

Example below, EVE lab with design elements:



10.1.1 Custom shape

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

🔛 Auto Align



Type: Square, round square or circle

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

Border type: Two options: line or dashed

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

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

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

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

Example: Added a circle and square on the topology. Shapes can be moved around the topology drag and drop style (click and move with mouse).



10.1.2 Resize square or circle objects

Move your mouse over the right bottom corner of the object until a corner symbol appears. Left click and drag your mouse to change object size or style (rectangle, sphere)

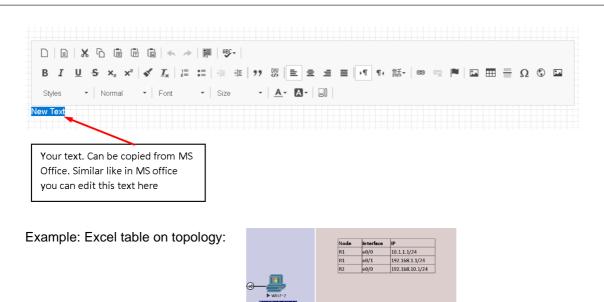


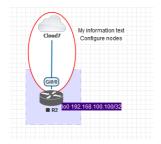
10.1.3 Text

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



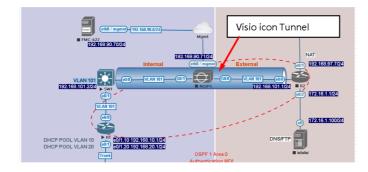






Example: text objects added to the topology.

Example: Visio object added to the topology



10.1.4 Add picture to the topology

Custom images may be added by using HTML editor:

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



□ □ × □ @ @ @ | ← → | 厚 | 哆 · | B I U S × × × | ✓ I = ≔ = = 1 · 1 · 1 · 話· | ∞ ∞ ■ □ 亜 ≡ Ω ③ □ Styles · | Format · | Font · | Size · | <u>A</u>· []. New Text

Step 2: User browse to import your image.

□□ X G 圖 圖 圖 本 → 第 梦・ B I U S X _x x [*] ✔ I _x □ ☶ = 非 ! 카 器 主 主 ■ 「 1・ 話・ ∞ 示 ■ ■ ☶ Ξ Ω © Ⅲ Styles - Normal - Font - Size - ▲ □ - 副				
			New Text	
	Image	×		
	General Advanced			
	URL:			
	Upload: Browse No file selected.			
	ок	Cancel		

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

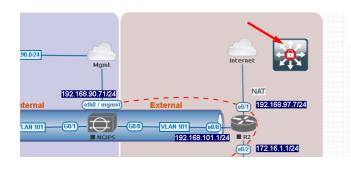
D D X D @ @ @ ← → # ♥+ B I U S ×, ×* ✔ I _x = :: + + 1 Styles + Normal + Font + Size	, 3 5 5 5 5 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4
	Emulated Virtual Environment Next Generation
Image	×
General Advanced Alternative Text	
Width Height 240 96 V Lock Ratio	
Align VSpace HSpace <pre> double</pre>	Border
	OK Cancel

10.1.5 Custom object linking with telnet or other protocol

This feature allows you to link your eve topology object with external source. It can be web site or other protocol like Telnet to call out console for external object.

Step 1. Add the text or picture using HTML editor. Sections 10.1.3 or 10.1.4.

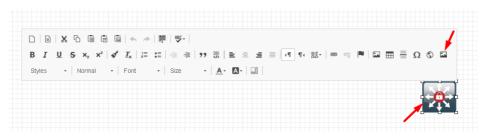




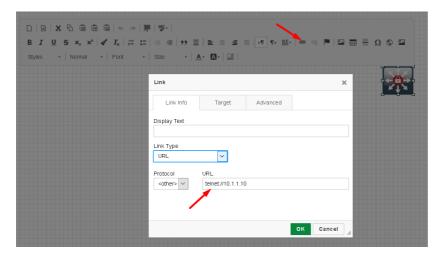
Example: Custom icon added from MS Visio.

Step 2. Position your object in place where you want it to be.

Step 3. Highlight text or activate object.



Step 4. Use link button to assign custom protocol for your object. Example: Protocol Other, type in URL: telnet://10.1.1.10



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

□ □ X □ </th <th> # # ?? ₩ E = = = .¶ ¶. 話· ∞ ∞ </th> <th>■■≣Ω©■</th>	# # ?? ₩ E = = = .¶ ¶. 話· ∞ ∞	■■≣Ω©■
	Link Link Info Target Advanced Target New Window (_blank)	×



Step 5. OK for Save.

NOTE to edit picture object assigned with link, use mouse mark area of object and it and double click on area beside object.



10.1.6 Line object

Line object allows you to draw and design lines on the topology.

Step 1. Add a Line object to the topology

ADD LINE		
Width	2	
Arrow Style	→ single arrow -	
Paint Style	Solid -	
Line Style	Straight -	
Line Color		
Line Label		
Save Cance		

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

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

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

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

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

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

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

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





To move all line, use CTRL to mark line endpoint and move line over topology to position it.

Edit Line object. Right click on line to call out edit window:





Save Cancel

St	Style: iface:node23:1										
St	yle		Link color	Pos ge0/0	Pos n/a	Link Style		Link Label	Pos Label	Curviness	
	Solid	~		-	•	Bezier	\sim			150	٠

10.1.7 Nodes connection links design

Refer Section 8.1.5

10.1.8 Cloning objects and overlay positions

Right click on the object you want to clone and choose "Duplicate". You can also change the object's overlay position using the "Send to Back" or "Send to front" options.



10.1.9 Objects Editing

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



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



Z-index: Used to change the object's overlay position on the "Topology Canvas." An object with a higher numerically valued z-index will cover an object with a lower numerically valued z-indexed.

Example: The blue object has a z-index of -1 and the orange object's z-index is 0. Orange object is top over blue object.

Border width: Used to change the object's border width.

Border type: Used to change the border style of the object between solid and dashed.

Border colour: Used to change the colour of the object's border

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

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



Save Cancel



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

10.1.10 Lock objects movement

The "Lock Lab" feature prevents objects from being moved around on the canvas (among other things). For more information about this feature, refer to section 7.9.14.

10.2 Custom design logical topology

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

PNG Output Op

10.2.1 Custom design upload

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

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

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



•

Trans

Flip horizontal

~

v

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: "Logical maps"



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



Pictures window	management
4	Delete uploaded pictu

	Delete uploaded picture from the lab			
C	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.			

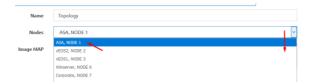
10.2.2 Custom topology mapping

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

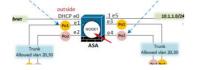
Step 1: Open the Image Map window:



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

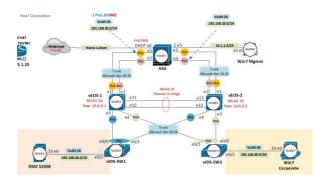


Step 3: Move your mouse over a node icon on the "Image Map" and click to map it. The grey circle means that the node is mapped.









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

Select from I	Menu: Nodes	CUSTOM , NODE outside lab	~
And map wit	h node on topology	External home router currow temet:// 172.25.1.25	
Change imag	ge map adding pro	tocol, IP and port.	
Image MAP	<area alt="</th><th>img" coords="102,286,30" href="proto://CUSTOM_IP:CUSTOM_PORT" shape="circle"/>		
Image MAP	<area alt="i</th><th>mg" 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. Save Cancel	

10.2.3 Delete topology or mapping

To delete a single node mapping, right click on node mapping circle and click "Delete."



To delete the entire custom topology, click delete.

î ci	Topology
Delete]

10.3 Multi-configuration sets export feature

Eve Professional/Learning Center includes a "Multi-configuration Set" feature that allows you to save and manage multiple sets of configurations in a single lab. The "Configuration Export" and "Startup-configs" features will allow you to set these saved configurations as startup configs for your nodes when they boot.

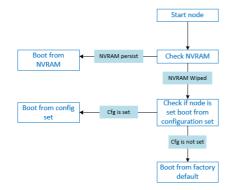
IMPORTANT NOTE: Before you start using the "Multi-configuration Set" feature, you
must complete at least one configuration export.



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

Nodes will be greyed out without the option to enable "Startupconfigs" until you complete at least one configuration export for each node.

Node boot order:



NVRAM: NVRAM is used as writable permanent storage for the startup configuration. During the boot process, the node will always check NVRAM for a saved configuration. Saving the configuration to NVRAM requires a vendor specific command. Cisco: copy run startup (wr), Juniper: commit, etc. It is MANDATORY to save a node's configuration before you can export it.

Exported configuration: A node configuration that has been exported from the node. It can be used to backup configurations or to set them as startup-configs.

Wipe node: Wiping a node will erase the NVRAM (running config) or the temporary image snapshot, depending on the type of node. Upon a successful wipe, the node will boot with the factory default configuration or the configuration included in the base image you are using. If you have the "Startup-config" feature enabled for the node, then it will boot with the chosen config set. You must wipe a node after changing certain node template settings like the image or startup-config. You also must wipe the node the first time you want to enable the "Startup-config" feature.

Factory default configuration: The base configuration that is applied from the manufacturer.

10.3.1 Supported nodes for configuration exports

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



Cisco Viptela vEdge, vSmart, vBond, till version 18.4 only, version 19.x and later is not supported due implemented password setup feature on the first boot. Cisco XRv Cisco XRv9K Juniper VRR Juniper VMX Juniper vMX-NG JunipervQFX Juniper vSRX-NG Mikrotik PFsense FW Timos Alcatel vEOS Arista Aruba CX Switch

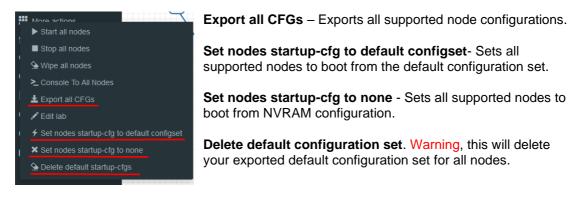
10.3.2 Startup config management

10.3.2.1 Global commands



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

Topology page, More Options:



10.3.2.2 Individual node commands

Select node, right click



Wipe: Wipes the NVRAM for a single node

Export CFG: Exports the configuration for a single node



10.3.2.3 Multiple selected nodes commands

s10	\$1/0	Group of R1, R2
		Z Start Selected
0.00	e	Stop Selected
\mathbf{X}	/	Selected
		Console To Selected Nodes
60.0	(00)	
	-03/2-	Set nodes startup-cfg to default configset
► SW1	● SW2	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 nodes startup cfg: Delete selected node's startup cfg. (clean default set)

10.3.2.4 Startup-configuration window

No configuration exports or manual configs loaded for nodes

STARTUP-CO	STARTUP-CONFIGS						
	Config Set Default ~	• 7 • •					
🎒 R1	017						
🚳 R2	OFF						
SW1	OFF						
SW2	OFF						

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

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

10.3.2.5 Startup-config window information

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



	1
🍪 R1	No configuration is available for node. Grey node
😤 R1	Configuration is available and can be used. Blue node. Exported configuration persist
S R2 OFF	Configuration persist but it is disabled. Node will boot from NVRAM or factory default if it is wiped
🕾 R1 🗲 🔽 🕅	Configuration persists and node will boot from the configuration after being wiped
CONFIG SET	Add new config set.
CONFIG SET Name Rode named E	Rename config set. The Default Config Set cannot be renamed.
★ Config Set IP Addressing ✓	Select a Config Set and delete it. You cannot delete the Default Config Set. The Default configuration set can be cleaned using the sidebar / More options / Delete default configuration set
÷	Upload configuration set from your local PC
٤	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.
R2 CO Interface to the service timestamps debug datatine is	Individual node export or import configuration. Configuration export/import file format is .txt.

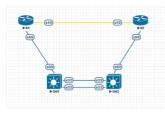


	Ace Editor. Different vendor configuration
	edit option. Just Text visual format.

10.3.3 Export Default configuration set

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

Example:



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

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

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

		A Notifications
<u>510</u> 510	Group of R1, R2, SW1, SW2	Export All: done
	F Start Selected	
		R1: config exported
	· · · · · · · · · · · · · · · · · · ·	
	Selected	R1: Starting export, please wait
	Console To Selected Nodes	
(e0/0) (e0/0)	± Export all CFGs	R2: config exported
		R2: config exported
e3/3	Set nodes startup-cfg to default configset	
▶ 5W1	Ref Set nodes startup-cfg to none	R2: Starting export, please wait
	P Horizontal Align	
	Vertical Align	SW1: config exported
	-	
		SW1: Starting export, please wait
	Delete nodes startup-cfg	
	Delete Selected	SW2: config exported
	A.,	
		SW2: Starting export, please wait

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

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

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

Export Selected: Starting



10.3.4 Boot nodes from exported Default config set

Step 1: Stop all nodes

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

STARTUP-CONFIGS							
		Config Set	Default ~		+ 🛛 🗙 ± ±	, p 🛛	
2 R1	4 он						
2 R2	4 ON						
SW1	4 ON						
SW2	4 ON						

Step 3: Wipe nodes. For more information refer to section 8.1.3

Step 4: Start nodes

10.3.5 Export new custom config set

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

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

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

Config Set	Default 🖌	+ 🛛 🛨 🗠
Name it and	l press Add.	
CONFIG SET		
Name IF	Addressing	

The new configuration set is created.

Add Cancel

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

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



Config Set	Default 🗸	+ C × ± ±	•
	Default		
	IP Addressing		

Step 3: Make sure your nodes have the Startup-config slider switched to "ON" and verify the config set menu has the "IP Addressing" set selected.

	Config Set IP Addressing 🗸	+ 2 1 + +	
🌁 R1	∱ ▲		Ace Editor
😰 R2			^
SW1	✓ ON serial restart-delay 0		
SW2	★ ON ip forward-protocol nd I		

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

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

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

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

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

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

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

10.3.6 Edit exported configurations

It is possible to edit your configurations for the nodes manually.

Step 1: Select a config set and apply it with the green confirm button (Set all nodes to selected config set) on the right.

Config Set	Default 🗸		+ 🛛 🗙 🛓	*	
	Default	_			
	IP Addressing				/

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



STARTUP-CONFIGS			• *
	Config Set IP Addressing ~	+ 7 1 ± ±	
1 \$\u03c9 <	<pre>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</pre>		Ace Editor

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



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

10.3.7 Set lab to boot from config set

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

Step 1: Wipe nodes. Refer to section 10.3 for information about wiping nodes and the order of operations during boot.

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

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



10.3.8 Set lab to boot from none

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

Step 1: Wipe nodes. Refer to section 10.3 for information about wiping nodes and the order of operations during boot.

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

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



Step 4: Start nodes



10.3.9 Delete a config set

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

Config Set	IP Addressing	+ 🗷 📩 🖄
	× •	

10.3.10 Rename a config set

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

Config Set	IP Addressing V	I	+ 🛛 🗙 ± ±
CONFIG SET Name PrAddressing and Edit Cancel	ж		

10.3.11 Export a config set to your local PC

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

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

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

Step 2: Save it on your local PC.

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

10.3.12 Import config set from local PC.

It is possible to import config sets to your lab.

+	ß	×	±	±
			1	



UPLOA		ONFIG FILE			
N	ame	Name			
	File	no file selected			
	_	Browse Upload	Cancel		
File Upload					×
→ * ↑	« Des	ktop → Exports	~ Ö	Search Exports	,p
rganize 👻 Ne	w folder			811 -	II 👔
This PC	^	Name		Date modified	Type ^
3D Objects		a EIGRP cfg set.zip		15/03/2018 12:10	WinRA
Desktop	- 11	Firepower_poc_623.zip	/	12/04/2018 11:16	WinRA
-		🔚 NEW IP Addressing.zip	×	27/05/2018 00:14	WinR4
Documents		R1.txt		26/05/2018 22:43	Text Di 🛩
	¥ ·	C			>
Downloads					

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 10.3.10

10.3.13 Export a single nodes config to your local PC

Open the "Startup-configs" window from the Side bar. Select the node that you want to export the configuration of and click the "Export" button.

			Opening R1.txt	×		
25 R1	4 ON	* *	You have chosen to open: Rited which is: Test Decument (1.3 k5) from: blob: What should Firefax do with this file?			
🥙 R2	4 ON	no ip address shutdown	O Open with Notepad (default)	v		
SW1	4 ON	serial restart-delay 0	Do this gutomatically for files like this from now on.			
SW2	4 ON	ip forward-protocol nd !	OK	Cancel		

10.3.14 Import a single nodes config from your local PC

Open the "Startup-configs" window from the sidebar. Select the node that you want to import the configuration to and click the "Import" button. Browse to the file on your local PC and click "Upload."

			UPLOAD CONFIG FILE	×
			File no file selected Browse Upload Cancel	
			 ♦ File Upload ← → · · ↑ ▲ Cesktop → Exports → · · 	
沓 R1	4 ON	1 1 1	Organize View folder	Date modified Type
😵 R2	4 ON 4 ON	i hostname R1 !	This PC Name BGRP cfg set 2 BGRP cfg set 2 Besktop Ritus Comments	15/03/2018 12:10 File folde 27/05/2018 00:31 Text Docu
SW1	4 ON	boot-start-marker boot-end-marker		> Text Document (*.bt)
				Open Cancel

NOTE: The configuration must be in txt file format.

10.3.15 Set lab nodes to boot from different config sets

The "Multi Configuration set" feature allows you to set nodes to boot from different config sets in the same lab.

Option 1: Open the "Nodes" list from the left sidebar. Choose your node and select a config set from the dropdown. Stop the node, wipe it and start it again. Your node will boot from the selected config set.



