Manage ONTAP tools

ONTAP tools for VMware vSphere 10

NetApp
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Manage datastores

Expand or shrink Storage of vVol Datastore

There are APIs to increase or decrease the available storage.

Steps

Use the following API to expand or shrink the vVols datastore:

```
PATCH
/virtualization/api/v1/vcenters/{vcguid}/vvols/datastores/{moref}/volumes
```

Examples

- Modify vVols datastore for add new volume

```
  PATCH virtualization/api/v1/vcenters/cdded9ad-6bsd-4c9e-b44g-
691250bfe2df/vvols/datastores/datastore-24/volumes

    Request Body
   {
    "operation": "grow",
    "volumes": [{
        "is_existing": false,
        "name": "exp3",
        "size_in_mb": 51200,
        "space_efficiency": "thin",
        "aggregate": {
            "id": "1466e4bf-c6d6-411a-91d5-c4f56210e1ab"
        },
        "storage_backend": {
            "storage_id": "13d86e4f-1fb1-11ee-9509-005056a75778"
        },
        "qos": {
            "max_iops": 5000
        }
    }]
}
```

- Modify vVols datastore for add existing volume

```
  PATCH virtualization/api/v1/vcenters/cdded9ad-6bsd-4c9e-b44g-
691250bfe2df/vvols/datastores/datastore-24/volumes

    Request Body
    {
      "operation": "grow",
      "volumes": [{
        "is_existing": true,
        "id": "vfded9ad-6bsd-4c9e-b44g-691250bfe2sd"
      }]
    }
```

- Modify vVols datastore for remove volume and delete volume from storage

```
  PATCH virtualization/api/v1/vcenters/cdded9ad-6bsd-4c9e-b44g-
691250bfe2df/vvols/datastores/datastore-24/volumes?delete_volumes=true

    Request Body
    {
      "operation": "shrink",
      "volumes": [{
        "is_existing": true,
        "id": "vfded9ad-6bsd-4c9e-b44g-691250bfe2sd"
      }]
    }
```

- Modify vVols datastore for remove volume and do not delete volume from storage

```
  PATCH virtualization/api/v1/vcenters/cdded9ad-6bsd-4c9e-b44g-
691250bfe2df/vvols/datastores/datastore-24/volumes?delete_volumes=false

    Request Body
    {
      "operation": "shrink",
      "volumes": [{
        "is_existing": true,
        "id": "vfded9ad-6bsd-4c9e-b44g-691250bfe2sd"
      }]
    }
```

Delete vVols datastore

This API deletes the VMware Virtual Volumes (vVols) datastore from storage.

About this task

A vVols datastore exists as long as at least one FlexVol volume is available on the datastore. If you want to delete a vVols datastore in a HA cluster, you should first unmount the datastore from all hosts within the HA cluster, and then delete the residing *.vsphere-HA* folder manually using the vCenter server user interface.

Steps

Use the following API to delete vVols datastore.

```
DELETE
/virtualization/api/v1/vcenters/{vcguid}/vvols/datastores/{moref}
```

Examples

- Delete vVols datastore and delete volumes from storage

```
  DELETE /api/v1/vcenters/cdded9ad-6bsd-4c9e-b44g-
691250bfe2df/vvols/datastores/datastore-28?delete_volumes=true
```

Delete vVols Datastore workflow deletes datastore-volumes if you have passed the delete_volume flag as true irrespective of if the datastore-volume is managed or not managed.

- Delete vVols datastore and do not delete volumes from storage

```
  DELETE /api/v1/vcenters/cdded9ad-6bsd-4c9e-b44g-
691250bfe2df/vvols/datastores/datastore-28?delete_volumes=false
```

Response:

```
{

    "id": "1889"

}
```

Mount and unmount a vVols datastore

You can mount a VMware Virtual Volumes (vVols) datastore to one or more additional hosts by using the Mount vVols Datastore dialog box. Mounting the datastore provides storage access to additional hosts. You can also unmount vVols datastore.

