COHESITY

Use Cohesity DataProtect as Backup Storage for Proxmox VE

Version 1.1
May 2026

ABSTRACT

Cohesity's web-scale architecture provides the ideal platform to use SmartFiles Services as a backup storage for Proxmox VE VM Protection. This guide helps you implement Proxmox VE VM backups using Cohesity as an immutable, globally deduplicated and compressed web-scale storage target.

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Introduction to Using Cohesity with Proxmox

Proxmox Virtual Environment or Proxmox VE (also abbreviated as PVE in this document) is a Debian Linux-based hypervisor platform on which you can run virtual machines (KVM) and containers (LXC). It can be installed in a single-node configuration or as a cluster of many nodes, and it is simple & easy to use.

Proxmox Backup Server (PBS) is an enterprise-class, client-server backup solution that is capable of backing up virtual machines, containers, and physical hosts. It is specially optimized for the Proxmox Virtual Environment platform and allows you to back up your data securely, even between remote sites, providing easy management through a web-based user interface. It supports deduplication, compression, and authenticated encryption (AE).

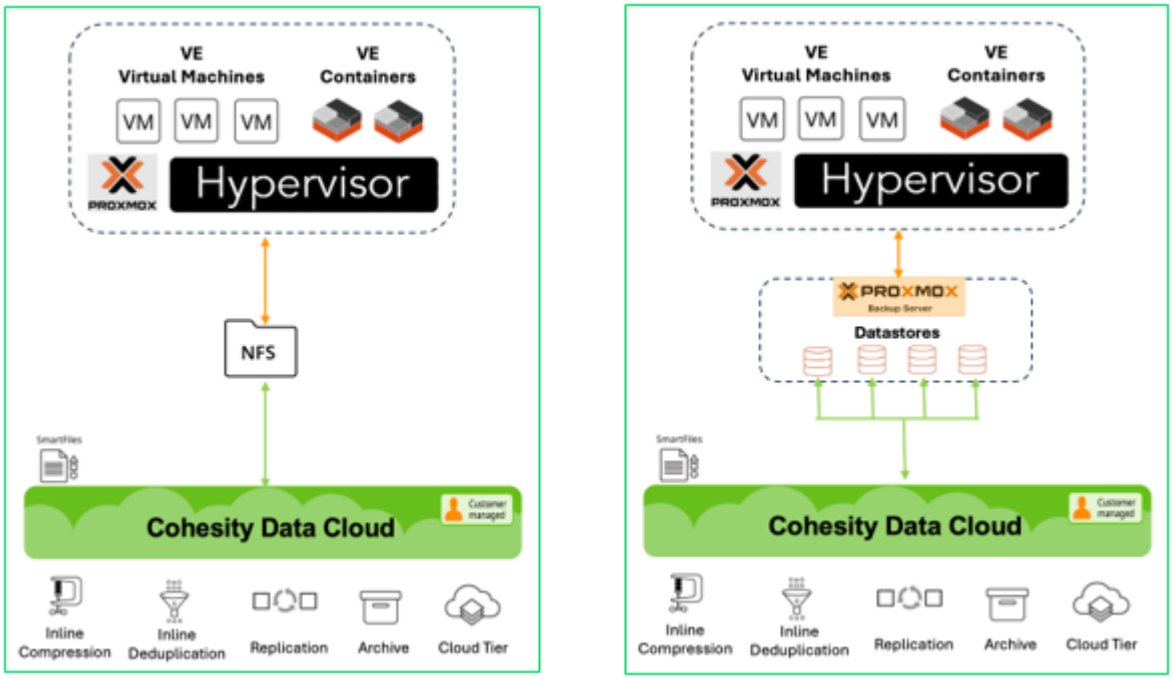
Proxmox VE offers a choice of many configurable storage types for VM and container operations. This document will cover the following file-level storage types for Proxmox Backups.

- **NFS or SMB/CIFS** – This is a storage type suitable for storing backup files (among other content types). It is created directly on the NFS export or SMB share absolute path. Storage efficiency is dependent on the target storage array.

  NOTE: This document will only cover SmartFiles NFS Views.

- **PBS** – This storage type is used with Proxmox backup server to leverage the storage efficiency features such as deduplication, compression, and authenticated encryption (AE) of the Proxmox backup server.

Figure 1: Use Cohesity as a Storage Target



Benefits of Using Cohesity as an NFS or PBS Storage Target

Once you start using Cohesity as a backup target in Proxmox, you can immediately take advantage of Cohesity's powerful features, including but not limited to:

Table 1: Cohesity Platform Features and Benefits

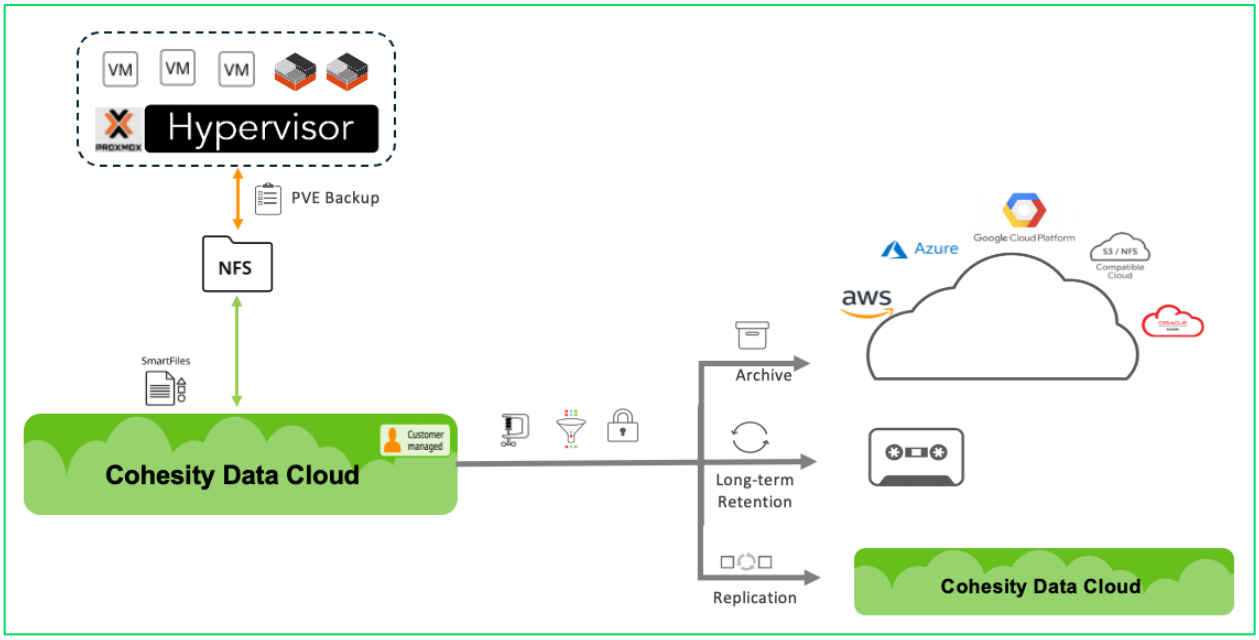
Features	Benefits
SmartFiles (Files and Object Services)	SmartFiles is an enterprise-class, software-defined, data-centric, multiprotocol file and object solution.
Storage Efficiency	Maximizes storage capacity with Cohesity's advanced data-reduction technologies, global deduplication, and compression.
Web-scale Capacity	Offers a modern web-scale distributed system with limitless scaling of performance and capacity.
Fault Tolerance	Provides continuous availability architecture with a minimum replication factor of 2 for stored data. Any node can fail, and the system continues to function.
Simplicity	Simplifies deploying a global storage target with a few clicks.
CloudArchive	Use CloudArchive for long-term retention and disaster recovery.
Disaster Recovery	Replicate to the cloud for cost-effective disaster recovery and business continuity.
Cloud Tier	Use automated, policy-based tiering to lower-cost storage for reduced TCO.

Cohesity Backup Target for Proxmox VE Workflow Overview – NFS Approach (vzdump)

Cohesity SmartFiles enables you to provision and export storage using various protocols, including NFS. This capability enables the compelling use case of treating Cohesity storage as a backup target for sources such as Proxmox VE. Once such an export path is available, you can add it as NFS storage in Proxmox VE. After that, you need to create a backup job in PVE to protect its workload and point it to the newly added NFS storage.

NOTE: Proxmox VE backups are always full backups - containing the VM/CT configuration and all data.

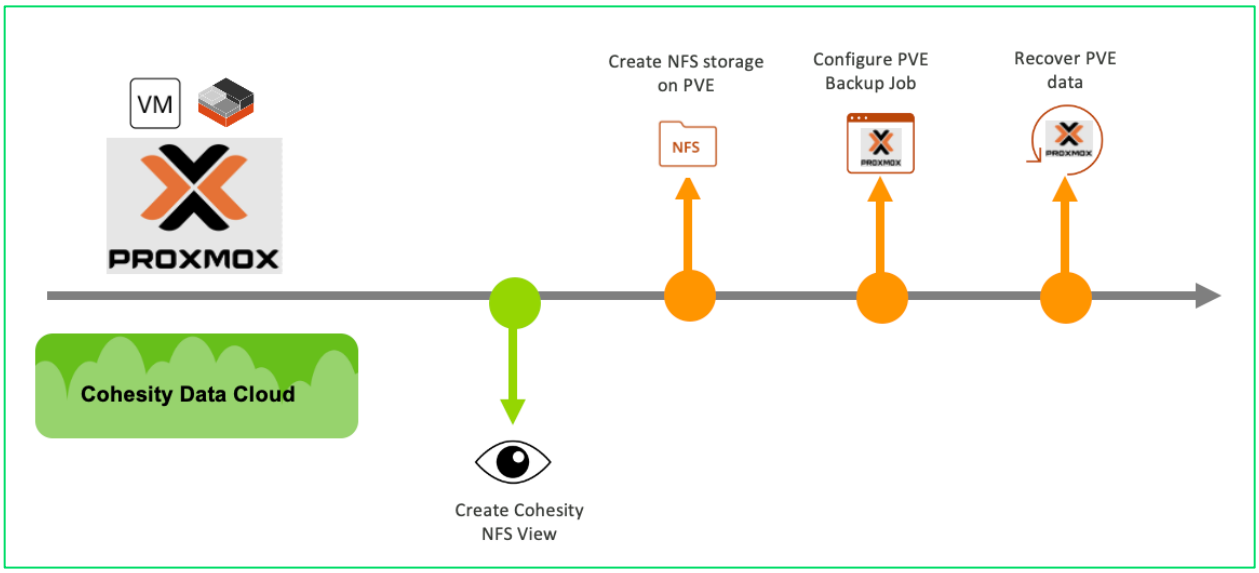
Figure 2: Cohesity Proxmox VE Data Protection Using NFS



To use a Cohesity SmartFiles NFS View as a backup target for Proxmox VE's backup module (vzdump), you need to perform the following tasks:

1. Create a SmartFiles NFS view on the Cohesity Cluster.
2. Add storage type "NFS" in Proxmox VE.
3. Configure a backup job in Proxmox VE to use the NFS storage that you created.

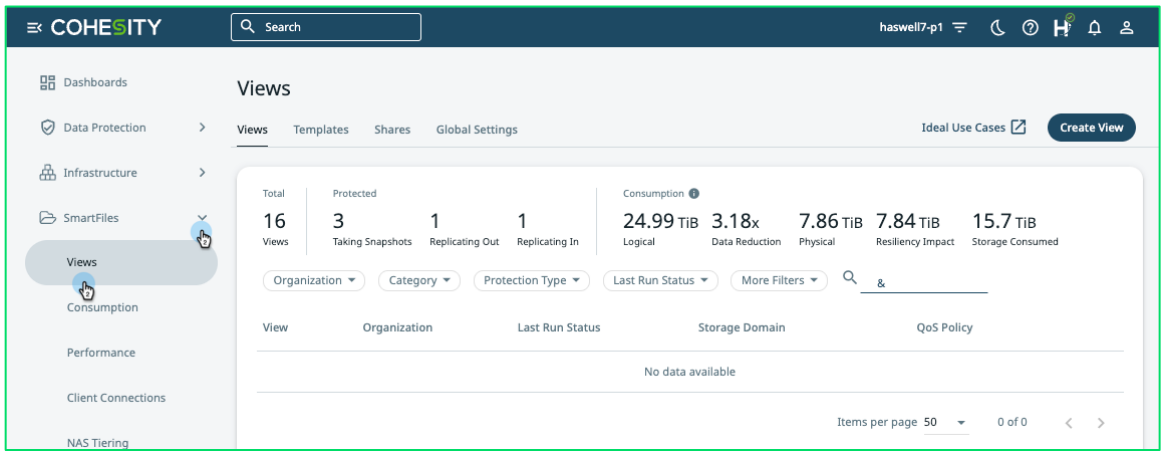
Figure 3: Cohesity – Proxmox Workflow (NFS vzdump Approach)



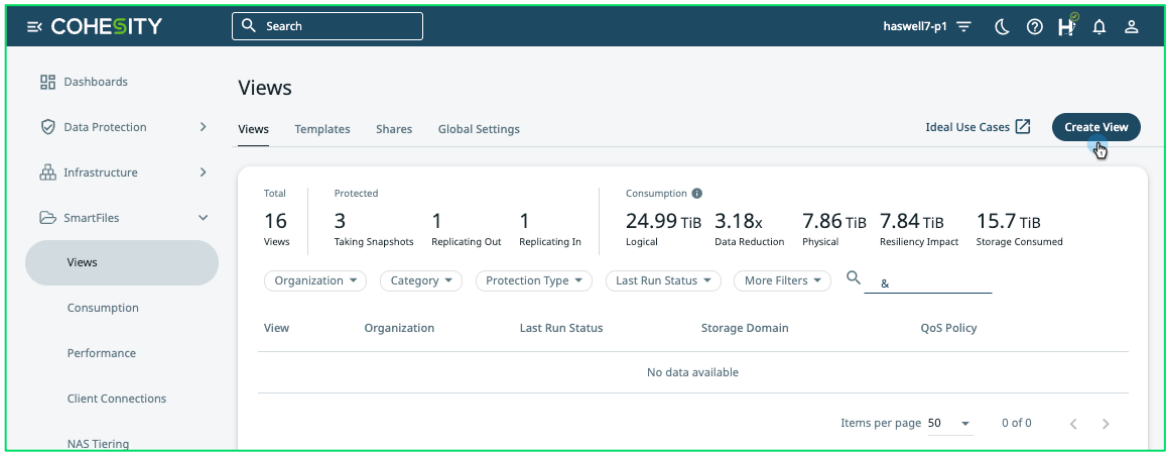
NOTE: Cohesity offers the flexibility to orchestrate the backup from Cohesity UI using Remote Adapter Protection Groups and a vzdump backup script. For more information, please refer to the Appendix.

