

EVE-NG Community Cookbook

Version 5.5

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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 Uldis and Alain and found myself into the Position as one of the Juniper Test Guys. Meanwhile I added nearly all Juniper related Devices (including cSRX and JATP) and I still test a Lot - but now on EVE-Pro.

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

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

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

Christian Scholz @chsjuniper



1 Introduction

1.1 What is EVE-NG?

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

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

1.2 What is EVE-NG used for?

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

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

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

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

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

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

To get a very small idea of what can be done with EVE-NG, check out the tested/<u>supported</u> <u>images</u> (many have not been tested, almost everything virtual should run on EVE-NG) and refer to section **12**.

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	40Gb	
Network	LAN/WLAN	
EVE Virtual machine requirements		
CPU 4/1 (Number of processors/Number of cores per processo Enabled Intel VT-x/EPT virtualization engine		
RAM	6Gb or more	
HDD	40Gb or more	
Network	VMware NAT or Bridged network adapter	

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

Example:

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



2.1.2 Recommended Laptop/PC Desktop system requirements

Prerequisites:

CPU: Intel CPU supporting Intel® VT-x /EPT virtualization Operation System: Windows 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 (8 Logical processors), Enabled Intel virtualization in BIOS		
RAM	32Gb		
HDD Space	200Gb		
Network	LAN/WLAN		
EVE Virtual machine requirements			
CPU 8/1 (Number of processors/Number of cores per processo 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 6.5 or later

Server HW requirements			
CPU	Recommended CPU 2x Intel E5-2650v3 (40 Logical processors) or better supporting Intel® VT-x with Extended Page Tables (EPT) Minimum CPU is any Intel Xeon CPU supporting Intel® VT-x with Extended Page Tables (EPT)		
RAM	128Gb		
HDD Space	2Tb		
Network	LAN Ethernet		
	EVE Virtual machine requirements		
CPU	32/1 (Number of processors/Number of cores per processor) Enabled Intel VT-x/EPT virtualization engine		
RAM	64Gb or more		
HDD	800Gb or more		



etwork
etwork

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

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

2.1.4 Dedicated Server (bare) system requirements

Prerequisites:

CPU: Intel Xeon CPU supporting Intel® VT-x with Extended Page Tables (EPT) Operation System: Ubuntu Server 20.04.4 LTS x64

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

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

2.1.5 Nodes per lab calculator

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

https://drive.google.com/file/d/1Rbu7KDNSNuWiv_AphWx0vCek8CKVB1WI/view

2.2 Supported virtualization platforms and software

- VMware Workstation 15.0 or later
- VMware Player 15.0 or later
- VMware ESXi 6.5 or later
- Ubuntu Server 20.04 LTS as platform for bare metal
- Google Cloud Platform

2.3 Unsupported hardware and systems

The following are currently not supported:

• VirtualBox virtualization



- Citrix XenServer
- Microsoft HyperV



3 Installation

3.1 VMware Workstation or VM Player

3.1.1 VMware workstation EVE VM installation using ISO image

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-COMM 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 Community ISO distribution image: https://www.eve-ng.net/downloads/eve-ng-2

3.1.1.1 EVE VM Setup and Settings

w Virtual Machine Wizard	×	New Virtual Machine Wizard
VMWARE	Welcome to the New Virtual	Guest Operating System Installation A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?
	Machine Wizard	Install from:
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.	O Installer disc image file (iso):
	Custom (advanced)	G:\Install\Linux\inuxmint-16-cinnamon-dvd-32bit.iso V Browse
	Create a virtual machine with advanced options, such as a SCSI controller type, virtual disk type and compatibility with older VMware products.	● I will install the operating system later.
		The virtual machine will be created with a blank hard disk.
		Hale (Pack Next > Cased



inux and select the version: Ubuntu 6	bit COMM VM and select I EVE VM will be stored	Location where your on the host PC.
New Virtual Machine Wizard	×	
Select a Guest Operating System	New Virtual Machine Wizard	×
Which operating system will be installed on this virtual machine?	Name the Virtual Machine What name would you like to use for	this virtual machine?
Guest operating system		
Microsoft Windows	Virtual machine name:	
O Novell NetWare O Solaris	EVE-COM-5	
O VMware ESX	Location:	
Other	C:\Users\Uldis\Documents\Virtual Machines	KEVE-COM-5 Browse
Version	The default location can be changed at Edit	> Preferences.
Ubuntu 64-bit	Y	
Help < Back Next > Ca		

Step 5: Select max Number of processors, and Number of cores per processor =1	Step 6: Assign desirable memory for your EVE VM
New Virtual Machine Wizard × Processor Configuration Specify the number of processors for this virtual machine.	New Virtual Machine Wizard × Memory for the Virtual Machine How much memory would you like to use for this virtual machine?
Processors Number of processors: Number of cores per processor: Total processor cores: 8	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: 16384 • MB 128 GB Memory for this virtual machine: 16384 • MB 128 GB Memory for this virtual machine: 16384 • MB 128 GB Maximum recommended memory: 16384 • MB 128 GB Maximum recommended memory: 16384 • MB 128 GB Maximum recommended memory: 4 GB 4 GB 128 MB Guest OS recommended minimum: 2 GB 16 MB 3 MB 2 GB 6 MB 16 MB 4 MB 4 MB 4 MB



Step 7: Select then network for your EVE VM. For Laptop it is recommended to use NAT Adaptor	Step 8: Leave recommended I/O settings, LSI Logic
New Virtual Machine Wizard × Network Type What type of network do you want to add?	New Virtual Machine Wizard × Select I/O Controller Types Which SCSI controller type would you like to use for SCSI virtual disks? I/O controller types I/O controller types
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. Is 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	SCSI Controller: BusLogic (Not available for 64-bit guests) SLSI Logic (Recommended) LSI Logic SAS Paravirtualized SCSI
Help < Back Next > Cancel	Help < Back Next > Cancel

Step 9: Leave recommended Disk Type (SCSI) settings	Step 10: Select Create a new virtual disk
New Virtual Machine Wizard × Select a Disk Type What kind of disk do you want to create?	Select a Disk Which disk do you want to use?
Virtual disk type O IDE SCSI (Recommended) SATA NVMe	Disk Create a new virtual disk 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. Use an existing virtual disk Choose this option to reuse a previously configured disk.
	Use a physical disk (for advanced users) Choose this option to give the virtual machine direct access to a local hard disk. Requires administrator privileges.
Help < Back Next > Cancel	Help < Back Next > Cancel



Step 11: Select your desirable HDD size. It is recommended to set minimum 200Gb or more. Select Store virtual disk as single file.	Step 12: Select Customize Hardware New Virtual Machine Wizard × Ready to Create Virtual Machine Click Finish to create the virtual machine. Then you can install Ubuntu 64-bit. The virtual machine will be created with the following settings:
Specify Disk Capacity How large do you want this disk to be?	Name: EVE-COM-5 Location: C:\Users\Uldis\Documents\Virtual Machines\EVE-COM-5 Version: Workstation 16.2 x
Maximum disk size (GB): 100 🛟 Recommended size for Ubuntu 64-bit: 20 GB	Operating System: Ubuntu 64-bit Hard Disk: 100 GB Memory: 16384 MB
Allocate all disk space now. 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	Network, Adapter: NAT Other Devices: 8 CPU cores, CD/DVD, USB Controller, Printer, Sound Card
now, the virtual disk starts small and grows as you add data to it.	Customize Hardware
Store virtual disk as a single file Split virtual disk into multiple file	
Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.	
	< Back Finish Cancel
Help < Back Next > Cancel	

Step 13: Enable	IMPORTA Virtualize I	NT! Select CPU and ntel VT-x/EPT option	Step 14: image fil eve-com different	Select CD e." Browse -v5.iso (ac) file	0/DVD Option: "use ISO to your downloaded tual name can be
Device Memory Processors New CD/DVD (SATA)	Summary 16 GB 8 Using file D:\1 EVE\EVE-S-COM NAT	Processors Number of processors: 8 ~ Number of cores per processor: 1 ~ Yath reservences # *	Hardware		×
€ UBC Ontroller 4: Sound Card ↑ Printer Display	Present Auto delect Present Auto delect	Winabation engine Winabation engine Winabation engine Winabation engine	Device Processors © Precessors © Network Adaptor © UBIC Confeder © UBIC Confeder © Sund Card © Depley	Surmany 16 GB 8 Auto detet NAT Prevent Auto detet Prevent Auto detet Surface Auto detet Auto detet	Deck status Connect at power on Connect at power on Output physical date: Mita insert Duty Dhysical date: Dig Dhysical dat
					Close Help



Г

eady to Create	Virtual Machine	
Click Finish to 64-bit.	create the virtual machine. Then you can install Ubuntu	
The virtual machine	will be created with the following settings:	
ame: cxation: ersion: perating System: ard Disk: emory: etwork Adapter: ther Devices: Customize Hard	EVE-COM-5 C:\Users\UIdis\Documents\Virtual Machines\EVE-COM-5 Workstation 16.2.x Ubuntu 64-bit 100 GB 16384 MB NAT 8 CPU cores, CD/DVD, USB Controller, Printer, Sound Card ware	

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-CE 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 if English US keybo selected and confirm with Enter.	rd is Step 4: If your network has I ENABLED, Continue to Ste	DHCP p 10
Keyboard configuration [
Please select your keyboard layout below, or select "Identify keyboard" t detect your layout automatically.		
Layout: [English (US) •]		
Variant: [English (US) •]		
[Identify Keyboard]		
E Done 1 [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 [Heip] Configure at least one interface this server can use to talk to other machines, and which prefeably provides sufficient access for updates. Image: The second se	Chenetico eth - 100 + 10
DHCPv4 - 0010:23950:66:fC / VMware / VMONET3 Ethernet Controller [Create bond +]	
[Continue without network] [Buck]	













EVE VM Installation Phase 2 (EVE installation)

Step 13: After the Ubuntu "Install Complete" select "Reboot Now" and hit Enter to continue.	Step 14: Without powering off the EVE VM, open the EVE VM settings and remove CD/DVD ISO Device. Save VM Settings.
<pre>textail complete! [text of text</pre>	Vertextream generalized Develor Surream Develor Present Develor Present Develor Present Develor Present Develor Present Develor Present Develor Develor Develor Develor
	Add Remove OK Cancel Help

Step 15: Return back to EVE console screen and confirm Continue with Enter, EVE VM will reboot and continue Phase 2 installation Plase remove the installation medium, then press ENTER: (FAILED) Failed unmounting /cdrom. (FAILED) Failed unmounting /cdrom.	Step 16: Depending on your internet speed SVE installation Will take some time. After installation EVE VM will auto reboot and EVE potencies and source of the second state of the second state of the code of the second state of the second state of the second state of the code of the second state of the second state of the second state of the code of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second stat
---	--

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: apt update	
---	--



Follow steps in section :	apt upgrade
3.5.1 for static IP, 3.5.2 for DHCP IP	

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

reboot

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



NOTE: If your newly installed EVE-NG Community shows nothing like above, you must check your internet reachability and verify DNS configuration on your EVE-CE 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-NG Community installation manually

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

IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 12



3.2 VMware ESXi

3.2.1 VMware ESXi EVE VM installation using ISO image

Andatory Prerequisites: Internet must be reachable from your Server and ESXi. EVE ISO installation requires internet access to get updates and install the latest EVE-COMM 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 Community ISO installation image: http://www.eve-ng.net/downloads/eve-ng-2

3.2.1.1 EVE-NG ESXi VM Setup and Settings

Step 1: Up store.	pload EVE ISO image to the ESXi	Step 2: Cr	eate NEW VM	
VITLASTY ESSY Very Ver	Arcan a de la contra de la	Other Constants Agree Output of the second	Select creation type Hor would up uit is to chait a 'third all taches'? Oracle a low what machine Display a value machine who and off er cousts Register an existing what machine 	This elden guide on thisph training a new shall machine Yux will be 2016 to guiden garossesse. Thermony solidor conditions, and straing. Yu will need to install a guide spearatory system after deallow

Step 3: E VM and s	nter the r select Gu	name for you est Operating	Step 4: Se will be sto	elect Loca red in HE	ation wł DD.	ere	your	· EV	EVN	
Entax and				 1 Select creation type 2 Select a name and guest OS 	Select storage Select the datastore in which	to store the configuration an	diskfiles.			
1 New virtual machine - EVE-PR	O-VM (ESXi 6.0 virtual machine)			4 Customize settings 5 Ready to complete	The following datastores are the virtual machine configura	accessible from the destina dion files and all of the virtual	ion resource that disks.	you selected. S	ielect the destin	ation datastore
 1 Select creation type 2 Select a name and goest OS 3 Select storage 4 Customize settings 5 Ready to complete 	Select a name and Specify a unique name and Name	d guest OS			Name datastore1 HDD_A HDD_B	 Capacity 264.75 GE 930.75 GE 930.75 GE 	 Free 231.79 GB 431.63 GB 149.61 GB 	Type VMFS5 VMFS5 VMFS5	Thin pro ~ Supported Supported Supported	Access ~ Single Single
	Virtual machine names can Identifying the guest operative the appropriate detaults for Compatibility Guest OS family Guest OS family	contain up to 80 characters and they must be un ing system here allows the witad to provide the operating system installation. EXX 60 utrual machine Linux Ubunto Linux (64-bit)	vue within each ESO instance.							3 items
vm ware [.]		Ва	X Ned Finish Cancel	vmware [.]			8	ack Na	ed Fini	ih Cance



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

New other lange have for appoint					
 1 Select creation type 2 Select a name and guest OS 	Customize settings	and vifual machine additional options			Reservation
3 Select storage 4 Customize settings 5 Ready to complete	Virtual Hardware VM Options		^		Limit
	Add hard disk 🗰 Add network	adapter Add other device			Memory H
	Cores per Socket	1 V Sockets: 24		vm ware ⁻	 Hard disk
	CPU Hot Plug	Enable CPU Hot Add			
	Reservation	▼ MH2 ▼			
	Limit	Unlimited			
	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 C	Cancel		

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

cn type Customize settings	
e and guest OS Configure the virtual machine har	dware and virtual machine additional options
ettings aplete	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	This provisioned Thick provisioned, lazily zeroed Thick provisioned, eagerly zeroed
Shares	Normal V 1000 V
E Limit - IOPs	Defendent .

Step 8: Set your Management network. Adapter type VMXNET3



Step 9: Add new device to your EVE VM, CD/DVD	Step 10: Set DVD drive to "Datastore ISO File" and browse your uploaded EVE-CE.iso. Make sure that Status is checked ON, "Connect at power on"
--	---



Select creation type Select a name and guest OS Select storage	Customize settings Configure the virtual machine hardware and virtual machine additional options				 ✓ 1 Select creation type ✓ 2 Select a name and guest OS ✓ 3 Select storage 	Customize settings Configure the virtual machine hardware and virtual machine additional options			
Customize settings Ready to complete	Vittual Hardware VM Options			4 Customize settings 5 Ready to complete	USB controller 1	USB 2.0	•		
	Add hard disk 🗰 Add neh	vork adapter	Add other device			* INI Network Adapter 1	Management 90 UD	• 0	3
	• 🖬 CPU	24	 New hard disk Existing hard disk 			Status	Connect at power on		
	RAM	64	IN Network adapter			Adapter Type	VIDOVET 3	•	
	Reservation		CD/DVD drive Floppy drive	•		MAC Address	Automatic Y 00:00:00:00:00:00		
	Umit		 Serial port Parallel port 			Status	Datastore ISD file	•	2
	Shares	Nor	USB controller	*		CDIDVD Media	[datastore1] EVE-PRO.Iso	Browse	
	Memory Hot Plug	DEn	Sound controller			Virtual Device Node	SATA controller 0 • SATA (0:0)	•	
vm ware [•]	+ 🛄 Hard disk 1	200	THE POLIDANCE	0	vm ware [.]	• 🗃 Wideo Card	Specify custom settings	•	
			SATA controller	lest Finish Cancel			Back Nest	Finish	anc

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

EVE ESXi VM Installation from ISO has 3 Phases

Phase 1 (Ubuntu installation)



Step 3: Make sure if English US keyboard is selected and confirm with Enter.	Step 4: If your network has DHCP ENABLED, Continue to Step 10
--	---



Keyboard configuration	[Help]
Please select your keyboard layout below, or select "Identify keybo detect your layout automatically.	ard" to
Layout: [English (US) •]	
Variant: [English (US) 🔹]	
[Identify keyboard]	
[Done]] [Back]]	















EVE VM Installation Phase 2 (EVE installation)

Step 13: After the Ubuntu "Install Complete select "Reboot Now" and hit Enter to continue.	Step 14: Wi open the E CD/DVD IS	ithout powering off the EVE VM, EVE VM settings and remove O Device. Save VM Settings.
Install complete! [Help]		
configuring raid (mdadm) service	Virtual Hardware VM Options	<u>^</u>
installing kernel setting up swap	Add hard disk ME Add netwo	rk adapter 🗧 Add other device
apply networking config writing etc/fstab configuring multinath	Del Centre Ce	8 ~ 0
updating packages on target system configuring pollinate user-agent on target	> 🛲 Memory	8192 MB V
updating initramis contiguration configuring target system bootloader installing grub to target devices	+ I Hard disk 1	100 GB ~
finalizing installation running 'curtin hook'	SCSI Controller 0	LSI Logic Parallel 🗸
executing late commands final system configuration	SATA Controller 0	
configuring cloud-init calculating extra packages to install	USB controller 1	USB 2.0 V
installing opensch-server curtin command system-install downloading and installing security updates	► INE Network Adapter 1	VM Management 90 VIC Connect
curtin command in-target restoring apt configuration curtin command in-target	> (iii) CD/DVD Drive 1	Datastore ISO file
curtin command in-target subiquity/Late/run	► 🌉 Video Card	Default settinos
subiquity/Late/run/command_0: cp /cdrom/server/eve-setup.sh /target/etc/eve-setup.sh		Save Cancel
(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 [CALLED] Failed unmounting /cdrom. [Plase remove the installation medium, then press ENTER: [Failed unmounting /cdrom. [CALLED] Failed unmounting /cdrom. [CALLED] Failed unmounting /cdrom. [CALLED] Failed unmounting /cdrom. [CALLED] 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
<pre>[FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom.</pre>	<pre>(d>http://d>id=124:18 (loud-init: ************************************</pre>

