

# EVE-NG Community Cookbook

Version 1.10

Author: Uldis Dzerkals

Editors: Michael Doe Christopher Lim

© 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**

Ρ	REFACE		7
1	INTROD	UCTION	8
	1.1 WHA	AT IS EVE-NG?	8
	1.2 WHA	AT IS EVE-NG USED FOR?	8
	1.3 WHO	DIS EVE-NG FOR?	8
2	SYSTEM	I REQUIREMENTS	9
	2.1 HAR	DWARE REQUIREMENTS	9
	2.1.1	Minimal Laptop/PC Desktop system requirements	
	2.1.2	Recommended Laptop/PC Desktop system requirements	
	2.1.3	Virtual Server system requirements	
	2.1.4	Dedicated Server (bare) system requirements	
	2.1.5	Nodes per lab calculator	
		PORTED VIRTUALIZATION PLATFORMS AND SOFTWARE	
	2.3 UNS	UPPORTED HARDWARE AND SYSTEMS	12
3	INSTAL	LATION	13
	3.1 VM	VARE WORKSTATION OR VM PLAYER	13
	3.1.1	VMware workstation EVE VM installation using ISO image (preferred)	
	3.1.1.1	EVE VM Setup and Settings	
	3.1.1.2	EVE-NG VM Installation steps	
	3.1.2	VMware workstation OVF deployment	22
	3.1.2.1	Deployment and VM machine settings	
	3.1.2.2	OVF VM update to the latest EVE version	
	3.1.2.3	OVF VM HDD Size expansion	
		VARE ESXI	
	3.2.1	VMware ESXi EVE installation using ISO image (preferred)	
	3.2.1.1 3.2.1.2	EVE-NG ESXi VM Setup and Settings EVE-NG ESXi VM Installation steps	
	3.2.2	VMware ESXi OVF deployment	
	3.2.2.1	ESXI OVF VM Setup and Settings	
	3.2.2.2	ESXI OVF VM octop and sectings ESXI OVF VM update to the latest EVE version	
	3.2.2.3	ESXi OVF VM HDD Size expansion	
	3.3 BAR	E HARDWARE SERVER EVE INSTALLATION	
	3.3.1	Ubuntu Server Installation Phase 1	34
	3.3.2	EVE Community Installation Phase 2	
	3.3.3	EVE Community Installation Phase 3	
		OGLE CLOUD PLATFORM	
		Google account	
	3.4.2	Goggle Cloud project	43
	3.4.3	Preparing Ubuntu boot disk template	
	3.4.4	Creating VM	
	3.4.5	EVE-NG-Community installation	
	3.4.6	Access to Google Cloud EVE-COMM	50
	3.4.7	Optional: GCP Firewall rules for native console use	50
		Management IP Address setup Management static IP address setup (preferred)	
	3.5.1	wanayement static in address setup (preterred)	33



3.5.2 3.5.3	EVE Management IP address setup via DHCP EVE Management IP address reset	
	-NG COMMUNITY UPGRADE TO EVE-NG PROFESSIONAL	
3.6.1	Mandatory Prerequisites	
3.6.1.1	EVE Community disk space	
3.6.1.2	Verify current EVE Community version	
3.6.1.3	Steps to upgrade to the latest EVE Community version	
3.6.2	Upgrading EVE Community to EVE-NG Professional	
	IVE TELNET CONSOLE MANAGEMENT SETUP	
3.7.1	Windows Native Console	
3.7.2	Linux Native Console	
3.7.2	MAC OSX Native Console	
00	IN TO THE EVE WEB GUI	
3.8 LOG	IN TO THE EVE WEB GUT	. 64
4 EVE-NG	COMMUNITY UPDATE & UPGRADE	66
4.1 EVE	-NG COMMUNITY UPDATE	. 66
4.2 EVE	-NG COMMUNITY UPGRADE	. 67
		~~
5 TYPES	OF EVE MANAGEMENT CONSOLES	. 69
5.1 NAT	IVE CONSOLE	. 69
5.1.1	Native Console: telnet	. 69
5.1.2	Native Console: Wireshark	
5.1.3	Native Console: VNC	
5.1.4	Native Console: RDP	
-	AL5 CONSOLE	
5.2.1	HTML5 Console: Telnet	
5.2.2	HTML5 Console: VNC	
-		
522	HTML 5 Consolo: PDP for Windows	75
5.2.3	HTML5 Console: RDP for Windows	
	HTML5 Console: RDP for Windows B GUI MANAGEMENT	
6 EVE WE	B GUI MANAGEMENT	. 77
6 EVE WE 6.1 EVE	B GUI MANAGEMENT	. <b>77</b> . 77
6 EVE WE 6.1 EVE 6.1.1	B GUI MANAGEMENT Management Page Management buttons	. <b>77</b> . 77 . 77
6 EVE WE 6.1 EVE 6.1.1 6.1.2	B GUI MANAGEMENT Management Page Management buttons Management tabs	. <b>77</b> . 77 . 77 . 78
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL	B GUI MANAGEMENT Management Page Management buttons Management tabs Ders AND LAB FILES MANAGEMENT	. <b>77</b> . 77 . 77 . 78 . 79
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1	B GUI MANAGEMENT Management Page Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management	. <b>77</b> . 77 . 77 . 78 . 79 . 79
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.1	B GUI MANAGEMENT Management Page Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder	. 77 . 77 . 77 . 78 . 79 . 79 79
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.1.1 6.2.1.2	B GUI MANAGEMENT MANAGEMENT PAGE Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder	. 77 . 77 . 77 . 78 . 79 . 79 79 79
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.1.1 6.2.1.2 6.2.1.2 6.2.1.3	B GUI MANAGEMENT Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Move Folder	. 77 . 77 . 77 . 78 . 79 . 79 79 79 79
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.1.1 6.2.1.2 6.2.1.3 6.2.1.4	B GUI MANAGEMENT Management PAGE Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Move Folder Export Folder.	. 77 . 77 . 78 . 79 . 79 . 79 79 79 79 79 80
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.1.1 6.2.1.2 6.2.1.3 6.2.1.4 6.2.1.5	B GUI MANAGEMENT Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Move Folder Export Folder Import Folder	. 77 . 77 . 78 . 79 . 79 . 79 . 79 79 79 80 80
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.1.1 6.2.1.2 6.2.1.3 6.2.1.4 6.2.1.5 6.2.2	B GUI MANAGEMENT MANAGEMENT PAGE Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Export Folder Export Folder Lab files Management.	. 77 . 77 . 78 . 79 . 79 . 79 . 79 79 79 80 80 81
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.1.1 6.2.1.2 6.2.1.3 6.2.1.4 6.2.1.5 6.2.2 6.2.2 6.2.2.1	B GUI MANAGEMENT MANAGEMENT PAGE Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Move Folder Export Folder Import Folder Lab files Management. Create Lab	. 77 . 77 . 78 . 79 . 79 . 79 . 79 79 79 80 80 81 82
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.1.1 6.2.1.2 6.2.1.3 6.2.1.4 6.2.1.5 6.2.2 6.2.2 6.2.2.1 6.2.2.1 6.2.2	B GUI MANAGEMENT MANAGEMENT PAGE Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Export Folder Import Folder Lab files Management. Create Lab Delete Lab	. 77 . 77 . 77 . 78 . 79 . 79 79 79 79 79 80 80 81 82 82
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.1.3 6.2.1.3 6.2.1.5 6.2.2 6.2.2 6.2.2.1 6.2.2 6.2.2.1 6.2.2 6.2.2.1 6.2.2 6.2.2.1 6.2.2 6.2.2.1 6.2.2 6.2.2.1 6.2.2.2 6.2.2.3	B GUI MANAGEMENT MANAGEMENT PAGE Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Move Folder Export Folder Import Folder Lab files Management. Create Lab Delete Lab Clone Lab	. 77 . 77 . 77 . 78 . 79 . 79 79 79 79 79 79 79 79 79 79 79 79 79 79 
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.1.1 6.2.1.2 6.2.1.3 6.2.1.4 6.2.1.5 6.2.2 6.2.2.1 6.2.2.1 6.2.2.2 6.2.2.1 6.2.2.2 6.2.2.3 6.2.2.4	B GUI MANAGEMENT MANAGEMENT PAGE Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Move Folder Export Folder Import Folder Lab files Management. Create Lab Delete Lab Clone Lab Move Lab.	. 77 . 77 . 78 . 79 . 79 79 79 79 79 80 80 80 81 82 82 82 83
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.1.2 6.2.1.3 6.2.1.3 6.2.1.4 6.2.1.5 6.2.2 6.2.2.1 6.2.2.1 6.2.2.2 6.2.2.1 6.2.2.2 6.2.2.1 6.2.2.2 6.2.2.3 6.2.2.4 6.2.2.5	B GUI MANAGEMENT MANAGEMENT PAGE. Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Move Folder Export Folder Lab files Management. Create Lab Delete Lab Clone Lab Move Lab Export Lab	. 77 . 77 . 78 . 79 . 79 79 79 79 79 80 80 81 82 82 82 83 83
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.12 6.2.13 6.2.13 6.2.14 6.2.15 6.2.2 6.2.21 6.2.21 6.2.23 6.2.23 6.2.24 6.2.25 6.2.26	B GUI MANAGEMENT MANAGEMENT PAGE. Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Move Folder Export Folder Lab files Management. Create Lab Delete Lab Clone Lab Move Lab Export Lab Import Labs	.77 .77 .77 .78 .79 .79 79 79 79 79 80 80 80 81 82 82 82 82 83 83 84
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.12 6.2.13 6.2.13 6.2.14 6.2.15 6.2.2 6.2.21 6.2.21 6.2.21 6.2.21 6.2.25 6.2.24 6.2.25 6.2.26 6.3 EVE	B GUI MANAGEMENT MANAGEMENT PAGE Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Export Folder Lab files Management Create Lab Delete Lab Clone Lab Move Lab Export Lab Import Labs MANAGEMENT DROPDOWN MENU	.77 .77 .77 .78 .79 .79 79 79 79
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.12 6.2.13 6.2.14 6.2.15 6.2.2 6.2.21 6.2.21 6.2.23 6.2.23 6.2.24 6.2.25 6.2.26 6.3 EVE 6.3.1	B GUI MANAGEMENT Management buttons Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Export Folder Lab files Management Create Lab Delete Lab Clone Lab Move Lab Export Lab Import Labs MANAGEMENT DROPDOWN MENU EVE User management	.77 .77 .78 .79 .79 79 79 79 79
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.12 6.2.13 6.2.13 6.2.14 6.2.15 6.2.2 6.2.21 6.2.23 6.2.24 6.2.25 6.2.26 6.3 EVE 6.3.1 6.3.11	B GUI MANAGEMENT Management buttons Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Move Folder Export Folder Import Folder Lab files Management. Create Lab Delete Lab Clone Lab Move Lab Export Lab Import Labs MANAGEMENT DROPDOWN MENU EVE User management Creating a new EVE User	.77 .77 .78 .79 .79 79 79 79 79
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.12 6.2.13 6.2.1.3 6.2.1.4 6.2.1.5 6.2.2 6.2.2 6.2.2 6.2.2.1 6.2.2 6.2.2.3 6.2.2.4 6.2.2.5 6.2.2.6 6.3 EVE 6.3.1 6.3.1.1 6.3.1.2	B GUI MANAGEMENT Management buttons	.77 .77 .78 .79 .79 79 79 79 79
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.12 6.2.13 6.2.13 6.2.14 6.2.15 6.2.2 6.2.21 6.2.23 6.2.24 6.2.25 6.2.26 6.3 EVE 6.3.1 6.3.12 6.3.13	B GUI MANAGEMENT MANAGEMENT PAGE Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Export Folder Lab files Management Create Lab Delete Lab Clone Lab Move Lab Export Lab Import Labs MANAGEMENT DROPDOWN MENU EVE User management Creating a new EVE User Edit EVE User User monitoring	.77 .77 .78 .79 .79 79 79 79 79
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.12 6.2.13 6.2.1.4 6.2.1.5 6.2.2 6.2.2 6.2.2 6.2.2 6.2.2 6.2.2 6.2.2 6.2.2 6.2.2 6.2.2 6.2.2 6.2.2 6.2.1 6.2.2 6.2.3 6.2.2 6.2.3 6.2.2 6.2.3 6.2.2 6.2.3 6.2.1 6.2.3 6.2.1 6.2.3 6.2.1 6.2.3 6.2.1 6.2.3 6.2.1 6.2.3 6.2.1 6.2.3 6.2.3 6.2.1 6.2.3 6.2.3 6.2.4 6.2.5 6.2.2 6.2.3 6.2.2 6.2.3 6.2.2 6.2.3 6.2.2 6.2.3 6.2.2 6.2.3 6.2.2 6.2.3 6.2.2 6.2.3 6.2.2 6.2.3 6.2.2 6.2.3 6.2.3 6.2.4 6.2.5 6.2.2 6.2.3 6.2.3 6.2.4 6.2.3 6.2.3 6.2.4 6.2.5 6.2.2 6.2.3 6.2.4 6.2.5 6.2.2 6.2.3 6.2.4 6.2.5 6.2.2 6.2.3 6.2.2 6.3 EVE 6.3.1 6.3.12 6.3.13 6.3.13 6.4 EVE	B GUI MANAGEMENT MANAGEMENT PAGE Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Export Folder Export Folder Lab files Management. Create Lab Delete Lab Clone Lab Move Lab Export Lab Import Labs MANAGEMENT DROPDOWN MENU EVE User management Creating a new EVE User Edit EVE User User monitoring SYSTEM DROPDOWN MENU.	. 77 . 77 . 78 . 79 . 79 . 79 . 79 
6 EVE WE 6.1 EVE 6.1.1 6.1.2 6.2 FOL 6.2.1 6.2.12 6.2.13 6.2.13 6.2.14 6.2.15 6.2.2 6.2.21 6.2.23 6.2.24 6.2.25 6.2.26 6.3 EVE 6.3.1 6.3.12 6.3.13	B GUI MANAGEMENT MANAGEMENT PAGE Management buttons Management tabs DERS AND LAB FILES MANAGEMENT Folders Management Create folder Delete folder Export Folder Lab files Management Create Lab Delete Lab Clone Lab Move Lab Export Lab Import Labs MANAGEMENT DROPDOWN MENU EVE User management Creating a new EVE User Edit EVE User User monitoring	.77 .77 .78 .79 .79 .79 79 79 79



	6.4.3	Stop All Nodes	
6	5.5 EVE	INFORMATION DROPDOWN MENU	. 89
6		IER TAB LINE INFO	
6	5.7 Lab	PREVIEW AND GLOBAL SETTINGS	. 89
	6.7.1	Lab preview window	. 90
	6.7.2	Lab preview buttons	
	6.7.3	Lab preview information	
	6.7.4	Lab Global Settings	
7			
1		E BAR FUNCTIONS	
	7.1.1	Add an object	
	7.1.1.1	Node object	
	7.1.1.2	Network object	
	7.1.1.3	Picture object	
	7.1.1.4	Custom shape object	
	7.1.1.5 <b>7.1.2</b>	Text object	
		Nodes	
	7.1.3	Networks	
	7.1.4	Startup-configs	
	7.1.5	Logical Maps	
	7.1.6	Configured Objects	
	7.1.7	More actions	
	7.1.7.1	Start all nodes	
	7.1.7.2	Stop all nodes	
	7.1.7.3	Wipe all nodes	
	7.1.7.4	Console to All Nodes	
	7.1.7.5	Export all CFGs	
	7.1.7.6	Edit lab	
	7.1.7.7	Set node's startup-cfg to default configset	
	7.1.7.8	Set node's startup-cfg to none	
	7.1.7.9	Delete default startup-cfgs	
	7.1.8	Refresh Topology	
	7.1.9	Lab page zoom/unzoom	
	7.1.10	Status	
	7.1.11	Lab details	
	7.1.12	Lock Lab with password	
	7.1.13	Dark mode or Light mode	
	7.1.14	Close lab	
_	7.1.15	Logout	
7		LAB TOPOLOGY MENUS	
	7.2.1	Lab topology menu	
	7.2.2	Connection menu	
	7.2.3	Cloud or Bridge network menu	
	7.2.4	Stopped node menu	
	7.2.5	Running node menu	
	7.2.6	Selected nodes menu and features	
7	'.3 EVE	LAB NODE STATES AND SYMBOLS	
	7.3.1	Stopped (non-running) nodes	
	7.3.2	Running nodes	110
	7.3.3	Node connector symbol	110
7	.4 Отн	ER	111
	7.4.1	Notifications area	111
8	WORKIN	NG WITH EVE LABS	112



0		440
8	8.1 CREATING A LAB	
	8.1.1 Adding nodes to the lab	
	8.1.1.1 Node values Table	
	8.1.2 Edit node	
	8.1.2.1 Edit nodes globally	
	8.1.2.2 Edit node individually.	
	8.1.3 Wipe Node	119
	8.1.4 Interconnecting nodes	120
	8.1.5 Delete connection between nodes	120
	8.1.6 Delete Node	121
8	8.2 RUNNING LABS	
-	8.2.1 Starting lab	
8	8.3 SAVING LABS	
-	8.4 STOPPING LABS	
-	8.5 START SAVED LAB.	
-		
-		
-	8.7 EXPORTING LABS	
	8.8 DELETING LABS	
8	8.9 MOVING LABS	123
9	EVE CLOUDS AND NETWORKS	124
3		
9	9.1 Bridge Network	
9	9.2 MANAGEMENT CLOUDO INTERFACE	125
9	9.3 OTHER CLOUD INTERFACES	127
9	9.4 CONNECTING EXTERNAL VM MACHINES TO THE EVE LAB	
Ū	9.4.1 ESXi VM machines	
	9.4.2 VMWare workstation machines	
o	9.5 CONNECTING EVE LAB TO A PHYSICAL DEVICE	
3	9.5 CONNECTING EVE LAB TO A PHYSICAL DEVICE	
	9.5.1 ESATEVE 9.5.2 VMWare workstation EVE	
	9.5.3 Bare metal server EVE	138
10	ADVANCED EVE LAB FEATURES	139
1	10.1 LAB DESIGN OBJECTS	
	10.1.1 Custom shape	
	10.1.2 Resize square or circle objects	
	10.1.3 Text object	140
	10.1.4 Add custom picture on the Lab using Text object feature	141
	10.1.5 Cloning objects and overlay positions	142
	10.1.6 Objects Editing	142
	10.1.7 Lock objects movement	
1	10.2 CUSTOM DESIGN LOGICAL TOPOLOGY	
•	10.2.1 Custom design upload	
	10.2.2 Custom topology mapping	
4		
1	10.3 CONFIGURATION EXPORT FEATURE	
	10.3.1 Supported nodes for configuration exports	
	10.3.2 Startup config management	
	10.3.2.1 Global commands	
	10.3.2.2 Individual node commands	-
	10.3.2.3 Multiple selected nodes commands	
	10.3.2.4 Startup-configuration window	
	10.3.2.5 Startup-config window information	
	10.3.3 Export configuration	150



	150
10.3.5 Edit exported configurations	
10.3.6 Set lab to boot from none	151
10.3.7 Lab config script timeout	152
11 EVE TROUBLESHOOTING	153
11.1 CLI DIAGNOSTIC INFORMATION DISPLAY COMMANDS	153
11.1.1 Display full EVE Community diagnostic	
11.1.2 Display the currently installed EVE Community version:	153
11.1.3 Display if EVEs Intel VT-x/EPT option on/off:	153
11.1.4 Display EVEs CPU INFO:	153
11.1.5 Display EVEs HDD utilization.	153
11.1.6 Display EVEs Bridge interface status	154
11.1.7 Display EVEs system services status	154
11.2 EXPAND EVES SYSTEM HDD	154
11.2.1 Expand HDD on VMware Workstation	155
11.2.2 Expand your HDD on ESXi	
11.2.3 Expand your HDD on a Bare Metal EVE Server	156
11.3 RESET MANAGEMENT IP	
11.4 EVE COMMUNITY SQL DATABASE RECOVERY	156
11.5 EVE LOG FILES	
11.6 EVE CLI DIAGNOSTIC INFO	157
12 IMAGES FOR EVE	158
12 IMAGES FOR EVE	
	158
12.1 QEMU IMAGE NAMING TABLE	158 159
<ul><li>12.1 QEMU IMAGE NAMING TABLE</li><li>12.2 How to prepare IMAGES FOR EVE</li></ul>	158 159 159
<ul> <li>12.1 QEMU IMAGE NAMING TABLE</li> <li>12.2 HOW TO PREPARE IMAGES FOR EVE</li></ul>	158 159 159 <i>159</i>
<ul> <li>12.1 QEMU IMAGE NAMING TABLE</li> <li>12.2 HOW TO PREPARE IMAGES FOR EVE</li></ul>	158 159 159 <i>159</i> <i>15</i> 9
<ul> <li>12.1 QEMU IMAGE NAMING TABLE</li></ul>	158 159 159 <i>159</i> <i>159</i> <i>160</i>
<ul> <li>12.1 QEMU IMAGE NAMING TABLE</li></ul>	158 159 159 159 159 160 162
<ul> <li>12.1 QEMU IMAGE NAMING TABLE</li></ul>	158 159 159 159 159 160 162 163
<ul> <li>12.1 QEMU IMAGE NAMING TABLE</li></ul>	158 159 159 159 160 162 163 163
<ul> <li>12.1 QEMU IMAGE NAMING TABLE</li></ul>	158 159 159 159 160 162 163 163 163
<ul> <li>12.1 QEMU IMAGE NAMING TABLE</li></ul>	158 159 159 159 160 162 163 163 163 163
<ul> <li>12.1 QEMU IMAGE NAMING TABLE</li></ul>	158 159 159 159 160 162 163 163 163 163



# Preface

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

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

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

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

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

Christian Scholz @chsjuniper



# **1** Introduction

# 1.1 What is EVE-NG?

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

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

# 1.2 What is EVE-NG used for?

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

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

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

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

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

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

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

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

# 1.3 Who is EVE-NG for?

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

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

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

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

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



# 2 System requirements

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

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

# 2.1 Hardware requirements

#### 2.1.1 Minimal Laptop/PC Desktop system requirements

#### **Prerequisites:**

CPU: Intel CPU supporting Intel® VT-x /EPT virtualization Operating System: Windows 7, 8, 10 or Linux Desktop VMware Workstation 12.5 or later VMware Player 12.5 or later

PC/Laptop HW requirements		
CPU	Intel i5/i7 (4 Logical processors), Enabled Intel virtualization in BIOS	
RAM	8Gb	
HDD Space	40Gb	
Network	LAN/WLAN	
EVE Virtual machine requirements		
CPU	4/1 (Number of processors/Number of cores per processor) Enabled Intel VT-x/EPT virtualization engine	
RAM	6Gb or more	
HDD	40Gb or more	
Network	VMware NAT or Bridged network adapter	

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

#### Example:

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



# 2.1.2 Recommended Laptop/PC Desktop system requirements

#### **Prerequisites:**

CPU: Intel CPU supporting Intel® VT-x /EPT virtualization Operation System: Windows 7, 8, 10 or Linux Desktop VMware Workstation 12.5 or later VW Ware Player 12.5 or later

PC/Laptop HW requirements			
CPU	Intel i7 (8 Logical processors), Enabled Intel virtualization in		
	BIOS		
RAM	32Gb		
HDD Space	200Gb		
Network	LAN/WLAN		
	EVE Virtual machine requirements		
CPU	8/1 (Number of processors/Number of cores per processor)		
	Enabled Intel VT-x/EPT virtualization engine		
RAM	24Gb or more		
HDD	200Gb or more		
Network	VMware NAT or Bridged network adapter		

Note: PC Desktops/Laptops will be able to run small to medium Labs. Performance and quantity of nodes per lab depend on the type of nodes deployed in the lab.

