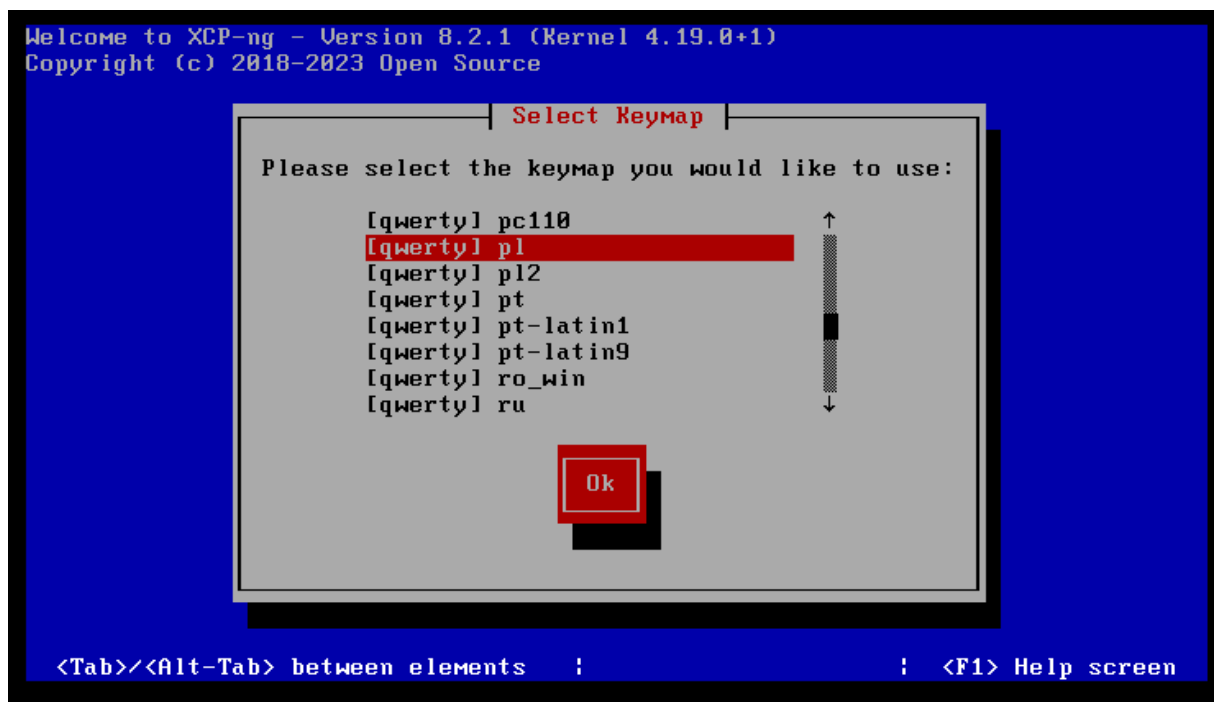
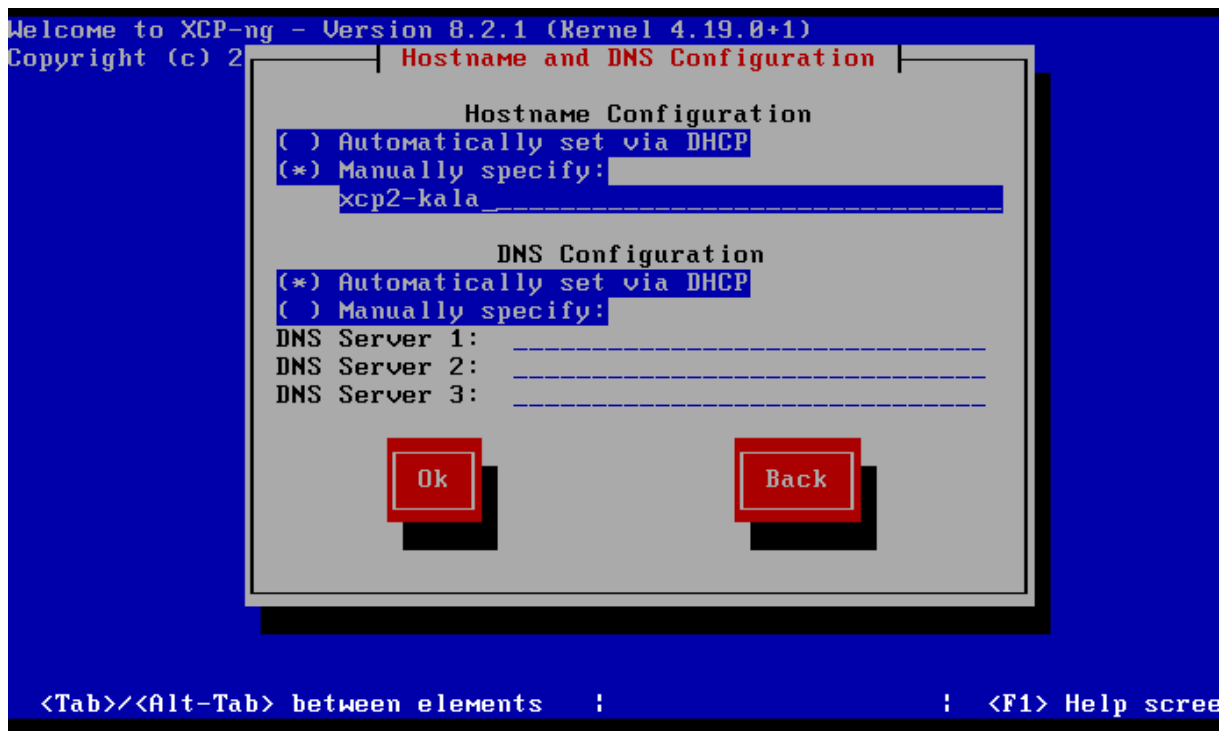


