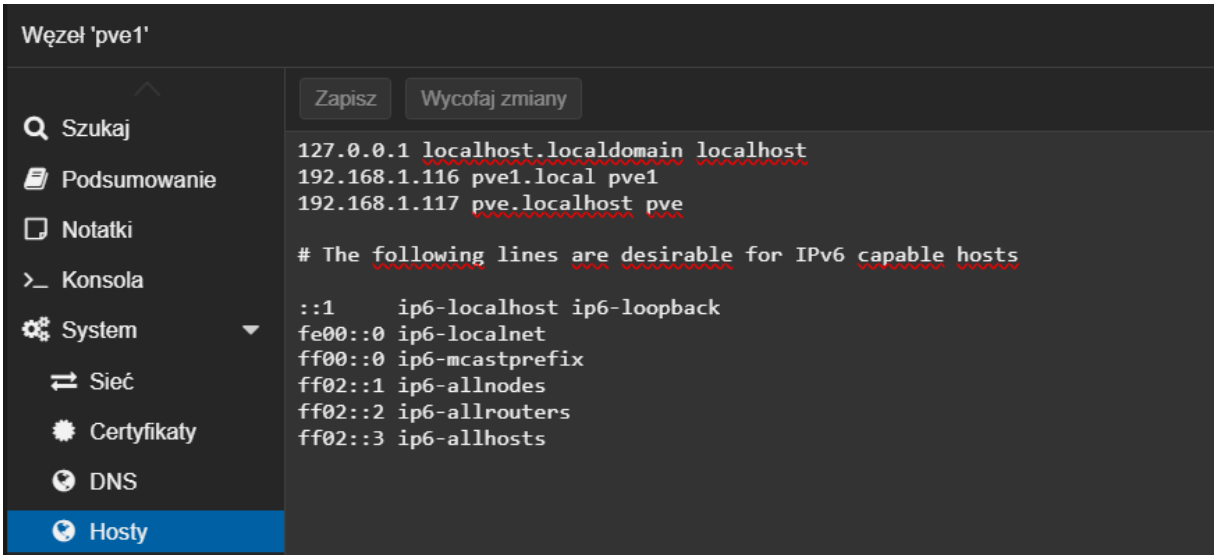
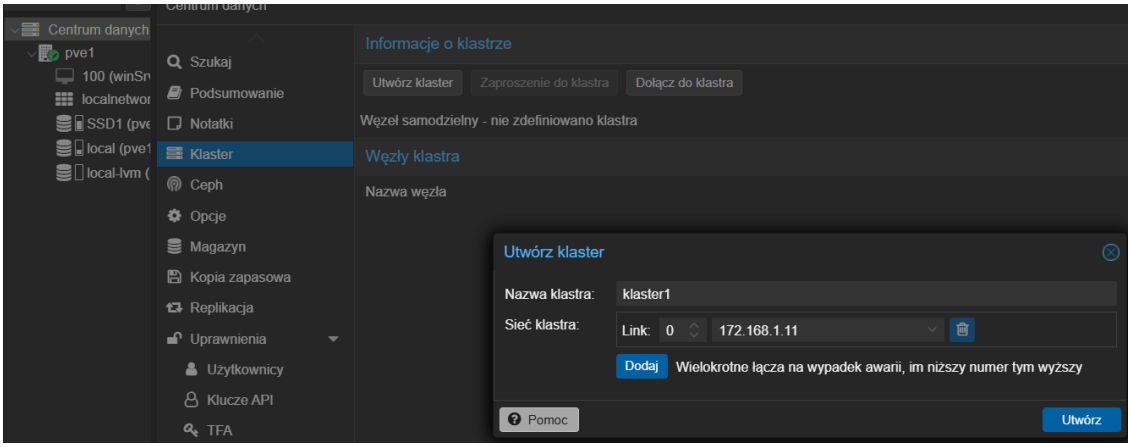
Zad 1