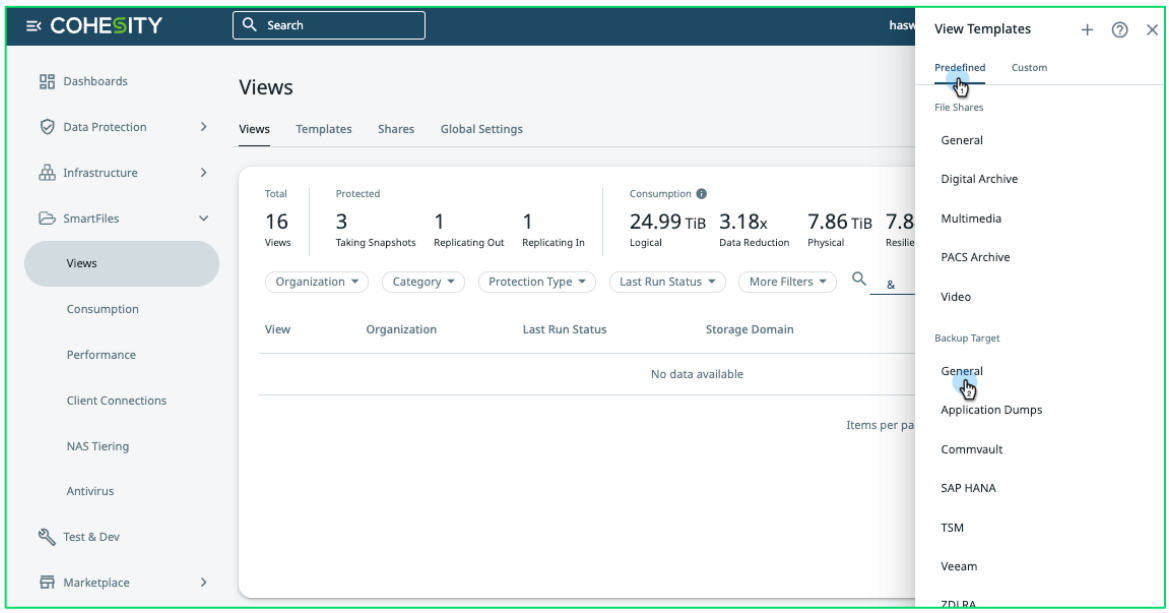
Create SmartFiles NFS View on Cohesity Cluster

1. Log in to Cohesity UI and Navigate to **SmartFiles > Views.**

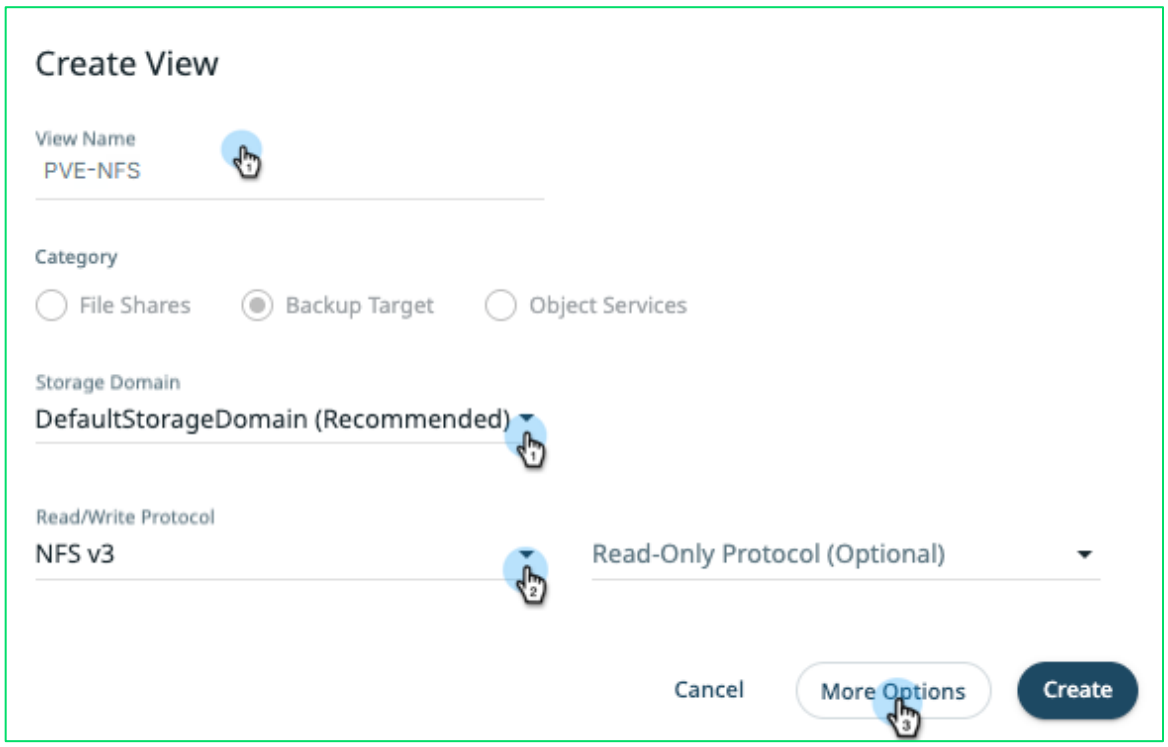


2. On the **Views** page, click the “**Create View**” button. Then select **General** under **Predefined - Backup Target**.

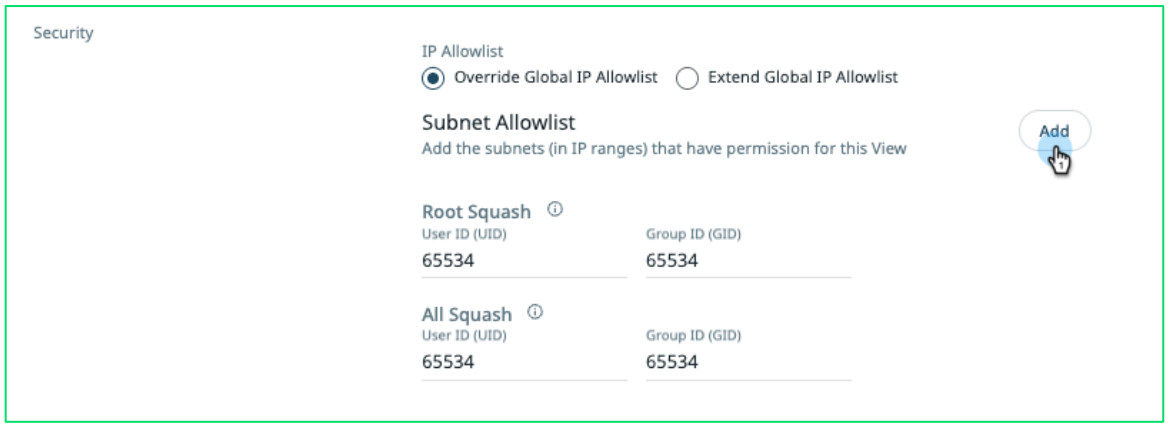




3. In the **Create View** form, name the **View**, choose the **Storage Domain**, select NFS (v3 or v4.1) under **Read/Write Protocol**, and click **More Options**.

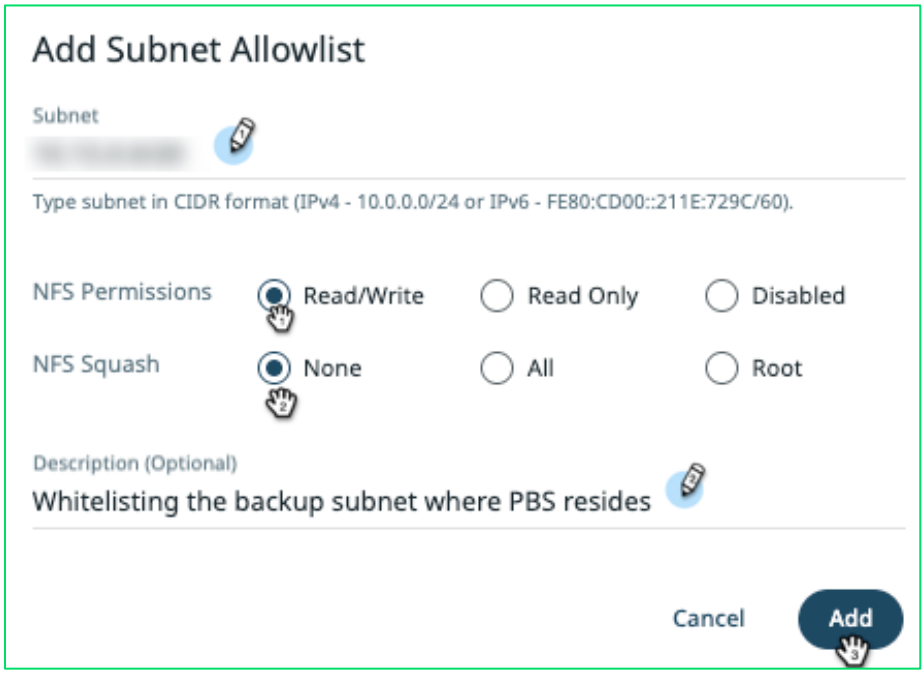


4. Under **Security**, click **Edit (** ✎ **)** on the right and click **Add** to **Add Subnet Allowlist**.

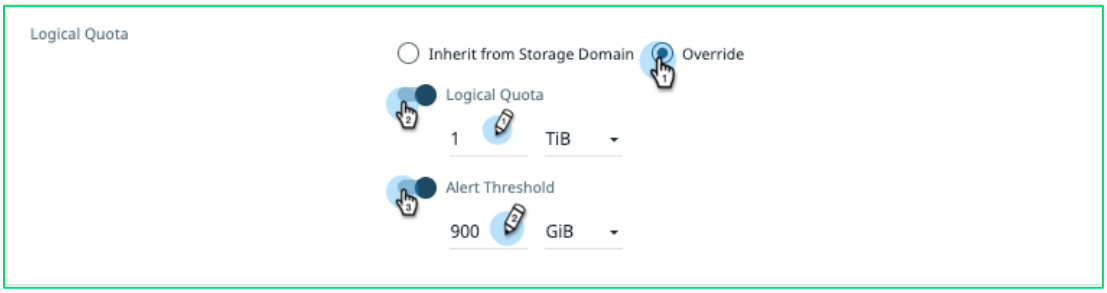


5. Under **Subnet**, type the Subnet to allow, for **NFS permissions** select **Read/Write,** and for **NFS Squash** select **None**.

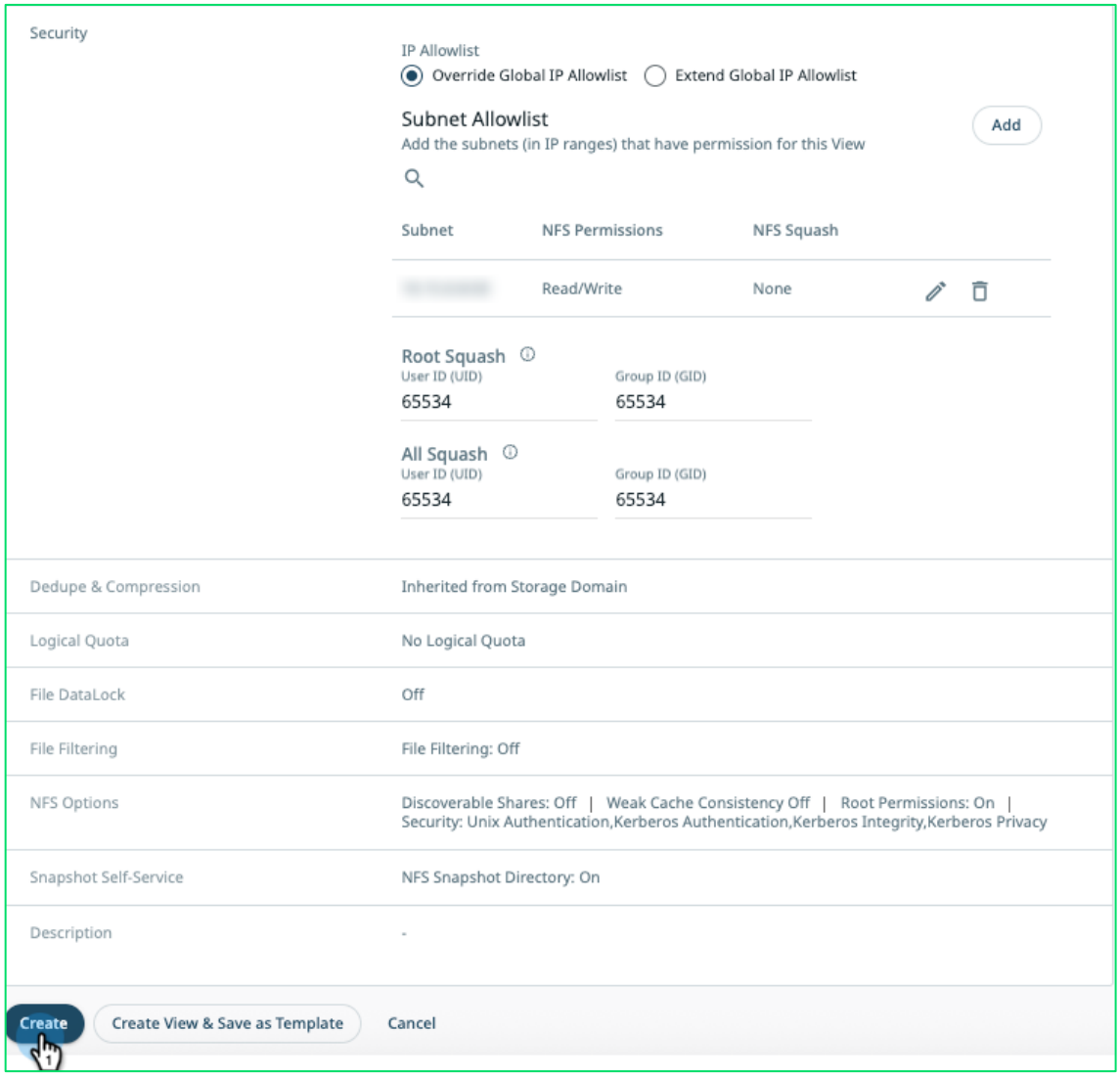
NOTE: This is the subnet where the PVE resides.



6. If desired, you may set a Quota to limit the amount of storage available for backups.
   - Under Logical Quota, select Override.
   - Toggle and enable Logical Quota and set the desired value.
   - Toggle and enable Alert Threshold and set the desired value.

