Business Services

Flexible Engine
Veeam Backup for Microsoft Office 365 deployment guide

Objectives

The document has for purpose to

- **describe** the requirements to setup Veeam Backup for Office 365 Server on Flexible Engine
- **explain** how to deploy the product on Flexible Engine

Content

Objectives 1
1. Introduction 3
2. VBO image deployment on Flexible Engine 3
2.1. Pre-requisites 3
2.1.1. Considerations & Limitations* 4
2.1.1.1. Infrastructure 4
2.1.1.2. Backup Repositories 5
2.1.1.3. Object Storage Repositories 5
2.1.1.4. Backup 5
2.1.1.5. Restore 6
2.1.2. Compute Requirements 6
2.1.3. Backup Repository Sizing 8
2.1.4. Permission for VBO on Microsoft 365 8
2.2. VBO ECS creation 10
2.3. VBO initial configuration 12
2.4. VBO Proxy addition 22

1. Introduction

Veeam Backup for Microsoft Office 365 eliminates the risk of losing access and control over your Office 365 data, including Exchange Online, SharePoint Online and OneDrive for Business so that your data is always protected and accessible

This guide is intended to provide best practices for deployment of Veeam Backup for Microsoft Office 365 in Flexible Engine environment.. It is not meant as a full documentation or detailed explanation of features.Please refer to Veeam documentation for complete and up to date information.

2. VBO image deployment on Flexible Engine

2.1. Pre-requisites

Before deploying a Veeam Backup for Microsoft Office 365 (VBO) on Flexible Engine, you must define compute requirements for VBO Server corresponding to your needs.

First & foremost requirement is to have a DOMAIN to which VBO Server & Proxy must be registered.
In the case when you don't need any proxies (for small setups) and can manage with VBO Server alone based on sizing guidelines below then VBO Server by default acts as proxy as well & can work alone in workgroup but if you wish to expand & add proxy then you must have both VBO Server & Proxies registered to same DOMAIN.

Sizing of VBO is **based on number of Objects rather than number of users or size**, the number of objects referred here are :

- For Exchange Online and On-Premises
    - ✓ Primary Mailbox
    - ✓ Archive Mailbox
    - ✓ Shared Mailboxes
    - ✓ Public MailFolders
    - ✓ Exchange Resources (Room, Equipment)
- For SharePoint Online and On-Premises
    - ✓ Sites (Collaboration, Communication, Publishing, Enterprise, Template based)
    - ✓ Personal Sites
    - ✓ Teams Sites
- For OneDrive for Business Online and On-Premises
    - ✓ OneDrive accounts

For example: Organization with 1000 users might need to protect all mailboxes (Primary and Archive) 400 Shared Mailboxes, 20 Public MailFolders, all Personal Sites and OneDrives along with 2000 SharePoint sites. The total number of objects amounts to 6,420 objects as per table below:

Value	Type
1000	Primary Mailboxes
1000	Archive Mailboxes
400	Shared Mailboxes
20	Public MailFolders
1000	Personal Sites
1000	OneDrive for Business

2000	SharePoint Sites

The backup and restores are executed by the Veeam VBO proxies (VBO Server by default acts as VBO Proxy, you can add upto **10 VBO Proxies** under **1 VBO Server**) and the best practice is **to not exceed 4,000** users per proxy.

Considering the main 4 object types (Mail, Archive, Site, OneDrive), below is the maximum limit :

Type	Value
Maximum number of objects per Proxy	16000
Maximum number of Users per Backup Job	4000
Maximum number of Users per VBO Proxy	4000
Maximum number of Proxies per VBO installation	10
Maximum number of objects per VBO installation (10 Proxies)	10 VBO Proxy x 16000 = 1,60,000 Objects
Maximum number of Users per VBO installation	40000
Maximum size per VBO Repository	Unlimited
1 VBO Proxy	0 to 256 active connections, default is set to 64
Bandwidth for VBO Proxy	Depends on Microsoft 365 throttling and best is to limit to a value based on environment, default is set to unlimited

Below are some guidelines* on which this deployment guide is based on:

- ✓ Create separate Backup jobs for the application type (eg. separate jobs for Exchange, SharePoint and OneDrive)
- ✓ Not to exceed the 4000 Users per job limit.
- ✓ Preferred to run backups outside of business hours to reduce impact on Microsoft 365 when other applications are being accessed by clients.

*Please refer to Veeam Documentation for complete and up to date information.

2.1.1. Considerations & Limitations*

Please refer to Veeam Documentation for complete and up to date information.

2.1.1.1. Infrastructure

- The Veeam Backup for Microsoft Office 365 RESTful API Service, Veeam Backup for Microsoft Office 365 Service and Veeam Backup Proxy for Microsoft Office 365 Service must be started using the Local System account.
- You cannot change the name of the Veeam Backup for Microsoft Office 365 server or change domains of the server without resetting the configuration.
- If the organization has multiple domains, they must be configured as a mesh to cross authenticate in order to download content from all domains with the service account. For more information, see this Microsoft article.
- Microsoft Windows 2008 operating system is not supported; Windows 2008 R2 SP1 is the minimum supported version.
- Veeam Backup for Microsoft Office 365 does not support encryption at-rest for the following types of backup repositories:

    - A local directory on a backup proxy server.
    - Direct Attached Storage (DAS) connected to the backup proxy server.
    - Storage Area Network (SAN).
    - Network Attached Storage (SMB 3.0 shares).
- Backup proxy servers and the Veeam Backup for Microsoft Office 365 server must be deployed within the same or a trusted domain.
- [For Microsoft Outlook] Preliminary releases such as Insider releases or releases provided by Monthly Channel Updates are not supported; Veeam Backup for Microsoft Office 365 supports only RTM/GA versions. For more information, see this Microsoft article.
- If the Veeam Backup for Microsoft Office 365 console and a management server are deployed on different machines, make sure that the management server is trusted for delegation. For more information, see this Microsoft article.
- If any of the machines with any of the Veeam Backup for Microsoft Office 365 components have been renamed (or its FQDN has been changed), or any machine has been added to a different domain, then all the components become unavailable to each other. If any of the above has occurred on a server that acts as a backup proxy server, then such a server becomes Offline in the Veeam Backup for Microsoft Office 365 console. To make a server available, re-add it, as described in Adding Backup Proxy Servers.
- IPv6 is not supported for Microsoft Azure China region.
- Notifications about backup jobs completion results may not work properly for Microsoft Azure China and Germany regions.

2.1.1.2. Backup Repositories

- Backup repositories with enabled volume deduplication are not supported.
- A symbolic link that is configured as a mapped drive is not supported.

2.1.1.3. Object Storage Repositories

- Veeam Backup for Microsoft Office 365 does not support the $root container in Azure blob storage.
- Veeam Backup for Microsoft Office 365 does not support Glacier or Lifecycle policy in Amazon AWS Data Management or Azure Archive storage class.
- Make sure the S3 Compatible device you are adding supports AWS v4 signature. For more information about authentication requests, see this Amazon article.
- Veeam Backup for Microsoft Office 365 allows you to migrate data from a local backup repository to an object storage repository, but not vice versa. For more information, see the Move-VBOEntityData section of the Veeam Backup for Microsoft Office 365 PowerShell Reference.

2.1.1.4. Backup

- To back up mailboxes, make sure that a mailbox has a valid Microsoft Office 365 license. Otherwise a backup job will fail with the following error: "Error: Mailbox doesn't have a valid Microsoft Office 365 license"
- Veeam Backup for Microsoft Office 365 backs up public folders that are located under the IPM_SUBTREE folder only.
- Project Web Apps are not supported for backup.
- On-premises service accounts cannot be used for multi-factor authentication.
- Backup of In-Place Hold Items is not supported for on-premises Microsoft Exchange 2013.
- You can select only the root public mailbox when backing up public mailboxes. The child folders of the selected public mailbox will be backed up as well.

- If you modify a retention policy tag for a folder, Veeam Backup for Microsoft Office 365 will perform full synchronization of that folder during the subsequent backup job session. For more information, see this Microsoft article.
- A SharePoint Site Collection hierarchy is not supported if the root site was not configured. Make sure to configure the root site in advance using a SharePoint site template of your choice. Otherwise, the following error occurs: Error: Failed to find web template ID for: STS#-1. This organization account might be missing a valid SharePoint license. Web configuration is not complete.
- When backing up Microsoft Exchange mailboxes, Veeam Backup for Microsoft Office 365 does not create a new version of an item the Read/Unread property of which was changed. That said, the Read/Unread property of each of the backed-up items always remains exactly the same as it was during the initial backup.

2.1.1.5. Restore

- SharePoint sites with a red X over the symbol mean that there is an empty sector of the template and supported content is available in the subsites.
- Microsoft Teams messages cannot be restored directly back to Teams.
- Veeam Backup for Microsoft Office 365 restores public folders that are located under the IPM_SUBTREE folder only.
- Restore of multiple objects is not supported for public folders.
- Cross-tenant restores in Office 365 is only possible for Exchange Online objects, not for SharePoint sites.
- To restore In-Place Hold Items or Litigation Hold Items to the original location consider the following:
    - Restore of In-Place Hold Items is not supported for on-premises Microsoft Exchange Server 2013 due to EWS limitations.
    - To restore In-Place Hold Items of Exchange 2016/2019 mailboxes, these mailboxes must have In-Place Hold enabled and applied at least once with the DiscoveryHolds system folder creation. Otherwise, restore of In-Place Hold Items will fail with the following error: "Failed to restore In-Place Hold Items. Restore of In-Place Hold Items into Exchange 2013 is not supported".
      For more information about enabling In-Place Hold and Litigation Hold, see this Microsoft article.

2.1.2. Compute Requirements

VBO Server Recommendation

Specification	Requirement
Hardware	The following hardware is required: • *CPU*: minimum 4 vCPU. • *Memory*: 8 GB RAM minimum. Additional RAM and CPU resources improve backup, restore and search performance. • *Disk Space*: 500 MB for product installation and additional free space for the configuration database (depending on the amount of organizations, jobs and sessions) and product logs.
OS	Only 64-bit version of the following operating systems are supported: • Microsoft Windows Server 2019 • Microsoft Windows Server 2016 • Microsoft Windows Server 2012 R2 • Microsoft Windows Server 2012 • Microsoft Windows Server 2008 R2 SP1

Software	The following software will be installed as a part of VBO installation: • Microsoft .NET Framework 4.7.2 or higher. • Windows C Runtime and Update (UCRT) in Windows. For more information, see this Microsoft article. • Mail restore requires Veeam Explorer for Microsoft Exchange that is part of Veeam Backup & Replication 9.5 Update 4 or Veeam Backup for Microsoft Office 4.0. • To use PowerShell cmdlets for backup and/or restore, Windows PowerShell 2.0 or higher is required. When using Windows 2012 or 2012R2, Windows PowerShell 2.0 Engine must be installed regardless of the current PowerShell version. • For more information about Microsoft Office 365 system requirements and limitations, see this Microsoft article.