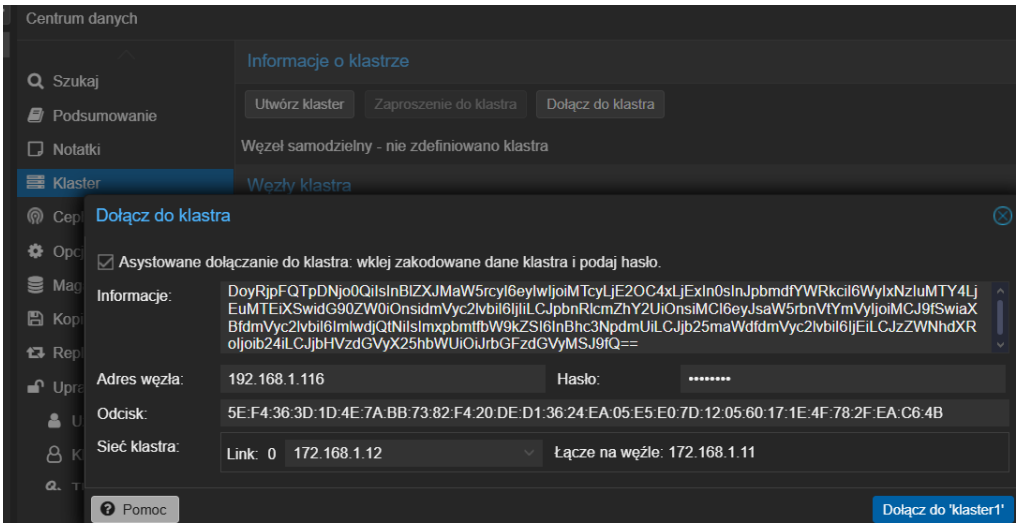
Tworzenie klastra w Proxmox z wykorzystaniem utworzonej sieci wewnętrznej

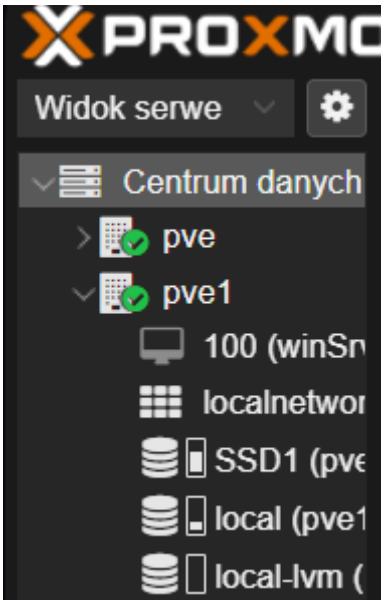


Dodajemy odpowiednie linie w pliku hosts, tak aby na obu maszynach były dane tej drugiej.



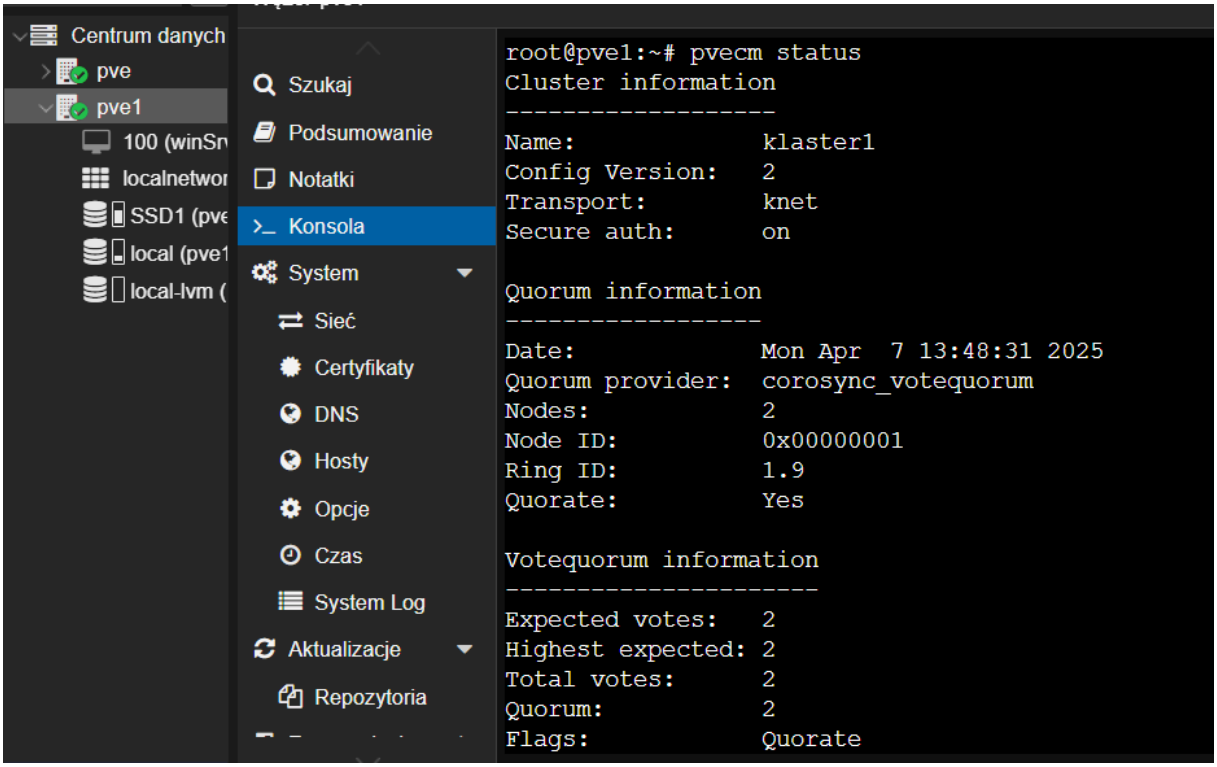
Tworzymy i kopiujemy „zaproszenie”, wklejamy je na 2 maszynie





