CHR in EVE-NG environment for learning/testing purposes

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ABOUT ME

IHOR HRESKIV

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System administrator and system architect with over 20 years of experience in different kinds of business from government companies to own coworking space in Cracow, Poland

Experience in:
virtualisation (desktop and infrastructure)
linux, bsd systems
networking
routing
vpn

MikroTik MTCRE | MikroTik MTCINE | MikroTik MTCTCE | MikroTik MTCWE | MikroTik MTCSE

CHR

CHR - What's this?

Cloud Hosted Router

a RouterOS image specifically tailored
for running in virtual environments

CHR - minimal requirements

64-bit CPU with virtualisation support

128 MB RAM for the CHR instance

128 MB disk space for the CHR virtual hard drive

CHR - Supported platforms

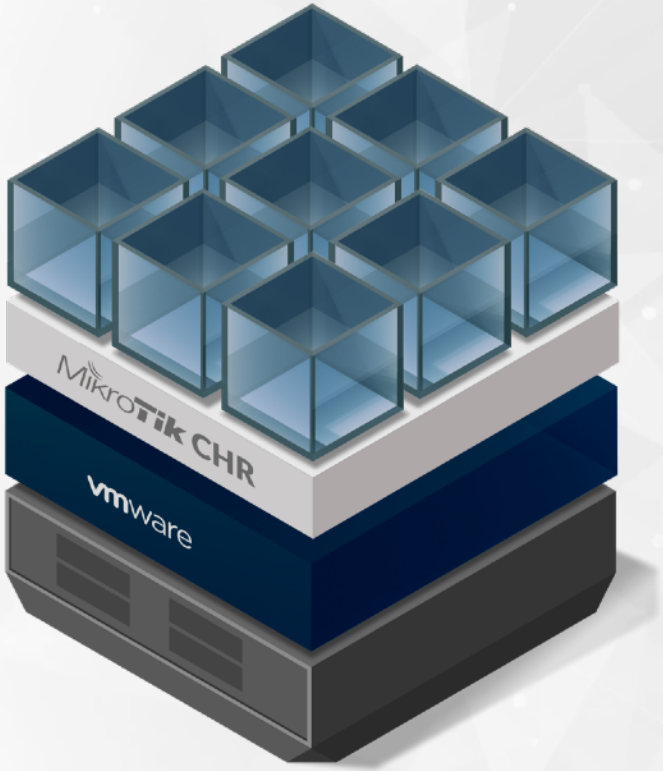
- VMware ESXi/Fusion/Workstation/Player
- Microsoft Hyper-V
- QEMU
- VirtualBox

Hypervisors that provide paravirtualization are not supported!

licensing

License	Speed limit	Price
Free	1Mbit	FREE
P1	1Gbit	$45
P10	10Gbit	$95
P-Unlimited	Unlimited	$250

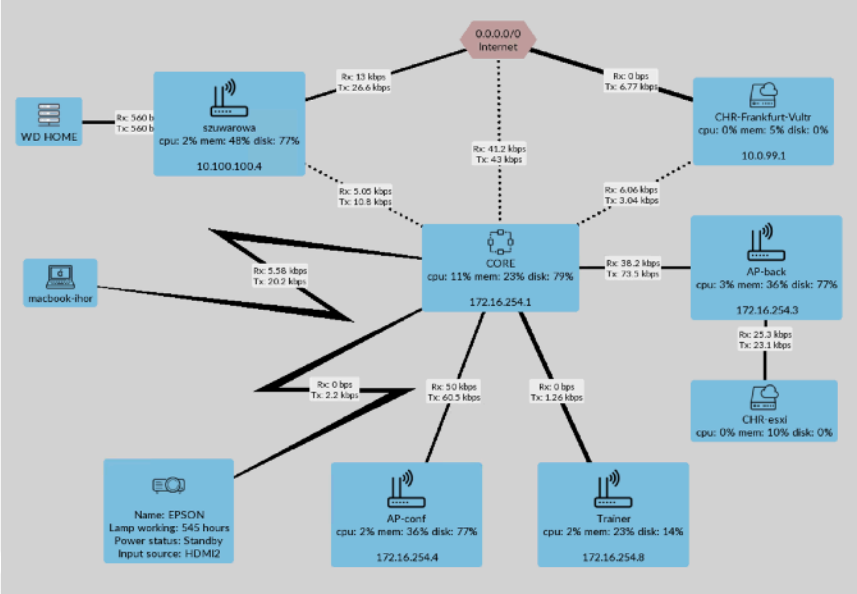
60-day free trial license is available for all paid license levels



CHR - The Router

- Extends VMware ESXi standard switch functionality
- Adds full featured router for network layer of virtualisation
- Adds VPN and dynamic routing functions for border with advanced firewall

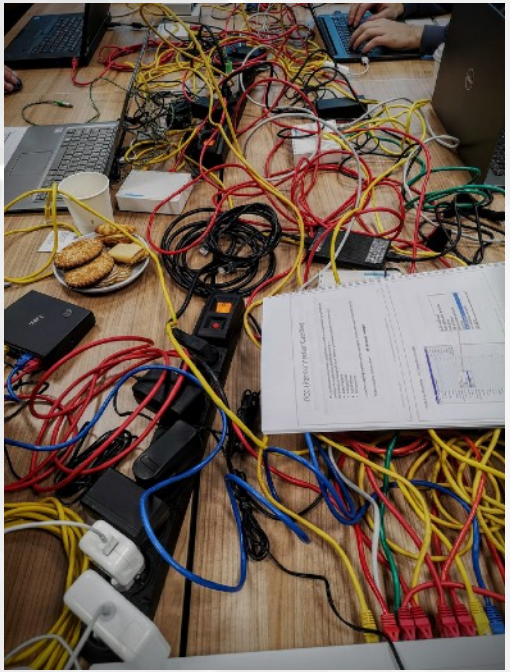
CHR - The Dude



- Bandwidth is enough for monitoring with free license usage
- Can be used as backup monitoring system
- In combination with VPN can monitor remote sites/users

