

EVE-NG Professional Cookbook

Version 6.3

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Preface

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

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

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

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

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

Christian Scholz @chsjuniper



1 Introduction

1.1 What is EVE-NG?

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

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

1.2 What is EVE-NG used for?

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

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

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

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

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

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

To get a very small idea of what can be done with EVE-NG, check out the tested/<u>supported</u> <u>images</u> (many have not been tested, almost everything virtual should run on EVE-NG) and refer to section **17**.

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

1.3 Who is EVE-NG for?

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

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

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

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

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





2 System requirements

EVE-NG software is available in the ISO file format. The ISO is an open standard for packaging and distributing install media. 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 16.0 or later VMware Player 16.0 or later

PC/Laptop HW requirements	
CPU	Intel i7 (8 Logical processors vCPU), Enabled Intel virtualization in BIOS
RAM	8Gb
HDD Space	50Gb
Network	LAN/WLAN
EVE Virtual machine requirements	
CPU	1/8 (Amount of processors/Number of cores per processor) Enabled Virtualize Intel VT-x/EPT or AMD-V/RVI and virtualize IOMMU options
RAM	8Gb or more
HDD	50Gb or more
Network	VMware NAT or Bridged network adapter

Note: Minimal/small 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 30- 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 16.0 or later VW Ware Player 16.0 or later

PC/Laptop HW requirements	
CPU	Intel i7 (16 Logical processors), Enabled Intel virtualization in BIOS
RAM	32Gb
HDD Space	200Gb
Network	LAN/WLAN
EVE Virtual machine requirements	
CPU	1/16 (Amount of processors/Number of cores per processor) Enabled Virtualize Intel VT-x/EPT or AMD-V/RVI and virtualize IOMMU options
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: VM Ware ESXi 6.7 or later

Server HW requirements	
CPU	Recommended CPU 2x Intel E5-2650v4 (48 Logical processors) or better supporting Intel® VT-x with Extended Page Tables (EPT) Minimum CPU is any Intel Xeon CPU supporting Intel® VT-x with Extended Page Tables (EPT)
RAM	128Gb
HDD Space	2Tb
Network	LAN Ethernet
EVE Virtual machine requirements	
CPU	2/24 (48) (Number of processors/Cores per socket) Set Expose hardware assisted virtualization to the guest OS to ON (checked) and set Expose IOMMU to the guest OS to ON (checked)



RAM	64Gb or more
HDD	800Gb or more
Network	vSwitch/VMnet

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

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

2.1.4 Dedicated Server (bare metal BM) system requirements

Prerequisites:

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

Server HW requirements				
CPU Recommended CPU Intel E5-2650v4 (48 Logical process better supporting Intel® VT-x with Extended Page Tables Minimum CPU is any Intel Xeon CPU supporting Intel® with Extended Page Tables (EPT)				
RAM	128Gb			
HDD Space	2Tb			
Network	LAN Ethernet			

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

2.1.5 Nodes per lab calculator

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

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

2.1.6 EVE Management Networks

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

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

To change these networks please refer chapter 7.4.1

2.2 Supported virtualization platforms and software

- VMware Workstation 16.0 or later
- VMware Player 16.0 or later
- VMware ESXi 6.7 or later
- Ubuntu Server 22.04 LTS as platform for bare metal



- Google Cloud Platform
- AMD CPU based PC or Server (the Newest AMD CPU versions are supported)

2.3 Unsupported hardware and systems

The following are currently not supported officially:

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



3 Installation

3.1 VMware Workstation or VM Player

3.1.1 VMware Workstation VM installation using ISO Live image

Andatory Prerequisites: EVE-PRO Live ISO installation on a VM, requires DNS and internet access in order to download EVE PRO software install packages and the latest updates. Make sure that your VM network have working internet and DNS.

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

3.1.1.1 EVE VM Setup and Settings

select Custom, N	New Virtual machine and ext. Select your Virtual e compatibility (Example	Step 2: Select "I will install the operating system later"
17.5) Following by Next.		New Virtual Machine Wizard X
New Virtual Machine Wizard		Guest Operating System Installation A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?
vmware WORKSTATION PRO [™] 17	Welcome to the New Virtual Machine Wizard What type of configuration do you want?	Installer disc: No drives available
Create a Workstation 17.5.x virtual machine in a few easy steps. Custom (advanced) Create a virtual machine with advanced options, such as a SCSI controller type, virtual disk type and compatibility with older VMware products.		D:\1 EVE\ISO EVE\eve-pro-v5.20230326.iso Browse I will install the operating system later. The virtual machine will be created with a blank hard disk. Help < Back
Help	< Back Next > Cancel	

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

\times	New Virtual Machine Wizard	:
	Name the Virtual Machine What name would you like to use for this virtual machine?	
	Virtual machine name:	
	EVE-NG-PRO	
	Location:	
	D:\EVE-VM-PRO	Browse
	×	Name the Virtual Machine What name would you like to use for this virtual machine? Virtual machine name: EVE-NG-PRO Location: D:\EVE-VM-PRO The default location can be changed at Edit > Preferences.

Step 5: Select Number of processors, maximum what your PC supports and set Number of cores per processor as =1.	Step 6: Assign desirable memory New Virtual Machine Wizard	
New Virtual Machine Wizard × Processor Configuration	Memory for the Virtual Machine How much memory would you like to use for this virtual machine?	
Specify the number of processors for this virtual machine. Processors Number of processors: 8 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 16 GB Maximum recommended memory: 27.8 GB 27.8 GB 2 GB Cancel Recommended memory: 4 GB 128 MB Guest OS recommended minimum: 2 GB 16 MB Guest OS recommended minimum: 2 GB Help < Back	

Step 7a: Select your desirable Network	Step 7b: Select your desirable Network
Adapter. For Laptop PC	Adapter. For Desktop PC
NOTE: It is recommended to choose the NAT adapter option for Laptops to avoid EVE management interface IP changes. This can happen anytime the laptop is	NOTE: Desktop PC EVE management interface can be either NAT or Bridged to home LAN subnet. Internet and DNS

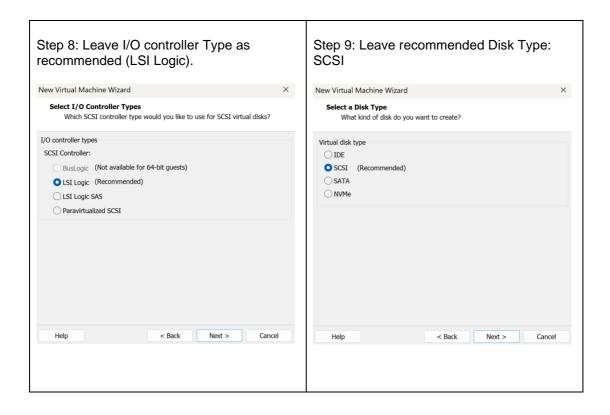
CVC

ment

Emulated Virtual Enviro



connected to a different SSID. Internet and	reachability is a MUST.
DNS reachability is a MUST New Virtual Machine Wizard Network Type What type of network do you want to add? 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 ethernet network. Ouse network address translation (NAT) Give the guest operating system access to the host computer's dial-up or external Ethernet network connection using the host's IP address. Use host-only networking Connect the guest operating system to a private virtual network on the host computer. Do not use a network connection	
Help < Back Next > Cancel	Help < Back Next > Cancel





New Virtual Machine Wizard $ imes$
Specify Disk Capacity How large do you want this disk to be?
Maximum disk size (GB): 200 🗼 Recommended size for Ubuntu 64-bit: 20 GB 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 now, the virtual disk starts small and grows as you add data to it.
 Split virtual disk into multiple files Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

	e Wizard	×	Hardware		
Click Finish to 64-bit.	200 GB 16384 MB Bridged (Automatic) 8 CPU cores, CD/DVD, USB Controller, Sound Card		Perke The function © New CD/VD (GATA) © New CD/VD (GATA) © Second Gard □ backsy Data Second Gard Data Second Gard Dat	Summy: 1468 8 Auto detect Bridge (Automatic) Present Auto detect Auto detect	Memory Secord the amount of memory ablocated to this visual machine. The size must be a multiple of 4 MB. Memory for this visual machine: 10384 (a) 128 GB 10384 (b) 04 GB 10384 (c) 128 HB 10384 (c) 129 HB 10384 (c) 12
	< Back Finish Can	cel			Close





Step 14: IMPORTANT Set Processors "Number of processors" and "Number of cores per processor". Set Virtualize Intel VT-x/EPT or AMD-V/RVI to ON (checked) and set Virtualize IOMMU (checked)	Step 15: Select CD/DVD Option: "use ISO image file." Browse to your downloaded EVE-PRO.iso (actual name will be different) file
NOTE: Mayoro Dlover will display only one	Device Summary Device status
NOTE: VMware Player will display only one CPU option: Number of processors.	ImMemory 16 GB Connected Improcessor B Connect at power on Owner CAD/WO (SATA) Adva detext Connect at power on Owner CAD/WO (SATA) Present Connect at power on Owner CAD/WO (SATA) Present Connect at power on Owner CAD/WO (SATA) Present Connect at power on
Hardware ×	Auto detect Auto detect O Use ISO image file:
Device Summary Processors	D:\1 EVE\ISO EVE\eve-pro-v5.20230326.iso
Bit Boundary 16 GB O News CD(DVD) (S1(A) Auto detet: Image of cores par processor: Image of processors Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of processors Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par processor: Image of cores par par processor: Image of cores par	Advanced
	Close Help
Add Remove	
Close Help	

Step 16: Confirm VM Settings.

3.1.1.2 EVE-NG VM Installation steps

Mandatory Prerequisites: EVE-PRO Live ISO installation on a VM requires DNS and internet access in order to download EVE Pro packages and the latest updates.

EVE VM Installation from ISO has 3 Phases

Phase 1 (Ubuntu installation)

	Step 2: Make sure that English is selected and confirm with Enter.
--	--

Г



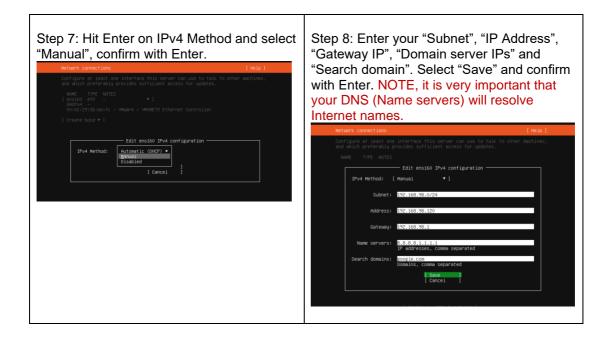
GNU GRUB version 2.06	Willkommen! Bienvenue! Welcome! Добро пожаловать! Welkom!	[Help]
Use the ↑ and ↓ keys to select which entry is highlighted. Press enter to boot the selected DS, 'e' to edit the commands before booting or 'c' for a command-line.	Use UP, DOWN and ENTER keys to select your language. [Asturianu E Bahsas Tadomesia Contais Contais Contais Erglish	

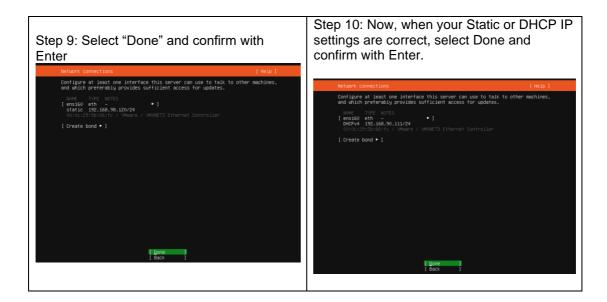
Step 3: Make sure that English US Keyboard is selected and confirm with Enter.		Step 4: If your network has DHCP ENABLED, Continue to Step 10
Keyboard configuration	[Help]	
Please select your keyboard layout below, or select detect your layout automatically.	"Identify keyboard" to	
Layout: [English (US)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

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, and which preferably provides sufficient access for updates. NMME TYPE NOTES Conform • (close) ONCRAF • (close) ONCRAF • (close) ONCRAF • (close) If the table is the table is the table is the table is table in table	

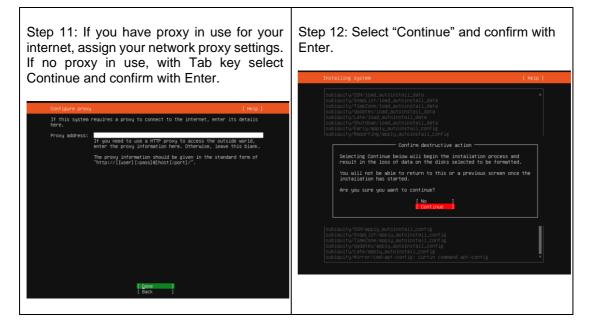




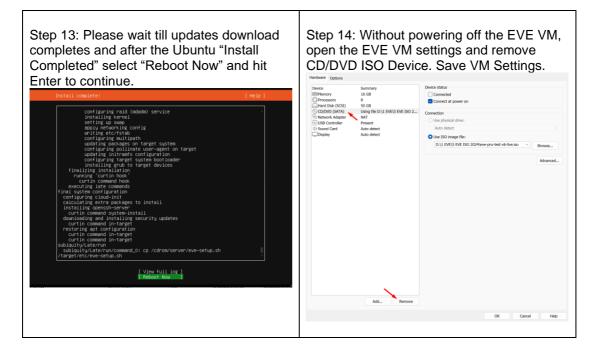








EVE VM Installation Phase 2 (EVE-NG installation)



screen and confirm Continue with Enter, EVE VM will reboot and continue Phase 2 on your in take some auto rebo	
--	--

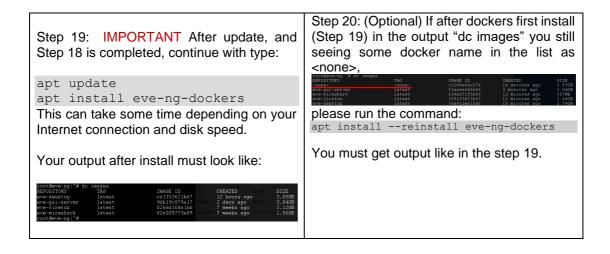


installation	installation Phase 3
[FAILED] Failed unmounting /cdrom. Please remove the installation medium, then press ENTER: [FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom.	Eve-NG (default root passaord is 'eve') Use https://132.188.100.131(DHEP4)/ sve-ng login: [17.543640] cloud-init(2005]: Cloud-Init v. 21.4-Oubuntu1"20.04.1 running 'modules: rinal at kon, 28 May 2002 LB:28-40 40000, Up 17.41 seconds. 1.32:48 40000. Datasource DataSourceNome. 1 (17.83956) cloud-init(2005): 2022-06-23 18:32:48,590 - cc_final_message.oy[WHRNING]: Used failba ck datasource sve-ng login: _

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

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

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







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

- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 16
- 3.2 VMware ESXi
- 3.2.1 VMware ESXi EVE VM installation using ISO Live image
 - Mandatory Prerequisites: EVE-PRO Live ISO installation on a VM, requires DNS and internet access in order to download EVE PRO software install packages and the latest updates. Make sure that your VM network have working internet and DNS.
 - IMPORTANT NOTE: Make sure that you have set Security Policy (Promiscuous mode, forged transmits and MAC changes) settings on the vSwitch and Port group to Accept.
 - IMPORTANT NOTE: For EVE VMs running on ESXi, with NIC Teaming Network, please follow the steps below to edit the reverse path settings
 - From the Navigator window select Manage > System > Advanced settings.
 - Scroll down or use the search bar to go to the Net.ReversePathFwdCheckPromisc option.
 - Select Net. ReversePathFwdCheckPromisc and click Edit option.
 - In the Edit option Net. ReversePathFwdCheckPromisc window update the New value field to 1 and click Save.

IMPORTANT NOTE: For EVE VMs running on ESXi, with NIC Teaming Network, managed by vCenter and VDS Network please follow the steps below to edit the reverse path settings

- From the Side Inventory select the ESXi host where the EVE VM is installed Configure > System > Advanced System Settings.
- Edit Advanced System Setting
- Scroll down to find Net. ReversePathFwdCheckPromisc option.

Net.ReversePathFwdCheckPromisc

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

1

Edit VDS Workgroup security setting to allow promiscuous traffic

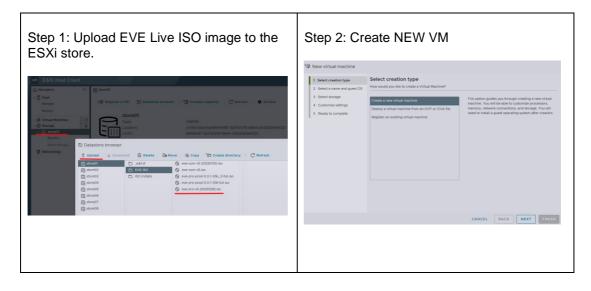
Distributed Port Group - Edit Settings DPortGroup-VLAN10

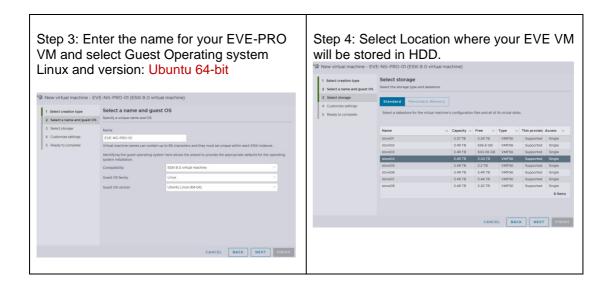
Traffic shaping	Forged transmits	Accept ~
Security		
VLAN	MAC address changes	Accept ~
Advanced	Promiscuous mode	Accept ~
General		

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



3.2.1.1 EVE-NG ESXi VM Setup and Settings





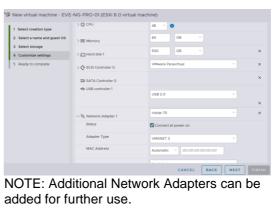
Step 5:		sig desirable		/E
Set Processors "Number of processors" and Set "Cores per Socket". If your server has dual CPU, then Cores per socket will be divided by 2. Example below, shows dual CPU Server VM setup with 48 CPU with 24 cores per socket (2).	"Number of processors" and Socket". If your server has Cores per socket will be cample below, shows dual I setup with 48 CPU with 24		divitusi machine additional options ork adapter 4 • 44 • 64 • 25 • VMeano Perzentual •	× × ×
Set Expose hardware assisted virtualization to the guest OS to ON (checked) and set Expose IOMMU to the guest OS to ON (checked)		-4e USB controller 1	USB 2.0 v drue 71 v 20 CANCEL BACK HEXT	X Connect X FINISH

ſ



Select creation type	Customize settings		
2 Select a name and guest OS	Configure the virtual machine hardware and	virtual machine additional options	
3 Select storage	Virtual Hardware VM Options		
Customize settings Ready to complete	🕞 Add hard disk 🔄 Add netwo	rk adapter E Add other device	
 Ready to complete 	~ [] CPU	48 ~ 0	
	Cores per Socket	24 Sockets: 2	
	CPU Hot Plug	Enable CPU Hot Add	
	Reservation	None v MHz v	
	Limit	Unlimited V MHz V	
	Shares	Normal V 1000 V	
	Hardware virtualization	Expose hardware assisted virtualization to the guest OS	
	IOMMU	Expose IOMMU to the guest OS	
	Performance counters	Enable virtualized CPU performance counters	
		CANCEL BACK NEXT FINISH	

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



Step 8: Set your Management network.

Adapter type VMXNET3

Step 9: Set DVD drive to "Datastore ISO Step 10: Set DVD drive to "Datastore ISO File" and browse your uploaded EVE-File" and browse your uploaded EVE-PRO.iso (ISO name can vary). Make sure PRO.iso (EVE ISO name can vary). Make sure that Status is checked ON, "Connect at that Status is checked ON, "Connect at power on" power on" Hit the "Finish" ne - EVE-NG-PRO-01 (ESXi 8.0 virtua ual machine - EVE-NG-PRO-01 (ESXi 8.0 virtual ma inside-70 Co Adapter Type BROWSE... BROWSE... Controller locatio SATA controller 0 Video Card Video Card CANCEL BACK NEXT FINISH CANCEL BACK NEXT FINISH



Step 11: IMPORTANT Select the Edit your VM and switch to "VM Options". Firmware <i>EFI Boot.</i>		Step 12: Start VM
Follow to "Boot Options" and de-select (uncheck) "Whether or not to enable UEFI secure boot for this VM"		
Virtual Hardware VM Options		
> General Options	VM Name: EVE-NG-PRO-01	
> VMware Remote Console Options	Cock the guest operating system when the last remote user disconnects	
> VMware Tools	Expand for VMware Tools settings	
> Power management	Expand for power management settings	
~ Boot Options		
Firmware	Choose which firmware should be used to boot the virtual machine:	
Enable UEFI secure boot	Whether or not to enable UEFI secure boot for this VM	
Boot Delay	Whenever the virtual machine is powered on or reset, delay boot by 0 0 milliseconds	
Force BIOS setup	The next time the virtual machine boots, force entry into the BIOS setup screen.	
Failed Boot Recovery	When the virtual machine fails to find a boot device, automatically retry boot after 10 \$\$\$ seconds	
	CANCEL	

3.2.1.2 EVE-NG ESXi VM Installation steps

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

EVE ESXi VM Installation from ISO has 3 Phases

Phase 1 (Ubuntu installation)

Step 1: Power ON EVE VM. Chose Install EVE-NG Pro Server and confirm with Enter.	Step 2: Select English language. Confirm with Enter.
DNU GRUE version 2.06 Trustil DN2:HG Pro Tostil DN2:HG Pro Tostil DN2:HG Pro Tostil DN2:HG Pro Tostil Pro HG Pro	Hillsomment Blenveruet Helcomet Adoğon noxanosarul Helcom! [Help] Use UP, DOHN and ENTER Keys to select your language. [astrularu [beutsch [beuts



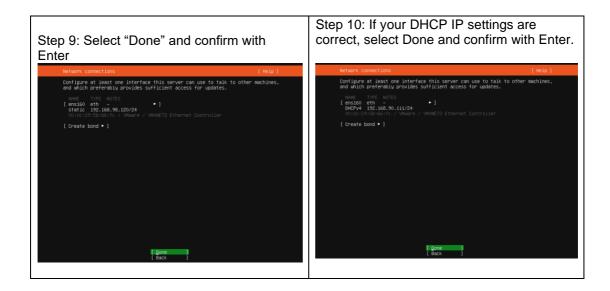
Step 3: Make sure if English US keyboard is selected and confirm with Enter.		Step 4: If your network has DHCP ENABLED , Continue to Step 10
Keyboard configuration	[Help]	
Please select your keyboard layout below, or se detect your layout automatically.	lect "Identify keyboard" to	
Layout: [English (US)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

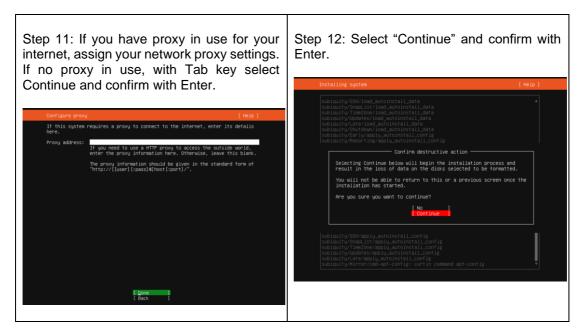
Step 5: If your network has not DHCP. Static IP setup. If you have not enabled DHCP in the network, you must assign an IP address manually. Use arrow UP key to	Step 6: Confirm interface selection with Enter, select "Edit IPv4" and confirm with Enter again.
select your interface for IP	Network connections [Help]
address.assignment.	Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates.
Network connections [Heip] Configure at least one interface this server can use to talk to other machines, and thich preferebally provides sufficient access for updates. Name TYPE POTES Teppone Image: Type Potes Onford:1931Shi66ifc / Meane / ModET3 Ethernet Controller [Create bond •]	Meme Type Notes Enside + + OUTC2291500.6517 / Musare / VMX Edit Info Edit Edit Edit Edit Edit Edit Edit Info Edit Edit Edit Edit Edit Edit Edit Edit Edit Edit Edit Edit
[Continue without network] [Back]	



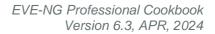








EVE VM Installation Phase 2 (EVE installation)





Step 13: After the Ubuntu "Install select "Reboot Now" and hit continue.	•	Step 14: Without powering off the EVE VM, open the EVE VM settings and remove CD/DVD ISO Device. Save VM Settings.
<pre>configuring raid (mddm) service stilling kernel stilling kernel stilling kernel stilling terketson uniting terketson uniting packass on target system uniting packass uniting packass uniting packass uniting packass uniting packass uniting packass uniting packass uniting packass uniting packass uniting packass uniting packass uniting unit</pre>		

and confirm Continue with Enter, EVE VM will reboot and continue Phase 2 installation Please remove the installation medium, then press ENTER: [FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom.	, May 20 17:24:10 cloud-init: 256 SHR256:u/hx4hJjildJPsOH6f0hePsg∧4psUg030g6iTNUPzE root@eve-ng SH) May 20 17:24:10 cloud-init: 256 SHR256:puougilUC5cf6unEaqBJ/sSuwqSm0ZsH3ONd+eTCw0 root@eve-ng SSI9) May 20 17:24:10 cloud-init: 3072 SHR256:LH0t4Agxmkt2jqySN0fQ4Py3IANTxPYjlIgsIhY0hA root@eve-ng
--	---

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 : 3.5.1 for static IP, 3.5.2 for DHCP IP	apt update apt upgrade



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

NOTE: Verify your EVE-NG server installation, type "dpkg -l eve-ng-pro" command, it must display latest EVE Pro version (please note that version of EVE-PRO will be newest)

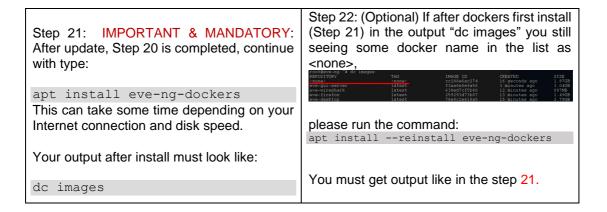
```
root@eve-ng:~# dpkg -1 eve-ng-pro
Desired=Unknown/Install/Remove/Purge/Hold
     Status=Not/Inst/Conf-files/Unpacked/halF-conf/Half-inst/trig-
1
aWait/Trig-pend
// Err?=(none)/Reinst-required (Status,Err: uppercase=bad)
||/ Name
                          Version
                                        Architecture
Description
_____
ii eve-ng-pro 6.0.1-XX
                                   amd64
                                                 Α
new generation software for networking labs.
root@eve-ng:~#root@eve-sat01:~#
```

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

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

Launch EVE-PRO installation manually

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





<pre>hoot@eve-ng:"# dc images REPOSITORY TAG IMAGE ID CREATED SIZE registry 2 909c3ff012b7 6 weeks ago 25.4MB registry 2 909c3ff012b7 6 weeks ago 25.4MB registry 2 10798e597796 10 months ago 4.16GB reve-wireshark latest 10798e597796 12 months ago 4.16GB reve-firefox latest 8cd236c8b92d 20 months ago 4.33GB reve-desktop latest f15189db0eb2 20 months ago 6.29GB root@eve-ng:"# _</pre>	
Step 23: After Steps 20-22 are completed and you are back on the EVE CLI prompt, reboot EVE by typing	NOTE: If you are installing EVE in the locked environment and cannot install dockers online, please contact with us: <u>info@eve-</u> ng.net for offline dockers installation option.
reboot	Or download FULL INSTALL ISO including the Dockers.
	https://www.eve-ng.net/index.php/download/

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

- IMPORTANT NOTE: If your Network interfaces order has been changed, please follow instruction to section 16.6
- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 17
- 3.3 Bare hardware (BM) server installation
- 3.3.1 BM Server installation EVE Live ISO
 - Mandatory Prerequisites: EVE-PRO Live ISO installation on bare metal, requires DNS and internet access in order to download EVE PRO software install packages and the latest updates. Make sure, that your bare metal VM network have working internet and DNS.

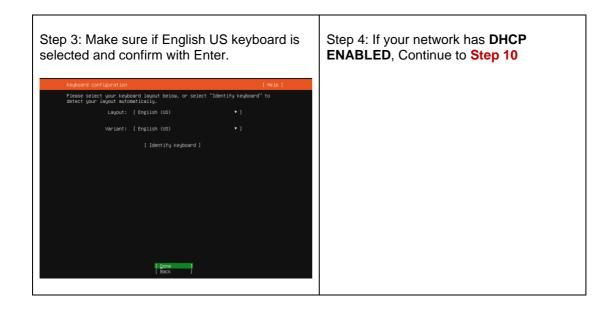
Download EVE Professional ISO https://www.eve-ng.net/index.php/download/

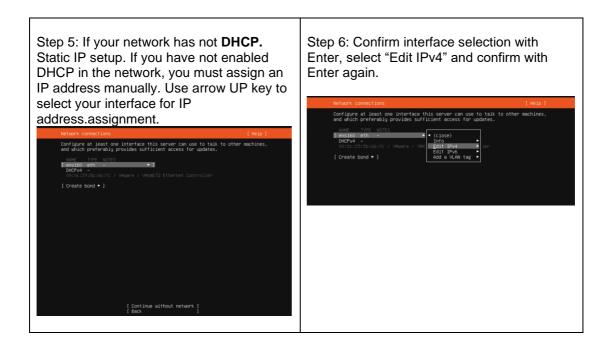
Phase 1 (Ubuntu installation)

Step 1: Create a bootable DVD disk or USB flash drive with an EVE ISO image. Boot your server from ISO. Chose Install EVE PRO and confirm with Enter.	Step 2: Select English language. Confirm
--	--

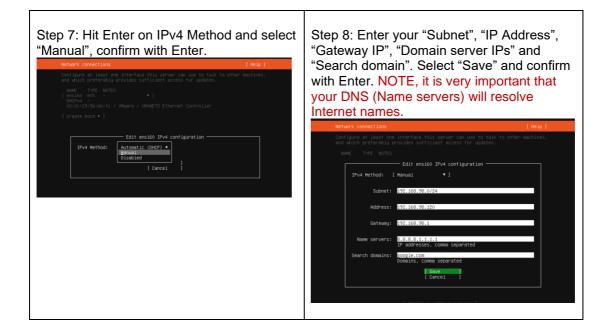


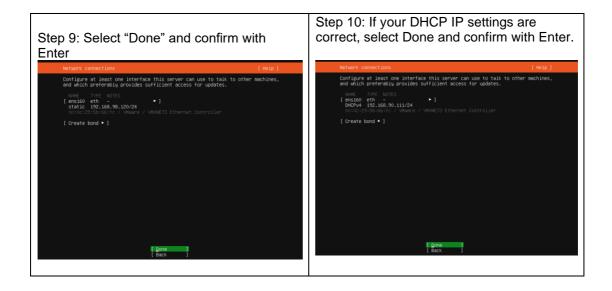
	Willkommen! Bienvenue! Welcome! Добро пожаловать! Welk	com! [Help]
Install M.R.A. Pro Install M.R.A. Satellitts Until M.R.A. Satellitts Uff finance satellit	Use UP, OOWN and ENTER keys to select your language. (Asturianu (Banasā Indonesia) Deutsch C English (English (English) C English (English) C En	











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



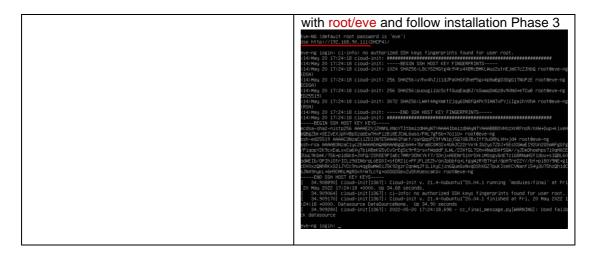


EVE VM Installation Phase 2 (EVE installation)

tinue.		
Install complete!	[Help]	
installing kernel setting us sawo account for a setting us and secting us sawo contigering multipath updating packages on target system contigering multipath updating intrasfes contiguration contigering outinhate user-spent on target updating intrasfes contiguration installing grub to target devices finalizing installation running curtinhood executing late commends final system contiguration contiguring cloud-init calculating extra packages inclusion guite packages inclusion guite packages inclusion and intrasget updates commends curtin commend justemp-install curtin commend justemp-install curtin commend justemp-install curtin commend in-target sublauity/Late/run/command_0: cp //drow/server/eve-setu.	.p.sh	

Step 15: Return back to EVE console screen and confirm Continue with Enter, EVE VM will reboot and continue Phase 2 installation [FRIED] Failed unnounting /cdrom. [FRIED] Failed unnounting /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
--	--





EVE Installation Phase 3 (Management IP setup and updates)

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

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

<pre>root@eve-ng:~# dpkg -l eve-ng-p Desired=Unknown/Install/Remove/ Status=Not/Inst/Conf-files/Ur / Err?=(none)/Reinst-required</pre>	'Purge/Hold npacked/halF-conf/Half-inst/		g-pend
<pre>// Name Description +++-==================================</pre>	Version		Architecture
<pre>ii eve-ng-pro new generation software for net root@eve-ng:~#</pre>	6.0.1-XX working labs.	amd64	=== A

Step 19: IMPORTANT After update, Step 18 is completed, continue with type:	Step 20: (Optional) If after dockers first install (Step 19) in the output "dc images" you still seeing some docker name in the list as <none>,</none>
apt install eve-ng-dockers	roctBevo-ng:"# dc images REPOSITORY TAG IMAGE ID CREATED SIZE (none) c1286683a274 16 seconds ago 1.87GB eve-qui-server latest 13a46609356 3 minutes ago 3.04GB
This can take some time depending on your	evo-évineshark latest 638ed7cf5b80 12.minutes.ago 887MB eve-firefox latest 259293d73b07 13.minutes.ago 1.49GB eve-desktop latest 78992c861885 15.minutes.ago 2.75GB
Internet connection and disk speed.	
	please run the command:
Your output after install must look like:	apt installreinstall eve-ng-dockers
	NOTE: If you are installing EVE in the locked environment and cannot install dockers



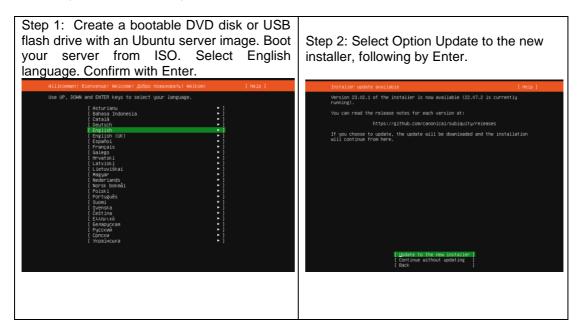
rootGeverag:"# drimages REPOSITOV TAS INAGE ID CREATED SIZE everagia-everal action of the state	online, please contact with us: <u>info@eve-</u> <u>ng.net</u> for offline dockers installation option.
dc images	

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

- IMPORTANT NOTE: If your Network interfaces order has been changed, please follow instruction to section 16
- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 17
- 3.3.2 BM Server Installation Ubuntu legacy ISO
 - Mandatory Prerequisites: Internet must be reachable from your Server. This ISO installation requires internet access to get updates and install the latest EVE-PRO version from the EVE-NG repository. DNS must resolve names!

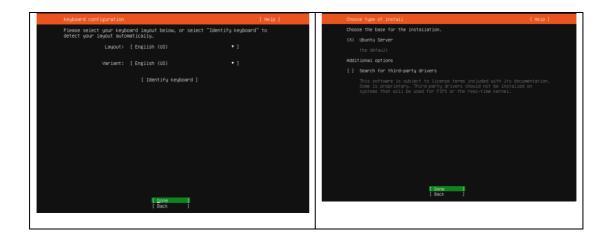
Download Ubuntu Legacy Server installation image/ISO https://releases.ubuntu.com/jammy/

Phase 1 (Ubuntu installation)



Step 3: Make sure if English US keyboard is selected and confirm with Done/Enter.	Step 4: Select Option Ubuntu Server [X], following by Done/Enter.









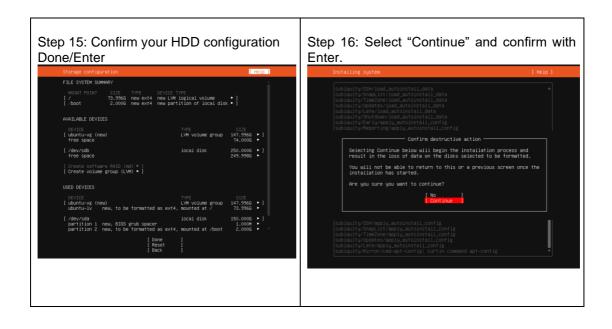
<text>

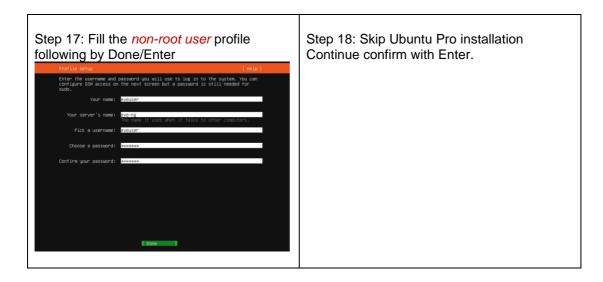
Step 11: If your DHCP IP settings are correct, select Done and confirm with Enter.	Step 12: If you have proxy in use for your internet, assign your network proxy settings. If no proxy in use, with Tab key select Continue and confirm with Enter.
OpricitajiShi6Sif(//Wwwire / VMORET3 Ethernet Controller [Dreate bond ►] [Done [Back]	Configure proxy If this system requires a proxy to connect to the internet, enter its details 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://[luger][spass]0]host[sport]/~.
	(Bone) (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 storage option selected. For Custom storage selection, please refer to the	Step 14: Select "Continue" and confirm with Enter.
--	--



Ubuntu official documentation		Installing system [Help]
Guided storage configuration Configure a guided storage layout, or create a custom one: (X) Use an entire disk [/dev/sds local disk 150.0006 •] [X] Set up this disk as an LVM group	[Help]	<pre>subiguity/SBH/load_autoinstall_data</pre>
[] Encrypt the LVM group with LUKS Passohnase: Confirm passohnase:		Confirm destructive action — Selecting Continue below will begin the installation process and result in the loss of data on the disks selected to be formatted. You will not be able to return to this or a previous screen once the installation has started.
() Custom storage layout		Are you sure you want to continue?
[Cons] [Back]		subiguity/SBK-apply_autoinstali_config subiguity/SBK-apply_autoinstali_config subiguity/Timeover.appl_autoinstali_config subiguity/Discretes/publicstali_config subiguity/Discretes/publicstalicstalig subiguity/Hirror/cmd-apt-config: curtin command apt-config •

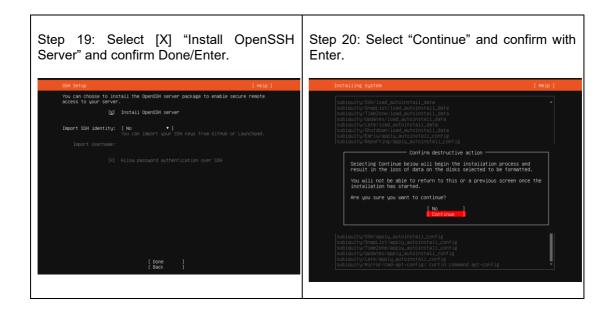


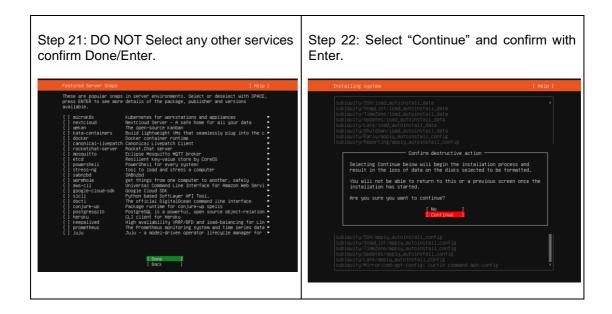




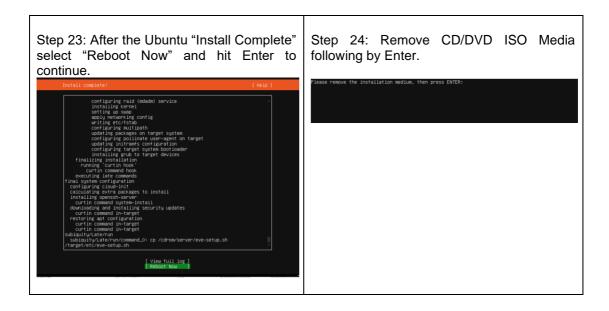


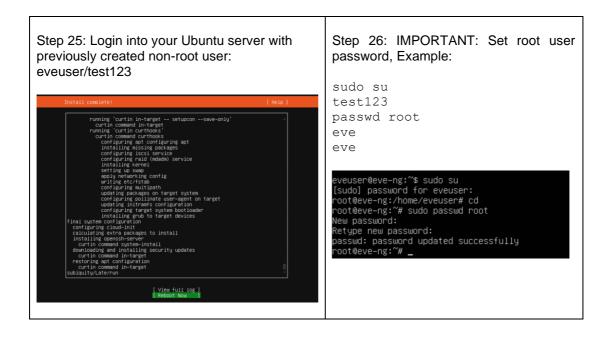












Step 26: Allow permissions for root administrator user SSH to your server.	Step 27: IMPORTANT: Set root user password, Example:
<pre>nano /etc/ssh/sshd_config Edit to: PermitRootLogin yes ctrl+o Enter for save crlr +x for exit restart ssh service service sshd restart</pre>	sudo su test123 passwd root eve eve



<pre>#00pen850: sshd_config,v 1.101 2017/03/14 07:19:07 djm Exp # # This is the sohd server system-wide configuration file. See # This is the sohd server system-wide configuration file. See # This sshd was completed with PATH=//sr/shr/shr/shr/shr/shr/shr/shr/shr/shr</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:~# _
₩ default value. #Port 22	Retype new password:
#ListenAddress 0.6.0.0 #ListenAddress ::	
#HostKey /etc/ssh/ssh_host_ecdsa_key	
# Ciphers and keying #RekeyLimit default none	
W Logging Hysiogfecility AUTH WLogLevel INFO	
# Authentication:	
#LoginGraceTime 2m PermitRootLogin yes	
ng GetHelp ng Arite Out ng Hohere Is ng Cut Text ng Justify ng Cur Pos ng Undo S Exit ng Read File ng Replace ng Uncut Text ng To Spell ng Go To Line ng Redo	

EVE Installation Phase 2 (EVE installation)

Step 28: SSH to your EVE IP using Putty or other SSH client. Log in as root user execute:		
apt update		
apt upgrade		
Step 29: Run EVE Pro online installation script. (it is single line command below)		
<pre>wget -0 - https://www.eve-ng.net/jammy/install-eve-pro.sh bash -i</pre>		
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-pro" command, it must display latest EVE Pro version

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



+++-	-======================================				===-
	eve-ng-pro		6.0.1-XX	amd64	A
	generation softwar :@eve-ng:~#	e for networking	labs.		

Step 32: IMPORTANT After update, Step 32 is completed, continue with type:	Step 33: (Optional) If after dockers first install (Step 32) in the output "dc images" you still seeing some docker name in the list as <none>,</none>				
apt install eve-ng-dockers	rootBeve-ng:"# dc images REFOSITORY TAG IMAGE ID CREATED SIZE (none) (none) cc285e5ac274 16 seconds ago 1.870B				
This can take some time depending on your Internet connection and disk speed.	eve-pui-server latest flaafeDe2d5 3 minutes and 3.0408 eve-viesherk latest 6.846/fl2b00 in inutes and 8.87ME eve-lisefox latest 25533/fl2b07 13 minutes and 1.4500 eve-lisefox latest 7897caelles 13 minutes and 2.7500				
	please run the command:				
Your output after install must look like:	apt installreinstall eve-ng-dockers				
Toot@eve-ag:"# dc images IMAGE 1D OPEATED SIZE REFUSITURY TAG cs.3.3.3.6.21Md7 12 Moars ago 3.652B eve-desktorver latest cd.150879.17 2 Moars ago 3.652B eve-tirefox latest cd.150879.17 2 Moars ago 3.643B eve-tirefox latest cd.150879.17 2 Moars ago 3.643B eve-tirefox latest 82a009773e89 7 weeks ago 1.560B root@eve-ag:"# latest 82a00973e89 7 weeks ago 1.560B	NOTE: If you are installing EVE in the locked environment and cannot install dockers online, please contact with us: <u>info@eve-</u> ng.net for offline dockers installation option.				
dc images					

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

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

3.4.1 Google account

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

≡ Google Cloud Steve Test ▼	Search (/) for resources, docs, products and more	Q Search	🔸 🖕 🕕 🖗 🗄 🕕
🙆 Welcom	e,		

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

3.4.2 Preparing Ubuntu boot disk template

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



	Search (/) for resources, docs, products and more	Q Search	+ 🕞 🕐	0 : U					
Compute Engine	VM instances CREATE INSTANCE MIMPORT VM CREFRESI	4		SLEARN					
🛬 Marketplace	INSTANCES OBSERVABILITY INSTANCE SCHEDULES								
Fit Release notes	VM instances								
CLOUD SHELL Terminal (eve-tes	t-276509) × + →	∠ Open editor	\$ • _ : _	≎ ⊠ ×					
Welcome to Cloud Shell! Type "help" to get started. Your Cloud Platform project in this session is set to eve-test-276509. Use "acloud config set project [WR03ECT ID]" to change to a different project.									