Zad 2

Dodanie dysku świadka na potrzeby mechanizmu kworum



Na obu węzłach wydajemy polecenia:

apt update

apt install corosync-qdevice

Na 3 maszynie wydajemy polecnia:

apt update
apt install corosync-qnetd
#apt install corosync-qdevice

```
root@debian:~# systemctl status corosync-qnetd
● corosync-qnetd.service - Corosync Qdevice Network daemon
     Loaded: loaded (/lib/systemd/system/corosync-qnetd.service; enabled; preset: enabled)
     Active: active (running) since Mon 2025-04-07 14:17:13 CEST; 1min 1s ago
       Docs: man:corosync-qnetd
   Main PID: 1261 (corosync-qnetd)
      Tasks: 1 (limit: 1853)
     Memory: 6.1M
        CPU: 20ms
     CGroup: /system.slice/corosync-qnetd.service
             └─1261 /usr/bin/corosync-qnetd -f

kwi 07 14:17:13 debian systemd[1]: Starting corosync-qnetd.service - Corosync Qdevice Network da
kwi 07 14:17:13 debian systemd[1]: Started corosync-qnetd.service - Corosync Qdevice Network dae
lines 1-13/13 (END)
```

Nanosimy zmiany w pliku:

```
/etc/ssh/sshd_config    [-M--] 18 L:[ 32+ 0
#LoginGraceTime 2m
PermitRootLogin yes
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10
```

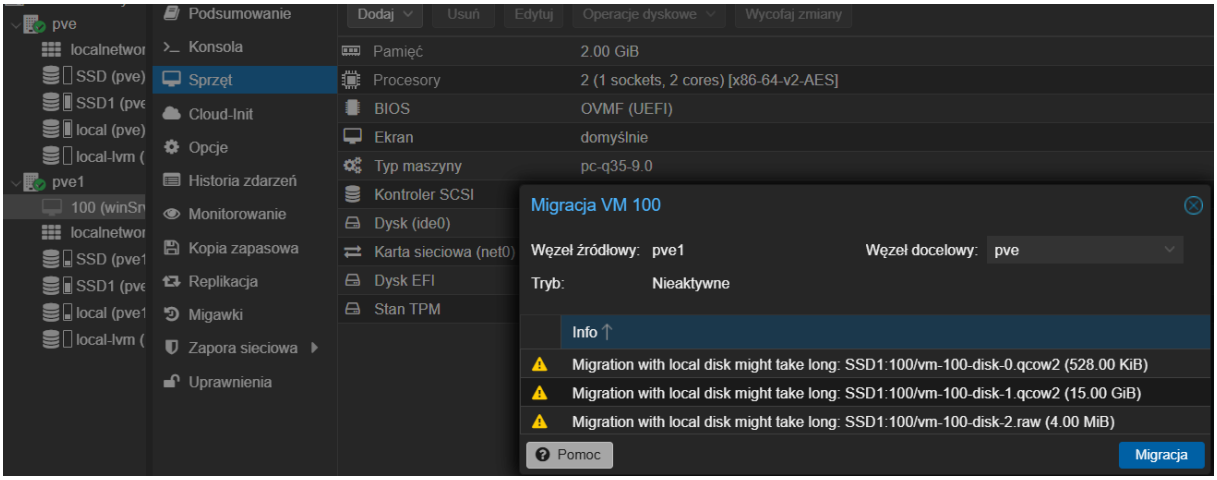
systemctl restart ssh, Następnie:

```
root@pve:~# pvecm qdevice setup 172.168.1.13 -f
/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
root@172.168.1.13's password:

Number of key(s) added: 1
```