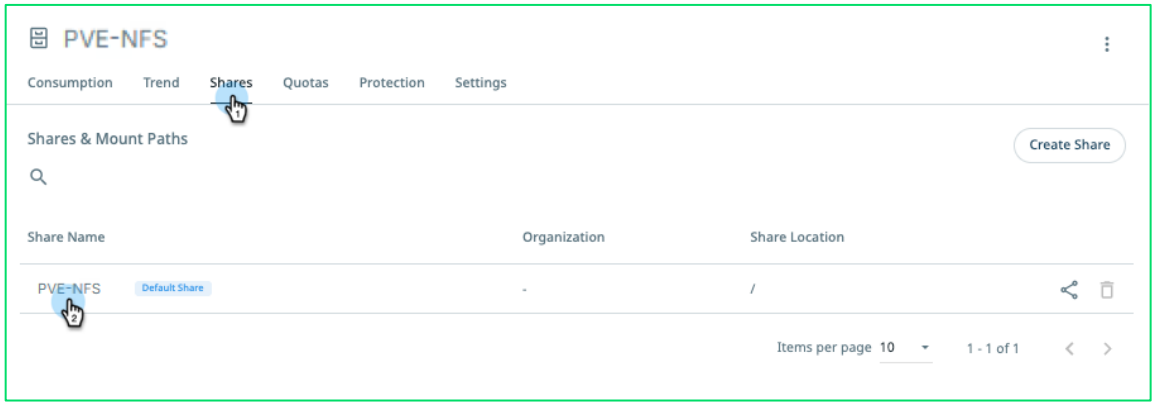


7. Review the settings and click **Create**.

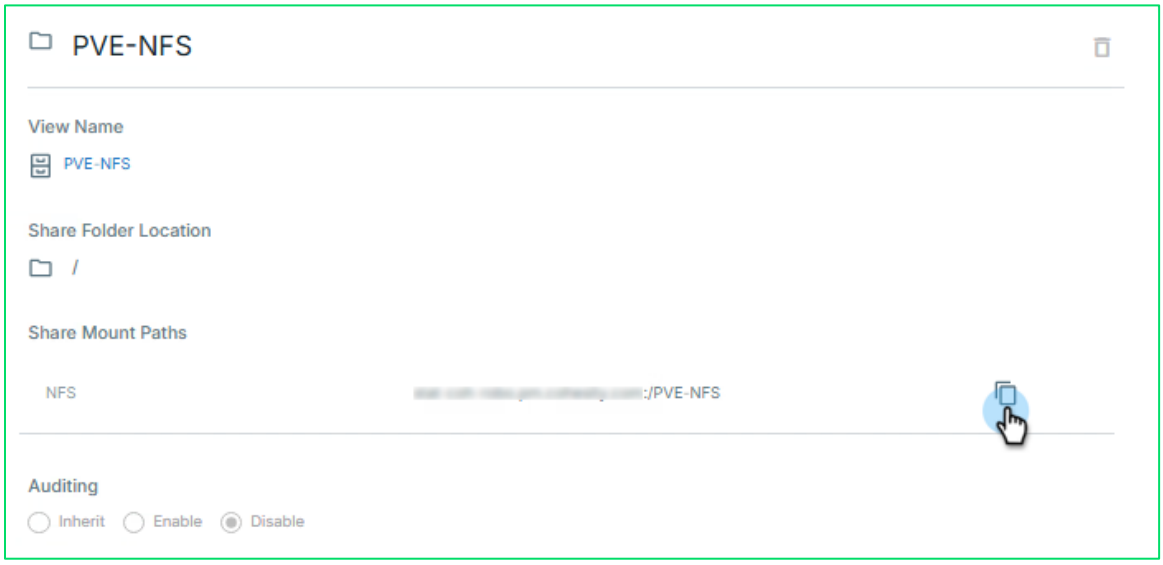


8. Browse to **SmartFiles > Views** and select the newly created view.

9. Go to the **Shares** tab and click on the Share Name “**PVE-NFS**”.



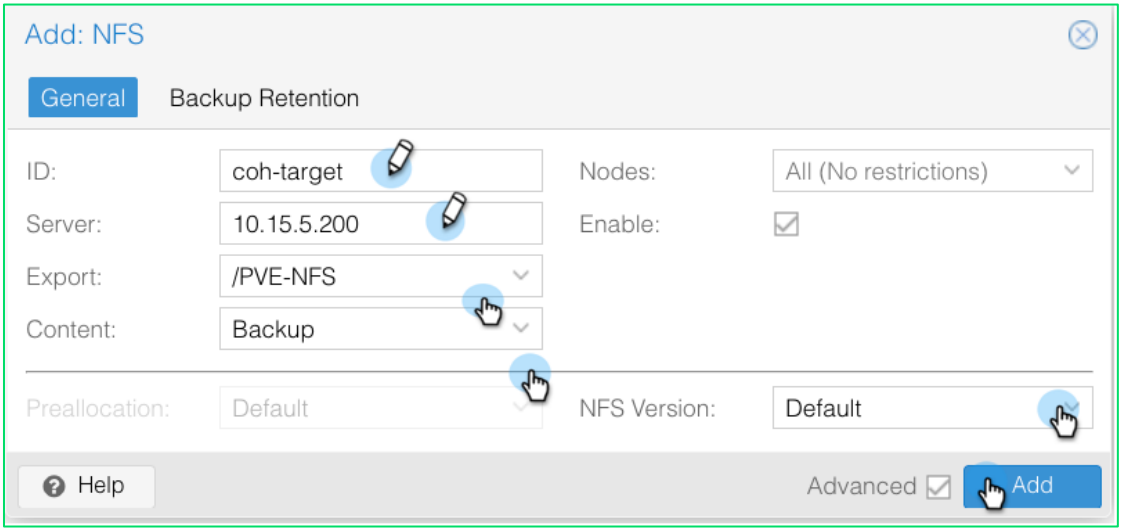
10. Copy and note the NFS Mount path of this NFS View. This will be needed when adding NFS storage in PVE.

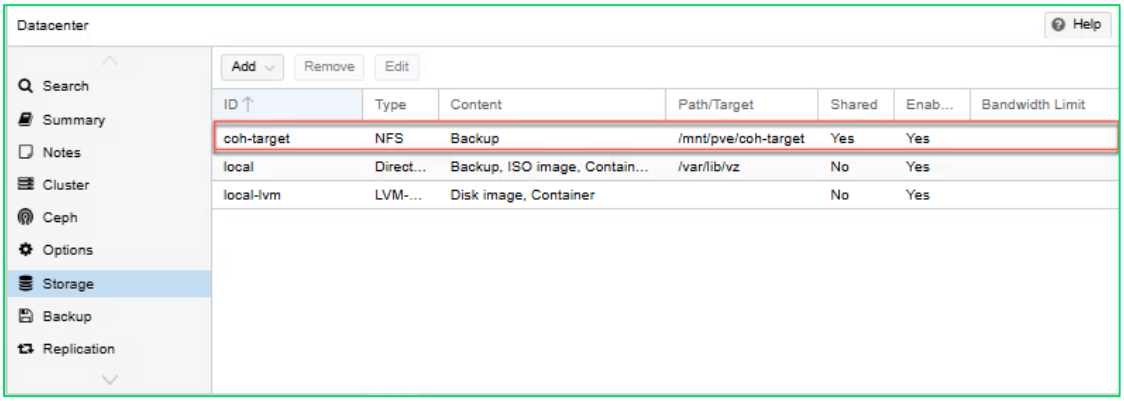


Add Storage Type “NFS” to Proxmox VE

1. Log in to the Proxmox VE (PVE) UI using port 8006 (https://<IP Address>:8006)
2. Browse **Datacenter > Storage** and click on Add **NFS**.
3. In the **Add NFS > General** tab, provide the requested information and click **Add**.
   - **ID** – A unique ID.
   - **Server** – Cohesity mount IP or DNS name.
   - **Export** – Select the desired export from the pull-down menu.
   - **Content** – Select **Backup** from the pull-down menu.

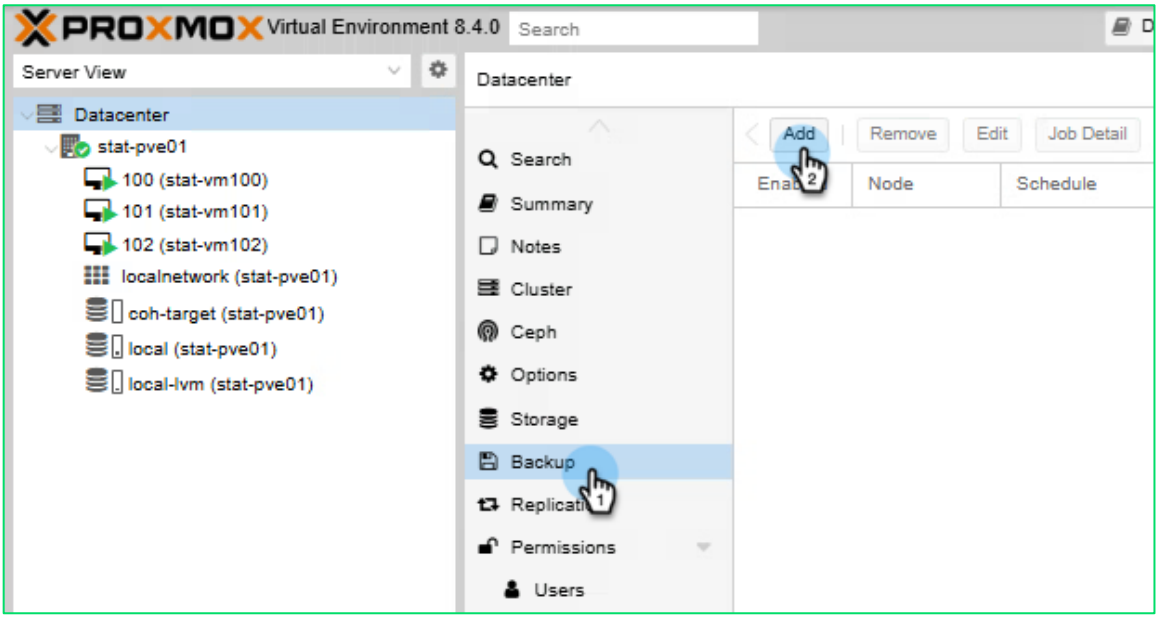
- **Nodes** – Select All (No restrictions).
- **NFS Version** – Select Default, NFSv3, or NFSv4.1 only.



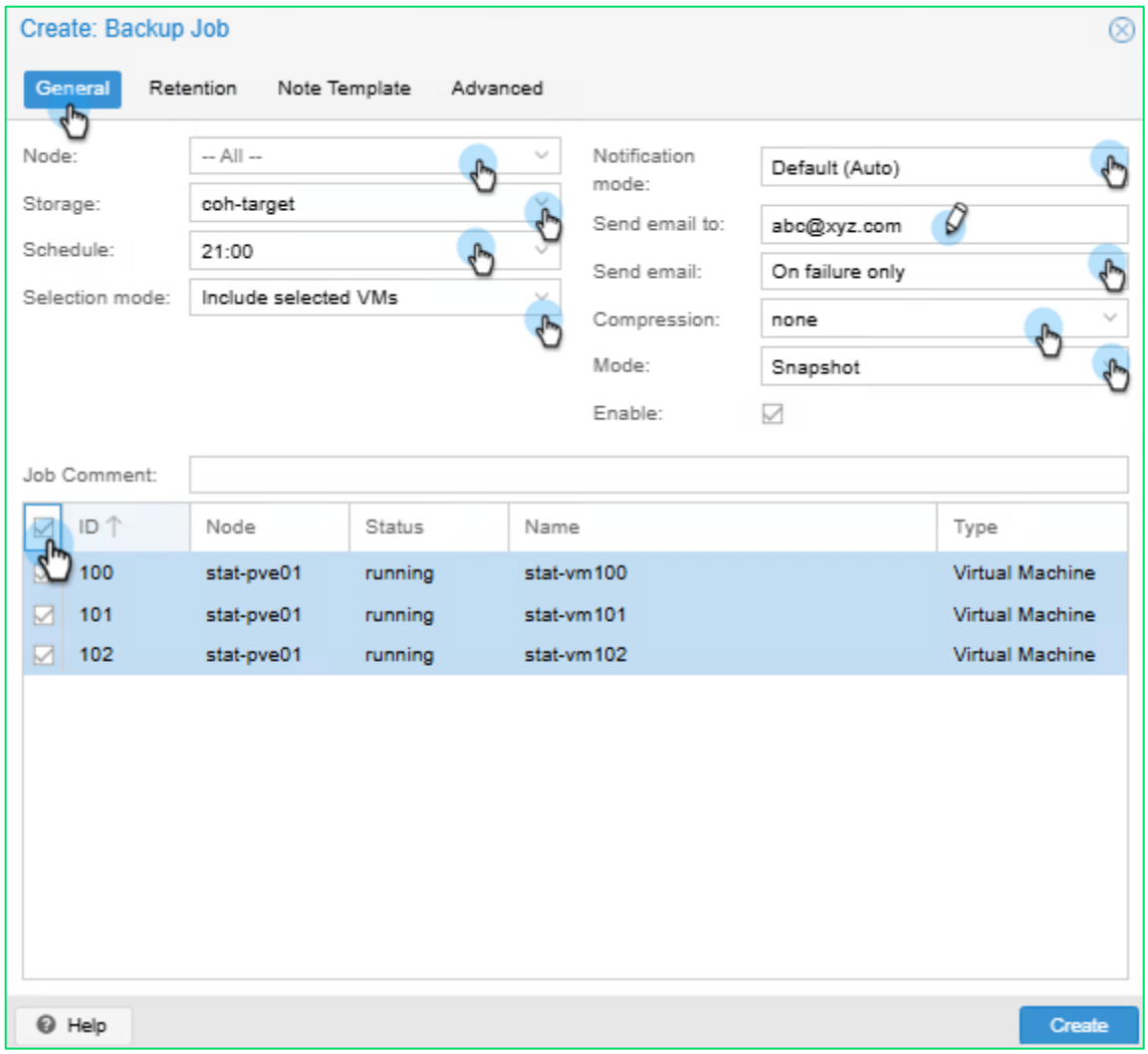


Configure Backup Job in Proxmox VE to Use NFS Storage

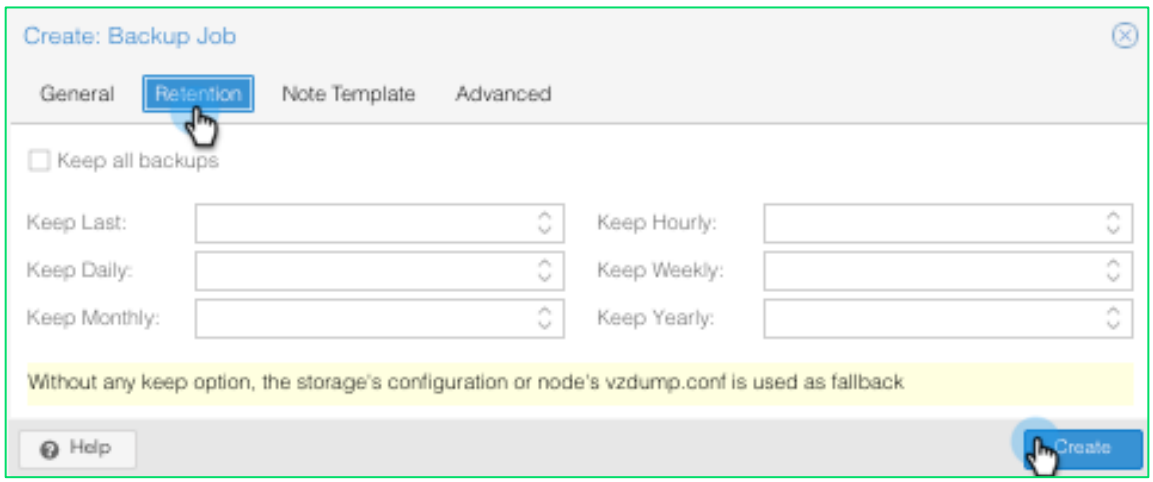
1. Log in to the Proxmox VE (PVE) UI using port 8006 (https://<IP Address>:8006).
2. Browse **Datacenter > Backup** and click **Add.**



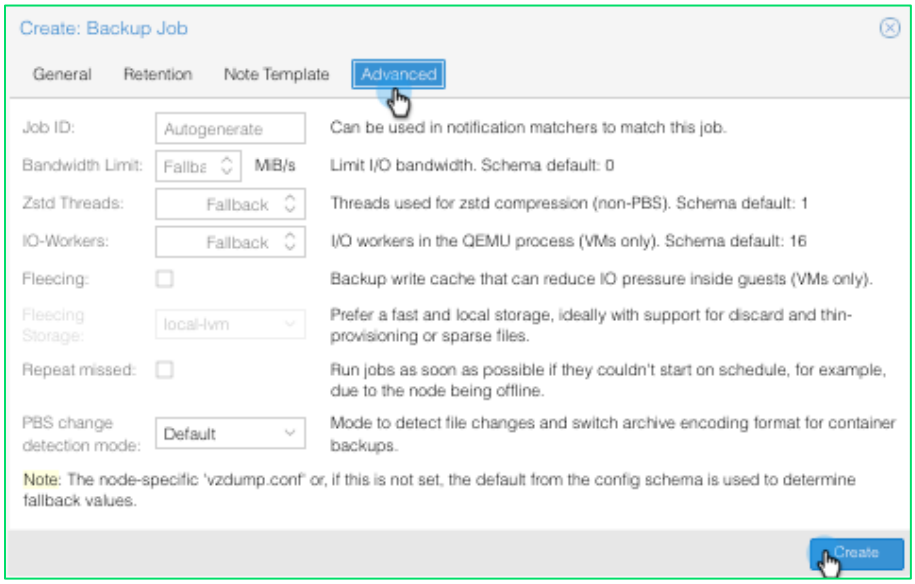
3. In the **Create Backup Job > General** tab, fill in the required details and click on **Create**.
   - **Node** – The PVE node to be protected. Default is All
   - **Storage** – The NFS storage configured in the previous section.
   - **Schedule** – Backup jobs can be scheduled so that they are executed automatically on specific days and times.
   - **Selection Mode** – VM selection. Available options are All, Include Selected VMs, Exclude Selected VMs, and Pool-based.
   - **Notification Mode** – Available options are Default (Auto), Auto, and Email (legacy) Notification system.
   - **Send email to** – Recipient email address.
   - **Send email** – Available options are Always, On failure only.
   - **Compression** – Select None, as we will leverage Cohesity's Compression algorithm.
   - **Mode** – There are several ways to provide consistency (option mode), depending on the guest type. The available options are Stop Mode, Suspend Mode, and Snapshot Mode.