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
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" command, it must display latest EVE Community version

NOTE: If your newly installed EVE-NG Community 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-NG Community installation manually

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

IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 12

3.3 Bare hardware server EVE installation

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



3.3.1 BM Server Installation EVE ISO

Phase 1 (Ubuntu installation)





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 select your interface for IP	Step 6: Confirm interface selection with Enter, select "Edit IPv4" and confirm with Enter again.
--	--





Step 9: Select "Done" and confirm with Enter	Step 10: If your DHCP IP settings are correct, select Done and confirm with Enter.
Network connections [Help]	Network connections [Help]
Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates. NAME TYPE NOTES [ensite of the] static is:::::::::::::::::::::::::::::::::::	Configure at least one interface this server can use to talk to other machines, and which preferably grouides sufficient access for updates. New TYTE NOTES [prefer 195 : 56 : 90:112/24 00129:55:56:61 / VMware / VMMET3 Ethernet Controller [Create bond +]
l Done Back }	li Done li I Back J





EVE VM Installation Phase 2 (EVE installation)



Step 15: Return back to EVE console screen and confirm Continue with Enter, EVE VM	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
--	---



will reboot and continue Phase 2 installation	root/eve and follow installation Phase 3
[FAILED] Failed unmounting /cdrom. Please remove the installation medium, then press ENTER:	Eve-NG (default root password is 'eve') Jse http://192.168.90.111(DHCP4)/
[FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom.	eve-ng login: ci-info: no authorized SSH keys fingerprints found for user root. (4)May 20 17:24:18 cloud-ini: ###################################
[FAILED] Failed unmounting /cdrom.	(14)May 20 17:24:18 cloud-init: 1024 SHA256:L8CYS2H6tg4K9VKs4XBRCBMKLMuz2utnEjmSTcZJnbQ root@eve-ng (OSA) (14)May 20 17:24:18 cloud-init: 256 SHA256:uyhx4hJiiidJPa0H6f0heP5gx4a6huRD30x8D1NUP2E root@eve-ng
[FAILED] Failed unmounting /cdrom.	ECDSA) (14)MBy 20 17:24:18 cloud-init: 256 SHA256:puougilUC5cffGuqEaq8J/sSwwqSwG28V9ONd+eTCw6 root@eve-ng ECQ5519)
[FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom.	(14)May 20 17:24:18 cloud-init: 3072 SHA256:LWAt4Agxmkt2jqy6SN8fQ4Pk9InNTxPyjIIgalhYOhA root@eve-ng (RSA) (14)May 20 17:24:18 cloud-init:END SSH HOST KEY FINGERPRINTS
[FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom.	44 May 20 17:24:18 cloud-init: ####################################
[FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom.	eudgzok-sbizvik ziprovopszopbelm/nkm/12010bildnebed/74kL/grede/rollub rootdeverng ssh-ed2551 pAAAACSNizzoll2101INTESANAAIPaki/22002674Mkuj5g12018RNIFF3UGRIXH+jd4 rootdeverng ssh-rsa AAAABSNizzilyizETAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
[FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom.	JULL 9k bek/756+p1d6k8+J0FQ/25K5E9F1aEC7MRr30hKYkf7/I0njxA0Ekr510r5Xk1MSogvGnETz168RNuH5f1dou+s1Q8L60 adHE1x0PTh1dtr1L23d1NerqLeE0c1+sf0K21c+F1F1zEZh/onJpbbfq4fgyJe2K97fq/JqhrTe22V/f4p1B09YBegf E0X0x2QMRrXs21JVC57m4gBuHM01JSYS2gr27gndqf1L1k20_11sAQueMAQSNX27Duxf3EsKCVNanf1543U375Qh1d
[FAILED] Failed unmounting /cdrom.	sJN49myLt_4H9CMHU48RCxfrN7Lcfq40OSGSDexZu5hXUescaKU= root0eve-ng END SSH HOST KEY KEYS [34.906890] cloud-init[1367]: cloud-init v. 21.4-0ubuntu1^20.04.1 running 'modules:final' at Fri
	20 May 2022 17:24:18 +0000. Up 34.68 seconds. [34.90964] cloud-init[1567] c:info: no authorized SSH keys fingerprints found for user root. [34.909170] cloud-init[1567]: Cloud-init v. 21.4-Ouburtui~20.04.1 finished at Fri, 20 May 2022 1 (2014) for the second secon
	1 4-10 Vol00, Parasource datasourcemane. Up 4-30 Seconds [44,09280] cloud-init[1367]: 2022-05-20 17:24:18,698 - cc_final_message.py[WARNING]: Used failb ck datasource
	eve-ng login: _

EVE 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
3.5.1 for static IP, 3.5.2 for DHCP IP	apt upgrade

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

NOTE: If your newly installed EVE-NG Community shows nothing like above, you must check your internet reachability and verify DNS configuration on your EVE-CE 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-NG Community installation manually

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

- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer section 12
- 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-CE 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 3: Make sure if English US keyboard is	Step 4: Select Option Ubuntu Server [X],
selected and confirm with Done/Enter.	following by Done/Enter.



Keyboard configuration	[Help]	Choose type of install	[Help]
Please select your keyboard layout below, or select "Iden detect your layout automatically.	tify keyboard" to	Choose the base for the installation.	
launut: [English (US)	• 1	(X) Ubuntu Server	
		the default	
Variant: [English (US)	•]	Additional options	
[Identify keyboard]		(1) search for thrue-party ervers This software is subject to License terms included wit Some is propriatary. Third-party drivers should not b systems that will be used for FIPS or the real-time keep systems that will be used for FIPS or the real-time keep.	
[Done] [Back]		[boxe] [Back]	





Step 9: Enter your "Subnet", "IP Address", "Gateway IP", "Domain server IPs" and "Search domain". Select "Save" and confirm with Enter. NOTE, it is very important that your DNS (Name servers) will resolve Internet names.	Step 10: Select "Done" and confirm with Enter Network connections [HEID] Configure at least noe interface this server can use to talk to other machines, and which preferably provides sufficient access for updates. [HEID] Network Connections [HEID] configure at least noe interface this server can use to talk to other machines, and which preferably provides sufficient access for updates. [HEID] Network Connections *1 *1 static: 192.168.99.120/24 *1 outcide>Sufficient Controller [Create bond *]
Interface the server can use to talk to other machines, and which preferably provides sufficient access for updates. WHE THFE NOTES Edit ensition TPv4 configuration IPv4 Method: [Marual •] Subnet: 152.168.98.0/24 Address: 192.168.98.120 Gateway: 152.168.98.1 Name servers: <u>Pod.68.9.1.1.1.1</u> Products, comma separated Search domains: Domains, comma separated Comma separated Cancel]	[Bone] { Back }

Step 11: If your DHCP IP settings are correct, select Done and confirm with Enter.	Step 12: 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.
00:0c:29:5b:66:fc / VMware / VMVNET3 Ethernet Controller [Create bond ►]	Configure proxy [Help]
	If this system requires a proxy to connect to the internet, enter its details here.
	Proxy address: If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this blank.
	The proxy information should be given in the standard form of "http://[luser][:pass]@]host[:port]/".
Ecce] [Back]	
	(Dove) (Back)

Step 13: Select [X] "Use an entire disk" and [X] Set up this disk as and LVM group confirm with Enter. For advnaced (multi hdd as single LVM) setup it can be Custom	Step 14: Select "Continue" and confirm with Enter.
storage option selected. For Custom storage selection, please refer to the	



Ubuntu official documentation	Installing system [Help]
Guided storage configuration [Help] Configure a guided storage layout, or create a custom one: (X) Use an entire disk [/dev/sda local disk 150,000G •] (D) Set in this disk as an LMM aroun	sublauity/SBV/load_autoinstall_data sublauity/SBV/load_autoinstall_data sublauity/IneZondo_indoinstall_data sublauity/indeates/load_autoinstall_data sublauity/indeates/load_autoinstall_data sublauity/indeates/load_autoinstall_data sublauity/indeates/load_autoinstall_data sublauity/indeates/load_autoinstall_contig sublauity/Restoringtall_contigs su
[] Encrypt the LVH group with LUKS Passphrase:	Confirm destructive action -
Confirm passphrase:	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.
() Custom storage layout	Are you sure you want to continue? (No
E Done]	sublquity/SSM/apply_autoinstall_config sublquity/SSM/apply_autoinstall_config sublquity/sepisonstall_config sublquity/sepisonstall_config sublquity/sepisonstall_config sublquity/star/apply_autoinstall_config sublquity/star/apply_autoinstall_config sublquity/star/apply_autoinstall_config sublquity/star/apply_autoinstall_config
i dat.k j	














Step 23: After the Ubuntu "Install Conselect "Reboot Now" and hit Er continue.	mplete" hter to	Step follow	24: ing by	Remove y Enter.	CD/DVD	ISO	Media
<pre>configuring reid (mdam) service if stalling termin configuring multiset configuring termination configuring terminatio</pre>	-						

Step 25: Login into your Ubuntu server with previously created non-root user: eveuser/test123	Step 26: IMPORTANT: Set root user password, Example: sudo su
Install complete! (Help)	test123
running 'curtin in-target setupconsave-only' curtin command in-target running 'unut n curthonks'	passwd root
curtin command curthooks configuring apt configuring apt	eve
<pre>intelling missing beckages configuring issis service installing wernel setting up supp apply networking config uniting etc/staph configuring multipath configuring multipath configuring target system bootloader installing grub to target devices final system initiation install configuring configuration configuring configuration configuring set to target devices fund issues that the set of the stall installing ecrubing configuring and installing security updates curlin command installing security updates curlin command in target subloulty/Late/run [View full log] [Reboot Now</pre>	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 updated successfully root@eve-ng:~# _

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>	sudo su test123 passwd root eve eve



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 CE online installation script. (it is single lin	e command below)
<pre>wget -0 - https://www.eve-ng.net/focal/instal</pre>	l-eve.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

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

root@eve-ng:~# dpkg -1 eve-ng		
Desired=Unknown/Install/Remove/Purge/Hold		
Status=Not/Inst/Conf-files/Unpacked/halF-	conf/Half-inst/trig-aWait/Trig-	·pend
<pre> / Err?=(none)/Reinst-required (Status,Err:</pre>	uppercase=bad)	
/ Name	Version	Architecture
Description		



+++•	-=============			
====				
ii	eve-ng	5.0.1-XX	amd64	A
new	generation software	e for networking labs.		
root	t@eve-ng:~#			

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



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	
			•
en 2. Next nor	un window c	lick "NEW PRO IECT"	
Select a project		NEW PROJECT	
Search projects and folders			
RECENT ALL			
Name		ID	
🗸 🐌 🛛 My First Project 🔞		t-dragon-238421	

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



0			
/SE			
٨	VSE	NSE	VSE

3.4.3 Preparing Ubuntu boot disk template

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



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-focalsource-image-
<pre>family=ubuntu-2004-ltssource-image-project=ubuntu-os-cloudlicenses</pre>
https://www.googleapis.com/compute/v1/projects/vm-
options/global/licenses/enable-vmx



Welcome to Cloud Shell! Type "help" to get started. Your Cloud Platform project in this session is set to we-test-276509 . Use "acloud config set project (RNADE:]])" to change to a different project. Hidis dzerkalstloudshell:- (evertest-276509)5 [cloud compute Images create nexted-phonto-focalsource-image-family-ubuntu-2004-ltssource-image-project-ubuntu-os-cloudlicenses https:// hear.googleapis.com/compute/vi/projects/vm-opilons/global/licenses/cmable-vmal
You will get the following output when your image is ready:
<pre>welcome to cloud fhall: Type "halp" to yet started, Your Cloud Flatform project in this sension is set to eve-test-276509. Use "gcloud config set project [PRADET ID]" to change to a different project. uldia distrikeScloudhell: www.gcoglespis.com/compute//iproject/www.gclong/dlobal/images/mested-ubuntu-focalsource-image-family-ubuntu-2004-itssource-image-project-ubuntu-os-cloudlicenses https:// www.gcoglespis.com/compute//iproject/www.gclong/dlobal/images/mested-ubuntu-focal). Well for the start // to source-image-project/ubuntu-os-cloudlicenses https:// www.gcoglespis.com/compute/iproject/www.gclong/dlobal/images/mested-ubuntu-focal). Well for the start // to source-image-project-ubuntu-os-cloudlicenses https:// www.gcoglespis.com/compute/iprojects/www-test-776509/ Well for the start // to source-image-project-ubuntu-os-cloudlicenses https:// well for the start // to source-image-project-ubuntu-os-cloudlicenses https:// www.gcoglespis.com/compute/iprojects/www-test-776509 widia_dtertalsecloudhell:* (eve-test-276509) \$</pre>

3.4.4 Creating VM

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

≡ Google Cloud Plati	form	🕯 EVE Test 👻	C Search resources and products	-	۶.	0	2	÷
Home		M instances						
Compute Engine	∓ →	VM instances						
Kubernetes Engine	>	Instance groups						
Cloud Functions		Instance templates	Compute Engine					
		Sole-tenant nodes	VM Instances					
Cloud Run		Machine images	Compute Engine lets you use virtual machines t	that run on Google's				
OPACE		Disks	infrastructure. Create micro-VMs or larger instances running Debian, Windows or other standard images. Create your first VM instance	ances running Debian, Ir first VM instance.				
CONSC.		Snapshots	import it using a migration service or try the qui	ickstart to build a				
Bigtable		Images						
Datastore	>	TPUs	Create of Import of Take the quick	Kstart				
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.



eve-com-5				
Labels 😯				
+ ADD LABE	LS			
Region *			Zone *	
europe-west2 ((London)	• 0	europe-west2-c	•
Region is perma	inent		Zone is permanent	
Machine c	onfigur	ation		
Machine family				
	PDOSE			CDU
GENERAL-FOI	(FUSL			GFU
Machine types for	common w	vorkloads, optimis	sed for cost and flexibility	
Series				
Jelles				
N2 🔶				· ·
N2	l Casada I		ODU mlatforma	
N2 Powered by Inte	l Cascade L	ake and Ice Lake	CPU platforms	
N2	l Cascade L	ake and Ice Lake	CPU platforms	
N2 Powered by Inte	l Cascade L	ake and Ice Lake	CPU platforms	
N2 Powered by Inte Machine type – n2-standard-4	l Cascade L (4 vCPU, 16	ake and Ice Lake	CPU platforms	
N2 Powered by Inte Machine type – n2-standard-4	l Cascade L (4 vCPU, 16	ake and Ice Lake 6 GB memory) vCPU	CPU platforms Memory	
N2 Powered by Internet Machine type – n2-standard-4	l Cascade L (4 vCPU, 16	6 GB memory) vCPU	CPU platforms Memory 16 GB	
N2 Powered by Inter- Machine type - n2-standard-4	l Cascade L (4 vCPU, 16	6 GB memory) vCPU 4	CPU platforms Memory 16 GB	
N2 Powered by Internet of the second	l Cascade L (4 vCPU, 16	6 GB memory) vCPU 4	CPU platforms Memory 16 GB	
N2 Powered by Internet of the second	l Cascade L (4 vCPU, 16 RM AND G	6 GB memory) vCPU 4	CPU platforms Memory 16 GB	
N2 Powered by Internet Machine type – n2-standard-4 CPU PLATFO	l Cascade L (4 vCPU, 16	6 GB memory) vCPU 4	CPU platforms Memory 16 GB	
N2 Powered by Internet Machine type – n2-standard-4 CPU PLATFO Display device	l Cascade L (4 vCPU, 16 RM AND G	ake and Ice Lake 6 GB memory) vCPU 4	CPU platforms Memory 16 GB	
N2 Powered by Inter Machine type — n2-standard-4 CPU PLATFO Display device Enable to use scree	(4 vCPU, 16 RM AND G	ake and Ice Lake 6 GB memory) vCPU 4 PU	CPU platforms Memory 16 GB	
N2 Powered by Inter Machine type — n2-standard-4 CPU PLATFO Display device Enable to use scree	l Cascade L (4 vCPU, 16 RM AND G een capturin	ake and Ice Lake 6 GB memory) vCPU 4 PU	CPU platforms Memory 16 GB	
N2 Powered by Inter Machine type — n2-standard-4 CPU PLATFO Display device Enable to use scree Enable to use scree Enable to use scree Enable dis	l Cascade L (4 vCPU, 16 RM AND G een capturin splay devic	ake and Ice Lake 6 GB memory) vCPU 4 PU	CPU platforms Memory 16 GB	
N2 Powered by Inter Machine type — n2-standard-4 CPU PLATFO Display device Enable to use scree Enable to use scree Enable to use scree Enable diagonal device	l Cascade L (4 vCPU, 16 RM AND G een capturin splay devic	ake and Ice Lake G GB memory) vCPU 4 PU ng and recording to	CPU platforms Memory 16 GB	
N2 Powered by Inter Machine type — n2-standard-4 CPU PLATFO Display device Enable to use scree Enable to u	l Cascade L (4 vCPU, 16 RM AND G een capturin splay devic	ake and Ice Lake G GB memory) vCPU 4 PU ag and recording to se	CPU platforms Memory 16 GB	
N2 Powered by Inter Machine type — n2-standard-4 CPU PLATFO Display device Enable to use scree Enable to use scree p 6: Select Boor	I Cascade L (4 vCPU, 16 RM AND G een capturin splay devic t disk. Pres	ake and Ice Lake G GB memory) vCPU 4 PU ag and recording to se ss Change	CPU platforms Memory 16 GB	
N2 Powered by Inter Machine type — n2-standard-4 CPU PLATFO Display device Enable to use scree Enable to use scree Finable to use scr	l Cascade L (4 vCPU, 16 RM AND G een capturin splay devic t disk. Pres	ake and Ice Lake G GB memory) vCPU 4 PU ag and recording to be se change	CPU platforms Memory 16 GB	
N2 Powered by Inter Machine type — n2-standard-4 CPU PLATFO Display device Enable to use scree Enable to use scree Finable to use scre	l Cascade L (4 vCPU, 16 RM AND G een capturin splay devic t disk. Pres	ake and Ice Lake G GB memory) vCPU 4 PU ag and recording to se Ss Change	CPU platforms Memory 16 GB	
N2 Powered by Inter Aachine type - n2-standard-4 CPU PLATFO Display device Enable to use scree Enable to use scree Finable dia p 6: Select Boor oot disk @	d Cascade L (4 vCPU, 16 RM AND G een capturin splay devic t disk. Pres eve-com-5 New balanc	ake and Ice Lake G GB memory) vCPU 4 PU ag and recording to se Ses Change	CPU platforms Memory 16 GB	
N2 Powered by Inter Powered by Inter Nachine type — n2-standard-4 CPU PLATFO Display device Enable to use scree Enable to use scree Finable dis Point disk @	Cascade L (4 vCPU, 16 RM AND G een capturin splay devic t disk. Pres eve-com-5 New balanc 10 GB	ake and Ice Lake	CPU platforms Memory 16 GB	
N2 Powered by Inter Machine type — n2-standard-4 CPU PLATFO Display device Enable to use scree Enable to use scree Enable to use scree Finable to use scree	A vCPU, 16 (4 vCPU, 16 RM AND G een capturin splay devic t disk. Pres eve-com-5 New balanc 10 GB © Debian	ake and Ice Lake	CPU platforms Memory 16 GB	



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 snapsl what you're looking for? E	not to create a boot disk, o xplore hundreds of VM so	or attach an existing o lutions in <u>Marketplace</u>	lisk. Can't find
PUBLIC IMAGES	CUSTOM IMAGES	SNAPSHOTS	EXISTING DISKS
SELECT A PROJECT			
Show images from: EVE Tes	it 🚽		
Show deprecated i	mages		
Image *			
Created on 21 May 2022,	10:10:47		
Boot disk type * SSD persistent disk 🔫	✓ Size	e (GB) *	
V SHOW ADVANCED CO	NFIGURATION		
SELECT CANCEL			

Step 7: Allow http traffic and create VM

Identity and API access 📀



Firewall 🕜

Add tags and firewall rules to allow specific network traffic from the Internet.