Example: IOL image-based nodes: up to 120 nodes per lab vIOS image-based nodes: up to 20-40 nodes per lab CSR image-based nodes: up to 10 per lab

2.1.3 Virtual Server system requirements

#### Prerequisites:

CPU: Intel Xeon CPU supporting Intel® VT-x with Extended Page Tables (EPT) Operation System: ESXi 6.0 or later

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



EVE Virtual machine requirements		
CPU 32/1 (Number of processors/Number of cores per processo Enabled Intel VT-x/EPT virtualization engine		
RAM	64Gb or more	
HDD	800Gb or more	
Network	vSwitch/VMnet	

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

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

#### 2.1.4 Dedicated Server (bare) system requirements

#### **Prerequisites:**

CPU: Intel Xeon CPU supporting Intel® VT-x with Extended Page Tables (EPT) Operation System: Ubuntu Server 16.04.4 LTS x64

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

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

#### 2.1.5 Nodes per lab calculator

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

https://drive.google.com/file/d/1Rbu7KDNSNuWiv\_AphWx0vCek8CKVB1WI/view

# 2.2 Supported virtualization platforms and software

- VMware Workstation 12.5 or later
- VMware Player 12.5 or later
- VMware ESXi 6.0 or later



- Ubuntu Server 16.04 LTS as platform for bare metal
- Google Cloud Platform
- 2.3 Unsupported hardware and systems

#### The following are currently not supported:

- VirtualBox virtualization
- Citrix XenServer
- Microsoft HyperV
- Ubuntu 17.X or 18.x as platform



# **3** Installation

- 3.1 VMware Workstation or VM Player
- 3.1.1 VMware workstation EVE VM installation using ISO image (preferred)

Download EVE-NG Community ISO distribution image: <u>https://www.eve-ng.net/downloads/eve-ng-2</u>

### 3.1.1.1 EVE VM Setup and Settings

v Virtual Machine Wizard	×	New Virtual Machine Wizard
	Welcome to the New Virtual	Guest Operating System Installation A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?
	Machine Wizard	Install from:
1/	What type of configuration do you want?	○ Installer disc:
	Typical (recommended)	
WORKSTATION PRO™	Create a Workstation 14.x virtual machine in a few easy steps.	◯ Installer disc image file (iso):
	O Custom (advanced)	G:\Install\Linux\linuxmint-16-cinnamon-dvd-32bit.iso V Browse
	Create a virtual machine with advanced options, such as a SCSI controller type, virtual disk type and compatibility with older VMware products.	I will install the operating system later.
		The virtual machine will be created with a blank hard disk.



Step 3: Select a Guest Operating system: Linux and select the version: Ubuntu 64-bit	Step 4: Enter the name for your EVE- COMM VM and select Location where your EVE VM will be stored on the host PC.
New Virtual Machine Wizard X	,,
Select a Guest Operating System Which operating system will be installed on this virtual machine?	New Virtual Machine Wizard X
	Name the Virtual Machine What name would you like to use for this virtual machine?
Guest operating system	
Linux	Virtual machine name:
O Novell NetWare	EVE-COMM
O Solaris	Location:
Other	G:\EVE-COMM Browse
Version	The default location can be changed at Edit > Preferences.
Ubuntu 64-bit	
Help < Back Next > Cancel	
	< Back Next > Cancel
	1

Step 5: Type your <b>desirable</b> HDD size and select "Store virtual disk as single file".	Step 6: Press Customize Hardware
New Virtual Machine Wizard X Specify Disk Capacity How large do you want this disk to be? The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications,	New Virtual Machine Wizard       X         Ready to Create Virtual Machine       Click Finish to create the virtual machine. Then you can install Ubuntu 64-bit.         The virtual machine will be created with the following settings:       Name: EVE-COMM
(in the second sec	Location: G: [EVE-COMM Version: Workstation 15.x Operating System: Ubuntu 64-bit Hard Disk: 200 GB Memory: 16384 MB Network Adapter: NAT Other Devices: 8 CPU cores, CD/DVD, USB Controller, Printer, Sound ¥
Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks. Help < Back Next > Cancel	Customize Hardware < Back Finish Cancel



irdware		×			nber of cores per /T-x/EPT Virtualizatio
Device  Processor Processo	Summary 1 GE 1 Auto detect HAT Present Auto detect Present Auto detect Add Remove	Memory       Specify the anount of memory allocated to this vitual machine:         Specify the anount of memory are must be a multiple of 1408.         Memory for this vitual machine:       \$5384 •         Memory for this vitual machine:       \$5384 •         1608 •       •         208 •       •         0       •         208 •       •         108 •       •         2588 •       •         268 •       •         288 •       •         288 •       •         108 •       •         2588 •       •         268 •       •         288 •       •         288 •       •         298 •       •         298 •       •         298 •       •         298 •       •         298 •       •         298 •       •         298 •       •         298 •       •         298 •       •         298 •       •         298 •       •         298 •       •         298 •       •         298 •       •         298 •       •	NOTE: VI		d). er will display only on of processors. Processors Number of processors: Number of cores per processor: Virtualization engine Virtualization engine V
				Add Remove	

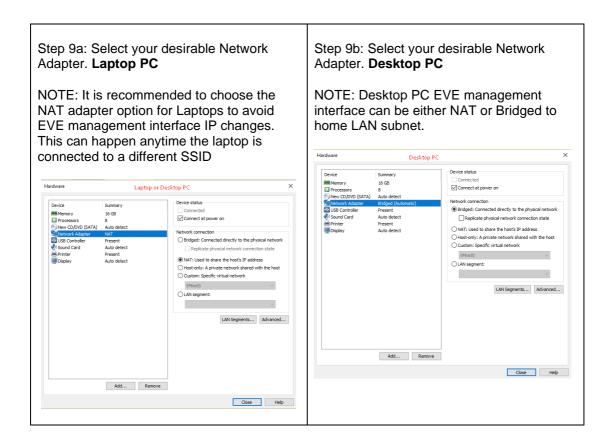




image file	e." Browse	DVD Option: "use ISO to your downloaded o (actual name can be	Step 11: Confirm VM Settings.
T IN GYVING		^	
Device	Summary 16 GB 8 Auto detect NAT Present Auto detect Auto detect	Device stable Connected Connected Connected Use physical drive: Refer to the text Connection Use physical drive: Refer to the text Connection C	
	Add Remove		
		Close Help	
		cluse hep	

# 3.1.1.2 EVE-NG VM Installation steps

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

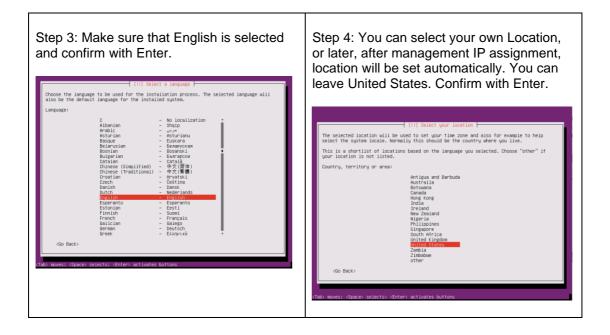
#### EVE VM Installation from ISO has 3 Phases

Phase 1 (Ubuntu installation)

Step 1: Power ON EVE VM. Chose English and confirm with Enter.	Step 2: Be sure that "Install EVE VM" is highlighted. Confirm with Enter.



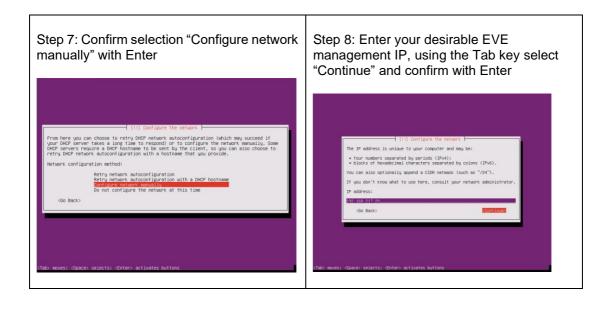
Amharic	1	guage Македонски	Tamil							
Arabic	Français Gaeilge	Malayalam	ජිවාහා							
Asturianu	Galego	Marathi	Thai							
	Gujarati	Burmese								
Беларуская	*		Tagalog							
Български	עברית	Nepali	Türkçe				ubun	-110		
Bengali	Hindi	Nederlands	Uyghur				ubun	LU-		
Tibetan	Hrvatski	Norsk bokmål	Українська							
Bosanski	Magyar	Norsk nynorsk	Tiếng Việt							
Català	Bahasa Indonesia	Punjabi(Gurmukhi)	中文(简体)							
Čeština	Íslenska	Polski	中文(繁體)				Install Ev	e VM		
Dansk	Italiano	Português do Brasil					Install Eve			
Deutsch	日本語	Português					cue a broke			
Dzongkha	ქართული	Română								
Ελληνικά	Қазақ	Русский								
English	Khmer	Sámegillii								
Esperanto	ಕನ್ ನೆಡ	<del>ຮ</del> ົ• ອ								
Español	한국어	Slovenčina								
Eesti	Kurdî	Slovenščina								
Euskara	Lao	Shqip								
ىسراف	Lietuviškai	Српски								
Suomi	Latviski	Svenska								
	Keymap F4 Modes	F5 Accessibility F6 O		F1 Help F	2 Language	F3 Keymap	F4 Modes	5 Accessibilit	y F6 Other Opt.	



Step 5: <b>DHCP ENABLED</b> , EVEs hostname	Step 6: <b>DHCP DISABLED</b> /Static IP setup. If
by default is <b>eve-ng</b> . You can change it if	you have not enabled DHCP in the network,
you wish. Using the Tab key select continue	you must assign an IP address manually.
and confirm with Enter. Continue to <b>Step 14</b>	Confirm Continue with Enter.



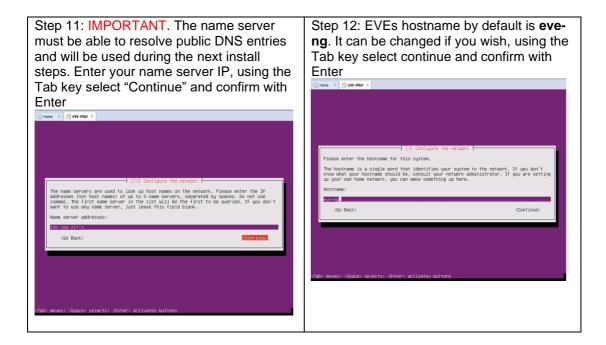




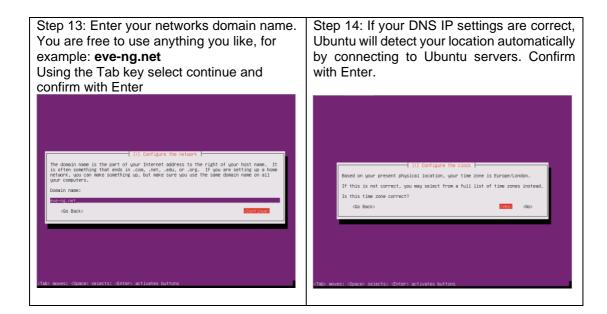
Step 9: Enter your subnet mask, using the Tab key select "Continue" and confirm with EnterStep 10: Enter your Gateway IP, using the Tab key select "Continue" and confirm with Enter
--



(10) Configure the network         The retainability of the network         The retainability of the network         In unders separated by periods.         Netrainability of the network         Separate by periods.         Separate by periods.
---



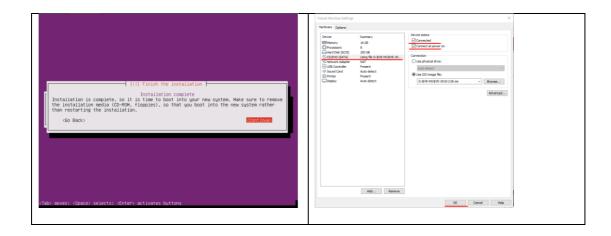




Step 15: If you have a proxy in use for your Step 16: Select no automatic updates and internet access, enter your network proxy confirm with Enter. Security updates can settings. If no proxy is used, select Continue later be run manually from EVE cli. with the Tab key and confirm with Enter. nt part of keeping your system see package management tools. matically download and install tem over the web as part of a group al's Lan If you need to use a HTTP proxy to access the here. Otherwise, leave this blank. les on this syst The proxy information should be given in the star "http://[[user][:pass]@]host[:port]/". Install security updates automatically Manage system with Landscape TTP proxy information (blank for no <Continue

#### EVE VM Installation Phase 2 (EVE installation)





Step 19: Return to the EVE console screen and continue with Enter, the EVE VM will reboot and finish the installation phase 2



Step 20: Once the EVE login screen appears, login to the CLI with root/eve and continue with installation phase 3



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

Step 21: Setup EVEs Management IP address. A Static IP address setup is preferred.	Step 22: After your EVE is rebooted, Login to EVE CLI and type:
Follow steps in section:	apt update apt upgrade
3.5.1 for static IP, 3.5.2 for DHCP IP	apt upgrade

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

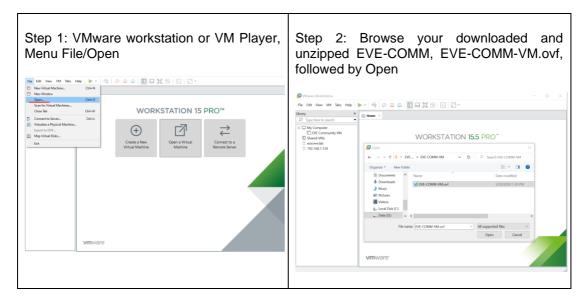


### 3.1.2 VMware workstation OVF deployment

Download EVE-NG Community OVF image zip file, place it in the dedicated HDD storage for EVE VM and unzip it:

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

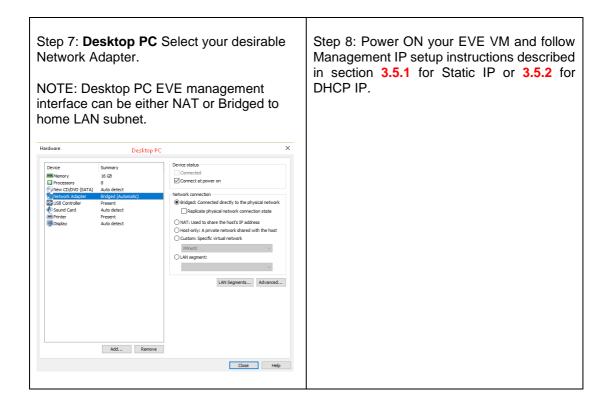
#### 3.1.2.1 Deployment and VM machine settings



Step 3: Browse your desired EVE VM store destination followed by Import	Step 4: Open your EVE VM Settings and set the desired RAM.
	Ver of community      Peer on this visual machine     Community      Peer on this visual machine     Community      Verse Machine Setting:      Verse Machine Setting



Cores an Set Intel ' ON (chec NOTE: V	d number of VT-x/EPT Vii ked). Mware Playe	Set CPU Number of cores per processor. rtualization engine to er will display only one of processors.	Network A NOTE: It i NAT adap EVE mana This can h	dapter. s recommenter of the option for agement int	elect your desirable nded to choose the or Laptops to avoid erface IP changes. time the laptop is ent SSID.
Hardware Options			Hardware	Laptop or De	sktop PC ×
Dirkite III Ameroy III Ameroka III Ameroka IIII Ameroka III Ameroka III Ameroka III Ameroka III Amero	Sumary 14 GB 8 40 GB Bridged (Autonatic) Present 1 monitor	Processors Number of processors:          Number of cores per processors:       1         Total processor cores:       8         Witualization engine       1         Unitability of the VT myRPT or AND-V/RVI       1         Unitability of the VT myRPT or and the VT	Device Memory Processors Vertexork Adapter Sound Card Memory Deplay	Summary 16.60 8 8 Auto detect Auto detect Present Auto detect Present Auto detect	Device status Connected Connected Connected Connect at power on Network connection Defugids: Connected directly to the physical network Replicate physical network Replicate physical network Replicate physical network Constom: Specific virtual network Network Constom: Specific virtual network Network LAN Segments Advanced
	Add Remove			Add Remove	Chara and a state
		OK Cancel Help			Close Help





- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 12
- 3.1.2.2 OVF VM update to the latest EVE version

Step 9: Make sure if your EVE OVF VM is up to date to the newest EVE version. Follow the steps described in section **4**.

#### 3.1.2.3 OVF VM HDD Size expansion

**IMPORTANT NOTE:** DO NOT expand the current EVE OVF HDD. To expand your EVE system size, please follow Troubleshooting section **11.2** 

### 3.2 VMware ESXi

### 3.2.1 VMware ESXi EVE installation using ISO image (preferred)

Download EVE-NG Community ISO installation image: <a href="http://www.eve-ng.net/downloads/eve-ng-2">http://www.eve-ng.net/downloads/eve-ng-2</a>

#### 3.2.1.1 EVE-NG ESXi VM Setup and Settings

		S New virtual machine		
ESXI	13 databased	<ul> <li>Select creation type</li> <li>Select a name and guest OS</li> <li>Select storage</li> </ul>	Select creation type How would you like to create a Virtual Machine?	
95 17 2016 EDE TALINATE 2016 EDE TALINAT 2016 EDE TALINAT 2016 EDE TALINAT 2016 EDE TALINATION 2016 EDE TAL	رو مستخدم الله المعالية (المستخدم المعالية الله المعالية المعالي المعالية المعالية المع المعالية المعالية المعا المعالية المعالية ال المعالية المعالية المعا المعالية المعالية المعالي المعالية المعالية المع المعالية المعالية المعا المعا		Oslana a tela antual machina Dagtay xettaal machina iton an D'A' ar O'A tela Register an existing antual machine	This order public you through crasting a new importance of the processors, machine. You the date to authorize processors, memory, network connections, and strongs. You will be hinded a guest operating system after oracion.
entana) ka		<b>vm</b> ware <sup>,</sup>		Back Freih Ca



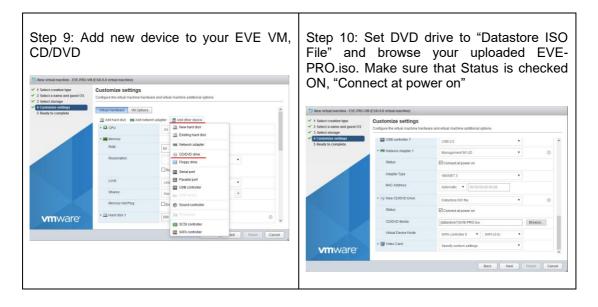
Step 3: Enter the name for your EVE-PRO VM and select Guest Operating system Linux and version: Ubuntu 64-bit				Step 4: Se will be stor	red in HD		ere	your	EV	E VI	M
	version.		bit	<ul> <li>1 Select creation type</li> <li>2 Select a name and guest OS</li> <li>3 Select storage</li> </ul>	Select storage Select the datastore in which to	o store the configuration and	disk files.				
New virtual machine - EVE-PRO-VM	A (ESXi 6.0 virtual machine)			4 Customize settings 5 Ready to complete	The following datastores are a the virtual machine configuration			you selected. S	elect the destin	ation datastor	e for
<ul> <li>1 Select creation type</li> <li>2 Select a name and quest OS</li> </ul>	Select a name and g				Name	~ Capacity ~	Free ~	Type ~	Thin pro ~	Access v	,
3 Select storage	Specify a unique name and OS				datastore1	264.75 GB	231.79 GB	VMFS5	Supported	Single	~
4 Customize settings	Name				HDD_A	930.75 GB	431.63 GB	VMFS5	Supported	Single	
5 Ready to complete	EVE-PRO-VM				HDD_B	930.75 GB	149.61 GB	VMFS5	Supported	Single	~
	Virtual machine names can co	tain up to 80 characters and they must be un	nique within each ESXi instance.							3 item	15
	identifying the guest operating the appropriate defaults for the	system here allows the wizard to provide operating system installation.									
	Compatibility	ESXI 6.0 virtual machine	•								
	Guest OS family	Linux	v								
	Guest OS version	Ubuntu Linux (64-bit)	*								
				<b>vm</b> ware <sup>•</sup>							
							84	ick Ni	ut Finit	ih Can	cel
<b>vm</b> ware											- 4
		Ba	ck Next Finish Cancel								

		et CPU Number of f cores per processor.	<ul> <li>1 Select creation type</li> <li>2 Select a name and guest OS</li> <li>3 Select storage</li> </ul>	Customize settings Configure the virtual machine han	dware and virtual machine additional options
		irtualization to ON	4 Customize settings     5 Ready to complete	Virtual Hardware VM Option	6
					twork adapter 🗧 Add other device
ecked)				> 🖬 CPU	24 🔻 🔞
,				* Memory	
				RAM	64 GB 🔻
ual machine - EVE-PRO-N	VM (ESXi 6.0 virtual machine)			Reservation	• NB •
creation type a name and guest OS	Customize settings Configure the virtual machine hardwa	vare and virtual machine additional options			Reserve all guest memory (All locked)
storage nize settings	Virtual Hardware VM Options			Limit	Unimited • MB •
to complete	Add hard disk ma Add netwo	· · · · · · · · · · · · · · · · · · ·		Shares	Normal •
	- CPU	24 🔻 📵		Memory Hot Plug	Enabled
	Cores per Socket	1 V Sockets: 24	<b>vm</b> ware <sup>.</sup>	> 🛄 Hard disk 1	16 GB •
	CPU Hot Plug	Enable CPU Hot Add			
	Reservation	• MHz •			Back Nest Finish
	Linit	Unimited V MHz V			
	Shares	Normal • 1000 •			
	Hardware virtualization	Expose hardware assisted virtualization to the guest OS ()			
	Performance counters	Enable virtualized CPU performance counters			

Step 7: Set the size of HDD for your new EVE VM. It is recommended to set "Thick Provisioned eagerly provisioned". Server EVE HDD is recommended to set at least 500Gb	Step 8: Set your Management network. Adapter type VMXNET3
--	--



Thew virtual machine - EVE-PRO-VN	A (ESXi 6.0 virtual machine)		The New virtual machine - EVE-PRO-V	M (ESXi 6.0 virtual machine)		
<ul> <li>✓ 1 Select creation type</li> <li>✓ 2 Select a name and guest OS</li> <li>✓ 3 Select storage</li> </ul>	Customize settings Configure the virtual machine hardware	e and virtual machine additional options	<ul> <li>1 Select creation type</li> <li>2 Select a name and guest OS</li> <li>3 Select storage</li> </ul>	Customize settings Configure the virtual machine hardware	and virtual machine additional options	
4 Customize settings     5 Ready to complete		Reserve all guest memory (All locked)	4 Customize settings     5 Ready to complete	Virtual Device Node	SCSI controller 0 V SCSI (0:0) V	•
	Limit	Unlimited • MB •		Disk Mode	Dependent	
	Shares	Normal • 1000 •		SCSI Controller 0	LSI Logic Parallel	
	Memory Hot Plug	Enabled		SATA Controller 0	0	
	✓  → Hard disk 1	200 GB • O		USB controller 1	USB 2.0 ¥	
	Maximum Size	231.79 GB		₩ Network Adapter 1	Management 90 UD •	
	Location	[datastore1] EVE-PRO-VM Browse		Status	Connect at power on	
	Disk Provisioning	This provisioned Thick provisioned, lastly zeroed Thick provisioned, lastly zeroed		Adapter Type	VMONET 3	
	Shares	Normal V 1000 V		MAC Address	Automatic   00:00:00:00:00	
<b>vm</b> ware <sup>*</sup>	Limit - IOPs	The first of the f	<b>vm</b> ware <sup>®</sup>	Video Card	Specify custom settings	
		Back Net Prish Cancel		ditional Net	twork Adapters can be	



#### 3.2.1.2 EVE-NG ESXi VM Installation steps

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

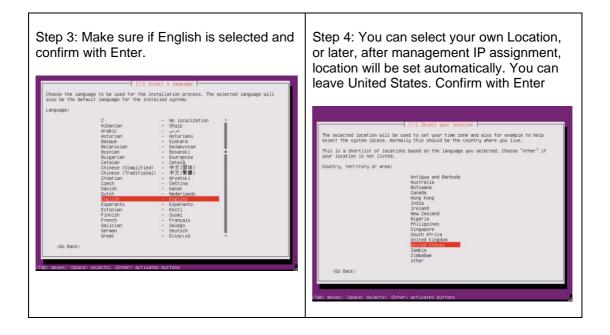
#### EVE ESXi VM Installation from ISO has 3 Phases

#### Phase 1 (Ubuntu installation)

		l
Step 1: Power ON EVE VM. Chose English	Step 2: Be sure if "Install EVE VM" is	I
and confirm with Enter.	highlighted. Confirm with Enter.	l
		1



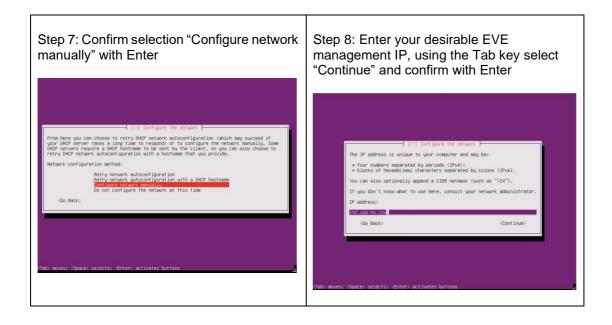
Ombania		nguage	Tanil	
Amharic	Français	Македонски	Tamil తెలుగు	
Arabic	Gaeilge	Malayalam		
Asturianu	Galego	Marathi	Thai	
Беларуская	Gujarati	Burmese	Tagalog	
Български	עברית	Nepali	Türkçe	
Bengali	Hindi	Nederlands	Uyghur	ubuntu®
Tibetan	Hrvatski	Norsk bokmål	Українська	
Bosanski	Magyar	Norsk nynorsk	Tiếng Việt	
Català	Bahasa Indonesia	Punjabi(Gurmukhi)	中文(简体)	
Čeština	Íslenska	Polski	中文(繁體)	
Dansk	Italiano	Português do Brasil		Install Eve VM
Deutsch	日本語	Português		Install Eve Bare
Dzongkha	ქართული	Română		Rescue a broken system
Ελληνικά	Қазақ	Русский		
English	Khmer	Sámegillii		
Esperanto	ಕನ್ ನೆಡ	ສິ•ກຣ		
Español	한국어	Slovenčina		
Eesti	Kurdî	Slovenščina		
Euskara	Lao	Shqip		
ىسراف	Lietuviškai	Српски		
Suomi	Latviski	Svenska		
		F5 Accessibility F6 01	ther Ontions	F1 Help F2 Language F3 Keymap F4 Modes F5 Accessibility F6 Other Optic



Step 5: <b>DHCP ENABLED</b> , EVEs hostname	Step 6: <b>DHCP DISABLED</b> /Static IP setup. If
by default is <b>eve-ng</b> . You can change it if	you have not enabled DHCP in the network,
you wish. Using the Tab key select continue	you must assign an IP address manually.
and confirm with Enter. Continue to <b>Step 14</b>	Confirm Continue with Enter.







