



Emulated Virtual Environment
Next Generation

EVE-NG CE ***Community Edition*** ***Cookbook***

Version 6.1

Author:
Uldis Dzerkals

© *EVE-NG LTD*

The information contained in this document is the property of EVE-NG Limited

The contents of the document must not be reproduced or disclosed wholly or in part or used for purposes other than that for which it is supplied without the prior written permission of EVE-NG Limited.

Table of Contents

PREFACE.....	7
1 INTRODUCTION.....	8
1.1 WHAT IS EVE-NG?	8
1.2 WHAT IS EVE-NG USED FOR?	8
1.3 WHO IS EVE-NG FOR?	8
2 SYSTEM REQUIREMENTS.....	9
2.1 HARDWARE REQUIREMENTS.....	9
2.1.1 <i>Minimal Laptop/PC Desktop system requirements</i>	9
2.1.2 <i>Recommended Laptop/PC Desktop system requirements</i>	10
2.1.3 <i>Virtual Server system requirements</i>	10
2.1.4 <i>Dedicated Server (bare metal BM) system requirements</i>	11
2.1.5 <i>Nodes per lab calculator</i>	11
2.2 SUPPORTED VIRTUALIZATION PLATFORMS AND SOFTWARE.....	11
2.3 UNSUPPORTED HARDWARE AND SYSTEMS	11
3 INSTALLATION	13
3.1 VMWARE WORKSTATION OR VM PLAYER	13
3.1.1 <i>VMware Workstation VM installation using ISO image</i>	13
3.1.1.1 EVE VM Setup and Settings	13
3.1.1.2 EVE-NG VM Installation steps	17
3.2 VMWARE ESXi	19
3.2.1 <i>VMware ESXi EVE VM installation using ISO image</i>	19
3.2.1.1 EVE-NG ESXi VM Setup and Settings	20
3.2.1.2 EVE-NG ESXi VM Installation steps.....	23
3.3 BARE HARDWARE (BM) SERVER INSTALLATION.....	24
3.3.1 <i>BM Server installation EVE ISO</i>	24
3.3.2 <i>BM Server Installation Ubuntu legacy ISO</i>	26
3.4 GOOGLE CLOUD PLATFORM.....	33
3.4.1 <i>Google account</i>	33
3.4.2 <i>Preparing Ubuntu boot disk template</i>	34
3.4.3 <i>Creating VM</i>	34
3.4.4 <i>EVE-NG CE installation</i>	36
3.4.5 <i>Access to Google Cloud EVE-CE</i>	38
3.4.6 <i>Optional: GCP MTU 1460 Firewall rules for native console use</i>	38
3.5 EVE MANAGEMENT IP ADDRESS SETUP	39
3.5.1 <i>Static Management IP address setup (preferred)</i>	39
3.5.2 <i>DHCP Management IP address setup</i>	41
3.5.3 <i>Reset EVE Management IP settings</i>	43
3.6 NATIVE TELNET CONSOLE MANAGEMENT SETUP	43
3.6.1 <i>Windows Native Console</i>	43
3.6.2 <i>Linux Native Console</i>	45
3.6.3 <i>MAC OSX Native Console</i>	45
3.7 LOGIN TO THE EVE WEB GUI	46
4 EVE-NG COMMUNITY UPDATE & UPGRADE.....	47
4.1 EVE-NG COMMUNITY UPDATE	47
4.2 EVE-NG COMMUNITY UPGRADE.....	48
5 TYPES OF EVE MANAGEMENT CONSOLES.....	49
5.1 NATIVE CONSOLE	49

5.1.1	<i>Native Console: telnet</i>	49
5.1.2	<i>Native Console: Wireshark</i>	50
5.1.3	<i>Native Console: VNC</i>	52
5.1.4	<i>Native Console: RDP</i>	52
5.2	HTML5 CONSOLE.....	53
5.2.1	<i>HTML5 Console: Telnet</i>	54
5.2.2	<i>HTML5 Console: VNC</i>	54
5.2.3	<i>HTML5 Console: RDP for Windows</i>	55
6	EVE WEB GUI MANAGEMENT	57
6.1	EVE MANAGEMENT PAGE.....	57
6.1.1	<i>Management buttons</i>	57
6.1.2	<i>Management tabs</i>	58
6.2	FOLDERS AND LAB FILES MANAGEMENT	59
6.2.1	<i>Folders Management</i>	59
6.2.1.1	Create folder	59
6.2.1.2	Delete folder	59
6.2.1.3	Move Folder	59
6.2.1.4	Export Folder.....	59
6.2.1.5	Import Folder	60
6.2.2	<i>Lab files Management</i>	61
6.2.2.1	Create Lab	61
6.2.2.2	Delete Lab	61
6.2.2.3	Clone Lab.....	62
6.2.2.4	Move Lab.....	62
6.2.2.5	Export Lab	63
6.2.2.6	Import Labs	63
6.3	EVE MANAGEMENT DROPDOWN MENU	64
6.3.1	<i>EVE User management</i>	64
6.3.1.1	Creating a new EVE Admin user	65
6.3.1.2	Edit EVE User.....	65
6.3.1.3	User monitoring	66
6.4	EVE SYSTEM DROPDOWN MENU.....	66
6.4.1	<i>System status</i>	67
6.4.2	<i>System logs</i>	67
6.4.3	<i>Stop All Nodes</i>	68
6.5	EVE INFORMATION DROPDOWN MENU.....	68
6.6	OTHER TAB LINE INFO.....	68
6.7	LAB PREVIEW AND GLOBAL SETTINGS.....	68
6.7.1	<i>Lab preview window</i>	69
6.7.2	<i>Lab preview buttons</i>	69
6.7.3	<i>Lab preview information</i>	69
6.7.4	<i>Lab Global Settings</i>	70
7	EVE WEB TOPOLOGY PAGE	72
7.1	SIDE BAR FUNCTIONS.....	72
7.1.1	<i>Add an object</i>	73
7.1.1.1	Node object.....	73
7.1.1.2	Network object.....	73
7.1.1.3	Picture object	74
7.1.1.4	Custom shape object.....	74
7.1.1.5	Text object	74
7.1.2	<i>Nodes</i>	75
7.1.3	<i>Networks</i>	76
7.1.4	<i>Startup-configs</i>	77
7.1.5	<i>Logical Maps</i>	77
7.1.6	<i>Configured Objects</i>	77
7.1.7	<i>More actions</i>	78
7.1.7.1	Start all nodes	78

7.1.7.2	Stop all nodes.....	78
7.1.7.3	Wipe all nodes.....	78
7.1.7.4	Console to All Nodes	79
7.1.7.5	Export all CFGs	79
7.1.7.6	Edit lab	79
7.1.7.7	Set node's startup-cfg to default configset	79
7.1.7.8	Set node's startup-cfg to none.....	80
7.1.7.9	Delete default startup-cfgs.....	80
7.1.8	<i>Refresh Topology.....</i>	80
7.1.9	<i>Lab page zoom/unzoom</i>	80
7.1.10	<i>Status.....</i>	80
7.1.11	<i>Lab details.....</i>	81
7.1.12	<i>Lock Lab</i>	81
7.1.13	<i>Dark mode or Light mode</i>	81
7.1.14	<i>Close lab</i>	82
7.1.15	<i>Logout.....</i>	82
7.2	EVE LAB TOPOLOGY MENUS	82
7.2.1	<i>Lab topology menu</i>	82
7.2.2	<i>Connection menu.....</i>	82
7.2.3	<i>Cloud or Bridge network menu</i>	82
7.2.4	<i>Stopped node menu.....</i>	83
7.2.5	<i>Running node menu.....</i>	84
7.2.6	<i>Selected nodes menu and features</i>	84
7.3	EVE LAB NODE STATES AND SYMBOLS.....	88
7.3.1	<i>Stopped (non-running) nodes</i>	88
7.3.2	<i>Running nodes.....</i>	88
7.3.3	<i>Node connector symbol</i>	88
7.4	OTHER.....	89
7.4.1	<i>Notifications area</i>	89
8	WORKING WITH EVE LABS	90
8.1	CREATING A LAB.....	90
8.1.1	<i>Adding nodes to the lab</i>	90
8.1.1.1	Node values Table	93
8.1.2	<i>Edit node.....</i>	95
8.1.2.1	Edit nodes globally	96
8.1.2.2	Edit node individually.....	96
8.1.3	<i>Wipe Node</i>	97
8.1.4	<i>Interconnecting nodes.....</i>	97
8.1.5	<i>Delete connection between nodes.....</i>	98
8.1.6	<i>Delete Node.....</i>	98
8.2	RUNNING LABS	99
8.2.1	<i>Starting lab.....</i>	99
8.3	SAVING LABS.....	99
8.4	STOPPING LABS.....	99
8.5	START SAVED LAB.....	100
8.6	IMPORTING LABS.....	100
8.7	EXPORTING LABS.....	100
8.8	DELETING LABS	100
8.9	MOVING LABS.....	100
9	EVE CLOUDS AND NETWORKS	101
9.1	BRIDGE NETWORK.....	101
9.2	MANAGEMENT CLOUD0 INTERFACE	102
9.3	OTHER CLOUD INTERFACES.....	104
9.4	CONNECTING EXTERNAL VM MACHINES TO THE EVE LAB.....	106
9.4.1	<i>ESXi VM machines</i>	106
9.4.2	<i>VMWare workstation machines</i>	108
9.5	CONNECTING EVE LAB TO A PHYSICAL DEVICE	110

9.5.1	ESXi EVE.....	110
9.5.2	VMWare workstation EVE	112
9.5.3	Bare metal server EVE	114
10	ADVANCED EVE LAB FEATURES	116
10.1	LAB DESIGN OBJECTS.....	116
10.1.1	Custom shape.....	116
10.1.2	Resize square or circle objects.....	117
10.1.3	Text object	117
10.1.4	Add custom picture on the Lab using Text object feature	118
10.1.5	Cloning objects and overlay positions	119
10.1.6	Objects Editing.....	119
10.1.7	Lock objects movement.....	120
10.2	CUSTOM DESIGN LOGICAL TOPOLOGY	120
10.2.1	Custom design upload	120
10.2.2	Custom topology mapping.....	121
10.2.3	Delete topology or mapping.....	122
10.3	CONFIGURATION EXPORT FEATURE	123
10.3.1	Supported nodes for configuration exports.....	124
10.3.2	Startup config management.....	124
10.3.2.1	Global commands	124
10.3.2.2	Individual node commands.....	124
10.3.2.3	Multiple selected nodes commands.....	125
10.3.2.4	Startup-configuration window.....	125
10.3.2.5	Startup-config window information	126
10.3.3	Export configuration	126
10.3.4	Boot nodes from exported config set.....	127
10.3.5	Edit exported configurations	127
10.3.6	Set lab to boot from none	128
10.3.7	Lab config script timeout.....	128
11	EVE TROUBLESHOOTING	130
11.1	CLI DIAGNOSTIC INFORMATION DISPLAY COMMANDS	130
11.1.1	Display full EVE Community diagnostic.....	130
11.1.2	Display the currently installed EVE Community version:.....	130
11.1.3	Display if EVEs Intel VT-x/EPT option on/off:.....	130
11.1.4	Display EVEs CPU INFO:.....	130
11.1.5	Display EVEs HDD utilization.	130
11.1.6	Display EVEs Bridge interface status	131
11.1.7	Display EVEs system services status.....	131
11.2	EXPAND EVEs SYSTEM HDD.....	131
11.2.1	Expand HDD on VMware Workstation.....	131
11.2.2	Expand your HDD on ESXi.....	132
11.2.3	Expand your HDD on a Bare Metal EVE Server	132
11.3	RESET MANAGEMENT IP	133
11.4	EVE COMMUNITY SQL DATABASE RECOVERY	133
11.5	EVE LOG FILES	133
11.6	EVE CLI DIAGNOSTIC INFO.....	133
12	IMAGES FOR EVE.....	134
12.1	QEMU IMAGE NAMING TABLE	134
12.2	HOW TO PREPARE IMAGES FOR EVE.....	135
12.3	HOW TO ADD CUSTOM IMAGE TEMPLATE.....	135
12.3.1	Templates folder choice.....	135
12.3.2	Prepare template file.....	135
12.3.3	Prepare interface format and name lines.....	136
12.3.4	Edit your new template file:.....	137
12.3.5	Prepare new icon for your template:.....	138

12.3.6	<i>Template use</i>	139
12.4	HOW TO HIDE UNUSED IMAGES IN THE NODE LIST	139
12.4.1	<i>Creating new config.php file</i>	139
12.4.2	<i>Edit config.php file</i>	139
13	EVE BACKUP SOLUTION.....	141
13.1	BACKUP MANAGER.....	141
13.1.1	<i>Backup Manager Installation</i>	141
13.1.2	<i>Setup external SFTP or FTP server</i>	141
13.1.3	<i>Backup Manager SFTP/FTP settings</i>	141
13.2	CREATE AN EVE-NG BACKUP.....	142
13.2.1	<i>Backup option All</i>	142
13.2.2	<i>Backup option custom selected</i>	143
13.2.3	<i>Backup option with Mirroring selected</i>	143
13.3	RESTORE DATA FROM EVE-NG BACKUP	144
13.3.1	<i>Select restore backup folder</i>	144
13.3.2	<i>Select the items to restore</i>	145
14	EVE RESOURCES.....	146

Preface

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

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

The Pro-Edition was a big step forward for the Project. It added some nice Features like "hot-add-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/[supported images](#) (many have not been tested, almost everything virtual should run on EVE-NG) and refer to section **12**.

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

1.3 Who is EVE-NG for?

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

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

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

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

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

2 System requirements

EVE-NG 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 22.04 LTS x64

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

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

2.1.5 Nodes per lab calculator

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

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

2.2 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

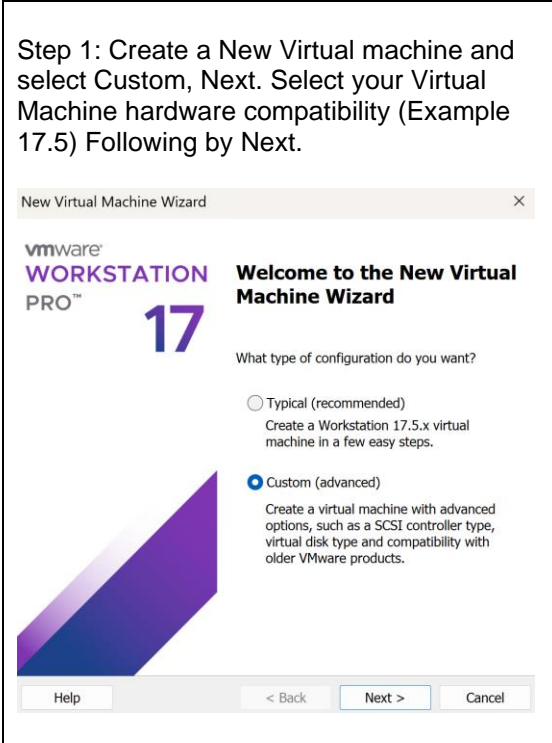
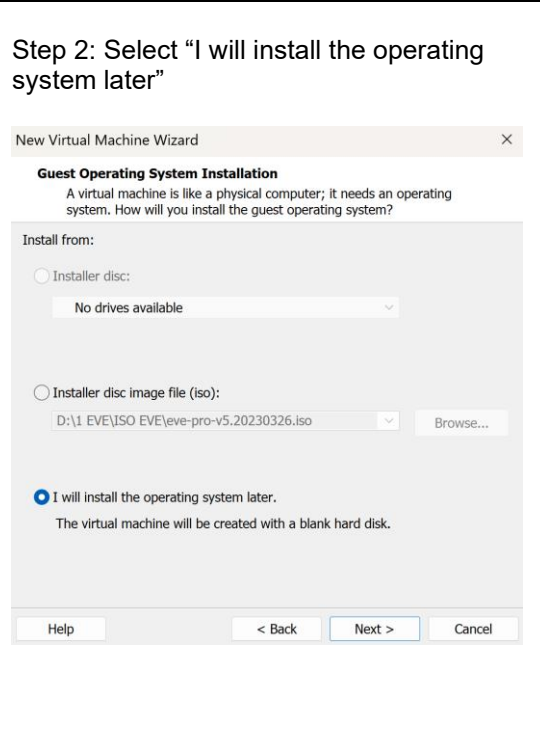
3.1 VMware Workstation or VM Player

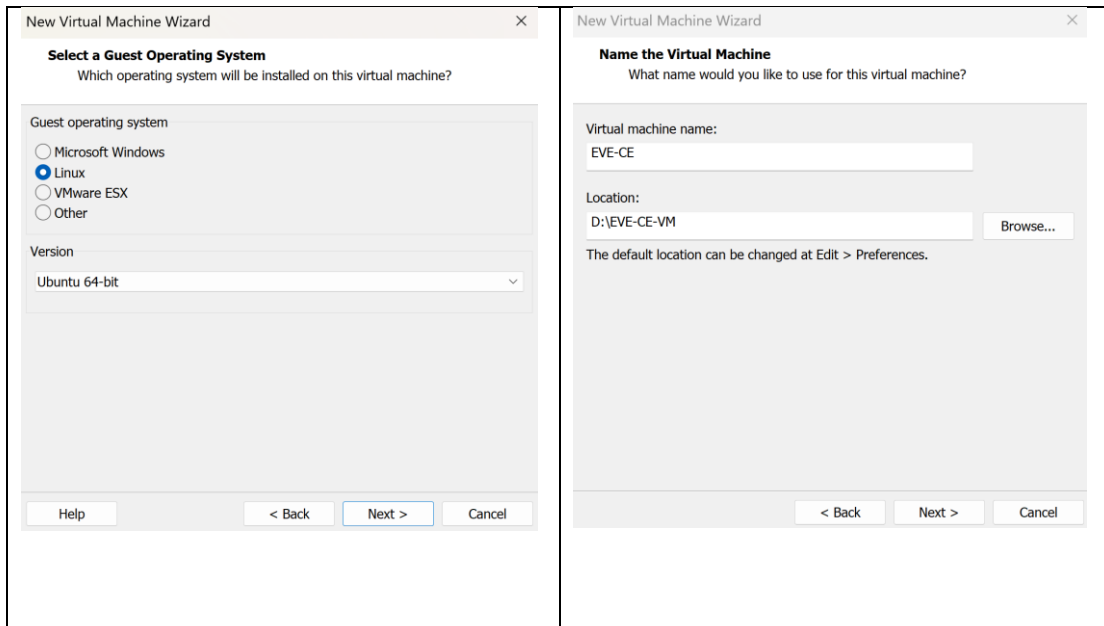
3.1.1 VMware Workstation VM installation using ISO image

Download EVE-NG CE Full ISO distribution image:

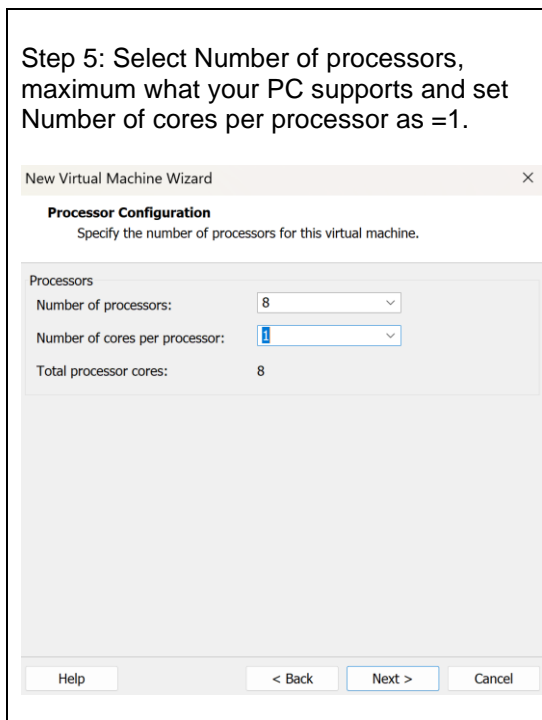
<https://www.eve-ng.net/index.php/download/>

3.1.1.1 EVE VM Setup and Settings

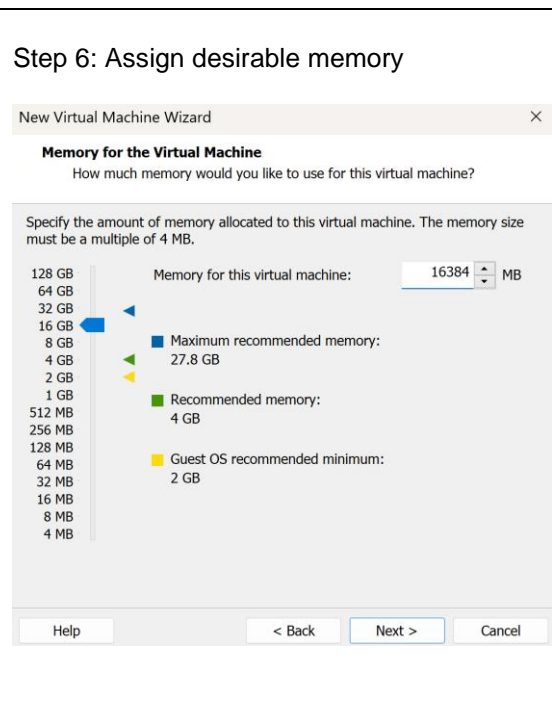
<p>Step 1: Create a New Virtual machine and select Custom, Next. Select your Virtual Machine hardware compatibility (Example 17.5) Following by Next.</p> 	<p>Step 2: Select "I will install the operating system later"</p> 
<p>Step 3: Select a Guest Operating system: Linux and select the version: Ubuntu 64-bit</p>	<p>Step 4: Enter the name for your EVE-NG-CE VM and select Location where your EVE VM will be stored on the host PC.</p>



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

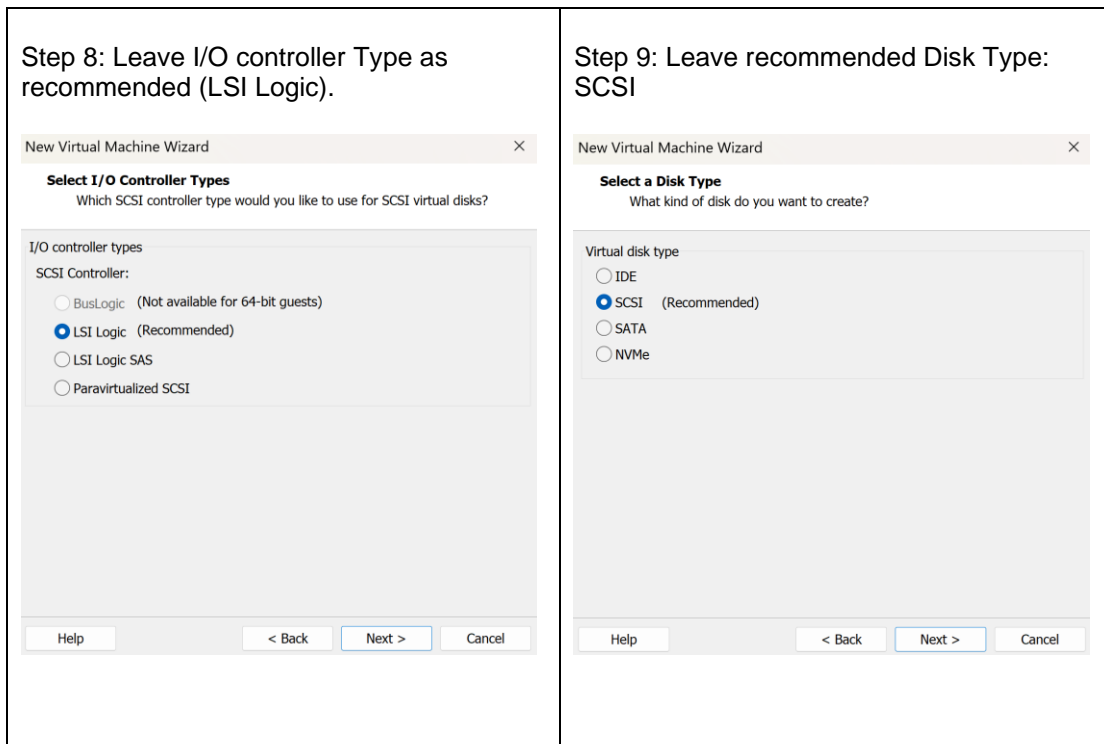
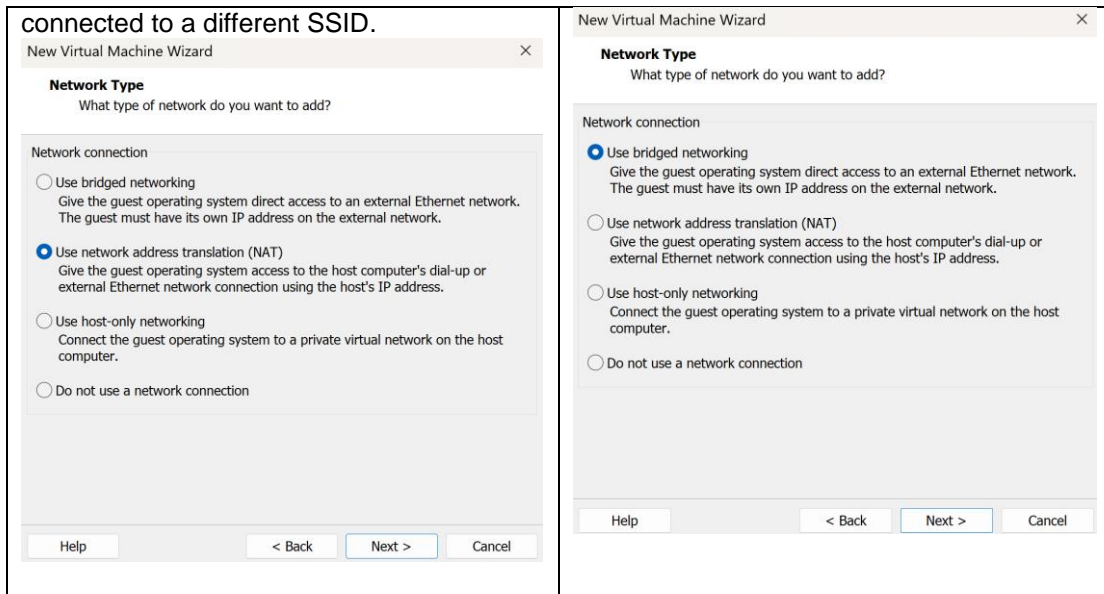


Step 7a: Select your desirable Network Adapter. For Laptop PC

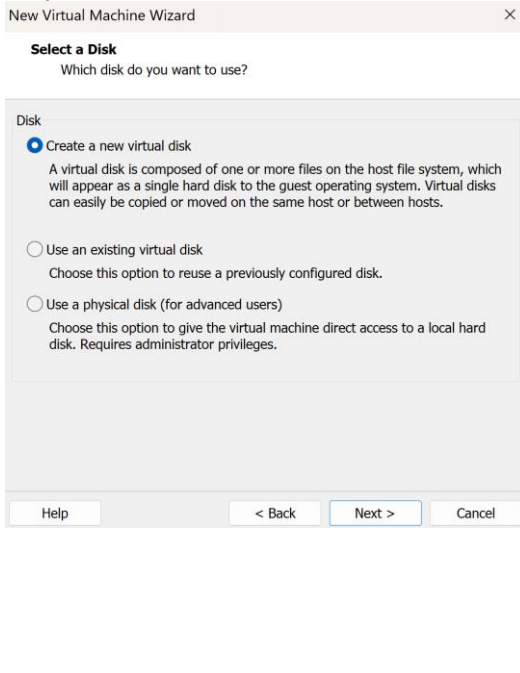
NOTE: It is recommended to choose the NAT adapter option for Laptops to avoid EVE management interface IP changes. This can happen anytime the laptop is

Step 7b: Select your desirable Network Adapter. For Desktop PC

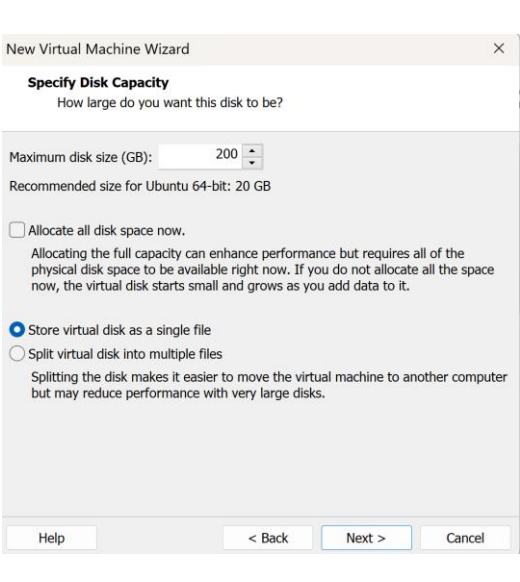
NOTE: Desktop PC EVE management interface can be either NAT or Bridged to home LAN subnet



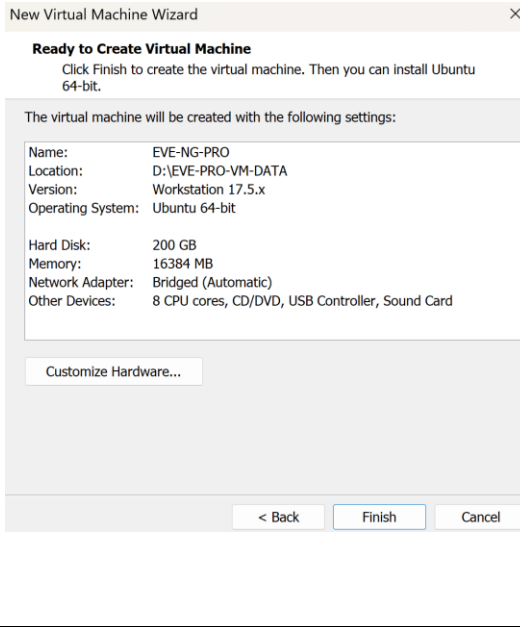
Step 10: Select "Create a new virtual disk".



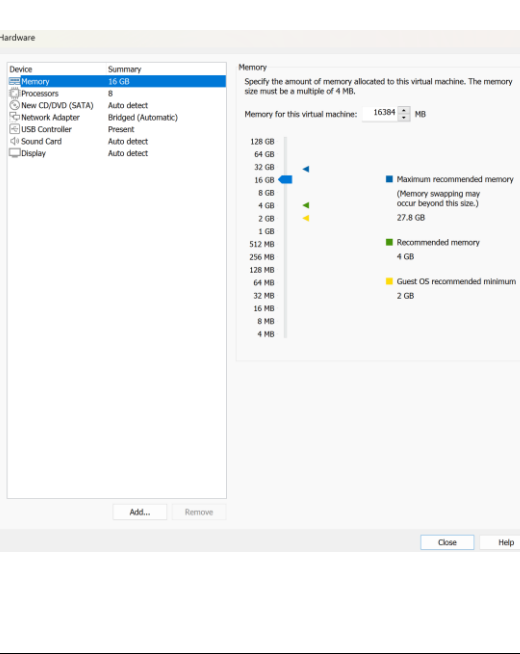
Step 11: Type your **desirable** HDD size and select "Store virtual disk as single file". It is recommended to set not less than 200GB HDD. Click Next, 2 times.



Step 12: **IMPORTANT** Press Customize Hardware

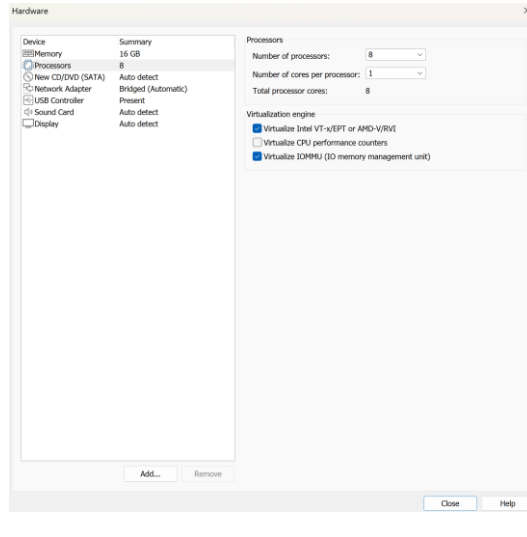


Step 13: Assign desirable memory

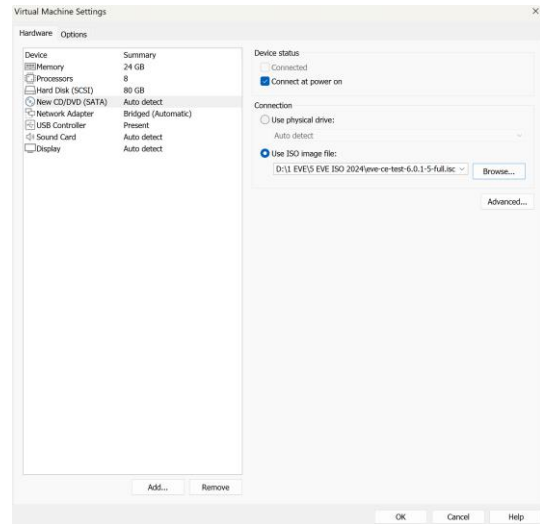


Step 14: **IMPORTANT** Set Processors “Number of processors” and “Number of cores per processor”. **Set Virtualize Intel VT-x/EPT or AMD-V/RVI to ON (checked) and set Virtualize IOMMU (checked)**

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



Step 15: Select CD/DVD Option: “use ISO image file.” Browse to your downloaded Full EVE-NG CE.iso (actual name will be different) file



Step 16: Confirm VM Settings.

