

napp-it cs  
Client Server Edition

ZFS Storageserver GUI  
for (m)any ZFS server

Proxmox as NAS

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## Howto

1. Concept
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## 1. Proxmox Concept

Proxmox is a Linux server OS based on Debian.

It is optimized as VM server platform for Container or Full OS virtualisation via KVM but as it comes with newest OpenZFS per default you can use it for

- A.) Pure VM server as a replacement for ESXi but with ZFS

In this scenario you keep it as minimalistic as possible with all services in a VM

- B.) VM server with NAS services like NFS or SMB installed

For https storage management via web-gui add Apache webservices, all other services in VMs

- C.) Common Linux server

Use it like Debian but with superiour VM options and ZFS preinstalled

## 2. Setup for Proxmox 8.3 and option B. (Proxmox as basic NAS)

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 for easier configuration, use Putty and WinSCP (portable Windows Apps)  
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### 2.1. Boot iso and install (or usb installer created from iso with Rufus)

select ZFS (or ext4) for bootdevice in setup options, set a root pw



### 2.1.2 Manage VMs (only very basic storage management options)

<https://ip:8006>

Type	Description	Disk usage...	Memory us...	CPU usage	Uptime	Host
node	pve	9.0 %	40.0 %	5.1% of 1 ...	00:19:46	
sdn	localnetwork (pve)				-	
storage	local (pve)	0.0 %			-	
storage	local-zfs (pve)	0.0 %			-	

Start Time	End Time	Node	User name	Description	Status
Feb 24 19:09:44	Feb 24 19:09:44	pve	root@pam	Bulk start VMs and Containers	OK

for advanced storage management add a ZFS web-gui add-on like Cockpit or napp-it cs

## 2.2. Connect Proxmox via Putty as root (ip from setup message)

### 2.3.) install/ enable basic NAS services

Connect Proxmox via Putty remote console as root  
(Putty can copy/paste via mouse right click)

### 2.4 update/load available application list

```
root@pve:~# apt update
```

A possible message ending with : can be confirmed with a q  
otherwise confirm with <enter>

### 2.5 install midnight commander (console filebrowser and editor)

```
root@pve:~# apt install mc
```

#### 2.6.1 install SAMBA (common SMB server)

```
root@pve:~# apt-install samba
config file: /etc/samba/smb.conf
```

#### minimal smb.config for a share /tank/data

```
[global]
map to guest = Bad User
guest account = nobody
writeable = yes

[data]
path = /tank/data
; enable either guest ok or valid users (groupmembers)
; valid users = @staff
guest ok = yes
read only = no
```

prior using the share you must make the folder writable  
root@pve:~# chmod 777 /tank/data

Start/Stop SAMBA:

```
root@pve:~# systemctl stop samba
root@pve:~# systemctl start samba
root@pve:~# systemctl restart samba
```

now you can use the share via SMB and SAMBA anonymously

#### 2.6.2 or install ksmbd (kernelbased high performance SMB server)

As an alternative install ksmbd **instead** SAMBA (faster than SAMBA)  
For ksmbd (kernelbased SMB) you need to add sid repository  
(sid=newer unstable as ksmbd in bookworm is buggy)

edit sources /etc/apt/sources.list (list of repositories, WinSCP), add  
deb <http://ftp.de.debian.org/debian/sid> main

then reload repositories  
root@pve:~# apt update

A possible message ending with : can be confirmed with a q  
otherwise confirm with <enter>

```
root@pve:~# apt install ksmbd-tools
root@pve:~# modprobe ksmbd
```

Then create/edit  
 /etc/ksmbd/ksmbd.conf (SAMBA smb.conf alike settings), use the example file as template (WinSCP)

### minimal ksmbd.config for a share /tank/data

```
[global]
map to guest = Bad User
guest account = nobody
writeable = yes

[data]
path = /tank/data
; enable either guest ok or valid users (groupmembers)
; valid users = @staff
guest ok = yes
read only = no
```

Start/Stop ksmbd:

```
root@pve:~# systemctl stop ksmbd
root@pve:~# systemctl start ksmbd
root@pve:~# systemctl restart ksmbd
```

To make a share ex tank/data anonymous writeable

```
root@pve:~# chmod 777 /tank/data
now you can use the share via SMB and ksmbd anonymously
```