Step 9: Correct your subnet mask, using the	Step 10: Correct your Gateway IP, using
Tab key select "Continue" and confirm with	the Tab key select "Continue" and confirm



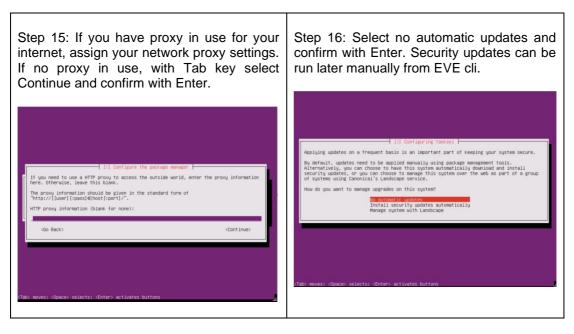
Enter	with Enter
[11] Configure the network         The network administrator if you do not know the value. The network should be entered as four numbers separated by periods.         Network:         SEXESSENCE         Go Back>       (Continue>	[11] Configure the network         The gateway is an IP address (four numbers separated by periods) that indicates the set of the indicates in the indicates in the indicates in the indicates in the indicates indicates in the indicates indi
(Tab) moves; <space) <enter="" selects;=""> activates buttons</space)>	(Tab) moves: (Space) selects: (Enter) activates buttons

Step 11: IMPORTANT. Name server must respond to the Internet and will be used during the next install steps. Enter your name server IP. Using the Tab key select	Step 12: EVE hostname by default is <b>eve-</b> <b>ng</b> . It can be changed if you wish. Using the Tab key select continue and confirm with Enter
"Continue" and confirm with Enter	
[11] Configure the network The name servers are used to look up host names on the network. Please enter the IP addresses (not host names) of up to 3 mane servers, separated by spaces. Do not use commas. The first name server, just leave this field blank. Name server addresses:	[1] Configure the network         Please enter the hostname for this system.         The hostname is a single word that identifies your system to the network. If you don't know what your hostname should be, consult your network administrator. If you are setting up your own home network, you can make something up here.         Hostname:
192.168.90.201 <go back=""> <continue></continue></go>	<go back=""> <continue></continue></go>
(Tab) moves; <\$pace) selects; ≪Enter> activates buttons	(Tab) moves; (Space) selects; (Enter) activates buttons

Step 13: Enter your network domain name.	Step 14: If your DNS IP settings are correct,
You are free to use any, for example:	Ubuntu will detect your location from
eve-ng.net	Internet. Confirm with Enter.



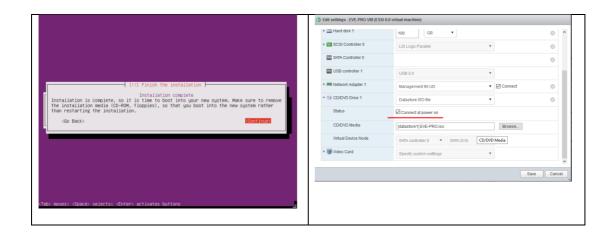
Using the Tab key select continue and confirm with Enter	
Ill Configure the network         The domain mame is the part of your Internet address to the right of your host name. It is of the the same domain name of the the same domain name on all your computers.         Domain name:         domain name:	I[] Configure the clock         Based on your present physical location, your time zone is Europe/Riga.         If this is not correct, you may select from a full list of time zones instead.         Is this time zone correct?         Go Back>
(Tab) moves: «Space» selects: «Enter» activates buttons	(Tab) moves: <space) <enter="" selects;=""> activates buttons</space)>

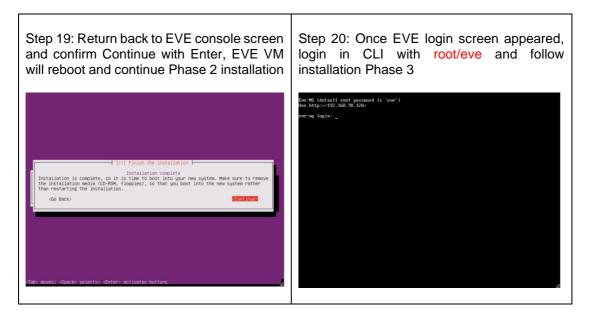


#### EVE VM Installation Phase 2 (EVE installation)

screen appears, DO NOT remove CD ISO from VM or hit Enter continue. We have to	Step 18: Without powering off the EVE VM, open the EVE VM settings and make sure that CD/DVD ISO "Device status connected" and "Connect at power on" is checked. Confirm with OK.
--	---







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

Step 21: Setup EVE Management IP address. A Static IP address setup is preferred	Step 22: After your EVE is rebooted, Login to EVE CLI and type:
Follow steps in section :	apt update apt upgrade
3.5.1 for static IP, 3.5.2 for DHCP IP	apt upgrade

Г



Step 23: On the EVE CLI prompt, reboot EVE by typing
reboot

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

# 3.2.2 VMware ESXi OVF deployment

Download EVE-NG Community OVF image zip file, place it in the dedicated HDD storage for EVE VM and unzip it:

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

#### 3.2.2.1 ESXi OVF VM Setup and Settings

ware: ESXi"				Irom an O	VF or OVA file	
Navigator	-	localhost.localdomain		** New virtual machine		
Monitor Virtual Machines EVE-PRO-VM Monitor S2016 EVE 90.201 SV Centre 90.95 More VMa Storage	6	State: 1 Uptime: 2	Ca Boyoner Ca Boyoner Henrich Carnendelle ay Come Server) 2013 Ayn 1915 Ywyn	2 Select OVF and VMDK Bins 3 Select storage 4 Licensia agreements 5 Deployment options 6 Additional settings 7 Ready to complete	Select creation type How would you like to create a Vihual Nachine? Create a new Vihual machine Creator a new Vihual machine from an OVE or OVE for Register an existing vihual machine	This option guides you through the process of creating a verbal machine from an CNF and VMDK files.
datastore1		- Hardware				
Networking	13	Manufacturer	Dell Inc.			
		Model	PowerEdge R610			
		P CPU	12 CPUs x Intel(R) Xeon(R) CPU X5680 @ 3.33GHz			
		Memory	95.99 GB			
		Virtual flash	0 B used, 0 B capacity			
		- 👷 Networking				
		Hostname	localhost localdomain			

Step 3: Type the name for your new EVE VM and browse to select your all downloaded EVE OVF files	Step 4: Select the storage where your EVE VM will be deployed.



ſ

3 New virtual machine - EVE-COM	6-VM	Dew virtual machine - EVE-PRO			
<ul> <li>1 Select creation type</li> <li>2 Select Storage</li> <li>3 Select storage</li> <li>4 License agreements</li> <li>5 Deployment options</li> <li>6 Additional settlings</li> <li>7 Ready to complete</li> </ul>	Select OVF and VMDK files Select the OVF and VMDK files of OVA for the VM you would like to deploy Deter a mane for the virtual machine. EVER-COMBAN-VM William michine meets can contain up to 80 characters and they must be unique within each ESIX instance.	<ul> <li>✓ 1 Select creation type</li> <li>✓ 2 Select OVF and VMDX Bits</li> <li>✓ 3 Select storage</li> <li>4 License agreements</li> <li>5 Deployment options</li> <li>6 Additional settings</li> <li>7 Ready to complete</li> </ul>	Select storage Beliet the datastore in which to store the The following datastores are accessible the virtual machine configuration files an Name	from the destination resource that you selected. S id all of the virtual disks.	Select the destination datastore for
	× ∰ EVE COMM-VM.orf × Ⅲ EVE COMM-VM-0 ymdx		datatore1 HED_A HED_B	2447508 2440268 W4855 9075508 2410268 W4855 9075508 1485168 W4855 9007568 1485168 W4855	Supported Single Supported Single Supported Single 3 items
vmware	Bok Net From Canor	<b>vm</b> ware <sup>.</sup>		Back	et Finish Cancel

and <b>Thick</b> HDD is or	t <b>Disk pro</b> Ny 40Gb la	Management network visioning. EVE OVF arge. It is recommended add extra HDD. Section	Set the quar cores per so	MPORTANT Open VM Settings. htity of CPUs and number of bocket. Set Intel VT-x/EPT irtualization engine to ON
S New virtual machine - EVE-PRO			🚯 Edit settings - EVE-PRO (ESXi 6.0 v	irtual machino)
<ul> <li>1 Select creation type</li> <li>2 Select OVF and VMDK files</li> </ul>	Deployment options		Virtual Hardware VM Options	
3 Select storage     4 Deployment options	Select deployment options			
5 Ready to complete	Network mappings	Management 90 UD Management 90 UD 🔹	Add hard disk Mi Add network	
	Disk provisioning	⊖ Thin ® Thick		24 •
			Cores per Socket	1 V Sockets: 24
			CPU Hot Plug	Enable CPU Hot Add
			Reservation	▼ MHz ▼
			Limit	Unlimited V MHz V
			Shares	Normal V 1000 V
			Hardware virtualization	Expose hardware assisted virtualization to the guest OS 🍈
<b>vm</b> ware <sup>.</sup>			Performance counters	Enable virtualized CPU performance counters
			Scheduling Affinity	Hyperthreading Status' Active
		Back Ned Firsh Cancel		Save Cancel

Step 7: Set des	sirable RAM for your EVE.	Step 8: Power ON your EVE VM and follow Management IP setup instructions described in section <b>3.5.1</b> for Static IP or <b>3.5.2</b> for DHCP IP.
Virtual Hardware VM Options	^	
🔜 Add hard disk 🛛 🛤 Add network adapter	r 🚍 Add other device	
▶ □ CPU 2	4 🔻 🚺	
- 📷 Memory		
RAM 32	2 GB 🔻	
Reservation	Reserve all guest memory (All locked)	
Limit	Inlimited	
Shares	Iormal	
Memory Hot Plug	Enabled	
Hard disk 1   40	GB ▼ ◎ ↓	
	Save Cancel	



- IMPORTANT NOTE: You must prepare and upload at least a couple of images to start building your labs. Refer to section 12
- 3.2.2.2 ESXi OVF VM update to the latest EVE version

Make sure that your EVE OVF VM is up to date with the newest EVE version. Follow the steps described in section 4 for upgrade instructions

#### 3.2.2.3 ESXi OVF VM HDD Size expansion

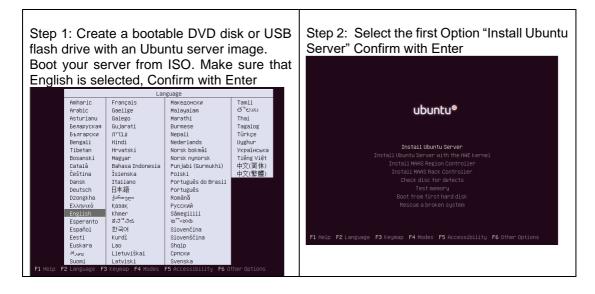
NOTE: IMPORTANT! DO NOT expand the current EVE OVF HDD. To expand your EVEs system disk size, please follow the troubleshooting section **11.2** 

### 3.3 Bare hardware server EVE installation

Download Ubuntu Server 16.04.6 LTS ISO image: <u>http://tw.archive.ubuntu.com/ubuntu-cd/16.04/ubuntu-16.04.6-server-amd64.iso</u>

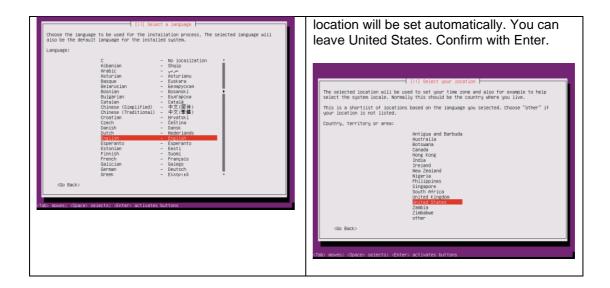
Andatory Prerequisites: Internet must be reachable from your PC and VMware. EVE ISO installation requires internet access to get updates and install the latest EVE-COMM version from the EVE-NG repository. DNS must work as well, to check it, do a named ping, for example ping www.google.com

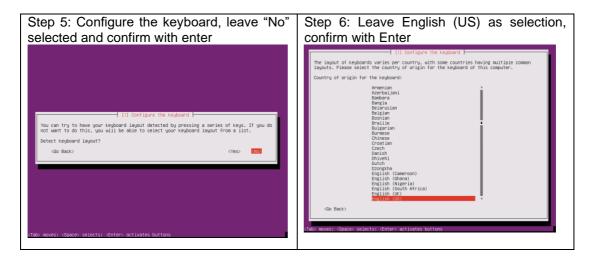
#### 3.3.1 Ubuntu Server Installation Phase 1

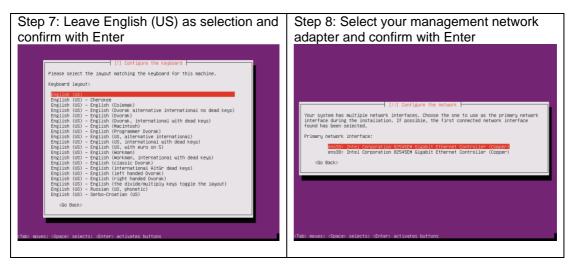


Step 3: Make sure that English is selected	Step 4: You can select your own Location,
and confirm with Enter	or later, after management IP assignment,

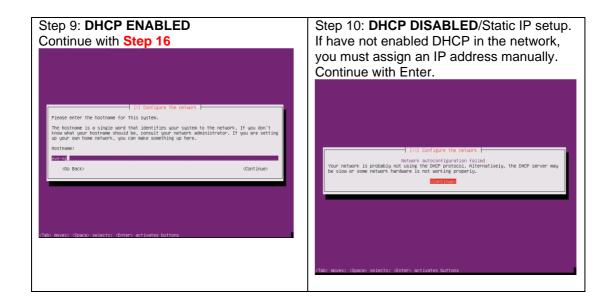


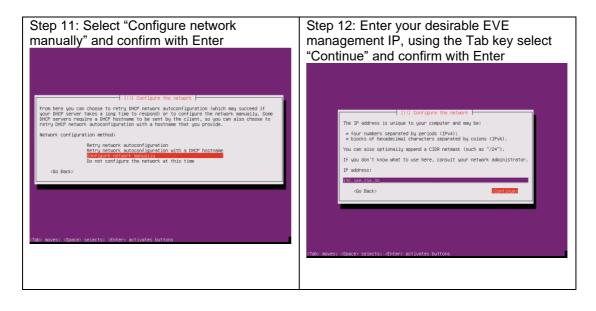








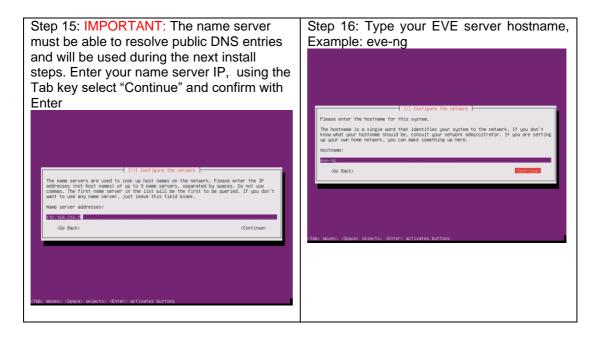




Step 13: Enter your subnet mask, using the	Step 14: Enter your Gateway IP, using the
Tab key select "Continue" and confirm with	Tab key select "Continue" and confirm with
Enter	Enter



(I) Configure the network         The network is used to determine which machines are local to your network. Consult your network administration if you do not income the value. The network should be entered as four numbers separated by periods.         Netmask:         BS59255585502         Go Back>       (Continues)	III Configure the network         The gateway is an IP address (four numbers separated by periods) that indicates the gateway router, also from as the default router. All iltraffic that goes outside your UAN (for instance, to the Internet) is sent through this router. In rare circumstances, you may have no router in that case, you can leave this blank. If you don't know the proper answer to this question, consult your network administrator.         Gateway:         Hacelogical case         (Go Back)
(Tab) moves: (Space) selects: (Enter) activates buttons	(Tab> moves: <space> selects: <enter> activates buttons</enter></space>

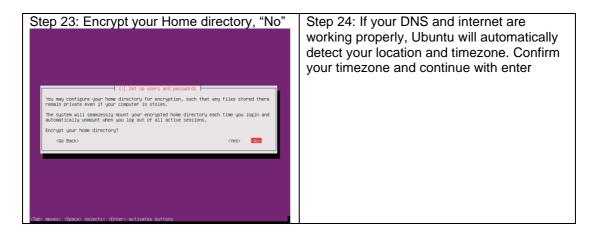


Step 17: Type your domain name. You are free to use any. Example: eve-ng.net	Step 18: Type your Ubuntu username, Example: user
[1] Configure the network.         The domain name is the part of users in the rest address to the right of your host name. It is often something that ends in .com, .rest, .edu, or .org, .ll you are setting up a home from the computers.         Domain name:         Weating nate         Go Back>	III Set up users and passwords       A user account will be created for you to use instead of the root account for non-administrative activities.       Plasse enter the real name of this user. This information will be used for instance as devalut origin for emails ent by this user as well as any uncorren which displays or uses the user's real name. Your full name is a reasonable choice.       Full name for the new user:       User       (60 Back)
<pre>(Tab) moves: (Space) selects: <enter) activates="" buttons<="" pre=""></enter)></pre>	(Tabo noves: Opace) selects: Ontero activates buttons



Step 19: Select a username (e.g. "user") for your account and Continue	Step 20: Enter a password for your new user
Select a username for the new account, Your first name is a reasonable choice. The username should start with a lower-case letter, which can be followed by any combination of numbers and hore lower-case letters.         Username for your account:         Username for your account:	A good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals.         Choose a password for the new user:         Testso         I show hostowed in Glass         (Go Back)
(Tab) eoves; (Space) selects; (Enter) activates buttons	(Tab) moves: (Space) selects: (Enter) activates buttons







<tab> moves; <space> selects; <enter> activates buttons</enter></space></tab>		(1) Configure the clock Based on your present physical location, your time zone is Europe/London. If this is not correct, you may select from a full list of time zones instead. Is this time zone correct? GD Back> (Not select) (Table moves: (Space) selects; (Enter) activates buttons
---	--	--

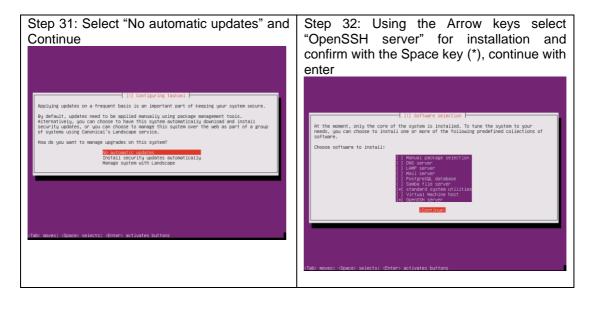
Step 25: Select HDD partitioning method "Guided – use entire disk and set up LVM"	Step 26: Select your disk partition, and confirm with enter
[1] Partition disks         The installer can guide you through partitioning a disk (using different standard schemes) or, if you prefer, you can do it manually, will wided partitioning you will still have a chance latter to review and customise the results.         If you coose guided partitioning for an entire disk, you will next be asked which disk should be used.         Partitioning method:         Builded - use entire disk million - use entire disk million - use entire disk million - use entire disk and set up encrypted LVM Hanual         (Bo Back)	[11] Partition dibks   Note that all data on the dis you calct uill be ensed, but not before you have confirmed that you really unit to muse the charges. Select disk to partition: @SISIS (0.000) (583) - 55.7.68 Wheney, Meane Virtual € dia Back>

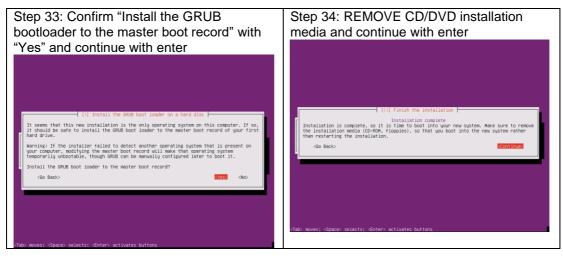
Step 27: Confirm write changes to disk with "Yes" and hit enter to continue	Step 28: Select the volume size and continue
Init Partition disks         Before the Logical Volume Manager can be configured, the current partitioning scheme has to be written to disk. These changes can be no additional changes to the partitioning scheme of disks containing physical Volumes are allowed during the installation. Please decide if you are satisfied with the current partitioning scheme before continuing.         The partition tables of the following devices are changed:         SSISS (0,0,0) (sdb)         Write the changes to disks and configure LW?         Mon	(1) Partition diss         You may use the whole volume group for guided partitioning, or part of it. If you use objumes later using the LVM tools, so use this most of the volume group at installation time may offer more flexibility.         The minimum size of the solected partitioning recue is 1.0 G (or 31%; place note that the pockages you choose to install may require more space than this. The maximum variable is is is 53% 2.0         Hint: "max" can be used as a shortcut to specify the maximum size, or enter a percentage (e.g. "201") to use that percentage of the maximum size.         Remute of volume group to use for guided partitioning:         Space         (Go Back)
(Tab) moves: <pre>dpace&gt; selects: <pre>dfater&gt; activates buttens</pre></pre>	(Tab) moves; (Space) selects; (Enter) activates buttons

Step 29: Confirm write the changes to disk with "Yes" and continue	Step 30: If you have a proxy in use for your internet, enter your network proxy settings. If
	no proxy is used, use the tab key to select Continue and confirm with enter.



