

# Using PetaSAN S3 as a Veeam Backup Repository

Version 2.0



## **Revision History**

Date	Version	Description
26/5/2022	1.0	Initial version
02/11/2023	2.0	Adding steps using Veeam 12



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## 1. Purpose

The purpose of this document is to describe how PetaSAN S3 Object storage can be used as a Veeam Backup repository.

Currently Veeam supports using Direct-to-object storage to S3 Object storage (Veeam version 12)

While previously Veeam supported using S3 Object storage as a capacity tier (Veeam version 11)

## 2. Pre-requisites

This document assumes the user has the following components are already installed:

- Veeam Backup and Replication version 12 with one Veeam server installed.
- PetaSAN Release 3.0.0 or higher is installed with S3 service running on one or more nodes, recommended to setup zone to use EC data pool for best storage efficiency. . Please refer to the S3 setup guide.
- In zonegroup a new placement target named "backups" has been created and is defined in the zone. Please refer to the S3 setup guide.

## 3. PetaSAN Configuration

## S3 Settings

- Need to use https, in this example we are using a certificate with common name "s3-service" and using port 8000.
- For generated self signed certificates, the common name needs to match the S3 service URL that we will use to access the service, it needs to be configured in the hosts file as done in this example as shown below or needs to be defined in a round robin DNS. We also need to download certificate and then install it on the Veeam server as will be shown later.



PetaSAN							C
3 Settings						✗ Configuration	<ul> <li>S3 Settings</li> </ul>
RadosGW http port:* 7480						喜 Network Confi	guration
Load Balancer Port:*							
8000							
HTTPS 0     Private Key:*							
BEGIN PRIVATE KEY HIIJOgEBADANBgkghkiGymBAQEFAASCCSwwggkcAgEAAOICAQDadvcBVFrF25h2 utbgnCl//zmonojk3R5+Wj+Xe41S0yluvMFsnrHd9rqNeQsJEGY9M0gimqm4sFgO ea8qETTWBIKOIRQWj27p//xc15x90rd5p0ujBuSn326mmt415CaC3gWS6BuRbk FqT1xugYvMhCKd+SMm27mvMHIGTEFKxwaS/VuO+eMydQV3ASDhUDHIdubiDa521 v/kQUNARX7a8T2PUmjGIVsttEBXRvv0BI//ShbAZomo2PqmkQ7fZmqlLY4kcKMmb			•	Generate			
Certificate:*							
BEGIN CERTIFICATE MIIE0TCCArmgAwIBAgIUf6L0yASC4HZoAlC4bDAki/9yMxxwDQYJKoZIhvCNAQEL BQAwFTETME6GAIUEAwmKU2HtC2VydmljZTAkeFw9MyfjAM0CxXIDAAMfJNaFw60MjA0 MDExNDA4MjNaM8UXEZARBgNVBAMMCIAVLXNICAZPYZUWggIIMA0GC4GSG15J3DQEB AQUAAICDwWwgEIKAOICAQDadvc8VFFZ5hZvtbgnCl//zmonoj6XR5+Wj+XeAIS 0ylwvMFsnrHd9rqNeQsJEGY9M0gimqm45Fg0ea8qETTW8lkOIRtQMjZ7p//xxIsx			•				
Certificate CN:							
s3-service							
Interface:*							
eth2 ~							
Subnet Mask:*							
255.255.255.0		VLAN Tagging					
Public IP Range: From: * 0	To: *						
□ 10.0.3.10		10.0.3.12					
Gateway:      O Custom							
					Cancel	Download Certificate	Save



C:\Windows\System32\drivers\etc\hosts - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ? ) 😑 🗄 🖻 🕞 🅼 🎒 🔏 🖒 🛅 🗩 🗲 📾 🦕 🍳 🔍 🖫 🏣 11 🎼 🖉 📓 🖺 🖉 📼 💌 🗩 🗩 🖷 블 2612-TS008592192.html 🗵 🔚 hosts 🗵 # Copyright (c) 1993-2009 Microsoft Corp. 1 2 # 3 # This is a sample HOSTS file used by Microsoft TCP/IP for Windows. 4 # # This file contains the mappings of IP addresses to host names. Each 5 # entry should be kept on an individual line. The IP address should 6 7 # be placed in the first column followed by the corresponding host name. 8 # The IP address and the host name should be separated by at least one 9 # space. # Additionally, comments (such as these) may be inserted on individual # lines or following the machine name denoted by a '#' symbol. 13 14 # For example: 15 # 102.54.94.0 rhino.acme.com 38.25.63.10 x.acme.com 16 # # source server # x client host # 18 20 # 127.0.0.1 localhost 21 # ::1 localhost 22 # localhost name resolution is handled within DNS itself. 23 24 10.0.3.10 s<sup>3-service</sup> 25

#### Add S3 user

• In this example we will create new S3 user named Veeam that stores its data in backups placement target which was created earlier.



S3 User		S3 Configuration
0		
isplay Name:*		
Veeam		
mail:		
Email		
suspended:*		
) Yes	No	
Default placement ta	irget:* 🚯	
backups		~
Max number of buck	ets:*	
1000		
Bucket Quota		
Max Size:*		
<ul> <li>Unlimited</li> </ul>	<ul> <li>Limit Size</li> </ul>	
Max Number of (	Dbjects:*	
Unlimited	O Limit Number	
ser Quota		
Max Size:*		
<ul> <li>Unlimited</li> </ul>	<ul> <li>Limit Size</li> </ul>	
Max Number of 0	Dbjects:*	

After adding the S3 user, view the user's generated access and secret keys which will be used later while configuring Veeam S3 object storage repository.