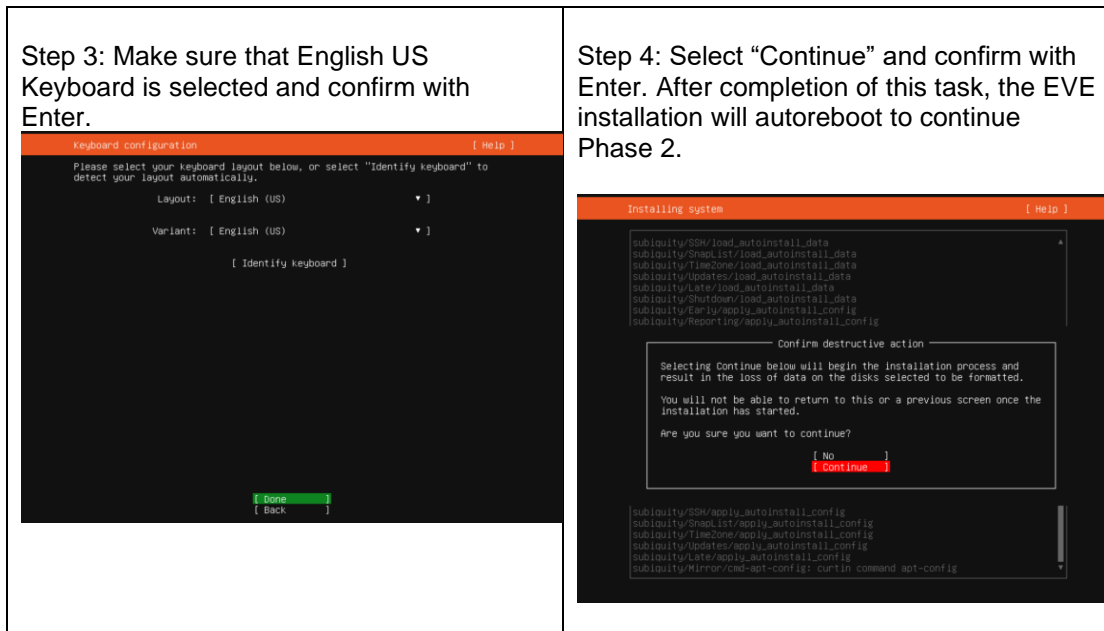
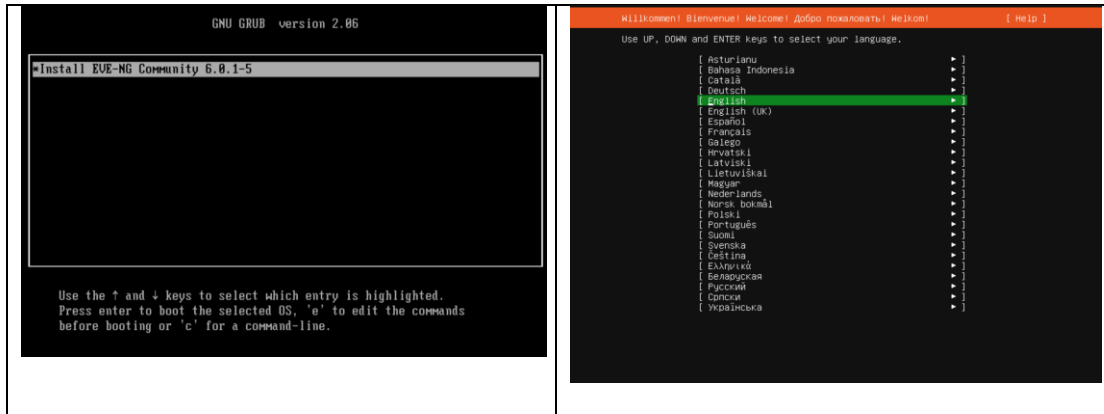
3.1.1.2 EVE-NG VM Installation steps

EVE VM Installation from ISO has 3 Phases

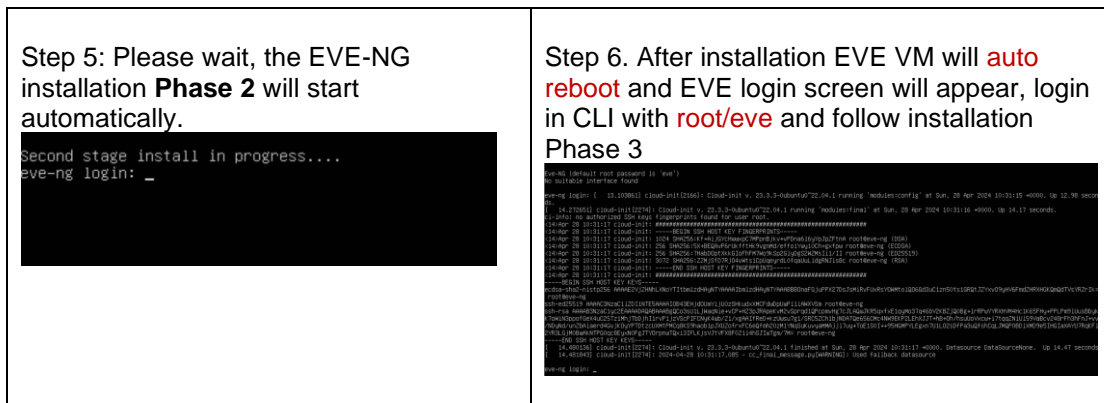
Phase 1 (Ubuntu installation)

Step 1: Power ON EVE VM. Chose “Install EVE NG Community” and confirm with Enter.

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



EVE VM Installation Phase 2 (EVE-NG installation)



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

<p>Step 7: Setup EVEs Management IP address. A Static IP address setup is preferred. Follow steps in section: 3.5.1 for static IP, 3.5.2 for DHCP IP</p>	<p>Step 8: Internet and DNS reachability is a MUST</p> <p>After your EVE is rebooted, Login to EVE CLI and type:</p> <pre>apt update apt upgrade</pre> <p>If required, follow steps in section: 4.1, 4.2</p>
--	--

NOTE: Verify your EVE-NG server installation, type “`dpkg -l eve-ng`” command, it must display latest EVE CE version

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

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

3.2 VMware ESXi

3.2.1 VMware ESXi EVE VM installation using ISO image

Download EVE-NG CE Full ISO distribution image:

<https://www.eve-ng.net/index.php/download/>

⚠ IMPORTANT NOTE: Make sure that you have set Security Policy (Promiscuous mode, forged transmits and MAC changes) settings on the vSwitch and Port group to Accept.

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

- ❖ From the Navigator window select **Manage > System > Advanced settings**.
- ❖ Scroll down or use the search bar to go to the **Net.ReversePathFwdCheckPromisc** option.
- ❖ Select **Net.ReversePathFwdCheckPromisc** and click Edit option.
- ❖ In the Edit option - **Net.ReversePathFwdCheckPromisc** window update the New value field to 1 and click Save.

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

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

Net.ReversePathFwdCheckPromisc

1

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

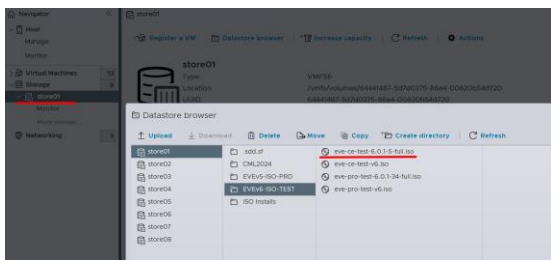
Distributed Port Group - Edit Settings | DPortGroup-VLAN10

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

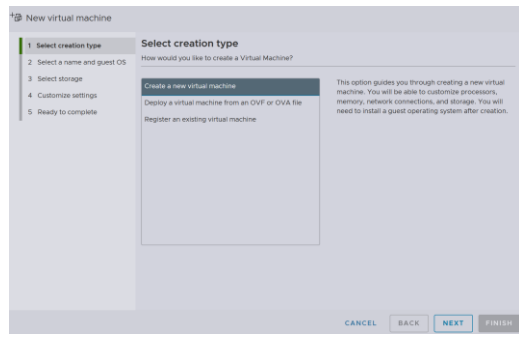
Download EVE-NG CE ISO distribution image:
<https://www.eve-ng.net/index.php/download/>

3.2.1.1 EVE-NG ESXi VM Setup and Settings

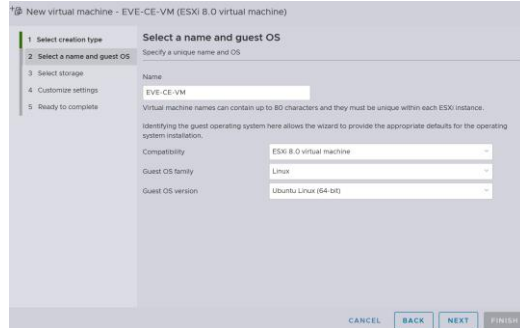
Step 1: Upload EVE CE Full ISO image to the ESXi store.



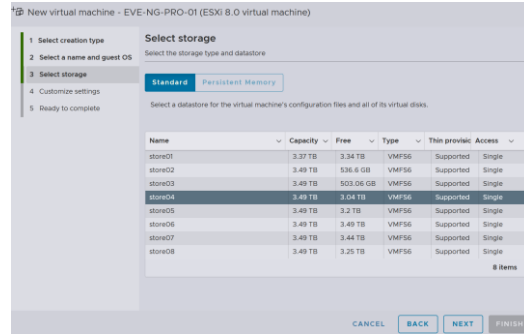
Step 2: Create NEW VM



Step 3: Enter the name for your EVE-CE VM and select Guest Operating system Linux and version: **Ubuntu 64-bit**



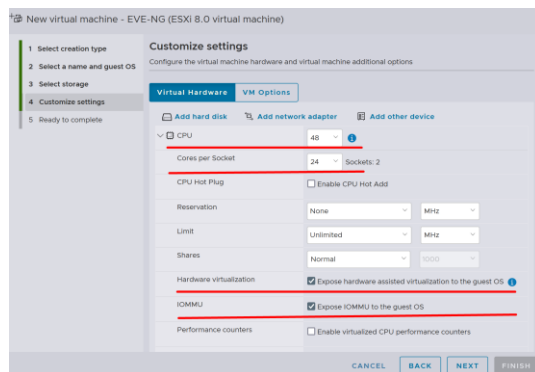
Step 4: Select Location where your EVE VM will be stored in HDD.



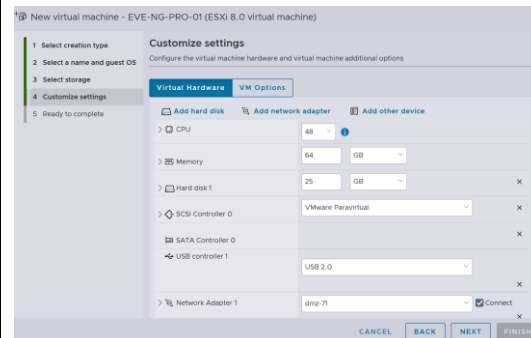
Step 5: ⚠ IMPORTANT OPTION for ESXi 6.7.x or later.

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).

Set **Expose hardware assisted virtualization to the guest OS to ON (checked)** and set **Expose IOMMU to the guest OS to ON (checked)**



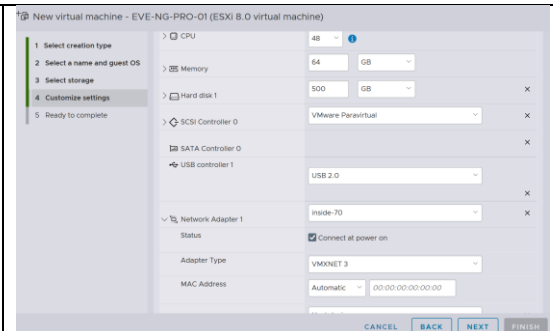
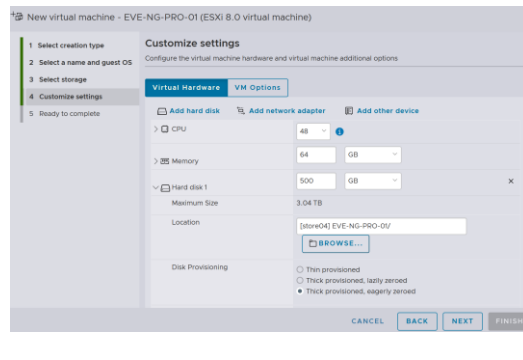
Step 6: Assign desirable RAM for your EVE



Step 7: Set the size of HDD for your new EVE VM. It is recommended to set “Thick Provisioned eagerly provisioned”. Server

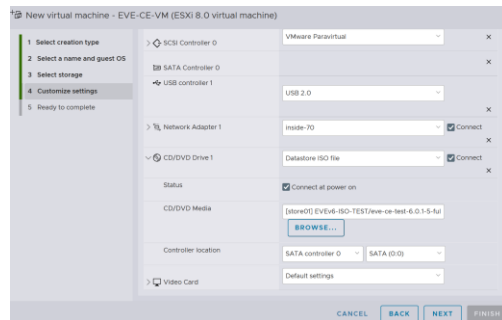
Step 8: Set your Management network. Adapter type VMXNET3

EVE HDD is recommended to set at least 500Gb



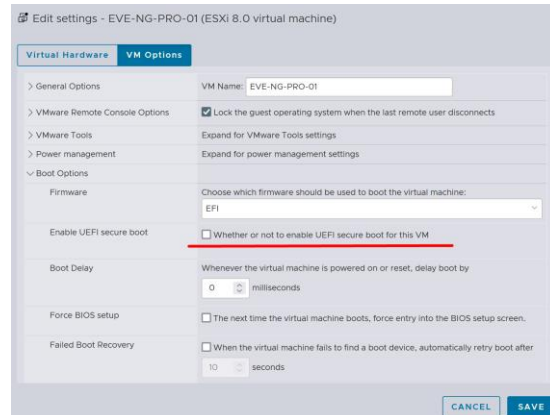
NOTE: Additional Network Adapters can be added for further use.

Step 9: Set DVD drive to “Datastore ISO File” and browse your uploaded Full-EVE-CE.iso (ISO name can vary). Make sure that Status is checked ON, “Connect at power on” and hit “Finish”



Step 11: IMPORTANT ESXi 8.0 and later Select the Edit your VM and switch to “VM Options”. Firmware *EFI Boot*.

Follow to “Boot Options” and **de-select (uncheck) “Whether or not to enable EFI secure boot for this VM”**


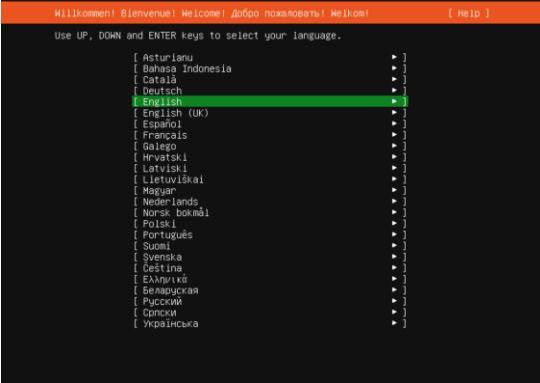


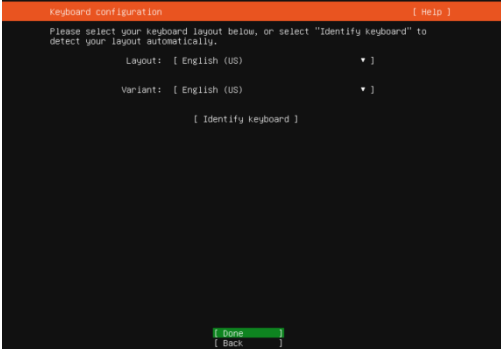
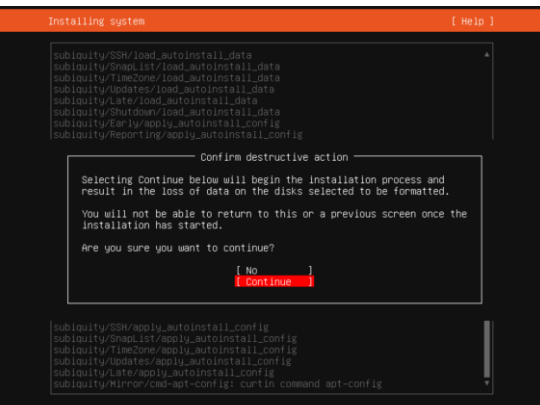
Step 12: Start VM

3.2.1.2 EVE-NG ESXi VM Installation steps

EVE ESXi VM Installation from ISO has 3 Phases

Phase 1 (Ubuntu installation)

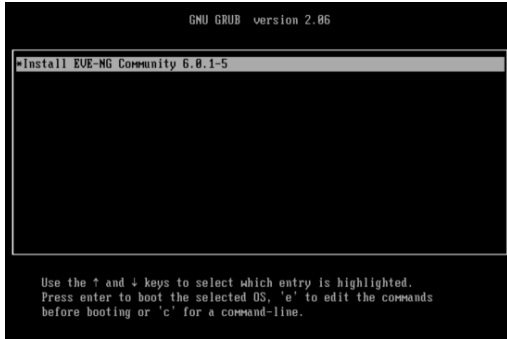
<p>Step 1: Power ON EVE VM. Chose Install EVE-NG Community and confirm with Enter.</p> 	<p>Step 2: Select English language. Confirm with Enter.</p> 
--	--

<p>Step 3: Make sure that English US Keyboard is selected and confirm with Enter.</p> 	<p>Step 4: Select "Continue" and confirm with Enter. After completion of this task, the EVE installation will autoreboot to continue Phase 2.</p> 
---	--

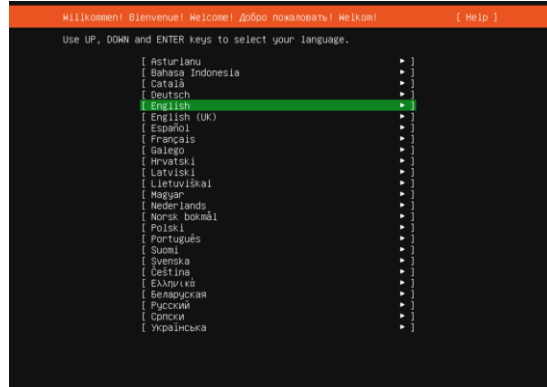
EVE VM Installation Phase 2 (EVE-NG installation)

<p>Step 5: Please wait, the EVE-NG installation Phase 2 will start</p>	<p>Step 6. After installation EVE VM will auto reboot and EVE login screen will appear, login in CLI with root/eve and follow installation</p>
---	--

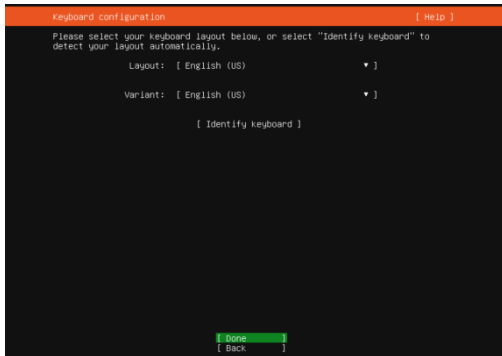
Step 1: Create a bootable DVD disk or USB flash drive with an EVE ISO image. Boot your server from ISO. Chose Install EVE CE and confirm with Enter.



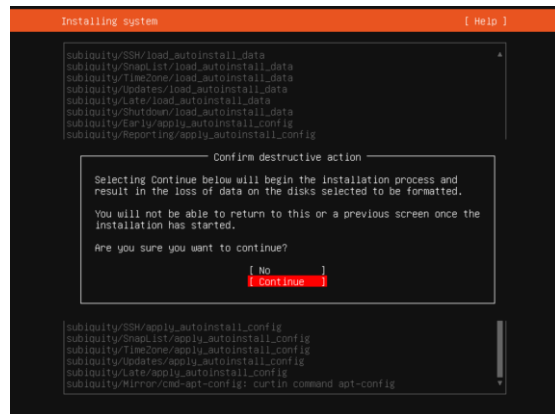
Step 2: Select English language. Confirm with Enter.



Step 3: Make sure that English US Keyboard is selected and confirm with Enter.

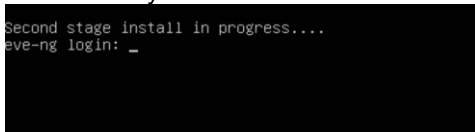


Step 4: Select "Continue" and confirm with Enter. After completion of this task, the EVE installation will autoreboot to continue Phase 2.

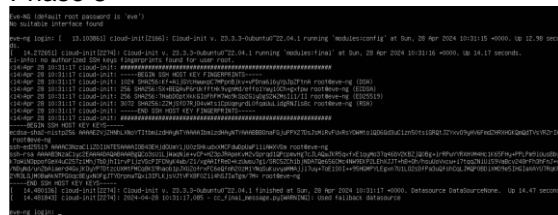


EVE VM Installation Phase 2 (EVE-NG installation)

Step 5: Please wait, the EVE-NG installation Phase 2 will start automatically.



Step 6. After installation EVE VM will **auto reboot** and EVE login screen will appear, login in CLI with **root/eve** and follow installation Phase 3



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

<p>Step 7: Setup EVEs Management IP address. A Static IP address setup is preferred. Follow steps in section: 3.5.1 for static IP, 3.5.2 for DHCP IP</p>	<p>Step 8: Internet and DNS reachability is a MUST</p> <p>After your EVE is rebooted, Login to EVE CLI and type:</p> <pre>apt update apt upgrade</pre> <p>If required, follow steps in section: 4.1, 4.2</p>
--	--

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

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

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

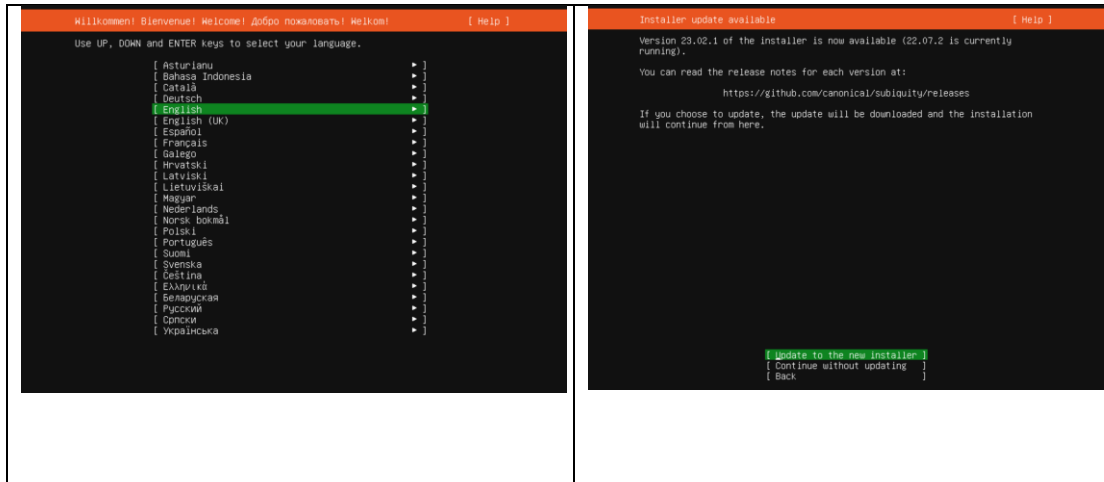
3.3.2 BM Server Installation Ubuntu legacy ISO

⚠ Mandatory Prerequisites: Internet and DNS must be reachable from your Server. This ISO installation requires internet access to get updates and install the latest EVE-CE version from the EVE-NG repository. DNS must resolve names!

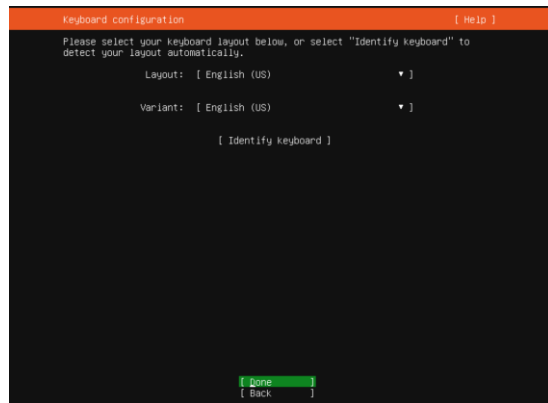
Download Ubuntu Legacy Server installation image/ISO
<https://releases.ubuntu.com/jammy/>

Phase 1 (Ubuntu installation)

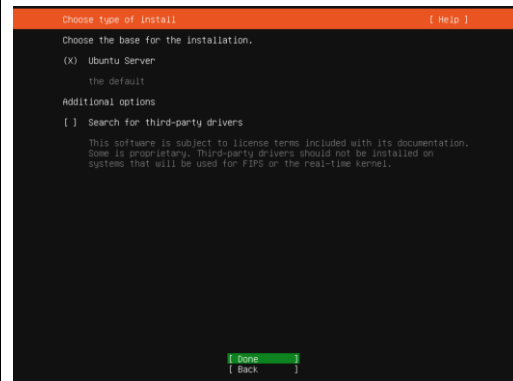
<p>Step 1: Create a bootable DVD disk or USB flash drive with an Ubuntu server image. Boot your server from ISO. Select English language. Confirm with Enter.</p>	<p>Step 2: Select Option Update to the new installer, following by Enter.</p>
---	---



Step 3: Make sure if English US keyboard is selected and confirm with Done/Enter.

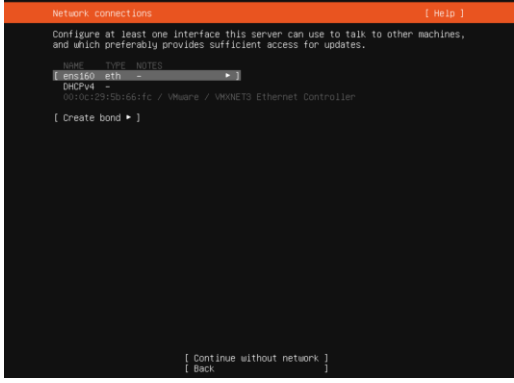
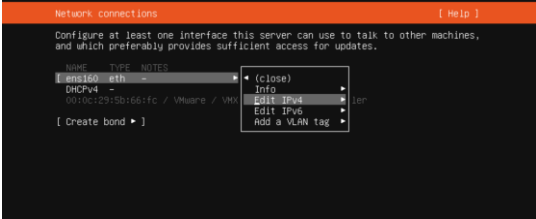
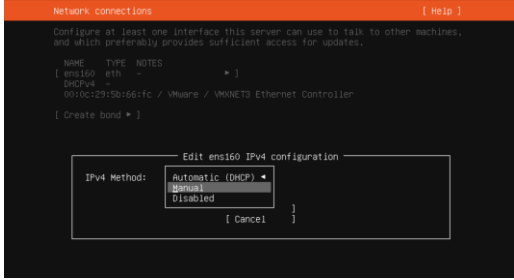


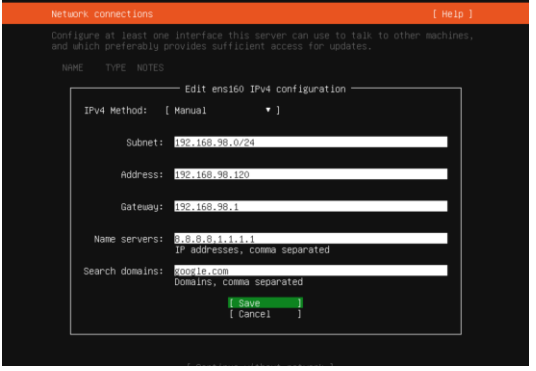
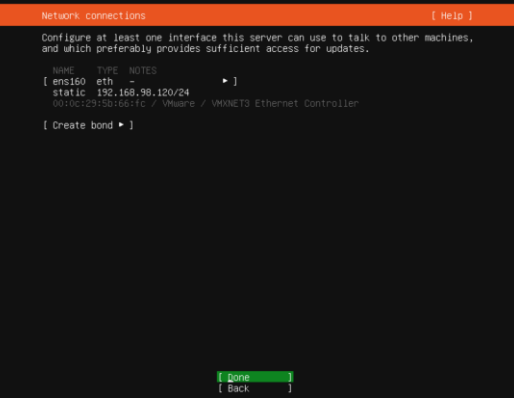
Step 4: Select Option Ubuntu Server [X], following by Done/Enter.



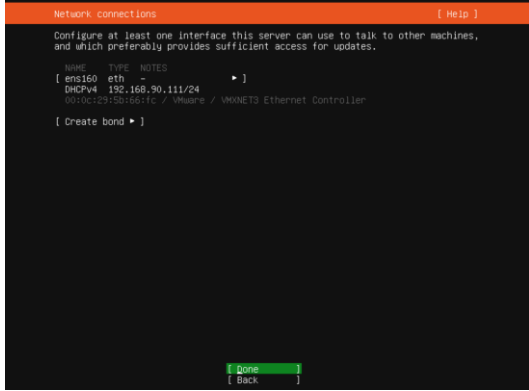
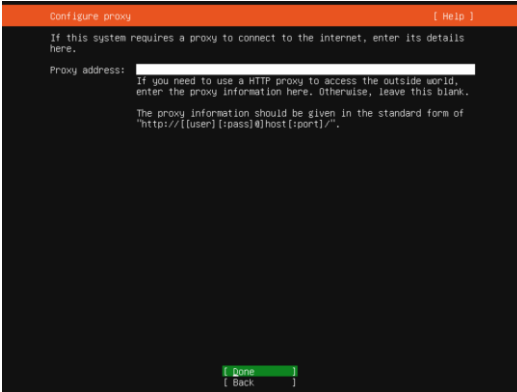
Step 5: If your network has **DHCP ENABLED**, Continue to **Step 11**

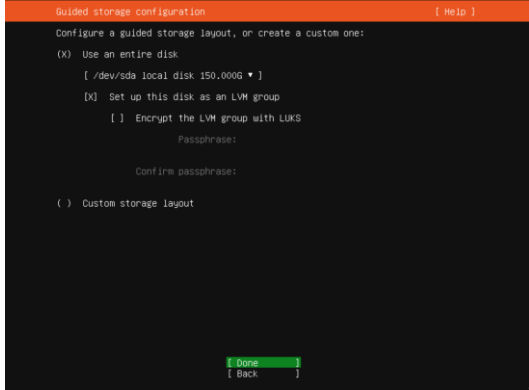
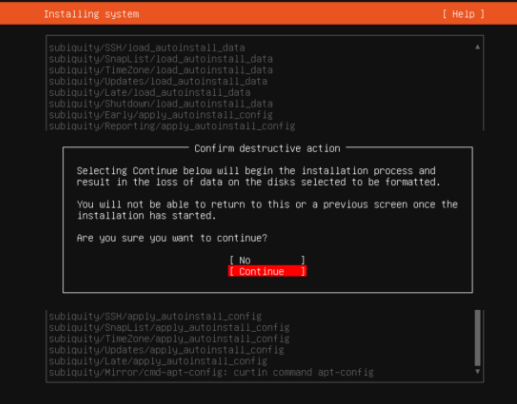
Step 6: If your network has not **DHCP**. Static IP setup. If you have not enabled DHCP in the network, you must assign an IP address manually. Use arrow UP key to select your interface for IP

	<p>address.assignment.</p> 
<p>Step 7: Confirm interface selection with Enter, select “Edit IPv4” and confirm with Enter again.</p> 	<p>Step 8: Hit Enter on IPv4 Method and select “Manual”, confirm with Enter.</p> 

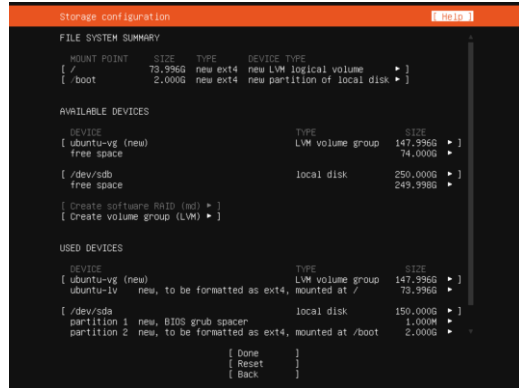
<p>Step 9: Enter your “Subnet”, “IP Address”, “Gateway IP”, “Domain server IPs” and “Search domain”. Select “Save” and confirm with Enter. NOTE, it is very important that your DNS (Name servers) will resolve Internet names.</p> 	<p>Step 10: Select “Done” and confirm with Enter</p> 
---	--

<p>Step 11: If your DHCP IP settings are correct, select Done and confirm with Enter.</p>	<p>Step 12: If you have proxy in use for your internet, assign your network proxy settings.</p>
--	--

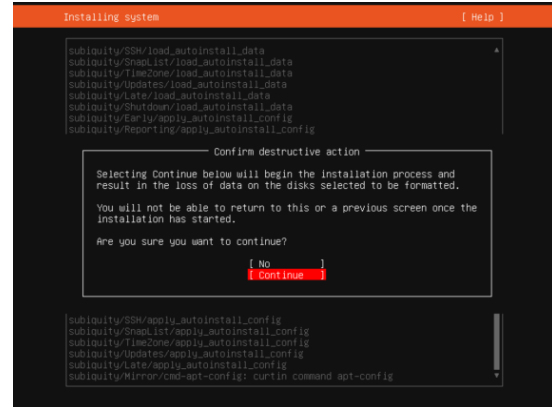
	<p>If no proxy in use, with Tab key select Continue and confirm with Enter.</p> 
---	--

<p>Step 13: Select [X] “Use an entire disk” and [X] Set up this disk as and LVM group confirm with Enter. For advnced (multi hdd as single LVM) setup it can be Custom storage option selected. For Custom storage selection, please refer to the Ubuntu official documentation</p> 	<p>Step 14: Select “Continue” and confirm with Enter.</p> 
---	---

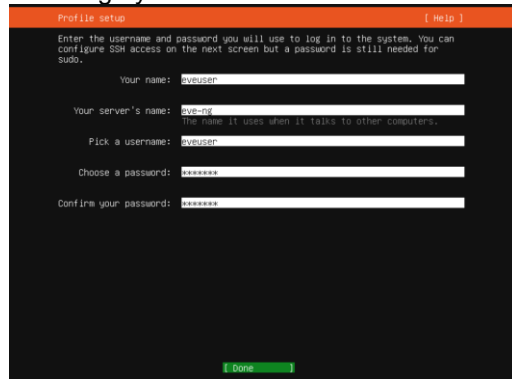
Step 15: Confirm your HDD configuration Done/Enter



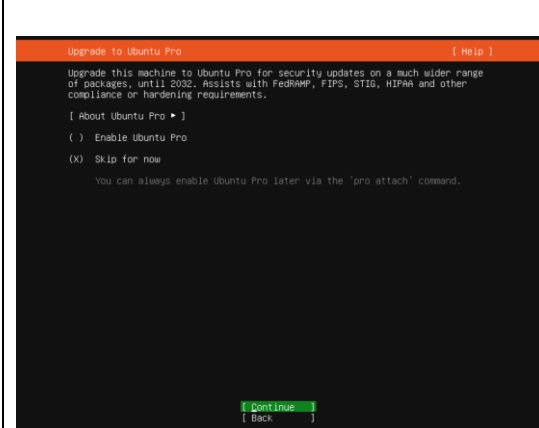
Step 16: Select "Continue" and confirm with Enter.



Step 17: Fill the *non-root user* profile following by Done/Enter

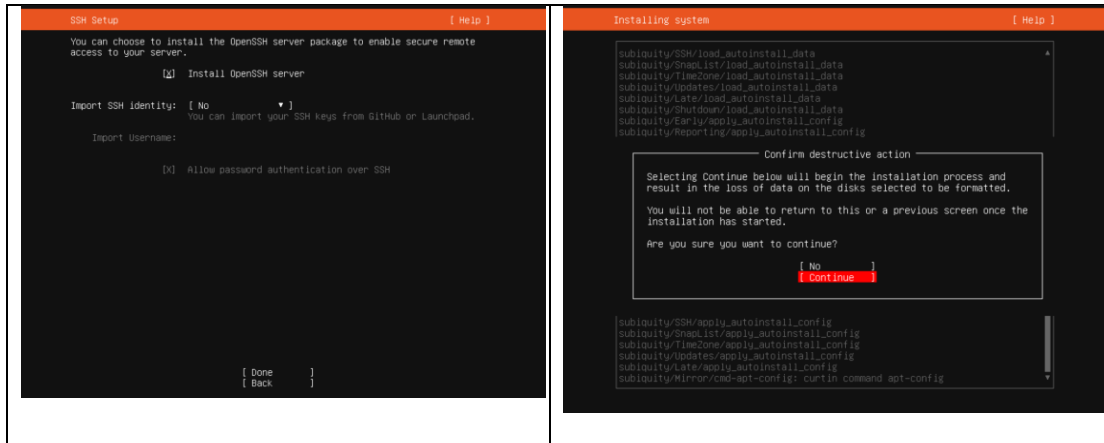


Step 18: Skip Ubuntu Pro installation Continue confirm with Enter.