	[11] Partition disks         If you continue, the changes listed below will be written to the disks. Otherwise, you will be able to make further changes manually.         The partition tables of the following devices are changed:         LWW Gevernersey, LV root         SSI33 (0,0,0) (sda)         The following partitions are going to be formatted:         LWW Gevernersey, LV root as ext4         LWW Gevernersey, LV or as ext4         LWW Gevernersey, LV on as ext4         LWW	[1] Configure the package manager         [If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this black.         The proxy information should be given in the standard form of "http://[user][:pass]@]nost[:port]/".         HTTP proxy information (blank for none):         (So Back)
≺та	b) moves: «Space» selects: «Enter» activates buttons	(Tabo noves: -Spaceo selects; «Entero activates buttons







Step 35: Login in to your Ubuntu with the username created above (user/Test123 was	Step 36: Continue as root user. Enter the commands below, each followed by the enter
the example)	key.
Ubuntu 16.04.4 LTS eve-ng ttyl	
cue-ng login:	sudo su
Ubuntu 16.04.4 LTS eve-ng ttyl eve-ng login: user	
Password: Password: Welcome to Ubuntu 16.04.4 LTS (GNU/Linux 4.4.0-116-generic x86_64)	Test123
<pre># Documentation: https://whelp.ubuntu.com # Management: https://andsoape.canomical.com &amp; Support: https://andwatage</pre>	1650125
32 packages can be updated. 7 updates are security updates.	cd
The programs included with the UBuntu system are free software: the exact distribution terms for each program are described in the individual files in /usr/share/doc/*copyright. UBuntu comes with ABSOUTELY NO WARRANTY, to the extent permitted by applicable law. To run a command as administrator (user "root"), use "sudo (command)". See "nam sudo_root" for details. user@ewe-ng:"\$	user@eve-ng:~\$ sudo su [sudo] password for user: root@eve-ng:/home/user# cd root@eve-ng:~# _

Step 37: Create root password	Step 38: Verify and set your hostname if you haven't set it before
sudo passwd root	
	nano /etc/hostname
Repeat your desirable password twice; Example: eve	Edit it if necessary: eve-ng
root@eve-ng:~# sudo passwd root Enter new UNIX password: Retype new UNIX password: passwd: password updated successfully root@eve-ng:~#	Confirm edit with ctrl+o followed by Enter And ctrl+x for Exit

	-
Step 39: Verify your host settings	Step 40: Edit permissions for root user to allow SSH access to EVE server
nano /etc/hosts	
	<pre>nano /etc/ssh/sshd_config</pre>
Your assigned static IP will be bound to your	
server hostname and domain	Find and edit PermitRootLogin to "yes"
127.0.0.1 localhost 192.168.217.50 eve-ng.eve-ng.net eve-ng	# Authentication: LoginGraceTime 120 PermitRootLogin yes
# The following lines are desirable for IPv6 capable hosts ::1 localhost ip6-localhost ip6-loopback ff02::1 ip6-allnodes ff02::2 ip6-allrouters	StrictModes ges Confirm edit with ctrl+o followed by enter
NOTE: in case if DHCP IP address is used,	And ctrl+x for Exit
you will see 127.0.0.1 IP vs hostname	Restart ssh service:
Confirm edit with ctrl+o followed by enter	ande convice seb restant
And ctrl+x for Exit	sudo service ssh restart

# Step 41: 🔔 IMPORTANT

SSH as **root** to your EVE server with Putty or any other telnet client program. Update the Ubuntu grub CMD Line with the following customized command. Make sure you enter this command below in a single line and confirm it with the enter key.



sed -i -e 's/GRUB\_CMDLINE\_LINUX\_DEFAULT=.\*/GRUB\_CMDLINE\_LINUX\_DEFAULT="net.ifnames=0
noquiet"/' /etc/default/grub

#### Update GRUB, Followed by Enter

update-grub

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

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

nano /etc/network/interfaces

Before edit:
# The primary network interface
auto ens33 iface ens33 inet static
address 192.168.217.50
netmask 255.255.255.0
network 192.168.217.0
broadcast 192.168.217.255
gateway 192.168.217.2
# dns-* options are implemented by the resolvconf package, if installed dns-nameservers 192.168.217.2
dns-nameservers 192.100.21/.2 dns-search eve-ng.net
and control of agricol
After edit:
# The primary network interface
auto eth0
iface eth0 inet static address 192.168.217.50
netmask 255.255.255.0
network 192.168.217.0
broadcast 192.168.217.255
gateway 192.168.217.2
# dns-* options are implemented by the resolvconf package, if installed
dns-nameservers 192.168.217.2
dns-search eve-ng.net

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

#### Reboot the EVE server

reboot

### 3.3.2 EVE Community Installation Phase 2

Step 43: Start EVE Community installation with the following one-line command and hit enter

wget -0 - http://www.eve-ng.net/repo/install-eve.sh | bash -i

#### Step 44: Reboot EVE

reboot

# 3.3.3 EVE Community Installation Phase 3

Step 45: After the installation is completed,	
reboot EVE and follow the Management IP	Step 46: After your EVE is rebooted,
setup instructions in section <b>3.5.1</b> . It is	
strongly recommended for bare-metal	



installations to use a static IP address. After the IP address setup, continue with Step 46	Login to the EVE CLI and type:
	apt update apt upgrade reboot

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

# 3.4 Google Cloud Platform

3.4.1 Google account

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

⊗ Getting startid - Google Goui 🗴 +	- a ×
$(\leftarrow) \rightarrow \mathbb{C}^{*}$ $(\bigcirc) \triangleq https://console.cloud.google.com/getting-started \cdots \boxtimes \bigstar$	III\ 🖸 🗏
Your free trial is waiting activate now to get \$300 credit to explore Google Cloud products. Learn more	DISMISS ACTIVATE
	1 🧿 SIGN IN
Get Started with Google Cloud Platform 12 month, \$300 free trial to get you started. Always Free products to keep you going TRY FOR FREE	

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

#### 3.4.2 Goggle Cloud project

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

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

oogle Cloud Platform Select a project 👻			5. 0
		•	
		•	
Next non un window	, click "NEW PROJECT"		
oject	NEW PROJECT		
jects and folders			
ALL			
ALL	ID		



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

	<b>Q</b> Search resources and products
New Project	
<ul> <li>You have 22 projects remaining in your quota. Request an increase or delete projects. <u>Learn more</u></li> <li>MANAGE QUOTAS</li> </ul>	
Project name * EVE Test 276509. It cannot be changed later. EDIT	
Location * No organisation Parent organisation or folder	
CREATE CANCEL	

This will take some time.

Step 4. Navigate: Navigation Menu/Compute Engine/VM Instances

≡	Google Cloud Platform	VM instances	^	٩	Search resources and products
	Home	Instance groups			
V	ocounty	Instance templates			•
	Anthos >	Sole-tenant nodes			
	Anthos	Machine images			•
0	reCAPTCHA Enterpri	Disks			
		Snapshots			
COMF	PUTE	Images			
۰Ô۰	App Engine >	TPUs			
۲	Compute Engine 🔫 >	Committed use discounts			
		Metadata			
٢	Kubernetes Engine >	Health checks			
(…)	Cloud Functions	Zones			
>>	Cloud Run	Network endpoint groups	Uther	popula	r compute options
, //			Kuber	netes E	ingine

#### Step 5. Navigate: top bar and select your newly created Project

≡	Google Cloud Platform	Select a project	۹	Search resources and products	•
۲	Compute Engine	Select or create a project			
A	VM instances				
alla A	Instance groups				
	Instance templates				

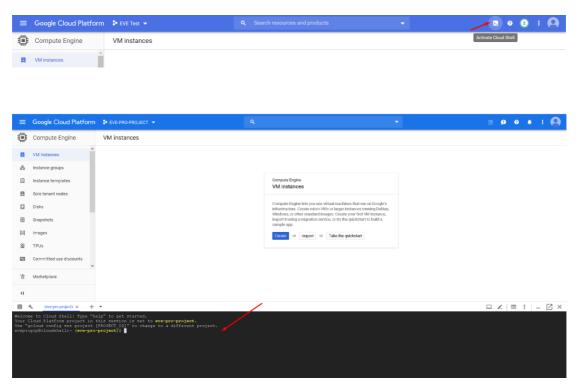


Preparation of your Project can take some time. Wait until the VM Instance window finishes deployment and then press the "Create button."

Compute Engine is getting	ready. This may take a minute or more. Compute Engine documentation $L^{\rm R}_{\rm c}$	
	Compute Engine VM instances	
	Compute Engine lets you use virtual machines that run on Google's infrastructure. Create micro-VMs or larger instances running Debian, Windows or other standard images. Create your first VM instance, import it using a migration service or try the quickstart to build a sample app.	
	Create or Import or Take the quickstart	

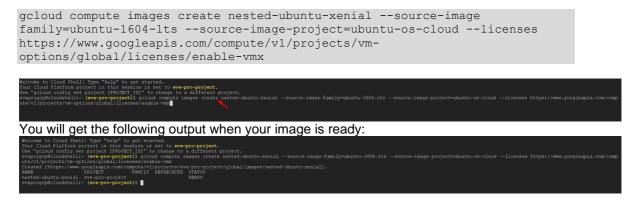
# 3.4.3 Preparing Ubuntu boot disk template

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





Step 2: create a nested Ubuntu 16.04 image model. Copy and paste the below command into the shell. Use copy/paste. crtl +c/ctrl +v. It is single line command. Confirm with "enter":



# 3.4.4 Creating VM

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

Google Cloud Plat	form	🕏 EVE Test 👻	۹	Search resources and products	-
Home		M instances			
Compute Engine	<b>₽</b> →	VM instances			
Kubernetes Engine	>	Instance groups			
Cloud Functions		Instance templates		Compute Engine	
		Sole-tenant nodes		VM instances	
Cloud Run		Machine images		Compute Engine lets you use virtual machin	nes that run on Google's
05		Disks		infrastructure. Create micro-VMs or larger in Windows or other standard images. Create y	instances running Debian,
AGE		Snapshots		import it using a migration service or try the sample app.	
Bigtable		Images			
Datastore	>	TPUs		Create or Import or Take the qu	quickstart
Firestore	>	Committed use discounts			

Step 2: Assign the name for your VM

Step 3: Set your own region and zone

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

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



Name 🕜 Name is permanent						
eve-1						
Labels 🕜 (Optional)						
	+	Add	abel			
<b>Region ②</b> Region is permanent			<b>Zone </b> Zone is permanent			
europe-west2 (Londo	on) 🗸 🗸		europe-west2-c	•		
Machine configuration						
Machine family						
General-purpose	General-purpose Memory-optimised Compute-optimised					
Machine types for co	mmon workloads,	optin	nised for cost and flexibility			
Series						
N1				•		
Powered by Intel Skyl	ake CPU platform	or on	e of its predecessors			
Machine type						
n1-standard-16 (1	6 vCPU, 60 GB m	emo	ry)	•		
	vCPU		Memory			
	16 60 GB					

Container ②
Deploy a container image to this VM instance. Learn more

Step 6: Select Boot disk. Press Change

Boot disk 🕜		
$\bigcirc$	New 10 GB standard persistent disk Image Debian GNU/Linux 9 (stretch)	Change

Step 7. Select Custom images and the *custom boot images you created previously*. Choose HDD disk type and size. HDD size can vary depends of your needs.



#### Boot disk

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

Public images	Custom images	Snapshots	Existing disks	
Show images from				
My First Project	t 🕨			•
Show deprec	ated images			
Image				
nested-ubuntu-	xenial 🦰			•
Created on 22 Ap	or 2019, 20:46:12			
Boot disk type 📀			Size (GB) 🕜	/
SSD persistent	disk	•	50	

#### Step 7: Allow http traffic and create VM

Identity and API access 🔞				
Service account 🕜				
Compute Engine default service account	•			
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

You will be billed for this instance. Compute Engine pricing



# 3.4.5 EVE-NG-Community installation

#### Step 1: Connect to the VM with the first option "Open in browser window"

eve-comm1	europe-west2-c	10.154.0.8 (nic0)	35.189.66.46	SSH	
eve-pro	europe-west2-c	10.154.0.7 (nic0)	None	SSH	Open in browser window
					Open in browser window on custom port
					Open in browser window using provided private SSH key
					View gcloud command
					Use another SSH client



Connected, host fingerprint: ssh-rsa 0 CE:C0:B3:F3:3C:48:87:1D:3E:0A:F :56:63:75:8F:BD:92:31:45:76:CD:19:00:FB:66:33:9E:4B:EC Welcome to Ubuntu 16.04.6 LTS (GNU/Linux 4.15.0-1036-gcp x86_64)	D:AE:3B:B7	¢-
<pre>* Documentation: https://help.ubuntu.com * Management: https://landscape.canonical.com * Support: https://ubuntu.com/advantage</pre>		
0 packages can be updated. 0 updates are security updates.		
The programs included with the Ubuntu system are free software; the exact distribution terms for each program are described in the individual files in /usr/share/doc/*/copyright.		
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.		
uldis_dzerkals@eve-comm1:~\$		

Step 2: Launch installation with:

Type the below command to become root: sudo -i

```
Start EVE-COMM installation
```

```
wget -0 - http://www.eve-ng.net/repo/install-eve.sh | bash -i
```

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

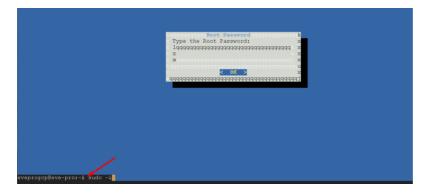
apt upgrade Confirm with Y

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

Type command to become root: sudo -i

Type command to update EVE apt update

# 3.4.6 Access to Google Cloud EVE-COMM

Use your public IP for accessing EVE via http.

🗌 🤡 eve-	comm1 europe-west2-c	10.154.0.8 (nic0)	35.189.66.46 🗳	SSH 🔹 :
	Emulated Virtual Environment			
	Next Generation 2.0.3-95 Sign in to start your session			
	Username			
	Password			
	Native console Y			
	Sign In			

Default web login: admin/eve

#### 3.4.7 Optional: GCP Firewall rules for native console use

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



-	Google Cloud Platfo	rm	₽ EVE-PRO-PROJECT ▼
♠	Home		M instances 🔹 CREATE IN
Ŧ	Pins appear here 🛛	2	×
STOR	AGE		Filter VM instances
	Bigtable		Name A Zone Recomm
	Datastore	>	eve-pro europe-west2-c
<b>((</b> *	Firestore	>	
	Storage	>	
	SQL		
20	Spanner		
2	Memorystore		
Ē	Filestore		
NETV	VORKING		
	VORKING VPC network	>	VPC networks
		> >	VPC networks External IP addresses
11	VPC network		

#### Step 2: Create new firewall rule



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





Direction of traffic	• •
Egress	
Action on match Allow Deny	0
Targets 📀	
All instances in	the network
Source filter 👔	
IP ranges	•
Source IP ranges	0
0.0.0.0/0 🔞	
Second source fil	ter 🔞
None	•
Protocols and po Allow all Specified pro	rts 🕡
🗹 tep	0-65535
udp:	
Other pr	otocols
protoc	ols, comma separated, e.g. ah, sctp
🗧 Disable rule	
Create Can	cel

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

	s control incoming or outgoing traffic to an instance. By default, Iffic from outside your network is blocked. Learn more
Name 🕜	
egress-ev	



Direction of traffic	0			
💿 Egress 🔫	-			
Action on match	0			
O Deny				
Targets 📀				
All instances in t	the network	•		
Dentingtion Share				
Destination filter	0			
IP ranges		•		
Destination IP rang	ges 🕜			
0.0.0/0 🛞	-			
Protocols and port	ts 🕜			
Specified prot	tocols and ports			
🗹 tep :	0-65535			
udp:				
Other protocols				
protoco	ols, comma separated, e.g. ah, sctp			
· · · · ·				
➢ Disable rule				
Create Canc	el			

Summary FW rules.

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

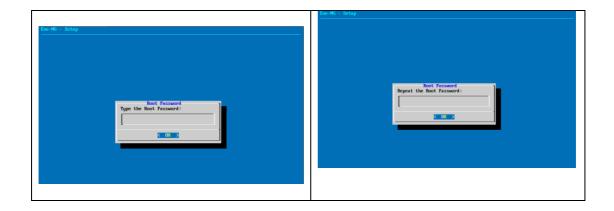
# 3.5 EVE Management IP Address setup

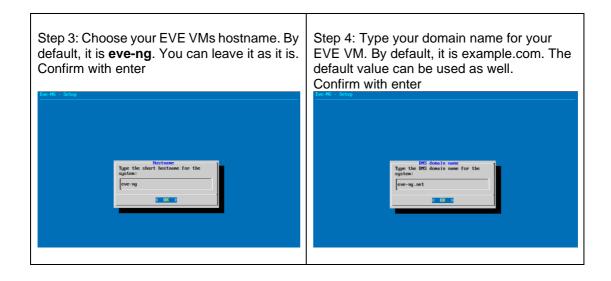
# 3.5.1 Management static IP address setup (preferred)

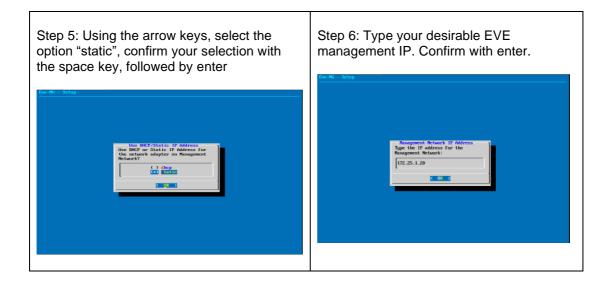
The steps below will walk you through the network setup and assign a static management IP for  $\ensuremath{\mathsf{EVE}}$  .

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

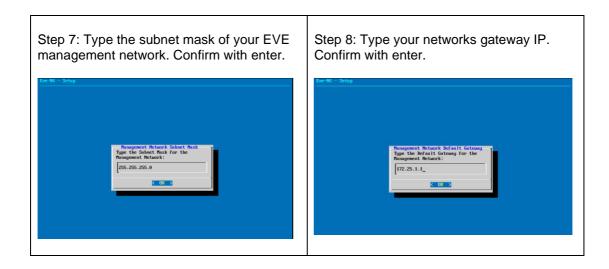


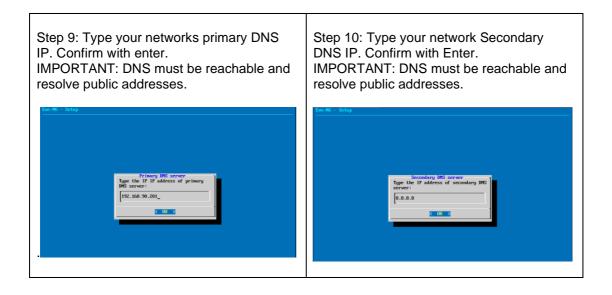






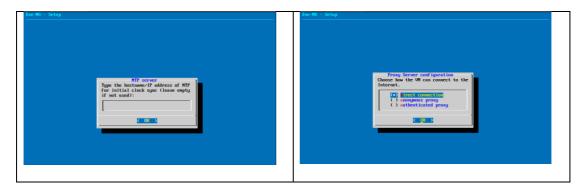






Step 11: Type your preferred NTP server IP. It can be left empty as well; in this case, your EVE VM will automatically assign the time from its host.	Step 12: If you have a proxy in use for your Internet, select the respective proxy option and configure your proxy settings. By default, it is direct connection (no proxy). Confirm your selection with enter. EVE will reboot automatically.
--	---

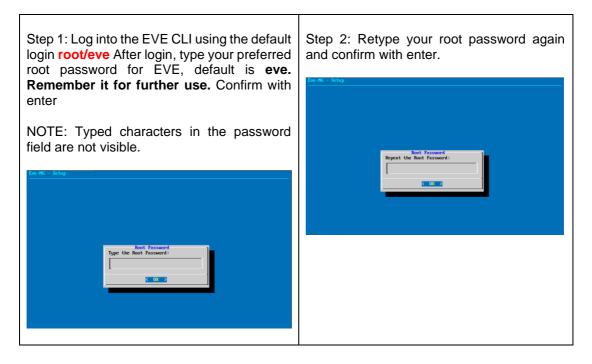




IMPORTANT NOTE: If you are setting up your management IP for the first time (fresh EVE installation), please return to the install section and complete installation phase 3.

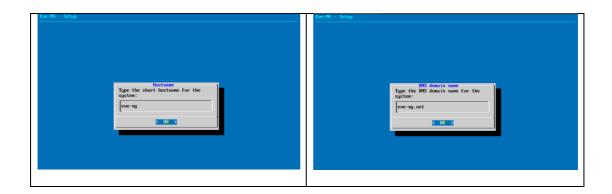
#### 3.5.2 EVE Management IP address setup via DHCP

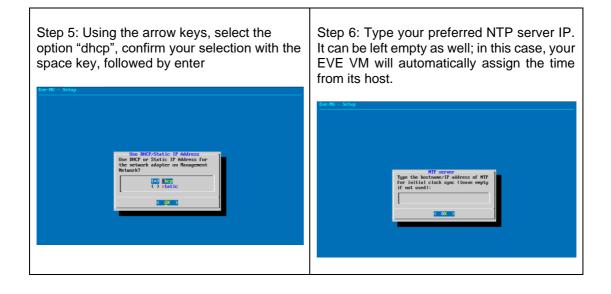
The steps below will walk you through the network setup and assign a management IP for EVE via DHCP.

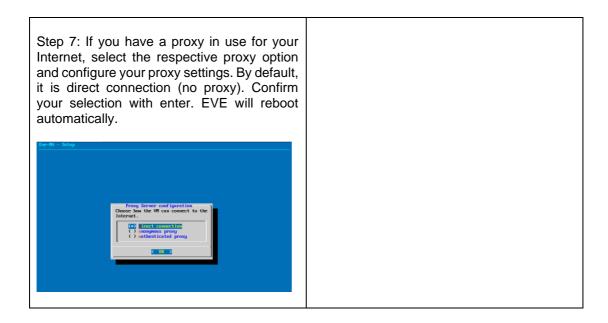


Step 3: Choose your EVE VMs hostname. By default, it is <b>eve-ng</b> . You can leave it as it is. Confirm with enter	











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

#### 3.5.3 EVE Management IP address reset

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

rm -f /opt/ovf/.configured

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

# 3.6 EVE-NG Community upgrade to EVE-NG Professional

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

#### 3.6.1.1 EVE Community disk space

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

df -h

root@eve-ng:~# df -h					
Filesystem	Size	Used	Avail	Use%	Mounted on
udev	7.9G	0	7.9G	0%	∕dev
tmpfs	1.6G	22M	1.6G	2%	∕run
/dev/mapper/evengvg-root	71G	29G	38G	44%	1
tmpfs	7.9G	0	7.9G	0%	/dev/shm
tmpfs	5.OM	0	5.OM	0%	/run/lock
tmpfs	7.9G	0	7.9G	0%	/sys/fs/cgroup
/dev/sda1	472M	155M	294M	35%	/boot
root@eve-ng:~#					

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

apt autoremove

#### 3.6.1.2 Verify current EVE Community version

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

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



dpkg -l ev	re-ng				
1 2	2				
root@eve-ng:~# d					
Desired=Unknown/	Install/Remove/	Purge/Hold			
Status=Not/Ins	t/Conf-files/Un	packed/hal	F-conf/Half-ins	st/trig-aWait/T	rig-pend
<pre>i/ Err?=(none)/R</pre>	einst-required	(Status Er	r: uppercase=ba	id)	0.1
	Version				
+++-=============					
	2.0.3-86	amd64	A new gene	eration software	e for networ
root@eve-ng:~#					

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

	<b>@</b> \/@	🕈 Main	🗲 Management 🗸	🖴 System 👻	<ol> <li>Information +</li> </ol>	
System status				<ul> <li>System st</li> <li>System k</li> </ul>		
Lul System status				X Stop All N		
8% Or same				6% ery used		
		run	ning IOL nod	es	running Dy	na
			0			0
			ru	nning Docl 0	ker nodes	
Qemu version: 2.4.0						
Current API version: 2.0.3-86						
UKSM status:						
CPULimit status:						

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

#### 3.6.1.3 Steps to upgrade to the latest EVE Community version

Type the following commands below and hit enter after each.

apt update

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

apt upgrade

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

reboot

#### 3.6.2 Upgrading EVE Community to EVE-NG Professional

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

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

apt update



apt install eve-ng-pro

reboot

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

apt install eve-ng-dockers

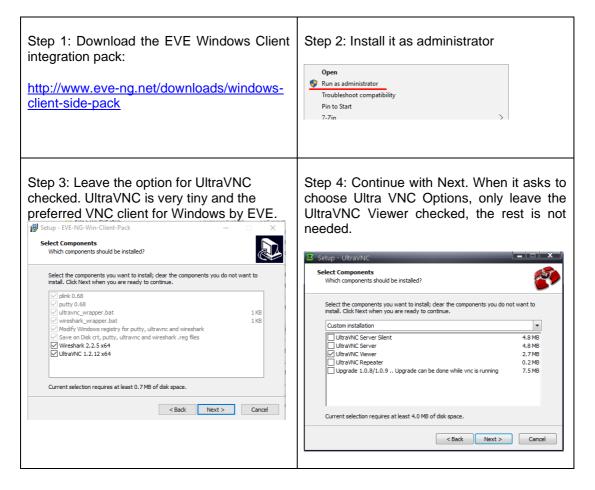
reboot

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

# 3.7 Native telnet console management setup

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

#### 3.7.1 Windows Native Console





Step 5: Continue with Next and finish the installation.	