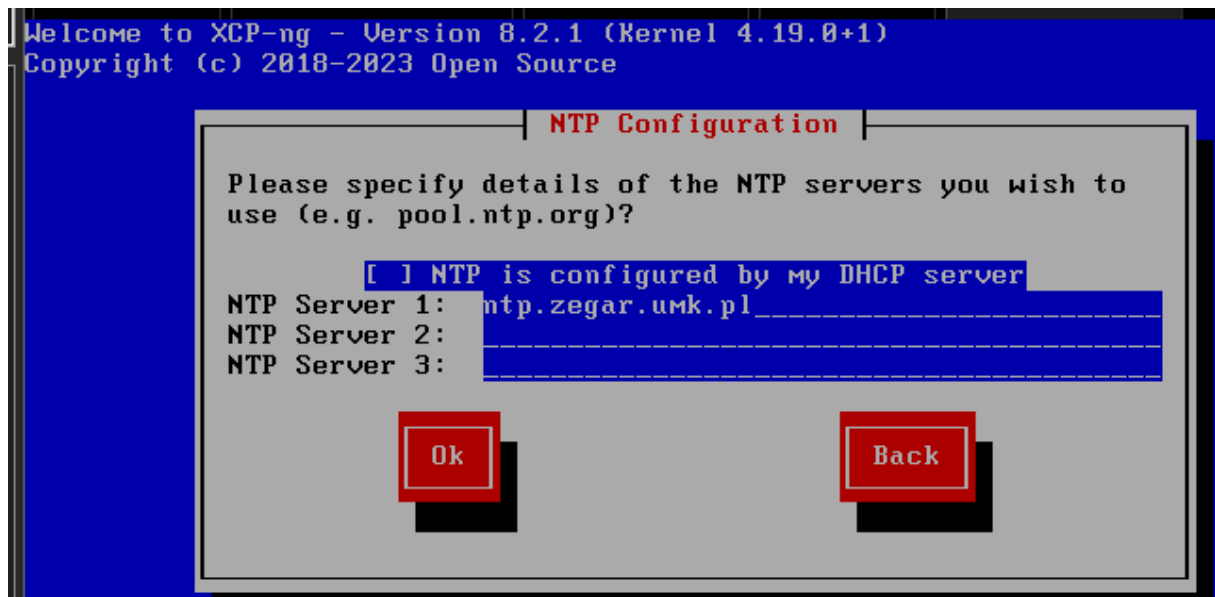
## Zad 1



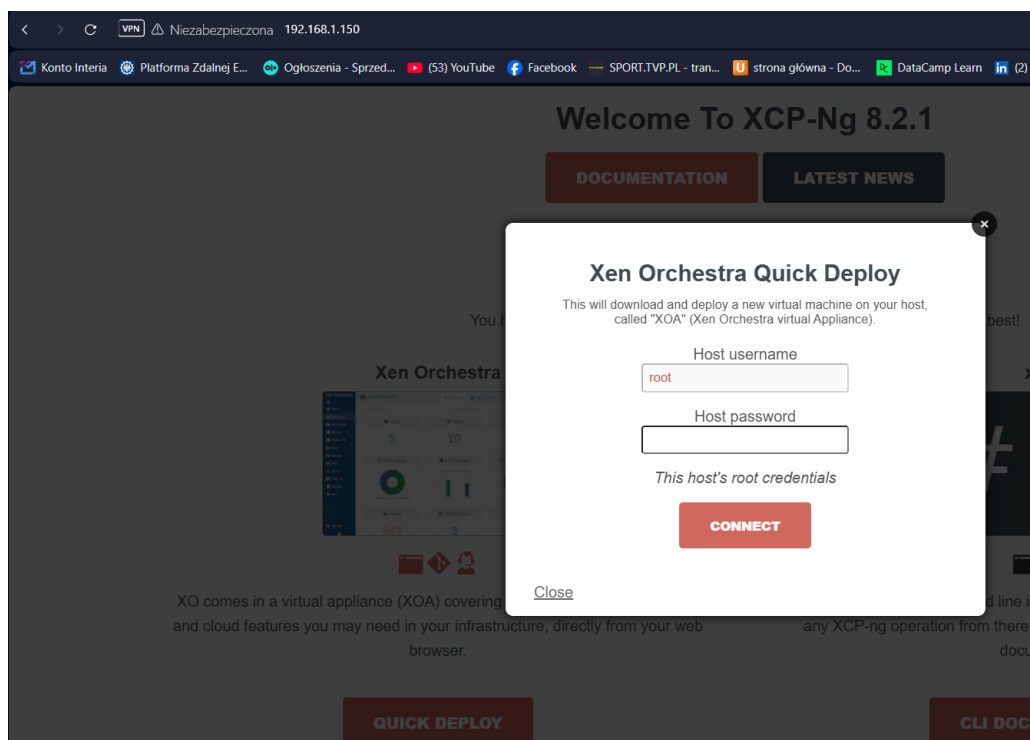
Wybieramy język i przekalkujemy dalej



Ustawiamy nazwę



W przeglądarce wpisujemy adres maszyny i klikamy „Quick deploy”:



Na nowej maszynie (u mnie debian11):

Apt update

Apt install mc git

```

root@debian11:~# git clone https://github.com/ronivay/XenOrchestraInstallerUpdater.git
Klonowanie do „XenOrchestraInstallerUpdater”...
remote: Enumerating objects: 1529, done.
remote: Counting objects: 100% (412/412), done.
remote: Compressing objects: 100% (136/136), done.
remote: Total 1529 (delta 289), reused 276 (delta 276), pack-reused 1117 (from 3)
Pobieranie obiektów: 100% (1529/1529), 395.59 KiB | 3.38 MiB/s, gotowe.
Rozwiązywanie delt: 100% (914/914), gotowe.
root@debian11:~# mkdir /etc/ssl/xo
root@debian11:~# cd /etc/ssl/xo
root@debian11:/etc/ssl/xo# openssl req -newkey rsa:4096 \
> -x509\
> -sha256 \
> -days 3650 \
> -nodes \
> -out xo.crt\
> -keyout xo.key_

```

```

Country Name (2 letter code) [AU]:PL
State or Province Name (full name) [Some-State]:
Locality Name (eg, city) []:
Organization Name (eg, company) [Internet Widgits Pty Ltd]:
Organizational Unit Name (eg, section) []:
Common Name (e.g. server FQDN or YOUR name) []:
Email Address []:
root@debian11:/etc/ssl/xo# cd /root/XenOrchestraInstallerUpdater/
root@debian11:~/XenOrchestraInstallerUpdater# cp sample.xo-install.cfg xo-install.cf
root@debian11:~/XenOrchestraInstallerUpdater# mcedit xo-install.cf

root@debian11:~/XenOrchestraInstallerUpdater# mcedit xo-install.sh

root@debian11:~/XenOrchestraInstallerUpdater# cp sample.xo-install.cfg xo-install.cfg
root@debian11:~/XenOrchestraInstallerUpdater# mcedit xo-install.cfg

root@debian11:~/XenOrchestraInstallerUpdater#

```

Modyfikujemy plik:

```

/root/XenOrchestra~ter/xo-install.cfg  [-M--]  9 L:[ 1+19 20/146] *(615 /6861b) 0034 0x022 [*] [X]
# Optional user that runs the service
# default: root
# no effect to Xen Orchestra proxy
#XOUSER=

# Optional parameter if running as non privileged user to use sudo when mounting/umounting shares in
# no effect if XOUSER is root
# options true/false
# no effect to Xen Orchestra proxy
#USESUDO=false

# Optional parameter to generate sudoers config when missing completely if USESUDO is set to true
# no effect if XOUSER is root
# options true/false
# no effect to Xen Orchestra proxy
#GENSUDO=false

# Port number where xen-orchestra service is bound
# no effect to Xen Orchestra proxy
PORT="443"

```

```
/root/XenOrchestra~ter/xo-install.cfg [-M--] 36 L:[ 83+
# Define the number of previous successful installations y
PRESERVE="3"

# certificate settings have no effect to Xen Orchestra pro

# Location of pem certificate/key files. Installation will
PATH_TO_HTTPS_CERT=/etc/ssl/xo/xo.crt
PATH_TO_HTTPS_KEY=/etc/ssl/xo/xo.key
```

```
root@debian11:~/XenOrchestraInstallerUpdater# ./xo-install.sh
[fail] Local changes in this script directory. Not attempting to self upgrade
-----

Welcome to automated Xen Orchestra install

Following options will be used for installation:

OS: Debian 11
Basedir: /opt/xo
User: root
Port: 80
HTTPS: false
Git Branch for source: master
Following plugins will be installed: all
Number of previous installations to preserve: 3
Node.js and yarn auto update: true

Errorlog is stored to /root/XenOrchestraInstallerUpdater/logs/xo-install.log-202505011631 for debug
purposes

Depending on which installation is chosen:

Xen Orchestra configuration will be stored to /root/.config/xo-server/config.toml, if you don't want
it to be replaced with every update, set CONFIGUPDATE to false in xo-install.cfg
Xen Orchestra Proxy configuration will be stored to /root/.config/xo-proxy/config.toml. Config won't
be overwritten during update, ever
-----

1. Install
2. Update
3. Rollback
4. Install proxy
5. Update proxy
6. Exit

:
```

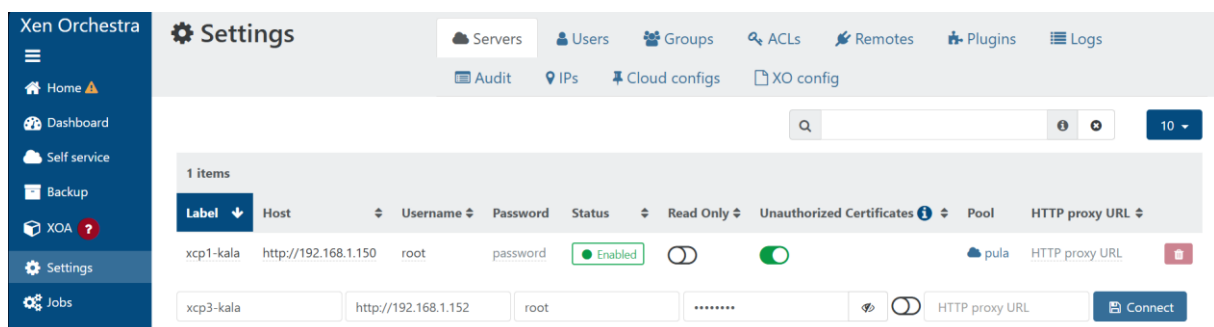
Wybieramy „1” i czekamy...