D	NAME	TEMPLATE	BOOT IMAGE	CPU	CPU LIMIT	IDLE PC	NVRAM (KB)	RAM (MB)	ЕТН	SER	CONSOLE	ICON	STARTUP-CONFIG	ACTIONS	
1	R1	iol	L3-ADVENTERPRISEK9-M-15.4-; ~	n/a	n/a	n/a	1024	1024	1	1	telnet	睯 Router.png*	NEW IP addressi	▶∎≙±≓⊠	ŝ
2	R2	iol	L3-ADVENTERPRISEK9-M-15.4-	n/a	n/a	n/a	1024	1024	1	1	teinet	Router.png*	None Default	►≡9∓ ≒©	8
3	SW1	iol	i86bi_linux_l2-ipbasek9-ms.high ~	n/a	n/a	n/a	1024	1024	4	0	teinet	Switch L3.png		▶≡≙±≠©	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 NEW IP addressi M	▶≡≙±≓⊘	

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

Startup configuration				
Default				
None				
P Addressing				
NEW IP addressing				
Save	Cancel			

10.3.16 Lab config script timeout

Lab config script timeout is used when nodes are waiting to boot from a config set. The node will literally wait during boot until the configuration is applied from the config set.

Hit "More actions" and then "Edit lab" from the sidebar. Set the config script timeout in seconds. By default, this timer is set to 300 seconds for new labs.

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

10.4 Lab Timer

For self-controlled lab timing, EVE Pro has integrated a "Lab Timer" feature.

10.4.1 Set the Lab Countdown Timer

Step 1: Click "More Options" and then "Edit Lab" from the sidebar.

Step 2: Set the "Lab Countdown Timer" in seconds for the time you wish to display on the topology and confirm by clicking "Save". 7200 seconds = 120 minutes.

Config Script Timeout	800		Seconds
Lab Countdown Timer	7200	-	Seconds

Step 3: To start your lab, be sure all nodes are running.

Step 4: Hit "Lock Lab" from the sidebar. A red sign means that the lab is locked.

Step 5: When ready to start, click "Refresh Topology" from the sidebar. The countdown timer will be displayed on the "Topology Page" in the top left corner.





O Lock Lab

10.4.2 Stop the Lab Countdown Timer

Step 1: Click "Unlock Lab" Grey means that the lab is unlocked.

Step 2: Hit "Refresh Topology" from the sidebar

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

10.5 Lab Tasks

Lab task or workbook creation feature.

10.5.1 Creating a new simple task

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



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

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

10.5.2 Edit a simple task

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



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



LAB TASK(S)	B I <u>U</u> S ×₂		: #		· # = • •	·≅· = ⊲ ⊨ ⊒ ⊒ Ξ Ω C ⊒ C
	Task 1.1 Basic configuration Objectives • Configure switches' hostnames accordingly diagram.					
		ode accordingly table belo				1
	Device	VTP mode	Version	VTP domain	VTP password	
	SW-DMZ	transparent	2	evelab	eve	
	DLS	server	2	evelab	eve	
	S-ALS1	client	2	evelab	eve	
	S-ALS2	client	2	evelab	eve	
	body div table thody tr Save Cancel	td p span span span s	pan			

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

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

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

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

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

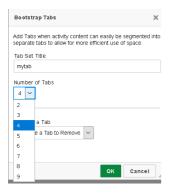
1	LAB TASK(S)
	m C 1 Switching
l	+ New Task

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



LAB TASK(S)	
D C 1. Switching	@ Source 〒 □ □ □ □ ● □ × 0 □ 匝 □ ← → 罪 ♥- B I U 5 × ×' ダ I ≔ ≔ + 非 ?? 閉 主 主 ヨ + 1+ 話- ∞ 및 ■ □ 亜 亜 □ 0 © □ □
+ New Task	Styles - Format - Font - Size - 🛕 🔀 🛄
	New Test

Step 3: Enter the name of your new task group and choose the number of tabs (must be between 2 and 9). Tab names can be changed later.



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

LAB TASK(S)	
 Control of the second se	◎ Source □ □ 尿 奇 回 X □ 茴 茴 茴 ▲ → 睅 Ÿ- B I U S x _e x ² ダ I _X ≔ ≔ 非 北) >> ※ 主 主 ≡ 1 1+ 話・ ∞ 및 ■ 回 亜 Ξ Ω © ⊡ C Styles - Narmal - Fort - Sze - <u>A</u> - [A - [A -] X] =
	Tab 1 Name Tab 2 Name Tab 3 Name Tab 4 Content New Text
	body div p Save Cancel

10.5.5 Edit tabs (Multi tabbed task).

Step 1: Activate the tab for which you want to edit its content and press the edit button.





Step 2: Rename your tab,

1 C 🖍 1 Switching	B Source 日
	Tab 2 Name Tab 3 Name Tab 4 Task 1.1 Basic configuration
	Objectives
	Configure switches' hostnames accordingly diagram.

Step 3: Press the "Show Blocks" button, this will help find the right place to create the task tab content. Make sure that you are copying or creating the tabbed task content into the correct place (Tab 1 Content)

NOTE: It is strongly recommended to use "full screen" for the rich html text editor when you are working with tabbed tasks. Press the "full screen" button to work with tasks. Press it again to exit full screen mode.

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

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

10.5.6 Create a task with your PDF workbook

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



LAB TASK	((S)	
+ New Task	LAB TASK Name EVE cookBook	*
	Add Cancel	

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



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

OK Cancel



Step 4: To view your uploaded book, use, Side Bar/Tab Tasks/your taskname





10.5.7 Create a task with Online document (PDF or HTML)

Online document or web site task (https ONLY, iFrame allowing use Secure http only)

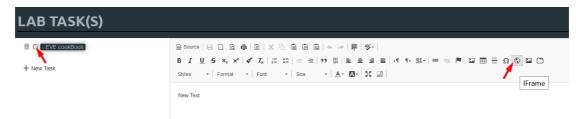
Step 1: Have ready your link to online web site or document. Example:

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

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

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

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

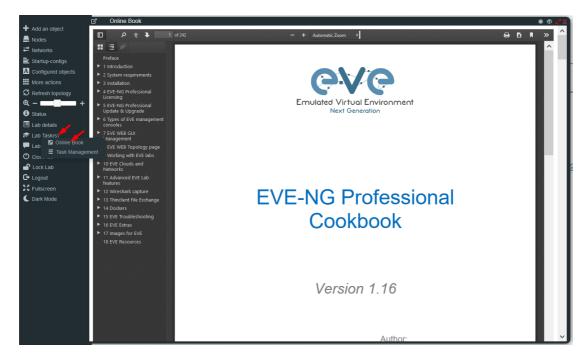


Step 4: Type the path to your online document, set Width to 100%, and Height resolution to 10000.

The path location is <u>https://www.eve-ng.net/images/EVE-COOK-BOOK-latest.pdf</u>, which prepared in Step 1. Press OK for iFrame properties and Save Task, Press Save

IF rame Propertie	S	
General	Advanced	
URL	g.net/images/EVE-	COOK-BOOK-latest.pdf
Width	Height	Align <not set=""> 🗸</not>
Enable scroll	bars (Show frame border
Name		ory Title
100%	100	00
Long Description	URL	
		OK Cancel





Step 5: To view your uploaded book, use, Side Bar/Tab Tasks/your taskname

10.5.8 Delete a task

Step 1: From the Side bar click on "Task Management":



Step 2. Click on the delete symbol next to the task name which you want to delete.





11 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.

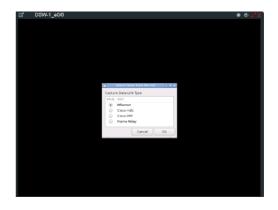
EVE-NG Professional currently supports ethernet interface capturing only.

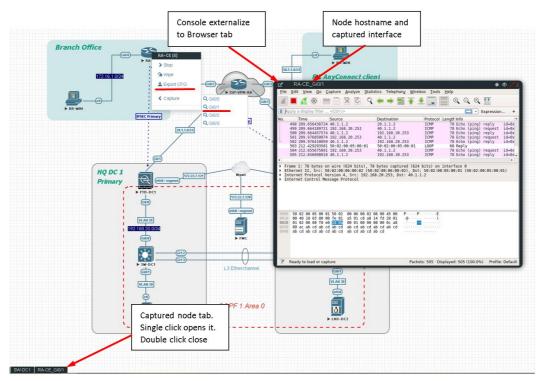
11.1 Native Console Wireshark capturing

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

Select the interface frame type which will be captured:

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





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



Apply a display filter •			
Time 9	Source aa:bb:cc:00:01:00	Destination Protocol Length Info aa:bb:cc:00:01:00 L00P 60 Reply	
2 4.665564570	sa:bb:cc:00:02:00	CDP/VTP/DTP/PAgP/UD_ CDP 369 Device ID: R2 Port ID: Ethernet0/0	
3 5.559412451 4 5.919304670	a:bb:cc:00:01:00 a:bb:cc:00:02:00	CDP/VTP/DTP/PAgP/UDCDP 383 Device ID: R1 Port ID: Ethernet8/0 aa:bb:cc:08:02:08 LOOP 60 Reply	
	a:bb:cc:00:01:00	aa:bb:cc:00:01:00 LOOP 60 Reply	
Frame 1: 60 bytes on Ethernet II. Src: aa:	wire (480 bits), 6 bb:cc:00:01:00 (aa	0 bytes captured (480 bits) on interface 0 :bb:cc:00:01:00), Dst: aa:bb:cc:00:01:00 (aa:bb:cc:00:01:00)	
Configuration Test Pr	otocol (loopback)		
(40 bytes)			
Data (40 bytes) G. Edit <u>V</u> iew <u>Go</u> <u>Capt</u> Open	ure <u>A</u> nalyze <u>S</u> tatisti Ctri+O	ss Telephony Wreless Jools Help	
Edit <u>V</u> iew <u>Go</u> <u>Capt</u>		ss Telephony Wireless Jools Help → 整 乘 坐 ⊒ Q Q Q 표	
Edit <u>V</u> iew <u>G</u> o <u>C</u> apt Open			
Edit View Go Capt Open Open Recent	Ctrl+O		
Jolit View Go Capt Open Open Recent Morge	Ctrl+O	, ≝ ∓ ±⊒≣ qqq⊞	
Edit <u>View Go Capt</u> Open Open Recent <u>Merge</u> Import from Hex Dump Close	Ctrl+O Ctrl+W Ctrl+S	→ Martin Alexandra Alexan	
Edit <u>View Go Capt</u> Open Open Recent <u>Merge</u> Import from Hex Dump Close	Ctrl+O Ctrl+W	→ Martin Alexandra Alexan	
galt View Go Capt Open Open Recent Merge Import from Hex Dump Close Save Save	Ctrl+O Ctrl+W Ctrl+S	→ Martin Alexandra Alexan	
Edit View Go Capt Open Merge Import from Hax Dump Close Save AL Till Set	Ctrl+0 Ctrl+W Ctrl+S Ctrl+Shift+	→ Martin Alexandra Alexan	
cat view go capt Open Open Accent Morge Import from Hex Dump Save Save Save Save Save	Ctrl+W Ctrl+W Ctrl+S Ctrl+Shift+	→ Martin Alexandra Alexan	
Loft View Go Capt Open Recent Berge Import from Hex Dump Clear Sano Au Tile Set Export Packet Dissection	Ctrl+W Ctrl+W Ctrl+S Ctrl+Shift+	→ Martin Alexandra Alexan	
Edit View Go Capt Open Open Recent Werge Import from Hex Dump Close Save	Ctrl+O Ctrl+W Ctrl+S Ctrl+Shift+ S	→ Martin Alexandra Alexan	
pat yew go Capt Open Recent Merge Import from Hax Dump Close Save Save Export Packet Dissection Export Packet Dissection	Ctrl+O Ctrl+W Ctrl+S Ctrl+Shift+ s Ctrl+H	→ Martin Alexandra Alexan	
pat yiew go Capt Open Recent Merge Import from Hex Dump Close Save An- Export Packet Dissection Export Packet Dissection	Ctrl+O Ctrl+W Ctrl+S Ctrl+Shift+ s Ctrl+H	→ Martin Alexandra Alexan	
Edit View So Capit Open Recent Berge Import from Hax Dump Close Save As Export Packet Bytes Export Packet Bytes Export Packet Bytes Export Sol, Session Keys. Export Objects	Ctrl+O Ctrl+W Ctrl+S Ctrl+Shift+ s Ctrl+H	→ Martin Alexandra Alexan	
Ledit View So Capit Open Recent Berge Import from Hax Dump Close Save Save Ac- Tile Set Expert Specified Packets Expert Packet Bytes Expert Packet Bytes	Ctrl+O Ctrl+W Ctrl+S Ctrl+Shift+: s Ctrl+H	→ Martin Alexandra Alexan	
Cast yiew go capt Open Recent Mergo Import from Hex Dump Close Save Au- Export Packet Dissection Export Packet Dissection Export Packet Dissection Export Packet Dissection Export Packet Dissection Export Solution File Export Solution File	Ctrl+O Ctrl+W Ctrl+S Ctrl+Shift+ Ctrl+Shift+ Ctrl+H 	→ Martin Alexandra Alexan	
Cast yiew go capt Open Recent Mergo Import from Hex Dump Close Save Au- Export Packet Dissection Export Packet Dissection Export Packet Dissection Export Packet Dissection Export Packet Dissection Export Solution File Export Solution File	Ctrl+O Ctrl+W Ctrl+S Ctrl+Shift+ Ctrl+Shift+ Ctrl+H 	→ Martin Alexandra Alexan	
Get View So Capt Open Open Recent Mergen Import from Hac Dump Close Save At Export Specified Packets Export Acket Dissection Export Packet Dissection Export Packet Dissection Export Packet Dissection Export Packet Dissection Export Packet Dissection Export Dispects Export Objects Export Objects Dism Out	Ctri+0 Ctri+W Ctri+s Ctri+shin+ Ctri+shin+ Ctri+P Ctri+P Ctri+Q	→ Martin Alexandra Alexan	

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

IMPORTANT:

/nobody/thinclient_drives/GUACFS/Download

Enter a name for your captured file and press Save. Your browser will offer to download your capture fil and save on your local PC. Refer Section 11.2

11.2HTML5 Console Wireshark capturing

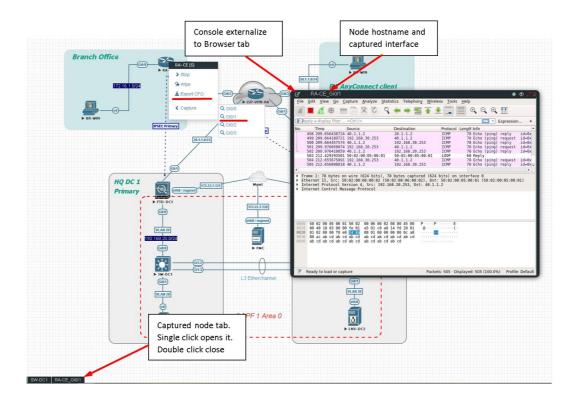
Step 1: Right click on the node you wish to capture, choose "Capture" and then the relevant interface. The capture will open in an HTML session. EVE-PRO supports capture for ethernet and serial interfaces.

Select the interface frame type which will be captured:

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

G DSW-1_e0/0	🕷 🛷 🥜 🗶 Ì
Select items from the list 🗉 🖬 🖬	
Capture Data Link Type	
Pick DLT	
Ethernet	
Cisco Hdlc	
Cisco PPP	
Frame Relay	
Cancel OK	





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

Eile Edit View Go Capture	Analyze Statistics Telephony Wireless Tools Help
🔺 🔍 🖉 💿 🚍 🗅 🛛	3 G 9 ፍ 🗯 🛣 🖉 📃 🔲 9 9 9 1
Apply a display filter <ctrl- :<="" td=""><td>></td></ctrl->	>
No. Time Source	Destination Protocol Length Info
1 0.000000000 aa:bb: 2 4.665564570 aa:bb:	:cc:08:01:00 aa:bb:cc:09:01:00 LOOP 60 Reply :cc:08:02:00 CDP/VTP/DTP/PAgP/UD_ CDP 369 Device ID: R2 Port ID: Ethernet8/0
3 5.559412451 aa:bb:	cc:00:01:00 CDP/VTP/DTP/PAgP/UD_ CDP 383 Device ID: R1 Port ID: Ethernet0/0
	:cc:08:02:08 aa:bb:cc:08:02:08 LOOP 68 Reply :cc:08:01:08 aa:bb:cc:08:01:08 LOOP 68 Reply
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Save As	Ctrl+Shift+S
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Export Specified Packets	
Export Packet Dissections	b
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 (4	480 bits), 60 bytes captured (480 bits) on interface 0
Ethernet II, Src: aa:bb:cc:0 Configuration Test Protocol	00:02:00 (aa:bb:cc:00:02:00), Dst: aa:bb:cc:00:02:00 (aa:bb:cc:00:02:00)
 Data (40 bytes) 	(coppack)

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

IMPORTANT:



/nobody/thinclient_drives/GUACFS/Download

Enter a name for you captured file and press Save.