= Petasan						
Edit S3 User				🝃 S3 Configuratio	n 🖻 🗁 S3 Users	Edit S3 User
ID:*		User Quota				
10		Max Size:*				
Display Name:*		Unlimited	<ul> <li>Limit Size</li> </ul>			
Veeam		Max Number of Obj	ects:*			
Email:		Unlimited	<ul> <li>Limit Number</li> </ul>			
		Access Key ID:*				
Suspended:*		G7EZNDZ0V64860NB	DQCL			
O Yes   No		Secret Access Key:*				
Default placement target:*		Zuv1TgskURPADMDH	mBOXIZFhh0rAUjOeCXs8GWgQ			
backups ~		Size used:				
Max number of buckets:*		0.0		GB		
1000		Number of objects:				
Bucket Quota		0				
Max Size:*						
Unlimited     Limit Size						
Max Number of Objects:*						
Unlimited     Limit Number						
Subusers:						
+ Add Subuser						
Snow 10 v entries				Search:		
Subuser ID IL Access Rights	Access Key ID	.↓↑ Sec	cret Access Key	↓† Act	ions	
No data available in table						
Showing 0 to 0 of 0 entries					Previous	Next
				Cancel	generate Keys	Save

## 4. Veeam Configuration

You can setup Veeam using one of the following configurations:

#### PetaSAN S3 as a direct backup repository

In this setup, Veeam backups directly to the S3 repository. This feature is supported in Veeam starting from version 12.

#### PetaSAN S3 as a capacity tier in a scale-out repository

In this setup, a Scale Out Backup Repository (SOBR) is configured. The SOBR consists of 2 tiers:

-A non S3 backup repository acting as a performance tier

-An S3 repository acting as a capacity tier

this feature is supported in Veeam starting from version 11.



## Here we show how to create each repository type:

**Create Object Storage Repository** 

Create Direct Attached Storage Repository

Scale-out repository

#### Create Object Storage Repository

From the Backup Infrastructure section select to add new backup repository and then select the object storage type



• Select the S3 Compatible Option



¢		Select the type of object storage you want to use as a backup repository.
E		S3 <u>Compatible</u> Adds an on-premises object storage system or a cloud object storage provider.
av	NS	Amazon <u>S</u> 3 Adds Amazon cloud object storage. Amazon S3, Amazon S3 Glacier (including Deep Archive) and Amazon Snowball Edge are supported.
6	2	<u>Google Cloud Storage</u> Adds Google Cloud storage. Both Standard and Nearline storage classes are supported.
		IBM Cloud Object Storage Adds IBM Cloud object storage. S3 compatible versions of both on-premises and IBM Cloud storage offerings are supported.
		Microsoft Azure Storage Adds Microsoft Azure cloud object storage. Microsoft Azure Blob Storage, Microsoft Azure Archive Storage and Microsoft Azure Data Box are supported.
	-	Cancel

• Enter the S3 Object Repository Name



New Object Storage Repository	×
Name Type in a name and	description for this object storage repository.
Name Account Bucket Summary	Name:         PetaSAN Object storage repository         Description:         Created by DESKTOP-95RGNP3\lenovo at 4/8/2022 1:13 AM.
	storage offload tasks.

• Enter the S3 service name and port number, then the access key and secret key of the PetaSAN S3 user we want to use. In this example we will use the S3 user we have created named Veeam



Repository Tools			Veeam Backup and Replication
E → Home Backup Repository			
Add Edit Repository Repository Manage Repository Backup Infrastructure	New Object Storage R Account Specify ad	epository count to use for connecting to S3 compatible storage system.	×
Backup Proxies     Backup Repositories	Name	Service point:	
External Repositories	Assessed	s3-service:8000	
<ul> <li>Scale-out Repositories</li> </ul>	Account	Region:	
ramdanscale	Bucket	zonegroup	
Scale-out Backup Repository	Summary	Credentials:	
WAN Accelerators			~ Add
Service Providers	Cr	edentials	Manage cloud accounts
Microsoft Windows			
🚽 Unavailable (1)		Access key: G7EZNDZ0V64860NBDQCL	
		Secret key:	···· •
		Description:	
			ateway server is specified all
	-		storage system.
A Home		ОК	Cancel
Inventory			
Backup Infrastructure		< Previous	Next > Finish Cancel



Repository Tools		Veeam Backup and Replication				
E → Home Backup Repository						
Add Edit Repository Repository Manage Repository Backup Infrastructure	New Object Storage Repository Account Specify account to use	$\times$ for connecting to S3 compatible storage system.				
<ul> <li>Backup Proxies</li> <li>Backup Repositories</li> <li>External Repositories</li> <li>Scale-out Repositories</li> <li>imscaleout</li> <li>ramdanscale</li> </ul>	Name Account Bucket	Service point: s3-service:8000 Regi <u>o</u> n: zonegroup				
Scale-out Backup Repository	Summary	GTEZNDZ0V64860NBDQCL (last edited: less than a day ago)				
Service Providers Service Providers Managed Servers		Please wait         Certificate Security Alert       X         iguration         Site certificate chain errors:         UntrustedRoot (A certificate chain processed, but terminated in a root certificate which is not trusted by the trust provider.)         View       Continue         DESKTOP-95FGNP3 (Backup server)         Select a gateway server to proxy access to the object storage system. If no gateway server is specified, all scale-out backup repository extents must have direct network access to the storage system.				
A Home						
Inventory						
Backup Infrastructure		< <u>Previous</u> <u>Next</u> > Einish Cancel				

• Certificate Security Alert dialog will appear, click on View Certificate to be able to install the certificate we had downloaded from the PetaSAN S3 settings.