Po zakończeniu instalacji w przeglądarce wpisujemy adres IP maszyny na której dokonaliśmy instalacji. (<http://.>). Wpisujemy dane logowania:

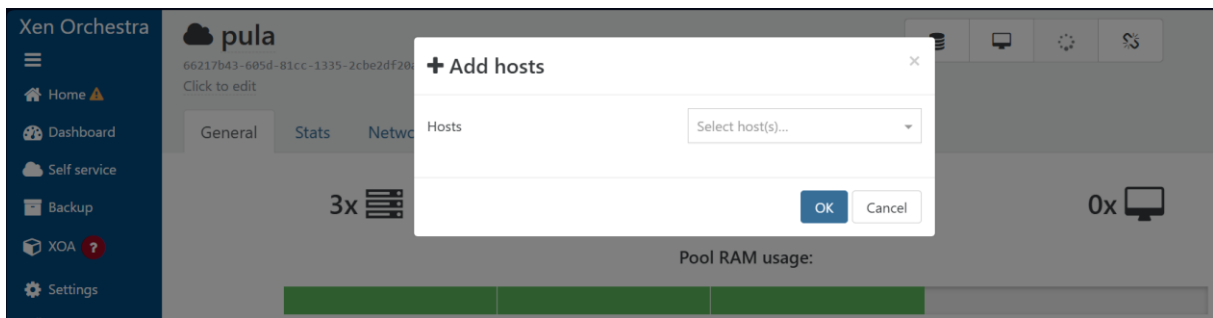
L: [admin@admin.net](mailto:admin@admin.net)

H: admin

Dodajemy węzły:



Tworzymy pule:



Tworzymy zasób iSCSI:

Na zewnętrznej maszynie (u mnie Debian 11):

`apt update`

`apt install targetcli-fb -y`

Na węzłach wydajemy polecenie :

```
[14:23 xcp1-kala ~]# cat /etc/iscsi/initiatorname.iscsi
InitiatorName=iqn.2025-05.com.example:3e2d5566
InitiatorAlias=xcp1-kala
[14:23 xcp1-kala ~]#
```

Na osobnej maszynie:

```
root@debian11:~# systemctl enable targetcli.service
root@debian11:~# systemctl start targetcli.service
root@debian11:~# mkdir /iscsi
root@debian11:~# targetcli
targetcli shell version 2.1.53
Copyright 2011-2013 by Datera, Inc and others.
For help on commands, type 'help'.

/> cd /backstores/fileio
/backstores/fileio> create disk1 /iscsi/disk1.img 75G
Created fileio disk1 with size 80530636800
/backstores/fileio> cd /iscsi
/iscsi> create iqn.2025-05.private:storage.targetmd1/tpg1/luns
Could not create Target in configFS
/iscsi> create iqn.2025-05.private:storage.targetmd1
Created target iqn.2025-05.private:storage.targetmd1.
Created TPG 1.
Global pref auto_add_default_portal=true
Created default portal listening on all IPs (0.0.0.0), port 3260.
/iscsi> cd /iscsi/iqn.2025-05.private:storage.targetmd1/tpg1/luns
/iscsi/iqn.2025-05.private:storage.targetmd1/tpg1/luns> create /backstores/fileio/disk1
Created LUN 0.
/iscsi/iqn.2025-05.private:storage.targetmd1/tpg1/luns> cd /iscsi/iqn.2025-05.private:storage.targetmd1/tpg1/acls
/iscsi/iqn.2025-05.private:storage.targetmd1/tpg1/acls> create iqn.2025-05.com.example:3e2d5566
Created Node ACL for iqn.2025-05.com.example:3e2d5566
Created mapped LUN 0.
/iscsi/iqn.2025-05.private:storage.targetmd1/tpg1/acls> create iqn.2025-05.com.example:1e838837
Created Node ACL for iqn.2025-05.com.example:1e838837
Created mapped LUN 0.
/iscsi/iqn.2025-05.private:storage.targetmd1/tpg1/acls> create iqn.2025-05.com.example:b3e69a20
Created Node ACL for iqn.2025-05.com.example:b3e69a20
Created mapped LUN 0.
/iscsi/iqn.2025-05.private:storage.targetmd1/tpg1/acls> cd /
/> saveconfig
Configuration saved to /etc/rtslib-fb-target/saveconfig.json
/> _
```

Podłączamy zasób:

The screenshot shows the 'Settings' page for 'iSCSI virtual disk storage' in the XOA interface. The left sidebar contains navigation links: Backup, XOA, Settings, Jobs, Hub, Proxies, About, Tasks, XOSTOR, Import, and a '+ New' button. The main content area has a sub-menu with 'Settings', 'Storage usage', and 'Summary'. The 'Settings' section includes a 'Description' field, a 'Select storage type:' dropdown menu set to 'iSCSI', and a 'Server (With auth.)' field containing '192.168.1.125' and a '[port]' placeholder. Below these are two empty input fields.

Importujemy obraz ISO:

Na interesującym nas węźle:

```
Mkdir /var/opt
```

```
xe host-list
```

```
xe sr-create name-label=ISO type=iso device-config:location=/var/opt/ISO device-config:legacy_mode=true content-type=iso host-uuid=<UUID_Hosta>
```

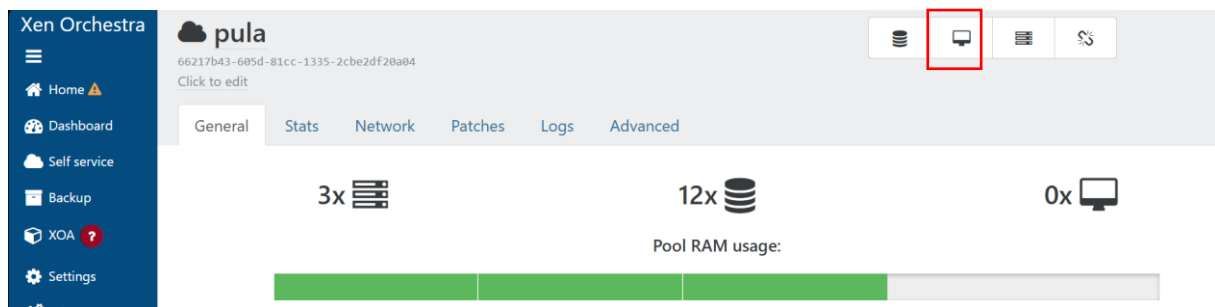
```
xe pbd-plugin uuid=6d218ea7-d16e-a478-8a94-776d576b9f63
```

(uuid klastra pobieramy za pomocą komendy: `xe pool-list` )

(importujemy z URL/ możemy też z dysku lokalnego)

The screenshot shows the 'Import' page in the Xen Orchestra interface. The left sidebar contains navigation links: Home, Dashboard, Self service, Backup, XOA, Settings, Jobs, Hub, Proxies, About, Tasks, XOSTOR, and Import. The main content area has a sub-menu with 'VM', 'Disk', and 'From VMware'. The 'Import' section includes a message 'To import ISO files, an ISO repository is required', a 'From URL' toggle, a 'To SR' dropdown menu set to 'ISO - xcp1-kala', a large dashed box with the text 'Drop ISO,RAW files here to import disks.', and a blue bar at the bottom showing 'SERVER\_EVAL\_x64FRE\_en-us.iso - 4.7 GiB'. At the bottom right are 'Import' and 'Reset' buttons.