Eile Edit View Go Capture Analyze Statistics Telephony V	Wireless Tools Help
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Apply a display filter <ctrl-></ctrl->	
No. Time Source Destination	Protocol Length Info
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3 5.559412451 aa:bb:cc:00:01:00 CDP/VTP/DTP/PAg 4 5.919304670 aa:bb:cc:00:02:00 aa:bb:cc:00:02	<pre>gP/UD. CDP 383 Device ID: R1 Port ID: Ethernet0/0</pre>
5 10.000389088 aa:bb:cc:00:01:00 aa:bb:cc:00:01:	:08 LOOP 68 Reply
6 15.922998290 aa:bb:cc:00:02:00 aa:bb:cc:00:02: 7 20.004233085 aa:bb:cc:00:01:00 aa:bb:cc:00:01:	
8 25.927447959 aa:bb:cc:00:02:00 aa:bb:cc:00:02:	:00 LOOP 60 Reply
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Step 4: A window will open that will allow you to save your captured file on your client PC. If the client PC's browser is set to download automatically, your captured file will be saved in the default browser download folder.

	nycapturcum	e.pcapng	
v	vhich is: Wires	hark capture file	
f	rom: http://17	2.22.7.18	
What	should Firefox	do with this file?	
۲	Open with	Wireshark (default)	~
0) <u>S</u> ave File		
	Do this <u>a</u> uton	natically for files like this from now	on.

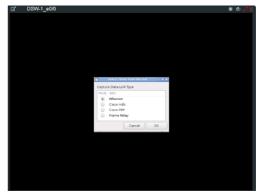


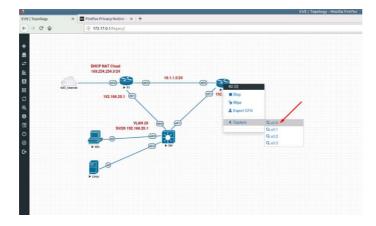
11.3 HTML5 Desktop Console Wireshark capturing

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

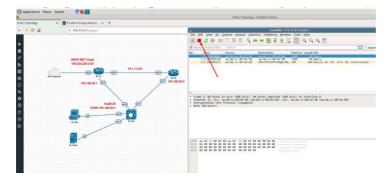
Select the interface frame type which will be captured:

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





Step 2: Stop capturing with the STOP button.



Step 3: Chose File/Save As

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Save As	Ctrl+Shift+S	bb:cc:00:0	2:00	L00P		eply						
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	,	bb:cc:00:0	1:00	LOOP	60 R	eplý						
Export Specified Packets		bb:cc:00:0		LOOP		eply						
Export Packet Dissections	•	bb:cc:00:0		LOOP		eply	-		X0	Ethernet0/0		
Export Packet Bytes	Ctrl+H	bb:cc:00:0		LOOP		eply	ID: KI	Port	10:	Ethernet0/0		
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Print	Ctrl+P											
Quit	Ctrl+Q											

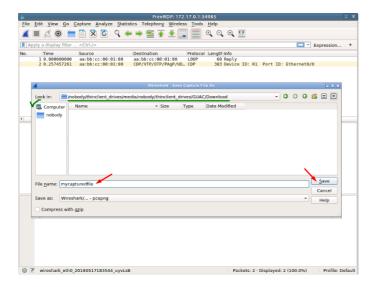


Step 4: Chose the path to save the captured file,

IMPORTANT:

/nobody/thinclient_drives/media/nobody/thinclient_drives/GUACFS/Download/

Enter a name for captured file. Press Save.



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

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



12 Thinclient File Exchange

NOTE: Thinclient file exchange feature is available for HTML5 or desktop HTML5 consoles only. Make sure you are logged in EVE with one of it.

The Thinclient file exchange feature allows you to transfer files between your native client workstation and the integrated Docker Desktop. It is used when managing EVE via HTML5 consoles. This feature eliminates the need for file transfer software on your client workstation and makes it very easy to import/export labs or download Wireshark captures.

12.1 Thinclient files downloading

The Thinclient file exchange feature allows you to download files from your EVE Server over an HTTP/HTTPS session to your client PC. Examples below will show you how to download exported lab files. This feature is not restricted to just lab files or Wireshark captures. It can be used to download or upload any miscellaneous files you may need.

Example: HTML5 console to server-gui Docker node: We want to export our test.txt file and download it to our client PC over HTML5.

Docker-server-gui Applications Places System 6		* 🚸 🦯 🗙 Tue Dec 18, 17:59 🔝
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_	Keep Aligned Paste Change Desktop Background	N
thinclient_drives		
N WW		
		 §

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

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

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



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	Network		
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www			
		0 items	
Download			

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

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🖾 thinclie 🚔		test.txt
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-	You have chosen to open:	
	test.txt	
ww	which is: Text Document	
vvv	from: https://eve-pro.alora.lv	
	What should Firefox do with this file?	
	•re Open with Notepad (default)	~
	⊖ <u>S</u> ave File	
	Do this <u>a</u> utomatically for files like this from now on.	
Download		
	OK	Cancel

NOTE: Please refer to section 11 for downloading Wireshark capture files from EVE HTML5 consoles.

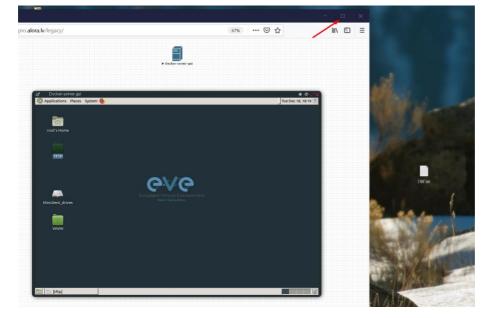
12.2 Thinclient File upload

Sometimes it is necessary to upload files to your EVE labs. The Thinclient file exchange feature allows you to upload files from your client PC to the EVE HTML5 server-gui station. The



example below will show you how to upload a text file to the EVE HTML5 server-gui station. Any other files can be uploaded the same way.

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



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

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



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

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

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	2 items	
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🛅 GUACFS	eve to do.txt	3.2 KB

12.3 Other Thinclient file operations

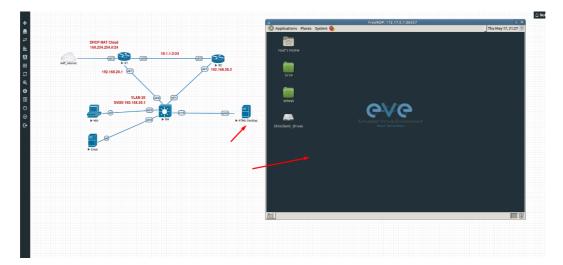
Files that have been uploaded via the thinclient feature can also be transferred to nodes inside your EVE labs via TFTP. In the example below we have uploaded a config file (sw.txt) and would like to transfer it to node R1.

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 13



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



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

/thinclient_drives/media/nobody/thinclient_drives/GUACFS/

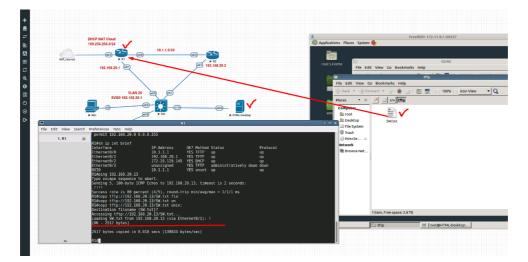
Next, drag and drop your file to the desktop folder named TFTP.



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Step 4: Open the destination node's (R1) console and use the tftp command to copy your file:





13 Dockers

13.1 EVE integrated docker stations

EVE-NG Professional and Learning Centre edition have integrated Docker stations that allows your server to use its resources more efficiently. Dockers offer the advantage of not having to duplicate processes already running on the host system. With a Docker, you run only the processes you need for the hosted application. In comparison, virtual machines have to run a complete guest operating system, including many of the same processes that are already running on the server host.

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

13.1.1 Docker Machines

eve-gui-server (default)

- Fully featured Linux workstation with integrated Thinclient. For more information on the Thinclient operation please refer to section 12.
- napalm
- ansible
- python
- RDP console
- DHCP or Static IP address
- WWW Server (web page home directory www is located on desktop)
- TFTP Server (for access to TFTP server, root/eve or nobody/eve, home directory TFTP is located on desktop)
- FTP server (for access to FTP server, root/eve, home directory for ftp is root)
- Java Integration for ASDM access to Cisco ASA/IPS. For access to ASDM where Java is required, please follow this reference link:

https://192.168.100.5/admin/public/asdm.jnlp

Where 192.168.100.5 is the ASA IP for ASDM connection

NOTE: Older ASA require to configure extra SSL encryption to communicate with Java on the docker station. ASA 9.1.5 CLI:

ssl encryption aes256-shal

Example: Access to ASAv ASDM from Docker server-gui station



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eve-firefox (default)

- A Docker for hosting a Mozilla Firefox browser. Useful for accessing another nodes management interface using http or https. The browser already has Java integrated so that you can utilize GUIs that require it, like ASDM for Cisco's ASA.
- RDP console
- DHCP or Static IP address

eve-wireshark (default)

- Fully featured Wireshark workstation with integrated Thinclient. For more information on the thinclient operation please refer to section 12.
- RDP console

eve-chrome (extra install, section 13.5)

- A Docker for hosting a Google Chrome browser. Useful for accessing another nodes management interface using http or https. The browser already has Java integrated so that you can utilize GUIs that require it, like ASDM for Cisco's ASA.
- DHCP or Static IP address

eve-kali-large (extra install, section 13.5)

- A Docker for hosting a Kali Linux. Fully featured Security vulnerability and penetration test machine
- DHCP or Static IP address
- Java Integration for ASDM access to Cisco ASA/IPS. For access to ASDM where Java is required, please follow this reference link:
- https://192.168.100.5/admin/public/asdm.jnlp
- Where 192.168.100.5 is the ASA IP for ASDM connection



 Applications Places System Usual applications 		Fri Nov 29, 22
01 - Information Gathering	•	
💫 02 - Vulnerability Analysis	•	
03 - Web Application Analysis	•	
🕞 04 - Database Assessment	•	
05 - Password Attacks	Offline Attacks	
😭 06 - Wireless Attacks	Online Attacks	
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12 - Reporting Tools	🕨 🛃 john	
🏃 13 - Social Engineering Tools	Incrack	
	OS ophcrack	
	wordlists	

eve-ostinato (extra install, section 13.5)

- A Docker for hosting a Ostinato 0.9 GUI. Fully featured Ostinato 0.9 packet generator and network traffic generator machine
- DHCP or Static IP address
- Fully featured Ostinato GUI

☑ Docker_Ostinato	* 4
<u>File View H</u> elp	
Ports and Streams	
	Welcome to Ostinato The port list on the left contains all the ports on which you can transmit packets. Ports belong to a port group. Make sure the Port Group has a ° next to it, then double click the port group to show or hide the ports in the port group. To generate packets, you need to create and configure packet streams. A stream is a sequence of one or more packets To create a stream, select the port on which you want to send packets. Don't see the port that you want (or any ports at all) inside the port group? Get Help!
Port Statistics	
Transmit 💿 💿 Stats 🗾 🏓	Capture 🧃 🛒 🔜 🗛 RP/ND 🔜 🔄
	Up
Transmit State	Off Off
Capture State	

13.1.2 Docker DHCP IP address setup

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



DHCP IP address option.

Step 1: Add the node to the topology and make sure the DHCP option is **enabled** under the edit node window. Refer to section 13.2 for the correct console type.

Step 2: Ensure the docker's DHCP request can reach a DHCP server either in your lab or externally through a Cloud Network like Cloud0.

Template		
Docker.io		*
Number of nodes to add	Image	
1	eve-gui-server:latest	*
Name/prefix		
Docker		
Icon		
Server.png		*
RAM (MB)		
256		
Ethernets		
Ethernets 1	V	
Enable DHCP on Eth0 Ethernets 1 Startup configuration None	`	·
Ethernets 1 Startup configuration None	`	
Ethernets 1 Startup configuration None		
Ethernets 1 Startup configuration None Delay (s) 0		
Ethernets 1 Startup configuration None Delay (s)		•
Ethernets 1 Startup configuration None Delay (s) 0 Console	Top	•

13.1.3 Docker Static IP and MAC address setup

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 13.2 for the correct console type.

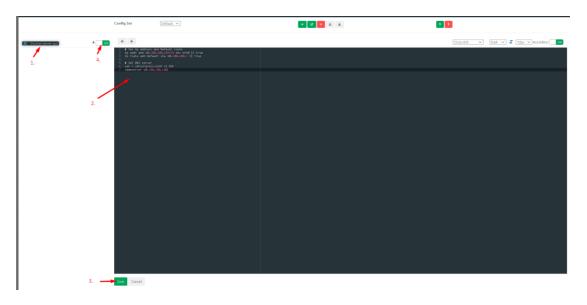
Step 2: On the left sidebar menu open Startup-config and use the example syntax below to set the ip for your Docker node. Make sure you are using the exact syntax for your static IP setup:

```
# Set ip address and Default route
ip addr add 10.100.100.103/24 dev eth0 || true
ip route add default via 10.100.100.1 || true
# Set DNS server
cat > /etc/resolv.conf << EOF
nameserver 8.8.8.8
EOF</pre>
```

Step 2.1 (Optional): On the left sidebar menu open Startup-config and use the example syntax below to set the custom MAC for your Docker node. Make sure you are using the exact syntax for your static MAC setup:

```
# Set ip address and Default route
ip link set dev eth0 address XX:XX:XX:XX:XX:XX || true
ip addr add 10.100.100.103/24 dev eth0 || true
ip route add default via 10.100.100.1 || true
# Set DNS server
cat > /etc/resolv.conf << EOF
nameserver 8.8.8.8
EOF
```





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

13.1.4 Docker multi interfaces setup

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 13.2 for the correct console type.

Step 2: On the left sidebar menu open Startup-config and use the example syntax below to set the ip for your Docker node. Make sure you are using the exact syntax for your static IP setup. It is recommended to add static routes under interfaces to reach specific networks if required.

```
# Set ip address eth0
ip addr add 192.168.1.200/24 dev eth0 || true
ip route add default via 192.168.1.1 || true
# Set ip address eth1
ip addr add 172.16.1.201/24 dev eth1 || true
# Set static route for eth1
ip route add 10.100.100.0/24 via 172.16.1.1 dev eth1 || true
# Set ip address eth2
ip addr add 10.1.1.10/24 dev eth2 || true
# Set static route for eth2
ip route add 10.10.10.0/24 via 10.1.1.1 dev eth2 || true
# Set DNS server
cat > /etc/resolv.conf << EOF
nameserver 8.8.8.8
EOF
```



13.1.5 Docker server-gui custom WEB page

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 13.2 for the correct console type.

Step 2: On the left sidebar menu open Startup-config and use the example syntax below to set the ip and html page for your Docker node. Make sure you are using the exact syntax for your static IP setup and custom HTML values:

```
# Set ip address and Default route
ip addr add 10.100.12.100/24 dev eth0 || true
ip route add default via 10.100.12.10 || true
# Set DNS server
cat > /etc/resolv.conf << EOF</pre>
nameserver 8.8.8.8
EOF
# Create a Default web page
# Use 'EOF' do avoid variable from expanding
# Delete default index page
rm /var/www/html/index.html || true
# Create a Default web page
# Use 'EOF' do avoid variable from expanding
cat > /var/www/html/index.php << 'EOF'</pre>
<center>
<?php
echo gethostname();
?>
<hr>
      width="596" height="239" src="data:image/png;base64,---
<img
imagecode ommittedg==">
<hr>
<?php
//whether ip is from share internet
if (!empty($_SERVER['HTTP_CLIENT IP']))
 {
    $ address = $ SERVER['HTTP CLIENT IP'];
 }
//whether ip is from proxy
elseif (!empty($ SERVER['HTTP X FORWARDED FOR']))
 {
    $ address = $ SERVER['HTTP X FORWARDED FOR'];
  }
//whether ip is from remote address
else
 {
    $ip address = $ SERVER['REMOTE ADDR'];
  }
echo 'Client Address:'.$ip address;
?>
</center>
EOF
```



STARTUP-CONFIGS

	Config Set Default 🗸
SW1 \$ 0N SW2 \$ 0N Mgmt-Host \$ 0N ISP \$ 0N SW_M \$ 0N DMZ:S1 \$ 0N DMZ:S2 \$ 0N NTP \$ 0N	<pre>1</pre>

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

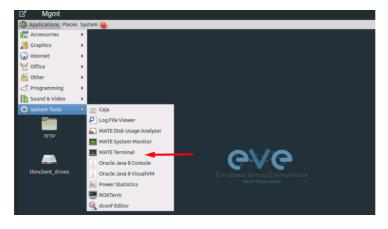




13.1.6 Docker server-gui SSL WEB page

Following previous chapter, you can enable on the server-gui node SSL/HTTPS certificate.

Step 1: Open Applications/System Tools/MATE Terminal



Step 2: Create SSL certificate, single line command, and fill up requested details.

```
openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout
/etc/ssl/private/apache-selfsigned.key -out /etc/ssl/certs/apache-
selfsigned.crt
```

Step 3: Enable SSL certificate for web page.

```
/usr/sbin/a2enmod ssl
/usr/sbin/a2ensite default-ssl
```

Step 4: Restart apache2 service

sv stop apache2

sv start apache2

13.1.7 Docker server-gui SSH root access activation

Step 1. Use Mgmt_Server MATE Terminal, type:

vi /etc/ssh/sshd config

Step 2. Navigate and find PermitRootLogin and uncomment. (delete #). Locate cursor under # sign and press "x". Then press ESC and type: ":wq", Enter

```
#LoginGraceTime 2m
PermitRootLogin yes
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10
```

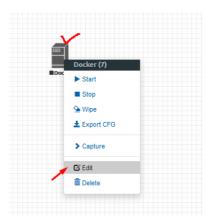


Step 3. Restart SSH service

/etc/init.d/ssh restart

13.2 Docker Consoles

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



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

Docker Station	Console type
eve-gui-server (napalm, ansible)	RDP
eve-chrome (optional)	RDP
eve-wireshark	RDP
eve-firefox	RDP
eve-kali (optional)	RDP
eve-kali-large (optional)	RDP
eve-ostinato (optional)	RDP



13.3 Docker cli root access

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

Username: root

Password: eve

NOTE: The root login for SSH can be commented in sshd file. Use vi to edit and remove comment "#" for PermitRootLogin

vi /etc/ssh/sshd_config PermitRootLogin yes

Regular user (root user) SSH access to EVE Docker:

Username: nobody

Password: eve

13.4 Dockers re-install/update

To install or fix docker stations in the EVE Pro issue the following commands from the CLI of EVE.