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

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

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

Step 2: Set your default Telnet program:



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

#### Example: Firefox browser:

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

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

#### 3.7.2 Linux Native Console

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

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



Step 3: Scroll down to the installation part	
Installation	
Ubuntu and derivatives	
You can install eve-ng-integration from the official PPA:	
<pre>sudo add-apt-repository ppa:smartfinn/eve-ng-integration sudo apt-get update sudo apt-get install eve-ng-integration</pre>	
Step 4: Login as root to your Linux system and	enter the commands below:
NOTE: An internet connection is required. Er other	
•	nter each command line below one after the
other	nter each command line below one after the

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

# 3.7.3 MAC OSX Native Console

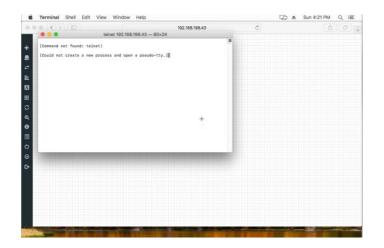
**Telnet Protocol:** 

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

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

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





Procedure to install a previous telnet binary:

Download telnet and ftp binaries from eve:

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

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

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

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

crutil disable; reboot

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

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



sudo -i

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

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



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

Type the following command into the terminal then hit enter:

crutil enable; reboot

VNC Protocol:

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

Install and use it as default VNC Client

**RDP** Protocol:

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



# 3.8 Login to the EVE WEB GUI

Login to the EVE management UI:

http://<your\_eve\_ip>/

Default user access:



#### User: admin

Password: eve

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



# 4 EVE-NG Community Update & Upgrade

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

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

ping www.google.com

root@eve=ng:~#"ping"www.google.com	Pie-R
PING www.google.com (216.58.207.228) 56(84) bytes of data.	
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=1 tt	l=58 time=9.11 ms <sup>ern</sup>
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=2 tt	l=58 time=19.5 ms
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=3 tt	l=58 time=9.50 ms
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=4 tt	l=58 time=9.56 ms
64 bytes from arn09s19-in-f4.1e100.net (216.58.207.228): icmp_seq=5 tt	1=58 time=9.56 ms

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

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

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

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

apt autoremove

# 4.1 EVE-NG Community Update

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

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





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



Type the below commands followed by Enter

apt update

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

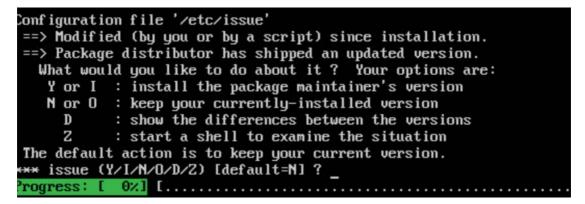
# 4.2 EVE-NG Community Upgrade

Type commands followed by Enter

apt upgrade

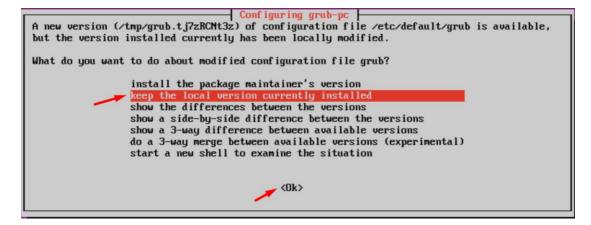
In case the prompt asks to confirm with Y/N, answer Yes.

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



Answer for prompt above is "N"





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

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

reboot



# **5** Types of EVE management consoles

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

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

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

<b>EVE</b> Communit	y supports two different console	e types.
		, typ00.

# 5.1 Native console

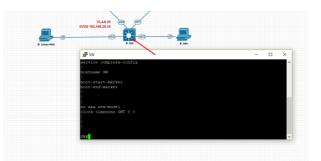


EVE Native console option requires locally installed software to access your lab nodes. To use the Native console option, you must have Administrator rights on your PC and ensure the TCP port range 32768-40000 is not blocked by a firewall or antivirus software. (See table above)

# 5.1.1 Native Console: telnet

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





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

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

(0) 172.22.7.18/egacy/	C Q Search
HE SALE AND TOWN HE SALE AND TOWN HE SALE AND TOWN NET Jeament SEC 165.261 TAXE DOWN TO AND TOWN SEC 165.261 TAXE DOWN TOWN SEC 165.261 TAXE DOWN SEC 165.261 TAXE DOWN SE	ostango debug datetime nac estango log datetime nac parsword-encryption narker model 0 0 pinterul 00

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

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

### 5.1.2 Native Console: Wireshark

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

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

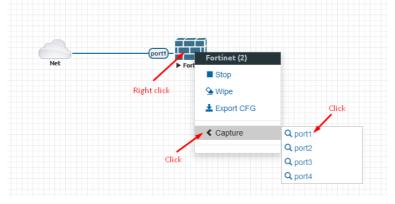


C:\	Program Files\EVE-NG		~ Ū	Search EV 🖇
	Name	Date modified	Туре	Size
55	Log	24/04/2018 21:02	File folder	
		24/04/2018 21:00	File folder	
	🖉 plink.exe	15/03/2017 20:09	Application	585 KB
	🖉 putty.exe	15/03/2017 20:09	Application	810 KB
	UltraVNC_1_2_12_X64_Setup.exe	15/03/2017 20:11	Application	2,722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

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

win10_64bit_putty.reg win10_64bit_sCRT.reg	08/04/2017 17:36 08/04/2017 17:36 15/03/2017 20:32	Registration Entries Registration Entries Windows Batch File	2 KB 3 KB 1 KB
wireshark_wrapper.bat - Notepad		_	D X
DECHO OFF SET USERNAME="root" SET PASSWORD="eve" Your EVE VM ro			1
SET S=%1	ot password		
Tour Eve with	IN ("%S%") DO SET HOST=9	%a&SET INT=%%b	
SET S=%1 SET S=%S:capture://=% FOR /f "tokens=1,2 delims=/ " %%a 1	IN ("%S%") DO SET HOST=5 not port 22"	%a&SET INT=%%b	

#### Example: Fortinet live interface port1 capture.





Capturing from Stand					portt) - For	Fortinet (2) Stop Wipe	
File Edit View Go	Capture Analyze Statist	cs Telephony Wireles	is Tools Help			Export CFG	
📶 📕 🙋 💿 📃 🛅	🖹 🛱   🍳 👄 👄 😤 🤅	ો 🗿 🔄 🗐 🔍 વ	. Q. 🎹				
Apply a display filter «	:Ctrl-/>			Expression	+	< Capture	Q port1
No. Time	Source	Destination	Protocol	Length Info	^		
- 10,000000	81,198,68,172	195.13.160.10	SIP	474 Request: OPTIONS sip:195.13.160.10:50	966		Q port2
2 0.044183	aa:47:00:00:00:84	Broadcast	ARP	64 Who has 195.13.160.113? Tell 195.13.1			Q port3
3 0.092268	aa:47:00:00:00:84	Broadcast	ARP	64 Who has 195.13.160.70? Tell 195.13.10	50.		Q port4
4 0.100273	80.82.65.74	195.13.160.10	TCP	64 43111 → 7113 [SYN] Seq=0 Win=1024 Ler	1-6		C port4
5 0.230397	aa:47:00:00:00:84	Broadcast	ARP	64 Who has 195.13.160.4? Tell 195.13.160	0.1		
6 0.295882	aa:47:00:00:00:84	Broadcast	ARP	64 Who has 195.13.160.84? Tell 195.13.16	50.		
7 0.384797	aa:47:00:00:00:84	Broadcast	ARP	64 Who has 195.122.9.10? Tell 195.122.9.	.1		
8 0.502080	81.198.68.172	195.13.160.10	SIP	474 Request: OPTIONS sip:195.13.160.10:50	966		
9 0.519371	aa:47:00:00:00:84	Broadcast	ARP	64 Who has 195.13.160.92? Tell 195.13.10	50. ~		
<pre>&gt; Ethernet II, Src: &gt; 802.1Q Virtual L4 &gt; Internet Protocol</pre>	s on wire (3792 bits), aa:47:00:00:00:84 (aa N, PRI: 0, CFI: 0, ID: Version 4, Src: 81.19	:47:00:00:00:84), Ds 33 8.68.172, Dst: 195.1	st: Grandstr_88	interface 0 :c0:07 (00:0b:82:88:c0:07)	•		
0000         00         0b         82         88         c           0010         08         00         45         00         0           0020         44         ac         c3         0d         a           0030         54         49         4f         4e         5           0040         2e         31         36         30         2	0         07         aa         47         00         00         00         8           1         c8         08         5e         00         00         3d         1:           0         0a         1.3         c4         1.3         c4         01         3:           3         20         73         69         70         3a         31         3:           9         3         35         30         36         3:	4 81 00 00 21 L 7a 3d 51 c6E. 4 bf 6d 4f 50 D 9 35 2e 31 33 TIOM 0 20 53 49 5066					

# 5.1.3 Native Console: VNC

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

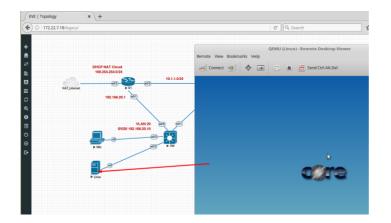
Example: UltraVNC as Native VNC client on Windows. To setup Windows native VNC client please follow section 3.7.1



Linux OS: Remote Desktop Viewer for VNC Sessions.

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

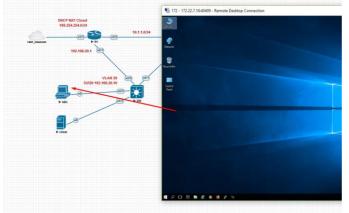




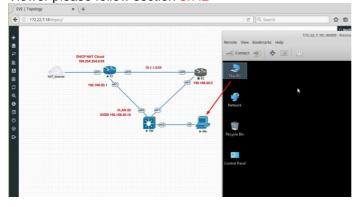
**MAC OSX:** Preferred VNC program: Chicken VNC Example: Chicken VNC as Native VNC client on MAC OSX. To setup MAC OSX native RDP Viewer client please follow section 3.7.3

#### 5.1.4 Native Console: RDP

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



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





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

### 5.2 HTML5 console

Emulated Virtual Environment Next Generation							
2.0.3-95							
Sign in to start your session							
Username							
Password							
Html5 console							
Sign In							

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

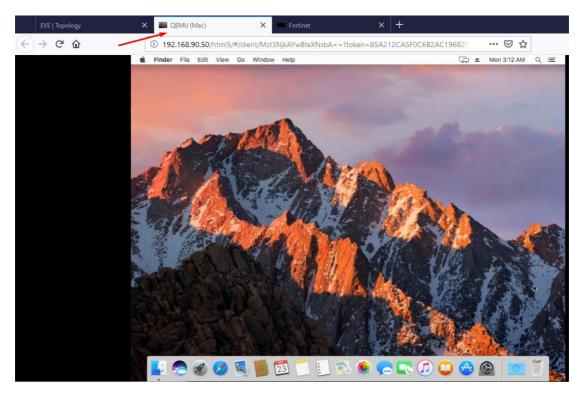
HTML5 Telnet console opens telnet sessions in the new browser window.

	EVE	Торо	ology	>	<	Fortinet	<b>x</b>	×	+
$\langle \in \rangle$	$\rightarrow$	G	۵		<b>i</b>	192.168.90.50/h	tml5/¥/client	/MzI	3NzAAYwBteXNxbA==?token=85A212CA5F
Fort	iGat	te-	VM64-KVM	login:					
Fort	iGat	te-	VM64-KVM	login:					
Fort	iGat	te-	VM64-KVM	login:					



### 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.



Template								
Windows								
Number of nodes to add	Image							
1	win-7-x86-IPCC							
Name/prefix								
Win								
con			]					
Desktop.png								
JUID								
PU Limit								
:PU	RAM (MB)	Ethernets						
1	4096	1						
EMU Version	QEMU Arch	QEMU Nic						
tpl(2.0.2) -	tpl(x86_64) -	tpl(e1000)						
EMU custom options								
	el=kvm -cpu qemu64,+fsgsba	ase -vga std -usbdevice tal	1					
			1					
tartup configuration								
None								
elay (s)								
0								
onsole								
rdp								
ft	Тор							
811	183							
30	Cancel							
EVE   Topology		× 127.0.0.1		ŀ	÷			
EVE   Topology			<b>×</b> - <b>50</b> /html5/#/client/MzI3N	991 	4==?token=A55	E299453E	80%	© t
EVE   Topology				991 	4==?token=A551	E299453E	80%	5
EVE   Topology				991 	- -==?token=A551	E299453E	80% ***	© 1
EVE   Topology				991 	- 4==?token=A551	E299453E	80%	<b>⊠</b> 1
EVE   Topology				991 	- -==?token=A551	E299453E	80%	5
EVE   Topology				991 	4==?token=A55	E299453E	80%	
EVE   Topology				991 	4==?token=A551	E299453E	80%	
EVE   Topology				991 	4==?token=A551	E299453E	80%	5
EVE   Topology				991 	4==?token=A55	E299453E	(80%) ***	S 1
EVE   Topology				991 	4==?token=A55	E299453E	(80%)	
EVE   Topology				991 	A==?token=A55I	E299453E	80%	
EVE   Topology				991 	λ= = ?token = Α55Ι	E299453E	80%	5
EVE   Topology				991 	λ= =?token=A55	E299453E	80%	S 1
EVE   Topology				991 	A==?token=A55	E299453E	80%	<b>⊠</b> 1
EVE   Topology				991 	A==?token=A55	E299453E	80%	⊌ 1
EVE   Topology				991 	A==?token=A55	E299453E	80%	5
EVE   Topology				991 	User		80%	S (
EVE   Topology				991 	user		80%	19 T
EVE   Topology				IzEAYwBteXNxbA	user 🗨		80%	♥ 1
Parate				IzEAYwBteXNxbA	User		80%	
EVE   Topology				IzEAYwBteXNxbA	user 🗨		80%	
EVE   Topology				IzEAYwBteXNxbA	user 🗨		80%	
EVE   Topology				IzEAYwBteXNxbA	user 🗨		80%	
EVE   Topology				IzEAYwBteXNxbA	user 🗨		80%	
EVE   Topology				IzEAYwBteXNxbA	user 🗨		80%	



# 6 EVE WEB GUI Management

## 6.1 EVE Management Page

The Main EVE management window

	<b>€</b> \/€	🖶 Main	🗲 Management -	🎒 System 👻	Information +	82017 Eve-NG 🚽	Management tabs	Å admin	🕒 Sign out
File manager Current position / root									
New Name	Add	older	CBT ICND2	CCNA LAB					
🗆 🖡 🖉 🛎 🛎 🔍 🥪 — Management buttons									
CCNA LABS				8	-				
A1.unl	23 Sep 2019	12:11							
CBT ICND2 CCNA LAB.unl	23 Sep 2019	12:19	/						
					<u>.</u>	<u> </u>			
			Version: 1	ICND2 CCNA LAB.( c-dff0-4e3d-ad35-5 t Delete			Description	:	

### 6.1.1 Management buttons



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



畲	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).
2	Refresh current folder content

### 6.1.2 Management tabs

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

Tab	Description
A Main	Returns back to the EVE Home Management screen.
🗲 Management 👻	Management dropdown, opening the management submenu.
嶜 User management	Management submenu, refer to sections: 6.3
🗐 System 👻	System dropdown.
	System submenu, refer to section 6.4



<ul> <li>System status</li> <li>System logs</li> <li>Stop All Nodes</li> </ul>	
Information →	Information dropdown
<ul> <li>About</li> <li>Forum</li> <li>YouTube Channel</li> <li>Help on EVE-NG LiveChat</li> </ul>	Information submenu, for details see section 6.5

### 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

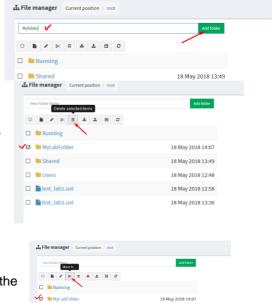
#### 6.2.1.1 Create folder

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.



🗆 🖿 Shared

E test\_lab1.unl

E test\_lab2.unl

🗆 🖿 Users

#### 6.2.1.3 Move Folder

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

18 May 2018 13:49

18 May 2018 12:48

18 May 2018 12:58

18 May 2018 13:36



Type and select the target destination for your folder and	Files selected to move:	
confirm by clicking on Move.	Current files position / New path	
	1	~
	Running tFolder/ MyLabFolder	
	Shared	Cancel
	Users	concer

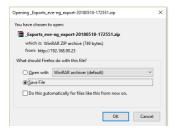
Users

#### 6.2.1.4 Export Folder

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

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

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



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

#### 6.2.1.5 Import Folder

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

Step 1: Press the Import button.



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

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

🥑 File Upload				×
	> This PC > Desktop > Exports >		マ ひ Search Exp	orts ,0
Organize 🔻 Ne	w folder			
💷 This PC	^ Name	Date modified	Туре	Size
3D Objects	EIGRP cfg set 2	15/03/2018 12:10	File folder	
Desktop	EIGRP cfg set 2.zip	15/03/2018 12:11	WinRAR ZIP archive	2 KB
Documents	EIGRP cfg set.zip	15/03/2018 12:10	WinRAR ZIP archive	4 KB
Downloads	Firepower_poc_623.zip	12/04/2018 11:16	WinRAR ZIP archive	51 KB
	📜 UD_lab_folder.zip 🔪	18/05/2018 23:31	WinRAR ZIP archive	258 KB
Music E Pictures	$\mathbf{X}$			
Videos	N N			
🏪 System (C:)				
🕳 Donna (E:)				
🕳 Data (G:)	~		× 1	
	File name: UD_lab_folder.zip		→ All Files ('	.*) ×
			Oper	Cancel

#### Step 3: Press the Upload Button

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

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

ame	
UD_lab_folder.zip	
New Name	Add folder
0 <b>b</b> / x 2 <b>1</b> 0 0	
🗆 🖿 Running	
🗆 🖿 MyLabFolder	18 May 2018 17:24
Shared	18 May 2018 15:16
🗆 🖿 UD Labs	19 May 2018 01:32
🗆 🖿 Users	18 May 2018 14:31
FirePower FTD 623 PoC Multihomed HA.unl	12 Apr 2018 11:16

### 6.2.2 Lab files Management

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



Main 🖌 Management - 🖉 S	ystem • 10 Information • ©2017 Eve-NG	📥 admin 🛛 🕫 Sign ou
Add folder		
		Choose a lab for more info
23 Sep 2019 12:27		
23 Sep 2019 13:36		
23 Sep 2019 14:05		
23 Sep 2019 13:36		
	ASE Boker 23 Sep 2019 12:27 23 Sep 2019 13:36 23 Sep 2019 14:05	23 Sep 2019 12:27 23 Sep 2019 13:36 23 Sep 2019 14:05

#### 6.2.2.1 Create Lab

Click on the New Lab button and refer to section 8.1

File manager Current position / root	
New Name	Add folder
CCNA LABS	
A1.unl	23 Sep 2019 12:27
C360 cfg LAB01.unl	23 Sep 2019 13:36
CBT ICND2 CCNA LAB.unl	23 Sep 2019 14:05
CBT ICND2 CCNA LAB_1569238598304.unl	23 Sep 2019 13:36

#### 6.2.2.2 Delete Lab

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

		🕈 Main	🗲 Management -	a System +	() Information +	@2017 Eve-NG
File manager Current position / root						
New Name	Add fold	ler				
CCNA LABS						
🖂 📑 A1.unl	23 Sep 2019 12	:27				
C360 cfg LAB01.unl	23 Sep 2019 13	:36				
CBT ICND2 CCNA LAB.unl	23 Sep 2019 14	1:05				
CBT ICND2 CCNA LAB_1569238598304.unl	23 Sep 2019 13	:36				

#### 6.2.2.3 Clone Lab

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

Cloned labs will copy exported configs (on supported nodes) but will not copy saved states/configurations in Qemu nodes like Windows hosts, Cisco ISE, or other Qemu nodes that are not supported by the export config feature. Please refer to section 10.1 for more information on configuration export for labs.

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



File manager Current position / root	
New Name	Add folder
□ 🖹 🖋 🛠 🖹 ± ± 0 2	
🗉 🖿 Running	
🔍 🖿 MyLabFolder	18 May 2018 14:07
🔍 🖿 Shared	18 May 2018 15:16
🗉 🖿 Users	18 May 2018 14:31
🖉 🖹 test_lab1.unl 🥆	% Move to 🕼 Rename 🗈 Clone 🧃
test_lab2.unl	18 May 2018 13:36

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

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

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

test_lab1.unl			18 May 2	2018 12:	58
test_lab1_1526649330089.unl	~	% Move to	🕜 Rename	Clone	8

Step 4: Rename it, and click OK to confirm

test_lab1.unl		st_lab1.unl	18 May 2018 12:58
		test_lab1_mynew_clone	Ok

#### 6.2.2.4 Move Lab

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

test_lab1.unl	18 May 2018 12:58
🖉 📑 test_lab1_mynew_clone.unl 🥆	≫≪ Move to 🕼 Rename 🕒 Clone 🔒
test_lab2.unl	18 May 2018 13:36

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

Files selecte	d to move:		
test_lab1_m	/new_clone.unl		
Current files position /			
New path			
1			~
Running	tFolder/		
MyLabFolder 🔫	_		
Shared		Move	Cancel
Users		MOVE	Canter

#### 6.2.2.5 Export Lab

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



File manager Current position / root	
New Name	Add folder
🗆 🖿 Running	
🗆 🖿 MyLabFolder	18 May 2018 17:24
🗆 🖿 Shared	18 May 2018 15:16
🗆 🖿 Users	18 May 2018 14:31
test_lab1.unl	18 May 2018 12:58
🔽 📑 test_lab2.unl	18 May 2018 13:36

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

You have chosen to	e-ng_export-20180518-172551.zip open:	
Exports_eve	-ng_export-20180518-172551.zip	
which is: Win	RAR ZIP archive (749 bytes)	
from: http://	192.168.90.23	
What should Firefo	x do with this file?	
Open with	WinRAR archiver (default)	
Save File		
Do this <u>a</u> uto	matically for files like this from now on.	
	OK Cancel	

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

#### 6.2.2.6 Import Labs

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

Step 1: Press the Import button.

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

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



⊢ → × ↑ 📙 ›	This PC > Desktop > Exports >		✓ <sup>™</sup> Search Ex	ports	
Organize 👻 New fo	older			III •	
Ouick access	Name	Date modified	Туре	Size	
📌 Quick access	EIGRP cfg set 2	15/03/2018 12:10	File folder		
a OneDrive	EIGRP cfg set 2.zip	15/03/2018 12:11	WinRAR ZIP archive	2 KB	
This PC	EIGRP cfg set.zip	15/03/2018 12:10	WinRAR ZIP archive	4 KB	
- Insec	🔚 Firepower_poc_623.zip	12/04/2018 11:16	WinRAR ZIP archive	51 KB	
👝 Donna (E:)					
Intwork		<ul> <li>Image: A set of the set of the</li></ul>			
- HELHOIK					
			\		

#### Step 3: Press the Upload Button

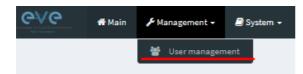
L File manager Current position / root						
Name		Size	Progress	Status	Actions	
Firepower_poc_623.zip		0.05 MB			Uploed	
New Name	Add folder					
0 1 1 2 2 2 2 2 2 2						
🗆 🖿 Running			Choose a lab for more i	nfo		
MyLabFolder	18 May 2018 17:24					

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

Name	
firepower_poc_623.zip	
New Name	Add fulder
0 8 / 2 8 4 1 8 0	
🗆 🖿 Running	
🗆 🖿 MyLabFolder	18 May 2018 17:24
Shared	18 May 2018 15:16
🗆 🖿 Users	18 May 2018 14:31
FirePower FTD 623 PoC Multihomed HA.unl	12 Apr 2018 11:16
test_lab1.unl	18 May 2018 12:58
E test_lab2.unl	18 May 2018 13:36

### 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 User

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



		<b>େ</b> ∖େ	#Hain	🗚 Management -	# System +	O Information +	#2017 Eve-NG	🛔 admin 🛛 🕪	Sign out		
User management hereyou ca	n manage uni users										● - 产Management - 螢Usermanage
Database of users											+Add user More Info +
Username	Email				Name			Role	POD	Actions	
admin	root@localhost				Eve-NG Admin	istrator		admin	0	(#Edit	
user3	user3@evenglab.net				Andrew Tester			admin	1	artar 🔒	

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

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

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

Step 4: Press ADD

Add	Cancel

#### 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.

		@\/@	A Management -	🖉 System -	Information •	©2017 Eve-NG	📥 admin	🕒 Sign out			
User management here you can manage	uni users										● > ≯Hanagement > 螢 User management
Database of users											+Add user More info +
Username	Email			Name			Role		POD	Actions	
admin	root@localhost			Eve-NG Adminis	brator		admin		0	C2 Edit	
user3	user3@evenglab.net			Andrew Tester			admin		1	When B	



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

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

#### 6.3.1.3 User monitoring

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

		<u></u> @∀@	Main 🎤 Management +	System = O information =	82017 Eve-NG	🛔 admin 🛛 🕪 Sign out			
User managem	nent here you can manage uni users								★ > ≯Management > 월Usermanagement
Database of user	rs								Add user More info +
Username	Email	Name	Role	Last session time	Last session lp	Current folder	Current lab	POD	Actio 🗹 Last session time
admin	reet@localhest	Eve-NG Administrator	admin	23 Sep 2019 12:40:48	10.6.6.10	1	N/A	0	ØEd Ø Last session ip
user3	user3@evenglab.net	Andrew Tester	admin	NJA	NJA	NjA	N/A	1	🕼 Ed 🗹 Current folder
									Current lab

### 6.4 EVE System Dropdown menu



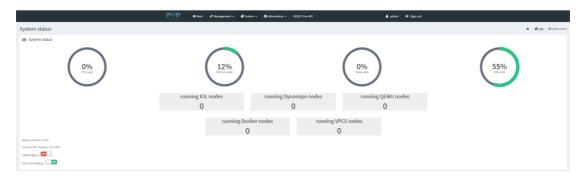
The EVE System dropdown contains the system utilization status, log files, and an option to stop all running nodes on the server.