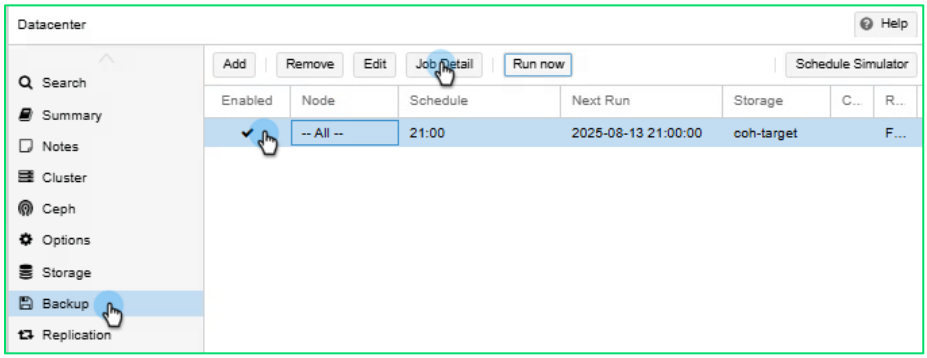
4. Go to the **Retention tab** and set the backup retention as desired. Refer to [Backup Retention section of the Proxmox product documentation] for more details.

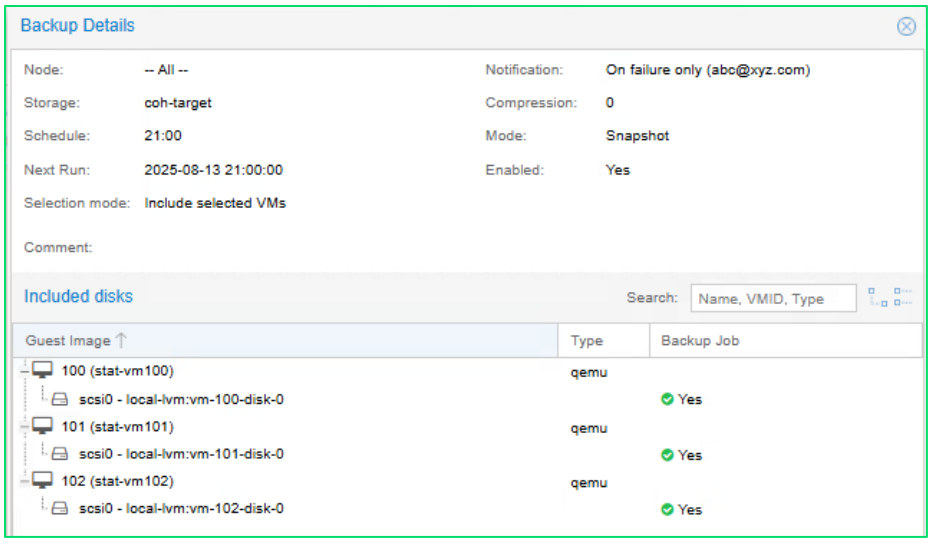


5. Go to the **Advanced tab** and set the backup jobs' advanced settings as desired and click **Create**. Refer to [the Backup Job section of the Proxmox product documentation] for details.



6. Review the newly created job details.



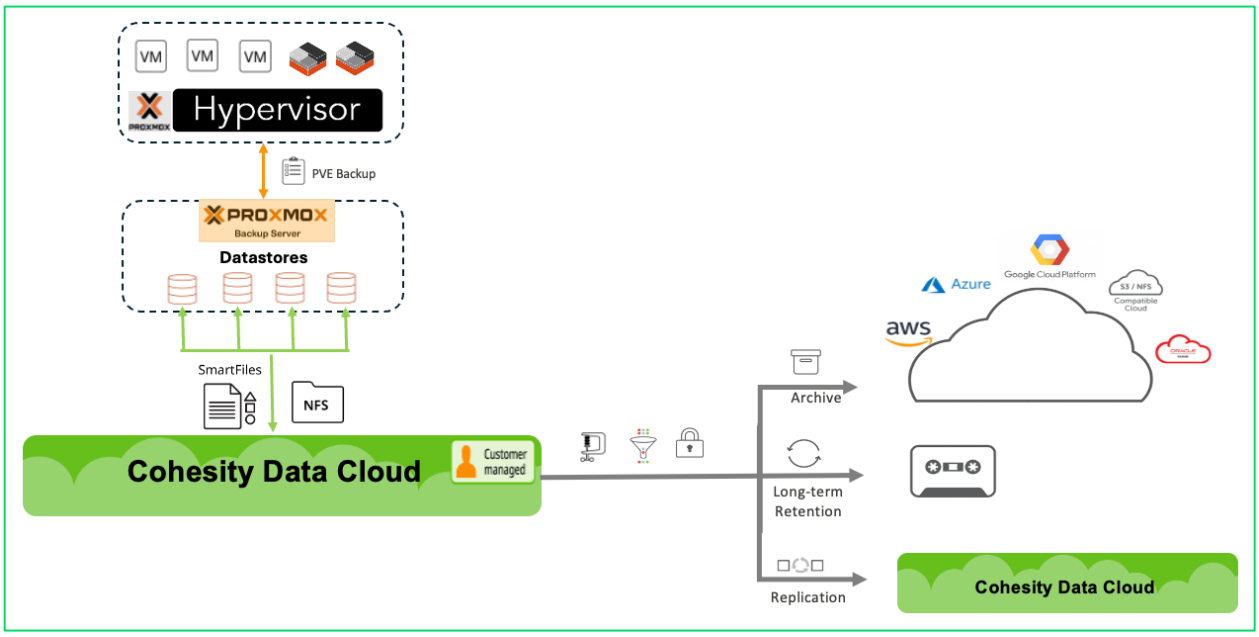


Cohesity Backup Target for Proxmox VE Workflow Overview – PBS Approach

As described earlier, Cohesity SmartFiles can be used to create network shares for a variety of purposes. In this workflow, such a share can be attached as storage to another Proxmox VE component – the Proxmox Backup Server (PBS). You need to first mount the Cohesity SmartFiles NFS view on the Proxmox Backup Server and create a datastore pointing to this absolute NFS mount path. In Proxmox VE, you then need to add storage of type PBS using the created datastore. Once the PBS storage is added in PVE, you need to create a backup job to protect the relevant workloads and point it to the newly added PBS storage.

NOTE: Proxmox VE backups are always full backups - containing the VM/CT configuration and all data.

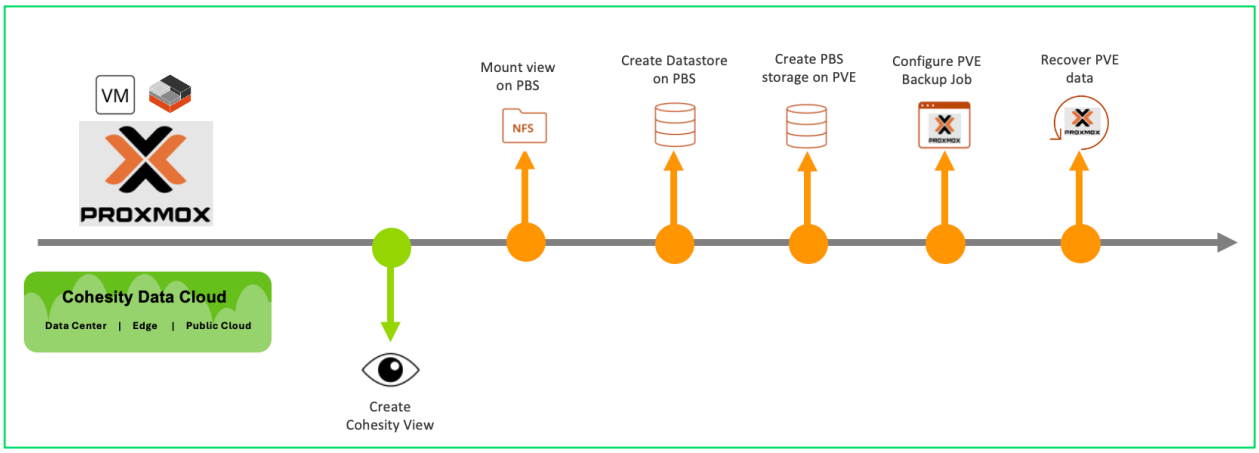
Figure 4: Cohesity Proxmox VE Data Protection using PBS



To use a Cohesity SmartFiles NFS View as a backup target for Proxmox backup, you need to perform the following tasks.

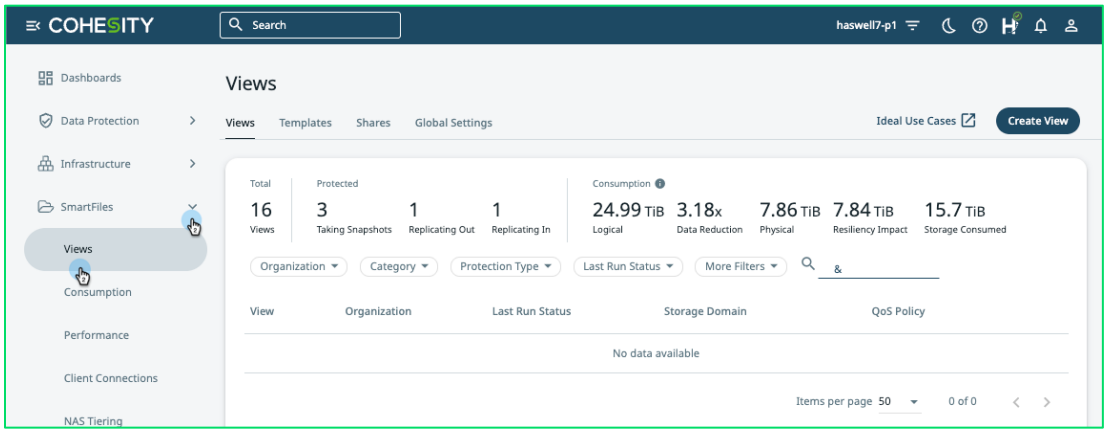
1. Create a SmartFiles NFS view on the Cohesity Cluster
2. Persistently mount the Cohesity SmartFiles NFS view on the Proxmox Backup Server.
3. Create a Datastore on the Proxmox Backup Server.
4. Add storage type “PBS” in Proxmox VE.
5. Configure a backup job in Proxmox VE to use the PBS storage that you created.

Figure 5: Cohesity – Proxmox Workflow (PBS Approach)

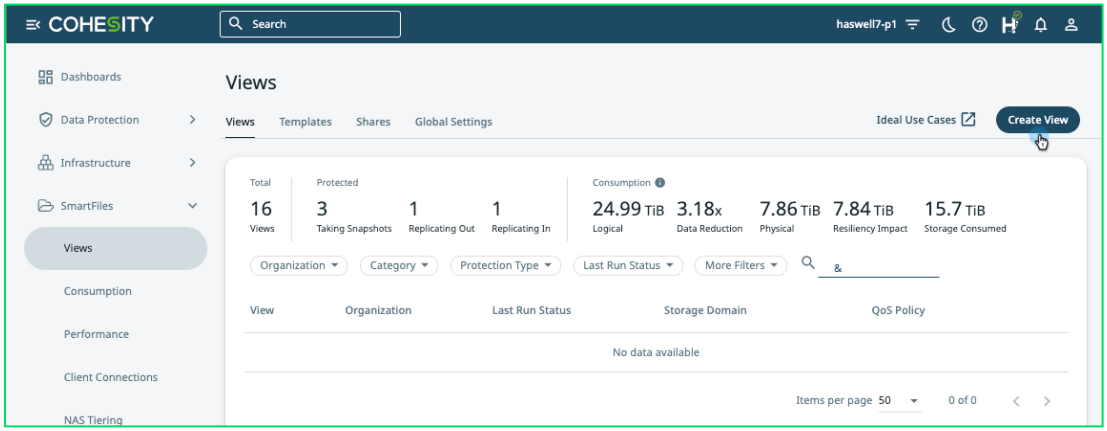


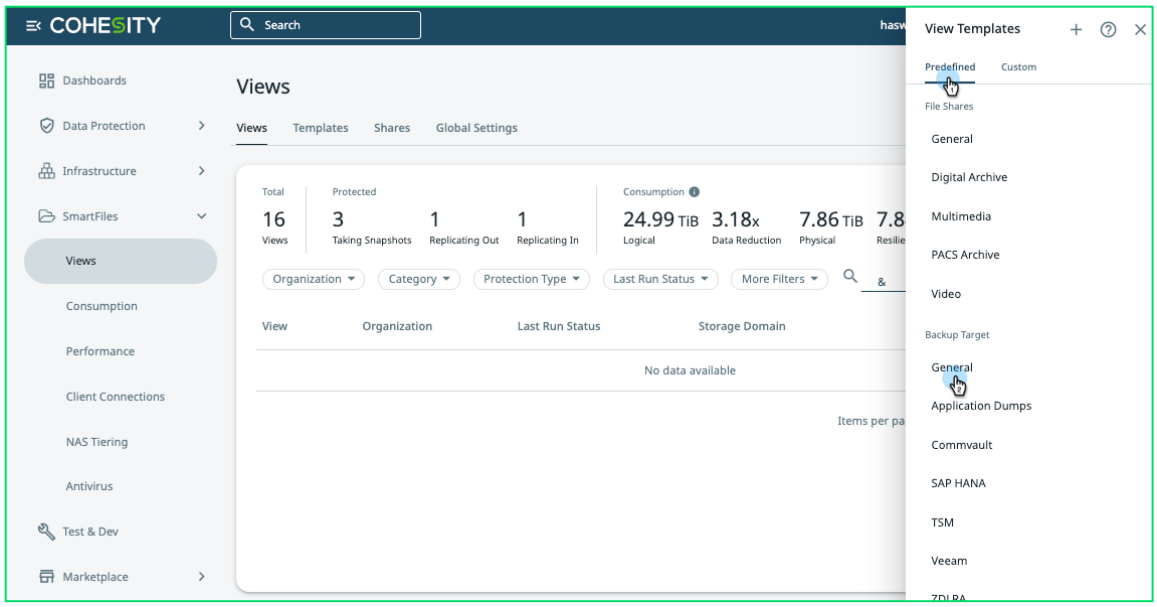
Create SmartFiles NFS View on Cohesity Cluster