✓ Allow HTTP traffic

Allow HTTPS traffic

You will be billed for this instance. Compute Engine pricing





3.4.5 EVE-NG-Community 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-COMM installation

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

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

apt upgrade **Confirm with Y**

Step 5. Reboot EVE. Allow some time for reboot and then press "Reconnect"



Step 6: 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

3.4.6 Access to Google Cloud EVE-COMM

Use your public IP for accessing EVE via http.

europe-west2-c	10.154.0.8 (nic0)	35.189.66.46 🛽	SSH 🔹 :
Emulated Victual Environment			
Next Generation			
5.0.1-8-Community			
Sign in to start your session			
Username			
Password			
Native console 🗸 🗸			
Sign In			
Default web login: admin/eve			

3.4.7 Optional: GCP Firewall rules for native console use

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



-	Google Cloud Platfor	rm	🕏 EVE-PRO-PROJECT 🔫	
₼	Home		M instances	CREATE IN
Ŧ	Pins appear here 🔞		×	
STOR	AGE		Filter VM instances	
	Bigtable		Name A Zone	Recomn
	Datastore	>	☐ eve-pro europe-wes	12-0
((*	Firestore	>		
	Storage	>		
()}	SQL			
÷.	Spanner			
2	Memorystore			
Ē	Filestore			
NETW	/ORKING			
	VPC network	>	VPC networks	
æ	Network services	>	External IP addresses	
÷	Hybrid Connectivity	>	Firewall rules	
0	Network Service Tiers		ROUTES	

Step 2: Create new firewall rule



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

←	Create a firewall rule
Eirou	coll rules control incoming or outgoing traffic to an instance. Dv default
incor	ning traffic from outside your network is blocked. Learn more
Nam	• 0
ing	ess-eve



Direction of traffic Ingress Egress	: 🕖
Action on match Allow Deny	0
Targets 🕜	
All instances in	the network 👻
Source filter 🕐	
IP ranges	•
Source IP ranges	
Second source fil None	ter 🤨
Protocols and po Allow all Specified pro	rts 🕖
🗹 tep :	0-65535
udp:	
Other pr	otocols
protoc	ols, comma separated, e.g. ah, sctp
🗧 Disable rule	
Create Can	cel

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

Fire inco	wall rules control incoming or outgoing traffic to an instance. By default, ming traffic from outside your network is blocked. Learn more
Nan	e 🕐
ea	ress-eve



Direction of traffic Ingress Egress	: ©
Action on match Allow Deny	0
Targets 📀	
All instances in	the network 📕
Destination filter	0
IP ranges	~
Destination IP rar	iges 🕢 🖉
0.0.0/0 😢	
Protocols and po Allow all Specified pro	rts 😨
🗹 tep :	0-65535
udp :	
Other pr	otocols
protoc	ols, comma separated, e.g. ah, sctp
> Disable rule	cel

Summary FW rules.

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

3.5 EVE Management IP Address setup

3.5.1 Management static IP address setup (preferred)

The steps below will walk you through the network setup and assign a static management IP for 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.	Report the Nort Persuor4 .

г



















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

3.5.2 EVE Management IP address setup via DHCP

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



Step 3: Choose your EVE VMs hostname. By default, it is eve-ng . You can leave it as it is. Confirm with enter	Step 4: Type your domain name for your EVE VM. By default, it is example.com. The default value can be used as well. Confirm with enter
Hosteam Type the short hosteam for the system: every	Ive HG - Setup Type the MG domain name Type the MG domain name for the system: eve-mg.net (0.0)



Step 5: Using the arrow keys, select the option "dhcp", confirm your selection with the space key, followed by enter	Step 6: Type your preferred NTP server IP. It can be left empty as well; in this case, your EVE VM will automatically assign the time from its host.
Use INCLOSIATIO IP Address Use INCLOS Static IP Address for the network adapter on Nanagenent Network? () Static () Static () Static	RTP server Type the hostnace/P address of RTP (f not used): (0.5.5)



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

3.5.3 EVE Management IP address reset

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

rm -f /opt/ovf/.configured

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



3.6 EVE-NG Community upgrade to EVE-NG Professional

3.6.1 Mandatory Prerequisites

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

3.6.1.1 EVE Community disk space

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

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

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

apt autoremove

df -h

3.6.1.2 Verify current EVE Community version

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

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



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





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

3.6.1.3 Steps to upgrade to the latest EVE Community version

Type the following commands below and hit enter after each.

apt update

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

apt upgrade

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

reboot

3.6.2 Upgrading EVE Community to EVE-NG Professional

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

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

```
apt update
```

apt install eve-ng-pro

reboot

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

```
apt install eve-ng-dockers
```

reboot

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



3.7 Native telnet console management setup

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

3.7.1 Windows Native Console

Step 1: Download the EVE Windows Client integration pack: <u>http://www.eve-ng.net/downloads/windows- client-side-pack</u>	Step 2: Install it as administrator
Step 3: Leave the option for UltraVNC checked. UltraVNC is very tiny and the preferred VNC client for Windows by Eve.	Step 4: Continue with Next. When it asks to choose Ultra VNC Options, only leave the UltraVNC Viewer checked, the rest is not needed. Steup - UltraVNC UltraVNC Server Step - UltraVNC UltraVNC Server Step - UltraVNC Server
Step 5: Continue with Next and finish the installation.	

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

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

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

Step 2: Set your default Telnet program:

TELNET URL:Telnet Protocol SecureCRT Application

▲ 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>C</u> hoose			
<u>R</u> emember my choice for telnet links.				
Cancel	Open link			

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

3.7.2 Linux Native Console

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

Step 1: Go to the EVE Linux Side 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	
Ubuntu and derivatives You can install eve-ng-integration from the official PPA: sudo ad-apt-repository ppa:smartfinn/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>



3.7.3 MAC OSX Native Console

Telnet Protocol:

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

F Switch	
Do you want to allow this page to o	pen "Terminal"?
	Cancer Allow

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

[Command not fround: talaet] [Could not create a new process and open a pseudo-tty.]] +	telnet 192.168.	192.168.198.43 198.43 — 80x24	Ċ		
	Informand net found: telnet) [Convend net found: telnet] [Could not create a new process and open	ug643-80×24 a pseudo-tty.∭ +			
Contraction of the second s					
	CONTRACTOR OF STREET, STRE				

Procedure to install a previous telnet binary:

Download telnet and ftp binaries from eve:

http://your_eve_ip/files/osx.zip (to be updated) Please contact to EVE Live chat for this package.

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

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

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



crutil disable; reboot

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

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



sudo -i

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

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

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

Type the following command into the terminal then hit enter:

crutil enable; reboot

VNC Protocol:

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

Install and use it as default VNC Client

RDP Protocol:

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





<section-header><text><text><text><section-header><text><text>



3.8 Login to the EVE WEB GUI

Login to the EVE management UI:

http://<your_eve_ip>/

Default user access:

User: admin

Password: eve

- NOTE: You can change your EVE WEB Admin password, please refer to section 6.3.1.2
- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 12



4 EVE-NG Community Update & Upgrade

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

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

ping www.google.com

root@eve-	-ng:~:	≠ ping www.google.com					rie-n
PING www.	goog.	le.com (216.58.207.228) 56	(84) bytes of data	а.			
64 bytes	from	arn09s19-in-f4.1e100.net	(216.58.207.228):	icmp_seq=1	ttl=58	time=9.11	msern
64 bytes	from	arn09s19-in-f4.1e100.net	(216.58.207.228):	icmp_seq=2	ttl=58	time=19.5	ms
64 bytes	from	arn09s19-in-f4.1e100.net	(216.58.207.228):	icmp_seq=3	ttl=58	time=9.50	ms
64 bytes	from	arn09s19-in-f4.1e100.net	(216.58.207.228):	icmp_seq=4	ttl=58	time=9.56	ms
64 bytes	from	arn09s19-in-f4.1e100.net	(216.58.207.228):	icmp_seq=5	ttl=58	time=9.56	ms

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

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

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

IMPORTANT NOTE: before you start your EVE Community update & upgrade, please free up your EVE Community from older kernel packages:

apt autoremove

4.1 EVE-NG Community 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 **11.1.1**. You can verify your current EVE version from the System/System Status tab on the top menu of the WEB GUI as well.

Professional	# Hain 🖌 Hanagament +	B System + O Informatio	n + OLicensing + @2018 Eve-NG	
System status		System status System logs		
Link System status		X Stop All Nodes		
(9% CFU und Number of CFU: 24		17% Interview)
			running IOL nodes	running Dynam
			4	0
			runni	ng Docker nodes
				0
Qemu version: 2.4.0				
Current API version: 2.0.4-21-PRO				
UKSM status:				
CPULImit status:				

The newest version of EVE-NG can be verified by checking the official website: <u>http://www.eve-ng.net/community/community-2</u>. The main page will display the latest EVE-NG version and correct steps to update.





Type the below commands followed by Enter

apt update

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

4.2 EVE-NG Community Upgrade

Type commands followed by Enter

apt upgrade

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

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

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

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

reboot



5 Types of EVE management consoles

▲ **IMPORTANT NOTE:** EVE Console TCP ports. EVE Community uses a static port range between 32678-40000.

Formula is = 32768+128*POD+1 -> 32768+128*POD+128 POD: user id (admin = 0) Exemple: you got admin (POD 0) + 2 users (POD 1, POD 2) 32768+128*0+1(First port for POD0) -> 32768+128*2+128(Last port of POD 2) = 32769 -> 33152 Port per user pod:

POD	First Port	Last Port
0	32769	32896
1	32897	33024
2	33025	33152
3	33153	33280
4	33281	33408
5	33409	33536
6	33537	33664
7	33665	33792
8	33793	33920
9	33921	34048
10	34049	34176

EVE Community supports two different console types.

5.1 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 32768-40000 is not blocked by a firewall or antivirus software. (See table above)

5.1.1 Native Console: telnet

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





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

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



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

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

5.1.2 Native Console: Wireshark

EVE Community has an integrated connection with natively installed Wireshark software on your PC. This allows live captures with Wireshark installed on the client machine. The EVE will capture natively installed Wireshark session.

IMPORTANT NOTE: Make sure you have installed Wireshark and EVE-NG client pack. It is strongly recommended if your Wireshark software is installed at your PC default location.

د: C:\Program Files\EVE-NG ح ک Search EV ۵						
	Name	Date modified	Туре	Size		
ess	Log	24/04/2018 21:02	File folder			
		24/04/2018 21:00	File folder			
	🗬 plink.exe	15/03/2017 20:09	Application	585 KB		
	🖉 putty.exe	15/03/2017 20:09	Application	810 KB		
)	UltraVNC_1_2_12_X64_Setup.exe	15/03/2017 20:11	Application	2,722 KB		
	💿 ultravnc_wrapper.bat	03/02/2016 22:53	Windows Batch File	1 KB		
	鹶 win7_64bit_ultravnc.reg	15/03/2017 20:34	Registration Entries	1 KB		
	💣 win7_64bit_wireshark.reg	15/03/2017 20:34	Registration Entries	1 KB		
	💣 win10_64bit_putty.reg	08/04/2017 17:36	Registration Entries	2 KB		
	💣 win10_64bit_sCRT.reg	08/04/2017 17:36	Registration Entries	3 KB		
	wireshark_wrapper.bat	15/03/2017 20:32	Windows Batch File	1 KB		



IMPORTANT NOTE: The Wireshark wrapper located in your PC station must match your EVE root password. Edit your EVE root password in the wireshark_wrapper.bat, if you had changed it during install.



Example: Fortinet live interface port1 capture.





5.1.3 Native Console: VNC

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

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



Linux OS: Remote Desktop Viewer for VNC Sessions.

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



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

5.1.4 Native Console: RDP

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





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

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



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

5.2 HTML5 console



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



5.2.1 HTML5 Console: Telnet

HTML5 Telnet console opens telnet sessions in the new browser window.



5.2.2 HTML5 Console: VNC

HTML5 VNC opens VNC sessions in the new browser window.





5.2.3 HTML5 Console: RDP for Windows

HTML5 RDP console opens RDP sessions in the new browser window. For Windows 7, Windows Server 2008.

During Windows machine image installation, you can allow RDP sessions to be used for access to Windows host. If your Windows host has enabled RDP session, edit windows node settings and set RDP console. Give time to boot this node and RDP session will opens in new browser tab.

		DE		
Template				
Windows				*
Number of nodes to add	1	mage		
1		win-7-x86-IPCC		-
Name/prefix				
Win				
Icon				
B Desktop.png				-
UUID				
CPU Limit				
СРИ	RAM (M	B)	Ethernets	
1	4096		1	
QEMU Version	QEMU A	rch	QEMU Nic	
tpl(2.0.2) +	tpl(x8	5_64) •	tpl(e1000)	-
QEMU custom options				
-machine type=pc-1.0,acc	el=kvm -cp	u qemu64,+fsgsl	oase -vga std -usbdev	vice tabl
None				-
Deley (a)				
Detay (s)				
Console				
		-		
ent ent		197		
011		185		



EVE Topology	× 127.0.0.1 × +
\leftrightarrow > C \textcircled{a}	① 192.168.90.50/html5/#/dient/Mzl3NzEAYwBteXNxbA==?token=A55E299453E 80% ♥ ☆
	User Protect Cavea



6 EVE WEB GUI Management

6.1 EVE Management Page

The Main EVE management window

	€VC #Main	🗲 Management + 🛛 🖉 Syste	n - 🚯 Information -	@2017 Eve-NG		👌 admin	Sign out
File manager Current position / root							
New Name	Add folder	CBT ICND2 CCNA	LAB				
🗆 🖡 🖌 🕸 🛎 🛎 🗰 🗢 🛶 Management buttor	ns						
CCNA LABS		8					
A1.unl	23 Sep 2019 12:11	-					
CBT ICND2 CCNA LAB.unl	23 Sep 2019 12:19						
				<u> </u>			
		Lab Path: /CBT ICND2 CCN Version: 1 UUID: 2483612c-dff0-4e3d Author: UD	4 LAB.unl ad35-905967a2174e		Description	n:	
		Open Edit Delete					

6.1.1 Management buttons

			≫	Û	*	<u>±</u>	▼	0
--	--	--	---	---	---	----------	---	---

Button	Description
	Select All or Deselect All folders or labs in the EVE tree
	Create/Add new Lab
1	Change selected item name. To use this option, please select the folder or lab that you want to rename. You must not rename the Shared folder, the Users folder or any folder inside the Users folder.
×	Move selected item(s) to a different location. To use this option, please select the folder(s) or lab(s) that you want to move.
	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
<u>*</u>	Export EVE lab or folder. Select folder(s) and/or labs you wish to export and select this option. The export is saved to your local PC in .zip format and is ready to import to another EVE.
	Toggle the sorting folders and labs between alphabetical and last edit date (ascending/descending cannot be changed currently).
Ø	Refresh current folder content

6.1.2 Management tabs

希 Main	🗲 Management 🗸	🗐 System 👻	i Information 🗸	©2017 Eve-NG

Tab	Description
🆀 Main	Returns back to the EVE Home Management screen.
🗲 Management 👻	Management dropdown, opening the management submenu.
🚰 User management	Management submenu, refer to sections: 6.3
🛢 System 👻	System dropdown.
 System status System logs Stop All Nodes 	System submenu, refer to section 6.4
€ Information -	Information dropdown



About	Information submenu, for details see section 6.5
🗩 Forum	
🛅 YouTube Channel	
Help on EVE-NG LiveChat	

6.2 Folders and Lab files management

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

6.2.1 Folders Management

6.2.1.1 Create folder

Type the new folder name and click "Add Folder"

6.2.1.2 Delete folder

Select the folder you wish to delete and press Delete.

NOTE: All folder content will be deleted as well.

File manager Current position / root	
Myfolder 🗸	Add folder
🗆 🖿 Running	
🗆 🖿 Shared	18 May 2018 13:49
La File manager Current position / root	
New Folder Name Delete selected items	Add folder
🗆 🖿 Running	
VI 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

6.2.1.3 Move Folder

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

Type and select the target destination for your folder and

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

Move files to		
Files selecte	d to move:	
🖿 MyLabFolde	r	
Current files position /		
/ Running MyLabFolder	tFolder/	~
Shared Users		Move Cancel

6.2.1.4 Export Folder

confirm by clicking on Move.

