



PROXMOX, sa vie, son œuvre

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Journées proxmox juin 2022



- Proxmox quelques points clés
- Version 6
- De 6 à 7
- Version 7
- Proxmox backup server



Proxmox

- Plateforme de virtualization open-source basée sur Debian
 - KVM (Kernel-based Virtual Machine, isolation des machines)
- Haute-Disponibilité
- Migration à chaud
- Firewalling

Proxmox - réseau

- VLAN, bonding, LACP et plus si affinité
- OpenvSwitch

Proxmox - réseau

Focus sur un mode de bonding particulier :

- **Adaptive load balancing (balance-alb)**
- « Ne requiert pas de paramètre particulier du côté swicht. Le trafic est distribué en fonction de la charge courante. »

Proxmox – encore plus

- Inventaire synchronisé et non centralisé
- API RESTful => la voie est ouverte au IaaS
- Sauvegardes basiques et encore plus avec Proxmox Backup Server

Proxmox – hyperconvergé

- installation d'un cluster Ceph avec sa GUI sur les hyperviseurs

⇒ On tire partie des disques locaux

⇒ On a une interface visuelle simple pour gérer Ceph déjà configuré pour fonctionner avec le cluster



A quoi s'attendre
avec les dernières
versions de
proxmox ?





Proxmox 6

Proxmox versions 6

- Debian Buster 10
- QEMU 4.0
- Corosync 3.0.2
- Ceph 14.2 (Nautilus) et son dashboard
- QEMU live améliorées

Proxmox versions 6

- En pratique qu'est-ce qui nous intéresse ?
 - Application des modifications réseaux sans redémarrer l'hyperviseur grâce à **ifupdown2**
- “Pending changes (Either reboot or use 'Apply Configuration' (needs ifupdown2) to activate)”

```
root@pve11:~# apt install ifupdown2
Reading package lists... Done
Building dependency tree
Reading state information... Done
Suggested packages:
  ethtool python3-gvgen python3-mako
The following packages will be REMOVED:
  ifenslave ifupdown
The following NEW packages will be installed:
  ifupdown2
0 upgraded, 1 newly installed, 2 to remove and 143 not upgraded.
```


Proxmox versions 6

- En pratique qu'est-ce qui nous intéresse ?
 - Ceph
 - Gestion automatique des Placement Group de Ceph
 - Réserver par hyperviseur de l'ordre de 2 Go de RAM par disque physique de l'hyperviseur versé dans Ceph



Migration vers proxmox ?

Chemin d'upgrade vers 7

- Vous avez un second cluster prêt à être installé en version 7 et vous avez de quoi faire passer vos VM vers le nouveau cluster ?

⇒ go install version 7

- Il vous faut faire un upgrade de 6 en 7

⇒ https://pve.proxmox.com/wiki/Upgrade_from_6.x_to_7.0



Chemin d'upgrade vers 7

- Appliquer l'outil pve6to7

```
TOTAL:      31
PASSED:     25
SKIPPED:    2
WARNINGS:   3
FAILURES:   1
```

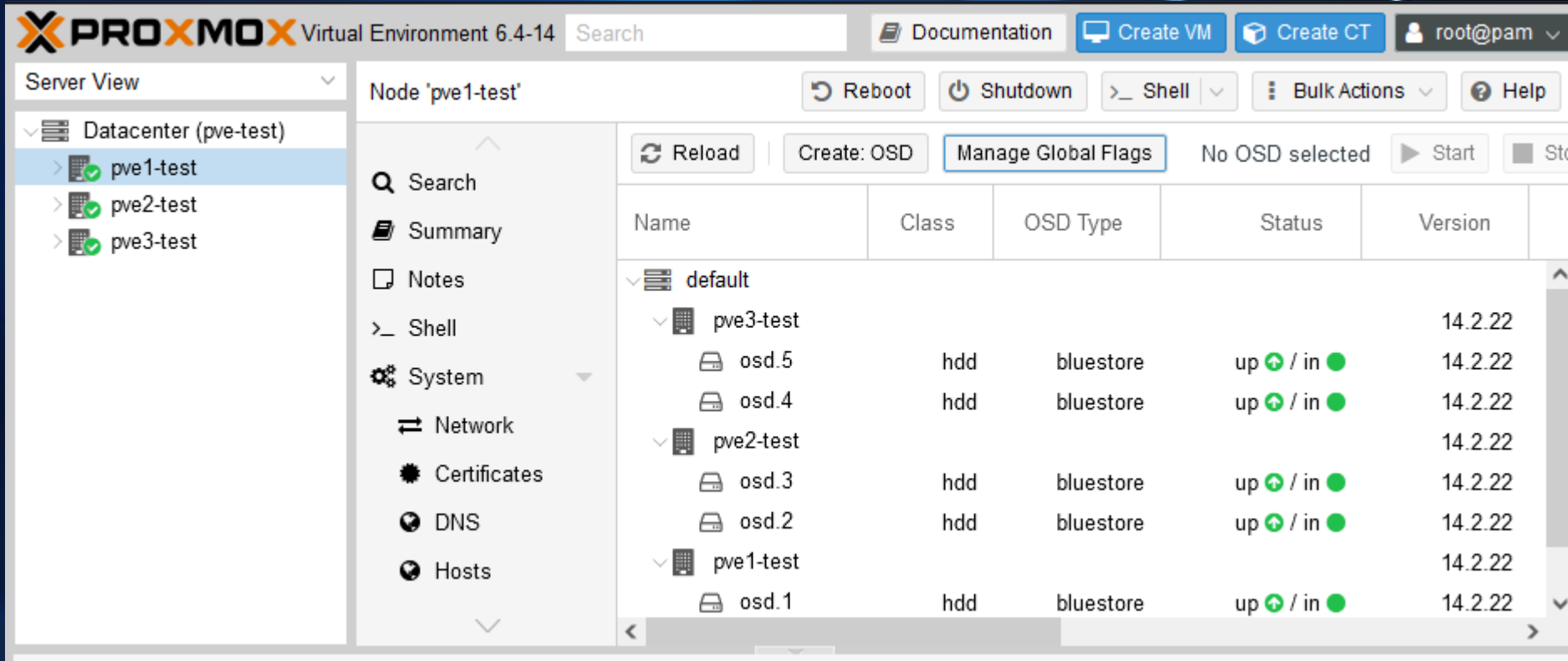
```
ATTENTION: Please check the output for detailed information!
Try to solve the problems one at a time and then run this checklist tool again.
```

- On s'aperçoit que :

```
WARN: 'noout' flag not set - recommended to prevent rebalancing during cluster-wide upgrades.
INFO: checking Ceph config..
FAIL: local Ceph version too low, at least Octopus required..
```

Chemin d'upgrade vers 7

- Le warning 'noout' se résoud facilement :



The screenshot shows the Proxmox VE 6.4-14 interface. The top navigation bar includes the Proxmox logo, version information, a search bar, and buttons for Documentation, Create VM, Create CT, and the user profile (root@pam). The main content area is divided into a left sidebar for navigation and a central panel for node management.

The left sidebar shows the 'Server View' for the 'Datacenter (pve-test)', listing nodes pve1-test, pve2-test, and pve3-test. The central panel is for Node 'pve1-test' and displays a table of OSDs (Operating System Disks) for the 'default' storage pool.

Name	Class	OSD Type	Status	Version
default				
pve3-test				14.2.22
osd.5	hdd	bluestore	up + / in ●	14.2.22
osd.4	hdd	bluestore	up + / in ●	14.2.22
pve2-test				14.2.22
osd.3	hdd	bluestore	up + / in ●	14.2.22
osd.2	hdd	bluestore	up + / in ●	14.2.22
pve1-test				14.2.22
osd.1	hdd	bluestore	up + / in ●	14.2.22

Server View

Node 'pve1-test'

Reboot

Shutdown

Shell

Bulk Actions

Help

Datacenter (pve-test)

pve1-test

pve2-test

pve3-test

Reload

Create: OSD

Manage Global Flags

No OSD selected

Start

Stop

Manage Global OSD Flags

Enable	Name	Description
<input type="checkbox"/>	nobackfill	Backfilling of PGs is suspended.
<input type="checkbox"/>	nodeep-scrub	Deep Scrubbing is disabled.
<input type="checkbox"/>	nodown	OSD failure reports are being ignored, such that the monitors will not mark OSDs do...
<input type="checkbox"/>	noin	OSDs that were previously marked out will not be marked back in when they start.
<input checked="" type="checkbox"/>	noout	OSDs will not automatically be marked out after the configured interval.
<input type="checkbox"/>	norebalance	Rebalancing of PGs is suspended.
<input type="checkbox"/>	norecover	Recovery of PGs is suspended.
<input type="checkbox"/>	noscrub	Scrubbing is disabled.
<input type="checkbox"/>	notieragent	Cache tiering activity is suspended.
<input type="checkbox"/>	noup	OSDs are not allowed to start.
<input type="checkbox"/>	pause	Pauses read and writes.

Help

Apply

Tasks

Clus

Start Time ↓

Jun 02 15:29:59

Jun 02 15:27:40

Jun 02 04:26:51

Jun 02 04:26:58

pve3-test

root@pam

Update package datab...

OK

Jun 02 01:13:59

Jun 02 01:14:01

pve1-test

root@pam

Update package datab...

OK

Jun 02 01:04:04

Jun 02 01:04:07

pve2-test

root@pam

Update package datab...