Tworzymy wirtualną maszynę:



Uzupełniamy:

Create a new VM on **pula**

- Info**
  - Template: **Windows Server 2022 (64-bit) ...** Name: **srv1-kala**
  - Description:
- Performance**
  - vCPUs: **2** RAM: **2** GiB
  - Topology: **Default behavior**
- Install settings**
  - ☐ PXE
  - ☒ ISO/DVD: **SERVER\_EVAL\_x64FRE\_en-us.is...**
- Interfaces**
  - MAC: **Auto-generated if empty** Network: **Pool-wide network associated ...**
  - + Add interface**
- Disks**
  - + Add disk**
- Advanced**
  - Hide advanced settings**
  - ☒ Boot VM after creation ☐ Auto power on
  - ☐ Destroy cloud config drive after first boot
  - CPU weight: **Default: 2!** CPU cap: **Default: 0** Max vCPUs: **2**
  - Dynamic memory min:  GiB Dynamic memory max:  GiB
  - Static memory max:  GiB
  - Multiple VMs: ☐ Name pattern: **{name}%** First index: **1** **2**
  - Affinity host: **xcp1-kala (1.83 GiB RAM free) ...**
  - vGPU: **Select VGPU type(s)...**
  - Boot firmware: bios**
  - ☐ Copy host BIOS strings to VM
  - ACLs: **+**

Możemy wybrać na którym węzle zostanie odpalona  
(musiłem zmienić sposób odpalania na bios)

Xen Orchestra

Home

Dashboard

VM

Filters

+ New VM

2x (of 2)

Power state

Backup

Pools

Hosts

Tags

Sort by

20

srv1-kala

Long click to add a description

xcp1-kala - pula

Self Service

Backup

XOA

Settings

Jobs

Hub

Proxies

About

Tasks

XOSTOR

Import

New

No support

Sign out

Administrator

Please wait for the User Profile Service

pula

srv1-kala

bb9a5991-8949-a8d2-3f74-cf3451afe012

Click to edit

Copy

General

Stats

Console

Network

Disks

Snapshots

Backup

Logs

Advanced

+ New disk

Copy VM

Name

srv2-kala

☒ Full copy

Select SR

iSCSI virtual disk storag... x

Compression

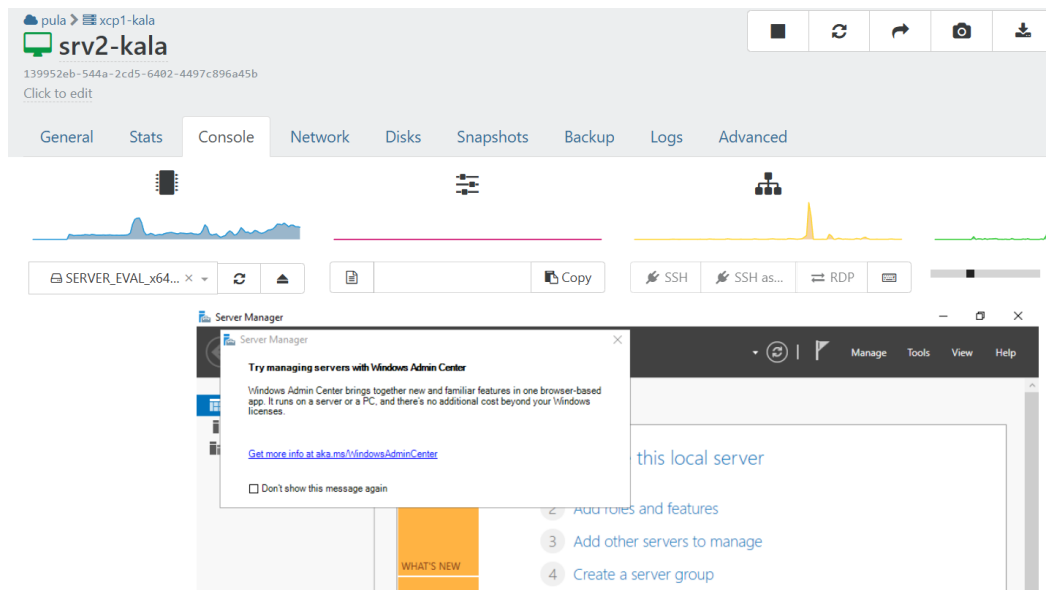
Disabled

☐ Fast clone

OK

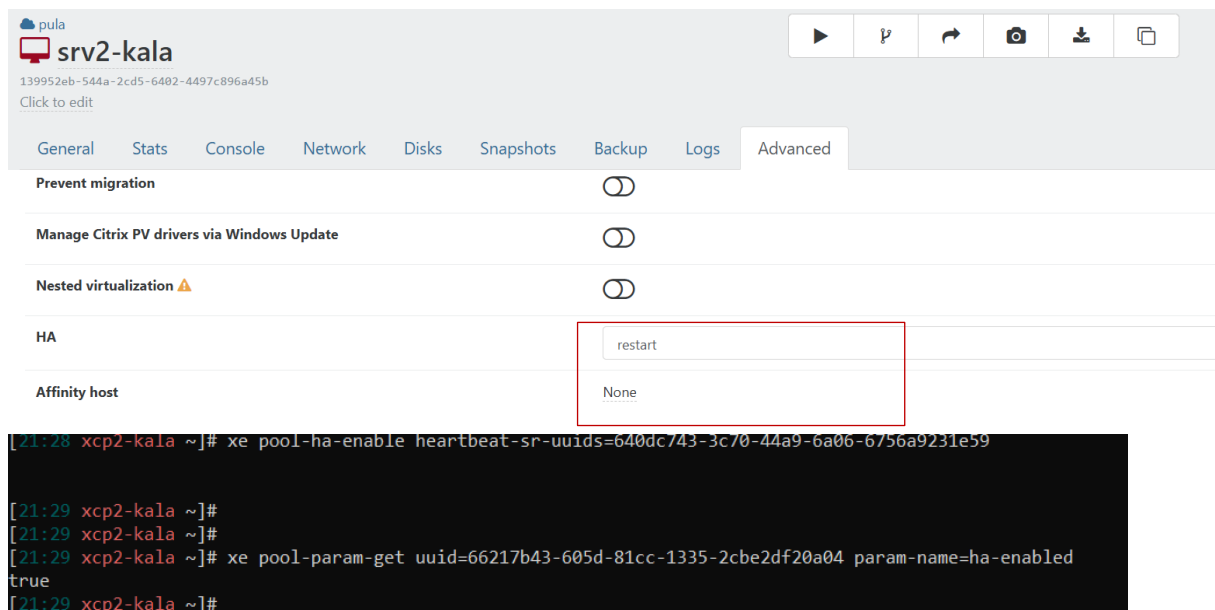
Cancel





Usuwamy obraz ISO.