Use the following API to mount or unmount a vVols datastore. You need to pass x-auth for the API. You can generate this x-auth from the new API added under Auth in Swagger.

```
/virtualization/api/v1/auth/vcenter-login
```

```
PATCH
/virtualization/api/v1/vcenters/{vcguid}/vvols/datastores/{moref}/hosts
```

Get vVol datastore moref from vCenter.

Request Body

```
{
  "operation": "mount",
  "morefs": [
    "host-7044"
  ],
}
```

Examples:

- Mount on additional host

Use the following API to mount on additional host:

```
/api/v1/vcenters/cdded9ad-6bsd-4c9e-b44g-
691250bfe2df/vvols/datastores/datastore-24/hosts

     Request Body
     {
      "operation": "mount",
      "morefs": ["host-13"],
     }
```

- Unmount on additional host

Use the following API to unmount on additional host:

```
/api/v1/vcenters/cdded9ad-6bsd-4c9e-b44g-
691250bfe2df/vvols/datastores/datastore-24/hosts

     Request Body
     {
      "operation": "unmount",
      "morefs": ["host-13"],
     }
```

Manage storage backend

Storage backends are systems that the EXSi hosts use for data storage.

Add storage backend

Follow the steps below to add storage backends.

Steps

1. Launch `https://loadBalanceIP:8443/virtualization/ui/` from browser with ONTAP tools administrator credentials provided during deployment.
2. Select **Storage Backends** from the sidebar.
3. Select **Add**.

Modify storage backend

Follow the steps below to modify the existing storage backend.

1. Launch `https://loadBalanceIP:8443/virtualization/ui/` from browser with ONTAP tools administrator credentials provided during deployment.
2. Select storage backends from the sidebar.
3. Select the **Storage Backend** you want to modify
4. Click on the vertical ellipsis menu and select **Modify**.
5. Enter the **Username** and **Password** to modify the storage backend.

Remove storage backend

You need to delete all the datastores attached to the storage backend before removing the storage backend. Follow the steps below to remove storage backend.

1. Launch `https://loadBalanceIP:8443/virtualization/ui/` from browser with ONTAP tools administrator credentials provided during deployment.
2. Select **Storage Backends** from the sidebar.
3. Select the storage backend you want to remove
4. Click on the vertical ellipsis menu and select **Remove**.

Manage vCenter

vCenters are central management platforms that allow you to control hosts, virtual machines, and storage backends.

Add vCenter

You can add and manage multiple vCenters with one instance of ONTAP tools for VMware vCenter 10.0.

Steps

1. Launch `https://loadBalanceIP:8443/virtualization/ui/` from browser with ONTAP tools administrator credentials provided during deployment.
2. Select vCenters from the sidebar
3. Select **ADD** to onboard vCenters with vCenter IP Address/Hostname, username, password, and port.
4. Navigate to **Storage Backend** page and select **Add to onboard storage backend** (ONTAP Cluster) with Hostname, username, password, and port.

See List of minimum privileges required for non-admin global scoped cluster user.

Associate or Dissociate storage backend with vCenter

vCenter listing page shows the associated number of storage backends. Each vCenter has option to Associate or Disassociate a storage backend This task help you to create mapping between storage backend and onboarded vCenter globally.

Steps

1. Launch `https://loadBalanceIP:8443/virtualization/ui/` from browser with ONTAP tools administrator credentials provided during deployment.
2. Select vCenters from the sidebar.
3. Click on the vertical ellipsis against the vCenter that you want to associate or dissociate with storage backends.
4. Select **Associate or Dissociate storage backend** depending on what action you want to perform.

   See List of minimum privileges required for non-admin global scoped cluster user.

Modify vCenter

Follow the steps below to modify the vCenters.

1. Launch `https://loadBalanceIP:8443/virtualization/ui/` from browser with ONTAP tools administrator credentials provided during deployment.
2. Select vCenters from the sidebar
3. Click on the vertical ellipsis against the vCenter that you want modify and select **Modify**.
4. Modify the vCenter details and select **Modify**.