OK

Server View

Node 'pve1-test'

Reboot

Shutdown

Shell

Datacenter (pve-test)

pve1-test

pve2-test

pve3-test

Certificates

DNS

Hosts

Time

Syslog

Updates

Firewall

Disks

LVM

LVM-Thin

Directory

ZFS

Ceph

Configuration

Monitor

OSD

CephFS

Pools

Log

Health

Status



HEALTH_WARN

Ceph Version: 14.2.22

Severity

Summary



noout flag(s) set

Status

OSDs

	In	Out
Up	6	0
Down	0	0

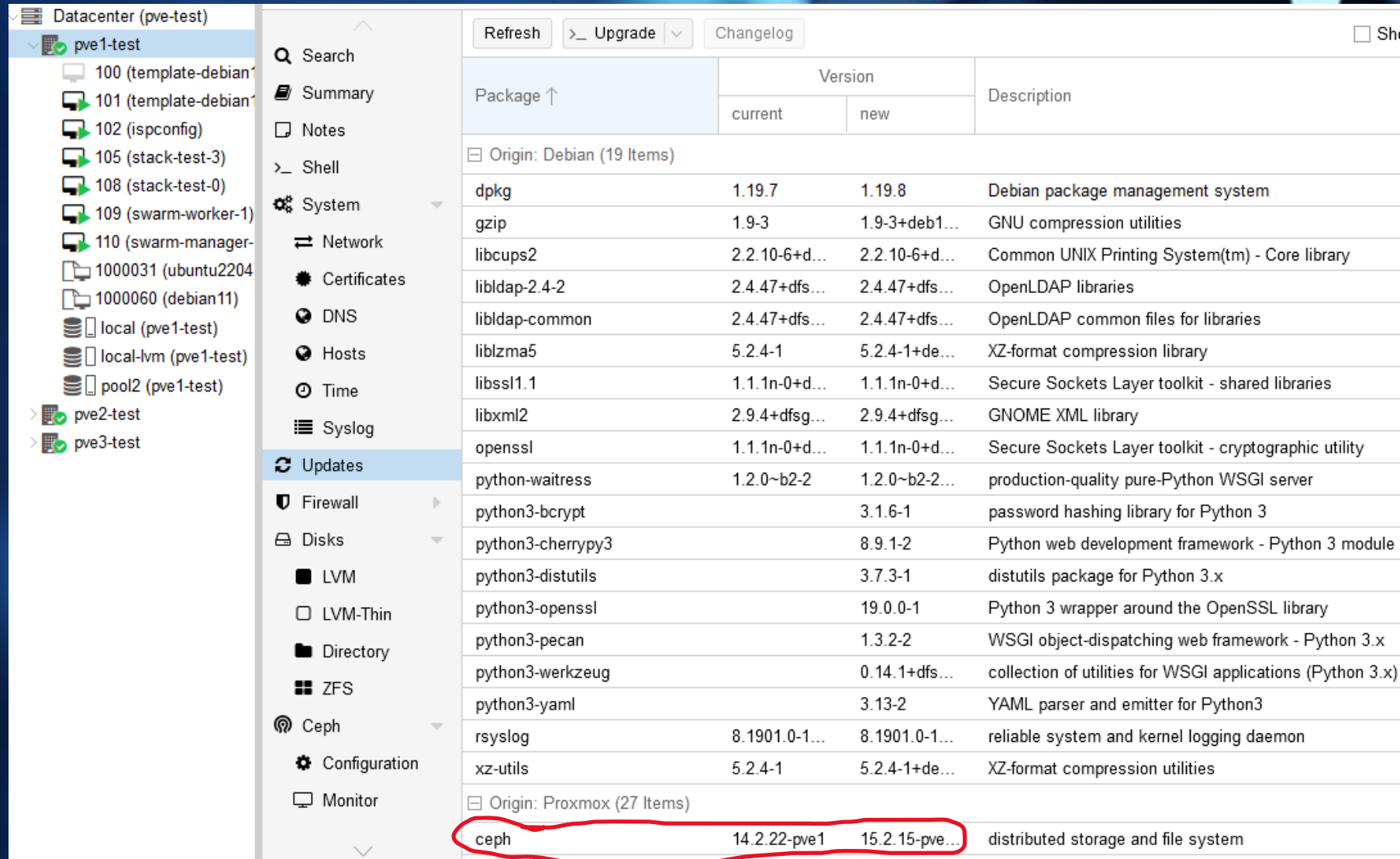
Total: 6



active+clean:

Services

On met à jour tous les nœuds



The screenshot displays the Proxmox VE Updates interface. The left sidebar shows a tree view of the datacenter with nodes pve1-test, pve2-test, and pve3-test. The main panel shows a list of packages to be updated, categorized by origin (Debian and Proxmox). The 'ceph' package is highlighted with a red circle, indicating it is the focus of the update process.

Package ↑	Version		Description
	current	new	
Origin: Debian (19 Items)			
dpkg	1.19.7	1.19.8	Debian package management system
gzip	1.9-3	1.9-3+deb1...	GNU compression utilities
libcups2	2.2.10-6+d...	2.2.10-6+d...	Common UNIX Printing System(tm) - Core library
libldap-2.4-2	2.4.47+dfs...	2.4.47+dfs...	OpenLDAP libraries
libldap-common	2.4.47+dfs...	2.4.47+dfs...	OpenLDAP common files for libraries
liblzma5	5.2.4-1	5.2.4-1+de...	XZ-format compression library
libssl1.1	1.1.1n-0+d...	1.1.1n-0+d...	Secure Sockets Layer toolkit - shared libraries
libxml2	2.9.4+dfsg...	2.9.4+dfsg...	GNOME XML library
openssl	1.1.1n-0+d...	1.1.1n-0+d...	Secure Sockets Layer toolkit - cryptographic utility
python-waitress	1.2.0~b2-2	1.2.0~b2-2...	production-quality pure-Python WSGI server
python3-bcrypt		3.1.6-1	password hashing library for Python 3
python3-cherrypy3		8.9.1-2	Python web development framework - Python 3 module
python3-distutils		3.7.3-1	distutils package for Python 3.x
python3-openssl		19.0.0-1	Python 3 wrapper around the OpenSSL library
python3-pecan		1.3.2-2	WSGI object-dispatching web framework - Python 3.x
python3-werkzeug		0.14.1+dfs...	collection of utilities for WSGI applications (Python 3.x)
python3-yaml		3.13-2	YAML parser and emitter for Python3
rsyslog	8.1901.0-1...	8.1901.0-1...	reliable system and kernel logging daemon
xz-utils	5.2.4-1	5.2.4-1+de...	XZ-format compression utilities
Origin: Proxmox (27 Items)			
ceph	14.2.22-pve1	15.2.15-pve...	distributed storage and file system

Surprise Ceph 14.2.22 vers 15.2.15

Reload | Create: OSD | Manage Global Flags | No OSD selected | Start | Stop | Restart | Out | In | More

Name	Class	OSD Type	Status	Version	weight	reweight	Used (%)	Total	Apply/Commit Latency (ms)
default									
pve3-test				15.2.15					
osd.5	hdd	bluestore	up + / in ●	14.2.22	1.6368	1.00	5.49	1.64 TiB	0 / 0
osd.4	hdd	bluestore	up + / in ●	14.2.22	1.09109	1.00	5.27	1.09 TiB	0 / 0
pve2-test				15.2.15					
osd.3	hdd	bluestore	up + / in ●	14.2.22	1.81879	1.00	3.47	1.82 TiB	0 / 0
osd.2	hdd	bluestore	up + / in ●	14.2.22	1.81879	1.00	4.62	1.82 TiB	0 / 0
pve1-test				15.2.15					
osd.1	hdd	bluestore	up + / in ●	14.2.22	1.81879	1.00	3.02	1.82 TiB	0 / 0
osd.0	hdd	bluestore	up + / in ●	14.2.22	1.81879	1.00	5.08	1.82 TiB	0 / 0

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On reboot mais pas de



Server View Node 'pve1-test' [Reboot] [Shutdown] [Shell] [Bulk Actions] [Help]

Health

Status



HEALTH_WARN

Ceph Version: 15.2.15


Severity	Summary	
!	1/3 mons down, quorum pve1-test,pve2-test	i
!	2 osds down	i
!	1 host (2 osds) down	i
!	Degraded data redundancy: 39837/119511 objects degraded (33.333%), 128 pgs degraded	i
!	1 subtrees have overcommitted pool target_size_bytes	i

Status

OSDs

	In	Out
Up	4	0
Down	2	0

Total: 6

 Outdated OSDs


osd.4: 14.2.22
osd.5: 14.2.22

PGs

- active+undersized: 1
- active+undersized+degraded: 128

Un peu de patience...

Health

Status

HEALTH_WARN

Ceph Version: 15.2.15

Severity	Summary	
!	Reduced data availability: 1 pg peering	i
!	Degraded data redundancy: 14503/119550 objects degraded (12.131%), 93 pgs degraded, ...	i
!	1 subtrees have overcommitted pool target_size_bytes	i

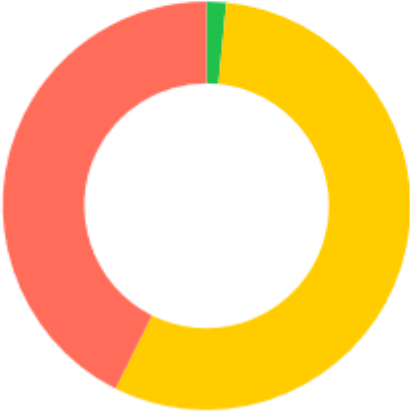
Status

OSDs

	In	Out
Up	6	0
Down	0	0

Total: 6

PGs



active+clean:	2
active+recovering+degraded:	1
active+recovery_wait+degraded:	28
active+recovery_wait+degraded+laggy:	2
active+recovery_wait+degraded+wait:	8
active+recovery_wait+undersized+degraded+remapped:	7
active+recovery_wait+undersized+degraded+remapped+laggy:	1
active+undersized:	1
active+undersized+degraded:	46
peering:	18
remapped+peering:	15

Quand enfin !!!