When dockers are properly installed, your EVE CLI command dc images output must show:

root@eve-ng:~# do	: images			
REPOSITORY	TAG	IMAGE ID sk	1 CREATED 50 GB	SIZE
eve-desktop	latest	ca1333621bd7	12 hours ago	3.65GB
eve-qui-server	latest	9db19c879a17 pnt	roller 2 days ago USB 2.0	3.84GB
eve-firefox	latest	0266d108a1bb	7 weeks ago	2.12GB
eve-wireshark	latest	82a009773e89 ka	adapter 17 weeks ago VM Manac	er1956GBC
root@eve-ng:~#				

If you still see some docker line with <none>

root@eve-ng:~# dc imag REPOSITORY	es TAG	IMAGE ID	CREATED	SIZE
<none></none>	<none></none>	cc286e6ac274	16 seconds ago	1.87GB
eve-gui-server	latest	f3aa6e0e9a56	3 minutes ago	3.04GB
eve-wireshark	latest	638ed7cf5b80	12 minutes ago	887MB
eve-firefox	latest	259293d73b07	13 minutes ago	1.49GB
eve-desktop	latest	78e9c2e618a5	15 minutes ago	2.79GB

please use reinstall dockers command:

apt install --reinstall eve-ng-dockers

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

13.5 Extra docker packages

NOTE: Not included in the default EVE Pro installation. This can take some time depending on your Internet connection and disk speed.

Kali Linux Full, to install issue command:



apt update apt install eve-ng-kali-large

Chromium Linux http, to install issue CLI command:

apt update apt install eve-ng-chrome

Ostinato docker, to install issue CLI command:

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

Docker-in-docker (DinD) docker. This docker is dedicated for complex docker stacks. Refer section: **13.6.2**. To install issue CLI command:

apt update apt install eve-ng-dind

To verify Installed dockers, issue CLI command

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

13.6Third parties dockers

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

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

- Simple Docker
- Docker's Stack

13.6.1 Simple docker installation

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

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

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

dc pull <dockername>

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



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

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

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

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

D A NEW N	IODE	
plate ocker.io	Sho	ow unprovisioned templates
Number of nodes to add	Image	
1 🗄 Name/prefix	adosztal/aaa:late	ist 👻
Docker		
Icon Server.png		*
	MM (MB)	
1 1	1024	
Enable DHCP on Eth0		
Ethernets 1		
Startup configuration		
None		Ŧ
Delay (s)		
Console		
telnet		*

13.6.2 Docker stack installation

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

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

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

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

Sample: Step 1: On eve cli, type:



apt update apt install eve-ng-dind

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

Step 2: Create a new lab

Step 3: Add on the lab:

- a. NAT network
- b. Docker eve-dind (set console to 'telnet' and enable dhcp)

Step 4: Connect docker to NAT network

Step 5: Start Docker

Step 6: Open Docker Console

Step 7: Type in console:

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

cp -r librenms-src/examples/compose librenms

rm -fr librenms-src cd librenms

docker-compose up -d

Commit your created docker with new name.

Step 8: Open a cli access to your EVE server

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

dc ps -a				
root@eve-ng:~#_	dc ps -a			
CONTAINER ID	IMAGE	COMMAND9 Type within	CREATED	STATUS
PORTS	NAMES			
b96743436dd8	eve-dind:latest	"dockerd-entrypoint.â€	" About a minute	e ago Up About a minute
	9a4f9db1-4ab2-40	e8c-b066-0d25ceeb540b-10-4		
7d83609410aa	eve-gui-server:late:)10 hours ago [[]	Inningpoinhaurs rusing eve
-		c-b066-0d25ceeb540b-10-2		
13ee6dc804ae	eve-gui-server:late:	st "/sbin/my_init"	8 days ago	Exited (0) 16 hours ago
	dd700ee7-f03b-4fd9	5-8ed8-40d1ad2e6f4f-10-14		

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

dc commit <containerid> eve-librenms

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

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



		E ^A Mgmt D Applications Places System 🍯
🕑 libreN	NMS • • • • • •	LibreNMS - Mozilla Firefox
	inet addr:172.18.0.1 Bcast:172.10.255.255 Mask:255.255.0. UP BRADACAST RUNNING MULTICAST MTU:1500 Metric:1 RX packets:0 errors:0 dropped:0 overruns:0 frame:0 TX packets:0 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txueuelen:0	(←) → C & 0 # 10.1.1.440000/rogin
docker0	RX bytes:112 (112.0 B) TX bytes:0 (0.0 B)	LibreNMS
0	UP BROADCAST MULTICAST MTU:1590 Metric:1 RX packets:0 errors:0 dropped:0 overruns:0 frame:0 TX packets:0 errors:0 dropped:0 overruns:0 errier:0 collisions:0 txqueuelen:0 RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)	[Joemane Password
eth0	Link encap:Ethernet HWaddr 50:0A:00:04:00:00 inet addr:10.1.1.14 Bcast:10.1.1.255 Maski255.255.255.0 UP BROADCAST RUMNING MULITCAST MULIS00 Metric:1 RX packets:25 errors:0 dropped:0 overruns:0 frame:0 TX packets:9 errors:0 dropped:0 overruns:0 frame:0	Remember Me Isogin Usua/horbed access or use shall render the user latter to criminal and/or out prosecution.
	collisions:0 txqueuelen:1000 RX bytes:2378 (2.3 KiB) TX bytes:1353 (1.3 KiB)	

13.7 Customize docker image with your own changes.

Step 1. Connect your existing docker node to the internet

Sometimes you may have your own packages to be installed on the docker and kept for future labs. For this connect your docker to the Internet. It can be achieved connecting docker to Management Cloud0 or NAT cloud. **Example below**, Sever-gui docker is connected to Cloud NAT.

Na Docker Do	ID me/Prefix Type Left Top	2 NAT NAT 462 219	*	
Docker Docker Docker Toot@Docker:- File Edit View Search Terminal Help E: Unable to locate package geniso root@Docker:-# apt install genisoinage Reading package lists Done	Type Left	NAT 462	*	
Docker Applications Places System root@Docker:- File Edit View Search Terminal Help E: Unable to Locate package gentso root@pocker:-# apt install genisoinage Reading package lists Done	Left	462	*	
Applications Places System Foot@Docker:- File Edit View Search Terminal Help E: Unable to locate package gentso root@pocker:-# apt install genisolmage Reading package lists Done				
Applications Places System Toot@Docker:- File Edit View Search Terminal Help E: Unable to locate package geniso root@pocker:-# apt install genisoinage Reading package lists Done	Тор	210		
File Edit View Search Terminal Help E: Unable to locate package gentso root@pocker:-# apt install gentsofnage Reading package lists Done		215		
root@Docker:~# apt install genisoimage Reading package lists Done		Save Cancel		
<pre>seading state information Done Suggested packages: wodin carkit-doc The following NEW packages will be installed: genisoinage tod to cost 106 kb of archives. After this operation, 1,598 kB or additional disk space will be used. Get11 miror(//Mirors.ubuntu.com/Mirors.txt zenial/main amd64 genisoinage an 4 9:11.11:Jubuntul [316 kB] fetched 316 kB in 5 (1,608 kB/s) Selecting previoes Yu unselected package genisoinage. Freparing to unpack/genisoinage 3%331:11:Jubuntui_amd64.deb Unpacking genisoinage (9:11.11:Jubuntui) Setting up genisoinage (9:11.11:Ju</pre>	nd6			

Step 2. Make your installs, packages. Example:

In the screen above I did install genisoimage package



apt install genisoimage

Step 3. Obtain your RUNNING docker container ID:

From EVE CLI issue command:

dc ps

root@eve-ng:~# dc	ne				
CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
NAMES					
0d4b3f8c314c	eve-gui-server:latest	"/sbin/my_init"	33 hours ago	Up 2 minutes	i l
	cb-b838-10d877ecce78-10-5				
root@eve-ng:~# ^C					
root@eve-ng:~#	in the screen above rulu i	Gentralinge packat	le		

Step 4. Commit your prepared docker image with new name. example below I called it evegeniso

dc container commit <containerid> <newimagename>

dc container commit 0d4b3f8c314c eve-geniso

Step 5 check if new Docker image is created

dc images

root@eve-ng:~# dc	images			
REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
eve-geniso	latest	e6dd56c3b26c	4 seconds ago	3.19GB
eve-kali 🥆	latest	d1fda568e8a0	3 weeks ago	4.77GB
eve-nso	latest	f2a7a3d6a423	8 weeks ago	3.95GB
eve-ostinato	latest	e89cad6b1813	2 months ago	1.34GB
eve-gui-server	latest	a13cb401c8dd	3 months ago	3.11GB
eve-firefox	latest	8900664e9f3b	4 months ago	1.49GB
eve-chrome	latest	51fd92216b99	4 months ago	1.61GB
eve-wireshark	latest	0c49fe2dc6bb	7 months ago	888MB
eve-desktop	latest	c285d1ec833c	7 months ago	2.39GB
dockergui-rdp	latest	a65b62fa69b6	9 months ago	553MB
phusion/baseimage	0.9.22	877509368a8d	2 years ago	225MB
root@eve-ng:~#				

Step 6. Optional, If you want to keep this image and later load in other EVE installs, then you must create exportable .tar image.

dc image save -o /root/mysuperimage.tar <image name>

Step 7 Optional, upload your .tar file in new EVE root, and install it in Dockers location.

dc image load -i /root/mysuperimage.tar

13.8 Delete docker image from EVE

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

dc images

root@eve-ng:~# de	c images			
REPOSITORY	TÃG	IMAGE ID	CREATED	SIZE
eve-geniso	latest	e6dd56c3b26c 🔫 🛌	4 seconds ago	3.19GB
eve-kali	latest	d1fda568e8a0	3 weeksEago ^T GI	Professic4al77GBb
eve-nso	latest	f2a7a3d6a423	8 weeks ago	3.95GB
eve-ostinato	latest	e89cad6b1813	2 months ago	1.34GB
eve-gui-server	latest	al3cb401c8dd	3 months ago	3.11GB
eve-firefox	latest	8900664e9f3b	4 months ago	1.49GB



Step 2. Use command: dc rmi -f <id of docker image>.

dc rmi -f e6dd56c3b26c

Step 3. Check with **dc images** if docker is removed.

Step 4. Finish removal with **apt remove --purge eve-ng-kali**, where eve-ng-kali is your docker repository name.



14 EVE Cluster System

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

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

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

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

14.1 EVE Cluster Licensing

EVE-NG Cluster system only the Master node is required to have a license. It is classic EVE Professional or LC/Corporate license.

Satellite nodes has special light EVE-NG Agent installation described below in Chapters: 14.5, 14.6 and □. The Satellite nodes need not special EVE-NG License

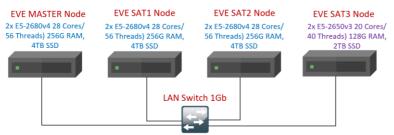
One "Master" EVE-NG can have several satellites joined into its cluster but each satellite can only be joined to one Cluster/Master.

14.2 EVE Cluster design models

14.2.1 Bare metal servers cluster

Design 1 EVE-NG Cluster Bare HW servers, recommended

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

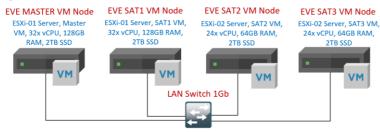




14.2.2 ESXi Virtual Machines cluster

Design 2 EVE-NG Cluster VM Ware ESXi Virtual Machines

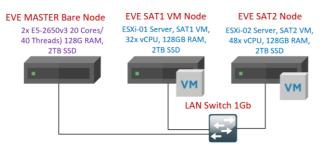
EVE Virtual ESXi Cluster 112 vCPU, 384GB RAM, 8TB SSD. Cluster members can be different VM configuration and located on same or different ESXi servers



14.2.3 Hybrid cluster

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

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



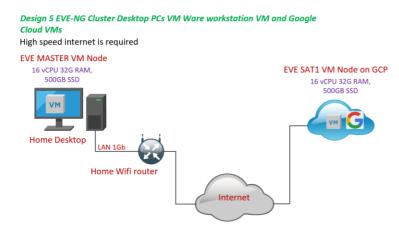
14.2.4 VM Ware workstation light cluster



14.2.5 Google Cloud cluster

NOTE: Your EVE VM must have Public IP address to join GCP satellite





14.3 EVE Cluster pre-requisites

14.3.1 Firewall rules between Master and Satellite nodes

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

14.3.2 EVE Cluster internal management network

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

14.3.3 EVE Cluster Member's hardware requirements

Any suitable Hardware or virtual device. Please refer Chapter 2



14.3.4 NTP Synchronization requirements

It is mandatory that during install your cluster Satellite member have same time NTP synchronization as the Master server.

14.4 EVE Cluster MASTER Node Installation

- Mandatory Prerequisites: Internet must be reachable and DNS must resolve from your EVE Server. EVE ISO installation requires internet access and DNS to get updates and install the latest EVE-PRO version from the EVE-NG repository, to check it, do a named ping, for example ping www.google.com
- ▲ It is mandatory that during install your cluster Satellite member have same time NTP synchronization as the Master server.

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

14.5 ESXi EVE Satellite VM installation

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

14.5.1 EVE-NG Satellite ESXi VM Setup and Settings

Step 1: Upload EVE ISO image to the ESXi store.	Step 2: Create NEW VM
Image: Section of the section of th	 We want wanted want want want want want want want want



/stem L	inux and ve	ersion: Ubuntu 64-bit	New virtual machine - EVE-PRO-V 1 Select creation type	Select storage	
			 2 Select a name and guest OS 3 Select storage 	Select the datastore in which	to store the configuration and disk files.
lew virtual machine - EVE-S	AT01 (ESXi 6.7 virtual machine)		4 Customize settings 5 Ready to complete		accessible from the destination resource that you selected. Select the destination datastore fo fron files and all of the virtual disks.
Select creation type	Select a name and gu	lest OS		Name	✓ Capacity ✓ Free ✓ Type ✓ Thin pro… ✓ Access ✓
Select a name and guest O Select storage	Specify a unique name and OS		_	datastore1	264.75 GB 231.79 GB VMFS5 Supported Single 1
Customize settings	Namo			HDD_A	930.75 GB 431.63 GB VMFS5 Supported Single
leady to complete	EVE-SAT01			HDD_B	930.75 GB 149.61 GB VMFS5 Supported Single
	Virtual machine names can contai	in up to 80 characters and they must be unique within each ESXi instance.			3 items
	Identifying the guest operating sys installation.	tem here allows the wizard to provide the appropriate defaults for the operating system			
	Compatibility	ESXi 6.7 virtual machine			
	Guest OS family	Linux 🗸			
	Guest OS version	Ubunta Linux (64-bit) ~			
	obiat of Halden				
			vm ware		
					Back Next Finish Cancel

VM CPU S	Settings. Se	Customize your EVE et CPU Number of	Satellite	-	ble RAM for your EVE
	T-x/EPT V	cores per processor. irtualization to ON	New virtual machine - EVE-DRO V 1 Select creation type 2 Select a name and guest OS 3 Select storage 4 Customize settings 5 Ready to complete	Customize settings Configure the virtual machine hand Virtual Handware VM Options	tear and vinuel machine additional options
Thew virtual machine - EVE-PRO-VI	M (ESVi 6 0 virtual machina)			* IM Memory	
✓ 1 Select creation type				RAM	64 GB •
 2 Select a name and guest OS 3 Select storage 	Configure the virtual machine hardwar	re and virtual machine additional options		Reservation	• NB •
4 Customize settings 5 Ready to complete	Virtual Hardware VM Options	^			Reserve all guest memory (All locked)
	Add hard disk. 🛤 Add network	k adapter 🗧 Add other device		Limit	Unimited • NB •
	* 🖬 CPU	24 🔻 🚺		Shares	Normal • when •
	Cores per Socket	1 V Sockets: 24		Memory Hot Plug	Enabled
	CPU Hot Plug	Enable CPU Hot Add	vm ware [.]	+ 🛄 Hard disk 1	16 GB - O
	Reservation	V MHz V			1.8
	Limit	Unlimited V MHz V			Back Next Finish Cancel
	Shares	Normal • 1000 •			
	Hardware virtualization	Expose hardware assisted virtualization to the guest OS			
	Performance counters	Enable virtualized CPU performance counters			
vm ware [®]	Scheduling Affinity	Hyperthreading Status: Active			
	•	Back Next Finish Cancel			

Step 7: Set the size of HDD for your new EVE Satellite VM. It is recommended to set "Thick Provisioned eagerly provisioned".		pe VMXNE	agement network. T3
Server EVE HDD is recommended to set at least 500Gb	 1 Select creation type 2 Select a name and guest OS 3 Select storage 	Customize settings Configure the virtual machine hardware	e and virtual machine additional options
	Grand Contract Sector Sec	Virtual Device Node	SCSI controller 0 V SCSI (0.0) V
		Disk Mode	Dependent
		SCSI Controller 0	LSI Logic Parallel
		SATA Controller 0	0
		USB controller 1	USB 2.0 V
		- INE Network Adapter 1	Management 90 UD
		Status	Connect at power on
		Adapter Type	VMDNET 3
		MAC Address	Automatic
	vm ware [®]	• 👹 Video Card	Specify custom settings
			Back Next Finish Cancel