VBO Proxy Requirements

Proxy config	Max recommended #	If protecting users

Specification	Requirement
Hardware	The following hardware is required: • CPU: minimum 4 vCPU. • Memory: 8 GB RAM minimum. Additional RAM and CPU resources improve backup, restore and search performance. • Disk space: 300 MB for backup proxy installation and additional free space for configuration database (depending on the amount of organizations, jobs and sessions) and backup proxy logs.
OS	Only 64-bit version of the following operating systems are supported: • Microsoft Windows Server 2019 • Microsoft Windows Server 2016 • Microsoft Windows Server 2012 R2 • Microsoft Windows Server 2012 • Microsoft Windows Server 2008 R2 SP1 Proxy servers can be deployed to the following core editions: • Microsoft Windows Server 2019 • Microsoft Windows Server 2016 LTSC, 1709 • Microsoft Windows Server 2012 R2
Software	The following software will be installed as a part of VBO Proxy installation: • Microsoft .NET Framework 4.7.2 or higher. • Windows C Runtime and Update (UCRT) in Windows. For more information, see this Microsoft article.

		of objects per proxy*	data only
Min	4 vCPUs and 8GB RAM	2000	500 users
Recommended	8 vCPUs and 32GB RAM	16000	4000 users

*Objects may include both users' data and shared data.

Network Best Practice*

VBO Server & VBO Proxy is recommended to have a static IPv4 IP address and a DNS records created (both PTR & A records) to have it resolvable over network. IPv4 is preferred over IPv6. If we plan to join VBO server and proxies to an AD then they need to be part of the same (or trusted) Active Directory domain.

* Please refer to Veeam Documentation for complete and up to date information.

2.1.3. Backup Repository Sizing

The sizing for the disk repositories differs based on the stored data. The given formulas are based on experiences but dependent on your individual data the real usage can vary.

Exchange Data

The given formula applies to both item-level and snapshot based repositories.

For primary mailboxes

(Current primary mailboxes total size) + ((Daily change rate * 2) * (Days of retention)) + (10% working area)

For archive mailboxes

(Current archive mailboxes total size) + ((Daily change rate) * (Days of retention)) + (10% working area)

If you run an existing O365 or on-premise Exchange use the PowerShell commandlets `Get-Mailbox` and `Get-MailboxStatistics` on your infrastructure to get input to the following formulas.
You can get the Total size of current primary mailboxes with `Get-Mailbox` and Total size of current archive mailboxes with `Get-Mailbox -Archive`

```
Get-Mailbox | Get-MailboxStatistics | Select-Object DisplayName, ItemCount, TotalItemSize | Format-Table –autosize
```

SharePoint and OneDrive Data

You can view current and previous data usage for SharePoint Online and OneDrive for Business in the Microsoft 365 Admin Center, e.g. for SharePoint at **Reports > Usage > SharePoint > Site Usage > Storage**.

(Total data size) + ((Daily change rate) * (Days of retention)) + (10% working area)

Daily change rate varies from 0.5 – 1%

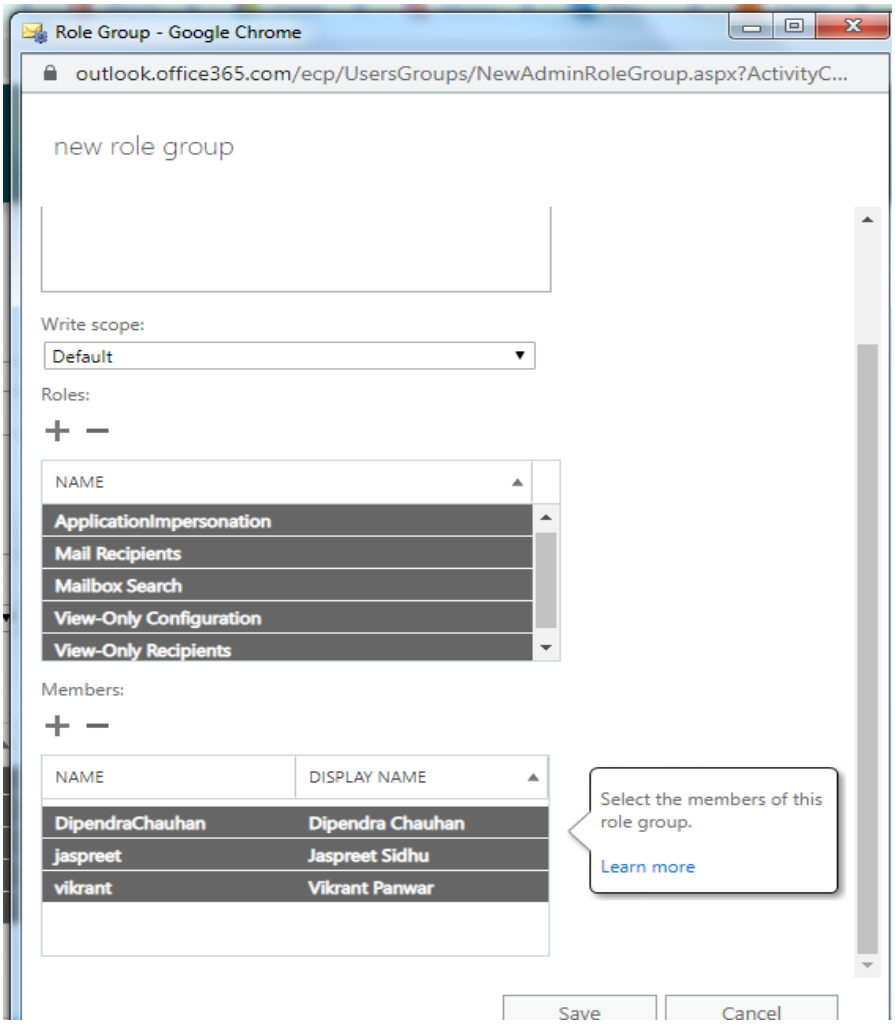
2.1.4. Permission for VBO on Microsoft 365

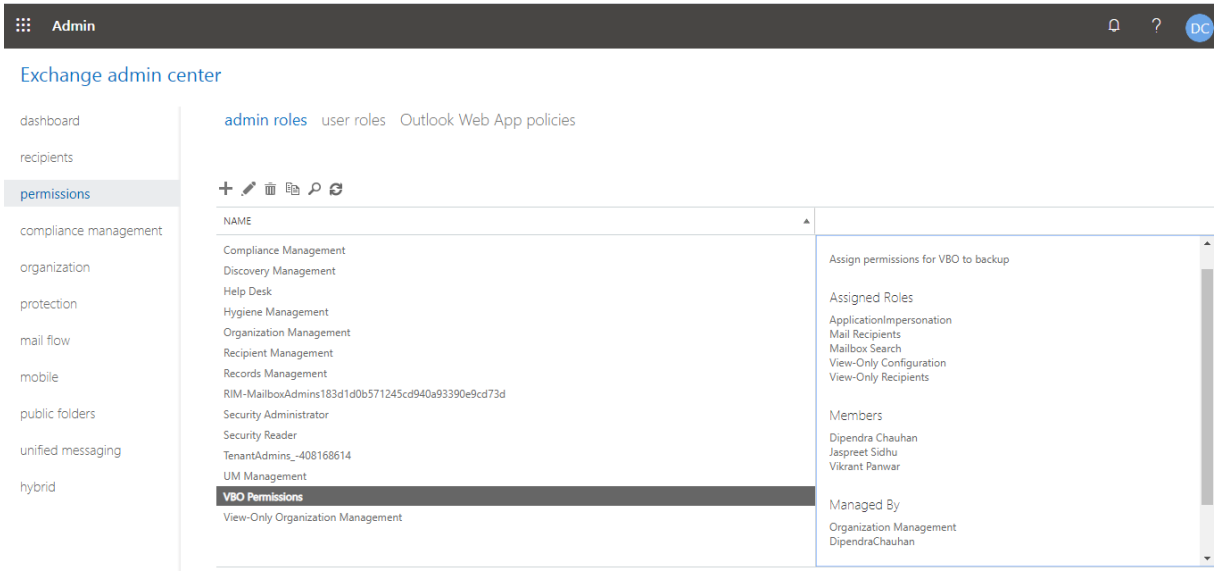
Kindly follow the below Veeam Knowledgebase article for assigning permissions on Microsoft 365 Admin portal for veeam to backup, Configuring Permissions for SharePoint Online, allowing apps that don't use modern authentication, enabling multi-factor authentication, configuring Azure AD Application and adding API Permissions.

Exchange

Configuring Permissions for Exchange (on-premises or Online):

- ✓ First log into the Exchange Admin Center: https://outlook.office365.com/ecp/
- ✓ Select Permissions and add a New Role Group

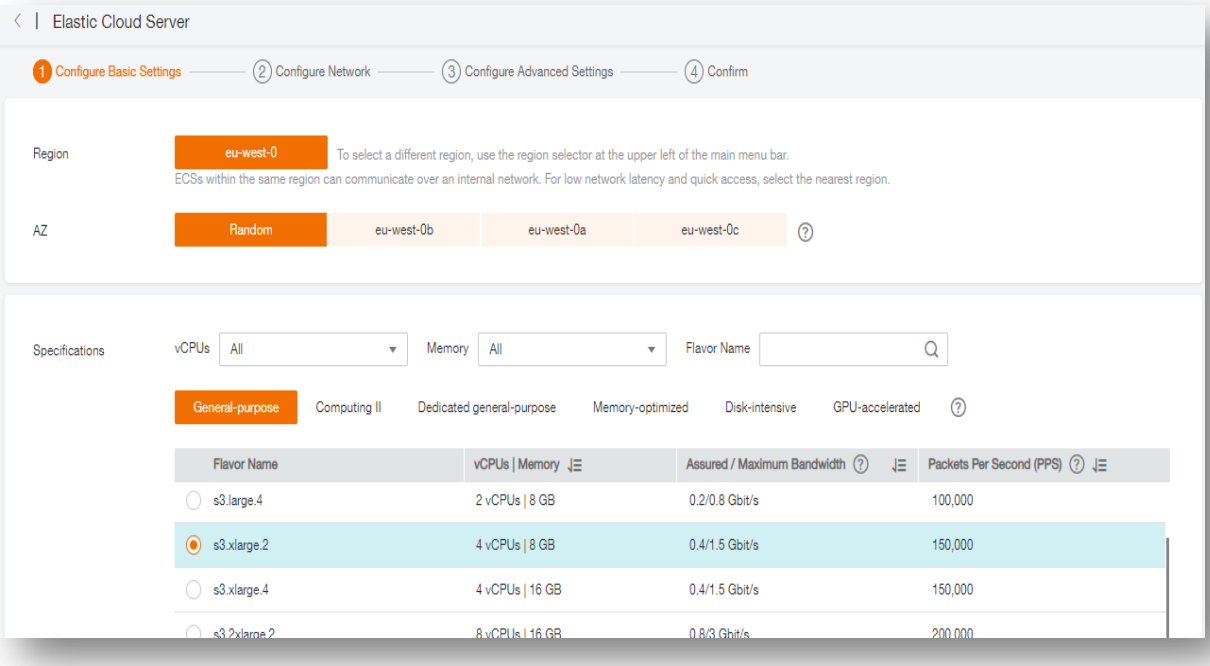




2.2. VBO ECS creation

Select the Veeam Backup for Microsoft Office 365 image using Elastic Cloud Server console as follows

1. Log in to your Flexible Engine account
2. Select the Elastic Cloud Server in Computing services
3. Then click Create ECS
4. Select any flavor with minimum 4vCPU and 8GB RAM
5. To select the image, click on Public Image and filter through Other field to choose Veeam VBO365 4b