PROXMOX Virtual Environment 6.4-15 ⚠ Support for Proxmox VE 6.4 ends on 2022-07-31 [Documentation](#) [Create VM](#) [Create CT](#) root@pam

Server View ▼ **Datacenter** ? Help

Datacenter (pve-test)

- 100 (template-debian)
- 101 (template-debian)
- 102 (ispconfig)
- 105 (stack-test-3)
- 108 (stack-test-0)
- 109 (swarm-worker-1)
- 110 (swarm-manager-)
- 1000031 (ubuntu2204)
- 1000060 (debian11)
- local (pve1-test)
- local-lvm (pve1-test)
- pool2 (pve1-test)
- pve2-test
- pve3-test

Ceph

- Options
- Storage
- Backup
- Replication
- Permissions
- Users
- API Tokens
- Groups
- Pools
- Roles
- Authentication
- HA
- ACME
- Firewall
- Metric Server
- Support

Health

Status

HEALTH_WARN

Ceph Version: 15.2.15

Severity	Summary
!	1 subtrees have overcommitted pool target_size_bytes

OSDs

	In	Out
Up	6	0
Down	0	0

Total: 6

PGs

active+clean: 129

Services

Monitors **Managers** **Meta Data Servers**

pve1-test: ✓ pve2-test: ✓ pve3-test: ✓ pve1-test: ✓ pve2-test: ✓ pve3-test: ✓

Ça parait assez propre

Node 'pve1-test'

Reboot Shutdown Shell Bulk Actions Help

Reload Create: OSD Manage Global Flags No OSD selected Start Stop Restart Out In More

Name	Class	OSD Type	Status	Version	weight	reweight	Used (%)	Total	Apply/Commit Latency (ms)
default									
pve3-test				15.2.15					
osd.5	hdd	bluestore	up / in	15.2.15	1.6368	1.00	5.49	1.64 TiB	8 / 8
osd.4	hdd	bluestore	up / in	15.2.15	1.09109	1.00	5.27	1.09 TiB	16 / 16
pve2-test				15.2.15					
osd.3	hdd	bluestore	up / in	15.2.15	1.81879	1.00	3.47	1.82 TiB	0 / 0
osd.2	hdd	bluestore	up / in	15.2.15	1.81879	1.00	4.62	1.82 TiB	0 / 0
pve1-test				15.2.15					
osd.1	hdd	bluestore	up / in	15.2.15	1.81879	1.00	3.02	1.82 TiB	0 / 0
osd.0	hdd	bluestore	up / in	15.2.15	1.81879	1.00	5.08	1.82 TiB	0 / 0

OSD

Si l'accès à Octopus vous résiste

- https://pve.proxmox.com/wiki/Ceph_Nautilus_to_Octopus

Correction de l'erreur Ceph

- Erreur Ceph de notre exemple est lié à un mauvais paramétrage de la taille attendue du pool2. La taille était surestimé d'un facteur > 8
- Un peu de documentation Ceph : <https://docs.ceph.com/en/latest/rados/operations/placement-groups/>
- Et voici dans mon cas particulier la ligne de commande magique
⇒ « `root@pve1-test:~# ceph osd pool set pool2 target_size_bytes 1T` »
- Il aura fallu 5-10 mn pour trouver la commande qui va bien. C'est assez représentatif de la correction des soucis Ceph.

Et puis enfin

```
TOTAL:      30
PASSED:     28
SKIPPED:    2
WARNINGS:   0
FAILURES:   0
root@pve1-test:~# pve6to7 --full
```

On continue l'upgrade 6 vers 7

- On s'assure qu'on est bien au max de la version de l'OS
 - apt update
 - apt dist-upgrade
- Puis mise à jour des dépôts :

```
sed -i 's/buster/updates/bullseye-security/g;s/buster/bullseye/g' /etc/apt/sources.list
```

- Ajout des dépôts Proxmox V7 :

```
echo "deb https://enterprise.proxmox.com/debian/pve bullseye pve-enterprise" >  
/etc/apt/sources.list.d/pve-enterprise.list
```

On continue l'upgrade 6 vers 7

- On modifie le dépôt no-subscription :
 - `sed -i -e 's/buster/bullseye/g' /etc/apt/sources.list.d/pve-install-repo.list`
- Ou pour moi :
 - `sed -i -e 's/buster/bullseye/g' /etc/apt/sources.list.d/pve-no-subscription.list`
- Pour Ceph :
 - `echo "deb http://download.proxmox.com/debian/ceph-octopus bullseye main" > /etc/apt/sources.list.d/ceph.list`
- Résumer avant « apt update »
 - `sed -i 's/buster\updates/bullseye-security/g;s/buster/bullseye/g' /etc/apt/sources.list`
 - `echo "deb https://enterprise.proxmox.com/debian/pve bullseye pve-enterprise" > /etc/apt/sources.list.d/pve-enterprise.list`
 - `sed -i -e 's/buster/bullseye/g' /etc/apt/sources.list.d/pve-no-subscription.list`
 - `echo "deb http://download.proxmox.com/debian/ceph-octopus bullseye main" > /etc/apt/sources.list.d/ceph.list`