Repository Tools			Veeam Backup and Replication
<b>∃</b> • Home Backup Repository			
Add Edit Repository Repository Manage Repository Backup Infrastructure Backup Proxies	New Object Storage Repository Account Specify account to use f	or connecting to S3 compatible storage system.	×
<ul> <li>Backup Repositories</li> <li>External Repositories</li> <li>Scale-out Repositories</li> <li>imscaleout</li> <li>scale-out Backup Repository</li> <li>WAN Accelerators</li> <li>Service Providers</li> <li>Managed Servers</li> <li>Microsoft Windows</li> <li>Unavailable (1)</li> </ul>	Name Count Gene Bucket Summary	Value         Image: Second S	X Add Rewait Be wait Cancel System If an pateway server is specified all
A Home		Install Certificate Issuer Statemen	t caccess to the storage system.
Inventory			
Backup Infrastructure		ок	Next > Einish Cancel



Repository Te		Veeam Backup and Replication				
∃ + Home Backup Report	sitory					
Add Edit Repository Repository Manage Repository Backup Infrastructure Backup Proxies Backup Repositories	New Object Stor Control Acc Spe Name	age Repository <b>punt</b> ify account to use for connecting to S3 compatible storage system.	×			
<ul> <li>External Repositories</li> <li>Scale-out Repositories</li> <li>imscaleout</li> <li>scale-out Backup Repositories</li> <li>WAN Accelerators</li> <li>Service Providers</li> <li>Managed Servers</li> <li>Microsoft Windows</li> <li>Unavailable (1)</li> </ul>	Account Bucket Summary	<ul> <li>←</li></ul>	Add      iguration      o gateway server is specified, all he storage system.			
Thome -						
Inventory						
Backup Infrastructure		Sector Cancel	Einish Cancel			



New Objec	t Storage	Repository			×
R	Account Specify	t account to use for connecting to S3 compatible storage system.			
Name Account Bucket	÷	🐉 Certificate Import Wizard	×		r
Summary		Certificate Store Certificate stores are system areas where certificates are kept. Windows can automatically select a certificate store, or you can specify a location for the certificate.  Automatically select the certificate store based on the type of certificate  Place all certificates in the following store Certificate store: Browse		Add	3   1
				ateway server is specified, al storage system.	
		Next Cance	el	<u>Finish</u> Cancel	



New Object Sto Sp	orage Repository ccount becify account to use for connecting to S3 compatible storage system.	×
Name Account Bucket Summary	Select Certificate Store       ×         Select the certificate store you want to use.       tificates are kept.         Intermediate Certification Authorities       tificates are kept.         Intermediate Certification Authorities       store, or you can specify a location for         Intrusted Publishers       to based on the type of certificate         OK       Cancel	X Add iguration tateway server is specified, all
	Next Cancel	Einish Cancel



New Object Storage Repositor	у	×	٦
Account Specify account to	use for connecting to S3 compatible storage systemeters	;tem.	
Name	Certificate	X	1
Account	General Details Certification Path		l n
Bucket Summary	Certificate Information		) =\ 30
	This certificate is intended for the following p • All issuance policies • All application policies	purpose(s):     )     ~     Add       Certificate Import Wizard     ×       Image: Certificate Import Wizard     ×	
	Issued to: s3-service Issued by: s3-service	ОК	
	Valid from 4/7/2022 to 4/1/2042	Cancel	
	Install Certificate	Issuer Statement c access to the storage system.	
		OK <u>Next &gt;</u> Einish Cancel	

• After installing the certificate click back then next again ,you should notice the certificate security alert has been disappeared



New Object Storage Repository	×
Account Specify account to use	e for connecting to S3 compatible storage system.
Name	Service point:
Account	s3-service:8000
	Regi <u>o</u> n:
Bucket	zonegroup
Summary	Credentials:
	RG7EZNDZ0V64860NBDQCL (last edited: less than a day ago)
	Manage cloud accounts
	Use the following gateway server:
	DESKTOP-95RGNP3 (Backup server)
	Select a gateway server to proxy access to the object storage system. If no gateway server is specified, all
	scale-out backup repository extents must have direct network access to the storage system.
	< Previous Next > Einish Cancel

• Select next and then click on browse to list the existing buckets, you can create buckets using S3 client tools like S3 Browser (refer to the S3 setup guide).



New Object Storage Repository	×
Bucket Specify object storag	e system bucket to use.
Name Account Bucket Summary	Bucket:       Browse         Folder:       Browse         □ Limit object storage consumption to:       10 ‡ TB         This is a soft limit to help control your object storage spend. If the specified limit is exceeded, already running backup offload tasks will be allowed to complete, but no new tasks will be started.         Make recent backups immutable for:       30 ‡ days         Protects recent backups from modification or deletion by ransomware, malicious insiders and hackers using native object storage capabilities. Object storage must support S3 Object Lock feature.
	< <u>P</u> revious App <u>ly</u> <u>Finish</u> Cancel



New Object Storage Repository	Select Folder	×	×
Bucket Specify object storage	Folders: backups     BackupFolder		
Name Account Bucket Summary			Browse Browse
			d limit is exceeded, already s will be started.
			licious insiders and hackers using Lock feature.
	New Folder OK Cancel		Finish Cancel

• Select a folder under the selected bucket



Select Folder		×
Folders:		
backups     Declare Folder		
E Backupfolder		
<u>N</u> ew Folder	OK	Cancel

• Select the repository settings, whether to limit the object storage size or not and if you want to store recent backups as immutable and for how any days.