Elastic Cloud Server
1 Configure Basic Settings
2 Configure Network
3 Configure Advanced Settings
4 Confirm
Region
eu-west-0
To select a different region, use the region selector at the upper left of the main menu bar.
ECSs within the same region can communicate over an internal network. For low network latency and quick access, select the nearest region.
AZ
Random
eu-west-0b
eu-west-0a
eu-west-0c
Specifications
vCPUs
All
Memory
All
Flavor Name
General-purpose
Computing II
Dedicated general-purpose
Memory-optimized
Disk-intensive
GPU-accelerated
Flavor Name
vCPUs | Memory
Assured / Maximum Bandwidth
Packets Per Second (PPS)
s3.large.4
2 vCPUs | 8 GB
0.2/0.8 Gbit/s
100,000
s3.xlarge.2
4 vCPUs | 8 GB
0.4/1.5 Gbit/s
150,000
s3.xlarge.4
4 vCPUs | 16 GB
0.4/1.5 Gbit/s
150,000

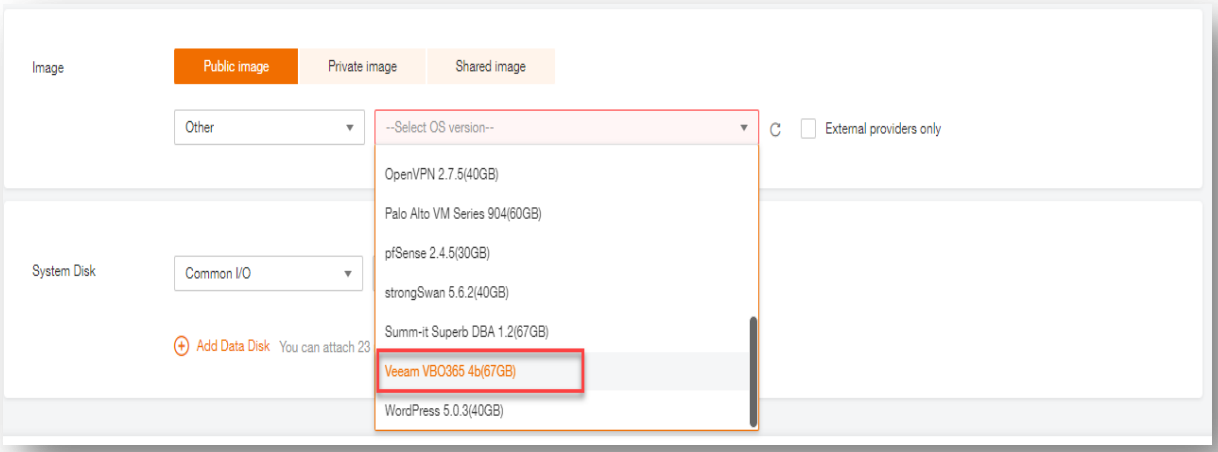
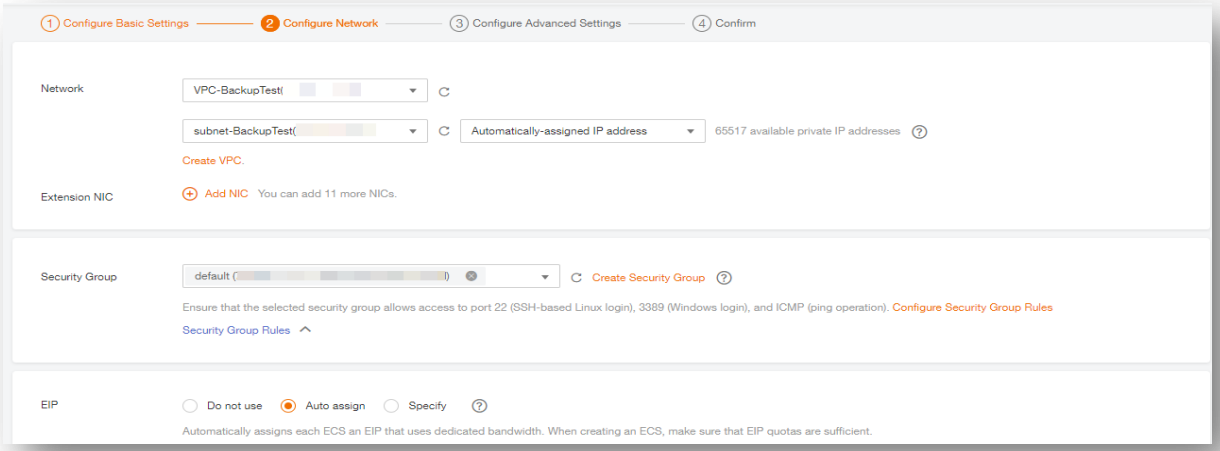
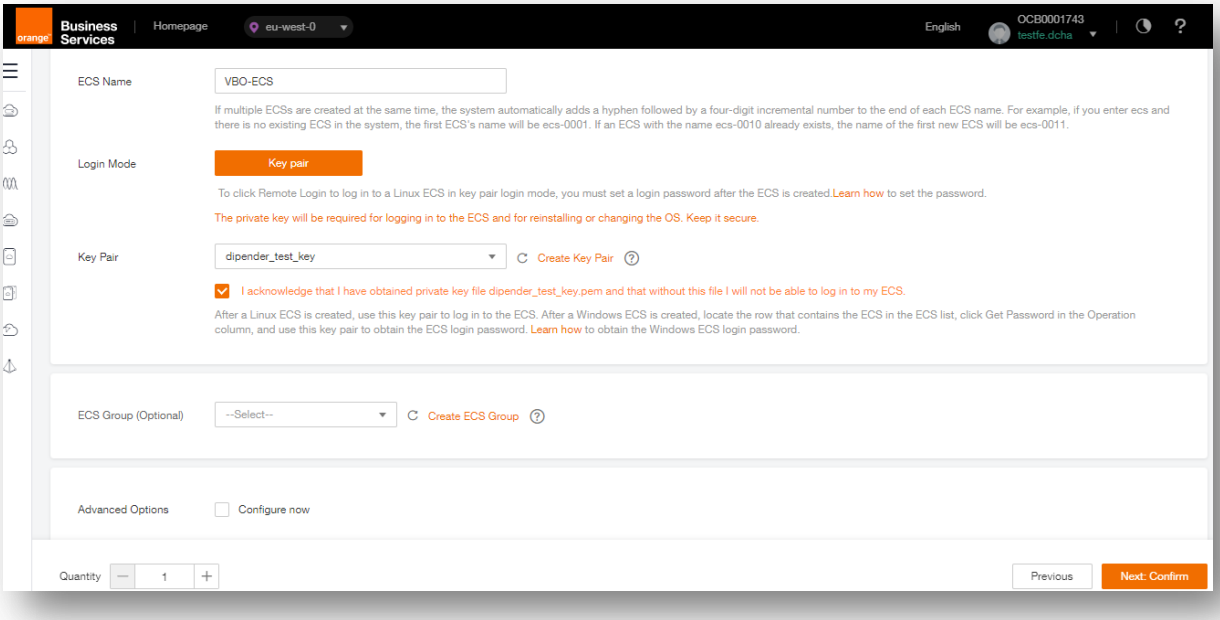


Image
Public image
Private image
Shared image
Other
--Select OS version--
External providers only
OpenVPN 2.7.5(40GB)
Palo Alto VM Series 904(60GB)
pfSense 2.4.5(30GB)
strongSwan 5.6.2(40GB)
Summ-it Superb DBA 1.2(67GB)
Veeam VBO365 4b(67GB)
WordPress 5.0.3(40GB)
System Disk
Common I/O
Add Data Disk
You can attach 23

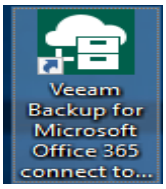


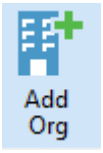


Once the ECS is deployed, you will have VBO comes pre-installed in this image, you just need to login to ECS & start with initial configuration of adding up Organization of Microsoft 365.