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



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

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

re-ng_export-20180518-172551.zip	×
open:	
-ng_export-20180518-172551.zip	
RAR ZIP archive (749 bytes)	
192.168.90.23	
ax do with this file?	
WinRAR archiver (default)	
matically for files like this from now on.	
	+ ng_export-20180518-172551.sip open: ng_export-20180518-172551.sip ARX 2P archive (749 bytes) 992.168.90.23 wt do with this file? WinRAR archiver (default) ~ matically for files like this from new on.

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.

6.2.1.5 Import Folder

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

Step 1: Press the Import button.

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



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

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.

L File manager Current position / root	
Name	
UD_lab_folder.zip	
New Name	Add folder
Running	
MyLabFolder	18 May 2018 17:24
Shared	18 May 2018 15:16
🗆 🖿 UD Labs	19 May 2018 01:32
🗆 🖿 Users	18 May 2018 14:31
FirePower FTD 623 PoC Multihomed HA.unl	12 Apr 2018 11:16

6.2.2 Lab files Management

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

	େ∀ତ	# Main	🗲 Management +	🖉 System 🗸	() Information +	@2017 Eve-NG
File manager Current position / root	/					
New Name	Add fold	er				
CCNA LABS						
A1.unl	23 Sep 2019 12	:27				
C360 cfg LAB01.unl	23 Sep 2019 13	:36				
B CBT ICND2 CCNA LAB.unl	23 Sep 2019 14	:05				
CBT ICND2 CCNA LAB_1569238598304.unl	23 Sep 2019 13	:36				

6.2.2.1 Create Lab

 File manager
 Current position / root

 New Name
 Add folder

 CCNA LABS
 CCNA LABS

 Al.uni
 23 Sep 2019 12:27

 C360 cfg LAB01.uni
 23 Sep 2019 13:36

 CBT ICND2 CCNA LAB.uni
 23 Sep 2019 14:05

 CBT ICND2 CCNA LAB_1569238598304.uni
 23 Sep 2019 13:36

Click on the New Lab button and refer to section 8.1

6.2.2.2 Delete Lab

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



	CVC # Main F Management - System - O information -	@2017 E
File manager Current position / root		
New Name	Add folder	
CCNA LABS		
🗹 📑 A1.unl	23 Sep 2019 12:27	
C360 cfg LAB01.unl	23 Sep 2019 13:36	
CBT ICND2 CCNA LAB.unl	23 Sep 2019 14:05	
CBT ICND2 CCNA LAB 1569238598304.unl	23 Sep 2019 13:36	

6.2.2.3 Clone Lab

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.

Gurrent position / root	
New Name	Add folder
🗏 🖿 Running	
MyLabFolder	18 May 2018 14:07
🗎 🖿 Shared	18 May 2018 15:16
🔲 🖿 Users	18 May 2018 14:31
🗸 🕑 📑 test_lab1.unl 🥆	% Move to 🕑 Rename 🔹 Clone 🧃
test_lab2.unl	18 May 2018 13:36

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



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.



Step 4: Rename it, and click OK to confirm

est_lab1.unl	18 May 2018 12:58
test_lab1_mynew_clone	Ok

6.2.2.4 Move Lab

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 2	2018 12:5	58
test_lab1_mynew_clone.unl	× -	9< Move to	🕼 Rename	Clone	Ĥ
test_lab2.unl			18 May 2	2018 13:3	36

Step 2: Type the path to the new destination and Confirm by clicking Move

les selecte	ed to move:	
test_lab1_r	nynew_clone.unl	
ment files position /		
nemenes posicion/		
ew path		
w path		
w path	tFolder/	
Running MyLabFolder	tFolder/	
ew path / Running MyLabFolder – Shared	tFolder/	

6.2.2.5 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
🗹 📑 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.

Opening _Exports_ev	e-ng_export-20180518-172551.zip	×
You have chosen to	open:	
📜 _Exports_eve	-ng_export-20180518-172551.zip	
which is: Win	RAR ZIP archive (749 bytes)	
from: http://	92.168.90.23	
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.	
	OK Cancel	

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

6.2.2.6 Import Labs

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

Step 1: Press the Import button.



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

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

← → × ↑ 📴 ›	This PC > Desktop > Exports >		✓ ひ Search Exp	ports	٩
Organize 👻 New fo	older			E • 🗆	•
	Name	Date modified	Туре	Size	
🖈 Quick access	EIGRP cfg set 2	15/03/2018 12:10	File folder		
ConeDrive	EIGRP cfg set 2.zip	15/03/2018 12:11	WinRAR ZIP archive	2 KB	
This DC	EIGRP cfg set.zip	15/03/2018 12:10	WinRAR ZIP archive	4 KB	
- This PC	Firepower_poc_623.zip	12/04/2018 11:16	WinRAR ZIP archive	51 KB	
👝 Donna (E:)					
Alabamah					
- Network					
C11	e name: Eironower noc 622 tin		All Filer (* *1	~

Step 3: Press the Upload Button

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

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

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

6.3 EVE Management Dropdown Menu

6.3.1 EVE User management

6V6	of Main	, € M	anagement -	🗐 Sy	∕stem -
		쓭	User managen	ient	

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



6.3.1.1 Creating a new EVE User

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

	@∀@	ain 🎤 Management -	# System +	O Information +	@2017 Eve-NG	🛔 admin 🛛 98	Sign out				l i
User management here you can manage uni users										# > #Management > 없는	Usermanagement
Database of users										•Add user M	More Info +
Username Email			Name			Role	P	00	Actions		
admin root@localhost			Eve-NG Admin	istrator		admin	0		@Edit 🔒		
user3 user3@evenglab.net			Andrew Tester			admin	1		artar 💼		

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*
user3
Use only [A-Za-z0-9]chars
Password*
•••••
Password Confirmation*
•••••
Email
user3@evenglab.net
Please enter an valid email
Name
Andrew Tester
Role Administrator 🗸
POD*
1
* - Required Fields
Add Cancel

Step 3: 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 4: Press ADD

Add	Cancel
Aud	Cancer

6.3.1.2 Edit EVE User

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

		e ∨e	🖷 Main	📕 Management -	🛢 System -	O information •	02017 Eve-NG	🛔 admin	\varTheta Sign out				
User management her	e you can manage uni users											∉ > ≯Management	> 🗑 User management
Database of users												+Add us	er More Info +
Username	Email				Name			Role		POD	Actions		
admin	root@localhost				Eve-NG Admin	istrator		admin		0	C2 Edit		
user3	user3@evenglab.net				Andrew Tester			admin		1	W Lot 8		



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

Edit User
User Name*
user3
Password ⁺
••••••
Password Confirmation*
•••••
Email
user3@evenglab.net
Please enter an valid email
Name
Andrew Tester
Use only [A-Za-z0-9]chars
Role Administrator 🗸
POD*
1
* - Required Fields
Edit Cancel

6.3.1.3 User monitoring

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

		@ ∀@	Main 🗚 Nanagement +	System • Othermation •	@2017 Eve-NO	🛔 admin 🛛 🕪 Sign out			
User managemen	nt hereyou can manage uni users								★ > <i>F</i> Management > 열Usermanagement
Database of users									Add user More info +
Username	Email	Name	Role	Last session time	Last session ip	Current folder	Current lab	POD	Actio 🗹 Last session time
admin	reetglocalhest	Eve-NG Administrator	admin	23 Sep 2019 12:40:48	10.6.6.10	1	N/A	0	🕼 Ed 🛛 Last session ip
user3	user3@evenglab.net	Andrew Tester	admin	N/A	N/A	NJA	N/A	1	🕼 Ed Current folder
									Current lab

6.4 EVE System Dropdown menu



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

6.4.1 System status



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



	CVC Management - System	m = 🔹 Information = 🛛 @2011 Eve-NO	🛦 admin 🛛 Ə Sign ovt	
System status				
🕍 System status				
9% 	12%		0%	55%
	running IOL nodes	running Dynamips nodes	running QEMU nodes	
	0	0	0	
	running Dock	ker nodes running \	PCS nodes	
	0		0	
Qemu version: 2.4.0				
Current API version: 2.0.3-95				
UKSM status:				
CPULImit status:				

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

Template		
Cisco vIOS		-
Number of nodes to add	Image	
1	vios-adventer	orisek9-m-15.6.2T 🔹
Name/prefix		
vIOS		
Icon		
資 Router.png		Ŧ
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

6.4.2 System logs



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

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



	€ √€	🖷 Hain 🎤 Management =	#System = O Information =	#2017 Eve-NG	🛓 admin 🕫 Sign out	
System logs						♠ > Ætapi > Ø System lags
System log viewer						
Select log file	Number of Lines	Search text				
access.bd	20			View		
access.txt						
api.txt	•					
error.bit			File o	utput start		
pro_errors.oxt	5.0 (Windows) 11" 200 531 "http://192.168.50.50/" "Mozilla/5.0 (Windows)	VT 10.0; Win64; x64; nr:69.0) Gecko/201	00101 Firefox/69.0"			
mulmiting	sLTE/dist/js/spp.js?_=1569241419090 HTTP/1.1" 200 6501 "h	tp://192.168.90.50/" "Mozilla/5.0 (Wind	lows NT 10.0; Win64; x64; nv:69.0) Ger	ko/20100101 Firefox/49.0*		
10.6.6.10 [23/368/2019:13:2506 =0300] 051 /themes/adm	hLTE/unl_data/pages/syslog.html HTTP/1.1" 200 1402 "http:/	192.168.90.50/" "Mozilla/5.0 (Windows	NT 10.0; Win64; x64; rv:69.0) Gecko/	20100101 Firefox/69.0"		
10.6.6.10 [23/Sep/2019:15:29:05 +0300] "GET /spi/status HT	TP/1.1" 200 582 "http://192.168.90.50/" "Mozilla/3.0 (Window	NT 10.0; Win64; x64; rx:69.0) Gecko/20	1100101 Firefox/49.0"			
10.6.6.10 [23/Sep/2019:15:29:06 +0300] "GET /themes/adm	ini,TE/unl_data/js/angularjs/controllers/syslogCtrl.js HTTP/1.:	" 200 921 "http://192.168.90.50/" "Moz	illa/5.0 (Windows NT 10.0; Win64; x64	l; nc69.0) Gecka/20100101 Firefax/69.0"		
10.6.6.10 [23/Sep/2019:15:29:03 =0300] *GET /api/status HT	TP/1.1" 200 582 "http://192.168.90.50/" "Mozilla/5.0 (Window	NT 10.0; Win64; x64; rv:69.0) Gecko/20	1200101 Firefon/69.0"			
10.6.6.10[23/Sep/2019:13:29:01+0300] "GET /api/status HT	TP/1.1" 200 582 "http://192.168.90.50)" "Mozilla/5.0 (Window	NT 10.0; Win64; x64; rv:69.0) Gecko/20	100101 Firefax/69.0"			
10.6.6.10 [23/Sep/2019:15:28:59 =0300] "GET /api/status HT	TP/1.1" 200 582 "http://192.168.90.50/" "Mozilla/5.0 (Window	NT 10.0; Win64; x64; rv:69.0) Gecko/20	1100101 Firefox/69.0"			
10.6.6.10 [23/Sep/2019:15:28:57 +0300] "GET /spi/status HT	TP/1.1" 200 582 "http://192.168.90.50/" "Mozilla/3.0 (Window	NT 10.0; Win64; x64; rv:69.0) Gecko/20	1200101 Firefox/69.0"			
10.6.6.10 [23/Sep/2019:15:28:55 +0300] "GET /api/status HT	TP/L1" 200 582 "http://192.168.90.50/" "Mozilla/5.0 (Window	NT 10.0; Win64; x64; rv:69.0) Gecko/20	100101 Firefox/69.0"			
10.6.6.10 [23/Sep/2019:15:28:53 =0300] "GET /api/status HT	TP/1.1" 200 582 "http://192.168.90.50/" "Mozilla/5.0 (Window	NT 10.0; Win64; x64; rv:69.0) Gecko/20	1200101 Firefox/69.0"			
10.6.6.10 [23/Sep/2019:15:28:51 +0300] "GET /api/status HT	TP/L 1" 200 582 "http://192.168.90.50/" "Mazilla/5.0 (Window	NT 10.0; Win64; x64; rv:69.0) Gecko/20	100101 Firefox/49.0"			
10.6.6.10 [23/5ep/2019:15:28:49 +0300] "GET /api/status HT	TP/1.1" 200 582 "http://192.168.90.50/" "Mopila/5.0 (Window	NT 10.0; Win64; x64; rv:69.0) Gecko/20	100101 Firefox/69.0"			
10.6.6.10 [23/Sep/2019:15:28:47 +0300] "GET /api/atatus HT	TP/1 1" 200 582 "http://192 168 50 50/" "Mozilla/5.0 (Window	NT 10.0: Win64: x64: rx:69.0) Gecko/20	100101 Firefox/69.0"			

6.4.3 Stop All Nodes

ement -	🗐 S	ystem 👻	Infor	rmation +	6
	0	System st	tatus		
	•	System le	ogs		
	×	Stop All N	lodes		

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.

6.5 EVE Information Dropdown menu



The Eve Information Dropdown contains links to the EVE Website, EVE forum, EVE YouTube channel, and the webbased 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.

6.6 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.

6.7 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.



	Course Ware Courses	🖌 Management 👻 🖉 System 👻 🕕 Information 👻 @2017 Eve-NG	💄 admin 🛛 😝 Sign out
File manager Current position / root			
New Name	Add folder	CBT ICND2 CCNA LAB	
CCNA LABS			
A1.unl	23 Sep 2019 12:27	P	
CBT ICND2 CCNA LAB.unl	23 Sep 2019 12:19		
			-*
		Lab Path:/C811CN02.CCN4.LAB.uni Werkins 1 UUIDI2:44512:2:df0-4e3d-ad35-905967a1174e Author: UD	Description:
		Open Edit Delete	

6.7.1 Lab preview window

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

test_lab2					
				Scale	
				1:2	
				1:3	
				1:4	
	<u> 25</u>			1:5	
				× *	
		Description			
Lab Patht /test_lab2.uni Version: 1		- composition			
UUID: 7dab0723-4c04-495e-8269-e4a6da411ff6					
Author:					

6.7.2 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 6.7.4 for more info.
Delete	Deletes the lab

6.7.3 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

6.7.4 Lab Global Settings

Lab Global Settings Page is opened when you click on the preview window or from the Topology page Side bar:

Edit

Edit button below the Lab



Edit lab		• ×
Path* /test_lab1.unl	Description 6.	Here is short description of Lab
Name* 1. test_labi Userety/k2sr04_bduss		
Must be interger (0-9)chers) Author 3. Tohn Tester	Tasks 7,	Here are tasks for your lab. Task I, Please configure Routers with IP addressing Task I, Configure RO EGRP multine on all nodes
Config Script Timeout 4. 300 Seconds		Task 3. Configure windows Host to receive DHCP IP address
Lab Countdown Timer 5, 120 Seconds		
* - Required Fields		Save Cancel

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

- 1. Lab name.
- 2. Version: Version numbers allow a lab author to assign a value to a unique state of a lab. Increase the number to correspond to new developments in the lab. If left unfilled, EVE will assign a value of 1 automatically.
- 3. Author: You can add a lab author name in this field
- 4. Config Script Timeout: It is the value in seconds used for the "Configuration Export" and "Boot from exported configs" operations. Refer to section 10.3 for more information.
- 5. Description: In the Description field you can write a short description of the lab.
- 6. Tasks: In the Tasks field you can write the task for your lab.

🔳 Lab details

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



LAB DETAILS

TEST_LAB1

ID: 95692558-5acb-4308-ab66-64£9b40bd31£ 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



7 EVE WEB Topology page

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



7.1 Side bar functions

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





7.1.1 Add an object

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

	-	Add a new object
•	A Node	Ande
	HOUC	# Network
=	🛲 Network	Picture
	Picture	Custom Shape
E.	Custom Shape	A Text
A	A Text	🔛 Auto Align

7.1.1.1 Node object

The Node object opens the "Add a new node" window. Only nodes that appear blue in the dropdown menu can be added. A grey image name signifies that you have not yet properly uploaded an image to the proper folder. A blue image name means that at least one image exists in the proper folder for this template.