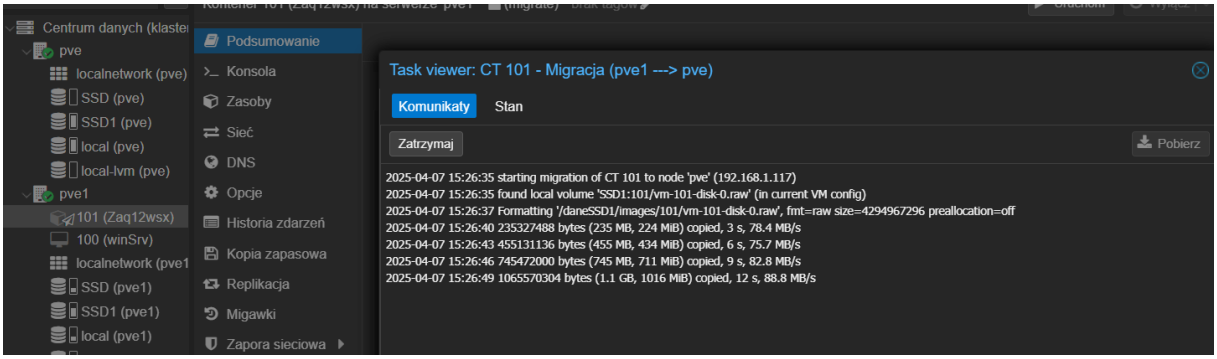
```
root@pve1:~# pvecm status
Cluster information
-------------------
Name:             klaster1
Config Version:   3
Transport:        knet
Secure auth:      on

Quorum information
------------------
Date:             Mon Apr  7 14:34:04 2025
Quorum provider:  corosync_votequorum
Nodes:            2
Node ID:          0x00000001
Ring ID:          1.9
Quorate:          Yes

Votequorum information
----------------------
Expected votes:   3
Highest expected: 3
Total votes:      3
Quorum:           2
Flags:            Quorate Qdevice
```

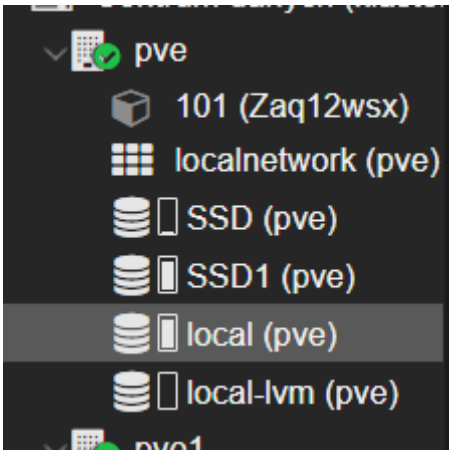
Zad 3

Migracja maszyny na inny węzeł



Z racji ograniczonego miejsca na dysku dokonałem migracji kontenera (nie miałem wystarczającego miejsca na migracje maszyny z Windowsem)





Zad 4

Na maszynie z dyskiem świadka:

apt update

apt install targetcli-fb -y

```
root@debian:~# systemctl enable targetclid.service
Created symlink /etc/systemd/system/multi-user.target.wants/targetclid.service → /lib/systemd/sys
/targetclid.service.
Created symlink /etc/systemd/system/sockets.target.wants/targetclid.socket → /lib/systemd/system/
getclid.socket.
root@debian:~# systemctl start targetclid.service
root@debian:~# mkdir /iscsi
root@debian:~# 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 30G
Created fileio disk1 with size 32212254720
/backstores/fileio> cd /iscsi
/iscsi> create iqn.2021-09.private:storage.targetmd1
Created target iqn.2021-09.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.2021-09.private:storage.targetmd1/tpg/luns
No such path /iscsi/iqn.2021-09.private:storage.targetmd1/tpg
/iscsi> cd /iscsi/iqn.2021-09.private:storage.targetmd1/tpg1/luns
/iscsi/iqn.20...md1/tpg1/luns> create /backstores/fileio/disk1
Created LUN 0.
/iscsi/iqn.20...md1/tpg1/luns> cd /
/> saveconfig
Configuration saved to /etc/rtslib-fb-target/saveconfig.json
/> _
```

Na proxmoxie wydajemy polecenie (identyczna procedura dla drugiej maszyny z proxmoxem):