Step 19: Select [X] "Install OpenSSH Server" and confirm Done/Enter.

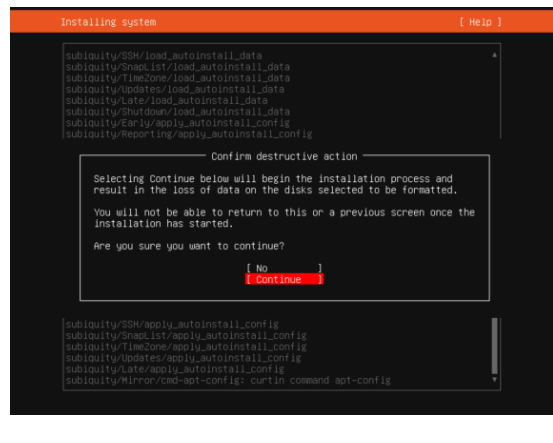
Step 20: Select "Continue" and confirm with Enter.



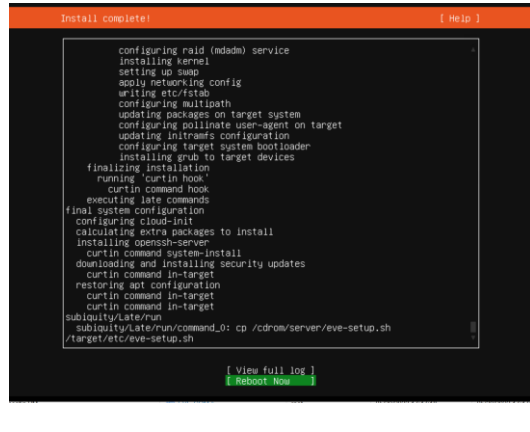
Step 21: DO NOT Select any other services confirm Done/Enter.



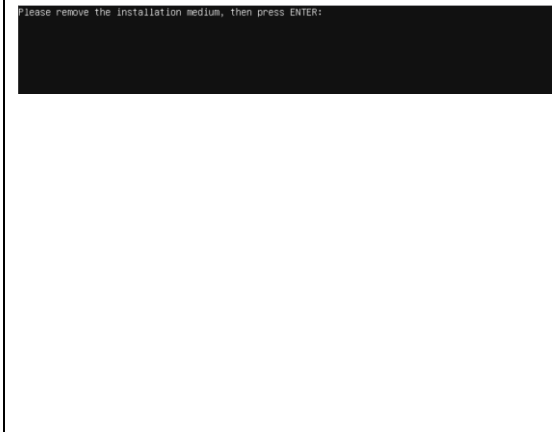
Step 22: Select "Continue" and confirm with Enter.



Step 23: After the Ubuntu "Install Complete" select "Reboot Now" and hit Enter to continue.



Step 24: Remove CD/DVD ISO Media following by Enter.



Step 25: Login into your Ubuntu server with previously created non-root user: eveuser/test123

Step 26: IMPORTANT: Set root user password, Example:

```
sudo su
test123
passwd root
eve
eve
```

Step 26: Allow permissions for root administrator user SSH to your server.

```
nano /etc/ssh/sshd_config
Edit to: PermitRootLogin yes
ctrl+o Enter for save
ctrl+x for exit
restart ssh service
service sshd restart
```

Step 27: IMPORTANT: Set root user password, Example:

```
sudo su
test123
passwd root
eve
eve
```

EVE Installation Phase 2 (EVE installation)

Step 28: SSH to your EVE IP using Putty or other SSH client. Log in as root user execute:

```
apt update
```


<code>apt upgrade</code>	
<p>Step 29: Run EVE CE online installation script. (it is single line command below)</p> <pre style="background-color: #f0f0f0; padding: 5px; border: 1px solid #ccc;">wget -O - https://www.eve-ng.net/jammy/install-eve.sh bash -i</pre> <p>At the end of eve server installation, reboot eve</p>	

EVE Installation Phase 3 (Management IP setup and updates)

<p>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.</p> <p>Follow steps in section : 3.5.1 for static IP, 3.5.2 for DHCP IP</p>	<p>Step 31: After your EVE is rebooted, Login to EVE CLI and type:</p> <pre style="background-color: #f0f0f0; padding: 5px; border: 1px solid #ccc;">apt update apt upgrade</pre>
---	---

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

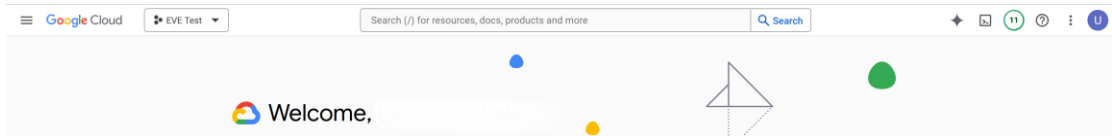
```
root@eve-ng:~# dpkg -l eve-ng
Desired=Unknown/Install/Remove/Purge/Hold
| Status=Not/Inst/Conf-files/Unpacked/halF-conf/Half-inst/trig-aWait/Trig-pend
|/ Err?=(none)/Reinst-required (Status,Err: uppercase=bad)
|/ Name                                     Version                               Architecture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

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

3.4 Google Cloud Platform

3.4.1 Google account

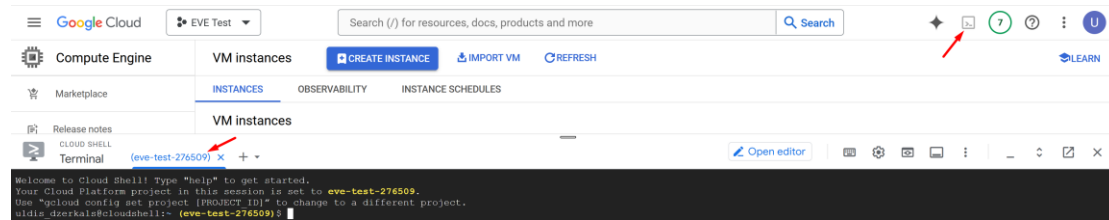
Step 1: Connect to Google Cloud Platform (GCP)
<https://console.cloud.google.com/getting-started>



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

3.4.2 Preparing Ubuntu boot disk template

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



Step 2: Create a nested Ubuntu 22.04 image. Copy and paste the below command into the shell. Use copy/paste. ctrl +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
```

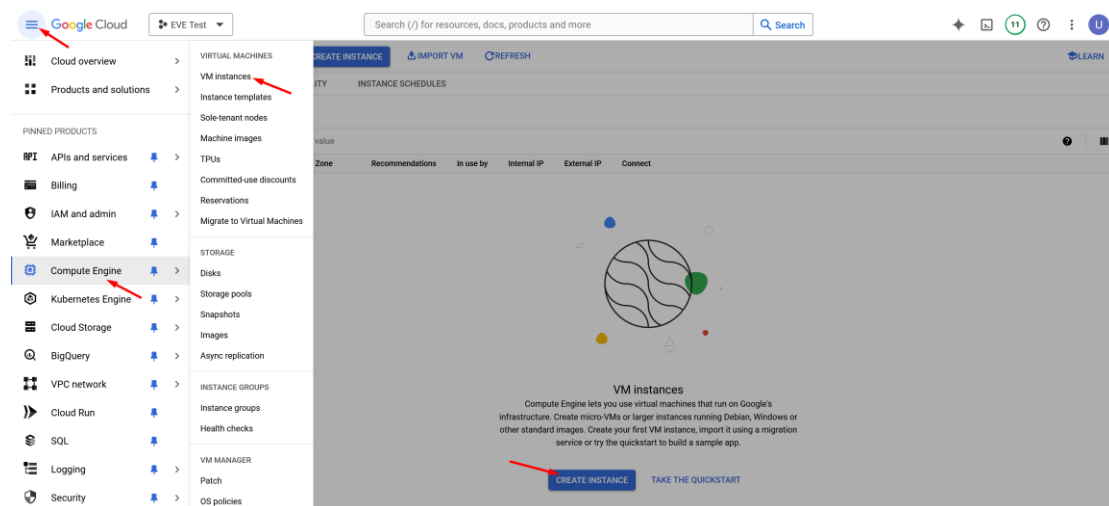


You will get the following output when your image is ready:



3.4.3 Creating VM

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



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 Cascade and Ice Lake**.

Name *
eve-v6-ce

MANAGE TAGS AND LABELS

Region *
europe-west2 (London)
Region is permanent

Zone *
europe-west2-c
Zone is permanent

Machine configuration

General purpose
 Compute-optimised
 Memory-optimised
 Storage optimised **NEW**
 GPUs

Machine types for common workloads, optimised for cost and flexibility

Series ?	Description	vCPUs ?	Memory ?	Platform
<input type="radio"/> N4	Flexible and cost-optimised	2 - 80	4 - 640 GB	Intel Emerald Rapids
<input type="radio"/> C3	Consistently high performance	4 - 176	8 - 1,408 GB	Intel Sapphire Rapids
<input type="radio"/> C3D	Consistently high performance	4 - 360	8 - 2,880 GB	AMD Genoa
<input type="radio"/> E2	Low-cost day-to-day computing	0.25 - 32	1 - 128 GB	Based on availability
<input checked="" type="radio"/> N2	Balanced price and performance	2 - 128	2 - 864 GB	Intel Cascade and Ice Lake

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](#)

PRESET
 CUSTOM

n2-standard-8 (8 vCPU, 4 core, 32 GB memory)

	vCPU 8 (4 cores)	Memory 32 GB
---	----------------------------	------------------------

ADVANCED CONFIGURATIONS

Step 6: Select Boot disk. Press Change


Boot disk ?

Name eve-pro-v6

Type 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 snapshot to create a boot disk, or attach an existing disk. Can't find what you're looking for? Explore hundreds of VM solutions in [Marketplace](#)

PUBLIC IMAGES **CUSTOM IMAGES** SNAPSHOTS ARCHIVE SNAPSHOTS EXISTING DISKS

Source project for images *
eve-test-276509 ? CHANGE

Show deprecated images

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) *
100
Provision between 10 and 65536 GB

[SHOW ADVANCED CONFIGURATION](#)

SELECT CANCEL

Step 8: Allow **http** traffic.

Identity and API access ?

Service accounts ?

Service account
Compute Engine default service account

Requires the Service Account User role (roles/iam.serviceAccountUser) to be set for users who want to access VMs with this service account. [Learn more](#)

Access scopes ?

- Allow default access
- Allow full access to all Cloud APIs
- Set access for each API

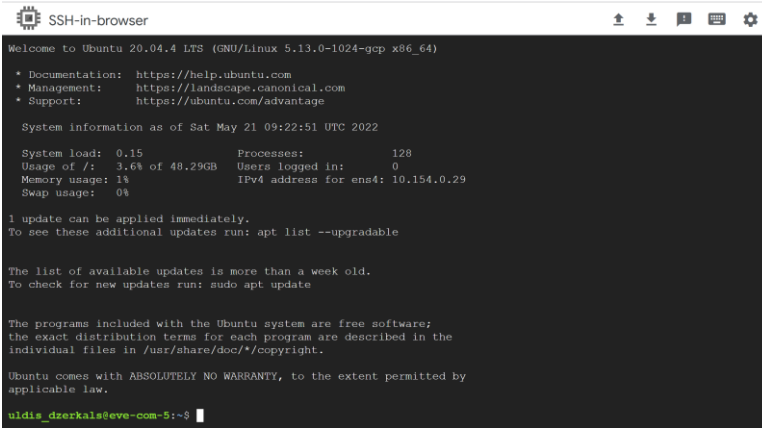
Firewall ?

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

- Allow HTTP traffic
- Allow HTTPS traffic
- Allow load balancer health checks

3.4.4 EVE-NG CE 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-CE installation

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

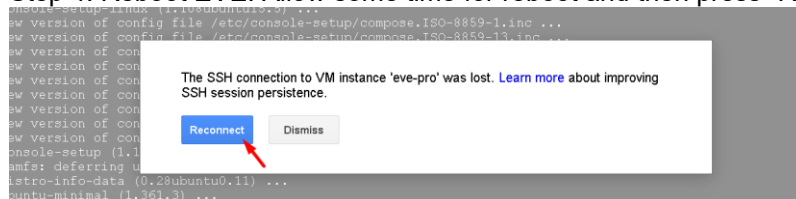
Step 3: Update and upgrade your new EVE-CE

```
apt update
```

```
apt upgrade
```

Confirm with Y

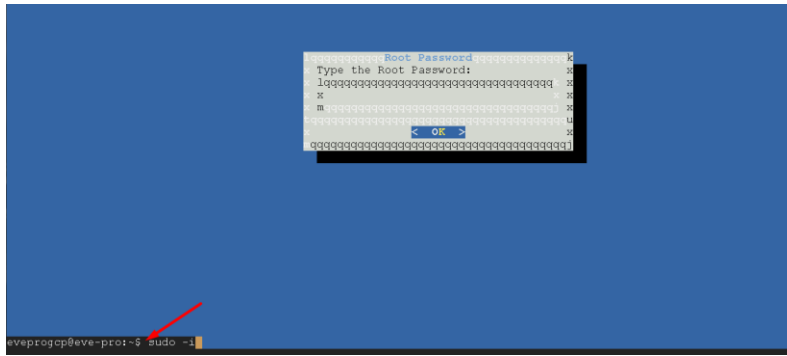
Step 4. Reboot EVE. Allow some time for reboot and then press “Reconnect”



Step 5: **IMPORTANT:** Setup IP

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

```
sudo -i
```



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

Step 6: Reboot

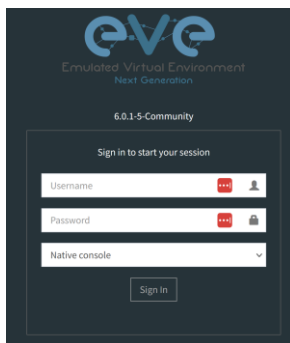
3.4.5 Access to Google Cloud EVE-CE

Use your public IP for accessing EVE via https.

VM instances

Filter Enter property name or value

<input type="checkbox"/> Status	Name ↑	Zone	Recommendations	In use by	Internal IP	External IP	Connect
<input checked="" type="checkbox"/>	eve-v6-ce	europe-west2-c			10.154.0.47 (nic0)	35.242.190.152 (nic0)	SSH



Default web login: **admin/eve**

3.4.6 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:

<input type="checkbox"/>	Name	Type	Targets	Filters	Protocols/ports	Action	Priority	Network ↑	Logs
<input type="checkbox"/>	eve-all-out	Egress	Apply to all	IP	tcp:0-65535	Allow	1000	default	Off
<input type="checkbox"/>	eve-all-in	Ingress	Apply to all	IP	tcp:0-65535	Allow	1000	default	Off

3.5 EVE Management IP Address setup

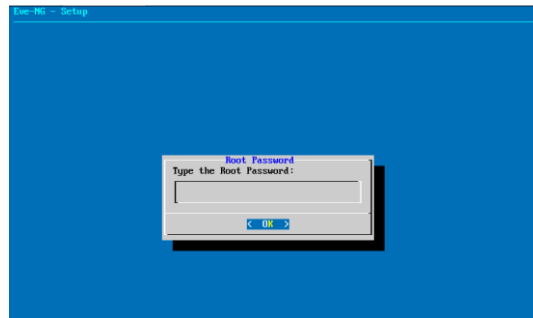
3.5.1 Static Management IP address setup (preferred)

⚠ IMPORTANT NOTE: Internet and DNS must be reachable from your Server. The EVE-NG CE requires internet access to get further software updates.

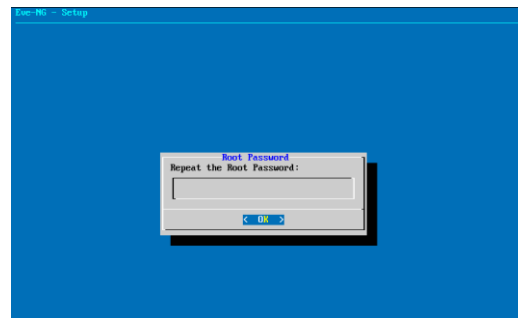
The steps below will walk you through the network setup and assign a static management IP for EVE.

Step 1: Log into the EVE CLI using the default login **root/eve**. After login, type your preferred root password for EVE, default is **eve**. **Remember it for further use.** Confirm with enter

NOTE: Typed characters in the password field are not visible.

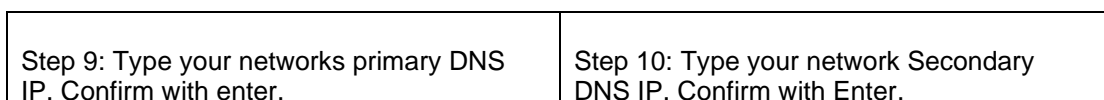
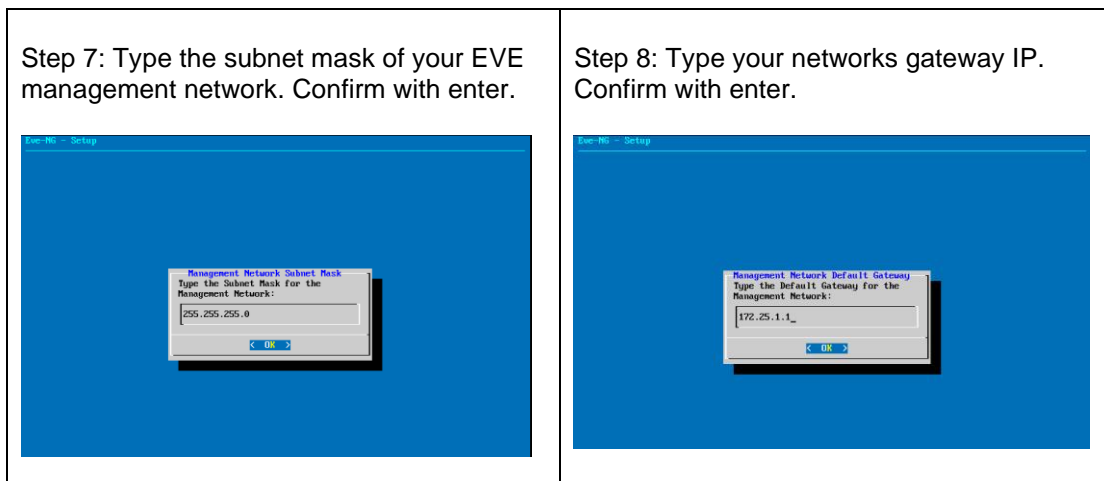
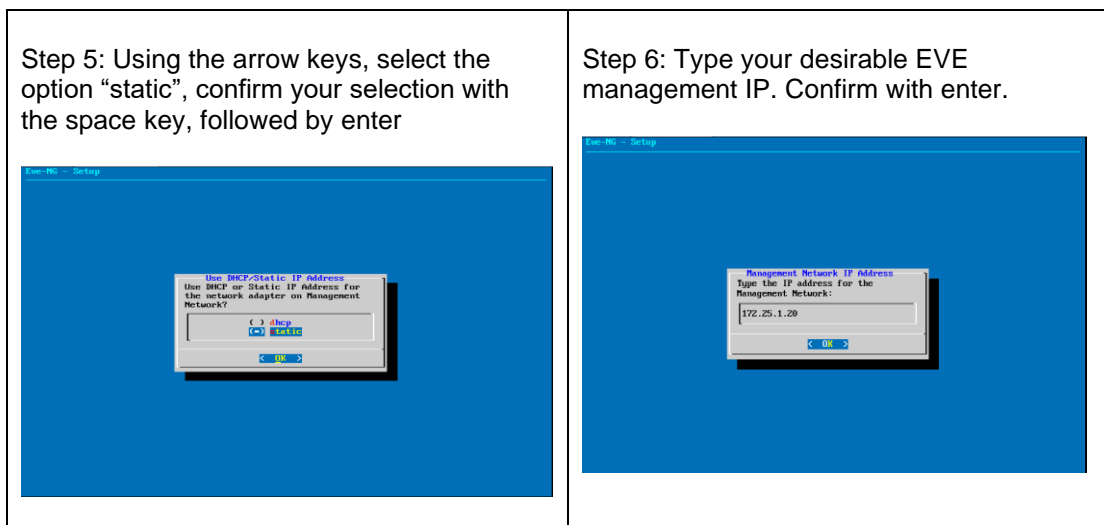
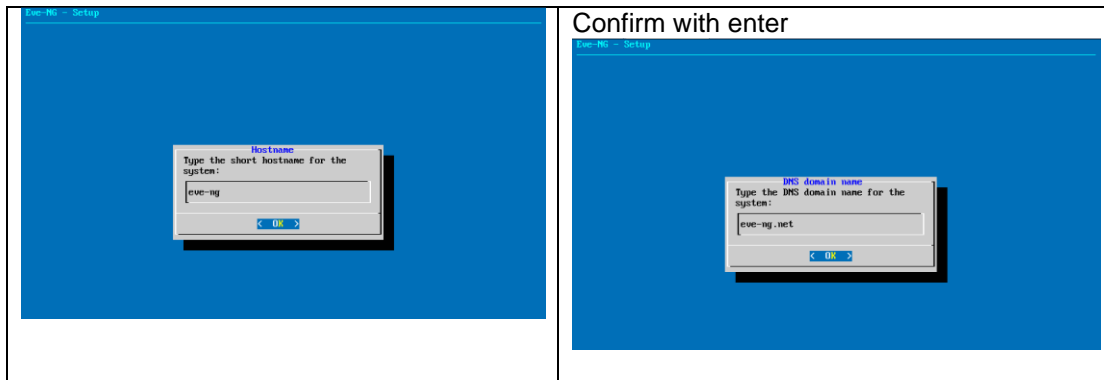


Step 2: Retype your root password again and confirm with enter.

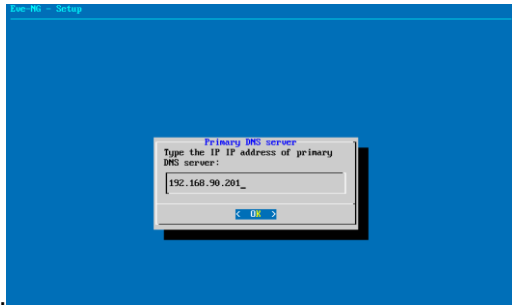


Step 3: Choose your EVE VMs hostname. By default, it is **eve-ng**. You can leave it as is. Confirm with enter

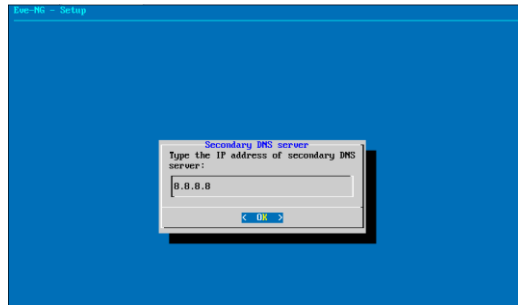
Step 4: Type your domain name for your EVE VM. By default, it is **example.com**. The default value can be used as well.



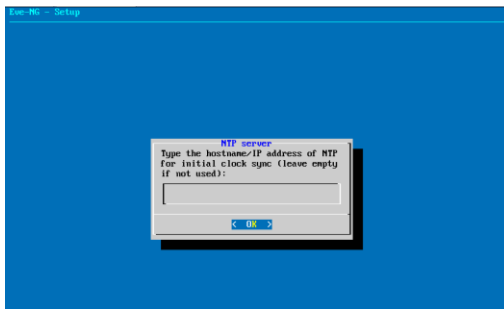
IMPORTANT: DNS must be reachable and resolve public addresses.



IMPORTANT: DNS must be reachable and resolve public addresses.

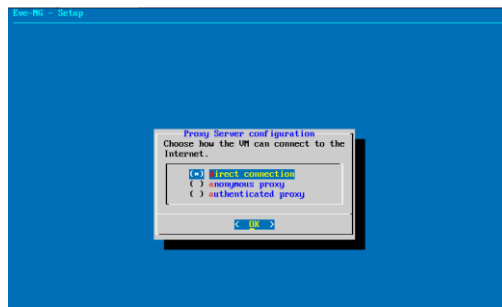


Step 11: Type your preferred NTP server IP. It can be left empty as well; in this case, your EVE VM will automatically assign the time from its host.



Step 12: **Skip this step.** By default, it is set to direct connection (no proxy).

Confirm selection with enter. EVE will reboot automatically.



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

3.5.2 DHCP Management IP address setup

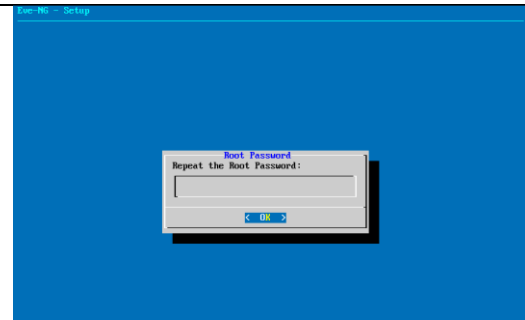
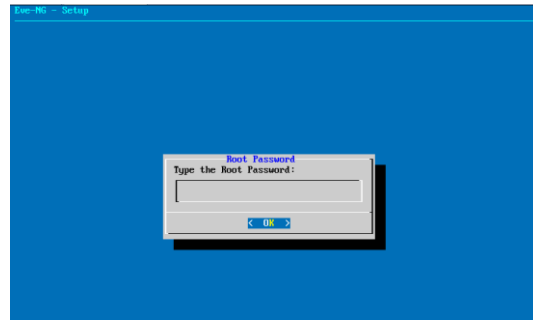
⚠ IMPORTANT NOTE: Internet and DNS must be reachable from your Server. The EVE-NG CE requires internet access to get further software updates.

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

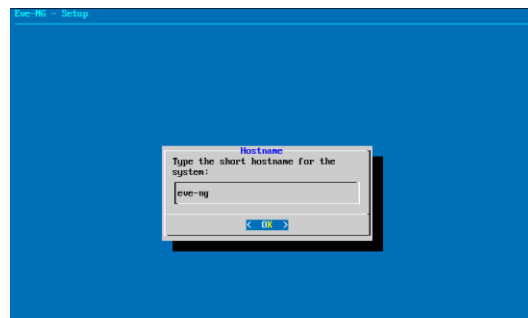
Step 1: Log into the EVE CLI using the default login **root/eve**. After login, type your preferred root password for EVE, default is **eve**. **Remember it for further use.** Confirm with enter

Step 2: Retype your root password again and confirm with enter.

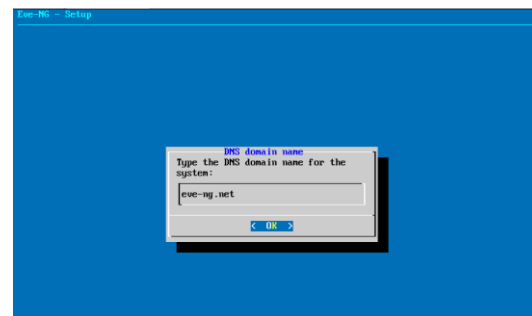
NOTE: Typed characters in the password field are not visible.



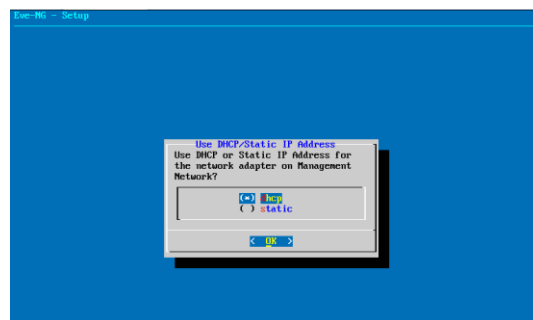
Step 3: Choose your EVE VMs hostname. By default, it is **eve-ng**. You can leave it as is. Confirm with enter



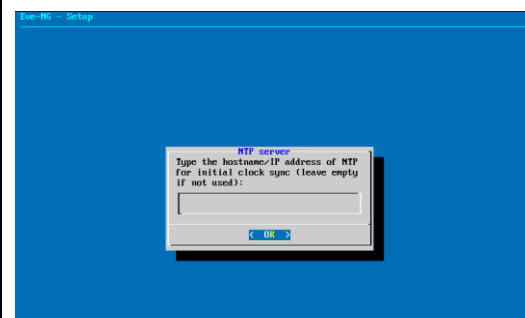
Step 4: Type your domain name for your EVE VM. By default, it is example.com. The default value can be used as well. Confirm with enter



Step 5: Using the arrow keys, select the option "dhcp", confirm your selection with the space key, followed by enter

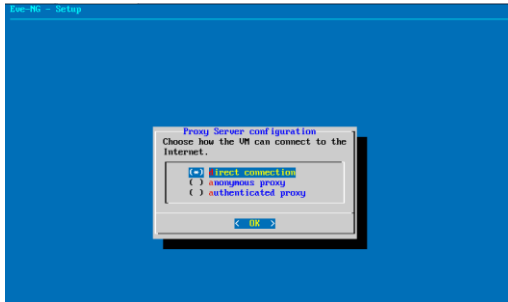


Step 6: Type your preferred NTP server IP. It can be left empty as well; in this case, your EVE VM will automatically assign the time from its host.



Step 7: **Skip this step.** By default, it is set to direct connection (no proxy).

Confirm selection with enter. EVE will reboot automatically.



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

3.5.3 Reset EVE Management IP settings

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

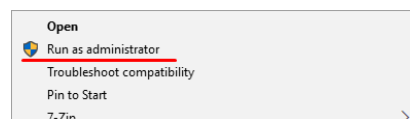
If you prefer to use a natively installed telnet client to manage nodes inside EVE, follow the steps below:

3.6.1 Windows Native Console

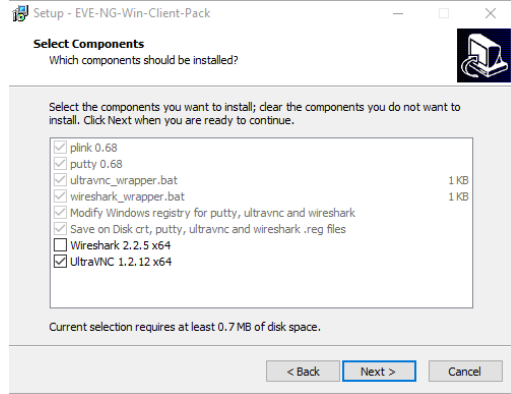
Step 1: Download the EVE Windows Client integration pack:

<http://www.eve-ng.net/downloads/windows-client-side-pack>

Step 2: Install it as administrator

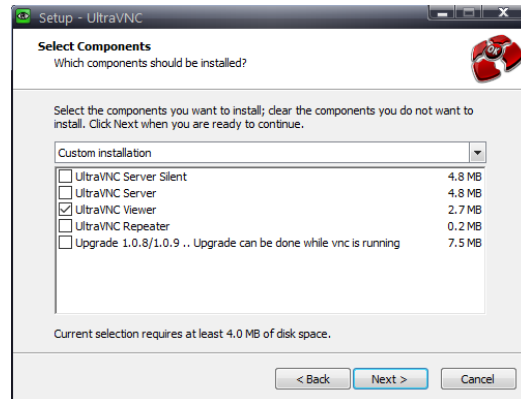


Step 3: Leave the option for UltraVNC checked. UltraVNC is very tiny and the preferred VNC client for Windows by EVE.



NOTE: The Wireshark option for EVE Professional is left unchecked, because Wireshark is already integrated into EVE PRO.

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

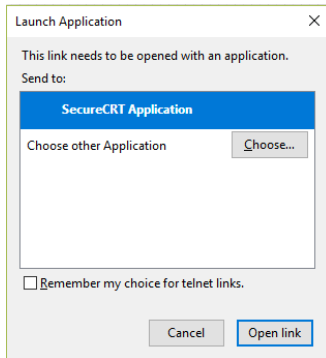
Step 1: Go to: Windows Settings/Apps/Default Apps/Choose Default Apps by Protocol

Step 2: Set your default Telnet program:



! 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:



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):

<p>Step 1: Go to the EVE Linux Side integration pack download page:</p> <p>http://www.eve-ng.net/downloads/linux-client-side</p>	<p>Step 2: Open the link to GitHub</p> <p>https://github.com/SmartFinn/eve-ng-integration</p>
<p>Step 3: Scroll down to the installation part</p> <p>Installation</p> <p>Ubuntu and derivatives</p> <p>You can install eve-ng-integration from the official PPA:</p> <pre>sudo add-apt-repository ppa:smartfinn/eve-ng-integration sudo apt-get update sudo apt-get install eve-ng-integration</pre>	
<p>Step 4: Login as root to your Linux system and enter the commands below:</p> <p>NOTE: An internet connection is required. Enter each command line below one after the other</p> <pre>sudo add-apt-repository ppa:smartfinn/eve-ng-integration sudo apt-get update sudo apt-get install eve-ng-integration</pre>	

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

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 CE is using http 80. Login to the EVE management UI:

http://<your_eve_ip>/

Default user access:

User: admin

Password: eve

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

4 EVE-NG Community Update & Upgrade

⚠️ **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
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 ms
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.

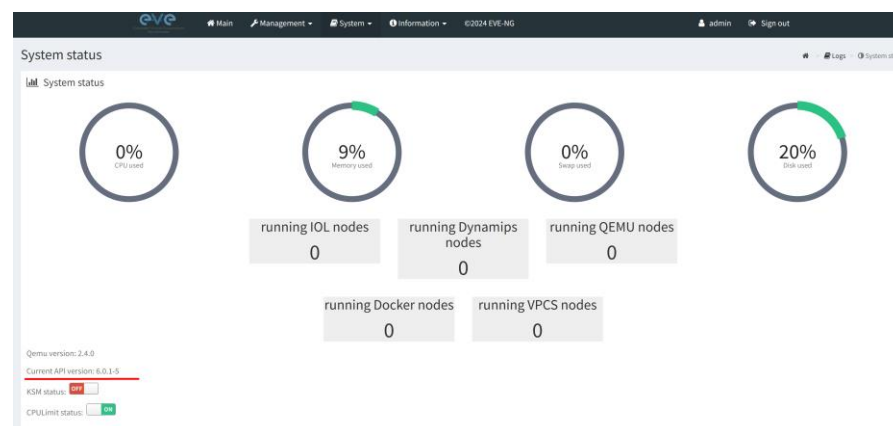
⚠️ **IMPORTANT NOTE:** before you start your EVE Community update & upgrade, please free up your EVE Community from older kernel packages:

```
apt autoremove
```

4.1 EVE-NG Community Update

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

To verify your current EVE-NG version, please follow “CLI diagnostic information display commands” in section 11.1.1. You can verify your current EVE version from the System/System Status tab on the top menu of the WEB GUI as well.



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

Type the below commands followed by Enter

```
apt update
```

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

4.2 EVE-NG Community Upgrade

Type commands followed by Enter

```
apt upgrade
```

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

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

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

Answer for prompt above is “N”

```
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

  <Ok>
```

Answer for grub-pc version is: “**Keep the local version currently installed**”

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

```
reboot
```


5 Types of EVE management consoles

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

Formula is = $32768+128*POD+1 \rightarrow 32768+128*POD+128$ POD: user id (admin = 0)
 Example: you got admin (POD 0) + 2 users (POD 1, POD 2)
 $32768+128*0+1$ (First port for POD0) $\rightarrow 32768+128*2+128$ (Last port of POD 2) = 32769 \rightarrow 33152

Port per user pod:

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

EVE Community supports two different console types.