Step 2: Create a nested Ubuntu 22.04 image. 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-jammy --source-image-
family=ubuntu-2204-lts --source-image-project=ubuntu-os-cloud --licenses
https://www.googleapis.com/compute/v1/projects/vm-
options/global/licenses/enable-vmx
```

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

ssion is set to **eve-test-276509.** T_ID]" to change to a different

Tour Cloud Flatform project in this session is set to evertext-27859. User galand outing at project (FRANCE_TIPE) to change to a lifterent project. Second Second
uldig durchaldeloubdolis (revertest=75699) gcloud compute images create mested-ubuntu-jammy -source-image-family-ubuntu-2204-ltssource-image-project-ubuntu-ce-cloudlicenses https://www.googleapis.com/ openuEvi/Typoiste/Weneptichundi/slohil/icenses/enable-was Created [https://www.googleapis.com/compute/v1/projects/eve-test=276509/global/images/mested-ubuntu-jammy]. NMMT: menta-induntu-jammy NMMT: menta-induntu-jammy
<pre>amputEv1/project/www-options/alokal/icwames/emaile-vwx forestel [http://www.options/alokal/icwa/compute/v1/projects/eve-test-276309/global/images/nested-ubuntu-jamey]. http://www.options/alokal/images/nested-ubuntu-jamey]. http://wwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwww</pre>
Created [https://www.opogleapis.com/compute/v1/projects/eve-test=276509/global/images/sested-ubuntu=jammy]. NMMT: neates-buntu=jammy HMMLT9: TAMLL9:
NAME: nettei-bunut-jammy PROJECT: eve-test-276509 FAMILY:
pROJECT: a van + 6af + 276509 PMHLIX:
FAMILY:
DEPRECATED:
STATUS: READY
uldis dzerkals@cloudshell:~ (eve∽test-276509)\$

3.4.3 Network MTU settings and firewall rules for GCP

If your GCP VM is expected to be as a part of EVE-NG Cluster system please complete the MTU network settings and firewall rules setup before creating the instance.

If you do not plan EVE-NG VM to be as part of EVE Cluster, continue to: 3.4.5

NOTE: GCP VM by default has MTU 1460 set for the interfaces by default. You may require to set VM machine custom MTU (1500) which is commonly known default setting for ethernet. The MTU settings on the GCP interface must be adjusted if you want it to use as the part of EVE-NG cluster system.

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

Copy the following commands in SHELL Cloud console:

destination-ranges=0.0.0.0/0

Create 1500 MTU subnet
gcloud compute networks create mtu1500 --subnet-mode=auto --mtu=1500
--bgp-routing-mode=regional
Create 1500 MTU firewall rules
gcloud compute firewall-rules create wireguard-in --direction=INGRESS
--priority=1000 --network=mtu1500 --action=ALLOW --rules=udp:60569 -source-ranges=0.0.0.0/0
gcloud compute firewall-rules create wireguard-out --direction=EGRESS
--priority=1000 --network=mtu1500 --action=ALLOW --rules=udp:60569 --



gcloud compute firewall-rules create ssh-in --direction=INGRESS -priority=1000 --network=mtu1500 --action=ALLOW --rules=tcp:22 -source-ranges=0.0.0.0/0

gcloud compute firewall-rules create ssh-out --direction=EGRESS -priority=1000 --network=mtu1500 --action=ALLOW --rules=tcp:22 destination-ranges=0.0.0.0/0

Firewall rules summary:

Name	Туре	Targets	Filters	Protocols/ports	Action	Priority	Network ↑	Logs
ssh-out	Egress	Apply to all	IP	tcp:22	Allow	1000	mtu1500	Off
wireguard- out	Egress	Apply to all	IP	udp:60569	Allow	1000	<u>mtu1500</u>	Off
ssh-in	Ingress	Apply to all	IP	tcp:22	Allow	1000	mtu1500	Off
<u>wireguard-</u> in	Ingress	Apply to all	IP	udp:60569	Allow	1000	<u>mtu1500</u>	Off

3.4.4 Optional: GCP MTU 1500 Firewall rules for native console use

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

Copy the following commands in SHELL Cloud console:

Create MTU 1500 firewall rules for native console use

gcloud compute firewall-rules create allow-all-in --direction=INGRESS
--priority=1000 --network=mtu1500 --action=ALLOW --rules=tcp:0-65535
--source-ranges=0.0.0.0/0

gcloud compute firewall-rules create allow-all-out --direction=EGRESS --priority=1000 --network=mtu1500 --action=ALLOW --rules=tcp:0-65535 --destination-ranges=0.0.0.0/0

Summary FW rules.

Name	Туре	Targets	Filters	Protocols/ports	Action	Priority	Network 🕇	Logs
allow-all- out	Egress	Apply to all	IP	tcp:0-65535	Allow	1000	<u>mtu1500</u>	Off
allow-all- in	Ingress	Apply to all	IP	tcp:0-65535	Allow	1000	<u>mtu1500</u>	Off

3.4.5 Creating VM

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



=,	Google Cloud	Se EVE	Test 🔻	Se	arch (/) for resource	s, docs, products	and more		Q Search	+	۶.	11 0	D :	U
58 ::	Cloud overview Products and solution	s >	VIRTUAL MACHINES VM instances Instance templates	CREATE INSTANCE	LE SCHEDULES	CREFRESH								BLEARN
PINN RPI	ED PRODUCTS APIs and services		Sole-tenant nodes Machine images TPUs	value Zone Rec	mmendations In us	e by Internal IP	External IP Connect						0	
8 10	Billing IAM and admin	₽ ₽ →	Committed-use discounts Reservations Migrate to Virtual Machines				•							
) 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Marketplace Compute Engine	₽ ₽ →	STORAGE Disks											
© 8	Kubernetes Engine Cloud Storage	₽ > ₽ >	Storage pools Snapshots Images				. 85)						
© #		₽ > ₽ >	Async replication			Сотри	VM instance		ogle's					
≫ ⊛ ₽	Cloud Run SQL	*	Instance groups Health checks VM MANAGER			infrastructure.	Create micro-VMs or larger insta d images. Create your first VM ins service or try the quickstart to bi	nces running Debian, tance, import it using	Windows or					
t≣ Ø	Logging Security	♣ > ♣ >	Patch OS policies				CREATE INSTANCE TAKE	THE QUICKSTART						

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 Ice Lake or Cascade Lake*.

Name * eve-pro						Ø		
✓ MAN Region	AGE TAGS AND		• 0	Zone *	c			
Region	is permanent	·		Zone is permanent				
🗸 Ge	ine configu	Compute-optimised	Memory-optimised	Storage optin	nised NEW	GPUs		
Machine 1		n workloads, optimised fo	or cost and flexibility	vCPUs 🕜	Momory O	Platform		
0	Series 😧	PREVIEW Flexible a	nd cost-optimised	2 - 80	Memory 2	Intel Emerald Rapids		
0	C3	Consistently high perf		4 - 176	8 – 1,408 GB	Intel Sapphire Rapids		
0	C3D	Consistently high perf	ormance	4 - 360	8 – 2,880 GB	AMD Genoa		
\bigcirc	E2	Low-cost day-to-day c	omputing	0.25 - 32	1 – 128 GB	Based on availability		
۲	N2	Balanced price and pe	rformance	2 - 128	2 – 864 GB	Intel Cascade and Ice Lake		
0	N2D	Balanced price and pe	rformance	2 - 224	2 – 896 GB	AMD EPYC		
\bigcirc	T2A	Scale-out workloads		1 - 48	4 – 192 GB	Ampere Altra ARM		
\bigcirc	T2D	Scale-out workloads		1 - 60	4 – 240 GB	AMD EPYC Milan		
0	N1	Balanced price and pe	rformance	0.25 - 96	0.6 - 624 GB	Intel Skylake		

Step 5: Choose your desirable CPU and RAM settings.



Machine type

Choose a machine type with preset amounts of vCPUs and memory that suit most workloads. Or, you can create a custom machine for your workload's particular needs. Learn more \square

PRESET	CUSTOM								
n2-standar	d-8 (8 vCPU, 4 co	re, 32 GB memory)		•					
		vCPU	Memory						
		8 (4 cores)	32 GB						
✓ ADVANCED CONFIGURATIONS									

Step 6: Select Boot disk. Press Change

Boot disk 🤨	
Name	eve-pro-v6
Туре	New balanced persistent disk
Size	10 GB
Licence type 💡	Free
Image	😯 Debian GNU/Linux 12 (bookworm)
CHANGE	

Step 7. Select Custom images, select nested-ubuntu-jammy *you created previously*. Choose HDD disk type and size. HDD size can vary depends of your needs. Boot disk

what you're looking for? E	xplore hundreds of VM so	lutions in <u>Marketplace</u>		
PUBLIC IMAGES	CUSTOM IMAGES	SNAPSHOTS	ARCHIVE SNAPSHOTS	EXISTING DISKS
Source project for images * eve-test-276509		0	CHANGE	
Show deprecated ima	ges			
Image * nested-ubuntu-jammy			•	
x86/64, Created on 16 Apr	2024, 08:54:24			
Boot disk type *				
SSD persistent disk			•	
COMPARE DISK TYPES)			
Size (GB) *				
Provision between 10 and	65536 GB			
V SHOW ADVANCED CC	NFIGURATION			
SELECT CANCEL				

Step 8: Allow https traffic.



Identity and API access @

Service acco	
Compute En	gine default service account
	Service Account User role (roles/iam.serviceAccountUser) to be set for user access VMs with this service account. Learn more
Access scope	s 9
Allow defa	ault access
Allow full	access to all Cloud APIs
Set acces	s for each API
Firewall	0
Add tags and fi	rewall rules to allow specific network traffic from the Internet P traffic
Allow HT	PS traffic

Step 9: Select Advanced Options. Expand Networking/Network Interfaces Edit network interface and select previously created network: mtu1500 Skip this step if your EVE VM will not a part of EVE-NG Cluster. Create VM.

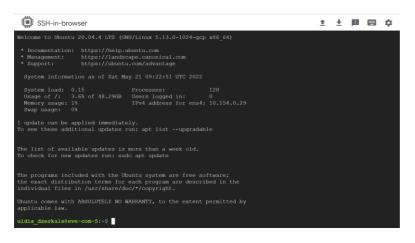
Ne	etwork interfaces 🛛 🛛		
Net	twork interface is permanent		
	Edit network interface	î	^
	Network *		
	mtu1500	•	0
	Subnetwork *	•	Ø
	mtu1500 IPv4 (10.154.0.0/20)	•	0

3.4.6 EVE-NG Pro installation

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







Step 2: Launch installation with:

Type the below command to become root: sudo -i

Start EVE-PRO installation

```
wget -0 - https://www.eve-ng.net/jammy/install-eve-pro.sh | bash -i
```

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

apt upgrade **Confirm with Y**

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



Step 5: IMPORTANT: Setup IP

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

	Type the Root Password: x lqqqqqqqqqqqqqqqqqqqqqqqqqq x x m
· · · ·	
eveprogcp0eve-pro:~\$ sudo −i	

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

Step 6: Reboot



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

Type command to become root:				
sudo -i				
Type command to update EVE				
apt update				
Type command to Install Dockers				
apt install eve-ng-dockers				
root@eve-ng:~# dc images				
REPOSITORY TÃO 1MAGE ID CREATED SIZE evve-desktp latest col33362147 12 hours ago 3.650E evve-sgui-server latest od213621417 12 hours ago 3.650E evve-sgui-server latest 0216261181.05 7 weekše ago 3.640E evve-sirvelsark dalista 7 weekše ago 1.560E roctBever-sjr## latest 62009773s89 7 weeks ago 1.560E				

3.4.7 Access to Google Cloud EVE-PRO

Use your public IP for accessing EVE via https.

= Filter VM ins	stances					Columns •
Name ^	Zone	Recommendation	In use by	Internal IP	External IP	Connect
🗌 🔮 eve-pro	europe-west2-c			10.154.0.2 (nic0)	35.246.119.90 🛛	SSH 🕶 🚦



Default web login: admin/eve

3.4.8 Optional: GCP MTU 1460 Firewall rules for native console use

NOTE: If your GCP VM is using default network (MTU1460), then for native console use, you have to create following FW rules.

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

Copy the following commands in SHELL Cloud console:

```
###### Create default network (MTU 1460) Firewall rules for native
console use #####
gcloud compute firewall-rules create eve-all-out --direction=EGRESS -
-priority=1000 --network=default --action=ALLOW --rules=tcp:0-65535 -
-destination-ranges=0.0.0.0/0
```