EVE-NG

learning/testing environments



learning/testing environments

vmware®

Microsoft Hyper-v

GNS3®

eve

Emulated Virtual Environment

Next Generation

eve-ng some features

- KVM HW acceleration
- Topology designer "click and play"
- Labs in xml file format
- Custom Kernel support for L2 protocols
- Memory optimisation (UKSM)
- Full HTML5 User Interface
- Ability to use without additional tools

platforms for eve-ng

- .ova template for hypervisors
- Bare metal installation
- Install on Ubuntu system

comparing versions

Features/Edition	Community	Proffesional	Learning center
Price	Free	99 eur w/o VAT	99 eur + roles
User's role	admin only	admin only	admin, user, editor
Lab timer	X	X	V
Node limit per lab	63	1024	1024
HTML5 Desktop	X	V	V
Link quality	X	V	V
Multi startup config	X	V	V
Advanced design	X	V	V
Docker support	X	V	V

download link for eve-ng community edition

https://www.eve-ng.net/downloads/eve-ng-2

integration packs for eve-ng

Windows and Linux systems have the client side, which includes:

- Wireshark
- UltraVNC
- Putty
- necessary wrappers

https://www.eve-ng.net/downloads/linux-client-side

https://www.eve-ng.net/downloads/windows-client-side-pack

installing CHR in eve-ng

quick deployment from .ova template:

VmWare player

Microsoft Hyper-v

MS Hyper-V under Windows 10 Professional

installing CHR in eve-ng

1. Login into eve-ng host by ssh
2. Download CHR image from **mikrotik.com/download**
3. Create necessary directory, according to docs
4. Unpack and rename **[version].img** file to **hda.qcow2**
5. Move image to previously created directory
6. Fix permissions of the files and directories

installing CHR in eve-ng

Script for install CHR and labs from presentation are available in GitHub repository

https://github.com/hreskiv/chr-eve-ng

QUICK START

starting first project in eve-ng

login to your virtual machine

default credentials:
Username: **root**
Password: **eve**

starting first project in eve-ng

get a copy of script **chr-eve.sh** (*from GitHub*)

```
wget https://github.com/hreskiv/chr-eve-ng/raw/master/chr-eve.sh
```

simply run a script for adding CHR

```
sh chr-eve.sh 6.44.3
```

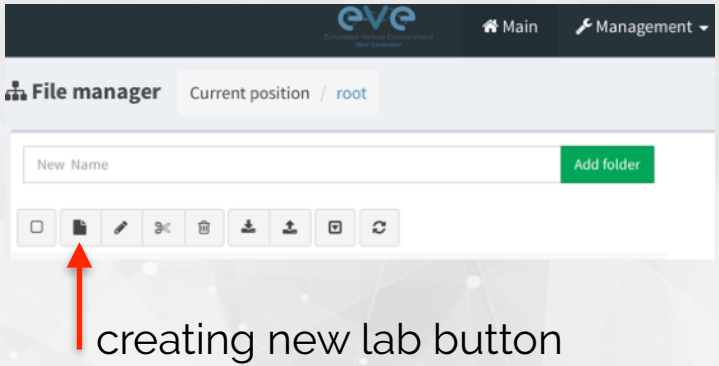
next steps will be in your browser

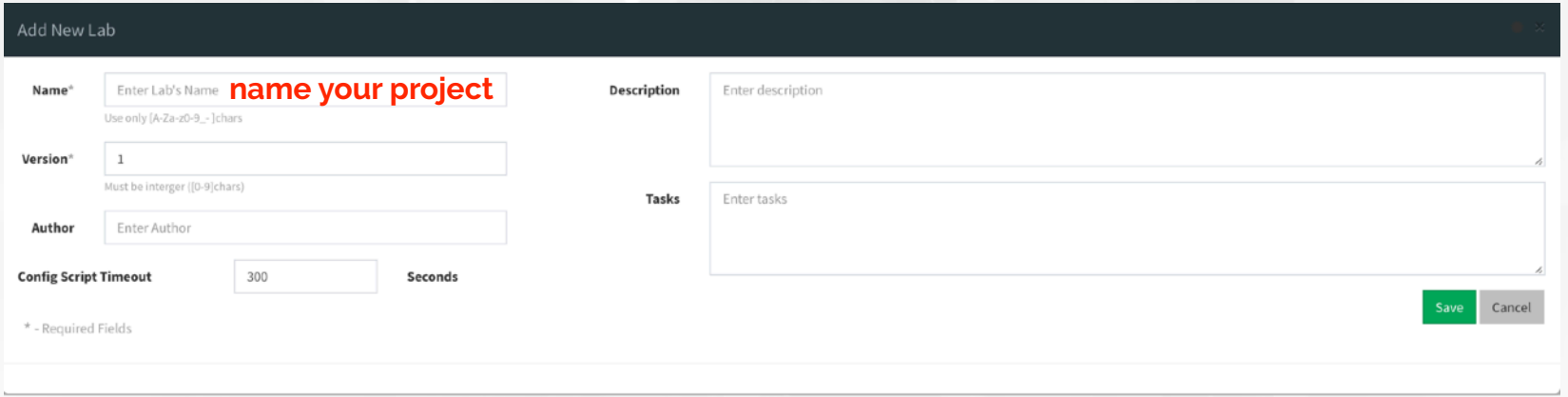
starting first project

http://[ip.address.of.eve.ng]