5.1 Native console

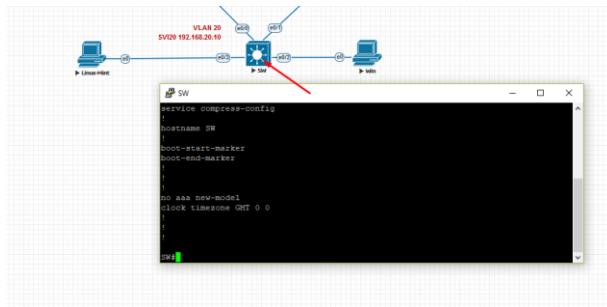


EVE Native console option requires locally installed software to access your lab nodes. To use the Native console option, you must have Administrator rights on your PC and ensure the TCP port range 32768-40000 is not blocked by a firewall or antivirus software. (See table above)

5.1.1 Native Console: telnet

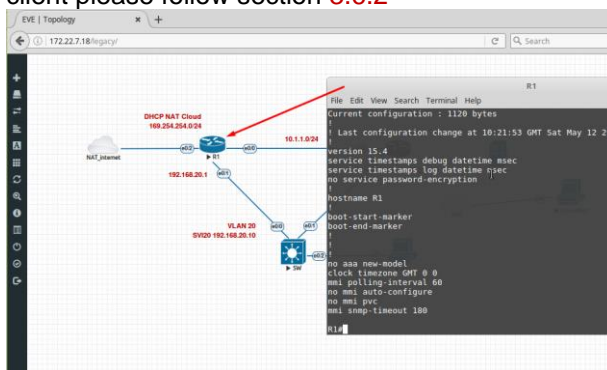
Windows OS: You can use your preferred telnet program like Putty, SecureCRT or others.
 Example: Putty as native telnet client on Windows.

To setup Windows native telnet client please follow section [3.6.1](#)



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](#)



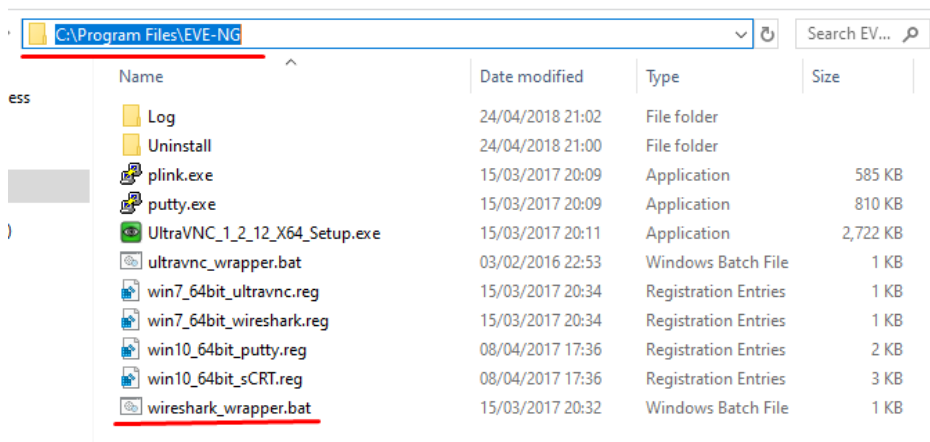
MAC OSX: You can use your preferred telnet program like the native Terminal, SecureCRT, or others.

Example: Telnet client from the native terminal on MAC OSX. To setup MAC OSX native telnet client please follow section [3.6.3](#)

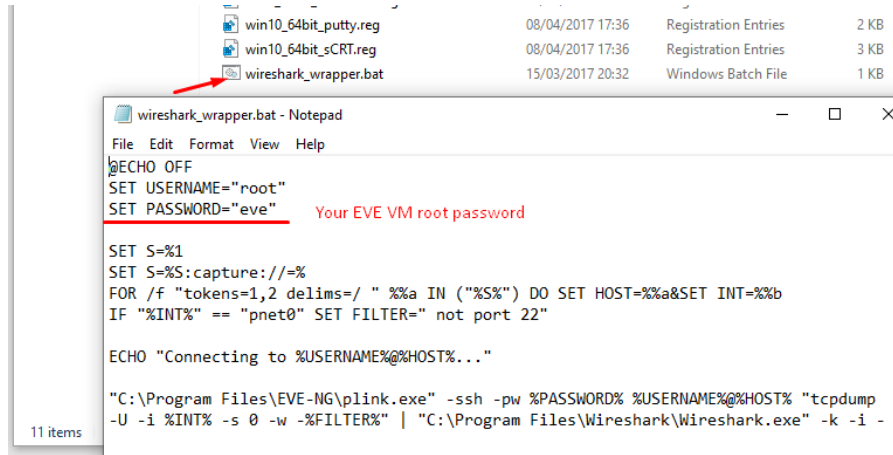
5.1.2 Native Console: Wireshark

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

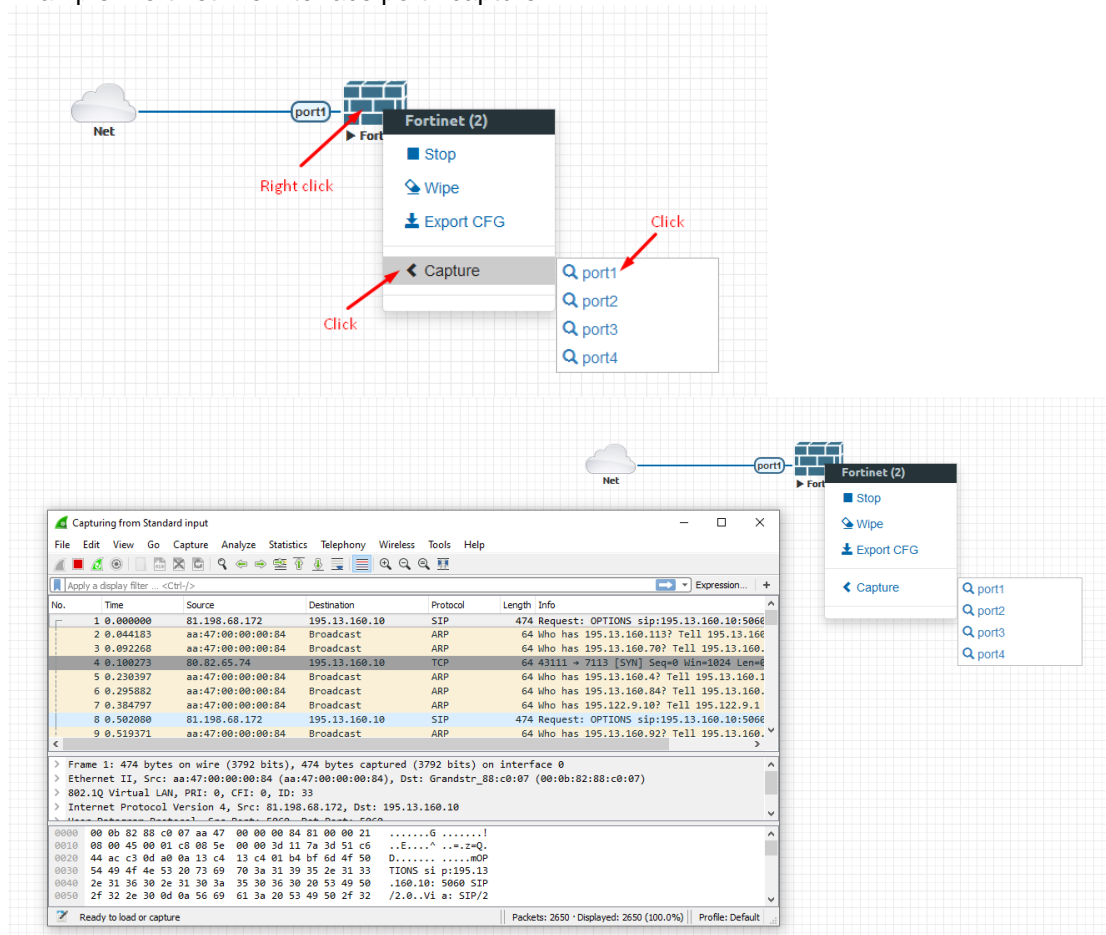
⚠ IMPORTANT NOTE: Make sure you have installed Wireshark and EVE-NG client pack. It is strongly recommended if your Wireshark software is installed at your PC default location.



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



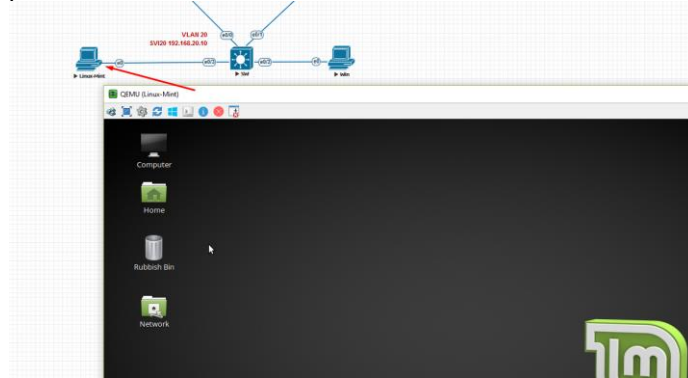
Example: Fortinet live interface port1 capture.



5.1.3 Native Console: VNC

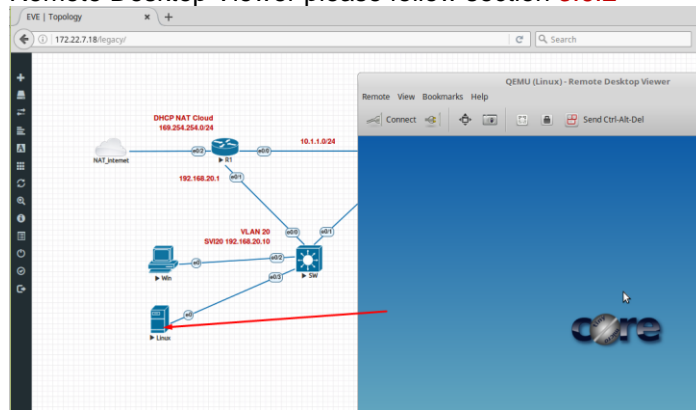
Windows OS: Recommended and tested is UltraVNC but any other compatible one can be used.

Example: UltraVNC as Native VNC client on Windows. To setup Windows native VNC client please follow section [3.6.1](#)



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](#)



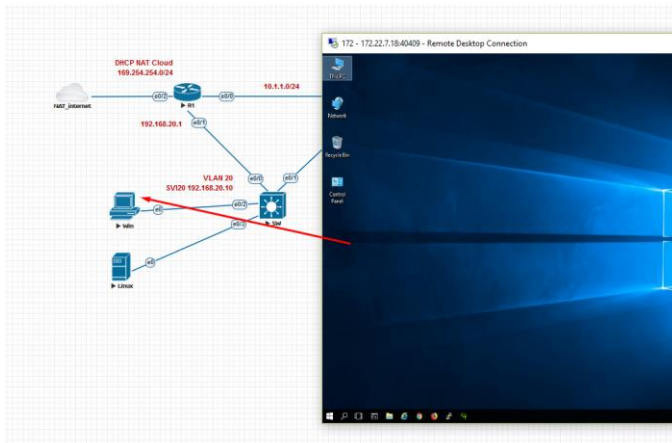
MAC OSX: Preferred VNC program: Chicken VNC

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

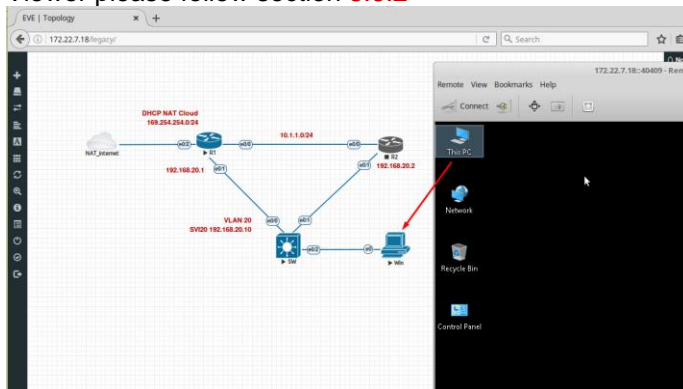
5.1.4 Native Console: RDP

Windows OS: Windows Native RDP.

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



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



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](#)

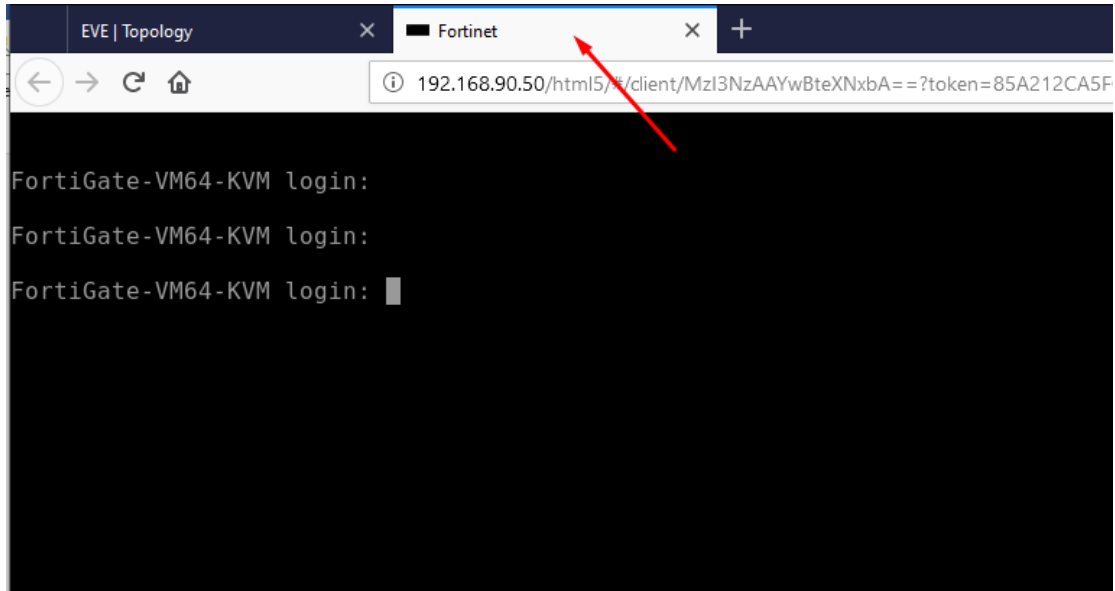
5.2 HTML5 console



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

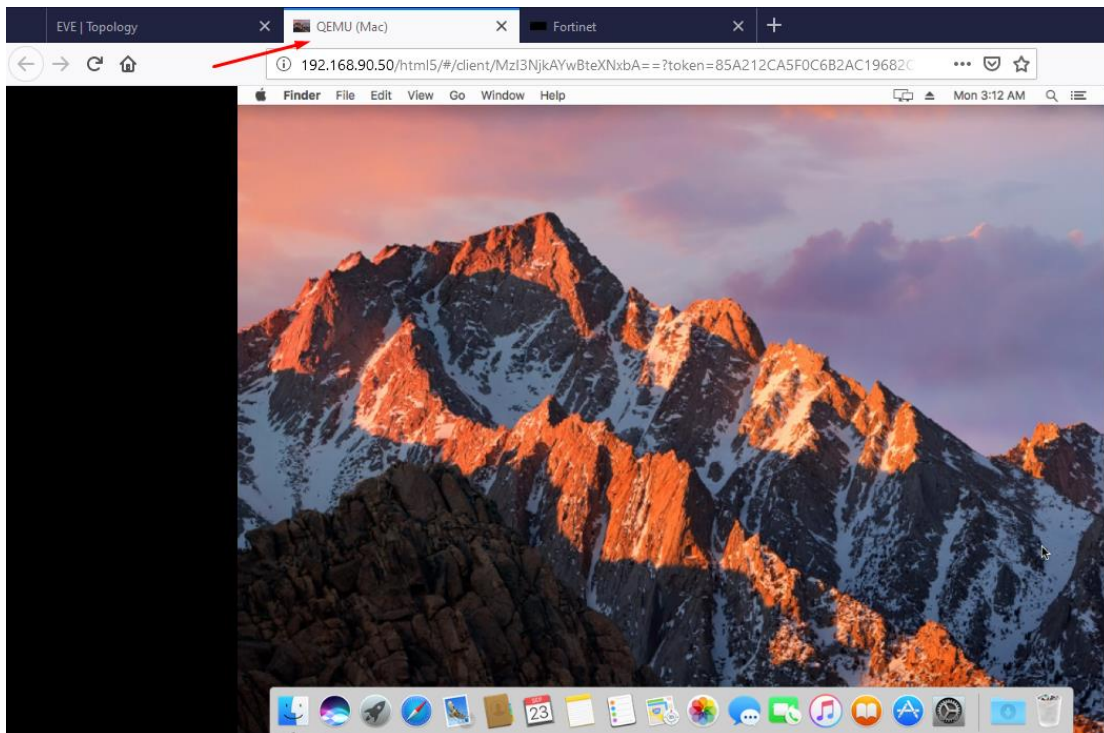
5.2.1 HTML5 Console: Telnet

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



5.2.2 HTML5 Console: VNC

HTML5 VNC opens VNC sessions in the new browser window.



5.2.3 HTML5 Console: RDP for Windows

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

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

ADD A NEW NODE

Template: Windows

Number of nodes to add: 1 Image: win-7-x86-IPCC

Name/prefix: Win

Icon: Desktop.png

UUID:

CPU Limit:

CPU: 1 RAM (MB): 4096 Ethernets: 1

QEMU Version: tpi(2.0.2) QEMU Arch: tpi(x86_64) QEMU Nic: tpi(e1000)

QEMU custom options: -machine type=pc-1.0,accel=kvm -cpu qemu64,+fsusbbase -vga std -usbdevice tabi

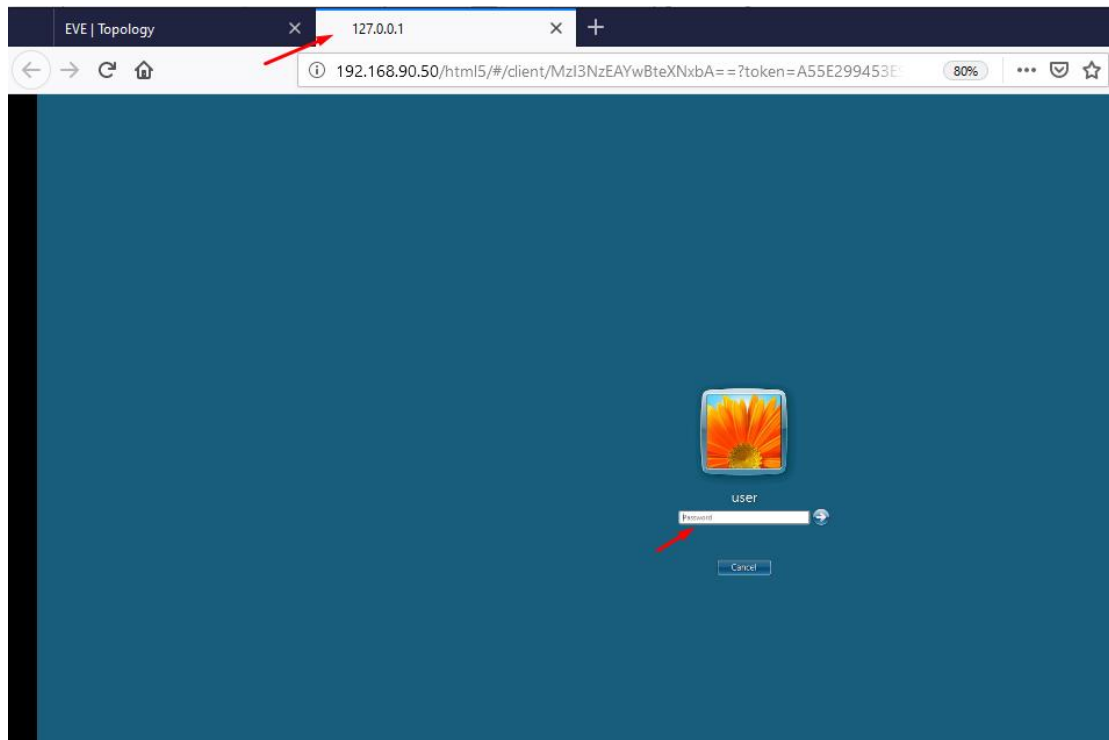
Startup configuration: None

Delay (s): 0

Console: rdp

Left: 811 Top: 183

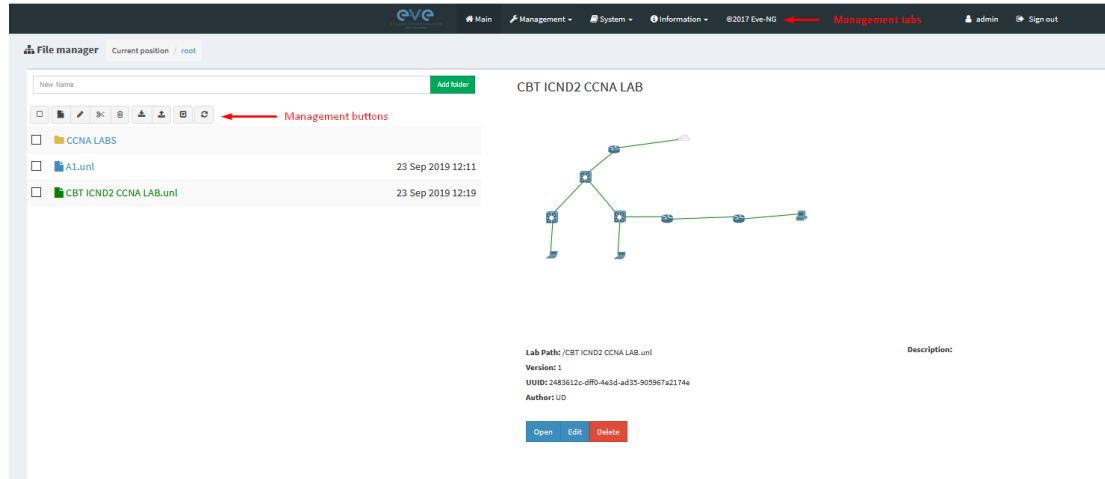
Save Cancel



6 EVE WEB GUI Management






6.1 EVE Management Page





The Main EVE management window



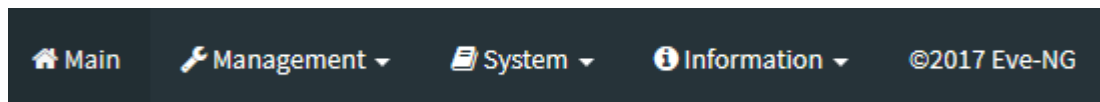
6.1.1 Management buttons

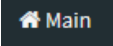
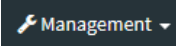
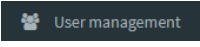
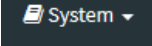
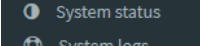
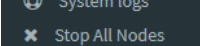

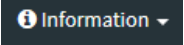


Button	Description
	Select All or Deselect All folders or labs in the EVE tree
	Create/Add new Lab
	Change selected item name. To use this option, please select the folder or lab that you want to rename. You must not rename the Shared folder, the Users folder or any folder inside the Users folder.
	Move selected item(s) to a different location. To use this option, please select the folder(s) or lab(s) that you want to move.
	Delete selected folders or labs. You must not delete the Shared folder, the Users folder or any folder inside the Users folder.

	Import an EVE lab or lab folder from a previous export. Import file must be in .zip format
	Export EVE lab or folder. Select folder(s) and/or labs you wish to export and select this option. The export is saved to your local PC in .zip format and is ready to import to another EVE.
	Toggle the sorting folders and labs between alphabetical and last edit date (ascending/descending cannot be changed currently).
	Refresh current folder content

6.1.2 Management tabs



Tab	Description
	Returns back to the EVE Home Management screen.
 	Management dropdown, opening the management submenu. Management submenu, refer to sections: 6.3
   	System dropdown. System submenu, refer to section 6.4
	Information dropdown

<ul style="list-style-type: none"> About Forum YouTube Channel Help on EVE-NG LiveChat 	<p>Information submenu, for details see section 6.5</p>
--	---

6.2 Folders and Lab files management

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

6.2.1 Folders Management

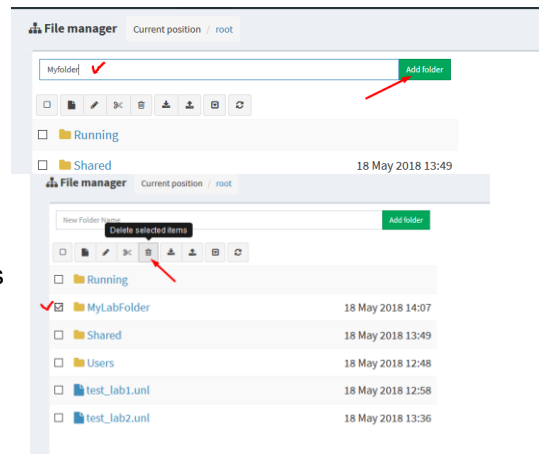
6.2.1.1 Create folder

Type the new folder name and click “Add Folder”

6.2.1.2 Delete folder

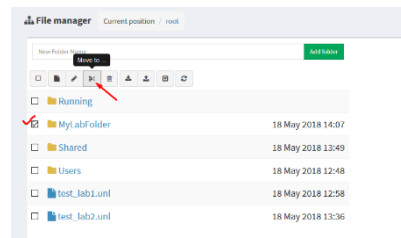
Select the folder you wish to delete and press Delete.

⚠ NOTE: All folder content will be deleted as well.

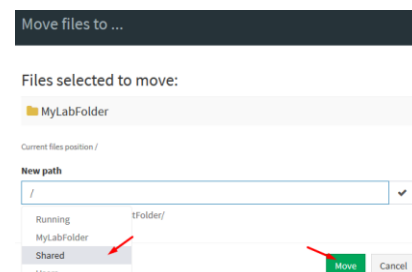


6.2.1.3 Move Folder

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

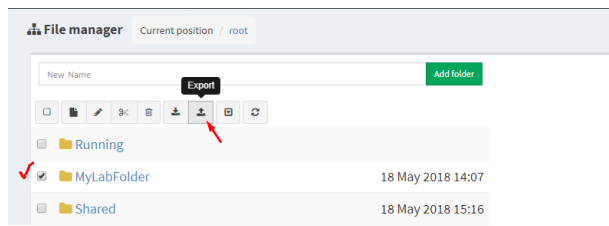


Type and select the target destination for your folder and confirm by clicking on Move.

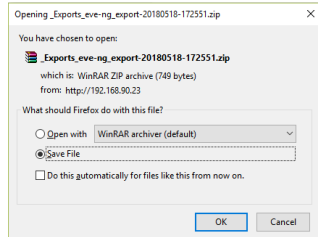


6.2.1.4 Export Folder

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.

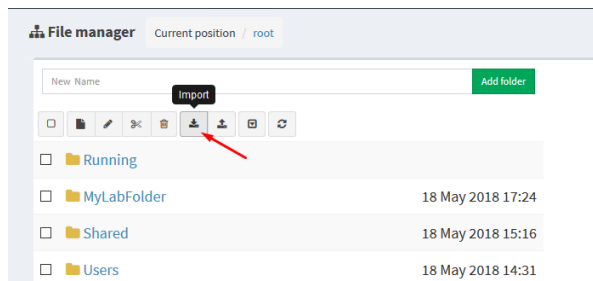


If your browser is set to save downloaded files to a default directory, your exported file will be saved in the browsers default downloads directory.

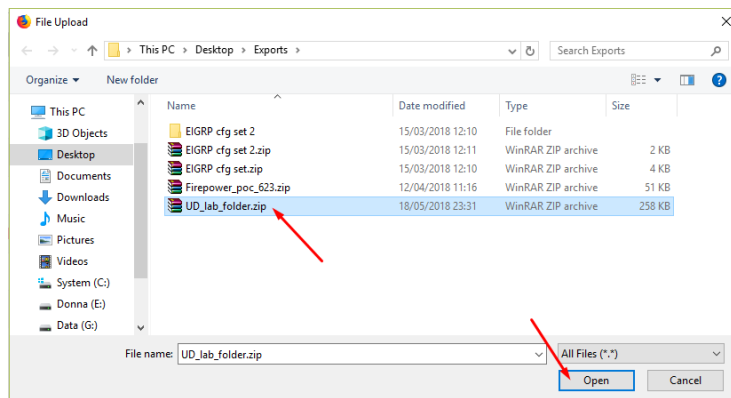
6.2.1.5 Import Folder

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

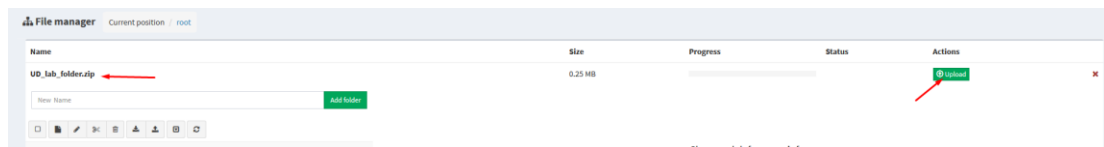
Step 1: Press the Import button.



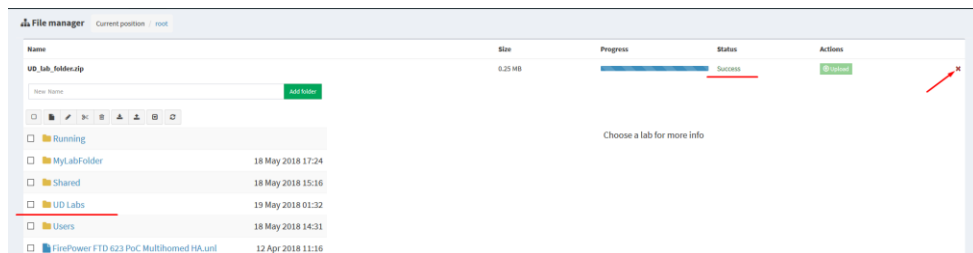
Step 2: Choose the zipped file that contains EVE folders with labs.



Step 3: Press the Upload Button

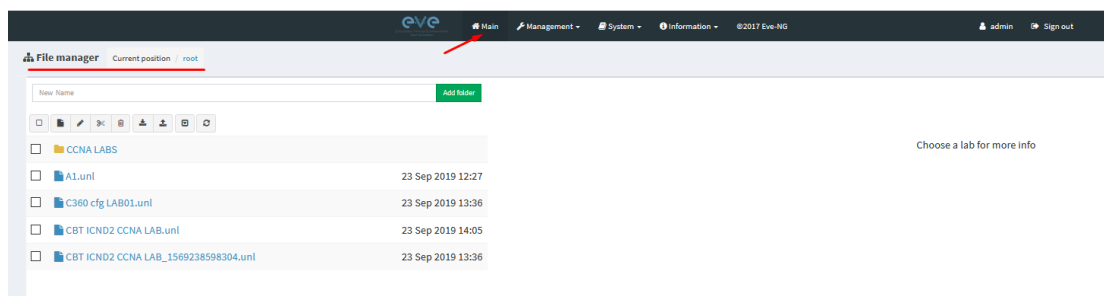


Step 4: After you made sure your folder is imported and has all its content (labs), you can close the upload session.



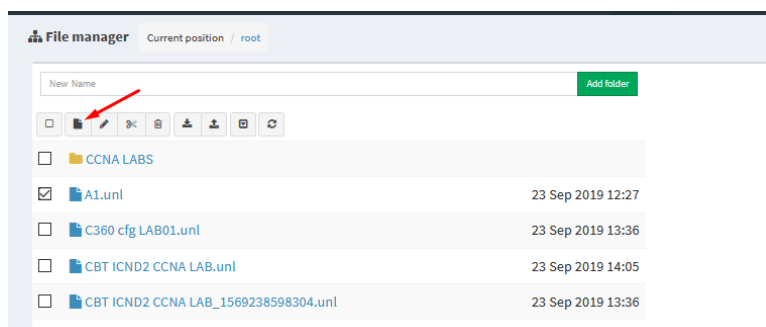
6.2.2 Lab files Management

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



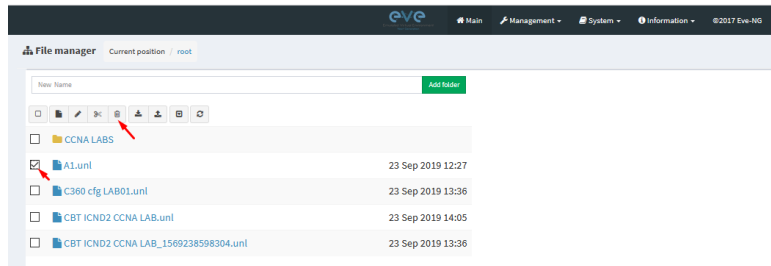
6.2.2.1 Create Lab

Click on the New Lab button and refer to section [8.1](#)



6.2.2.2 Delete Lab

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

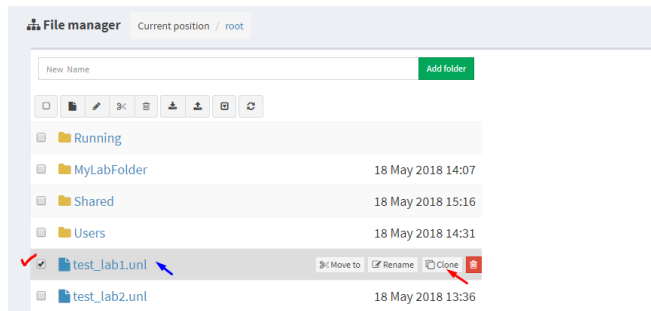


6.2.2.3 Clone Lab

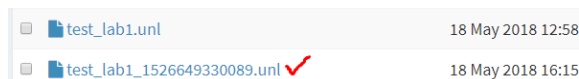
The cloning feature provides a very convenient way to duplicate original labs to share with others or base another lab on it.

Cloned labs will copy exported configs (on supported nodes) but will not copy saved states/configurations in Qemu nodes like Windows hosts, Cisco ISE, or other Qemu nodes that are not supported by the export config feature. Please refer to section 10.3 for more information on configuration export for labs.

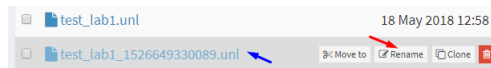
Step 1: Select the lab you wish to clone and move the mouse pointer (blue) to that lab, an extra option will appear. Click on Clone.