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 	Customize settings Configure the virtual machine hardw	are and virtual machine additional options
4 Customize settings 5 Ready to complete		Reserve all guest memory (All locked)
	Limit	Unlimited • MB •
	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, lastly zeroed Thick provisioned, lastly zeroed Thick provisioned, eagenty zeroed
	Shares	Normal V 1000 V
vm ware [*]	Limit - IOPs	Testeda d
		Back Neet Finish Cancel

					PRO.iso.	Make sure	that Status is	s cl	heck
ew virtual machine - EVE-PRO-V	M (ESXi 6.0 virtual machine)				ON, "Conr	nect at pov	ver on"		
Select creation type Select a name and guest OS Select storage	Customize settings Configure the virtual machine hard	dware and virtua	I machine additional options			loor at por			
Customize settings Ready to complete	Virtual Hardware VM Options	9		*	PRO New virtual machine - EVE-PRO N	VIII (E SXi 6.0 virtual machine)			
-	📃 Add hard disk 🗰 Add net	work adapter	Add other device		✓ 1 Select creation type	Customize settings			
	• 🖬 CPU	24	New hard disk Existing hard disk		 2 Select a name and guest OS 3 Select storage 		ware and virtual machine additional options		
	 Memory RAM 	64	ME Network adapter		4 Customize settings 5 Ready to complete	USB controller 1	USB 2.0	•	
	Reservation	04	S CD/D/D arive			IMI Network Adapter 1	Manapement 90 UD	•	0
	The second secon		Floppy drive	•		Status	Connect at power on		
		DRe	Serial port			Adapter Type	VIDINET 3	•	
	Umt	Uni	USB controller	•		MAC Address	Automatic Y 00:00:00:00:00		
	Sharea	Nor	an Oll Science	*		· New CD/DVD Drive	Datastore ISD file	•	0
	Memory Hot Plug	DEn	Sound controller			Slatus	Connect at power on		0
vm ware	+ 🛄 Hand disk 1	200	In POLAnica	0					
			SCSI controller			CDIDVD Media	[datastore1] EVE-PRO.iso		Browse
			SATA controller	Head Finish Cancel		Virtual Device Node	SATA controller 0 • SATA (0:0)	*	
						+ 🗐 Video Card	Specify custom settings		

14.5.2 EVE-NG Satellite ESXi VM Installation steps

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

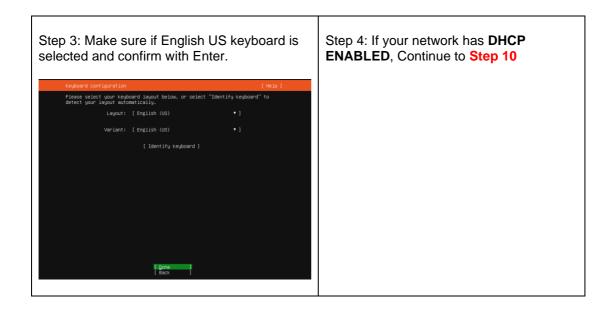
Satellite EVE ESXi VM Installation from ISO has 3 Phases

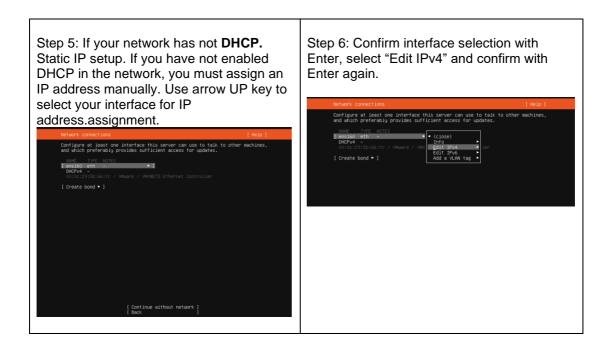
Phase 1 (Ubuntu installation)

Step 1: Power ON EVE VM. Chose Install EVE Satellite and confirm with Enter.	Step 2: Select English language. Confirm with Enter.
--	--

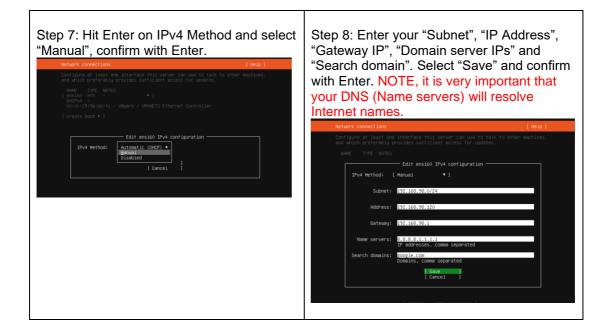


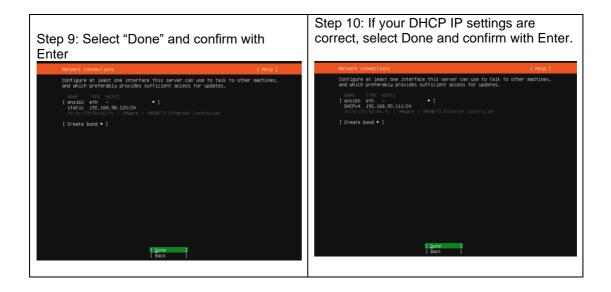










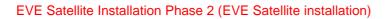


Step 11: If you have proxy in use for your internet, assign your network proxy settings. If no proxy in use, with Tab key select Continue and confirm with Enter.	
---	--



Г

Configure proxy	[Help]	Installing system [He	1p]
If this system requires a proxy to connect to the internet, enter here. Proxy address: If you need to use a HTTP proxy to access the outs enter the proxy information here. Otherwise, isave The proxy information should be given in the stand "http://[user][spass]@]host[sport]/".	ide world, this blank.	<pre>sbiguity/SBV/lasd_sutclinstall_data sobjouty/SBV/lasd_sutclinstall_data sobjouty/SBV/lasd_sutclinstall_data sobjouty/Ideo/edu/SavtOinstall_data sobjouty/Ideo/edu/SavtOinstall_data sobjouty/SBV/lasd_sutclinstall_data sobjouty/SBV/lasd_sutclinstall_data sobjouty/SBV/lasd_sutclinstall_data sobjouty/SBV/lasd_sutclinstall_data sobjouty/SBV/lasd_sutclinstall_config sobjouty/SBV/lasd_sutclinstall_sutclinstall_config sobjouty/SBV/lasd_sutclinstall_config sobjouty/SBV/lasd_sutclinstall_config sobjouty/SBV/lasd_sutclinstall_config sobjouty/SBV/lasd_sutclinstall_sutcli</pre>	
I <u>Done</u> Back		<pre>subiquity/SBH/apply_autoinstall.config subiquity/SBH/apply_autoinstall_config subiquity/SBH/apply_autoinstall_config subiquity/Londres/subj_autoinstall.config subiquity/Late/subiy_autoinstall.config subiquity/Mirron/cmd-apt-config: curtin command apt-config</pre>	ļ



Install complete		ISO Device. Save VI	vi Setting	gs.
configuring raid (mdadm) service	Virtual Hardware VM Op	ations		
installing kernel setting up swap	Add hard disk	i network adapter 🗧 Add other device		
apply networking config writing etc/fstab	► 🖬 CPU			
configuring multipath updating packages on target system configuring pollinate user-agent on target	► 🛲 Memory	8192 MB V		
updating initramfs configuration configuring target system bootloader installing grub to target devices	+ 🔤 Hard disk 1	100 GB ~		(
finalizing installation running 'curtin hook'	► SCSI Controller 0		~	
curtin command hook executing late commands final system configuration	SATA Controller 0			(
configuring cloud—init calculating extra packages to install	USB controller 1		~	6
installing openssh-server curtin command system-install downloading and installing security updates	IRE Network Adapter 1	VM Management 90	V Connect	(
curtin command in-target restoring apt configuration curtin command in-target	► (s) CD/DVD Drive 1	Datastore ISO file	✓ □ Connect	-
curtin command in-target subiguity/Late/run	► 🛄 Video Card		~	
subiquity/Late/run/command_0: cp /cdrom/server/eve-setup.sh /target/etc/eve-setup.sh			Se	ave

Т

Step 15: Return back to EVE console screen and confirm Continue with Enter, EVE VM will reboot and continue Phase 2 installation [Attro] Failed unmounting /cdrom. Please remove the installation medium, then press ENTER: [Filled] Failed unmounting /cdrom. [Falled] Failed unmounting /cdrom.	Step 16: Depending on your internet speed EVE installation will take some time. After installation EVE VM will auto reboot and EVE login screen will appear, login in CLI with
---	---

٦



root/eve and follow installation Phase 3
Eve-NG (default root password is 'eve') Jse http://192.168.90.111(DHCP4)∕
we-ng login: cl-info: no withorized SSH keys fingerprints found for user root. 14 hay 50 17:24-18 cloud-init: ####################################
<pre>ncds=nhac=nitpi256 AmAc2vij2NHK_MKVT1tblz2dHWATNAMATDblz2dHWATNAMABBBDV052XHF375K/XVH4Dup4.kem BdgZbk-8252 M_AMACBBDV052XHEJKKVT1EB18EETLBLG050KF13F65671011 rootBetw=rmg sht=dt2513 AmAcBBV052KEJKVT1EB18EETLBLG050KF13F656745KF13F654740000 sht=dt2513 AmAcBBV052KEJKVT1EB18EETLBLG050KF13F656745KF13F6474000004F556750KF13F6474000004F556750KF13F647400000 PT1pp07X9557657450KF13F64755785871acf78750KF13F647647514KF1254787451876400004F5567550KF13F6478400004F5567550KF13F64784000004F5567550KF13F64784000004F556755871acf78547547578704004 PT1pp07X9557657450KF13F6472587871acf78750KF13F6478474111054787475187508475718745874004747147504757827474518098747512058745914004947514558791acf7857870404 PT1p07X955765740144870477814545971654758727874747111105211F6287474518494787278471589400471527847451809874751258791acf787870404 PT1p07X95575571241541000000193752567254587145747111105211F628747451849487278471527847451809874751258784814514 20 Msg202217274218410000001937525671254141111250712504451111125041411112504114111115371111111111111111111111111111</pre>

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

Step 17: Setup EVE Management IP address. A Static IP address setup is preferred	Step 18: After your EVE is rebooted, Login to EVE CLI and type:
Follow steps in section :	apt update apt upgrade
3.5.1 for static IP, 3.5.2 for DHCP IP	apt upgrade

1

Step 19: On the EVE CLI prompt, reboot EVE by typing
reboot

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

root@eve-sat01:~# dpkg -1	eve-agent		
Desired=Unknown/Install/Re	move/Purge/Hol	d	
Status=Not/Inst/Co	onf-files/Unpac	cked/halF-conf/Ha	lf-inst/trig-
aWait/Trig-pend	-		-
<pre>// Err?=(none)/Reinst-requ</pre>	ired (Status, E	Irr: uppercase=ba	d)
/ Name	Version	Architecture	Description
+++-===================================			=====-
ii eve-agent	5.0.1-10	amd64	Agent
for EVE-NG Sat Cluster mem	ber		
root@eve-sat01:~#			

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

root@eve-sat01:~# ping www.google.com



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

Launch Satellite installation manually

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

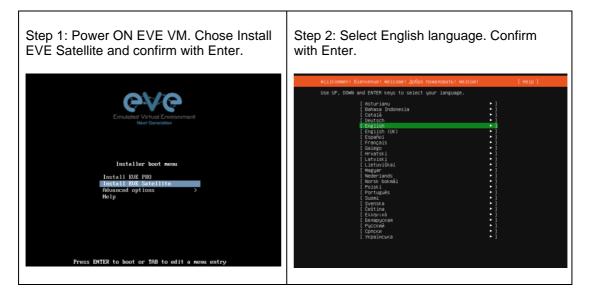
- IMPORTANT NOTE: If your Network interfaces order has been changed, please follow instruction to section 16.6
- 14.6 Bare hardware (BM) server EVE Satellite installation

14.6.1 BM Satellite server installation EVE ISO

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

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

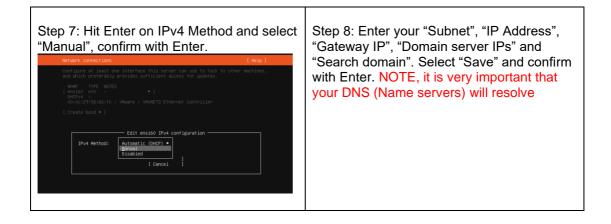
Phase 1 (Ubuntu installation)



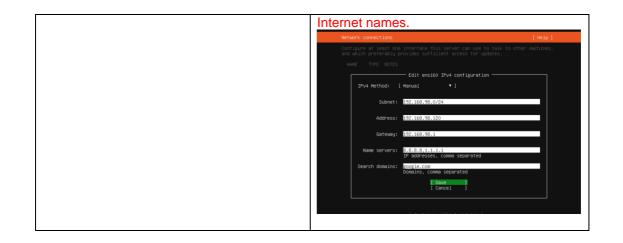


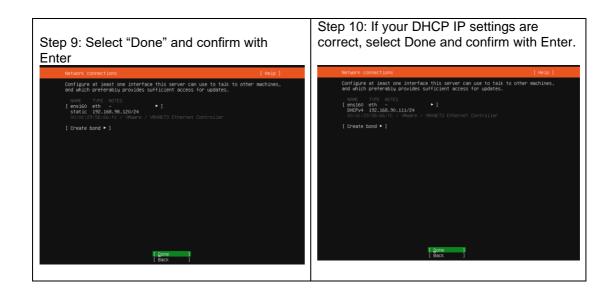
Step 3: Make sure if English U selected and confirm with Ente		Step 4: If your network has DHCP ENABLED, Continue to Step 10
Keyboard configuration	[Help]	
Please select your keyboard layout below, or select "Id detect your layout automatically.	entify keyboard" to	
Layout: [English (US)	• 1	
Variant: [English (US)	• 1	
[Identify keyboard]		
(i gone) (Back)		

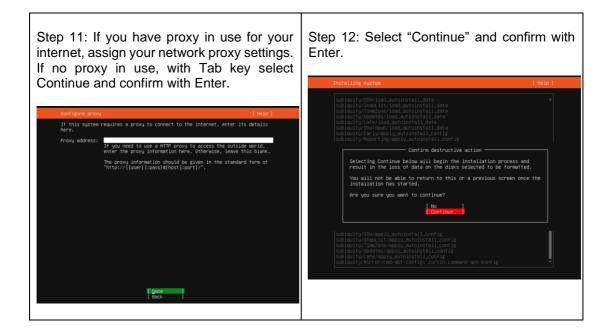
Step 5: If your network has not DHCP . Static IP setup. If you have not enabled DHCP in the network, you must assign an IP address manually. Use arrow UP key to	Step 6: Confirm interface selection with Enter, select "Edit IPv4" and confirm with Enter again.
select your interface for IP	Network connections [Heip] Configure at least one interface this server can use to talk to other machines,
address.assignment.	and which preferably provides sufficient access for updates.
Network connections [Meiß] Configure at least one interface this server can use to talk to other machines, and usin prefereably provides sufficient access for updates. Nume TVP [NTEs] DBCPV4 Image: State and State	NAME TYPE NOTES Consider the second
[Continue without network] [Back	













EVE Satellite Installation Phase 2 (EVE Satellite installation)

Step 13: After the Ubuntu "Install C select "Reboot Now" and hit continue.	•	Step 14: Without powering off the EVE Server remove CD/DVD ISO Media
Install complete! configuring raid (mdadm) service installing kernel	[Help]	
<pre>seting up supp apply return ing corig eriling atC/stm updating backages on target system coriguring pollinate user-agent on target updating intrast corigonation coriguring target system boolloader finalizing interliaition running 'curtin hook' curtin command hook executing late commands into system coriguration calculating extra backages to install installing interliaiting curtin command system install downloading and installing security updates extra of corigonation curtin command in-target curtin command in-target curtin command in-target curtin command in-target sublauity/ate/run sublauity/ate/runcommand_0: cp /cdrom/server/eve-setup.sh //arggetteCoreses.sh</pre>		
[View full log] [Reboot Now]		

Step 15: Return back to EVE console screen and confirm Continue with Enter, EVE VM will reboot and continue Phase 2 installation [FALED] Failed unmounting /cdrom. Plass remove the installation medium, then press ENTER: [FALED] Failed unmounting /cdrom. [FALED] Failed unmounting /cdrom.	<pre>Step 16: Depending on your internet speed EVE installation will take some time. After installation EVE VM will auto reboot and EVE jogin screen will appear, login in CLI with octive and follow installation Phase 3.</pre>
	ik datasudite eve-ng login: _

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

Step 17: After reboot login into your Agent server as root and follow Management IP setup instructions described in section 3.5.1 for Static IP	Step 18: After your EVE is rebooted, Login to EVE CLI and type:
	apt update apt upgrade



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

<pre>root@eve-sat01:~# dpk Desired=Unknown/Insta Status=Not/Inst/Con / Err?=(none)/Reinst</pre>	ll/Remove/Purge/Hold f-files/Unpacked/halF		rig-aWait/Trig-pend
/ Name	Version	Architecture	Description
ii eve-agent Cluster member root@eve-sat01:~#	5.0.1-20	amd64	Agent for EVE-NG Sat

14.6.2 BM Satellite installation Ubuntu legacy ISO

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

Download Ubuntu Legacy Server installation image/ISO https://releases.ubuntu.com/focal/

Phase 1 (Ubuntu installation)

Follow the Phase 1 BM Ubuntu installation Chapter 3.3.2

EVE Installation Phase 2 (EVE Satellite installation)

Step 28: SSH to your EVE IP using Putty or other SSH client. Log in as root user execute:	
apt update apt upgrade	
Step 29: Run EVE Pro online installation script. (it is single lin	e command below)
<pre>wget -O - https://www.eve-ng.net/focal/install-eve</pre>	-agent.sh bash -i

At the end of eve server installation, reboot eve

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

Step 30: After reboot login into your Agent server as root and follow Management IP setup instructions described in section 3.5.1 for Static IP

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

root@eve-sat01:~# dpkg -l eve-agent



<pre>Desired=Unknown/Install/R Status=Not/Inst/Conf-fi / Err?=(none)/Reinst-reg</pre>	les/Unpacked/halF		rig-aWait/Trig-pend
/ Name	Version	Architecture	Description
+++-===================================		==-====================================	
ii eve-agent	5.0.1-20	amd64	Agent for EVE-NG Sat
Cluster member			
root@eve-sat01:~#			

IMPORTANT NOTE: If your Network interfaces order has been changed, please follow instruction to section 16.6

14.7 Google Cloud EVE Satellite installation

Pre-Requisites: Your EVE must have Public IP address or static NAT to public IP.