Remove vCenter

You need to remove all the storage backends attached to the vCenter before removing it.

1. Launch `https://loadBalanceIP:8443/virtualization/ui/` from browser with ONTAP tools administrator credentials provided during deployment.
2. Select vCenters from the sidebar
3. Click on the vertical ellipsis against the vCenter that you want remove and select **Remove**.

Once you remove the vCenter, it will no longer be maintained by the application.

Manage Storage threshold

Use the following Get threshold API to retrieve the configured storage threshold limits for volume and aggregate.

```
GET/virtualization/api/v1/vcenters/{vcguid}/storage-thresholds
```

Examples: Get the Storage thresholds per vcenter by vcenter guid

```
GET "/api/v1/vcenters/beded9ad-6bbb-4c9e-b4c6-691250bfe2da/storage-
thresholds"
```

Use the following PATCH configure alarm for volume and aggregate to generate notification when configured threshold limits are reached.

```
PATCH/virtualization/api/v1/vcenters/{vcguid}/storage-thresholds
```

Examples: Update the Storage thresholds per vcenter by vcenter guid. Default limits are 80% for nearly-full and 90% for full. Modifying all threshold settings

```
{{{}PATCH "/api/v1/vcenters/beded9ad-6bbb-4c9e-b4c6-691250bfe2da/storage-
thresholds"
Request Body
{
"volume":

{ "nearly_full_percent": 80, "full_percent": 90 }
,
"aggregate": {
"nearly_full_percent": 80,
"full_percent": 90
}
}{}}}{}
```

Manage vVol Lifecycle

You can manage Virtual Volumes (vVols) using the VMWare vCenter user interface. For details, refer to VMware documentation.

Managed iGroup and Export policies

In ONTAP, export polices are used to provide volume data path access to hosts and initiator groups (igroups) are used to provide logical unit number (LUN) data path access to ESXi hosts.

When virtual volume datastores are created or mounted to hosts in vCenter, these hosts need to be given access to volumes (NFS) or LUNs (iSCSI) depending on the protocol type of the datastore.

The export policy is dynamic and the new export policy is created in format of trident-uuid. On your ONTAP System Manager, go to **Storage** > **Storage VMs** > **[storage VM name]** > **Settings** > **Export Policies** to see the export policy.

The igroups and export policies in ONTAP tools are managed in an efficient manner and provide the following benefits:

- Supports migrated export Policies and igroups.
- No interruption of Virtual Machine input and output operations.
- Supports mounting on additional hosts without manual intervention.
- Minimizes the need for managing number of igroups and export Policies.
- A garbage collector automatically deletes all the unused managed igroups and export Policies periodically.
- If datastore is provisioned at host cluster level then igroup is created with all host initiators under the host cluster that are added to the igroup.

Access ONTAP tools maintenance console

Overview of ONTAP tools maintenance console

You can manage your application, system, and network configurations by using the maintenance console of the ONTAP tools. You can change your administrator password and maintenance password. You can also generate support bundles, set different log levels, view and manage TLS configurations, and start remote diagnostics.

You must have installed VMware tools after deploying ONTAP tools to access the maintenance console. You should use `maint` as the user name and the password you configured during deployment to log in to the maintenance console of the ONTAP tools. You should use **nano** for editing the files in maint or root login console.

You must set a password for the `diag` user while enabling remote diagnostics.

You should use the **Summary** tab of your deployed ONTAP tools to access the maintenance console. When you click  , the maintenance console starts.

Console Menu	Options
Application Configuration	1. Display server status summary 2. Change LOG level for VASA Provider Services
System Configuration	1. Reboot virtual machine 2. Shutdown virtual machine 3. Change 'maint' user password 4. Change time zone 5. Add new NTP server 6. Increase jail disk size (/jail) 7. Upgrade 8. Install VMware Tools
Network Configuration	1. Display IP address settings 2. Display domain name search settings 3. Change domain name search settings 4. Display static routes 5. Change static routes 6. Commit changes 7. Ping a host 8. Restore default settings

Support and Diagnostics	1. Access diagnostic shell 2. Enable remote diagnostic access

Configure remote diagnostic access

You can configure ONTAP tools to enable SSH access for the diag user.