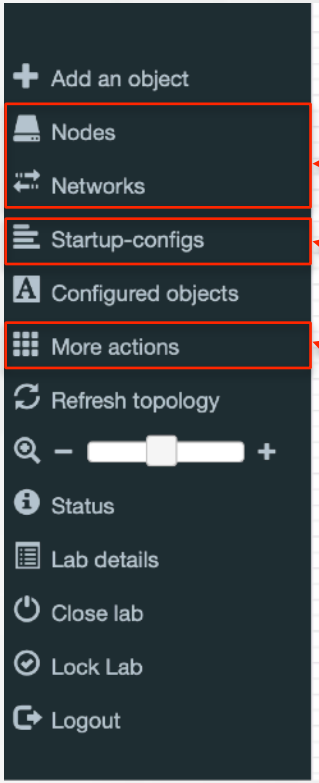
default credentials:
Username: **admin**
Password: **eve**

adding project





your workbench in eve-ng

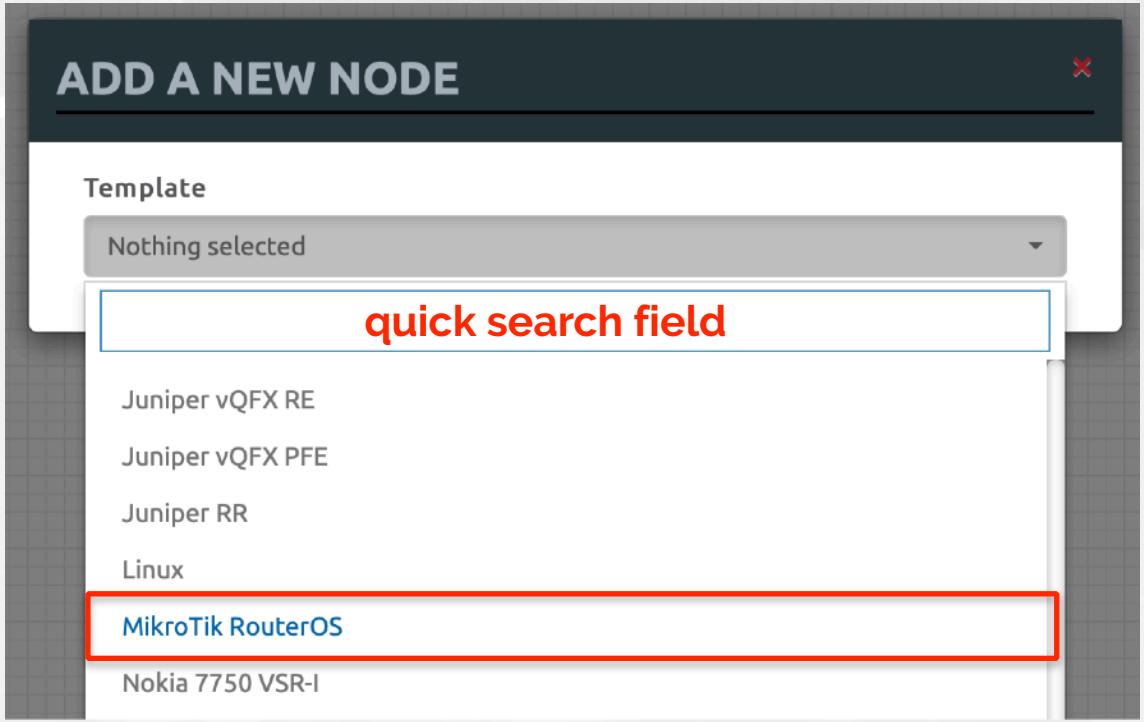


adding nodes/networks

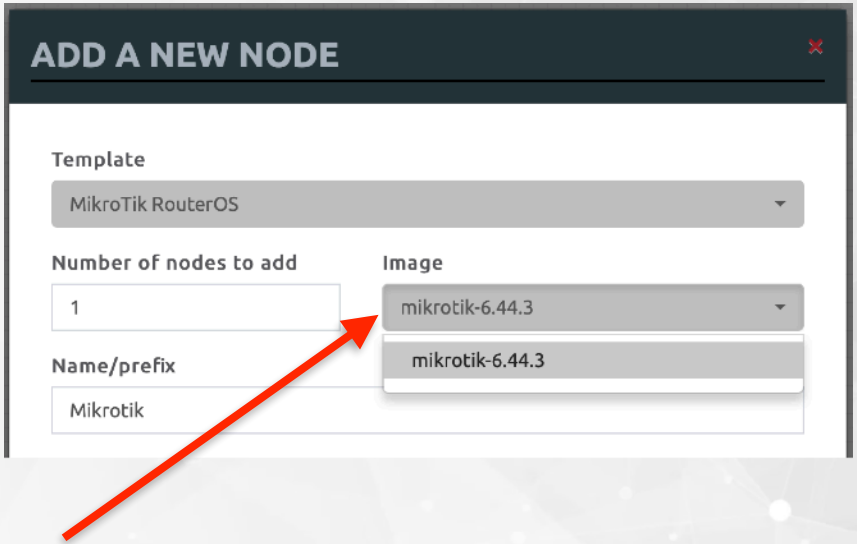
manipulating startup-configs

actions for all nodes like start/stop or wipe

adding node to project



adding node to project

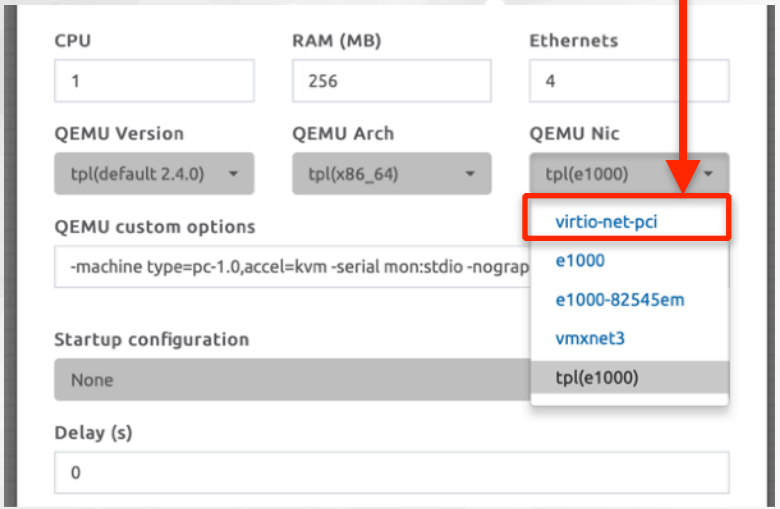


