Cloud Director Object Storage Extension 3.0 Add-on Tech Preview Test Plan

PERSONAE 2

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Personae

Provider Admin [PA]

VMware Cloud Director Rights

- General: Administrator View
- Provider VDC: View
- Organization VDC: View
- UI Plugins: View

Provider admin is the user who installs Object Storage Extension to vCD and the same person who performs provider side operations on UI.

Tenant User [TU]

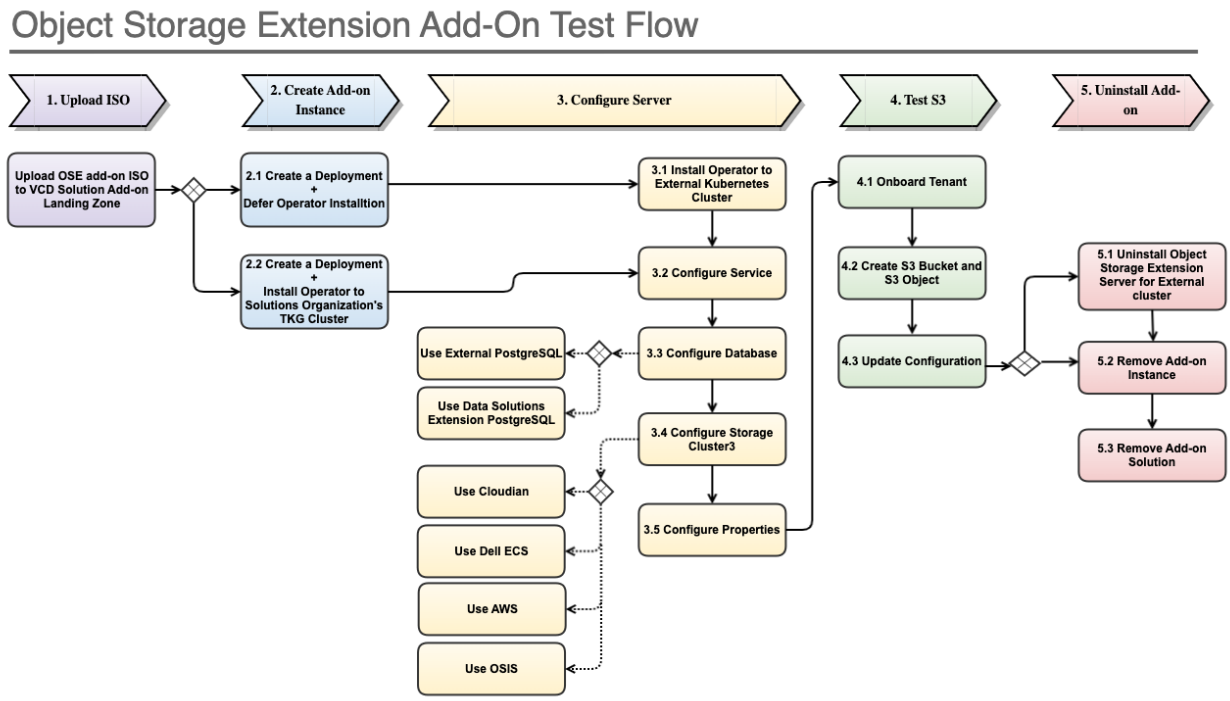
VMware Cloud Director Rights

- UI Plugins: View

Tenant user is the user who has access to operate specific data in its organization, e.g. bucket.

Test Flow

The test flow can be illustrated by the following diagram.



General Process:

1. Firstly, upload the OSE Add-on ISO to Solution Add-on Landing Zone.
   1.1. Scenario 1: [PA] Upload OSE Add-on ISO to VCD Solution Add-on Landing Zone

2. Secondly, to create a new Add-on instance, you can choose to use TKG cluster or external cluster.
   Option 1:
   2.1. It applies to the case that create Add-on instance with an External cluster, e.g. Vanilla Kubernetes cluster.
   Scenario 2.1: [PA] Create a new instance of VCD Object Storage Add-on for External Cluster
   Option 2:
   2.2. It applies to the case that create Add-on instance with Solution Organization's TKG cluster.
   Scenario 2.2: [PA] Create a new instance of VCD Object Storage Add-on for TKG Cluster

3. Thirdly, you can start to configure OSE server step by step.
   3.1. Install OSE operator.
   - It's required only when external cluster used by Add-on instance, and it must install the OSE operator manually with Kubectl commands before process the next step.
     Note: If TKG cluster chosen, the OSE operator should install automatically.