Apt dist-upgrade

```
Get:732 http://Etp.fr.debian.org/debian bullseye/main amd64 libsigsegv2 amd64 2.13-1 [34.8 kB]
Get:733 http://Etp.fr.debian.org/debian bullseye/main amd64 libsocket6-perl amd64 0.29-1+b3 [24.4 kB]
Get:734 http://Etp.fr.debian.org/debian bullseye/main amd64 libs2 amd64 1.46.2-2 [79.8 kB]
Get:735 http://Etp.fr.debian.org/debian bullseye/main amd64 libx6 amd64 2:1.7.10-1 [83.4 kB]
Get:736 http://Etp.fr.debian.org/debian bullseye/main amd64 lab-release all 11.1.0 [27.9 kB]
Get:737 http://Etp.fr.debian.org/debian bullseye/main amd64 lua-lpeg amd64 1.0.2-1 [33.3 kB]
Get:738 http://Etp.fr.debian.org/debian bullseye/main amd64 lynx-common all 2.9.0dev.6-3-deb11u1 [1,192 kB]
Get:739 http://Etp.fr.debian.org/debian bullseye/main amd64 lynx amd64 2.9.0dev.6-3-deb11u1 [652 kB]
Get:740 http://Etp.fr.debian.org/debian bullseye/main amd64 manpages-dev all 5.10-1 [2,309 kB]
Get:741 http://Etp.fr.debian.org/debian bullseye/main amd64 mtest86+ amd64 5.01-3.1 [77.8 kB]
Get:742 http://Etp.fr.debian.org/debian bullseye/main amd64 mlocate amd64 0.26-5 [39.3 kB]
Get:743 http://Etp.fr.debian.org/debian bullseye/main amd64 net-tools amd64 1.60+git20181103.0eebece-1 [250 kB]
Get:744 http://Etp.fr.debian.org/debian bullseye/main amd64 nmap amd64 7.91+dfsg1+really7.80+dfsg1-2 [1,899 kB]
Get:745 http://Etp.fr.debian.org/debian bullseye/main amd64 nmap-common all 7.91+dfsg1+really7.80+dfsg1-2 [4,017 kB]
Get:746 http://Etp.fr.debian.org/debian bullseye/main amd64 numactl amd64 2.0.12-1+b1 [42.5 kB]
Get:747 http://Etp.fr.debian.org/debian bullseye/main amd64 nvme-cli amd64 1.12-5 [327 kB]
Get:748 http://Etp.fr.debian.org/debian bullseye/main amd64 os-prober amd64 1.79 [30.4 kB]
Get:749 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-distro all 1.5.0-1 [17.1 kB]
Get:750 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-distro all 1.5.0-1 [46.8 kB]
Get:751 http://Etp.fr.debian.org/debian bullseye/main amd64 patch amd64 2.7.6-7 [128 kB]
Get:752 http://Etp.fr.debian.org/debian bullseye/main amd64 python-markupsafe amd64 1.1.1-1+b3 [14.4 kB]
Get:753 http://Etp.fr.debian.org/debian bullseye/main amd64 python-pkg-resources all 44.1.1-1 [182 kB]
Get:754 http://Etp.fr.debian.org/debian bullseye/main amd64 python-six all 1.16.0-2 [17.4 kB]
Get:755 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-asciitree all 1.4.0-1 [84.4 kB]
Get:756 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-webencodings all 0.5.1-2 [11.0 kB]
Get:757 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-xml all 1.1-3 [93.0 kB]
Get:758 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-pastepart all 2.0.2-4 [62.7 kB]
Get:759 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-pyinotify all 0.9.6-1.3 [27.2 kB]
Get:760 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-repoze.lru all 0.7-2 [12.1 kB]
Get:761 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-routes all 2.5.1-1 [97.1 kB]
Get:762 http://Etp.fr.debian.org/debian bullseye/main amd64 screen amd64 4.8.0-6 [609 kB]
Get:763 http://Etp.fr.debian.org/debian bullseye/main amd64 strace amd64 5.10-1 [1,084 kB]
Get:764 http://Etp.fr.debian.org/debian bullseye/main amd64 tcpdump amd64 4.99.0-2 [466 kB]
Get:765 http://Etp.fr.debian.org/debian bullseye/main amd64 time amd64 1.9-0.1 [50.8 kB]
Get:766 http://Etp.fr.debian.org/debian bullseye/main amd64 usb.ids all 2022.02.15-0+deb11u1 [205 kB]
Get:767 http://Etp.fr.debian.org/debian bullseye/main amd64 usbutils amd64 1:0103-3 [79.3 kB]
Fetched 555 MB in 13s (42.1 MB/s)
W: (pve-apt-hook) !! ATTENTION !!
W: (pve-apt-hook) You are attempting to upgrade from proxmox-ve '6.4-1' to proxmox-ve '7.2-1'. Please make sure to read the Upgrade notes at
W: (pve-apt-hook) https://pve.proxmox.com/wiki/Upgrade_from_6.x_to_7.0
W: (pve-apt-hook) before proceeding with this operation.
W: (pve-apt-hook)
W: (pve-apt-hook) Press enter to continue, or C^c to abort.
Reading changelogs... 35%
```

```
list.d/pve-no-subscription.list
https://192.168.218.50/?console=shell&termjs=1&vmid=&vmmname=&node=pve3-test&cmd=
Get:711 http://Etp.fr.debian.org/debian bullseye/main amd64 liblua5.3-0 amd64 5.3.3-1+b1 [120 kB]
Get:712 http://Etp.fr.debian.org/debian bullseye/main amd64 liblwres16 amd64 1:9.11.19+dfsg-2.1 [258 kB]
Get:713 http://download.proxmox.com/debian bullseye/pve-no-subscription amd64 pve-kernel-5.15.35-1-pve amd64 5.15.35-3 [7.1 MB]
Get:714 http://Etp.fr.debian.org/debian bullseye/main amd64 libmath-random-isaac-perl all 1.004-1.1 [20.9 kB]
Get:715 http://Etp.fr.debian.org/debian bullseye/main amd64 libnss-nis amd64 3.1-4 [25.6 kB]
Get:716 http://Etp.fr.debian.org/debian bullseye/main amd64 libnss-nisplus amd64 1.3-4 [21.6 kB]
Get:717 http://Etp.fr.debian.org/debian bullseye/main amd64 libpcap0.8 amd64 1.10.0-2 [459 kB]
Get:718 http://Etp.fr.debian.org/debian bullseye/main amd64 libperl4-corelibs-perl all 0.004-2 [38.4 kB]
Get:719 http://Etp.fr.debian.org/debian bullseye/main amd64 libstdl2-debian amd64 1.2.15+dfsg2-6 [195 kB]
Get:720 http://Etp.fr.debian.org/debian bullseye/main amd64 libsocket6-perl amd64 0.29-1+b3 [24.4 kB]
Get:721 http://Etp.fr.debian.org/debian bullseye/main amd64 libs2 amd64 1.46.2-2 [79.8 kB]
Get:722 http://Etp.fr.debian.org/debian bullseye/main amd64 libxi6 amd64 2:1.7.10-1 [83.4 kB]
Get:723 http://Etp.fr.debian.org/debian bullseye/main amd64 lua-lpeg amd64 1.0.2-1 [33.3 kB]
Get:724 http://Etp.fr.debian.org/debian bullseye/main amd64 lynx-common all 2.9.0dev.6-3-deb11u1 [1,192 kB]
Get:725 http://Etp.fr.debian.org/debian bullseye/main amd64 lynx amd64 2.9.0dev.6-3-deb11u1 [652 kB]
Get:726 http://Etp.fr.debian.org/debian bullseye/main amd64 manpages-dev all 5.10-1 [2,309 kB]
Get:727 http://Etp.fr.debian.org/debian bullseye/main amd64 mtest86+ amd64 5.01-3.1 [77.8 kB]
Get:728 http://Etp.fr.debian.org/debian bullseye/main amd64 net-tools amd64 1.60+git20181103.0eebece-1 [250 kB]
Get:729 http://Etp.fr.debian.org/debian bullseye/main amd64 nmap amd64 7.91+dfsg1+really7.80+dfsg1-2 [1,899 kB]
Get:730 http://Etp.fr.debian.org/debian bullseye/main amd64 nmap-common all 7.91+dfsg1+really7.80+dfsg1-2 [4,017 kB]
Get:731 http://Etp.fr.debian.org/debian bullseye/main amd64 numactl amd64 2.0.12-1+b1 [42.5 kB]
Get:732 http://Etp.fr.debian.org/debian bullseye/main amd64 nvme-cli amd64 1.12-5 [327 kB]
Get:733 http://Etp.fr.debian.org/debian bullseye/main amd64 os-prober amd64 1.79 [30.4 kB]
Get:734 http://Etp.fr.debian.org/debian bullseye/main amd64 patch amd64 2.7.6-7 [128 kB]
Get:735 http://Etp.fr.debian.org/debian bullseye/main amd64 python-markupsafe amd64 1.1.1-1+b3 [14.4 kB]
Get:736 http://Etp.fr.debian.org/debian bullseye/main amd64 python-pkg-resources all 44.1.1-1 [182 kB]
Get:737 http://Etp.fr.debian.org/debian bullseye/main amd64 python-six all 1.16.0-2 [17.4 kB]
Get:738 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-asciitree all 1.4.0-1 [84.4 kB]
Get:739 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-webencodings all 0.5.1-2 [11.0 kB]
Get:740 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-xml all 1.1-3 [93.0 kB]
Get:741 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-pastepart all 2.0.2-4 [62.7 kB]
Get:742 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-pyinotify all 0.9.6-1.3 [27.2 kB]
Get:743 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-repoze.lru all 0.7-2 [12.1 kB]
Get:744 http://Etp.fr.debian.org/debian bullseye/main amd64 python3-routes all 2.5.1-1 [97.1 kB]
Get:745 http://Etp.fr.debian.org/debian bullseye/main amd64 strace amd64 5.10-1 [1,084 kB]
Get:746 http://Etp.fr.debian.org/debian bullseye/main amd64 tcpdump amd64 4.99.0-2 [466 kB]
Get:747 http://Etp.fr.debian.org/debian bullseye/main amd64 time amd64 1.9-0.1 [50.8 kB]
Get:748 http://Etp.fr.debian.org/debian bullseye/main amd64 usb.ids all 2022.02.15-0+deb11u1 [205 kB]
Get:749 http://Etp.fr.debian.org/debian bullseye/main amd64 usbutils amd64 1:0103-3 [79.3 kB]
Get:750 http://download.proxmox.com/debian bullseye/pve-no-subscription amd64 pve-kernel-5.15 all 7.2-3 [4,844 B]
Get:751 http://download.proxmox.com/debian bullseye/pve-no-subscription amd64 proxmox-ve all 7.2-1 [6,212 B]
Get:752 http://download.proxmox.com/debian bullseye/pve-no-subscription amd64 spl all 2.1.4-pve1 [20.5 kB]
Get:753 http://download.proxmox.com/debian bullseye/pve-no-subscription amd64 zfs-intrinsics all 2.1.4-pve1 [30.4 kB]
Get:754 http://download.proxmox.com/debian bullseye/pve-no-subscription amd64 zfsutils-linux amd64 2.1.4-pve1 [492 kB]
Get:755 http://download.proxmox.com/debian bullseye/pve-no-subscription amd64 zfs-zed amd64 2.1.4-pve1 [70.1 kB]
Fetched 553 MB in 17s (32.3 MB/s)
W: (pve-apt-hook) !! ATTENTION !!
W: (pve-apt-hook) You are attempting to upgrade from proxmox-ve '6.4-1' to proxmox-ve '7.2-1'. Please make sure to read the Upgrade notes at
W: (pve-apt-hook) https://pve.proxmox.com/wiki/Upgrade_from_6.x_to_7.0
W: (pve-apt-hook) before proceeding with this operation.
W: (pve-apt-hook)
W: (pve-apt-hook) Press enter to continue, or C^c to abort.
Reading changelogs... 60%
[...]
```