choose version of RouterOS*

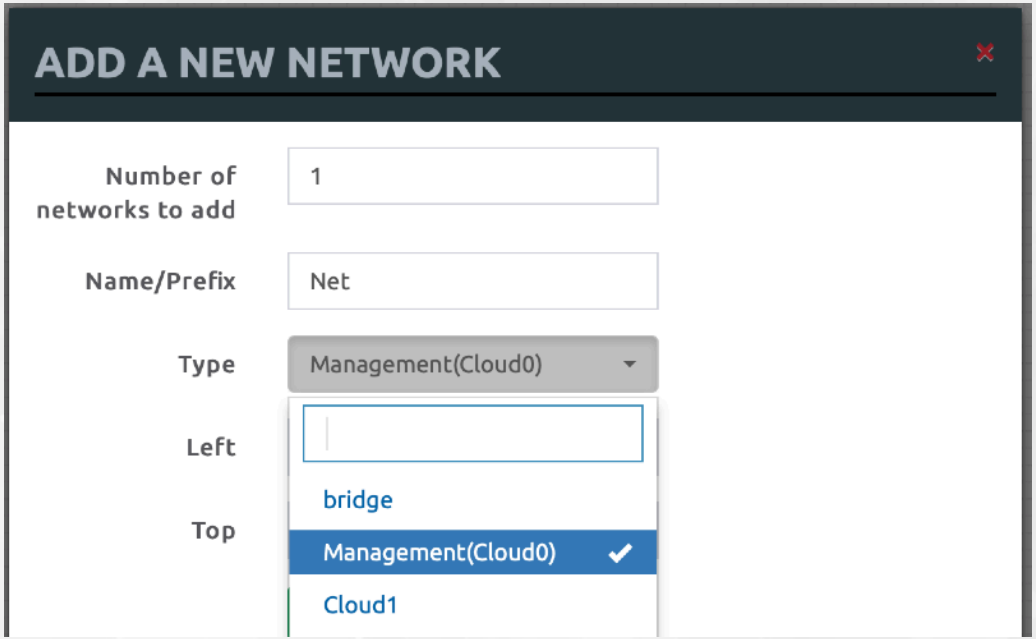
* *you can host multiple versions*

select network cards driver*

* *virtio-net-pci consumes less memory*



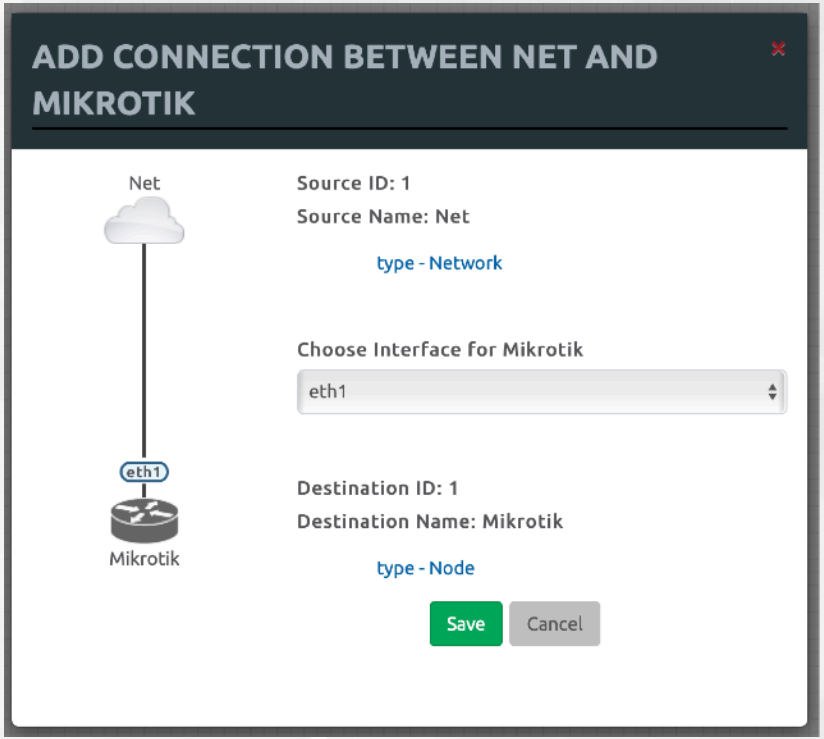
adding network to project



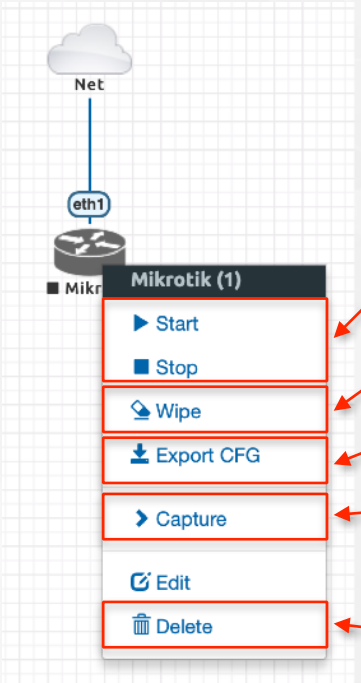
add management network for your project

** you can have more than one*

connecting node and network