```
gcloud compute firewall-rules create eve-all-in --direction=INGRESS -
-priority=1000 --network=default --action=ALLOW --rules=tcp:0-65535 -
-destination-ranges=0.0.0.0/0
```

Firewall rules summary:

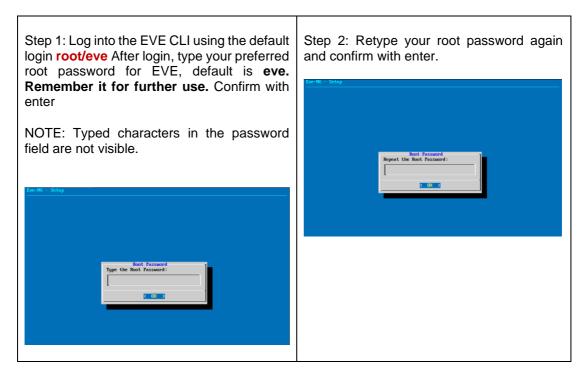
Name	Туре	Targets	Filters	Protocols/ports	Action	Priority	Network 个	Logs
eve-all-out	Egress	Apply to all	IP	tcp:0-65535	Allow	1000	default	Off
eve-all-in	Ingress	Apply to all	IP	tcp:0-65535	Allow	1000	default	Off

3.5 EVE Management IP Address setup

3.5.1 Management static IP address setup (preferred)

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

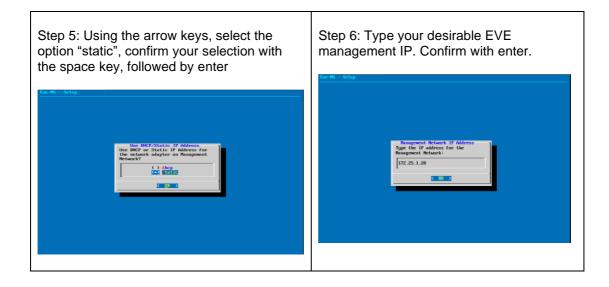
The steps below will walk you through the network setup and assign a static management IP for EVE.

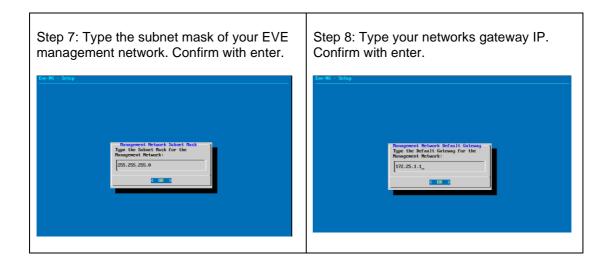


Step 3: Choose your EVE VMs hostname. By default, it is eve-ng . You can leave it as it is. Confirm with enter	



Ker HS - Schop	Confirm with enter
Type the short hostsame for the system: system: eve-mp	Type to DPS domain mane Type the DPS domain mane for the sprice: eve-ug.net C 0: 2

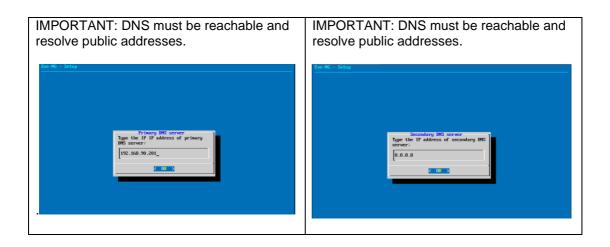


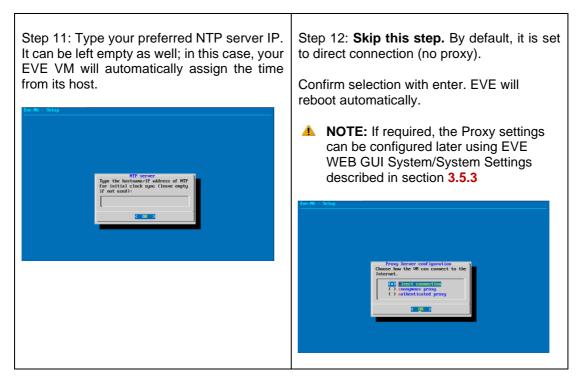


	Step 10: Type your network Secondary DNS IP. Confirm with Enter.
IP. Communemen.	









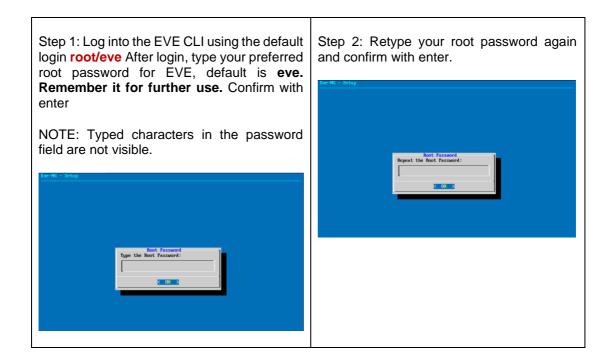
IMPORTANT NOTE: If you are setting up your management IP for the first time (fresh EVE installation), please return to the install section and complete installation Phase 3.

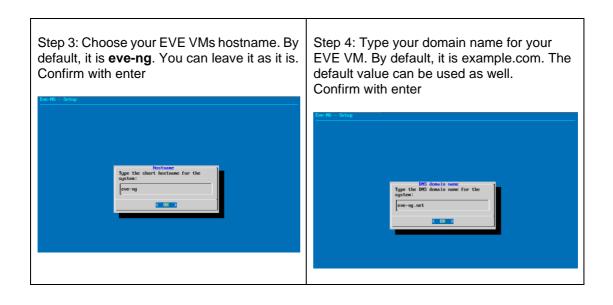
3.5.2 EVE Management IP address setup via DHCP

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

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



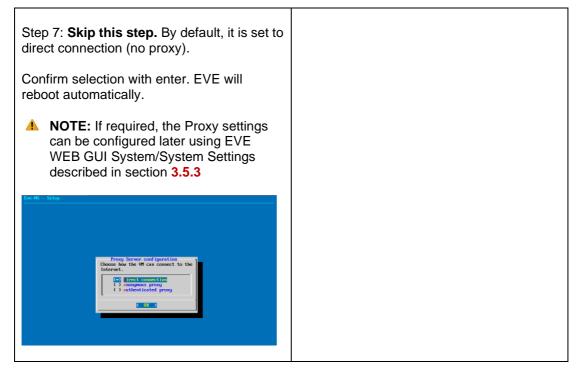




Step 5: Using the arrow keys, select the option "dhcp", confirm your selection with the space key, followed by enter	Step 6: Type your preferred NTP server IP. It can be left empty as well; in this case, your EVE VM will automatically assign the time from its host.
--	---







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

3.5.3 Internet proxy setup

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

Default username: admin Password: eve

Step 2: Select Tab: System/System Settings



	Professional	🎢 Main	🖋 Management 🗸	🗗 System 🗸	🚯 Inforr	mation -	i Licensing 🗸	@2019 Eve-NG
🚓 File manag	er Current po	osition / roo	t	📽 System : 🛈 System s				
New Name				🗘 System l 🗙 Stop All N		Add fold	er	

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

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

3.5.4 EVE Management IP address reset

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

rm -f	/opt/ovf/	.configured	

Then type:

su -

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



3.6 Native telnet console management setup

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

3.6.1 Windows Native Console

Step 1: Download the EVE Windows Client integration pack: <u>http://www.eve-ng.net/downloads/windows- 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. Image: Stup - EVE-NG-Win-Client-Pack Image: Stup - Eve-Pack Image: Stup - E	Step 4: Continue with Next. When it asks to choose Ultra VNC Options, only leave the UltraVNC Viewer checked, the rest is not needed.
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: Secure CRT

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 Choose					
<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

3.6.2 Linux Native Console

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

Step 1: Go to the EVE Linux Side integration pack download page: <u>http://www.eve-ng.net/downloads/linux- client-side</u>	Step 2: Open the link to GitHub https://github.com/SmartFinn/eve-ng- integration
Step 3: Scroll down to the installation part	
Ubuntu and derivatives You can install eve-ng-integration from the official PPA:	
sudo add-apt-repository pps: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>



3.6.3 MAC OSX Native Console

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

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

3.7 Login to the EVE WEB GUI

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

https://<your_eve_ip>/

Default user access:

User: admin

Password: eve

- **A** NOTE: You can change your EVE Admin password, please refer to section **7.3.1.2**
- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 17



4 EVE-NG Professional Licensing

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

EVE-NG permits up to **32000 accounts** to be created but restricts the number of simultaneous sessions per role to the licensed amount. To increase the number of active sessions, please purchase additional licenses on top of the base license as shown below.

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

License information	Example1 EVE-Professional: The license information page shows 2 Admin accounts. This means 2 Admin role-based
Expirity Date: 20190507 Admins: 2	accounts can be logged into the Web GUI simultaneously. If a third Admin account logs into the Web GUI, the first active Admin session will be disconnected. Please note that the first
Editors: 0	Admin's labs will keep running. EVE-NG PRO can have up to
Users: 0	128 accounts, but active sessions to the Web GUI are restricted to the number of purchased licenses.

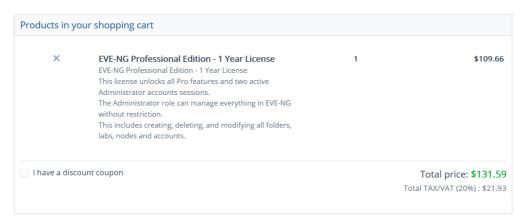
License information	<u>Example2 EVE Learning Centre</u> : The license information page shows 2 Admin and 3 Lab-user role accounts. This means 2 Admin and 3 User accounts can be logged into the
Expirity Date: 20190507 Admins: 2	Web GUI simultaneously. If a fourth User account or third Admin account logs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

4.1 EVE-NG Professional Base license

EVE-NG Professional Edition - 1 Year License

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

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



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



4.2 EVE-NG Learning Centre licenses

EVE-NG Learning Centre Edition - 1 Year License

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

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

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

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

EVE-NG PRO – A Base License (Mandatory)

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

The following licenses below can vary per your needs.

EVE-NG PRO - Administrator License

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

EVE-NG PRO – Lab-Editor License



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

EVE-NG PRO – Lab-User License

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

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

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

replaced by an Administrator account instead. Five Lab-User role-based Student accounts allowing running a class with 5

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

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

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

4.3 EVE-NG Corporate licenses

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

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



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

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

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

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

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

4.4 User roles comparison chart

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



Lab objects management add			
text, drawing on labs	yes	yes	no
Export/import labs	yes	yes	no
Nodes list management	yes	yes	yes, read-only
Networks management	yes	yes	yes, read-only
Start labs	yes	yes	yes
Stop labs	yes	yes	yes
Search labs	yes	yes	yes
Wipe nodes	yes	yes	yes
Console to all nodes	yes	yes	yes
Export all configs	yes	yes	no
Edit lab	yes	yes	no
Set nodes startup-cfg to default configset	yes	yes	no
Set nodes startup-cfg to none	yes	yes	no
Topology refresh	yes	yes	yes
Topology zoom	yes	yes	yes
EVE status	yes	yes	yes
Lab details UUID	yes	yes	yes
See startup configs	yes	yes	no
Delete default startup configs	yes	yes	no
Create and manage multiconfig sets	yes	yes	no
Close labs	yes	yes	yes
Lock labs	yes	yes	no
System/Stop all nodes	yes	no	no
Information tab access	yes	yes	yes
Work with more than one lab	yes	yes	yes
Lab timer function	yes	yes	no
Lab background dark mode	yes	yes	yes
Hide node labels	yes	yes	yes
EVE Cluster administration	yes	no	no
EVE Cluster servers'	Vec	no	no
assignment per user	yes		110

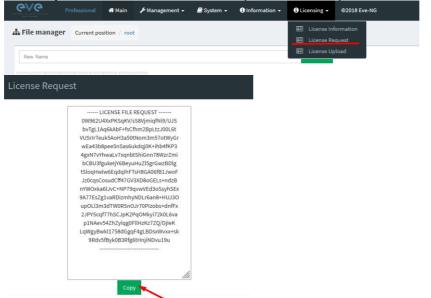
4.5 License purchasing and activation

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

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



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



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

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

EVE-PRO Purchase Portal

EVE-Learning Centre or Corporate Purchase Portal

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



	PayPal	WIRE

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

Billing Information		
Licensed to:	Person Company	
First name*:		
Last name*:		
Address*:		

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





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

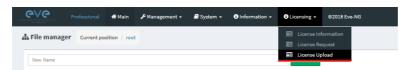
Step 7: After a while (usually 10-30 mins), your license is sent to the E-Mail used in the order form.

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

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



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



Paste your licence and click on Upload





4.6 License deactivation

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

▲ Go to EVE CLI and type:

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

4.7 License Rehosting.

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

A Pre-requisites:

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

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

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

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

Step 4. Reboot your new EVE

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

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



5 EVE-NG Professional Update & Upgrade

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

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

ping www.google.com

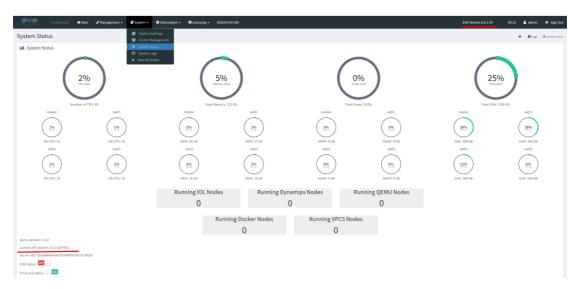
root@eve-ng:~#"ping'www.google.com	FIE-R
PING www.google.com (216.58.207.228) 56(84) bytes of data.	
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=1 ttl=58 time=9.11	msern
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=2 ttl=58 time=19.5	ms
64 bytes from arn09s19-in-f4.1e100.net (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.

5.1 EVE-NG Professional Update

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

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



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

Type the below commands followed by Enter

apt update

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



5.2 EVE-NG Professional Upgrade

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

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

Type commands followed by Enter

apt upgrade

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

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

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

Answer for prompt above is "N"

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

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

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

reboot

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



6 Types of EVE management consoles

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

EVE Pro supports three different console types.

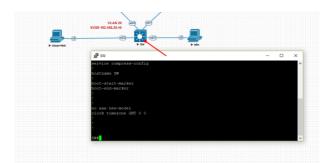
6.1 Native console



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

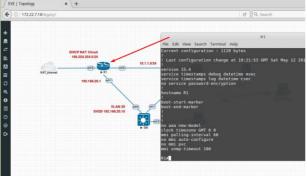
6.1.1 Native Console: telnet

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



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

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





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

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

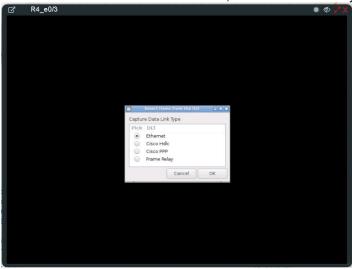
6.1.2 Native Console: Wireshark

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

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

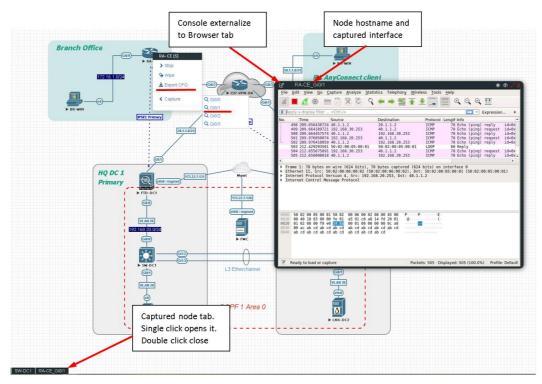
EVE-PRO supports packet captures on ethernet and serial interfaces. Select the interface frame type which will be captured:

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



Integrated HTML RDP for Wireshark capture





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

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

6.1.3 Native Console: VNC

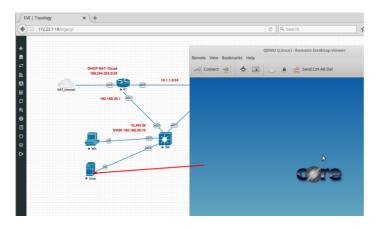
Windows OS: Recommended and tested is UltraVNC but any other compatible one can be used.

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



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



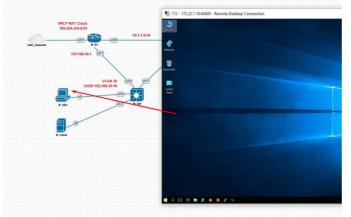


MAC OSX: Preferred VNC program: Chicken VNC

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

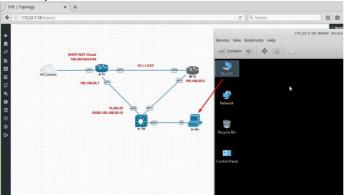
6.1.4 Native Console: RDP

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



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

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



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

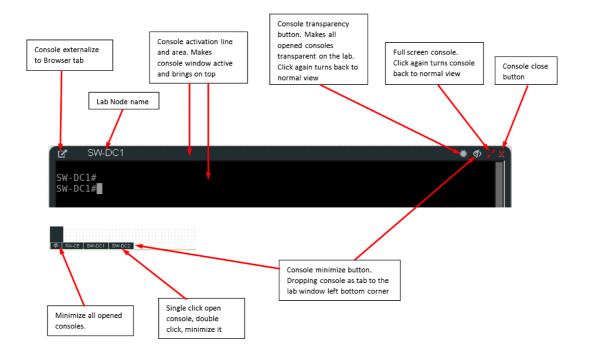


6.2 HTML5 console



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

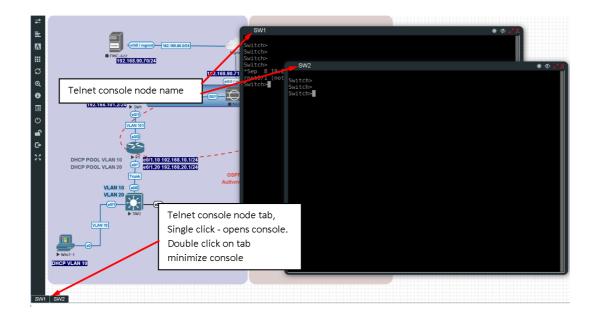
6.2.1 HTML5 Console window functions



6.2.2 HTML5 Console: Telnet

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





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

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

Option: The new Firefox v 63.0.3 and higher allows the use of the copy/paste function inside the HTML session. Type in your Firefox browser "**about:config**" and enable clipboard values below:

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

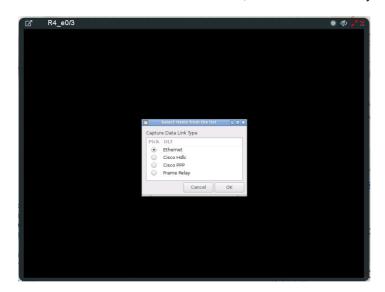
6.2.3 HTML5 Console: Wireshark

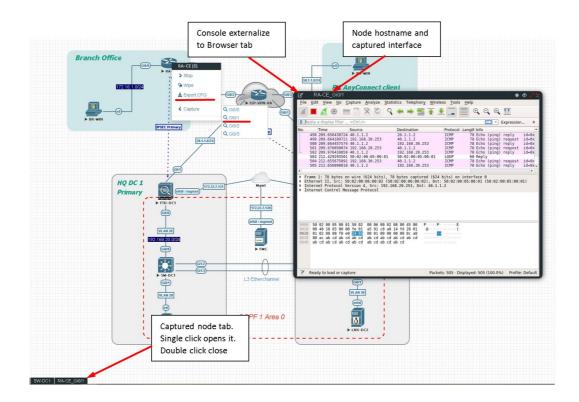
Right click on the node you wish to capture, choose capture and the interface. Capture Session will open in a new browser window.



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

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





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

6.2.4 HTML5 Console: VNC

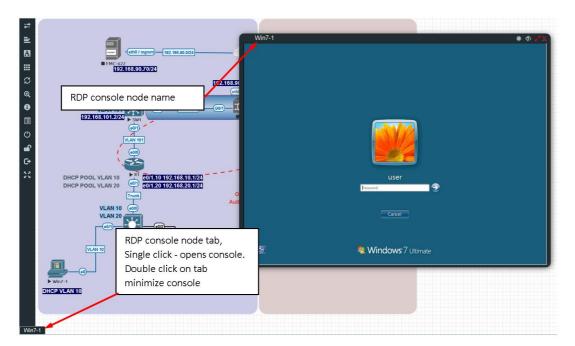
HTML5 VNC console is integrated and opens VNC sessions in the browser.





6.2.5 HTML5 Console: RDP

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



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

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



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

)E			:
Template				
Windows				•
ID				
7				
Image				
win-10-x86-20H2v3				*
Name/prefix				
HQ-PC				
lcon				
📕 Desktop2.png				-
UUID				
2c938db1-a889-4d70-ac4	b-17ab622e74ce	6		
CDULLimit				
CPU Limit				
CPU	RAM (MB)		Ethernets	
2	4096		1	
First Eth MAC Address				
50:0a:00:07:00:00				
QEMU Version	QEMU Arch		QEMU Nic	
4.1.0 -	x86_64	•	tpl(e1000)	*
QEMU custom options				
-machine type=pc,accel=	kvm -cpu host,+p	ocid,+kvm_pv_	unhalt,+kvm_pv_eo	i,hv_sr
Startup configuration		Satellite		
Startup configuration	-	sat1		*
		Sact		
Delay (s)				
Console				_
rdp-tls				Ť
RDP Username				
user				
RDP Password				
Test123				
Left		Тор		
60		573		



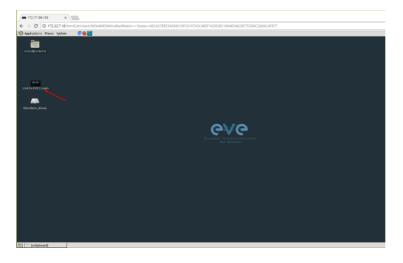
6.3 HTML5 Desktop console



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

6.3.1 Login to HTML5 Desktop console

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



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

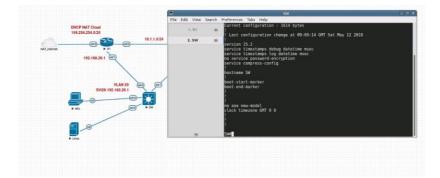


Inside of the integrated docker station, it will open another session to EVE. All features inside of the Docker Desktop will work as you are used to with the Native console.



6.3.2 HTML5 Desktop Console: telnet

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

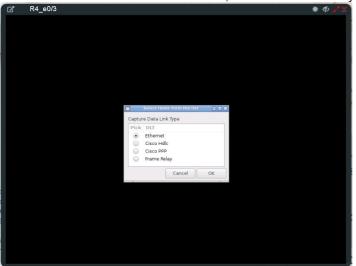


6.3.3 HTML5 Desktop Console: Wireshark

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

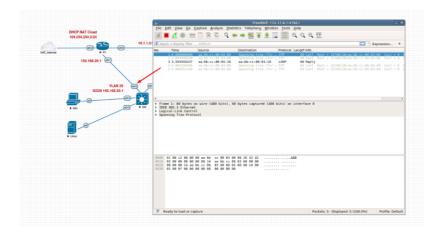
EVE-PRO supports packet captures on ethernet and serial interfaces. Select the interface frame type which will be captured:

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



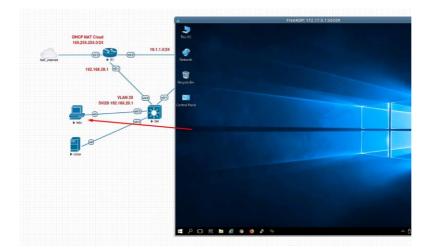
The integrated management docker station Wireshark client allows you to capture and save captured files onto the docker station. For instructions on how to save files to your local PC, please refer to section 11.3





6.3.4 HTML5 Desktop Console: RDP

The integrated management docker station RDP client allows you to open Remote Desktop sessions to Windows nodes. For directions on how to transfer files to the local PC, please refer to section 12



6.3.5 HTML5 Desktop Console: ThinClient Files exchange

The HTML5-Desktop console offers an amazing feature that allows you to exchange files between your host PC and the EVE management Linux host. Please refer to section 12 for detailed instructions.



7 EVE WEB GUI Management

7.1 EVE Management Page

The Main EVE management window

CVC Professional # Main / Management	B System - O Information - O Licensing -		23:26 👗 oldis 🕪 Sign
File manager Current position root			
New York	and follow	C SD-WAN Lab	
0	Management buttons		Scale
🔲 🍋 Running	^		
CCNP_TS_LAB	12 Apr 2020 08:31		
Cisco	03 Feb 2020 09:34		
DC DC	11 Jun 2020 09:35	Aven (in)	
imported	07 Apr 2020 20:41	10-31-1	
🛄 🖿 Juniper	22 Jun 2020 17:28		
Miscelaneous	22 May 2020 21:39		
POC Customer Projects	08 Apr 2020 23:34	A Comment A Comment	
POC Technology	18 Jun 2020 17:35	Lab Path: /SD-WARC SD-WAR Lab uni Version: 1	
🗋 🍋 RS	07 Apr 2020 20:40	UUID: 19509bcs-3763-430b-b753-beb5223568#4 Authori	
SD-WAN	22 Jun 2020 23:12		
E SEC	04 Apr 2020 22:22	Open	
D Shared	17 Jun 2020 14:44	Description:	

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

7.1.1 Management buttons

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

Button	Description
	Select All or Deselect All folders or labs in the EVE tree
h	Create/Add new Lab
1	Change selected item name. To use this option, please select the folder or lab that you want to rename. You must not rename the Shared folder, the Users folder or any folder inside the Users folder.
×	Move selected item(s) to a different location. To use this option, please select the folder(s) or lab(s) that you want to move.
۲	Delete selected folders or labs. You must not delete the Shared folder, the Users folder or any folder inside the Users folder.
*	Import an EVE lab or lab folder from a previous export. Import file must be in .zip format



+1	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.
P	Toggle the sorting folders and labs between alphabetical and last edit date (ascending/descending cannot be changed currently).
С	Refresh current folder content
٩	Lab Search function, case insensitive and match directory as well Find Lab Find Lab Find Lab Find Lab Find Cancel

7.1.2 Management tabs

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

Tab	Description
# Main	Returns back to the EVE Home Management screen.
۶ Management 🗕	Management dropdown, opening the management submenu.
 ✓ User management → Node management → Lab management 	Management submenu, refer to sections: 7.3, 7.3.2, 7.3.3
System → System Settings	System dropdown.
 Cluster Management System status System logs Stop All Nodes 	System submenu, refer to section 7.4



€ Information -	Information dropdown
 Cookbook About Forum YouTube Channel Help on EVE-NG LiveChat 	Information submenu, for details see section 7.5
€ Licensing -	Licensing dropdown
 License Information License Request License Upload 	Licensing management, please see section 4

7.2 Folders and Lab files management

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

7.2.1 Folders Management

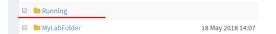
EVE Professional has three default folders used for various operations. These must not be deleted or renamed (see below).

🗆 🖿 Running	
🗆 🖿 Shared	23 Mar 2018 02:41
🗆 🖿 Users	18 May 2018 12:48

- Admins can create additional folders for any user.
- Editors can create or manage folders in their own profile/folder or within the Shared folder

7.2.1.1 Default folder Running

EVE professional allows a single user to run multiple labs and switch between them with the Running folder.



Example:

- Start a lab and close it
- Open and start another lab and close it

When you open your Running folder, you will see both running labs in it. It is easy to switch between labs.

The example below is showing two running labs in the Running folder.



File manager Current position	root / Running	
New Name		Add folder
•		
test_lab1		18 May 2018 12:58
test_lab2		18 May 2018 13:36

7.2.1.2 Default folder Shared

To manage the Shared folder an Admin or Editor user account is required.

The EVE Professional Shared folder is visible to all EVE users. Admin and Editor Accounts can create folders or labs and place them into the Shared folder.

Shared	18 May 2018 15:16
🔲 🔚 Users	18 May 2018 14:31

Example: An Admin creates a lab and places it into the Shared folder.

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

Step 1: Create a lab, refer to section 8.1

Step 2: Select the lab you wish to move to the Shared folder and press **Move to** (or create it in the Shared folder from the start).

File manager Current position / root		Move files to	
	Add folder	Files selected to move:	
Running		test_lab2.unl	
🗆 🖿 Shared	23 Mar 2018 02:41	Current files position /	
🗆 🖿 Users	18 May 2018 12:48	New path	
✓☑ Lest_lab1.unl	18 May 2018 12:58	/ tFolder/	~
test_lab2.unl	18 May 2018 13:36	Running troutery Shared	
		Users	Move Cancel

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

e ∨e		🖶 Main	🗜 Management 🗸	🖴 System 👻	Information +	€2018 Eve-NG	11:45	🛔 test2	🕒 Sign out	
👍 File mana	ger Current po	sition / roo	t / Shared							
New Name					Add folder					
• • /	× 8 ¥	± 0	Ø							
•						Choose a lab for more info				
🗆 📑 test_	lab1.unl			18 May 2	2018 12:58					

NOTE: Every user has its own profile; this means that every user has an independent Running folder where this lab runs independently from other users.



- NOTE: Labs can be created and modified (e.g. settings and preconfigs) by an Admin or an Editor user. The User role can use the lab only exactly the way it was configured by an Admin or Editor and is unable to change any settings.
- A NOTE: Admins and Editors can create folders and labs inside the Shared directory

7.2.1.3 Default folder Users

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

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

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

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

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

🛔 File manager	Current position / root /	Users
New Name		Add folder
• • *	* * * * *	3
b		
🗆 🖿 test2		18 May 2018 14:30
🗆 🖿 test3		18 May 2018 14:29
🗆 🖿 test4		18 May 2018 14:31

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

7.2.1.4 Create folder

La File manager Current position / root An Admin or Editor user account is required. Myfolder 🗸 Type the new folder name and click "Add Folder" 0 🖿 / % 8 ± ± 0 0 🗆 🖿 Running NOTE: Editors can only create folders 🗆 🖿 Shared 18 May 2018 13:49 within their own profile folder or in the Shared folder 7.2.1.5 Delete folder An Admin or Editor user account is required. File manager Current position / root Delete selected items Select the folder you wish to delete and press Delete. 🗆 🖿 Running 🗸 🗹 📁 MyLabFolde 18 May 2018 14:07 NOTE: All folder content will be deleted as 🗆 🖿 Shared 18 May 2018 13:49 🗆 🖿 Users well. 🗆 🖹 test_lab1.un

test lab2.un

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

	18 May 2018 12:48
l	18 May 2018 12:58
l	18 May 2018 13:36



7.2.1.6 Move Folder

An Admin or Editor user account is required.

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

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

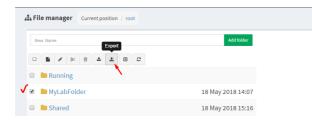
File manager Current position / root	
New Folder Mana Move to	Add folder
🗆 🖿 Running 🔪	
🕢 🖿 MyLabFolder	18 May 2018 14:07
🗆 🖿 Shared	18 May 2018 13:49
🗆 🖿 Users	18 May 2018 12:48
test_lab1.unl	18 May 2018 12:58
test_lab2.unl	18 May 2018 13:36

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

Move files to			
Files selecte	d to move:		
MyLabFolde	r		
Current files position /			
1			~
Running	tFolder/		
MyLabFolder	/		
Shared	×		
Users		Move	Cancel

7.2.1.7 Export Folder

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



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

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

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

7.2.1.8 Import Folder

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

Step 1: Press the Import button.



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

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

→ × ↑ 📑	This PC > Desktop > Exports >		マ Ö Search Exp	ports	م
rganize 🔻 🛛 New f	older			8== - [1 6
This PC	Name	Date modified	Туре	Size	
3D Objects	EIGRP cfg set 2	15/03/2018 12:10	File folder		
Desktop	EIGRP cfg set 2.zip	15/03/2018 12:11	WinRAR ZIP archive	2 KB	
Documents	EIGRP cfg set.zip	15/03/2018 12:10	WinRAR ZIP archive	4 KB	
	Firepower_poc_623.zip	12/04/2018 11:16	WinRAR ZIP archive	51 KB	
Downloads	📜 UD_lab_folder.zip 🔪	18/05/2018 23:31	WinRAR ZIP archive	258 KB	
Music					
Pictures					
Videos	`				
🏪 System (C:)					
🕳 Donna (E:)					
👝 Data (G:)	*		×		
Fil	le name: UD_lab_folder.zip		 All Files (*.*)	~

Step 3: Press the Upload Button

di Fi	e manager Current position / root					
Nam	e	Size	Progress	Status	Actions	
UD_	ab_folder.zip	0.25 MB			① Upload	×
Ne	Add folder					
D	b / 3× 8 d 1 0 C					

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

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

7.2.2 Lab files Management

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

eVe Professional ● Main	agement • 🖉 System • 0 Information • 0 Lice	t + ©2018 Eve NG 14:02	📥 admin	🕞 Sign ou
File manager Current position / root				
New Name	Add folder			
0 1 2 2 2 2 2 2 0 0				
🗉 🔚 Running		Choose a lab for more info		
🗉 🖿 MyLabFolder	18 May 2018 14:07			
Shared	18 May 2018 15:16			
🗉 🖿 Users	18 May 2018 14:31			
test_lab1.unl	18 May 2018 12:58			
test_lab2.unl	18 May 2018 13:36			

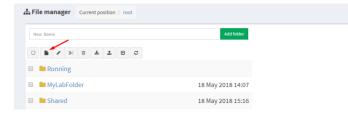


7.2.2.1 Create Lab

The Admin or Editor user account is required.

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

Click on the New Lab button and refer to section 8.1



7.2.2.2 Delete Lab

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

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

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

Professional #Main	🗲 Management 👻 🗐 System		🕄 Licensing 👻	©2018 Eve-NG
File manager Current position / ro	pot			
New Name Delete selected items		Add folder		
	C			
🗆 🖿 Running				
🔲 🖿 MyLabFolder	18 M	ay 2018 14:07		
Shared	18 M	ay 2018 15:16		
🔲 🖿 Users	18 M	ay 2018 14:31		
🗷 📑 test_lab1.unl 🗸	18 M	ay 2018 12:58		
test_lab2.unl	18 M	ay 2018 13:36		

7.2.2.3 Clone Lab

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

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

The cloning feature provides a very convenient way to duplicate original labs to share with others or base another lab on it.

Cloned labs will copy exported configs (on supported nodes) but will not copy saved states/configurations in Qemu nodes like Windows hosts, Cisco ISE, or other Qemu nodes. 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.



File manager Current position / root	
New Name	Add folder
🔲 🖿 Running	
🔲 🖿 MyLabFolder	18 May 2018 14:07
🗉 🖿 Shared	18 May 2018 15:16
🔲 🖿 Users	18 May 2018 14:31
🕝 💾 test_lab1.unl 🥆	a< Move to 🕼 Rename 🖺 Clone 🧃
test_lab2.unl	18 May 2018 13:36

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

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

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

test_lab1.unl	18 May 2018 12:58
🗆 💾 test_lab1_1526649330089.unl 🥆	% Move to 🕝 Rename 🗈 Clone 💼

Step 4: Rename it, and click OK to confirm

t e	est_lab1.unl	18 May 2018 12:58
	test_lab1_mynew_clone	Ok

7.2.2.4 Move Lab

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

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

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

🔍 📑 test_lab1.unl			18 May 2	2018 12:58
test_lab1_mynew_clone.unl	~	% Move to	🕼 Rename	Clone 🔋
test_lab2.unl			18 May 2	2018 13:36

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

Move files to)			
Files selecte	d to move:			
test_lab1_m	ynew_clone.unl			
Current files position /				
1				~
Running	tFolder/			
MyLabFolder 📥 Shared		~	Move	Cancel
Users				

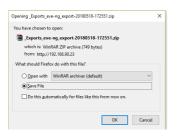
7.2.2.5 Export Lab

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



đ, F	le manager Current position / root	
N	ew Name	Add folder
0		
	Running	
	MyLabFolder	18 May 2018 17:24
	Shared	18 May 2018 15:16
	busers 🖿	18 May 2018 14:31
~₽	test_lab1.unl	18 May 2018 12:58
~ Ø	test_lab2.unl	18 May 2018 13:36

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

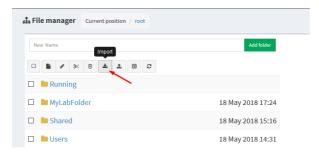


If your browser is set to save downloaded files to default directory, your exported file will be saved in the browsers default downloads directory.

7.2.2.6 Import Labs

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

Step 1: Press the Import button.



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

> -> 1 📘 ->	This PC > Desktop > Exports >		✓ ひ Search Exp	ports	Q
Organize 👻 New f	older				
	Name	Date modified	Туре	Size	
📌 Quick access	EIGRP cfg set 2	15/03/2018 12:10	File folder		
a OneDrive	EIGRP cfg set 2.zip	15/03/2018 12:11	WinRAR ZIP archive	2 KB	
This PC	EIGRP cfg set.zip	15/03/2018 12:10	WinRAR ZIP archive	4 KB	
- marc	🔚 Firepower_poc_623.zip 🔪	12/04/2018 11:16	WinRAR ZIP archive	51 KB	
👝 Donna (E:)					
Network		N			
	e name: Firepower_poc_623.zip		 All Files () 	* *)	~

Step 3: Press the Upload Button



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

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

ame		Size	Progress	Status	Action
irepower_poc_623.zip		0.05 MB		Success	(C) Uplow
New Name	Add folder				
0 b / x 8 1 8 0					
🗆 🖿 Running			Choose a lab for more in	nfo	
MyLabFolder	18 May 2018 17:24				
🗆 🖿 Shared	18 May 2018 15:16				
🗆 🖿 Users	18 May 2018 14:31				
FirePower FTD 623 PoC Multihomed HA.unl	12 Apr 2018 11:16				
test_lab1.unl	18 May 2018 12:58				
test_lab2.unl	18 May 2018 13:36				

7.3 EVE Management Dropdown Menu

7.3.1 EVE User management

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

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

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

7.3.1.1 Creating a new EVE User

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

e ∨e	Professional 💏 M	ain 📕 Management 🗸	🖴 System 👻	Information +	O Licensing -	©2018 Eve-NG					10:02 🚢 admin 🕞 Sign
ser manag	ement here you ca	n manage EVE-NG users									
Database of u	isers										+Add user More Info +
Username	Emi	a		Name			Role	Valid From	Expiration	POD	Actions
admin	root	@localhost		Eve-NG Administrato	r		admin			0	C# Edit 😭

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



Add New User

testuser
Use only [A-Za-z0-9@]chars
Authentication internal V
Password
•••••
Password Confirmation
•••••
Email
test@eve-ng.net
Please enter an valid email
Name
Test User
Role Administrator 🗸
Console any V
Satellites
any ×
Account Validity
From -1 0 to -1 0
POD*
4
Quotas
CPU -1 RAM -1
(GB)
* - Required Fields

Cancel

Add



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

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

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

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

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

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

Jol	nn Tester					
tole	Administrator 🗸	-	_			
	Administrator					
cco	Editor					
rom	User		0	to	-1	0

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



Role La	o User 🗸 🗸	
Console	any 🗸	1
	any	
Lab Nor	native	\sim
Satellite	html5	
Satellite	Desktop	

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

Lab	None 🗸												
	None												
Sate	/Shared/A1.unl												
Acco	/Shared/F SD-WAN Kids Lab.unl												
Fror	/Shared/RS CCNP TS Lab_test.unl	to											
FIO	-1 0	_10	-1			0	0	0	0	0	0	0	0

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

Satellites

any ×			
any			
master			
SAT01B			

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

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

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

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

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

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



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

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

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

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

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

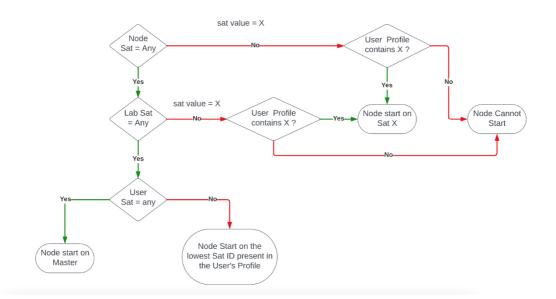
If the Lab is created on the Satellite servers which are NOT in the Lab User allowed Satellites list, this lab will not start.

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

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

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

User Profile and Lab nodes Satellite use hierarchy



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

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



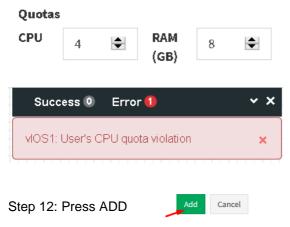
1" To remove date: Delete date, esc, type value "-1"

Account	t Valid	ity					
From	-1			0	to	-1	0
POD*							
1							
Quotas							
CPU	-1	\$	RAM (GB)	-1	\$		

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

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

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



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

7.3.1.2 Edit EVE User

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

Jser manageme	nt here you can manage EVE-NG user	rs					希 > 卢Hanagement > 營User manager
Database of users							+Add user More Info +
Usemame	Email	Name	Role	Valid From	Expiration	POD	Actions
admin	root@localhost	Eve-NG Administrator	admin			0	🕼 Edit 🔒
test	test@eve.lab	John Tester	user	2018-05-20 00:00	2018-05-30 18:00	1	G# Edit 🔒
Test2	test@eve.lab	Jenny Tester	editor	2018-05-19 00:00	2018-05-20 23:00	2	🕼 Edit 🔋

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



User Name* editor External Auth (Radius) Password Password Confirmation Password Confir	dit User
External Auth (Radius) □ Password ••••••••••••••••••••••••••••••••••••	ser Name*
Password annone Email admin@eve-ng.net Please enter an valid email Name Editor uldis Use only [A-Za-20-9] chars Role [Lab Editor ~ Console any ~ Satellite sat1 ~ Account Validity From _1 0 1 0 2 Quotas	editor
Password annone Email admin@eve-ng.net Please enter an valid email Name Editor uldis Use only [A-Za-20-9] chars Role [Lab Editor ~ Console any ~ Satellite sat1 ~ Account Validity From _1 0 1 0 2 Quotas	sternal Auth (Radius)
Password Confirmation Password Confirmation Password Confirmation Email admin@eve-ng.net Please enter an valid email Name Editor uldis Use only [A-Za-20-9]chars Role Lab Editor Satellite sat1 Satellite sat1 2 Quotas	
Password Confirmation	
Email admin@eve-ng.net Please enter an valid email Name Editor uldis Use only [A-Za-20-9]chars Role Lab Editor Console any Satellite sat1 Account Validity From -1 0 to -1 0 POD* 2 Quotas	
Email admin@eve-ng.net Please enter an valid email Name Editor uldis Use only [A-Za-z0-9] chars Role Lab Editor Console any Satellite sat1 Account Validity From -1 0 to -1 0 POD* 2 Quotas	
admin@eve-ng.net Please enter an valid email Name Editor uldis Use only [A-Za-20-9]chars Role Lab Editor Console any Satellite sat1 Account Validity From -1 0 to -1 0 POD* 2 Quotas	••••••
Please enter an valid email Name Editor uldis Use only [A-Za-z0-9]chars Role Lab Editor ~ Console any ~ Satellite sat1 ~ Account Validity From _1 0 to _1 0 POD* 2 Quotas	mail
Name Editor uldis Use only [A-Za-20-9]chars Role Lab Editor Console any Satellite sat1 Satellite sat1 O to -1 0 POD* 2 Quotas	admin@eve-ng.net
Editor uldis Use only [A-Za-z0-9]chars Role Lab Editor V Console any V Satellite sat1 V Account Validity From -1 0 to -1 0 POD* 2 Quotas	ease enter an valid email
Use only [A-Za-z0-9]chars Role Lab Editor Console any Satellite sat1 Satellite sat1 Account Validity From -1 0 to -1 0 POD* 2 Quotas	ame
Role Lab Editor Console any Satellite sat1 Satellite sat1 Maccount Validity From -1 0 to -1 0 to -1 0 Validity	
Console any v Satellite sat1 v Account Validity From -1 0 to -1 0 POD* 2 Quotas	
Satellite sat1 ✓ Account Validity From -1 0 to -1 0 POD* 2 Quotas	ole Lab Editor 🗸
Account Validity From -1 0 to -1 0 POD* 2 Quotas	onsole any 🗸
From -1 0 to -1 0 POD* 2 2 2 2 Quotas	atellite sat1 V
From -1 0 to -1 0 POD* 2 2 2 2 Quotas	rcount Validity
POD* 2 Quotas	rom to
Quotas	
	2
	uotas
16 RAM 32	
(GB)	(GB)
* - Required Fields	^r - Required Fields
Save Cancel	Source Coursel

7.3.1.3 User session termination

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

6 ∕\6	Professional 🖪 N	lain 📕 Management -	System • O Information •	O Licensing - 62020 Eve-NG								22:08 🛔 uldis (Sign ou
User manag	ement here you ca	n manage EVE-NG users										# > ≯Hanapersent > ∰lisermanapersen
Database of	users											+Add same More info +
Usernan	me	Authenticator	Email	Name	Dole	Disk Usage	Valid From	Expiration	Max CPU	Max RAM (GB)	POD	Actions
• admin		internal	admin@eve-ng.net	EVE Administrator	admin	0.01.68			Unlimited	Unlimited	0	CREAR BIECK



7.3.1.4 User monitoring

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

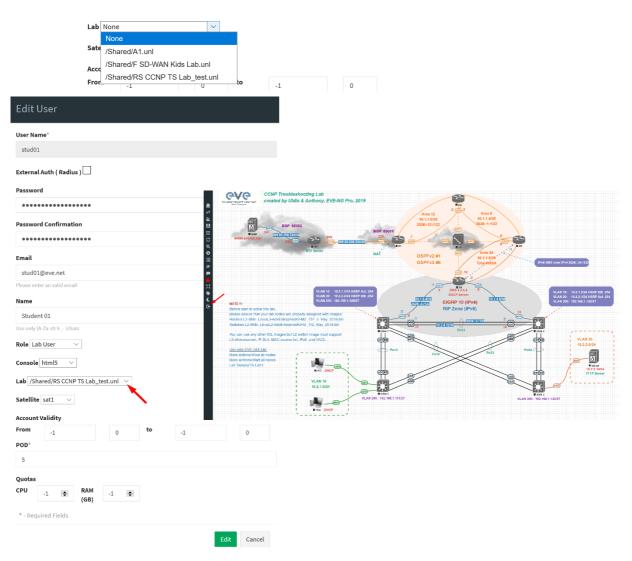
Database of	users				1 1	1	1	1	1	1	1	+Add user More Info +
lsername	Authenticator	Email	Name	Role	Disk Usage	Valid From	Expiration	Last session time	Last session ip	Current folder	Current lab	Last session time
-user1	racius	auser1@eve.lab	Auser User	user	0 GB	2018-11-22.05:30	2018-11-28 07:00	N/A	N/A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

7.3.1.5 User role sticky lab

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

Pre-requisites for this feature: The user must be created before. It must exist in EVE database. Only then use Edit user and set desired Sticky lab. For Lab selection from the list, the Lab must be upload in the Shared folder by admin first. If Lab Menu is selected to "None", User can close the Lab and open another shared Lab for him.

The value "None" is set as default.





7.3.2 EVE Node management

essional	🏕 Main	پر M	anagement 🗸	🛢 s	ystem 👻	 Informatio 	n -	(i) Li
Current po	sition / roo		User managem Node managen					
		a	Lab manageme	nt		Add folder		
≅ ≛	± 🗉	Ø						

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

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

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

7.3.2.1 Node management actions

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

7.3.2.2 Node management filtering function

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

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

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

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

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





tunning node(s)										
Labname	Lab ID	Username 🔺	Sat	Node Name	CPU usage (%)	RAM usage (%)	Disk usage (GB)	~ Template	Action	
/A1	2	ecze •	master	SW	0.02	0.07	0.001	iol	🖵 🗙	
/A1	2	ecze •	master	Mgmt	0	0.03	0.0033	docker	🖵 🗙	
/A1	2	ecze •	set1	Win	0.13	4.85	0.3188	win	🖵 🗙	
/A1	2	ecze •	master	ISR	0.02	0.08	0.001	iol	🖵 🗙	
/ASAv Site to Site Basic	1	uldis •	master	ASAv1	0.27	0.64	0.0036	asav	🖵 🗙	

7.3.3 EVE Lab management

🏦 Main	🗲 Management 👻	🗐 System 👻	🕄 Information 🚽 📢
osition / root	 User manage Node manage Lab managen 	ment	Add folder
± 7	3		

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

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

o(s) management here yo	u can manage l	EVE-NG Running Labs						# FManagement	> Windes manager
tunning Lab(s)									
abname	State +	Lab UUID	Satellite	Username	CPU usage (%)	Memory usage (%)	Disk usage (GB)	Action	
DC/EVPN-BGP-NXOS9K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	sat1	uldis •	3.84	34.34	4.9088	🚍 🗙	
DC/EVPN-BGP-NXOS5K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	sat2	uldis •	1.47	17.41	2.4736	= ×	
DC/EVPN-BGP-NXOS9K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	master	uldis •	0	0	4.9687	= ×	
Users/editor/test	•	00239193-3ffe-4b62-bd24-3a07890593a1	sat2	editor •	0	0	0.0002	= 🕥	
Users/editor/test		00239193-3ffe-4b62-bd24-3a07890593a1	master	editor•	0	0	0.0002	= 😒	
TD Policy Lab v1		04b55e95-281f-4b6c-8d40-bfcf88e3c193	master	uldis •	0	0	2.6455	📼 💁	
FTD Policy Lab v1		04b55e95-281f-4b6c-8d40-bfcf88e3c193	sat2	uldis •	0	0	12.5594	a	
/FTD Policy Lab v1		04b55e95-281f-4b6c-8d40-bfcf88e3c193	satt	uldis •	0	0	0.7696	💻 💁	

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

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

unning Lab(s)									
abname	State	Lab UUID	Satellite	Username	CPU usage (%)	Memory usage (%)	Disk usage (GB) 👻	Action	
				admin X					
iecurity/ISE dot1x mab lab new iron		35549188-e3e3-4c21-a5fc-6675df3f0809	master	admin •	0	0	0.0124	🗮 💁	
1		516ba4d5-b43e-4dd1-a1c2-6ea1358dd	master	admin •	0	0	0.002	🗮 😉	
D-WAN/C SD-WAN Lab		79509bce-37e3-410b-b751-beb922956	master	admin •	0	0	0.001	🗮 💁	
/iscelaneous/OTV_Unicast		9772442a-b05e-4237-9bb7-5c4570061	master	admin •	0	0	0.0002	🗮 😒	

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

Running Lab(s)		214							
Labname	State .	Lab UUID	Satellite	Username	CPU usage (%)	Memory usage (%)	Disk usage (GB)	Action	
/DC/EVPN-BGP-NXO59K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	sati	uldis+	3.25	34.34	4.9086	= *	
/DC/EVPN-BGP-NXO59K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	master	uldis •	0	0	4.9687	- *	
DC/EVPN-BGP-NXO59K-PRO-LAB		46d1d0cb-c3f2-4c81-a632-ca3f3d0018ef	s#t2	uldis •	2.97	17.41	2.4735		
Users/editor/test	•	00239193-3ffe-4b62-bd24-3a07890593a1	sat2	editor •	0	0	0.0002	- 🖸	
/Users/editor/test		00239193-3ffe-4b62-bd24-3a07890593a1	master.	editor.	0	0	0.0002	- 🖸	
/FTD Policy Lab v1		04b55e95-281f-4b6c-8d40-bfcf88e3c193	master	uldis •	0	0	2.6455	- 2	
/FTD Policy Lab v1		04b55e95-281F4b6c-8d40-bfcf88e3c193	set1	uldise	0	0	0.7696	= 🖸	

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



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

7.3.3.1 Lab management actions

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

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



7.4 EVE System Dropdown menu

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

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

7.4.1 System Settings



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



System settings							
Cluster Network	172.29.130.0						
Docker Network	172.17.0.0						
NAT Network	172.29.129.0						
Radius Server #1	IP	IP			Secret		
Radius Server #2	192.168.70.201 IP 0.0.0.0		1812 \$ Port 1812 \$		secret		
Active Directory Server	IP 192.168.70.200		Port 389	Ŷ	Enable T	LS	
Base DN							
dc=eve,dc=lab EVE-NG Active Directory Grou	p						
EVE Users							
Proxy Server	IP Port		User		Password		
,	0.0.0.0	0	$\hat{\mathbf{v}}$		•••1	•••1	
Template visibility	unprovisioned images Disab	le v					
Licence check	User's login control Strict	~					
Disk critical size	Minimal free space (GB)						
Html 5 terminal setting	nl 5 terminal setting Color scheme gray-black V Font name monospace V Font size 11						
Management Interface setting	Enable IPV6 🗌						
Web service setting	Enable Caching 🔽						
CPU/Memory settings	Dedicated CPU for Services (Re	eboot required)	2 🗘				
						Submit Cancel	



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

us Server #1	IP	Port	Secret
	0.0.0.0_	1812	a •••••• ()
us Server#2	IP	Port	Secret
	0.0.0.0	1812	a •••••• ()
ive Directory Server	IP	Port	Enable TLS
	192.168.90.27	389	
N			
/e,dc=lab			
Active Directory Grou	p		

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



Add New User	
User Name*	
labuser@eve.lab	8
Use only [A-Za-z0-9@]chars	
Authentication active directory ~	
Password	
•••••	
Password Confirmation	
•••••	٩

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

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

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

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

Licence check	User's login control	Strict 🗸
		Strict
		Auto logout





•	Disk critical size is value when EVE start alert you about HDD space limit		sk critical size		Minimal free space (GB)	
	reached. If you will set 5Gb value, your EVE will start show warning messages in notification area. The formula in Linux how to set desirabl		Success 0	Error 1 v >		
	threshold is: [Your full HDD size] * 5% [desirable size in GB]. Example: 500GB * 5% + 10GB = 35G value of must be set for 10GB thresho	B	1	dd new HDD to continue (Help)		
•	HTML5 Terminal settings Option to change console colour scheme, fonts, font size and backgrounds.	Html 5 termin	nal setting	Color scheme gray Font name monos	y-black V space V	
•	Management interface settings Option to enable IPv6 on the EVE Management interface	Managemei	nt Interface sett	ing Enable		
•	WEB Service caching. Option to en WEB caching EVE for Manager interface	web	service setting	Enable Cacl	hing 🗹	

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

Dedicated CPU for Services (Reboot required) 2 💲

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

Numa Balancing 🗌

7.4.2 Cluster Management



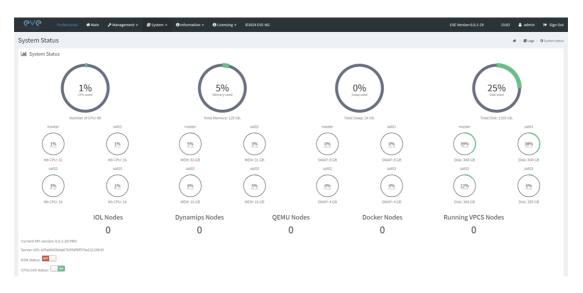
The Cluster Management page, under the System Dropdown, will show Cluster Management options, and cluster members resources utilization. Please refer to Chapter EVE Cluster System 14

7.4.3 System status



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





KSM – "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 KSM **enabled**.

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

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

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

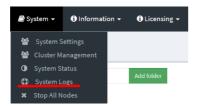
CPU Limit can be turned for individual nodes in a lab. EVE node templates are set, by default, with the recommended CPU limit settings. An Unchecked CPU Limit option means that this node will boot without CPU

limit.

Reference:

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

7.4.4 System logs



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

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



ystem logs				# Blogs	O System la
System log viewer					
Select log file	Number of Lines	Search text			
access.txt	20		View		
access.bd					
api.txt					
error.txt			File output start		
php_errors.bxt	/ani/auth HTTP/1.1" 200.557 "http://192	.168.90.23/" "Mozilla/5.0 (Windows NT 10.0: Win64: x6-	4: nr/80 8) Geckn/20100101 Firefity/60 8"		
unl_wrapper.bd	and the second second strength of the		//" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0"		
cpulmit.log					
			Mazilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0"		
172.25.1.5 [19/May/2018:00:04:2	4 +0300] "GET /themes/adminLTE/unl_data/js/angular	js/controllers/syslogCtrl.js HTTP/1.1* 200 921 "http://1	192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; nr:60.0) Gecko/20100101 Firefox/60.0"		
172.25.1.5 [19/May/2018:00:02:3	5 +0300] "GET /themes/adminLTE/unl_data/img/Logo	_EVE_Color.png HTTP/1.1" 200 108800 "http://192.168	.90.23/" "Mozilia/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0"		
172.25.1.5 [19/May/2018:00:02:3	5 +0300] "GET /themes/adminLTE/unl_data/pages/cor	istant/header.html HTTP/1.1" 200 1864 "http://192.168	1.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0"		
172.25.1.5 [19/May/2018:00:02:3	5 +0300] "GET /themes/adminLTE/unl_data/pages/cor	stant/labView.html HTTP/1.1" 200 1800 "http://192.16	18.90.23/" "Mozilia/5.0 (Windows NT 10.0; Win64; x64; rx:60.0) Gecko/20100101 Firefox/60.0"		
172.25.1.5 [19/May/2018:00:02:3	5 +0300] "GET /api/folders/ HTTP/1.1" 200 900 "http://	192.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64;	:x64: rv68.0) Gecko/20100101 Firefox/60.0"		
		.168.90.23/" "Mozilla/5.0 (Windows NT 10.0; Win64; x6-			
			/* "Mozilia/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0*		
			Aozilla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0*		
			silla/5.0 (Windows NT 10.0; Win64; x64; rv:60.0) Gecko/20100101 Firefox/60.0"		
115-52-1-2 [13/w/83/2018:00:05:3	4 #0300] OE1 /memes/adminL1E/unl_data/css/unl_la	D/CSS H11171.1 200 2146 http://192.168.90.23/~~M02	sush2/or (windows will tonit winder soet unconn) received for follot history/2010.		

7.4.5 Stop All Nodes

🗐 S	ystem 👻	 Informati 	on -	i Licensing 🗸
20 20	System S Cluster M	ettings anagement		
0	System S System L Stop All N	ogs		Add folder

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

Same can be achieved issuing cli command:

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

7.5 EVE Information Dropdown menu

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

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

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

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

7.6 EVE Licensing Dropdown menu

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

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

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

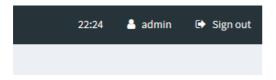
License information display:

icense inform.	ation
Expirity Date:	20190518
Admins:	2
Editors:	1
Users:	1



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

7.7 Other Tab line info



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

7.8 Lab preview and global settings

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

The actual lab topology appears after 3-5 seconds.

CVC Protessional # Main / Management -	System + O Information - O Licensing +	@2020 Eve+NO	23:30 🛔 uldis 🍽 Sign
File manager Current position root 50-WAN			
New Yorks	Auditalau	C SD-WAN Lab	
O B # * 8 A ± 8 O			Scale
•	^		
A SD-WAN HA POC Public.unl	04 Jun 2020 15:40		
A SD-WAN HA POC.unl	16 Jun 2020 23:00		
B SD-WAN FTD Lab.unl	04 May 2020 19:13		
C SD-WAN Lab Public.unl	14 May 2020 01:36		
🗌 🖥 C SD-WAN Lab.uni 🔫 🛌	22 Jun 2020 23:12		
D SD-WAN FTD TLOC.unl	18 May 2020 20:55		
Daniel SD-WAN Lab.unl	30 Apr 2020 09:33	Takanina	
E SDWAN Lab Community Public.unl	16 May 2020 21:40	Lab Path: /SD-WAR,C SD-WAR Lab and Version: 1	
F SD-WAN 20 lab.unl	08 May 2020 00:43	uuuto: " UUID: 7509bce-37e3-410b-b755-beb9229568a4 Aethori	
E SD-WAN Light 20.unl	30 Apr 2020 09:32		
SD-WAN KBITSv1.unl	15 Jun 2020 10:12	Open	
SD-WAN KBITSv1_Community.unl	11 Jun 2020 18:07	Description:	

7.8.1 Lab preview window

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



<section-header><image><complex-block><complex-block>



7.8.2 Lab preview buttons

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

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

7.8.3 Lab preview information

Description, version, UUID etc.

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

7.8.4 Lab Global Settings

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



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

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

- 1. Lab name.
- 2. Version: Version numbers allow a lab author to assign a value to a unique state of a lab. Increase the number to correspond to new developments in the lab. If left unfilled, EVE will assign a value of 1 automatically.
- 3. Author: You can add a lab author name in this field
- 4. EVE Cluster Satellite choice. By default, EVE will assign a value of "any" automatically. For cluster hierarchy please follow: Chapter 14.9
- 5. Lab sharing Feature, please follow Chapter 8.11
- 6. Config Script Timeout: It is the value in seconds used for the "Configuration Export" and "Boot from exported configs" operations. Refer to section 10.3 for more information.
- 7. Lab Countdown Timer: It is the value in seconds to provide a time limit (countdown timer) for completing a lab. Refer to section 10.4 for more information.
- 8. Description: In the Description field you can write a short description of the lab.
- 9. Tasks: In the Tasks field you can write the task for your lab.

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

LAB	DE	ΤΑΙ	LS

TEST_LAB1

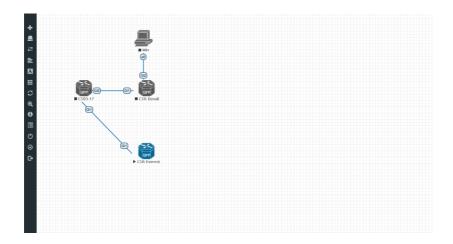
Here is short description of Lab Here are tasks for your Lab. Task 1, Please configure Routers with IP addressing Task 2. Configure ICP, EIGRP routing on all nodes Task 3. Configure windows Host to receive DHCP IP addr

EVE WEB Topology page

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

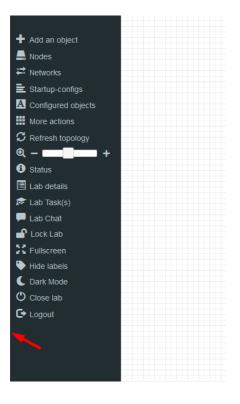
Once you open a lab, the topology page for that lab will open.





7.9 Side bar functions

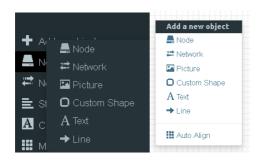
Move your mouse pointer over to the left on top of the minimized sidebar to expand the interactive sidebar as shown in below screenshot



7.9.1 Add an object