#### 6.4.1 System status



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



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

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

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

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

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

limit.

#### Reference:

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

#### 6.4.2 System logs



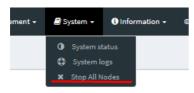
The System logs page, under the System Dropdown, will display EVE server log information



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

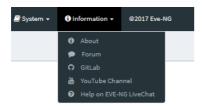
vstem logs		e - Bian - Olivier
Cold       Cold Cold Cold       Cold Cold Cold Cold Cold Cold Cold Cold		
System log viewer		
select log file	Number of Lines Search text	
access.bt	20 Vee	
access.txt		
api.txt		
	File output start	
	(1.1" 200 531 "http://192.168.90.50/" "Mozilla/5.0 (Windows NT 10.0; Windo/ x64; rc:59.0) Gecks/20100101 Firefine/69.0"	
	17E/dst/js/app.js? =1565241419080 HTTP/1.1" 200 6501 "http://152.168.80.50/" "Modila/5.0 (Windows NT 10.0; Win64::s4: rv-68.0) Gecks/20100101 Firefox/68.0"	
cpulmit.log		
10.6.6.10	1957 (anistatus 1/178/1.1° 200.983 "http://152.188.50.90/" "Modella 6 Mindows W110.0 Windor v62 /rv52.0/ Garbo/20100101 Eindow/25.0*	
10.6.6.10 [23/Sep/2019:15:28:53 +0300] "	"GET / api/atahus HTTP/1.1" 200 582 "http://192.188.50.50/" "Mozilla/3.0 (Windows NT 10.0; Win64;x64;vc/85.0) Gecko/20100101 Firefor/66.0"	
10.6.6.10[23/Sep/2019:15:28:51+0300] *	"GET /ap(/status HTTP)1.1" 200 582 "http://192.168.90.50/" "Mozilla/5.0 (Windows NT 10.0; Win64; s64; rv:S9.0) Gecks/20100101 Firefax/69.0"	
10.6.6.10 [23/Sep/2019:15:28:49 =0300] *	"GET /api/status HTTP/1.1" 200 582 "http://192.168.90.50/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:59.0) Gecko/20100101 Findia/69.0"	
10.0.0.10 [10.0	"0ET / api/atabus HTTP111" 200 582 "http://132.168.90.50/" "Mogilia/3.0 (Windows NT 10.0: Wind4: x64: rv:83.6) Gecks/20100101 Firefox/68.0"	

### 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

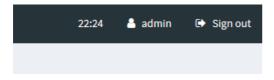


The Eve Information Dropdown contains links to the EVE Website, EVE forum, EVE YouTube channel, and the webbased EVE Live Help chat.

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

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

### 6.6 Other Tab line info



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

### 6.7 Lab preview and global settings

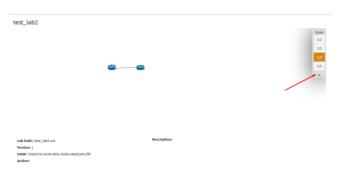
Once you click on a lab in the folder tree, a main window on the right side will display schematic content of the lab as well as lab management options like open, edit, and delete.



	Control Main	🗲 Management 🗸 🗧 System 🗸 🕕 Information 👻 ©2017 Eve-NG	📥 admin 🛛 🕀 Sign o
File manager Current position / root			
New Name	Add folder	CBT ICND2 CCNA LAB	
CCNA LABS		2	
A1.unl	23 Sep 2019 12:27	n	
CBT ICND2 CCNA LAB.unl	23 Sep 2019 12:19		
		Lab Path: (/EBTICND2 CCIA LAB.uni Version: 1 UUID: 2483122.cdB0.4e3id-ad35-903967/21174e Author: UD	Description:
		Open Edit Delete	

### 6.7.1 Lab preview window

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



#### 6.7.2 Lab preview buttons

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

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



#### 6.7.3 Lab preview information

#### Description, version, UUID etc.

Lab Path: /test\_lab1.unl Version: 12 UUID: 95692558-5acb-4308-ab66-64f9b40bd31f Author: John Tester **Description:** Here is short description of Lab

### 6.7.4 Lab Global Settings

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

Edit

Edit button below the Lab



Editlab		* *
Path* /test_lab1.unl	Description 6.	Here is short description of Lab
Name* 1. test_lab1 Use only [A-Za-z0.9 }chaes		
Version* 2. 12 Must be interger (0-9)chars)		
Author 3. Tohn Tester	Tasks 7,	Here are tasks for your lab. Task 1, Please configure Routes with IP addressing Task 2, Configure 160, P. GIGR Prouting on all nodes
Config Script Timeout 4. 300 Seconds		Task 3. Configure windows Host to receive DHCP IP address
Lab Countdown Timer 5. 120 Seconds		
* - Required Fields		Save Cancel

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

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



- 5. Description: In the Description field you can write a short description of the lab.
- 6. Tasks: In the Tasks field you can write the task for your lab.

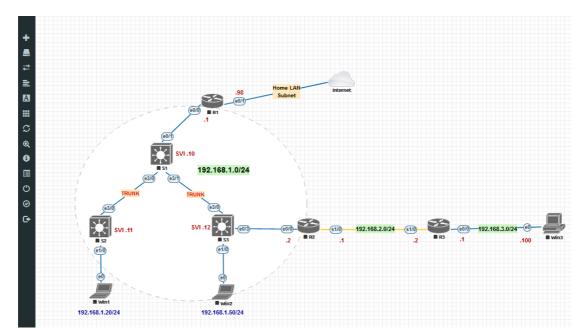
E Lab details window can be opened from the Topology Canvas page sidebar during labbing, to read the Tasks for the lab.





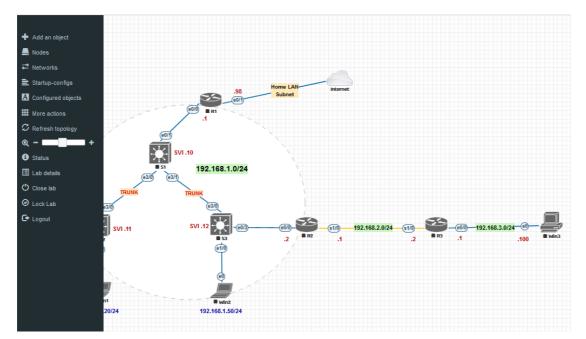
# 7 EVE WEB Topology page

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



### 7.1 Side bar functions

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





### 7.1.1 Add an object

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

	-	Add a new object
•	ANode	Ande Node
		# Network
-	🛱 Network	Picture
	Picture	Custom Shape
=	Custom Shape	A Text
A	A Text	III Auto Align

#### 7.1.1.1 Node object

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

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

#### 7.1.1.2 Network object

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



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

#### 7.1.1.3 Picture object

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

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



#### 7.1.1.5 Text object

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

Add a new object	ADD TEX	т	×
📥 Node	Text		
# Network	IERE		
Picture	Font Size	12	٥
Custom Shape	Font Style	normal	~
A Text	Font Color		
	Background Color		
🔛 Auto Align	Save Ci	ancel	

### 7.1.2 Nodes

A Nodes

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

01	NFIGUR	ED NODES																	•
ID	NAME	TEMPLATE	BOOT IMAGE	CPU	CPU LIMIT	IDLE PC	NVRAM (KB)	RAM (MB)	ЕТН	SER	CONSOLE		ICON			STARTUP-COP	(F1G	ACTIONS	
1	Win	win	win-10-x64-VL19 🗸	1		n/a	n/a	8192	1	n/a	rdp-tls	~	3	Desktop.png	•	None	~	□∎9∓ ©	Û
2	R2	iel	i86bi_LinuxL3-AdvEnterpri: ~	n/a	n/a	n/a	1024	1024	1	0	teinet		3	Router.png	•	None	~	▶∎≙± ©	ŵ
3	R3	iol	i86bi_LinuxL3-AdvEnterpri: 🗠	n/a	n/a	n/a	1024	1024	1	0	teinet		8	Router.png	•	None	~	Ģ∎∿± ©	ŧ
4	R4	iol	i86bi_LinuxL3-AdvEnterpri: $\vee$	n/a	n/a	n/a	1024	1024	1	0	teinet		8	Router.png	¥.	None	~	<b>□=</b> 9±0	8
5	Docker	docker	eve-ostinato:latest 🗸	n/a	n/a	n/a	n/a	256	1	n/a	rdp	~	ø	Network Analyzer.png	٣	Default	$\sim$	▶■⋺∓ Q	ŧ
5	Win	win	win-7-x86-IPCC 🗸	1		n/a	n/a	4096	1	n/a	rdp-tls	~		Desktop.png	•	None	$\mathbf{v}_{\mathbf{r}}$	⊧∎∂∓ ©	ŧ

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.

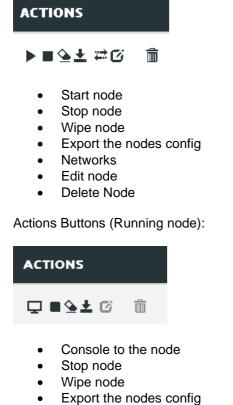
▲ NOTE: Running nodes are highlighted in Blue, their settings cannot be changed. You can only change settings of nodes that are not currently running.

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):



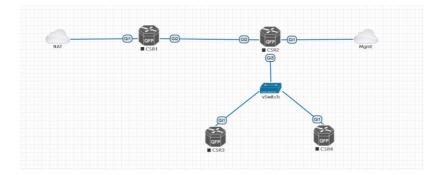
- Edit node
- Delete Node

#### 7.1.3 Networks

#### <u>₩ Networks</u>

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

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





CONFIG	GURED NETWORKS			♦ X
ID	NAME	туре	ATTACHED NODES	ACTIONS
1	NAT	nat0	1	6 11
2	Mgmt	pnet0	1	G 11
з	vSwitch	bridge	3	C B

#### ACTIONS

c î

E Startup-configs

- Edit Network
- Delete Network

#### 7.1.4 Startup-configs

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

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

STARTUP-CO	ONFIGS		• *
🌺 R1	* <b>ON</b>	Ace Editor	077
51	* <b>ON</b>		^
52		1 Last configuration change at 12:57:38 EET Mon Sep 23 2019	
S3	* ON	l version 15.7	
82	*ON	service limitangus debug dateline maes service limitangus (o dateline mae	
🍘 R3	4 🔜 ON	no service password encryption	
		hostname Router	
		bost-start-marker	
		bootendiarker	
		1	
		no aan new-model	
		dock timesone EET 2 0	
		mmi politikoji kretnak 60 no nomi politikoji kretnak kretnak kretnak kretnak kretnak kretnak kretnak kretnak kr	
		no mmi puc mmi some-timeout 180	
		1	
		1	
		1	
		· · · · · · · · · · · · · · · · · · ·	
		1 (jo of	× .
		See Gracel	-2

#### 7.1.5 Logical Maps

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

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



### 7.1.6 Configured Objects

A Configured objects

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

section 10.1

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



### 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

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

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

실 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 LA	λB			×
Path*	/UD Labs/Arista MLAG integration.unl	Description Arista mLAG and ASA Lab		
Name"	Arista MLAG integration			
Version*	Ute only (A-2a-2b-93ches) 1 Must be incorport ((0-4)churs)			
Author	uo	Tasks	LAB Scenario: 1. Configure ASA ports in etherchannels (mode active) and vian interfaces per design, name it as DMZ and Corporate respectively	^
	ript Timeout 800 Seconds		<ol> <li>Configure ASA et with DHOP P, must receive P from home LAN and name this port as outside</li> <li>Configure ASA management on port 64, and WAP Aground hous per design, ASA mult be readable from Mgmet PC over ASDM</li> <li>Configure Asits 4605 in malg and asign port in etherchanels per design.</li> <li>Sconfigure Voits 4004 Strethoraring port fractions (a ASA MAR Astronaution and astronaution).</li> </ol>	v
	ired Fields		<ol> <li>Configure vEOS etherchannels facing to vEOE-3998 to etherchannel mode on</li> </ol>	Save Cancel

#### 7.1.7.7 Set node's startup-cfg to default configset

\* Set nodes startup-cfg to default configset will boot from factory default instead. This is commonly used with the wipe nodes function so the node will boot from the configured startup-config on next boot and not from the startupconfig in its NVRAM in case the node was started before already.

Please refer to section 10.3

#### 7.1.7.8 Set node's startup-cfg to none

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

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

Please refer to section 10.3

#### 7.1.7.9 Delete default startup-cfgs

😉 Delete default startup-cfgs 🚽

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

#### 7.1.8 Refresh Topology



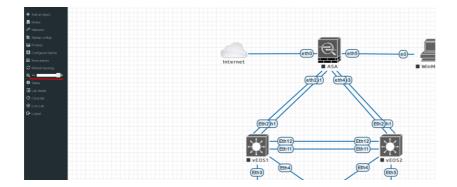
Sometimes it is necessary to refresh the topology if many objects are added on the topology.

#### 7.1.9 Lab page zoom/unzoom



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





#### 7.1.10 **Status**



Opens the EVE Status window.

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

STATUS				• u
EVE-NG version: 2.0.3-95 QEMU version: 2.4.0 UKSM Status: CPU Limit Status: Role: admin	1% CPU usage	19% Memory usage	0% Swap usage	55%) Disk usage on /
POD: 0	6 running IOL nodes	s running Dyna		٥ unning QEMU nodes
	<b>ہ</b> running Dock	ker nodes	running	o g VPCS nodes

#### 7.1.11 Lab details





#### 7.1.12 Lock Lab with password

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

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

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

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

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

### 7.1.13 Dark mode or Light mode

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

#### 7.1.14 Close lab

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

#### 7.1.15 Logout

🕒 Logout

😃 Close lab

Log out from the EVE WEB GUI session.



## 7.2 EVE Lab topology menus

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

### 7.2.1 Lab topology menu



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

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

### 7.2.2 Connection menu

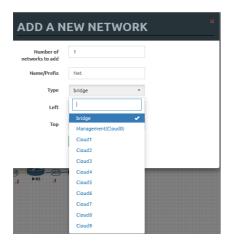


Right-clicking on the connection between nodes allows you to delete this connection.

### 7.2.3 Cloud or Bridge network menu

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





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.

### EDIT NODE

Template					
Cisco CSR 1000	J				
ID					
З					
Image					
csr1000v-univer	salk9.03.1	7.04.S.156-1.S4			
Name/prefix					
CSR3					
lcon					
🍘 CSRv1000.p	ng				
UUID					
67fea887-b30d-	4ad0-b31	4-828808b3853	3		
CPU Limit					
		RAM (MB)		Ethernets	
CPU Limit		RAM (MB) 3072		Ethernets	
CPU					
CPU 1	·	3072	Ţ	4	
CPU 1 QEMU Version tpl(2.12.0)	• options	3072 QEMU Arch	•	4 QEMU Nic	
CPU 1 QEMU Version tpl(2.12.0) QEMU custom o		3072 <b>QEMU Arch</b> tpl(x86_64)	• ion:stdio -no	4 QEMU Nic	g -node
CPU 1 QEMU Version tpl(2.12.0) QEMU custom o -machine type=	pc-1.0,acc	3072 <b>QEMU Arch</b> tpl(x86_64)	• ion:stdio -na	4 QEMU Nic tpl(e1000)	g -node
CPU 1 QEMU Version tpl(2.12.0) QEMU custom o	pc-1.0,acc	3072 <b>QEMU Arch</b> tpl(x86_64)	von:stdio -ne	4 QEMU Nic tpl(e1000)	g -node
CPU 1 QEMU Version tpl(2.12.0) QEMU custom o -machine type= Startup configu None	pc-1.0,acc	3072 <b>QEMU Arch</b> tpl(x86_64)	• Ion:stdio -na	4 QEMU Nic tpl(e1000)	g -node
CPU 1 QEMU Version tpl(2:12:0) QEMU custom omachine type= Startup configu	pc-1.0,acc	3072 <b>QEMU Arch</b> tpl(x86_64)	von:stdio -ne	4 QEMU Nic tpl(e1000)	g -node
CPU 1 QEMU Version tpl(2.12.0) QEMU custom o -machine type= Startup configu None Delay (s)	pc-1.0,acc	3072 <b>QEMU Arch</b> tpl(x86_64)	• ion:stdio -no	4 QEMU Nic tpl(e1000)	g -node
CPU 1 QEMU Version tpl(2.12.0) QEMU custom ( -machine type= Startup configu None Delay (s) 0	pc-1.0,acc	3072 <b>QEMU Arch</b> tpl(x86_64)	•	4 QEMU Nic tpl(e1000)	g -node
CPU 1 QEMU Version tpl(2.12.0) QEMU custom ( 'machine type= Startup configu None Delay (s) 0 Console	pc-1.0,acc	3072 <b>QEMU Arch</b> tpl(x86_64)	von:stdio -ne	4 QEMU Nic tpl(e1000)	g •node

### 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.

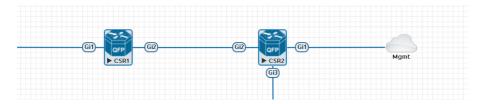


 Image: start point of the selected

 Image: start point of the selected

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

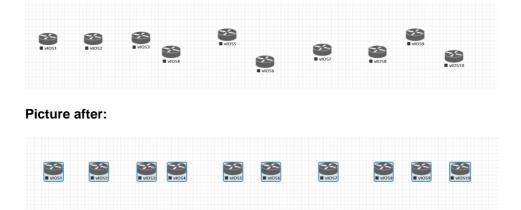
Horizontal Align. Aligns the selected nodes in one horizontal line.

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:



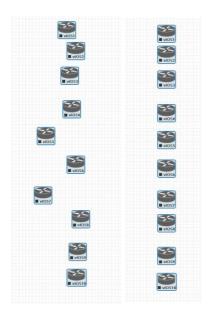


Vertical Align: Aligns the nodes in one vertical line.

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** 





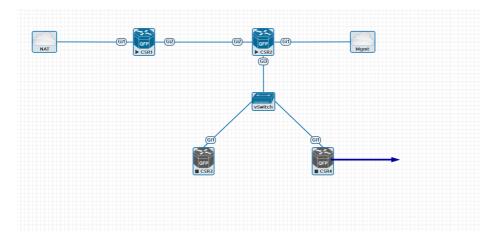
#### Delete nodes startup-config.

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

$\Delta$ Notifications	×
Win3: stopped	×
Win3: Export not supported (19).	×
	TT
Win3: Starting export, please wait	×

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



# 8 Working with EVE labs

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

## 8.1 Creating a lab

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

🚠 File manager	Current position / root	
New Name Add new lab	Ado	l folder
	ê 🛓 📩 🖸 C	

Step 2:

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

Add New Lat						×
Name*	mylab4			Description	It is my new lab	
	Use only [A-Za-20-9 ]chars					
Version*	1					
	Must be interger ([0-9]chars)					•
Author	John Tester			Tasks	1. configure IP addressing	
Config Script Ti	meout	300	Seconds		2. configure EIGRP AS 20	
					3. configure static default route to the Internet	ř
Lab Countdowr	Timer	0	Seconds		Save Cance	ŧ.
* - Required Fir	elds				_	

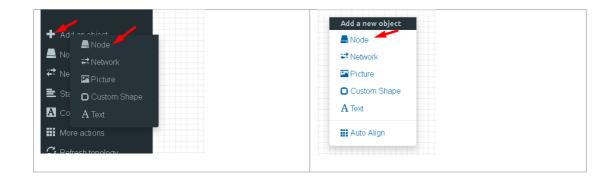
#### 8.1.1 Adding nodes to the lab

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

Step 1: Object/Add Node

Left Side Bar > Add object > node. Refer to section 7.1.1.1 for more information.	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.
---	---





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

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



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

ADD A NEW	NO	DE _				×
Template 1						
Cisco CSR 1000V					*	
Number of nodes to ad	d <mark>2</mark> .	Image 3.				
1		csr1000v-ur	niversal	k9.03.17.04.S.1	156-1.S4 <del>-</del>	
Name/prefix 4.						
CSR						
Icon 5.						
🎒 CSRv1000.png					*	
UUID <mark>6</mark> .						
CPU Limit 7.						
сри <mark>8</mark> .	RAM (/	мв) <mark>9</mark> .		Ethernets	10.	
1	3072			4		
QEMU Version 11.	QEMU	Arch 12.		QEMU Nic	13.	
tpl(2.12.0) •	tpl(×	86_64)	-	tpl(e1000)	*	
QEMU custom options	14.					
-machine type=pc-1.0,ac	:cel=kvm ·	serial mon:sto	lio -no <u>c</u>	graphic -nodef	config -n	
Startup configuration	15.					
None					*	
Delay (s) 16.						
0						
Console 17.						
telnet					-	
Left		Тор				
839		210				
Sa	ve Car	ncel				



### 8.1.1.1 Node values Table

Number	Description
1.	ADD A NEW NODE
2.	Number of nodes to add Chose the number of nodes of this type you want to add to the topology
3.	Choose your preferred version from preloaded images list (if you have more than one image loaded for a single template).
4.	Name/prefix       Type your preferred node name. If you are adding more than one, EVE will automatically append numbers to the nodes name.         Example. We are adding 5 CSR nodes with the name R. On the topology they will appear as R1, R2, R3, R4, R5. Later using the Nodes window, you can edit the node names per your needs. Refer to section 7.1.2 or edit the node individually, refer to section 8.1.2.
5.	<ul> <li>CSRv1000.png</li> <li>Arks_SMpng</li> <li>Arks_ctrlpng</li> <li>CSRv1000.png</li> <li>CSRv1000.png</li> <li>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</li> </ul>
6.	UUID The UUID number is assigned automatically after a node is created. You may also set it manually in case you are using a license that is tied to a particular UUID.



7.	CPU Limit CPU limit per node. This option is already set (checked/unchecked) per EVE recommendations. Refer to section 6.4.1
8.	CPUEach node template has a pre-set CPU value that aligns1with vendor requirements. This value can be changed per your needs.
9.	RAM (MB)Each node template has a pre-set RAM value that aligns with vendor requirements. This value is displayed in MB and may be changed per your needs.
	Ethernets       4       The number of ethernets interfaces.
	▲ NOTE for IOL nodes:
10.	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
	Ethernet portgroups (4 int each) Serial portgroups (4 int each) 1 node will have 4 serial interfaces.
	Custom MAC address for Qemu nodes only. You can define your own MAC address for first interface:
11.	First Eth MAC Address
	aa:bb:cc:00:de:ad
	QEMU Version EVE will pre-set the best recommended QEMU version
12.	for each node template. This value can be changed per your needs.
	QEMU Arch Professor
13.	recommendations. This value can be changed per your needs



14.	QEMU Nic         tpl(vmxnet3)         virtio-net-pci         e1000-82545em         vmxnet3         tpl(vmxnet3)
15.	QEMU custom options         -machine type=pc-1.0,accel=kvm - cpu Nehalem - serial mon:stdio -nographic - r         Per image vendor         recommendations. This value can be changed per your needs
16.	Startup configuration None Startup configuration: Value can be changed to set your node to boot from saved configurations. Refer to section 10.3 for more details.
17.	<sup>Delay(s)</sup> The Delay value is set in seconds and can be used to delay a node from booting after it is started. Example: if the value is set to 30, the node will wait 30 seconds before processing its boot sequense. This feature is useful in conjunction with the "Start all nodes" function if your lab requires certain nodes to start up before others or to avoid a mass-start of very heavy nodes.
18.	Console types for each template are pre-set with recommended settings. The setting can be changes per your needs. MOTE: The Docker template contains a wide variety of images, therefore, please refer to section 14.1.3 for recommended console types for each docker image. Windows nodes can use either RDP or VNC but RDP needs to be enabled in Windows itself.
19.	First Eth MAC Address OPTIONAL: Templates for Cisco FirePower, F5, Linux, and Citrix have the option to manually set the MAC address for the first ethernet interface. This will enable the use of licenses that are tied to a particular MAC address. MAC Address format must be like: 00:50:0a:00:0b:00

## 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-1	5.6.2T	•
Name/prefix		
hos		
lcon		
🕙 Router.png		•
UUID		
b5fa3320-98ed-4ea4-ad2	1-627d427b8a6a	
CPU Limit		
CPU	RAM (MB)	Ethernets
1	1024	4
QEMU Version	QEMU Arch	QEMU Nic
tpl(default 2.4.0) 🔹	tpl(i386) -	• • • • • • • • • • • • • • • • • • •
QEMU custom options		
-machine type=pc-1.0,acc	el=kvm -serial mon:stdio -	nographic -nodefconfig -nodef
Charles Causelian		
Startup configuration		•
Delay (s)		
Console		
telnet		<b>.</b>
	T	
Left 839	<b>Top</b>	
	210	
Sav	/e Cancel	

### 8.1.3 Wipe Node

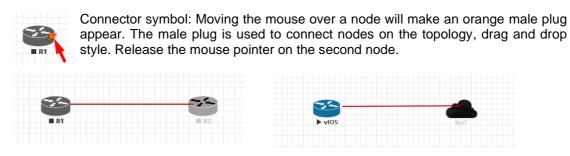


The "Wipe node" function will clear the NVRAM of the node. Each time a node setting is changed (CPU, RAM, boot image or startup configuration) a wipe must be issued on that node. For more information refer to section 10.3

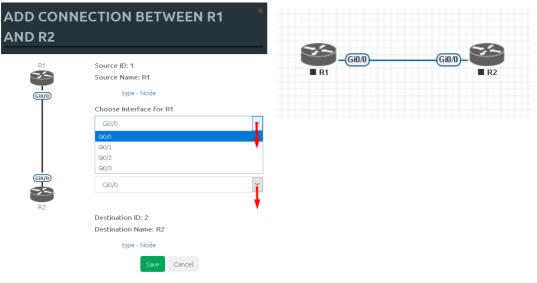


#### 8.1.4 Interconnecting nodes

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



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



#### 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-reversable function

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

## 8.2 Running labs

#### 8.2.1 Starting lab

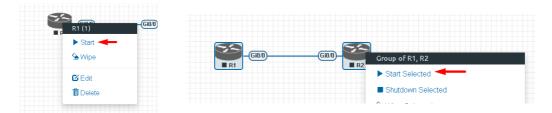
Nodes inside a lab may be started individually, in groups, or all at once.