New Object Storage Repository	×
Bucket Specify object storage	e system bucket to use.
Name Account	Bucket: backups Browse
Bucket	Folder:
Summary	BackupFolder Browse
	<ul> <li>Limit object storage consumption to: 10 TB</li> <li>This is a soft limit to help control your object storage spend. If the specified limit is exceeded, already running backup offload tasks will be allowed to complete, but no new tasks will be started.</li> <li>Make recent backups immutable for: 30 days</li> <li>Protects recent backups from modification or deletion by ransomware, malicious insiders and hackers using native object storage capabilities. Object storage must support S3 Object Lock feature.</li> </ul>
	< <u>P</u> revious App <u>ly</u> Einish Cancel

• To enable the use of immutable option, bucket has to be lock enabled during bucket creation, otherwise the following error will appear:



New Object Storage Repository		×
Bucket Specify object storage	e system bucket to use.	
Name Account	Bucket: backups	Br <u>o</u> wse
Bucket Summary	Folder: BackupFolder	Bro <u>w</u> se
	Limit object to the term of term o	1, already 1 hackers using
	< Previous Apply Finish	Cancel

#### Note:

Immutability is a method that prevents data deletion or modification from storage.

Knowing that data is critical to all businesses—having an immutable copy of your backup data ensures that there is an untouched version of that source data which is always recoverable.

To create a bucket with lock option enabled, use Amazon Cli tool (refer to the S3 setup guide for more detail).

You can install it from https://docs.aws.amazon.com/cli/latest/userguide/install-cliv2-windows.html

- Setup the service certificate aws configure set default.ca\_bundle "c:\s3-service.crt
- After installation we will configure the aws using command

#### aws configure

In this example we use the PetaSAN S3 user named Veeam and we enter its access and secret keys as well as the zonegroup name.

Using PetaSAN S3 as a Veeam Backup Repository





- Use the following command to create a bucket named "secure-backups" with lock is enabled aws s3api create bucket --bucket secure-backups --endpoint-url https://s3-service:8000 -object-lock-enabled-for-bucket
- We continue this example using the newly created bucket with the immutability feature





New Object Sto	rage Repository	Select Folder X	
Spe	cket ecify object storage system bucket to use.	Folders: Generation Secure-backups      data	
Name Account	Bucket: secure-backups		iwse
Bucket Summary	Folder:		iwse
	Limit object storag This is a soft limit running backup of	g 1 f	ady
	Make recent backu Protects recent ba native object store	u ak a	ers using
		New Folder OK Cancel	ncel

• Select Make recent backups immutable for 30 days



New Object Storage Repository	×
Bucket Specify object storag	e system bucket to use.
Name Account Bucket Summary	Bucket: secure-backups Browse Folder: data Browse C Limit object storage consumption to: 10
	< Previous Apply Einish Cancel



New Object Storage	Repository	×
You can	r <b>y</b> copy the configuration information below for future reference.	
Name Account Bucket Summary	Summary: Dbject storage repository was successfully created. Name: PetaSAN Object storage repository Description: Created by DESKTOP-95RGNP3\lenovo at 4/7/2022 10:57 PM. Type: S3-compatible Gateway server: not selected Service point: https://s3-service:8000 Region: zonegroup Bucket: secure-backups Concurrent tasks limit: unlimited Storage consumption limit: unlimited Recent backups will be immutable for 30 days	
	< <u>P</u> revious <u>N</u> ext > <u>F</u> inish	Cancel

## After saving the object storage repository you can view it in the repositories list

Repository Tools			Veeam Backup and Replic	cation		-	
∃ Home Backup Repository					i .		
Add Edit Repository Repository Manage Repository							
Backup Infrastructure	Q, petasan	×					
Backup Proxies Backup Repositories Backup Repositories Cale-out Re	Name 🕹	Type S3-compatible Windows	Host DESKTOP-95RG	Path amazon53://si-service:8000/secure-backups/Veeam/Archive/data E\Backups	Capac N/A 466.2 GB	Free Us N/A 244.9	Jsed Sp 3.4 MI 3.3 MI



#### Create Direct Attached Storage Repository

From the Backup Infrastructure section select to add new backup repository and then select the A Direct attached storage type which needs to be created to be used as the performance tier in case of Veeam version 11.



• Then select Microsoft Windows





• Enter the backup repository name



New Backup Repository		×
Name Type in a name and de	escription for this backup repository.	
Name	Name:	
Server	PetaSAN Backup Repository	
Repository	Description: Created by DESKTOP-95RGNP3\lenovo at 4/7/2022 10:50 PM.	
Mount Server		
Review		
Apply		
Summary		
	< <u>Previous</u> <u>Next</u> > <u>Finish</u> Cance	1



• Select the backup server you want to use and then select the drive where data will be stored

lamo	Repository server:		
anie	DESKTOP-95RGNP3 (Backup server)		∼ <u>A</u> dd Ne
	Path	Capacity	Free Popula
lepository	● C:\	237.2 GB	131.8 GB
Iount Server	• D:\	465.3 GB	428.8 GB
	● E:\	466.2 GB	246.2 GB
eview			
pply			
ummary			

• Enter path of the folder that will be used



New Backup Repository	X
Repository Type in path to the fo	lder where backup files should be stored, and set repository load control options.
Name	Location
Server	Path to <u>f</u> older:
Sciver	E:\Backups Browse
Repository	Capacity: 466.2 GB Populate
Mount Server	Free space: 245.6 GB
Review	Load control
Apply	Running too many concurrent tasks against the repository may reduce overall performance, and cause I/O timeouts. Control storage device saturation with the following settings:
Summary	✓ Limit maximum concurrent <u>t</u> asks to: 4
	☐ Limit read and write <u>d</u> ata rate to: 1 → MB/s Click Advanced to customize repository settings.
	< <u>P</u> revious <u>N</u> ext > <u>Finish</u> Cancel