   Scenario 3.1: [PA] Install OSE Operator to External Cluster

   3.2. Configure Service, it provides three options to configure OSE service with certificate.
   Option 1: By default, you can use the self-signed certificate.
   Scenario 3.2.1: [PA] Configure OSE Service with Self-Signed Certificate

   Option 2: If cert manager issuer installed in the Kubernetes cluster, then you can use it to generate the certificate.
   Scenario 3.2.2: [PA] Configure OSE Service with Cert Manager Issuer

   Option 3: If you have the pre-configured certificate, then you can import the certificate files.
   Scenario 3.2.3: [PA] Configure OSE Service with Import Certificate

   3.3. Configure Database, it provides two options to configure the database.
   Option 1: use the existing external PostgresSQL database, you can configure database with or without SSL.
   Scenario 3.3.1: [PA] Configure Database with external database and ssl-mode is "DISABLE"
   Scenario 3.3.2: [PA] Configure Database with external database and ssl-mode is "VERIFY_CA"

   Option 2: use Data Solution Extension database.
   Scenario 3.3.3: [PA] Configure Database with Data Solution Extension

3.4. Configure Storage Cluster, it provides four options to configure the storage platform.
Option 1: AMAZON platform
Scenario 3.4.1: [PA] Configure Storage Cluster with AMAZON Platform

Option 2: Cloudian platform
Scenario 3.4.2: [PA] Configure Storage Cluster with Cloudian Platform

Option 3: ECS platform
Scenario 3.4.3: [PA] Configure Storage Cluster with ECS Platform

Option 4: OSIS platform
Scenario 3.4.4: [PA] Configure Storage Cluster with OSIS Platform

3.5. Configure Other Properties, you can configure parameters for debug usage.
Scenario 3.5: [PA] Configure Other Properties

4. Fourthly, you can verify S3 functionality.
Scenario 4.1: [PA] Activate Tenant
Scenario 4.2: [TU] Verify the S3 functionality
Scenario 4.3: Update OSE Server's Configuration and Verify S3 Functionality

5. Finally, you can uninstall OSE Add-on.
Scenario 5.1: [PA] Uninstall Object Storage Extension Server
Scenario 5.2 [PA] Remove Add-on Instance
Scenario 5.3 [PA] Remove Add-on Solution

Prerequisites:

1. Download the latest version of OSE Add-on ISO.
2. The minimal supported Cloud Director version is 10.5.1.

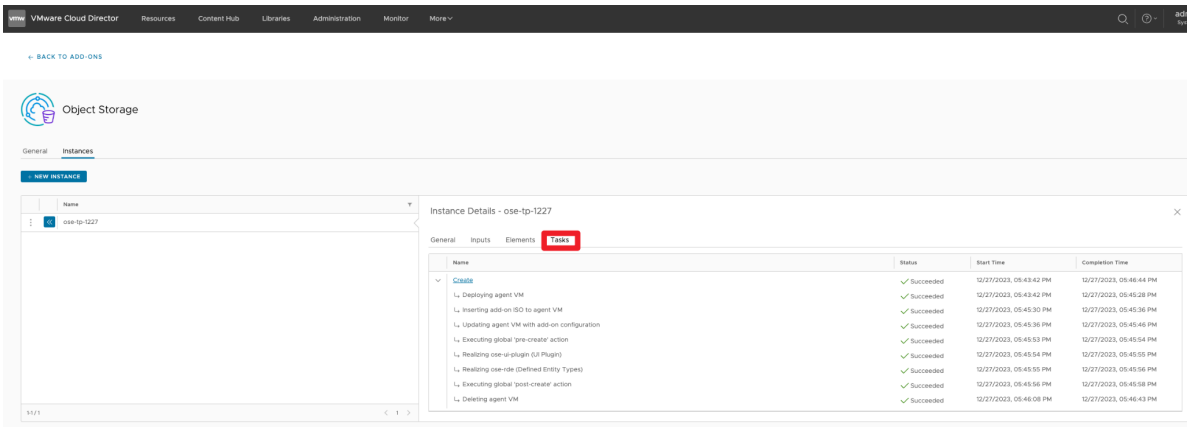
Scenario 1: [PA] Upload OSE Add-on ISO to VCD Solution Add-on Landing Zone

- Login to VCD provider portal as a Provider Admin.
- Navigate to More | Solution Add-on-management.
- Click the button UPLOAD.
    - Upload the latest version of the Add-on ISO file.
    - Verify that the OSE Add-on should upload successfully.