controls of your VM



start/stop your CHR

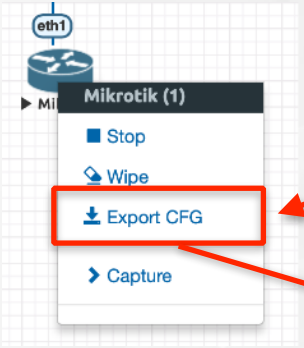
wipe configuration of your CHR

export configuration of your CHR

capture traffic on interfaces of your CHR

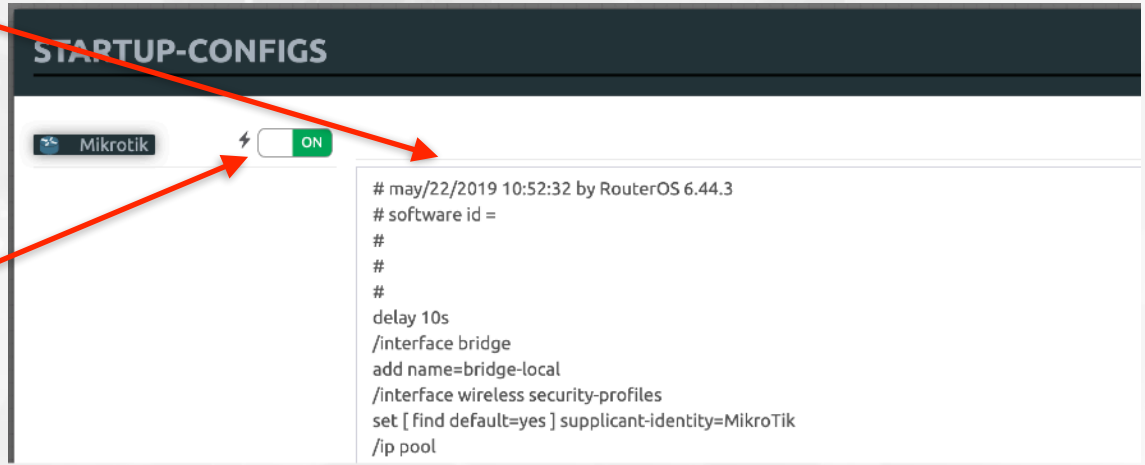
delete your CHR

startup configurations



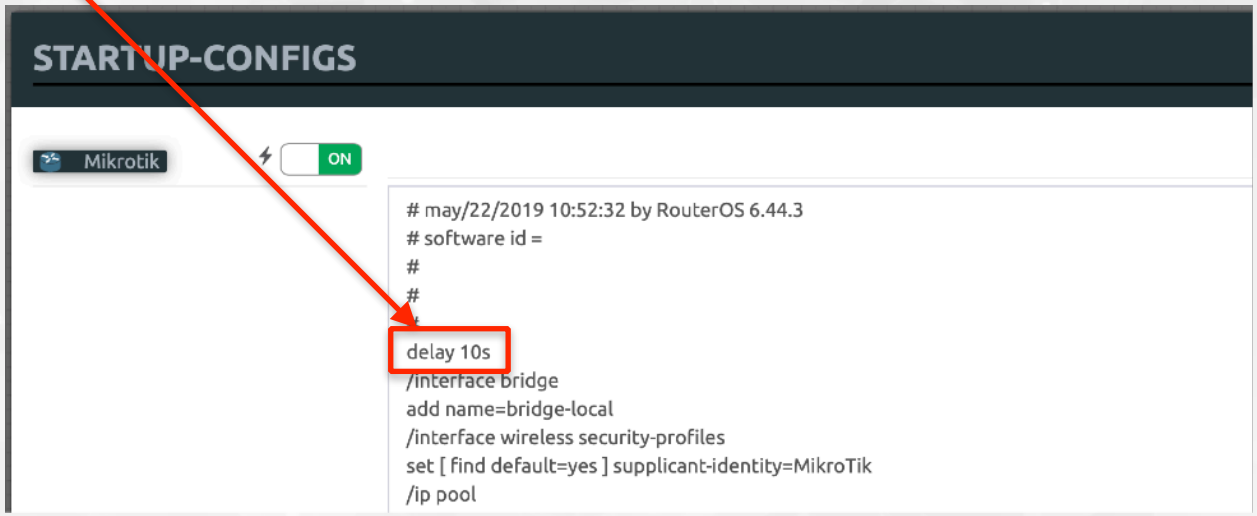
after clicking Export CFG, you can see and edit in simply text editor configuration of your router