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

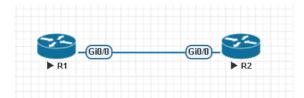
▲ IMPORTANT. Starting all the nodes at once can result in major spikes in CPU utilization. Please make sure you are not using the "Start all nodes" option for heavy labs. Instead, it is recommended to start nodes in small groups.

Starting a node or group of nodes:

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



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 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

	e∨e .	• Main	🗲 Management 🕶	🗐 System 👻	3 Information +	@2017 Eve-NG	💄 admin	🖨 Sign out
File manager Current position / root								
New Name	Add folder		CBT ICND2	CCNA LAB				
CCNA LABS				-				
A1.unl	23 Sep 2019 12:2	7						
CBT ICND2 CCNA LAB.unl	23 Sep 2019 13:0	8	/	and the second se				
					8	<u> </u>		
			Version: 1	ICND2 CCNA LAB.		Des	cription:	
		-	Open Edit	Delete				

## 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

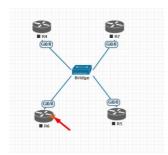
Step 1: Add a Bridge Network onto the topology. There are two ways to do this: Right-clicking on the topology area and selecting "Add Network" or in the sidebar click "Add an Object" and then select "Network." Please refer to sections 7.2.3 and 7.1.1.2

Add a new object	<i></i>
📥 Node	
🕶 Network	📕 Mode
Picture	Network
Custom Shape	Ficture
A Text	E O Custom Shape
🔛 Auto Align	A Text
	III Mana antina

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

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

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





## 9.2 Management Cloud0 interface

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

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

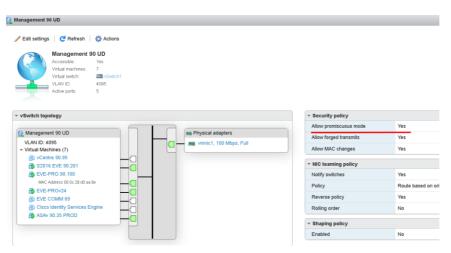
Cloud0 is commonly used inside EVE labs to get management access to nodes running inside EVE from a host machine external to EVE.

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

#### vSwitch Settings

🥖 Edit standard virtual switch - vSwi	tch1
📇 Add uplink	
MTU	1500
Uplink 1	vmnic1 •
Link discovery	Click to expand
▼ Security	
Promiscuous mode	Accept     CReject
MAC address changes	Accept     Creject
Forged transmits	Accept     Creject
▶ NIC teaming	Click to expand
▶ Traffic shaping	Click to expand

#### **Portgroup Settings**





#### EVE Cloud0 bridging table.

Lab name	EVE interface name (inside)	Туре	Notes
Cloud0	pnet0	Bridged	Cloud0/pnet0 is bridged with your primary EVE ethernet port. It is assigned a 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:

route							
root@eve-ng:~#		errors:0 dropped:0	overrun	ns:0_car	rier:O		
Kernel IP routi	ng table						
Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
default	192.168.90.1	0.0.0.0	UG	0	0	0	pnet0
172.17.0.0	*	255.255.0.0	U	0	0	0	docker0
172.29.129.0jate	eway IP type:	255.255.255.0	U	0	0	0	nat0
192.168.90.0		255.255.255.0	U	0	0	0	pnet0
root@eve-ng: #							

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

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

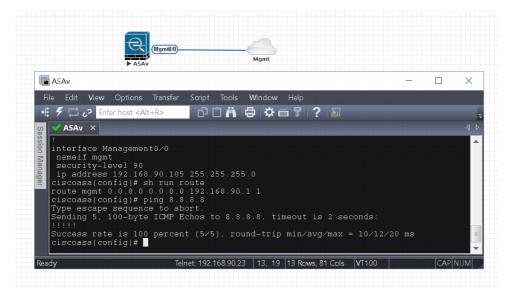
Step 1: Add A New Network onto the topology. There are two ways to do this: Right-clicking on topology area and selecting "Network" or in the sidebar, "Add an Object" and then select "Network."

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

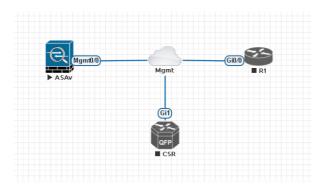
Step 3: Connect your ASAv using the drag and drop connector to the Cloud0 network. Refer to sections 8.1.4 and 7.2.3

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





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



## 9.3 Other cloud interfaces

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

#### EVE Cloud bridging table.

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

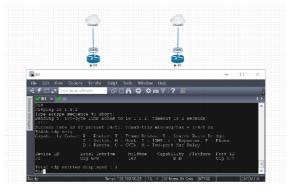
						management network in the labs.
Cloud1	Pnet1	bridged	Network adapter 2	Network Adapter 2	Second ethernet Eth1	Cloud1 can be bridged with your EVE second ethernet port to achieve connection to another network or device. The IP address is not required to be configured on it. It will act like a pure bridge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

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

Step 1: Add two Cloud7 networks onto the topology.



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.

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

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

2 WSA-MGMT			
🥒 Edit settings 🕴 🤁 Refresh 📗 🏠 Actions			
WSA-MGMT           Accessible:         Yes           Virtual machines:         2           Virtual switch:         Imachines:           VLAN ID:         0           Active ports:         0			
		* Security policy	
		Allow promiscuous mode	Yes
VLAN ID: 0	No physical adapters	Allow forged transmits	Yes
Virtual Machines (2)		Allow MAC changes	Yes
EVE-PROv24		▼ NIC teaming policy	
		Notify switches	Yes
		Policy	Route based on originating port ID
		Reverse policy	Yes
		Rolling order	No
		- Shaping policy	

Enabled

No



#### Parent vSwitch5 settings:

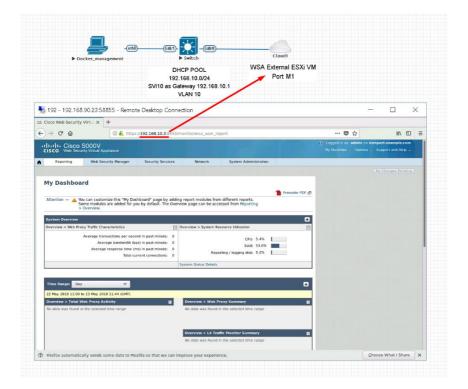
wSwitch5			
Add uplink Call Settings Call Set	C Refresh		
MTU	1500		
Ports	4352 (4319 available)	VLAN ID: 0	No physical adapters
Link discovery	Unknown	Vitual Machines (2)	
Attached VMs	2 (0 active)	EVE-PROv24     Coeus-10-1-3-039-S000V	
✓ NIC teaming policy			
Notify switches	Yes		
Policy	Route based on originating port ID		
Reverse policy	Yes		
Rolling order	No		
✓ Security policy			
Allow promiscuous mode	Yes		
Allow forged transmits	Yes		
Allow MAC shanges	Ves		

#### EVE and WSA VMs settings

EVE topology.	GMT. It is Cloud1 on the	Management port i WSA-MGMT.	is assigned in portgroup
<ul> <li>Hardware Configuration</li> </ul>		✓ Hardware Configuration	
🕨 🔲 CPU	16 vCPUs	CPU	1 vCPUs
🌉 Memory	32 GB	Memory	4 GB
Hard disk 1	40 GB	Hard disk 1	250 GB
Hard disk 2	150 GB	Metwork adapter 1	WSA-MGMT (Connected)
🖶 USB controller	USB 2.0	▶ ■ Network adapter 2	UNUSED (Connected)
Network adapter 1	Management 90 UD (Connected)	► ■ Network adapter 3	UNUSED (Connected)
Network adapter 2	WSA-MGMT (Connected)	Network adapter 4	UNUSED (Connected)
▶ 💻 Video card	4 MB	Network adapter 5	UNUSED (Connected)
Image:	Additional Hardware		

#### EVE Lab connected to the WSA (Cloud1)

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



#### 9.4.2 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.

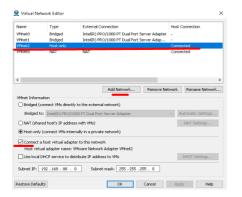
**Example:** Connecting Web security Appliance (WSA) to the lab using **Cloud2** interface.

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

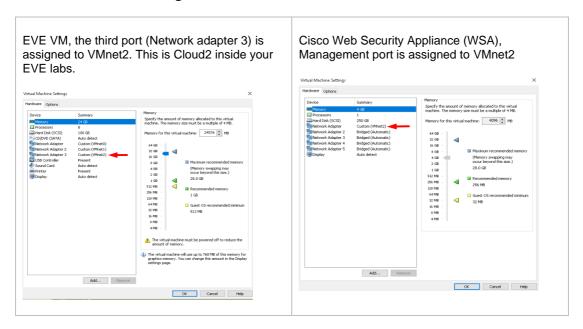
Step 1: Open your VMWare Workstation Virtual Network Editor and configure the VMnet interface for the Cloud and WSA VMs. If necessary, add a new VMnet. The example below is showing VMnet2 Settings in VMWare workstation. DHCP must be disabled for VMnet2.

#### Virtual Network Editor settings:





#### **EVE and WSA VMs settings**



#### EVE 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.



172 - 172 25.12.133285 - Remote Desktop Connection     172 - 1	Management Docker station DHCP IP 192.168.10.2	SW VL SVI10 192.16	<b>witch</b> LAN 10 58.10.1 as GW DL VLAN 10	Ctoied2 WSA VM Works DHCP IP 192.16 GW 192.168 Cloud2 as connection to	58.10.3 10.1	
	172 - 172.25.1.21:33285 - Remot	e Desktop Connectio				- 🗆 ×
Clisco S000V (the Security Vinual Applance)   Reporting Web Security Vinual Applance)   My Dashboard   My Dashboard   Attention   Image: Darge transactions per second in past minute:   Overview > System Resource Utilization   System Overview   Overview > System Status Details   Time Range: Darge   Overview > Lit pastice domine range   No data was found in the selected time range   Overview > Lit traffic Monitor Summary g	Cisco Web Security 🗸 🔪					
Internet CLISCO Web/Society Vehical Appliance     Reporting     Web Society Vehical Appliance     No Charges Pendices     My Dashboard     Attention -   You can customize this "My Dashboard" page by adding report modules from Afferent reports. Sone modules are added for you by default. The Overview page can be accessed from Reporting > Overview     System Overview     Overview > Web Roox Traffic Characteristics     Overview > Web Roox Traffic Characteristics     Overview > System Status Details     Time Anappe: Day     Time Anappe: Day     Overview > Total Web Proxy Activity     No data was found in the selected time range	→ C A Not secure   https://192.168	3.10.3:8443/monitor/wsa	_user_report			\$
Ny Dashboard  Attention  You can customize this "My Dashboard" page by adding report modules from different reports. Some modules are added for you by default. The Overview page can be accessed from Reporting > Overview.  System Overview System Control (State (State))  Average transactions per second in past minute: Base Source Utilization  Time Ranges: Day  Time Ranges: Day  Coverview > L4 Traffic Monitor Summary Base Sound in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range  Ne data was found in the selected time range	CISCO Web Security Virtual Appliance					
My Dashboard  Attention -  Vou can customize this "My Dashboard" page by adding report modules from different reports. Some modules are added for you by default. The Overview page can be accessed from Reporting Overview.  System Overview System Status Details  Trine Range: Day  Coverview cover coverview C	Keporting Web Security Manager	Security Services	Network	System Administration		
Average bandwidth flops in past minute:       0         Average response time (ms) in past minute:       0         Total (urrent connections:       0         System Status Details       52%	Attention — 🛕 You can customize this "My Some modules are added fo	Dashboard" page by adding r you by default. The Overvie	report modules from ew page can be acce	different reports.	ible PDF <del>전</del>	
Average bandwidth (bps) in patr minute: Average response time (ms) in patr minute: Bata current connections: Bata current curr	Attention – A You can customize this "My Some modules are added to > Overview.	r you by default. The Overvie	ew page can be acce	different reports. essed from Reporting	•	
Total current connections:     0     Reporting / logging disk: 5.2%       System Status Details         Time Range:     Day       22 May 2018 20:00 to 23 May 2018 20:10 (GMT)       Overview > Total Web Proxy Activity     0       No data was found in the selected time range     No data was found in the selected time range         Overview > L4 Traffic Monitor Summary     g	Attention – You can customize this "My Some modules are added to > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per s	r you by default. The Overvie	ew page can be acce	u different reports. sssed from Reporting	•	
Time Range:       Day         22 May 2018 20:00 to 23 May 2018 20:10 (GMT)       Image: Comparison of the second of the sec	Attention – A You can customize this "My Some modules are added to > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per s Average bandwidth	r you by default. The Overvie Ov econd in past minute: 0 (bps) in past minute: 0	ew page can be acce	u different reports. sssed from Reporting burce Utilization CPU: 7.5%	•	
22 May 2018 20:00 to 23 May 2018 20:01 (GMT)         Overview > Total Web Proxy Activity       Image: Comparison of the selected time range         No data was found in the selected time range       No data was found in the selected time range         Overview > L4 Traffic Monitor Summary       Image: Comparison of the selected time range	Attention — You can customize this "Wy Some modules are added to > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per Average areasonse tim Average response tim	r you by default. The Overvie overvie econd in past minute: 0 ((bps) in past minute: 0 e (ms) in past minute: 0	ew page can be acce verview > System Reso	u different reports. sseed from Reporting surce Utilization CPU: 7.5%	•	
22 May 2018 20:00 to 23 May 2018 20:01 (GMT)         Overview > Total Web Proxy Activity       Image: Comparison of the selected time range         No data was found in the selected time range       No data was found in the selected time range         Overview > L4 Traffic Monitor Summary       Image: Comparison of the selected time range	Attention — You can customize this "Wy Some modules are added to > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per Average areasonse tim Average response tim	r you by default. The Overvie cond in past minute: 0 (bps) in past minute: 0 e (ms) in past minute: 0 I current connections: 0	ew page can be acce verview > System Reso Repor	u different reports. sseed from Reporting surce Utilization CPU: 7.5%	•	
Overview > Total Web Proxy Activity     ©       No data was found in the selected time range     No data was found in the selected time range       No data was found in the selected time range       Overview > L4 Traffic Monitor Summary	Attention — You can customize this "Wy Some modules are added to > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per Average and width Average response tim	r you by default. The Overvie cond in past minute: 0 (bps) in past minute: 0 e (ms) in past minute: 0 I current connections: 0	ew page can be acce verview > System Reso Repor	u different reports. sseed from Reporting surce Utilization CPU: 7.5%		
No data was found in the selected time range No data was found in the selected time range           Overview > L4 Traffic Monitor Summary         X	Attention – A You can customize this "Wy Some modules are added to > Overview. System Overview Vee Praxy Traffic Characteristics Average transactions per s Average transactions per s Average transactions per s The Range: Day	r you by default. The Overvie cond in past minute: 0 (bps) in past minute: 0 e (ms) in past minute: 0 I current connections: 0	ew page can be acce verview > System Reso Repor	u different reports. sseed from Reporting surce Utilization CPU: 7.5%		
Overview > L4 Traffic Monitor Summary	Attention – A You can customize this "My Some modules are added to > Overview. System Overview Overview > Web Proxy Traffic Characteristics Average transactions per s Average transact	r you by default. The Overvia	ew page can be acce verview > System Reso Repor	different reports. esseed from Reporting Durce Utilization CPU: 7.5% RAM: 50.4%		
	Attention –  You can customize this "Wy Some modules are added to > Overview.  System Overview  Overview > Web Proxy Traffic Characteristics  Average transactions per s  Average transactions per	r you by default. The Overvid Cond in past minute: 0 (bps) in past minute: 0 (cms) in past minute: 0 I current connections: 0 Sy	w page can be acce verview > System Reso Repor stem Status Details Overview > Web Pr	different reports. essed from Reporting Durce Utilization CPU: 7.5%		
	Attention –  You can customize this "Wy Some modules are added to > Overview.  System Overview  Overview > Web Proxy Traffic Characteristics  Average transactions per s  Average transactions per	r you by default. The Overvid Cond in past minute: 0 (bps) in past minute: 0 (cms) in past minute: 0 I current connections: 0 Sy	w page can be acce verview > System Reso Repor stem Status Details Overview > Web Pr	different reports. essed from Reporting Durce Utilization CPU: 7.5%		
	Attention –  You can customize this "Wy Some modules are added to > Overview.  System Overview  Overview > Web Proxy Traffic Characteristics  Average transactions per s  Average transactions per	r you by default. The Overvia Comparison of the overvia (tops) in past minute: 0 (tops) in past minute: 0 (current connections: 0 (current connections: 0 Sy 2	ew page can be acce rerview > System Reso Repor stem Status Details Overview > Web Pr No data was found in	different reports. esseed from Reporting Durce Utilization CPU: 7.5% RAM: 50.4% ting / logging disk: 5.2% Oxy Summary the selected time range		
	Attention –  You can customize this "Wy Some modules are added to > Overview.  System Overview  Overview > Web Proxy Traffic Characteristics  Average transactions per s  Average transactions per	r you by default. The Overvid ccond in past minute: 0 (bps) in past minute: 0 (ms) in past minute: 0 L current connections: 0 Sy 2 2 2 2 2 2 2 2 2 2 2 2 2	evi page can be acce rerview > System Reso Repor stem Status Details Overview > Web Pr No data was found in Overview > L4 Traff	different reports. essed from Reporting Durce Utilization CPU: 7.5%		

## 9.5 Connecting EVE Lab to a physical device

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

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

#### 9.5.1 ESXi EVE

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

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

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



#### Logical chain of the networking bridge:

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

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

switch1		
Add uplink   Edit settings  Vswitch1  Type  Port groups: Uplinies:	Refresh   C Actions  Standard Volutin  1	
✓ vSwitch Details		✓ vSwitch topology
MTU Ports Link discovery Attached VMs Beacon Interval	1500 4552 (4317 available) Listen / Cisco discovery protocol (CDP) 7 (4 active) 1	Management 90 UD     Wir Physical adapters     Wir Mitchins (7)     Sonie Fixt 90.95     Sonie Fixt 90.95     Michael Sonie Sonie Fixt 90.95     Michael Sonie Sonie Fixt 90.95     Michael Sonie Sonie Fixt 90.95
✓ NIC teaming policy		EVE-PRO.98.100     M4C Address 00 0c.28 dl as 9e
Notify switches Policy Reverse policy Rolling order	Yes Route based on originating port ID Yes No	EVE-PROV24     MAC Address 00 to: 28 34 are b8     EVE COMM 89     Cicco dentity Services Engine     To: Asky 90.35 PROD
* Security policy		MAC Address 00 50 58 a2 01 th MAC Address 00 50 58 a2 70 a0
Allow promiscuous mode Allow forged transmits	Yes	

Portgroup "Management 90 UD" Settings associated with vSwitch1

Management 90 UD		
🖊 Edit settings 🛛 🤁 Refresh 🗧 🏟 Actions		
Management 90 UD       Accessible     Yes       Virtual machines     7       Virtual switch:     — Vewloch1       VLAN ID:     4095       Active ports:     5		
▼ vSwitch topology	▼ Security policy	
	Allow promiscuous mode	Yes
Management 90 UD     Management 90 UD	Allow forged transmits	Yes
VLAN ID: 4095	Allow MAC changes	Yes
a vCentre 90.95		
🚯 S2016 EVE 90.201	<ul> <li>NIC teaming policy</li> </ul>	
MAC. Address 80.0c: 29: b0: c4:5b	Notify switches	Yes
Teve-PRO.98.100	Policy	Route based on originating port ID
MAC Address 00.0:: 29:d0 aa: 9e	Reverse policy	Yes
B EVE-PROV24		
MAC Address 00.0c: 29.3d ae: b8	Rolling order	No
EVE COMM 89	- Chaning policy	
	<ul> <li>Shaping policy</li> </ul>	

#### **EVE VM Settings**

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

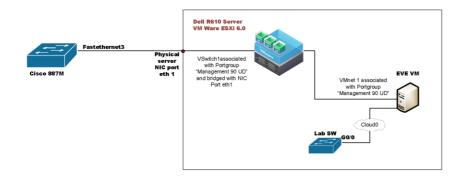


✓ Hardware Configuration			
🕨 🔲 CPU	16 vCPUs		
🌉 Memory	32 GB		
Hard disk 1	40 GB		
▶ 🔜 Hard disk 2	150 GB		
🖶 USB controller	USB 2.0		
Network adapter 1	Management 90 UD (Connected)		
Network adapter 2	WSA-MGMT (Connected)		
▶ 📃 Video card	4 MB		
Image:	Additional Hardware		

#### 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

-	
4 Þ <b>√ 887M</b> ×	
LAB_ESX1# LAB_ESX1# Capability Codes: R = Router. T - Trans Bridge, B - Source Route Bridg Capability Codes: R = Switch. H = Host. I = IOR. r = Repeater. P = FI D = Remote. C = CVTA. M = Two-Port Moc Roley Device ID Local Intrice Holdtme Capability Flatform FV	ione,
	LAE_ESXIesh cdp neig Capability Codes: R - Router. T - Trans Bridge. B - Source Route Bridg S - Switch. H - Host. I - JGME. r - Repeater. P - Ph D - Remote. C - CVTA. M - Two-port Mac Relay Device ID Local Intrice Holdtme Capability Platform Ro EVELUAE.3W Fors J 166



#### 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

Name VMnet0 VMnet1 VMnet2 VMnet8	Type Bridged Bridged Host-only NAT	External Connection Intel(R) PRO/1000 PT D Intel(R) PRO/1000 PT D - NAT	ual Port Server Adapter ual Port Server Adapter #2	Host Connection - 2 - Connected Connected	DHCP - - Enabled	Subi - 192 192
< VMnet In	formation		Add Network R	emove Network	lename Netw	> ork
Bridg	ed (connect V	Ms directly to the external				
		ha directly to the external	l network)			
Bridg		R) PRO/1000 PT Dual Port		~ Auto	matic Setting:	s
	ed to: Intel(F				matic Setting: AT Settings	_
	ed to: Intel(F shared host's	R) PRO/1000 PT Dual Port	Server Adapter			_

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:

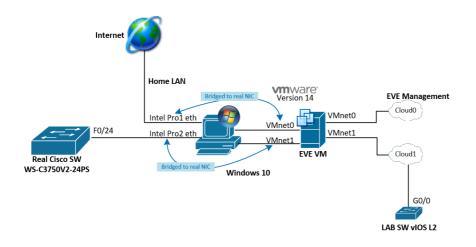
Cloud0→Network Adapter→VMnet0→IntelPro

Cloud1→Network Adapter 2→VMnet1→IntelPro#2

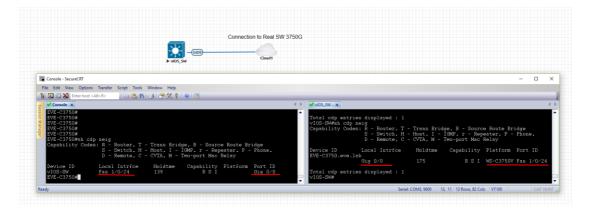


Memory Processors Hard Dak (SCS1) © DD/D0 (SATA) Potetwork Adapter 2 Network Adapter 2 Network Adapter 2 Use Controller Sond Card Printer Display	24.08 8 100 GB Auto detect Cuatom (Meett) Cuatom (Meett) Cuatom (Meett) Cuatom (Meett) Present Auto detect Present Auto detect	Specify the amount of memory allocated to this virtual machine. The memory site and type of 4 MB. Memory for this virtual machine:          4 68       -
		(i) The vitual machine will use up to 768 MB of this memory for graphics memory. You can change this amount in the Displa settings page.