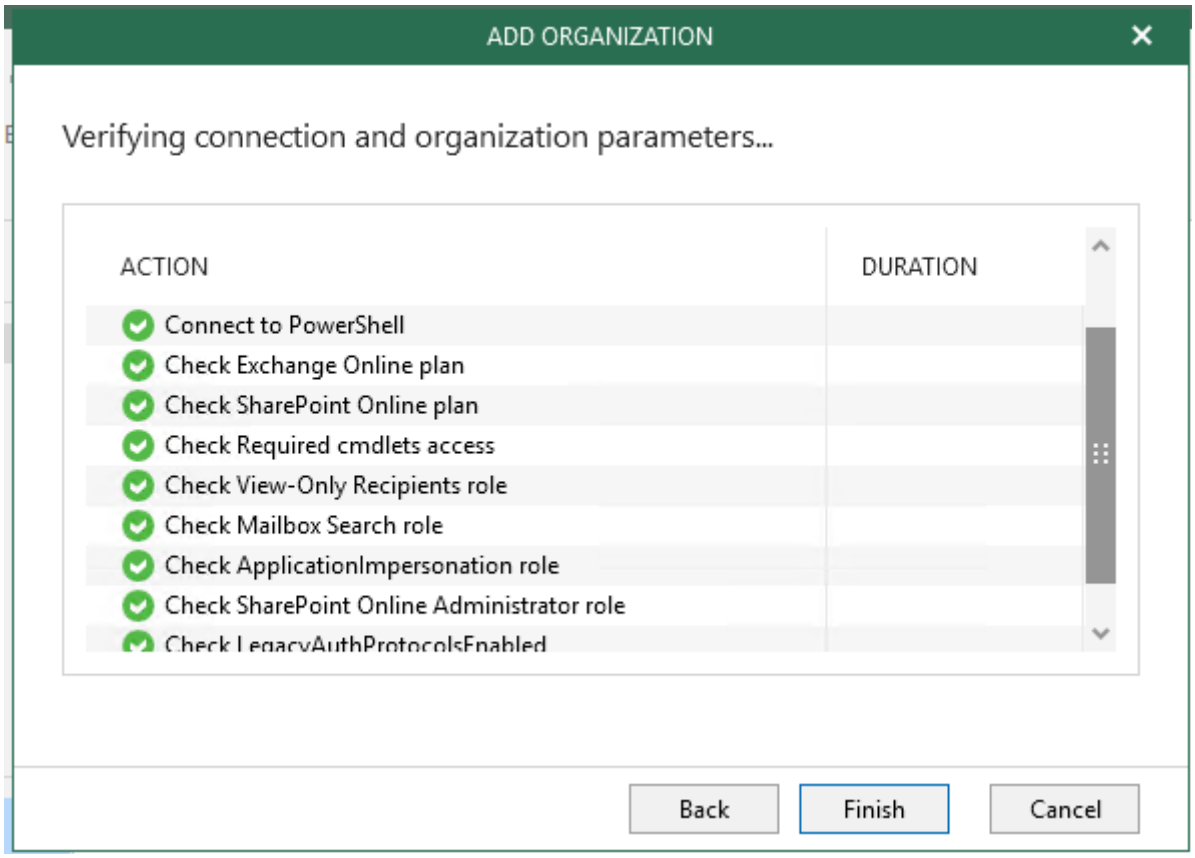
2.3. VBO initial configuration

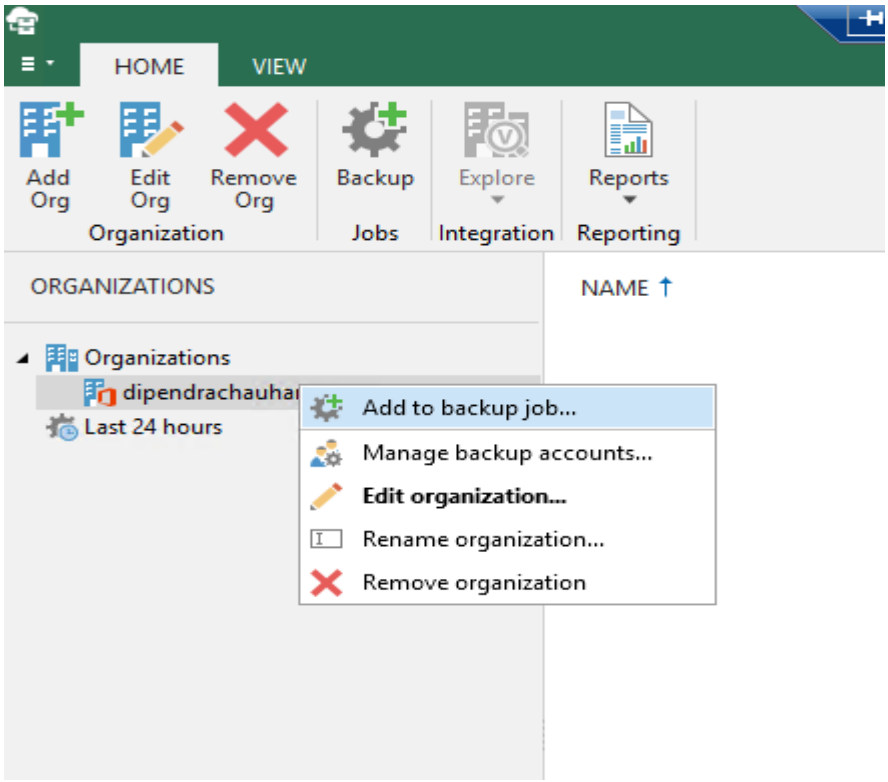
Below are the screenshots to help you add your Microsoft 365 Org to Veeam for backup, once the permissions mentioned in 1.1.3 are set then you just have to provide credentials and setup the VBO to backup periodically your Objects of Microsoft 365

Open VBO Conole (Veeam Backup for Microsoft Office 365 connect to….) 

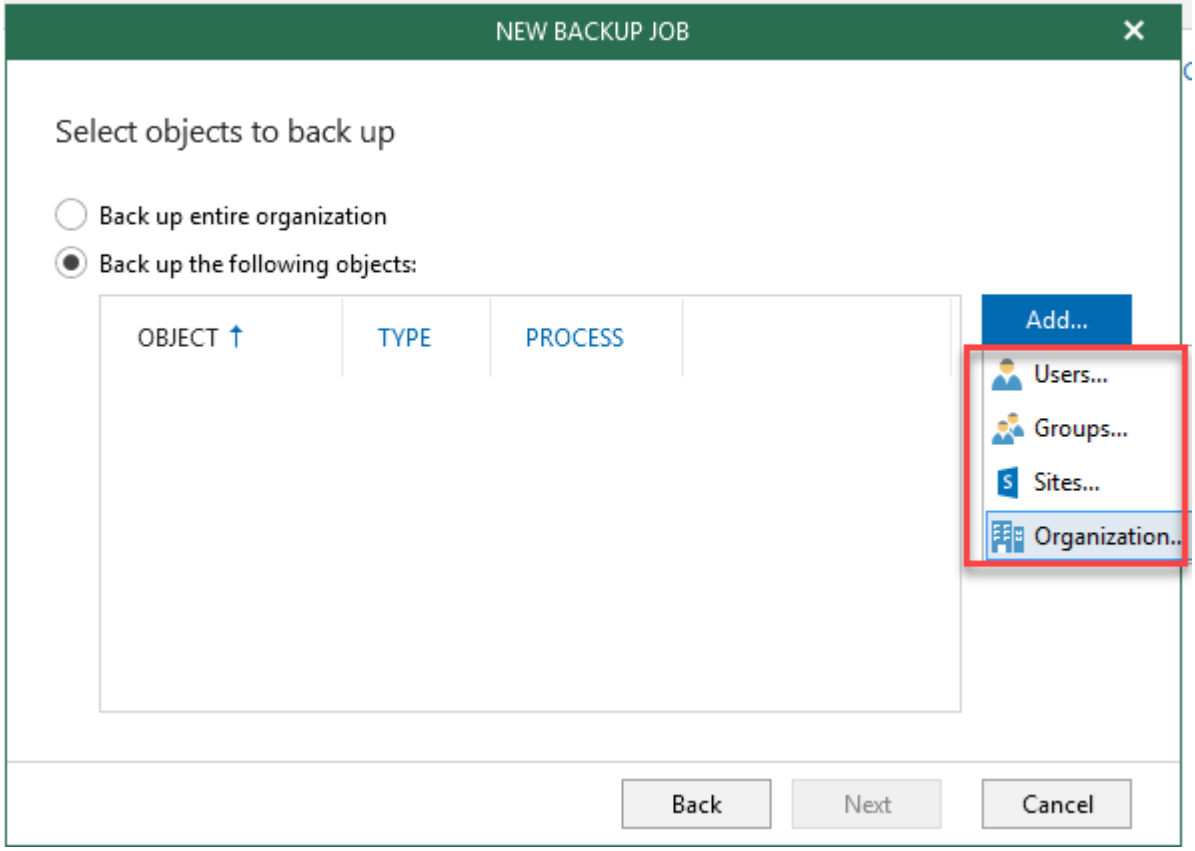
Click on Add Organization & use Admin credentials to add the organization to backup: 

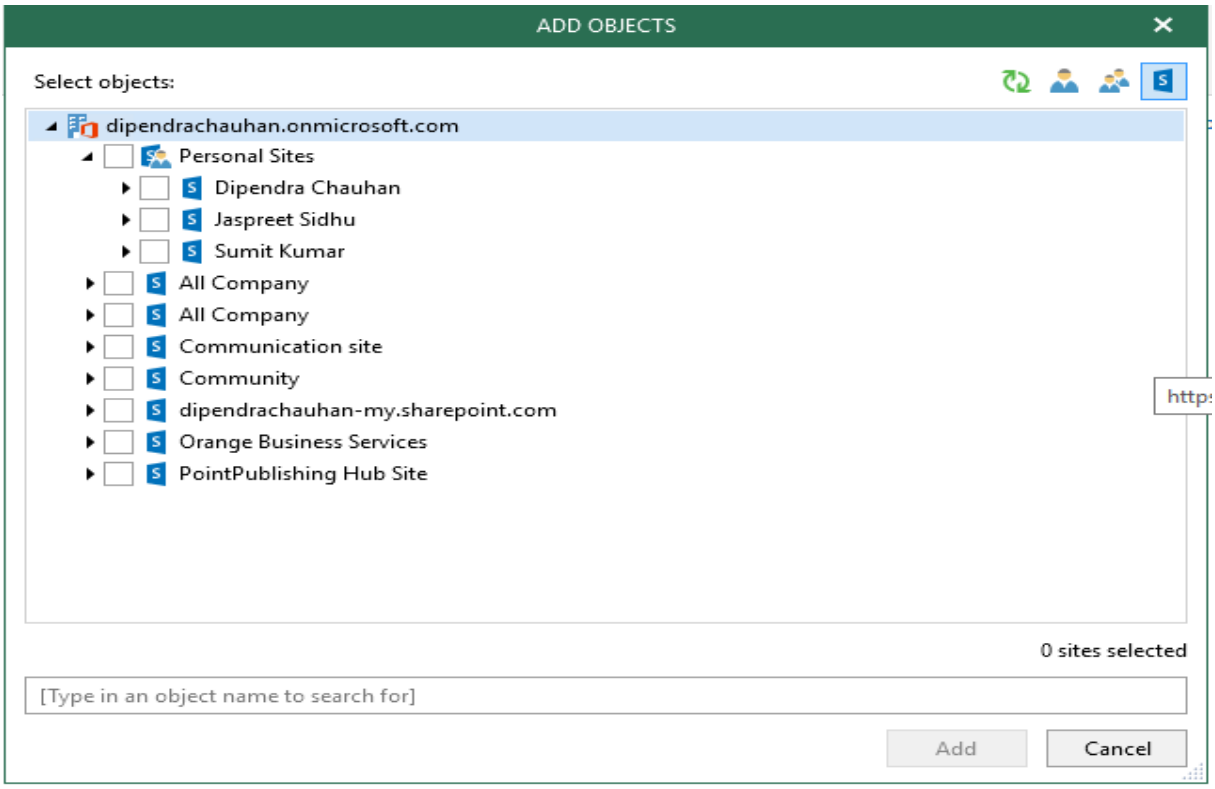
Veeam Backup for Microsoft 365 performs 11 checks to add the Org :



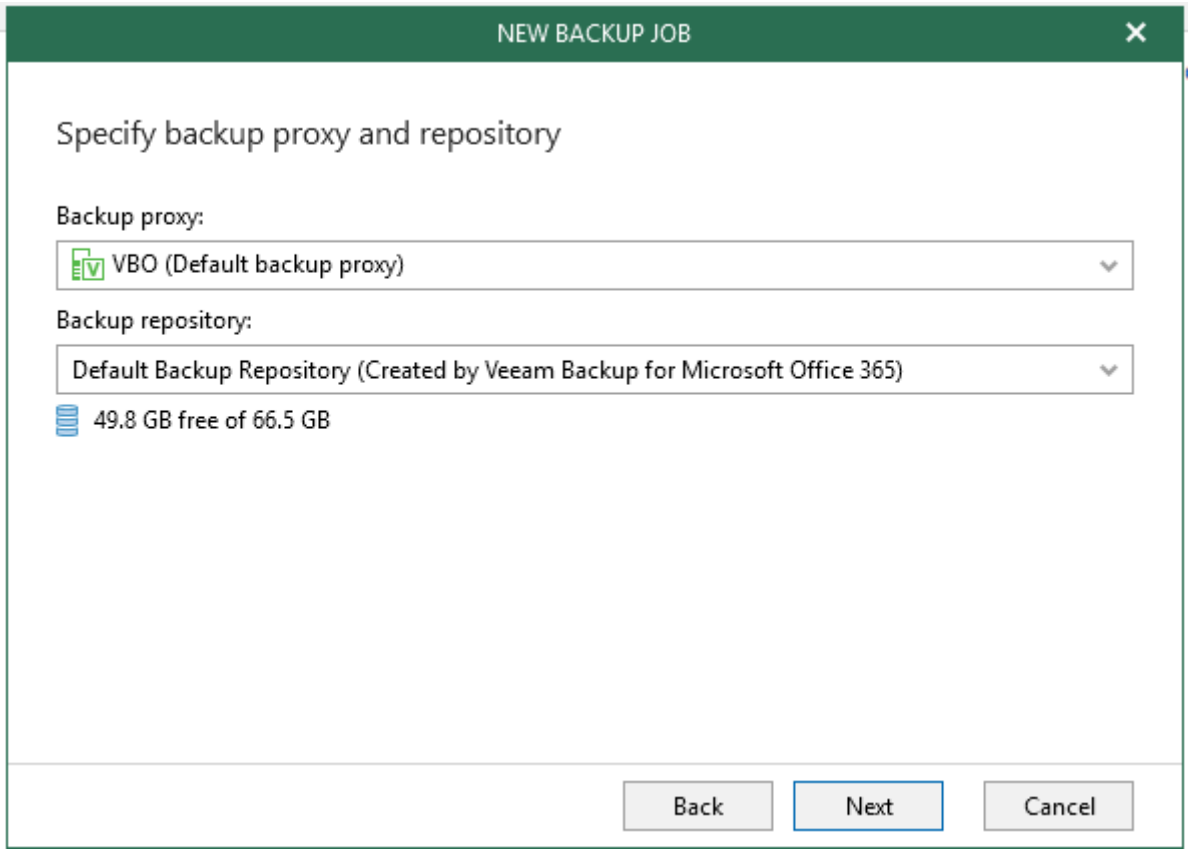


You can either backup Complete Organization or you can backup selective Users/Groups/Sites-Sharepoint/Organizations too.