1. Log in to Cohesity UI and Navigate to **SmartFiles > Views.**

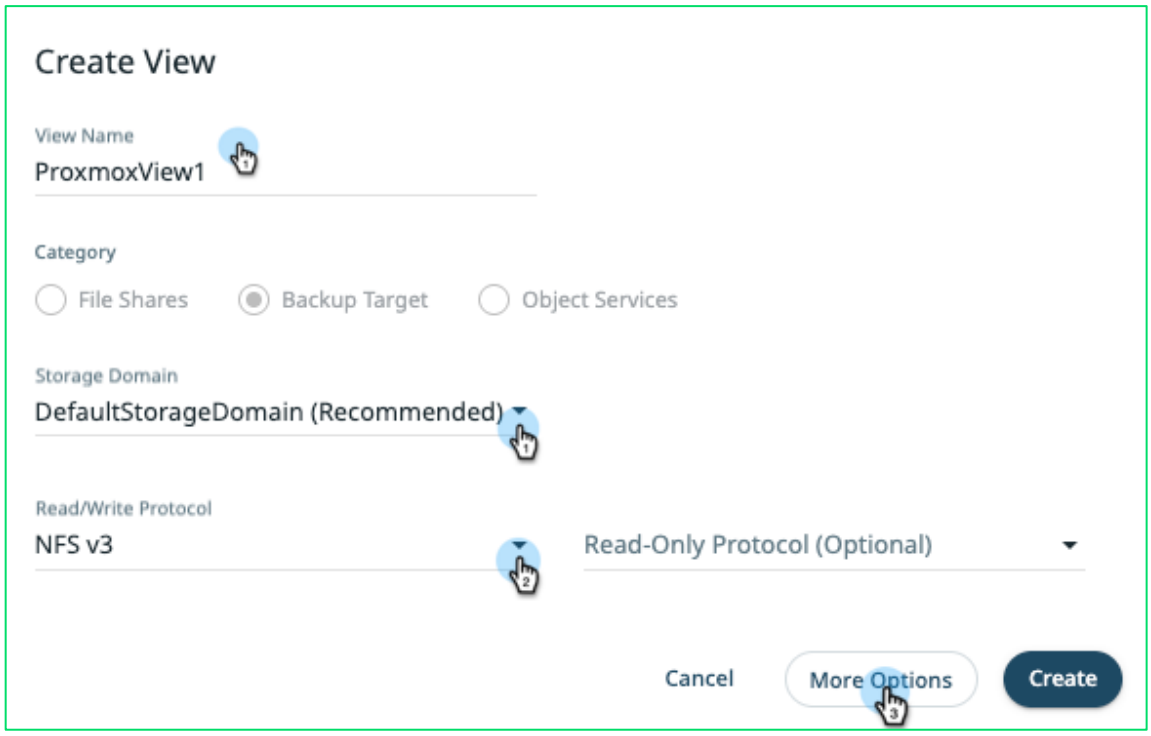


2. On the **Views** page, click the "**Create View**" button and click **General** under **Backup Target**.

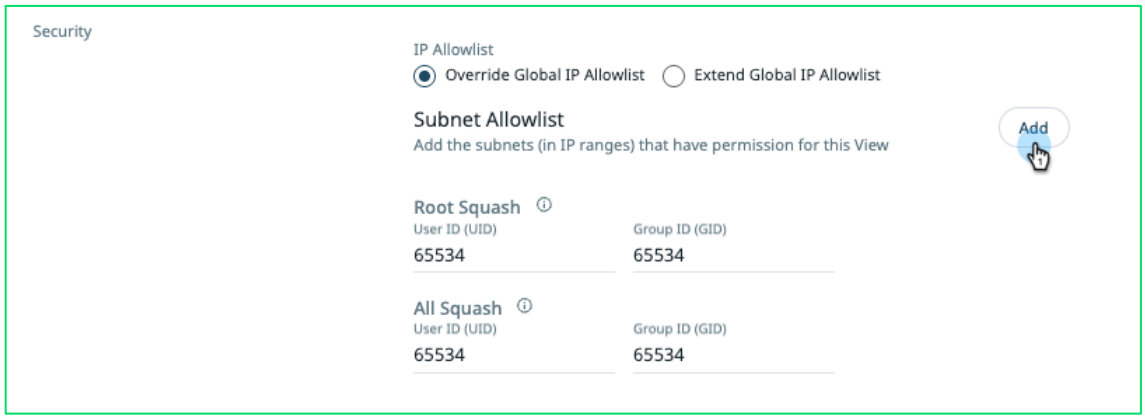




3. In the **Create View** form, name the **View**, choose the **Storage Domain**, under **Read/Write Protocol**, select NFS (v3 or v4.1), and click **More Options**.

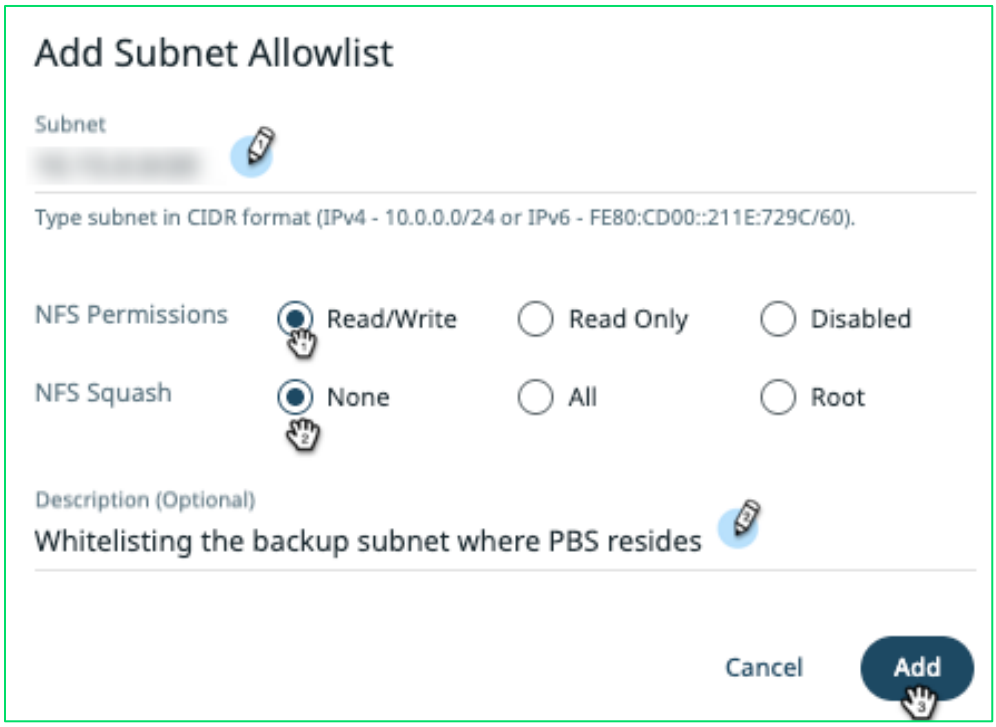


4. Under **Security**, click **Edit (** **)** on the right and click **Add** to **Add Subnet Allowlist**.

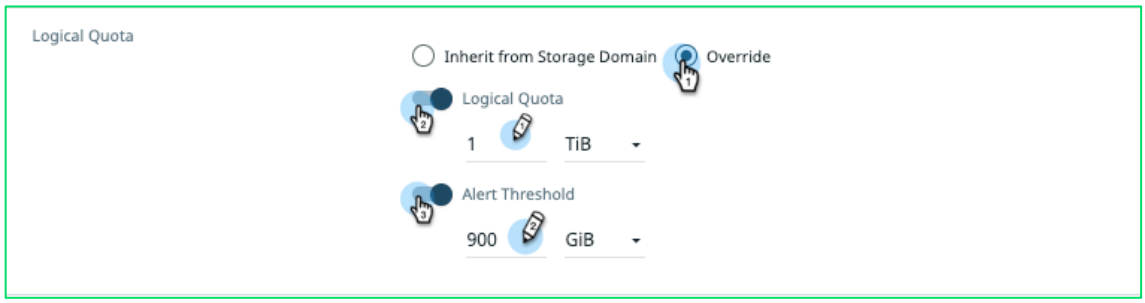


5. Under **Subnet**, type the Subnet to allow, for **NFS permissions** select **Read/Write,** and for **NFS Squash** select **None**.

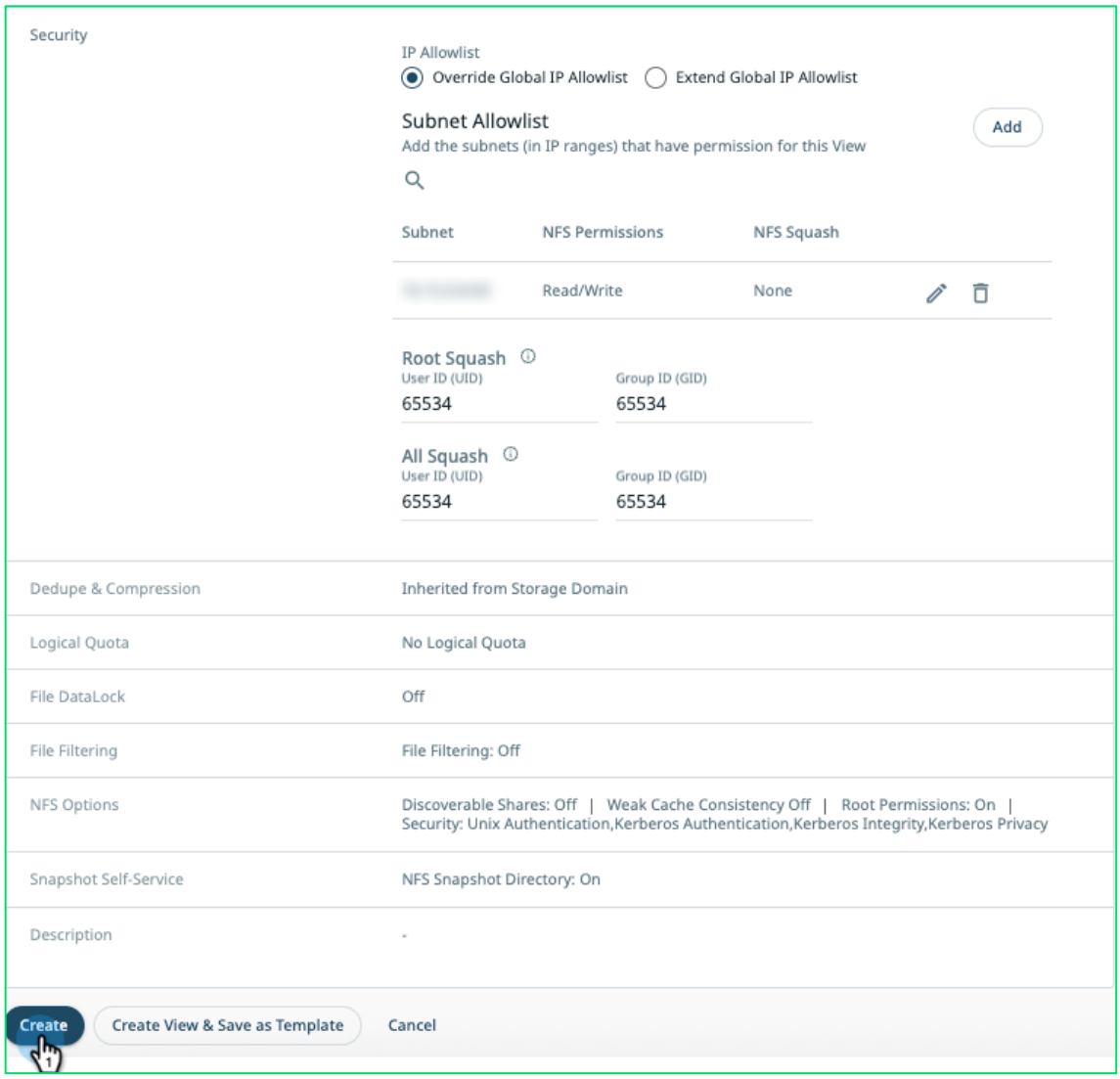
NOTE: This is the backup subnet where the PBS resides.



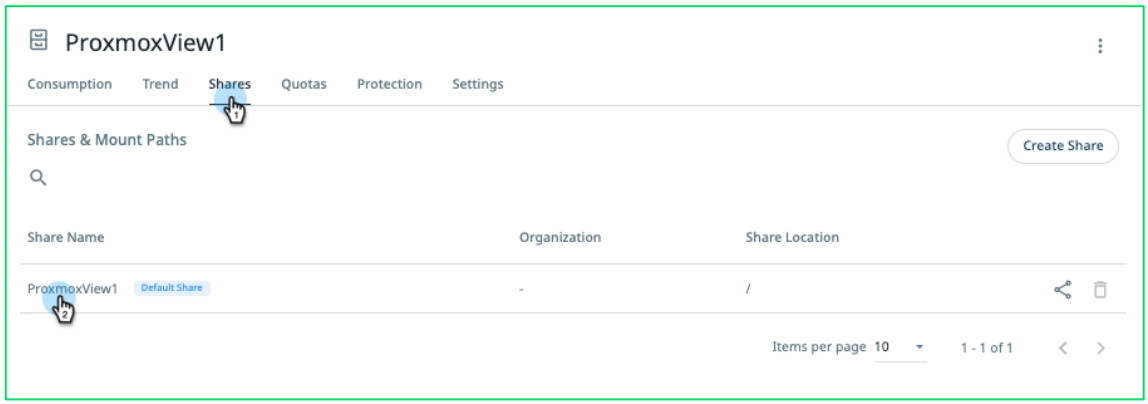
6. If desired, you may set a quota to limit the amount of storage available for backups. Under **Logical Quota**, select **Override**, toggle and enable **Logical Quota** and set the desired value**,** toggle and enable **Alert Threshold** and set the desired value.



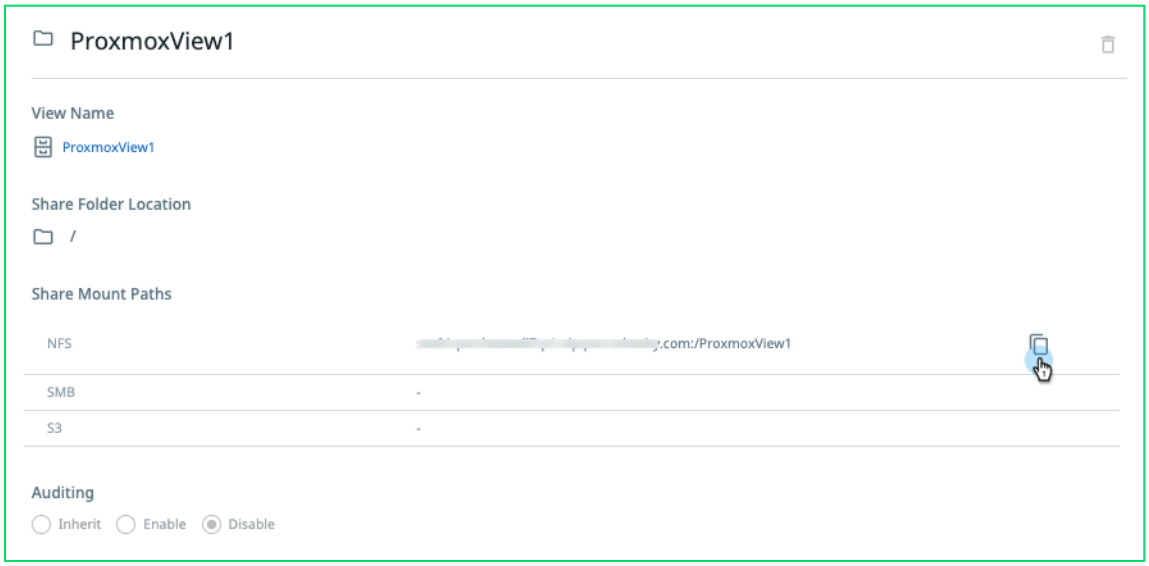
7. Review the settings and click **Create**.



8. Go to the newly created view by clicking on it under **SmartFiles > Views.**
9. Click the **Shares** tab and click on the Share Name “**ProxmoxView1**”.