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

7.1.1.2 Network object

The Network object opens the "Add a new network" window. This function is used to add any kind of network (Cloud, Bridge). 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	

7.1.1.3 Picture object

The picture object opens the "Add Picture" window and allows you to upload custom topologies in jpg or png format. After uploading, you can edit these pictures and map selected areas to nodes from the topology to use your own designs as a lab topology from which you can directly connect to the nodes. For details, refer to section 10.2

ADD PICTURE ×								
Namo	MuTapalagu							
Name	Myropotogy							
Picture	Browse anycon_lab.PNG							
	Add Cancel							

7.1.1.4 Custom shape object

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

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

7.1.1.5 Text object

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



Add a new object	ADD TEX	т	×
📥 Node	Test		
₩ Network	TEAL		
Picture	Font Size	12	۵
Custom Shape	Font Style	normal	\sim
A Text	Font Color		
	Background Color		
🖬 Auto Align	Save Car	ncel	

7.1.2 Nodes

Nodes	
 1100003	

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

C	ON	FIGUR	ED NODES													• • *
	ю	NAME	TEMPLATE	BOOT IMAGE	CPU	CPU LIMIT	IDLE PC	NVRAM (KB)	RAM (MB)	ЕТН	SER	CONSOLE	ICON	STARTUP-CONFIG	ACTIONS	
	1	Win	win	win-10-x64-VL19	1		n/a	n/a	8192	1	n/a	rdp-tls 🗸	📕 Desktop.png 👻	None	□∎9∓ ©	1
	2	R2	iol	i86bi_LinuxL3-AdvEnterpri: ~	n/a	n/a	n/a	1024	1024	1	0	teinet	🚳 Router.png 🔹	None	⊨∎9∓ ©	ŵ
	3	R3	iol	i86bi_LinuxL3-AdvEnterpri: 🗠	n/a	n/a	n/a	1024	1024	1	0	teinet	🚳 Router.png 👻	None	∪∎≙± ©	
	4	R4	iol	i86bi_LinuxL3-AdvEnterpri: 🗠	n/a	n/a	n/a	1024	1024	1	0	teinet	🚳 Router.png 🔹	None	0=970	8
	s	Docker	docker	eve-ostinato:latest 🗸	n/a	n/a	n/a	n/a	256	1	n/a	rdp 🗸	Network Analyzer.png*	Default V	▶■ <u>9</u> ± ©	8
	6	Win	win	win-7-x86-IPCC V	1		n/a	n/a	4096	1	n/a	rdp-tls 🗸	🎩 Desktop.png 🔹	None V	▶■⋺∓ ©	ŵ

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
- Enable or disable CPU Limit (Refer to section 6.4.1)
- IDLE PC for Dynamips node
- NVRAM in Kbyte
- RAM in Mbyte
- Ethernet quantity. **NOTE:** The Node must be disconnected from any other nodes to make this change. You cannot change the interface quantity if the node is connected to any other node.
- Serial interface quantity, IOL nodes only. You cannot change Serial interface quantity if the node is connected to any other node.
- Type of Console
- Node Icon that appears on the Topology
- Startup configuration to boot from

Actions Buttons (Stopped node):





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

Actions Buttons (Running node):



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

7.1.3 Networks



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

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



CONFIGURI	ED NETWORKS				• ×
ID	NAME	ТҮРЕ	ATTACHED NODES	ACTIONS	
1	NAT	nat0	1	6 1	
2	Mgmt	pnet0	1	G 11	
з	vSwitch	bridge	3	G 11	





• Edit Network

Startup-configs

Delete Network

7.1.4 Startup-configs

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

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

STARTUP-CO	NFIGS		
2 R1	* ON	Ace Editor <mark>en</mark>)
51 51	* 0N	A That restinguise channel (1573) 677 Mar Cao 33 1000	
S3	* ON	version 15.7	
R2	* ON	service timestamps debug dateitime mace: service timestamps log dateitime mace no service assumpt externation	
• •		National Roader Alexande Roader Road Romer Model Road Romer Model Romer Model Romer Model Road R	
		See Carcel	

7.1.5 Logical Maps

Pictures NOTE: The Logical Maps object will only appear in the sidebar after you have uploaded a custom topology picture to the lab EVE lab (Please refer to section 7.1.1.3). The Pictures object in the sidebar opens the "Picture Management" window.

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

7.1.6 Configured Objects

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

section 10.1

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

CONF	CONFIGURED OBJECTS						
ID	NAME	TYPE	TEXT		ACTIONS		
1	tot 1	text	Tepologyxtx		8		
2	square2	square			8		



7.1.7 More actions

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



7.1.7.1 Start all nodes



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

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

7.1.7.2 Stop all nodes

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

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

7.1.7.3 Wipe all nodes



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

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

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

The "Wipe node" action is commonly used with initial startup configuration modifications. The Wipe node action does not delete configured startup configurations or sets. Please refer to section 10.3



7.1.7.4 Console to All Nodes

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

7.1.7.5 Export all CFGs

🛓 Export all CFGs

The

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

Export configurations are supported for:

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

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

7.1.7.6 Edit lab

🖋 Edit lab				Opens the E	Edit lab window. Refer to section: 6.7.4	
EDIT L	٩B					×
Path*	/UD Labs/Aris	ta MLAG integration.ur	A	Description	Arista mLAG and ASA Lab	
Name*	Arista MLAG integration Use only (A-2a-s0-9 - Schurs					
Version*	1					
Author	UD			Tasks	Tasks LAB Scenario: 1. Configure ASA ports in etherchannels (mode active) and vian interfaces per design, name it as DMZ and Corporate respectively	^
Config S	ript Timeout	800	Seconds		 ConFigure ASA eQ with DHCP IP, must receive IP from home LAN and name this port as outside ConFigure ASA enanagement on port eS, and Win7 Mgmmt host per design, ASA must be reachable from Mgmnt PC over ASDM ConFigure Asida vEOS in miag and assign ports in etherchamete per design 	
Lab Cour	tdown Timer	0	Seconds		 ConFigure vEOS etherchannel ports facing to ASA in etherchannel mode active ConFigure vEOS etherchannels facing to vIOS-SWs to etherchannel mode on 	*
*- Reg.	ired Fields					Save Cancel

7.1.7.7 Set node's startup-cfg to default configset

* Set nodes startup-cfg to default configset 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



7.1.7.8 Set node's startup-cfg to none

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

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

Please refer to section 10.3

7.1.7.9 Delete default startup-cfgs

😉 Delete default startup-cfgs

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

7.1.8 Refresh Topology

🗯 🗯 Refresh topology

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

7.1.9 Lab page zoom/unzoom





🚯 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 6.4.1



STATUS				• ×
EVE-NG version: 2.0.3-95 QEMU version: 2.4.0 UKSM Status: CPU Limit Status: Pole: admin	1% CPU usage	19% Memory usage	0% Swap usage	55%) Disk usage on /
POD: 0	6 running IOL node	s running Dyna	amips nodes in	٥ unning QEMU nodes
	ہ running Doc	ker nodes	runnin	o g VPCS nodes

7.1.11 Lab details

Lab details Lab details display information about a lab, its UUID, description and lab tasks. To edit the lab description and lab tasks, please refer to section 6.7.4 and 7.1.7.6

ARISTA MLAG INTEGRATION To: aled9840-8730-4645-8624-95240:088400 Arits mLAG and ASALub UkB Senario 1. Configure ASA pote in theoretained (mode actual) and unit interfaces per design, name & as DM2 and Corporate respectively 2. Configure ASA pote in theoretained (mode actual). If the heave life actual are seried for	
ID: #8c8965-873c-6463-8c94-b522x5c986400 Artista mU/C and ASSLub LUB Sciences LUB Sciences 1. Configure ASS ports in telenchanols (mode active) and any interfaces per design, name 8 as DM2 and Corporate respectively 2. Configure ASS ports in telenchanols (mode active) and any interfaces per design, name 8 as DM2 and Corporate respectively 2. Configure ASS ports in telenchanols (mode active) and any interfaces per design, name 8 as DM2 and Corporate respectively 2. Configure ASS ports in telenchanols (mode active) and any interfaces per design, name 8 as DM2 and Corporate respectively 2. Configure ASS ports in telenchanols (mode active) and any interfaces per design, name 8 as DM2 and Corporate respectively	
ArdsamLAC and ASALab LAB Scenurics 1. Configure ASA ports in etherchannels (mode active) and Jun interfaces per design, name it as DM2 and Corporate respectively 2. Configure ASA ports in etherchannels (mode active) and two interfaces per design, name it as DM2 and Corporate respectively	
LAB Scenario 1. Configure ASA ports in ethershamels (mode active) and Juni Itelanfaces per design, name & as DAB and Corporate respectively 2. Configure ASA ports in ethershamels (mode active) and name taking and name taking and corporate respectively	
Configure ASA posts the themshareds (mode active) and have been frequencies per design, name as an OM2 and Corporate respectively Configure ASA posts the Astronomic Microbio and	
2. Conflores: APA sAvable DMPD ID much receive ID from home LAN and some this models:	
2. Compare ASA eo with DHCH IP, mast receive IP from home LAN and hane this port as obside	
3. Configure ASA management on port e5, and Win7 Mgmrt host per design, ASA must be reachable from Mgmrt PC over ASDM	
4. Configure Arista xEOS in mlag and assign ports in etherchannels per design	
5. Configure VEDS etherchannel ports facing to ASA in etherchannel mode active	
6. Configure vEDS etherchannels facing to vIDS-SW8 to etherchannel mode on	
7. Configure vIDS SWs etherchennels in mode on	
8. Configure and assign vIOS-SW/s switchports in VLANs accordingly design	
9. Configure Hosts Ps per design	
10. Configure NAT on the ASA, you have to reach internet from DM2 and Corporate zones11. Corporate Zone must reach DM2 server	

7.1.12 Lock Lab

"Lock Lab" disables some of the functions on the lab topology. If the lab is locked, you cannot move any node or object nor edit any node settings. Basically, the whole lab will be in readonly mode except for the lab settings itself, which you can still edit as Administrator from the main menu.

Lock Lab	🔒 Unlock Lab
Lab is unlocked and all operations are working	Lab is locked and all operations are restricted

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

7.1.13 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



7.1.14 Close lab

Closes the lab topology. The lab can be closed while the nodes in the lab nodes are stopped.

7.1.15 Logout

🕞 Logout

😃 Close lab

Log out from the EVE WEB GUI session.

7.2 EVE Lab topology menus

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

7.2.1 Lab topology menu



Right-clicking on the (free/unused) canvas of the EVE topology opens a new menu. (Add-) Node, Network, Picture, Custom Shape and Text are the same functions referred to in section 7.1.1.

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

7.2.2 Connection menu



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

7.2.3 Cloud or Bridge network menu

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



Switz	vSwitch	
//***	🗹 Edit	🖉 Edit
/	🗊 Delete	
Ŋ	Gi1	

	EW NETWORK
Number of networks to add	1
Name/Prefix	Net
Туре	bridge •
Left	1
Тор	bridge Management(Cloud0)
	Cloud1
	Cloud2
	Cloud3
10-0-00-	Cloud4
.2 PRS .1	Cloud5
	Cloud6
	Cloud7
	Cloud8
	Cloud9

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

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

7.2.4 Stopped node menu

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



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

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

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

DIT NOD	E			
Template				
Cisco CSR 1000V				*
ID				
3				
lmage				
csr1000v-universalk9.0)3.17.04.S.156-1.S4			-
Name/prefix				
CSR3				
lcon				
CSRv1000.png				*
UUID				
67fea887-b30d-4ad0-l	314-828808b38533			
CPU Limit				
CPU	RAM (MB)		Ethernets	
CPU 1	RAM (MB) 3072		Ethernets 4	
CPU 1 QEMU Version	RAM (MB) 3072 QEMU Arch		Ethernets 4 QEMU Nic	
CPU 1 QEMU Version tpl(2.12.0)	RAM (MB) 3072 QEMU Arch tpl(x86_64)	Ţ	Ethernets 4 QEMU Nic tpl(e1000)	Ţ
CPU 1 QEMU Version tpl(2.12.0) ~ QEMU custom option	RAM (MB) 3072 QEMU Arch tpl(x86_64)	•	Ethernets 4 QEMU Nic tpl(e1000)	•
CPU 1 QEMU Version tpl(2.12.0) · rmachine type=pc-1.0,	RAM (MB) 3072 QEMU Arch tpl(x86_64) s accel=kvm -serial mon:	• stdio -nograp	Ethernets 4 QEMU Nic tpl(e1000)	•nodef
CPU 1 QEMU Version tpl(2.12.0) CPU QEMU custom option -machine type=pc-1.0, Startup configuration	RAM (MB) 3072 QEMU Arch tpl(x86_64) s accel=kvm -serial mon:	• stdio -nograp	Ethernets 4 QEMU Nic tpl(e1000)	•nodef
CPU 1 QEMU Version tpl(2.12.0) QEMU custom option ·machine type=pc-1.0, Startup configuration None	RAM (MB) 3072 QEMU Arch tpl(x86_64) s accel=kvm -serial mon:	▪ stdio -nograp	Ethernets 4 QEMU Nic tpl(e1000)	•nodef
CPU 1 QEMU Version tpl(2.12.0) CMU custom option rmachine type=pc-1.0, Startup configuration None Delay (s)	RAM (MB) 3072 QEMU Arch tpl(x86_64) s accel=kvm -serial mon:	• stdio -nograp	Ethernets 4 QEMU Nic tpl(e1000)	•nodef
CPU 1 QEMU Version tpl(2.12.0) QEMU custom option -machine type=pc-1.0; Startup configuration None Delay (s) 0	RAM (MB) 3072 QEMU Arch tpl(x86_64) s accel=kvm -serial mon:	▼	Ethernets 4 QEMU Nic tpl(e1000)	-nodef
CPU 1 QEMU Version tpl(2.12.0) QEMU custom option machine type=pc-1.0, Startup configuration None Delay (s) 0 Console	RAM (MB) 3072 QEMU Arch tpl(x86_64) s accel=kvm -serial mon:	• stdio -nograp	Ethernets 4 QEMU Nic tpl(e1000) hic -nodefconfig	•nodef
CPU 1 2 CPU 2 EVUVersion	RAM (MB) 3072 QEMU Arch tpl(x86_64) s accel=kvm -serial mon:	▼	Ethernets 4 QEMU Nic tpl(e1000) hic -nodefconfig	-nodef
CPU 1 QEMU Version tpl(2.12.0) QEMU custom option rmachine type=pc-1.0, Startup configuration None Delay (s) 0 Console telnet Left	RAM (MB) 3072 QEMU Arch tpl(x86_64) s accel=kvm -serial mon:	• stdio -nograp	Ethernets 4 QEMU Nic tpl(e1000)	• •nodef



7.2.5 Running node menu



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

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. Wireshark capture. Select the interface which you wish to capture. Reference section **5.1.2**

7.2.6 Selected nodes menu and features

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



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



<u>31</u>)—	QFP	Gi2		GI2-GI2	Group of CSR1, CSR2	
	CSR1			► cs GB	Start Selected Shutdown Selected Wipe Selected Console To Selected Nodes	
			Gij	vSwit		
			OFP CSR3		 Horizontal Align Vertical Align Circular Align 	
					Toelete nodes startup-ofg	

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.

Picture before:

VIOS1	¥1052	WISS) WISS	evioss Tvioss	SA VIOS7	₩VIOS8	€ • vio59 • vio518
Picture	after:					
VIOS1	VIOS2			VIOS7	VIOS8	

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.



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.





7.3 EVE Lab node states and symbols

7.3.1 Stopped (non-running) nodes



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



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

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

7.3.2 **Running nodes**



The blue colour 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.

7.3.3 Node connector symbol



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



7.4 Other

7.4.1 Notifications area

♣ Notifications	*
Win3: stopped	×
Win3: Export not supported (19).	×
Win3: Starting export, please wait	×

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



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 12

8.1 Creating a lab

Step 1: Click Add new lab. For more information on creating new labs, please refer to section 6.2.2.1



Step 2:

Fill out the lab information. Name and Version are required fields. Next hit Save. Refer to section 6.7.4 for more information about the different fields in the Edit lab window.

Add New Lab						
Name*	mylab4		Description	It is my new lab		
	Use only [A-Za-z0-0]chars					
Version*	* 1					
Must be interger ([0-9]chars)				4		
Author	Author John Tester		Tasks	1. configure IP addressing	î	
				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 Cano	al
* - 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 □

ADD A NEW NODE * ADD A NEW NODE					
Template Template					
Nothing selected	Nothing selected 🗸				
Noning selected	cized				
Nothing selected	Cisco ACS				
A10 vThunder	Cisco AMP Cloud				
Apple OSX	Cisco ASA				
Aruba ClearPass	Cisco ASAv				
Aruba WiFI Controller	Cisco Application Policy Infrastructure				
Arista vEOS	Cisco Context Directory Agent				
Barraccuda NGIPS	Cisco CSR 1000V				
Brocade vADX	Cisco CSR 1000V (Denali and Everest)				
CheckPoint Security Gateway VE	Cisco IPS				
Cyberoam FW	Cisco CUCM				
Dockerio	Cisco ISE				
Cisco ACS	Cisco IOS 1710 (Dynamips)				
Cisco AMP Cloud	Cisco IOS 3725 (Dynamips)				
Cisco ASA	Cisco IOS 7206VXR (Dynamips)				
Cisco ASAv	Cisco IOL				
Cisco Application Policy Infrastructure	Cisco NX-OSv (Titanium)				
Cisco Contract Directory Agent	Cisco NX-OSv 9K				
Cisco CSP 1000V	Cisco FirePower				
	Cisco FirePower 6				
Cisco CSK 1000V (Denati and Everesc)	Cisco vIOS				
	Cisco vIOS L2				
	Cisco vNAM				
Cisco ISE	Cisco vWLC				
Cisco IOS 1710 (Dynamips)	Cisco vWAAS				
Cisco IOS 3725 (Dynamips)	Cisco Prime Infra				
Cisco IOS 7206VXR (Dynamips)	Cisco Email Security Appliance (ESA)				
Cisco IOL	Cisco Web Security Appliance (WSA)				
Cisco NX-OSv (Titanium)	Cisco XRv				
Cisco NX-OSv 9K	Cisco XRv 9000				
Cisco FirePower					

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



ADD A NEW NODE

Template <mark>1</mark> .					
Cisco CSR 1000V -					
Number of nodes to add 2 . Image 3 .					
1	1 csr1000v-universalk9.03.17.04.S.156-1.S4 🔻				
Name/prefix <mark>4</mark> .					
CSR					
Icon 5.					
🍘 CSRv1000.png				*	
UUID <mark>6</mark> .					
				10	
CPU <mark>8</mark> .	RAM (MB)).	Ethernets 10.		
1	3072		4		
QEMU Version 11.	QEMU Arch 12.		QEMU Nic	13.	
tpl(2.12.0) •	tpl(×86_64)	*	tpl(e1000)	*	
QEMU custom options	14.				
-machine type=pc-1.0,ac	cel=kvm -serial r	mon:stdio -r	nographic -node	fconfig -n	
	10				
	15.			•	
None					
Delay (s) 16.					
U					
Console 17.					
telnet				*	
Left		Тор			
839		210			
Sa	ve Cancel				

8.1.1.1 Node values Table

Number Description	
--------------------	--



1.	ADD A NEW NODE
2.	Number of nodes to add Chose the number of nodes of this type you want to add to the topology
3.	Csr1000v-universalk9.03.17.04.S.156-1.S4 csr1000v-universalk9.03.17.04.S.156-1.S4 List (if you have more than one image loaded for a single template).
4.	Name/prefix Type your preferred node name. If you are adding more than one, EVE will automatically append numbers to the nodes name. Example. We are adding 5 CSR nodes with the name R. On the topology they will appear as R1, R2, R3, R4, R5. Later using the Nodes window, you can edit the node names per your needs. Refer to section 7.1.2 or edit the node individually, refer to section 8.1.2.
5.	 CSR/1000.png Apic.png AristaSW.png AristaSW.png CSR/1000.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 7.1.2
6.	The UUID number is assigned automatically after a node is created. You may also set it manually in case you are using a license that is tied to a particular UUID.
7.	CPU Limit CPU Limit per node. This option is already set (checked/unchecked) per EVE recommendations. Refer to section 6.4.1
8.	CPU Each node template has a pre-set CPU value that aligns with vendor requirements. This value can be changed per your needs.