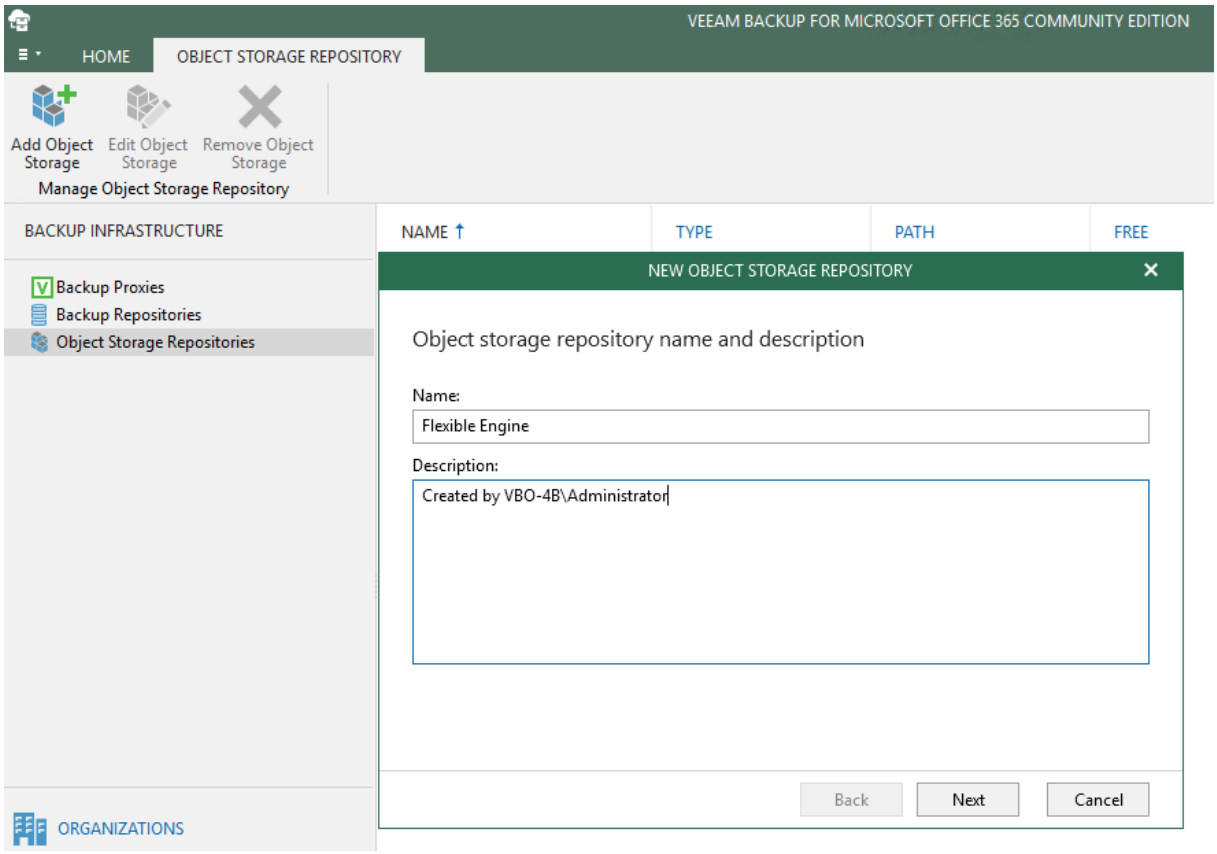


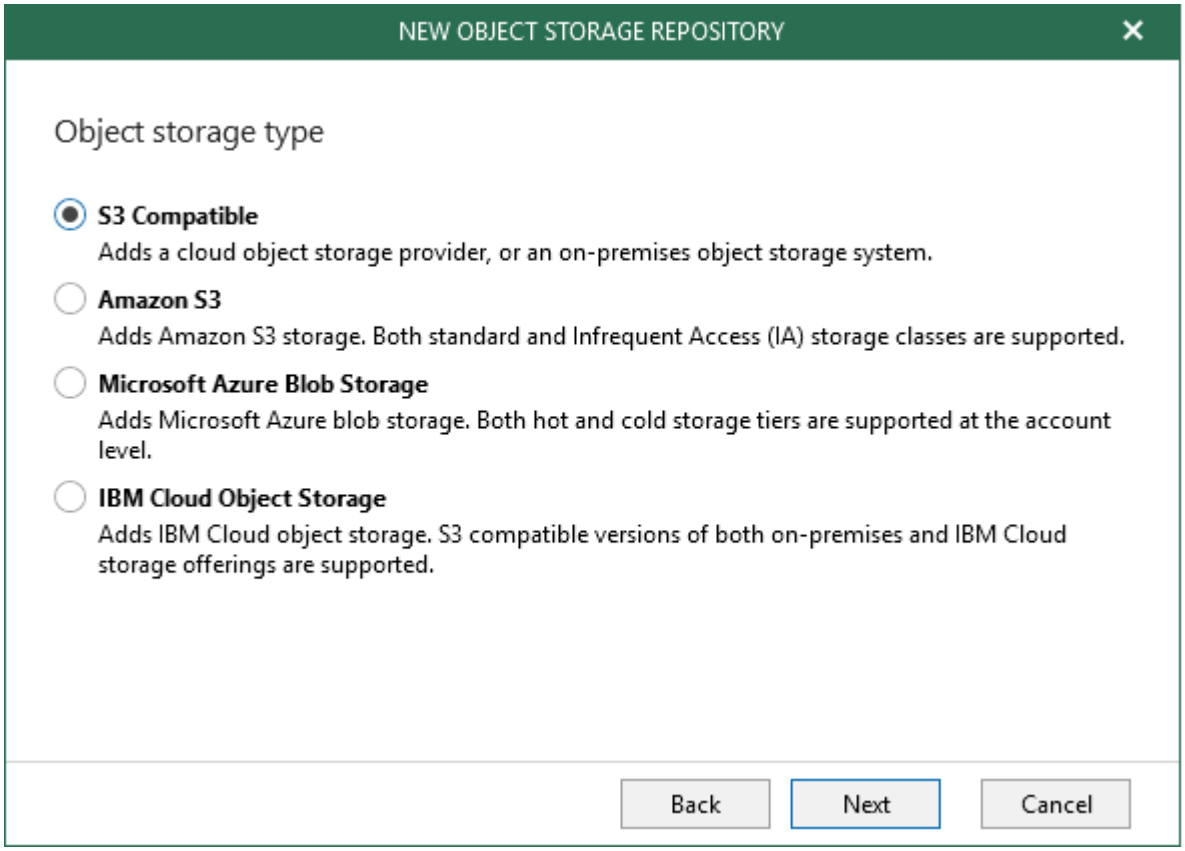


The by-default repository that Veeam Backup for Office 365 creates is on C:\ Drive, if you wish you can get an EBS Volume added and configure a new Drive as your repository plus you can also offload the backups to S3 Object Storage on Flexible Engine using the S3-compatible option while configuring repository. Below are the steps :