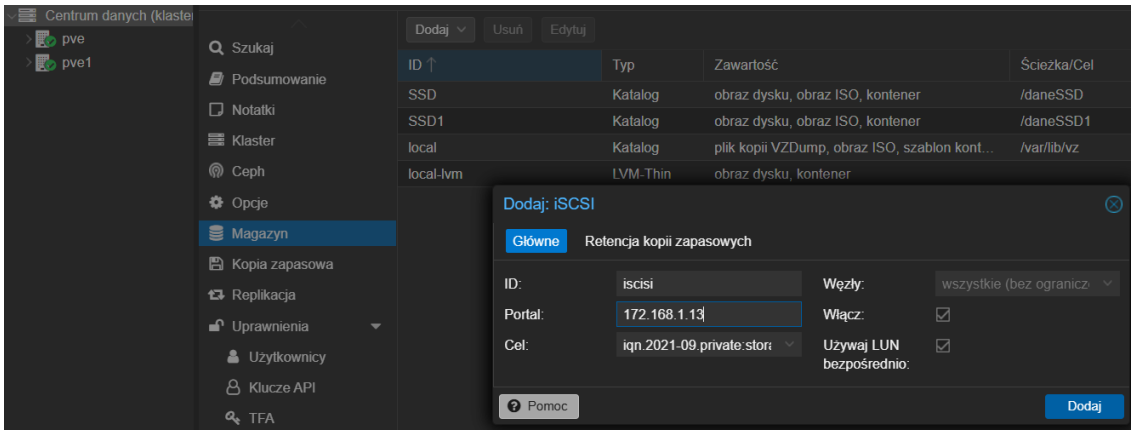
```
root@pve1:~# cat /etc/iscsi/initiatorname.iscsi
## DO NOT EDIT OR REMOVE THIS FILE!
## If you remove this file, the iSCSI daemon will not start.
## If you change the InitiatorName, existing access control lists
## may reject this initiator.  The InitiatorName must be unique
## for each iSCSI initiator.  Do NOT duplicate iSCSI InitiatorNames.
InitiatorName=iqn.1993-08.org.debian:01:5fa5bd842289
root@pve1:~#
```

Widoczny identyfikator wpisujemy w poniższym poleceniu na debianie (dodanie do list acl):

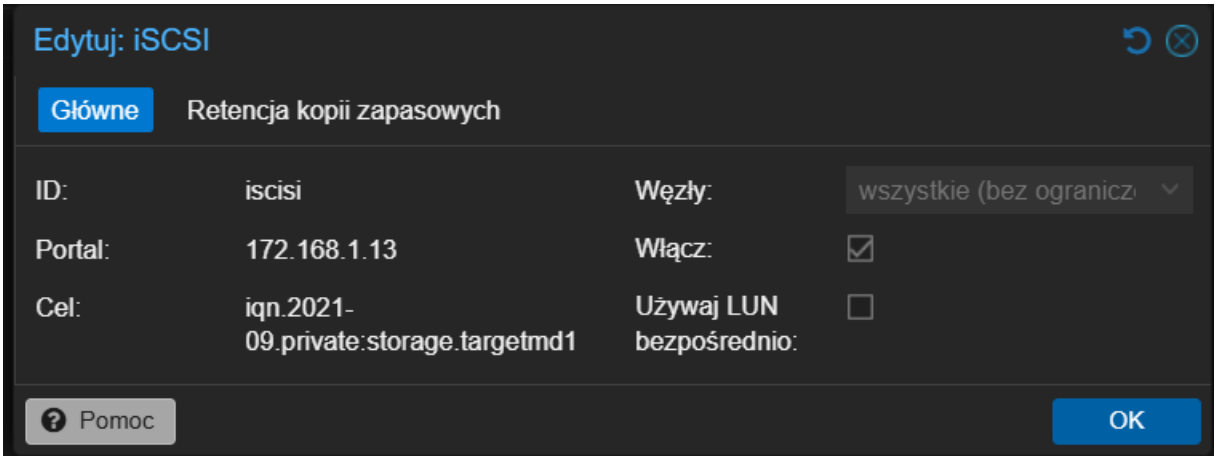
```
root@debian:~# targetcli
targetcli shell version 2.1.53
Copyright 2011-2013 by Datera, Inc and others.
For help on commands, type 'help'.

/> cd /iscsi/iqn.2021-09.private:storage.targetmd1/tpg1/acls
/iscsi/iqn.20...md1/tpg1/acls> create iqn.1993-08.org.debian:01:5fa5bd842289
Created Node ACL for iqn.1993-08.org.debian:01:5fa5bd842289
Created mapped LUN 0.
/iscsi/iqn.20...md1/tpg1/acls> cd /
/> saveconfig
Configuration saved to /etc/rtslib-fb-target/saveconfig.json
/>
```