9.	RAM (MB)Each node template has a pre-set RAM value that aligns with vendor requirements. This value is displayed in MB and may be changed per your needs.			
10.	Ethernets 4 The number of ethernets interfaces. Image: A strain of the serial interfaces for IOL nodes are placed into groups of 4. A value of 1 for Ethernet means your node will have 4 interfaces. The serial interface option is available for IOL nodes only and follows the same grouping structure as ethernet interfaces. A value of 1 for Serial means your node will have 4 serial interfaces. Image: A serial portgroups (4 int each) Image: A serial portgroups (4 int each)			
11.	Custom MAC address for Qemu nodes only. You can define your own MAC address for first interface: First Eth MAC Address aa:bb:cc:00:de:ad			
12.	QEMU VersionEVE will pre-set the best recommended QEMU version for each node template. This value can be changed per your needs.			
13.	QEMU Arch Ltpl(×86_64) Qemu architecture is pre-set per image vendor recommendations. This value can be changed per your needs			
14.	QEMU Nic tpl(vmxnet3) virtio-net-pci e1000 e1000-82545em vmxnet3 tpl(vmxnet3)			
15.	QEMU custom options Qemu custom options are pre-set per image vendor -machine type=pc-1.0, accel=kvm -cpu Nehalem -serial mon:stdio -nographic -r Qemu custom options are pre-set per image vendor recommendations. This value can be changed per your needs Per your needs			



16.	Startup configuration None	Startup configuration: Value can be changed to set your node to ion 10.3 for more details.
17.	The Dela be used it is started. Example: if the value is set to 30, before processing its boot sequense. This fea the "Start all nodes" function if your lab requir others or to avoid a mass-start of very heavy	ay value is set in seconds and can to delay a node from booting after , the node will wait 30 seconds ature is useful in conjunction with es certain nodes to start up before nodes.
18.	Console telnet The setting can be changes per your needs. NOTE: The Docker template contain therefore, please refer to section 14.1 types for each docker image. Window VNC but RDP needs to be enabled in	Console types for each template are pre-set with recommended settings. as a wide variety of images, 1.3 for recommended console vs nodes can use either RDP or the Windows itself.
19.	First Eth MAC Address manually set the MAC address for the first eth the use of licenses that are tied to a particular MAC Address format must be like: 00:50:0a:0	OPTIONAL: Templates for Cisco FirePower, F5, Linux, and Citrix have the option to nernet interface. This will enable r MAC 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 7.1.2 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.

EDIT NODE				\$
Template				
Cisco vIOS				*
ID				
1				
Image				
vios-adventerprisek9-m-	15.6.2T			*
Name/prefix				
hios				
lcon				
a Router.png				•
UUID				
b5fa3320-98ed-4ea4-ad	21-627d427b8a6a			
CPU Limit				
CPU	RAM (MB)		Ethernets	
1	1024		4	
QEMU Version	QEMU Arch		QEMU Nic	
tpl(default 2.4.0) 🔹	tpl(i386)	*	tpl(e1000)	*
QEMU custom options				
-machine type=pc-1.0,ac	cel=kvm -serial mon:st	dio -no	graphic -nodefconfig -no	odef
Charles - Carrolla				
None				•
Delay (s)				
Console				-
ceuler				·
Left	Тор	0		
	21	0		
Sa	ave Cancel			



8.1.3 Wipe Node

S	3	
I VI	vIOS (1)	
	Start	
	💁 Wipe	
	🕑 Edit 💼 Delete	

The "Wipe node" function will clear the NVRAM of the node. Each time a node setting is changed (CPU, RAM, boot image or startup configuration) a wipe must be issued on that node. For more information refer to section 10.3

8.1.4 Interconnecting nodes

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.

	50		53
NAT	► VIOS	■ RZ	

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

R1	Source ID: 1 Source Name: R1		 Gi0/0
Gi0/0	type - Node		
	Choose Interface for R1		
	Gi0/0	r	
	Gi0/0	_	
	GI0/1	•	
	GI0/3		
	Gio/o	Ť	
Ré	Destination ID: 2	*	
	Destination ID: 2		

8.1.5 Delete connection between nodes



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



8.1.6 Delete Node

	vios (3)	
VI	Start	
	Se Wipe	
	🕑 Edit	
	聞 Delete	

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.

▶ Start all nodes

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

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

Starting a node or group of nodes:

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

R1 (1) - 600				
► Start ←	55			
Sa Wipe			oup of R1, R2	
i Edit I Delete		-	Shutdown Selected	
		· · · · · · · · · · · · · · · · · · ·	<u>-</u>	

Running nodes will turn blue. Refer to section 7.3 for node states



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.



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

The configurations of nodes can be exported and used as initial or startup configurations for your labs. To export configurations and configuration sets for labs refer to section **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 7.2.5

8.5 Start saved lab

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



8.6 Importing labs

Refer to section 6.2.2.6

8.7 Exporting labs

Refer to section 6.2.2.5

8.8 Deleting labs

Refer to section 6.2.2.2



8.9 Moving labs

Refer to section 6.2.2.4



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 7.2.3 and 7.1.1.2



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

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

Step 3: Connect your nodes using the drag and drop connector. Refer to sections 8.1.4 and 7.2.3





9.2 Management Cloud0 interface

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

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

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

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

vSwitch Settings

Zedit standard virtual switch - vSwitch1			
📇 Add uplink			
MTU	1500 🗢		
Uplink 1	vmnic1		
Link discovery	Click to expand		
▼ Security			
Promiscuous mode	Accept CReject		
MAC address changes	Accept Reject		
Forged transmits	● Accept ○ Reject		
▶ NIC teaming	Click to expand		
▶ Traffic shaping	Click to expand		

Portgroup Settings

🧕 Management 90 UD			
🥖 Edit settings 🛛 🧭 Refresh 🛛 🌞 Actions			
Management 90 UD Accessible Yes Virtual machines 7 Virtual switch: 2 VSetCh11 VLAN ID 4095 Active ports: 5			
✓ vSwitch topology		- Security policy	
		Allow promiscuous mode	Yes
Q Management 90 UD	Physical adapters	Allow forged transmits	Yes
VLAN ID: 4095	vmnic1, 100 Mbps, Full	Allow MAC changes	Yes
B vCentre 90.95			
S2016 EVE 90.201		• NIC teaming policy	
EVE-PRO.98.100		Notify switches	Yes
MAC Address 00:0c: 29:d0:aa:9e		Policy	Route based on or
B EVE-PROv24			
B EVE COMM 89		Reverse policy	Yes
🔂 Cisco Identity Services Engine		Rolling order	No
ASAV 90.35 PROD			
		 Shaping policy 	
		Enabled	No

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 route							
root@eve-nq:~#	route ^{packets:146}	errors:0_dropped:0	overru	ns:0 car	rier:O		
Kernel IP routi	ng table ons of the						
Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
default	192.168.90.1	0.0.0.0	UG	0	0	0	pnet0
172.17.0.0	*	255.255.0.0	U	0	0	0	docker0
172.29.129r0jat	ewav IP type:	255.255.255.0	U	0	0	0	nat0
192.168.90.0		255.255.255.0	U	0	0	0	pnet0
root@eve-ng:"#							

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

ADD A NE	W 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 7.2.3

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





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



9.3 Other cloud interfaces

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

EVE Cloud bridging table.

Lab cloud name	EVE interface name (inside)	Туре	ESXi VM corresponding interface	VMware Workstation corresponding interface	Bare HW Server	Notes
Cloud0	Pnet0	bridged	Network adapter 1	Network Adapter	First ethernet Eth0	Cloud0/pnet0 is bridged with your primary EVE ethernet port. It is assigned a management IP address used for WEB GUI access. The EVE management subnet can be used as management network in the labs.



Cloud1	Pnet1	bridged	Network adapter 2	Network Adapter 2	Second ethernet Eth1	Cloud1 can be bridged with your EVE second ethernet port to achieve connection to another network or device. The IP address is not required to be configured on it. It will act like a pure bridge your external connection with EVE lab node.
Cloud2	Pnet2	bridged	Network adapter 3	Network Adapter 3	Third ethernet Eth2	Same as Cloud1
Cloud3	Pnet3	bridged	Network adapter 4	Network Adapter 4	Fourth ethernet Eth3	Same as Cloud1
Cloud4-9	Pnet4-9	bridged	Network adapter 5-10	Network Adapter 5-10		Same as Cloud1

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

Step 1: Add two Cloud7 networks onto the topology.

ADD A NE	W NETWORK
Number of networks to add	2
Name/PreFix	Cloud7
Туре	Cloud7
Left	340
Тор	345
	Save Cancel

Step 2: Connect your lab nodes to Cloud7. Your configured nodes will work like being connected to the same switch (or the same bridge in EVE). Even CDP works. It is convenient if it is necessary to have connections across the lab and you don't want to have connections going from one end of the lab to the other.



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

▲ For ESXi make sure that you have set Promiscuous mode security settings on the vSwitch and Port group to Accept. Please refer to section 9.2



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.

9.4 Connecting external VM machines to the EVE Lab

9.4.1 ESXi VM machines

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

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

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

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

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

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

WSA-MGMT			
🥖 Edit settings 🛛 🧲 Refresh 🔹 🏠 Actions			
WSA-MGMT Accessible: Yes Virtual machines: 2 Virtual machines: 2 Virtual machines: 2 Virtual machines: 4 VLAN ID: 0 Active ports: 0			
		* Security policy	
		Allow promiscuous mode	Yes
VI AN ID: 0	No physical adapters	Allow forged transmits	Yes
Virtual Machines (2)		Allow MAC changes	Yes
EVE-PROv24 Coeus-10-1-3-039-S000V		* NIC teaming policy	
		Notify switches	Yes
		Policy	Route based on originating port ID
		Reverse policy	Yes
		Rolling order	No
		- Shaping policy	
		Enabled	No

Parent vSwitch5 settings:



wSwitch5			
📇 Add uplink 🥜 Edit settings 🛛 🕻	7 Refresh 🎄 Actions		
vSwitch5 Type: S Port groups: 1 Uplinks:	tandard vöwtch		
* vSwitch Details		→ vSwitch topology	
MTU	1500		
Ports	4352 (4319 available)	G WSA-MGMT	No physical adapters
Link discovery	Unknown	VLAN ID: 0 VIrtual Machines (2)	
Attached VMs	2 (0 active)	B EVE-PROv24	
* NIC teaming policy		Coeus-10-1-3-039-S000V	
Notify switches	Yes		
Policy	Route based on originating port ID		
Reverse policy	Yes		
Rolling order	No		
* Security policy			
Allow promiscuous mode	Yes		
Allow forged transmits	Yes		
Allow MAC changes	Yes		

EVE and WSA VMs settings

EVE VM, second p portgroup WSA-M0 EVE topology.	ort is assigned to GMT. It is Cloud1 on the	Cisco We Manager WSA-MC	eb security nent port is GMT.	appliance (WSA), s assigned in portgroup
* Hardware Configuration		▼ Hardware Cor	figuration	
P CPU	16 vCPUs	🕨 🔲 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 ad	apter 1	WSA-MGMT (Connected)
🖶 USB controller	USB 2.0	Network ad	apter 2	UNUSED (Connected)
Network adapter 1	Management 90 UD (Connected)	Network ad	apter 3	UNUSED (Connected)
Network adapter 2	WSA-MGMT (Connected)	► ■ Network ad	apter 4	UNUSED (Connected)
Video card	4 MB	Network ad	apter 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.



Docker_management Docker_management DHC 192.16 SVI10 as Gate VL	-GR0 -Cloud1 witch -Cloud1 p POOL WSA External ESXI i8:10.0/24 Port M1 way 192:168.10.1 AN 10	VM	
😓 192 - 192.168.90.23:58855 - Remote Desktop Connect	ion	-	
Cisco Web Security Virtue × +			
-) → C ŵ	nitor/wsa_user_report	🖸 🏠	III\ 6D =
Ili+Ili+ Cisco S000V Cisco Web Security Virtual Appliance Reporting Web Security Manager Seruitiv Kervikes	Network System Administration	() Logged in as admin on in My Favorities . Options .	onport.example.com Support and Help
Attention — 🔺 You can customize this "My Dashboard" page by adding re	Printable PD sport modules from different reports.		
Attention — 🔺 You can customize this "My Dashboard" page by adding re- Some modules are added for you by default. The Overview > Overview.	port modules from different reports. v page can be accessed from Reporting		
Attention	Printable FD page Can be accessed from Reporting protex > System Resource Utilization Protex > System Resource Visited Protex > S	•	
Attention - Nov can costornize this "My Dashbaard" puge by adding ny borne motissie ne added for you by default. The Overview > Dereview. System Overview. System Overview. Overview. Average transactions per second in past minute: 0 Average response time tima in past minute: 0 Bala current connection: 0 System.	Princedor FO sport modules frem different reports puge can be accessed from Rejorning review > System Resource Utilization CPU 54% BAUK 51.05 Reporting / logging disk: 5.2% lem Status Details	•	
Attention - Was can contentiat this "My Dashbard" says by adding a correspondence of the second se	Processor PO Provide System Resource Utilization Provider > Web Process Survey Surveyers Provider > Web Process Surveyers Process Provider > Web Process Surveyers Process Provider > Web Process Surveyers Pr		
Attention -		•	
Attention -			

9.4.2 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:

Varne	Туре	External Connection	Host Connection
/Mnet0	Bridged	Intel(R) PRO/1000 PT Dual Port Server Adapter	-
/Mnet1	Bridged	Intel(R) PRO/1000 PT Dual Port Server Adap	
/Mnet2			Connected
mineco	hai	1441	Connected
C			
Minet Inform	ation		
O Bridged (i	connect vivis direct	y to the external network)	
Bridged (0: 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)	
NAT (share) Host-only	(connect VMs inte	many in a privace necesionsy	
NAT (share) Host-only Connect a Host virte Use local	(connect VMs inte a host virtual adap ual adapter name: DHCP service to da	er to this network /Mware Network Adapter VMnet2 stribute IP address to VMs	DHCP Settings

EVE and WSA VMs settings



EVE VM, the third port (Network adapter 3 assigned to VMnet2. This is Cloud2 inside EVE labs.	B) is cisco Web Security Appliance (WSA), Management port is assigned to VMnet2
Include: Control Contr	window Justice Improve for the second of (CSC) 250 (B) Improve for the second of (CSC) 100 (B) Improve for the second of (C
Add Remove	Add Remove
OK Cancel Help	OK Cancel Hep

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.

Management Docker station DHCP IP 192.168 10.2	Switch Ctoild2 SW VLAN 10 WSA VM Work SV 110 192.168.10.1 as GW, DHCP IP 192.16 DHCP POOL VLAN 10 Cloud2 as connection to	visition 68.10.3 10.1 to External VM
172 - 172.25.1.21:33285 - Remote Des	ktop Connection	- 🗆 X
Cisco Web Security 🔻		
→ C A Not secure https://192.168.10.3	8443/monitor/wsa_user_report	\$
Cisco S000V Cisco Web Security Virtual Appliance Reporting Web Security Mapager S	acurity Savices Network System Administration	Logged in as: admin on fronport.example.com My Favorites . Options . Support and Help .
My Dashboard Attention — A You can customize this "My Dashboo Some modules are added for you by	ard" page by adding report modules from different reports. default. The Overview page can be accessed from Reporting	able PDF
My Dashboard Attention – You can customize this "My Dashboo Some modules are added for you by > Overview. System Overview Overview > We Prov Traffic Characteristics	The Prints and the print of the	able PDF &
My Dashboard Attention - You can customize this "My Dashboard Some modules are added for you by > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second in	Prints and* page by adding report modules from different reports. default. The Overview page can be accessed from Reporting Overview > System Resource Utilization past minute: 0 CPL: 7.5%	able POF #
My Dashboard Attention – You can customize this 'My Dashbo Some modules are added for you by > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per second in Average bandwidth (tops) in	Printa page by adding report modules from different reports. default. The Overview page can be accessed from Reporting Overview > System Resource Utilization past minute: OPU: 7.5% OPU	able PDF &
My Dashboard Attention Attention You can customize this "My Dashbo Some modules are added for you by > Overview. System Overview Web Proxy Traffic Characteristics Average transactions per second in Total current Total current Total current	Printa srd* page by adding report modules from different reports, default. The Overview page can be accessed from Reporting S Overview > System Resource Utilization past minute: past minute: past minute: Reporting / logging disk: 5.2%	able POF &
My Dashboard Attention Attention My Cource customize this "My Dashboard You can customize this "My Dashboard You overview Overview Vereview Vereview	Printa	able POF 5
My Dashboard Attention Attention My Construction of the state of th	Printa P	able PDF #
My Dashboard Attention Attention My Course customize this "My Dashbox Some modules are added for you by Overview System Overview Overview Verage transactions per second in Average transactions per second in Average reasones time (msi) Total current Time Range: Day Total 22 May 2018 20:00 to 23 May 2018 20:00 (GMT)	Printa P	able POF #
My Dashboard Attention - You can customize this "My Dashbo Some modules are added for you by > Overview. System Overview Overview - Verrage transactions per second in Average transactions per second in Average response time (ms) in Total current Time Range: Day Time Range: Day Coverview - Coverv	Printa P	
My Dashboard Attention Att	Prints	



9.5 Connecting EVE Lab to a physical device

▲ **IMPORTANT NOTE:** To bypass MAC addressing over pnet/cloud interface please SSH to your EVE and type:

for i in /sys/class/net/pnet*/bridge/group fwd mask ; do echo 8 > \$i ; done

9.5.1 ESXi EVE

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

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

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

Logical chain of the networking bridge:

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

🔜 Add uplink 🥜 Edit settings	C Refresh 🌞 Actions	
VSwitch1 Type: Port groups: Upinks:	Standard vSwitch 2 1	
		✓ vSwitch topology
MTU	1500	
Ports	4352 (4317 available)	Management 90 UD
Link discovery	Listen / Cisco discovery protocol (CDP)	v Virtual Machines (7)
Attached VMs	7 (4 active)	B vCentre 90.95
Beacon interval	1	M4C Address 00 to 28 b0 c4 5b
 NIC teaming policy 		🐞 EVE-PRO.98.100
Notify switches	Yee	MAC Address 00 0c 29 d0 aa 9e
Delieu	Bauta based an existentian and ID	MAC Address (0) 0: 29 2d as b8
Policy	Route based on originating port to	The EVE COMM 89
Reverse policy	Yes	Gisco Identity Services Engine
Rolling order	No	👼 ASAv 90.35 PROD
* Security policy		MAC Address 00 50 56 a2 0f fb
Allow promiscuous mode	Yes	
Allow forged transmits	Yes	

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

Portgroup "Management 90 UD" Settings associated with vSwitch1



2 Management 90 UD					
🖊 Edit settings 🤁 Refresh 🔅 Actions					
Management 90 UD Accessible Yes Virtual machines 7 Virtual with: Vowteh1 VLAN ID: 4005 Active ports: 5					
✓ vSwitch topology	✓ Security policy				
	Allow promiscuous mode	Yes			
Management 90 UD	Allow forged transmits	Yes			
Victual Machines (7)	Allow MAC changes	Yes			
👔 vCentre 90.95					
🚯 S2016 EVE 90.201	 NIC teaming policy 				
MAC Address 80.0c:29:b0:c4:5b	Notify switches	Yes			
EVE-PRO.98.100	Policy	Route based on originating port ID			
MAC Address 00.0c:29.d0.aa:9e		· · · · ·			
B EVE-PROV24	Reverse policy	Yes			
MAC Address 00.0c: 29:3d ae: b8	Rolling order	No			
EVE COMM 89					
Cisco Identity Services Engine	 Shaping policy 				

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
Retwork 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.