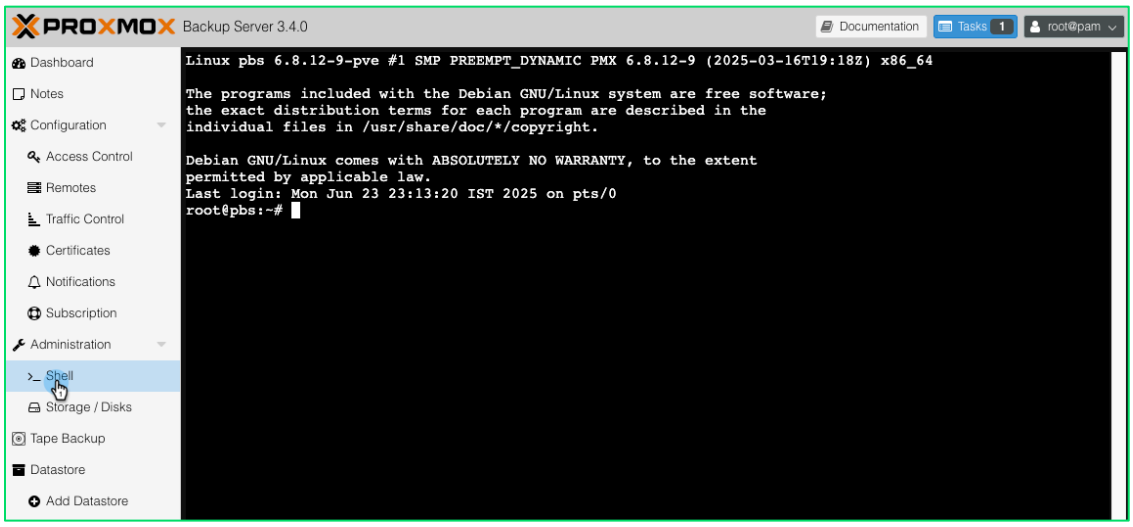


10. Copy and note the NFS Mount path of this NFS View. This will be needed for the mount operation.



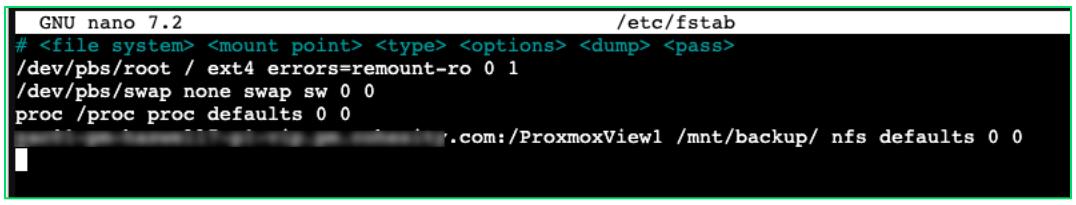
Persistently Mount Cohesity NFS View on the Proxmox Backup Server

1. Log in to the Proxmox Backup Server UI using port 8007 (https://<IP Address>:8007).
2. Click **Shell.**

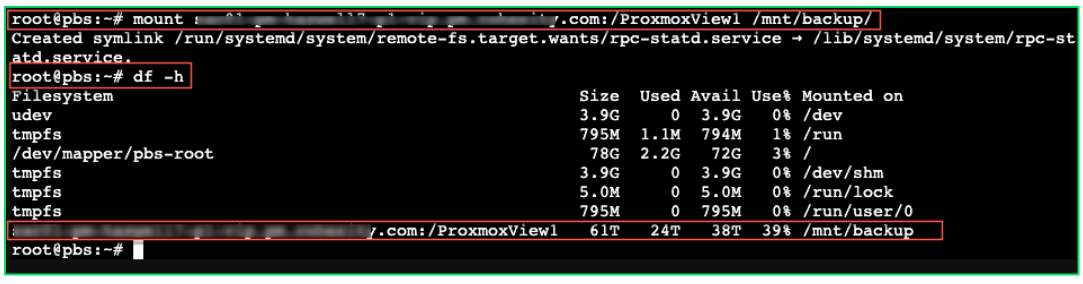


3. Create a directory under /mnt. In this example we will create a direct named /mnt/backup.

4. Edit the /etc/fstab and add the entry for persistent NFS mount and save it.

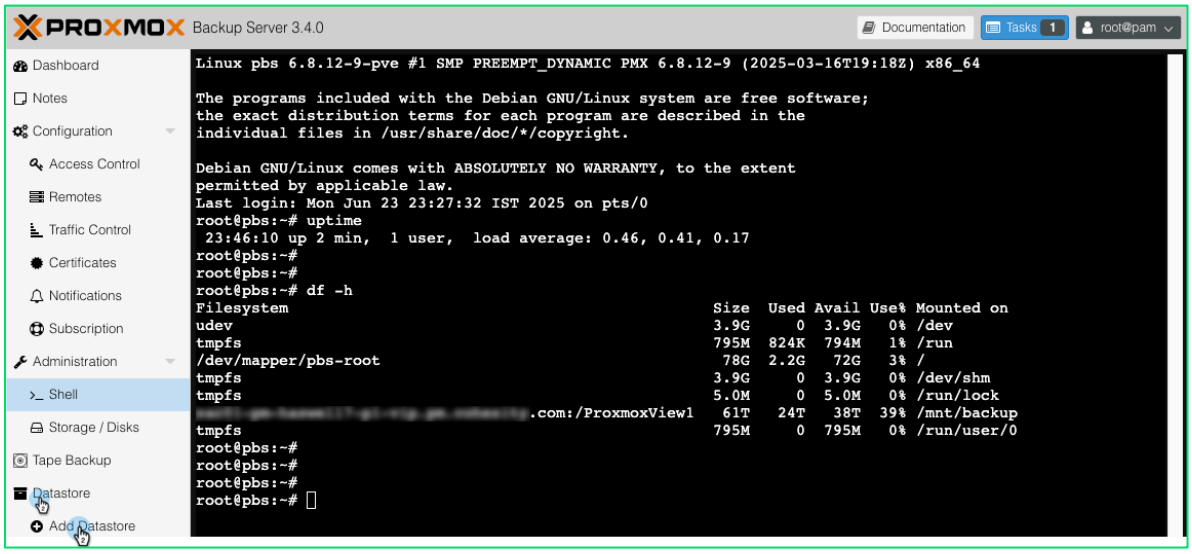


5. Mount the NFS export on the PBS using the mount command confirm.



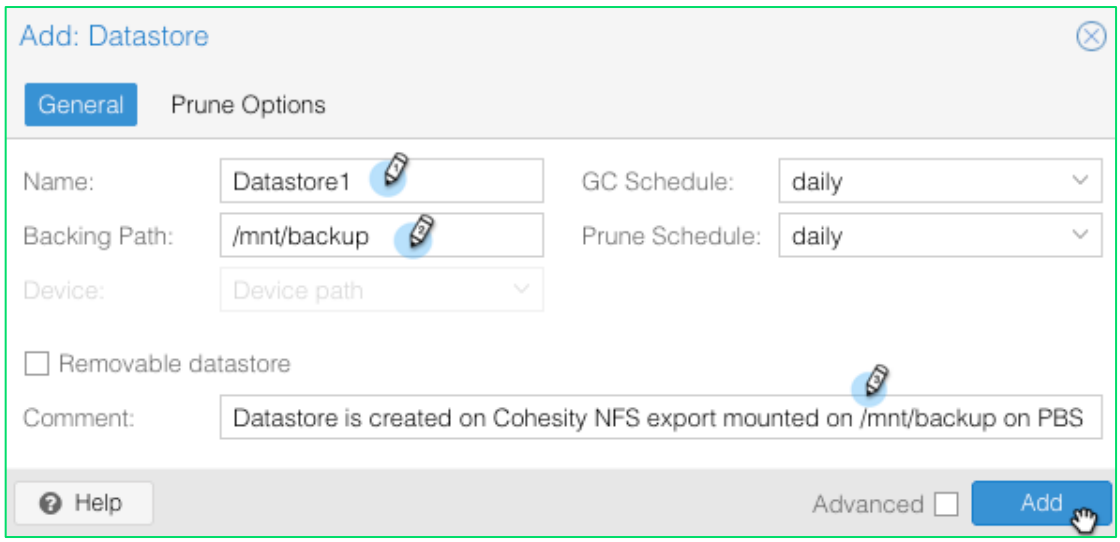
Create Datastore on Proxmox Backup Server

1. Log in to the Proxmox Backup Server UI using port 8007 (https://<IP Address>:8007).
2. Click **Datastore > Add Datastore.**

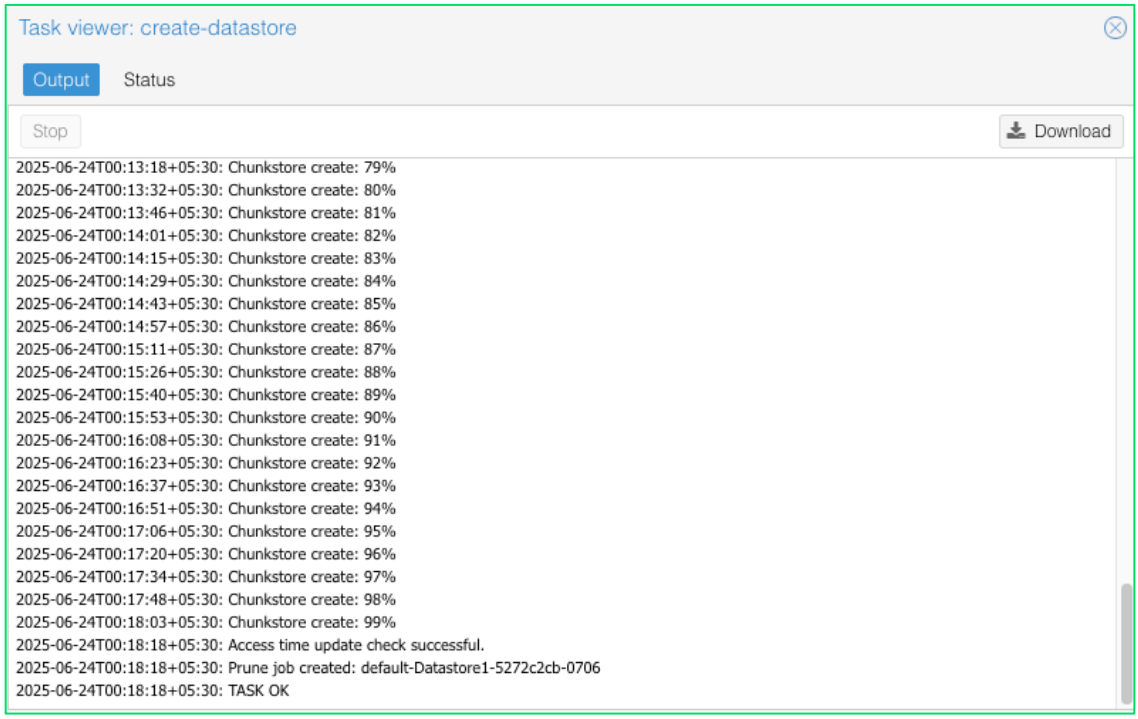


3. In the **Add Datastore** form, enter a Name, Backing Path, and a Comment, then click **Add**.

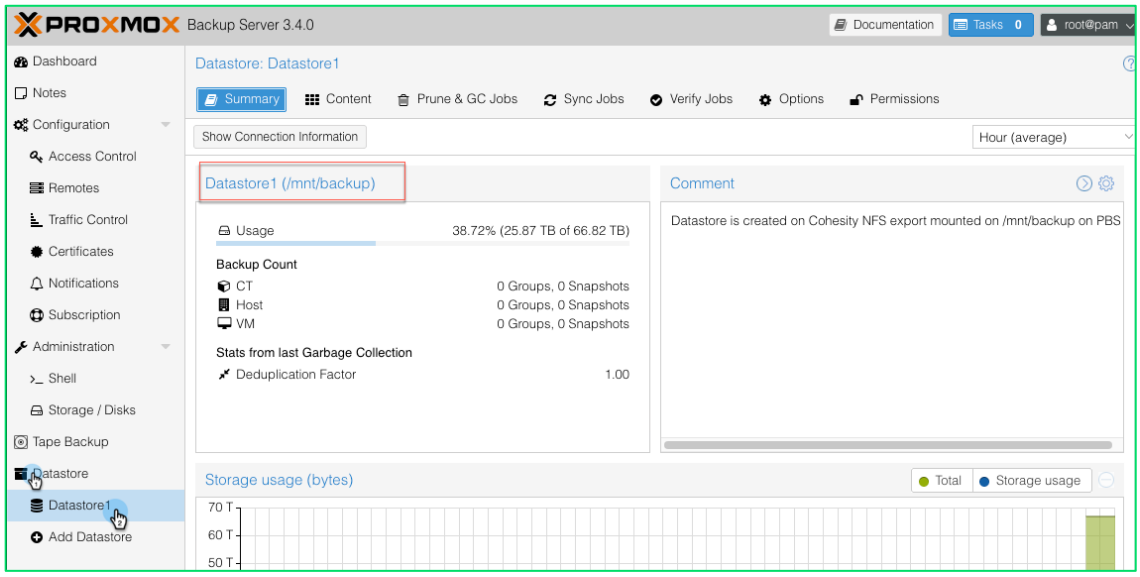
NOTE: GC and Prune Schedule can be at default or changed as desired.



4. Monitor the Chunkstore create task progress to completion.

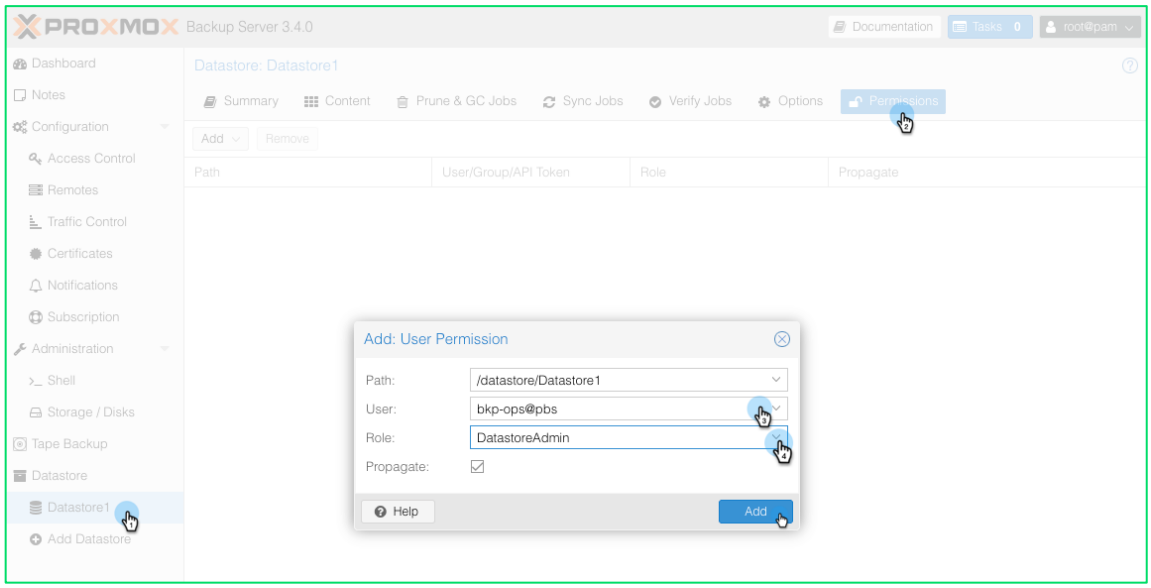


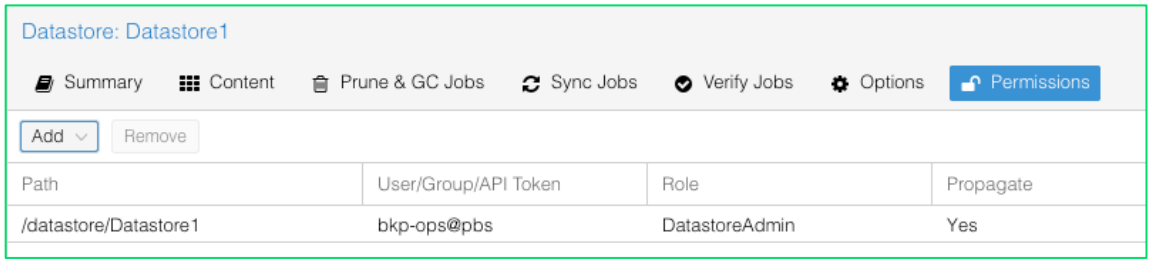
5. Review the newly created datastore.



6. A PBS user must be granted **DatastoreAdmin** privileges on this datastore. This user will be used in a later section to add PBS storage in PVE.

NOTE: If a user is not already created, create one under Access Control.