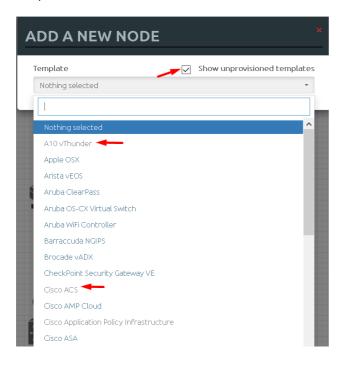
The "Add an object" menu can be accessed in two different ways, from the sidebar and by rightclicking on the Topology Page





7.9.1.1 Node object

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



7.9.1.2 Network object

The Network object opens the "Add a new network" window. This function is used to add any kind of network (Cloud, Bridge or NAT). For details on these, please refer to section 9



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

7.9.1.3 Picture object

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

ADD PICTURE					
Name	MyTopology				
Picture	Browse anycon_lab.PNG				
	Add Cancel				

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

7.9.1.4 Custom shape object

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



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

7.9.1.5 Text object

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

Add a new object	
📥 Node	
🛱 Network	D D X 6 @ @ @ < → ₱ ♥-
Picture Picture	B I U S × x ² <
Custom Shape	
A Text	Styles • Format • Font • Size • 🗛 🖸
→ Line	New Text
🖬 Auto Align	

7.9.1.6 Line object

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

ADD LINE			
Width	2	٢	
Arrow Style	→ single arrow	•	
Paint Style	Solid	•	
Line Style	Straight	•	
Line Color			
Line Label			
Save Cance	el		

7.9.2 Nodes

📕 Nodes

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



Configured nodes																					
Assig	Assigned resources to the Lak-VCPU 4-RAM 17 CB																				
ю	NAME	SATELLITE	TEMPLATE	BOOT IMAGE		CPU	CPU USAGE	СРИ ЦІНІТ	IDLE PC	NVRAM (KB)	RAM (MB)	RAM USAGE	ЕТН	SER	CONSOLE		ICON	STARTUP-C	ONFIG	ACTIONS	
1	CSR1	master ~	csr1000vng	csr1000vng-universalk9.16.09.07.Fuji	v	1	55%	n/a	n/a	n/a	4096	85.4%	4	n/a	telnet	v	CSRv1000.png *	Default	v	□=9∓0	8
2	CSR2	sat01 v	csr1000vng	csr1000vng-universalk9.16.09.07.Fuji	v	1	62%	n/a	n/a	n/a	4096	85.5%	4	n/a	telnet	v	CSRv1000.png *	Default	×	Q∎9∓G	8
з	CSR3	sat02 v	csr1000vng	csr1000vng-universalk9.16.09.07.Fuji	v	1	61%	n/a	n/a	n/a	4096	85.5%	4	n/a	telnet	v	CSRv1000.png *	Default	v	□=9∓C	8
4	CSR4	sat03 v	csr1000vng	csr1000vng-universalk9.16.09.07.Fuji	v	1	64%	n/a	n/a	n/a	4096	85.4%	4	n/a	telnet	v	CSRv1000.png *	Default	×	Q ∎9∓ G	8
5	SW	sat02 v	iol	x86_64_crb_linux_l2-adventerprisek9-ms.bin	v	n/a	1%	n/a	n/a	1024	1024	13.85	2	0	telnet		Switch L32.png*	Default	×	Q ∎%± G	÷.

In this window, you can make changes for nodes that are on the lab topology. More options can be found in the detailed node specific menu, for details refer to section 8.1.2.

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

You can change the following values:

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

Actions Buttons (Stopped node):



Delete Node

Actions Buttons (Running node):



ACTIONS

🖵 🛯 🖢 🕹 🖸

- Console to the node
- Stop node
- Wipe node
- Export the nodes config

俞

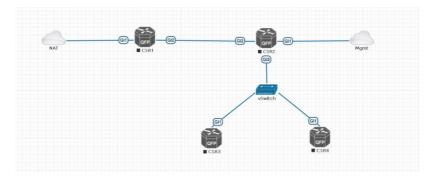
- Edit node
- Delete Node

7.9.3 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



CONFIG	URED NETWORKS			• :
ID	NAME	туре	ATTACHED NODES	ACTIONS
1	NAT	nat0	1	Ci 11
2	Mgmt	pnet0	1	Ci îl
з	vSwitch	bridge	3	6 1



c İ

🖹 Startup-configs

- Edit Network
- Delete Network



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



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

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

STARTUP-C	ONFIGS		• ×
		Config Set Default -	
ASA	4 ON	٤ ۵	Ace Editor
VEOS2	4 ON	: : Serial Number: 123456789AB	^
vEOS1	4 ON	: Hardware: ASA5520, 3584 MB RAM, CPU Pentium II 1000 MHz	
/VIOS-SW1	4 ON	: Written by enable_15 at 17:47:17.629 UTC Wed Jul 26 2017 !	
VIOS-SW2	4 ON	ASA Version 9.1(5)16 !	
		hostname ASA enable password BNy2Yijt7RRVU24 encrypted xlate per-ession deny top any4 any4 xlate per-ession deny top any6 any6 xlate per-ession deny top any6 any6 xlate per-ession deny udp any4 any6 eq domain xlate per-ession deny udp any4 any6 eq domain xlate per-ession deny udp any4 any6 eq domain xlate per-ession deny udp any6 eq domain xlate per-ession deny udp any6 eq domain interface Ethernet0 name! outside security-level 0 ip address dhcp setrote 1 interface Ethernet1 channel-group 1 mode active	
		Save Cancel	

7.9.5 Logical Maps

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

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

7.9.6 Configured Objects

A Configured objects

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

section 10.1

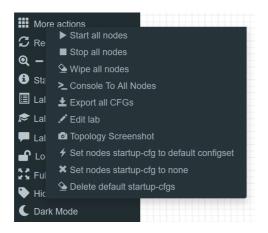
NOTE: You will not see any objects in this window if none have been added to the lab yet.

CONFIGURED OBJECTS						
ю	NAME	туре	TEXT		ACTIONS	
1	tot 1	text	Tepology xtx		8	
2	square2	square			11	

7.9.7 More actions

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





7.9.7.1 Start all nodes

► Start all nodes

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

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

7.9.7.2 Stop all nodes

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

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

7.9.7.3 Wipe all nodes

≙ Wipe all nodes

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

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

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

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



7.9.7.4 Console to All Nodes

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

7.9.7.5 Export all CFGs

🛓 Export all CFGs

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

Export configurations are supported for:

Cisco Dynamips all nodes	Juniper VRR
Cisco IOL (IOS on Linux)	Juniper VMX
Cisco ASA	Juniper vMX-NG
Cisco ASAv	Juniper vQFX
Cisco CSR1000v	Juniper vSRX
Cisco Catalyst 9000v	Juniper vSRX-NG
Cisco Catalyst 8000v	Mikrotik
Cisco Nexus 9K	PFsense FW
Cisco Nexus Titanium	Timos Alcatel
Cisco vIOS L3	vEOS Arista
Cisco vIOS L2	Aruba CX Switch
Cisco Viptela vEdge, vSmart, vBond, till	
version 18.4 only, version 19.x and later is	
not supported due implemented password	
setup feature on the first boot.	
Cisco XRv	
Cisco XRv9K	

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

7.9.7.6 Edit lab

🖍 Edit lab				Opens the E	Edit lab window. Refer to see	ction: 7.8.4
EDIT L	AB					×
Lab Cou	AUD Labs/Arist Arista MLAG in Use only (A-2a-2b-1 Use only (A-2a-2b-1 Must be interger ([UD UD cript: Timeout atdown Timer uired Fields		Seconds Seconds	Description	Antis InCAC and AGA Lab LAB Scientific 1. Configure AGR potition indexempred (node scilar) and dan Mediferes per design, connect 2. Configure AGR potition indexempred (node scilar) and dan Mediferes per design, data 3. Configure AGR and and NACP IP, such review IP from Science LAV and name this part is cold 3. Configure AGR and and NACP IP, such review IP from Science LAV and name this part is cold 3. Configure AGR and and Science LAV and With Report Fold per design, AGR must be re- 4. Configure AGR Interchannel port Big to AGR in effectuaries design. 4. Configure AGR Interchannel Science Jos AGR in effectuaries and and are 4. Configure AGR indexed and point (Science Configure AGR) and the re- st of the science and	side
7.9.7 🖸 T			oology scr creenshot	_	o export actual topology in It	Opening screenshot.png You have chasen to open: Screenshot.png which is: Proc Ge (2.1 kit) from: blob: What should Firefox do with this file? @Open.with Stars File

OK Cancel

Do this automatically for files like this from now on



7.9.7.8 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

7.9.7.9 Set node's startup-cfg to none

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

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

Please refer to section 10.3

7.9.7.10 Delete default startup-cfgs

😉 Delete default startup-cfgs

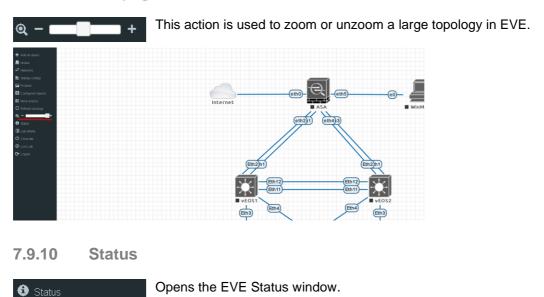
▲ WARNING: this action will delete all configurations saved to your saved default config set. Please make sure that is what you want to do before you execute this.

7.9.8 Refresh Topology

 ${\cal G}$ Refresh topology

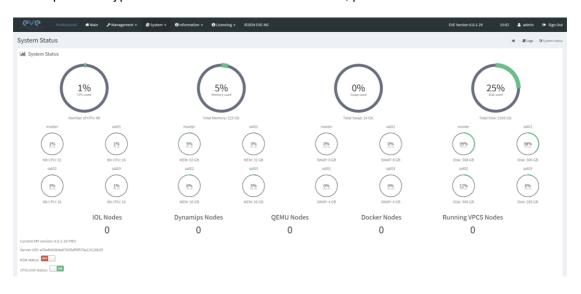
Sometimes it is necessary to refresh the topology if many objects are added on the topology.

7.9.9 Lab page zoom/unzoom





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 KSM and CPU Limit, please refer to section 7.4.3



7.9.11 Lab details

🔳 Lab details	Lab details display information about a lab, its UUID, description and lab tasks. To edit the lab description and lab tasks, please refer to
section 7.8.4 and 7.9.7	.6

LAB DETAILS	
ARISTA MLAG INTEGRATION	
ID: a808980-973c-4de3-8004-b52A9c988d00	
Arista mLAG and ASA Lab	
LAB Scenario	
1. Configure ASA ports in etherchannels (mode active) and vian interfaces per design, name it as DMZ and Corporate respectively	
2. Configure ASA e0 with DHCP IP, must receive IP from home LAN and name this port as outside	
3. Configure ASA management on port e5, and Win7 Mgmrk host per design, ASA must be reachable from Mgmrk PC over ASDM	
4. Configure Arista xEOS in milag and assign ports in etherchannels per design	
5. Configure vEDS etherchannel ports facing to ASA in etherchannel mode active	
6. Configure vEOS etherchannels facing to vIOS-SWs to etherchannel mode on	
7. Configure VIDS SVM etherchannels in mode on	
8. Configure and assign vIOS-5W's switchports in VLANs accordingly design	
9. Configure Hosts IPs par design	
10. Configure NAT on the ASA, you have to reach internet from DMZ and Corporate zones11. Corporate Zone must reach DMZ server	

7.9.12 Lab Tasks

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

7.9.13 Lab Chat

🛛 Lab Chat

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

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

[10:42:52] uldis joined [10:43:19] admin joined [10:43:24] admin: hello uldis

LAB CHATROOM

[10:43:34] uldis: hello admin



7.9.14 Lock Lab with password

"Lock Lab" disables some of the functions on the lab topology. If the lab is locked, you cannot move any node or object nor edit any node settings. Basically, the whole lab will be in readonly mode except for the lab settings itself, which you can still edit as Administrator or Editor from the main menu. The Lock Lab function is also used in conjunction with the countdown timer function, for details on this please refer to section **10**.4

🖆 Lock Lab	Enter password to lock lab
Lab is unlocked and all operations are working	Password Confirm password Lock Cancel
	Enter and confirm your lab lock password

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

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

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

7.9.15 Locked Labs Access rules

CVC Professional & Main & Management - System -	O Information + O Licensing +	©2023 EVE-NG	
File manager Current Position / root / Shared			
New Name	Add folder	001 FTD Policy Lab v1 for students	
		Cisco Security Pirepower Thread Defense Policies Lab Created by Uldis, EVE Pro, 2021	Modes used in the Lubs - Trepower PIC 6:72-65
•		1000 · · · · · · · · · · · · · · · · · ·	Brepower FTD 6, 70-65 Router: Birld; Linux1.3-Add/Stergrise/K9-462, 157, 3, May, 2018 Satitches: Billite linux, D-adventerprise/B-ms, SSA.high iron, 20196423.bin Administratives EV; EVE Docker eve-pid-server
B 001 FTD Policy Lab v1 for students.unl	10 May 2023 16:46	Company Office	HOJ-PC Windows L0x86 OMZ Server EVE Docker ever-gui-server Kali Linux EVE Docker ever-gui-server
Arista02.unl	16 May 2022 20:27		Untrusted Internet Zone
E SD-WAN ZTP Lab_Student.unl	19 Dec 2022 15:31	* 200 per 10 272,10,201,100/24 ****	() (in 100 (in 100 2010) (in 100 (in 100)) (in 100)) (in 100)
Firepower 6-6 VRF POC Lab_For Others.unl	10 Feb 2022 10:19		
Firepower DEAC PoC 002 no SW Shared.unl	09 May 2023 07:40	Section 2012 Contraction Control Contro Control Control Control Control Control Control Control Control C	
Full Scale Lab3 CSRNG Shared for all users.unl	03 Mar 2023 16:16	A MARK	e02.013.31 FP4 e01.175.3254 VLAN175 interset1 e02.02.31 FP4 e01.175.3254 VLAN175 interset1 b05 Screen services VLAN176 interset2
JNCIA-01-NAT-Internet_for engineers.unl	01 Jul 2022 22:16		htte ever July 266.1.1.20

Administrator CAN delete locked lab including shared folder. No unlock password is required.



Lab Editor CAN NOT delete locked labs, including shared folder. Editor CAN unlock Shared folder Lab and delete it, if the unlock password is known.

Professional # Main / Management -	System - O Information - ©2023 EVE-NG	EVE Version 5.0.1-103 17.50 🛔 editor02 🚺 Si
File manager Current Position / root / Shared		trar trace tra
New Name	Add folder	
.		Choose a lab for more info
001 FTD Policy Lab v1 for students.unl	10 May 2023 16:46	

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

7.9.16 Fullscreen

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

7.9.17 Hide interface labels

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

7.9.18 Dark mode or Light mode

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

7.9.19 Close lab

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

7.9.20 Logout

🕒 Logout

Log out from the EVE WEB GUI session.

7.10 EVE Lab topology menus

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



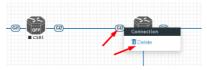
7.10.1 Lab topology menu

Add a new object
📕 Node
₽ Network
Picture
Custom Shape
A Text
→ Line
👪 Auto Align

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

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

7.10.2 Connection menu



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

7.10.3 Network Adding



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

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

ADD A NE	W NETWORK	۵
Number of networks to add	1	
Name/Prefix	MyNetwork	
Icon	🖂 cloud.png	
Туре	bridge -	
Left		
Тор	bridge 🗸	
	internal2	
	internal3 private	
	private2	
	private3	
	NAT	
	Management(Cloud0)	
	Cloud1	
	Cloud2	
	Cloud3	

7.10.4 Bridge or Internal network menu



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



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

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

Bridge	EDIT NET	VORK		×
	ID	1		
	Name/Prefix	Bridge		
	lcon	Switch2.png	*	
	Туре	bridge	Ŧ	
	Left	1119		
	Тор	543		
		Save Cancel		



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

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

7.10.5 Cloud and Private network menu

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

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



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

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



7.10.6 Stopped node menu

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



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

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

Edit node: Opens the Edit node window (picture on the right). For details, please refer to section 8.1.2

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

Template		
Cisco CSR 1000V		Ŧ
D		
3		
Image		
csr1000v-universalk9.03	3.17.04.5.156-1.54	•
Name/prefix		
CSR3		
lcon		
📋 CSRv1000.png		•
UUID		
	314-828808b38533	
67fea887-b30d-4ad0-b		
CPU Limit	RAM (MB)	Ethernets
CPU Limit	RAM (MB) 3072	4
CPU Limit	RAM (MB) 3072 QEMU Arch	4 QEMU Nic
CPU Limit CPU 1 2 QEMU Version tpl(2.12.0) •	RAM (MB) 3072 QEMU Arch tpl(x86_64) ~	4
CPU Limit CPU 1 QEMU Version tpl(2.12.0) •	RAM (MB) 3072 QEMU Arch tpl(×86_64) •	4 QEMU Nic tpl(e1000) •
CPU Limit CPU 1 QEMU Version tpl(2.12.0) •	RAM (MB) 3072 QEMU Arch tpl(×86_64) •	4 QEMU Nic
CPU Limit CPU 1 1 Lp(2.12.0) QEMU Version QEMU custom options -machine type=pc-1.0,a	RAM (MB) 3072 QEMU Arch tpl(×86_64)	4 QEMU Nic tpl(e1000) •
CPU Limit CPU 1 1 Lp(2.12.0) QEMU Version QEMU custom options -machine type=pc-1.0,a	RAM (MB) 3072 QEMU Arch tpl(×86_64)	4 QEMU Nic tpl(e1000) •
CPU Limit CPU 1 2 CPU 1 2 CPU	RAM (MB) 3072 QEMU Arch tpl(×86_64)	4 QEMU Nic tpl(e1000) •
CPU Limit CPU 1 2 CPU 1 2 CPU	RAM (MB) 3072 QEMU Arch tpl(×86_64)	4 QEMU Nic tpl(e1000) •
CPU Limit CPU 1 CPU 1 LINIC CPU 2 EMU Version Up[(2,12,0) CPU CPU CPU CPU CPU CPU CPU CPU CPU CP	RAM (MB) 3072 QEMU Arch tpl(×86_64)	4 QEMU Nic tpl(e1000) •
CPU Limit CPU 1 CPU 1 LINIC CPU 2 EMU Version Up[(2,12,0) CPU CPU CPU CPU CPU CPU CPU CPU CPU CP	RAM (MB) 3072 QEMU Arch tpl(×86_64)	4 QEMU Nic tpl(e1000) •
CPU Limit CPU 1 CPU 1 QEMU Version tpl(2.12.0) CMU custom options -machine type=pc-1.0,a Startup configuration None Delay (s) 0 Console	RAM (MB) 3072 QEMU Arch tpl(×86_64)	4 QEMU Nic tpl(e1000) •

7.10.7 Running node menu

vio VIOS (4) > Stop ☑ Details ④ Wipe ▲ Export CFG > Capture > Graph Right-clicking on a running node also opens a menu:



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

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

• **Shutdown**: Perform an orderly shutdown of the node if that node supports it (shutdown signal is sent down to the node)



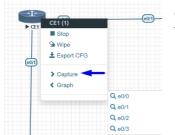
- Power off: Kills the running nodes process within EVE (hard poweroff).
- **Hibernate.** Save Node state (Disk and Memory are saved in an internal snapshot). Used for fast boot of a node. The hibernation process can take some time. Once the hibernation process is completed, the node will turn grey (shutdown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

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

oarzennaga	100.0 50.0		% = 1 CPU)	Man, 10 Apr 2023 17:51:16 percentage user 7.0				
para	0.0	17:42:00 Memory	17:44:00	17.46.00	17-48-00	17:50:00	Mon, 10 Apr 2023	2.3
E F	200.0		17-44-00			17.50.00	cache	MiH 0.0 32.0
		17:42:00	11:5400	17:46.00	17.48.00	17:50:00	11 P 17 T	
					ID			
4					ID			
4				Node i	ID instance p	ath		
		netlab/tm	np/10/6aa6		nstance p		2f10c/4	
		netlab/tm	np/10/6aa6	7149-6cd2	nstance p		2f10c/4	
1	opt/u		np/10/6aa6 isek9-m.SP/	7149-6cd2	nstance p -43ab-92b Image		2f10c/4	
1	opt/u			7149-6cd2 A.159-3.M	instance p -43ab-92b Image 6		2f10c/4	÷
// v	opt/u			7149-6cd2 A.159-3.M	nstance p -43ab-92b Image		2f10c/4	Ţ
// v	opt/u			7149-6cd2 A.159-3.M	instance p -43ab-92b Image 6 me/prefix		2f10c/4	÷
/	opt/u ios-ac	lventerpr	isek9-m.SP	7149-6cd2 A.159-3.M	instance p -43ab-92b Image 6		2f10c/4	
/	opt/u ios-ac		isek9-m.SP	7149-6cd2 A.159-3.M	instance p -43ab-92b Image 6 me/prefix		2f10c/4	•

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

Export CFG: This function is used to export the saved running configuration to the EVE startup configuration sets. Reference section 10.3

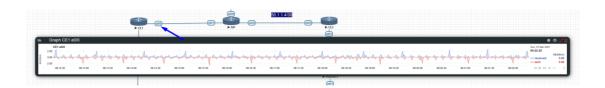


Capture. Integrated live Wireshark capture. Select the interface which you wish to capture. Reference section **11**



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





7.10.8 Selected nodes menu and features

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

50	50	
G12G12	GI2	6
► CSR1	► CSR2	Mgmt
	Gi3	

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

31)-QFP-	Gi2			Group of CSR1, CSR2	1
CSR1			(Start Selected Shutdown Selected 	
				Wipe Selected Console To Selected Nodes	
			vs		
		(Gi1)		Set nodes startup-cfg to default configset Set nodes startup-cfg to none	
		GFP CSR3		 Horizontal Align Vertical Align Circular Align 	
				 Delete nodes startup-cfg Delete Selected 	

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

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

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

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

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

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



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

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

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

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

Please refer to section 10.3

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

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

Please refer to section 10.3

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

Step 1: Select the nodes you wish to align.

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

VIO51	¥VI052	₩053 ₩1054	evioss Vioss Viose	NIOS7		¥0059 • VIOS10	
Picture	after:						
T VIOST	VIOS2			VIOS7	VIOS8		

Picture before:

Vertical Align: Aligns the nodes in one vertical line.

Step 1: Select the nodes you wish to align.

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



Picture before	Picture after
TVIO53	Terror Terror
T NOS	Trost
VIOSS	VIOSS
VIOSÓ	SS I VIOSÓ
	THOSE T
	VIOSS
WOSTB	NOST

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.

Picture Before				Picture After			
		54 1 WOST			VIOSE	VIOS9	
	WID52		Toos				VIOS10
				NOS6			VIOS1
			NOS7				
		WOSS	VOS		TANK	VIOS3	

Delete nodes startup-config.

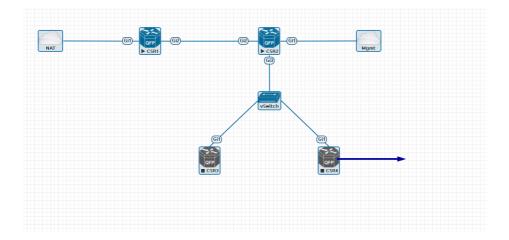
WARNING, this action will delete the configurations of the selected nodes that are saved to your Default config set. Please make sure that is what you want to do before you execute this.

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

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

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





7.11 EVE Lab node states and symbols

7.11.1 Stopped (non-running) nodes



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



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

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

7.11.2 **Running nodes**



The blue color and black Play triangle symbol means that the node is started and running, the node is in a working/functional state.

A running node with a clock symbol below the node means that the node is waiting to finish loading from the set exported/startup configuration. Once the configuration has been successfully applied, the node symbol will change to a Play triangle symbol. If the node has finished booting but the clock symbol does not change to

the Play triangle symbol, the problem could be in the uploaded startup configuration. For how to use exported configurations and boot nodes from them, please refer to section 10.1



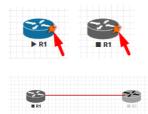
A running node with a turning red gear symbol means that the node is either in the process of hibernating the node or it has sent the shutdown signal to the node and is waiting for it to turn off. Once this process has successfully finished, the symbol will turn into a grey node with a black square symbol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

A NOTE: If the node does not support a system shutdown or does not recognize the shutdown signal (example: Cisco router), after clicking on Shutdown, the node can stay with a turning red gear symbol below it indefinitely. Workaround: Use Stop or Stop/PowerOff to stop the node.



Example nodes where Stop/Shutdown is supported: Microsoft Windows and most Linux nodes as well as a lot of appliances based on linux.

7.11.3 Node connector symbol



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

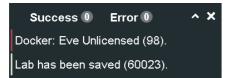
7.12 Other

7.12.1 Notifications area



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

Unwrapped notifications:



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

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

г

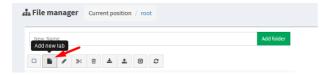


8 Working with EVE labs

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

8.1 Creating a lab

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



Step 2:

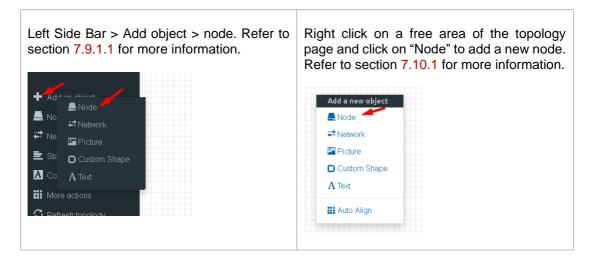
Fill out the lab information. Name and Version are required fields. Next hit Save. Refer to section 7.8.4 for more information about the different fields in the Edit lab window.

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

8.1.1 Adding nodes to the lab

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

Step 1: Object/Add Node





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

NOTE: It will only be possible to select and add nodes that have images preloaded in EVE. These nodes will be displayed in a blue font. To prepare images for EVE, refer to section 17

nplate Template				
Nothing selected	Nothing selected			
	cisco			
	CharACS			
Nothing selected	Cisco AMP Cloud			
A10 vThunder	Cisco ASA			
Apple OSX	Cisco ASAv			
Aruba ClearPass	Cisco Application Policy Infrastructure			
Aruba WiFi Controller	Cisco Context Directory Agent			
Arista vEOS	Cisco CSR 1000V			
Barraccuda NGIPS	Cisco CSR 1000V (Denali and Everest)			
Brocade vADX	Cisco IPS			
CheckPoint Security Gateway VE	Cisco CUCM			
Cyberoam FW	Cisco ISE			
Docker.io	Cisco IOS 1710 (Dynamips)			
Cisco ACS	Cisco IOS 3725 (Dynamips)			
Cisco AMP Cloud	Cisco IOS 7206VXR (Dynamips)			
Cisco ASA	Cisco IOL			
Cisco ASAv	Cisco NX-OSv (Titanium)			
Cisco Application Policy Infrastructure	Cisco NX-OSv 9K			
Cisco Context Directory Agent	Cisco FirePower			
Cisco CSR 1000V	Cisco FirePower 6			
Cisco CSR 1000V (Denali and Everest)	Cisco vIOS			
Cisco IPS	Cisco vIOS L2			
Cisco CUCM	Cisco vNAM			
Cisco ISE	Cisco 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			

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



ADD A NEW NODE

Template 1.				
Cisco CSR 1000V				*
Number of nodes to a	dd <mark>2</mark> . Image	≥ 3.		
1	CSF1	000v-univer	salk9.03.17.04.S.1	56-1.S4 🔻
Name/prefix <mark>4</mark> .				
CSR				
Icon <mark>5.</mark>				
🎒 CSRv1000.png				*
UUID <mark>6</mark> .				
CPU Limit 7.				
сри <mark>8</mark> .	RAM (MB)	Э.	Ethernets	10.
1	3072		4	
QEMU Version 11.	QEMU Arch	12.	QEMU Nic	13.
tpl(2.12.0) 🔹	tpl(×86_64)	*	tpl(e1000)	*
QEMU custom options	14.			
-machine type=pc-1.0,a	accel=kvm -serial	mon:stdio -	nographic -nodef	config -na
Charling and Barraching	15			
Startup configuration	15.			•
Delay (s) 16.				
Console <u>17</u> .				-
		-		
Left 839		Тор 210		
037		210		
s	ave Cancel			

8.1.1.1 Node values Table

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



2.	Number of nodes to add Chose the number of nodes of this type you want to add to the topology				
3.	Choose your preferred version from preloaded images list (if you have more than one image loaded for a single template).				
4.	Name/prefix Type your preferred node name. If you are adding more than one, EVE will automatically append numbers to the nodes name. Example. We are adding 5 CSR nodes with the name R. On the topology they will appear as R1, R2, R3, R4, R5. Later using the Nodes window, you can edit the node names per your needs. Refer to section 7.9.2 or edit the node individually, refer to section 8.1.2.				
5.	 CSRV1000.png Arbta_ctrt.png CSRV1000.png Node icons can be changed from the default per your preference, simply choose the preferred icon from the dropdown list. Node icons can be changed later per your needs. Refer to section 7.9.2 				
6.	The UUID number is assigned automatically after a node is created. You may also set it manually in case you are using a license that is tied to a particular UUID.				
7.	CPU Limit CPU limit per node. This option is already set (checked/unchecked) per EVE recommendations. Refer to section 7.4.3				
8.	CPU Each node template has a pre-set CPU value that aligns with vendor requirements. This value can be changed per your needs.				
9.	RAM (MB)Each node template has a pre-set RAM value that aligns with vendor requirements. This value is displayed in MB and may be changed per your needs.				
10.	Ethernets 4 The number of ethernets interfaces.				



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



	Console	Console types for each template are pre-set with				
18.	recommended settings. The setting can be changes per your needs. NOTE: The Docker template contains a wide variety of images,					
	therefore, please refer to section 14.1.3 for recommended console types for each docker image. Windows nodes can use either RDP or VNC but RDP needs to be enabled in Windows itself.					
	First Eth MAC Address OPTIONAL: Templates for Cisco FirePower, F5, Linux,					
19.	and Citrix have the option to manually set the MAC address for the first ethernet interface. This will enable the use of licenses that are tied to a particular MAC address.					
	MAC Address format must be like: 00:50:0a:00:0b:00					

8.1.2 Edit node

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

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

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



8.1.2.2 Edit node individually.



Right click on the node and click Edit

The "Edit node" window will appear. It is very similar to the window that is displayed when you add a new node. To change values for the node, refer to the nodes value table in section 8.1.1.1.



EDIT NODE Template Cisco vIOS ID 1 Image vios-adventerprisek9-m-15.6.2T Name/prefix VIOS lcon 睯 Router.png UUID b5fa3320-98ed-4ea4-ad21-627d427b8a6a CPU Limit CPU RAM (MB) Ethernets 4 1 1024 QEMU Version QEMU Arch QEMU Nic tpl(default 2.4.0) 🔹 tpl(i386) tpl(e1000) QEMU custom options -machine type=pc-1.0,accel=kvm -serial montstdio -nographic -nodefconfig -nodef Startup configuration None Delay (s) 0 Console telnet Left Тор 839 218 Cancel

8.1.3 Wipe Node

	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.

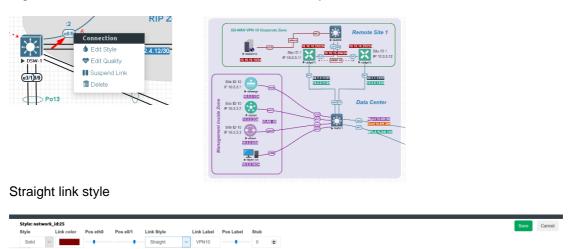
30		53	
R1	RZ	► MOS	NAT
■ R1	■ R2	► vios	NAT

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

ADD CONN AND R2	NECTION BETWEEN R1	- 53			53
RI	Source ID: 1 Source Name: R1	R1	Gi0/0	Gi0/0	■ R2
Gi0/0	type - Node				
Т	Choose Interface for R1				
	Gi0/0	r			
	G0/0				
	GI0/1 GI0/2 GI0/3				
	Gi0/0	Ť			
R2	Destination ID: 2	•			
	Destination Name: R2				
	type - Node				
	Save Cancel				

8.1.5 Edit connection link style

Right click on the connection link and choose Edit Style



Bezier link style



Style: iface	e:node23:1							
Style	le Link color Pos ge0/0 Pos n/a		Link Style	Link Label	Pos Label	Curviness		
Solid	~			Bezier	~		150 💿	

Flowchart link style

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

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

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

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

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

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

Curviness: Link curviness feature for Bezier style link

Midpoint: Link mid point change, Flowchart style only

Round: Link round angles, Flowchart style only

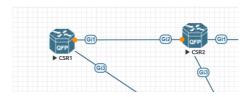
Stub: Stub link connection beside node, Straight style only

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

8.1.6 Edit connection link quality

Right click on the connection link and choose Edit Quality. This function will allow apply on live connection Delay in ms, Jitter in ms, Packet loss in % and rate in kbs. If the Link quality is in use, then Orange indicators on the link will report where it is applied,





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

Link Quality	r: vEdge21	- SW2	2										
Interface													
ge0/2	0	\$	0	\$ 25	٠	0	\$ e0/0	0	\$ 0	\$ 25	٠	0	\$



8.1.7 Suspend or resume link connection

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

For IOL nodes please select enable L1 Keepalive under Edit node to allow suspend feature.

Template	Show unprovisioned templates
Cisco IOL	•
Number of nodes to add	Image
1	x86_64_crb_linux_l2-adventerprisek9-msJ *
Name/prefix	
R	
Icon	
🍪 Router.png	*
Enable L1 keepalive	

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

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

2 .6 Connection	Suspended link connection	Connection
Edit Style	10.1.4.4/30	Edit Style 2.4.12
DSW-1 State Quality	EIGRP 10 (IPv4 RIP Zone (IPv6	DSW-1
(e3/1)/0	······································	(e3/1)/0
The second secon	10.2.4.12/30	m Delete
Po13	Po12	

ASW-1		<u> </u>			1 1 1 * • • • * X
>Aswit >Aswit 200: 192 state to down ASWI#					
ASW-1					* \$ / X
Et3/0	connected	trunk	a-full	auto RJ45	
Et3/1	connected	trunk	a-full	auto RJ45	
Et3/2	connected	trunk	a-full	auto RJ45	
Et3/3	notconnect		auto	auto RJ45	
Po13	connected	trunk	a-full	auto	
Po23 ASW1#	connected	trunk	a-full	auto	



Supported nodes with suspend/resume feature:

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

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

IOL L3 router image with:

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

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

Other observations:

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

8.1.8 Delete connection between nodes



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



8.1.9 Delete Node



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

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

8.2 Running labs

8.2.1 Starting lab

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

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

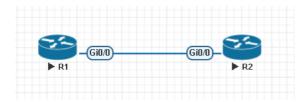
▲ IMPORTANT. Starting all the nodes at once can result in major spikes in CPU utilization. Please make sure you are not using the "Start all nodes" option for heavy labs. Instead, it is recommended to start nodes in small groups.

Starting a node or group of nodes:

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

R1 (1) -G00				
Start	50	50		
Se Wipe		Gi0/0	Group of R1, R2	
🖸 Edit		RZ	Start Selected	
🛅 Delete			Shutdown Selected	
			A	

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





8.2.2 Interconnecting running nodes (hotlinks)

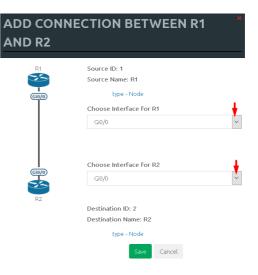
Eve Professional offers the hotlinks feature which allows you to interconnect node in the running state.



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

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

22	-1-
▶ R1	▶ R2



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

Please refer to Section 8.1.6

8.3 Saving labs

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

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

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

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 7.10.7



8.5 Start saved lab

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

File manager Current position / root New Name Image: State in the state in	Additude test_la	ab1
□ ■ ✓ × ŝ ▲ ± 0 C		ab1
🗌 🍋 Running		7
	10.11	7
MyLabFolder	10.142010.17-24	
	18 May 2018 17:24	
Shared	18 May 2018 15:16	
D Labs	22 May 2018 11:00	
📄 🖿 Users	18 May 2018 14:31	
FirePower FTD 623 PoC Multihomed HA.unl	19 May 2018 01:49	
mylab4.unl	23 May 2018 02:06	
test_lab1.unl	22 May 2018 01:19	
test_lab2.unl	22 May 2018 11:15 Lab Pat Version	th:/test_lab1.unl
test_lab3.unl	22 May 2018 12:59 UUID: 9	1 12 15692558-5acb-4308-ab66-64f9b40bd31f 1 John Tester

8.6 Working with multiple running labs

Refer to section 7.2.1.1

8.7 Importing labs

Refer to section 7.2.2.6

8.8 Exporting labs

Refer to section 7.2.2.5

8.9 Deleting labs

Refer to section 7.2.2.2

8.10 Moving labs

Refer to section 7.2.2.4

8.11 Shared Project/Lab

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

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

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



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

8.11.1 Create Project Lab share

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

Professional # Main / Manager	nent 🔹 🥔 System 👻 🚯 Info	rmation • • • 0 Licensing • • 02021 EVE-NG 08:53	🛔 uldis	🕞 Sign Out
La File manager Current Position / root				
New Name	Add folder	FTD Policy Lab v1		
		Cisco Security Firepower Threat Defense Policies Lab Created by Udds, EVE Pro, 2021 Interpower PCC 4.7.65		Scale
🗌 🖿 Wireless	25 Apr 2021 01:41 ^	Eventer True 20-40 Created by Ulbits, EVE Pro, 2021 - Interpose TRK 6.73-64 Interpose TRK		
🗆 🖿 XLabs	28 Feb 2021 22:03	Administramet PC EVE Dacker ever-guisarier - Administramet PC EVE Dacker ever-guisarier - NOPC Windows 10866 - WED Street ever-guisarier		
🗆 📑 1 VRRP.unl	26 Apr 2021 02:43	Company Office		
🗆 🖹 7200.unl	26 Apr 2021 16:37			
🗆 🖹 A1.unl	28 Apr 2021 09:21			
A_Trunka.unl	02 Apr 2021 13:57			
DC-UD-ASA-Cluster.unl	10 Dec 2020 00:16			
DUAL ISP.uni	23 Apr 2021 12:57	end 2012 101 2014 end 2012 2014 end 2		
🗹 🕈 FTD Policy Lab v1.unl	11 Feb 2021 22:36	Lab Path: //TD Policy Lab v1.unl	J	
🗆 🖺 FTD Policy Lab v1_dark.unl	28 Feb 2021 16:19	Version: 1		
🗆 🖺 FTDv AnyConnect kids lab.unl	26 Apr 2021 04:51	UUID: 04b55e95-281f-4b6c-8d40-bfcf88e3c193 Author: Uldis		
migration_lab_master_sat.unl	17 Mar 2021 18:29			
MPLS-LDP Lab.uni	14 Feb 2021 12:02	Open Edit Delete		
Multicast Cisco with VLC 01.unl	18 Apr 2021 17:40	Description: Cisco Firepower Threat Defense (FTD) Basic Lab		

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

Edit lab			• •
Path*	/FTD Policy Lab v1.unl	Description	Cisco Firepower Threat Defense (FTD) Basic Lab
Name*	FTD Policy Lab v1		
Version*	Use only [A-Za-20-9] chars		
Author	Must be interger ((0-9)chars) Uldis	Tasks	
Satellite	any v		
Shared with	Select users		
Config Script Ti	evenser?@eve.lab		Save Cancel
Lab Countdowr	augure and Davis Jak		
* - Required Fig			

8.11.2 Remove Lab share

Note: Only owner of lab share can remove sharing.

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

Edit lab			
Path*	/FTD Policy Lab v1.unl	Description	Cisco Firepower Threat Defense (FTD) Basic Lab
Name*	FTD Policy Lab v1		
Version*	Use only (A-Za-20-9)chars		
	1 Must be interger ([0-9]chars)		4
Author	Uldis	Tasks	
Satellite	any 🗸		
Shared with	eveuser1@eve.lab ×		d
Config Script 1	Timeout 900 Seconds		Save Cancel



8.11.3 Working with shared lab

Step 1: Owner of shared lab starts the lab.

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

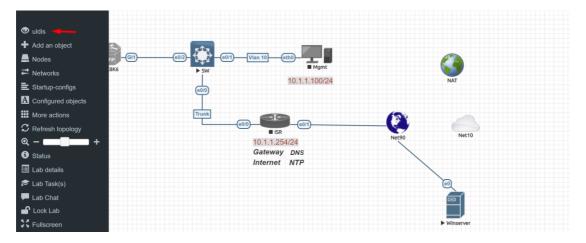
Step 3: Open Shared Lab folder, the lab shared to him will appear as shared lab with owner user in brackets.

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

Accordingly, permissions of user roles:

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

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



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

Note: Parallel Consoles

Telnet Consoles: can be opened parallelly for any user

VNC Console: can be opened parallelly for any user

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

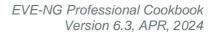


8.12 Sticky lab

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

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

Lab None	
None Sate (Charaod/Adjum)	
/Shared/E-SD-WAN-Kide Lab uni	
/Shared/RS CCNP TS Lab_test.unl	
Fron1 0 -1 0	
Edit User	
User Name*	
stud01	
External Auth (Radius)	
Password	
•••••	٩
Password Confirmation	
•••••	٩
Email	
stud01@eve.net	
Please enter an valid email	
Name	
Student 01	
Use only [A-Za-z0-9]chars	
Role Lab User V	
Console html5 V	
Lab /Shared/RS CCNP TS Lab_test.unl	
Satellite sat1 ~	
Account Validity	
From -1 0 to -1 0	
POD*	
5	
Quotas	
CPU -1 • RAM -1 • (GB)	
* - Required Fields	
_	





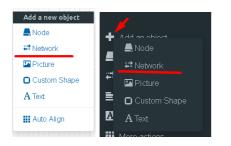
9 EVE Clouds and Networks

9.1 Bridge Network

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

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

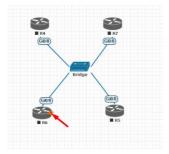
Step 1: Add a Bridge Network onto the topology. There are two ways to do this: Right-clicking on the topology area and selecting "Add Network" or in the sidebar click "Add an Object" and then select "Network." Please refer to sections 7.10.5 and 7.9.1.2



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

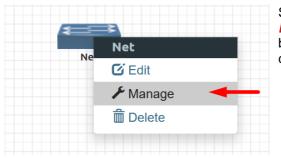
ADD A NE	W NETWORK *
Number of networks to add	1
Name/Prefix	Net
Туре	bridge
Left	1089
Тор	476
	Save Cancel

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





9.2 The experimental Smart Bridge feature.



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

5W3					*	∖ n
	ID 6					а
Sm	art Bridge (Ex	perimental)				5
Enab	le 802.1ad (Ex	perimental)				E
NODE ID	NODE NAME	INTERFACE ID	INTERFACE N	NAME VLAN ID		b
9	SW-IOL1	0	e0/0	0]	
10	SW-IOL2	0	e0/0	0]	
11	R-IOL1	0	e0/0	101]	
	Save	Cancel				

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

Smart Bridge, enables 802.1q option.

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

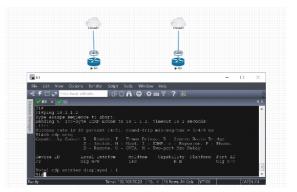
9.3 Internal Network

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

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

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

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



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



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

9.4 **Private Network**

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

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

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

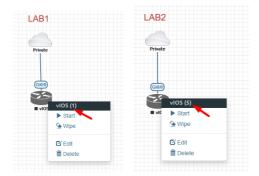
Example: Single user is running multi labs (Lab1 and Lab2), and want interconnect it.

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

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

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

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



9.5 NAT Network

EVE-NG PRO has an embedded NAT interface with the subnet 172.29.129.0/24. This feature is similar to the VMWare NAT interface, but EVE is translating the 172.29.129.0/24 (this subnet is hardcoded in EVE and is not configurable) subnet to EVE's management interface pnet0. NAT network can be changed per your needs, please refer 7.4.1

To add a NAT Cloud onto the EVE topology:

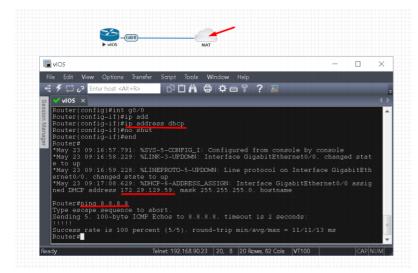


ADD A NE	WNETWORK
Number of	1
networks to add	
Name/Prefix	NAT
Туре	NAT
Left	935
Тор	340
	Save Cancel

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

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

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



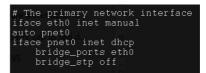
If your EVE management is connected to the Internet, adding a NAT cloud onto the EVE lab enables you to have internet access from within your EVE lab using NAT.

EVE NAT Gateway IP is: 172.29.129.254/24

DHCP is enabled on the EVE NAT Cloud.

9.6 Management Cloud0 interface

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



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

- IMPORTANT NOTE: For EVE VMs running on ESXi, with NIC Teaming Network, please follow the steps below to edit the reverse path settings
 - From the Navigator window select Manage > System > Advanced settings.
 - Scroll down or use the search bar to go to the Net.ReversePathFwdCheckPromisc option.
 - Select Net. ReversePathFwdCheckPromisc and click Edit option.
 - In the Edit option Net. ReversePathFwdCheckPromisc window update the New value field to 1 and click Save.
- IMPORTANT NOTE: For EVE VMs running on ESXi, make sure your management interface bridged with the vSwitch (Port group) has the security settings set to Accept. Any port group or vSwitch used to connect an external network to an EVE Cloud network needs to have the:



- Promiscuous mode: "Accept"
 MAC Address changes: "Accept"
 Forged transmits: "Accept"

vSwitch Settings

🥒 Edit standard virtual switch - vSv	itch0	
🔜 Add uplink		
МТО	1500 🗘	
Uplink 1	vmnic2 - Up, 100 mbps 🗸 🗸	€
Link discovery	Click to expand	
 Security 		
Promiscuous mode	Accept Reject	
MAC address changes	Accept Reject	
Forged transmits	Accept Reject	
NIC teaming	Click to expand	
Traffic shaping	Click to expand	

Portgroup Settings

Management 90 UD			
🥕 Edit settings 🤁 Refresh 🏟 Actions			
Management 90 UD Accessible Vis Vintual machines 7 Vintual switch: Over Visit VLAN ID 4005 Active ports: 5			
✓ vSwitch topology	* Security	y policy	
		omiscuous mode	Yes
Management 90 UD Physical adapt	Allow for	ged transmits	Yes
VLAN ID: 4095 Virtual Machines (7)	Mbps, Full Allow MA	C changes	Yes
vCentre 90.95		-	
🚯 S2016 EVE 90.201	✓ NIC team	ming policy	
B EVE-PRO.98.100	Notify sv	ritches	Yes
MAC Address 00:0c: 29:d0:aa:9e	Policy		Route based on or
EVE-PR0v24 EVE COMM 89	Reverse	nolicy	Yes
	I COVEI 30	poney	
	Dell'ere e		
Cisco Identity Services Engine	Rolling o	rder	No
	Rolling o • Shaping		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 r							
maat@arra ngu~d	u salfi ana ketishi 46		overnu	isellecan	menal		
root@eve-ng:~# Kernel IP rout							
Destination		Genmask ^{TX byte}	Flags	Metric	Ref	Use	Iface
default	192.168.90.1	0.0.0.0	UG	0	0	0	pnet0
172.17.0.0	*	255.255.0.0	U	0	0	0	docker0
172.29.129.002	ateway IP type:	255.255.255.0	U	0	0	0	nat0
192.168.90.0		255.255.255.0	U	0	0	0	pnet0
root@eve-ng:"#	Ŧ						

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

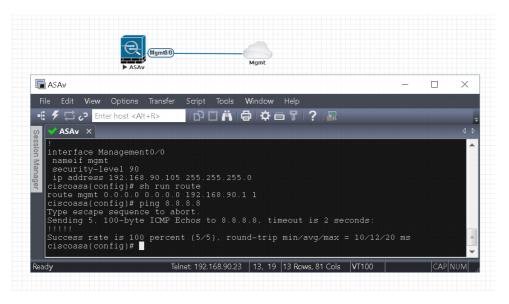
ADD A NE	W NETWORK
Number of networks to add	1
Name/Prefix	Mgmt
Туре	Management(Cloud0)
Left	737
Тор	163
	Save Cancel

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 7.10.5

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

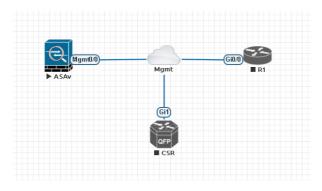


The native management host (home PC) can be used to manage nodes in the EVE lab over https. Example below showing http connection to Fortigate FW node in the EVE lab from native PC using Chrome browser.



		C FortiGate - FortiGate-VM64	-KVM ×	+			X
	+ rcz	← → C ☆ ③ N	ot secure	192.168.90.116/ng	g/system/dashboard/1	\$ Q	Paused 🕕 🗄
FGT		FortiGate VM64-K	/M For	iGate-VM64-KVM	1	۹۰ کے 🕄 💿 ک	🛛 🕗 admin
1 ifiter ifi	top configuration; both real products and Sub riter configuration; Sub riter configuration; sub rites configuration; support of the sub riterion; support of the support of the sub riterion; support of the support of the sub riterion; support of the support of the support of the sub riterion; support of the support of the supp	Bashboard Status Top Usage LAN/DMZ Security System Events Security Fabric EventView Network System Policy & Objects	> ^ ☆ > > >	System Inform Hostname Serial Number Firmware Mode System Time Uptime WAN IP	FortiGate-VM64-KVM	Licenses FortiCare Support Firmware & General Updates IPS AntiVirus Web Filtering FortiFicken 198	0 /0
0 enable .root static 0 0 enable	0.00.00.000000000000000000000000000000	Security Profiles VPN User & Device Int Log & Report Monitor	>	Virtual Machi	icense	Status O Not Supported	•

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



9.7 Remove cloud interfaces

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

echo -n	1 > /opt,	/unetlab/r	natonly
ADD A NI	EW NETWO	ORK	×
Number of networks to add	1	E	
Name/Prefix	Net		
Icon	💧 cloud.png	•	
Туре	bridge	•	
Left			
Тор	bridge internal internal2 internal3 private private2	~	
	private3		

To set back Clouds0-9 visible:

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



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

9.8 Other cloud interfaces

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

EVE Cloud bridging table.

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

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

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



The next sections will explain how you can use Cloud networks in EVE to connect to other external (e.g. VMWare) VMs or physical devices.

9.9 Connecting external VM machines to the EVE Lab

9.9.1 ESXi VM machines

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

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

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

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

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

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

Q WSA-MGMT			
🥖 Edit settings 🔰 🤁 Refresh 🔰 🏠 Actions			
WSA-MGMT Accessible Yes Virbul avkitch: 2 Virbul avkitch: 3 VLAN ID: 0 Active ports: 0			
		- Security policy	
		Allow promiscuous mode	Yes
Q WSA-MGMT VLAN ID: 0	No physical adapters	Allow forged transmits	Yes
VLAN ID: 0 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:

vSwitch5			
🔜 Add uplink 🥜 Edit settings 🛛 🤇	Refresh 🌺 Actions		
vSwitch5 Type: Si Port groups: 1 Uplinks:	andard vSwitch		
✓ vSwitch Details		 vSwitch topology 	
MTU	1500		At the standard and set of
Ports	4352 (4319 available)	VLAN ID: 0	No physical adapters
Link discovery	Unknown	Virtual Machines (2)	
Attached VMs	2 (0 active)	B EVE-PROv24	
▼ NIC teaming policy		B 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		

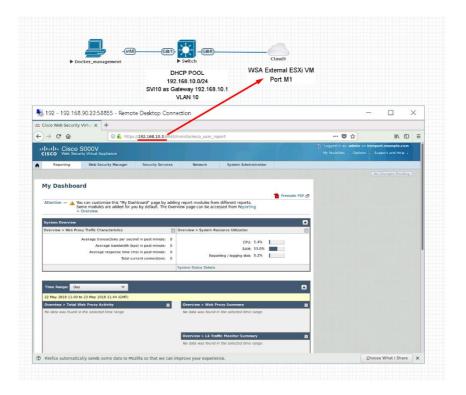
EVE and WSA VMs settings

	d port is assigned to MGMT. It is Cloud1 on the		rity appliance (WSA), rt is assigned in portgroup
▼ Hardware Configuration		✓ Hardware Configuration	
CPU	16 vCPUs	DECENTION OF CONTRACT	1 vCPUs
🌃 Memory	32 GB	Memory	4 GB
Hard disk 1	40 GB	▶ 🔜 Hard disk 1	250 GB
Hard disk 2	150 GB	Network adapter 1	WSA-MGMT (Connected)
🚭 USB controller	USB 2.0	Network adapter 2	UNUSED (Connected)
Network adapter 1	Management 90 UD (Connected)	Network adapter 3	UNUSED (Connected)
Network adapter 2	WSA-MGMT (Connected)	Network adapter 4	UNUSED (Connected)
Video card	4 MB	Network adapter 5	UNUSED (Connected)
Image:	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.





9.9.2 VMWare workstation machines

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

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

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

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

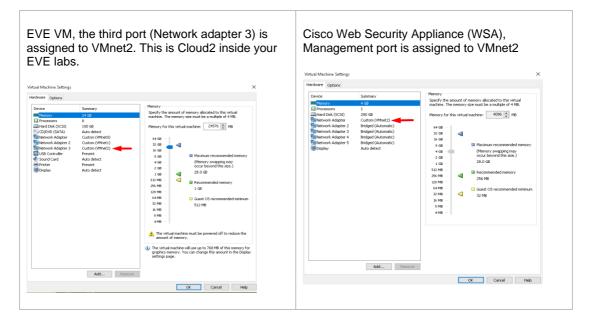
Step 1: Open your VMWare Workstation Virtual Network Editor and configure the VMnet interface for the Cloud and WSA VMs. If necessary add a new VMnet. The example below is showing VMnet2 Settings in VMWare workstation. DHCP must be disabled for VMnet2.

Virtual Network Editor settings:

	Туре	External Connection	Host	Connection
Mnet0	Bridged	Intel(R) PRO/1000 PT Dual Port Server Adap	oter -	
Mneti	Bridged	Intel(R) PRO/1000 PT Dual Port Server Adap		
Mnet2		NAT		ected
Pineta	NAT	1441	Con	ecteu
		Add Network Remove	o Network	Rename Network
Mnet Infor	mation			
Bridged	(connect VMs direct	ly to the external network)		
Bridged	to: Intel(R) PRO/1	000 PT Dual Port Server Adapter	\sim	Automatic Settings
	ared host's IP addre	iss with VMs)		NAT Settings
🔾 NAT (shi		rnally in a private network)		
0	y (connect VMs inte			
Host-oni	a host virtual adap	ter to this network		
Host-oni Connect	a host virtual adap	ter to this network VMware Network Adapter VMnet2		
Host-onl Connect Host virt	a host virtual adap tual adapter name:			DHCP Settings
Host-oni Connect	a host virtual adap			



EVE and WSA VMs settings



EVE Lab connected to the WSA (Cloud2)

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

	Mgmt_Dacker Chrome Desktop Management Docker station DHCP IP 192,168.10.2	Gim - Switch Ctoiud2 SW VLAN 10 WSA VM Workst SW VLAN 10 DHCP IP 192.168. SV10 192.168 10.1 as GW, DHCP POOL VLAN 10 Cloud2 as connection to I	.10.3
C Not secure https://192.168.10.3.%43/monitor/wsa_user_report Coged in as: admite https://192.168.10.3.%43/monitor/wsa_user_report	172 - 172.25.1.21:33285 - Remote	Desktop Connection	- 🗆 ×
	Cisco Web Security V ×		6
In Classon Very Very Very Very Very Very Very Very	→ C A Not secure https://192.168.1	0.3:8443/monitor/wsa_user_report	\$
My Dashboard Attention - You can customize this "My Dashboard" page by adding report modules from different reports. Some modules are added for you by default. The Overview page can be accessed from Reporting > Overview. System Overview System Status Details Trine Range: Day Coverview Cov	Reporting Web Security Manager	Security Services Network System Administration	
Average transactions per second in past minute: 0 Average bandwidth (bps) in past minute: 0 Average response time (min) in past minute: 0 Time Range: Data function: Time Range: Data System Status Details C 22 Vary 2018 20:00 to 23 May 2018 20:10 (GMT) Overview > Vieb Proxy Summary No data was found in the selected time range No data was found in the selected time range Voerview > L4 Traffic Monitor Summary g	Attention — 🔺 You can customize this "My Da: Some modules are added for v	shboard" page by adding report modules from different reports.	PDF 쇼
Average bandwidth Bips) in past minute: 0 Average response time (ms) in past minute: 0 Total current connections: 0 System Status Details Time Ranges: Day Coverview > Vds Proxy Summary No data was found in the selected time range No data was found in the selected time range Overview > L4 Traffic Monitor Summary B	Some modules are added for y > Overview.	shboard" page by adding report modules from different reports.	
Average response time (ms) in past minute: 0 Reporting / logging disk: 5.2% Time Range: Day. System Status Details Time Range: Day. Image: Image: 22 May 2018 20:00 to 23 May 2018 20:10 (GMT) Image: Image: Image: Overview > Total Web Proxy Activity Image: Overview > Web Proxy Summary Image: No data was found in the selected time range No data was found in the selected time range No data was found in the selected time range	Some modules are added for y > Overview. System Overview	shboad" page by adding report modules from different reports. Ou by default. The Overview page can be accessed from Reporting	0
Total current connections: 0 Reporting / logging disk: 5.2% System Status Details Time Range: Day 22 May 2018 20:00 to 23 May 2018 20:10 (GMT) Overview > Total Web Proxy Activity 0 Ab data was found in the selected time range No data was found in the selected time range Overview > L4 Traffic Monitor Summary	Some modules are added for y > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per secc	shboard" page by adding report modules from different reports. U by default. The Overview page can be accessed from Reporting Overview > System Resource Utilization In a past minute: 0 CPU; 7.5%	0
Time Range: Day Image: Day 22 May 2018 20:00 to 23 May 2018 20:10 (GMT) Image: Day Overview > Total Web Proxy Activity Image: Down and the selected time range No data was found in the selected time range No data was found in the selected time range Overview > L4 Traffic Monitor Summary Image: Down and the selected time range	Some modules are added for y > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per seco Average bandwidth (b	bibbaad" page by adding report modules from different reports. ou by default. The Overview page can be accessed from Reporting Overview > System Resource Utilization nd in past minute: 0 pb in past minute: 0 cPU: 7.5%	0