14.7.1 Preparing Ubuntu boot disk template

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

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

≡	Google Cloud Platform	😫 EVE Test 👻	Q Search resources and products	-	✓ 2 0 2 0 1
۲	Compute Engine	VM instances			Activate Cloud Shell
A	VM instances				

≡	Google Cloud Platform	Deve-PRO-PROJECT ▼	۹, ۲	2 D	0	٠	: 🙆
۲	Compute Engine	VM instances					
B	VM instances						
昂	Instance groups						
	Instance templates		Compute Engine VM instances				
日	Sole tenant nodes						
٥	Disks		Compute Engine lets you use virtual machines that run on Google's Infrastrutine, Create micro-YMs or larger instances running Deblan, Windows, or other standard images. Create your first VM Instance,				
0	Snapshots		windows, or other standard images, create your risk with instance, import it using a migration service, or try the quickstart to build a sample app.				
[]	Images		Create or Import or Take the quickstart				
8	TPUs						
16	Committed use discounts						
南	Marketplace						
٩							
囲	(eve-pro-project) × +	•	/		ø	i -	. 🛛 ×
Your Use ~	me to Cloud Shell: Type "he Cloud Platform project in t pcloud config set project [ogcp@cloudshell:- (eve-pro-	his session is set to eve-pro-project. PROJECT ID]" to change to a different project.					

Step 3: create a nested Ubuntu 20.04 image model. Copy and paste the below command into the shell. Use copy/paste. crtl +c/ctrl +v. It is single line command (copy all command below in cli). Confirm with "enter":

gcloud compute images create nested-ubuntu-focal --source-imagefamily=ubuntu-2004-lts --source-image-project=ubuntu-os-cloud -licenses https://www.googleapis.com/compute/v1/projects/vmoptions/global/licenses/enable-vmx



CLOUD BHELL Terminal (eve-test-276509) × + -	✓ Open editor 💿 🏟 💿 : 🔤 🗡 ×
Welczem to Cloud Skollt Symp "heip" to get started. Your Cloud Flatform project in this assession is set to even-tast-276509. Use "geload config ast project [MCDET_10]" to change to a different project. Usidis detechalseloadshell: (even-test-276509) sectod compute images create nested-ubuntu-bionicsource www.googleapis.com/compute/v1/projects/vm-options/global/lisenses/enable-vmd	-image-family-ubuntu-1804-ltssource-image-project-ubuntu-os-cloudlicenses https://w
You will get the following output when your image	s ready:
CLOUD SHELL Terminal (eve-test-276509) × + -	✓ Open editor 🗇 🔅 💿 🕴 _ 🖉 ×
<pre>Weicome to Cloud Shell! Type "help" to get started. Your Cloud Flatform project in this meanion is net one to a different project. Unling derkalaBeloudhell: (www.startStarD013 gloud compute images create nested-ubuntu-bionicsource worgcogleapis.com/compute//lprojects/wm-options/global/liennes/enable-wmx Created (https://www.stage.getsic.com/compute/v/lprojects/wm-este-72650/global/images/nested-ubuntu-bioni NMG: FRONCT FMLIY DEFRECATED SYNUS nested-ubuntu-bionic enest-276509 Read/or FANIX ulsis_drzerkals@cloudshell:</pre>	

14.7.2 Creating VM

🔫 Google Cloud Platform 🚯 EVE Test 👻 🗵 0 2 i 🖲 M instances A Home Compute Engine VM instances Kubernetes Engine Instance groups > Instance templates (···) Cloud Functions Compute Engine VM instances Sole-tenant nodes) Cloud Run Machine images Disks STORAGE Snapshots Bigtable Images Import or Take the quickstar 500 Datastore TPUs > Committed use d ⇒ Firestore >

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

Step 2: Assign the name for your VM

Step 3: Set your own region and zone

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

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



eve-1
•
Labels 📀 (Optional)
+ Add label
Region (?)Zone (?)Region is permanentZone is permanent
europe-west2 (London) europe-west2-c
Machine configuration Machine family
General-purpose Memory-optimised Compute-optimised
Machine types for common workloads, optimised for cost and flexibility Series N1
Powered by Intel Skylake CPU platform or one of its predecessors Machine type
n1-standard-16 (16 vCPU, 60 GB memory)
vCPU Memory 16 60 GB

Container 😨

Step 6: Select Boot disk. Press Change

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

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

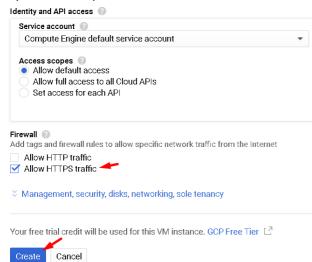


Boot disk

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

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

Step 7: Allow https traffic and create VM



14.7.3 EVE GCP Satellite installation

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





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

Step 2: Launch installation with:

Type the below command to become root:

sudo -i

Start EVE-Satellite installation

wget -0 - https://www.eve-ng.net/focal/install-eve-agent.sh | bash -ii

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

apt upgrade **Confirm with Y**

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



Step 5: VERY IMPORTANT: Setup IP

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

	Root Password k Type the Root Password k Igqqqqqqqqqqqqqqq k Igqqqqqqqqqqqqqq k x k
eveprogcp@eve-proi-\$_sudo -1	

Now follow the IP setup wizard, section: 3.5.2.



IMPORTANT: set IP as DHCP!

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

= Filter VM ins	stances					0	Co	lumns	. •
Name 🔿	Zone	Recommendation	In use by	Internal IP	External IP	Co	onnec	t	
🗌 🔮 eve-pro	europe-west2-c			10.154.0.2 (nic0)	35.246.119.90 🗋	ss	SH	•	:

14.7.4 GCP Firewall rules for Cluster

	Google Cloud Platfo	orm_	EVE-PRO-PROJECT	-
	Home		M instances	
Ŧ	Pins appear here 🔞		×	
STOR	AGE		Filter VM instances	
	Bigtable		Name A Zone	Recomm
	Datastore	>	🗌 🥑 eve-pro euroj	be-west2-c
~	Firestore	>		
	Storage	>		
	SQL			
20	Spanner			
0	Memorystore			
Ē	Filestore			
NETW	VORKING			
ų-ų	VPC network			
ni-ni	VPC network	>	VPC networks	
æ	Network services	>	External IP addresses	
÷	Hybrid Connectivity	>	Firewall rules	
0	Network Service Tiers		VPC network peering	
Step	2: Create new f	irew	all rule	
Fire	ewall rules	+ CR	EATE FIREWALL RULE	C REFRESH
	wall rules control incoming or o			fault,
	ming traffic from outside your r			
Note	e: App Engine firewalls are man	laged h	iere.	

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

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



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

14.8 Cluster Management

14.8.1 Join Satellite nodes to the Master

Step 1: Make sure that you have reachability between Master and Satellite nodes and firewall rules are configured in your network if FW is set between them. Firewall rules Section 14.3.1

Step 2: Navigate: System/Cluster Management

Em			🖨 Main	🗲 Management 👻	🛢 System 🗸	 Information - 	i Licensing 🗸	©2021 Eve-NG			
đ	h File manage	Current po	sition / root		😁 System So 🚰 Cluster Ma		_				
	New Name	× 🖻 🕹	1 T (3	 System sta System lo Stop All Na 	gs Add fe	older				
	ep 2: Pre			er						a ⊨ ÆSystem	- 📽 Claster management
CI	uster members										+Add member
Id	l Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
0	master •	48		157	8	1		1689	55		^
1	sat1 •	32	8	63		1		308	18	8 0 C	
2	sat2 •	32		63		1		308		8 ¢ ¢	~
<											1

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

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

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



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

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

14.8.2 Remove Satellite nodes from the Master

Step 1: Navigate: System/Cluster Management

Step 2: Press Remove Member

uster managem	ent here you can manage EVE-f	NG Cluster							# > 🗲 System >	₩Cluster manag
Cluster members										(Add member
Id Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
o master •	48		157		1		1689	55		~
1 satl.	32	8	63		1		308	18	8 0 C	
2 sat2.	32		63		1		308		800	~
<									Remove membe	er

14.8.3 Re-join Satellite nodes from the Master

Step 1: Navigate: System/Cluster Management

Step 2: Press Remove Member

uster managem	nent here you can manage EVE-	-NG Cluster							n ⇒ ⊁System >	₩Cluster manag
Cluster members										(Add member
Id Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
o master •	48		157		1		1689	5.		^
1 sat1.	32	8	63		1		308	18	8 0 C	
2 sat2.	32		63		1		308		800	~
<									Remove membe	> N

Step 3: Go to Satellite node CLI and reset IP address. It is necessary to refresh SSH key for re-join Satellite to the Master.

CLI:

Login as root to the Satellite node and type:

rm -f /etc/wireguard/*
ip link set wg0 down
ip link del wg0
rm -f /opt/ovf/.configured
su -

EVE Satellite will initiate IP setup wizard. Follow Section 3.5.1

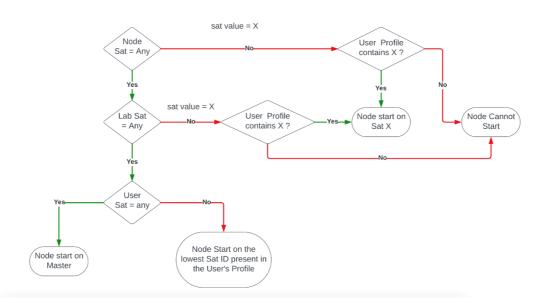
Step 4: Join Satellite accordingly Section 14.8.1

14.9 Cluster assignment hierarchy

The Cluster Hierarchy depends which of the option is assigned:



User Profile and Lab nodes Satellite use hierarchy



14.9.1 User assignment to the dedicated Satellite (Option 1)

Step 1: Navigate to Management/User Management

Enulisted Virtual Environment Next Generation	Professional	😭 Main	🖋 Management 👻	🗐 System 🚽	🛈 Information 👻	🕄 Licensing 🛨	©2021 Eve-NG
Cluster man	agement	here you can	嶜 User managem 🖨 Node managen				
Cluster mem	bers		🖨 🛛 Lab manageme	ent			

Step 2: Create or Edit existing user

e ∨e	Professional 🖷 Main	🗲 Management + 🛛 🔒 System +	O Information - O Licensing -	©2021 Eve-NG								23:40 🛔 uldis 🛚 🖶 Sign o
User manager	ment here you can m	mage EVE-NG users										希 - FManagement - 管Usermanagem
Database of us	ers											⇒kdd user Nore Info v
Username	Authenticato	r Email	Name	Role	Sat	Disk Usage	Valid From	Expiration	Max CPU	Max RAM (GB)	POD	Actions
• admin	internal	admin@eve-ng.net	EVE Administrator	admin	any	0.02 GB			Unlimited	Unlimited	0	🕼 Edit 🔕 Käck 🔒
• chris	internal	chris@eve.test	Chris	editor	any	0.68			Unlimited	Unlimited	1	Gif Edit Ørück 8

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

Satellites assignment per user (Editor or User) require Administrator account

The User Cluster Server value "any" is set by default.

Set the Cluster Satellites for the Lab Editor. This applies for Lab Editor roles. Lab Editor will stick to selected Satellites. Lab Editor will be forced and allowed to use only selected Satellite server or choose between the Satellite servers if it is assigned more than one server. If the Lab has set to use any satellite server, then Lab Editor will be assigned to use lowest satellite ID.

Example: Lab Editor has assigned to use SAT1 (ID1) and SAT2 (ID2). The Lab has set to use "any" satellite. This Editor lab will be automatically assigned to use first available Satellite with lowest ID1, SAT1.



Editor has rights to change Satellite per node for own created Labs.

Editor cannot change satellite assignments for Shared Lab. The Shared Lab is recommended to set "any" Cluster Satellite,

If the Lab is created on the Satellite servers which are NOT in the Lab Editor allowed Satellites list, this lab will not start.

Example: Lab is created to use Master server only, but Lab Editor is allowed to use only SAT1 Server. Lab Editor will not be allowed to start this Lab.

If the Lab contains nodes which are assigned to run on the Satellite server which is NOT in Lab Editor allowed Satellites list, this node will not start.

Example: Lab several nodes are assigned to use Master server only, but Lab Editor is allowed to use only SAT1 Server. Lab Editor will not be allowed to start these nodes.

Set the Cluster Satellites for the Lab User. This applies for Lab User roles. Lab User will stick to selected Satellites. Lab User will be forced and allowed to use only selected Satellite server or servers.

Example: Lab User has assigned to use SAT1 (ID1) and SAT2 (ID2). The Lab has set to use "any" satellite. This Lab User lab will be automatically assigned to use first available Satellite with lowest ID1, SAT1.

If the Lab is created on the Satellite servers which are NOT in the Lab User allowed Satellites list, this lab will not start.

Example: Lab is created to use Master server only, but Lab User is allowed to use only SAT1 Server. Lab User will not be allowed to start this Lab.

If the Lab contains nodes which are assigned to run on the Satellite server which is NOT in Lab User allowed Satellites list, this node will not start.

Example: Lab several nodes are assigned to use Master server only, but Lab User is allowed to use only SAT1 Server. Lab User will not be allowed to start these nodes.

Satellites

any ×		
any		
master		
SAT01B		

14.9.2 Lab assignment to dedicated cluster Satellite (Option 2)

Step 1: Navigate to Lab tree, Select Lab you want assign for dedicated Satellite

Step 2: Click "Edit"



New Name	Add folder	FTD Policy Lab v1	
		Clico Socurity Firepower Threat Defense Policies Lab Redex used in: the Labs Created by Ullis, EVE Pro, 2021	Scale
🗆 💼 Wireless	25 Apr 2021 01:41 ^	Router IBbit Linuxt 3-AdvEnterpriseK0-HZ 157.3 May 2018	
🗆 🔚 XLabs	28 Feb 2021 22:03	+ Agent (ii) + HO PC Windows 20x86	
🗆 📑 1 VRRP.unl	26 Apr 2021 02:43	Company Office	
🗆 📑 7200.unl	26 Apr 2021 16:37	Pau 27.1.1.1020 Pau 17.1.0.2.1.1020 Pau 17.1.1020 Pau 17.1	
🗆 📑 Al.unl	28 Apr 2021 09:21		
🗆 📓 A_Trunka.unl	02 Apr 2021 13:57		
DC-UD-ASA-Cluster.unl	10 Dec 2020 00:16		
DUAL ISP.unl	23 Apr 2021 12:57	education and education a	
🗆 🖥 FTD Policy Lab v1.unl 🛛 🗕	11 Feb 2021 22:36		
🗆 🖺 FTD Policy Lab v1_dark.unl	28 Feb 2021 16:19	Lab Path: /FTD Policy Lab v1.unl Version: 1	
🗆 💾 FTDv AnyConnect kids lab.unl	26 Apr 2021 04:51	UUID: 04b55e95-281f-4b6c-8d40-bfcf88e3c193 Author: Uldis	
migration_lab_master_sat.unl	17 Mar 2021 18:29		
🗆 📑 MPLS-LDP Lab.unl	14 Feb 2021 12:02	Open Edit Delete	
Multicast Cisco with VLC 01.unl	18 Apr 2021 17:40	Description: Cisco Firepower Threat Defense (FTD) Basic Lab	

Step 3: Select Satellite for Lab

Edit lab					
Path*	/FTD Policy Lab v1.ur	ul.		Description	Clsco Firepower Threat Defense (FTD) Basic Lab
Name*	FTD Policy Lab v1				
Version*	Use only [A-Za-20-9]chan 1 Must be interger ([0-9]chan				
Author	Uldis			Tasks	
Satellite		any V any			
Shared with	Select users	master sat01			4
Config Script 1	limeout	sat02 900	Seconds		Save Cancel
Lab Countdow	n Timer	0	Seconds		

Note: Accordingly, Cluster hierarchy matrix above, this Option will be in force if Option 1 is left to default "any"

14.9.3 Creating EVE labs in Cluster (Option 3)

Step 1: Create new or	edit your	existing I	ab
-----------------------	-----------	------------	----

Step 2: On lab Node right click/edit

Step 3: Select preferred Satellite node and click save	Step 3: Sel	lect preferred	Satellite node	e and click	save
--	-------------	----------------	----------------	-------------	------

Default	•	master	•
Delay (s)		master	
0		sat1	
Left		sat2	
1434		any	

Option to assign cluster nodes for single lab devices.