slider ON/OFF allow applying on startup configuration after wiping router



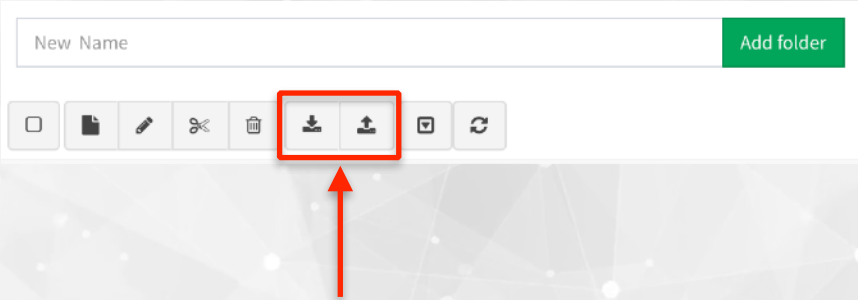
startup configurations

`delay 10s` command from router os, give a 10 seconds to router for starting up interfaces*



* *10s is experimental value and you can change it according to your needs*

import/export configurations in eve-ng

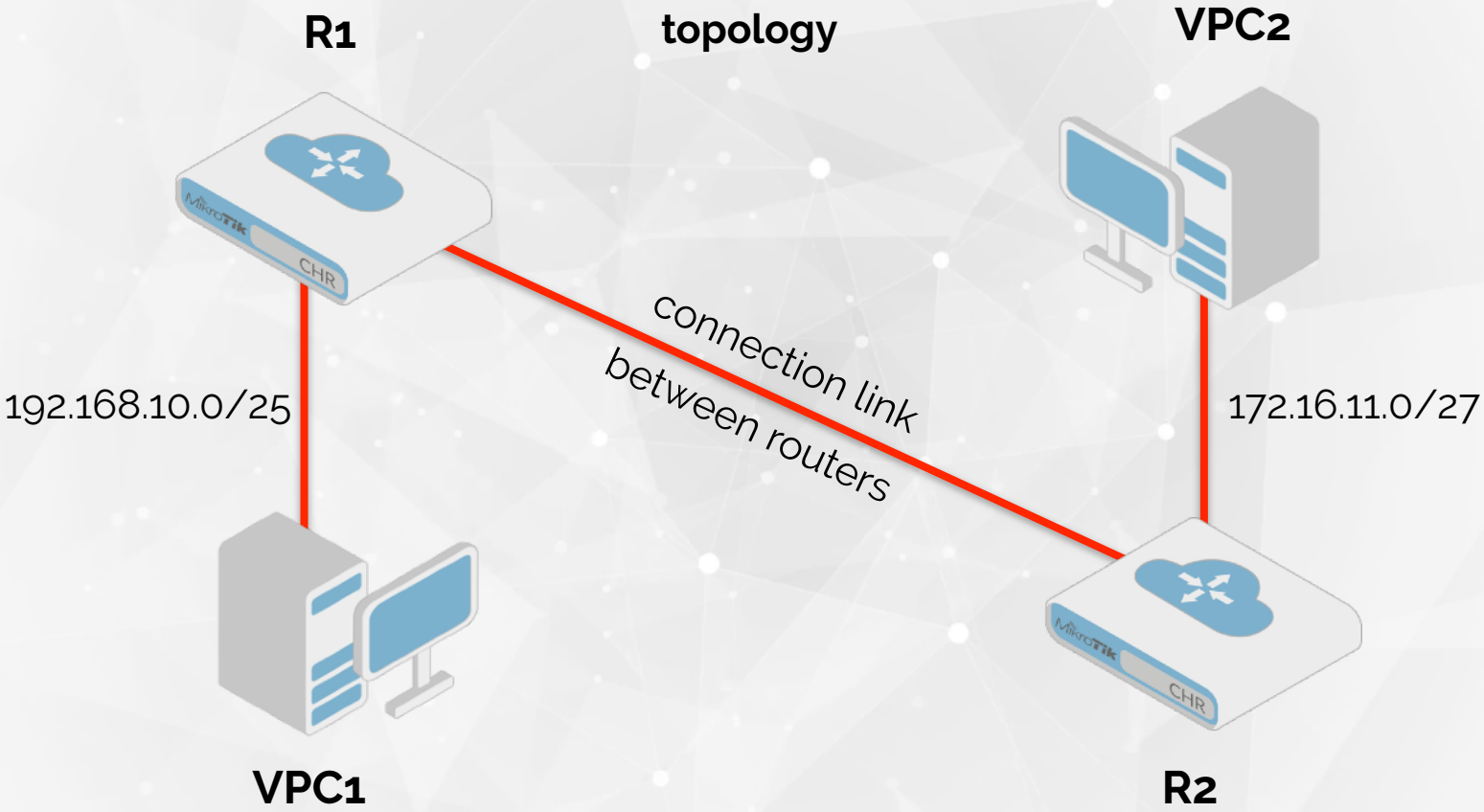


import/export buttons allow you transfer your labs between computers with configuration of previously configured routers