22 May 2018 20:00 to 23 May 2018 20:01 (GMT) Overview > Total Web Proxy Activity Image: Comparison of the selected time range No data was found in the selected time range No data was found in the selected time range Overview > L4 Traffic Monitor Summary Image: Comparison of the selected time range	Some modules are added for y > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per sec Average transactions per sec	chiboad" page by adding report modules from different reports. ou by default. The Overview page can be accessed from Reporting Overview > System Resource Utilization nd in past minute: ps) in past minute: na) in past minute: RAM: 50.4% Besorting / cooling dis: 5.2%	0
22 May 2018 20:00 to 23 May 2018 20:01 (GMT) Overview > Total Web Proxy Activity Image: Comparison of the selected time range No data was found in the selected time range No data was found in the selected time range Overview > L4 Traffic Monitor Summary Image: Comparison of the selected time range	Some modules are added for y > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per sec Average transactions per sec	Overview > System Resource Utilization nd in past minute: 0 in past minute: 0 in past minute: 0 in past minute: 0 Reporting	0
Overview > Total Web Proxy Activity g Overview > Web Proxy Summary g No data was found in the selected time range No data was found in the selected time range No Overview > L4 Traffic Monitor Summary g	Some modules are added for y > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per sec Average transactions per sec	Overview > System Resource Utilization nd in past minute: 0 in past minute: 0 in past minute: 0 in past minute: 0 Reporting	
No data was found in the selected time range No data was found in the selected time range Overview > L4 Traffic Monitor Summary X	Some modules are added for y > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per seco Average analymith Average response time (r Total cu	Overview > System Resource Utilization nd in past minute: 0 in past minute: 0 in past minute: 0 in past minute: 0 Reporting	
Overview > L4 Traffic Monitor Summary g	Some modules are added for y Soverview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per secce Average anomholds to Average response time (n Total cc Time Ranges: Day	Overview > System Resource Utilization nd in past minute: 0 in past minute: 0 in past minute: 0 in past minute: 0 Reporting	
	Some modules are added for y System Overview > Overview > Web Proxy Traffic Characteristics Average transactions per sec Average bandwidth (b Average response time (r Total cu Time Range: Day 22 May 2018 20:00 to 23 May 2018 20:10 (GMT) Overview > Total Web Proxy Activity	Bibbacd Page by adding report modules from different reports. ou by default. The Overview page can be accessed from Reporting ml in past minute: nd in past minute: ng in past minute: sg in past minute:<	
No data was found in the selected time range	Some modules are added for y Soverview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per secs Average bandwidth (b Average response time (r Total cc Time Ranges: Day Time R	Bibbacd page by adding report modules from different reports. ou by default. The Overview page can be accessed from Reporting ml in past minute: nd in past minute: ng in past minute: sg in past minute:<	
	Some modules are added for y Soverview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per secs Average bandwidth (b Average response time (r Total cc Time Ranges: Day Time R	eshboard' page by adding report modules from different reports. to by default. The Overview page can be accessed from Reporting Overview > System Resource Utilization nd in past minute: pol in past minute: pol in past minute: pol in past minute: System Status Details Overview > Web Proxy Summary No data was found in the selected time range	
	Some modules are added for y Soverview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per secs Average bandwidth (b Average response time (r Total cc Time Ranges: Day Time R	bibload? bage by adding report modules from different reports: ou by default. The Overview page can be accessed from Reporting Overview > System Resource Utilization of in past minute: o system Status Details Overview > Web Proxy Summary No data was found in the selected time range Overview > L4 Traffic Monitor Summary	



9.10 Connecting EVE Lab to a physical device

9.10.1 ESXi EVE

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

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

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

Logical chain of the networking bridge:

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

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

📰 vSwitch1		
🔜 Add uplink 🥜 Edit settings	C Refresh	
	Standard vSwitch 2 1	
✓ vSwitch Details		* vSwitch topology
MTU	1500	
Ports	4352 (4317 available)	VLAN ID: 4095
Link discovery	Listen / Cisco discovery protocol (CDP)	VLAN ID: 4095 - Vitual Machines (7)
Attached VMs	7 (4 active)	B vCentre 90.95
Beacon interval	1	S2016 EVE 90.201 MAC Address 00 0c.28 b0 c4 5b
• NIC teaming policy		
Notify switches	Yes	₿ EVE-PROv24
Policy	Route based on originating port ID	MAC Address 00 fbc 28 3d ae.b8
Reverse policy	Yes	EVE COMM 89 Cisco Identity Services Engine
Rolling order	No	ASAV 90.35 PROD
▼ Security policy		MAC Address 00 50 58 a2 0f fb
Allow promiscuous mode	Yes	
Allow forged transmits	Yes	



🧕 Management 90 UD 🥒 Edit settings 🕴 🤁 Refresh 🕴 🔅 Actions Management 90 UD Acces Virtual machines: Sv 🔚 Virtual switch: Active ports: 4095 5 vSwitch topology - Security policy Allow promiscuous mode Yes Q Management 90 UD M Physical adapters Allow forged transmits Yes VLAN ID: 4095 Virtual Machines (7) ymnic1, 100 Mbps, Full Allow MAC changes Yes Source Street St * NIC teaming policy 52016 EVE 90.201 MAC Address 00:0c: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 Reverse policy Yes B EVE-PROv24 MAC Address 00:0c:29:3d:ae:b8 No Rolling order EVE COMM 89 Cisco Identity Services Engine - Shaping policy

Portgroup "Management 90 UD" Settings associated with vSwitch1

EVE VM Settings

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

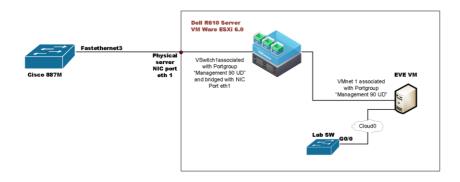
 Hardware Configuration 	
F 🔲 CPU	16 vCPUs
🚟 Memory	32 GB
▶ 🔜 Hard disk 1	40 GB
Hard disk 2	150 GB
🚭 USB controller	USB 2.0
Network adapter 1	Management 90 UD (Connected)
Network adapter 2	WSA-MGMT (Connected)
Video card	4 MB
• Image: Others	Additional Hardware

EVE Lab Connected to a physical device

Physical Topology

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





EVE Lab Topology

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

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

9.10.2 VMWare workstation EVE

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

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





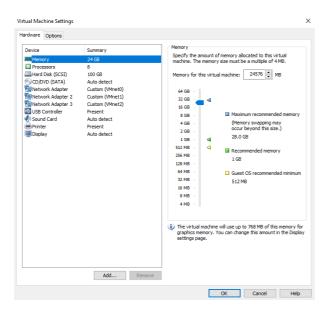
VMnet0	Type Bridged	External Connection Intel(R) PRO/1000 PT Dual Port Server Adapter	Host Connection	DHCP	Sub
VMnet1	Bridged	Intel(R) PRO/1000 PT Dual Port Server Adapter #2	-	2	2
VMnet2	Host-only		Connected	-	192
/Mnet8	NAT	NAT	Connected	Enabled	192
()
		Add Network Re	move Network R	ename Netw	ork
/Mnet Inf	formation				
Bridge	ed (connect V	Ms directly to the external network)			
Bridg	ed to: Intel(R) PRO/1000 PT Dual Port Server Adapter	Autor	natic Setting	s
	shared host's	IP address with VMs)	NA	T Settings	
		VMs internally in a private network)			
Host	only (connect	this internally in a private networky			
Conn		ual adapter to this network			
Conn Host	virtual adapte	r name:	_		
Conn Host	virtual adapte		DH	CP Settings	

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

Responding cloud interfaces on EVE VM:

Cloud0→Network Adapter→VMnet0→IntelPro

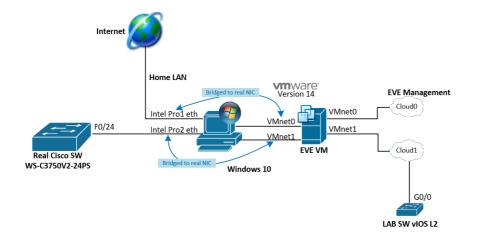
Cloud1→Network Adapter 2→VMnet1→IntelPro#2



Physical connection scheme and VMware bridging.







EVE Lab scheme.

	► vios_		on to Real SW 3750G			
Console - SecureCRT File Edit View Option	is Transfer Script Tools Window Help <alt+r></alt+r>					- 0
<pre></pre>	dp neig	ige, B - Source Route Br	vIOS Capal	l cdp entries displayed : 1 -SW#sh cdp neig bility Codes: R - Router, T S - Switch, H D - Remote, C	- Trans Bridge, B - Source - Host, I - IGMP, r - Repe - CVTA, M - Two-port Mac I	sater, P - Phone,
EVE-C3750#sh c	es: R - Router, T - Trans Brid S - Switch, H - Host, I - D - Remote, C - CVTA, M -	ÎGMP, r - Repeater, P - Two-port Mac Relay	Phone, Devic EVE-	ce ID Local Intrfce C3750.eve.lab Gig 0/0		WS-C3750V Fas 1/0/24

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

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

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

9.10.3 Bare metal server EVE

A physical server usually has more than one ethernet port, free ports can be bridged with EVE clouds and used for external connections. EVEs internal interface settings are already bridged in order, pnet0-9 are mapped to eth0-9. Refer to the bridging table in section 9.7



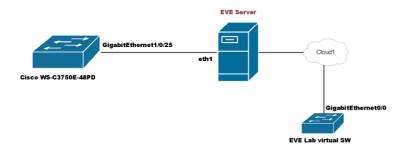
cat /etc/network/interfaces

Basically, your servers physical port eth0 is bridged to pnet0 which is Cloud0 in your labs, eth1 is bridged to pnet1 which is Cloud1 in your labs (and so on). Refer to the bridging table in section 9.7

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



Physical connection topology:



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

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

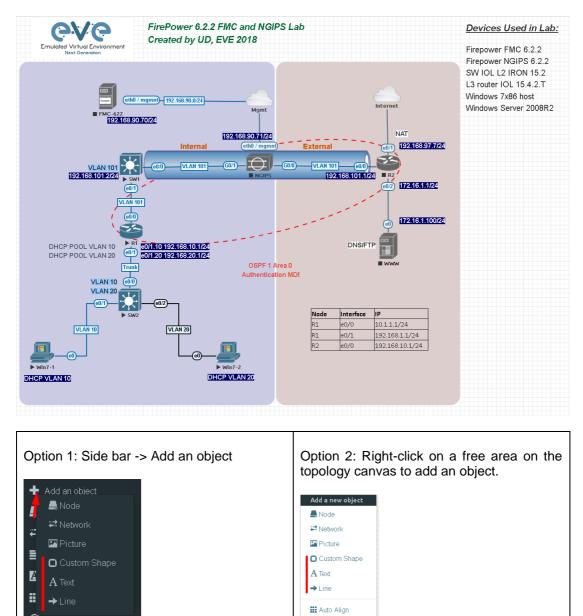


10 Advanced EVE Lab features

10.1 Lab design objects

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

Example below, EVE lab with design elements:



10.1.1 Custom shape

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



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

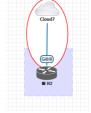
ADD CUSTOM S	НАРЕ	×
Туре	square 🗸	
Name	Name	
Border-type	solid 🗸	
Border-width	5	
Border-color		
Background- color		
Save Cancel		

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

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

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

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



10.1.2 Resize square or circle objects

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

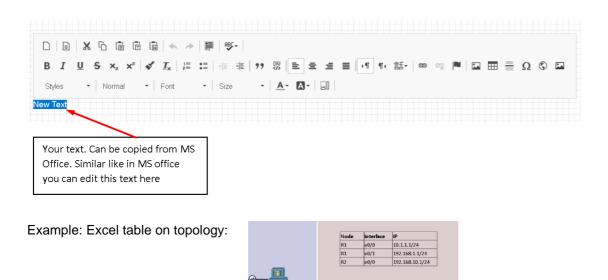


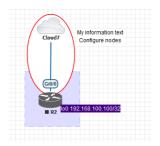
10.1.3 Text

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



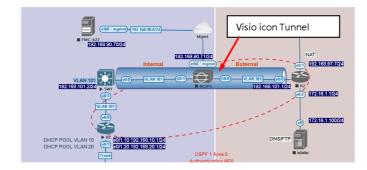






Example: text objects added to the topology.

Example: Visio object added to the topology



10.1.4 Add picture to the topology

Custom images may be added by using HTML editor:

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





Step 2: User browse to import your image.

BIUS	 □□□□ □□□ × /ul>		1
		New	Text
	Image	×	
	General Advanced		
	URL:		
	Upload: Browse No file selected.		
	ок с	Cancel	

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

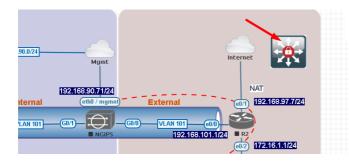
D B X D B B B B ★ → ♥ ♥+ B I U S ×, ×* ✔ I _k □ □ ± ± ± ± Shies + Normal + Font + Size	יי ≜• ⊠- ╗
	Emulated Virtual Environment Next Generation
Image General Advanced	×
Alternative Text	
Widh Height 240 96 Lock Ratio Align VSpace HSpace	Border
Angn vspace Hspace <notset> ✓ 0 0</notset>	0 0 CK Cancel

10.1.5 Custom object linking with telnet or other protocol

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

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

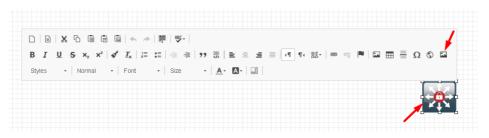




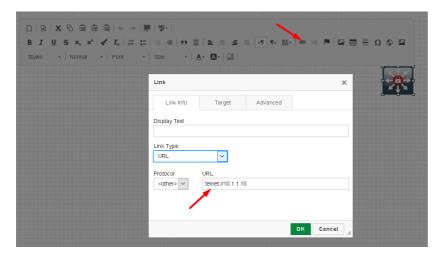
Example: Custom icon added from MS Visio.

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

Step 3. Highlight text or activate object.



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



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

	I ∳-	
B I <u>U</u> S ×₂ ײ 🖋 I _× ≟≣ ∷≣	ﷺ ⋕ 99 號 主 主 ☰ •¶ ¶+ 話+ ∞ ∞	
Styles - Normal - Font -	Size • A. A. 31	
	Link	×
	Link Info Target Advanced	ůůů
	Target New Window (_blank)	



Step 5. OK for Save.

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



10.1.6 Line object

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

Step 1. Add a Line object to the topology

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

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

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

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

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

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

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

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

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





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

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





1	Style: iface	:node23:1								
	Style	Link color	Pos ge0/0	Pos n/a	Link Style		Link Label	Pos Label	Curvir	1055
	Solid	~			Bezier	~		-	150	٠

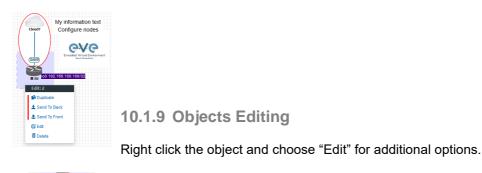
10.1.7 Nodes connection links design

Refer Section 8.1.5

Edit: 2 Duplicate Send To Back Send To Fron Edit Delete

10.1.8 Cloning objects and overlay positions

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



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



Z-index: Used to change the object's overlay position on the "Topology Canvas." An object with a higher numerically valued z-index will cover an object with a lower numerically valued z-indexed.

Example: The blue object has a z-index of -1 and the orange object's z-index is 0. Orange object is top over blue object.

Border width: Used to change the object's border width.

Border type: Used to change the border style of the object between solid and dashed.

Border colour: Used to change the colour of the object's border

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

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



Save Cancel



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

10.1.10 Lock objects movement

The "Lock Lab" feature prevents objects from being moved around on the canvas (among other things). For more information about this feature, refer to section 7.9.14.

10.2 Custom design logical topology

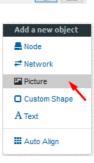
EVE Pro includes a feature to upload your own custom topology picture and map nodes to it for easy access.

10.2.1 Custom design upload

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

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

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



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"

Data format:	Interlace	 Background color:
Color format:	24-bit color	Transparency color:
Color reduction:	None	v.
ransformation		
Rotation: None	~	Flip horizontal Flip vertical
Resolution		
O Screen	Printer OSource	
Custom 140	X 140 pixels / in.	~
ine .		
Screen (Custom 5.6	Printer Source	



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



Pictures	window	management
-----------------	--------	------------

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

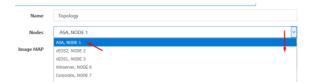
10.2.2 Custom topology mapping

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

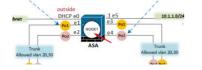
Step 1: Open the Image Map window:



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

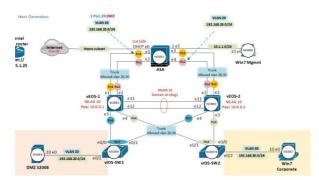


Step 3: Move your mouse over a node icon on the "Image Map" and click to map it. The grey circle means that the node is mapped.









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

Select from I	menu: Nodes	CUSTOM , NODE outside lab	~		
And map with node on topology.					
Change image	ge map adding prot	tocol, IP and port.			
Image MAP	<area alt="ii</th><th>mg" coords="102,286,30" href="proto://CUSTOM_IP:CUSTOM_PORT" shape="circle"/>				
Image MAP	<area alt="in</th><th>ng" coords="102,286,30" href="telnet://172.22.7.18:23" shape="circle"/>				
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.

ť	Topology
	Delete

10.3 Multi-configuration sets export feature

Eve Professional/Learning Center includes a "Multi-configuration Set" feature that allows you to save and manage multiple sets of configurations in a single lab. The "Configuration Export" and "Startup-configs" features will allow you to set these saved configurations as startup configs for your nodes when they boot.

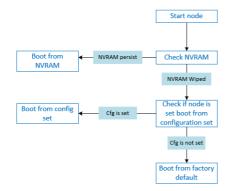
IMPORTANT NOTE: Before you start using the "Multi-configuration Set" feature, you must complete at least one configuration export.



STARTUP-CONFIGS				
		Config Set	Default v	
8	R1	QFF		
3	R2	GEE		
	SW1	OFF		
۵	SWZ	O # #		

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

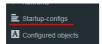
Cisco Dynamips all nodes Cisco IOL (IOS on Linux) Cisco ASA Cisco ASAv Cisco CSR1000v Cisco Catalyst 8000v Cisco Catalyst 9000v Cisco Nexus 9K Cisco Nexus Titanium



Cisco vIOS L3 Cisco vIOS L2 Cisco Viptela vEdge, vSmart, vBond, till version 18.4 only, version 19.x and later is not supported due implemented password setup feature on the first boot. Cisco XRv Cisco XRv9K Juniper VRR Juniper VMX Juniper vMX-NG JunipervQFX JunipervSRX Juniper vSRX-NG Mikrotik PFsense FW **Timos Alcatel** vEOS Arista Aruba CX Switch

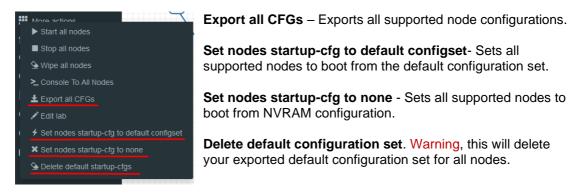
10.3.2 Startup config management

10.3.2.1 Global commands



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

Topology page, More Options:



10.3.2.2 Individual node commands

Select node, right click



Wipe: Wipes the NVRAM for a single node

Export CFG: Exports the configuration for a single node



10.3.2.3 Multiple selected nodes commands

s10	(\$1/0)	Group of R1, R2
		Start Selected
		Stop Selected
\mathbf{X}	/	Selected
(60.0)		Console To Selected Nodes
	(00)	Ł Export all CFGs
		Set nodes startup-cfg to default configset
► SW1	► SW2	Set nodes startup-cfg to none
		P Horizontal Align
		Vertical Align
		O Circular Align
		Delete nodes startup-cfg
		Delete Selected

Wipe Selected: Wipes the NVRAM for selected nodes

Export all CFGs: Exports the configuration for selected nodes

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

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

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

10.3.2.4 Startup-configuration window

No configuration exports or manual configs loaded for nodes

STARTUP-CO	STARTUP-CONFIGS				
	Config Set Default >	+ 7 I ± ±			
🚳 R1	OFF				
😂 R2	OFF				
SW1	OFF				
SW2	017				

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

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

10.3.2.5 Startup-config window information

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



	1
🖀 R1	No configuration is available for node. Grey node
28 R1	Configuration is available and can be used. Blue node. Exported configuration persist
8 R2 OFF	Configuration persist but it is disabled. Node will boot from NVRAM or factory default if it is wiped
28 R1 4 0N	Configuration persists and node will boot from the configuration after being wiped
CONFIG SET	Add new config set.
CONFIG SET Name Node name Ref Carol	Rename config set. The Default Config Set cannot be renamed.
× Config Set IP Addressing ∽	Select a Config Set and delete it. You cannot delete the Default Config Set. The Default configuration set can be cleaned using the sidebar / More options / Delete default configuration set
÷	Upload configuration set from your local PC
٤	Download configuration set to your Local PC
•	Apply Config Set button: Sets all nodes to boot from the chosen config set.
•	Config Reset button: Sets all nodes to boot from none. Node will check boot order. If the Wipe function is used, nodes will boot from factory default.
Image: Second	Individual node export or import configuration. Configuration export/import file format is .txt.

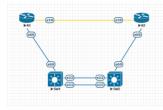


	Ace Editor. Different vendor configuration
	edit option. Just Text visual format.

10.3.3 Export Default configuration set

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

Example:



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

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

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

<u>(10</u>	Group of R1, R2, SW1, SW2	Export All: done
▶R1	► Start Selected	
e0/0 e0/0	Stop Selected	R1: config exported
	Selected	R1: Starting export, please wait
	Console To Selected Nodes	,, ,
(000)	▲ Export all CFGs	
e312 e312		R2: config exported
	Set nodes startup-cfg to default configset	
► SW1	Ref nodes startup-cfg to none	R2: Starting export, please wait
	P Horizontal Align	
		SW1: config exported
	Levertical Align	
		SW1: Starting export, please wait
	in Delete nodes startup-cfg	
	Delete Selected	SW2: config exported
		OTTE. Coming exported
		SW2: Starting export, please wait

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

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

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

Export Selected: Starting



10.3.4 Boot nodes from exported Default config set

Step 1: Stop all nodes

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

STARTUP-CONFIGS					
	Config Set	Default ~	+ (7) × ± ±	P	
2 R1	4 ON				
28 R2	4 ON				
SW1	4 <u>0</u> N				
SW2	4 NO				

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

Step 4: Start nodes

10.3.5 Export new custom config set

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

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

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

Config Set	Default 🗸	+ 🛛 🗴 ±
Name it a	nd press Add.	
CONFIG SE	т	
Name	IP Addressing	

The new configuration set is created.

Add Cancel

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

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





Step 3: Make sure your nodes have the Startup-config slider switched to "ON" and verify the config set menu has the "IP Addressing" set selected.

	Config Set IP Addressing ~	+ 2 x ± ±		
🎦 R1	∲ ± ▲		Ac	e Editor OFF
🥸 R2	f on paddress shutdown			^
SW1	✤ ON serial restart-delay 0			
SW2	<pre></pre>			

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

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

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

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

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

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

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

10.3.6 Edit exported configurations

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

Step 1: Select a config set and apply it with the green confirm button (Set all nodes to selected config set) on the right.

Config Set	Default 🗸		+ 🛛 🗙 🛓	*	
	Default	_			
	IP Addressing				/

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



STARTUP-CONFIGS			
	Config Set IP Addressing ~	+ 2 ± ±	
* R1 # ON * R2 # ON	1		Ace Editor
SW1 7 0N	Interface Ethernet0/3 no shutdown no Ip address shutdown I Interface Serial1/0 description Link to R2		
	no shutdown ip address 10.1.1.125.255.255.252 serial restart-delay 0 1 Interface Serial 1/1 no shutdown no ip address shutdown serial restart-delay 0		
	1 Interface Serial//2 no butdown no ip address shutdown serial retart-delay 0 1 Interface Serial//3		
	no shuddown no ip address shutdown serial restart-delay 0 1 ip forward-protocol nd		
	Save Cancel		

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



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

10.3.7 Set lab to boot from config set

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

Step 1: Wipe nodes. Refer to section 8.1.3 for information about wiping nodes and the order of operations during boot.

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

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



10.3.8 Set lab to boot from none

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

Step 1: Wipe nodes. Refer to section 8.1.3 for information about wiping nodes and the order of operations during boot.

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

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



Step 4: Start nodes



10.3.9 Delete a config set

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

Config Set	IP Addressing	+ 🛛 🗙 ± ±

10.3.10 Rename a config set

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

Config Set	IP Addressing V	+	<u>*</u>
CONFIG SET Name IP Addressing new Critic Crince	×		

10.3.11 Export a config set to your local PC

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

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

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

Step 2: Save it on your local PC.

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

10.3.12 Import config set from local PC.

It is possible to import config sets to your lab.

+	Ø	×	±	*
			1	



	ne Name			
F	no file selected			
	Browse Upload	Cancel		
File Upload				×
→ ~ ↑	Contraction Desktop > Exports	v ₫ Sear	:h Exports	P
ganize 👻 New	folder		811 -	•
This PC	^ Name ^		Date modified	Type ^
				WinRA
2D Objects	EIGRP cfg set.zip		15/03/2018 12:10	WinKe
3D Objects	EIGRP cfg set.zip	ip 🖊	15/03/2018 12:10 12/04/2018 11:16	WinRe
 3D Objects Desktop Documents 				

Browse to the file on your PC, select the archive or config set and upload it.

Uploaded config sets without a Name will appear in the config set menu with the name "Import". To rename config sets, refer to section 10.3.10

10.3.13 Export a single nodes config to your local PC

Open the "Startup-configs" window from the Side bar. Select the node that you want to export the configuration of and click the "Export" button.

			Opening R1.txt	\times
29 R1	4 N	* *	You have chosen to open: H stat which is: Tee Decument (13 kB) frems blob: What should Firefar do with this file?	
🥸 R2	4 ON	no ip address shutdown	Open with Notepad (default) V Save File	
💽 SW1	4 ON	serial restart-delay 0	Do this automatically for files like this from now on.	
SW2	4 ON	ip forward-protocol nd !	OK Cancel	

10.3.14 Import a single nodes config from your local PC

Open the "Startup-configs" window from the sidebar. Select the node that you want to import the configuration to and click the "Import" button. Browse to the file on your local PC and click "Upload."

			UPLOAD CONFIG FILE	×
			File no file selected	
			● File Upload ← → ↑ ↑ ● « Desktop → Exports → ↓ ♥	Search Exports
2 R1	4 ON	± ±	Organize 👻 New folder	💷 🔹 🔟 🔞
2 R2	4 ON 4 ON	: hostname R1 !	This PC This PC To Support State To Desktop Control Desktop C	Date modified Type 15/03/2018 12:10 File folde 27/05/2018 00:31 Text Doct
SW1	4 ON	boot-start-marker boot-end-marker !	Devnleds V File name	Text Document (*.bt) V Open Cancel

NOTE: The configuration must be in txt file format.

10.3.15 Set lab nodes to boot from different config sets

The "Multi Configuration set" feature allows you to set nodes to boot from different config sets in the same lab.

Option 1: Open the "Nodes" list from the left sidebar. Choose your node and select a config set from the dropdown. Stop the node, wipe it and start it again. Your node will boot from the selected config set.



D		TEMPLATE	BOOT IMAGE	CPU		IDLE PC				SER	CONSOLE	ICON	CTARTING CONFILE	ACTIONS	-
••	NAME	TEMPEATE	BOOT BOAL	CPU	CPU LIMIT	IDILIPC	NVRAM (KB)			SUR	CONSOLL	R.ON	STARTUP-CONFIG	ACTIONS	
1	R1	iol	L3-ADVENTERPRISEK9-M-15.4-; V	n/a	n/a	n/a	1024	1024	1	1	teinet	Router.png*	NEW IP addressi	▶∎≙±≓©	8
z	R2	iol	L3-ADVENTERPRISEK9-M-15.4-;	n/a	n/a	n/a	1024	1024	1	1	telnet	Router.png*	None Default	►≡9∓≒©	
3	SW1	iol	i86bi_linux_l2-ipbasek9-ms.high	n/a	n/a	n/a	1024	1024	4	0	teinet	Switch L3.png	IP Addressing	▶≡9∓ ≍©	8
4	SW2	iol	i86bi_linux_l2-ipbasek9-ms.high	n/a	n/a	n/a	1024	1024	4	0	telnet	Switch L3.png*	NEW IP addressing NEW IP addressi ~	▶∎⋟≛≓⊠	

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

None IP Addressing NEW IP addressing	IP Addressing	Default		×.
-		None		
-		ID Addeessie e		
NEW IP addressing	NEW IP addressing	IP Addressing		
		NEW IP addressing		

10.3.16 Lab config script timeout

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

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

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

10.4 Lab Timer

For self-controlled lab timing, EVE Pro has integrated a "Lab Timer" feature.

10.4.1 Set the Lab Countdown Timer

Step 1: Click "More Options" and then "Edit Lab" from the sidebar.

Step 2: Set the "Lab Countdown Timer" in seconds for the time you wish to display on the topology and confirm by clicking "Save". 7200 seconds = 120 minutes.

Config Script Timeout	800		Seconds
Lab Countdown Timer	7200	-	Seconds

Step 3: To start your lab, be sure all nodes are running.

Step 4: Hit "Lock Lab" from the sidebar. A red sign means that the lab is locked.

Step 5: When ready to start, click "Refresh Topology" from the sidebar. The countdown timer will be displayed on the "Topology Page" in the top left corner.





10.4.2 Stop the Lab Countdown Timer

Step 1: Click "Unlock Lab" Grey means that the lab is unlocked.

O Lock Lab

Step 2: Hit "Refresh Topology" from the sidebar

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

10.5 Lab Tasks

Lab task or workbook creation feature.

10.5.1 Creating a new simple task

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

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

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

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

10.5.2 Edit a simple task

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



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



LAB TASK(S)	B Source □ Ω B I U S ×e × Styles - Normal	$ \checkmark I_{x} \coloneqq \coloneqq =$:# ;		: a ≡ 11 1	
	Task 1.1 Basic configuration Objectives					
	5-ALSI	s area				
	Device	VTP mode	Version	VTP domain	VTP password	
	SW-DMZ	transparent	2	evelab	eve	
	DLS S-ALS1	server	2	evelab evelab	eve	
	S-ALS1 S-ALS2	client	2	evelab	eve	
	body div table thedy tr Save Cancel			<u> </u>		

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

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

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

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

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

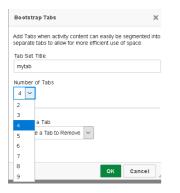
LAB TASK(S)
■ C 1. Switching
+ New Task

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



LAB TASK(S)	
🛅 🖸 1. Switching)	◎Source 日 D D 母 D X 13 由 由 日 + + 押 ♥- B J U S X, X' ┥ X 注 : 非 非 17 羽 b き 点 目 4 14 話· = ☆ 声 回 田 吾 D O 回 []
🕂 New Task	Styles • Format • Fort • State • A · A · A · A · A · A · A · A · A · A
	New Text

Step 3: Enter the name of your new task group and choose the number of tabs (must be between 2 and 9). Tab names can be changed later.



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

LAB TASK(S)	
 C 1. Switching New Task 	回 Source 금 D Q 奇 回 X G 函 函 ▲ → 第 巻 - B I U S X, X ダ J, 二 二 非 非 17 窓 重 三 ■ 「 14 話 - ∞ 및 ■ 回 亜 Ξ Ω © 回 C Styles - Normal - Font - Szz - ▲ - 집 - X 回
	Tab 1 Name Tab 2 Name Tab 3 Name Tab 4 Content New Text
	body div p Save Cancel

10.5.5 Edit tabs (Multi tabbed task).

Step 1: Activate the tab for which you want to edit its content and press the edit button.





Step 2: Rename your tab,

1 C 🖍 1 Switching	B Source 日
	Tab 2 Name Tab 3 Name Tab 4 Tab 4 Name Tab 3 Name Tab 4 Task 1.1 Basic configuration
	Objectives
	Configure switches' hostnames accordingly diagram.

Step 3: Press the "Show Blocks" button, this will help find the right place to create the task tab content. Make sure that you are copying or creating the tabbed task content into the correct place (Tab 1 Content)

NOTE: It is strongly recommended to use "full screen" for the rich html text editor when you are working with tabbed tasks. Press the "full screen" button to work with tasks. Press it again to exit full screen mode.

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

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

10.5.6 Create a task with your PDF workbook

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





LAB TASK	<(S)	
+ New Task	LAB TASK	×
	Name EVE cookBook	
	Add Cancel	

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



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

OK Cancel



Step 4: To view your uploaded book, use, Side Bar/Tab Tasks/your taskname





10.5.7 Create a task with Online document (PDF or HTML)

Online document or web site task (https ONLY, iFrame allowing use Secure http only)

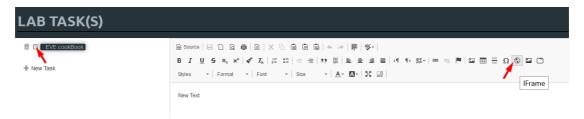
Step 1: Have ready your link to online web site or document. Example:

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

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

LAB TAS	SK(S)	
+ New Task	LAB TASK	*
	Name Online PDF Add Cancel	

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

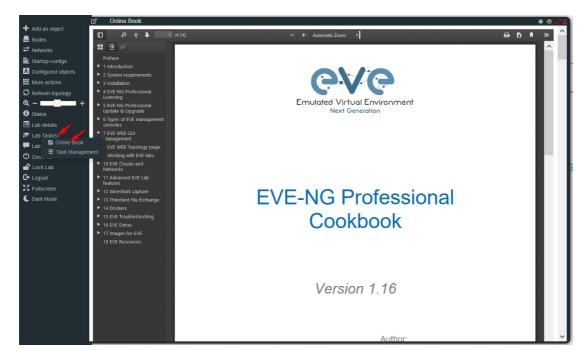


Step 4: Type the path to your online document, set Width to 100%, and Height resolution to 10000.

The path location is <u>https://www.eve-ng.net/images/EVE-COOK-BOOK-latest.pdf</u>, which prepared in Step 1. Press OK for iFrame properties and Save Task, Press Save

IF rame Properties	
General A	dvanced
URL	
https://www.eve-ng.net/ir	nages/EVE-COOK-BOOK-latest.pdf
Width Heig	ght Align Interpretation of the set of th
Name	Advisory Title
100%	10000
Long Description URL	
	OK Cancel

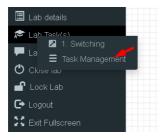




Step 5: To view your uploaded book, use, Side Bar/Tab Tasks/your taskname

10.5.8 Delete a task

Step 1: From the Side bar click on "Task Management":



Step 2. Click on the delete symbol next to the task name which you want to delete.







11 Wireshark capture

All EVE-NG Professional and Learning Centre console types have the integrated Wireshark capture feature. This means that it is not necessary to have Wireshark installed on the client machine you are using to access EVE with.

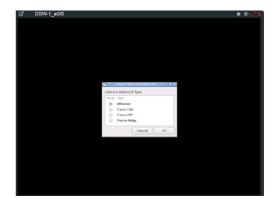
EVE-NG Professional currently supports ethernet interface capturing only.

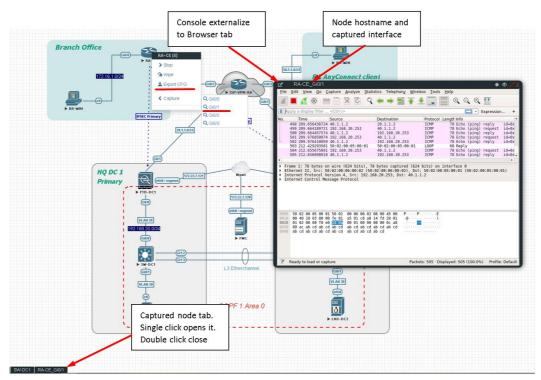
11.1 Native Console Wireshark capturing

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

Select the interface frame type which will be captured:

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





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



Apply a display filter	<ctrl-></ctrl->	Destination Protocol Length Info
1 0.000000000	aa:bb:cc:00:01:00	aa:bb:cc:00:01:00 LOOP 60 Reply
2 4.665564570 3 5.559412451	aa:bb:cc:00:02:00 aa:bb:cc:00:01:00	CDP/VTP/DTP/PAgP/UD CDP 369 Device ID: R2 Port ID: Ethernet0/0 CDP/VTP/DTP/PAgP/UD CDP 383 Device ID: R1 Port ID: Ethernet0/0
4 5.919384670	aa:bb:cc:00:01:00 aa:bb:cc:00:02:00	aa:bb:cc:00:02:00 LOOP 60 Reply
5 10.000389088	aa:bb:cc:00:01:00	aa:bb:cc:00:01:00 LOOP 60 Reply
Frane 1: 68 bytes on	wire (498 bitc) for	50 bytes captured (480 bits) on interface 0
Ethernet II, Src: aa	:bb:cc:00:01:00 (aa	bb/cc/00:01:00, Dst: a:bb/cc/00:01:00 (a:bb/cc:00:01:00)
Configuration Test P	rotocol (loopback)	
Data (40 bytes)		
le Edit <u>V</u> iew <u>Go Cat</u> Open	iture <u>A</u> nalyze <u>S</u> tatistik Ctrl+O	ks Telephony Wreiess Tools Help
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Open		
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Open Open Recent <u>M</u> erge Import from Hex Dump. Close Save	Ctrl+0 Ctrl+W Ctrl+S	,
Open Open Recent Merge Import from Hex Dump. Close Save Save As	Ctrl+O Ctrl+W	y I I I I I I I I I I I I I I I I I I I
Open Open Recent Merge Import from Hex Dump. Close Save Save Save Save Save Save Save	Ctrl+0 Ctrl+W Ctrl+S Ctrl+Shift+5	,
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Open Open Recent Merge Import from Hex Dump. Close Save Save As File Set Export Specified Packet Export Packet Dissection Export Packet Bytes Export POUs to File	Ctrl+0 Ctrl+W Ctrl+S Ctrl+Shift+3 S S Ctrl+H	y I I I I I I I I I I I I I I I I I I I
Open Open Recent Merge Import from Hex Dump. Close Save Save Save As File Set Export Specified Packet Export Packet Dissection Export Packet Bytes Export Packet Bytes	Ctrl+0 Ctrl+W Ctrl+S Ctrl+Shift+3 S S Ctrl+H	y ■ T ± = tration those color to the optimic the optimic those color to the optimic
Open Open Recent Merge Import from Hex Dump. close Save Save As File Set Export Specified Packet Export Packet Dissection Export Packet Bytes Export POUs to File Export SQL Session Keys Export Specified Packet Export Solution File	Ctrl+O Ctrl+W Ctrl+S Ctrl+S Ctrl+S Ctrl+H	y I I I I I I I I I I I I I I I I I I I
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Open Recent Merge Import from Hex Dump. Close Save Au- Export Specified Packet Export Packet Disection Export Packet Bytes Export POUs to File Export DOUs to File Export Objects Print Out	Ctri+Q Ctri+Q Ctri+S Ctri+Shift+2 Ctri+Shift+2 Ctri+Shift+2 Ctri+Q Ctri+Q	P T T T T T T T T T T T T T T T T T T T
Open Record Merge Import from Hex Dump. Close Save Save Export Specified Packet Deport Packet Dissection Deport SSL Session Key Deport Deport SSL Session Key Deport SSL S	Ctri+O Ctri+O Ctri+S Ctri+S Ctri+S Ctri+S Ctri+H Lin Ctri+P Ctri+P Ctri+Q Lin (480 D115), 69	y ■ T ± = infration Protocol Longt Info Information Informatio Information Information Information Information Information

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

IMPORTANT:

/nobody/thinclient_drives/GUACFS/Download

Enter a name for your captured file and press Save. Your browser will offer to download your capture fil and save on your local PC. Refer Section 11.2

11.2HTML5 Console Wireshark capturing

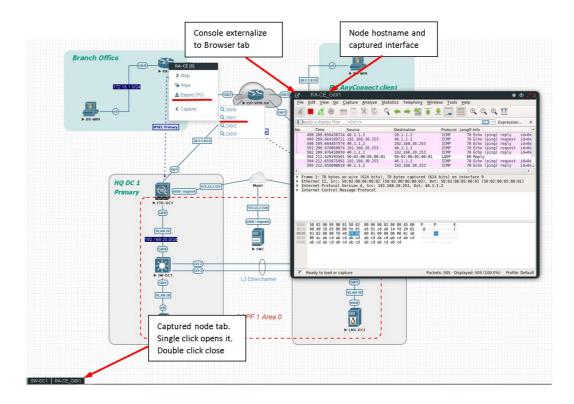
Step 1: Right click on the node you wish to capture, choose "Capture" and then the relevant interface. The capture will open in an HTML session. EVE-PRO supports capture for ethernet and serial interfaces.

Select the interface frame type which will be captured:

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

Cepture Data Lain & general Data Lain & general Data Lain & general & genera
Cash bas Pick to C Cash Adam Cash Adam Cash Adam Cash Adam Pick Holy
Casarba Prick cor Casarba Casarba Casarba Prick not
Casarba Prick cor Casarba Casarba Casarba Prick not
Casarba Prick cor Casarba Casarba Casarba Prick not
Casarba Prick BC Casarba Casarba Casarba Prick BC
Cash bas Pick to C Cash Adam Cash Adam Cash Adam Cash Adam Pick Holy
Pick: DUT G Created
 Behamat Cates Hele Cates Hele Trans Helay
Class Hafe Class Dep Finame Relay
Cisco 099 Frame Felay
Frame Relay
cent or
Cancel OK





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

Eile Edit View Go Capture	Analyze Statistics Telephony Wireless Tools Help
🔺 🔍 🖉 💿 🚍 🗅 🛛	3 G 9 ፍ 🗯 🛣 🖉 📃 🔲 9 9 9 1
Apply a display filter <ctrl- :<="" td=""><td>></td></ctrl->	>
No. Time Source	Destination Protocol Length Info
1 0.000000000 aa:bb: 2 4.665564570 aa:bb:	:cc:08:01:00 aa:bb:cc:09:01:00 LOOP 60 Reply :cc:08:02:00 CDP/VTP/DTP/PAgP/UD_ CDP 369 Device ID: R2 Port ID: Ethernet8/0
3 5.559412451 aa:bb:	cc:00:01:00 CDP/VTP/DTP/PAgP/UD_ CDP 383 Device ID: R1 Port ID: Ethernet0/0
	:cc:08:02:08 aa:bb:cc:08:02:08 LOOP 68 Reply :cc:08:01:08 aa:bb:cc:08:01:08 LOOP 68 Reply
5 10.000505000 44.00.	ccloseles association con or hepry
Frame 1: 60 bytes on wire	(480 bits), 60 bytes captured (480 bits) on interface 0
Configuration Test Protoco	::00:01:00 (aa:bb:cc:00:01:00), Dst: aa:bb:cc:00:01:00 (aa:bb:cc:00:01:00)
Data (40 bytes)	
Ele Edit View Go Capture A	analyze Statistics Telephony Wireless Tools Help
Open	Ctri+0 👂 🚈 🐺 💻 🗨 🔍 🔍 🔍 🎹
Open Recent	
Merge	
I Import from Hex Dump	tination Protocol LengthInfo
Close	bb:cc:09:01:00 L00P 60 Reply
Save	Ctrl+S
Save As	Ctrl+Shift+S
File Set	
Export Specified Packets	
Export Packet Dissections	b
Export Packet Bytes	Ctrl+H
Export PDUs to File	
Export SSL Session Keys	
Export Objects	
Print	Ctrl+P
Quit	Ctrl+Q
▶ Frame 1: 60 bytes on wire (4	480 bits), 60 bytes captured (480 bits) on interface 0
Ethernet II, Src: aa:bb:cc:0 Configuration Test Protocol	00:02:00 (aa:bb:cc:00:02:00), Dst: aa:bb:cc:00:02:00 (aa:bb:cc:00:02:00)
 Data (40 bytes) 	(coppack)

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

IMPORTANT:



/nobody/thinclient_drives/GUACFS/Download

Enter a name for you captured file and press Save.

Eile Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help	
📕 🗏 🕲 🚞 🖺 🖄 🙆 🤇 👄 🗯 乎 👱 📃 🔍 Q, Q, X	
Apply a display filter <ctrl-></ctrl->	
No. Time Source Destination Protocol Length Info	
1.0.00000000 ast bit cc:00:01:00 ast bit cc:00:01:00 Cole 6 Broky 2.4.6655470 ast bit cc:00:02:00 CMP/V17/017/Mg/UDLC 300 Bit cc:00:02:00 300 3	thernet0/0 thernet0/0
Handards, Konstanter Physics	
Wireshark - Save Capture File As	
Look in: //nobody/thinclient_drives/GUAC/Download O O O	🙉 🗉 🔳
Computer Name • Size Type Date Modified	
nobody	
<pre>> Frame 1: 6 Ethernet I > Configurat > Data (40 b</pre>	
File name: mycapturedfile	Save
	Cancel
Save as: Wireshark/ pcapng *	Help
Compress with gzip	
0000 aa bb cc 00 01 00 aa bb cc 00 01 00 90 00 00 00 00 0010 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	
0620 0	

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

	nycapturcum	e.pcapng	
v	vhich is: Wires	hark capture file	
f	rom: http://17	2.22.7.18	
What	should Firefox	do with this file?	
۲	Open with	Wireshark (default)	~
0) <u>S</u> ave File		
	Do this <u>a</u> uton	natically for files like this from now	on.

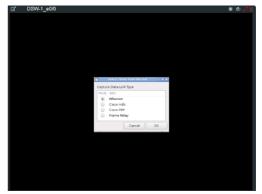


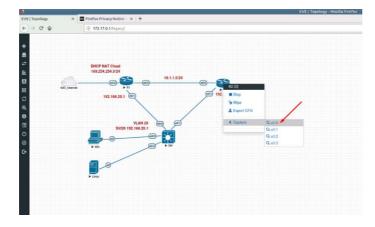
11.3 HTML5 Desktop Console Wireshark capturing

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

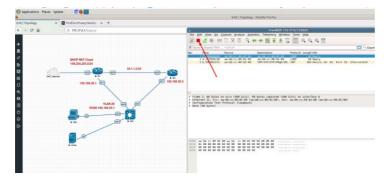
Select the interface frame type which will be captured:

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





Step 2: Stop capturing with the STOP button.



Step 3: Chose File/Save As

Edit View Go Capture	Analyze Statistics		_	-	Help							
Open Recent	curro .) 🖀 🕌	<u>*</u> _		€, ⊖,	Q 1						
Merge										🖃 🔹 E	xpression	
Import from Hex Dump		tination		Protocol	Length Ir	nfo						-
Close	Ctrl+W	bb:cc:00:0		LOOP		eply						
Save 🥒	Ctrl+S	VTP/DTP/P	AgP/UD	CDP	369 D	evice	ID: R2	Port	ID:	Ethernet0/0		
Save As	Ctrl+Shift+S	bb:cc:00:0	2:00	L00P		eply						
File Set		bb:cc:00:0		LOOP		eply						
	,	bb:cc:00:0	1:00	LOOP	60 R	eplý						
Export Specified Packets		bb:cc:00:0		LOOP		eply						
Export Packet Dissections	•	bb:cc:00:0		LOOP		eply	-		X0	Ethernet0/0		
Export Packet Bytes	Ctrl+H	bb:cc:00:0		LOOP		eply	ID: KI	Port	10:	Ethernet0/0		
	Cultri	bb:cc:00:0		LOOP		eply						
Export PDUs to File											Þ	
Export SSL Session Keys		es captured	(480 b)	its) on	interfa	ce 0						
Export Objects	•	c:00:02:00)	, Dst: a	aa:bb:cc	::00:02:	90 (aa	:bb:cc	:00:02:	00)			
Print	Ctrl+P											
Quit	Ctrl+Q											

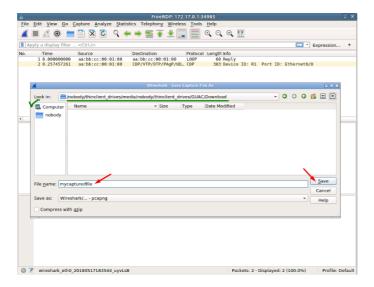


Step 4: Chose the path to save the captured file,

IMPORTANT:

/nobody/thinclient_drives/media/nobody/thinclient_drives/GUACFS/Download/

Enter a name for captured file. Press Save.



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

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



12 Thinclient File Exchange

NOTE: Thinclient file exchange feature is available for HTML5 or desktop HTML5 consoles only. Make sure you are logged in EVE with one of it.

The Thinclient file exchange feature allows you to transfer files between your native client workstation and the integrated Docker Desktop. It is used when managing EVE via HTML5 consoles. This feature eliminates the need for file transfer software on your client workstation and makes it very easy to import/export labs or download Wireshark captures.

12.1 Thinclient files downloading

The Thinclient file exchange feature allows you to download files from your EVE Server over an HTTP/HTTPS session to your client PC. Examples below will show you how to download exported lab files. This feature is not restricted to just lab files or Wireshark captures. It can be used to download or upload any miscellaneous files you may need.

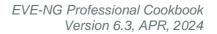
Example: HTML5 console to server-gui Docker node: We want to export our test.txt file and download it to our client PC over HTML5.

Docker-server-gui Applications Places System			* 🔹 🦯 🗙
Applications Places System			_ Idebec 18, 17.39
root's Home		test	
	🔁 Create Folder	test.txt	
	Create Launcher Create Document	No templates installed	
TFTP	Organize Desktop by Name	Empty File	
	Paste		
	Change Desktop Background	J	
	Emulated Virtual Environment		
thinclient_drives			
_			
801			

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

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

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





Docker-server-gui		* 🔷 🦯 🗶
🔊 Applications Places System 🍯		Tue Dec 18, 18:03 🔳
Applications Places System		
www	0 items	

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

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

NOTE: Please refer to section 11 for downloading Wireshark capture files from EVE HTML5 consoles.

12.2 Thinclient File upload

Sometimes it is necessary to upload files to your EVE labs. The Thinclient file exchange feature allows you to upload files from your client PC to the EVE HTML5 server-gui station. The



example below will show you how to upload a text file to the EVE HTML5 server-gui station. Any other files can be uploaded the same way.

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

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

			- 0 X	
-pro. alora.lv /legacy/		67% ··· 🛛 🕁		
	9	1		
	► Decker-se	ver-gel		Sec. 1
12 Docker-server-gui		• • • **		100
D Applications Places S	istem 🥹	Tue Dec 18, 17:44		and the second second
-	GUACFS			States and States
File E	dit View Go Bookmarks Help			
root's Home	k 🔹 ->Forward 👻 🌝 🧶 🔄 🔚 🧮 🗌 🗆 10	0% 💿 Icon View 🔽 🔍		100 B (100 B)
Places	• × 📝 🔸 🗟 root 💷 thindlient_drives 🗖	ACFS		11000
TETP Comp				100 C
50 C	esktop Download			and the second second
11 F	le System ash			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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thinclient_drives				A 1 1
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and a second				is them that is 740
eve to do.txt				
	1 item	4		and the second
				A CHARTER OF COMMENT
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C GUACES				
				AAAA

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



Docker-serve				* 🚸 📌 🗙 Tue Dec 18, 17:47 🔝
	θ	GUACFS	00	
root's Home		b Bookmarks Help ward 🔻 🏠 🌒 😋 🛛 🛅 🚆 📄 100% 📀 Icon View	₽ Q	
ТЕТР	Computer	GUACFS		
IFIP	🗟 root 🛅 Desktop 🗐 File System	Download		
	Trash			
thinclient_drives	Network Browse Net			
www				
v .99 2. B4 8. DK 12. f				
eve to do.txt		1 item	li.	
		EILE EILE	E TRANSFERS	Clear
🐻 📋 GUACFS			e to do.txt	3.2 KB

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

🗹 Docker-server-gui		* 🔷 🗸 X
Applications Places System	6	Tue Dec 18, 17:47 🔳
	GUACES D D	
File Edit	iew Go Bookmarks help	_
Ger Back ▼	🛷 Forward 🔻 🄗 🌒 😸 🛅 💻 📄 100% 💿 Icon View 🛛 🔽	
Places	X Not thinclient_drives GUACFS	
Computer		
TFTP 🔯 root	2.98 80 28,20 21	
🛅 Deskto	Download eve to do.txt	
🖾 File Sy	em	
🗑 Trash		
🖾 thincli	🔺	
Network		
thinclient_drives	Net	
chinetient_drives		
www		
v .98 2. D(8. D(12. t		
eve to do.txt		
	2 items	
	FILE TRANSFERS	Clear
🛅 GUACFS	eve to do.txt	3.2 KB

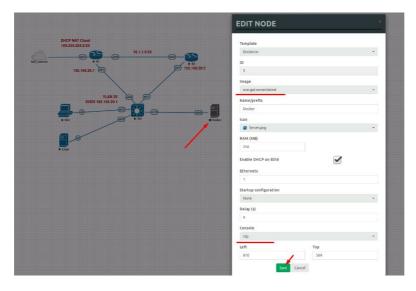
12.3 Other Thinclient file operations

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

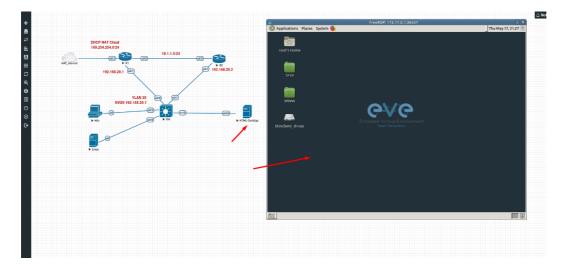
Step 1: Add the **eve-gui-server** docker node to your lab and edit its settings. Set the console type to RDP and configure the IP address settings (DHCP or static) accordingly so that the



docker node can reach the destination node (R1 in this example). For Docker IP addressing please refer to section 13



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



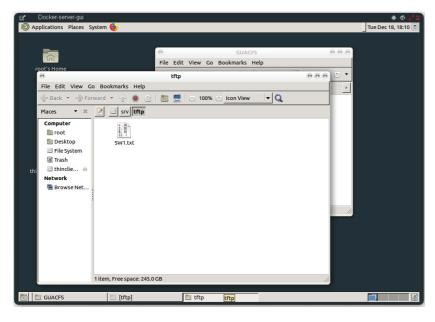
Step 3: Open the thinclient_drives location where you uploaded your file to:

/thinclient_drives/media/nobody/thinclient_drives/GUACFS/

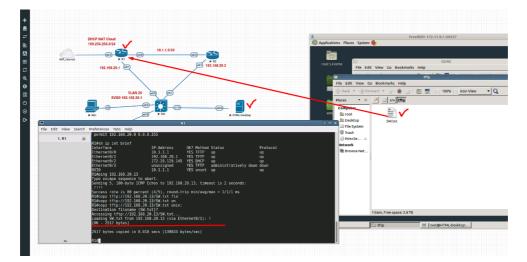
Next, drag and drop your file to the desktop folder named TFTP.



Docker-server-gui Docker-server-gui Applications Places System				* 🚸 🦯 🗙 Tue Dec 18, 18:09 💷
Applications Places System	🖑 Back 🔻 📎 For		888 	_ Tue Dec 18, 18:09 💩
	Places Computer File System Trash Network	Counces Download	d P	
thinclient_drives	Erowse Net	2 items		
C GUACES				



Step 4: Open the destination node's (R1) console and use the tftp command to copy your file:





13 Dockers

13.1 EVE integrated docker stations

EVE-NG Professional and Learning Centre edition have integrated Docker stations that allows your server to use its resources more efficiently. Dockers offer the advantage of not having to duplicate processes already running on the host system. With a Docker, you run only the processes you need for the hosted application. In comparison, virtual machines have to run a complete guest operating system, including many of the same processes that are already running on the server host.

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

13.1.1 Docker Machines

eve-gui-server (default)

- Fully featured Linux workstation with integrated Thinclient. For more information on the Thinclient operation please refer to section 12.
- napalm
- ansible
- python
- iperf3
- RDP console
- DHCP or Static IP address
- WWW Server (web page home directory www is located on desktop)
- TFTP Server (for access to TFTP server, root/eve or nobody/eve, home directory TFTP is located on desktop)
- FTP server (for access to FTP server, root/eve, home directory for ftp is root)
- Java Integration for ASDM access to Cisco ASA/IPS. For access to ASDM where Java is required, please follow this reference link:

https://192.168.100.5/admin/public/asdm.jnlp

Where 192.168.100.5 is the ASA IP for ASDM connection

NOTE: Older ASA require to configure extra SSL encryption to communicate with Java on the docker station. ASA 9.1.5 CLI:

ssl encryption aes256-shal

Example: Access to ASAv ASDM from Docker server-gui station



Av913#				D Applications Plac	es System 😉		👘 🔇 Fri Nov 29, 22:
Av913# wr ilding configuration yptochecksum: eb3b2d81 2	e421125 21940f7	70 44d7c889		🙃 🔺 Warning: Potential:		urity Risk Ahead - Mozilla Firefox	8
60 bytes copied in 0.90 :				(←) → 健 @	0 tttps://10.1.1.5/admin/public/	/asdm.jnlp ••••	○ ↓ II/ □ ●
K] Av913# sh int ip brief				0	Cisco ASDM 7.1	13(1) for ASA - 10.1.1.5	888
			Protoco		Wgards Window Help	Type topic to search	
gabitEthernet0/2 gabitEthernet0/3 gabitEthernet0/4 gabitEthernet0/5 gabitEthernet0/6	unassigned unassigned unassigned unassigned unassigned unassigned unassigned 10.1.1.5	YES unset administrat YES manual up	ively down down ively down down ively down down ively down down ively down down	Device Setup Bartine V Control Contr	Settings ImslPassword RP Startup Wizard The Ciscs AGDAI Santup getting year Ciscs Adapt configured and running, rest a bask configure security policies in your The Startup Wizard an	Bestartup Wizard Usard' button to start the weard. Wizard assists you in Mos Secury Appliance to that enforces network, network, time and	e
				Pevice Set	up will be initialized with value running configuration.	ues from the current	
				Bemote Ad	ress VPN		
				Ste-to-Ste			
				Device Ma			

eve-firefox (default)

- A Docker for hosting a Mozilla Firefox browser. Useful for accessing another nodes management interface using http or https. The browser already has Java integrated so that you can utilize GUIs that require it, like ASDM for Cisco's ASA.
- RDP console
- DHCP or Static IP address

eve-wireshark (default)

- Fully featured Wireshark workstation with integrated Thinclient. For more information on the thinclient operation please refer to section 12.
- RDP console

eve-chrome (extra install, section 13.5)

- A Docker for hosting a Google Chrome browser. Useful for accessing another nodes management interface using http or https. The browser already has Java integrated so that you can utilize GUIs that require it, like ASDM for Cisco's ASA.
- DHCP or Static IP address

eve-ostinato (extra install, section 13.5)

- A Docker for hosting a Ostinato 0.9 GUI. Fully featured Ostinato 0.9 packet generator and network traffic generator machine
- DHCP or Static IP address
- Fully featured Ostinato GUI



File View Help	
Ports and Streams	
	Welcome to Ostinato The port list on the left contains all the ports on which you can transmit packets. Ports belong to a port group. Make sure the Port Group has a ° next to it, then double click the port group to sho hide the ports in the port group. To generate packets. you can transmit packets. To create a stream, select the port on which you want to send packets.
Port Statistics	Capture R ARP/ND C C

13.1.2 Docker DHCP IP address setup

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

DHCP IP address option.

Step 1: Add the node to the topology and make sure the DHCP option is **enabled** under the edit node window. Refer to section 13.2 for the correct console type.

Step 2: Ensure the docker's DHCP request can reach a DHCP server either in your lab or externally through a Cloud Network like Cloud0.

Template		
Dockenio		
Number of nodes to add	Image	
1	eve-gui-server:latest	
Name/prefix		
Docker		
con		
Server.png		
RAM (MB)		
256		
Enable DHCP on Eth0		
Ethernets		
1		
Startup configuration		
None		
Delay (s)		
0		
Console		
rdp		
Left	Тор	
1283	247	

13.1.3 Docker Static IP and MAC address setup

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 13.2 for the correct console type.

Step 2: On the left sidebar menu open Startup-config and use the example syntax below to set the ip for your Docker node. Make sure you are using the exact syntax for your static IP setup:

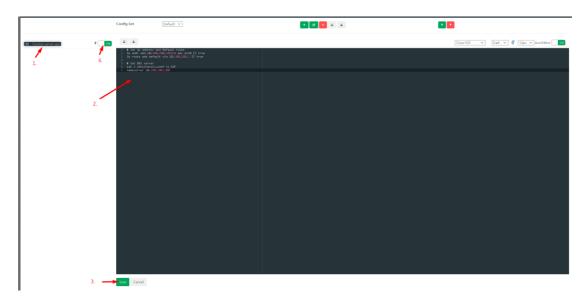