Fastethernet3	Dell R610 Server VM Ware ESXi 6.0	
Physical server NiC port Cisco 887M eth 1	VSwitch tassociated with Portgroup Management 50 UD' and bridged with NIC Port eth1	VMnet 1 associated with Portgroup "Management 90 UD" Cloudo Lab SW 00/0

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



9.5.2 VMWare workstation EVE

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

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

VMnet0 VMnet1	Type Bridged Bridged	External Connection Intel(R) PRO/1000 PT D Intel(R) PRO/1000 PT D	ual Port Server Adapter ual Port Server Adapter #	Host Connection - 2 -	DHCP - -	- -
VMnet8	NAT	NAT		Connected	Enabled	192
č			Add Network	temove Network	Rename Netw	>
VMnet In	formation		Additionant	Control of		Untill
Bridg	ed (connect V	Ms directly to the external	I network)			
Bridg	ed to: Intel(i	R) PRO/1000 PT Dual Port	Server Adapter	 ✓ Auto 	matic Setting	s
	(shared host's	IP address with VMs)		N	AT Settings	
Heat	only (connect	t VMs internally in a private	e network)			
Hose		tual adapter to this netwo	rb			_
Conn Host	ect a host virt virtual adapte ocal DHCP ser	er name: vice to distribute IP addre	ss to VMs	DH	ICP Settings.	

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

Responding cloud interfaces on EVE VM:

Cloud0→Network Adapter→VMnet0→IntelPro

Cloud1→Network Adapter 2→VMnet1→IntelPro#2





Physical connection scheme and VMware bridging.





	Connection to R	N SW 3750G	
Console - SecureCRT File Edit View Options Transfer Scrip	t Tools Window Help > A AN I-4 I 17 ≪ 2 I D I 55		- 0
	er, T - Trans Bridge, B - Source Route Bridge ch. H = Host, I - 1040, r - Repeater, P - Phon te, C - CVIA, M - Two-port Mac Rolay rfce Holdtme Capability Platform Fort 4 139 Rability Platform Fort 2 St	 	dge Phone, Port ID Fas 1/0/24

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



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

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

9.5.3 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 9.3



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 9.3

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.





10 Advanced EVE Lab features

10.1 Lab design objects

EVE Community 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).

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	۲		
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 object

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

Add a new object	ADD TEX	кт	×
₽ Network	Text	My lab description	
Picture			
Custom Shape	Font Size	12	A
A Text	Font Style	normal	~
🖬 Auto Align	Font Color		
	Background Color		
	Save	ancel	



Example: text objects added to the topology.



10.1.4 Add custom picture on the Lab using Text object feature

Sometimes you may have to add pictures, like logos on your topology. It is possible but you need to convert your png or jpg to html format. We have tested this one as the best to achieve result. Load your image in the web, and convert to html format.

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

Step 1: Load your picture jpg or png format and encode it.

Online Base64 Image Enco Remote Img URL (http/s,	oder/Decoder	
Upload (Limit 24MB) BASE64 Code to Reverse - Input direc	Browse Logo_EVE_Color8_labs.psg	
Compress Image (png an	d jpeg)	4

Step 2: Scroll down to find HTML format

HTML

Cimg width="596" height="239" src="data:image/pmg;	~
base64,1VERWXGptAAAANUMEUgAAAAAACGq2AAAAANUMEUgAAAAAACGq2AAAAANUMEUgAAAAAAXGqYtAAAAXCGq2AAAAANUMEUgAAAAAXGQYtAAAXCGq2AAAAANUMEUgAAAAAXGQYtAAAXCGq2AAAAANUMEUgAAAAAXGQYtAAAXCGq2AAAAANUMEUgAAAAAXGQYtAAAXCGq2AAAAANUMEUgAAAAXGQYtAAAXCGq2AAAAANUMEUgAAAAXGQYtAAAXCGq2AAAAANUMEUgAAAAXGQYtAAXXCGq2AAAAANUMEUgAAAAXGQYtAAXXCGq2AAAAANUMEUgAAAAXGQYtAAXXCGq2AAAAXCGq2AAAXCGq2AAAAXCGq2AAAAXCGq2AAAXCGq2AAAAXCGq2AAAAXCGq2AAAAXCGq2AAAAXCGq2AAAAXCGq2AAAAXCGq2AAAAXCGq2AAAXCGq2AAAAXCGq2AAAAXCGq2AAAXCGq2AAAAXCGQ2AGAAXCGQAAAXCGQ2AAAAXCGq2AAAAXCGq2AAAAXCGq2AAAAXCGq2AAAXCGq2AAAXCGq2AAAXCGq2AAAXCGq2AAAXCGq2AAAXCGq2AAAXCGq2AAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAXCGQAAAAXCGQAAXCGQAAXCGQAAAXCGQAAAXCGQAAXCGQAAAXCGQAAAXCGQAAAXCGQAAXCGQAAXCGQAAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCGQAAXCQAAXC	-
R1 year) 0001F24gPhplcG1wbW001584bNoucrp4F5hZ0912Tpucrpt25Gh1y1geby4b308xc010WW1bJgNt1CEENTx00300541UMMTtgB1YLCAyMDY1cAyL0012TL005753CAg1CAg1CAg1CAg1CAg1CAg1CAg1CAg1CAg1CAg1	
x80x89x1H7k2jph7a\$1dD01184b8xxczp4bX491ab0dHa61y9ucy5h2691235jb20ve6FwLzbMC011Hhtb5schhtc2LDF5JodH8w018vbaBh1VRv7aDuY29tL3hhcC8xLjAbb8vczpzdF312j01dH8x0czpzdF3	
3Ap01021ChIYW0pbnRvc2yp1184b08WTp7bnNYW5j2ULEF574bXAux01k0c00WTVEWYYMT0yp0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYYMT0yp0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYYMT0yp0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYYMT0yp0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYYMT0yp0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYYMT0yp0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYYMT0yp0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYYMT0yp0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYYMT0yp0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYMT0yp0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYM10yR0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYM10yR0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYM10yR0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYM10yR0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYM10yR0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYM10yR0Ex8T2CFWC0DA#jW0jc2ULEF574bXAux01k0c0WTVEWYM10yR0jc2ULEF574bXAux01k0c0WTVEWYM10yR0jc2ULEF574bXAux01k0c0WTVEWYM10yR0jc2ULEF574bXAux01k0c0WTVEWYM10yR0jc2ULEF574bXAux01k0c0WTVEWYM10yR0jc2ULF574bX	
FFRAJFREJADA/SEQ2NZMENTHIINDUA/MARVY3VEZV505009InhteC5ke#06KT01M001FjExMDZETFFRAJFREJ4Db/GReQ2KZENTHI1x4g9C9y25V6RGVzY3DpcBFpb24EDb/CREJ1d5EF1Dw	
/eHENT2tldElba@9InTiP=&GRjiAAAADSFWHPDcaVhdGivbiBUG911ADIwfTY6EUGHTcgfTA6Exc6Exhe@v2JAACBb0EUFWExG3+10dpfu7hJpkVC6FBUIFAME25BUFQUUHFAkTFLbBF6FTUUDg107a7g3/euefExumuG/cs09/jf3/2xm33HPaTLxxTff2F1S(BAEQRAE(SgwPsa	
/giAIgiAIQiERQSUIgiAIgiERRFAJgiAIgiERRFAJgiAIgiERRFAJgiAIQiERQSUIgiAIgiERFFAJgiAIgiERFFAJgiAIgiERRFAJgiAIQiERQSUIgiAIgiERFFAJgiAIQiERQSUIgiAIqiERQSUIqiAIqiERQSUIqiAIqiERQSUIqiERQSUIqiAIqiERQSUIqiAIqiERQSUIqiAIqiERQSUIqiAIqiERQSUIqiAIq	
IgiAIQ10xxx60w/hYExF1zd0tebMh78H1JQJqtq72dbBJcEtxFq1YM6xqcEU2A+FAo/b9y006GHXz9ved700ptUt30xb4FAo/b9y006GHX200xb4FAO/b9y00FA0/b000FA	

Step 3: Set your desirable size of picture.

нтмі
<img width="240" height="100" src="data:image/png;</td>
base64,iVBORw0KGgoAAAANSUhEUgAAA1QAAADvCAYAAAAOCkq2AAAAAXNSR0IArs4c6QAAAARnqU1BAACxjwv8YQUAAAAJcEhZcw/
AADJG1UMHRYTUw6Y29tLmFkb2JLnhtcAAAAAAAPD94cGFja2V01GJ122LuPSLvu781IG1kPSJXNU0wTXBDZMhpSHpyZVN6Tlkjem
201gmkvimogwsigistvormogns4zimmwmisgnjimitginjitzc4ynbyczAybzAzbibo0j020ji31cAgicAgicAgicAlfAdomkmoidekii Cluchthi Białochonokajc2NuwaR0ad801HIIzsiobymoji1idat001iidadbwicznabybjarbddutgitubucy5zQij2Szib20waR0ad80putz
WxuczpdfJlziolaHROcDovL25zLmFkb2JLmNvbS94YXAvMS4wL3NuczplLatz1c291cmNlmVmTvlge61w0KvzMF0b3/D29PS
SJ4bXauawlkoku0nTvEnUYyMTQyRDExRTZCRURCODA4RjM0NjczQTEzIiB4bXBNTTPEb2N1bWVudE1EPSJ4bXauZG1koku0NTVENU

Step 4: Mark and copy all content from HTML window above



Step 4: Copy content to EVE text object



ADD TEXT		×
Text	/O7BDM9zWubWRKghlFxFUgiAlgiAlhUSm /ARBEARBEAqJCCpBEARBEIRCIoJKEARBEAShkligg gRBEARBKCQiqARBEARBEAqJCCpBEARBEIRCIoJK EARBEAShkligEgRBEARBKCQiqARBEARBEAqJCCp BEARBEICIoJKEARBEAShkligEgRBEARBKCQiqAR BEARBKCQiqARBEARBEIRCIoJKEARBEAShkligEgR BEARBKCQiqARBEARBEAQJCCpBEARBEIRCIOJKEA RBEAShkligEgRBEARBKCQiqARBEARBEAOF8H /BWIRaNQeqHgAAAABJRUSErkJggg==">	* * *
Font Size	12	۲
Font Style	normal	~
Font Color		
Background Color		
Save	Cancel	

Step 5: Move and place your picture to the Lab.



10.1.5 Cloning objects and overlay positions

Right click on the object you want to clone and choose "Duplicate". You can also change the object's overlay position using the "Send to Back" or "Send to front" options.



10.1.6 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



Save Cancel

 Index
 Border-width Border-type
 Border-color
 Background-color
 Transparent Rotate
 Name

 -1
 0
 1
 0
 dashed
 Image: Color Color

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.



topology.

Cancel

Rotate: Used to rotate the object on the



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

10.1.7 Lock objects movement

The "Lock Lab" feature prevents objects from being moved around on the canvas (among other things). For more information about this feature, refer to section 7.1.12.

10.2 Custom design logical topology

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

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.

source i ormat:	Interlace	\sim	Background color:
Color format:	24-bit color	~	Transparency color:
Color reduction	None	~	
Transformation			
Rotation: None		F	lip horizontal 🗌 Flip vertical
Resolution			
Screen Custom	Printer Source		~
© Screen (© Custom 14 Size	Printer Source		×
Custom 14	Printer Source 0 x 140 pixels / in.		×



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



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

ADD PIC	TURE
Name	Topology
Picture	Browse Arista-MLAG_lab EVE2.png
	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
i iciuica	WIIIGOW	management

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

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:

🛱 🖸 Topology

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





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



Step 4: Continue mapping the rest of the nodes.



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

Select from	Menu: Nodes	CUSTOM , NODE outside lab	~		
And map with node on topology.					
Change image map adding protocol, IP and port.					
Image MAP	<area alt="ir</th><th>ng" coords="102,286,30" href="proto://CUSTOM_IP:CUSTOM_PORT" shape="circle"/>				

Image MAP <area shape='circle' alt='img' coords='102,286,30' href='telnet://172.22.7.18:23'>

Step 6: Save your mapping and refresh the browser with F5.

Save Cancel

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.



10.3 Configuration export feature

EVE Community includes an export configuration feature that allows you to save and manage configurations in a 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 "Configuration export" feature, you must complete at least one configuration export.

STARTUP-CONFIGS					
			Config Set	Default v	
8	R1	CF#	1		
8	R2	Off			
۵	SW1	CFF			
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 XRv Cisco XRv9K Juniper VRR Juniper VMX Juniper vMX-NG JunipervQFX JunipervSRX Juniper vSRX-NG Mikrotik PFsense FW **Timos Alcatel** vEOS Arista

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:



Export all CFGs – Exports all supported node configurations.

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

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

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

10.3.2.2 Individual node commands

Select node, right click



R1 (1)	
Stop	Wipe: Wipes the NVRAM for a single node
Lexport CFG	Export CFG : Exports the configuration for a single node
> Capture	

10.3.2.3 Multiple selected nodes commands

555 (10)	s10	Group of R1, R2
e0.0	600	Start Selected Stop Selected
\backslash	/	Wipe Selected
60.0	600	Console To Selected Nodes
	82- •	Export all CFGs Set nodes startup-cfg to default configset
► SW1	► 5W2	R Set nodes startup-cfg to none
		P Horizontal Align
		🚨 Vertical Align
		O Circular Align
		Delete nodes startup-cfg
		Delete Selected

Wipe Selected: Wipes the NVRAM for selected nodes

Export all CFGs: Exports the configuration for selected nodes

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

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

Delete 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

TARTUP-0	CONFIGS	
R1	arr	
S1	011	
52	(and	
53	G77	
R2	orr	
🚳 R3	GP#	

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

TARTUP-CONFIGS	
R1 077	
🖬 S1 🔤	
52 CPT	
□ 53 GPP	
R2 677	
😰 R3 🛛 📿 Crr	



10.3.2.5 Startup-config window information

Config Set Default ~	Config set menu
😂 R1	No configuration is available for node. Grey node
😂 R1	Configuration is available and can be used. Blue node. Exported configuration persist
🔁 R2 OFF	Configuration persist but it is disabled. Node will boot from NVRAM or factory default if it is wiped
8 R1 4 0N	Configuration persists and node will boot from the configuration after being wiped
P Cisco-105 v & Dark T 12px v Ace Editor 0	Ace Editor. Different vendor configuration edit option. Just Text visual format.

10.3.3 Export configuration

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

ort All: done

export, please v



50		۵.
	Group of R1, R2, SW1, SW2	Đ
	Start Selected Stop Selected	R
	Wipe Selected Console To Selected Nodes	R
e00 e00	Export all CFGs Set andes starting of a to default continent	R
€333€373	Set nodes startup-og to default comget	R
	Ie Horizontal Align ≗ Vertical Align	SI
	Circular Align Delete pages status of	SI
	Determine notes sampling	SI
		SI

Step 3: Use "Export all CFGs" for selected nodes. Export configuration is completed. The notification area will display "Export All: done" when complete.

10.3.4 Boot nodes from exported config set

Step 1: Stop all nodes

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

STARTUP-CO	NFIGS
😂 R1	4 ON
S1	* ON
 52 53 	7 ON 7 ON
	* ON
B R3	* <u>ON</u>

Step 3: Wipe nodes. For more information refer to section 8.1.3

Step 4: Start nodes

10.3.5 Edit exported configurations

It is possible to edit your configurations for the nodes manually.

Step 1: Select the node you want to edit the configuration of and make your changes. Click "Save" when you are finished.



STARTUP-C	ONFIGS	
🛎 R1 🛌	4 ON	
51	4 ON	
62	4 01	
32		
53	* <u>ON</u>	
R2	4 ON !	
R3	4 ON	
	interface Ethernet0/0	
	no shutdown	
	ip address 10.1.1.1 255.255.255.0	
	no shutdown	
	ouplex auco	
	interface Ethernet0/1	
	no shutdown	
	ip address dhcp	
	duplex auto	
	1	
	interface Ethernet0/2	
	no shutdown	
	ho ip address	
	duplex auto	
	1	
	interface Ethernet0/3	
	no shutdown	
	no ip address	
	shutdown	
	duplex auto	
	: interface Serial1/0	
	no shutdown	
	no ip address	
	shutdown	
	serial restart-delay 0	
	1	
	interface Serial1/1	
	no snucown	
	shutdown	
	serial restart-delay 0	
	1	
	interface Serial1/2	
	no shutdown	
	Save Carcel	
	Save Cancel	

Step 2: Save the config for nodes with the green "Save" button on the bottom.

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.

10.3.6 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 sidebar and click Startup-configs. Make sure your config is set to OFF and the nodes config switch is red (switch on/off beside node). Press the green "Save" button (on the bottom) and all your nodes will boot with no config/factory default after wiping them.