Apt dist-upgrade

```
Unpacking liblzma5:amd64 (5.2.5-2.1-deb11u1) over (5.2.4-1+deb10u1) ...
Setting up liblzma5:amd64 (5.2.5-2.1-deb11u1) ...
(Reading database ... 66841 files and directories currently installed.)
Preparing to unpack .../sglites3_3.34.1-3_amd64.deb ...
Unpacking sglites3 (3.34.1-3) over (3.27.2-3+deb10u1) ...
Preparing to unpack .../libsglites3_3.34.1-3_amd64.deb ...
Unpacking libsglites3-0:amd64 (3.34.1-3) over (3.27.2-3+deb10u1) ...
Preparing to unpack .../libuuid1_2.36.1-8+deb11u1_amd64.deb ...
Unpacking libuuid1:amd64 (2.36.1-8+deb11u1) over (2.33.1-0.1) ...
Setting up libuuid1:amd64 (2.36.1-8+deb11u1) ...
Selecting previously unselected package libpython3.9-stdeb:amd64.
(Reading database ... 66842 files and directories currently installed.)
Preparing to unpack .../00-libpython3.9-stdeb_3.9.2-1_amd64.deb ...
Unpacking libpython3.9-stdeb:amd64 (3.9.2-1) ...
Selecting previously unselected package python3.9.
Preparing to unpack .../01-python3.9_3.9.2-1_amd64.deb ...
Unpacking python3.9 (3.9.2-1) ...
Preparing to unpack .../02-libpython3-stdeb_3.9.2-3_amd64.deb ...
Unpacking libpython3-stdeb:amd64 (3.9.2-3) over (3.7.3-1) ...
Preparing to unpack .../03-libtalloc2_2.3.1-2+b1_amd64.deb ...
Unpacking libtalloc2:amd64 (2.3.1-2+b1) over (2.1.14-2) ...
Preparing to unpack .../04-libtdb1_1.4.3-1+b1_amd64.deb ...
Unpacking libtdb1:amd64 (1.4.3-1+b1) over (1.3.16-2+b1) ...
Preparing to unpack .../05-libtvent0_0.10.2-1_amd64.deb ...
Unpacking libtvent0:amd64 (0.10.2-1) over (0.9.37-1) ...
Preparing to unpack .../06-liblmbd0_0.9.24-1_amd64.deb ...
Unpacking liblmbd0:amd64 (0.9.24-1) over (0.9.22-1) ...
Selecting previously unselected package libldb2:amd64.
Preparing to unpack .../
Unpacking libldb2:amd64
Selecting previously unselected package libpython3.9-minimal:amd64.
Preparing to unpack .../
Unpacking libpython3.9-minimal:amd64
Selecting previously unselected package libio-html-perl (1.004-2) over (1.001-1) ...
Preparing to unpack .../29-libio-html-perl_1.004-2_all.deb ...
Unpacking libio-html-perl (1.004-2) over (1.001-1) ...
Selecting previously unselected package libhttp-message-perl (6.28-1) over (6.18-1) ...
Preparing to unpack .../30-libhttp-message-perl_6.28-1_all.deb ...
Unpacking libhttp-message-perl (6.28-1) over (6.18-1) ...
Selecting previously unselected package fonts-glyphicons-halflings (1.009-3.4.1+dfsg-2) over (1.009-3.4.1+dfsg-1) ...
Preparing to unpack .../31-fonts-glyphicons-halflings_1.009-3.4.1+dfsg-2_all.deb ...
Unpacking fonts-glyphicons-halflings (1.009-3.4.1+dfsg-2) over (1.009-3.4.1+dfsg-1) ...
Preparing to unpack .../32-libjs-bootstrap_3.4.1+dfsg-2_all.deb ...
Unpacking libjs-bootstrap (3.4.1+dfsg-2) over (3.4.1+dfsg-1) ...
Preparing to unpack .../33-libjs-jquery_3.5.1+dfsg+3.5.5-7_all.deb ...
Unpacking libjs-jquery (3.5.1+dfsg+3.5.5-7) over (3.3.1+dfsg+3+deb10u1) ...
Preparing to unpack .../34-libtypes-serialiser-perl_1.01-1_all.deb ...
Unpacking libtypes-serialiser-perl (1.01-1) over (1.0-1) ...
Preparing to unpack .../35-libjson-perl_4.03000-1_all.deb ...
Unpacking libjson-perl (4.03000-1) over (4.02000-1) ...
Preparing to unpack .../36-libpve-guest-common-perl_4.1-2_all.deb ...
Unpacking libpve-guest-common-perl (4.1-2) over (3.1-5) ...
dpkg: considering deconfiguration of libpve-http-server-perl, which would be broken by installation of libpve-storage-perl ...
dpkg: yes, will deconfigure libpve-http-server-perl (broken by libpve-storage-perl)
Preparing to unpack .../37-libpve-storage-perl_7.2-4_all.deb ...
De-configuring libpve-http-server-perl (3.2-4) ...
Unpacking libpve-storage-perl (7.2-4) over (6.4-1) ...
Preparing to unpack .../38-libpve-http-server-perl_4.1-2_all.deb ...
Unpacking libpve-http-server-perl (4.1-2) over (3.2-4) ...
Selecting previously unselected package librotll1:amd64.
Preparing to unpack .../39-librotll1_1.0.9-2+b2_amd64.deb ...
Unpacking librotll1:amd64 (1.0.9-2+b2) ...
Preparing to unpack .../40-curl_7.74.0-1.3+deb11u1_amd64.deb ...
Unpacking curl (7.74.0-1.3+deb11u1) over (7.64.0-4+deb10u2) ...
Preparing to unpack .../41-libunistring2_0.9.10-4_amd64.deb ...
Unpacking libunistring2:amd64 (0.9.10-4) over (0.9.10-1) ...
Setting up libunistring2:amd64 (0.9.10-4) ...
(Reading database ... 67195 files and directories currently installed.)
Preparing to unpack .../libidn2-0_2.3.0-5_amd64.deb ...
Unpacking libidn2-0:amd64 (2.3.0-5) over (2.0.5-1+deb10u1) ...
Setting up libidn2-0:amd64 (2.3.0-5) ...
Selecting previously unselected package libnettle8:amd64.
(Reading database ... 67196 files and directories currently installed.)
Preparing to unpack .../libnettle8_3.7.3-1_amd64.deb ...
Unpacking libnettle8:amd64 (3.7.3-1) ...
Setting up libnettle8:amd64 (3.7.3-1) ...
(Reading database ...
#####
```

```
Rechercher (ALT+Q)
https://192.168.218.50/?console=shell&termjs=1&vmid=&vmmname=&node=pve3-test&cmd=
Selecting previously unselected package libbcb0:amd64.
Preparing to unpack .../4-libbcb0_0.5.0+dfsg-2_amd64.deb ...
Unpacking libbcb0:amd64 (0.5.0+dfsg-2) ...
Selecting previously unselected package libfido2-1:amd64.
Preparing to unpack .../5-libfido2-1_1.6.0-2_amd64.deb ...
Unpacking libfido2-1:amd64 (1.6.0-2) ...
Preparing to unpack .../6-openssh-client_1:8.4p1-5_amd64.deb ...
Unpacking openssh-client (1:8.4p1-5) over (1:7.9p1-10+deb10u2) ...
Selecting previously unselected package runit-helper.
Preparing to unpack .../7-runit-helper_2.10.3_all.deb ...
Unpacking runit-helper (2.10.3) ...
Preparing to unpack .../8-openssh-server_1:8.4p1-5_amd64.deb ...
Unpacking openssh-server (1:8.4p1-5) over (1:7.9p1-10+deb10u2) ...
Preparing to unpack .../9-libc6_2.31-13+deb11u3_amd64.deb ...
Checking for services that may need to be restarted...
Checking init scripts...
Unpacking libc6:amd64 (2.31-13+deb11u3) over (2.28-10+deb10u1) ...
Setting up libc6:amd64 (2.31-13+deb11u3) ...
Checking for services that may need to be restarted...
Checking init scripts...

Restarting services possibly affected by the upgrade:
 postfix: restarting...done.
 ssh: restarting...done.
 cron: restarting...done.

Services restarted successfully.
(Reading database ... 63823 files and directories currently installed.)
Preparing to unpack .../libc-bin_2.31-13+deb11u3_amd64.deb ...
Unpacking libc-bin (2.31-13+deb11u3) over (2.28-10+deb10u1) ...
Setting up libc-bin (2.31-13+deb11u3) ...
(Reading database ... 63823 files and directories currently installed.)
Preparing to unpack .../openssh-sftp-server_1:8.4p1-5_amd64.deb ...
Unpacking openssh-sftp-server (1:8.4p1-5) over (1:7.9p1-10+deb10u2) ...
Selecting previously unselected package libpython3.9-minimal:amd64.
Preparing to unpack .../libpython3.9-minimal_3.9.2-1_amd64.deb ...
Unpacking libpython3.9-minimal:amd64 (3.9.2-1) ...
Selecting previously unselected package python3.9-minimal.
Preparing to unpack .../python3.9-minimal_3.9.2-1_amd64.deb ...
Unpacking python3.9-minimal (3.9.2-1) ...
Setting up python3.9-minimal (3.9.2-1) ...
(Reading database ... 64107 files and directories currently installed.)
Preparing to unpack .../0-python3-minimal_3.9.2-3_amd64.deb ...
Unpacking python3-minimal (3.9.2-3) over (3.7.3-1) ...
Preparing to unpack .../1-libkrb5support0_1.18.3-6+deb11u1_amd64.deb ...
Unpacking libkrb5support0:amd64 (1.18.3-6+deb11u1) over (1.17-3+deb10u3) ...
Preparing to unpack .../2-libssapi-krb5-2_1.18.3-6+deb11u1_amd64.deb ...
Unpacking libssapi-krb5-2:amd64 (1.18.3-6+deb11u1) over (1.17-3+deb10u3) ...
Preparing to unpack .../3-libkrb5-3_1.18.3-6+deb11u1_amd64.deb ...
Unpacking libkrb5-3:amd64 (1.18.3-6+deb11u1) over (1.17-3+deb10u3) ...
Preparing to unpack .../4-libk5crypto3_1.18.3-6+deb11u1_amd64.deb ...
Unpacking libk5crypto3:amd64 (1.18.3-6+deb11u1) over (1.17-3+deb10u3) ...
#####
```


On passe de 6.4-15 à...

The screenshot shows the Proxmox VE 6.4-15 interface for a node named 'pve3-test'. The top navigation bar includes the Proxmox logo, a search bar, a warning about support ending on 2022-07-31, and links for documentation, creating VMs or CTs, and the user 'root@pam'. The left sidebar shows a tree view of the datacenter with three test nodes, and a menu for system configuration including network, certificates, DNS, hosts, time, syslog, updates, firewall, disks, LVM, LVM-Thin, directory, ZFS, and Ceph. The main content area is divided into two sections: 'Health' and 'Status'. The 'Health' section shows a yellow warning icon and the text 'HEALTH_WARN' with 'Ceph Version: 15.2.16'. A table below lists a warning: 'noout flag(s) set'. The 'Status' section features a large green donut chart representing the Ceph OSDs. A table on the left shows 6 OSDs in 'In' state and 0 in 'Out' state, with a total of 6. Below this, it lists 'Outdated OSDs' for osd.0 through osd.3, all at version 15.2.15. On the right, a legend indicates 'active+clean' with a green dot, and a total of 129 PGs is shown.