• Select the mount server



New Backup Repository		×
Mount Server Specify a server to mo recoveries require a w	ount backups to when performing advanced restores (file, application item and instant VM recoverie rrite cache folder to store changed disk blocks in.	es). Instant
Name	Mount server:	
Server	DESKTOP-95RGNP3 (Backup server) ~	<u>A</u> dd New
Paparitan	Instant recovery write <u>c</u> ache folder:	
Repository	D:\ProgramData\Veeam\Backup\IRCache\	B <u>r</u> owse
Mount Server Review	Ensure that the selected volume has sufficient free disk space to store changed disk blocks of ins recovered VMs. We recommend placing write cache on an SSD drive.	tantly
	☑ Enable vPower NFS service on the mount server (recommended)	P <u>o</u> rts
Summary	Unlocks instant recovery of any backup (physical, virtual or cloud) to a VMware vSphere VM. service is not used for instant recovery to a Microsoft Hyper-V VM.	vPower NFS
	< <u>P</u> revious <u>N</u> ext > <u>Finish</u>	Cancel

• Review your setup then apply it to create the repository



New Backup Repository		×
Please review the setting	ings, and click Apply to continue.	
Name	The following components will be processed on server DESKTOP-95RGNP3	:
	Component name	Status
Server	Transport	already exists
Repository	vPower NFS	already exists
	Mount Server	already exists
Mount Server		
Review		
Apply		
Арру		
Summary		
	Search the repository for existing <u>b</u> ackups and import them automatica Import guest file system index data to the catalog	lly
	< Previous Apply	<u>Finish</u> Cancel



New Backup Repository				>
Apply Please wait whi	ile backup repository is created and saved in configuration, this may tak	e a few minute	s.	
Name	Message	Durat		
C	Starting infrastructure item update process	0:00:15		
Server	[DESKTOP-95RGNP3] Discovering installed packages			
Repository	[DESKTOP-95RGNP3] Registering client DESKTOP-95RG			
	[DESKTOP-95RGNP3] Registering client DESKTOP-95RG			
Mount Server	[DESKTOP-95RGNP3] Registering client DESKTOP-95RG			
Review	[DESKTOP-95RGNP3] Discovering installed packages			
Kenew	All required packages have been successfully installed			
Apply	Detecting server configuration			
Current on the	Reconfiguring vPower NFS service			
Summary	Creating configuration database records for installed p			
	Collecting backup repository info			
	Creating database records for repository			
	Sackup repository has been added successfully			
	< <u>P</u> revious	<u>N</u> ext >		



New Backup Repository		Х
You can copy the conf	iguration information below for future reference.	
Name Server	Summary: Windows backup repository 'Backup Repository-PetaSAN' was successfully created.	
Repository Mount Server	Mount host: DESKTOP-95RGNP3 Backup folder: E:\Backups Write throughput: unlimited Max parallel tasks: 4	
Review Apply		
Summary		
	< <u>P</u> revious <u>N</u> ext > <u>F</u> inish Cancel	

The backup repository created appears in the repositories list

Repository Tools			Veeam Backup and Replication	- 🗆 ×
E Home Backup Repository				(
Add Edit				
Repository Repository				
Backup Infrastructure	Q	×		
Backup Provies Backup Repositories Cale-out Repositories WAN Accelerators Service Providers Managed Servers	Name ↓	Type Windows	Host Path DESKTOP-95RG E\Backups	Capac         Free         Used Sp           466.2 GB         245.1         3.3 MB



#### **Create Scale-Out Repository**

From the Backup Infrastructure section select to add new scale-out repository and then select the object storage type

Create a new scale-out repository using the previously created repositories as performance and capacity tiers , in case of Veeam 11

• Enter the scale out repository name



• Select the performance tier repository



New Scale-out Backup Repos	sitory		×
Performance Ti Select backup re	ier epositories to use as the landin	ng zone and for the short-term retention.	1
Name	Extents:	Extents ×	
Performance Tier	Name	Select backup repositories to include in this scale-out backup repository.	Add
Placement Policy		Backup repositories: Name Select All	Remove
Summary		PetaSAN Backup Repository Default Backup Repository Destination repo1	
	Click Advanced to sp	OK Cancel	Advanced
		< Previous Next > Finish	Cancel



New Scale-out Backup Repository		×
Performance Tier Select backup reposite	ories to use as the landing zone and for the short-term retention.	
Name	Extents:	
Performance Tier	Name	<u>A</u> dd
Placement Policy		<u>R</u> emove
Capacity Tion		
Summary		
	Click Advanced to specify additional scale-out backup repository options.	Ad <u>v</u> anced
	< <u>P</u> revious <u>N</u> ext > <u>F</u> inish	Cancel

• Select placement policy



New Scale-out Backup Rep	ository
Placement Po Choose a back will choose the	<b>licy</b> up files placement policy for this performance tier. When more than one extent matches the placement policy, backup j e extent with the most free disk space available.
Name Performance Tier Placement Policy Capacity Tier	<ul> <li>Data locality         All dependent backup files are placed on the same extent. For example, incremental backup files will be stored together with the corresponding full backup file. However, the next full backup file can be created another extent (except extents backed by a deduplicating storage).     </li> <li>Performance         Incremental backup files are placed on a different when the corresponding full backup file and the corresponding to the store of the corresponding storage).     </li> </ul>
Summary	for better backup file transformation performance with raw storage devices. Note that losing an extent wi a full backup makes restoring from increments impossible. Specify the placement policy for full and incremental backup files.
	< Previous Next > Finish Cancel

• Select the capacity tier repository and select to copy backups as soon as they are created



New Scale-out Backup Repository	×
Capacity Tier Specify object storag to reduce long-term	e to copy backups to for redundancy and DR purposes. Older backups can be moved to object storage completely retention costs while preserving the ability to restore directly from offloaded backups.
Name	Extend scale-out backup repository capacity with object storage:
Performance Tier	PetaSAN Object storage repository $\checkmark$ Add
Placement Policy	Define time windows when uploading to capacity tier is allowed
Capacity Tier	$\checkmark$ Copy backups to object storage as soon as they are created
Summary	Create additional copy of your backups for added redundancy by having all backups copied to the capacity tier as soon as they are created on the performance tier.
	Move backups to object storage as they age out of the operational restore window Reduce your long-term retention costs by moving older backups to object storage completely while preserving the ability to restore directly from offloaded backups.
	Move backup files older than 14 🖕 days (your operational restore window) Override
	Encrypt data uploaded to object storage
	Pa <u>s</u> sword:
	Manage passwords
	< <u>P</u> revious App <u>ly</u> <u>Finish</u> Cancel