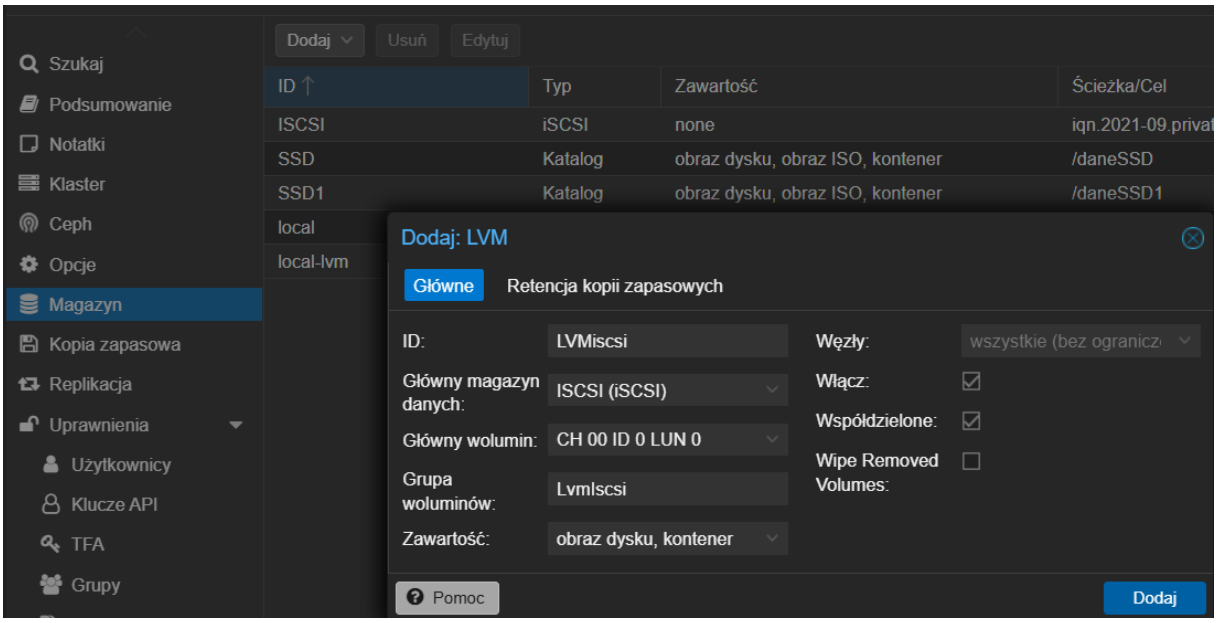
Zad 5

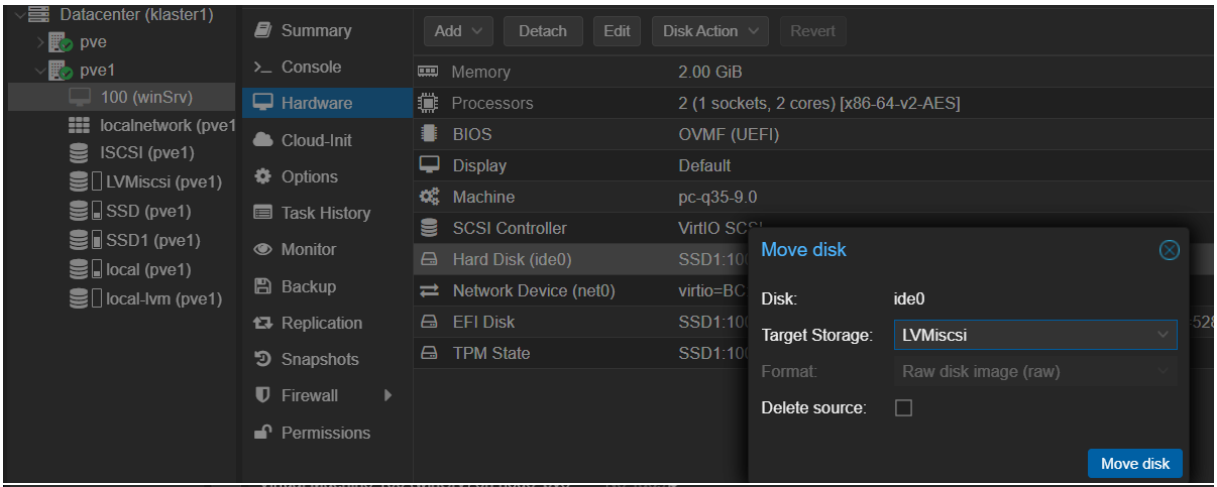
podłączenie utworzonego jednostki LUN iSCSI do węzłów klastra ProxmoxVE