Server View

Node 'pve3-test'

Health

Status

Severity Summary

!	noout flag(s) set
---	-------------------

HEALTH_WARN

Ceph Version: 15.2.16

Status

OSDs

	In	Out
Up	6	0
Down	0	0

Total: 6

Outdated OSDs

osd.0:	15.2.15
osd.1:	15.2.15
osd.2:	15.2.15
osd.3:	15.2.15

PGs

active+clean: 129

7.2-4

PROXMOX Virtual Environment 7.2-4 Search

Documentation Create VM Create CT root@pam

Server View Node 'pve1-test' Reboot Shutdown Shell Bulk Actions Help

Datacenter (pve-test)

- pve1-test
 - 100 (template-debian)
 - 101 (template-debian)
 - 102 (ispconfig)
 - 105 (stack-test-3)
 - 108 (stack-test-0)
 - 109 (swarm-worker-1)
 - 110 (swarm-manager-)
 - 1000031 (ubuntu2204)
 - 1000060 (debian11)
 - local (pve1-test)
 - local-lvm (pve1-test)
 - pool2 (pve1-test)
- pve2-test
- pve3-test

Search Summary Notes Shell System Network Certificates DNS Hosts Options Time Syslog Updates Repositories Firewall Disks LVM LVM-Thin Directory ZFS Ceph

Health

Status

HEALTH_WARN

Ceph Version: 15.2.16

Severity	Summary	
!	1/3 mons down, quorum pve1-test,pve2-test	i
!	noout flag(s) set	i
!	2 osds down	i
!	1 host (2 osds) down	i
!	Degraded data redundancy: 39851/119553 objects degraded (33.333%), 128 pgs degraded	i

Status

OSDs

	In	Out
Up	4	0
Down	2	0

Total: 6

Outdated OSDs

osd.4:	15.2.15
osd.5:	15.2.15

PGs

- active+undersized: 1
- active+undersized+degraded: 128

Services

Monitors

pve1-test: ✓ pve2-test: ✓ pve3-test: ✗


Managers

pve1-test: ✓ pve2-test: ✓

Meta Data Servers

Y a du mieux

Health

Status

HEALTH_WARN

Ceph Version: 15.2.16


Severity	Summary	
!	clock skew detected on mon.pve3-test	i
!	noout flag(s) set	i
!	Degraded data redundancy: 373/119604 objects degraded (0.312%), 108 pgs degraded	i

Status

OSDs

	In	Out
Up	6	0
Down	0	0

Total: 6



PGs

- active+clean: 19
- active+recovering: 1
- active+recovery_wait: 1
- active+recovery_wait+degraded: 61
- active+recovery_wait+degraded+laggy: 7
- active+recovery_wait+undersized+degraded+remapped: 37
- active+recovery_wait+undersized+degraded+remapped+laggy: 3

Services

Monitors

pve1-test: ✓ pve2-test: ✓ pve3-test: !

Managers

pve1-test: ✓ pve2-test: ✓ pve3-test: ✓

Meta Data Servers

Tout est bon

The screenshot shows the Proxmox VE 7.2-4 interface. The top navigation bar includes 'Documentation', 'Create VM', 'Create CT', and the user 'root@pam'. The left sidebar shows a tree view of the server environment, with 'pve1-test' selected. The main content area is titled 'Node 'pve1-test'' and contains several sections:

- Health:** Shows a yellow warning icon and 'HEALTH_WARN'. Below it, 'Ceph Version: 15.2.16'. A table lists a warning: 'noout flag(s) set' with a severity of '!'.
- Status:** Contains 'OSDs' and 'PGs' information. The OSDs table shows 6 'Up' and 0 'Down' OSDs. The PGs table shows 128 'active+clean' and 1 'active+clean+scrubbing+deep' PG.
- Services:** Shows 'Monitors', 'Managers', and 'Meta Data Servers' for nodes pve1-test, pve2-test, and pve3-test, all with green checkmarks.

Severity	Summary
!	noout flag(s) set

	In	Out
Up	6	0
Down	0	0

Category	Count
active+clean	128
active+clean+scrubbing+deep	1


Service	Monitors	Managers	Meta Data Servers
pve1-test	✓	✓	✓
pve2-test	✓	✓	✓
pve3-test	✓	✓	✓

Tout est bon après correction du noout



Health

Status



HEALTH_OK

Ceph Version: 15.2.16


Severity	Summary
	No Warnings/Errors

Status

OSDs

	In	Out
Up	6	0
Down	0	0

Total: 6



● active+clean: 129

PGs



Proxmox 7

Proxmox versions 7

- Debian 11 "Bullseye"
- QEMU 6.0 et OpenZFS 2.0
- Repo gérables via la GUI
- Téléchargement d'ISO images via URL
- Single Sign-On (SSO) with OpenID Connect
- Markdown dans les notes
- Ceph 16.2 Pacific
- and many more...


Proxmox versions ?

- En pratique qu'est-ce qui nous intéresse ?
 - Gestion des repositories

Node 'pve1-test'

Reboot Shutdown Shell Bulk Actions Help

Status

 Warning

You get updates for Proxmox VE
The no-subscription repository is not recommended for production use!

APT Repositories

Reload Add Enable

Enabled	Types	URLs	Suites	Components	Opt	Origin	Com...
File: /etc/apt/sources.list (3 repositories)							
<input checked="" type="checkbox"/>	deb	http://ftp.fr.debian.org/debian	bullseye	main contrib		Debian	
<input checked="" type="checkbox"/>	deb	http://ftp.fr.debian.org/debian	bullseye-updates	main contrib		Debian	
<input checked="" type="checkbox"/>	deb	http://security.debian.org	bullseye-security	main contrib		Debian	
File: /etc/apt/sources.list.d/ceph.list (1 repository)							
<input checked="" type="checkbox"/>	deb	http://download.proxmox.com/debian/ceph-octopus	bullseye	main		Proxmox	
File: /etc/apt/sources.list.d/pve-enterprise.list (1 repository)							
<input type="checkbox"/>	deb	https://enterprise.proxmox.com/debian/pve	bullseye	pve-enterprise		Proxmox	
File: /etc/apt/sources.list.d/pve-no-subscription.list (1 repository)							
<input checked="" type="checkbox"/>	deb	http://download.proxmox.com/debian	bullseye	pve-no-subscription		Proxmox	

Proxmox versions ?

- En pratique qu'est-ce qui nous intéresse ?
 - Ceph : 16.2 Pacific quand on aura envie d'y passer
 - réduction espace disque requis
 - QoS entre les IO des clients possible
 - livemigration accepte les sources externes
 - un client Windows pour CephFS est maintenant disponible
 - OpenZFS 2.0
 - resilvering beaucoup plus rapide
 - meilleur compression

Proxmox 7 oui mais Ceph pacific !!

- URL de mise à jour :

https://pve.proxmox.com/wiki/Ceph_Octopus_to_Pacific#Preparation_on_each_Ceph_cluster_node

- On va faire comme précédemment :

- On modifie l'URL de récupération des paquets Ceph pour proxmox

« `sed -i 's/octopus/pacific/' /etc/apt/sources.list.d/ceph.list` »

- on active le flag « noout » de Ceph

- « apt update »

- « apt full-upgrade »

The screenshot shows the Proxmox VE interface for configuring APT repositories. A yellow warning icon is displayed at the top, with a message: "Warning: You get updates for Proxmox VE. The no-subscription repository is not recommended for production use!". Below the warning, the "APT Repositories" section is visible, featuring a table with columns for "Enabled", "Types", "URLs", "Suites", and "Components". The table lists several repositories, including the "pve-no-subscription" repository which is highlighted in orange.

Enabled	Types	URLs	Suites	Components
File: /etc/apt/sources.list (3 repositories)				
<input checked="" type="checkbox"/>	deb	http://ftp.fr.debian.org/debian	bullseye	main contrib
<input checked="" type="checkbox"/>	deb	http://ftp.fr.debian.org/debian	bullseye-updates	main contrib
<input checked="" type="checkbox"/>	deb	http://security.debian.org	bullseye-security	main contrib
File: /etc/apt/sources.list.d/ceph.list (1 repository)				
<input checked="" type="checkbox"/>	deb	http://download.proxmox.com/debian/ceph-pacific	bullseye	main
File: /etc/apt/sources.list.d/pve-enterprise.list (1 repository)				
<input type="checkbox"/>	deb	https://enterprise.proxmox.com/debian/pve	bullseye	pve-enterprise
File: /etc/apt/sources.list.d/pve-no-subscription.list (1 repository)				
<input checked="" type="checkbox"/>	deb	http://download.proxmox.com/debian	bullseye	pve-no-subscription

Proxmox 7 pacific avant reboot

Name	Class	OSD Type	Status	Version	weight	reweight	Used (%)	Total	Apply/Commit Latency (ms)
No OSD selected									
Start Stop Restart Out In More									
Reload Create: OSD Manage Global Flags									
default									
pve3-test				16.2.7					
osd.5	hdd	bluestore	up / in	15.2.16	1.6368	1.00	5.49	1.64 TiB	0 / 0
osd.4	hdd	bluestore	up / in	15.2.16	1.09109	1.00	5.27	1.09 TiB	0 / 0
pve2-test				16.2.7					
osd.3	hdd	bluestore	up / in	15.2.16	1.81879	1.00	3.48	1.82 TiB	0 / 0
osd.2	hdd	bluestore	up / in	15.2.16	1.81879	1.00	4.63	1.82 TiB	0 / 0
pve1-test				16.2.7					
osd.1	hdd	bluestore	up / in	15.2.16	1.81879	1.00	3.02	1.82 TiB	0 / 0
osd.0	hdd	bluestore	up / in	15.2.16	1.81879	1.00	5.08	1.82 TiB	0 / 0

Proxmox 7 pacific après reboot

The screenshot displays the Proxmox VE interface for a datacenter named 'pve-test'. The left sidebar shows a tree view of nodes and storage pools. The main panel shows the 'default' storage group with a table of OSDs. The OSDs are listed with their names, classes, OSD types, statuses, versions, weights, reweights, usage percentages, total capacities, and apply/commit latencies.