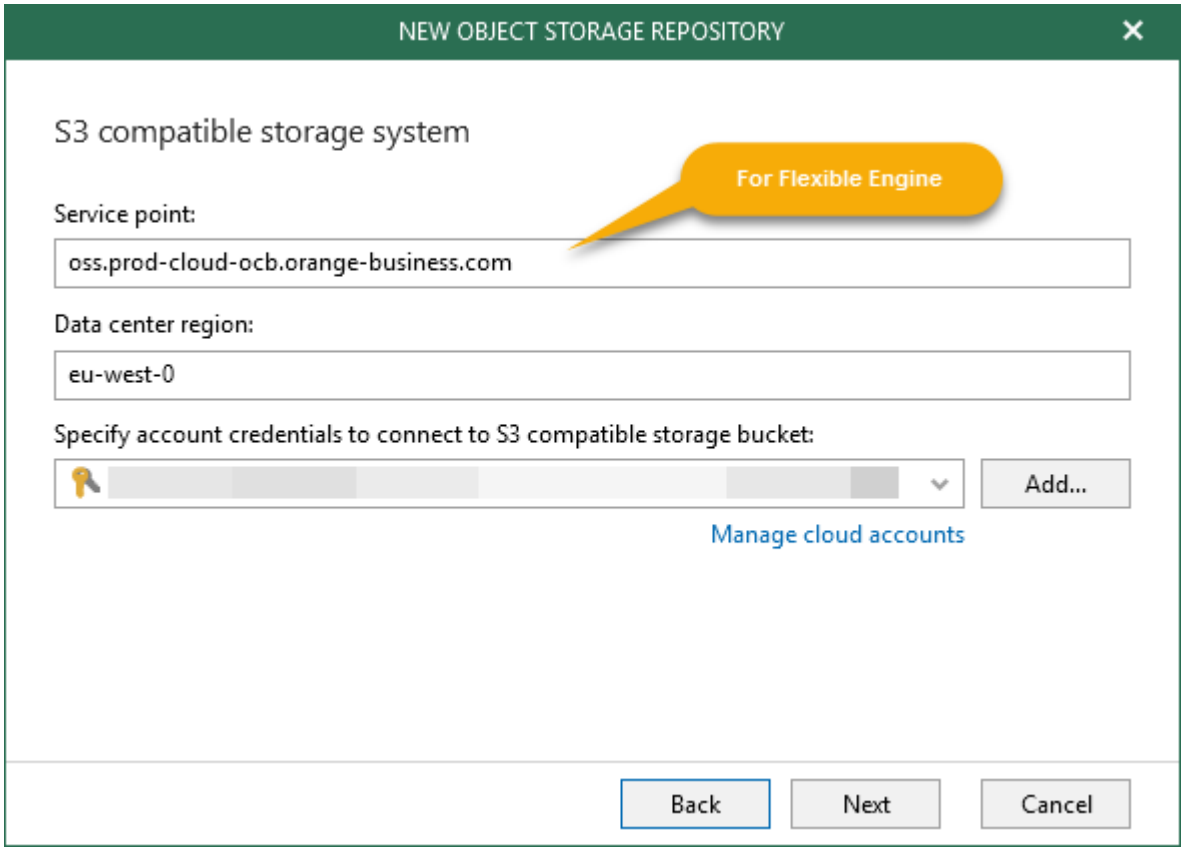


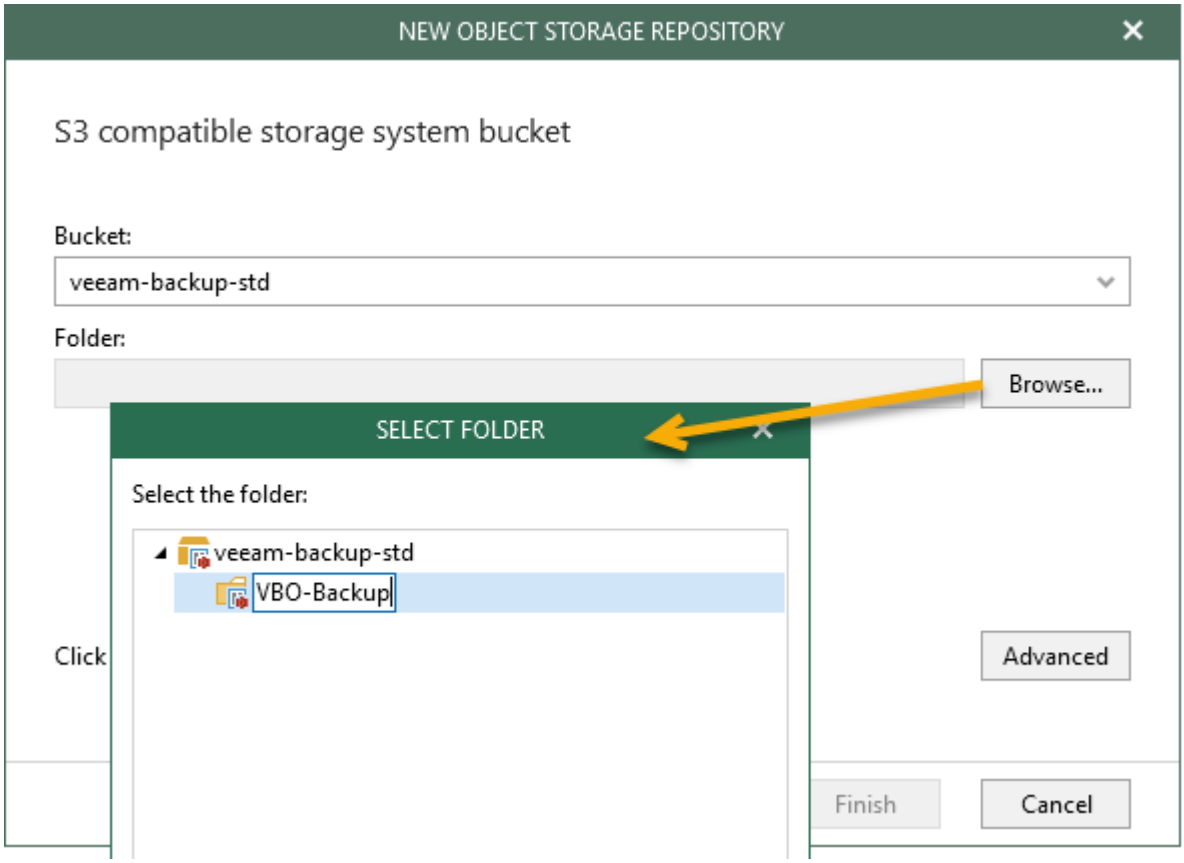
Go to Backup Infrastructure Tab on left of the VBO Console, Select Object Storage Repositories -> Right Click & Add Object Storage :



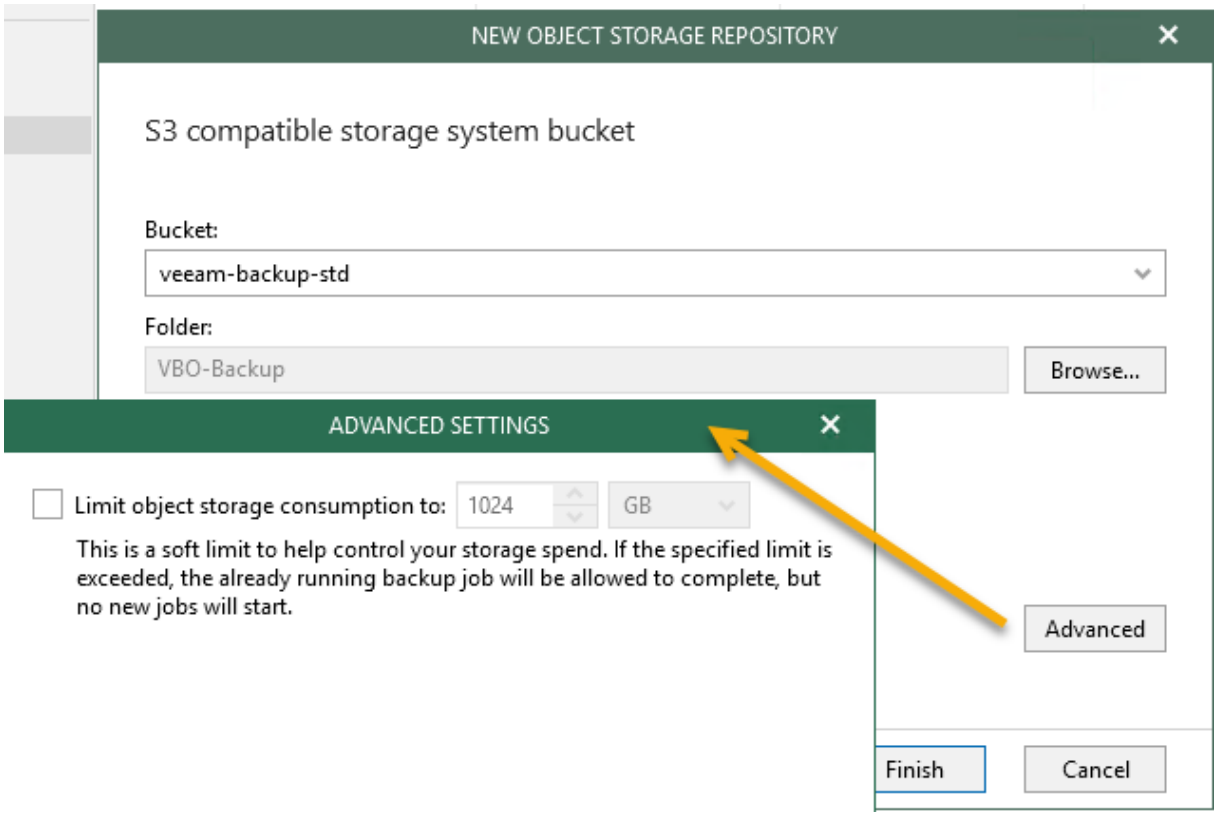


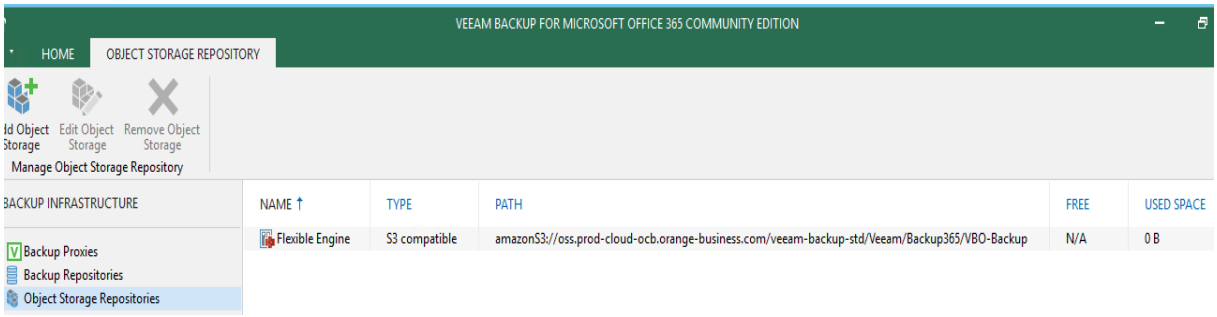
Specify your region where S3 service you wish to avail, provide S3 credentials to connect :

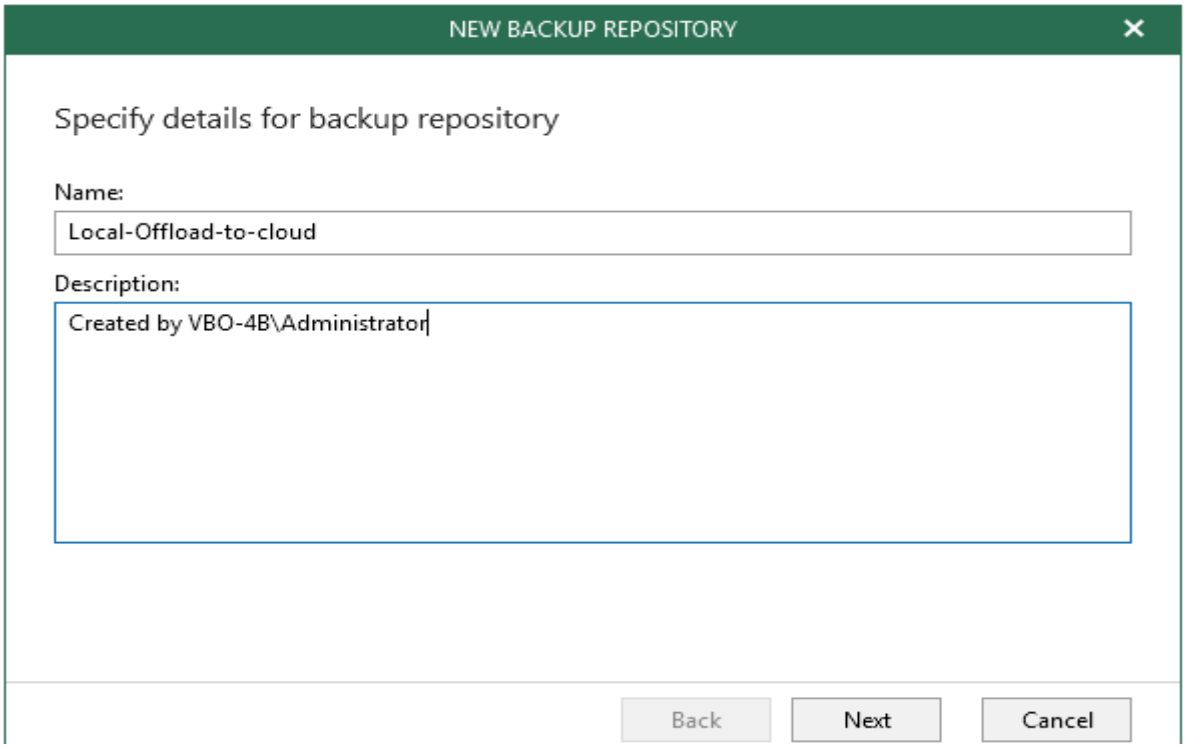




Under Advanced settings, you can apply quota for the bucket usage :