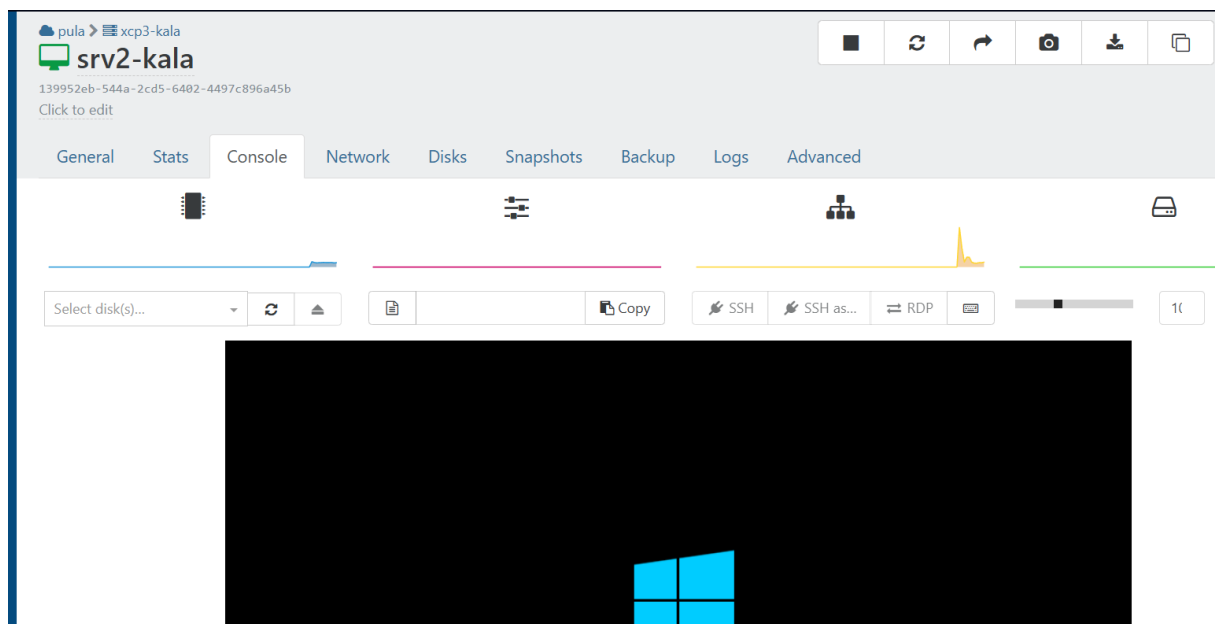
Włączenie HA:



Zatrzymujemy działanie xpc1 (na nim działa maszyna)

<input type="checkbox"/>	xcp2-kala <b>Master</b>	Default install	<div><div></div></div>	192.168.1.151
<input type="checkbox"/>	xcp3-kala	Default install	<div><div></div></div>	192.168.1.152

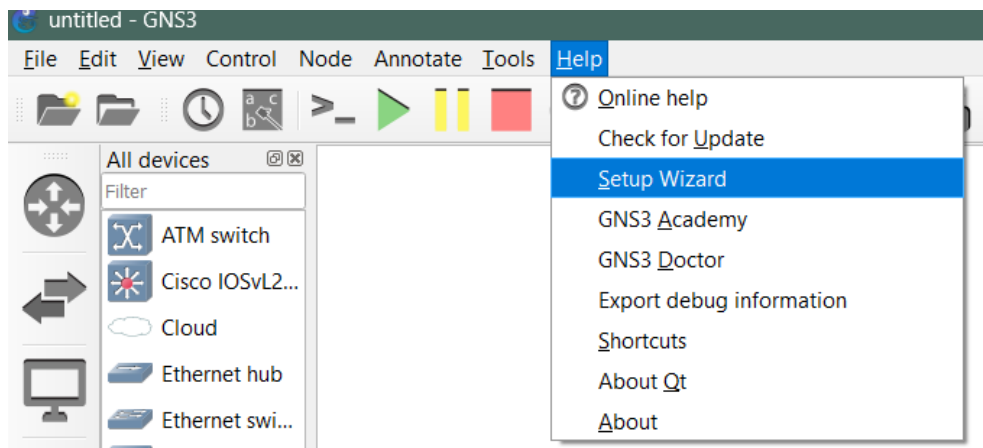
Po chwili:



Wysoka dostępność działa.

## Zad 2

Instalujemy GNS3, oraz pobieramy wirtualną maszynę GNS3. Po instalacji podłączamy się do maszyny GNS3:



Setup Wizard

?

×

**Local server configuration**  
Please configure the following GNS3 local server settings

Server path: C:\Program Files\GNS3\gns3server.EXE

Browse...

Host binding: localhost

Port: 3080 TCP

< Back

Next >

Cancel

Setup Wizard

?

×

**GNS3 VM**  
In order to run the GNS3 VM you must first have VMware or VirtualBox installed and the GNS3 VM.ova imported with one of these software.

Virtualization software:

☒ VMware (recommended)

☐ VirtualBox

The GNS3 VM can [downloaded here](#).  
Import the VM in your virtualization software and hit refresh.

VM name:

GNS3 VM

Refresh

vCPU cores:

1

RAM size:

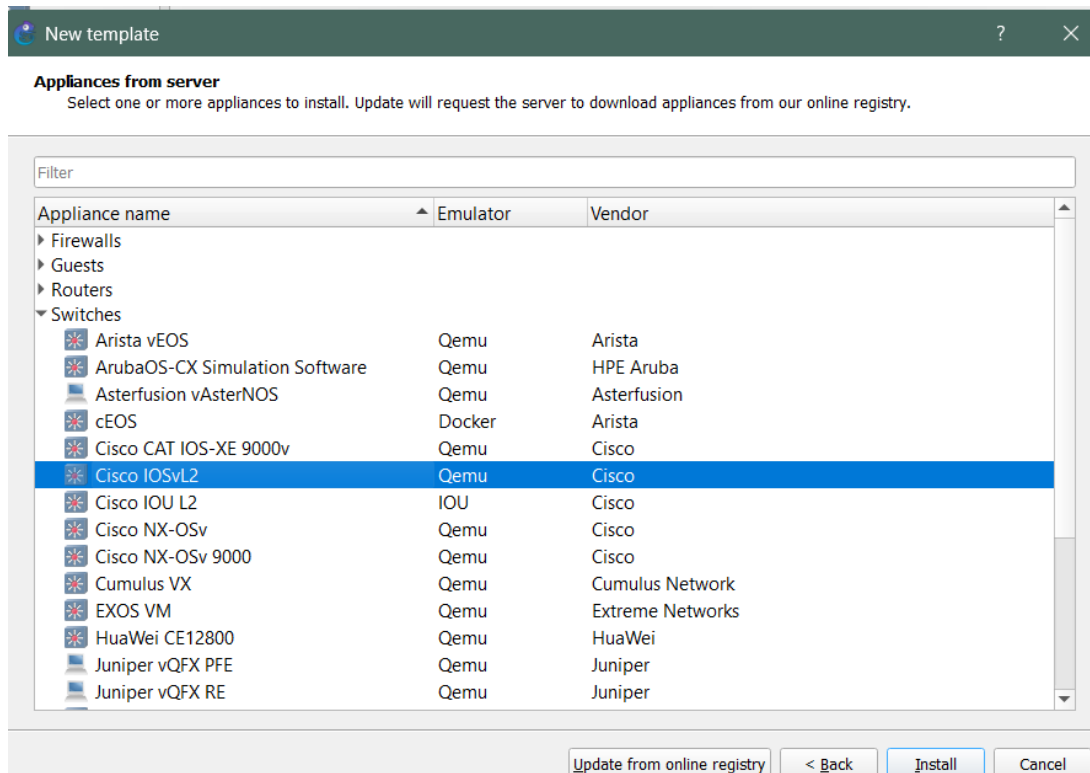
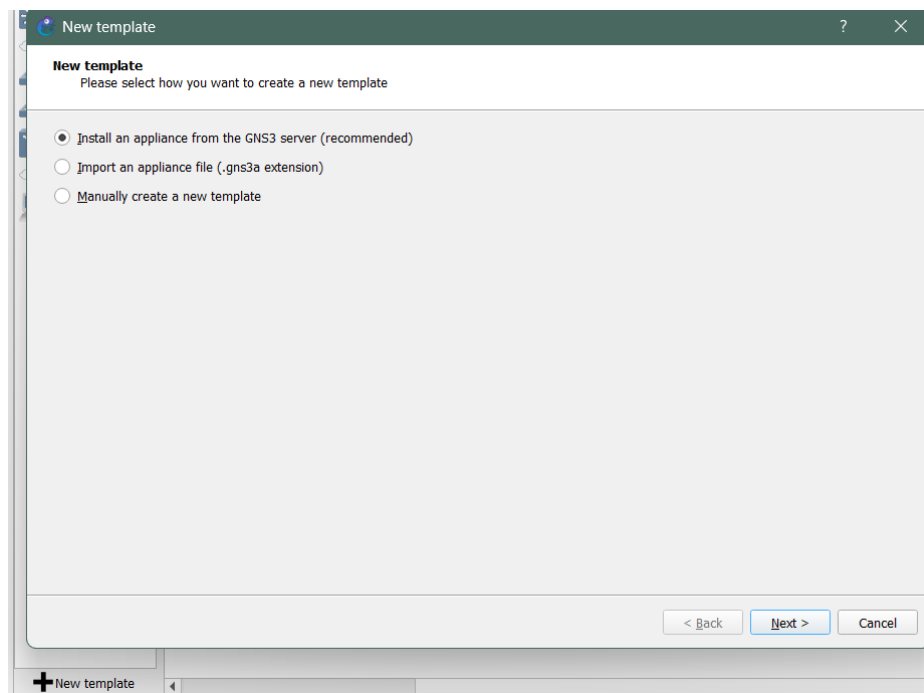
7168 MB