Name	Class	OSD Type	Status	Version	weight	reweight	Used (%)	Total	Apply/Commit Latency (ms)
default									
pve3-test									
osd.5	hdd	bluestore	up / in	15.2.16	1.6368	1.00	0.00	0 B	0 / 0
osd.4	hdd	bluestore	up / in	15.2.16	1.09109	1.00	0.00	0 B	0 / 0
pve2-test									
osd.3	hdd	bluestore	up / in	16.2.7	1.81879	1.00	3.43	1.82 TiB	1 / 1
osd.2	hdd	bluestore	up / in	16.2.7	1.81879	1.00	4.58	1.82 TiB	0 / 0
pve1-test									
osd.1	hdd	bluestore	up / in	16.2.7	1.81879	1.00	2.98	1.82 TiB	0 / 0
osd.0	hdd	bluestore	up / in	16.2.7	1.81879	1.00	5.04	1.82 TiB	0 / 0

Proxmox 7 pacific après reboot

default										
└─ pve3-test				16.2.7						
└─┬─ osd.5	hdd	bluestore	up + / in ●	16.2.7	1.6368	1.00	5.45	1.64 TiB	11 / 11	
└─┴─ osd.4	hdd	bluestore	up + / in ●	16.2.7	1.09109	1.00	5.20	1.09 TiB	20 / 20	
└─ pve2-test				16.2.7						
└─┬─ osd.3	hdd	bluestore	up + / in ●	16.2.7	1.81879	1.00	3.43	1.82 TiB	0 / 0	
└─┴─ osd.2	hdd	bluestore	up + / in ●	16.2.7	1.81879	1.00	4.59	1.82 TiB	1 / 1	
└─ pve1-test				16.2.7						
└─┬─ osd.1	hdd	bluestore	up + / in ●	16.2.7	1.81879	1.00	2.98	1.82 TiB	1 / 1	
└─┴─ osd.0	hdd	bluestore	up + / in ●	16.2.7	1.81879	1.00	5.04	1.82 TiB	0 / 0	

Proxmox 7 - pacific



PROXMOX Virtual Environment 7.2-4 Search

Documentation Create VM Create CT root@pam

Server View Node 'pve1-test' Reboot Shutdown Shell Bulk Actions Help


Datacenter (pve-test)

- pve1-test
 - 100 (template-debian)
 - 101 (template-debian)
 - 102 (ispconfig)
 - 105 (stack-test-3)
 - 108 (stack-test-0)
 - 109 (swarm-worker-1)
 - 110 (swarm-manager)
 - 1000031 (ubuntu2204)
 - 1000060 (debian11)
 - local (pve1-test)
 - local-lvm (pve1-test)
 - pool2 (pve1-test)
- pve2-test
 - 103 (avant-sysprep)
 - 104 (stack-test-4)
 - 107 (stack-test-1)
 - 111 (swarm-worker-2)
 - 112 (testtemplate)
 - local (pve2-test)
 - local-lvm (pve2-test)
 - pool2 (pve2-test)
- pve3-test
 - 106 (stack-test-2)
 - local (pve3-test)
 - local-lvm (pve3-test)
 - pool2 (pve3-test)

DNS
Hosts
Options
Time
Syslog
Updates
Repositories
Firewall
Disks
LVM
LVM-Thin
Directory
ZFS
Ceph
Configuration
Monitor
OSD
CephFS
Pools
Log
Replication

Health

Status

 HEALTH_OK

Ceph Version: 16.2.7

Severity	Summary
No Warnings/Errors	

Status


OSDs

	In	Out
Up	6	0
Down	0	0

Total: 6

PGs

● active+clean: 129



Services

Monitors

pve1-test: ✓ pve2-test: ✓ pve3-test: ✓

Managers

pve1-test: ✓ pve2-test: ✓ pve3-test: ✓

Meta Data Servers

Proxmox important à retenir

- Mise en cluster triviale
- Mise en place du cluster Ceph complètement assistée
- Apporte le déplacement à chaud des MV
- Apporte la « HA » c'est-à-dire la Haute Disponibilité
- Firewalling des MV et des Hyperviseurs disponible
- **Les chemins d'upgrade sont généralement bien faits et fonctionnels**
- Les backups se font
 - soit sur le stockage compatible du cluster
 - soit vers un Proxmox Backup Server
- Proxmox Backup Serveur peut servir à faire la migration entre cluster proxmox



Proxmox Backup Server

PBS

- Open-Source
- Sauvegardes incrémentales pour le client
- À la réception des données elles sont dédupliquées
- Les données sont compressées avec Zstandard (ZSTD)
- PBS est vu comme un « storage » classique par les serveurs proxmox.
- On peut partager le même stockage PBS entre plusieurs clusters

PBS

- Il existe un mécanisme de synchronisation des données entre plusieurs PBS afin d'avoir une redondance des sauvegardes
- Les données peuvent être chiffrées (AES-256)
- SHA-256 est utilisé pour les sommes de contrôles qui sert également à la détection de blocks identiques

PBS

- On restaure à partir de l'interface de proxmox
- On choisi la granularité de la restauration :
 - Fichier
 - répertoire
 - L'intégralité de la MV

PBS

- L'étape de restauration permet de choisir
 - Si on restaure tout avant de démarrer
 - Si on restaure le minimum possible et qu'on démarre la machine. Le reste sera restauré pendant l'exécution de la machine virtuelle => intéressant pour un PCA
 - Veut-on le même id de MV ?
 - Veut-on la même adresse MAC



PBS

- On dispose de mécanisme de vérification périodique des sauvegardes => pas mal pour un PRA
- On dispose d'un mécanisme de nettoyage des sauvegardes sortant de la politique de rétention.



PBS

- Depuis les versions 2 de PBS => sauvegarde sur bandes :
 - Tape-Open 5 (LTO-5) avec chiffrement matériel
 - Politiques de rétention spécifiques aux bandes
 - Toujours recyclées
 - Jamais recyclées
 - Recyclées selon une politique calendaire etc...
 - LTO Barcode générateur web app

Interface PBS

PROXMOX Backup Server 1.1-13 Documentation Tasks 0 root@pam

Dashboard

Configuration

- Access Control
- Remotes
- Certificates
- Subscription

Administration

- Shell
- Storage / Disks

Tape Backup

Datastore

- pbs-lab-etu
- pbs1
- Add Datastore

Server Resources

Show Fingerprint

CPU 1%

Memory 65%

Root Disk 2%

Datastore Usage

Name ↑	Size	Used	Available	Usage %	Estimated Full	History...
pbs-lab-etu	9.92 TiB	1.28 TiB	8.14 TiB	12.94%	Never	_____
pbs1	27.33 TiB	10.80 TiB	16.53 TiB	39.51%	in 387493d 1h 22m	_____

Longest Tasks (30 days)

Task Name	Duration	Status	Action
Verify Job pbs1:v-a17d7330-166a - Scheduled Verification	1d 8h 33m	✓	>
Datastore pbs1 - Garbage Collect	2h 23m 24s	✓	>
Verify Job pbs-lab-etu:v-b537f269-026c - Scheduled Verification	1h 4m 44s	✓	>
Datastore pbs1 - Garbage Collect	1h 4m 30s	✓	>
Datastore pbs1 - Garbage Collect	46m 17s	✓	>
Datastore pbs1 - Garbage Collect	41m 25s	✓	>
Verify Job pbs-lab-etu:v-b537f269-026c - Scheduled Verification	32m 55s	✓	>
Datastore pbs1 - Garbage Collect	32m 48s	✓	>
Datastore pbs1 - Garbage Collect	21m 11s	✓	>

Running Tasks

No running tasks

Task Summary (30 days)

Task Type	Failed	Info	Success
Backups	0	0	1
Prunes	0	0	60
Garbage collections	0	0	60
Syncs	0	0	0
Verify	0	0	6

Subscription

No valid subscription

You do not have a valid subscription for this server. Please visit www.proxmox.com to get a list of available options.

Utilisation des datastores

Datastore Usage

Name ↑	Size	Used	Available	Usage %	Estimated Full	History...
pbs-lab-etu	9.92 TiB	1.28 TiB	8.14 TiB	12.94%	Never	_____
pbs1	27.33 TiB	10.80 TiB	16.53 TiB	39.51%	in 387493d 1h 21m	=====

État des tâches des 30 derniers jours

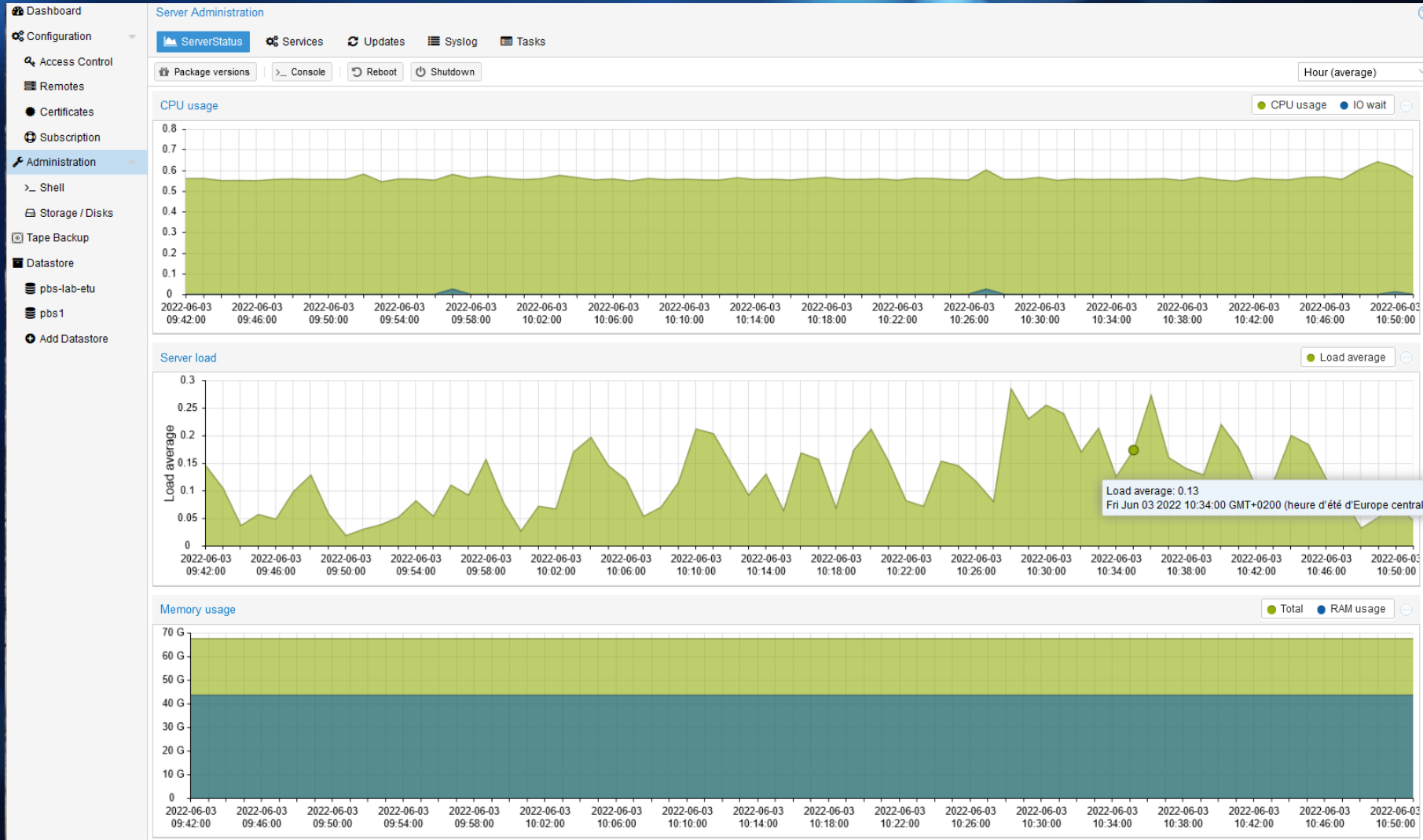
Longest Tasks (30 days)