DEMO

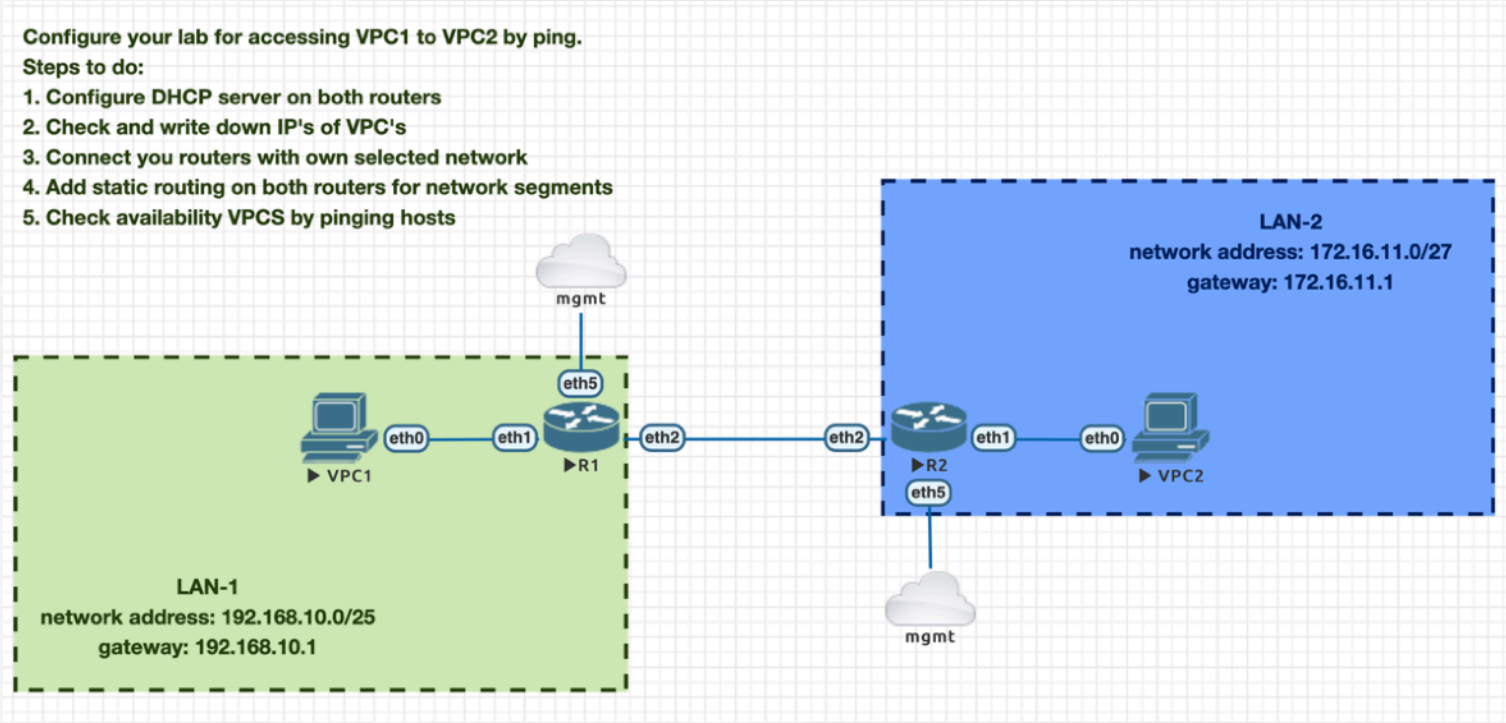
let's start from «Hello world»