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-io/ethernet-products.html

#### 9.5.3 Bare metal server EVE

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

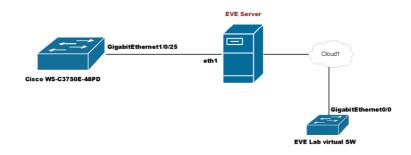


cat /etc/network/interfaces

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

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

Physical connection topology:



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

Switch ×					
Switch#sh cdp n	eiq				
	ss: R - Router, 1 Ses/= Switch/H D - Remote, 0	i⊂ Hosti i⊂-		eater, P -	
	Local Intrfce vitch1.DataServic		Capability		
		140			
Total cdn entri	.es displayed : 1				
Switch#	EVE Server				

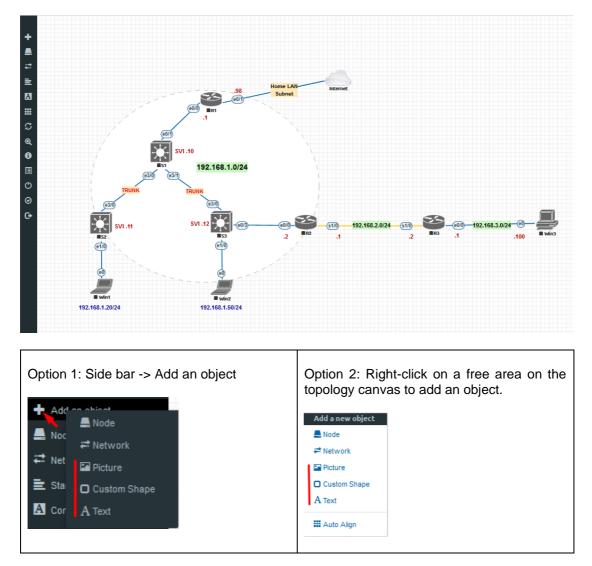


# **10 Advanced EVE Lab features**

## 10.1 Lab design objects

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

Example below, EVE lab with design elements:



#### 10.1.1 Custom shape

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

Type: Square, round square or circle



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

Border type: Two options: line or dashed

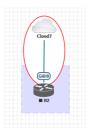
ADD CUSTOM SHAPE				
Туре	square	~		
Name	Name			
Border-type	solid	~		
Border-width	5	÷		
Border-color				
Background- color				
Save Cancel				

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

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

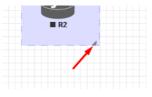
**Background colour**: Allows you to choose a colour to fill your shape with. This can be edited later in the "Shape Edit" menu.

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



#### **10.1.2 Resize square or circle objects**

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

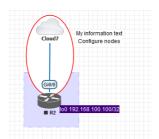


#### 10.1.3 Text object

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

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.

Online Base64 Image Encoder/Decoder	
Remote Img URL (http/s,	
Upload (Limit 24MB) Iogo_EVE_Color8_labs.pmg BASE64 Code to Reverse - Input directly into textares.	
☑ Compress Image (png and jpeg)	4
Encode	

Step 2: Scroll down to find HTML format

HTML

Step 3: Set your desirable size of picture.

#### HTML



/woDXrST8xcsWeIvTv6FeX000szVH49E2+bkXe19#8ex7frtts0002t0z1aWkEc0aK00/X8/MX6e8v2f00-	ZeGEEn181txOKCaila0h/4iaEoR80KhGJelafSaEkb1Vt50NaVIP0AN	8vfTKtp1F2HEv/eis2H26103Fs7991f6Lds2/qq6km2/+qrF326fK/t7b3skU9peis409y4¥L2Y3qsTydt6m30M
		4034245420W/bpab.ag4pes8eg4c6981/News1810//900bWg1bgp0X4z416+05Nv1ag13998PzpUr6rYd0PdaZupvC8uPhs0T96NV8C30m/uPn074THeR0XTPC2Ka
		42:551 fts259488 597 cp1907v38621v3851 0 cp10012 F0349 serveq V11440660 + Tp272 seq 50 PBNV6E us1/40 gro05 cv2171 Ne062 sc22 42 F01p Q050 gro15 3 vg2 0
		rrn0%59/Q069NKwA/6e+nFBa3rVt0rNa3w33Me8tw5/D7F77vj7t310MCTQ1sr0zw+TeXT++j29Ax8maxFv0LTEnncuD79/5ehdUvrdfUb90XL1tWnj1
	KkgCCKoBAB0jg5K9K0gMjYejjn47aT11XsHok0j2tp7J240vtxbJBMN	q1fE3ree0gryEb/T91oy0m27eLc8097VB0mkKJubRej1+f807Dp+V1fKmBKkrFHfr6TER1a4Tx1F1Y1g7dj0+Zdt30scu0w0c6VmpOvp5Nq0wkKfp+0m2102D9+uN1
7aKt3y3bzb7e4KRy01K339FV#8bb0ne48v7Hg38bgb1b+VE7£36oj2Tv7To00o78a715n1c9F66Tgy8nd		Cu80402bV9y38508LkAp0zmy+q5aMby0d6A0co8LgEzUAyemF13FpFg/c3n485017e1M1+03FF053
78.5 Yanka ELE MYRY'S KO246 H000702 ELE 1 V20 E 0780 KK 6 300 YKU P20 ZYMOTHOS 52 4 00×20 H 9 LE 658 1 1 2 00	Undo	unitan de 21 Solaber VIII Stein 1981 E CONVILI politie 4 5 et 1 unit 5 GER Tabit 5 GO 2 GOU et 5 92 Yourd Figer COD / GREY X103 FD CYLD Fo
/Yfw2u38mrB1bUem71kA8b0v8kdG1t1FdmR20%0Yzk38USP19G+6UrGTYnv6dcGFb1Rgdd17u9/405Ff8		$S(Laph8003) \\ WED0akg1sTbFb6bf330D76m031zdp37K8zFQ9fzSTThHT547SNFq3TY77a18v0YLugdt6TFFm2v+evojp767A7Te10v8bz972m000000000000000000000000000000000000$
/ a g Ivo 272hdcx ceU+163379c5eOu59 gBbJFKcfUeWRAVyVBCVLFXE1eVCuuff4cbaxYOuve3DgdEqE/07	Cut	
/AREEAREEAq7CCREEAREEIRCIGIKEAREEAShEIIqEgREEAREKCQ1qAREEAREEAq7CCREEAREEIRCIGIKE	947	bik 11 ge gesearektigt garseareeta gittigereareetet to treareetasike 11 gegesearektigt garseareetagittigerearektigt garsearektigt garse
EARDEAN FUH /EWERAMDE (BQAAAAB JRUSEER J (1997 - **>	Copy	~
	a chi	
	Paste	4
-	1	
	Delete	
	Datata	



#### Step 4: Copy content to EVE text object

ADD TEXT		×
Text	/O7BDM9zWubWRKghlFxFUgiAlgiAlhUSm /ARBEARBEAqJCCpBEARBEIRCloJKEARBEAShkligE gRBEARBKCQiqARBEARBEAqJCCpBEARBEIRCloJK EARBEAShkligEgRBEARBKCQiqARBEARBEAqJCCp BEARBEIRCloJKEARBEAShkligEgRBEARBKCQiqAR BEARBEAqJCCpBEARBEIRCloJKEA RBEAShkligEgRBEARBKCQiqARBEARBEAoF8H /BWtRaNQeqHgAAAABJRUSErkJggg==">	ь. <b>с</b>
Font Size	12	۲
Font Style	normal	~
Font Color		
Background Color		
Save Car	ncel	

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

+	eve		
⇒	Emulated Virtual Environment Next Generation		
±		Home LAN Jatamat	
A	53	98 Internet	
	000 R1		
S	1		
Q	(O/)		
0	SVI.10	N N	

### 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 Border-width Border-type Border-color Background-color Transparent Kotate Name

Z-index: Used to change the object's overlay position on the "Topology Canvas." An object



with a higher numerically valued z-index will cover an object with a lower numerically valued z-indexed.

**Example**: The blue object has a z-index of -1 and the orange object's z-index is 0. Orange object is top over blue object.

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

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

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

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

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



Save Cancel

Rotate: Used to rotate the object on the



Cancel

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.



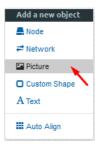
#### 10.2.1 Custom design upload

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".

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

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

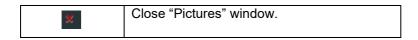
Step 3: Open the "Logical maps" menu item.



#### Pictures window management

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





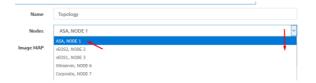
#### 10.2.2 Custom topology mapping

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

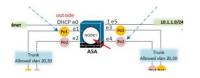
Step 1: Open the Image Map window:

🗂 🖸 Topology

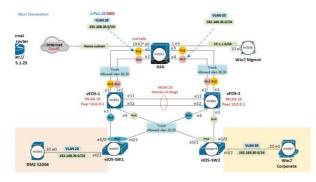
Step 2: Select a node, from the dropdown menu, that you want to map to the topology.



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



Step 4: Continue mapping the rest of the nodes.



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

Select from menu:	Nodes	CUSTOM , NODE outside lab	~
And map with node on top	pology	External home couter fourth tome:// 172.25.1.25	

Change image map adding protocol, IP and port.



Image MAP	<area alt="img" coords="102,286,30" href="proto://CUSTOM_IP:CUSTOM_PORT" shape="circle"/>	
		.:
Image MAP	<area alt="img" coords="102,286,30" href="telnet://172.22.7.18:23" shape="circle"/>	
Step 6: Save	e your mapping and refresh the browser with F5.	

#### 10.2.3 Delete topology or mapping

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



To delete the entire custom topology, click delete.

î Ci	Topology
Delete	

# **10.3 Configuration export feature**

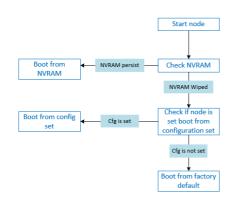
EVE Community includes an export configuration feature that allows you to save and manage configurations in a lab. The "Configuration Export" and "Startup-configs" features will allow you to set these saved configurations as startup configs for your nodes when they boot.

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

ST	STARTUP-CONFIGS			
			Config Set	Default ~
8	R1	OFF	1	
3	R2	QEE		
	SW1	OFF		
۵	SWZ	OFF		

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

#### Node boot order:





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

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

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

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

#### 10.3.1 Supported nodes for configuration exports

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

#### 10.3.2 Startup config management

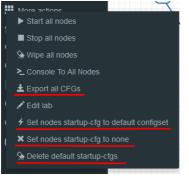
#### 10.3.2.1 Global commands



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



#### **Topology page, More Options:**



**Export all CFGs** – Exports all supported node configurations.

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

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

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

#### 10.3.2.2 Individual node commands

Select node, right click



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

s1.0	G10	Group of R1, R2
$\overline{\Box}$		Start Selected
(e0.10)	e00	Stop Selected
$\langle \rangle$	/	Selected
(60/0)	(60/0)	Console To Selected Nodes
		Ł Export all CFGs
	e3/2 e3/3	Set nodes startup-cfg to default configset
► SW1	€3/3 ► SW2	Set nodes startup-cfg to none
		P Horizontal Align
		🚨 Vertical Align
		O Circular Align
		Delete nodes startup-cfg
		Delete Selected

Wipe Selected: Wipes the NVRAM for selected nodes

**Export all CFGs**: Exports the configuration for selected nodes

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

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



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

#### 10.3.2.4 Startup-configuration window

No configuration exports or manual configs loaded for nodes

STARTUP-C	ONFIGS
🚳 R1	97
S1	077
S2	97
53 © R2	017
© R3	

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

8	R1	017
٥	51	Grr
٥	52	077
۵	53	orr
8	R2	017
8	R3	CPP

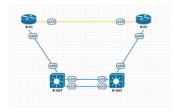
# 10.3.2.5 Startup-config window information

Config Set Default ~	Config set menu
😂 R1	No configuration is available for node. Grey node
🦥 R1	Configuration is available and can be used. Blue node. Exported configuration persist
S R2 OFF	Configuration persist but it is disabled. Node will boot from NVRAM or factory default if it is wiped
S R1 4 0N	Configuration persists and node will boot from the configuration after being wiped
V Disco-HOS V & Dark V II [12px V] Ace Editor 00	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.



S	STARTUP-CONFIGS	
	R1	4 ON
_	51	4 <b>ON</b>
	52	* <b>ON</b>
۵	53	* <b>ON</b>
8	R2	4 ON
6	R3	* ON

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.

STA	ARTUP-CONFIGS		
-			
🌁 R1	۴ o		
51	4 0		
52	4 o		
		1	
<b>S</b> 3	*		
2 R2	* 🔤 🔿		
😂 R3	4 0		
• 10		interface Ethernet0/0	
		no shutdown	
		ip address 10.1.1.1 255.255.255.0	
		no shutdown	
		duplex auto	
		: interface Ethernet0/1	
		no shutdown	
		ip address dhcp	
		duplex auto	
		I have the second state	
		interface Ethernet0/2 no shutdown	
		no ip address	
		shutdown	
		duplex auto	
		1	
		interface Ethernet0/3	
		no shutdown	
		no ip address shutdown	
		duplex auto	
		1	
		Interface Serial1/0	
		no shutdown	
		no ip address shutdown	
		serial restart-delay 0	
		interface Serial1/1	
		no shutdown	
		no ip address	
		shutdown	
		serial restart-delay 0	
		interface Serial1/2	
		no shutdown	
	-	· · · ·	
		Save Cancel	

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

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

10.3.6 Set lab to boot from none

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

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



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

-CONFIGS
OFF
017
677
orr
OFF
077

Step 3: Start nodes

#### 10.3.7 Lab config script timeout

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

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

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

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	q -l eve-ng						
	Desired=Unknown/Install/Remove/Purge/Hold						
Status=Not/Inst/0	Conf-files/Un	packed/halF-co	:onf/Half-inst/trig-aWait/Trig-pend				
// Err?=(none)/Rein	st-required	(Status,Err: u	uppercase=bad)				
⁄ Name	Version	Architecture	re Description				
+++-===================================							
ii eve-ng	2.0.3-95	amd64	A new generation software for networ				
root@eve-ng:~#							

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

kvm-ok

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

# 11.1.4 Display EVEs CPU INFO:

 Iscpu

 Architecture:
 x86\_64

 CPU oprode(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 M12:
 3324.053

 BogOMIPS:
 6650.00

 Virtualization:
 VT-x

 Hypervisor vendor:
 VMware

11.1.5 Display EVEs HDD utilization.

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



#### df -h

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

# 11.1.6 Display EVEs Bridge interface status

brctl show

root@eve-ng:~;			
bridge name	bridge id	STP enabled	interfaces
dockerO	8000.0242c0db8435	no	
natO	8000.000000000000	no	
onetO	8000.000c29d0aa94	no	ethO
pnet1	8000.000c29d0aabc	no	eth1
			vunl1_0_1_0
pnet2	8000.000c29d0aa9e	no	eth2
pnet3	8000.000c29d0aaa8	no	eth3
pnet4	8000.000c29d0aab2	no	eth4
onet5	8000.000000000000	no	
onet6	8000.000000000000	no	
pnet7	8000.000000000000	no	
onet8	8000.000000000000	no	
pnet9	8000.000000000000	no	

# 11.1.7 Display EVEs system services status

systemctl list-unit-files --state=enabled

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

# 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.

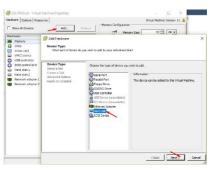
Step 1: Stop all your labs and shutdown EVE.

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.

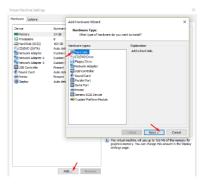


Step 5: It is recommended to set the Thick Provision Lazy Zeroed HDD option.

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.

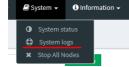
# **11.4 EVE Community SQL Database recovery**

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.



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

# 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

# **12.2How 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)

/opt/unetlab/html/templates/intel/	
Name	
and kerio.yml	
Iinux.yml	
mikrotik.yml	
anewimage.yml	
ansvpx.yml	
ansx.yml	
anxosv9k.yml	
alive.yml	
and a stinato.yml	
and osx.yml	
Am	

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-nq:~# c	p /opt/unetlab/h	ıtml∕templates⁄inte	l∕newimage.yml ∕	opt/unetlab/html/	templates/intel/n	qips.yml	
root@eve_ng:~# c	d /opt/unetlab/h	ıtml∕templates∕inte	1⁄/ake a copy from				l create template
root@eve-ng:/opt	/unetlab/html/te	mplates/intel# ls					
al0.yml	c7200.yml	cumulus.yml	iol.yml	osx.yml	sterra.yml	versadir.yml	vtedge.yml
acs.yml	c9800cl.yml	cup.yml	ise.yml	paloalto.yml	timoscpm.yml	versafvnf.yml	vtmgmt.yml
alteon.yml	cda.yml	cyberoam.yml/opt/)	njspace.yml/templ.	apfsense.ymlimage	.timosiom.ymlab/h	tr <b>viosl2.yml</b> /inte	vtsmart.yml
ampcloud.yml	cexpresw.yml	dcnm.yml	junipervrr.yml	phoebe.yml	timos.yml	vios.yml	vwaas.yml
apicem.yml	cips.yml	docker.yml	kerio.yml	prime.yml	titanium.yml	vmxvcp.yml	vwlc.yml
arubacx.yml	clearpass.yml	esxi.yml You car	i linuxeymlw temp	olpúlsesym1 WinSC	Ptrendmivtps:yml/	∃vmxvfp.yml	vyos.yml
aruba.yml	cms.yml	extremexos.yml	mikrotik.yml	riverbed.yml	uccx.yml	vmx.yml	winserver.yml
asav.yml	coeus.yml	firepower6.yml	newimage.yml 🛹	-scrutinizer.yml	ucspe.yml	vnam.yml	win.yml
asa.yml	cpsg.yml	firepower.ymDPR	Fngips.yml⊸e⊷ r	nsilveredge.ymlnp	lavcentërbymlelaled	l vpçsiymlnage (	oxrv9kayml. Your
barracuda.yml	csr1000vng.yml	fortinet.ymlage fr	nsypx,yml must a	silverorch.yml	yeloedge.yml	vqfxpfe.yml	xrv.yml
bigip.yml	csr1000v.yml	hpvsr.yml	nsx.yml	_sonicwall.yml 🚥	"Velogw.yml	vqfxre.yml	*.yml
brocadevadx.yml	ctxsdw.yml	huaweiar1k.yml	nxosv9k.yml	sophosutm.yml	veloorch.yml	vsrxng.yml	
c1710.yml	cucm.yml	huaweiusg6kv.yml	oliye.yml <sub>iderna</sub>	_sophosxg.yml	wees.ymlns/demu	vsrx.yml sion-1	
c3725.yml	cue.yml	infoblox.yml	ostinato.yml	~stealth.yml	versaana.yml	vtbond.yml	
root@eve-ng:/opt	/unetlab/html/te	mplates/intel#					

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

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

root@eve-ng:~# cd /opt/u root@eve-ng:/opt/unetlab		5 1/5 3/4 H	>	<
	ise-2.6.0.			D B or
ampcloud-3.0.2	kerio-cont			
arubacx-10.03	linux-mint	-18.3-cinnamon-	64bit	iol.
arubacx-10.04-1000	linux-slax	-64bit-9.3.0		ise. ispa
aruba-VMC_8.4.0.3	linux-slax	-64bit-9.3.0.ta	r.gz	juni
asa-915-16-k8-CL-L	mikrotik-6	.44.5		keri Linu
asav-9131-100	ngips-6.5.	0-115 - treme		mikr
asav-971-001	nsvpx-12.0	.53.13		newi

**12.3.3 Prepare interface format and name lines** 

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

Formula	Template line format example	Will produce
---------	---------------------------------	-----------------



eth_format: <prefix>{<first example<br="" for="" slot:="" value="">1&gt;}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 8&gt;}</number></first></separator></first></prefix>	eth_format: Gi{1}/{0-8}	Gi1/0 Gi1/1 Gi1/2 Gi1/3 Gi1/4 Gi1/5 Gi1/6 Gi1/7 Gi2/0 Gi2/1 
eth_format: <prefix>{<first example<br="" for="" slot:="" value="">0&gt;}<separator>{<first for="" port="" value="">-<number of<br="">port per slot: example 4&gt;}</number></first></separator></first></prefix>	eth_format: Ge{0}/{0-4}	Ge0/0 Ge0/1 Ge0/2 Ge0/3 Ge1/0 Ge1/2 Ge1/3 Ge2/0 Ge2/1 Ge2/2 
eth_format: <prefix>{<first value="">}</first></prefix>	eth_format: Gi{0}	Gi0 Gi1 Gi2 Gi3 
eth_format: <prefix>{<first value="">}</first></prefix>	eth_format: G0/{0}	G0/0 G0/1 G0/2 G0/3 
eth_name: <prefix: custom="" interface="" name=""></prefix:>	eth_name: - M1 - T1 - T2	M1 T1 T2
eth_name: <prefix: custom="" interface="" name=""></prefix:>	eth_name: - MGMT - DATA - TRAFFIC	MGMT DATA TRAFFIC

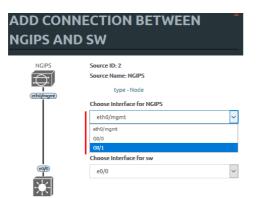
**Combined first named interface following by formatted interfaces Example:** We have to set first node interface name "eth0/mgmt" and next following interfaces must start from eth1 and change sequence accordingly. eth1, eth2,...,ethx

As your node first interface will be custom named (eth0/mgmt), therefore in the template "eth\_name:" must be added before "eth\_format:"



eth\_name:
- eth0/mgmt
eth\_format: eth{1}

This adding will produce Node interfaces.



#### 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 Degreffe
#
 All rights reserved.
#
# Redistribution and use in source and binary forms, with or without
 modification, are permitted provided that the following conditions are met:
#
       Redistributions of source code must retain the above copyright
       notice, this list of conditions and the following disclaimer.
     * Redistributions in binary form must reproduce the above copyright
       notice, this list of conditions and the following disclaimer in the
#
       documentation and/or other materials provided with the distribution.
       Neither the name of the UNetLab Ltd nor the name of EVE-NG Ltd nor the
       names of its contributors may be used to endorse or promote products
       derived from this software without specific prior written permission.
 THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
#
#
 ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
# WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
# DISCLAIMED. IN NO EVENT SHALL <COPYRIGHT HOLDER> BE LIABLE FOR ANY
 DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
 (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
# LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
# ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
 (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
 SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
```



	3
type: qemu	
name: NGIPS < Node name on the Topology	
description: Cisco FirePower NGIPS <	<ul> <li>Node list name</li> </ul>
cpulimit: 1	ADD A NEW NODE
icon: IPS.png	
cpu: 4	Template
ram: 8192	Nothing selected
ethernet: 3	NGIPS
eth name:	Barraccuda NGIPS
- eth0/mgmt	
eth_format: eth{1}	
console: vnc	
shutdown: 1	
qemu arch: x86 64	
qemu version: 2.4.0	
qemu nic: e1000	
<pre>qemu options: -machine type=pc,accel=kv</pre>	rm -serial none -nographic -no-user-config
-nodefaults -display none -vga std -	rtc base=utc -cpu host

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

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.

emplate	
Nothing selected	*
Nothing selected	
Cisco ASAv	
Cisco IOL	
Cisco IOS 3725 (Dynamips)	
Cisco IOS 7206VXR (Dynamips)	
Cisco vIOS Router	
Cisco vIOS Switch	



# **13EVE Resources**

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

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

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: <a href="https://www.eve-ng.net/forum/">https://www.eve-ng.net/forum/</a>

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

EVE YouTube channel: <u>https://www.youtube.com/playlist?list=PLF8yvsYkPZQ0myW7aVMZ80k8FU04UUgjV</u>

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

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

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