Verify Job pbs1:v-a17d7330-166a - Scheduled Verification	1d 8h 33m	✓	>	^
Datastore pbs1 - Garbage Collect	2h 23m 24s	✓	>	
Verify Job pbs-lab-etu:v-b537f269-026c - Scheduled Verification	1h 4m 44s	✓	>	
Datastore pbs1 - Garbage Collect	1h 4m 30s	✓	>	
Datastore pbs1 - Garbage Collect	46m 17s	✓	>	
Datastore pbs1 - Garbage Collect	41m 25s	✓	>	
Verify Job pbs-lab-etu:v-b537f269-026c - Scheduled Verification	32m 55s	✓	>	
Datastore pbs1 - Garbage Collect	32m 48s	✓	>	
Datastore pbs1 - Garbage Collect	21m 11s	✓	>	∨

Task Summary (30 days)

Backups	✖ 0	ⓘ 0	✓ 1
Prunes	✖ 0	ⓘ 0	✓ 60
Garbage collections	✖ 0	ⓘ 0	✓ 60
Syncs	✖ 0	ⓘ 0	✓ 0
Verify	✖ 0	ⓘ 0	✓ 6

Métriques



Détail des datastores

PROXMOX Backup Server 1.1-13 Documentation Tasks 0 root@pam

Dashboard Configuration Access Control Remotes Certificates Subscription Administration Shell Storage / Disks Tape Backup **Datastore** pbs-lab-etu pbs1 Add Datastore

Datastores

Summary Sync Jobs Verify Jobs Permissions

pbs-lab-etu

Usage History:

13%
1.28 TiB of 9.92 TiB

Task Summary (30 days)

Backups	0	0	0
Prunes	0	0	30
Garbage collections	0	0	30
Syncs	0	0	0
Verify	0	0	4

Estimated Full Never
Deduplication Factor 423.45

pbs1

Usage History:

40%
10.80 TiB of 27.33 TiB

Task Summary (30 days)

Backups	0	0	1
Prunes	0	0	30
Garbage collections	0	0	30
Syncs	0	0	0
Verify	0	0	2

Estimated Full in 387493d 1h 16m
Deduplication Factor 80.28

Etat des sauvegardes de la VM-id 401

Dashboard

Configuration

Access Control

Remotes

Certificates

Subscription

Administration

Shell

Storage / Disks

Tape Backup

Datastore

pbs-lab-etu

pbs1

Add Datastore

Datastore: pbs1

Summary Content Prune & GC Sync Jobs Verify Jobs Options Permissions

Reload Verify All

Search group, date or owner

Backup Group	Comment	Actions	Backup Time ↓	Size	Count	Owner	Encrypted	Verify State
vm/401		V. [icons]	2022-05-19 11:39:31	100.00 GiB	19	root@pam	Encrypt...	All OK (old)
vm/401/2022-05-19T09:39:31Z		V. [icons]	2022-05-19 11:39:31	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2022-04-15T09:29:41Z		V. [icons]	2022-04-15 11:29:41	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2022-01-11T23:00:02Z		V. [icons]	2022-01-12 00:00:02	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2022-01-07T23:00:02Z		V. [icons]	2022-01-08 00:00:02	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2022-01-04T23:00:02Z		V. [icons]	2022-01-05 00:00:02	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-12-31T23:00:01Z		V. [icons]	2022-01-01 00:00:01	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-12-28T23:00:02Z		V. [icons]	2021-12-29 00:00:02	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-12-24T23:00:02Z		V. [icons]	2021-12-25 00:00:02	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-12-17T23:00:02Z		V. [icons]	2021-12-18 00:00:02	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-12-10T23:00:02Z		V. [icons]	2021-12-11 00:00:02	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-12-03T23:00:02Z		V. [icons]	2021-12-04 00:00:02	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-11-26T23:00:01Z		V. [icons]	2021-11-27 00:00:01	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-11-19T23:00:01Z		V. [icons]	2021-11-20 00:00:01	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-10-29T22:00:02Z		V. [icons]	2021-10-30 00:00:02	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-09-24T22:00:02Z		V. [icons]	2021-09-25 00:00:02	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-08-27T22:00:02Z		V. [icons]	2021-08-28 00:00:02	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-07-30T22:00:01Z		V. [icons]	2021-07-31 00:00:01	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-06-25T22:00:01Z		V. [icons]	2021-06-26 00:00:01	100.00 GiB		root@pam	Encrypt...	ok
vm/401/2021-05-28T22:00:01Z		V. [icons]	2021-05-29 00:00:01	100.00 GiB		root@pam	Encrypt...	ok
client.log.blob		[icons]					Encrypt...	
drive-scsi0.img.fdx		[icons]		100.00 GiB			Encrypt...	
index.json.blob		[icons]		622 B			Signed	
qemu-server.conf.blob		[icons]		386 B			Encrypt...	
vm/1524		V. [icons]	2022-04-15 12:04:16	100.00 GiB	1	root@pam	Encrypt...	All OK (old)

La même chose côté cluster PVE

Virtual Environment 6.4-6 Search Documentation Create VM Create CT root@pam

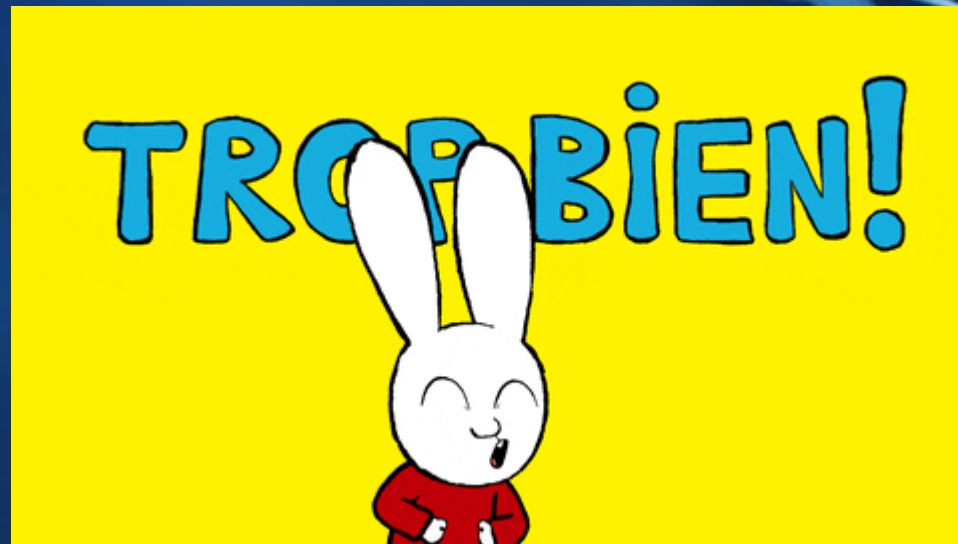
Server View Virtual Machine 401 (bbb-limos-ubuntu16) on node 'pve7' Start Shutdown Migrate Console More Help

Summary Backup now Restore File Restore Show Configuration Edit Notes Remove Storage: pbs-1 Filter VMID Search:

Name ↑	Notes	Date	Format	Size	Encrypted	Verify State
vm/401/2021-05-28T22:00:01Z		2021-05-29 00:00:01	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-06-25T22:00:01Z		2021-06-26 00:00:01	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-07-30T22:00:01Z		2021-07-31 00:00:01	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-08-27T22:00:02Z		2021-08-28 00:00:02	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-09-24T22:00:02Z		2021-09-25 00:00:02	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-10-29T22:00:02Z		2021-10-30 00:00:02	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-11-19T23:00:01Z		2021-11-20 00:00:01	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-11-26T23:00:01Z		2021-11-27 00:00:01	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-12-03T23:00:02Z		2021-12-04 00:00:02	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-12-10T23:00:02Z		2021-12-11 00:00:02	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-12-17T23:00:02Z		2021-12-18 00:00:02	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-12-24T23:00:02Z		2021-12-25 00:00:02	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-12-28T23:00:02Z		2021-12-29 00:00:02	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2021-12-31T23:00:01Z		2022-01-01 00:00:01	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2022-01-04T23:00:02Z		2022-01-05 00:00:02	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2022-01-07T23:00:02Z		2022-01-08 00:00:02	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2022-01-11T23:00:02Z		2022-01-12 00:00:02	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2022-04-15T09:29:41Z		2022-04-15 11:29:41	pbs-vm	107.37 GB	Encrypted	OK
vm/401/2022-05-19T09:39:31Z		2022-05-19 11:39:31	pbs-vm	107.37 GB	Encrypted	OK

Migration entre cluster

Si on partage les datastores PBS entre cluster PVE alors on peut migrer les MV entre cluster au travers des restaurations en Storage View !!!



C'est à vous 😊