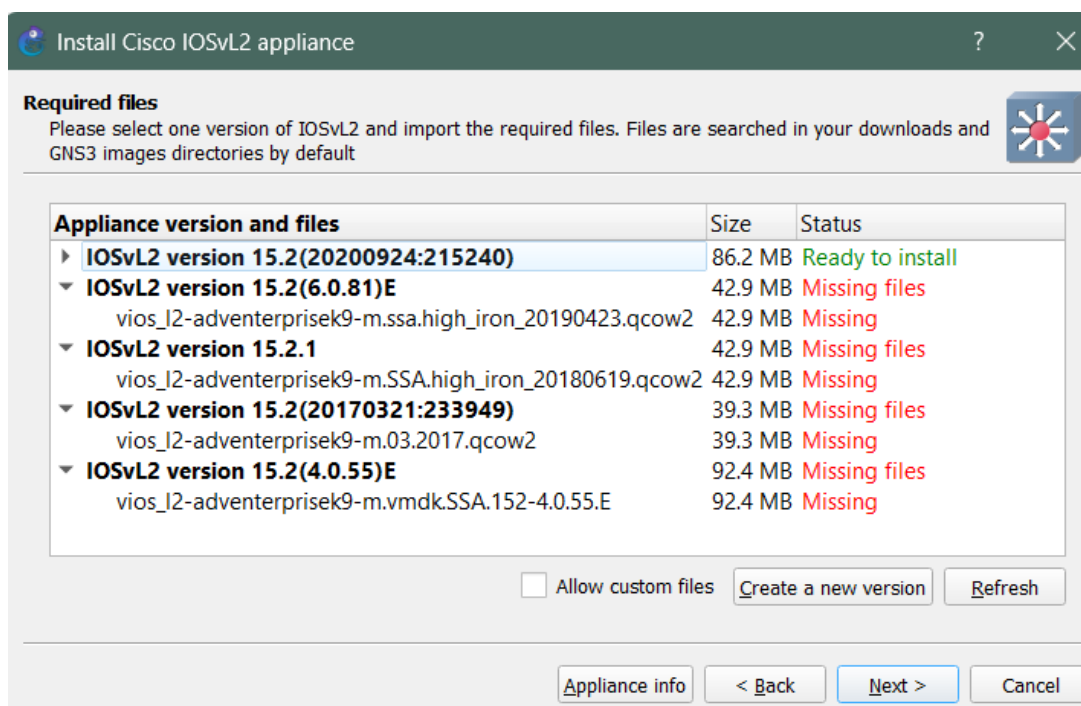
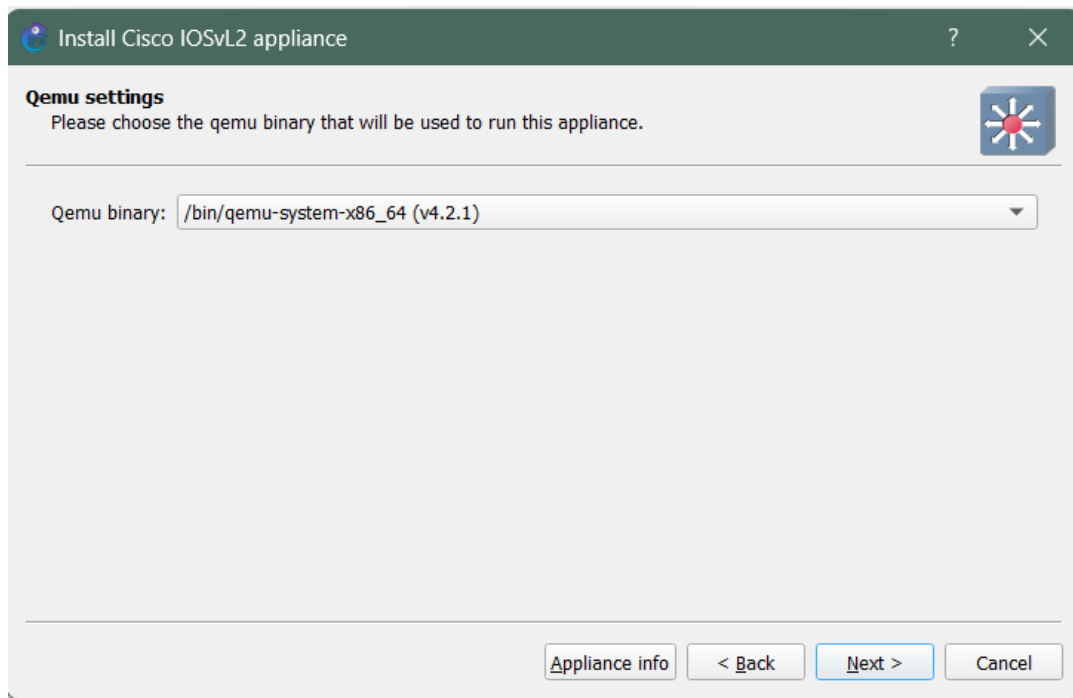
< Back