STARTUP-CONFIGS	• ×
© R1 077	
53 67 8 R2 67	
R3 077	

Step 3: Start nodes

10.3.7 Lab config script timeout

Lab config script timeout is used when nodes are waiting to boot from a config set. The node will literally wait during boot until the configuration is applied from the config set.

Hit "More actions" and then "Edit lab" from the sidebar. Set the config script timeout in seconds. By default, this timer is set to 300 seconds for new labs.



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



11 EVE Troubleshooting

11.1 CLI diagnostic information display commands

11.1.1 Display full EVE Community diagnostic

eve-info

11.1.2 Display the currently installed EVE Community version:

dpkg -l eve-ng

root@eve-ng:~# dpkg	-l eve-ng		
Desired=Unknown/Ins	tall/Remove/P	urge/Hold	
Status=Not/Inst/C	onf-files/Unp	acked/halF-co	nf/Half-inst/trig-aWait/Trig-pend
// Err?=(none)/Rein	st-required (Status,Err: u	ppercase=bad)
/ Name	Version	Architecture	Description
+++-===================================	_============	-===========	
ii eve-ng	2.0.3-95	amd64	A new generation software for networ
root@eve-ng:~#			

11.1.3 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:~#

11.1.4 Display EVEs CPU INFO:

Iscpu

root@eve-ng:~# lscpu	
Architecture:	x86_64
CPU op-mode(s):	32-bit, 64-bit
Byte Order:	Little Endian
CPU(s):	24
On-line CPU(s) list:	0-23
Thread(s) per core:	1
Core(s) per socket:	1
Socket(s):	24
NUMA node(s):	4
Vendor ID:	GenuineIntel
CPU family:	6
Model:	44
Model name:	Intel(R) Xeon(R) CPU X5680 @ 3.33GHz
Stepping:	2
CPU MHz:	3324.053
BogoMIPS:	6650.00
Virtualization:	VT-x
Hypervisor vendor:	VMware

11.1.5 Display EVEs HDD utilization.

If the /boot only has a little space left you can refer to section 3.6.1.1. If the eve—ng—vg—root reaches 99% or 100% then you will need to expand the HDD in order to continue using EVE. The Solution to expand your HDD is described in section 11.1

df -h


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

11.1.6 Display EVEs Bridge interface status

brctl show

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

11.1.7 Display EVEs system services status

systemctl list-unit-files --state=enabled

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

11.2 Expand EVEs System HDD

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

11.2.1 Expand HDD on VMware Workstation

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

Step 1: Stop all your labs and shutdown EVE.

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



Next> C

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 11.1.5

11.2.2 Expand your HDD on ESXi

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

Step 1: Stop all your labs and shutdown EVE.

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 11.1.5

11.2.3 Expand your HDD on a Bare Metal EVE Server

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

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

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



Att. Bernar



11.3 Reset Management IP

Type the following commands into the CLI followed by enter:

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

su -

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

11.4 EVE Community SQL Database recovery

Starting from EVE Community version 2.0.3-95, you can recover SQL user database in case of disaster:

unl wrapper -a restoredb

11.5 EVE Log files

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



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

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

11.6 EVE cli diagnostic info

Use EVE cli to obtain your EVE information:

eve-info



12 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

12.1 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 for the EVE images:

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

12.2 How to prepare images for EVE

How to add EVE-NG images please refer to:

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

12.3 How to add custom image template

12.3.1 Templates folder choice

IMPORTANT NOTE: Starting from EVE-Community Version 2.0.3-107, 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/"

12.3.2 Prepare template file

NOTE: For templates development use templates folder which is matching your EVE server CPU manufacturer.

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 create your 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.

root@eve-ng:~# cp	o ∕opt∕unetlab∕ht	ml/templates/intel	l∕newimage.yml ∕o	pt/unetlab/html/t	templates/intel/ng	gips.yml	
root@eve-ng:~# cd	i ∕opt∕unetlab⁄ht	ml/templates/intel	vake a copy from,				
root@eve-ng:/opt/	/unetlab/html/tem	plates/intel# ls					
al0.yml	c7200.yml	cumulus.yml	iol.yml	osx.yml	sterra.yml	versadir.yml	vtedge.yml
acs.yml	c9800cl.yml	cup.yml	ise.yml	paloalto yml	timoscpm.yml	versafvnf.yml	vtmgmt.yml
alteon.yml	cda.yml	cyberoam.yml/opt/u	jspace.yml/templa	pfsense.yml/image.	timosiom.ymlab/ht	wiosl2.yml/inte	vtsmart.yml
ampcloud.yml	cexpresw.yml	dcnm.yml	junipervrr.yml	phoebe.yml	timos.yml	vios.yml	vwaas.yml
apicem.yml	cips.yml	docker.yml	kerio.yml	prime.yml	titanium.yml	vmxvcp.yml	vwlc.yml
arubacx.yml	clearpass.yml	esxi.yml You can.	tinuxeym1w temp	púlsesym1 WinSCF	trendmivtps:yml/c	vmxvfp.yml	vyos.yml
aruba.yml	cms.yml	extremexos.yml	mikrotik.yml	riverbed.yml	uccx.yml	vmx.yml	winserver.yml
asav.yml	coeus.yml	firepower6.yml	newimage.yml < 🗕	scrutinizer.yml	ucspe.yml	vnam.yml	win.yml
asa yml	cpsq.yml	firepower.ymDPRT	ngips.yml	silveredge.ymlnp	lycenter ymlelated.	wpcsiymlnage fo	b xrv9kaym1 . Your
barracuda.yml	csr1000vng.yml	fortinet.yml	nsvpx.yml	silverorch.yml	veloedge.yml	vqfxpfe.yml	xrv.yml
bigip.yml	csr1000v.yml	hpvsr.yml*nage 10	nsx yml	sonicwall.yml ""	velogw.ym1	vqfxre.yml	*.ymî
brocadevadx.yml	ctxsdw.yml	huaweiar1k.yml	nxosv9k.yml	sophosutm.yml	veloorch.yml	vsrxng.yml	
c1710.yml	cucm.yml	huaweiusq6kv.yml	olive.yml	sophosxg.yml	veos.yml	vsrx yml in 1	
c3725.yml	cue.yml	infoblox.yml	ostinato.yml	stealth.yml	versaana.yml	vtbond.yml	
root@eve-nq:/opt/	′unetlab∕html⁄tem	hplates∕intel#					i i i i i i i i i i i i i i i i i i i

IMOPRTANT: The new name of your template will be related to your image foldername. Your image foldername must start with prefix "ngips-"

Example: image foldername under /opt/unetlab/addons/qemu/ngips-6.5.0-115

root@eve-ng:~# cd /opt/u root@eve-ng:/opt/unetlab	netlab/addons/qemu/ /addons/gemu# ls			<
a10-vThunder-4.1.48.1 KB in	0 of 13	ise-2.6.0	.156.SPA–L	0 B o
ampcloud-2.3.5-L		junipervr:	r–19.2R1–S2.2	
ampcloud-3.0.2		kerio-con	tro1-9.3.2	1.5
arubacx-10.03		linux-min	t-18.3-cinnamon-64bit	; iol.
arubacx-10.04-1000		linux-sla	x-64bit-9.3.0	isna
aruba-VMC_8.4.0.3		linux-sla	x-64bit-9.3.0.tar.qz	juni
asa-915-16-k8-CL-L		mikrotik-	6.44.5	keri linu
asav-9131-100		ngips-6.5	.0-115	l mikr
asav-971-001		nsvpx-12.	0.53.13	l newi ngip

12.3.3 Prepare interface format and name lines

EVE Community has included option to create various interface names, sequences and numbering. Please refer table below.

Formula	Template line format example	Will produce
eth_format: <prefix>{<first example<br="" for="" slot:="" value="">1>}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 8>}</number></first></separator></first></prefix>	eth_format: Gi{1}/{0-8}	Gi1/0 Gi1/1 Gi1/2 Gi1/3 Gi1/4 Gi1/5 Gi1/6 Gi1/7 Gi2/0 Gi2/1
eth_format: <prefix>{<first example<br="" for="" slot:="" value="">0>}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 4>}</number></first></separator></first></prefix>	eth_format: Ge{0}/{0-4}	Ge0/0 Ge0/1 Ge0/2 Ge0/3 Ge1/0 Ge1/2 Ge1/3 Ge2/0 Ge2/1 Ge2/2



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

Combined first named interface following by formatted interfaces Example: We have to set first node interface name "eth0/mgmt" and next following interfaces must start from 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:"



This adding will produce Node interfaces.

ADD CON NGIPS AN	NECTION BETWEEN	~
NGIPS	Source ID: 2 Source Name: NGIPS type - Node	
	Choose Interface for NGIPS	
	eth0/mgmt	~
	eth0/mgmt G0/0	
	G0/1	
	Choose Interface for sw	
(e0/0	e0/0	\sim
· 🔆 -		

12.3.4 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: 12.3.1

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

12.3.5 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/



12.3.6 Template use

Step 1 Create directory /opt/unetlab/addons/qemu/ngips-6.2.83

mkdir /opt/unetlab/addons/qemu/ngips-6.2.83

Step 4.2 Upload image NGIPS, Refer Section:

12.4 How to hide unused images in the node list

12.4.1 Creating new config.php file

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

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

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

mv config.php.distribution config.php

12.4.2 Edit config.php file

Step 1. Use vi or nano file editor to edit your config.php file.

nano config.php

Step 2. Edit the config.php file, uncomment and adjust to your TEMPLATE _DISABLED settings (see screenshot below).

"hided" will remove unloaded/empty image templates from nodes list in WEB GUI

"missed" will show you all available templates in EVE WEB nodes list

Example below will give you result:

```
<?php
// TEMPLATE MODE .missing or .hided
DEFINE('TEMPLATE_DISABLED','.hided') ;
```

You are seeing only templates with loaded images.



DD A NEW NODE	×
emplate	
Nothing selected	-
Nothing selected	
Cisco ASAv	
Cisco IOL	
Cisco IOS 3725 (Dynamips)	
Cisco IOS 7206VXR (Dynamips)	
Cisco vIOS Router	
Cisco vIOS Switch	
My vIOS Router	
Virtual PC (VPCS)	



13 EVE Backup Solution

EVE NG Software provides full and partial content backup Starting from: EVE Professional 5.0.1-131 with Cluster EVE Community 5.0.1-20 EVE Backup Solution supported transfer protocols: SFTP port 22 or FTP port 23.

EVE Backup solution requires to have an external SFTP/FTP server where the EVE-NG content will be stored. The SFTP/FTP server HDD size must be chosen appropriately.

13.1 Backup manager

13.1.1 Backup Manager Installation

Mandatory Prerequisites: The Internet must be reachable from your server. DNS names must be resolved. This Backup solution installation requires internet access to get updates and install the latest EVE-Professional or Community version from the EVE-NG repository.

SSH to your EVE as root user and execute following commands.

root@eve-ng:~# apt update
root@eve-ng:~# apt install eve-backup-manager
root@eve-ng:~# reboot

13.1.2 Setup external SFTP or FTP server

SFTP server setup is EVE user's responsibility and not covered under EVE-NG support.

In order to use the backup tool, you are required to set up an external SFTP/FTP server. This part is not supported by EVE-NG support, because every user can install and establish a server in its own way. The main pre-requisite is: The SFTP server must be reachable two ways from the EVE server and back from the SFTP server to EVE.

Examples of external SFTP server setup:

https://www.eve-ng.net/wp-content/uploads/2024/03/EVE-Doc-2024-External-SFTP-Server.pdf

13.1.3 Backup Manager SFTP/FTP settings

IMPORTANT NOTE: It's a must to stop all running labs (nodes) before starting a backup process. If you have satellites, then make sure they are and connected to the Master. Satellites backup will be done automatically.

SSH to your EVE as root user and execute following command.

root@eve-ng:~# backup-manager



Performance of the second s I (e) Edit Backup Server required to setup external SFTP/FTP server. This part is out of EVE-	ş
NC support because every user can install and establish its own way. The main pre-requisite (c) create Backup (c) create Backup (c) create Stepseter must be fully reachable from EVE server and back from SFTP server to	
(r) Restore Backup	
(q) Quitss of external SFTP server setup: Link to document	
SFTP server setup is EVE user responsibility and not covered under EVE-NG support.	

Select option (e) Edit Backup Server

gServer Configuration====================================			
)K
Virtual Environment et Ceneration	Server Protocol	SFTP Version 5.1	3
	Server Label	store	
Server Configuration	Server Address	192.168.70.32	1
	Remote Directory	/sftpuser/	
	Username	sftpuser	
	Password	***	
Server La	Submit Quit	t	

Server Protocol: Select your designated backup server protocol FTP or SFTP **Server Label**: Name your Server Label, free to name it.

Server Address: Put your backup server IP,

Remote directory: For Linux servers, specify the target directory. The example above is /sftpuser/. This is the directory where the backup uploads will be stored. On the Windows SFTP server, this part can be left clear. All uploads will be stored in the sftp user-designated directory. **Username**: Put your SFTP server username

Password: Put your SFTP user password Submit

13.2 Create an EVE-NG Backup

SSH to your EVE as root user and execute following command.

root@eve-ng:~# backup-manager

Select option (c) Create Backup.



13.2.1 Backup option All

Every time when you run All backup process, EVE backup manager will create new backup folder **[hostname]-[date]-[backup ID]** with selected backup content.

Select your backup items:



Create Backup========		
-		
Choose item(s) to Backup		SETP
		store
		192.168.70.32
A11	Remote Director	y /sftpuser/
Labe backup	Username	sftpuser
Labe backup	Password P	***
Database backup	X Submit Qu	11
Images backup	X	
Templates/Icons/Config-s	Server Protocol: Select your designated ba sriptabackup Xame your Server Label, fre	ackup server protocol FTP or SFTP e to name it.
Tmp Folders backup	Server Address: Put your backup server IF Remote directory: For Linux server specify	γ, / target directory, example above is /sftpuser/. This
Mirroring		e stored. In the Windows SFTP server this part can
		n the sftp user designated directory.
Create Cancel		e

Select All: the backup manager will create directory with all contents of EVE which includes:

- Labs,
- Users Database,
- All images (Dynamips, IOL, Qemu),
- Templates of all images including Custom templates, config scripts and icons,
- TMP Folder (TMP folder contains all of your labs saved configurations and qemu nodes)

13.2.2 Backup option custom selected

Every time when you run a custom selected backup process, EVE backup manager will create new backup folder **[hostname]-[date]-[backup ID]** with selected backup content.

Select Custom items: For example, if you want to back up only labs, images and full labs with a tmp directory, your selection should look like the screenshot below.

Create Backup	
Choose item(s) to Backup	
A11	
Labs backup	 Labs, X
Database backup	Users <mark>C</mark> atabase,
Images backup	x
Templates/Icons/Config-s	ript backup Page 289 of 291
Tmp Folders backup	X
Mirroring	
Create Cancel	

This backup folder will only contain Lab files (topologies), all images (vendor images) from the EVE in the current stage and the TMP folder (saved labs with all configurations) for all EVE users.

13.2.3 Backup option with Mirroring selected

First time when you run Mirror backup process, EVE backup manager will create new backup folder "**[hostname]-eve-ng-mirror**" with selected backup content.

Select Mirroring: The mirroring option creates a single Folder named "[hostname]-eve-ng-mirror".



Using this option will only back up content of the new data added after the first backup. EVE Backup will compare data that already persists in the backup folder and will update only new items which have been changed after the backup is saved in the "[hostname]-eve-ng-mirror". It is recommended to select all items with a mirror option.

Create Backup	All Inlages (Dynamips, IOE, Geniu),
Choose item(s) to Backup	 Templates for all your images also Custom templates, config scripts and icons, TMP Folder (TMP folder holding all your labs saved configurations with gemu nodes)
A11	Select Cusiem items: For example, if you want send to backup only labs, images and full lab. saved work (imp directory), your items selection will look like below.
Labs backup	General Back
Database backup	Choose its 🕱 : to Backup
Images backup	X
Templates/Icons/Config-scrip	t backup 🕺
Tmp Folders backup	Detabate boxtup
Mirroring	Inages Eacline 8 Teaplates/Config-accapt Eacline
Create Cancel	Tmp Folders backup

13.3 Restore data from EVE-NG Backup

SSH to your EVE as root user and execute following command.

root@eve-ng:~# backup-manager

Select option (r) Restore Backup.

(e) Edit Backup Server	Backup Manager Main MenuBackup Saved in the will update only newest terms which has been changed after the backup saved in the "Backup and micros" bis recommended to sched all items with micros ration
<mark>(c)</mark> Create Backup	
(r) Restore Backup	Choose ites(s) to Bockup
(q) Quit	

13.3.1 Select restore backup folder





13.3.2 Select the items to restore

All: (Mirroring disabled) This option is useful to restore all data from backup to the new EVE installation. Backup manager will compare your existing data on your EVE with backup content and will restore only missing data.

Custom selected items: (Mirroring disabled) This option will restore custom selected items' data from backup to the new EVE installation. Backup manager will compare your existing data on your EVE with backup content and will restore only missing data.

Important: Restoring cluster satellite server TMP folder content for the new EVE install. Make sure that the Satellite ID matches your tmp-satellite folder number (ID)

#Restore Backup	
Choose item(s) to Restore	18.3.1 Restore content from backup folder
	Select your desired regular (non-mirror) backup folder, following by Restore:
A11	Restore Esckup-
customs	Select Item to restore
database 2	
image	
lab	
tmp-master	
tmp-sat1	
tmp-sat2	
tmp-sat3	
mirroring	
Restore Cancel	

Careful! Mirroring enabled! This option will restore selected data from backup to the EVE installation. Backup manager will replace all data on your EVE with backup content and will destroy data which does not exist in backup.

Custon selected items (Miroring disabled) This optiq	
from backup to the new EVE installation. Backup ma your EVE with backup Warningh Will restore only m	
The script will destroy all labs.	
Import configurations, Cande images that are very	folder content for
If the mirror option is unchecked,	
from backup.	



14EVE Resources

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

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/

FAQ: https://www.eve-ng.net/index.php/faq/

Live support chat: https://www.eve-ng.net/index.php/live-helpdesk/

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/