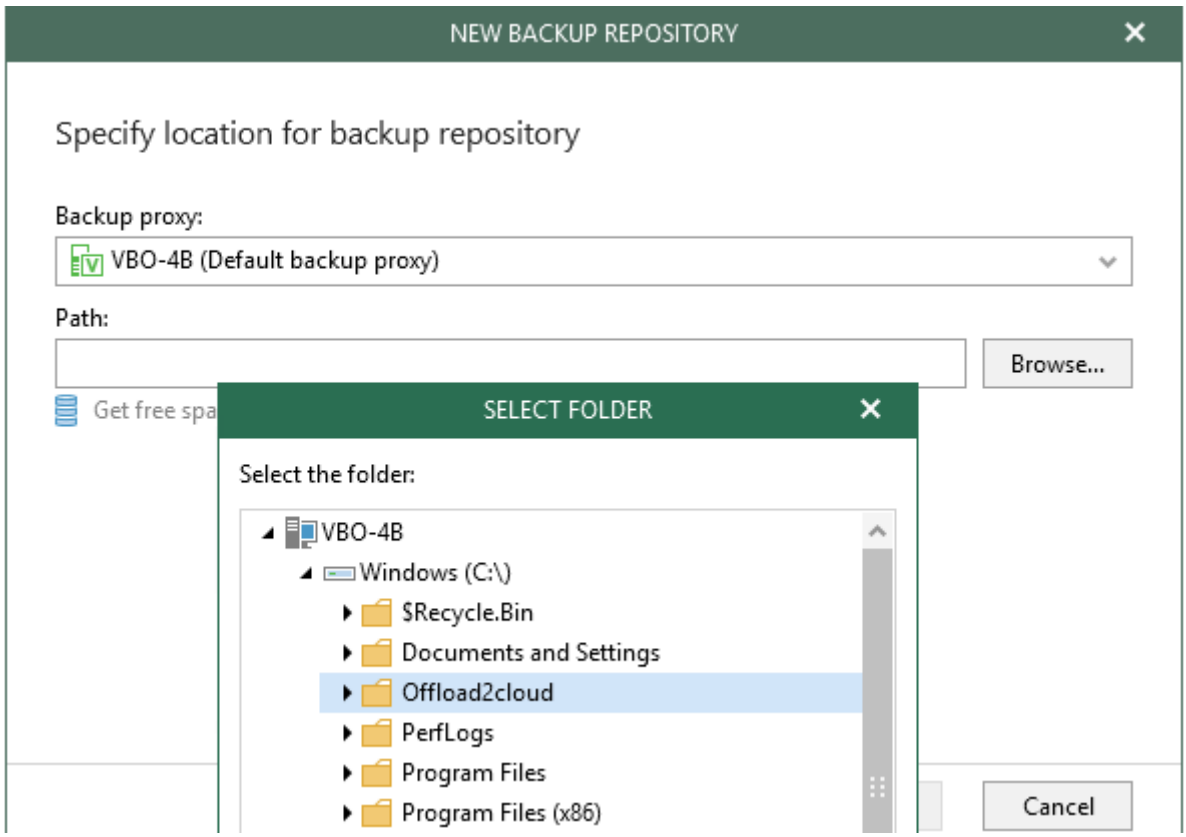




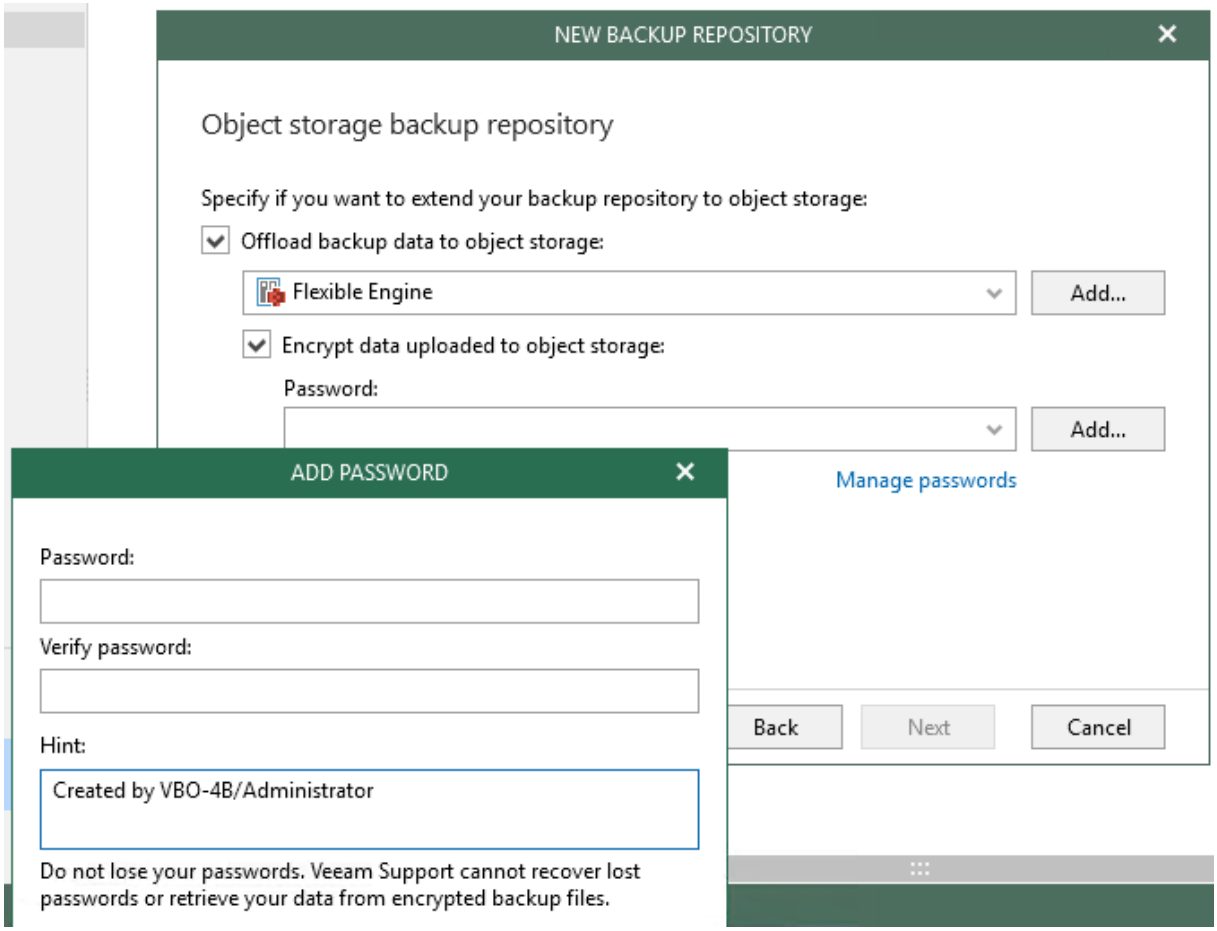


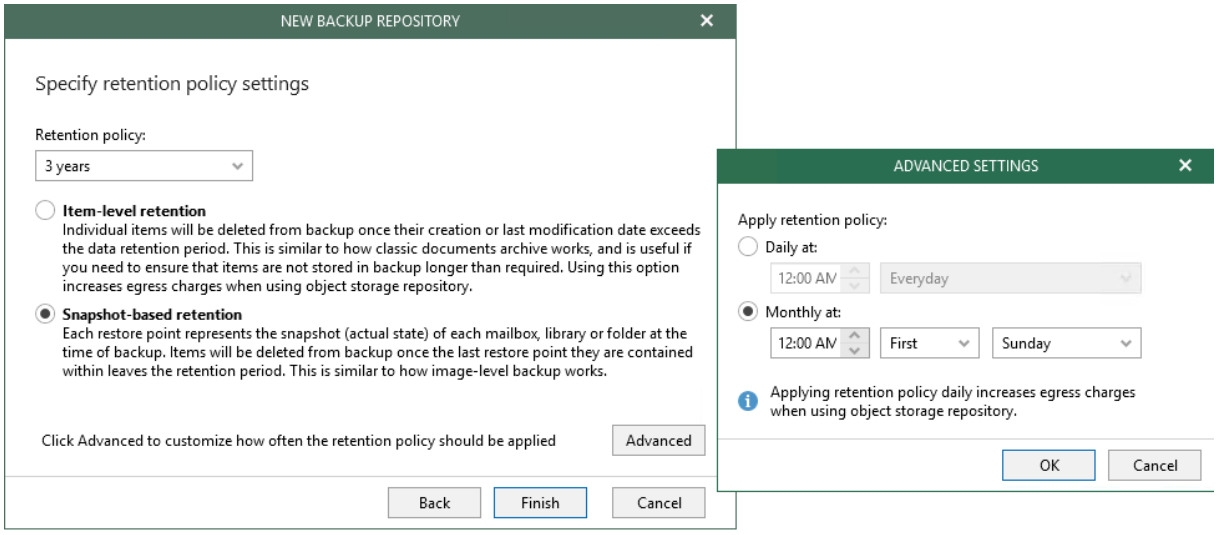
Once the S3 repository is ready, we can now integrate both local as well as S3 repository, direct backup to S3 is not supported by VBO today :

In the example below, the folder is chosen in C:\ Drive but you can use EBS volume & different drive (other than system drive is recommended) :