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



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



Step 4: Rename it, and click OK to confirm

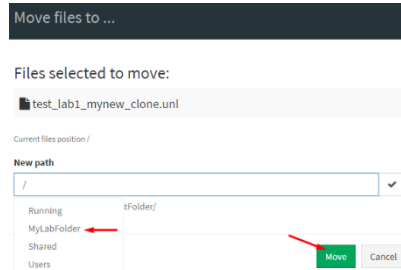


6.2.2.4 Move Lab

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

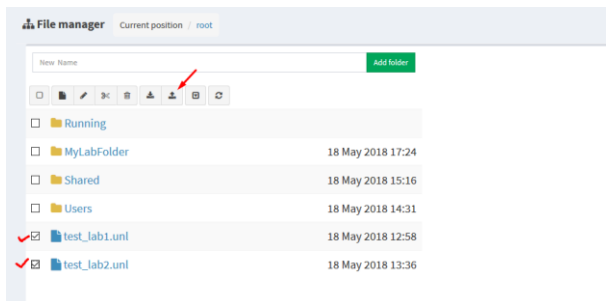


Step 2: Type the path to the new destination and confirm by clicking Move

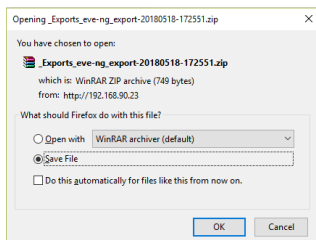


6.2.2.5 Export Lab

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



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

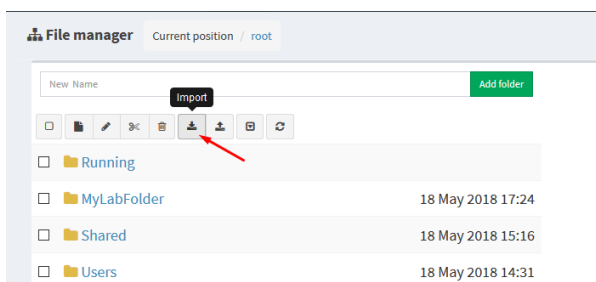


If your browser is set to save downloaded files to default directory, your exported file will be saved in the browsers default downloads directory.

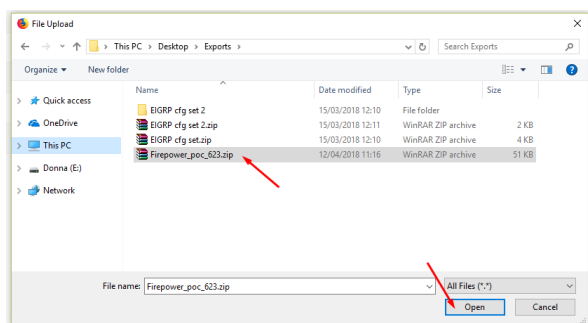
6.2.2.6 Import Labs

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

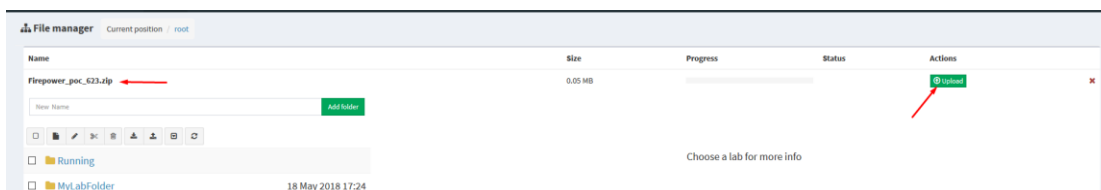
Step 1: Press the Import button.



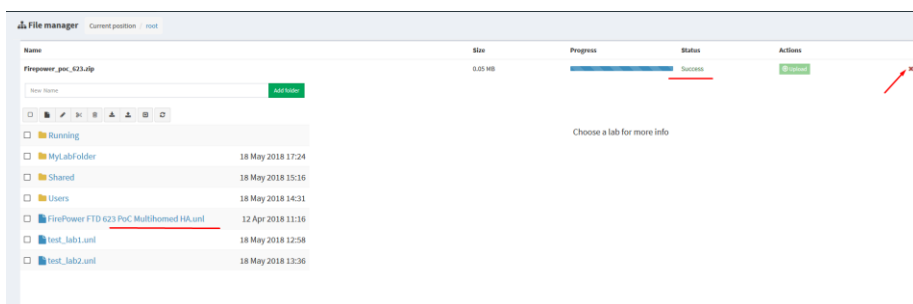
Step 2: Choose the zipped file which contains the EVE labs.



Step 3: Press the Upload Button

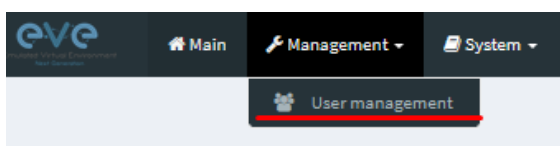


Step 4: After you made sure your lab is imported, you can close the upload session.



6.3 EVE Management Dropdown Menu

6.3.1 EVE User management

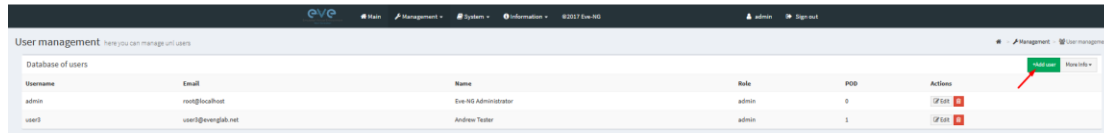


The User Management page, under the Management dropdown, will allow Admin accounts to manage other user accounts.

6.3.1.1 Creating a new EVE Admin user

NOTE: EVE-NG CE supports up to 2x admin users.

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

Add New User

User Name*

Use only [a-zA-z0-9_~]chars

Password*

Password Confirmation*

Email

Please enter an valid email

Name

Role Administrator ▾

POD*

* - Required Fields

Step 3: The POD number is a value assigned to user accounts automatically. POD numbers are like user profiles inside of EVE and are a unique value for every user Think of PODs like a virtual rack of equipment for each user. Admins can assign a preferred number between 1-128. Please keep POD numbers unique between users!

Step 4: Press ADD



6.3.1.2 Edit EVE User

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

Username	Email	Name	Role	POD	Actions
admin	root@localhost	Eve-NG Administrator	admin	0	<input checked="" type="checkbox"/> Edit <input checked="" type="checkbox"/> Add User
user3	user3@evenglab.net	Andrew Tester	admin	1	<input checked="" type="checkbox"/> Edit <input checked="" type="checkbox"/> Add User

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

Edit User

User Name*

Password*

Password Confirmation*

Email

Please enter a valid email

Name

Use only [A-Za-z0-9_]chars

Role Administrator

POD*

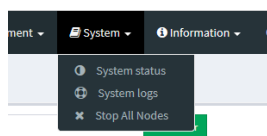
* - Required Fields

6.3.1.3 User monitoring

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

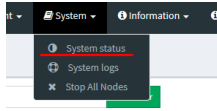
Username	Email	Name	Role	Last session time	Last session ip	Current folder	Current tab	POD	Active	<input checked="" type="checkbox"/> Last session time	<input checked="" type="checkbox"/> Last session ip	<input checked="" type="checkbox"/> Current folder	<input checked="" type="checkbox"/> Current tab
admin	root@localhost	Eve-NG Administrator	admin	23 Sep 2019 12:40:48	10.6.6.20	/	N/A	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
user3	user3@evenglab.net	Andrew Tester	admin	N/A	N/A	N/A	N/A	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

6.4 EVE System Dropdown menu

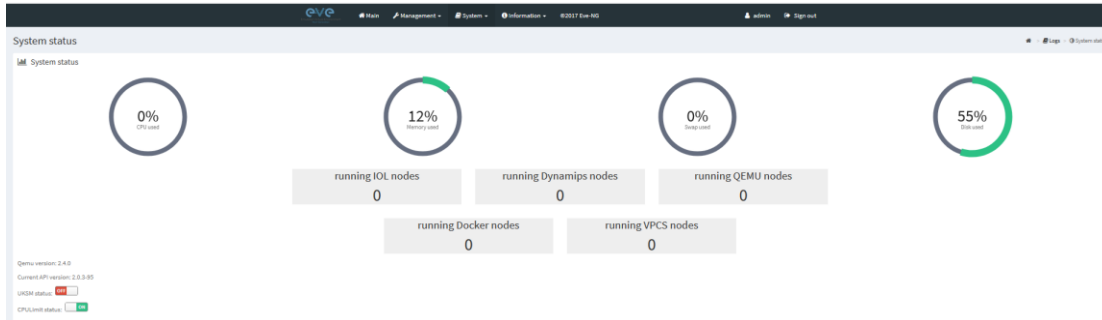


The EVE System dropdown contains the system utilization status, log files, and an option to stop all running nodes on the server.

6.4.1 System status



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



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

Template
Cisco vIOS

Number of nodes to add: 1
Image: vios-adventerprise9-m-15.6.2T

Name/prefix: vIOS

Icon: Router.png

UUID:

CPU Limit:

CPU: 1 RAM (MB): 1024 Ethernets: 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.

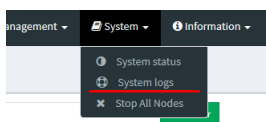
CPU Limit can be turned for individual nodes in a lab. EVE node templates are set, by default, with the recommended CPU limit settings. An Unchecked CPU Limit option means that this node will boot without CPU

limit.

Reference:

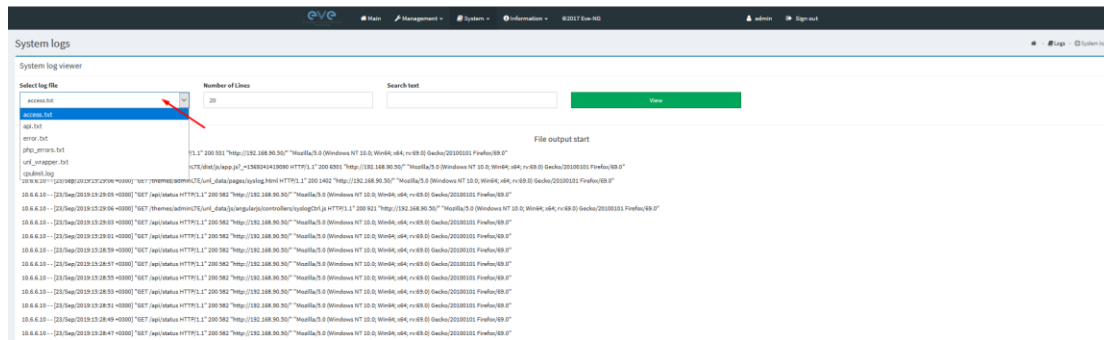
<https://searchservirtualization.techtarget.com/definition/KSM-kernel-samepage-merging>

6.4.2 System logs

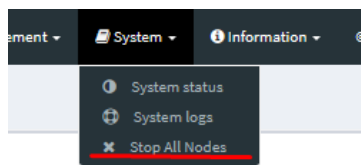


The System logs page, under the System Dropdown, will display EVE server log information

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

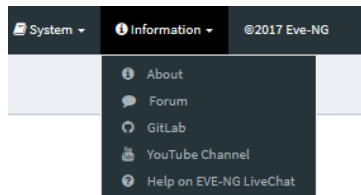


6.4.3 Stop All Nodes



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

6.5 EVE Information Dropdown menu

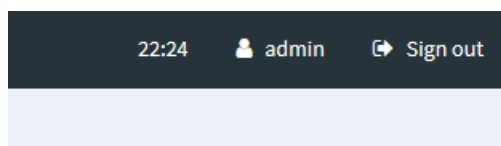


The Eve Information Dropdown contains links to the EVE Website, EVE forum, EVE YouTube channel, and the web-based EVE Live Help chat.

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

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

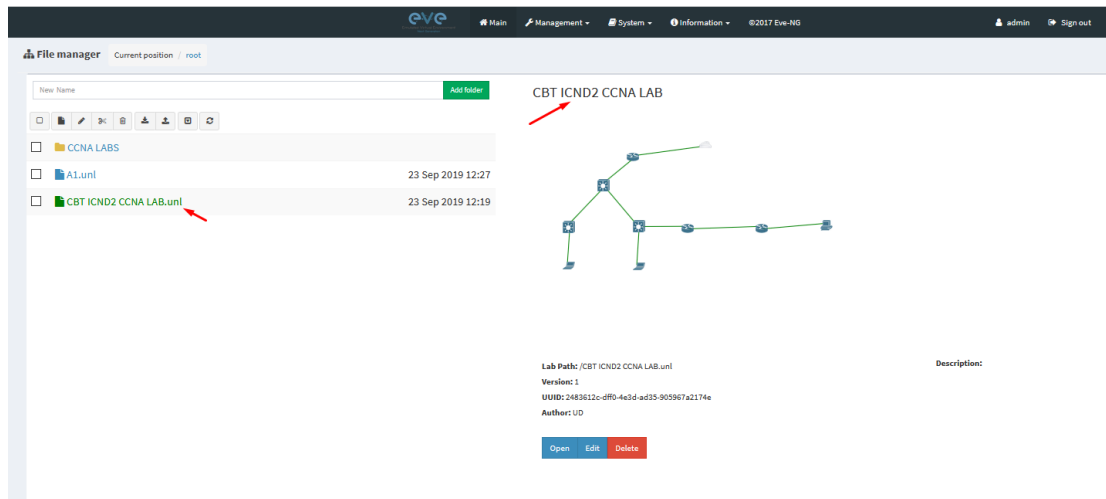
6.6 Other Tab line info



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

6.7 Lab preview and global settings

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



6.7.1 Lab preview window

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



6.7.2 Lab preview buttons

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

Button	Description
	Opens the Lab to the Topology Canvas
	Opens the Labs Global Settings. Refer to section 6.7.4 for more info.
	Deletes the lab

6.7.3 Lab preview information

Description, version, UUID etc.

Lab Path: /test_lab1.unl

Version: 12


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

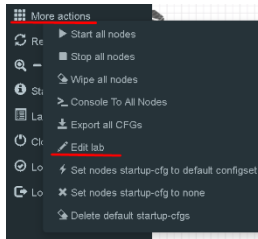
Author: John Tester

Description:

Here is short description of Lab

6.7.4 Lab Global Settings

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



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

- Lab name.
- 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.
- Author: You can add a lab author name in this field
- 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.
- Description: In the Description field you can write a short description of the lab.
- 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 DETAILS

TEST_LAB1

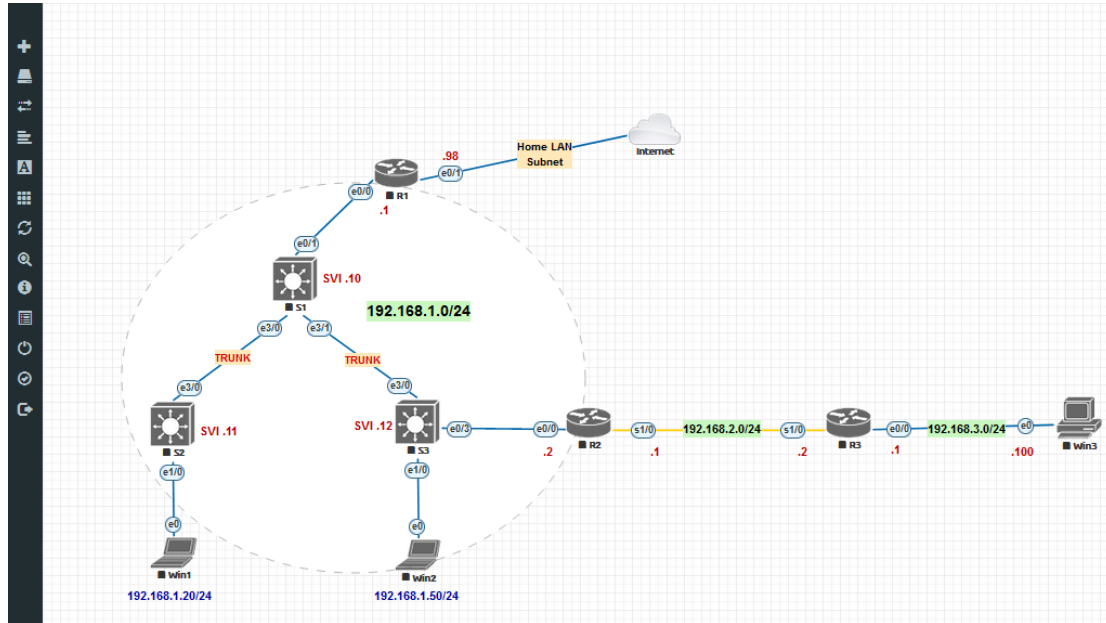
ID: 95692558-5acb-4308-ab66-64f9b40bd31f

Here is short description of Lab

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

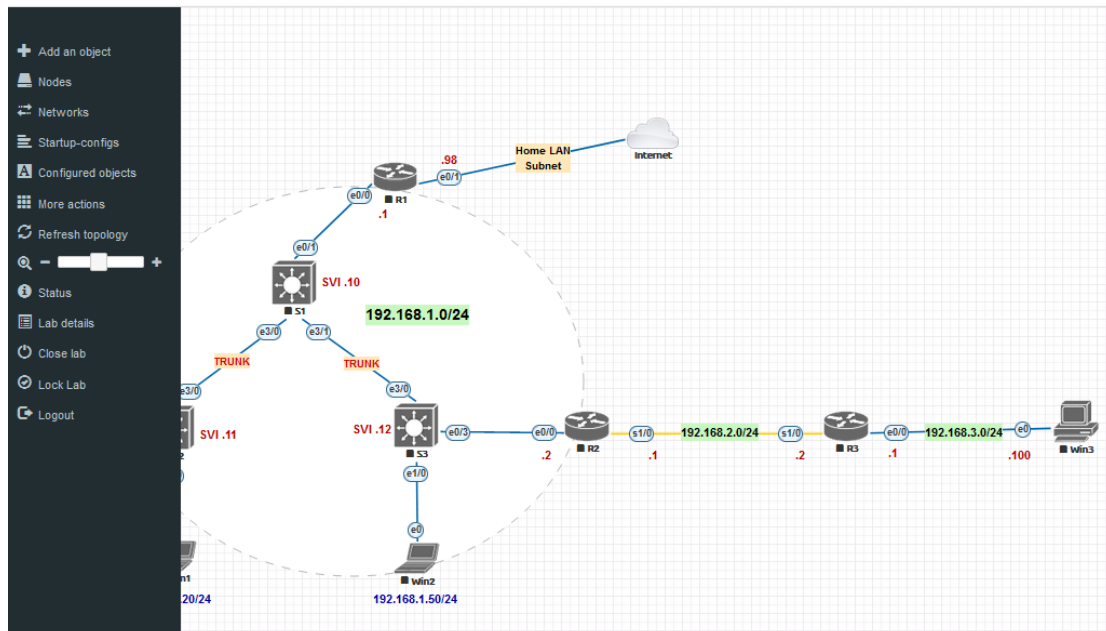
7 EVE WEB Topology page

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



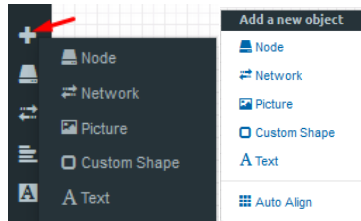
7.1 Side bar functions

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



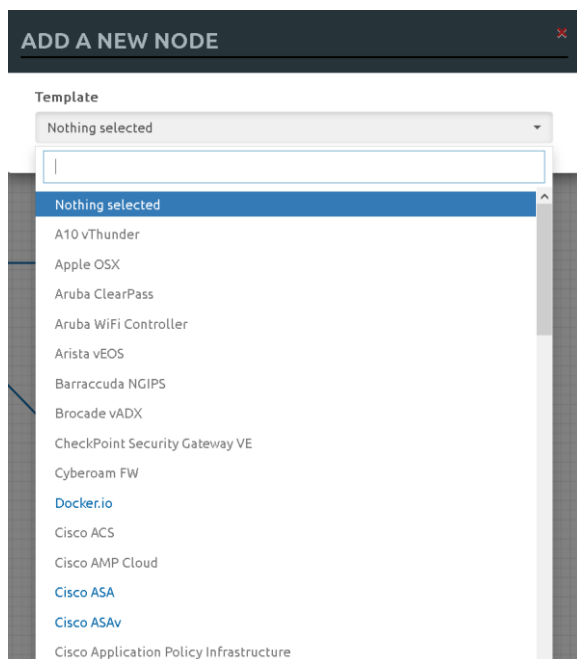
7.1.1 Add an object

The “Add an object” menu can be accessed in two different ways, from the sidebar and by right-clicking on the Topology Page



7.1.1.1 Node object

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



7.1.1.2 Network object

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

ADD A NEW NETWORK

Number of networks to add: 1

Name/Prefix: Net

Type: bridge

Left: 0

Top: 0

Save Cancel

7.1.1.3 Picture object

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

ADD PICTURE

Name: MyTopology

Picture: Browse... anycon_lab.PNG

Add Cancel

7.1.1.4 Custom shape object

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

ADD CUSTOM SHAPE

Type: square

Name: Name

Border-type: solid

Border-width: 5

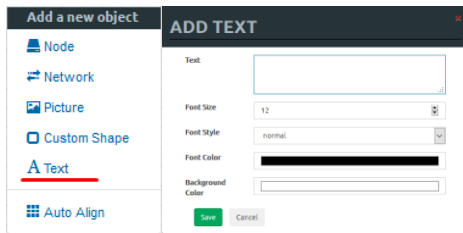
Border-color: [Black]

Background-color: [White]

Save Cancel

7.1.1.5 Text object

The Text object allows you to add Text elements onto the topology. For details, refer to section [10.1.3](#)



7.1.2 Nodes



The Nodes object in the sidebar opens the “Configured Nodes” window.

ID	NAME	TEMPLATE	BOOT IMAGE	CPU	CPU LIMIT	IDLE PC	NVRAM (KB)	RAM (MB)	ETH	SER	CONSOLE	ICON	STARTUP-CONFIG	ACTIONS
1	Win	win	win-10-x64-VL19	1	<input type="checkbox"/>	n/a	n/a	8192	1	n/a	rdp-tls	Desktop.png	None	
2	R2	lol	1866_Linux3-AdvEnterpr	n/a	<input type="checkbox"/>	n/a	1024	1024	1	0	telnet	Router.png	None	
3	R3	lol	1866_Linux3-AdvEnterpr	n/a	<input type="checkbox"/>	n/a	1024	1024	1	0	telnet	Router.png	None	
4	R4	lol	1866_Linux3-AdvEnterpr	n/a	<input type="checkbox"/>	n/a	1024	1024	1	0	telnet	Router.png	None	
5	Decker	decker	eve-estimator:latest	n/a	<input type="checkbox"/>	n/a	n/a	256	1	n/a	rdp	Network Analyzer.png	Default	
6	Win	win	win-7-x86-IPCC	1	<input type="checkbox"/>	n/a	n/a	4096	1	n/a	rdp-tls	Desktop.png	None	

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

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

You can change the following values:

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

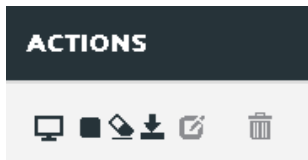
Actions Buttons (Stopped node):



- Start node

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

Actions Buttons (Running node):



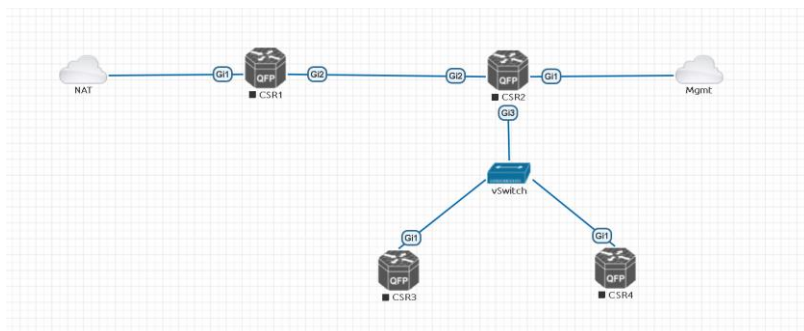
- Console to the node
- Stop node
- Wipe node
- Export the nodes config
- Edit node
- Delete Node

7.1.3 Networks



The Networks object in the sidebar will open the “Configured Networks” window.

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



ID	NAME	TYPE	ATTACHED NODES	ACTIONS
1	NAT	nat0	1	[Edit] [Delete]
2	Mgmt	pnet0	1	[Edit] [Delete]
3	vSwitch	bridge	3	[Edit] [Delete]



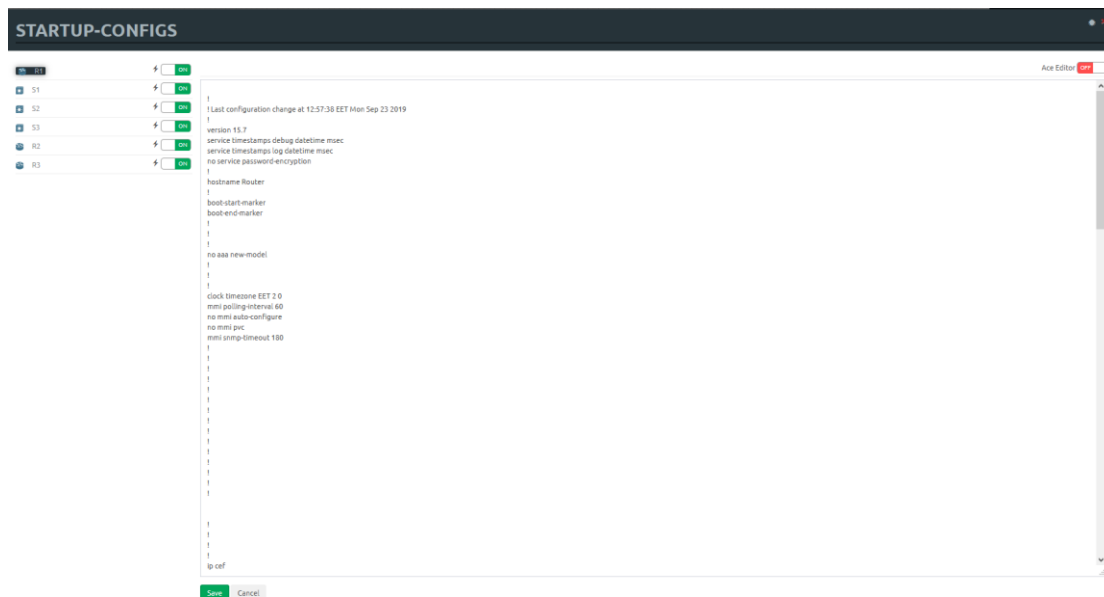
- Edit Network
- Delete Network

7.1.4 Startup-configs

 Startup-configs

The Startup-configs object in the sidebar opens the “Startup-configs” window.

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




7.1.5 Logical Maps

 Pictures

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



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

7.1.6 Configured Objects

 Configured objects

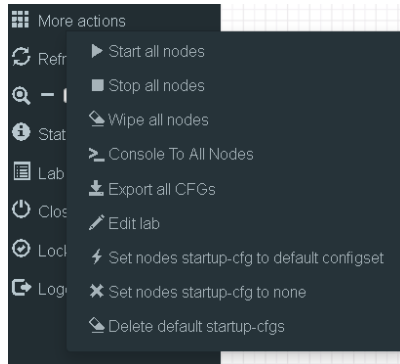
The “Configured Objects” window will display a list of all objects that are added onto the topology. For details on different objects, refer to section 10.1

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

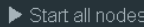
CONFIGURED OBJECTS				
ID	NAME	TYPE	TEXT	ACTIONS
1	net 1	text	Topology net	
2	server2	server		

7.1.7 More actions

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



7.1.7.1 Start all nodes

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


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

7.1.7.2 Stop all nodes

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

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

7.1.7.3 Wipe all nodes

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

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

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

The “Wipe node” action is commonly used with initial startup configuration modifications. The Wipe node action does not delete configured startup configurations or sets. Please refer to section [10.3](#)

7.1.7.4 Console to All Nodes

 Console To All Nodes

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

7.1.7.5 Export all CFGs

 Export all CFGs

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

Export configurations are supported for:

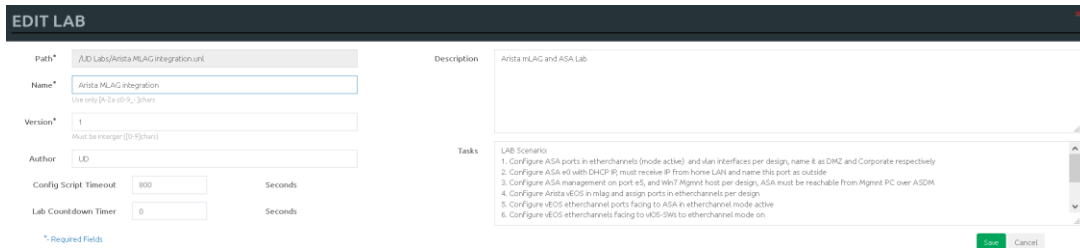
Cisco Dynamips all nodes	Juniper VRR
Cisco IOL (IOS on Linux)	Juniper VMX
Cisco ASA	Juniper vMX-NG
Cisco ASAv	Juniper vQFX
Cisco CSR1000v	Juniper vSRX
Cisco Nexus 9K	Juniper vSRX-NG
Cisco Nexus Titanium	Mikrotik
Cisco vIOS L3	PFsense FW
Cisco vIOS L2	Timos Alcatel
Cisco XRv	vEOS Arista
Cisco XRv9K	

For a full explanation of exporting configurations, please refer to section [10.3](#)

7.1.7.6 Edit lab

 Edit lab

Opens the Edit lab window. Refer to section: [6.7.4](#)



EDIT LAB

Path: /A/D/Lab/Arista/MLAG/Integration/unt

Name: Arista MLAG Integration
Use only [A-Z,a-z-0-9_]. 30max

Version: 1
Must be integer (0-9)max

Author: UD

Config Script Timeout: 800 Seconds

Lab Countdown Timer: 0 Seconds

Description: Arista mLAG and ASA Lab

Tasks: LAB Scenario:
1. Configure ASA ports in etherchannels (mode active) and vlan interfaces per design, name it as DMZ and Corporate respectively
2. Configure ASA v4 with DHCP P, must receive IP from home LAN and name this port as outside
3. Configure ASA management on port e5, and W67 Mgmt host per design, ASA must be reachable from Mgmt PC over ASDM
4. Configure Arista vEOS in mlag and assign ports in etherchannels per design
5. Configure vEOS etherchannel ports facing to ASA in etherchannel mode active
6. Configure vEOS etherchannels facing to vOS-SW to etherchannel mode on

7.1.7.7 Set node's startup-cfg to default configset

 Set nodes startup-cfg to default configset

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

Please refer to section [10.3](#)

7.1.7.8 Set node's startup-cfg to none

✖ Set nodes startup-cfg to none

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

Step 1: Wipe all nodes

Step 2: Set all nodes to startup-cfg none

Please refer to section [10.3](#)

7.1.7.9 Delete default startup-cfgs

🗑 Delete default startup-cfgs

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

7.1.8 Refresh Topology

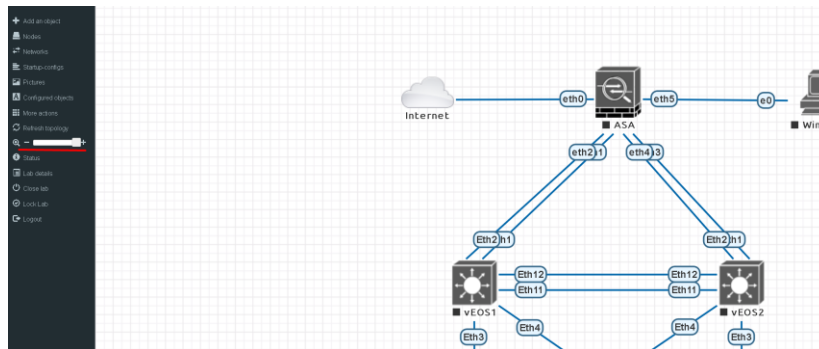
🔄 Refresh topology

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

7.1.9 Lab page zoom/unzoom



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

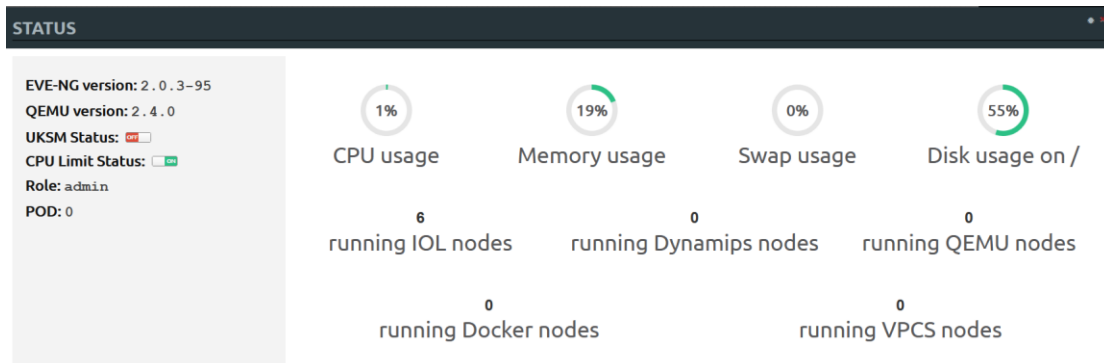


7.1.10 Status


📊 Status

Opens the EVE Status window.

Especially useful while working with labs to monitor your EVE's resource utilization. It shows EVEs CPU, RAM and disk utilization in real time. You can also see the number of running nodes per node type. For details on UKSM and CPU Limit, please refer to section [6.4.1](#)



7.1.11 Lab details

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

LAB DETAILS



ARISTA MLAG INTEGRATION

ID: `a8c998e9-873e-44d3-8e94-b5249c988400`
 Arista MLAG and ASA Lab
 LAB Scenario:

1. Configure ASA ports in etherchannels (mode active) and vlan 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 W67 Mgmt host per design, ASA must be reachable from Mgmt PC over ASDM
4. Configure Arista vEOS in mlag and assign ports in etherchannels per design
5. Configure vEOS etherchannel ports facing to ASA in etherchannel mode active
6. Configure vEOS etherchannels facing to vEOS-SW6 to etherchannel mode on
7. Configure vIOS SW6 etherchannels in mode on
8. Configure and assign vIOS-SW6's vswitchports in VLANs accordingly design
9. Configure Hosts Pcs per design
10. Configure NAT on the ASA, you have to reach internet from DMZ and Corporate zones11. Corporate Zone must reach DMZ server



7.1.12 Lock Lab

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

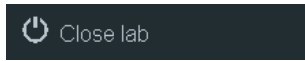
 Lock Lab	 Unlock Lab
Lab is unlocked and all operations are working	Lab is locked and all operations are restricted

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

7.1.13 Dark mode or Light mode

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

7.1.14 Close lab



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

7.1.15 Logout

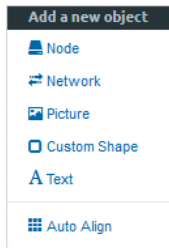


Log out from the EVE WEB GUI session.

7.2 EVE Lab topology menus

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

7.2.1 Lab topology menu



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

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

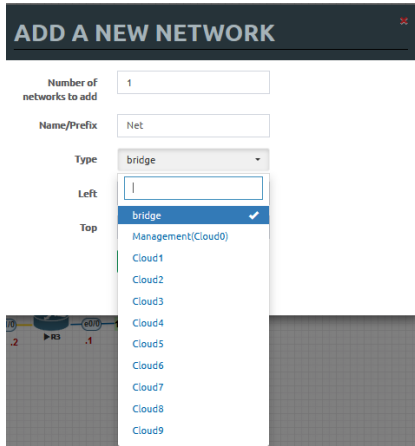
7.2.2 Connection menu



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

7.2.3 Cloud or Bridge network menu

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

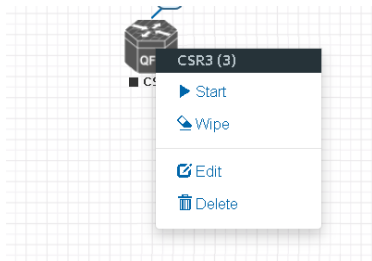


If you have chosen Edit, the Network edit window will open a window where you can change the placement, network type or name/prefix.