New Scale-out Backup Repository		×
Summary Review the scale-out b	ackup repository settings, and click Finish to exit the wizard.	
Name Performance Tier Placement Policy Capacity Tier Summary	Summary: Scale-out backup repository was created successfully.	
	< Previous Next > Finish	Cancel

## 5. Create a backup job

Go to the Home Section and select to create new backup job

#### In case of direct backup repository

We will create the job to connect directly to the created object storage repository.

#### In case of Scale- out Backup Repository (SOBR)

You will create the job to connect to the scale-out repository that was created using (both the Direct Storage and object storage repositories as performance and capacity tiers respectively) so it will be executed using two sub jobs:

-Backup job

-Offload job

• Add new Backup job, in this example we will create Windows computer backup job to backup data from a Windows server with IP 10.0.2.30



67 20	Veeam B	ackup and Replication		
E- Home View				
Rectup Replication CDP Backup Replication CDP Job * Job * Rolicy Copy * Job * Virtual machine priliary Jobs Restore	Import Export Backup Backup Actions			
Windows computer.  Windows Computer Base Mic computer.  File share  File share  File share  Constant At Hours  Supports	Q. Type in an object name to search for         X           Assp Job         Model         Model           P retaskN 4pers Backup Job         100.2.30 Offload           Q. Agent Backup Job         PessSAN 4pers Backup Job           Q. Agent Backup Job         PessSAN 4pers Backup Job           Q. Agent Backup Job         PessSAN 4pers Backup Job           Q. Agent Backup Job PessSANBackup         Q. Agent Backup Job PessSANBackup	Session Type         Status         S           SOBR Treting         Success         4           SOBR Treting         Success         4           Windows Agent         Success         4           Windows Agent         Success         4           Windows Agent         Success         4	Last Time         End Time ↓           (7/2022 1127 PM         4/7/2022 1127 PM           (7/2022 1125 PM         4/7/2022 1127 PM           (7/2022 1135 PM         4/7/2022 1125 PM           (7/2022 1135 PM         4/7/2022 1135 PM           (7/2022 1135 PM         4/7/2022 1136 PM           (7/2022 103 PM         4/7/2022 103 PM	



• Enter the job name



New Agent Backup Job	×
Name           Type in a name and desc	cription for this agent backup job.
Job Mode Name Computers Backup Mode Storage Guest Processing Schedule Summary	Name:         PetaSAN Agent Backup Job         Description:         Created by DESKTOP-95RGNP3\lenovo at 4/7/2022 11:11 PM.
	< Previous Next > Finish Cancel

• Choose what will be backed up, in this example we will backup data on host 10.0.2.30



New Agent Backup Job Computers Select protect list of protect	tion groups or individual machines to back up. Protection g ed machines as new ones are discovered.	roups provide a dynamic selection scope that auto	× matically updates the
Job Mode Name Computers	Protected computers:	Туре	Add Protection group Individual computer
Backup Mode Storage Guest Processing Schedule Summary			<ul> <li>◆ Up</li> <li>◆ Down</li> </ul>
		< Previous Next > Finish	Cancel

• Enter the authentication information of computer 10.0.2.30



Sele list of	nputers ect protection groups or individual machines to back up. Protection groups provide a dynamic selection of protected machines as new ones are discovered.	on scope that automa	tically updates t
Job Mode	Protected computers:		
Name	Name	Туре	Add
Computers Backup Mode Storage Guest Processin Schedule Summary	Add Computer Host name or IP address: 10.0.2.30 Credentials: Credentials:  Username: administrator Browse	X Add	<ul> <li>Up</li> <li>Down</li> </ul>
	Password: ••• •	Cancel	



Job Mode	Protected computers:		
Name	Name	Type	<u>A</u> dd
Computers	10.0.2.30	Computer	<u>R</u> emov
Backup Mode			
Storage			_
Guest Processing			
Schedule			<b>↑</b> <u>U</u> p
Summary			
			_

• In this example we will select to backup data at the file level



New Agent Backup Job		$\times$
Choose what data you w	vant to back up from selected computers.	
Job Mode Name Computers	<ul> <li>Entire computer</li> <li>Back up entire computer image for fast recovery on any level. Deleted, temporary and page files are automatically excluded from the image to reduce the backup size.</li> <li>Include external USB drives</li> </ul>	
Backup Mode Objects Storage	<u>Volume level backup</u> Back up images of specified volumes, for example only data volumes. Deleted, temporary and page files are automatically excluded from the image to reduce the backup size.	
Guest Processing Schedule Summary	File level backup (slower) Back up selected files and directories only. This mode still produces an image-based backup, but only with protected file system objects included in the image.	
	< <u>P</u> revious <u>N</u> ext > <u>Finish</u> Cancel	



New Agent Backup Job		×
Objects Specify objects you wo	uld like to include in the backup.	
Job Mode Name	Choose directories to backup:          Operating system         Personal files	
Computers	Include: Desktop, Documents, Pictures, Video, Music, Favorites, Downloads, Other files and folde	<u>C</u> hoose
Backup Mode	The following file system objects:	
Objects	Object	<u>A</u> dd
Storage	C:\TestData	<u>E</u> dit
Guest Processing		<u>R</u> emove
Schedule		
Schedule		
Summary		
	To specify file exclusion settings, click Advanced	Ad <u>v</u> anced
	Z Previous Next > Einich	Cancel
		Calicei