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

(0)	u)	
-00-	SW-I (2)	
VLAN173 I	Start	
VLAN174 I	Se Wipe	
	🕑 Edit 🔫	
	1 Delete	



10	ONFIGURED NODES																
D	NAME	SATELLITE	TEMPLATE	BOOT IMAGE	CPU	CPU USAGE	CPU LIMIT	IDLE PC	NVRAM (KB)	RAM (MB)	RAM USAGE	ЕТН	SER	CONSOLE	ICON	STARTUP-CON	FIG ACTIONS
	SW-H1	master \vee	iol	i86bi_linux_l2-adventerprisek9-ms.SSA $\scriptstyle{\lor}$	n/a	0%	n/a	n/a	1024	1024	0%	4	0	teinet	Switch L32.png	• Default	> ▶■9±0 ii
	SW-I	master \vee	iol	i86bi_linux_l2-adventerprisek9-ms.SSA \vee	n/a	0%	n/a	n/a	1024	1024	0%	4	0	teinet	Switch2.png	• Default	> ▶■9±0 ii
	Admin-PC	master 🗸	docker	eve-gui-server:latest \vee	2	0%	n/a	n/a	n/a	4096	0%	1	n/a	rdp	🖂 📕 Desktop3.png	• Default	> ▶■9∓0 1
	FTD	master ~	firepower6	firepower6-FTD-6.7.0-65	4	0%	n/a	n/a	n/a	8192	0%	5	n/a	vnc	ASA2.png	• None	> ▶■9∓Q 8
	ISP-R	master \vee	iol	i86bi_LinuxL3-AdvEnterpriseK9-M2_15 \vee	n/a	0%	n/a	n/a	1024	1024	0%	1	0	teinet	Router2.png	• Default	> ►=9±0 ii
	DMZ-Server	master \vee	docker	eve-gui-server:latest	1	0%	n/a	n/a	n/a	1024	0%	1	n/a	rdp	Server_WEB1.pn	- Default	> ►=9±0 ii
	HQ-PC	sat1 🗸	win	win-10-x86-20H2v3 V	2	0%	n/a	n/a	n/a	4096	0%	1	n/a	rdp-tis	🗸 🍂 Desktop2.png	• None	> ►=9±0 ii
	SW-H2	master \vee	iol	i86bi_linux_l2-adventerprisek9-ms.SSA $\scriptstyle{\checkmark}$	n/a	0%	n/a	n/a	1024	1024	0%	1	0	teinet	Switch2.png	• Default	v ⊧∎9±0 i
	FMC	sət2 🗸	firepower6	Firepower6-FMC-6.7.0-65	4	0%	n/a	n/a	n/a	28672	0%	1	n/a	vnc	FMC.png	• None	> ▶=9±0 ii
0	Internet-PC	master $\!$	docker	eve-gui-serverslatest	1	0%	n/a	n/a	n/a	1024	0%	1	n/a	rdp	🖂 🍂 Desktop2.png	• Default	> ▶■9∓Q 1
1	Kali	sat1 🗸	docker	eve-kali-large:latest 🗸	4	0%	n/a	n/a	n/a	8192	0%	1	n/a	rdp	🗸 🖷 Kəli.png	• Default	v ⊧∎9∓0 i

14.9.4 Master images synchronization with Satellites

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



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

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

14.10Cluster system monitoring

14.10.1 Cluster Monitoring page

Navigate: System/Cluster Management

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

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

iste	ster management here you can manage EVE-NG Cluster 🏶 - 🖌											
Clus	ster members	5								+Add	member	
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action		
0	master •	48		157	1	1		1689	55		^	
1	sat1 •	32	1	63	10	1		308	18	<u>ම</u> ල ල		
2	sat2 •	32		63		1		308	11	<u>ଛ</u> ୦ ୯	~	

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



lus	ter members									+Add mem	ber
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
D	master •	48		157	4	1		1689	55		^
1	sat1•	32	1	63	10	1		308	18	0 C	
2	sat2 • 🔫	32		63		1		308	11	÷	

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

Clus	-see en													
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action				
0	master •	24	6	63	5	4		205	79					
1	satl.	a		31		1		40	40	Ê				
2	sat2 •	4		10	5	1		40	24	C 0 C				
3	gcp-sat •	2		29		0		40	12	C 0 C				

14.10.2 Satellite disaster recovery

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

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

Step 1: To verify status of lab nodes:

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

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

Step 2. Navigate: System/Cluster Management Use **Purge** Button to clean crashed Satellite devices from the Master.

lus	ster members									+Add memb
d	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action
,	master •	48		157	1	1		1689	55	
	sat1 •	32		63	1	1		308	17	8 O C
	sat2 •	32		63		1		308	12	8 .



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



14.10.3 EVE Cluster Status

Navigate: System/Cluster Management

୧୪୧	Professional	# Main	🗲 Management 👻	🖉 System 👻	🚯 Information 👻	🚯 Licensing 👻	©2021 Eve-	NG			00:41	占 uldis	G Sign out
System sta	tus			 Yestem System S Cluster M 								> 🖉 Logs >	O System status
Liul System st	International System status			 System st System la X Stop All N 	sgs			(0% Swap used Total Swap: 3 Gb.)	44% Disk used Total Disk: 2304 0	ib.	
				runnin	g IOL nodes	runni	ng Dyna	mips nodes	running	QEMU nodes			
					5		0			6			
					runnin	g Docker no 3	odes	running VP 2					
Qemu version: 2.													
Current API version	on: 3.0.1-78-PRO	87cc32ef65											
UKSM status: 📴													
CPULimit status:	ON												

14.10.4 Cluster monitoring cli commands

On EVE Master: Cluster System CLI Commands:

Check Cluster status:

SSH to the Satellite node from the Master status: ssh 172.29.130.<satId>

```
#####Example SSH to SAT1#####
root@eve-ng:~# ssh 172.29.130.1
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.20.17-eve-ng-uksm-wg+
x86 64)
```

```
* Documentation: https://help.ubuntu.com
```

```
* Management: https://landscape.canonical.com
```

```
* Support: https://ubuntu.com/advantage
```

* Canonical Livepatch is available for installation.- Reduce system reboots and improve kernel security. Activate at:



https://ubuntu.com/livepatch Last login: Sun Jan 31 22:24:06 2021 from 10.6.6.14 root root@eve-sat1:~# Check Cluster Satellite version: root@eve-sat03:~# dpkg -l eve-agent Desired=Unknown/Install/Remove/Purge/Hold Status=Not/Inst/Conf-files/Unpacked/halF-conf/Half-inst/trig-aWait/Trig-pend |/ Err?=(none)/Reinst-required (Status,Err: uppercase=bad) ||/ Name Version Architecture Description _____ ii eve-agent 5.0.1-10 amd64 Agent for EVE-NG Sat Cluster member root@eve-sat03:~#

14.11 Cluster system upgrade

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

On the EVE Master CLI run commands:

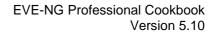
apt update apt upgrade

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

To update manually Satellite nodes from Master EVE:

root@eve-ng:~# unl wrapper -a updatesat

Feb 01 00:03:24 Feb 01 00:03:24 Online Check state: Valid
Feb 01 00:03:24 update sat 1
ii eve-agent 5.0.1-10 amd64 Agent for EVE-NG Sat
Cluster member
Feb 01 00:03:24 update sat 2
ii eve-agent 5.0.1-10 amd64 Agent for EVE-NG Sat
Cluster member
root@eve-ng:~#





15 EVE Troubleshooting

15.1 CLI diagnostic information display commands

15.1.1 Display full EVE Pro diagnostic

eve-info

15.1.2 Display the currently installed EVE Pro version:

dpkg -l eve-ng-pro

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

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

kvm-ok

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

15.1.4 Display EVEs CPU INFO:

 lscpu

 Architecture:
 x86_64

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

 Byte Order:
 Little Endian

 CPU(s):
 24

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

 Thread(s) per core:
 1

 Socket(s):
 24

 NUMA node(s):
 4

 Wodel:
 44

 Model:
 44

 Model:
 1

 Stepping:
 2

 CPU Miz:
 3324.053

 BogMIPS:
 6650.00

 Virtualization:
 VT-x

 Hypervisor vendor:
 WMware

15.1.5 Display EVEs CPU manufacturer:

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



15.1.6 Display EVEs HDD utilization.

If the /boot only has a little space left you can refer to section **Error! Reference source not found.**. If the eve—ng—vg—root reaches 99% or 100% then you will need to expand the HDD in order to continue using EVE. The Solution to expand your HDD is described in section 15.1

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

15.1.7 Display EVEs Bridge interface status

brctl show

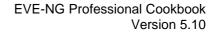
root@eve-ng:~#	# brctl show		
bridge name	bridge id	STP enabled	interfaces
dockerO	8000.0242c0db8435	no	
natO	8000.000000000000	no	
pnetO	8000.000c29d0aa94	no	ethO
pnet1	8000.000c29d0aabc	no	eth1
			vunl1_0_1_0
pnet2	8000.000c29d0aa9e	no	eth2
pnet3	8000.000c29d0aaa8	no	eth3
pnet4	8000.000c29d0aab2	no	eth4
pnet5	8000.000000000000	no	
pnet6	8000.000000000000	no	
pnet7	8000.000000000000	no	
pnet8	8000.000000000000	no	
pnet9	8000.000000000000	no	

15.1.8 Display EVEs system services status

15.1.8 Display EV	'Es system services status
systemctl list-u	nit-filesstate=enabled
root@eve-ng:"# systemct1 11: UNIT FILE	st-unit-filesstate=enabled STATE
accounts-daemon.service	enabled
autovt@.service	enabled
capdog.service	enabled
cpulimit.service	enabled
cron.service	enabled
docker.service getty@.service	enabled 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 enabled
syslog.service systemd-timesyncd.service	enabled
unattended-upgrades.service	
ureadahead.service	enabled
dm-event.socket	enabled
docker.socket	enabled
lvm2-lvmetad.socket	enabled
lvm2-lvmpolld.socket	enabled
uuidd.socket	enabled
remote-fs.target	enabled
apt-daily-upgrade.timer	enabled
apt-daily.timer	enabled

15.2 Correct EVE server network interfaces order

NOTE: Sometimes after installation the Ubuntu or ESXi (known reported issue), your system can change network interfaces (NICs) order.





EVE-NG, starting from version PE 5.0.1-77 has implemented NIC order script to fix your network interfaces order.

- 1. Log into your EVE as SSH, or native VNC server console as root user.
- 2. Navigate to cd /opt/ovf/
- 3. Run the script:

```
root@eve-ng-master:~# cd /opt/ovf/
root@eve-ng-master:/opt/ovf# ./nicorder-wizard
```

4. Follow the instructions on the screen to re-order your interfaces.

Reorder Nic	rs can change network
********	₩
UP/DOWN	Select interface
LEFT/RIGHT	Move interface
ESC	Discard change
ENTER	Accept new order
> enx000c29 enx000c29 enx000c29 enx000c29	067dbd5 eth1 -> eth1

- 5. After correction the initial boot order will be saved on your EVE server
- 6. Reboot your EVE server, the new order settings will be in force now.

NOTE: if you will run order script again, it will show you last saved order.

15.3 Expand EVEs System HDD

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

15.3.1 HDD space alert

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

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

To edit HDD space threshold for the alert is customizable. please follow section: 7.4.1



1812	

Port	Secret
1812	•••••
8080	
×	
	1812 🔄 Port 8080 <table-cell></table-cell>

15.3.2 Expand HDD on VMware Workstation

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

Step 1: Stop all your labs and shutdown EVE.

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

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

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

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

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

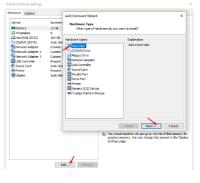
Step 6: Make sure you have set the option "Store Virtual disk as a single file" and then click Next

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

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

15.3.3 Expand your HDD on ESXi

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





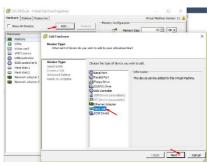
Step 1: Stop all your labs and shutdown EVE.

Use EVE CLI command: shutdown -h now

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

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

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



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

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

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

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

15.3.4 Expand your HDD on a Bare Metal EVE Server

It is a complicated process to expand a HDD for a bare metal EVE server.

https://www.eve-ng.net/wp-content/uploads/2023/03/EVE-Doc-3023-LVM-HDD-systems.pdf

Please open a ticket in our Live chat support for advice.

https://webchat.eve-ng.net/login/

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

15.4 Reset Management IP

Type the following commands into the CLI followed by enter:

rm -f /opt/ovf/.configured

su -

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

15.5 EVE PRO SQL Database recovery

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

unl wrapper -a restoredb

Below is SINGLE LINE Command to restore SQL Database.



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

15.6 EVE PRO Migration from host to host

Step 1: On newly installed EVE navigate to:

cd /opt/unetlab/scripts

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

Example:

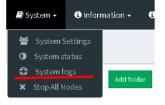
root@eve-ng:/opt/unetlab/scripts# ./migrate.sh -s 192.168.1.100 -p eve

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

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

15.7 EVE Log files

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



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

System log viewer				
Select log file	Number of Lines	Search text		
access.bd	20		View	
access.txt				
api.txt				
error.txt				
php_errors.txt				
unl_wrapper.txt				
cpulimit.log			Null	

15.8 EVE cli diagnostic info

Use EVE cli to obtain your EVE information:

eve-info



16 EVE Extras

16.1 EVE Pro Radius server setup for user authentication

Mandatory Prerequisites: Updated EVE-PRO version 2.0.6-30 or later.

Please follow section: 7.4.1

System settings			
Radius Server #1	IP	Port	Secret
	0.0.0.0	1812	*****
Radius Server #2	IP	Port	Secret
	0.0.0.0	1812	*****

16.1.1 EVE User setup for Radius authentication

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

Step 2: The Add New User management window will pop up. Fill in the main information about your EVE user. Make sure that you're the username of the account created in EVE matches with the Radius server database.

Step 3: Enable the External Auth (Radius) checkbox. Any existing password will be removed, because the authenticator will check with the Radius server for credentials.

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

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

Name				
John Tester				
Role Administrator Administrator				
Accol Editor				
From User	0	to	-1	0
POD*				

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



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

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

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

Step 7: Press ADD

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

Example: EVE user authenticated with ISE 2.1 Radius server.

Add

Cancel

		<u>e</u> ∨e		🖷 Main	🗲 Management 🗝	🖉 System 🕶	🚯 Information 🗸	O Licensing -	
	l	User manag	gement her	e you can m	anage EVE-NG users				
		Database of	users						
		Username		Authenticat	or	Email		Name	
EVE Pro Radius user		admin		internal		root@loc	allhost	Eve-N0	Administrator
EVE Pro Radius user,		uclise		ra clius		uldis@ttt	žv	Uldis R	aciius
Authentication Details									
Source Timestamp	2018-11-21 1	8:59:48.211							
Received Timestamp	2018-11-21 1	8:59:48.214							
Policy Server	ISE2-1								
Event	5200 Authent	ication succeeded							
Username	udise								
User Type	User	ISE A	2.1 EVE Au	thentica	ited user				
Authentication Identity Store	Internal Users	5							
Authentication Method	PAP_ASCII								
Authentication Protocol	PAP_ASCII								
Network Device	EVE90-228								
Device Type	All Device Ty	pes							
Location	All Locations								
NAS IPv4 Address	192.168.90.2	28							
Authorization Profile	PermitAccess								
Response Time	206								

16.2 Active Directory user authentication

Mandatory Prerequisites: Updated EVE-PRO version 2.0.6-30 or later.

To join Active Directory to the EVE, Please follow section: 7.4.1



ystem settings						
Radius Server #1	IP		Port		Secret	
	0.0.0.0	8	1812	\$	•••••	(1)
Radius Server #2	IP		Port		Secret	
	0.0.0.0		1812	\$		۵
						_
Active Directory Server	IP		Port		Enable TLS	
Active Directory Server	IP 192.168.90.27		Port 389	÷	Enable TLS	
Active Directory Server Base DN				÷	Enable TLS	
-				¢	Enable TLS	
Base DN	192.168.90.27			Ð	Enable TLS	

16.2.1 EVE User setup for AD (LDAP) authentication

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

Step 2: The Add New User management window will pop up. Fill in the main information about your EVE user. Make sure that you're the username of the account created in EVE matches with the Radius server database.

Note: The username in of the Active directory user account must match with AD username. Username must have domain at the end of username. Example: evelabuser@eve.lab

Step 3: Enable the Active Directory from Authentication menu. Any existing password will be removed, because the authenticator will check with the Active Directory server for credentials.

Add New User	
User Name*	
labuser@eve.lab	83
Use only [A-Za-z0-9@]chars	
Authentication active directory	
Password	
•••••	
Password Confirmation	
*****	(1)

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



ohn Tester					
le Administrator 🗸					
Administrator					
Editor					
User	0	to	-1	0	
D*					

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

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

om	2018-05-18	00:00	to	2018-05-20	01:00
D*					

Cancel

Step 6: The POD number is a value assigned to user accounts automatically. POD numbers are like user profiles inside of EVE and are a unique value for every user Think of PODs like a virtual rack of equipment for each user. Admins can assign a preferred number between 1-32786. Please keep POD numbers unique between users!

Step 7: Press ADD

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

16.3 Lab Chat

🟴 Lab Chat	Refer section: 7.9.12
LAB CHATROOM	
[10.42:52] <i>uldis joined</i> [10.43:19] <i>admin joined</i> [10.43:24] admin: hello uldis [10.43:34] uldis: hello admin	

16.4 Custom MAC address for node management

NOTE: Custom first MAC is supported for Qemu nodes only.

Qemu nodes has option to change first interface MAC address.