For details on how to operate EVE Cloud networks and external connections, please refer to [section 9](#)

7.2.4 Stopped node menu

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

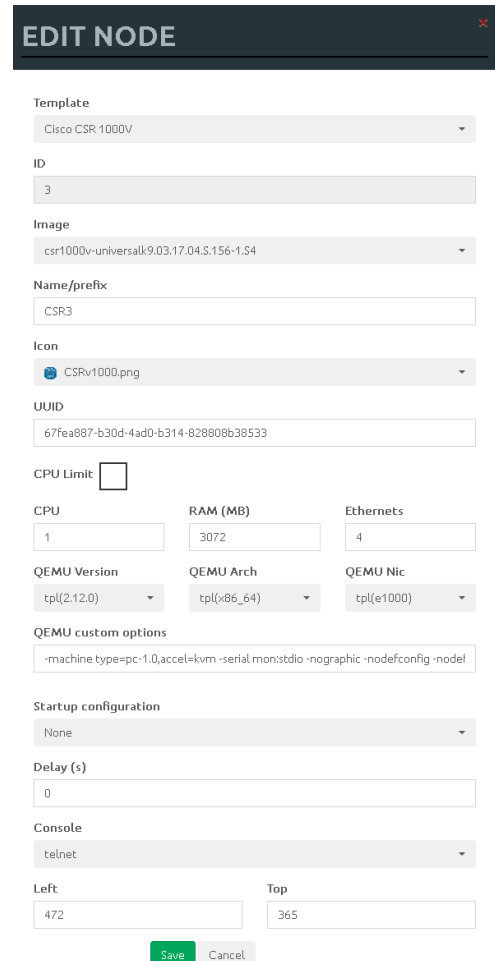


Start node: This will start the selected node in this lab

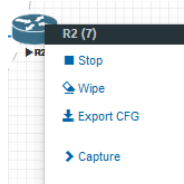
Wipe node: Wiping a node will erase the NVRAM (running config) or the temporary image snapshot depending on the type of node. This option is used to clean up a node in order to boot it from factory defaults or a custom set of configurations.

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

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



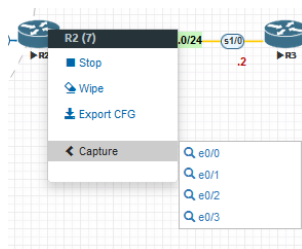
7.2.5 Running node menu



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

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

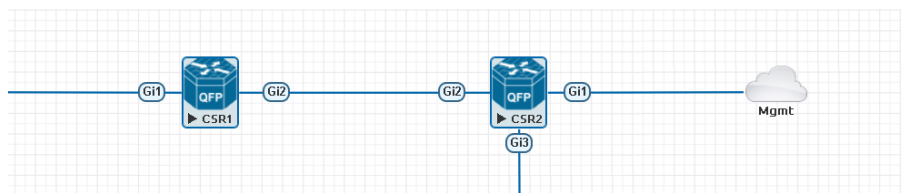
Export CFG: This function is used to export the saved running configuration to the EVE startup configuration sets. Reference section [10.3](#)



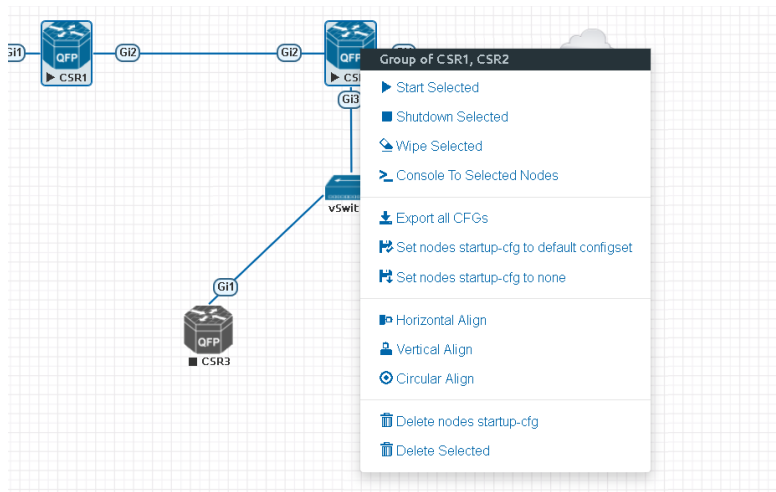
Capture. Wireshark capture. Select the interface which you wish to capture. Reference section [5.1.2](#)

7.2.6 Selected nodes menu and features

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



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



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

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

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

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

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

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

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

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

For a full explanation of exporting configurations, please refer to section [10.3](#)

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

Please refer to section [10.3](#)

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

Step 1: Wipe selected nodes

Step 2: Set nodes startup-cfg to none

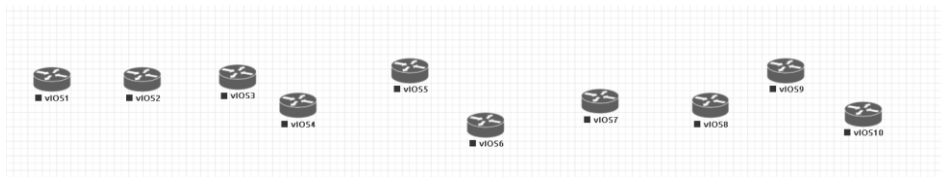
Please refer to section [10.3](#)

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

Step 1: Select the nodes you wish to align.

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

Picture before:



Picture after:



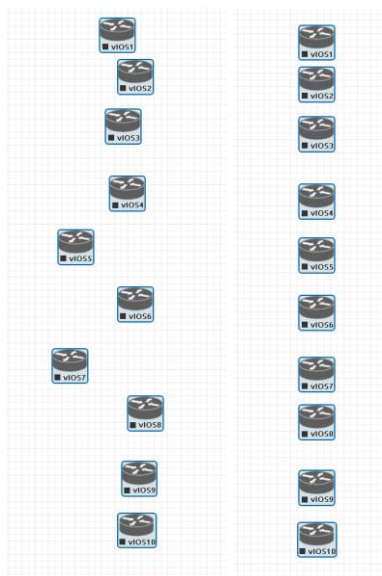
Vertical Align: Aligns the nodes in one vertical line.

Step 1: Select the nodes you wish to align.

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

Picture before

Picture after



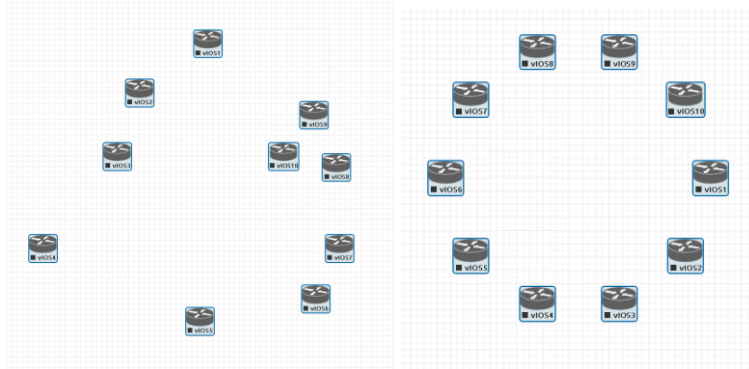
Circular Align: Aligns the nodes in a circle.

Step 1: Select the nodes you wish to align.

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

Picture Before

Picture After



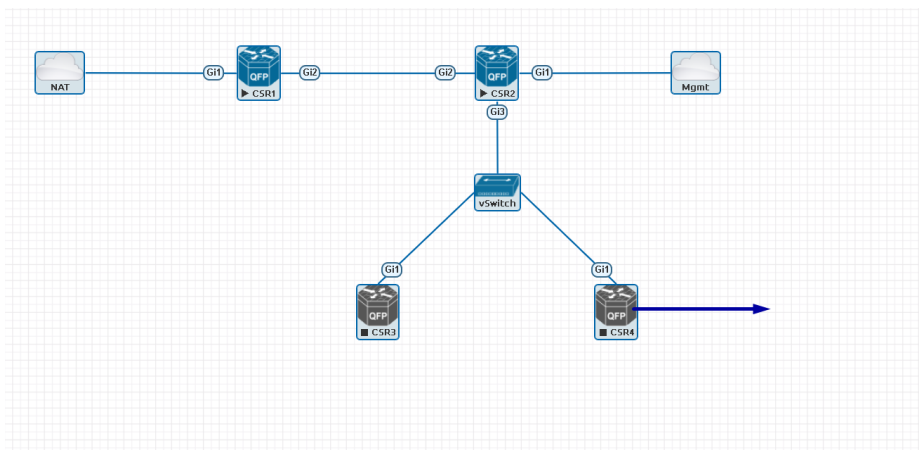
Delete nodes startup-config.

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

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

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

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

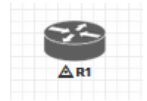


7.3 EVE Lab node states and symbols

7.3.1 Stopped (non-running) nodes



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



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

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

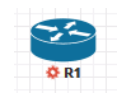
7.3.2 Running nodes



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



A running node with a clock symbol below the node means that the node is waiting to finish loading from the set exported/startup configuration. Once the configuration has been successfully applied, the node symbol will change to a Play triangle symbol. If the node has finished booting but the clock symbol does not change to the Play triangle symbol, the problem could be in the uploaded startup configuration. For how to use exported configurations and boot nodes from them, please refer to section [10.1](#)



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

- ⚠ NOTE: If the node does not support a system shutdown or does not recognize the shutdown signal (example: Cisco router), after clicking on Shutdown, the node can stay with a turning red gear symbol below it indefinitely.

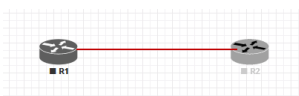
Workaround: Use Stop or Stop/PowerOff to stop the node.

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

7.3.3 Node connector symbol

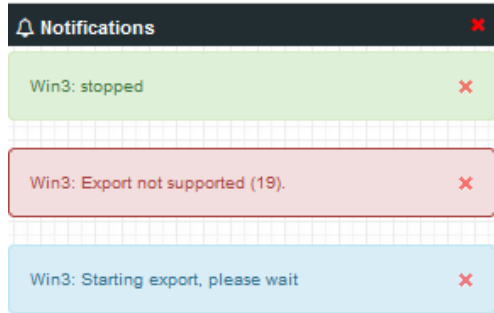


Connector symbol: If you move your mouse pointer on top of a running or stopped node, an orange connector symbol appears. It is used to connect nodes on the topology in a drag and drop style. Drag the symbol from one node and release the mouse pointer on the second node. A new window will appear where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



7.4 Other

7.4.1 Notifications area



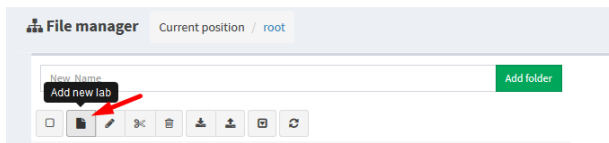
The Notification area in the top right is displaying informational or error messages.

8 Working with EVE labs

⚠ IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section [12](#)

8.1 Creating a lab

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



Step 2:

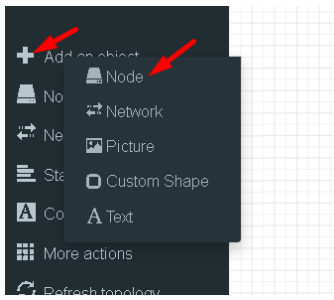
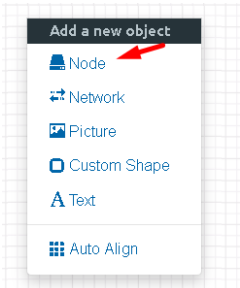
Fill out the lab information. Name and Version are required fields. Next hit Save. Refer to section [6.7.4](#) for more information about the different fields in the Edit lab window.

The screenshot shows the 'Add New Lab' form. The 'Name' field contains 'mylab4', 'Version' contains '1', and 'Author' contains 'John Tester'. The 'Description' field contains 'It is my new lab'. The 'Tasks' field contains a list of three tasks: '1. configure IP addressing', '2. configure EIGRP AS 20', and '3. configure static default route to the Internet'. There are 'Save' and 'Cancel' buttons at the bottom right.

8.1.1 Adding nodes to the lab

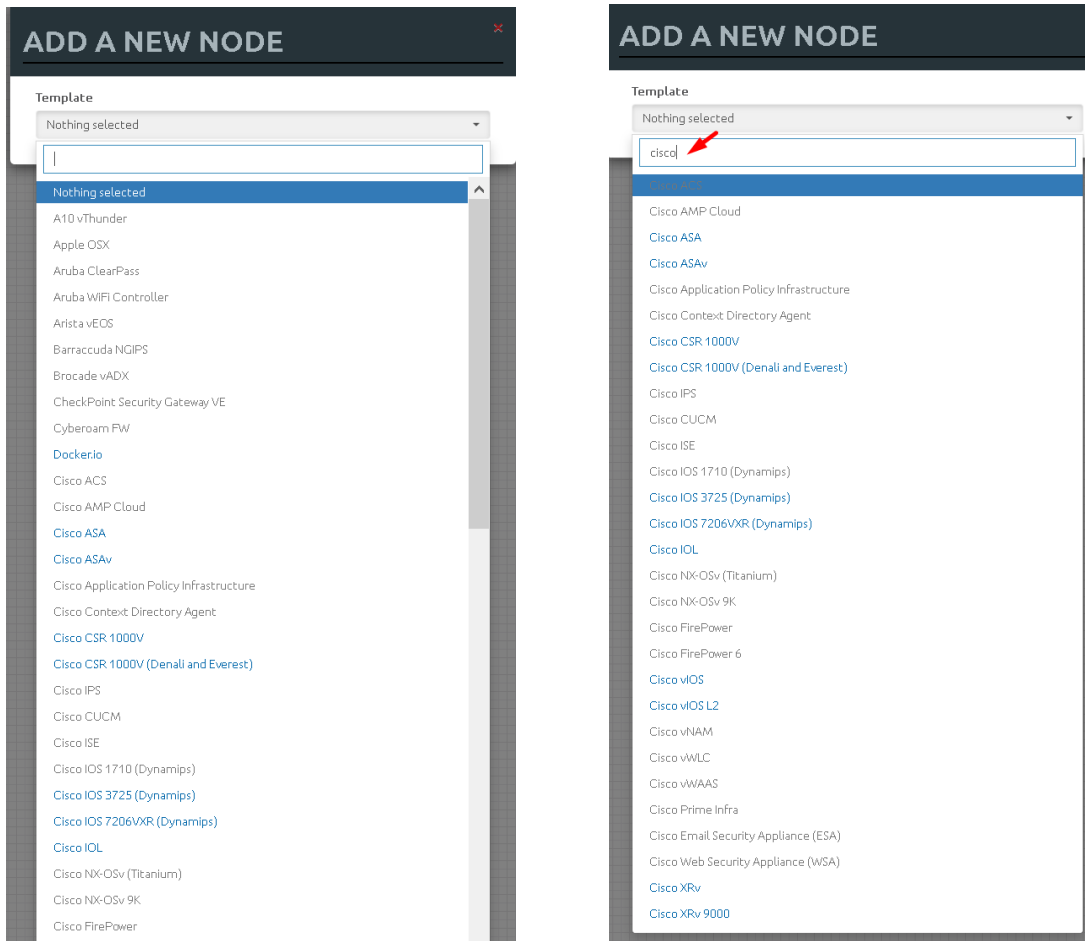
The new Topology page will open. There are two different ways to add nodes to the topology canvas:

Step 1: Object/Add Node

<p>Left Side Bar > Add object > node. Refer to section 7.1.1.1 for more information.</p> 	<p>Right click on a free area of the topology page and click on "Node" to add a new node. Refer to section 7.2.1 for more information.</p> 
--	---

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 [□](#)



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 add **2.**

1

Image **3.**

csr1000v-universalk9.03.17.04.S.156-1.S4

Name/prefix **4.**

CSR

Icon **5.**

CSRv1000.png

UUID **6.**

CPU Limit **7.**

CPU **8.**

1

RAM (MB) **9.**

3072

Ethernets **10.**

4

QEMU Version **11.**

tpl(2.12.0)

QEMU Arch **12.**

tpl(x86_64)

QEMU Nic **13.**

tpl(e1000)

QEMU custom options **14.**

-machine type=pc-1.0,accel=kvm -serial mon:stdio -nographic -nodefconfig -n

Startup configuration **15.**

None

Delay (s) **16.**

0

Console **17.**

telnet

Left

839

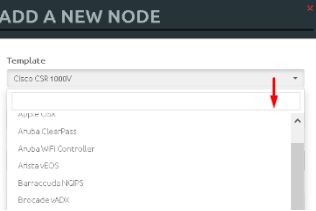
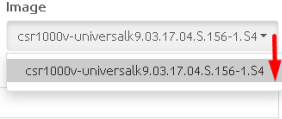

Top

210

Save

Cancel

8.1.1.1 Node values Table

Number	Description
1.	 <p>Template menu. Choose which node template to add to the topology</p>
2.	<p>Number of nodes to add</p> <input data-bbox="408 712 639 745" type="text" value="1"/> <p>Chose the number of nodes of this type you want to add to the topology</p>
3.	<p>Image</p>  <p>Choose your preferred version from preloaded images list (if you have more than one image loaded for a single template).</p>
4.	<p>Name/prefix</p> <input data-bbox="411 1016 1015 1050" type="text" value="CSR"/> <p>Type your preferred node name. If you are adding more than one, EVE will automatically append numbers to the nodes name.</p> <p>Example. We are adding 5 CSR nodes with the name R. On the topology they will appear as R1, R2, R3, R4, R5. Later using the Nodes window, you can edit the node names per your needs. Refer to section 7.1.2 or edit the node individually, refer to section 8.1.2.</p>
5.	<p>Icon</p>  <p>Node icons can be changed from the default per your preference, simply choose the preferred icon from the dropdown list. Node icons can be changed later per your needs. Refer to section 7.1.2</p>
6.	<p>UUID</p> <input data-bbox="392 1615 968 1653" type="text"/> <p>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.</p>
7.	<p>CPU Limit <input data-bbox="504 1861 552 1906" type="checkbox"/></p> <p>CPU limit per node. This option is already set (checked/unchecked) per EVE recommendations. Refer to section 6.4.1</p>

8.	CPU <input type="text" value="1"/>	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) <input type="text" value="3072"/>	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 <input type="text" value="4"/> ⚠ 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) <input type="text" value="1"/> <input type="text" value="1"/>	The number of ethernet interfaces.
11.	Custom MAC address for Qemu nodes only. You can define your own MAC address for first interface: First Eth MAC Address <input type="text" value="aa:bb:cc:00:de:ad"/>	
12.	QEMU Version <input type="text" value="tpl(2.12.0)"/>	EVE will pre-set the best recommended QEMU version for each node template. This value can be changed per your needs.
13.	QEMU Arch <input type="text" value="tpl(x86_64)"/>	Qemu architecture is pre-set per image vendor recommendations. This value can be changed per your needs
14.	QEMU Nic <input type="text" value="tpl(vmxnet3)"/> virtio-net-pci e1000 e1000-82545em vmxnet3 tpl(vmxnet3)	Type of Qemu NIC is pre-set per image vendor recommendations. This value can be changed per your needs.

15.	<p>QEMU custom options</p> <p><input type="text" value="-machine type=pc-1.0,accel=kvm -cpu Nehalem -serial mon:stdio -nographic -r"/></p> <p>Qemu custom options are pre-set per image vendor recommendations. This value can be changed per your needs</p>
16.	<p>Startup configuration</p> <p><input type="text" value="None"/></p> <p>Startup configuration: Value can be changed to set your node to boot from saved configurations. Refer to section 10.3 for more details.</p>
17.	<p>Delay (s)</p> <p><input type="text" value="0"/></p> <p>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.</p>
18.	<p>Console</p> <p><input type="text" value="telnet"/></p> <p>Console types for each template are pre-set with recommended settings. The setting can be changes per your needs.</p> <p>⚠ 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.</p>
19.	<p>First Eth MAC Address</p> <p><input type="text"/></p> <p>OPTIONAL: Templates for Cisco FirePower, F5, Linux, and Citrix have the option to manually set the MAC address for the first ethernet interface. This will enable the use of licenses that are tied to a particular MAC address.</p> <p>MAC Address format must be like: 00:50:0a:00:0b:00</p>

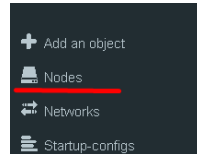
8.1.2 Edit node

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

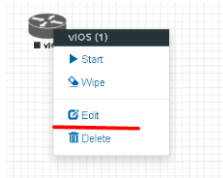
- ⚠ NOTE:** A node must be **wiped** each time an image or startup configuration has been changed.

8.1.2.1 Edit nodes globally

From the Topology page. Click “Nodes” from the left sidebar to bring up the nodes list. Refer to section 7.1.2 for more details.



8.1.2.2 Edit node individually.



Right click on the node and click Edit

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

EDIT NODE ✕

Template
Cisco vIOS

ID
1

Image
vios-adventerprisek9-m-15.6.2T

Name/prefix
vIOS

Icon
Router.png

UUID
b5fa3320-98ed-4ea4-ad21-627d427b8a6a

CPU Limit

CPU 1	RAM (MB) 1024	Ethernets 4
QEMU Version tpl(default 2.4.0)	QEMU Arch tpl(i386)	QEMU Nic tpl(e1000)

QEMU custom options
-machine type=pc-1.0,accel=kvm -serial mon:stdio -nographic -nodefconfig -nodef

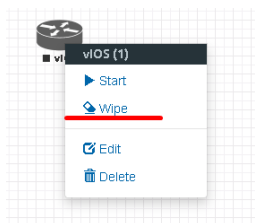
Startup configuration
None

Delay (s)
0

Console
telnet

Left 839 **Top** 218

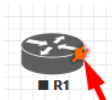
8.1.3 Wipe Node



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

8.1.4 Interconnecting nodes

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.



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

ADD CONNECTION BETWEEN R1 AND R2

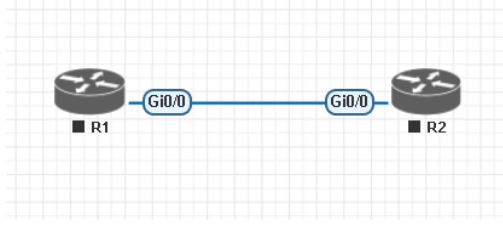
Source ID: 1
Source Name: R1
type - Node

Choose Interface for R1

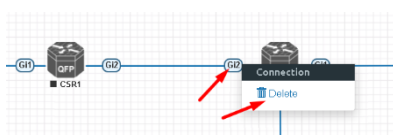
- Gi0/0
- Gi0/0**
- Gi0/1
- Gi0/2
- Gi0/3

Destination ID: 2
Destination Name: R2
type - Node

Save Cancel

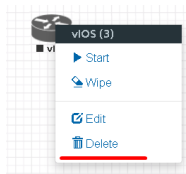


8.1.5 Delete connection between nodes



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

8.1.6 Delete Node



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

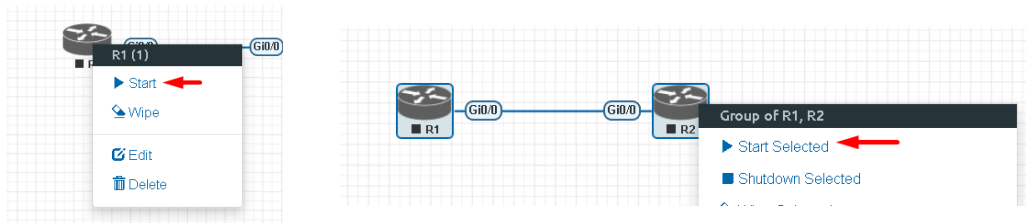
▶ Start all nodes

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

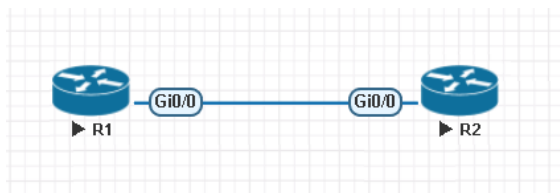
⚠ IMPORTANT. Starting all the nodes at once can result in major spikes in CPU utilization. Please make sure you are not using the “Start all nodes” option for heavy labs. Instead, it is recommended to start nodes in small groups.

Starting a node or group of nodes:

Right click on single node or node group and hit “Start.”



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



8.3 Saving labs

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

Example:

Cisco: “copy run start”

Juniper “commit”

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

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

The configurations of nodes can be exported and used as initial or startup configurations for your labs. To export configurations and configuration sets for labs refer to section 10.1

8.4 Stopping labs

■ Stop all nodes

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

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

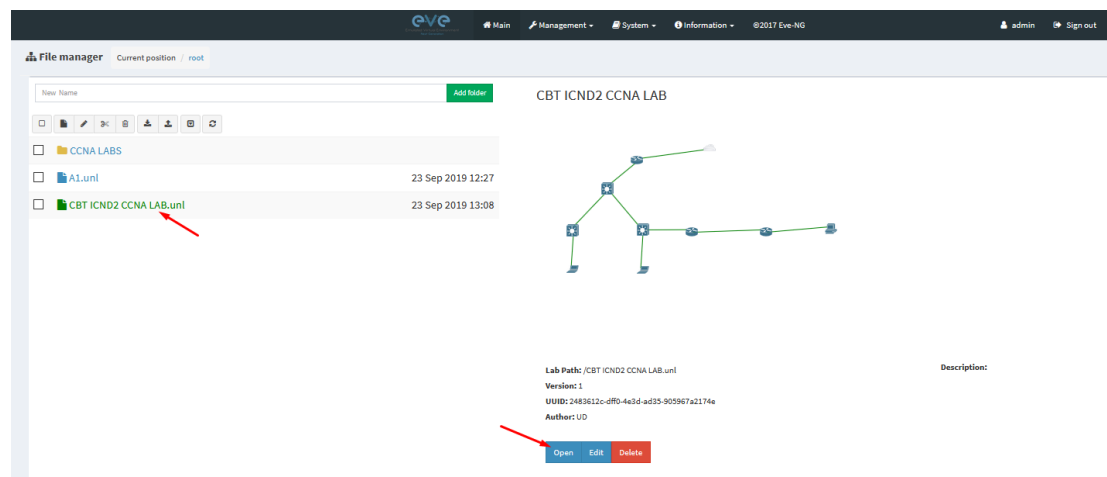
Stopping a node or group of nodes:

Right click on single node or node group and hit “Stop.”

For individual node Stop options refer to section [7.2.5](#)

8.5 Start saved lab

Select the lab you want to start and click “Open”. To start Lab refer section [8.2.1](#)



8.6 Importing labs

Refer to section [6.2.2.6](#)

8.7 Exporting labs

Refer to section [6.2.2.5](#)

8.8 Deleting labs

Refer to section [6.2.2.2](#)

8.9 Moving labs

Refer to section [6.2.2.4](#)

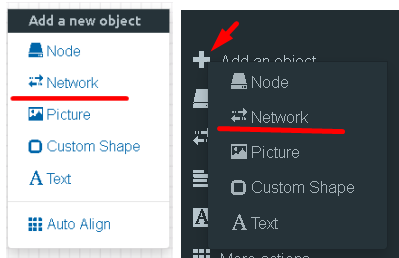
9 EVE Clouds and Networks

9.1 Bridge Network

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

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

Step 1: Add a Bridge Network onto the topology. There are two ways to do this: Right-clicking on the topology area and selecting “Add Network” or in the sidebar click “Add an Object” and then select “Network.” Please refer to sections [7.2.3](#) and [7.1.1.2](#)



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

ADD A NEW NETWORK

Number of networks to add:

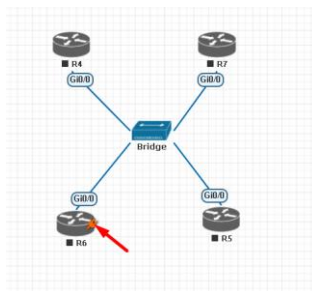
Name/Prefix: ←

Type: ←

Left:

Top:

Step 3: Connect your nodes using the drag and drop connector. Refer to sections [8.1.4](#) and [7.2.3](#)



9.2 Management Cloud0 interface

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

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

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

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

vSwitch Settings

Edit standard virtual switch - vSwitch1

Add uplink

MTU	1500
Uplink 1	vmnic1
Link discovery	Click to expand
Security	
Promiscuous mode	<input checked="" type="radio"/> Accept <input type="radio"/> Reject
MAC address changes	<input checked="" type="radio"/> Accept <input type="radio"/> Reject
Forged transmits	<input checked="" type="radio"/> Accept <input type="radio"/> Reject
NIC teaming	Click to expand
Traffic shaping	Click to expand

Portgroup Settings

Management 90 UD

Edit settings | Refresh | Actions

Management 90 UD
 Accessible: Yes
 Virtual machines: 7
 Virtual switch: vSwitch1
 VLAN ID: 4095
 Active ports: 5

vSwitch topology

Management 90 UD
 VLAN ID: 4095
 Virtual Machines (7)
 vCentre 90.95
 S2016 EVE 90.201
 EVE-PRO.98.100
 MAC Address: 00:0c:29:d0:aa:9e
 EVE-PROV24
 EVE COMM 89
 Cisco Identity Services Engine
 ASAv 90.35 PROD

Physical adapters
 vmnic1, 100 Mbps, Full

Security policy

Allow promiscuous mode	Yes
Allow forged transmits	Yes
Allow MAC changes	Yes

NIC teaming policy

Notify switches	Yes
Policy	Route based on ori
Reverse policy	Yes
Rolling order	No

Shaping policy

Enabled	No
---------	----

EVE Cloud0 bridging table.

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

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

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

ip route

```

root@eve-ng:~# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default 192.168.90.1 0.0.0.0 UG 0 0 0 pnet0
172.17.0.0 * 255.255.0.0 U 0 0 0 docker0
172.29.129.0 gateway IP type: 255.255.255.0 U 0 0 0 nat0
192.168.90.0 * 255.255.255.0 U 0 0 0 pnet0
root@eve-ng:~#

```

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

ADD A NEW NETWORK

Number of networks to add:

Name/Prefix:

Type:

Left:

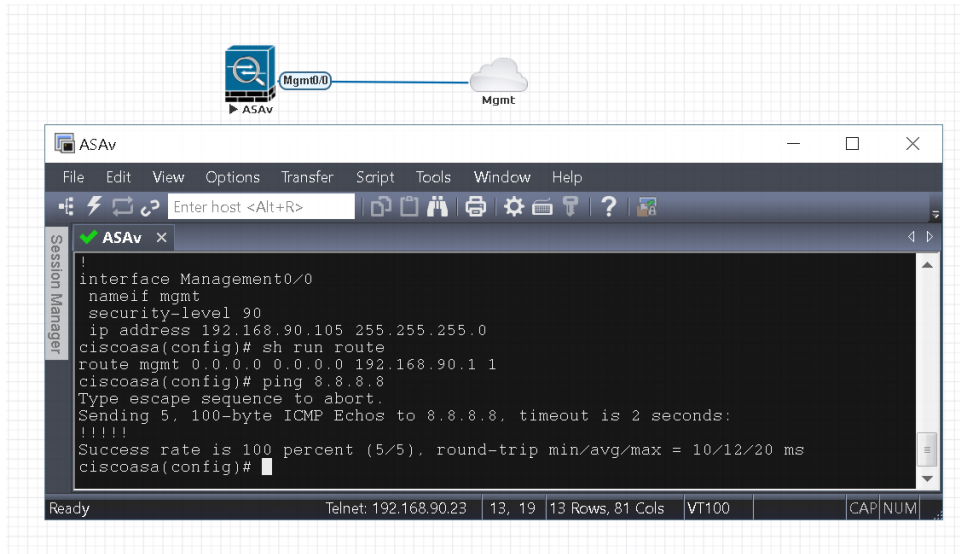
Top:

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

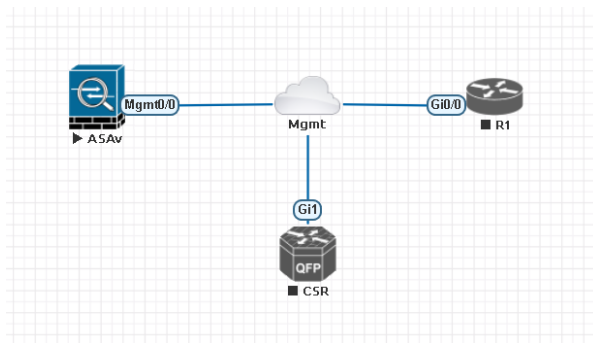
Step 2: Name/prefix can be changed in order to rename your Cloud0 network. Make sure your network type is set to Management(Cloud0).

Step 3: Connect your ASAv using the drag and drop connector to the Cloud0 network. Refer to sections [8.1.4](#) and [7.2.3](#)

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



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



9.3 Other cloud interfaces

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

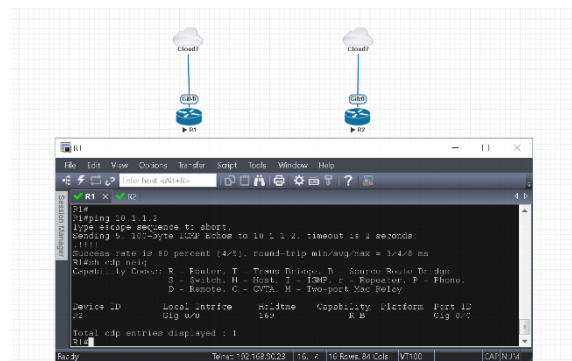
EVE Cloud bridging table.

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

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

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

Step 1: Add two Cloud7 networks onto the topology.



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

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

⚠ For ESXi make sure that you have set Promiscuous mode security settings on the vSwitch and Port group to Accept. Please refer to section [9.2](#)

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

9.4 Connecting external VM machines to the EVE Lab

9.4.1 ESXi VM machines

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

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

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

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

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

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

WSA-MGMT

Accessible: Yes
Virtual machines: 2
Virtual switch: vSwitch5
VLAN ID: 0
Active ports: 0

vSwitch topology

WSA-MGMT
VLAN ID: 0
Virtual Machines (2)
EVE-PROV24
coeus-10-1-3-039-S000V

No physical adapters

Security policy

Allow promiscuous mode	Yes
Allow forged transmits	Yes
Allow MAC changes	Yes

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:

EVE and WSA VMs settings

EVE VM, second port is assigned to portgroup WSA-MGMT. It is Cloud1 on the EVE topology.