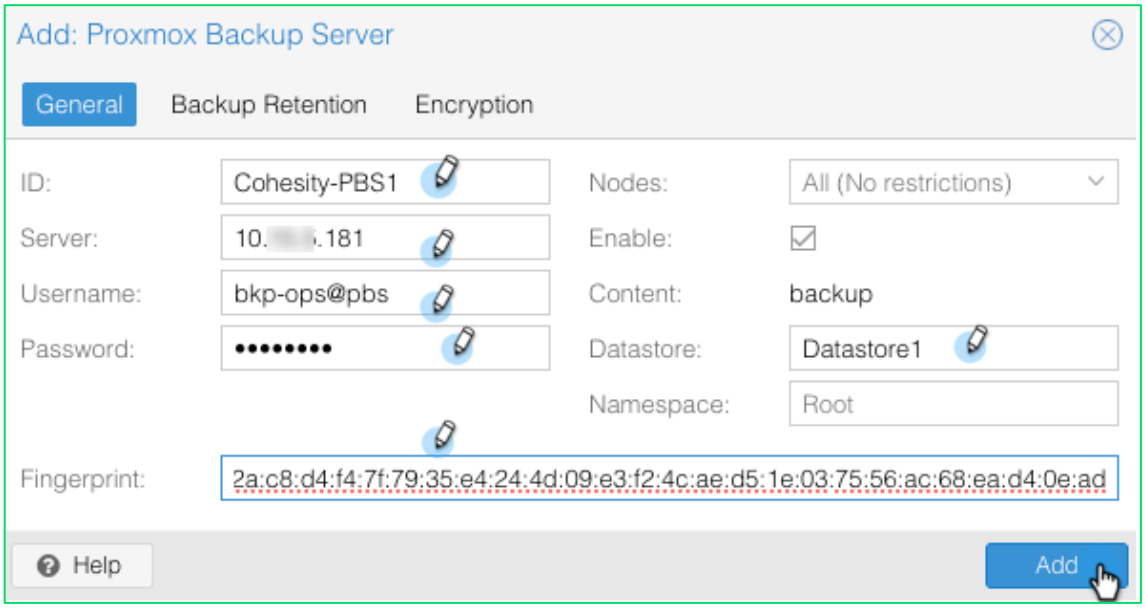


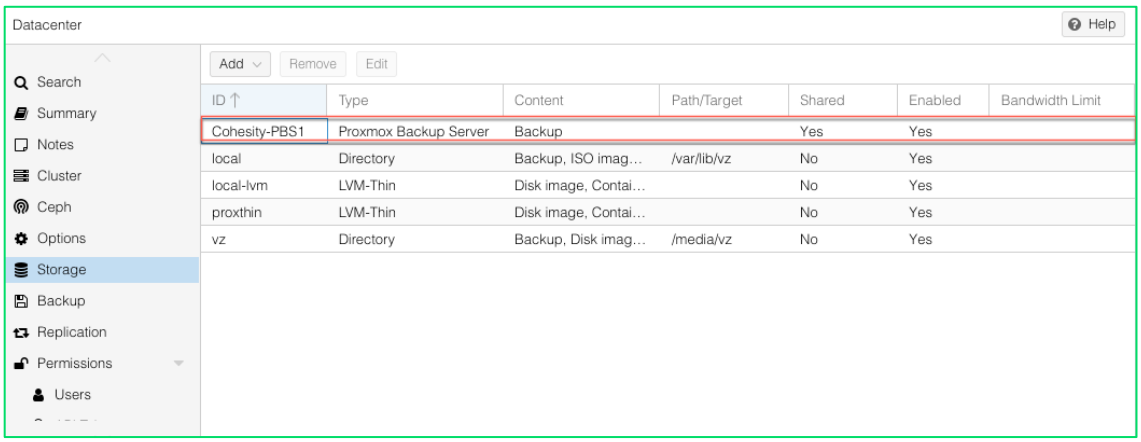


Add Proxmox Backup Server Storage to PVE

1. Log in to the Proxmox VE (PVE) UI using port 8006 (https://<IP Address>:8006).
2. Browse **Datacenter > Storage** and add **Proxmox Backup Server**.
3. In the **Add Proxmox Backup Server > General tab**, provide the requested information and click on **Add**.
   - **ID** – The ID of the Proxmox Backup Server datastore to use.
   - **Server** – PBS Server IP or DNS name.
   - **Username** – The username for the Proxmox Backup Server storage defined in the previous step.
   - **Password** – The password of the Proxmox Backup Server storage user.
   - **Fingerprint** –The fingerprint of the Proxmox Backup Server API TLS certificate. You can get it on the Proxmox Backup Servers Dashboard.

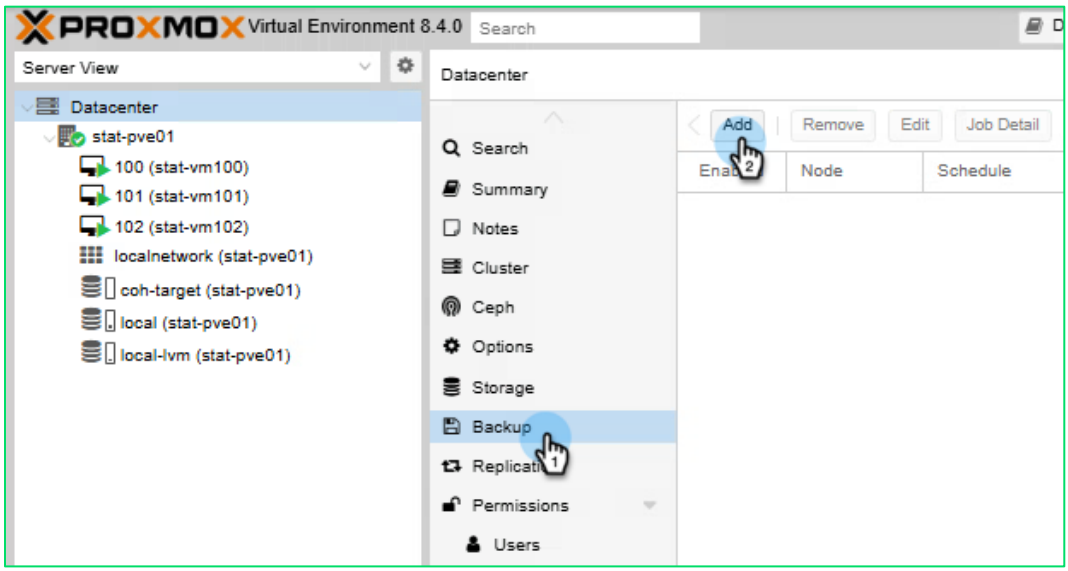
- **Datastore** – The Proxmox Backup Server datastore to use. This should match the datastore name on PBS.



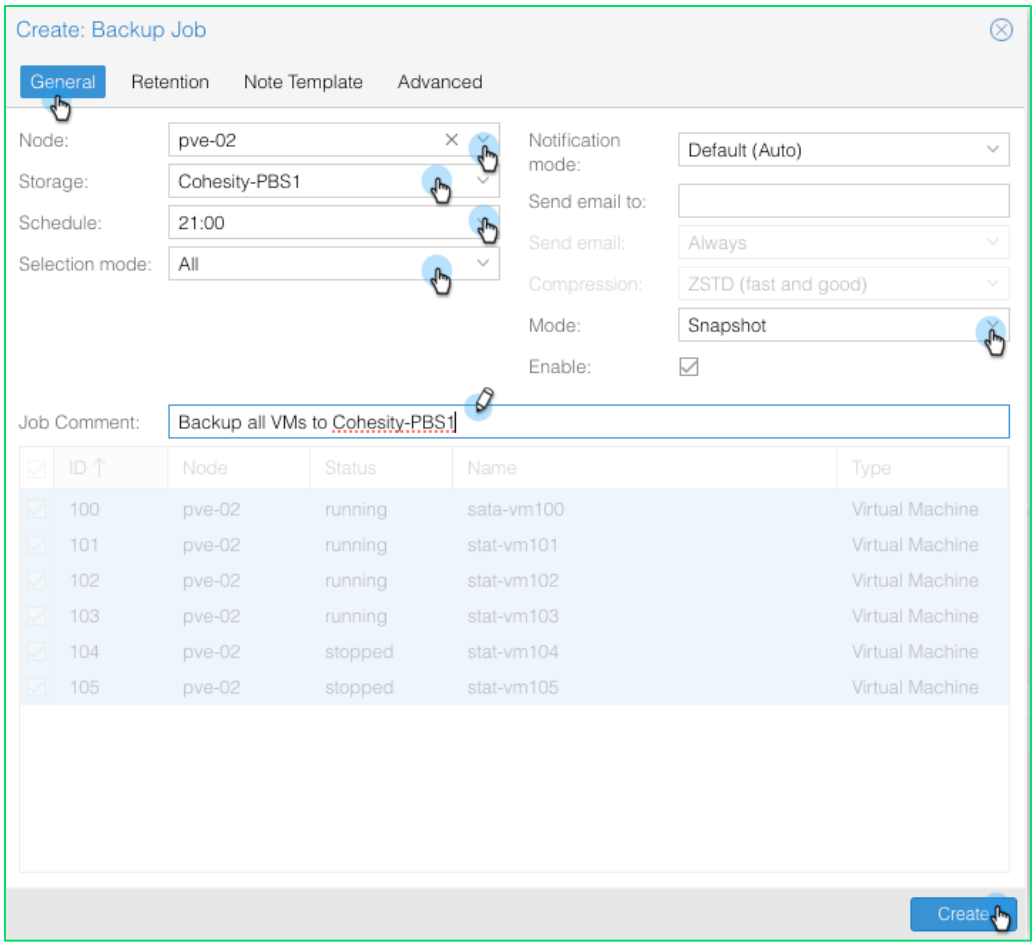


Configure Backup Job in Proxmox VE to Use the PBS Storage

1. Log in to the Proxmox VE (PVE) UI using port 8006 (https://<IP Address>:8006).
2. Browse **Datacenter > Backup** and click **Add.**

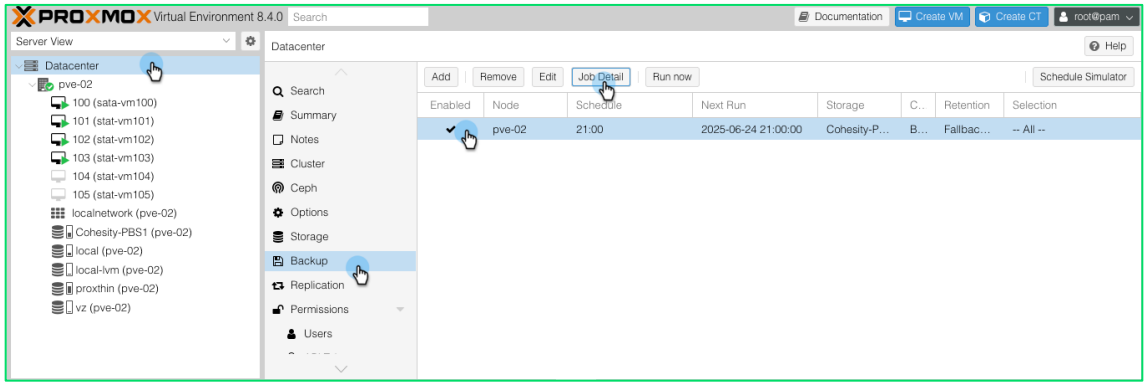


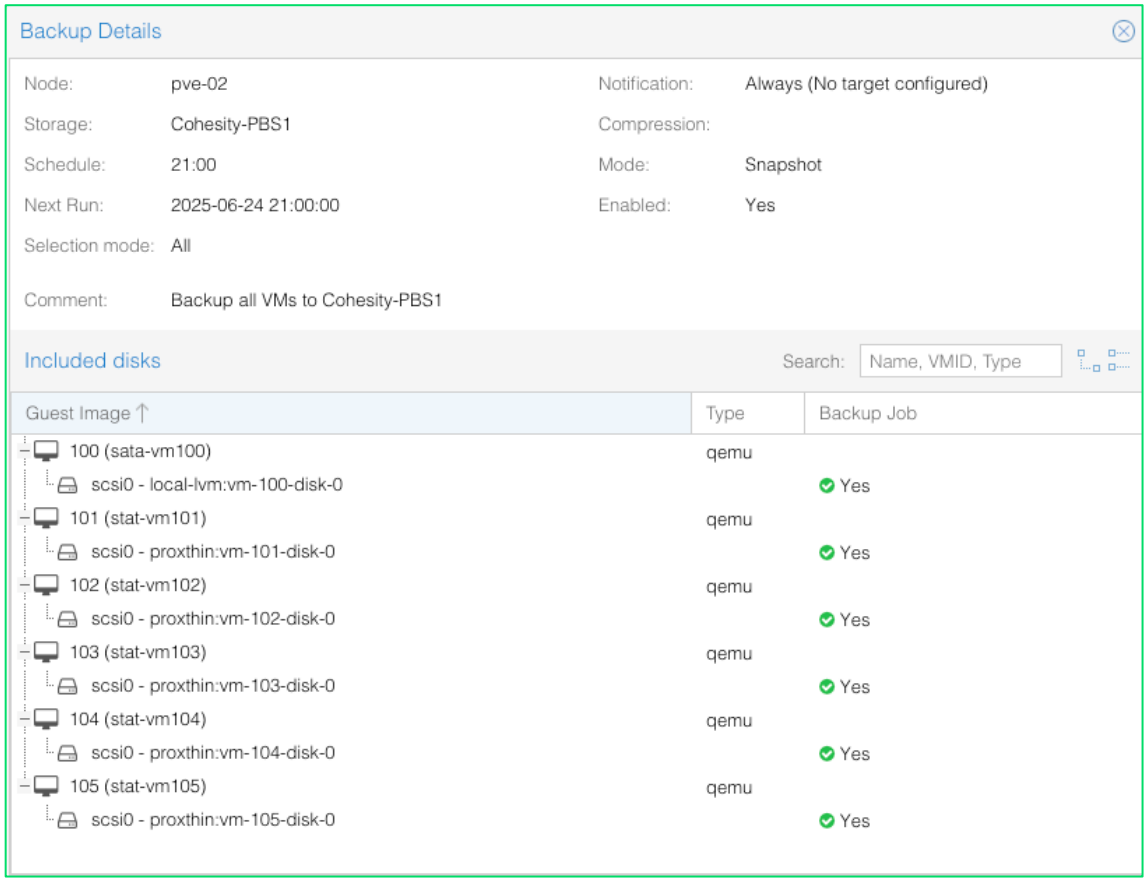
3. In the Create Backup Job > General tab, fill in the required details and click on **Create**.
   - **Node** – The PVE node to be protected
   - **Storage** – The PBS storage configured in the previous section.
   - **Schedule** – Backup jobs can be scheduled so that they are executed automatically on specific days and times.
   - **Selection Mode** – VM selection. Available options are All, Include Selected VMs, Exclude Selected VMs, and Pool-based.
   - **Mode** – There are several ways to provide consistency (option mode), depending on the guest type. The available options are Stop Mode, Suspend Mode, and Snapshot Mode.



NOTE: You may choose to define Retention and other settings as desired. Refer to the product document for more details.

4. Review the newly created job details.





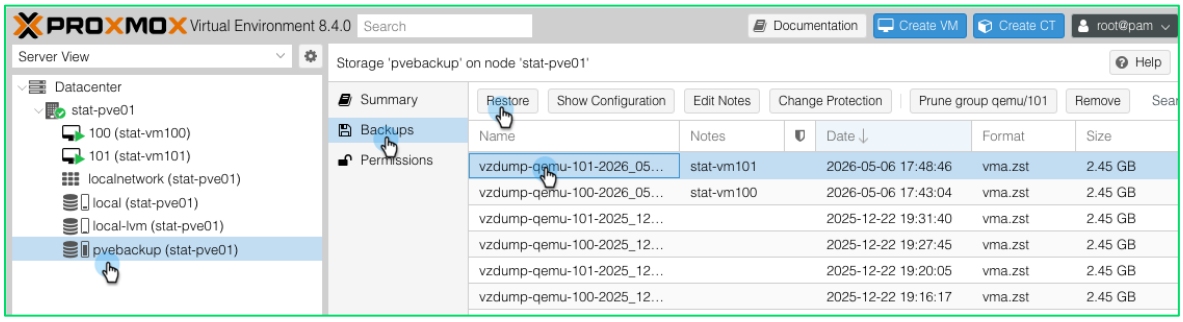
Restore VM in Proxmox VE (Applies to Both NFS and PBS)

A backup archive can be restored through the Proxmox VE web GUI or through the CLI tools. There are no Cohesity-related tasks involved during recovery.

To recover a VM using the CLI tools, please refer to the standard Proxmox VE VM restore procedures available in the Restore section of Proxmox VE documentation.