Next >

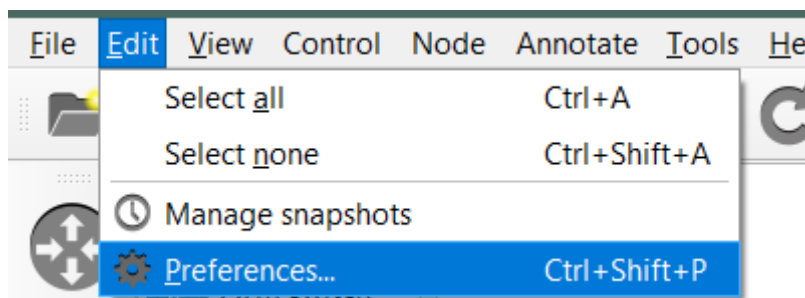
Cancel

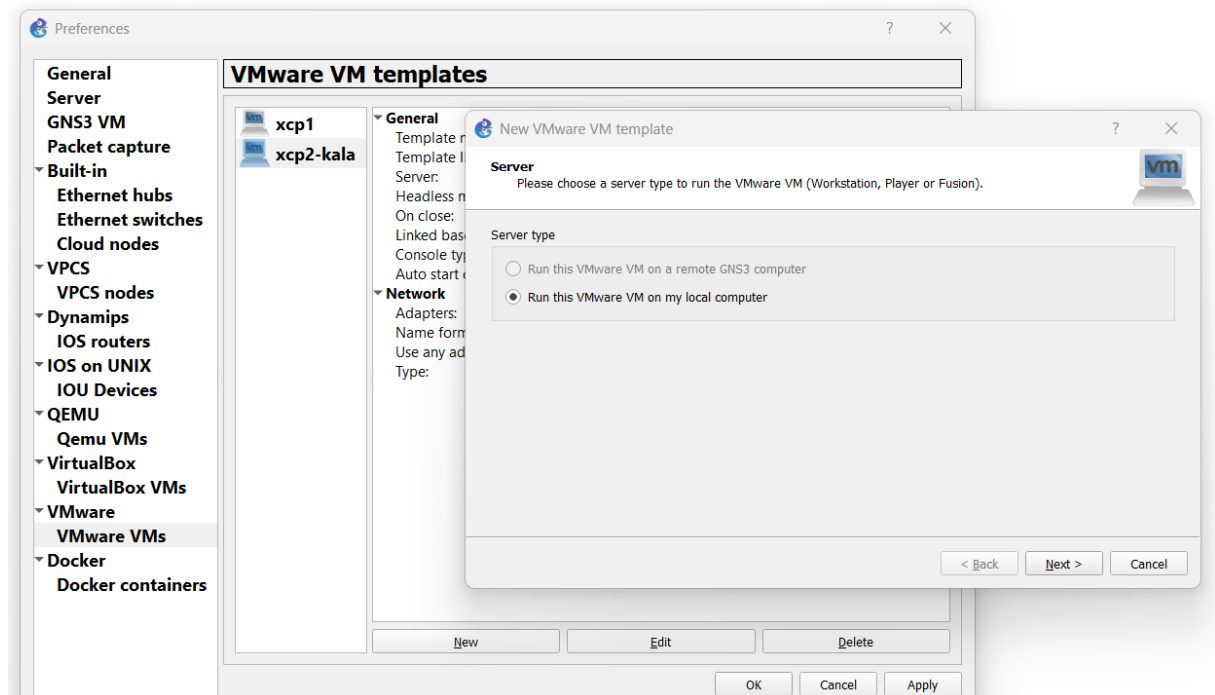
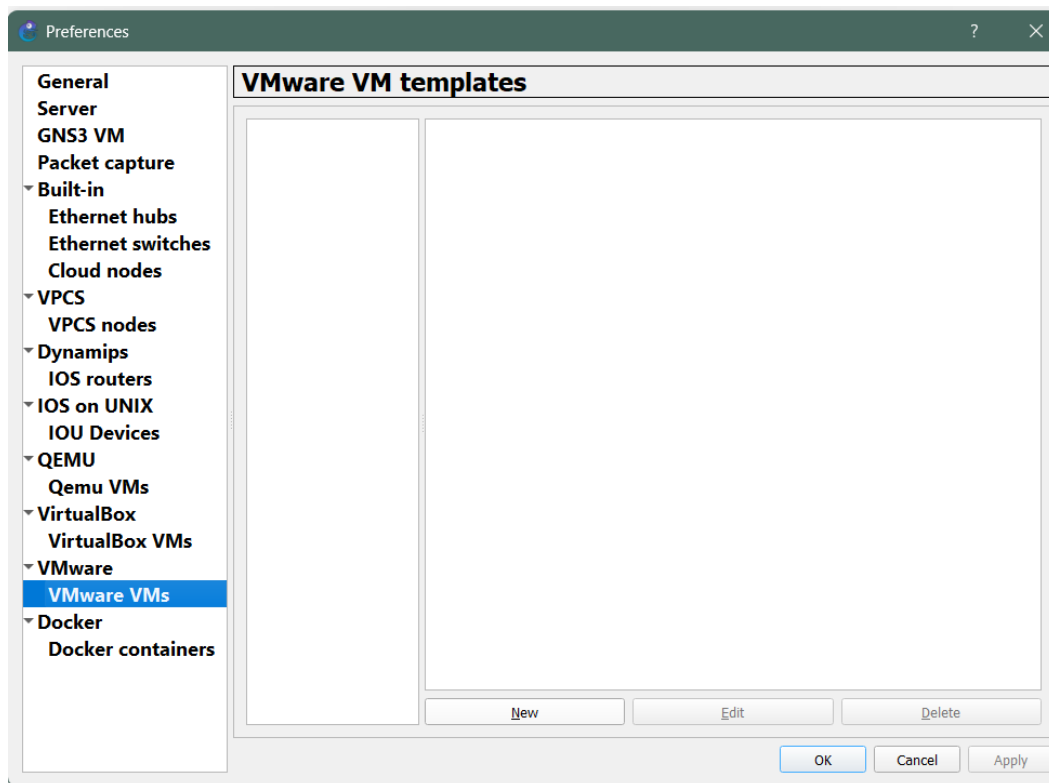
Dodajemy przełączniki:

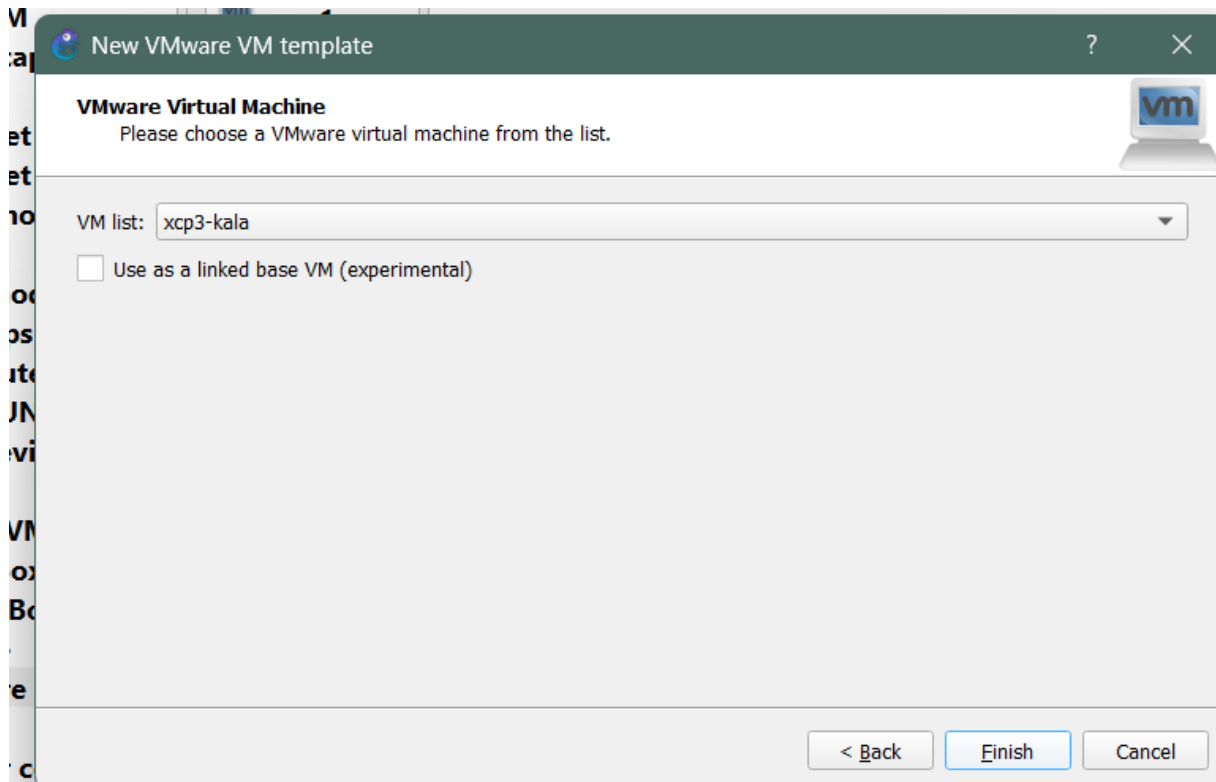




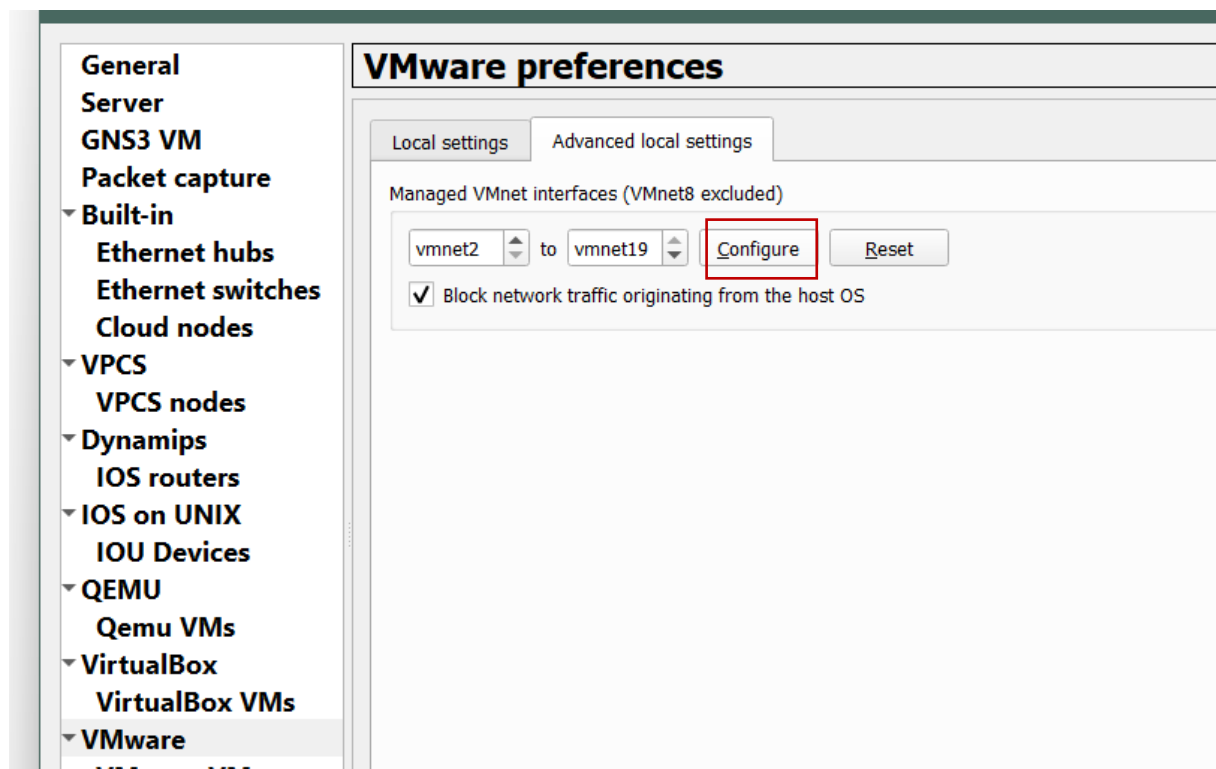
Dodajemy maszyny wirtualne:



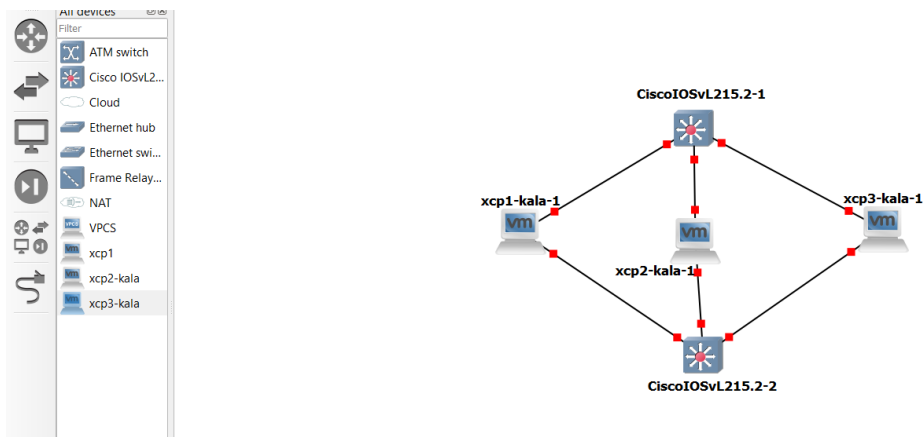




Zmieniamy ustawienia sieci:



Przeciągamy elementy do projektu:



Na switch'ach wydajemy polecenia:

```
Switch>ena
Switch#conf term
Switch#conf terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#int range g0/1-3
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#channel-group 20 mode active
Creating a port-channel interface Port-channel 20

Switch(config-if-range)#
*May 4 11:20:55.851: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to down
*May 4 11:20:55.901: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/3, changed state to down
```

Ustawienia dla hosta (ustawiamy tak na wszystkich 3):

The screenshot shows the OpenStack dashboard interface. The top navigation bar includes links for Home, Dashboard, Self service, Backup, XOA, Settings, Jobs, Hub, Proxies, About, Tasks, and XOSTOR. The main content area displays the configuration for a host named 'xcp1-kala'. The 'Network' tab is selected, showing a table with 3 items. The table has columns for Device, Network, VLAN, Address, Mode, MAC, MTU, Speed, and Default Io mode. The first row shows 'eth0' with a static IP of 192.168.1.150. Below the table, there is a section for 'Private networks' with a 'Manage' button. At the bottom, there is a search bar and a '+ Add a network' button.

Device	Network	VLAN	Address	Mode	MAC	MTU	Speed	Default Io mode
eth0	Pool-wide network associated with eth0	None	192.168.1.150	Static	00:0c:29:89:51:3a	1500	1 Gb/s	On
eth1	Pool-wide network associated with eth1	None		None	00:0c:29:89:51:44	1500	1 Gb/s	On
eth2	Pool-wide network associated with eth2	None		None	00:0c:29:89:51:4e	1500	1 Gb/s	On



Create a new network on pula

Type

Info

☒ Bonded network

☐ Private network

Please see the requirements

Interface

eth1 (82545EM Gigabit Ethernet Controller (Copper) - Pool-wide network associated with eth1)

eth2 (82545EM Gigabit Ethernet Controller (Copper) - Pool-wide network associated with eth2)

Name

bond1

Description

MTU

Default: 1500

Bond mode

lacp

Create network

Reset

Tworzymy Vlany:

☐ Bonded network

☐ Private network

Please see the requirements

Interface

bond0 ( - bond1)

Name

vlan20

Description

MTU

Default: 1500

VLAN

20

NBD

Select...

Create network

Reset

Create a new network on pula

- Type
- Info

☐ Bonded network  
☐ Private network  
*Please see the requirements*

Interface

bond0 (- bond1)

Name

vlan30

Description

MTU

Default: 1500

VLAN

30

NBD

Select...

Create network

Reset

Przechodzimy do ustawień sieci dla konkretnej maszyny i dodajemy nową sieć.

Następnie wybieramy z listy:

pula

**srv2-kala**

139952eb-544a-2cd5-6402-4497c896a45b

[Click to edit](#)

General Stats Console **Network** Disks Snapshots Backup Logs Advanced

+ New device

vlan30 - pula

MAC address (Auto-generated if empty) + Create

Q 10

0 items

<input type="checkbox"/>	Device	MAC address	MTU	Network	Rate limit (kB/s)	NBD	IP addresses	Allowed IPs	Traffic rules	Status
No items found										

pula

**srv1-kala**

bb9a5991-8949-a8d2-3f74-cf3451afe012

[Click to edit](#)

General Stats Console **Network** Disks Snapshots Backup Logs Advanced

+ New device

Q 10

1 items

<input type="checkbox"/>	Device	MAC address	MTU	Network	Rate limit (kB/s)	NBD	IP addresses	Allowed IPs	Traffic rules	Status
<input type="checkbox"/>	VIF #0	3e:d1:b2:84:1f:14	1500	vlan20	<a href="#">Click to edit</a>	No IP record	No IPs			<span>+</span> <span>Disconnected</span> <span></span> <span></span> <span></span>

Na switch'ach wydajemy polecenia:

```
Switch>ena
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 20
Switch(config-vlan)#name vlan20
Switch(config-vlan)#vlan 30
Switch(config-vlan)#name vlan30
Switch(config-vlan)#interface rane g0/1-3
                        ^
% Invalid input detected at '^' marker.

Switch(config)#interface range g0/1-3
Switch(config-if-range)# switchport trunk encapsulation dot1q
Switch(config-if-range)# switchport mode trunk
Switch(config-if-range)#switchport trunk allowed vlan 20,30
Switch(config-if-range)#
```

```
Switch#ena
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int g1/1
Switch(config-if)#switchport access vlan 20
Switch(config-if)#int g1/2
Switch(config-if)#switchport access vlan 30
```