Scenario 2.1: [PA] Create a new instance of VCD Object Storage Add-on for External Cluster

Note: in order to create an instance with an external cluster, needs to prepare the external cluster like the Vanilla Kubernetes cluster.

- Navigate to More | Solution Add-on-management.
- Open Object Storage Add-on.
- Click the button NEW INSTANCE.
- Enter the required parameters on the UI:
    - Enter Add-on Instance Name.
    - Choose Kubernetes Cluster Location: select “EXTERNAL” to use the external Kubernetes cluster.
    - Enter VCD API Token: the token must be pre-created from the provider portal > User Preferences > API Tokens > NEW.
    - Enter Provide Container Registry URL: make sure registry url is accessible from external cluster network.
- Wait until the Add-on instance is created successfully, all task’s status should be “Succeeded”.



Scenario 2.2: [PA] Create a new instance of VCD Object Storage Add-on for TKG Cluster

Note: if Cluster exists in Solution Organization, you can create new instance with TKG cluster.

- Navigate to More | Solution Add-on-management.
- Open Object Storage Add-on.
- Click the button NEW INSTANCE
- Enter the required parameters on the UI.

    - Enter Add-on instance name.
    - Select Kubernetes Cluster Location: SLZ
    - Set VCD API Token: the token must be pre-created from the provider portal > User Preferences > API Tokens > NEW.
    - Set Kubernetes Cluster Name: the cluster must be pre-created in the Solutions organization.
- Wait until the Add-on instance is created successfully.

To configure the Service, some requirements must satisfy:

- Region should be the same as the one configured in the storage platform.
- OSE endpoint should be accessible in the Kubernetes cluster.

Scenario 3.1: [PA] Install OSE Operator to External Cluster

Note: OSE Operator should install successfully for the external cluster.

- Navigate to More | Object Storage | Deployments.
- Click the button CONFIGURE.
- Enter the required parameters:
    - Enter Cloud Director API Token
    - Enter Cluster Name
- Click the button GENERATE INSTALL SCRIPT AND DOWNLOAD, the yml file should download to the local machine.
- Copy and execute the Kubectl command, the OSE operator should install on the external cluster successfully.

Scenario 3.2.1: [PA] Configure OSE Service with Self-Signed Certificate

- Configure Service and enter required parameters on the UI:
    - Choose TLS Certificate: Create Self-Signed certificate.

Scenario 3.2.2: [PA] Configure OSE Service with Cert Manager Issuer

- Configure Service and enter required parameters on the UI:
    - Choose TLS Certificate: choose “Create by Cert Manager Issuer”.

    Note: Cert Manager Issuer should install on the Kubernetes cluster.

Scenario 3.2.3: [PA] Configure OSE Service with Import Certificate

- Configure Service and enter required parameters on the UI:

- Choose TLS Certificate: Import Certificate.

Scenario 3.3.1: [PA] Configure Database with external database and ssl-mode is “DISABLE”

- Configure Service and enter required parameters:
  - Choose Source: specify an existing PostgresSQL instance.
  - Set SSL mode to “DISABLE”.

Scenario 3.3.2: [PA] Configure Database with external database and ssl-mode is “VERIFY_CA”

Note: external database’s SSL should be configured.

- Configure database and enter required parameters:
  - Choose Source: specify an existing PostgresSQL instance.
  - Set SSL mode to “VERIFY_CA”.
  - Import the database certificate PEM file.

Scenario 3.3.3: [PA] Configure Database with Data Solution Extension

Note: this scenario applied when Data Solution Extension installed on VCD.
Configure database and enter required parameters:

- Choose Source: PostgreSQL High Availability from VMware Data Solutions.
- Select Solution Instance from dropdown list: the database host, port and database should prompt up automatically and displayed on UI.
- Enter Username.
- Enter Password.

Scenario 3.4.1: [PA] Configure Storage Cluster with AMAZON Platform

Configure Storage Cluster and enter required parameters: values must be the access and secret keys of the AWS payer account.

- Enter AWS access key.
- Enter AWS secret key.

Scenario 3.4.2: [PA] Configure Storage Cluster with Cloudian Platform

Configure Storage Cluster and enter required parameters:

- Configure Admin:

    - Admin URL: value must be the URL of the Cloudian Admin service.
    - Enter User Name.
    - Enter Password.
    - Choose one of Certificate Validation type: 1) CA Bundle 2) Signature 3) Public Signed.
- Configure S3:
    - S3 URL: the value must be the FQDN or the IP address of the S3 service.
    - Choose one of Certificate Validation type: 1) CA Bundle 2) Signature 3) Public Signed
- Configure IAM:
    - IAM URL: value must be the URL of the Cloudian IAM service.
    - Choose one of Certificate Validation type: 1) CA Bundle 2) Signature 3) Public Signed
- Configure Console:
    - Console URL: value must be the URL of the Cloudian Management Console.