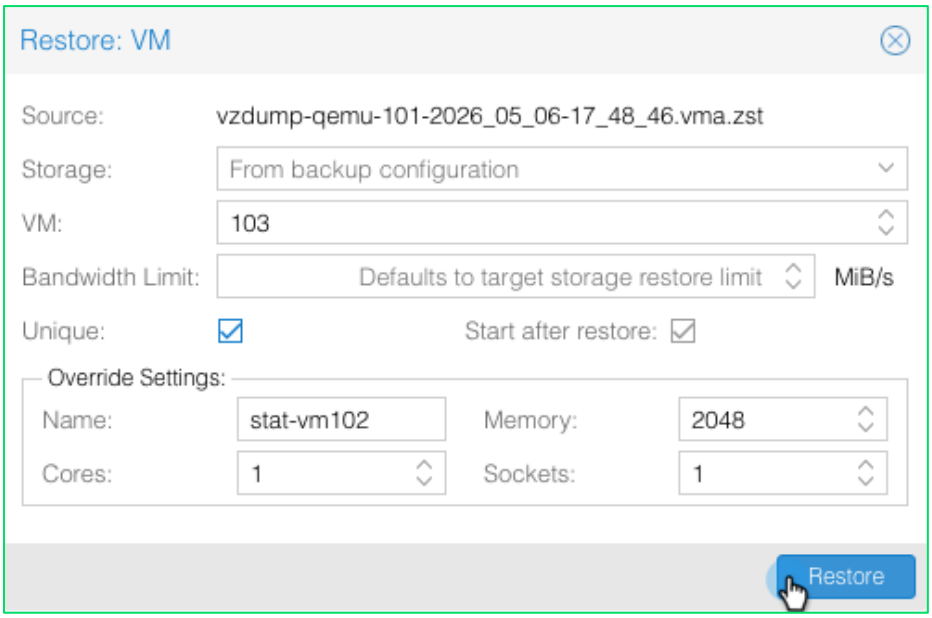
Steps to Restore VM Using Proxmox VE UI (Applies to Both NFS and PBS)

1. Log in to the Proxmox VE (PVE) UI using port 8006 (https://<IP Address>:8006).
2. Select the storage of interest and click on **Backup.**
3. From the listed backup files, select the VM backup and click the **Restore** button.

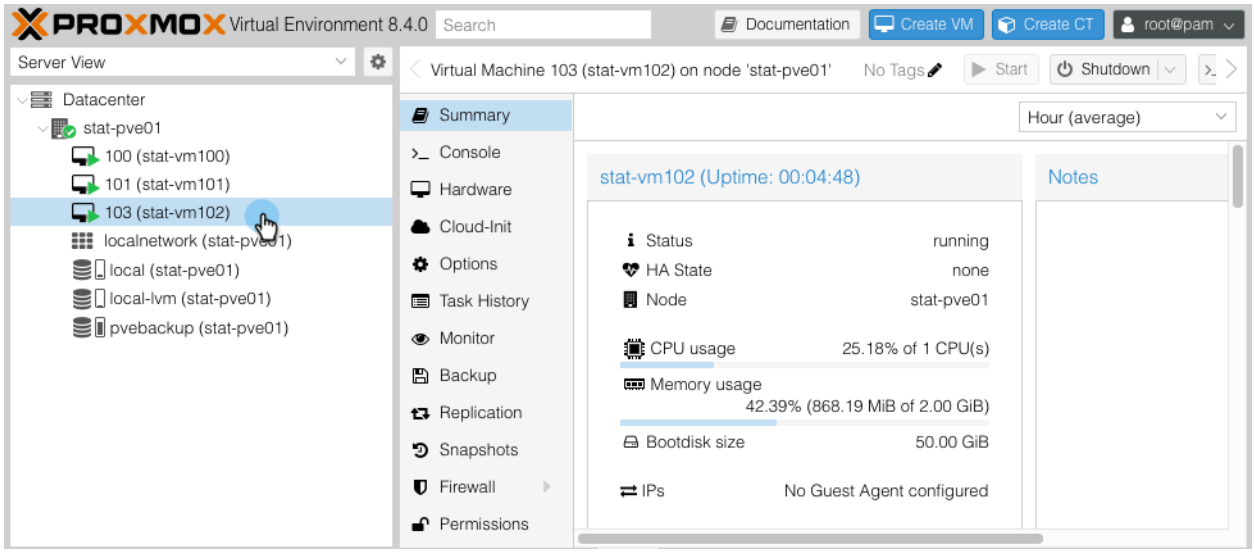


4. Set the restore parameters as desired and click the **Restore** button.
   - **Storage** — Define the storage to use for the recovered VM.
   - **VM** — Unique VM ID of the restored VM
   - **Bandwidth Limit** — Set bandwidth limits for a restore job as desired.
   - **Unique** — Autogenerate unique properties, e.g. MAC addresses
   - **Start after restore** — Power ON restored VM
   - **Override Settings – Name** — Name of the recovered VM.

- **Override Settings – Memory** — Virtual Memory assigned to recovered VM in MBs.
- **Override Settings – Cores** — Number of CPU cores assigned to the recovered VM.
- **Override Settings – Sockets** — Number of CPU sockets assigned to the recovered VM.



5. Ensure that the restored VM is in powered ON state after the restore.



Appendix

Cohesity provides flexibility to its users to manage the Proxmox VE backups from Cohesity UI by leveraging Cohesity Remote Adapter Jobs. The Remote Adapter workflow provides the ability to run scripts or executables on a remote Proxmox VE machine using protection schedules defined by a Cohesity Policy. Please note that Cohesity will not provide the backup script, and the user needs to develop the backup script required for this workflow.

To configure a Remote Adapter Job, you need to perform the following tasks:

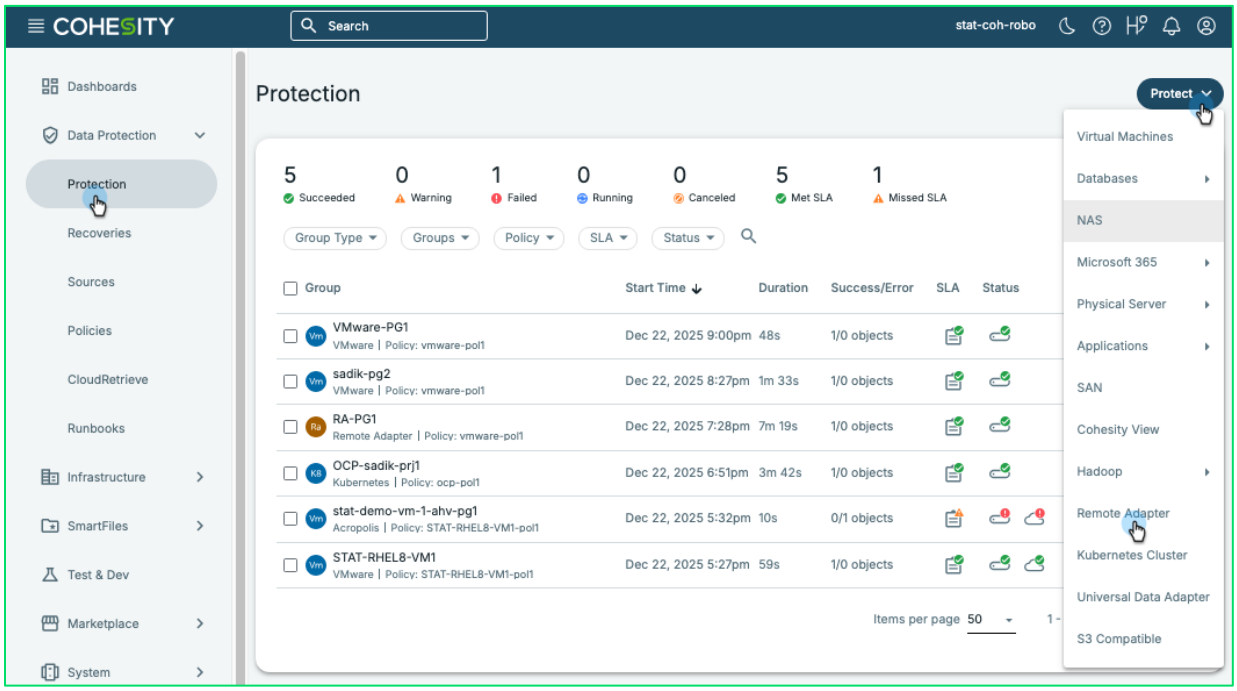
1. Make sure a working backup script is available on the Proxmox VE machine.

   NOTE: An example script is available at GitHub. You may choose to customize and use the script to match your environment or develop a new one.

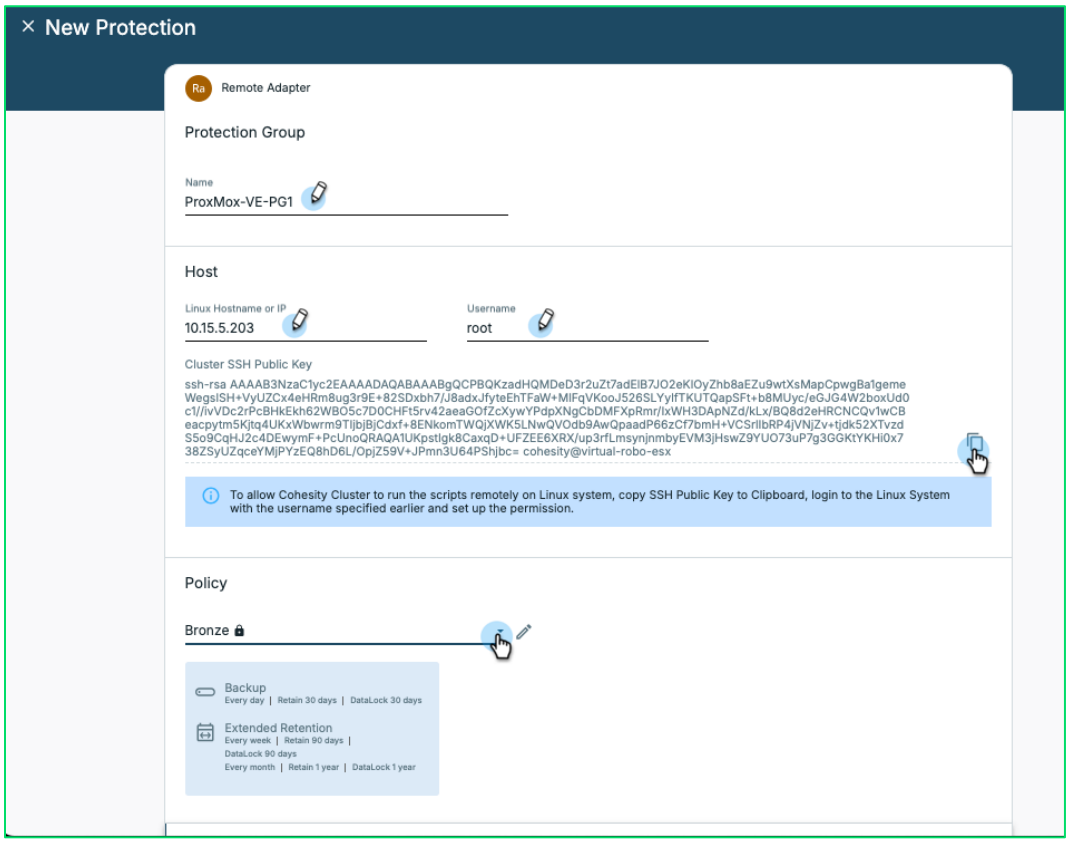
2. Configure a Remote Adapter Protection Group in Cohesity UI.

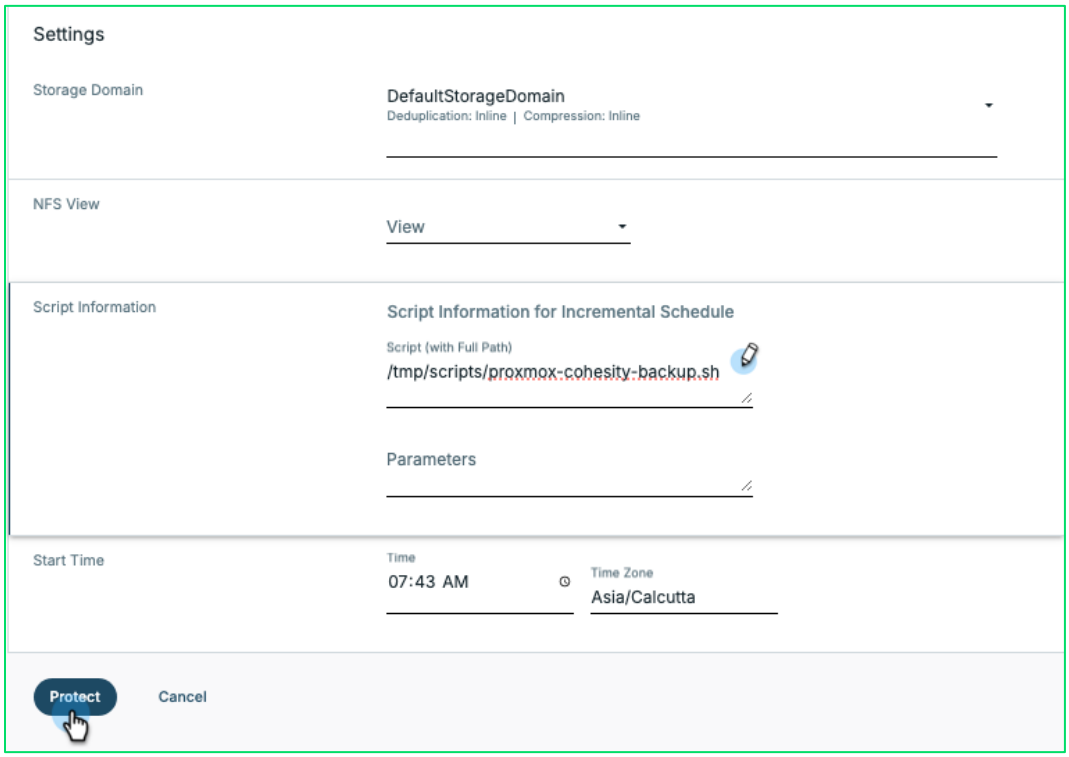
Configure Remote Adapter Protection Group in Cohesity UI

1. Login to Cohesity UI and Navigate to **Protection > Protect > Remote Adapter.**



2. Enter the following details:





- **Name:** Enter a name for the Protection Group. The name can contain alphanumeric characters, underscores, dashes, and periods.
- **Linux Hostname or IP**: Specify the Hostname or the IP Address of the **Proxmox VE** system where the backup script is located and will be run.
- **Username**: Specify the username on the **Proxmox VE** system that will be running the scripts.
- **Cluster SSH Public Key:** Set up permissions on the **Proxmox VE** system to allow the Cohesity cluster to run the scripts remotely on the system.
  - Click **Copy Key to Clipboard** to copy the SSH public key into the clipboard.
  - Add the SSH key to the authorized_keys file located in the ~/.ssh directory.
- **Policy:** Select an existing protection policy or create a new one by selecting New Policy.

  NOTE: Refer to Create or Edit a Standard Policy.
- **Script (with Full Path):** Enter the full path to the script.
- **Parameters:** If the script requires parameters, enter them in this field.

Your Feedback

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About the Authors

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Document Version History

VERSION	DATE	DOCUMENT HISTORY
1.1	May 2026	Added Appendix and VM Recovery Procedure.
1.0	Aug 2025	First release

About Cohesity

Cohesity is a leader in AI-powered data security and management. Aided by an extensive ecosystem of partners, Cohesity makes it easier to protect, manage, and get value from data – across the data center, edge, and cloud. Cohesity helps organizations defend against cybersecurity threats with comprehensive data security and management capabilities, including immutable backup snapshots, AI-based threat detection, monitoring for malicious behavior, and rapid recovery at scale. Cohesity solutions are delivered as a service, self-managed, or provided by a Cohesity-powered partner. Cohesity is headquartered in San Jose, CA, and is trusted by the world's largest enterprises, including six of the Fortune 10 and 42 of the Fortune 100.

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