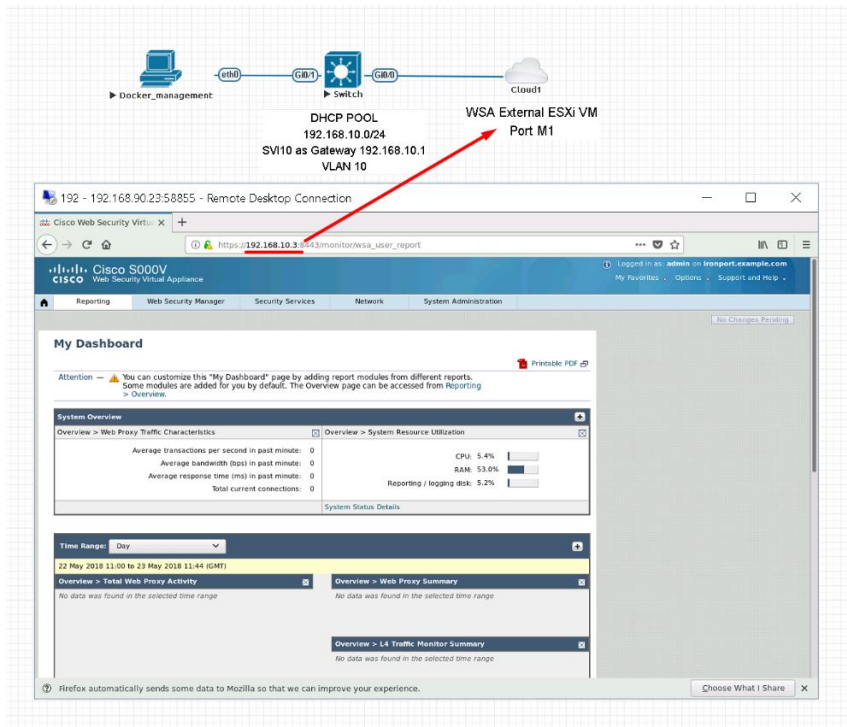
Hardware Configuration	
CPU	16 vCPUs
Memory	32 GB
Hard disk 1	40 GB
Hard disk 2	150 GB
USB controller	USB 2.0
Network adapter 1	Management 90 UD (Connected)
Network adapter 2	<u>WSA-MGMT (Connected)</u>
Video card	4 MB
Others	Additional Hardware

Cisco Web security appliance (WSA), Management port is assigned in portgroup WSA-MGMT.

Hardware Configuration	
CPU	1 vCPUs
Memory	4 GB
Hard disk 1	250 GB
Network adapter 1	<u>WSA-MGMT (Connected)</u>
Network adapter 2	UNUSED (Connected)
Network adapter 3	UNUSED (Connected)
Network adapter 4	UNUSED (Connected)
Network adapter 5	UNUSED (Connected)

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.



9.4.2 VMWare workstation machines

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

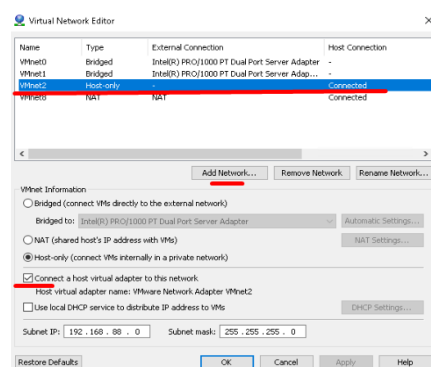
NOTE: A single Cloud interface can be used to connect more than one external VM to the EVE lab.

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

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

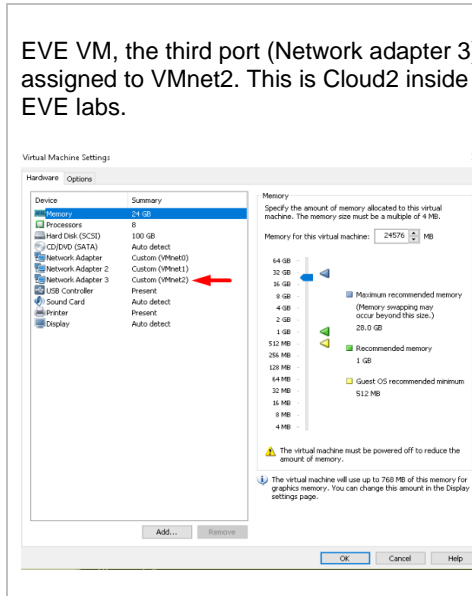
Step 1: Open your VMWare Workstation Virtual Network Editor and configure the VMnet interface for the Cloud and WSA VMs. If necessary, add a new VMnet. The example below is showing VMnet2 Settings in VMWare workstation. DHCP must be disabled for VMnet2.

Virtual Network Editor settings:

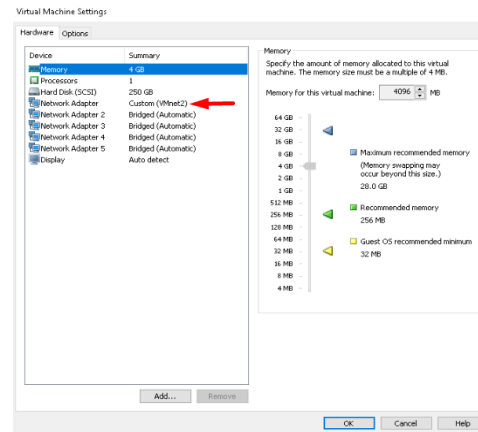


EVE and WSA VMs settings

EVE VM, the third port (Network adapter 3) is assigned to VMnet2. This is Cloud2 inside your EVE labs.

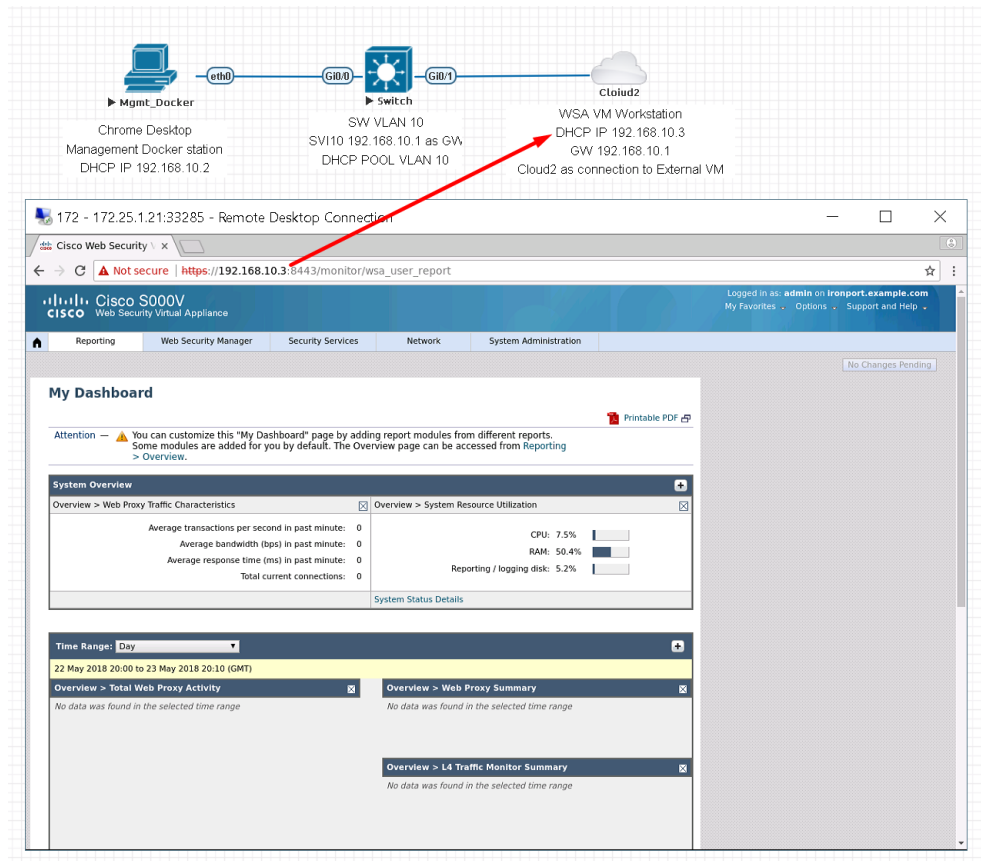


Cisco Web Security Appliance (WSA), Management port is assigned to VMnet2



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.



9.5 Connecting EVE Lab to a physical device

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

```
for i in /sys/class/net/pnet*/bridge/group_fwd_mask ; do echo 8 > $i ; done
```

9.5.1 ESXi EVE

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

⚠ IMPORTANT NOTE: Make sure that you have set Promiscuous mode security settings on the vSwitch and Port group to Accept.

⚠ IMPORTANT NOTE: If you are building trunk between EVE lab node to real Switch, please make sure you have set your ESXi vSwitch interface to accept all vlans. Reference: <https://kb.vmware.com/s/article/1004074>

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)

Portgroup “Management 90 UD” Settings associated with vSwitch1

EVE VM Settings

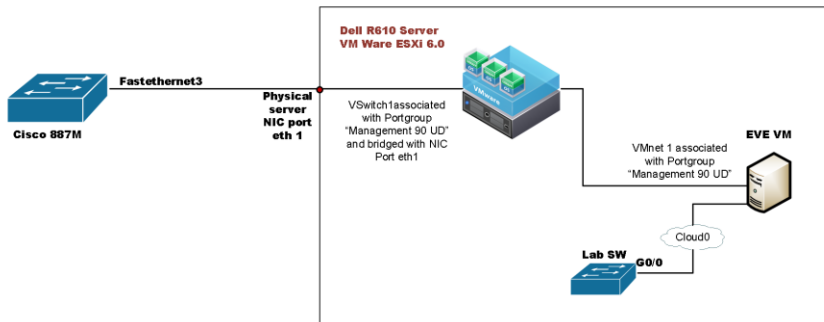
EVE VM Cloud0 is connected to Portgroup “Management 90 UD”

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

EVE Lab Connected to a physical device

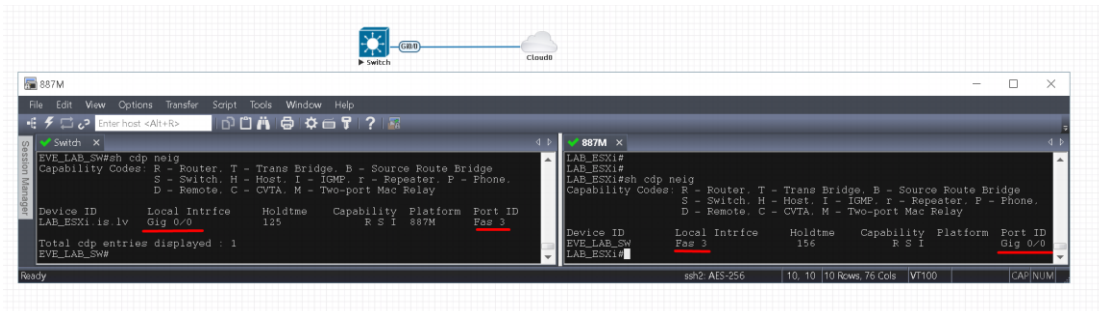
Physical Topology

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



EVE Lab Topology

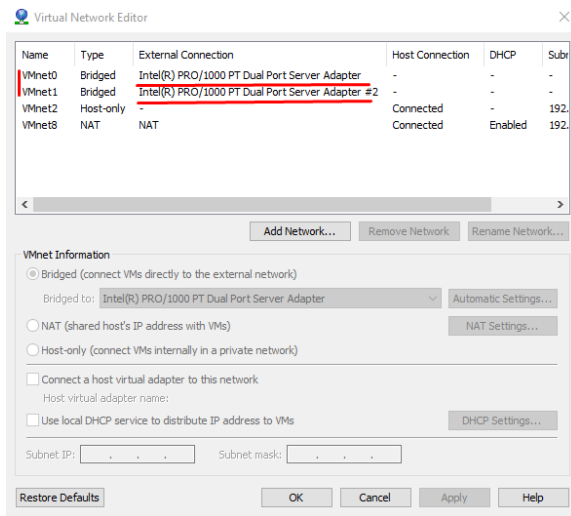
EVE lab switch port G0/0 is configured as trunk and connected to Cloud0 over bridged chain to the physical Cisco 887M Router switchport Fastethernet 3



9.5.2 VMWare workstation EVE

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

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

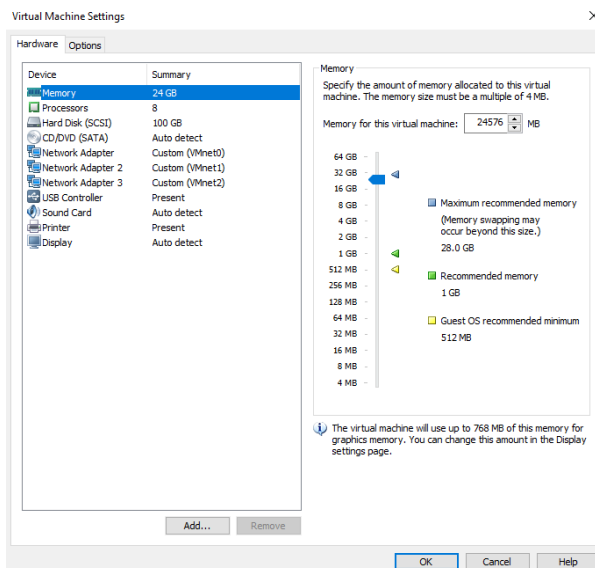


EVE VM Settings. Network adapter is bridged to VMnet0 (ethernet Intel Pro 1), and Network adapter 2 is bridged to VMnet1 (ethernet Intel Pro 2).

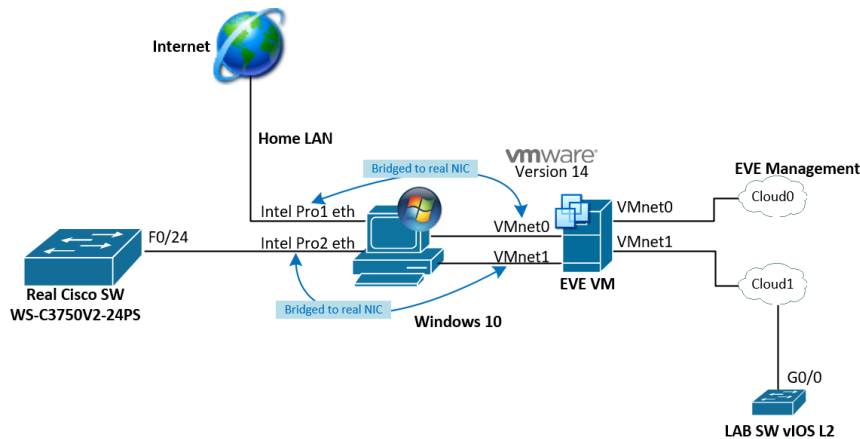
Responding cloud interfaces on EVE VM:

Cloud0 → Network Adapter → VMnet0 → IntelPro

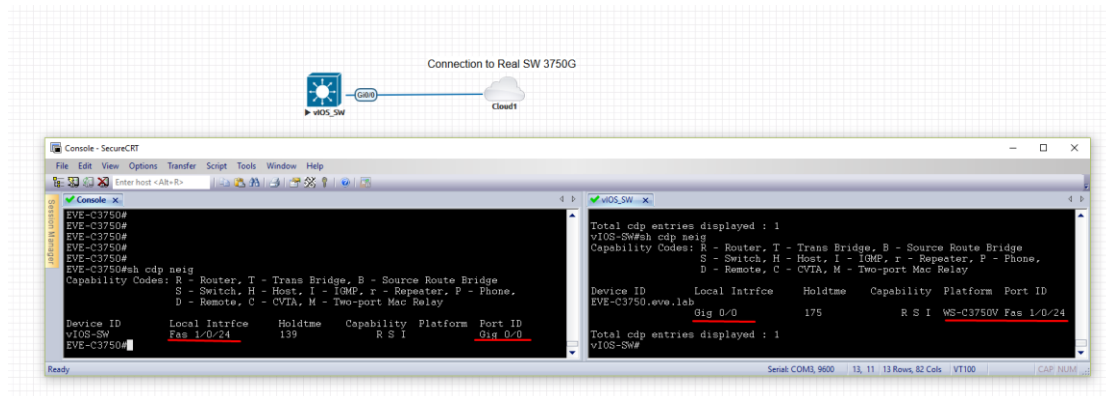
Cloud1 → Network Adapter 2 → VMnet1 → IntelPro#2



Physical connection scheme and VMware bridging.



EVE Lab scheme.



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-i-o/ethernet-products.html>

9.5.3 Bare metal server EVE

A physical server usually has more than one ethernet port, free ports can be bridged with EVE clouds and used for external connections. EVEs internal interface settings are already bridged in order, pnet0-9 are mapped to eth0-9. Refer to the bridging table in section 9.3

```
cat /etc/network/interfaces
```

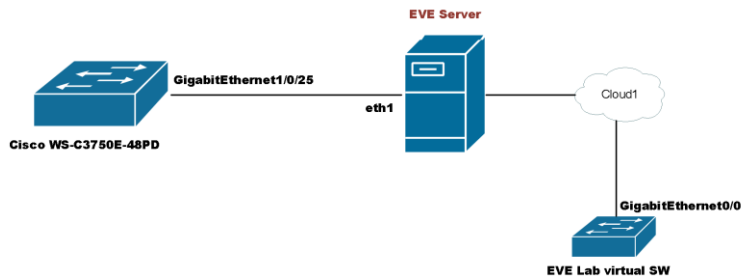
```
# Cloud devices
iface eth1 inet manual
auto pnet1
iface pnet1 inet manual
bridge_ports eth1
bridge_stp off

iface eth2 inet manual
auto pnet2
iface pnet2 inet manual
bridge_ports eth2
bridge_stp off
```

Basically, your servers physical port eth0 is bridged to pnet0 which is Cloud0 in your labs, eth1 is bridged to pnet1 which is Cloud1 in your labs (and so on). Refer to the bridging table in section 9.3

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

Physical connection topology:



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

```

Switch#sh cdp neig
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone,
                  D - Remote, C - CVTA, M - Two-port Mac Relay

Device ID         Local Intrfce   Holdtme    Capability Platform  Port ID
NottsCoreRackSwitch1_DataServices.local
Gig 0/0          140            R S I WS-C3750E Gig 1/0/25

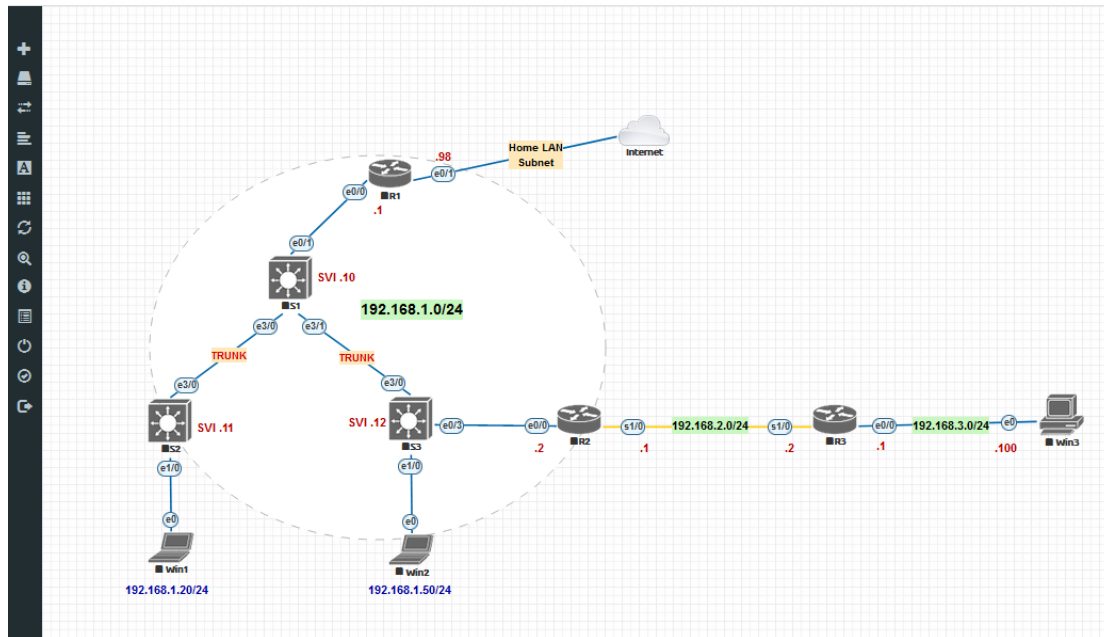
Total cdp entries displayed : 1
Switch#
  
```

10 Advanced EVE Lab features

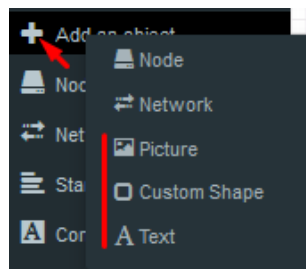
10.1 Lab design objects

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

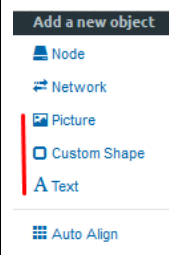
Example below, EVE lab with design elements:



Option 1: Side bar -> Add an object



Option 2: Right-click on a free area on the topology canvas to add an object.



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.

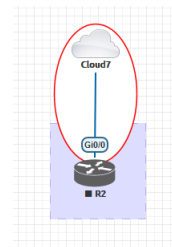
Border type: Two options: line or dashed

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

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

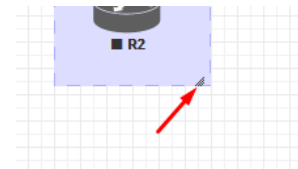
Background colour: Allows you to choose a colour to fill your shape with. This can be edited later in the “Shape Edit” menu.

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



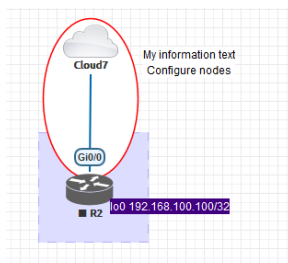
10.1.2 Resize square or circle objects

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



10.1.3 Text object

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



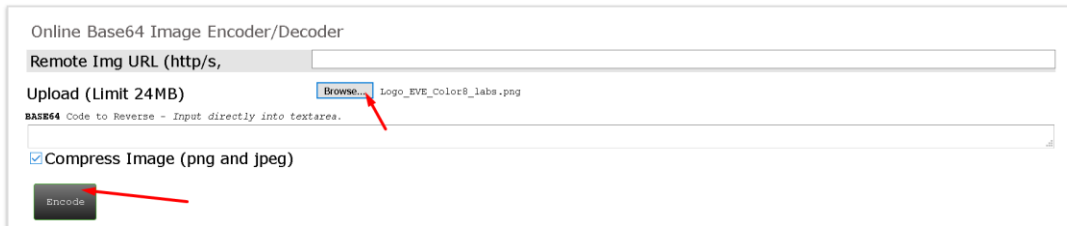
Example: text objects added to the topology.

10.1.4 Add custom picture on the Lab using Text object feature

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

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

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



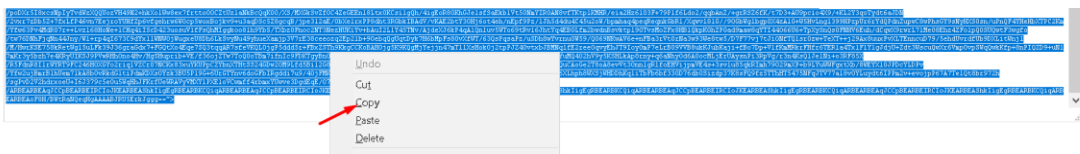
Step 2: Scroll down to find HTML format



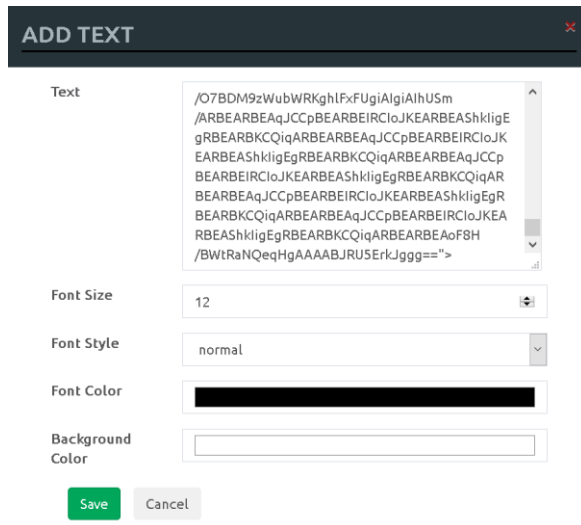
Step 3: Set your desirable size of picture.



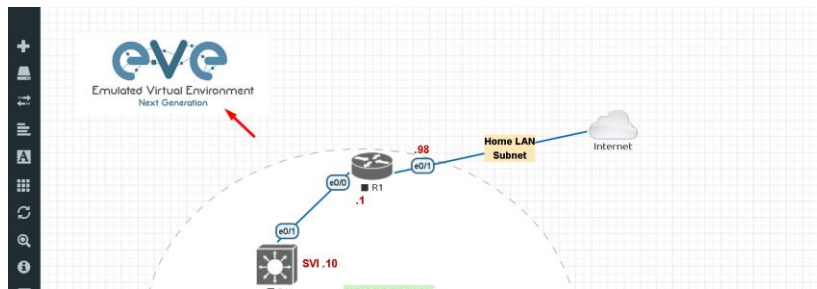
Step 4: Mark and copy all content from HTML window above



Step 4: Copy content to EVE text object

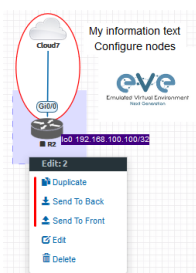


Step 5: Move and place your picture to the Lab.



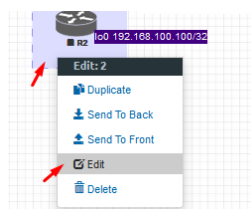
10.1.5 Cloning objects and overlay positions

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



10.1.6 Objects Editing

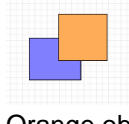
Right click the object and choose “Edit” for additional options.



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



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.

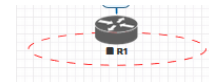
Border width: Used to change the object's border width.

Border type: Used to change the border style of the object between solid and dashed.

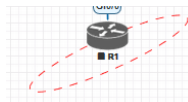
Border colour: Used to change the colour of the object's border

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

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

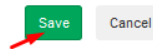


Rotate: Used to rotate the object on the topology.



Name: Used to change the object's name.

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



10.1.7 Lock objects movement

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

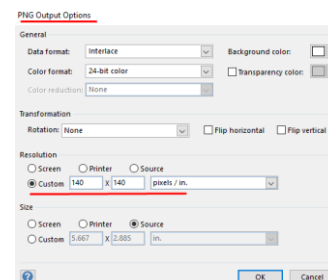
10.2 Custom design logical topology

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

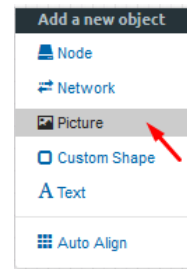
10.2.1 Custom design upload

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

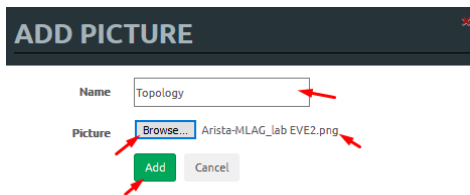
TIP: It is best is to create a topology in the MS Visio and after convert it to the .png picture format with resolution 140x140.



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.”

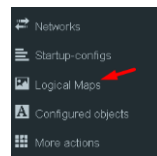


Step 2: Browse your PC for a .png or .jpg file and hit “Add”.



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

Step 3: Open the “Logical maps” menu item.



Pictures window management

	Delete uploaded picture from the lab
	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.

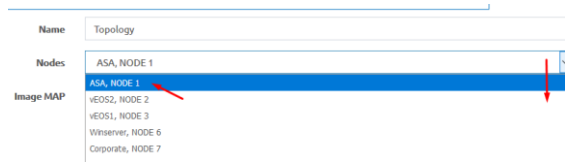
10.2.2 Custom topology mapping

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

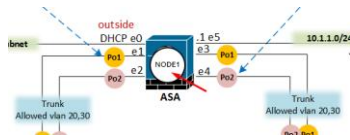
Step 1: Open the Image Map window:



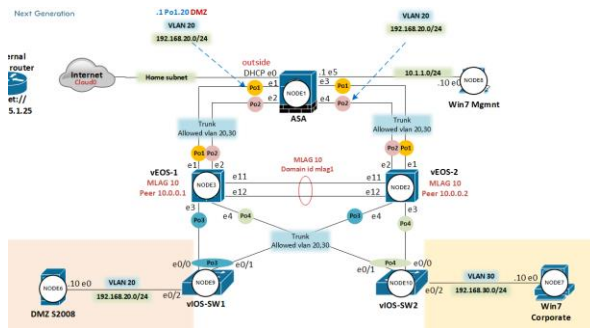
Step 2: Select a node, from the dropdown menu, that you want to map to the topology.



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 4: Continue mapping the rest of the nodes.



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

Select from menu: CUSTOM , NODE outside lab

And map with node on topology.



Change image map adding protocol, IP and port.

Image MAP

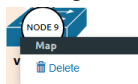
Image MAP

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

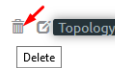


10.2.3 Delete topology or mapping

To delete a single node mapping, right click on node mapping circle and click “Delete.”



To delete the entire custom topology, click delete.



10.3 Configuration export feature

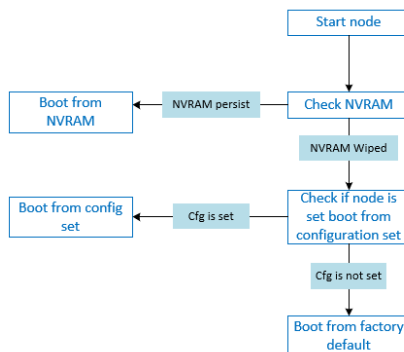
EVE Community includes an export configuration feature that allows you to save and manage configurations in a lab. The "Configuration Export" and "Startup-configs" features will allow you to set these saved configurations as startup configs for your nodes when they boot.

⚠ IMPORTANT NOTE: Before you start using the "Configuration export" feature, you must complete at least one configuration export.



Nodes will be greyed out without the option to enable "Startup-configs" until you complete at least one configuration export for each node.

Node boot order:



NVRAM: NVRAM is used as writable permanent storage for the startup configuration. During the boot process, the node will always check NVRAM for a saved configuration. Saving the configuration to NVRAM requires a vendor specific command. Cisco: copy run startup (wr), Juniper: commit, etc. It is **MANDATORY** to save a node's configuration before you can export it.

Exported configuration: A node configuration that has been exported from the node. It can be used to backup configurations or to set them as startup-configs.

Wipe node: Wiping a node will erase the NVRAM (running config) or the temporary image snapshot, depending on the type of node. Upon a successful wipe, the node will boot with the factory default configuration or the configuration included in the base image you are using. If you have the "Startup-config" feature enabled for the node, then it will boot with the chosen config set. You must wipe a node after changing certain node template settings like the image or startup-config. You also must wipe the node the first time you want to enable the "Startup-config" feature.

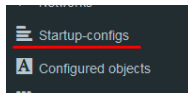
Factory default configuration: The base configuration that is applied from the manufacturer.

10.3.1 Supported nodes for configuration exports

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

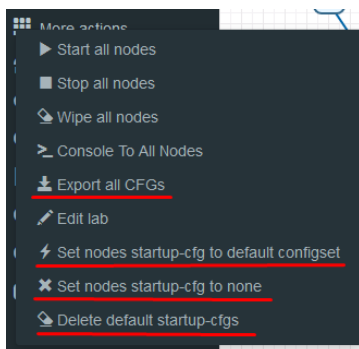
10.3.2 Startup config management

10.3.2.1 Global commands



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

Topology page, More Options:



Export all CFGs – Exports all supported node configurations.

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

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

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

10.3.2.2 Individual node commands

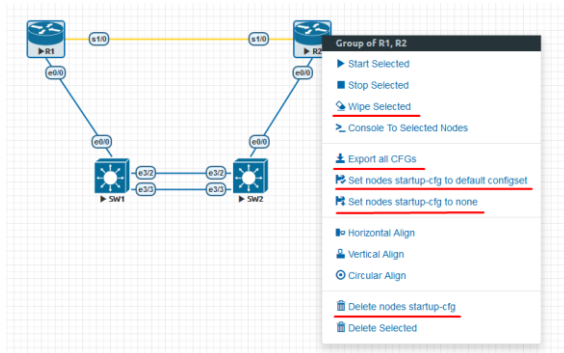
Select node, right click



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



Wipe Selected: Wipes the NVRAM for selected nodes

Export all CFGs: Exports the configuration for selected nodes

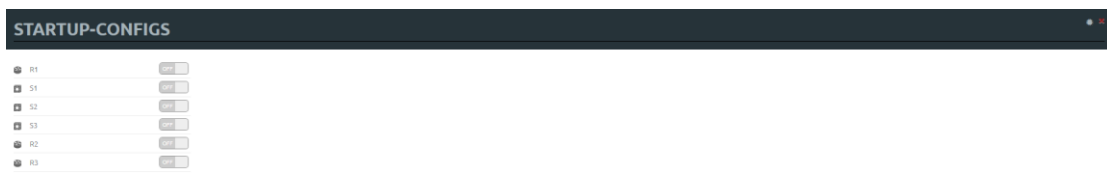
Set nodes startup-cfg to default config set: Set selected nodes to the default config set

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

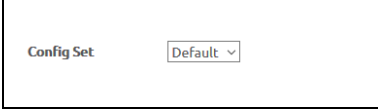


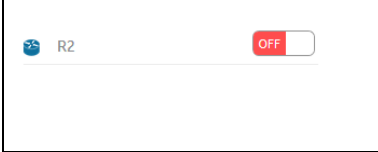
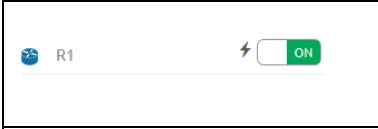
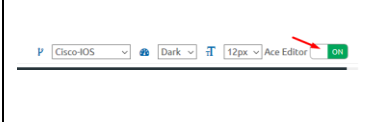
No configuration exports or manual configs loaded for nodes



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

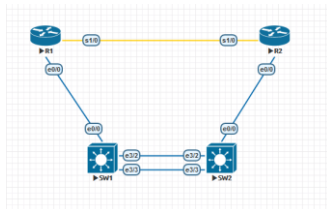


10.3.2.5 Startup-config window information

	Config set menu
	No configuration is available for node. Grey node
	Configuration is available and can be used. Blue node. Exported configuration persist
	Configuration persist but it is disabled. Node will boot from NVRAM or factory default if it is wiped
	Configuration persists and node will boot from the configuration after being wiped
	Ace Editor. Different vendor configuration edit option. Just Text visual format.