Scenario 3.4.3: [PA] Configure Storage Cluster with ECS Platform

Configure Storage Cluster and enter required parameters:

- Configure Admin:
    - EnterAdmin URL: value must be the URL of the ECS Admin service.
    - Enter User Name.
    - Enter Password.
    - Choose Certificate Validation type: 1) CA Bundle 2) Signature 3) Public Signed
- Configure S3:
    - S3 URL: value must be the FQDN or the IP address of the S3 service.
    - Choose one of Certificate Validation type: 1) CA Bundle 2) Signature 3) Public Signed
- Configure Console:
    - Console URL: value must be the URL of the ECS Management Console.

Scenario 3.4.4: [PA] Configure Storage Cluster with OSIS Platform

Configure Storage Cluster and enter required parameters:

- Enter OSIS Name:
- Configure Admin:
    - Admin URL: enter your OSIS Adaptor server url.
    - Enter User Name.
    - Enter Password.
    - Choose one of Certificate Validation type: 1) CA Bundle 2) Signature 3) Public Signed
- Configure S3:

    - S3 URL: the value must be the FQDN or the IP address of the S3 service.
    - Choose one of Certificate Validation type: 1) CA Bundle 2) Signature 3) Public Signed

Scenario 3.5: [PA] Configure Other Properties

Note: user can add the optional parameters for debug usage, database connection size and so on.

- Add key value pairs:
    - Add key "logging.level.org.apache.http.wire" and value "DEBUG"
- Access the Kubernetes cluster and run the command: kubectl logs -f pods/vcd-ose-xxxxxx -n vcd-ose, verify that the logs should contain the debug information related to S3 operations.

Scenario 4.1: [PA] Activate Tenant

- Navigate to More | Object Storage | Platform.
- Select one of the existing tenants.
- Activate the selected tenant.
    - The tenant should be activated.

Scenario 4.2: [TU]Verify the S3 Functionality

- Login to the tenant portal as [TU].
- Navigate to More | Object Storage.
- Go to the Buckets page and create a bucket.
- Upload objects to the bucket.
- Delete the objects from the bucket.
- Delete the bucket.

Scenario 4.3: Update OSE Server's Configuration and Verify S3 Functionality

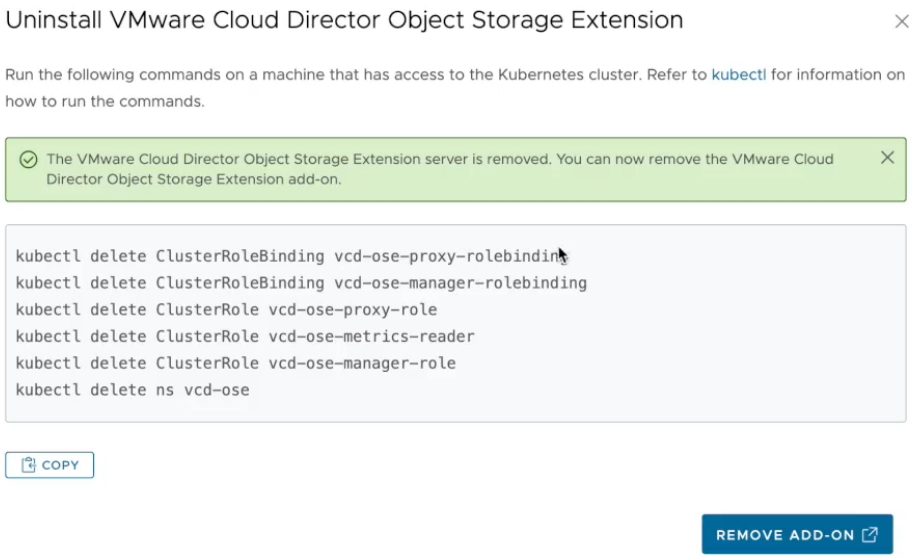
- [PA] Navigate to More | Object Storage | Deployments.
- [PA] Click the button CONFIGURE.
- [PA] Configure Service and update the CPU, Memory, or replicas.
- [PA] Click Next and go to the Summary page.
- [PA] Click Confirm button to submit the changes.
- [PA] Wait for configuration status changed to Applied.