```
# Set ip address and Default route
ip addr add 10.100.100.103/24 dev eth0 || true
ip route add default via 10.100.100.1 || true
```

Set DNS server
cat > /etc/resolv.conf << EOF
nameserver 8.8.8.8
EOF</pre>

Step 2.1 (Optional): On the left sidebar menu open Startup-config and use the example syntax below to set the custom MAC for your Docker node. Make sure you are using the exact syntax for your static MAC setup:

```
# Set ip address and Default route
ip link set dev eth0 address XX:XX:XX:XX:XX || true
ip addr add 10.100.100.103/24 dev eth0 || true
ip route add default via 10.100.100.1 || true
# Set DNS server
cat > /etc/resolv.conf << EOF
nameserver 8.8.8.8
EOF
```



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

13.1.4 Docker multi interfaces setup

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 13.2 for the correct console type.

Step 2: On the left sidebar menu open Startup-config and use the example syntax below to set the ip for your Docker node. Make sure you are using the exact syntax for your static IP setup. It is recommended to add static routes under interfaces to reach specific networks if required.

Set ip address eth0



```
ip addr add 192.168.1.200/24 dev eth0 || true
ip route add default via 192.168.1.1 || true
# Set ip address eth1
ip addr add 172.16.1.201/24 dev eth1 || true
# Set static route for eth1
ip route add 10.100.100.0/24 via 172.16.1.1 dev eth1 || true
# Set ip address eth2
ip addr add 10.1.1.10/24 dev eth2 || true
# Set static route for eth2
ip route add 10.10.10.0/24 via 10.1.1.1 dev eth2 || true
```

```
# Set DNS server
cat > /etc/resolv.conf << EOF
nameserver 8.8.8.8
EOF</pre>
```

13.1.5 Docker server-gui custom WEB page

Step 1: Add the node to the topology and make sure the DHCP option is **disabled** under the edit node window Reference section 13.2 for the correct console type.

Step 2: On the left sidebar menu open Startup-config and use the example syntax below to set the ip and html page for your Docker node. Make sure you are using the exact syntax for your static IP setup and custom HTML values:

```
# Set ip address and Default route
ip addr add 10.100.12.100/24 dev eth0 || true
ip route add default via 10.100.12.10 || true
# Set DNS server
cat > /etc/resolv.conf << EOF</pre>
nameserver 8.8.8.8
EOF
# Create a Default web page
# Use 'EOF' do avoid variable from expanding
# Delete default index page
rm /var/www/html/index.html || true
# Create a Default web page
# Use 'EOF' do avoid variable from expanding
cat > /var/www/html/index.php << 'EOF'</pre>
<center>
<?php
echo gethostname();
?>
<hr>
<img width="596" height="239" src="data:image/png;base64,---</pre>
imagecode ommittedg==">
<hr>
```



```
<?php
//whether ip is from share internet
if (!empty($ SERVER['HTTP CLIENT IP']))
 {
    $ip_address = $_SERVER['HTTP_CLIENT_IP'];
  }
//whether ip is from proxy
elseif (!empty($_SERVER['HTTP_X_FORWARDED_FOR']))
  {
    $ $ SERVER['HTTP X FORWARDED FOR'];
  }
//whether ip is from remote address
else
 {
    $ip_address = $_SERVER['REMOTE_ADDR'];
 }
echo 'Client Address:'.$ip_address;
?>
</center>
EOF
```

STARTUP-CONFIGS

Config Set	Default 🗸
SW1 for a second sec	<pre>Default route 2.100/24 dev eth0 true via 10.100.12.10 true eb page variable from expanding ex page ex.html eb page variable from expanding index.php << 'EOF' ight=*239" src="data:image/png;base64,iVBORwOKGg0AAAA share internet 'HTTP_CLIENT_IP')) SERVER('HTTP_LENT_IP'); proxy VER('HTTP_LFORWARDED_FOR'))) SERVER('HTTP_LFORWARDED_FOR')) SERVER('HTTP_LFORWARDED_FOR')) SERVER('HTTP_LFORWARDED_FOR'); remote address SERVER('REHOTE_ADDR');</pre>

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

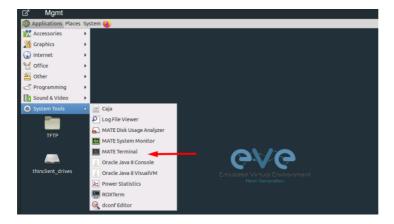


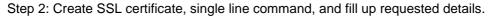


13.1.6 Docker server-gui SSL WEB page

Following previous chapter, you can enable on the server-gui node SSL/HTTPS certificate.

Step 1: Open Applications/System Tools/MATE Terminal





```
openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout
/etc/ssl/private/apache-selfsigned.key -out /etc/ssl/certs/apache-
selfsigned.crt
```

Step 3: Enable SSL certificate for web page.

```
/usr/sbin/a2enmod ssl
```



/usr/sbin/a2ensite default-ssl

Step 4: Restart apache2 service

sv stop apache2

sv start apache2

13.1.7 Docker server-gui SSH root access activation

Step 1. Use Mgmt_Server MATE Terminal, type:

vi /etc/ssh/sshd config

Step 2. Navigate and find PermitRootLogin and uncomment. (delete #). Locate cursor under # sign and press "x". Then press ESC and type: ":wq", Enter

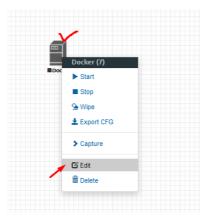
```
#LoginGraceTime 2m
PermitRootLogin yes
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10
```

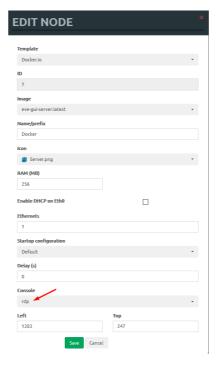
Step 3. Restart SSH service

/etc/init.d/ssh restart

13.2 Docker Consoles

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









Docker Station	Console type
eve-gui-server (napalm, ansible)	RDP/Telnet
eve-chrome (optional)	RDP
eve-wireshark	RDP
eve-firefox	RDP
eve-ostinato (optional)	RDP

13.3 Docker cli root access

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

Username: root

Password: eve

NOTE: The root login for SSH can be commented in sshd file. Use vi to edit and remove comment "#" for PermitRootLogin

```
vi /etc/ssh/sshd_config
PermitRootLogin yes
```

Regular user (root user) SSH access to EVE Docker:

Username: nobody

Password: eve

13.4 Dockers re-install/update

To install or fix docker stations in the EVE Pro issue the following commands from the CLI of EVE.

When dockers are properly installed, your EVE CLI command dc images output must show:

TAG	IMAGE ID		CREATED 50 GB	SIZE
latest	ca1333621bd7		12 hours ago	3.65GB
latest	9db19c879a17		2 days ago USB 2.0	3.84GB
latest	0266d108a1bb		7 weeks ago	2.12GB
latest	82a009773e89		r 17 weeks ago VM Mana	ger1956GBC
	latest latest latest	TÅG IMAGE ID latest ca1333621bd7 latest 9db19c879a17 latest 0266d108a1bb	TÅG IMAGE ID ski latest ca1333621bd7 latest 9db19c879a17 utroller latest 0266d108a1bb	TÃG IMAGE ID skil CREATED 50 GB latest ca1333621bd7 12 hours ago latest 9db19c879a17 infoller 2 days ago USB2.0 latest 0266d108a1bb 7 weeks ago

If you still see some docker line with <none>



root@eve-ng:~# dc ima REPOSITORY	ges TAG	IMAGE ID	CREATED	SIZE
<none></none>	<none></none>	cc286e6ac274	16 seconds ago	1.87GB
eve-qui-server	latest	f3aa6e0e9a56	3 minutes ago	3.04GB
eve-wireshark	latest	638ed7cf5b80	12 minutes ago	887MB
eve-firefox	latest	259293d73b07	13 minutes ago	1.49GB
eve-desktop	latest	78e9c2e618a5	15 minutes ago	2.79GB

please use reinstall dockers command:

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

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

13.5 Extra docker packages

NOTE: Not included in the default EVE Pro installation. This can take some time depending on your Internet connection and disk speed.

Chromium Linux http, to install issue CLI command:

```
apt update
apt install eve-ng-chrome
```

Ostinato docker, to install issue CLI command:

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

Docker-in-docker (DinD) docker. This docker is dedicated for complex docker stacks. Refer section: 13.6.2. To install issue CLI command:

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

To verify Installed dockers, issue CLI command

В
GB
GB
GB
GB
GB

13.6 Third parties dockers

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

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

Simple Docker



Docker's Stack

13.6.1 Simple docker installation

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

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

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

dc pull <dockername>

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

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

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

root@eve-v6-mast	er:~# dc]	pull adosztal/aa	a	
root@eve-v6-mast	er:~# dc :	images		
REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
registry	2	9363667f8aec	4 weeks ago	25.4MB
eve-ostinato	latest	5e74596c24b0	5 weeks ago	4.22GB
eve-gui-server	latest	d819486ab729	5 weeks ago	7.07GB
eve-desktop	latest	aaab99abf9b9	5 weeks ago	6.88GB
eve-firefox	latest	01c3151ae759	5 weeks ago	4.69GB
eve-wireshark	latest	030d66992f3d	7 weeks ago	4.24GB
adosztal/aaa	latest	6e12e4096083	3 years ago	314MB
root@eve-v6-mast	er:~#			

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

Template Show unprovisioned templates Dockerio Image 1 adosztal/aaa:latest Name/prefix Image Docker Image Docker Image Server.png Image CPU RAM (MB) 1 Image 1 Image Image Image </th <th>ADD A NEW</th> <th>/ NODE</th>	ADD A NEW	/ NODE
1 Image: Ima	· · · · ·	
Docker kon Server.png CPU RAM (MB) 1 1024 Ethernets 1 Startup configuration None O		
Berver.png * CPU RAM (MB) 1 1024 Enable DHCP on Eth0		
CPU RAM (MB) 1 1024 Enable DHCP on Eth0 Ethernets 1 Startup configuration None V Delay (s) 0		•
Ethernets 1 Startup configuration None Delay (s) 0	СРU 1	
None Delay (s) 0	Ethernets	
Delay (s) 0		
	Delay (s)	
teinet •	Console	



13.6.2 Docker stack installation

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

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

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

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

Sample: Step 1: On eve cli, type:

apt update apt install eve-ng-dind

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

Step 2: Create a new lab

Step 3: Add on the lab:

- a. NAT network
- b. Docker eve-dind (set console to 'telnet' and enable dhcp)

Step 4: Connect docker to NAT network

Step 5: Start Docker

Step 6: Open Docker Console

Step 7: Type in console:

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

cp -r librenms-src/examples/compose librenms

rm -fr librenms-src

cd librenms

docker-compose up -d

Commit your created docker with new name.

Step 8: Open a cli access to your EVE server

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

dc ps -a

root@eve-nq:~#	≠ dc ps −a			
CONTAINER ID	IMAGE	COMMAND9: Type within t	CREATED	STATUS
PORTS	NAMES			
b96743436dd8	eve-dind:latest	"dockerd-entrypoint.…"	About a minute ago) Up About a minute
	9a4f9db1-4ab2-4e	3c-b066-0d25ceeb540b-10-4		
7d83609410aa	eve-gui-server:lates		10 hours agol [UNN]	nupcionadurs rusing eve
	9a4f9db1-4ab2-4e8c	-b066-0d25ceeb540b-10-2		
13ee6dc804ae	eve-gui-server:lates		8 days ago	Exited (0) 16 hours ago
	dd700ee7-f03b-4fd5-	-8ed8-40d1ad2e6f4f-10-14		

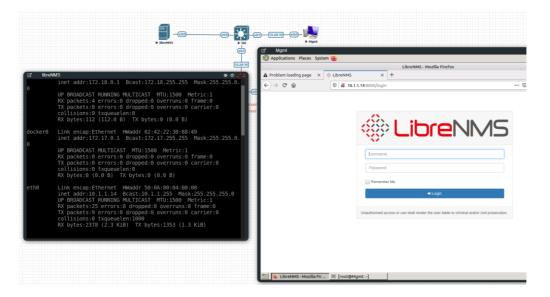


Step 10: *IMPORTANT:* On the Lab UI stop docker. Do not wipe, but stop. Step 11: Commit your created docker with custom name.

dc commit <containerid> eve-librenms

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

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



13.7 Customize docker image with your own changes.

Step 1. Connect your existing docker node to the internet

Sometimes you may have your own packages to be installed on the docker and kept for future labs. For this connect your docker to the Internet. It can be achieved connecting docker to Management Cloud0 or NAT cloud. **Example below**, Sever-gui docker is connected to Cloud NAT.



	EDIT NETV	work <u>*</u>
-	ID	2
	Name/Prefix	NAT
►Docker	Туре	NAT
r≉ Docker	Left	462
🔊 Applications Places System 🍨	Тор	219
root@Docker: ~ File Edit View Search Terminal Help		
Building dependency tree Reading state information Done Suggested packages: wodt contributed outpacked information Done suppraded in newly installed, 0 to renove and 81 not upgraded. Need to get 316 kB of archives. After this operation, 1,598 kB of additional disk space will be used. Get: intrror://nirrors.ubuntu.com/nirrors.txt xenial/main and64 genisoin retched 316 kB in 0s (1,638 kB/S) selecting previously unselected package genisoinage. (Reading database in1870 files and directories currently installed.) Preparing to unpack/genisoinage (%331.11.3ubuntu1_and64.deb Processing triggers for nan-db (2.7.5.1) setting up suitoinage (%11.1.11.3ubuntu1) rootgbocker:-#		
test		

Step 2. Make your installs, packages. Example:

In the screen above I did install genisoimage package

```
apt install genisoimage
```

Step 3. Obtain your RUNNING docker container ID:

From EVE CLI issue command:

dc ps



Step 4. Commit your prepared docker image with new name. example below I called it evegeniso

dc container commit <containerid> <newimagename>

dc container commit 0d4b3f8c314c eve-geniso

Step 5 check if new Docker image is created

dc images



root@eve-ng:~# dc	images			
REPOSITORY	TĀG	IMAGE ID	CREATED	SIZE
eve-geniso	latest	e6dd56c3b26c	4 seconds ago	3.19GB
eve-kali 🥆	latest	d1fda568e8a0	3 weeks ago	4.77GB
eve-nso	latest	f2a7a3d6a423	8 weeks ago	3.95GB
eve-ostinato	latest	e89cad6b1813	2 months ago	1.34GB
eve-gui-server	latest	a13cb401c8dd	3 months ago	3.11GB
eve-firefox	latest	8900664e9f3b	4 months ago	1.49GB
eve-chrome	latest	51fd92216b99	4 months ago	1.61GB
eve-wireshark	latest	0c49fe2dc6bb	7 months ago	888MB
eve-desktop	latest	c285d1ec833c	7 months ago	2.39GB
dockergui-rdp	latest	a65b62fa69b6	9 months ago	553MB
phusion/baseimage	0.9.22	877509368a8d	2 years ago	225MB
root@eve-ng:~#				

Step 6. Optional, If you want to keep this image and later load in other EVE installs, then you must create exportable .tar image.

dc image save -o /root/mysuperimage.tar <image name>

Step 7 Optional, upload your .tar file in new EVE root, and install it in Dockers location.

dc image load -i /root/mysuperimage.tar

13.8Custom docker name tags

For different docker containers you may need to set different rights for your custom docker development. EVE-NG Supports 3 levels of dockers' privileges. To achieve it, rename your deployed docker image.

Standard Docker Name Tag:

dc tag <yourdockername>:latest <yourdockername>:latest

Privileged Docker Tag:

or

dc tag <yourdockername>:latest <yourdockername>:privileged

dc tag <yourdockername>:latest <yourdockername>-privileged:latest

DinD Docker Name Tag:

dc tag <yourdockername>:latest <yourdockername-dind:latest</pre>

Example to create gui-server docker in privileged mode:

dc tag eve-gui-server:latest eve-gui-server-privileged:latest

13.9 Delete docker image from EVE

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

dc images

root@eve-ng:~# do	r images			
REPOSITORY	TÃG	IMAGE ID	CREATED	SIZE
eve-geniso	latest	e6dd56c3b26c 🔫 🛌	4 seconds ago	3.19GB
eve-kali	latest	d1fda568e8a0	3 weeksEagolGPro	fessio4a 7.7GB b
eve-nso	latest	f2a7a3d6a423	8 weeks ago	3/95GB
eve-ostinato	latest	e89cad6b1813	2 months ago	1.34GB
eve-gui-server	latest	al3cb401c8dd	3 months ago	3.11GB
eve-firefox	latest	8900664e9f3b	4 months ago	1.49GB

Step 2. Use command: dc rmi -f <id of docker image>.



dc rmi -f e6dd56c3b26c

Step 3. Check with dc images if docker is removed.

Step 4. Finish removal with apt remove --purge eve-ng-chrome, where eve-ng-chrome is your docker repository name.



14 EVE Cluster System

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

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

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

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

14.1 EVE Cluster Licensing

EVE-NG Cluster system only the Master node is required to have a license. It is classic EVE Professional or LC/Corporate license.

Satellite nodes has special light EVE-NG Agent installation described below in Chapters: 14.5, 14.6 and 14.7. The Satellite nodes need not special EVE-NG License

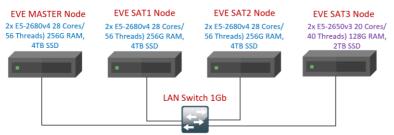
One "Master" EVE-NG can have several satellites joined into its cluster but each satellite can only be joined to one Cluster/Master.

14.2 EVE Cluster design models

14.2.1 Bare metal servers cluster

Design 1 EVE-NG Cluster Bare HW servers, recommended

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

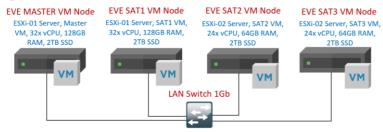




14.2.2 ESXi Virtual Machines cluster

Design 2 EVE-NG Cluster VM Ware ESXi Virtual Machines

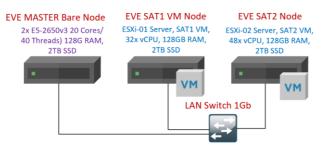
EVE Virtual ESXi Cluster 112 vCPU, 384GB RAM, 8TB SSD. Cluster members can be different VM configuration and located on same or different ESXi servers



14.2.3 Hybrid cluster

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

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



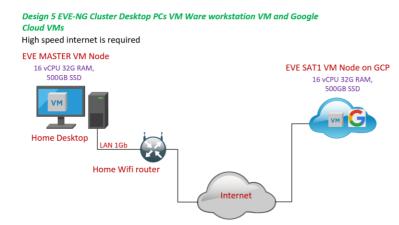
14.2.4 VM Ware workstation light cluster



14.2.5 Google Cloud cluster

NOTE: Your EVE Master must have Public IP address to join GCP satellite





14.3 EVE Cluster pre-requisites

1431	Firewall	rules	between	Master	and	Satellite I	nodes
17.3.1	I II C Wall	i uico	Derween	Master	and	Satemite	loues

Node	Protocol	Port	Direction	Source	Destination
MASTER	ТСР	22	ingress and egress	MASTER node IP	SATELLITE nodes IPs
MASTER	UDP	60569	ingress and egress	MASTER node IP	SATELLITE nodes IPs
SATELLITE	ТСР	22	ingress and egress	SATELLITE node IP	MASTER Node IP
SATELLITE	UDP	60569	ingress and egress	SATELLITE node IP	MASTER Node IP

14.3.2 EVE Cluster interface MTU settings

IMPORTANT: The management interface MTU for all EVE-NG Cluster members MUST have the same value. The default ethernet MTU value is 1500.

14.3.3 EVE Cluster internal management network

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



14.3.4 EVE Cluster Member's hardware requirements

Any suitable Hardware or virtual device. Please refer Chapter 2

14.3.5 NTP Synchronization requirements

It is mandatory that during install your cluster Satellite member have same time NTP synchronization as the Master server.

14.4 EVE Cluster MASTER Node Installation

- Mandatory Prerequisites: Internet must be reachable and DNS must resolve from your EVE Server. EVE ISO installation requires internet access and DNS to get updates and install the latest EVE-PRO version from the EVE-NG repository, to check it, do a named ping, for example ping www.google.com
- ▲ It is mandatory that during install your cluster Satellite member have same time NTP synchronization as the Master server.

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

14.5 ESXi EVE Satellite VM installation

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

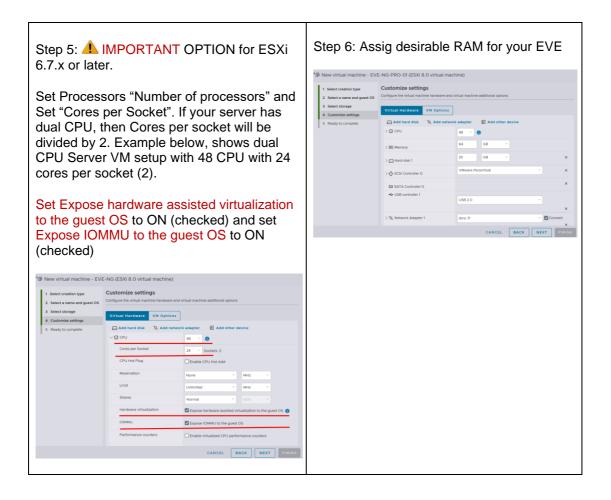
14.5.1 EVE-NG Satellite ESXi VM Setup and Settings

Step 1: Upload EVE ISO image to the ESXi store.	Step 2: Create NEW VM
EXAM Model Calment Examples E	1 Select creation type 2 Select normal and participation 3 Select normal and participation 4 Select normal and participation 5 Ready to compare 6 Ready to compare
	CANCEL BACK NEXT FUESH





Step 3: Enter the name for your EVE-PRO- SAT VM and select Guest Operating system Linux and version: Ubuntu 64-bit		Step 4: Se will be stor	ed in HD	D.	ere y	/our	. EVE	E VM	
			1 Select creation type 2 Select a name and quest OS	Select storage Select the storage type and d	atactive				
New virtual machine - EV Select creation type Select a name and quest OS	E-NG-PRO-01 (ESXI 8.0 v Select a name and go Specify a unique name and OS		3 Select storage 4 Customize settings 5 Ready to complete	Standard Persisten Select a datastore for the vi		n files and all of	its virtuai disk	5.	
3 Select storage	Name			Name	 Capacity 	Free v	Type 🗸	Thin provisic	Access ~
4 Customize settings	EVE-NG-PRO-01			store01	3.37 TB	3.34 TB	VMFS6	Supported	Single
5 Ready to complete		ain up to 80 characters and they must be unique within each ESX instance. ystem here allows the wizard to provide the appropriate defaults for the operating		store02 store03 store04	3.49 TB 3.49 TB 3.49 TB	536.6 GB 503.06 GB 3.04 TB	VMF56 VMF56 VMF56	Supported Supported Supported	Single Single Single
	Compatibility	ESXI 8.0 virtual machine		store05	3.49 TB	3.2 TB	VMFS6	Supported	Single
	Guest OS family	Linux		store06	3.49 TB	3.49 TB	VMFS6	Supported	Single
		alter i		store07 store08	3.49 TB 3.49 TB	3.44 TB 3.25 TB	VMFS6 VMFS6	Supported Supported	Single
	Guest OS version	Ubuntu Linux (64-bit)		storeos	3.40 18	3.4510	VMPSO	Supported	8 items
		CANCEL BACK NEXT 7/0.100				CANCE	L BAC	K NEXT	FINISH



Step 7: Set the size of HDD for your new EVE VM. It is recommended to set "Thick Provisioned eagerly provisioned". Server	Step 8: Set your Management network. Adapter type VMXNET3
---	--



EVE HDD	is recommer	nded to set at least	+	P New virtual machine - EVE-	-NG-PRO-01 (ESXi 8.0 virtua	al machine)		
500Gb			1 Select creation type	> CPU	48 🗸 🜖			
30000				2 Select a name and guest OS	> 西 Memory	64 GB ~		
				3 Select storage 4 Customize settings	> 🖂 Hard disk 1	500 GB ~		×
+ New virtual machine - EV	E-NG-PRO-01 (ESXi 8.0 virtual m	achine)		5 Ready to complete	> C+ SCSI Controller 0	VMware Paravirtual		×
1 Select creation type	Customize settings	vi virtual machine additional ontions			ER SATA Controller 0			×
2 Select a name and guest OS 3 Select storage	Virtual Hardware VM Options		_		⊷ USB controller 1	USB 2.0		
4 Customize settings	Add hard disk S Add netw							×
5 Ready to complete		48 V			√ ¹ 0, Network Adapter 1	ins/de-70		×
	> I Memory	64 GB ~			Status	Connect at power on		
	Hard disk 1	500 GB ~	×		Adapter Type MAC Address	VMXNET 3 Automatic ~ 00.00.00.00.00		
	Maximum Size	3.04 TB				Automatic 00.00.00.00.00.00		
	Location	[storeO4] EVE-NG-PRO-01/				CANCEL BACK	NEXT	FINISH
	Disk Provisioning	Thin provisioned Thick provisioned, lazily zeroed Thick provisioned, exgerly zeroed						
		CANCEL BACK NEXT	INISH					

nd brows SO name checked	e your up can vary). ON, "Conr	to "Datastore IS bloaded EVE-P Make sure that nect at power on	RO.iso Status	File" and PRO.iso (E	browse VE ISO r tatus is ch	rive to "Datastore IS your uploaded EVI name can vary). Mał ecked ON, "Connect ish"	
New virtual machine - EVE	-NG-PRO-01 (ESXi 8.0 virtua	I machine)	×				
1 Select creation type 2 Select a name and quest OS		inside-70	× ×	+ New virtual machine - EVE	NG-PRO-01 (ESXi 8.0 virtue	al machine)	
3 Select storage	V B, Network Adapter 1 Status	Connect at power on		1 Select creation type 2 Select a name and quest OS		inside-70 v x	
4 Customize settings 5 Ready to complete	Adapter Type	VMXNET 3	×	3 Select storage	Status	Connect at power on	
	MAC Address	Automatic Y 00:00:00:00:00		4 Customize settings 5 Ready to complete	Adapter Type	VMXNET 3	
	CD/DVD Drive 1	Datastore ISO file	 Connect 	Connect X		MAC Address	Automatic ~ 00:00:00:00:00
	Status	Connect at power on			CD/DVD Drive 1	Datastore ISO file Connect	
	CD/DVD Media	[store01] EVE ISO/eve-pro-v5.20230326.iso			Status	Connect at power on	
	Controller location	SATA controller 0 V SATA (0:0)	×.		CD/DVD Media	[store01] EVE ISO/exe-pro-v5.20230326.iso BROWSE	
	> 🖵 Video Card	Default settings	~		Controller location	SATA controller 0 V SATA (0:0) V	
		CANCEL BACK	NEXT FINISH		> 🖵 Video Card	Default settings ~	
						CANCEL BACK NEXT FINIS	

Step 11: IMPORTANT Select the Edit your VM and switch to "VM Options". Firmware <i>EFI Boot.</i>	
Follow to "Boot Options" and de-select (uncheck) "Whether or not to enable UEFI secure boot for this VM"	



Virtual Hardware VM Options	
> General Options	VM Name: EVE-NG-PRO-01
> VMware Remote Console Options	Lock the guest operating system when the last remote user disconnects
> VMware Tools	Expand for VMware Tools settings
> Power management	Expand for power management settings
✓ Boot Options	
Firmware	Choose which firmware should be used to boot the virtual machine:
Enable UEFI secure boot	Whether or not to enable UEFI secure boot for this VM
Boot Delay	Whenever the virtual machine is powered on or reset, delay boot by 0 0 milliseconds
Force BIOS setup	The next time the virtual machine boots, force entry into the BIOS setup screen.
Failed Boot Recovery	When the virtual machine fails to find a boot device, automatically retry boot after
	CANCEL

14.5.2 EVE-NG Satellite ESXi VM Installation steps

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

Satellite EVE ESXi VM Installation from ISO has 3 Phases

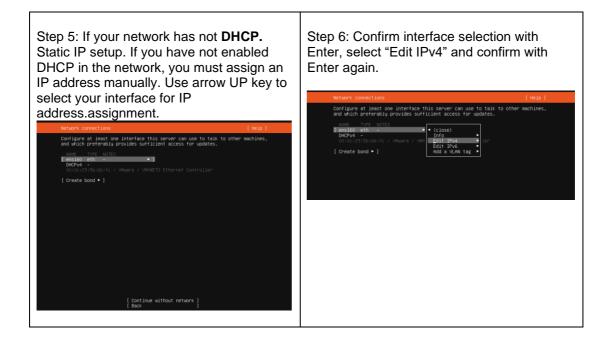
Phase 1 (Ubuntu installation)

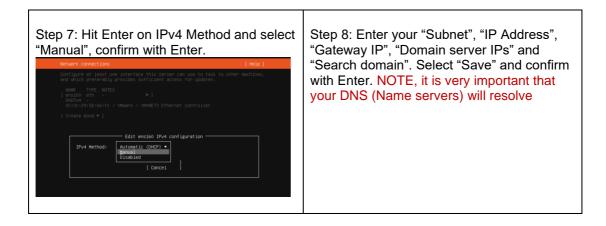
Step 1: Power ON EVE VM. Chose Install EVE Satellite and confirm with Enter.	Step 2: Select English language. Confirm with Enter.
Install EVE-NG Pro ☆Install EVE-NG Satellite Boot from next volume UEFI Firmware Settings	Use UP, DOWN and ENTER keys to select your language.
	[Сопски ►] [Українська ►]

4: If your network has DHCP BLED, Continue to <mark>Step 10</mark>



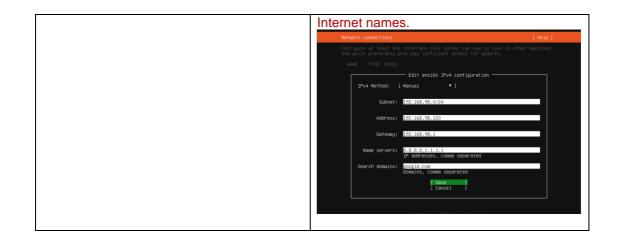
Keyboard configuration	[Help]
Please select your keyboard layout below, or select "} detect your layout automatically.	Identify keyboard" to
Layout: [English (US)	* 1
Variant: [English (US)	• 1
[Identify keyboard]	
[Done] [Back]	
L MARK 3	

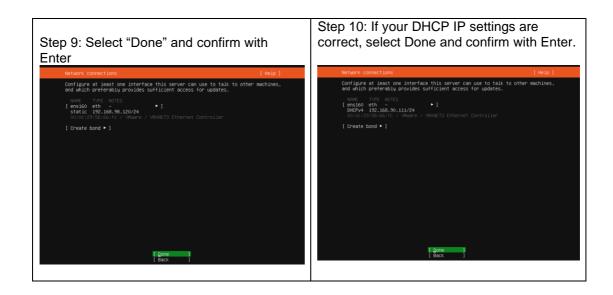


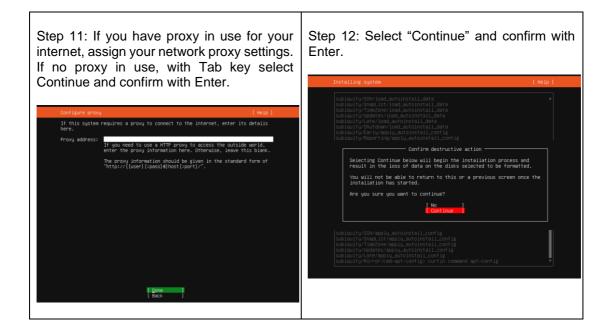














EVE Satellite Installation Phase 2 (EVE Satellite installation)

Step 13: After the Ubuntu "Install Complete" select "Reboot Now" and hit Enter to continue.	open the EV	out powering off the EVE VM, /E VM settings and remove Device. Save VM Settings.
configuring raid (mdadm) service	Edit settings - EVE-SAT-04	(ESXi 8.0 virtual machine)
installing kernel setting up sawp apply networking config writing etc/fstab		work adapter IEI Add other device
configuring multipath updating packages on target system configuring polinate user-agent on target	Add hard disk Add net	Work adapter Image: Add other device 16 Image: Other device
updating initramfs configuration configuring target system boolloader installing grub to target devices	> Memory	32 GB ~
finalizing installation running 'curtin hook' curtin command hook	> Hard disk 1	200 GB ~ X
executing late commands final system configuration configuring cloud-init	> 🔆 SCSI Controller 0	VMware Paravirtual
calculating extra packages to install installing openssh-server curtin command system—install	a SATA Controller 0	×
downloading and installing security updates curtin command in-target restoring apt configuration	+& USB controller 1	USB 2.0 ~
curtin command in-target curtin command in-target sublagity/late/run		×
subiquity/Late/run/command_0: cp /cdrom/server/eve-setup.sh /target/etc/eve-setup.sh	> 10, Network Adapter 1	Inside-70 V Connect X
[View full log]	> 🕲 CD/DVD Drive 1	Datastore ISO file
[Reboot Now]	> 🖵 Video Card	Default settings Y
		CANCEL

Step 15: Return back to EVE console screen and confirm Continue with Enter, EVE VM will reboot and continue Phase 2 installation [FALED] Falled unmounting /cdrom. Please remove the installation medium, then press ENTER: [FALED] Failed unmounting /cdrom. [FALED] Failed unmounting /cdrom.	<pre>Step 16: Depending on your internet speed fv installation EVE VM will auto reboot and EVE jogin screen will appear, login in CLI with octive and follow installation Phase 3.</pre>
--	--

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

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



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

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



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

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

Launch Satellite installation manually

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

- IMPORTANT NOTE: If your Network interfaces order has been changed, please follow instruction to section 16.6
- 14.6 Bare hardware (BM) server EVE Satellite installation

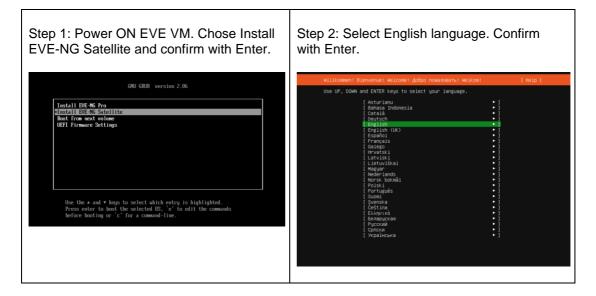
14.6.1 BM Satellite server installation EVE ISO

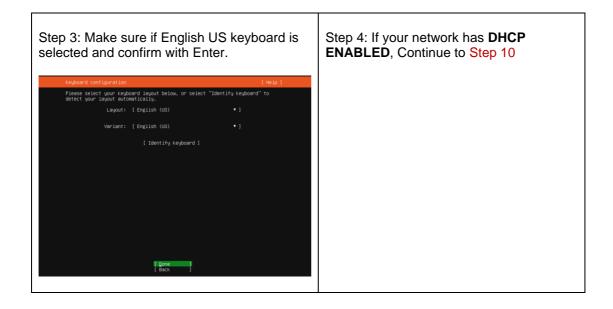
Download EVE ISO distribution image: https://www.eve-ng.net/index.php/download/



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

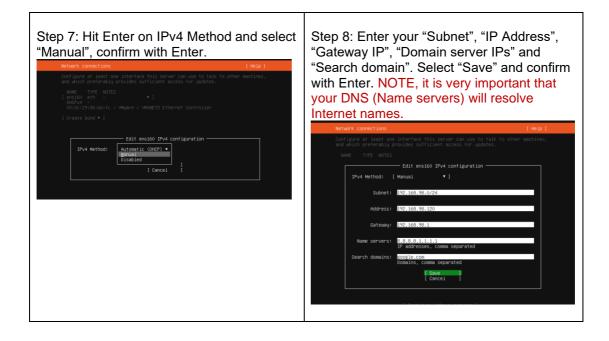
Phase 1 (Ubuntu installation)



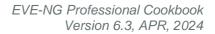




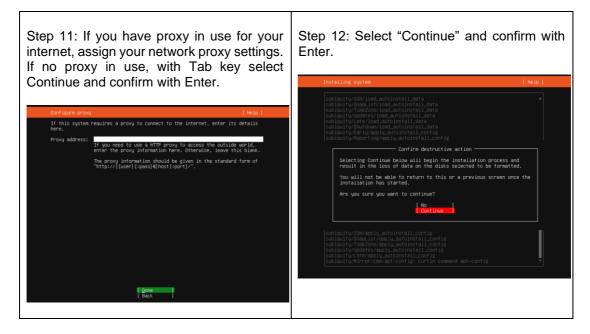
address.assignment.		Network connections	[Help]
Network connections	[Help]	Configure at least one interface this server can use t and which preferably provides sufficient access for up	o talk to other machines, odates.
Configure at least one interface this server can use and which preferably provides sufficient access for	to talk to other machines, updates.	NAME TYPE NOTES [ens160 eth - • • • (close)	
NAME TYPE NOTES [ens160 eth - ▶]		DHCPv4 - 00:0c:29:Sb:66:fc / VMwane / VMX Edit IPv4 Edit IPv5	ler
DHCPV4 - 00:0c:29:5b:66:fc / VMwane / VMXNET3 Ethernet Cont	roller	[Create bond +] Add a VLAN tag	
[Create bond ►]			
[Continue without network			
[Back			



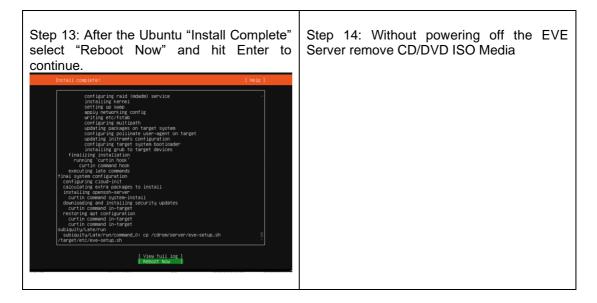
Step 9: Select "Done" and confirm with Enter	Step 10: If your DHCP IP settings are correct, select Done and confirm with Enter.
Network connections [Help]	Network connections [Help]
Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates.	Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates.
WHE THE NOTES [ension eth [ensio	Nove: bye: NOTES [ens160 eth - DHCPV4 192.166.90.111/24 OUIC2193Bic66.1C / VMGNET3 Ethernet Controller
[Create bond ►]	[Dreate bond ●]
[pone] [Back]	E gone I E Back J







EVE Satellite Installation Phase 2 (EVE Satellite installation)



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. [FAILED] Failed unmounting /cdrom.	eve-ng login: ci-info: no authorized SSH keys fingerprints found for user noot. (14Neg 20 17:24:18 cloud-init: ####################################
[FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom.	(3+)May 20 17:24:18 cloud-init: 1024 SHA256:LBc/S2HGtg4K:9VkS4KBRCBMKLHuz2uthEjmS7c2JnbQ root@eve-ng (GAN (3+)May 20 17:24:18 cloud-init: 256 SHA256:u/hx4hJjlidJPa0HGf0heP5gx4pBu@g030gG1TNUP2E root@eve-ng ECDGA)
[FALLED] Failed unmounting /cdrom. [FALLED] Failed unmounting /cdrom. [FALLED] Failed unmounting /cdrom.	(34)May 20 17:24:18 cloud-init: 256 SHR256:puolugiLUCScffGuqEaqBJ/sSuwqSmG28v90Nd+eTcw8 root@eve-ng E025519 (34)May 20 17:24:18 cloud-init: 3072 SHR256:LNAt4AqXmkt2jqu6SN8fQ4Pk91ANTxPYjlIga]hY0hA root@eve-ng (85a)
[FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom. [FAILED] Failed unmounting /cdrom.	(14)Mmy 20 17:24:18 cloud-init:END SSH HOST KEY FINGERRENTS (14)Mmy 20 17:24:18 cloud-init: <i>виникини виники виники виники виники виники виники виники виники виники виник</i> BEGIN SSH HOST KEY KENS
(AILED) Failed unmounting /Cdrom. (AILED) Failed unmounting /Cdrom. (AILED) Failed unmounting /Cdrom. (FAILED) Failed unmounting /Cdrom.	ccdsa-sha2-n1stp256 AAAAE2V_2NNK_XNV71tbi2dHsyITYAAAAEDUL2dHsyITYAAAAEBDUM02XNRFnsK7NXH-Dup+k1veH cdg2bks42CyLphNbgSp3cgEvhnP1318EETDLcdsorPK_3FG4F011011s root@versyLt43Uf414JuBhLXH-jd4 root@versg ssh=ds25h19 AAAACSNzsC112D1INTESAAAAEPAkf2veThonEGYSC4VNLDJSQTUBJRX1f43UBhLXH-jd4 root@versg ssh=ssAAAAAENtzLg12CBAAAAGABAAABgDG4F7 honeGK3C3C4VNLDZ22VVNLD32T074E5SsbaF2012G50HF3Gf3 P10g7X25cEaLvXL02KNTD1ABeCS5VC3F25C5H1ssHaddFJLAV_223Vf1_7SNxHb00H5GX/VJDE0hbechs310g4E6 UL_S50+610a+6107275578EF910E679F6756C5H1ssHaddFJLAV_223Vf1_7SNxHb00H5GX/VJDE0hbechs310g4E66
[FRILED] Falled unmounting /cdrom. [FRILED] Falled unmounting /cdrom.	<pre>oddEID/0Fhi0trCIC280HWord.0E001ssf0P21-eFfJLE2E/vonjbbfqLfSyLePN9Fdr/dyHTre22//bf+p180/9ME+g1 CON020HWr6221/r52Hu4gHWR0115x5g2rc2m44911LiNQ1ibdeuxHw405MN427bu4L5setONumr15s4y2175h2chida LM45MyL4erSPHLMgHCMr47LCfe4050SBecXU5NUblezaUL:roofMeve-mg hu51 kg/sp221/r24118414000.up 44.68 seconds. 1 44.90924 icutefinit5371 clienfor to authorized Skikeys fingercints found for user root. 34.90924 icutefinit5371 clienfor to authorized Skikeys fingercints found for user root. 241.9092 claus-int[1537]: clienfor to 34.90926 icutefinit571 clienfor to 34.90926 icutefinit5871 clienfor to 34.90926 icute</pre>
	eve-ng logina _

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

Step 17: After reboot login into your Agent server as root and follow Management IP setup instructions described in section 3.5.1 for Static IP			
	apt update apt upgrade		

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

<pre>root@eve-sat01:~# dpkg -l eve-agent Desired=Unknown/Install/Remove/Purge/Hold Status=Not/Inst/Conf-files/Unpacked/halF-conf/Half-inst/trig-aWait/Trig-pend / Err?=(none)/Reinst-required (Status,Err: uppercase=bad)</pre>						
117	Name	Version	Architecture	Description		
+++-	•=======================					
==== ii	eve-agent	6.0.1-XX	amd64	Agent for EVE-NG Sat Cluster		
memb	er					
root	@eve-sat01:~#					

14.6.2 BM Satellite installation Ubuntu legacy ISO

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

Download Ubuntu Legacy Server installation image/ISO https://releases.ubuntu.com/jammy/

Phase 1 (Ubuntu installation)

Follow the Phase 1 BM Ubuntu installation Chapter 3.3.2



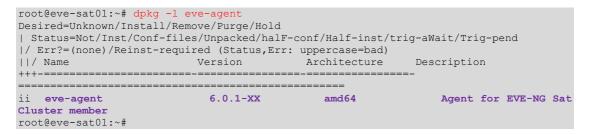
EVE Installation Phase 2 (EVE Satellite installation)

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

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

Step 30: After reboot login into your Agent server as root and follow Management IP setup instructions described in section 3.5.1 for Static IP

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



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

14.7 Google Cloud EVE Satellite installation

Pre-Requisites: Your EVE Master server must have Public IP address or static NAT to public IP to join GCP satellite.

14.7.1 Preparing Ubuntu boot disk template

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



	Search (/) for resources, docs, products and more	Q Search	+ 🕞 🕐	0 : U			
Compute Engine	VM instances CREATE INSTANCE MIMPORT VM CREFRESI	4		SLEARN			
🛬 Marketplace	INSTANCES OBSERVABILITY INSTANCE SCHEDULES						
Fit Release notes	VM instances						
CLOUD SHELL Terminal (eve-tes	t-276509) × + →	∠ Open editor	\$ • _ : _	≎ ⊠ ×			
Welcome to Cloud Shell! Type "help" to get started. four Cloud Platform project in this session is set to eve-test-276509. Use "scloud config met project [PROMECT]0" to change to a different project.							

Step 2: Create a nested Ubuntu 22.04 image. 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-jammy --source-image-
family=ubuntu-2204-lts --source-image-project=ubuntu-os-cloud --licenses
https://www.googleapis.com/compute/v1/projects/vm-
options/global/licenses/enable-vmx
```