• Select the backup repository In case of direct backup you will select the object storage repository



New Agent Backup Job		$\times$
Specify a backup reposi	tory to store the backup files produced by the backup job and customize advanced job settings if required.	
Job Mode Name Computers Backup Mode Objects Storage Guest Processing Schedule Summary	Backup repository:         PetaSAN Object storage repository (Created by EMAN\lenovo at 11/2/2023 6:33 PM.)         Image: N/A         Retention policy:         Image: Configure Secondary Configured         Image: Configure Secondary destinations for this job         Copy backups produced by this job to another backup repository, or tape. We recommend to make at least or copy of your backups to a different storage device that is located off-site.	✓ ckup
	Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other settings.	ed
	< Previous Next > Finish Cancel	

But in case of Scale-Out Backup Repository (SOBR), you will select the Scale-Out repository



New Agent Backup Job	×
Storage Specify a backup reposit	tory to store the backup files produced by the backup job and customize advanced job settings if required.
Job Mode Name Computers Backup Mode Objects Storage Guest Processing Schedule Summary	Backup repository:          PetaSAN-Scale-out Backup Repository (Created by DESKTOP-95RGNP3\lenovo at 4/7/2022 11:05 PM.) <ul> <li>245 GB free of 466 GB</li> <li>Map backup</li> </ul> Retention policy:         7 <ul> <li>days</li> <li>Configure</li> <li>GFS retention policy is not configured</li> <li>Cognfigure secondary destinations for this job</li> <li>Copy backups produced by this job to another backup repository, or tape. We recommend to make at least one copy of your backups to a different storage device that is located off-site.</li> </ul>
	Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other settings.
	< Previous Next > Einish Cancel

• Choose application processing options



New Agent Backup Job	X
Guest Processing Choose application proc	cessing options.
Job Mode	Enable application-aware processing
Name	the OS to perform required application restore steps upon first boot.
Computers	Customize application handling options for individual machines and applications
Backup Mode	Enable guest file system indexing     Creates catalog of guest files to enable browsing searching and 1-click restores of individual files. Indexing is
Objects	optional, and is not required to perform instant file level recoveries.
Storage	Customize advanced guest file system indexing options for individual machines
Guest Processing	
Schedule	
Summary	
	< <u>P</u> revious <u>N</u> ext > Einish Cancel

• Select the schedule



New Agent Backup Job		$\times$
Specify the scheduling of	tions. If you do not set the schedule, the job will need to be controlled manually.	
Job Mode Name Computers Backup Mode	Run the job automatically            ● Daily at this time:             ● Daily at this time:             ● Monthly at this time:             ● Monthly at this time:             ● Periodically every:             ● After this job:             ▲ dent Backup Job 1 (Created by DESKTOP-95RGNP3\lenovo at 4/6/2022 1:12 AM.)	
Objects Storage Guest Processing	Automatic retry          Retry failed items processing:       3       items         Wait before each retry attempt for:       10       minutes         Backup window       3       Items	
Summary	☐ Ierminate job if it exceeds allowed backup window If the job does not complete within allocated backup window, it will be terminated to prevent snapshot commit during production hours.	
	< <u>Previous</u> App <u>ly</u> Einish Cancel	

• Select to run the job after I click finish



New Agent Backup Job	×
Summary The job's settings have b	peen saved successfully. Click Finish to exit the wizard.
Job Mode Name Computers Backup Mode Objects Storage Guest Processing Schedule Summary	Summary: Name: PetaSAN Agent Backup Job Description: Created by DESKTOP-95RGNP3\lenovo at 4/7/2022 11:11 PM. Type: server Mode: managed by backup server Protected computers: 10.0.2.30 Backup mode: file level backup Destination: Veeam backup repository Target storage: PetaSAN-Scale-out Backup Repository Retention policy: 7 days Application-aware processing is enabled Backup is scheduled to run automatically GFS retention policy: not set
	☑ <u>R</u> un the job when I click Finish
	< Previous Next > Einish Cancel

- The job will start immediately
- The agent backup job will run directly in case of direct backup.



Agent Backup Job 4						×
Job progress:			100%			1 of 1 hosts
SUMMARY		DATA		STATUS		
Duration:	06:53	Processed:	19.9 GB (100%)	Success:	1 오	
Processing rate:	1 MB/s	Read:	10.2 MB	Warnings:	0	
Bottleneck:	N/A	Transferred:	10.2 MB (1x)	Errors:	0	
THROUGHPUT (ALL TIM	E)					
Name	Status	Action				Speed: 0 KB/s
DESKTOP-DME0	Success	Creating V	SS snapshot			
		Salculatin	g digests			
		Setting lis	t of local users			
		🥑 (C:): enum	erating directories			
		(C:) (18.3 C	B) 9.3 MB read at 6 MB/	S		
		Truncating	transaction logs			
		🖉 Updating	netadata			
		S Full backu	p created			
		🥝 Network tr	affic verification detecte	d no corrupted blocks		
		Processing	finished at 11/2/2023 7	48:46 PM		
Hide Details						OK

The agent backup job will run first then the offload job in case Scale-Out Backup (SOBR)