	E	×
Template		
Cisco vIOS		*
ID		
15		
15		
Image		
vios-adventerprisek9-n	n.SPA.156-1.T	•
Name/prefix		
VIOS		
Icon		
Router.png		·
UUID		
314c922c-9d95-42d3-	83c1-187994390538	
CPU Limit		
CPU	RAM (MB)	Ethernets
1	1024	4
First Eth MAC Addres	s 🥒	
aa:bb:cc:00:de:ad 🦯		
QEMU Version	QEMU Arch	QEMU Nic
tpl(default 2.4.0) 🔹	tpl(i386)	• tpl(e1000) •
QEMU custom option	5	
-machine type=pc-1.0,	accel=kvm -serial mon:stdio	-nographic -nodefconfig -nodef
Startup configuration		
None		*
Delay (s)		
0		

16.5 Windows node settings for Wifi dongle

Using a Wifi USB dongle, you can connect a WiFi-adapter to windows host inside EVE.

Step 1. Connect your USB Wifi dongle to your EVE server.

Step 2. Issue the following command on the EVE CLI to obtain BUS and host numbers which your USB WiFi is connected to:

lsusb

telnet

root	Geve	-ng:~#	lsusk	D		
Bus	002	Device	002:	ID	0cf3:9271	Atheros Communications, Inc. AR9271 802.11n
Bus	002	Device	001:	ID	ld6b:0002	Linux Foundation 2.0 root hub
Bus	006	Device	001:	ID	ld6b:0001	Linux Foundation 1.1 root hub
Bus	005	Device	001:	ID	ld6b:0001	Linux Foundation 1.1 root hub
Bus	001	Device	003:	ID	0424:2514	Standard Microsystems Corp. USB 2.0 Hub
Bus	001	Device	001:	ID	ld6b:0002	Linux Foundation 2.0 root hub
Bus	004	Device	001:	ID	ld6b:0001	Linux Foundation 1.1 root hub
Bus	003	Device	002:	ID	04e6:5116	SCM Microsystems, Inc. SCR331-LC1 / SCR3310 Sma
rtCa	ard F	Reader				
Bus	003	Device	001:	ID	ld6b:0001	Linux Foundation 1.1 root hub
root	Geve	e-ng:~#				

Step 3. Add the windows node onto the topology and edit the Qemu line:

Change the type value:



type=q35

Add a comma and then the following line: if=virtio -usb -device usb-host,hostbus=2,hostaddr=2

Where hostbus is your Bus value and hostaddr is your Device ID as seen in the figure above.

Full Windows host gemu line will look like this:

```
-machine type=q35,accel=kvm -cpu
host,+pcid,+kvm_pv_unhalt,+kvm_pv_eoi,hv_spinlocks=0x1fff,hv_vapic,hv
_time,hv_reset,hv_vpindex,hv_runtime,hv_relaxed,hv_synic,hv_stimer -
vga std -usbdevice tablet -boot order=cd -drive
file=/opt/qemu/share/qemu/virtio-win-
drivers.img,index=1,if=floppy,readonly,if=virtio -usb -device usb-
host,hostbus=2,hostaddr=2
```

Template		
Windows		*
ID		
6		
Image		
win-7-x86-IPCC		•
Name/prefix		
Win		
lcon		
🎩 Desktop.png		Ŧ
UUID		
eee724a7-53f9-45cb-81	b1-c1fec67de630	
CPU Limit		
CPU	RAM (MB)	Ethernets
1	4096	1
First Eth MAC Address		
50:0a:00:06:00:00		
QEMU Version	QEMU Arch	QEMU Nic
tpl(2.0.2) 🔹	tpl(×86_64) •	tpl(e1000) 🔹
QEMU custom options	(reset to template value)
-machine type=q35,acce	l=kvm -cpu qemu64,+fsgsbas	se -vga std -usbdevice tablet
Startup configuration	•	
		•
Delay (s)		
0		
Console		
rdp-tls		*
Left	Тор	
516	312	



16.6 Master Server NIC ports order change

Some of the servers has Network interface cards with multi and various ethernet type ports. Example: Some DELL R series servers has first 2 Fibre ports (SFP) and additional 4 Ethernet ports. Requirement is to set EVE management on the 3rd port.

Supported starting from version 5.0.1-93.

Workaround:

- SSH or use serial console to your EVE CLI as root user.
- Navigate CLI to:
 - cd /opt/ovf/
- Run NIC order setup wizard

./nicorder-wizard

Follow the instructions on the screen to set primary NIC for your EVE

Reorder Nic *********				
UP/DOWN	Select :	interfa	ace	
LEFT/RIGHT	Move int	terfac		
ESC	Discard	change	e	
ENTER	Accept 1	new ord	der	
> enx000c29				
enx000c29	961748b •	ethl -:	> ethl	

16.7 Satellite Server NIC ports order change

Some of the servers has Network interface cards with multi and various ethernet type ports. Example: Some DELL R series servers has first 2 Fibre ports (SFP) and additional 4 Ethernet ports. Requirement is to set EVE management on the 3rd port.

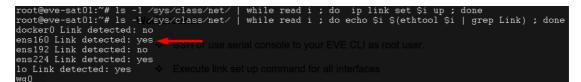
Workaround:

- SSH or use serial console to your EVE CLI as root user.
- Execute link set up command for all interfaces

ls -1 /sys/class/net/ | while read i ; do ip link set \$i up ; done

Detect which interface is up state

ls -1 /sys/class/net/ | while read i ; do ip link set \$i up ; done





Edit netplan yaml file with correct interface name:

```
nano /etc/netplan/01-netcfg.yaml
```

```
GNU nano 4.8 /etc/netplan/01-netcfg.yaml

# This file describes the network interfaces available on your system

# For more information, see netplan(5).

network:

version: 2

renderer: networkd

ethernets:

ens160:  Workaround:

addresses: [ "192.168.98.101/24" ]

gateway4: 192.168.98.1

nameservers:

addresses: [ "8.8.8.8", "1.1.1.1" ]
```

- To save netplan settings use: CTRL +o [letter o]; Enter; CTRL +x [for exit]
- Run test the new network settings, enter

```
netplan try
```

```
root@eve-sat01:~# netplan try
Do you want to keep these settings?
Press ENTER before the timeout to accept the new configuration
Changes will revert in 112 seconds
Configuration accepted.
```

Apply new network settings and reboot

```
netplan apply
```

reboot



17 Images for EVE

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

Link to download WinSCP:

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

Link to download FileZilla:

https://filezilla-project.org/

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

Supported images for EVE are stored in the three locations:

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

17.1 Qemu image naming table

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

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

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

Folder name examples:

firepower6-FTD-6.2.1 acs-5.8.1.4

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

Full path Example: opt/unetlab/addons/qemu/acs-5.8.1.4/hda.qcow2 The table of proper folder names is provided in our website:

https://www.eve-ng.net/index.php/documentation/qemu-image-namings/

Supported HDD formats and Qemu versions for the EVE images:

HDD Format	HDD name example
lsi([a-z]+).qcow	lsia.qcow
hd([a-z]+).qcow	hda.qcow
virtide([a-z]+).qcow	virtidea.qcow



virtio([a-z]+).qcow	virtioa.qcow
scsi([a-z]+).qcow	scsia.qcow
sata([a-z]+).qcow	sataa.qcow

Supported Qemu Versions
1.3.1
2.0.2
2.2.0
2.4.0
2.5.0
2.6.2
2.12.0
3.1.0
4.1.0
5.2.0
6.0.0

17.2 How to prepare images for EVE

How to add EVE-NG images please refer to:

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

17.3 How to add custom image template

IMPORTANT NOTE: Upgrade from EVE version 2.0.5-XX to 2.0.6.-XX automatically will convert old config.php to new yml formats: If you had already custom templates in old php format, these templates will be automatically converted to custom_templates.yml file during the upgrade process!

17.3.1 Templates folder choice

▲ IMPORTANT NOTE: Starting from EVE-PRO Version 2.0.6-42, EVE installation is autodetecting what kind of CPU manufacturer has your server: Intel or AMD, to choose proper templates set. You can check it manually on EVE cli: example below, showing that EVE has Intel CPU.

root@eve-ng:~# lsmod | grep ^kvm_ kvm_intel 212992 74 root@eve-ng:~#

- If you have Intel CPU, then your template files are in "/opt/unetlab/html/templates/intel/"
- If you have AMD CPU, then your template files are in "/opt/unetlab/html/templates/amd/"

17.3.2 Prepare template file

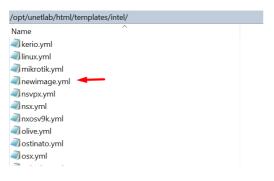
NOTE: For templates development use templates folder which is matching your EVE server CPU.



Example below will be based for Intel CPU EVE custom image template. Use EVE cli or WinSCP/Filezilla to create template.

Step 1: Navigate to EVE location: /opt/unetlab/html/templates/intel/

Step 2: Choose your most suitable template from which you want to make copy and create own image template. (example: newimage.yml)



Step 3: Make a copy from source template newimage.yml. Example: Using CLI create template and name it ngips.yml.

cp /opt/unetlab/html/templates/intel/newimage.yml /opt/unetlab/html/templates/intel/**ngips.yml**

You can create new template using WinSCP or Filezilla as well.

		mplates/intel# ls_					
10.yml	c7200.yml	cumulus.yml	iol.yml	osx.yml	sterra.yml	versadir.yml	vtedge.yml
cs.yml	c9800cl.yml	cup.yml	ise.yml	paloalto.yml	timoscpm.yml	versafvnf.yml	vtmgmt.yml
lteon.yml	cda.yml	cyberoam.yml/opt/j	ujspace.yml/templ.	pfsense.ymlrimage	.timosiom.ymlab/ht	viosl2.yml/inte	vtsmart.yml
npcloud.yml	cexpresw.yml	dcnm.yml	junipervrr.yml	phoebe.yml	timos.yml	vios.yml	vwaas.yml
picem.yml	cips.yml	docker.yml	kerio.yml	prime.yml	titanium.yml	vmxvcp.yml	vwlc.yml
rubacx.yml	clearpass.yml	esxi.yml You can	i linuxeymlw temp	olpúlsesym1 WinSC	Ptrendmivtps.yml (vmxvfp.yml	vyos.yml
ruba.yml	cms.yml	extremexos.yml	mikrotik.yml	riverbed.yml	uccx.yml	vmx.yml	winserver.ym.
sav.yml	coeus.yml	firepower6.yml	newimage.yml 🛹	scrutinizer.yml	ucspe.yml	vnam.yml	win.yml
sa.yml	cpsg.yml	firepower.ymDPR	ngips.yml ew	silveredgetýml∩p	lavcenteroymlelated	vpcs.ymlnage fo	oxrv9kayml. Yo
arracuda.yml	csr1000vng.yml	fortinet.yml	nsvpx.yml	silverorch.yml	veloedge.yml	vqfxpfe.yml	xrv.yml
igip.yml	csr1000v.yml	hpvsr.yml	nsx yml	sonicwall.yml	velogw.yml	vqfxre.yml	*.yml
cocadevadx.yml	ctxsdw.yml	huaweiar1k.yml	nxosv9k.yml	sophosutm.yml	veloorch.yml	vsrxng.yml	
1710.yml	cucm.yml	huaweiusq6kv.yml	olive.yml.dorno	_sophosxg.yml	veos.yml	vsrx.yml	
3725.yml	cue.vml	infoblox.vml	ostinato.vml	-stealth.vml	versaana.vml	vtbond.vml	

IMPORTANT: The new name of your template will be related to your image foldername. Your image foldername must start with prefix "ngips-"

Example: image foldername under /opt/unetlab/addons/gemu/ngips-6.5.0-115

root@eve-ng:~# cd /opt/unetlab/addons/qe root@eve-ng:/opt/unetlab/addons/gemu# ls	
a10-VThunder-4.1.4.1.K8 in 0 of 13	ise-2.6.0.156.SPA-L
ampcloud-2.3.5-L	junipervrr-19.2R1-S2.2
ampcloud-3.0.2	kerio-control-9.3.2
arubacx-10.03	linux-mint-18.3-cinnamon-64bit
arubacx-10.04-1000	linux-slax-64bit-9.3.0
aruba-VMC_8.4.0.3	linux-slax-64bit-9.3.0.tar.gz
asa-915-16-k8-CL-L	mikrotik-6.44.5
asav-9131-100	ngips-6.5.0-115
asav-971-001	nsvpx-12.0.53.13

17.3.3 Prepare interface format and name lines

EVE Pro has included option to create various interface names, sequences and numbering. Please refer table below.

Formula	Template example	line	format	Will produce	
	-			-	



eth_format: <prefix>{<first example<br="" for="" slot:="" value="">1>}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 8>}</number></first></separator></first></prefix>	eth_format: Gi{1}/{0-8}	Gi1/0 Gi1/1 Gi1/2 Gi1/3 Gi1/4 Gi1/5 Gi1/6 Gi1/7 Gi2/0 Gi2/1
eth_format: <prefix>{<first example<br="" for="" slot:="" value="">0>}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 4>}</number></first></separator></first></prefix>	eth_format: Ge{0}/{0-4}	Ge0/0 Ge0/1 Ge0/2 Ge0/3 Ge1/0 Ge1/2 Ge1/3 Ge2/0 Ge2/1 Ge2/2
eth_format: <prefix>{<first value="">}</first></prefix>	eth_format: Gi{0}	Gi0 Gi1 Gi2 Gi3
eth_format: <prefix>{<first value="">}</first></prefix>	eth_format: G0/{0}	G0/0 G0/1 G0/2 G0/3
eth_name: <prefix: custom="" interface="" name=""></prefix:>	eth_name: - M1 - T1 - T2	M1 T1 T2
eth_name: <prefix: custom="" interface="" name=""></prefix:>	eth_name: - MGMT - DATA - TRAFFIC	MGMT DATA TRAFFIC

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

As your node first interface will be custom named (eth0/mgmt), therefore in the template "eth_name:" must be added before "eth_format:"

eth_name:
- eth0/mgmt
eth format: eth{1}



This adding will produce Node interfaces.

	INECTION BETWEEN	
NGIPS	Source ID: 9	
I mgmt/eth0	Source Name: NGIPS type - Node	
	Choose Interface for NGIPS eth1 eth1 eth2 mgmteth0 Choose Interface for Switch	Switch
GOD F Switch	Gi0/0 v	
	Destination Name: Switch type - Node Save Cancel	

17.3.4 Edit your new template file:

For edit newly created template you can use WinSCP, FileZilla or cli. Example below shows template edit using cli and *nano* editor

cd /opt/unetlab/html/templates/intel/
nano ngips.yml

Change content, setting for various images can vary depends of vendor requirements. The interface name lines please refer Section: 17.3.2

<pre># Copyright (c) 2016, Andrea Dainese # Copyright (c) 2018, Alain Degreffe # All rights reserved. #</pre>	
<pre># Redistribution and use in source and binary # modification, are permitted provided that th # * Redistributions of source code must re # notice, this list of conditions and th # * Redistributions in binary form must re # notice, this list of conditions and th # documentation and/or other materials p # * Neither the name of the UNetLab Ltd nc # names of its contributors may be used # derived from this software without spe #</pre>	the following conditions are met: tain the above copyright the following disclaimer. the produce the above copyright the following disclaimer in the provided with the distribution. For the name of EVE-NG Ltd nor the to endorse or promote products
<pre># THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT H # ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING # WARRANTIES OF MERCHANTABILITY AND FITNESS FC # DISCLAIMED. IN NO EVENT SHALL <copyright hoi<br=""># DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMF # (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT # LOSS OF USE, DATA, OR PROFITS; OR BUSINESS I # ON ANY THEORY OF LIABILITY, WHETHER IN CONTR # (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING # SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY</copyright></pre>	;, BUT NOT LIMITED TO, THE IMPLIED R A PARTICULAR PURPOSE ARE DER> BE LIABLE FOR ANY PLARY, OR CONSEQUENTIAL DAMAGES OF SUBSTITUTE GOODS OR SERVICES; INTERRUPTION) HOWEVER CAUSED AND RACT, STRICT LIABILITY, OR TORT IN ANY WAY OUT OF THE USE OF THIS
type: qemu name: NGIPS	
cpulimit: 1	ADD A NEW NODE
icon: IPS.png	Template
cpu: 4	Nothing selected
ram: 8192	NGIPS
ethernet: 3	Barraccuda NGIPS
	Cisco FirePower NGIPS



```
eth_name:
- eth0/mgmt
eth_format: eth{1}
console: vnc
shutdown: 1
qemu_arch: x86_64
qemu_version: 2.4.0
qemu_nic: e1000
qemu_options: -machine type=pc,accel=kvm -serial none -nographic -no-user-config
-nodefaults -display none -vga std -rtc base=utc -cpu host
...
```

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

17.3.5 Prepare new icon for your template:

Step 1 Use Filezilla or Winscp to copy your custom icon IPS.png (icon filename IPS.png used in ngips.yml)

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

Step 2 Copy this new icon into /opt/unetlab/html/images/icons/

17.3.6 Template use

Step 1 Create directory /opt/unetlab/addons/qemu/ngips-6.5.0-115

mkdir /opt/unetlab/addons/qemu/ngips-6.5.0-115

Step 2 Upload image NGIPS, Refer Section: 0

17.4 How to hide unused images in the node list

Please follow section 7.4.1 or 7.9.1.1



18EVE Resources

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

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

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

https://www.eve-ng.net/index.php/documentation/knox-hutchinson-videos/

FAQ: https://www.eve-ng.net/index.php/faq/

Live support chat: https://webchat.eve-ng.net/login/

For access to live chat use your Google account or create new chat account.

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

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

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

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

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

EVE Supported images: https://www.eve-ng.net/index.php/documentation/supported-images/