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

n this session is set to eve-test-276509. t [PROJECT_ID]" to change to a different

Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to eve-test-276509.
Use "gcloud config set project [PROJECT ID]" to change to a different project.
uldis_dzerkals@cloudshell:~ (eve-test-276509)% gcloud compute images create nested-ubuntu-jammysource-image-family=ubuntu-2204-ltssource-image-project=ubuntu-os-cloudlicenses https://www.googleapis.com/c
ompute/v1/projects/vm=options/global/licenses/enable=vmx
Created [https://www.googleapis.com/compute/v1/projects/eve-test-276509/global/images/nested-ubuntu-jammy].
NAME: nested-ubuntu-jammy
PROJECT: eve-test-276509
PAMILY:
DEPRECATED:
STATUS: READY
uldis dzerkals@cloudshell:~ (eve~test~276509)\$

14.7.2 Network MTU settings and firewall rules for GCP

NOTE: GCP VM by default has MTU 1460 set for the interfaces by default. You may require to set VM machine custom MTU (1500) which is commonly known default setting for ethernet. The MTU settings on the GCP interface must be adjusted if you want it to use as the part of EVE-NG cluster system.

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

Copy the following commands in SHELL Cloud console:

Create 1500 MTU subnet ##### gcloud compute networks create mtu1500 --subnet-mode=auto --mtu=1500 --bgp-routing-mode=regional ##### Create 1500 MTU firewall rules ##### gcloud compute firewall-rules create wireguard-in --direction=INGRESS --priority=1000 --network=mtu1500 --action=ALLOW --rules=udp:60569 -source-ranges=0.0.0/0 gcloud compute firewall-rules create wireguard-out --direction=EGRESS --priority=1000 --network=mtu1500 --action=ALLOW --rules=udp:60569 -destination-ranges=0.0.0.0/0 gcloud compute firewall-rules create ssh-in --direction=INGRESS -priority=1000 --network=mtu1500 --action=ALLOW --rules=tcp:22 --source-ranges=0.0.0.0/0 gcloud compute firewall-rules create ssh-out --direction=EGRESS -priority=1000 --network=mtu1500 --action=ALLOW --rules=tcp:22 destination-ranges=0.0.0.0/0



Firewall rules summary:

Name	Туре	Targets	Filters	Protocols/ports	Action	Priority	Network 个	Logs
ssh-out	Egress	Apply to all	IP	tcp:22	Allow	1000	<u>mtu1500</u>	Off
wireguard- out	Egress	Apply to all	IP	udp:60569	Allow	1000	mtu1500	Off
ssh-in	Ingress	Apply to all	IP	tcp:22	Allow	1000	<u>mtu1500</u>	Off
wireguard- in	Ingress	Apply to all	IP	udp:60569	Allow	1000	mtu1500	Off

14.7.3 Optional: GCP MTU 1500 Firewall rules for native console use

NOTE: If your Master EVE-NG server is installed on the GCP, then, you might need to allow incoming TCP connection for native console use.

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

Copy the following commands in SHELL Cloud console:

```
###### Create MTU 1500 firewall rules for native console use #####
gcloud compute firewall-rules create allow-all-in --direction=INGRESS
--priority=1000 --network=mtu1500 --action=ALLOW --rules=tcp:0-65535
--source-ranges=0.0.0.0/0
```

```
gcloud compute firewall-rules create allow-all-out --direction=EGRESS
--priority=1000 --network=mtu1500 --action=ALLOW --rules=tcp:0-65535
--destination-ranges=0.0.0.0/0
```

Summary FW rules.

Name	Туре	Targets	Filters	Protocols/ports	Action	Priority	Network 个	Logs
allow-all- out	Egress	Apply to all	IP	tcp:0-65535	Allow	1000	<u>mtu1500</u>	Off
allow-all- in	Ingress	Apply to all	IP	tcp:0-65535	Allow	1000	mtu1500	Off

^{14.7.4} Creating VM

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



	Google Cloud	Se EVE	E Test 🔻	Search (/) for resources, docs, products and more Q Search	+	2	0	:	U
51 52	Cloud overview Products and solution	s >	VIRTUAL MACHINES VM instances Instance templates	REATE INSTANCE &IMPORT VM CREFRESH ITY INSTANCE SCHEDULES				¢١	EARN
PINN RPI	ED PRODUCTS APIs and services	پ پ	Sole-tenant nodes Machine images TPUs	ralue Zone Recommendations In use by Internal IP External IP Connect				0	
•	Billing IAM and admin	₽ ₽ →	Committed-use discounts Reservations Migrate to Virtual Machines	•					
¥ •	Marketplace Compute Engine	₽ ₽ →	STORAGE Disks						
©	Kubernetes Engine Cloud Storage	₽ > ₽ >	Storage pools Snapshots Images						
© 11		* >	Async replication	VM instances Compute Engine lets you use virtual machines that run on Google's					
» ≋ ⊟	Cloud Run SQL Logging	* * * >	Health checks	infrastructure. Create micro-VMs or larger instances running Debiaw. Windows or other standard images. Create your first VM instance, import it using a migration service or try the quickstart to build a sample app.					
0	Security	↓ →	Patch OS policies	CREATE INSTANCE TAKE THE QUICKSTART					

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 Ice Lake or Cascade Lake*.

Name eve-p	е* ого-vб					0
Regio europ	ANAGE TAGS AND		• 0	Zone * europe-west2- Zone is perman		- 0
	hine config	uration Compute-optimised	Memory-optimised	Storage optin	nised NEW	GPUs
Machin	e types for commo	n workloads, optimised f	or cost and flexibility			
	Series 💡	Description		vCPUs 🕜	Memory 💡	Platform
0	N4	PREVIEW Flexible a	nd cost-optimised	2 - 80	4 - 640 GB	Intel Emerald Rapids
0	C3	Consistently high per	ormance	4 - 176	8 – 1,408 GB	Intel Sapphire Rapids
0	C3D	Consistently high per	ormance	4 - 360	8 – 2,880 GB	AMD Genoa
0	E2	Low-cost day-to-day of	omputing	0.25 - 32	1 – 128 GB	Based on availability
۲	N2	Balanced price and pe	erformance	2 - 128	2 – 864 GB	Intel Cascade and Ice Lake
0	N2D	Balanced price and pe	erformance	2 - 224	2 – 896 GB	AMD EPYC
0	T2A	Scale-out workloads		1 - 48	4 – 192 GB	Ampere Altra ARM
0	T2D	Scale-out workloads		1 - 60	4 – 240 GB	AMD EPYC Milan
\sim	N1	Balanced price and pe		0.25 - 96	0.6 - 624 GB	Intel Skylake

Step 5: Choose your desirable CPU and RAM settings.



Machine type

Choose a machine type with preset amounts of vCPUs and memory that suit most workloads. Or, you can create a custom machine for your workload's particular needs. Learn more \mathbb{Z}

PRESET	CUSTOM								
n2-standar	d-8 (8 vCPU, 4 core, 32 GB memory)								
	vCPU	Memory							
	8 (4 cores) 32 GB								
	ED CONFIGURATIONS								

Step 6: Select Boot disk. Press Change

Boot disk 🛛	
Name	eve-pro-v6
Туре	New balanced persistent disk
Size	10 GB
Licence type 🔞	Free
Image	😯 Debian GNU/Linux 12 (bookworm)
CHANGE	

Step 7. Select Custom images, select nested-ubuntu-jammy *you created previously*. Choose HDD disk type and size. HDD size can vary depends of your needs. Boot disk

Select an image or snaps what you're looking for? E	hot to create a boot disk, o Explore hundreds of VM so	•		
PUBLIC IMAGES	CUSTOM IMAGES	SNAPSHOTS	ARCHIVE SNAPSHOTS	EXISTING DISKS
Source project for images * eve-test-276509		0	CHANGE	
Show deprecated ima	ages			
Image * nested-ubuntu-jammy			•	
x86/64, Created on 16 Ap	r 2024, 08:54:24			
Boot disk type *			•	
COMPARE DISK TYPES)			
Size (GB) *				
Provision between 10 and	65536 GB			
V SHOW ADVANCED CO	ONFIGURATION			
SELECT CANCEL				

Step 8: Allow https traffic.



Identity and API access @

Service account – Compute Engine	default service account
	ce Account User role (roles/iam.serviceAccountUser) to be set for users so VMs with this service account. <u>Learn more</u>
Access scopes 🚱	
Allow default	access
Allow full acce	ess to all Cloud APIs
Set access for	each API
Firewall 🛛	
Add tags and firewa	II rules to allow specific network traffic from the Internet

Allow HTTP trafficAllow HTTPS traffic

Step 9: Select Advanced Options. Expand Networking/Network Interfaces Edit network interface and select previously created network: mtu1500 Create VM.

Network interfaces

Network interface is permanent

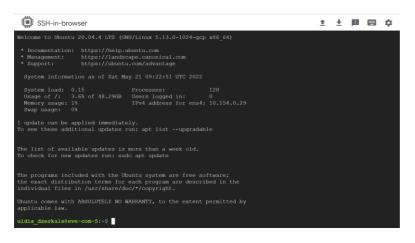
Edit network interface	i ^
Network *	• 0
Subnetwork * mtu1500 IPv4 (10.154.0.0/20)	- 0

14.7.5 EVE-NG Satellite installation

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







Step 2: Launch installation with:

Type the below command to become root: sudo -i

Start EVE-PRO installation

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

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

apt upgrade **Confirm with Y**

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



Step 5: IMPORTANT: Setup IP

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

	Type the Boot Personal k Type the Boot Personal x Type the Boot Personal x x x </th
eveprogepøeve-proi-5 sudo -1	

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

Step 6: Reboot



14.7.6 GCP Firewall rules for Cluster

If your EVE-NG Master server is behind the firewall, make sure it has allowed access to the GCP VM with following firewall rules

Node	Protocol	Port	Direction	Source	Destination
MASTER	ТСР	22	ingress and egress	MASTER node IP	SATELLITE node IPs
MASTER	UDP	60569	ingress and egress	MASTER node IP	SATELLITE node IPs

14.8 Cluster Management

14.8.1 Join Satellite nodes to the Master

Step 1: Make sure that you have reachability between Master and Satellite nodes and firewall rules are configured in your network if FW is set between them. Firewall rules Section 14.3.1

		希 Main	🗲 Management 👻	🗐 System 🗸	🕄 Information 👻	3 Licensing 🗸	©2021 Eve-NG
击 File manager	Current po	sition / root		警 System S 營	-	-	
New Name				 System st System lo 	Add fo	der	
- - 3	< 8 1	1 🖸 ;	0	🗙 Stop All N	odes		

Step 2: Press Add Member

Cluster managemen	nt here you can manage EVE-	NG Cluster							# > 🗚 System >	Gestermanageme
Cluster members										+Add member
Id Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
0 master+	48		157	4	1		1689	55		^
1 sati.	32	8	63		1		308	18	8 © C	
2 sat2 •	32		63		1		308	11	800	~

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

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



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

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

			••••••				•.				
iste	er management here	you can manage EVE-NG Cluster								# > 🖌 System >	불Clusterman
Clus	ster members										(Add mem)
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
2	master -	48	1	157		1		1689	56		
	sat1 •	32	0	63		1		308		00	
	sat2 •	32		63		1		308	22	8 0 C	
£.											>

14.8.2 Remove Satellite nodes from the Master

Step 1: Navigate: System/Cluster Management

Cluster manageme	ent here you can manage EVE-	-NG Cluster							# - 🗲 System	- 👹 Cluster managemer
Cluster members										(Add member)
Id Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
o master.	48		157	4	1		1689	56		^
1 sat1.	32	8	63		1		308	18	8 0 C	
2 sat2 •	32		63		1		308	11	8 0 C	\sim
<									Remove memb	>

14.8.3 Re-join Satellite nodes from the Master

Step 1: Navigate: System/Cluster Management

Step 2: Press Remove Member

uster managem	ent here you can manage EVE-!	NG Cluster							# > 🖌 System >	₩Cluster man z
Cluster members										(Add member
Id Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
o master •	48		157				1689	55		
1 sat1.	32	8	63		1		308	18	8 0 C	
2 sat2.	32		63		1		308	11	800	
<									Remove membe	>

Step 3: Go to Satellite node CLI and reset IP address. It is necessary to refresh SSH key for re-join Satellite to the Master.

CLI: Login as root to the Satellite node and type:

```
rm -fr /etc/wireguard/*
rm -f /opt/unetlab/go/eve-agent.yaml
ip link set wg0 down
ip link del wg0
rm -f /root/.ssh/authorized_keys
```



Step 4: Join Satellite accordingly Section 14.8.1

14.8.4 Change Satellite IP address

Step1: Remove satellite from cluster system accordingly chapter 14.8.2

Step 2: Login as root to the Satellite node and type:

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

EVE Satellite will initiate IP setup wizard. Follow Section 3.5.1

14.9 Cluster assignment hierarchy

14.9.1 Single Satellite server assignment

The Cluster Hierarchy depends which of the option is assigned:

Option 1 - User assignment to cluster Option 2 - Lab assignment Option 3 - Individual node assignment

	Cluster assignment Options	Description	Conditions
Option 1	EVE WEB GUI Management/User Management/Edit User/Satellite	Admin, Editor or User is forced to use only Cluster Satellite assigned by Admin. User cannot edit Lab or set individual nodes for other cluster Satellites. This Option can be assigned or edited only by Admin	If User account is set to use specific Satellite server, Users can NOT apply Options 2 and 3. This option applies to Admin user as well until Admin user will set his account to use "any"
Option 2	Lab is set to use Specific Cluster Satellite. Select Lab you want Edit/Select Satellite	If Option 1 is set to "any", then Admin or Editor is allowed to set Lab settings globally to use Lab on specific Cluster Satellite	Admin or Editor user accounts Satellite assignment (option 1) must be set to "any"
Option 3	Set lab nodes individually run-on specific Cluster server	Admin or Editor can assign single Lab nodes run on specific Cluster Satellite servers	Options 1 and 2 must be set to "any"

Lab User is not allowed to use any of options above



14.9.1.1 User assignment to the dedicated Satellite (Option 1)

Step 1: Navigate to Management/User Management

e		Professional	🏦 Main	🗲 Management 👻	🗐 System 👻	🕄 Information 👻	🕯 Licensing 🗸	©2024 EVE-NG
U	lser Manage	ement here	you can mar	嶜 User Managen		•		
	Database of u	isers		🖨 🛛 Lab Manageme	ent			

Step 2: Create or Edit existing user

e∨e ,	trofessional 🖷 Main	🗲 Management 👻	🛢 System 👻	Information GLice	nsing 👻 🛛 🕲 2	024 EVE-NG						EVE Version 6.0.1-30		14:07 📥 admin 🖙 S
ser Managen	nent here you can ma	nage EVE-NG users												⊁Management > 營User Man
Database of use	ers													+Add User More Info
Username	Authentic	ator Email		Name		Role	Sat	Disk Usage	Valid From	Expiration	Max CPU	Max RAM (GB)	POD	Actions
• admin	internal	adming	peve.net	Eve-NG Administrator		admin	any	112.89 GB			Unlimited	Unlimited	0	Effetit ØKick
 editor 	internal	editor@	eve-ng.net	Editor Eve		editor	sat01	6.12 GB			Unlimited	Unlimited	1	Ce Edit ØKick

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

Satellites			
any ×			
master			
sat01			
sat02			

Step 4. User will be locked and will use only selected Satellite node. Editor and User roles cannot change or choose other satellite members. Use select Satellite from list which is dedicated for user.

14.9.1.2 Lab assignment to dedicated cluster Satellite (Option 2)

Step 1: Navigate to Lab tree, Select Lab you want assign for dedicated Satellite

Step 2: Click "Edit"

New Name	Add folder	FTD Policy Lab v1	
		Cisco Socurity Firepower Threat Defense Policies Lab Neeles used in the Lat Created by Uldis, EVP Pro, 2021 - Firepower Thr. 13.46	Scale
🔲 鼬 Wireless	25 Apr 2021 01:41 ^	souther initially limits 3-Advictoryprint(0-Hz 237 2) May 2018 souther initially initial 3-Advictoryprint(0-Hz 237 2) May 2018 souther initially initial and the souther initial initial initial and the souther initial initial initial and the souther initial initininitial initial initial initial initial initial initial initial in	
🔲 🔤 XLabs	28 Feb 2021 22:03	Administ (mass (iii) (iii) (iii) (iii) (iii) (iii) (iii)	
🗆 📑 1 VRRP.unl	26 Apr 2021 02:43	Company Office	
🗆 📑 7200.unl	26 Apr 2021 16:37	Par y 24.1.1.1021 (Carrows	
🗆 🖿 A1.unl	28 Apr 2021 09:21		
🗖 🖺 A_Trunka.unl	02 Apr 2021 13:57		
DC-UD-ASA-Cluster.unl	10 Dec 2020 00:16		
DUAL ISP.unl	23 Apr 2021 12:57	web 233 234 web 233 234 web 2333	
🗆 🖥 FTD Policy Lab v1.unl 🛛 🛻	11 Feb 2021 22:36		
🗆 📑 FTD Policy Lab v1_dark.unl	28 Feb 2021 16:19	Lab Path: /FTD Policy Lab v1.unl Version: 1	
🗆 📑 FTDv AnyConnect kids lab.unl	26 Apr 2021 04:51	UUID: 04b55e95-281f-4b6c-8d40-bfcf88e3c193 Author: Uldis	
migration_lab_master_sat.unl	17 Mar 2021 18:29		
MPLS-LDP Lab.unl	14 Feb 2021 12:02	Open Edit Delete	
Multicast Cisco with VLC 01.unl	18 Apr 2021 17:40	Description:	

Step 3: Select Satellite for Lab



Edit lab					• x
Path	/FTD Policy Lab v1.ur	al		Description	Cisco Firepower Threat Defense (FTD) Basic Lab
Name*	FTD Policy Lab v1				
	Use only [A-Za-20-9]chan	5			
Version*	1 Must be interger ([0-9]chars	5]			d
Author	Uldis			Tasks	
Satellite		any V			
Shared with	Select users	master sat01			4
Config Script	Timeout	sat02 900	Seconds		Save Cancel
Lab Countdov	vn Timer	0	Seconds		

Note: Accordingly, Cluster hierarchy matrix above, this Option will be in force if Option 1 is left to default "any"

14.9.1.3 Creating EVE labs in Cluster (Option 3)

Step 1: Create new or edit your existing lab

Step 2: On lab Node right click/edit

Step 3: Select preferred Satellite node and click save

Default	*		master	•
Delay (s)			master	
0		1	sat1	
Left		1	sat2	
1434		1.	any	

	<u>ب</u>	
-@0/0-	SW-I (2)	
VLAN173 I VLAN174 I	Start Wipe	
	C Edit 🔸 🕇	

Option to assign cluster nodes for single lab devices.

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

01	NFIGU	RED N	IODES															•
D	NAME	SATELLITE	TEMPLATE	BOOT IMAGE	CPU	CPU USAGE	CPU LIMIT	IDLE PC	NVRAM (KB)	RAM (MB)	RAM USAGE	ЕТН	SER	CONSOLE	ICON	STARTUP-CONFIG	ACTIONS	
	SW-H1	master \vee	iol	i86bi_linux_l2-adventerprisek9-ms.SSA $\scriptstyle{\smallsetminus}$	n/a	0%	n/a	n/a	1024	1024	0%	4	0	teinet	Switch L32.png 👻	Default \vee	▶∎∂∓ ©	s 🗎
2	SW-I	master 🗸	iol	i86bi_linux_l2-adventerprisek9-ms.SSA $^{\vee}$	n/a	0%	n/a	n/a	1024	1024	0%	4	0	teinet	Switch2.png -	Default 🗸	►∎9∓ G	s 🗉
	Admin-PC	master \vee	docker	eve-gui-server:latest \vee	2	0%	n/a	n/a	n/a	4096	0%	1	n/a	rdp	V Pesktop3.png V	Default \lor	►∎9∓ G	s ==
	FTD	master \vee	firepower6	Firepower6-FTD-6.7.0-65	4	0%	n/a	n/a	n/a	8192	0%	5	n/a	vnc	V 🖉 ASA2.png 🔹	None	▶∎⊕∓ ©	i 🖻
	ISP-R	master \vee	iol	i86bi_LinuxL3-AdvEnterpriseK9-M2_15 \vee	n/a	0%	n/a	n/a	1024	1024	0%	1	0	teinet	Router2.png *	Default 🗸	▶∎≙∓ ©	i 🗎
	DMZ-Server	master \vee	docker	eve-gui-server:latest	1	0%	n/a	n/a	n/a	1024	0%	1	n/a	rdp	Server_WEB1.png*	Default \vee	▶∎9∓ Q	s 🗎
	HQ-PC	sat1 🗸	win	win-10-x86-20H2v3	2	0%	n/a	n/a	n/a	4096	0%	1	n/a	rdp-tis	V 🔥 Desktop2.png 🔹	None ~	▶∎9∓ ©	s 🗎
	SW-H2	master \vee	ial	i86bl_linux_l2-adventerprisek9-ms.SSA $\scriptstyle{\smallsetminus}$	n/a	0%	n/a	n/a	1024	1024	0%	1	0	teinet	Switch2.png 🔹	Default \vee	▶∎≙± ©	i 🗎
	FMC	sat2 🗸	firepower6	Firepower6-FMC-6.7.0-65	4	0%	n/a	n/a	n/a	28672	0%	1	n/a	vnc	FMC.png +	None	▶∎9∓Q	i 🗎
)	Internet-PC	master \vee	docker	eve-gui-serverslatest	1	0%	n/a	n/a	n/a	1024	0%	1	n/a	rdp	M Desktop2.png *	Default 🗸	⊧∎≙±©	i 🗎
1	Kati	sat1 🗸	docker	eve-kali-large:latest	4	0%	n/a	n/a	n/a	8192	0%	1	n/a	rdp	🗸 🖬 Kəli.png 🔹	Default 🗸	▶ ■ 9±0	s 🗎

Note: Accordingly, Cluster hierarchy matrix above, this Option will be in force if Options 1 and 2 settings are left default "any"

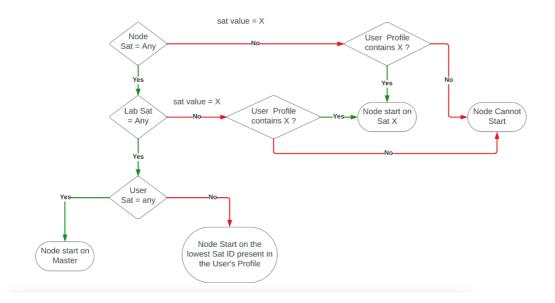
14.9.2 Multi Satellite servers' assignment

This option is dedicated for advanced EVE user assignment for multi-Satellite servers. User can choose and assign and run their labs to run on dedicated servers only.



14.9.2.1 Multi Satellites user Profiles

User Profile and Lab nodes Satellite use hierarchy



14.9.2.2 User assignment to the dedicated Satellites

Step 1: Navigate to Management/User Managemen

Conversion Environment Next Generation	Professional	🖀 Main	🗲 Management 👻	🗐 System 🛨	🕄 Information 👻	🕄 Licensing 🛨	©2021 Eve-NG
Cluster ma	nagement	here you can	嶜 User managem ဓ Node managen				
Cluster me	mbers		🖨 🛛 Lab manageme	ent			



₽V₽ Profe	ssional 🖷 Main 🕨 M	anagement + 🖉 System + 🚯 I	nformation - OLicensing - ©2	2021 Eve-NG								23:40 👗 uldis 🔅 Sign ou
User manageme	nt here you can manage E	/E-NG users										希 - FHanagement - 留User managemen
Database of users												-studi user - More info +
Username	Authenticator	Email	Name	Role	Sat	Disk Usage	Valid From	Expiration	Max CPU	Max RAM (GB)	POD	Actions
• admin	internal	admin@eve-ng.net	EVE Administrator	admin	any	0.02 68			Unlimited	Unlimited	0	@Edit @Nick
chris	internal	chris@eve.test	Chris	editor	any	0 GB			Unlimited	Unlimited	1	Car Edit @ Kick 8

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

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

The User Cluster Server value "any" is set by default.

Set the Cluster Satellites for the Lab Editor. This applies for Lab Editor roles. Lab Editor will stick to selected Satellites. Lab Editor will be forced and allowed to use only selected Satellite server or choose between the Satellite servers if it is assigned more than one server. If the Lab has set to use any satellite server, then Lab Editor will be assigned to use lowest satellite ID.



Example: Lab Editor has assigned to use SAT1 (ID1) and SAT2 (ID2). The Lab has set to use "any" satellite. This Editor lab will be automatically assigned to use first available Satellite with lowest ID1, SAT1.

Editor has rights to change Satellite per node for own created Labs.

Editor cannot change satellite assignments for Shared Lab. The Shared Lab is recommended to set "any" Cluster Satellite,

If the Lab is created on the Satellite servers which are NOT in the Lab Editor allowed Satellites list, this lab will not start.

Example: Lab is created to use Master server only, but Lab Editor is allowed to use only SAT1 Server. Lab Editor will not be allowed to start this Lab.

If the Lab contains nodes which are assigned to run on the Satellite server which is NOT in Lab Editor allowed Satellites list, this node will not start.

Example: Lab several nodes are assigned to use Master server only, but Lab Editor is allowed to use only SAT1 Server. Lab Editor will not be allowed to start these nodes.

Set the Cluster Satellites for the Lab User. This applies for Lab User roles. Lab User will stick to selected Satellites. Lab User will be forced and allowed to use only selected Satellite server or servers.

Example: Lab User has assigned to use SAT1 (ID1) and SAT2 (ID2). The Lab has set to use "any" satellite. This Lab User lab will be automatically assigned to use first available Satellite with lowest ID1, SAT1.

If the Lab is created on the Satellite servers which are NOT in the Lab User allowed Satellites list, this lab will not start.

Example: Lab is created to use Master server only, but Lab User is allowed to use only SAT1 Server. Lab User will not be allowed to start this Lab.

If the Lab contains nodes which are assigned to run on the Satellite server which is NOT in Lab User allowed Satellites list, this node will not start.

Example: Lab several nodes are assigned to use Master server only, but Lab User is allowed to use only SAT1 Server. Lab User will not be allowed to start these nodes.

Satellites



Option to assign cluster nodes for single lab devices.

Lab Side bar/Nodes, column SATELLITE, Select your cluster satellites for devices in the lab.



D	NAME	SATELLITE	TEMPLATE	BOOT IMAGE	CPU	CPU USAGE	CPU LIMIT	IDLE PC	NVRAM (KB)	RAM (MB)	RAM USAGE	ETH	SER	CONSOLE		ICON	STARTUP-CO	NFIG AC	CTIONS	
	SW-H1	master \vee	iol	i86bi_linux_l2-adventerprisek9-ms.SSA $\scriptstyle{\smallsetminus}$	n/a	0%	n/a	n/a	1024	1024	0%	4	0	telnet		Switch L32.png 🔹	Default	~ •	▶∎9∓ Q	ŝ
	SW-I	master \vee	iol	i86bi_linux_l2-adventerprisek9-ms.SSA $\scriptstyle{\lor}$	n/a	0%	n/a	n/a	1024	1024	0%	4	0	teinet		Switch2.png •	Default	~	▶∎∿∓ G	8
3	Admin-PC	master \vee	docker	eve-gui-server:latest	2	0%	n/a	n/a	n/a	4096	0%	1	n/a	rdp	\sim	🚚 Desktop3.png 🔹	Default	~	▶∎∿∓ ©	8
4	FTD	master \vee	firepower6	Firepower6-FTD-6.7.0-65	4	0%	n/a	n/a	n/a	8192	0%	5	n/a	vnc	\sim	ASA2.png -	None	~	▶∎∿∓ ©	8
	ISP-R	master \vee	iol	i86bi_LinuxL3-AdvEnterpriseK9-M2_15 \vee	n/a	0%	n/a	n/a	1024	1024	0%	1	0	teinet		Router2.png *	Default	~	▶∎∿≢ G	ŝ
	DMZ-Server	master \vee	docker	eve-gui-server:latest	1	0%	n/a	n/a	n/a	1024	0%	1	n/a	rdp	~	Server_WEB1.png*	Default	~	▶∎≙∓ ©	8
	HQ-PC	sat1 🗸	win	win-10-x86-20H2v3 V	2	0%	n/a	n/a	n/a	4096	0%	1	n/a	rdp-tis	\sim	🛓 Desktop2.png 🔹	None	~	▶∎∂∓ ©	8
	SW-H2	$_{\rm master} \sim$	ial	i86bi_linux_l2-adventerprisek9-ms.SSA $\scriptstyle \sim$	n/a	0%	n/a	n/a	1024	1024	0%	1	0	telnet		Switch2.png 🔹	Default	~	▶∎≙± ଓ	8
•	FMC	sat2 🗸	firepower6	Firepowerd-FMC-6.7.0-65	4	0%	n/a	n/a	n/a	28672	0%	1	n/a	vnc	\sim	🗐 FMC.png 🔹	None	~	▶∎∿± ©	8
0	Internet-PC	master \vee	docker	eve-gui-server:latest	1	0%	n/a	n/a	n/a	1024	0%	1	n/a	rdp	\sim	Å Desktop2.png 🔹	Default	~	⊨∎9∓Q	8
11	Kall	sat1 🗸	docker	eve-kali-largeslatest 🗸	4	0%	n/a	n/a	n/a	8192	0%	1	n/a	rdp	~	🕎 Kali.png 🛛 👻	Default	× •	⊨ ∎ 9 ± 0	

14.9.3 Master images synchronization with Satellites

Once you have assigned certain lab device to use cluster Satellite node and start it, the automatic rsync process is initiated from Master node copy necessary image to the Satellite cluster member. During rsync process between Master and Satellite lab device will display "Clock" sign beside device. After image rsync process is completed, Lab device will turn sign to "Play", running state.



Large size lab devices/images, rsync process can take some time. It depends of the network speed between the cluster members.

Once the image is copied into Satellite node, lab device will start immediately. RSYNC process initiates only once if particular device image does not exist on Satellite node.

14.10Cluster system monitoring

14.10.1 Cluster Monitoring page

Navigate: System/Cluster Management

Information columns displaying live information about cluster members utilization Satellite nodes have option to reboot or shutdown.