What you will need

The VASA Provider extension must be enabled for your vCenter Server instance.

About this task

Using SSH to access the diag user account has the following limitations:

- You are allowed only one login account per activation of SSH.
- SSH access to the diag user account is disabled when one of the following happens:
  - The time expires.

    The login session remains valid only until midnight the next day.
  - You log in as a diag user again using SSH.

Steps

1. From the vCenter Server, open a console to VASA Provider.
2. Log in as the maintenance user.
3. Enter `4` to select Support and Diagnostics.
4. Enter `3` to select Enable remote diagnostics access.
5. Enter `y` in the Confirmation dialog box to enable remote diagnostic access.
6. Enter a password for remote diagnostic access.

Start the SSH on other nodes

You need to start the SSH on other nodes before you upgrade.

What you will need

The VASA Provider extension must be enabled for your vCenter Server instance.

About this task

Perform this procedure on each of the nodes, before you upgrade.

Steps

1. From the vCenter Server, open a console to VASA Provider.
2. Log in as the maintenance user.

3. Enter `4` to select Support and Diagnostics.
4. Enter `1` to select Access diagnostic shell.
5. Enter `y` to proceed.
6. Run the command *sudo systemctl restart ssh*.

Update the vCenter and ONTAP credentials

You can update the vCenter and ONTAP credentials using the maintenance console.

What you will need

You need to have maint user login credentials.

About this task

If you have changed the credentials for vCenter, ONTAP, or Datalif post deployment, then you need to update the credentials using this procedure.

Steps

1. From the vCenter Server, open a console to VASA Provider.
2. Log in as the maintenance user.
3. Enter `4` to select Support and Diagnostics.
4. Enter `1` to select Access diagnostic shell.
5. Enter `y` to proceed.
6. Update the credentials as required:
   a. For Updating the ONTAP credentials run the command:

      otv-update --ontapUsername <new username> --ontapPassword <new password>

   b. For Updating the vCenter credentials run the command:

      otv-update --vcenterUsername <new username> --vcenterPassword <new password>

   c. For Updating the datalif run the command:

      otv-update --dataLif <new Datalif IP>

Collect the log files

You can collect log files for ONTAP tools for VMware vSphere from the option available in the ONTAP tools manager user interface. Technical support might ask you to collect the log files to help troubleshoot a problem.

Steps

1. Launch `https://loadBalanceIP:8443/virtualization/ui/` from browser with ONTAP tools administrator credentials provided during deployment.

2. Select **Log Bundles** from the sidebar.

   This operation can take several minutes.

3. Select **GENERATE** to generate the log files.
4. Enter the label for the Log Bundle and select **GENERATE**.

   Download the tar.gz file and send it to technical support.

Discovery

Discovery interval can be configured as part of the configuration map. Scheduled discovery runs for every 60 mins. The API given here is to run the discovery on demand for a given storage backend which is added in the local scope.

Use the following API to run discovery:

```
POST
/virtualization/api/v1/vcenters/{vcguid}/storage-backends/{id}/discovery-
jobs
```

See Onboard storage backend (SVM or Cluster) section and get ID from post storage backend API response.

Discovery from this API endpoint is supported only for local scoped storage backends and not for the global scoped storage backends. If the storage backend type is cluster, discovery implicitly runs for the child svms. If the storage backend type is svm, discovery only runs for the selected svm.

Example:

To run discovery on a storage backend specified by ID

```
POST
/api/v1/vcenters/3fa85f64-5717-4562-b3fc-2c963f66afa6/storage-
backends/74e85f64-5717-4562-b3fc-2c963f669dde/discovery-jobs
```

You need to pass x-auth for the API. You can generate this x-auth from the new API added under Auth in Swagger.

```
/virtualization/api/v1/auth/vcenter-login
```

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