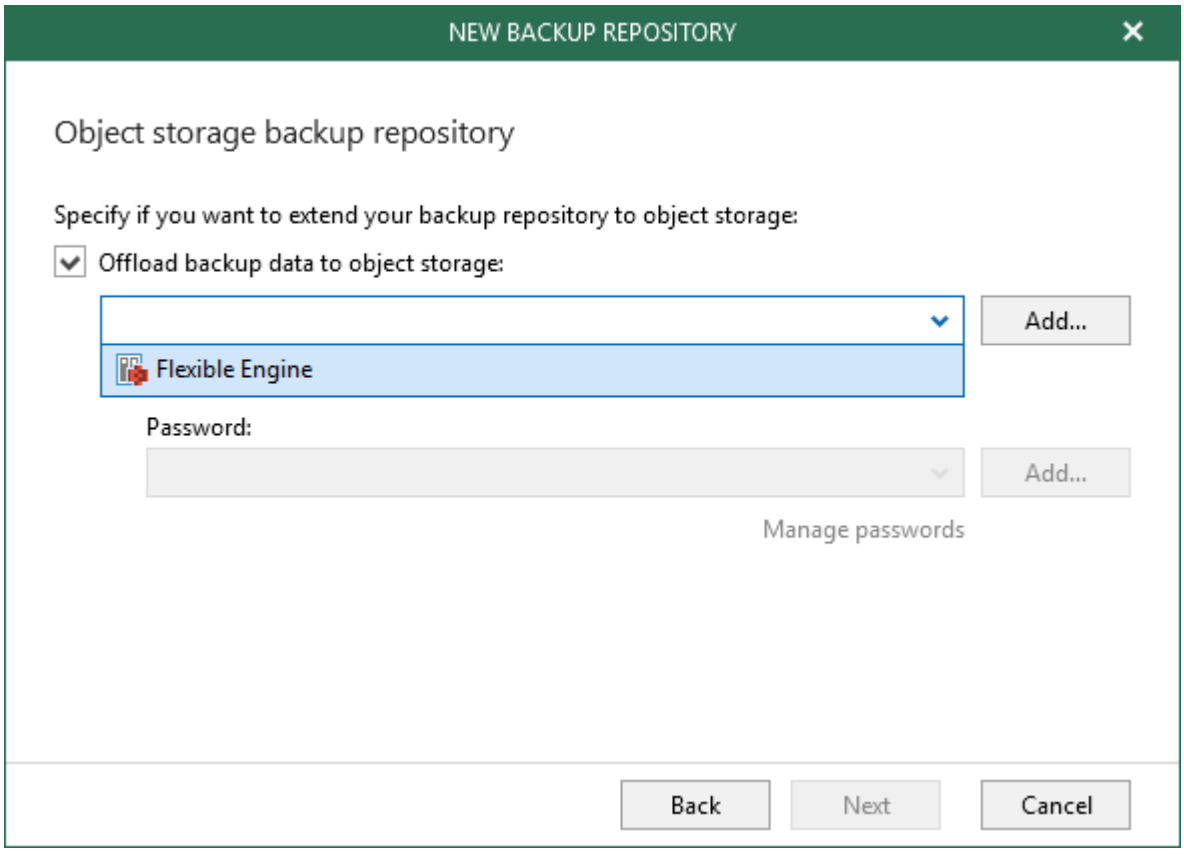


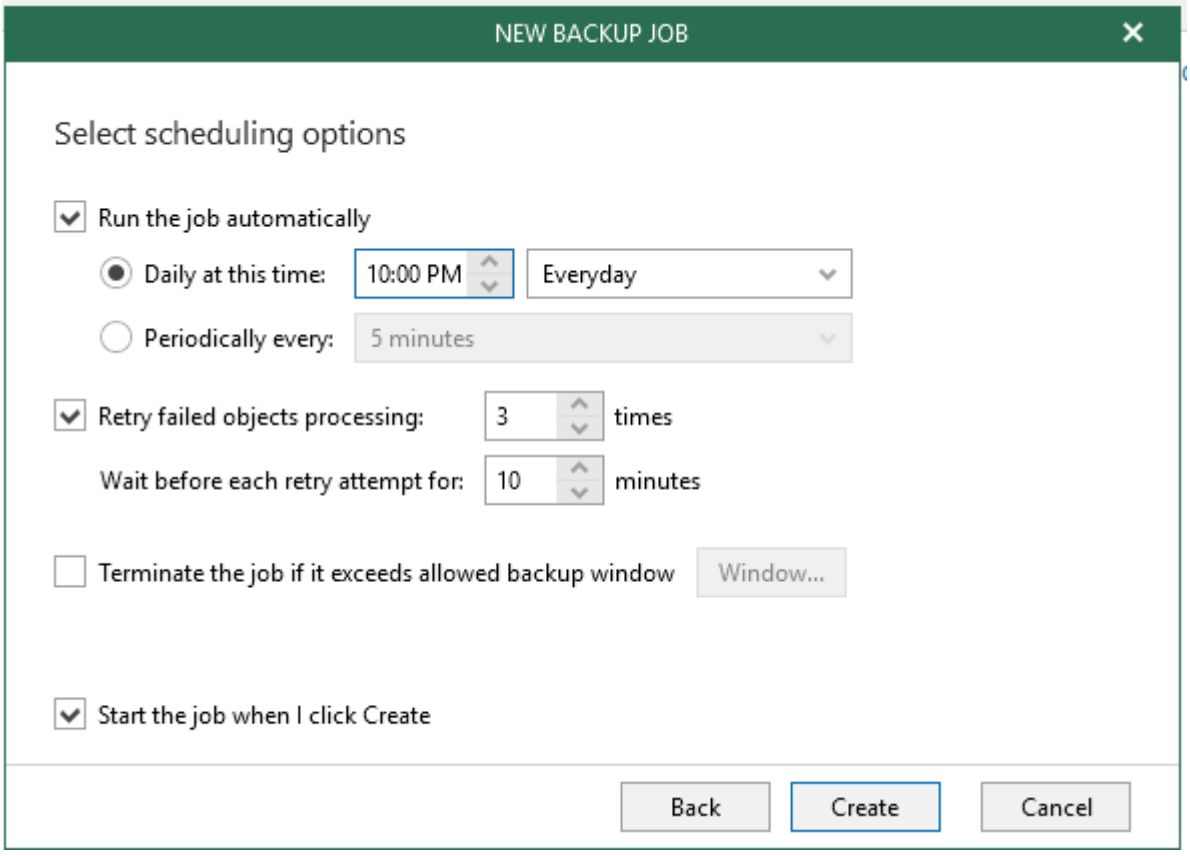
In next step you need to choose the S3 Object Repository to Offload backups to S3. Also you can perform pass-phrase based encryption :





Now choose the new repository created with S3 bucket integration in your backup job and schedule your backup job to run daily at specific time. Recommended is to run it during non-business hours to avoid impact to users.


NEW BACKUP REPOSITORY
Object storage backup repository
Specify if you want to extend your backup repository to object storage:
Offload backup data to object storage:
Add...
Flexible Engine
Password:
Add...
Manage passwords
Back
Next
Cancel

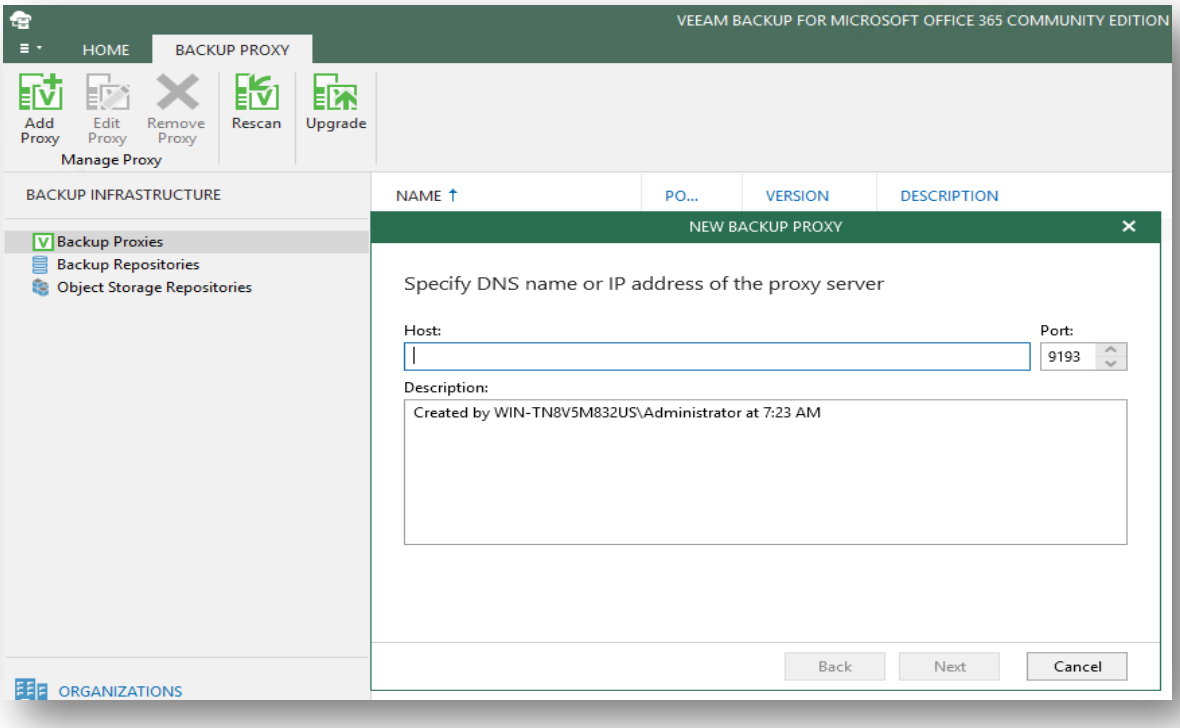

NEW BACKUP JOB
Select scheduling options
Run the job automatically
Daily at this time:
10:00 PM
Everyday
Periodically every:
5 minutes
Retry failed objects processing:
3
times
Wait before each retry attempt for:
10
minutes
Terminate the job if it exceeds allowed backup window
Window...
Start the job when I click Create
Back
Create
Cancel

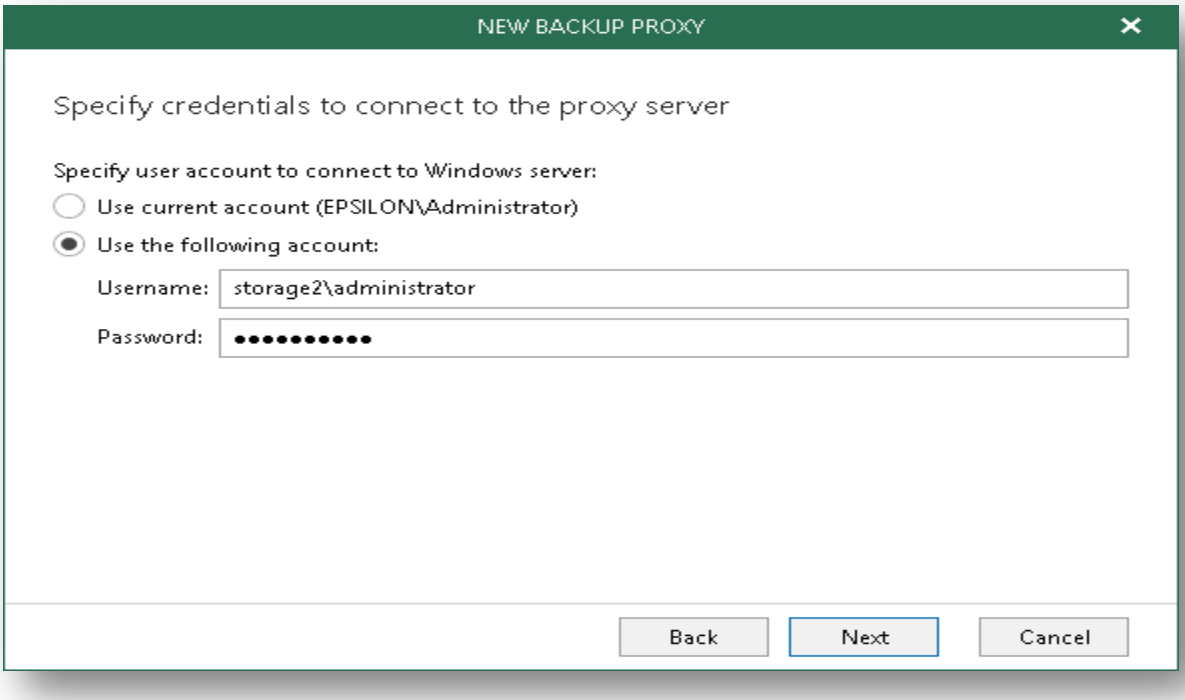
2.4. VBO Proxy addition

Adding proxy is only possible when Backup proxy servers and the Veeam Backup for Microsoft Office 365 server must be deployed within the same or a trusted domain.

Go to VBO Console -> Backup Infrastructure, Select Backup Proxies and On top left is option to Add Proxy

Specify the IP or hostname of your proxy and click on Next, Specify credentials. VBO automatically deploys the proxy agent and prepares the proxy :


VEEAM BACKUP FOR MICROSOFT OFFICE 365 COMMUNITY EDITION
HOME
BACKUP PROXY
Add Proxy
Edit Proxy
Remove Proxy
Rescan
Upgrade
Manage Proxy
BACKUP INFRASTRUCTURE
Backup Proxies
Backup Repositories
Object Storage Repositories
ORGANIZATIONS
NAME
PO...
VERSION
DESCRIPTION
NEW BACKUP PROXY
Specify DNS name or IP address of the proxy server
Host:
Port:
9193
Description:
Created by WIN-TN8V5M832US\Administrator at 7:23 AM
Back
Next
Cancel


NEW BACKUP PROXY
Specify credentials to connect to the proxy server
Specify user account to connect to Windows server:
Use current account (EPSILON\Administrator)
Use the following account:
Username:
storage2\administrator
Password:
Back
Next
Cancel