DEMO 2 - STATIC ROUTING

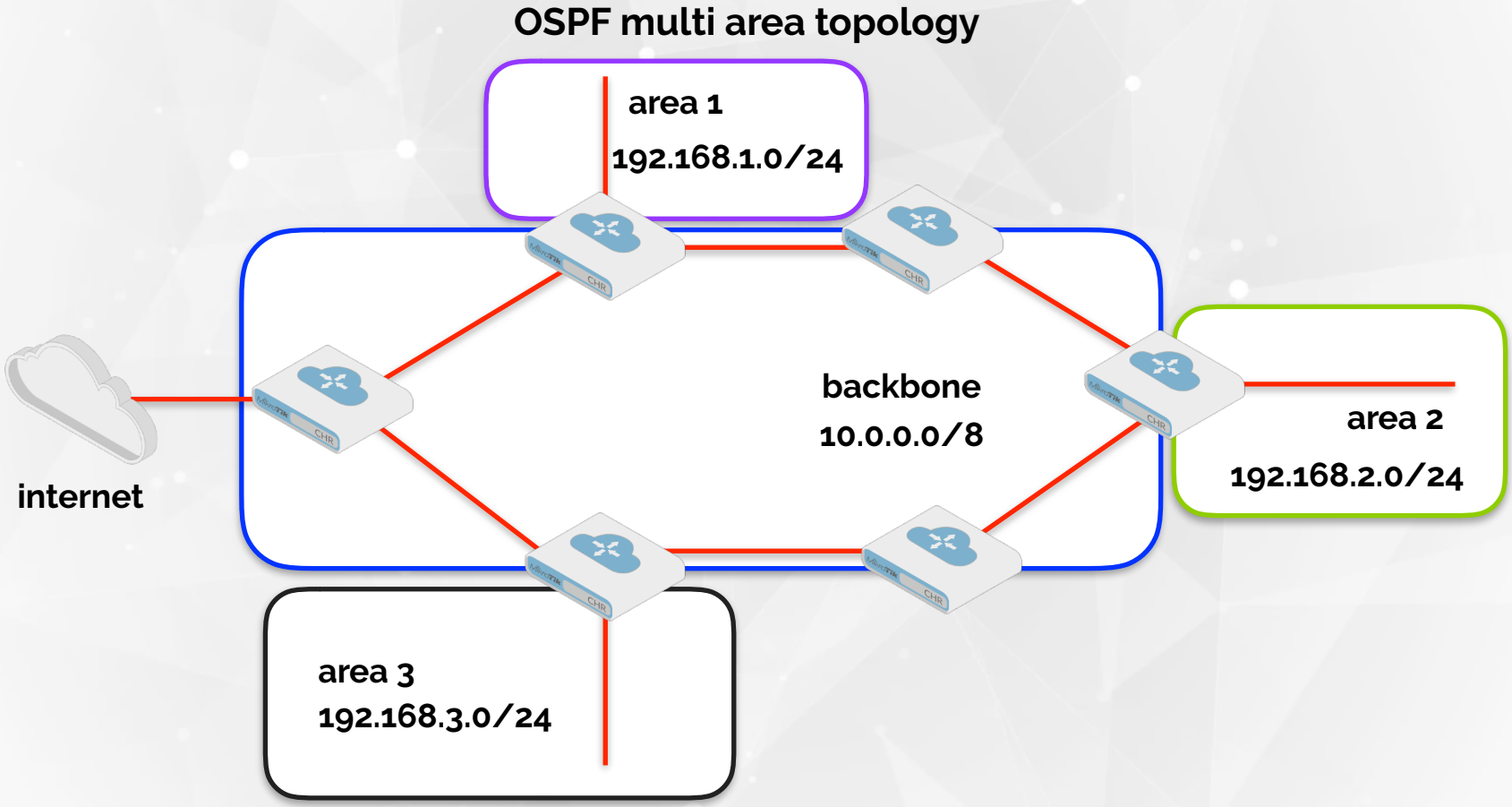


DEMO 2 - STATIC ROUTING

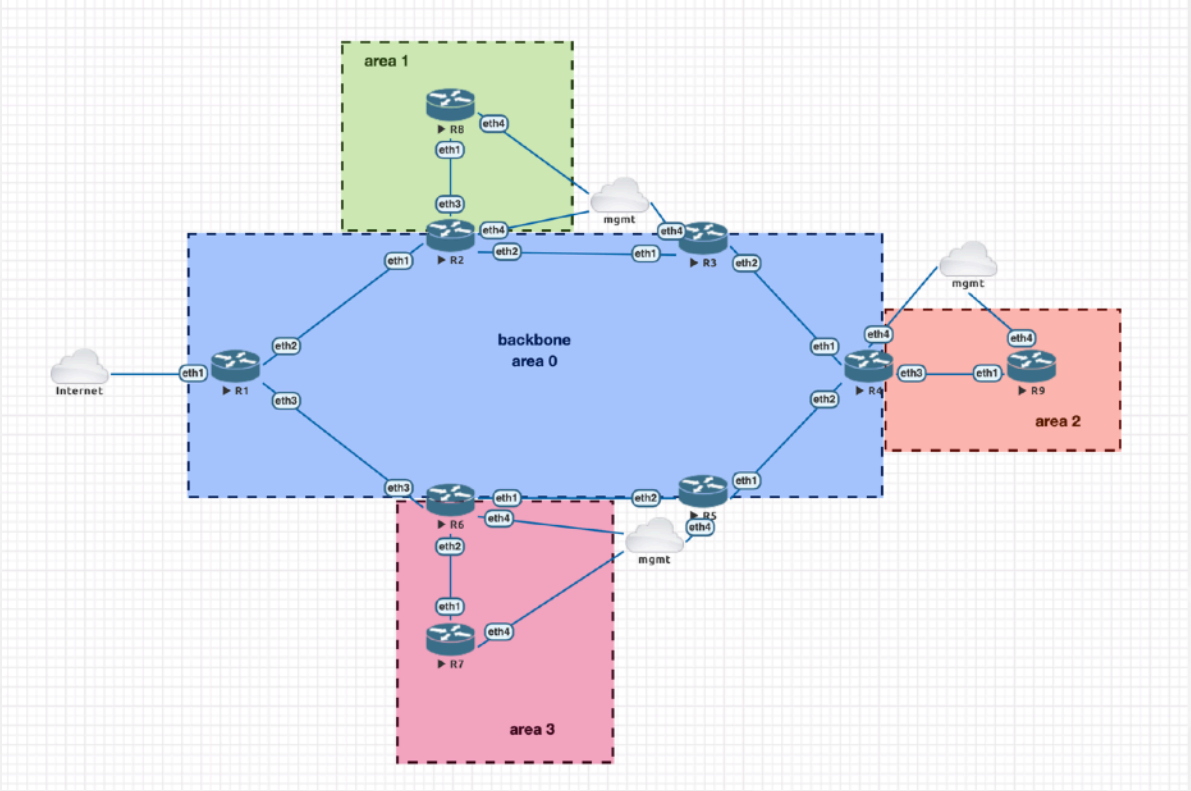
lab in eve-ng



DEMO 3 - OSPF MULTI AREA



OSPF multi area topology



THANK YOU

Questions?

ihor@mwtc.pl

https://github.com/hreskiv/chr-eve-ng