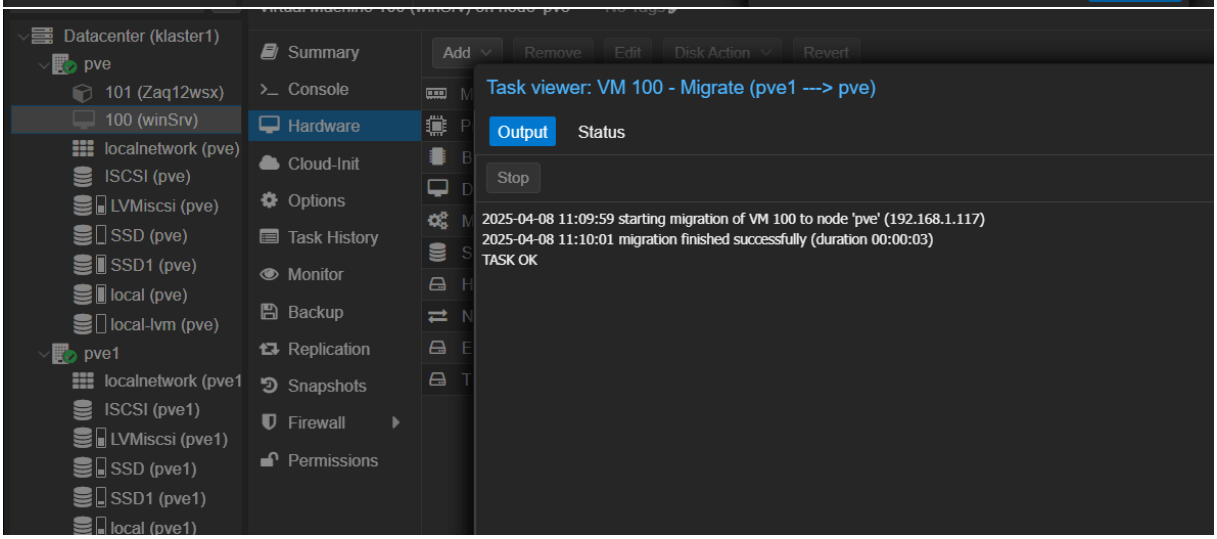


Jeśli chcemy trzymać na tym zasobie więcej niż 1 jednostkę operacyjną:



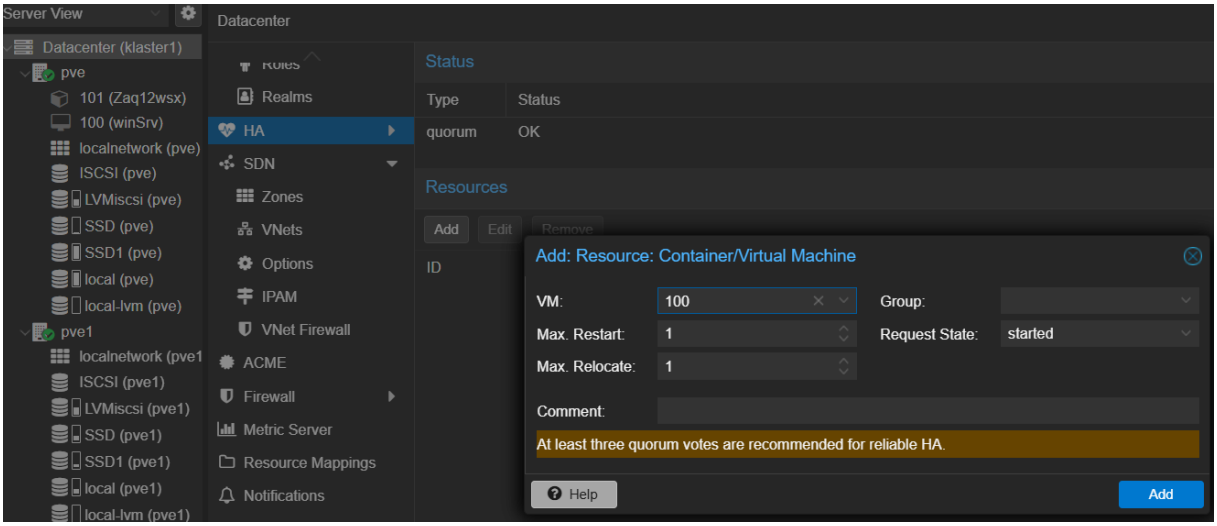


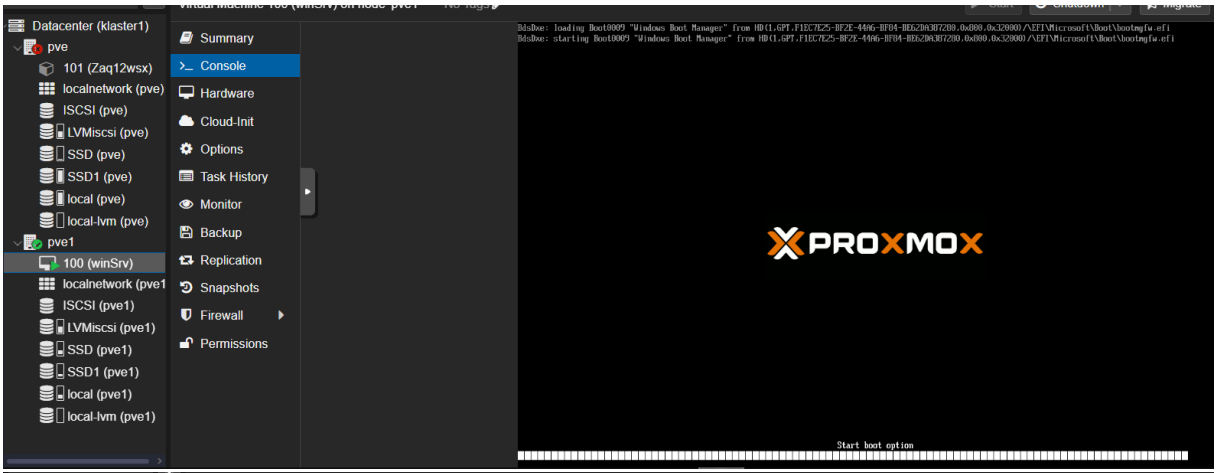


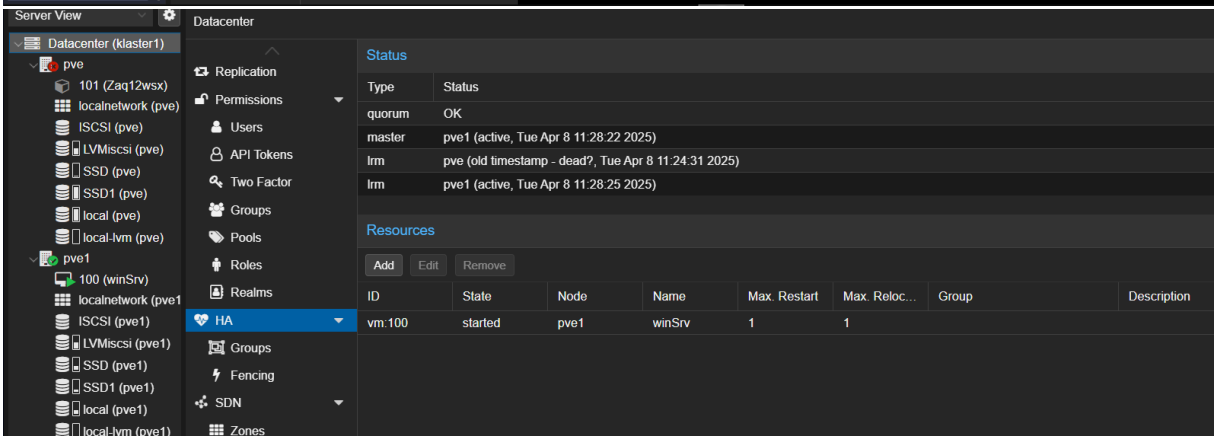


Zad 6

Włączenie wysokiej dostępności dla wybranej maszyny




Datacenter (klaster1)
pve
101 (Zaq12wsx)
localnetwork (pve)
ISCSI (pve)
LVMiscsi (pve)
SSD (pve)
SSD1 (pve)
local (pve)
local-lvm (pve)
pve1
100 (winSrv)
localnetwork (pve1
ISCSI (pve1)
LVMiscsi (pve1)
SSD (pve1)
SSD1 (pve1)
local (pve1)
local-lvm (pve1)
Summary
Console
Hardware
Cloud-Init
Options
Task History
Monitor
Backup
Replication
Snapshots
Firewall
Permissions
BdsDxe: loading Boot0009 "Windows Boot Manager" from HD(1,GPT,F1EC7E25-BF2E-4A96-BF04-BE628A3B7280,0x800,0x32000)/\EFI\Microsoft\Boot\bootmgfw.efi
BdsDxe: starting Boot0009 "Windows Boot Manager" from HD(1,GPT,F1EC7E25-BF2E-4A96-BF04-BE628A3B7280,0x800,0x32000)/\EFI\Microsoft\Boot\bootmgfw.efi
PROXMOX
Start boot option


Server View
Datacenter (klaster1)
pve
101 (Zaq12wsx)
localnetwork (pve)
ISCSI (pve)
LVMiscsi (pve)
SSD (pve)
SSD1 (pve)
local (pve)
local-lvm (pve)
pve1
100 (winSrv)
localnetwork (pve1
ISCSI (pve1)
LVMiscsi (pve1)
SSD (pve1)
SSD1 (pve1)
local (pve1)
local-lvm (pve1)
Datacenter
Replication
Permissions
Users
API Tokens
Two Factor
Groups
Pools
Roles
Realms
HA
Groups
Fencing
SDN
Zones
Status
Type
Status
quorum
OK
master
pve1 (active, Tue Apr 8 11:28:22 2025)
lrm
pve (old timestamp - dead?, Tue Apr 8 11:24:31 2025)
lrm
pve1 (active, Tue Apr 8 11:28:25 2025)
Resources
Add
Edit
Remove
ID
State
Node
Name
Max. Restart
Max. Reloc...
Group
Description
vm:100
started
pve1
winSrv
1
1