10.3.3 Export configuration

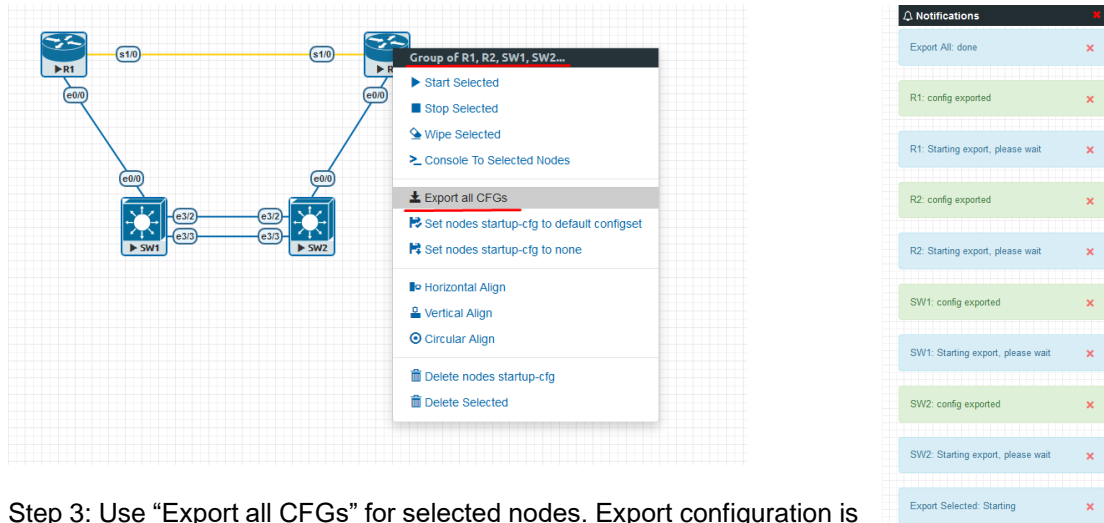
Example:



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

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

Step 2: In the example below a group of nodes were selected to export configurations.



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

10.3.4 Boot nodes from exported config set

Step 1: Stop all nodes

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



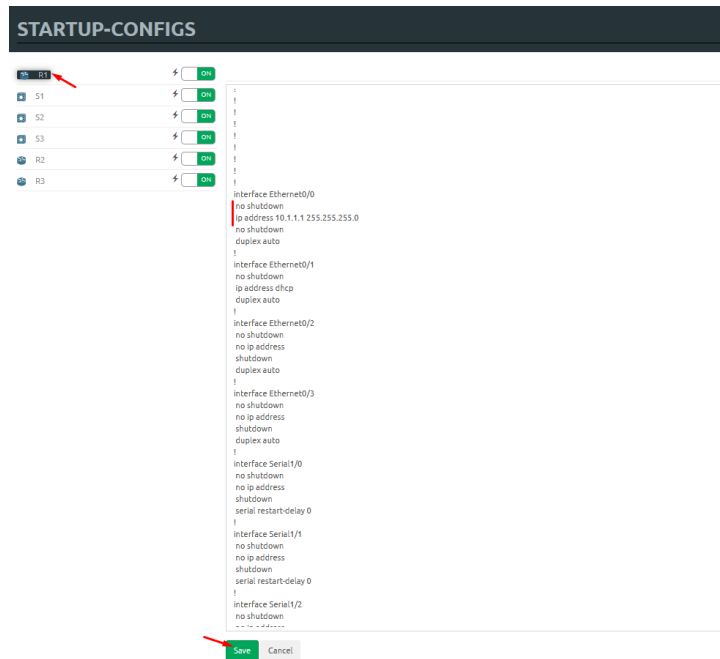
Step 3: Wipe nodes. For more information refer to section [8.1.3](#)

Step 4: Start nodes

10.3.5 Edit exported configurations

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

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



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

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

10.3.6 Set lab to boot from none

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

Step 1: Wipe nodes. Refer to section 10.3 for information about wiping nodes and the order of operations during boot.

Step 2: Open sidebar and click Startup-configs. Make sure your config is set to OFF and the nodes config switch is red (switch on/off beside node). Press the green “Save” button (on the bottom) and all your nodes will boot with no config/factory default after wiping them.




Step 3: Start nodes

10.3.7 Lab config script timeout

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

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

 **NOTE:** For heavy labs and nodes with long configurations, you can raise this timer to 600 seconds or higher.

Config Script Timeout

Seconds

11 EVE Troubleshooting

11.1 CLI diagnostic information display commands

11.1.1 Display full EVE Community diagnostic

```
eve-info
```

11.1.2 Display the currently installed EVE Community version:

```
dpkg -l eve-ng
```

```
root@eve-ng:~# dpkg -l eve-ng
Desired=Unknown/Install/Remove/Purge/Hold
| Status=Not/Inst/Conf-files/Unpacked/halF-conf/Half-inst/trig-aWait/Trig-pend
|/ Err?=(none)/Reinst-required (Status,Err: uppercase=bad)
||/ Name          Version        Architecture Description
+++-----
ii  eve-ng          2.0.3-95      amd64        A new generation software for networ
root@eve-ng:~#
```

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

```
kvm-ok
```

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

11.1.4 Display EVEs CPU INFO:

```
lscpu
```

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

11.1.5 Display EVEs HDD utilization.

If the /boot only has a little space left you can refer to section **Error! Reference source not found..** If the eve-ng-vg-root reaches 99% or 100% then you will need to expand the HDD in order to continue using EVE. The Solution to expand your HDD is described in section **11.1**

```
df -h
```

```
root@eve-ng:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            40G   0    40G   0% /dev
tmpfs           7.9G   52M   7.9G   1% /run
/dev/mapper/eve--vg-root 681G  370G  283G  57% /
tmpfs           40G   0    40G   0% /dev/shm
tmpfs           5.0M   0   5.0M   0% /run/lock
tmpfs           40G   0    40G   0% /sys/fs/cgroup
/dev/sda1       472M   83M  365M  19% /boot
root@eve-ng:~#
```

11.1.6 Display EVEs Bridge interface status

```
brctl show
```

```
root@eve-ng:~# brctl show
bridge name      bridge id          STP enabled      interfaces
docker0          8000.0242c0db8435 no                docker0
nat0             8000.000000000000 no                nat0
pnet0            8000.000c29d0aa94 no                eth0
pnet1            8000.000c29d0aabc no                eth1
                 vun11_0_1_0
pnet2            8000.000c29d0aa9e no                eth2
pnet3            8000.000c29d0aaa8 no                eth3
pnet4            8000.000c29d0aab2 no                eth4
pnet5            8000.000000000000 no
pnet6            8000.000000000000 no
pnet7            8000.000000000000 no
pnet8            8000.000000000000 no
pnet9            8000.000000000000 no
```

11.1.7 Display EVEs system services status

```
systemctl list-unit-files --state=enabled
```

```
root@eve-ng:~# systemctl list-unit-files --state=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
uuuid.socket      enabled
remote-fs.target  enabled
apt-daily-upgrade.timer enabled
apt-daily.timer   enabled
```

11.2 Expand EVEs System HDD

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

11.2.1 Expand HDD on VMware Workstation

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

Step 1: Stop all your labs and shutdown EVE.

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

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

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

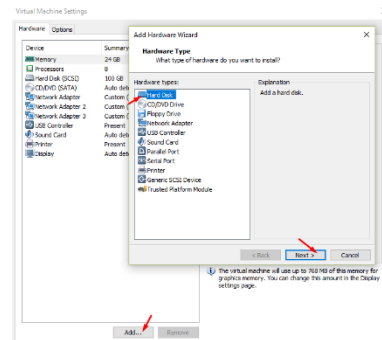
Step 4: Make sure you have selected the option “Create a new Virtual disk.”

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

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

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

Step 8: Boot your EVE VM, HDD size will be expanded automatically. To verify, use the command to verify HDD utilization referenced in section 11.1.5



11.2.2 Expand your HDD on ESXi

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

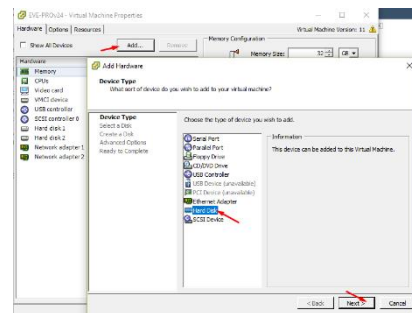
Step 1: Stop all your labs and shutdown EVE.

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

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

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

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



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

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

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

Step 8: Boot your EVE VM, the HDD size will be expanded automatically. To verify, use the command to verify HDD utilization referenced in section 11.1.5

11.2.3 Expand your HDD on a Bare Metal EVE Server

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

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

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

11.3 Reset Management IP

Type the following commands into the CLI followed by enter:

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

```
su -
```

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

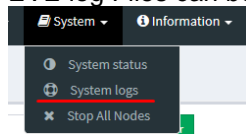
11.4 EVE Community SQL Database recovery

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

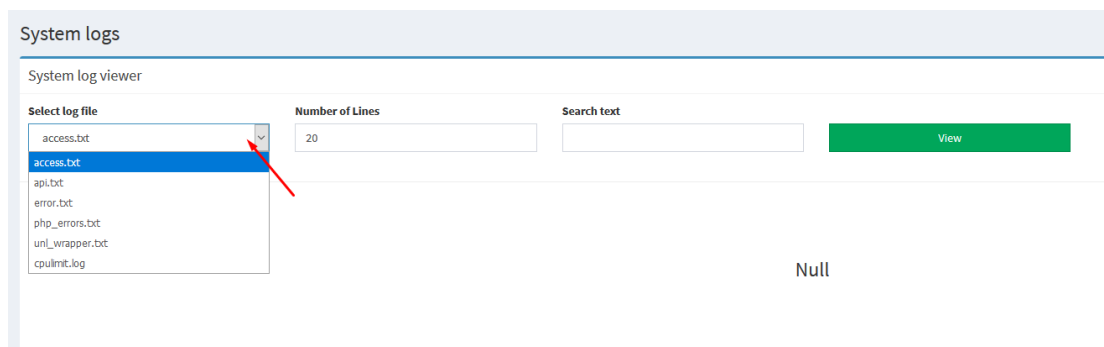
```
unl_wrapper -a restoredb
```

11.5 EVE Log files

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



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



11.6 EVE cli diagnostic info

Use EVE cli to obtain your EVE information:

```
eve-info
```

12 Images for EVE

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

Link to download WinSCP:

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

Link to download FileZilla:

<https://filezilla-project.org/>

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

Supported images for EVE are stored in the three locations:

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

12.1 Qemu image naming table

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

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

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

Folder name examples:

[firepower6-FTD-6.2.1](#)
[acs-5.8.1.4](#)

The image hdd inside the folder must be named correctly:

Example: hda.qcow2 or virtioa.qcow2

Full path Example: opt/unetlab/addons/qemu/acs-5.8.1.4/hda.qcow2

The table of proper folder names is provided in our website:

<https://www.eve-ng.net/index.php/documentation/qemu-image-namings/>

Supported HDD formats for the EVE images:

lsi([a-z]+).qcow	lsia.qcow
hd([a-z]+).qcow	hda.qcow
virtide([a-z]+).qcow	virtidea.qcow
virtio([a-z]+).qcow	virtioa.qcow

scsi([a-z]+).qcow	scsia.qcow
sata([a-z]+).qcow	sataa.qcow

12.2 How to prepare images for EVE

How to add EVE-NG images please refer to:

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

12.3 How to add custom image template

12.3.1 Templates folder choice

⚠ IMPORTANT NOTE: Starting from EVE-Community Version 2.0.3-107, EVE installation is autodetecting what kind of CPU manufacturer has your server: Intel or AMD, to choose proper templates set. You can check it manually on EVE cli: example below, showing that EVE has Intel CPU.

```
root@eve-ng:~# lsmod | grep ^kvm_
kvm_intel 212992 74
root@eve-ng:~#
```

- If you have Intel CPU, then your template files are in **"`/opt/unetlab/html/templates/intel/`"**
- If you have AMD CPU, then your template files are in **"`/opt/unetlab/html/templates/amd/`"**

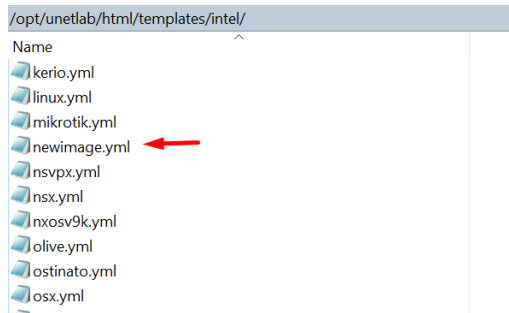
12.3.2 Prepare template file

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

Example below will be based for Intel CPU EVE custom image template. Use EVE cli or WinSCP/Filezilla to create template.

Step 1: Navigate to EVE location: **`/opt/unetlab/html/templates/intel/`**

Step 2: Choose your most suitable template from which you want to create your own image template. (example: `newimage.yml`)



Step 3: Make a copy from source template `newimage.yml`. Example: Using CLI create template and name it `ngips.yml`.

```
cp /opt/unetlab/html/templates/intel/newimage.yml /opt/unetlab/html/templates/intel/ngips.yml
```

You can create new template using WinSCP or Filezilla as well.

```
root@eve-ng:~# cp /opt/unetlab/html/templates/intel/newimage.yml /opt/unetlab/html/templates/intel/ngips.yml
root@eve-ng:~# cd /opt/unetlab/html/templates/intel/
root@eve-ng:~/opt/unetlab/html/templates/intel# ls
a10.yml          c7200.yml          cumulus.yml        ios.yml            ise.yml            palcalto.yml       sterra.yml         versadir.yml       vtedge.yml
acs.yml          c9800cl.yml        cup.yml            isospace.yml       juniper-vrr.yml    phoebe.yml         timoscpm.yml      versafvrf.yml     vtmgmt.yml
alton.yml        cda.yml            cyberoam.yml       jspace.yml         junipervrr.yml     prime.yml           timosiom.yml      vios2l2.yml       vtsmart.yml
ampcloud.yml     cexpresw.yml       dcnm.yml           kerio.yml           linux.yml           pulse.yml           titanium.yml       vmxvcp.yml         vwaas.yml
apicem.yml       cips.yml           docker.yml         mikrotik.yml       newimage.yml       riverbed.yml        trendmivtps.yml   vmlc.yml          vvos.yml
arubacx.yml      clearpass.yml      esxi.yml           ncs.yml            ncs6500.yml        scrutinizer.yml    uccx.yml          vnm.yml           winserver.yml
aruba.yml        cms.yml            extremexos.yml     firepower6.yml     ngips.yml          silveredge.yml     vcenter.yml       vpcv.yml          win9xk.yml
asa.yml          cpsg.yml           firepower.yml      fortinet.yml       nxosv9k.yml        silverorch.yml     veloege.yml       vqfxpe.yml        xrv.yml
barracuda.yml   csr1000vng.yml     h3c.yml           h3c6800.yml        h3c6800-1000.yml  sonicwall.yml      velogw.yml        vqfxre.yml        *.yml
bigip.yml        csr1000v.yml       hpvr.yml           huaweiark.yml       nxosv9k.yml        sophosutn.yml     veloorch.yml      versng.yml        versrx.yml
brocadevadx.yml ctxsdw.yml         huaweiusg6kv.yml olive.yml           olt.yml            sophosxg.yml       veos.yml          versaana.yml       vtbond.yml
c1710.yml        cucm.yml           huaweiusg6kv.yml olt.yml            olt.yml            stealth.yml         versaana.yml      vtbond.yml
c3725.yml        cue.yml            infoblox.yml       ostinato.yml
root@eve-ng:~/opt/unetlab/html/templates/intel#
```

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/qemu# ls
a10-vThunder-4.1.4-1-18100of13
ampcloud-2.3.5-L
ampcloud-3.0.2
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
ise-2.6.0.156.SPA-L
junipervrr-19.2R1-S2.2
kerio-control-9.3.2
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
```

12.3.3 Prepare interface format and name lines

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

Formula	Template line format example	Will produce
eth_format: <prefix>{<first value for slot: example 1>}<separator>{<first value for port>-<number of port per slot: example 8>}	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 value for slot: example 0>}<separator>{<first value for port>-<number of port per slot: example 4>}	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

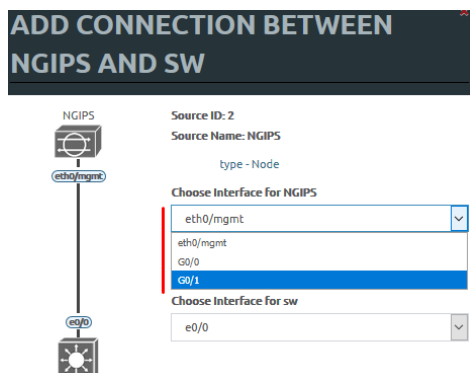
	
eth_format: <prefix>{<first value>}	eth_format: Gi{0}	Gi0 Gi1 Gi2 Gi3 ...
eth_format: <prefix>{<first value>}	eth_format: G0/{0}	G0/0 G0/1 G0/2 G0/3 ...
eth_name: <prefix: Interface custom name>	eth_name: - M1 - T1 - T2	M1 T1 T2
eth_name: <prefix: Interface custom name>	eth_name: - MGMT - DATA - TRAFFIC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



12.3.4 Edit your new template file:

For edit newly created template you can use WinSCP, FileZilla or cli. Example below shows template edit using cli and *nano* editor

```
cd /opt/unetlab/html/templates/intel/
nano ngips.yml
```

Change content, setting for various images can vary depends of vendor requirements. The interface name lines please refer Section: [12.3.1](#)

```
# Copyright (c) 2016, Andrea Dainese
# Copyright (c) 2018, Alain Degreffé
# All rights reserved.
#
# Redistribution and use in source and binary forms, with or without
# modification, are permitted provided that the following conditions are met:
# * Redistributions of source code must retain the above copyright
#   notice, this list of conditions and the following disclaimer.
# * Redistributions in binary form must reproduce the above copyright
#   notice, this list of conditions and the following disclaimer in the
#   documentation and/or other materials provided with the distribution.
# * Neither the name of the UNetLab Ltd nor the name of EVE-NG Ltd nor the
#   names of its contributors may be used to endorse or promote products
#   derived from this software without specific prior written permission.
#
# THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
# ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
# WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
# DISCLAIMED. IN NO EVENT SHALL <COPYRIGHT HOLDER> BE LIABLE FOR ANY
# DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
# (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
# LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
# ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
# (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
# SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
---
type: qemu
name: NGIPS ← Node name on the Topology
description: Cisco FirePower NGIPS ← Node list name
cpulimit: 1
icon: IPS.png
cpu: 4
ram: 8192
ethernet: 3
eth_name:
- eth0/mgmt
eth_format: eth{1}
console: vnc
shutdown: 1
qemu_arch: x86_64
qemu_version: 2.4.0
qemu_nic: e1000
qemu_options: -machine type=pc,accel=kvm -serial none -nographic -no-user-config
              -ndefaults -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

12.3.5 Prepare new icon for your template:

Step 1 Use Filezilla or Winscp to copy your custom icon IPS.png (icon filename IPS.png used in ngips.yml)

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

Step 2 Copy this new icon into /opt/unetlab/html/images/icons/

12.3.6 Template use

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

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

Step 4.2 Upload image NGIPS, Refer Section: [□](#)

12.4 How to hide unused images in the node list

12.4.1 Creating new config.php file

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

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

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

```
mv config.php.distribution config.php
```

12.4.2 Edit config.php file

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

```
nano config.php
```

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

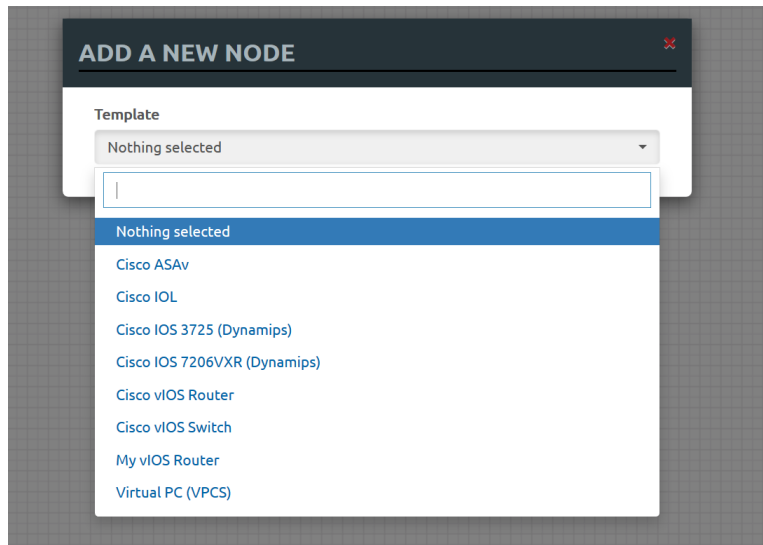
“hided” will remove unloaded/empty image templates from nodes list in WEB GUI

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

Example below will give you result:

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

You are seeing only templates with loaded images.



13 EVE Backup Solution

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

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

13.1 Backup manager

13.1.1 Backup Manager Installation

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

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

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

13.1.2 Setup external SFTP or FTP server

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

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

Examples of external SFTP server setup:

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

13.1.3 Backup Manager SFTP/FTP settings

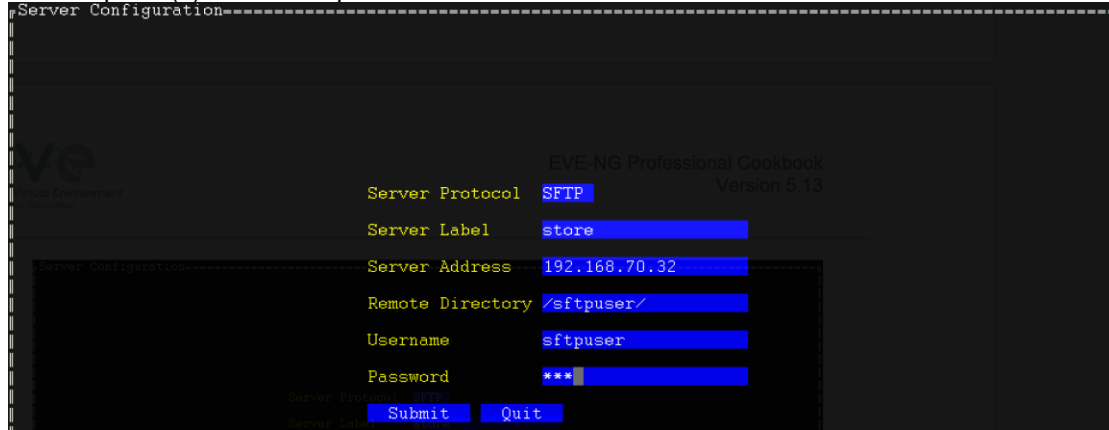
- ⚠ **IMPORTANT NOTE:** It's a must to stop all running labs (nodes) before starting a backup process. If you have satellites, then make sure they are and connected to the Master. Satellites backup will be done automatically.

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

```
root@eve-ng:~# backup-manager
```

```
-----Backup Manager Main Menu-----
(e) Edit Backup Server required to setup external SFTP/FTP server. This part is out of EVE-
(c) Create Backup every user can install and establish its own way. The main pre-requisite
(r) Restore Backup or must be fully reachable from EVE server and back from SFTP server to
(q) Quit s 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



Server Protocol: Select your designated backup server protocol FTP or SFTP

Server Label: Name your Server Label, free to name it.

Server Address: Put your backup server IP,

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

Username: Put your SFTP server username

Password: Put your SFTP user password

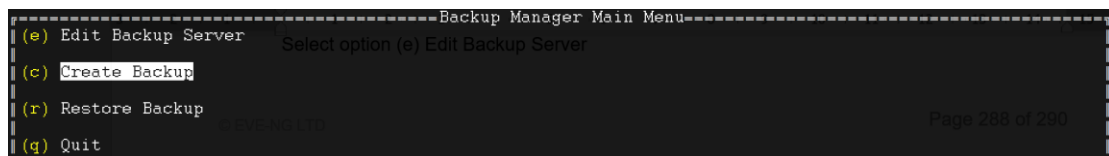
Submit

13.2 Create an EVE-NG Backup

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

```
root@eve-ng:~# backup-manager
```

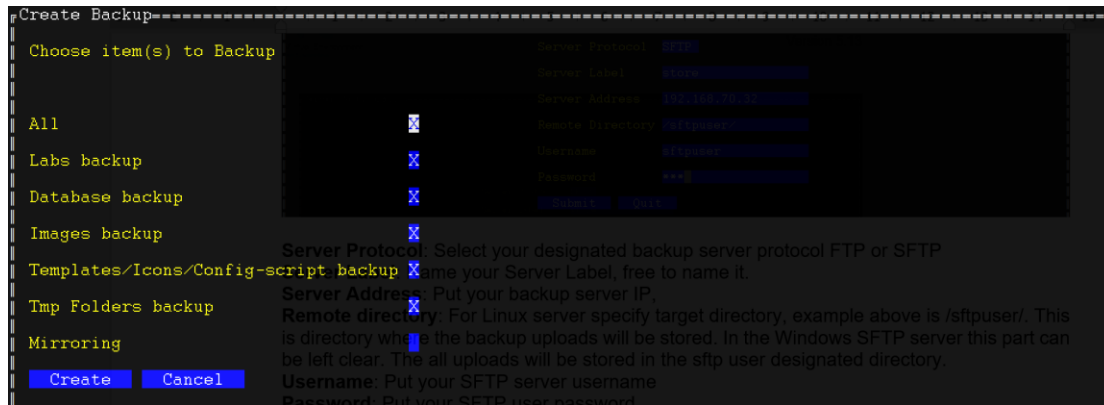
Select option (c) Create Backup.



13.2.1 Backup option All

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

Select your backup items:



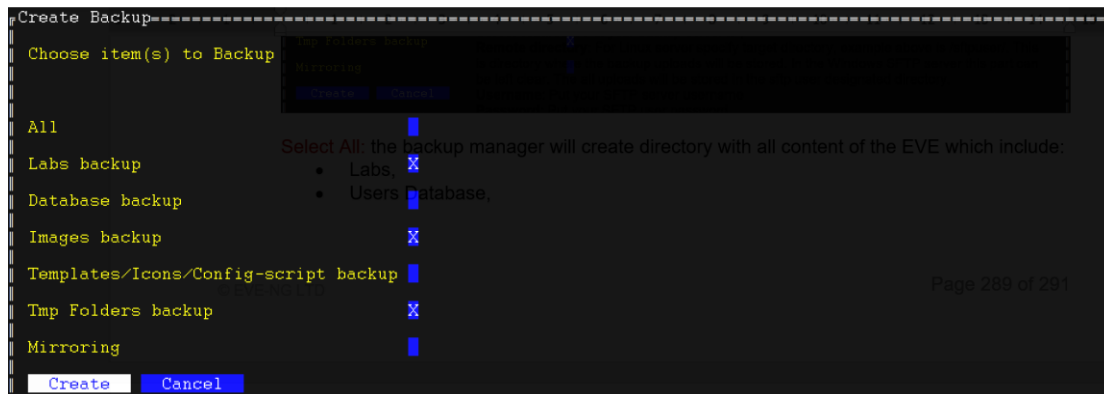
Select All: the backup manager will create directory with all contents of EVE which includes:

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

13.2.2 Backup option custom selected

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

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



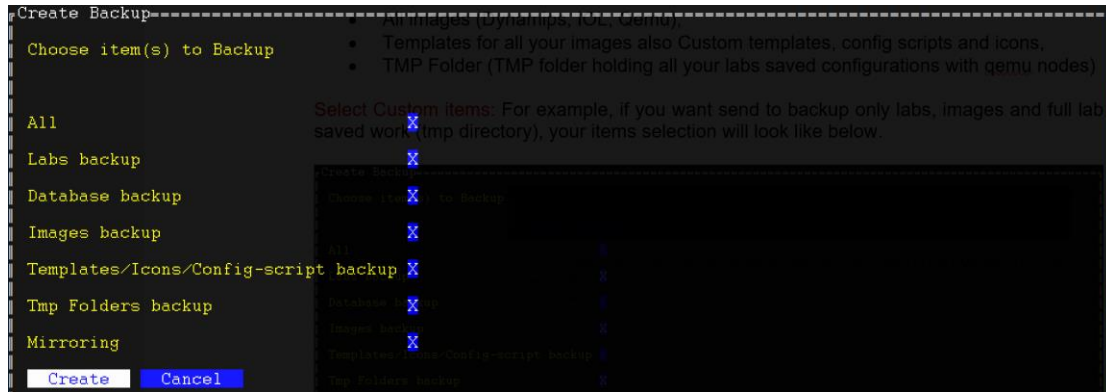
This backup folder will only contain Lab files (topologies), all images (vendor images) from the EVE in the current stage and the TMP folder (saved labs with all configurations) for all EVE users.

13.2.3 Backup option with Mirroring selected

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

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

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

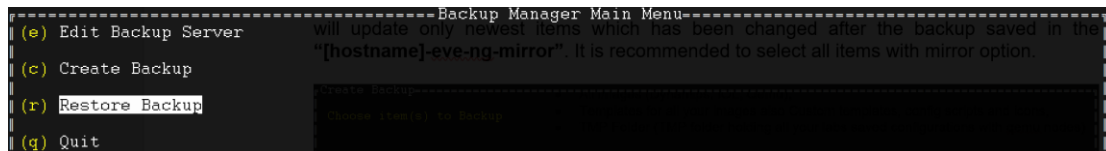


13.3 Restore data from EVE-NG Backup

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

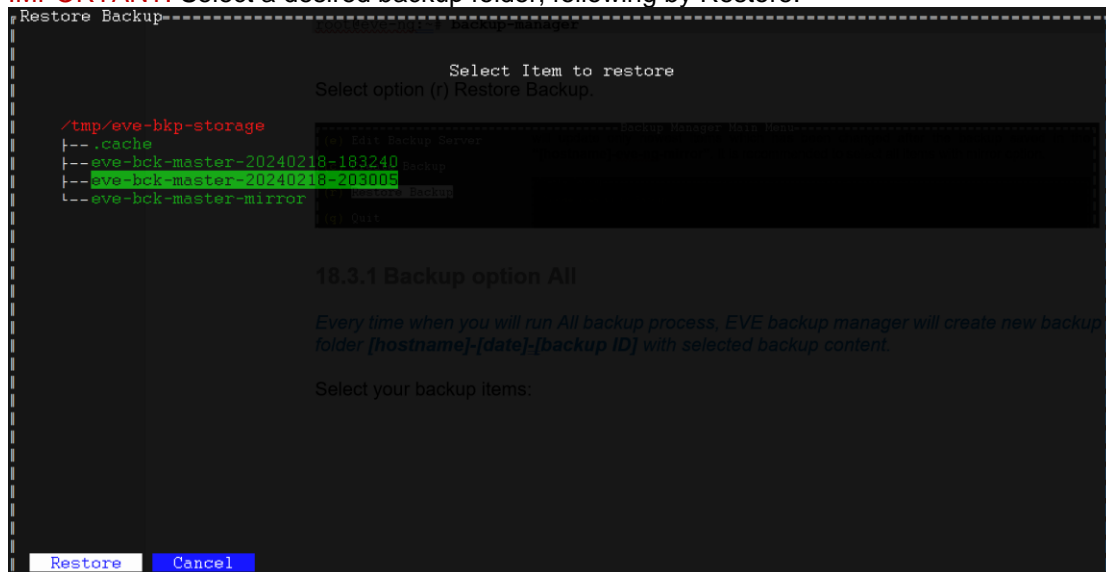
```
root@eve-ng:~# backup-manager
```

Select option (r) Restore Backup.



13.3.1 Select restore backup folder

IMPORTANT: Select a desired backup folder, following by Restore.

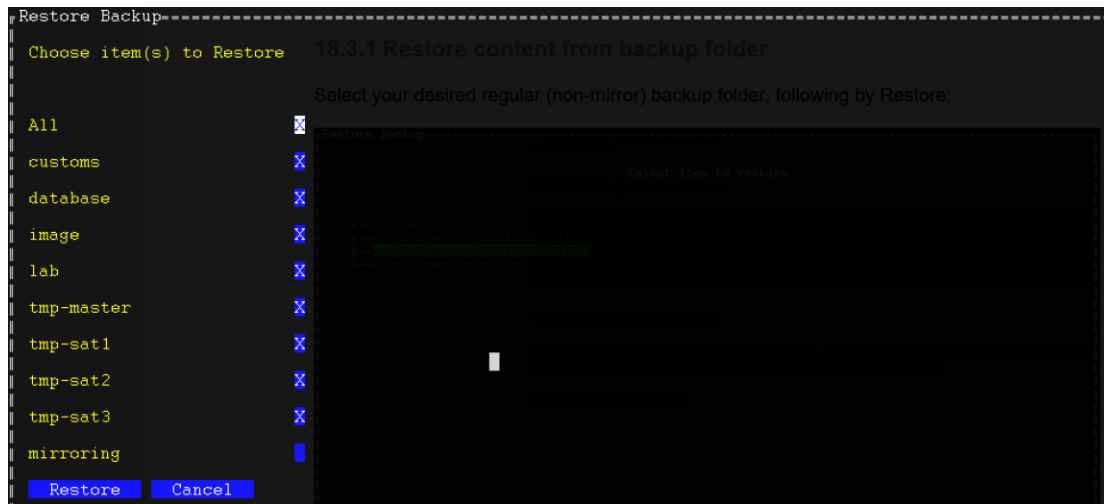


13.3.2 Select the items to restore

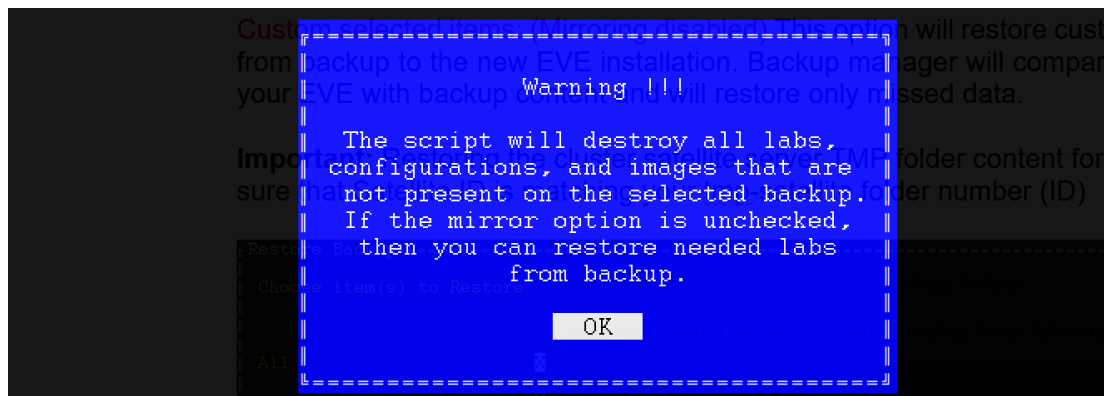
All: (Mirroring disabled) This option is useful to restore all data from backup to the new EVE installation. Backup manager will compare your existing data on your EVE with backup content and will restore only missing data.

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

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



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.



14 EVE Resources

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

How to updates: <https://www.eve-ng.net/index.php/documentation/howtos/>

How to videos: <https://www.eve-ng.net/index.php/documentation/howtos-video/>

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

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

For access to live chat use your Google account or create new chat account.

EVE forum: <https://www.eve-ng.net/forum/>

To access forum resources, please create a new forum account.

EVE YouTube channel:

<https://www.youtube.com/playlist?list=PLF8yvsYkPZQ0myW7aVMZ80k8FU04UUgjV>

EVE Professional downloads: <https://www.eve-ng.net/index.php/download/>

EVE Community version downloads, free: <https://www.eve-ng.net/index.php/community/>

EVE Supported images: <https://www.eve-ng.net/index.php/documentation/supported-images/>