If the cluster is healthy and fully functional, the Status column will display "GREEN" dot beside the cluster members.

iste	er managen	nent here you	can manage EVE-NG Clust	er					*	> 🖋 System 👂 🕍 Clust	er manage
Clus	ter members									+Add	member
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
0	master •	48		157	1	1		1689	55		^
1	sat1•	32	1	63	10	1		308	18	8 U C	
2	sat2 •	32		63		1		308	11	8 O C	~

If the Satellite node is down or not reachable, the Status column will display "RED" dot



										_	_
Clus	ster members									+Add m	nemb
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
0	master •	48		157	4	1		1689	55		
1	sat1•	32		63	10	1		308	18	0 C	
2	sat2 • 🔫	32		63		1		308	11	÷	

If the Satellite node is reachable but malfunctioning, Agent service is stopped or crashed, Status will be displayed as Yellow DOT. (stop/reboot possible)

st€	er managemei	nt here you can manage	EVE-NG Cluster							希 ト 产 System ト 優Cluster are
lus	ter members									+Add more
d	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action
0	master •	24	0	63	5	4		205	79	
1	satl•	a		31		1		40	43	£
2	sat2 •	4		10	5	1		40	24	C 0 C
	gcp-sat •			29		0		40	12	6 0 C

14.10.2 Satellite disaster recovery

Use case: If a satellite node crashed, was powered off while lab devices were running on it or the connection to the satellite was lost, the Master node will still have these nodes in a running state even if this is no longer the case.

To remediate this situation, you have to purge the local state information about the satellite before recovering the satellite, booting it back up or recovering the connection.

Step 1: To verify status of lab nodes:

Navigate Management/Nodes management. If you observing that crashed Satellite nodes are still alive and visible follow Step 2

Running node	(s)									
Labname	Lab ID	Username	Sat	Node Name	CPU usage (%)	RAM usage (%)	Disk usage (GB) 🛛 🗸	Template	Action	
/A_Trunka	1	uldis•	master	PC5-2	0	0.03	0.0035	docker	x	
/A_Trunka	1	uldis •	master	PC5-1	0	0.02	0.0035	docker	🖵 🗙	
/A_Trunka	1	uldis•	master	PC10-2	0	0.02	0.0035	docker	🖵 🗙	
/A_Trunka	1	uldis •	master	PC10-1	0	0.02	0.0035	docker	— ×	
/A_Trunka	1	uldis •	sat2	SW2	0.72	0.63	0.0101	viosl2	🖵 🗙	
/A_Trunka	1	uldis •	master	PC5-1	0	0.02	0.0031	docker	— ×	
/A_Trunka	1	uldis •	sat2	SW4	0.63	0.58	0.0101	viosl2	🖵 🗙	
/A_Trunka	1	uldis•	master	PC10-1	0	0.03	0.0035	docker	— ×	
/A_Trunka	1	uldis•	master	PC5-2	0	0.02	0.0031	docker	🖵 🗙	
/A_Trunka	1	uldis •	master	SW3	0.4	0.24	0.0101	viosl2	🖵 🗙	
/A_Trunka	1	uldis •	master	SW1	0.38	0.23	0.0101	viosl2	🖵 🗙	
/A_Trunka	1	uldis •	sat2	PC10-2	0	0.13	0	docker	🖵 🗙	

Step 2. Navigate: System/Cluster Management Use Purge Button to clean crashed Satellite devices from the Master.

Clus	ster members									+Add n	tember
Id	Name	CPUs	CPU Usage (%)	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action	
0	master •	48		157	1	1		1689	55		^
1	sat1 •	32		63	1	1		308	17	0 C	
2	sat2 •	32		63		1		308	12	8 4	



Are you sure you want to remove all running consoles satellite 2?

OK	Cancel

14.10.3 EVE Cluster Status

Navigate: System/Cluster Management

@\v		🖷 Main	🗲 Management -	🖨 System 🔹	O Information -	O Licensing - 03	1024 EVE-NG					21:36 👗 admin 🕞 Si
ust	er Management be	re you can r	sanage EVE-NG Cluste	열 System : 헬 Cluster k								n → ≯System → ∰Oastermana
Clu	ter members			 System S System L 								-Add membe
Id	Name	CPUs		X Stop All P	Nodes	Memory (GB)	Memory Usage (%)	Swap (GB)	Swap Usage (%)	Disk Size (GB)	Disk usage	Action
0	master •	32				63		8		368	20	
1	sat01 •	16				31		8		306	38	8 0 C
2	sat02 •	16		- 1		16	8	4		306	12	a o c
2	sat03 •	16				16	8	4		285	4	0 C

14.10.4 Cluster monitoring cli commands

On EVE Master: Cluster System CLI Commands:

SSH to the Satellite node from the Master status: ssh 172.29.130.<satId>

```
######Example SSH to SAT1#####
root@eve-ng:~# ssh 172.29.130.1
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 4.20.17-eve-ng-uksm-wg+
x86_64)
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
* Canonical Livepatch is available for installation.
- Reduce system reboots and improve kernel security. Activate at:
https://ubuntu.com/livepatch
Last login: Sun Jan 31 22:24:06 2021 from 10.6.6.14
root
root@eve-sat1:~#
```

Check Cluster Satellite version:

root@eve-sat03:~# dpkg -l eve-agent
Desired=Unknown/Install/Remove/Purge/Hold



14.11 Cluster system upgrade

Pre-requisites: The Master node must reach internet and resolve DNS.

On the EVE Master CLI run commands:

apt update apt upgrade

The cluster Satellites will upgrade automatically with EVE master. There no need any extra upgrade run for Satellite nodes.

To update manually Satellite nodes from Master EVE:

root@eve-ng:~# unl_wrapper -a updatesat

Feb 01 00:03:24 Feb 01 00:03:24 Online Check state: Valid
Feb 01 00:03:24 update sat 1
ii eve-agent 6.0.1-XX amd64 Agent for EVE-NG Sat
Cluster member
Feb 01 00:03:24 update sat 2
ii eve-agent 6.0.1-XX amd64 Agent for EVE-NG Sat
Cluster member
root@eve-ng:~#



15 EVE Troubleshooting

15.1 CLI diagnostic information display commands

15.1.1 Display full EVE Pro diagnostic

eve-info

15.1.2 Display the currently installed EVE Pro version:

dpkg -l eve-ng-pro

Des S / 3	t@eve-v6-master ired=Unknown/In: tatus=Not/Inst/ Err?=(none)/Rei: Name	stall/Remove/ Conf-files/Un nst-required	Purge/Hold packed/halF-c	upp	erca	
+++				-==		
	eve-ng-pro t@eve-v6-master		amd64	A	new	generation software for networking labs.

15.1.3 Display if EVEs Intel VT-x/EPT option on/off:

kvm-ok

root@eve-ng:~# kvm-ok INFO: /dev/kvm exists KVM acceleration can be used root@eve-ng:~#

15.1.4 Display EVEs CPU INFO:

lscpu
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 LD: 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

15.1.5 Display EVEs CPU manufacturer:

lsmod | grep ^kvm_

root@eve-ng:~#	lsmod grep	^kvm_	
kvm_ intel	212992	2 74	
root@eve-ng:~#			



15.1.6 Display EVEs HDD utilization.

If the eve—ng—vg—root reaches 98% or 100% then you will need to expand the HDD in order to continue using EVE. The Solution to expand your HDD is described in section 15.1

011 II								
root@eve-ng:~# df -h								
Filesystem	Size	Used	Avail	Use%	Mounted	on		
udev	40G	0	40G	0%	∕dev			
tmpfs	7.9G	52M	7.9G	1%	⁄run			
/dev/mapper/evengvg-root	681G	370G	283G	57%	/			
tmpfs	40G	0	40G	0%	/dev/shr	ı		
tmpfs	5.OM	0	5.OM	0%	/run/loc	:k		
tmpfs	40G	0	40G	0%	/sys/fs/	cgroup		
/dev/sda1	472M	83M	365M	19%	∕boot			

15.1.7 Display EVEs Bridge interface status

brctl show

df -h

root@eve-ng:~#	# brctl show		
oridge name	bridge id	STP enabled	interfaces
lockerO	8000.0242c0db8435	no	
at0	8000.000000000000	no	
netO	8000.000c29d0aa94	no	eth0
net1	8000.000c29d0aabc	no	eth1
			vunl1_0_1_0
pnet2	8000.000c29d0aa9e	no	eth2
pnet3	8000.000c29d0aaa8	no	eth3
net4	8000.000c29d0aab2	no	eth4
pnet5	8000.000000000000	no	
met6	8000.000000000000	no	
net7	8000.000000000000	no	
net8	8000.000000000000	no	
onet9	8000.000000000000	no	

- 15.1.8 Display EVEs system services status
- systemctl list-unit-files --state=enabled

	st-unit-filesstate=enabled	
UNIT FILE	STATE	
accounts-daemon.service	enabled	
autovt@.service	enabled	
capdog.service	enabled	
cpulimit.service	enabled	
cron.service	enabled	
docker.service	enabled	
getty@.service	enabled	
lvm2-monitor.service	enabled	
mysql.service	enabled	
networking.service	enabled	
open-vm-tools.service	enabled	
openvswitch-switch.service	enabled	
ovfstartup.service	enabled	
resolvconf.service	enabled	
rsyslog.service	enabled	
ssh.service	enabled	
sshd.service	enabled	
syslog.service	enabled	
systemd-timesyncd.service	enabled	
unattended-upgrades.service	enabled	
ureadahead.service	enabled	
dm-event.socket	enabled	
docker.socket	enabled	
lvm2-lvmetad.socket	enabled	
lvm2-lvmpolld.socket	enabled	
uuidd.socket	enabled	
remote-fs.target	enabled	
apt-daily-upgrade.timer	enabled	
apt-daily.timer	enabled	

15.2 Correct EVE server network interfaces order

NOTE: Sometimes after installation the Ubuntu or ESXi (known reported issue), your system can change network interfaces (NICs) order.

EVE-NG, starting from version PE 5.0.1-77 has implemented NIC order script to fix your network interfaces order.



- 1. Log into your EVE as SSH, or native VNC server console as root user.
- 2. Navigate to cd /opt/ovf/
- 3. Run the script:

```
root@eve-ng-master:~# cd /opt/ovf/
root@eve-ng-master:/opt/ovf# ./nicorder-wizard
```

4. Follow the instructions on the screen to re-order your interfaces.

Reorder Nic	cs can change network
*********	₩
UP/DOWN	Select interface
LEFT/RIGHT	Move interface
ESC	Discard change
ENTER	Accept new order
C	
enx000c29	967dbcb eth0 -> eth0 967dbd5 eth1 -> eth1 967dbdf eth2 -> eth2 967dbe9 eth3 -> eth3

- 5. After correction the initial boot order will be saved on your EVE server
- 6. Reboot your EVE server, the new order settings will be in force now.

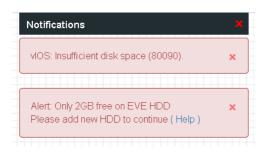
NOTE: if you will run order script again, it will show you last saved order.

15.3 Expand EVEs System HDD

IMPORTANT NOTE: DO NOT expand your current/existing HDD on your EVE VM!

15.3.1 HDD space alert

Important: by default, EVE will trigger alerts if there are 3GB or less HDD space available. Additional nodes will not start until more space is added or freed up. A link is provided in the notification bubble on how to properly add an additional HDD.



To edit HDD space threshold for the alert is customizable. please follow section: 7.4.1



Radius Server #1	IP	Port	Secret
	0.0.0.0	1812	
Radius Server #2	IP	Port	Secret
	0.0.0.0	1812	•••••
	0.0.0.0	8080	<u>a</u>
emplate visibility	unprovisioned images Disable 🗸		
isk critical size	Minimal free space (GB)		

15.3.2 Expand HDD on VMware Workstation

Expanding your EVEs system HDD is achieved by adding an additional HDD to your EVE VM.

Step 1: Stop all your labs and shutdown EVE.

Use EVE CLI command: shutdown -h now

Step 2: Go to edit VM settings and add a new Hard drive. Then click Next.

Step 3: Leave the recommended SCSI HDD option and then click Next

Step 4: Make sure you have selected the option "Create a new Virtual disk."

Step 5: Set your desirable HDD Size; example 200GB.

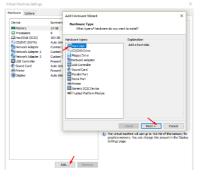
Step 6: Make sure you have set the option "Store Virtual disk as a single file" and then click Next

Step 7: Optional: Specify the location of where your new HDD will be stored, then click Finish.

Step 8: Boot your EVE VM, HDD size will be expanded automatically. To verify, use the command to verify HDD utilization referenced in section 15.1.6

15.3.3 Expand your HDD on ESXi

Expanding your EVEs system HDD is achieved by adding an additional HDD to your EVE VM.





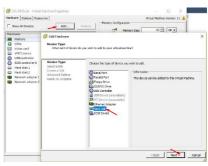
Step 1: Stop all your labs and shutdown EVE.

Use EVE CLI command: shutdown -h now

Step 2: Go to edit VM settings and add a new Hard drive. Then click Next

Step 3: Make sure you have selected the option "Create a new Virtual disk." Then click Next

Step 4: Set your desirable HDD Size; example 200GB.



Step 5: It is recommended to set the Thick Provision Lazy Zeroed HDD option.

Step 6: Specify the location of where your new HDD will be stored and then click Next

Step 7: Leave the recommended SCSI HDD option as is and click Finish.

Step 8: Boot your EVE VM, the HDD size will be expanded automatically. To verify, use the command to verify HDD utilization referenced in section 15.1.6

15.3.4 Expand your HDD on a Bare Metal EVE Server

It is a complicated process to expand a HDD for a bare metal EVE server.

<u>https://www.eve-ng.net/wp-content/uploads/2023/03/EVE-Doc-3023-LVM-HDD-systems.pdf</u> Please open a ticket in our Live chat support for advice.

https://webchat.eve-ng.net/login/

Use a google account to join in the Live Chat or create new chat account.

15.4 Reset Management IP

Type the following commands into the CLI followed by enter:

rm -f /opt/ovf/.configured

su -

http://www.eve-ng.net/documentation/installation/bare-installIP address setup wizard. Please follow the steps in section 3.5.1 for Static IP or 3.5.2 for DHCP IP setup.

15.5 EVE PRO SQL Database recovery

Starting EVE PRO version 3.0.1-21 and later, you can recover SQL user database in case of disaster:

unl_wrapper -a restoredb



Below is SINGLE LINE Command to restore SQL Database.

```
unl_wrapper -a restoredb ; grep -q default_time_zone
/etc/mysql/mysql.conf.d/mysqld.cnf || echo
"default_time_zone='+00:00'" >> /etc/mysql/mysql.conf.d/mysqld.cnf ;
systemctl restart mysql
```

15.6 EVE PRO Migration from host to host

Step 1: On newly installed EVE navigate to:

cd /opt/unetlab/scripts

Step 2: Run migration script migrate.sh where source IP is your old EVE host IP and root password of old EVE. [./migrate.sh -s <old eve ip> -p <root password>]

Example:

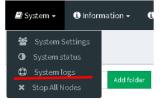
root@eve-ng:/opt/unetlab/scripts# ./migrate.sh -s 192.168.1.100 -p eve

Step 3: After migration is completed, deactivate EVE license on old host, and load license in the new EVE machine.

https://www.eve-ng.net/index.php/documentation/howtos/recover-rehosting-eve-ng/

15.7 EVE Log files

EVE log Files can be obtained from the System Logs page under the System dropdown menu



Use the menu to collect log file data you are interested in.

ystem log viewer				
elect log file	Number of Lines	Search text		
access.bd	20			View
access.txt				
ipi.txt	\mathbf{X}			
error.txt	•			
hp_errors.txt				
inl_wrapper.txt				
pulimit.log			Null	

15.8 EVE cli diagnostic info

Use EVE cli to obtain your EVE information:

eve-info



16 EVE Extras

16.1 EVE Pro Radius server setup for user authentication

Mandatory Prerequisites: Updated EVE-PRO version 2.0.6-30 or later.

Please follow section: 7.4.1

System settings				
Radius Server #1	IP	Port	Secret	
	0.0.0.0	1812		
Radius Server #2	IP	Port	Secret	
	0.0.0.0	1812	******	

16.1.1 EVE User setup for Radius authentication

Step 1: Open the User management submenu. Management>User management and click Add user

Step 2: The Add New User management window will pop up. Fill in the main information about your EVE user. Make sure that you're the username of the account created in EVE matches with the Radius server database.

Step 3: Enable the External Auth (Radius) checkbox. Any existing password will be removed, because the authenticator will check with the Radius server for credentials.

Add New User
User Name*
test
Use only [A-Za-z0-9]chars
External Auth (Radius) 🗹
Password

Password Confirmation

Step 4: If you have purchased licenses for different EVE user roles, you can choose the preferred user role. For licensing and user roles please refer to section **4**

Name				
John Tester				
Role Administrator Administrator				
Accol Editor				
From User	0	to	-1	0
POD*				

Step 5: Set the access date and time From - to. If the fields are left empty (untouched), your user will have no time restrictions for accessing the EVE Server. Account validity with time settings is available for Editor and User roles only.



Admin accounts have no time limit for account validity, and Account Validity time cannot be set.

*	

Step 6: The POD number is a value assigned to user accounts automatically. POD numbers are like user profiles inside of EVE and are a unique value for every user Think of PODs like a virtual rack of equipment for each user. Admins can assign a preferred number between 1-128. Please keep POD numbers unique between users!

Step 7: Press ADD

Step 8. The username created inside EVE must match the username on the Radius server

Cancel

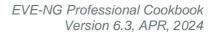
Example: EVE user authenticated with ISE 2.1 Radius server.

		@ \/@	Professional	🖷 Main	🗲 Management 🗸	🖉 System 🔹	Information -	O Licensing -	@2018 Eve-NG
	ι	Jser manag	gement her	e you can m	anage EVE-NG users				
		Database of	users						
		Username		Authenticat	or	Email		Name	
		admin		internal		root@loc	allhast	Eve-N0	6 Administrator
EVE Pro Radius user		uclise		raclius		uldis@ttt	tv	Uldis R	tadiius
Authentication Details									
Source Timestamp	2018-11-21 1	8:59:48.211							
Received Timestamp	2018-11-21 1	8:59:48.214							
Policy Server	ISE2-1								
Event	5200 Authenti	ication succeeded							
Username	udise								
User Type	User	ISE .	2.1 EVE Au	thentica	ited user				
Authentication Identity Store	Internal Users	:							
Authentication Method	PAP_ASCII								
Authentication Protocol	PAP_ASCII								
Network Device	EVE90-228								
Device Type	All Device Typ	pes							
Location	All Locations								
NAS IPv4 Address	192.168.90.2	28							
Authorization Profile	PermitAccess								
Response Time	206								

16.2 Active Directory user authentication

Mandatory Prerequisites: Updated EVE-PRO version 2.0.6-30 or later.

To join Active Directory to the EVE, Please follow section: 7.4.1





adius Server #1	IP		Port		Secret
	0.0.0.0	83	1812	•	•••••
adius Server #2	IP		Port		Secret
	0.0.0.0		1812	•	
active Directory Server	IP		Port		Enable TLS
ctive Directory Server	IP 192.168.90.27		Port 389	÷	Enable TLS
ctive Directory Server ase DN				÷	Enable TLS
-				٠	Enable TLS

16.2.1 EVE User setup for AD (LDAP) authentication

Step 1: Open the User management submenu. Management>User management and click Add user

Step 2: The Add New User management window will pop up. Fill in the main information about your EVE user. Make sure that you're the username of the account created in EVE matches with the Radius server database.

Note: The username in of the Active directory user account must match with AD username. Username must have domain at the end of username. Example: evelabuser@eve.lab

Step 3: Enable the Active Directory from Authentication menu. Any existing password will be removed, because the authenticator will check with the Active Directory server for credentials.

Add New User	
User Name*	
labuser@eve.lab	83
Use only [A-Za-z0-9@]chars	
Authentication active directory	
Password	
•••••	
Password Confirmation	
*****	(1)

Step 4: If you have purchased licenses for different EVE user roles, you can choose the preferred user role. For licensing and user roles please refer to section 4



loh	n Tester				
le	Administrator	_			
	Administrator				
ccol	Editor				
rom	User	0	to	-1	0

Step 5: Set the access date and time From - to. If the fields are left empty (untouched), your user will have no time restrictions for accessing the EVE Server. Account validity with time settings is available for Editor and User roles only.

Admin accounts have no time limit for account validity, and Account Validity time cannot be set.

om	2018-05-18	00:00	to	2018-05-20	01:00
D*					

Cancel

Step 6: The POD number is a value assigned to user accounts automatically. POD numbers are like user profiles inside of EVE and are a unique value for every user Think of PODs like a virtual rack of equipment for each user. Admins can assign a preferred number between 1-32786. Please keep POD numbers unique between users!

Step 7: Press ADD

Step 8. The username created inside EVE must match the username on the Radius server

16.3 Lab Chat

🟴 Lab Chat	Refer section: 7.9.12
LAB CHATROOM	
[10.42:52] <i>uldis joined</i> [10.43:19] <i>admin joined</i> [10.43:24] admin: hello uldis [10.43:34] uldis: hello admin	

16.4 Custom MAC address for node management

NOTE: Custom first MAC is supported for Qemu nodes only.

Qemu nodes has option to change first interface MAC address.



EDIT NODE				×
Template				
Cisco vIOS				*
ID				
15				
lmage				
vios-adventerprisek9-m.9	SPA.156-1.T			-
Name/prefix				
VIOS				
lcon				
🚳 Router.png				-
UUID				
314c922c-9d95-42d3-83	c1-187994390538			
CPU Limit				
CPU	RAM (MB)		Ethernets	
1	1024		4	
First Eth MAC Address				
aaibbicc:00ideiad				
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:s	tdio -nog	graphic -nodefconfig -r	odef
Startup configuration				
None				*
Delay (s)				
0				
Console				

16.5 Windows node settings for Wifi dongle

Using a Wifi USB dongle, you can connect a WiFi-adapter to windows host inside EVE.

Step 1. Connect your USB Wifi dongle to your EVE server.

Step 2. Issue the following command on the EVE CLI to obtain BUS and host numbers which your USB WiFi is connected to:

```
lsusb
```

telnet

root@eve-ng:	-# lsusb		
Bus 002 Devi	ce 002: ID	0cf3:9271	Atheros Communications, Inc. AR9271 802.11n
Bus 002 Devi	ce 001: ID	ld6b:0002	Linux Foundation 2.0 root hub
Bus 006 Devi	ce 001: ID	ld6b:0001	Linux Foundation 1.1 root hub
Bus 005 Devi	ce 001: ID	ld6b:0001	Linux Foundation 1.1 root hub
Bus 001 Devi	ce 003: ID	0424:2514	Standard Microsystems Corp. USB 2.0 Hub
Bus 001 Devi	ce 001: ID	ld6b:0002	Linux Foundation 2.0 root hub
Bus 004 Devi	ce 001: ID	ld6b:0001	Linux Foundation 1.1 root hub
Bus 003 Devi	ce 002: ID	04e6:5116	SCM Microsystems, Inc. SCR331-LC1 / SCR3310 Sma
rtCard Reade	c		
Bus 003 Devi	ce 001: ID	ld6b:0001	Linux Foundation 1.1 root hub
root@eve-ng:	~#		

Step 3. Add the windows node onto the topology and edit the Qemu line:

Change the type value: **type=q35** Add a comma and then the following line:



if=virtio -usb -device usb-host,hostbus=2,hostaddr=2

Where hostbus is your Bus value and hostaddr is your Device ID as seen in the figure above.

Full Windows host gemu line will look like this:

```
-machine type=q35,accel=kvm -cpu
host,+pcid,+kvm_pv_unhalt,+kvm_pv_eoi,hv_spinlocks=0x1fff,hv_vapic,hv
_time,hv_reset,hv_vpindex,hv_runtime,hv_relaxed,hv_synic,hv_stimer -
vga std -usbdevice tablet -boot order=cd -drive
file=/opt/qemu/share/qemu/virtio-win-
drivers.img,index=1,if=floppy,readonly,if=virtio -usb -device usb-
host,hostbus=2,hostaddr=2
```

Template						
Windows						*
D						
6						
mage						
win-7-×86-IPCC						*
Name/prefix						
Win						
con						
I Desktop.png						*
UUID						
eee724a7-53f9-45cb-	31b1-c1f	ec67de630				
CPU Limit						
CPU	RA	M (MB)			Ethernets	
1	4	096			1	
First Eth MAC Addres	s					
First Eth MAC Addres	5					
50:0a:00:06:00:00		MU Arch			QEMU Nic	
50:0a:00:06:00:00	QE	MU Arch pl(x86_64)	•		QEMU Nic tpl(e1000)	•
50:0a:00:06:00:00 QEMU Version tpl(2.0.2) •	QE	pl(×86_64)	• ate value			•
50:0a:00:06:00:00 QEMU Version tpl(2.0.2) •	QE t	pl(×86_64) t to templ a)	tpl(e1000)	• tablet
50:0a:00:06:00:00 QEMU Version tpl(2.0.2) CEMU custom option -machine type=q35,ac	QE tj ts (resel	pl(×86_64) t to templ a)	tpl(e1000)	• tablet
50:0a:00:06:00:00 QEMU Version tpl(2.0.2) QEMU custom option -machine type=q35,ac Startup configuration	QE tj ts (resel	pl(×86_64) t to templ a)	tpl(e1000)	• tablet
50:0a:00:06:00:00 QEMU Version tpl(2.0.2) CEMU custom option -machine type=q35,ac	QE tj ts (resel	pl(×86_64) t to templ a)	tpl(e1000)	• tablet
50:0a:00:06:00:00 QEMU Version tpl(2.0.2) CMU custom option -machine type=q35,ac Startup configuration None	QE tj ts (resel	pl(×86_64) t to templ a)	tpl(e1000)	• tablet
50:0a:00:06:00:00 QEMU Version tpl(2.0.2) CMU custom option -machine type=q35,ac Startup configuration None	QE tj ts (resel	pl(×86_64) t to templ a)	tpl(e1000)	• tablet
50:0a:00:06:00:00	QE tj ts (resel	pl(×86_64) t to templ a)	tpl(e1000)	• tablet
50:0a:00:06:00:00	QE tj ts (resel	pl(×86_64) t to templ a)	tpl(e1000)	• tablet
QEMU Version tpl(2.0.2) QEMU custom option -machine type=q35,ac Startup configuration None Delay (s) 0 Console	QE tj ts (resel	pl(x86_64) : to templa -cpu qemu6)	tpl(e1000)	• tablet



16.6 Master Server NIC ports order change

Some of the servers has Network interface cards with multi and various ethernet type ports. Example: Some DELL R series servers has first 2 Fibre ports (SFP) and additional 4 Ethernet ports. Requirement is to set EVE management on the 3rd port.

Supported starting from version 5.0.1-93.

Workaround:

- SSH or use serial console to your EVE CLI as root user.
- Navigate CLI to:
 - cd /opt/ovf/
- Run NIC order setup wizard

./nicorder-wizard

Follow the instructions on the screen to set primary NIC for your EVE

Reorder Nic *********				
UP/DOWN	Select :	interfa	ace	
LEFT/RIGHT	Move int	terfac		
ESC	Discard	change	e	
ENTER	Accept 1	new ord	der	
> enx000c29				
enx000c29	961748b •	ethl -:	> ethl	

16.7 Satellite Server NIC ports order change

Some of the servers has Network interface cards with multi and various ethernet type ports. Example: Some DELL R series servers has first 2 Fibre ports (SFP) and additional 4 Ethernet ports. Requirement is to set EVE management on the 3rd port.

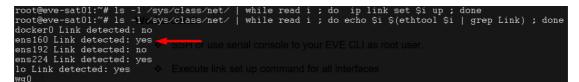
Workaround:

- SSH or use serial console to your EVE CLI as root user.
- Execute link set up command for all interfaces

ls -1 /sys/class/net/ | while read i ; do ip link set \$i up ; done

Detect which interface is up state

ls -1 /sys/class/net/ | while read i ; do ip link set \$i up ; done





Edit netplan yaml file with correct interface name:

nano /etc/netplan/01-netcfg.yaml

```
GNU nano 4.8 /etc/netplan/01-netcfg.yaml

# This file describes the network interfaces available on your system

# For more information, see netplan(5).

network:

version: 2

renderer: networkd

ethernets:

ens160:  Workaround:

addresses: [ "192.168.98.101/24" ]

gateway4: 192.168.98.1

nameservers:

addresses: [ "8.8.8.8", "1.1.1.1" ]
```

- To save netplan settings use: CTRL +o [letter o]; Enter; CTRL +x [for exit]
- Run test the new network settings, enter

```
netplan try
```

```
root@eve-sat01:~# netplan try
Do you want to keep these settings?
Press ENTER before the timeout to accept the new configuration
Changes will revert in 112 seconds
Configuration accepted.
```

Apply new network settings and reboot

```
netplan apply
```

reboot



17 Images for EVE

Images must be uploaded and prepared before they can be used in labs. The best way to upload images is to use the WinSCP tool for Windows environment or FileZilla for MAC OSX and Linux.

Link to download WinSCP:

https://winscp.net/eng/download.php

Link to download FileZilla:

https://filezilla-project.org/

To access EVE, use SSH protocol (port 22).

Supported images for EVE are stored in the three locations:

- IOL (IOS on Linux), /opt/unetlab/addons/iol/bin/
- Dynamips images, /opt/unetlab/addons/dynamips
- Qemu images, /opt/unetlab/addons/qemu

17.1 Qemu image naming table

▲ IMPORTANT NOTE: Intel VT-X/EPT must be enabled to run Qemu nodes in EVE. For information on how to enable this option, Refer to section 3: EVE Installation.

The directory names used for QEMU images are very sensitive and must match the table below exactly in order to work.

Ensure your image folder name starts as per the table. After the "-" you can add whatever you like to label the image. We recommend using the version of your image.

Folder name examples:

firepower6-FTD-6.2.1 acs-5.8.1.4

The image hdd inside the folder must be named correctly: Example: hda.qcow2 or virtioa.qcow2

Full path Example: opt/unetlab/addons/qemu/acs-5.8.1.4/hda.qcow2 The table of proper folder names is provided in our website:

https://www.eve-ng.net/index.php/documentation/qemu-image-namings/

Supported HDD formats and Qemu versions for the EVE images:

HDD Format	HDD name example
lsi([a-z]+).qcow	lsia.qcow
hd([a-z]+).qcow	hda.qcow
virtide([a-z]+).qcow	virtidea.qcow



1	virtio([a-z]+).qcow	virtioa.qcow
	scsi([a-z]+).qcow	scsia.qcow
	sata([a-z]+).qcow	sataa.qcow

Supported Qemu Versions
1.3.1
2.0.2
2.2.0
2.4.0
2.5.0
2.6.2
2.12.0
3.1.0
4.1.0
5.2.0
6.0.0
7.2.9
8.2.1

17.2 How to prepare images for EVE

How to add EVE-NG images please refer to:

https://www.eve-ng.net/index.php/documentation/howtos/

17.3 How to add custom image template

17.3.1 Templates folder choice

▲ IMPORTANT NOTE: Starting from EVE-PRO Version 2.0.6-42, EVE installation is autodetecting what kind of CPU manufacturer has your server: Intel or AMD, to choose proper templates set. You can check it manually on EVE cli: example below, showing that EVE has Intel CPU.

```
root@eve-ng:~# lsmod | grep ^kvm_
kvm_intel 212992 74
root@eve-ng:~#
```

- If you have Intel CPU, then your template files are in "/opt/unetlab/html/templates/intel/"
- If you have AMD CPU, then your template files are in "/opt/unetlab/html/templates/amd/"

17.3.2 Prepare template file

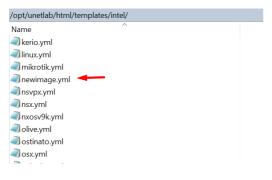
NOTE: For templates development use templates folder which is matching your EVE server CPU.

Example below will be based for Intel CPU EVE custom image template. Use EVE cli or WinSCP/Filezilla to create template.



Step 1: Navigate to EVE location: /opt/unetlab/html/templates/intel/

Step 2: Choose your most suitable template from which you want to make copy and create own image template. (example: newimage.yml)



Step 3: Make a copy from source template newimage.yml. Example: Using CLI create template and name it ngips.yml.

cp /opt/unetlab/html/templates/intel/newimage.yml /opt/unetlab/html/templates/intel/ngips.yml

You can create new template using WinSCP or Filezilla as well.

ootgeve-ng.zopt	/unetlab/html/te	mplates/intel# ls_					
10.yml	c7200.yml	cumulus.yml	iol.yml	osx.yml	sterra.yml	versadir.yml	vtedge.yml
s.yml	c9800cl.yml	cup.yml	ise.yml	paloalto.yml	timoscpm.yml	versafvnf.yml	vtmgmt.yml
lteon.yml	cda.yml	cyberoam.yml/opt/u	n jspace.yml templ	apfsense.ymlimage.	_timosiom.ymlab/ht	viosl2.yml/inte	vtsmart.yml
mpcloud.yml	cexpresw.yml	denm.yml	junipervrr.yml	phoebe.yml	timos.yml	vios.yml	vwaas.yml
picem.yml	cips.yml	docker.yml	kerio.yml	prime.yml	titanium.yml	vmxvcp.yml	vwlc.yml
ubacx.yml	clearpass.yml	esxi.yml You can	linux:ymlw term	opulsesyml WinSC	trendmivtps.yml (vmxvfp.yml	vyos.yml
cuba.yml	cms.yml	extremexos.yml	mikrotik.yml	riverbed.yml	uccx.yml	vmx.yml	winserver.ym
sav.yml	coeus.yml	firepower6.yml	newimage.yml 🖛	-scrutinizer.yml	ucspe.yml	vnam.yml	win.yml
sa.yml	cpsg.yml	firepower.ymDPR	ngips.yml 👝 🗤 🗆	silveredge:ymlop	avcenter ymblaied	vpcs.ymlnage f	oxrv9kaym1. Yo
arracuda.yml	csr1000vng.yml	fortinet.yml	nsvpx.yml	silverorch.yml	veloedge.yml	vqfxpfe.yml	xrv.yml
igip.yml	csr1000v.yml	hpvsr.yml	nsx.yml	sonicwall.yml	velogw.yml	vqfxre.yml	*.yml
ocadevadx.yml	ctxsdw.yml	huaweiar1k.yml	nxosv9k.yml	sophosutm.yml	veloorch.yml	vsrxng.yml	
1710.yml	cucm.yml	huaweiusg6kv.yml	olive.yml _{iderna}	_sophosxg.yml/	tveos.ymlns/demu	vsrx.yml	
3725.yml	cue.yml	infoblox.vml	ostinato vml	-stealth.vml	versaana.vml	vtbond.yml	

IMPORTANT: The new name of your template will be related to your image foldername. Your image foldername must start with prefix "ngips-"

Example: image foldername under /opt/unetlab/addons/qemu/ngips-6.5.0-115

root@eve-ng:~# cd /opt/unetlab/addons/qemu/ root@eve-ng:/opt/unetlab/addons/gemu# ls		<
a10-vThunder-411.4.1 KB in 0 of 13 ampcloud-2.3.5-L ampcloud-3.0.2	ise-2.6.0.156.SPA-L junipervrr-19.2R1-S2.2 kerio-control-9.3.2	0 B of
arubacx-10.03 arubacx-10.04-1000 aruba-VMC_8.4.0.3 asa-915-16-k8-CL-L asav-9131-100 asav-971-001	linux-mint-18.3-cinnamon-64bit linux-slax-64bit-9.3.0 linux-slax-64bit-9.3.0.tar.gz mikrotik-6.44.5 ngips-6.5.0-115 nsvpx-12.0.53.13	- iol. jspa juni keri linu mikr newin ngip

17.3.3 Prepare interface format and name lines

EVE Pro has included option to create various interface names, sequences and numbering. Please refer table below.

Formula	Template example	line	format	Will produce
---------	---------------------	------	--------	-----------------



eth_format: <prefix>{<first example<br="" for="" slot:="" value="">1>}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 8>}</number></first></separator></first></prefix>	eth_format: Gi{1}/{0-8}	Gi1/0 Gi1/1 Gi1/2 Gi1/3 Gi1/4 Gi1/5 Gi1/6 Gi1/7 Gi2/0 Gi2/1
eth_format: <prefix>{<first example<br="" for="" slot:="" value="">0>}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 4>}</number></first></separator></first></prefix>	eth_format: Ge{0}/{0-4}	Ge0/0 Ge0/1 Ge0/2 Ge0/3 Ge1/0 Ge1/2 Ge1/3 Ge2/0 Ge2/1 Ge2/2
eth_format: <prefix>{<first value="">}</first></prefix>	eth_format: Gi{0}	Gi0 Gi1 Gi2 Gi3
eth_format: <prefix>{<first value="">}</first></prefix>	eth_format: G0/{0}	G0/0 G0/1 G0/2 G0/3
eth_name: <prefix: custom="" interface="" name=""></prefix:>	eth_name: - M1 - T1 - T2	M1 T1 T2
eth_name: <prefix: custom="" interface="" name=""></prefix:>	eth_name: - MGMT - DATA - TRAFFIC	MGMT DATA TRAFFIC

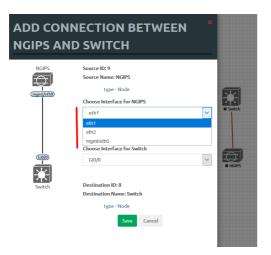
Combined first named interface following by formatted interfaces Example: We have to set first node interface name "eth0/mgmt" and next following interfaces must start from eth1 and change sequence accordingly. eth1, eth2,....,ethx

As your node first interface will be custom named (eth0/mgmt), therefore in the template "eth_name:" must be added before "eth_format:"

eth_name:
- eth0/mgmt
eth format: eth{1}



This adding will produce Node interfaces.



17.3.4 Edit your new template file:

For edit newly created template you can use WinSCP, FileZilla or cli. Example below shows template edit using cli and *nano* editor

cd /opt/unetlab/html/templates/intel/
nano ngips.yml

Change content, setting for various images can vary depends of vendor requirements. The interface name lines please refer Section: 17.3.3

<pre># Copyright (c) 2016, Andrea Dainese # Copyright (c) 2018, Alain Degreffe # All rights reserved.</pre>	
<pre># documentation and/or other mater # * Neither the name of the UNetLab # names of its contributors may be</pre>	hat the following conditions are met: must retain the above copyright and the following disclaimer.
<pre># # THIS SOFTWARE IS PROVIDED BY THE COPYF # ANY EXPRESS OR IMPLIED WARRANTIES, INC # WARRANTIES OF MERCHANTABILITY AND FITM # DISCLAIMED. IN NO EVENT SHALL <copyrig #="" (including="" (including,="" <="" advised="" af="" any="" busi="" but="" data,="" direct,="" even="" if="" in="" incidental,="" indirect,="" liability,="" limited="" loss="" negligence="" not="" of="" on="" or="" otherwise)="" possi="" pre="" procuf="" profits;="" software,="" special,="" the="" theory="" to,="" use,="" whether=""></copyrig></pre>	ESS FOR A PARTICULAR PURPOSE ARE HT HOLDER> BE LIABLE FOR ANY EXEMPLARY, OR CONSEQUENTIAL DAMAGES EMENT OF SUBSTITUTE GOODS OR SERVICES; NESS INTERRUPTION) HOWEVER CAUSED AND CONTRACT, STRICT LIABILITY, OR TORT LISING IN ANY WAY OUT OF THE USE OF THIS
 type: qemu name: NGIPS - Node name on the Topology description: Cisco FirePower NGIPS -	Node list name
cpulimit: 1 icon: IPS.png	ADD A NEW NODE
cpu: 4 ram: 8192 ethernet: 3	Template Nothing selected NGIPS
ethernet: 3	Barraccuda NGIPS Claso FirePower NGIPS



```
eth_name:
- eth0/mgmt
eth_format: eth{1}
console: vnc
shutdown: 1
gemu_arch: x86_64
gemu_version: 2.4.0
gemu_nic: e1000
gemu_options: -machine type=pc,accel=kvm -serial none -nographic -no-user-config
-nodefaults -display none -vga std -rtc base=utc -cpu host
...
```

Note: Qemu options in the line may vary per image requirements. Please check manufacturer advice how to run KVM image

17.3.5 Prepare new icon for your template:

Step 1 Use Filezilla or Winscp to copy your custom icon IPS.png (icon filename IPS.png used in ngips.yml)

This icon should be about 30-60 x 30-60 in the png format (switch.png is for example 65 x 33, 8-bit/color RGBA)

Step 2 Copy this new icon into /opt/unetlab/html/images/icons/

17.3.6 Template use

Step 1 Create directory /opt/unetlab/addons/qemu/ngips-6.5.0-115

mkdir /opt/unetlab/addons/qemu/ngips-6.5.0-115

Step 2 Upload image NGIPS, Refer Section: 17.2

17.4 How to hide unused images in the node list

Please follow section 7.4.1 or 7.9.1.1



18 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.

18.1 Backup manager

18.1.1 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

18.1.2 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

18.1.3 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



gBackup Manager Main Menu	
(e). Edit Backup Server required to setup external SFTP/FTP server. This part is out of EVE-	
NC support because every user can install and establish its own way. The main pre-requisite (c) Create Backup is, the start server must be fully reachable from EVE server and back from SFTP server to	
(r) [©] Restore Backup	i i
(g) 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

		Ĩ
		1
		thesek
		5 40
Server Protocol	SFTP Version	15.13
		I
Server Label	store	
Company Addresso	102 160 70 22	
Server Address	192.100.70.32	
Remote Directory	/sftnuser/	
Nome to Directory	, or opacion	
Username	sftpuser	
Password	***	
tocol SETP		
Submit Quit		
	Server Protocol Server Label Server Address Remote Directory Username Password	Server Label store Server Address 192.168.70.32 Remote Directory /sftpuser/ Username sftpuser Password ***

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

18.2Create 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.



18.2.1 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:



Choose item(s) to Backup			
A11	Remo		
Labs backup	X User		
Database backup	X Star		
Images backup	X		
Templates/Icons/Config-s	criptebackup <mark>X</mark>ame your Server		
Tmp Folders backup	Server Address: Put your backup		
Mirroring			
Create Cancel			
Create Cancer			

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)

18.2.2 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.

rCreate Backup Choose item(s) to Backup	ing folders broken Hirroring	
A11		
Labs backup	Select All: the backup manager will create director Labs. 	y with all content of the EVE which include:
Database backup	Users Patabase,	
Images backup	x	
Templates/Icons/Config-s	cript backup <mark>-</mark>	Page 289 of 291
Tmp Folders backup	XGLID	, ugo 200 0, 20 ,
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.

18.2.3 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==========	 Annhages (Dynahlips, IOL, Genha).
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 Custom items: For example, if you want send to backup only labs, images and full lab, saved work (tmp directory), your items selection will look like below.
Labs backup	
Database backup	1 Charge (tan X) to Beckep
Images backup	×
Templates/Icons/Config-scr	ipt backup 🗙
Tmp Folders backup	Database born
Mirroring	Inspect hard X
Create Cancel	Trep Folders backup X

18.3 Restore data from EVE-NG Backup

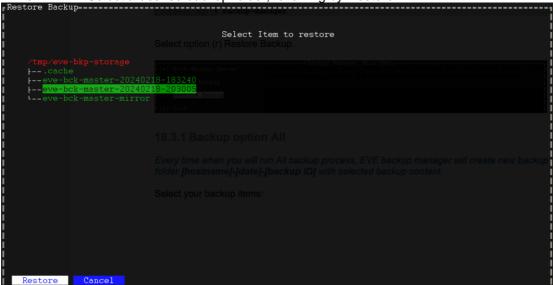
SSH to your EVE as root user and execute following command.

root@eve-ng:~# backup-manager

Select option (r) Restore Backup.

(e) Edit Backup Server	Backup Manager Main Menu
(<mark>c)</mark> Create Backup	
(r) Restore Backup	Croste Backup Choose item(s) to Backup
(q) Quit	

18.3.1 Select restore backup folder



IMPORTANT: Select a desired backup folder, following by Restore.



18.3.2 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 3	Restore Backup	
customs 2	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.





19 EVE Resources

For additional updated information please follow our web site: <u>https://www.eve-ng.net</u>

How to updates: https://www.eve-ng.net/index.php/documentation/howtos/

How to videos: https://www.eve-ng.net/index.php/documentation/howtos-video/

https://www.eve-ng.net/index.php/documentation/knox-hutchinson-videos/

How to create images : https://www.eve-ng.net/index.php/documentation/howtos/

FAQ: https://www.eve-ng.net/index.php/faq/

Live support chat: <u>https://webchat.eve-ng.net/login/</u>For access to live chat use your Google account or create new chat account.

EVE forum: <u>https://www.eve-ng.net/forum/</u>To access forum resources, please create a new forum account.

EVE YouTube channel: <u>https://www.youtube.com/playlist?list=PLF8yvsYkPZQ0myW7aVMZ80k8FU04UUgjV</u>

EVE Professional downloads: https://www.eve-ng.net/index.php/download/

EVE Community version downloads, free: https://www.eve-ng.net/index.php/community/

EVE Supported images: https://www.eve-ng.net/index.php/documentation/supported-images/