Session Tools     E・ Home View Session				Veeam	Backup and Replication				×
Stop Statistics Report									
Home	Q, Type in an object no	ame to search for	×						
Jobs	Job Name 🕇			Session 1	ype Status	Start T	ïme	End Time	
Backups	PetaSAN Agent Back	up Job		Windows	Agent Success	4/7/20	22 11:15 PM	4/7/2022 11:25 PM	
Disk     Object Storage     Last 24 Hours	PetaSAN Agent Back	up Job - 10.0.2.30 Offloi	1d	SOBR Tie	ring Success	4/7/20	22 11:25 PM	4/7/2022 11:27 PM	
Success Warning									
Failed	SUMMARY		DATA		STATUS		THROUGH	PUT (ALL TIME)	
	Duration:	09:50	Processed:	18.4 GB (100%)	Success:	1 🔍			Speed: 565 KB/s
	Processing rate:	927 KR/s	Read:	9 MR	Warnings	0			
	Rottieneck	N/A	Transferred	9 MB (1v)	Errorri	0			
	botheneok		inditarence.	5 110 (12)	LITOIS	0	_		
	Name	Status		Action					Duration
	DESKTOP-DME0	Success		Job started at 4/7/2 Building hosts list	022 11:15:24 PM				00:56
				Processing DESKTC	P-DME0TUC				03:49
				Job finished at 4/7/	2022 11:25:14 PM				
Home									
The inventory									
and Backup Infrastructure									
Storage Infrastructure									
.燕 History	_								
•	<		>						

Using PetaSAN S3 as a Veeam Backup Repository



B Session Tools E Home View Session			Veeam Ba	ackup and Replication			×
Stop Statistics Report							
Home	Q. Type in an object name to search for	×					
物 Jobs 編 Backup	Job Name 1		Session Ty Windows	pe Status Agent Success	Start Time 4/7/2022 11:15 PM	End Time 4/7/2022 11:25 PM	
Disk	PetaSAN Agent Backup Job - 10.0.2.30 Off	oad	SOBR Tier	ing Success	4/7/2022 11:25 PM	4/7/2022 11:27 PM	
😵 Object Storage							
Success							
😰 Warning							
L <mark>x</mark> raieu	SUMMARY	DATA		STATUS	THROUGH	PUT (ALL TIME)	
	Duration: Loading	Processed:	Loading	Success: Loading			
	Processing rate: Loadina	Read:		Warnings: Loading			
	Bottleperk Loading	Transferred		Errors Loading			
	boundance.	indibierred.	Louding	Litola Loudang			
	Name Status		Action				Duration
			Offload finished at 4	Agent Backup Job - 10.0.2.30 /7/2022 11:27:19 PM	J		01:42
A Home							
Inventory							
ackup Infrastructure							
Storage Infrastructure							
History							
*	<	>					

• You will notice that data has been backed up in buckets that we selected

3 S3 Browser 9.5.5 - Pro - Veeam						-	o x
Accounts Buckets Files Tools Help							
🏶 New bucket 💢 Delete bucket 🧭 Refresh	Path: / Veear	n/ Archive/ data/ e9788f9d-0ef8-4477-942f-c949ccb9f2a	/ 0000000-0000-0000-00	00-00000000000/ objs/		1	o y c
backups secure-backups	File		Siz	е Туре	Last Modified	Storage Clas	35
	AuxData.1		125	bytes 1 File	4/7/2022 11:22:20	PM STANDARD	,
	AuxData.2		125	bytes 2 File	4/7/2022 11:22:27	PM STANDARD	,
	PetaSAN /	Agent Backup Job - 10.0.2.30.vbm.1	2.1	6 KB 1 File	4/7/2022 11:22:19	PM STANDARD	,
	PetaSAN /	Agent Backup Job - 10.0.2.30.vbm.2	27.	38 KB 2 File	4/7/2022 11:22:27	PM STANDARD	j.
	-	5					
	Upload -	Download 💊 Delete 🧱 New Folder 🦂 R	efresh			1 file (27.	.38 KB) selected
	Marine and						
Tasks Permissions Http Headers Tags Properties Pre	eview Versions EventLog						-5
URL: https://S3-service:8000/secure-backups/							Сору
Key	Last Modified	ETag	Size	Storage Class	Owner	Version Id	^
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revision #.1 (current)	4/7/2022 8:15:32 PM	"d41d8cd98f00b204e9800998ecf8427e"	0 bytes	STANDARD	Veeam (10)	2uKCR-Sy2n	
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Veeam/Archive/data/e9788f9d-0ef8-4477-942f-c949ccb9f							
revision #.1 (current)	4/7/2022 11:22:24 PM	"8643765a10aed9c67f5e263ecaa29527"	247 bytes	STANDARD	Veeam (10)	xww8p2Qx7U	
Veeam/Archive/data/e9788f9d-0ef8-4477-942f-c949ccb9f					()		
revision # 1 /current	4/7/2022 11-22-22 PM	"070106976c7800h0405000d34401907"	8.87 KB	STANDARD	Veesm (10)	avPWeAa402	*
I Download C Restore Delete C Refresh Tota	al versions 102, delete markers 0, vers	ions size: 3.42 MB				9	Filters •

#### Note:

You may notice that you can delete objects from the bucket even though it is immutable, don't worry they are there but just hidden. If you go into the bucket and select show versions button, the objects will show up.



P New bucket 💢 Delete bucket 😥 Refresh	Path: / Veear	m/ Archive/ data/ e9788f9d-0ef8-4477-942f-c949ccb9f2	af/ 0000000-0000-0000-	0000-00000000000/ ob	s/	1 🗆 🍸
	File		S	Size Type	Last Modified	Storage Class
ecure-backups	(m)					Ŭ,
	AuxData.1		1	25 bytes 1 File	4/7/2022 11:22	20 PM STANDARD
	AuxData.2		1	25 bytes 2 File	4/7/2022 11:22	27 PM STANDARD
	* *					
	<b>B</b>					2 files (250 bytes) and 0 f
	Upload -	Download Delete Delete New Folder	Refresh			2 files (250 bytes) and 0 f
Tests Developing (Mr. Marden   Test   Devented   D	Upload -	Download Delete Poider	Refresh			2 files (250 bytes) and 0 f
Tasks Permissions Http Headers Tags Properties Pro	Upload -	Download Delete New Folder	Refresh			2 files (250 bytes) and 0 f
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