- [PA] Wait for server's status changed to Running. Access the Kubernetes cluster, verify that the replicas should change to 2, e.g. replicaset.apps/vcd-ose-xxxxxx.
- [TU] Login to the tenant portal as [TU].
- [TU] Navigate to More | Object Storage.
- [TU] Go to the Buckets page and create a bucket.
- [TU] Upload objects to the bucket.
- [TU] Delete the objects from the bucket.
- [TU] Delete the bucket.

Scenario 5.1: [PA] Uninstall Object Storage Extension Server

Note: this scenario applied to the case that Add-on instance created with external Kubernetes cluster.

- Navigate to More | Object Storage | Deployments.
- Click the button "Uninstall" from the action's dropdown list.

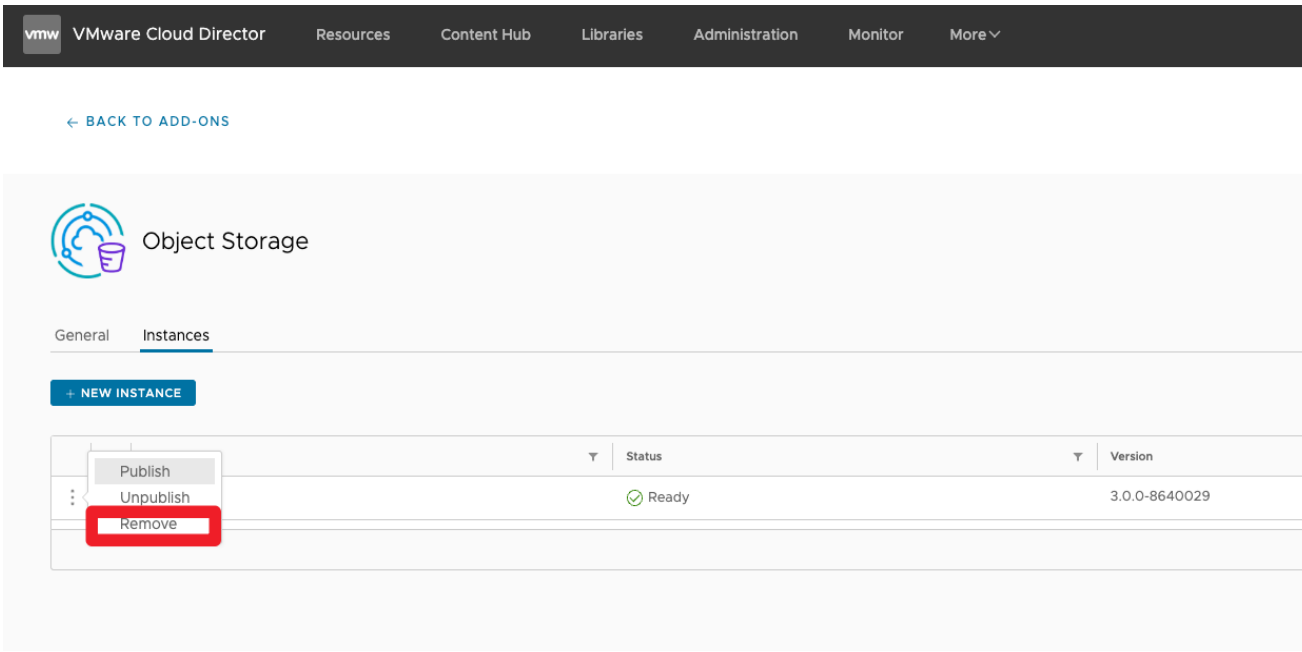


- Run the below commands on a machine that has access to the Kubernetes cluster. Note: you can copy the commands from the UI above.
  - kubectl delete ClusterRoleBinding vcd-ose-proxy-rolebinding
  - kubectl delete ClusterRoleBinding vcd-ose-manager-rolebinding
  - kubectl delete ClusterRole vcd-ose-proxy-role
  - kubectl delete ClusterRole vcd-ose-metrics-reader
  - kubectl delete ClusterRole vcd-ose-manager-role
  - kubectl delete ns vcd-ose

- Click the button “REMOVE ADD-ON” and it will take the user to the Solution Add-on management page.

Scenario 5.2 [PA] Remove Add-on Instance

- Navigate to More | Solution Add-on-management | Object Storage.
- Click “DETAILS” and go to the Instances tab.
- Select the instance and click the “Remove” button.



  - Verify that all the “Delete” tasks should be completed successfully.
  - The instance should be removed successfully.

Scenario 5.3 [PA] Remove Add-on Solution

- Go to Add-On’s main page and remove Object Storage Add-on.
  - The OSE Add-on should be removed successfully.