### 2.7 install NFS (kernelbased NFS server, optionally)

```
root@pve:~# apt install nfs-kernel-server
edit shares in /etc/exports (WinSCP)
```

Start NFS

```
root@pve:~# systemctl start/stop/restart nfs-kernel-server
```

We now have a working NAS server with SMB or NFS

The included Proxmox web-gui <https://<IP-Adress>:8006> has VM management options but lacks advanced ZFS storage features. You can solve this with a web-gui add on for storage like Cockpit or napp-it cs (no storage VM needed)

### 3. add storage related web-gui (napp-it cs release candidate, optionally, free for noncommercial use)

Download [https://www.napp-it.org/doc/downloads/napp-it\\_cs.zip](https://www.napp-it.org/doc/downloads/napp-it_cs.zip) and unzip

Upload folder csweb-gui to /var (WinSCP)

start web-gui (Putty, copy/paste command with a mouse rightclick)

```
sh /var/csweb-gui/data/webserver/mhttpd/linux/mini-httpd.sh
```

### Open web-gui: <http://<ip>:8080> (mini\_httpd, http only)

The screenshot shows the napp-it web-gui interface. The browser address bar displays the URL: [192.168.2.119:8080/cgi-bin/admin.pl?id=admin,1740430687,GJd3R9UYGnkxv4m6&member=localhost~127.0.0.1&l=07\\_Fileys...](http://192.168.2.119:8080/cgi-bin/admin.pl?id=admin,1740430687,GJd3R9UYGnkxv4m6&member=localhost~127.0.0.1&l=07_Fileys...)

The page title is "napp-it cs comm pve:localhost ZFS appliance v. 25.02.09 cs rc2". The navigation menu includes: About, Help, System, User, Disks, Pools, Filesystems, ZFS Snaps, Private menus, Jobs, ZFS servergroup.

The breadcrumb trail is: Help > ZFS Datasets > ZFS Filesystems > ZFS Encryption > ZFS Volumes > Windows Storage Spaces > Delete cache data > Hash zfs.

The main content area shows a "ZFS filesystem overview on localhost-127.0.0.1:linux;Proxmox;PVE:linux 6.8.12-4-pve x86\_64;cs 25.02.07". There is a "hide OS datasets" dropdown menu.

NAME	ORIGIN	MOUNTPOINT	SHARENFS	SHARESMB	CANMOUNT	MOUNTED	NBMAND	REC	AVAILABLE	USED	RES	RFRES	QUO	RFQU	SBS	SYNC	COMPR	DEDUP	CRYPT	ATIME	RDONLY
rpool (pool)	-	/rpool	unavail	off	on	yes	off	128K	15.9G	1.58G	none	none	none	none	0	standard	on	off	none	on	off
rpool/ROOT	-	/rpool/ROOT	unavail	off	on	yes	off	128K	15.9G	1.58G	none	none	none	none	0	standard	on	off	none	on	off
rpool/ROOT/pve-1	-	/	unavail	off	on	yes	off	128K	15.9G	1.58G	none	none	none	none	0	standard	on	off	none	on	off
rpool/data	-	/rpool/data	unavail	data	on	yes	off	128K	15.9G	96K	none	none	none	none	0	standard	on	off	none	on	off
rpool/var-lib-vz	-	/var/lib/vz	unavail	off	on	yes	off	128K	15.9G	96K	none	none	none	none	0	standard	on	off	none	on	off

Size example 1T means 1 TiB  
 enable guest configures SMB guest user access

#### 4. use Apache instead mini\_httpd (http and https) on Proxmox /Free-BSD/ OSX (napp-it cs newer 25.02.25)

This allows keymanagement and encrypted https transfers of data  
root@pve:~# apt install apache2

Apache configuration (webroot, cgi and certificates): /etc/apache2  
Apache defaults are in csweb-gui/data/webserver/apache/\*/config.defaults

##### 4.1 Enable and start web-gui on Apache and backend services start in napp-it cs

```
root@pve:~# sh /var/csweb-gui/data/webserver/apache/proxmox/apache_proxmox.sh
```

This configures and enables (for reboot) and starts all needed services like Apache and background services auto.pl, monitor.pl and server.pl

Active Apache config: /var/csweb-gui/cfg/apache/proxmox/config.active/  
You can modify Apache settings there (update save)

If you use Apache with https, you can remotely manage a servergroup with encrypted transfers for data and keys.