IBM Spectrum Virtualize vSphere Remote Plug-in

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IBM Spectrum® Virtualize vSphere Remote Plug-in welcome

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What's new

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This topic lists the dates and nature of updates to the published information of IBM Spectrum® Virtualize vSphere Remote Plug-in.

Date	Nature of updates to the published information
20 December 2022	**Initial Release (IBM Spectrum Virtualize vSphere Remote Plug-in 1.0.0)** The version information was added in IBM Documentation as part of the initial release and includes the following features: • Deployment of the vSphere Remote Plug-in • Registration of the plug-in to vCenter(s) • Adding compatible storage systems for management • Dashboard • Automated creation of VMFS datastores using the plug-in

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Overview

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The IBM Spectrum® Virtualize vSphere Remote Plug-in allows for management and control of storage objects all from within the VMware vSphere Client. The plug-in and associated actions are integrated into the vSphere user interface and allows for provisioning of VMFS datastores without having to log in to the Spectrum Virtualize GUI.

The IBM Spectrum Virtualize vSphere Remote Plug-in no longer requires the need for IBM Spectrum Connect, as the previous vSphere plug-in (IBM® Storage Enhancements for VMware vSphere Web Client) did. The plug-in supports all block storage devices within the Spectrum Virtualize family and includes IBM FlashSystem®, IBM Storwize, and IBM SAN Volume Controller products that are running software levels 8.4.2 and higher.

The IBM Spectrum Virtualize vSphere Remote Plug-in is based on the VMware Remote Plug-in architecture. Starting with vSphere 8.0, VMware is deprecating support for traditional local plugins for which the existing IBM Storage Enhancements for VMware vSphere Web Client is based on. The IBM Spectrum Virtualize vSphere Remote Plug-in, based on the VMware Remote Plug-in architecture, supports VMware vSphere 7.0 and higher.

Compatibility and minimum requirements

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The IBM Spectrum® Virtualize vSphere Remote Plug-in, based on the VMware remote plug-in architecture, requires an appliance be deployed in the VMware environment.

Appliance requirements

The appliance, which is packaged in an OVA, requires the following resources:

- 2 vCPUs and 4 GB of memory
- 20 GB of datastore space
  - Can be deployed on a vSphere Virtual Machine File System (VMFS) or vVol datastore
- Networking (Ethernet, TCPIP):
  - One IP address (IPv4), Static or DHCP provided
  - Gateway
  - DNS
  - Netmask

VMware environment requirements

- vCenter 7.0 and higher
- Linked vCenters supported
- Fully qualified domain name (FQDN) of vCenter(s)
- Administrative vCenter user ID

IBM storage requirements

Any of the following products that can run Spectrum Virtualize software versions 8.4.2 and higher are supported:

- IBM FlashSystem®
- IBM® SAN Volume Controller
- IBM Storwize

Access and system information requirements

The following are access and system information that are required for registering the plug-in:

- IP address or FQDN of the storage system
- User ID with Administrator rights
  Note: Create a new user ID with an Administrator role. Do not use either the *superuser* or a Security Administrator role for the vSphere plug-in.

Restrictions and limitations

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There are known restrictions and limitations when operating the IBM Spectrum® Virtualize vSphere Remote Plug-in. Limitations are functionality restrictions that are part of the predefined system design and capabilities in a particular version.

Hosts, host cluster objects, and Fibre Channel port assignments cannot be managed by the plug-in
: The vSphere Remote Plug-in provides capability of creating vSphere Virtual Machine File System (VMFS) datastores, including creating the LUN and mapping the LUN to a host object. However, the plug-in does not allow for the creation of host or host cluster objects on the storage system from within the vCenter framework. The plug-in also does not allow for the assignment or reassignment of host ports from within the plug-in. Any of these actions to create objects and reassign ports must be done from the storage system user interface or CLI.

Only single I/O groups supported
: The plug-in supports only single I/O group configurations. The plug-in defaults to I/O Group 0 and is displayed when registering the storage system to the plug-in.

Multiple vCenters (unlinked, separate) are not supported

The plug-in does not support multiple vCenters to be registered to the same plug-in at the same time. For multiple, separate vCenters, multiple instances of the vCenter plug-in appliance need to be installed.
Note: vCenters in linked-mode are supported.

Only single storage pools supported

Each storage system registered to the plug-in represents a single storage system and a single storage pool, whether parent or child pool. If multiple pools are required, each pool must be separately registered to the plug-in. Users can assign an alias to further describe the system and the pool that is associated.

Installation

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Install the IBM Spectrum® Virtualize vSphere Remote Plug-in after verifying that all compatibility and requirements are met.

The IBM Spectrum Virtualize vSphere Remote Plug-in requires deploying an appliance to integrate into the VMware remote plug-in architecture. The plug-in is delivered as an OVA and is deployed similarly to a standard OVA/OVF template.

- **Downloading the vSphere Remote Plug-in**
  Download the IBM Spectrum Virtualize vSphere Remote Plug-in OVA from Fix Central.
- **Deploying the appliance**
  Deploy the appliance to integrate into the IBM Spectrum Virtualize vSphere Remote Plug-in architecture.
- **Registering the vSphere Remote Plug-in**
  Register the IBM Spectrum Virtualize vSphere Remote Plug-in to use the plug-in.
- **Unregistering the vSphere Remote Plug-in**
  Unregistering the IBM Spectrum Virtualize vSphere Remote Plug-in removes the plug-in from vCenter and removes the vCenter registration from the plug-in appliance.
- **Checking the plug-in status**
  Check the plug-in status to verify vCenter registration and version information.

Downloading the vSphere Remote Plug-in

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Download the IBM Spectrum® Virtualize vSphere Remote Plug-in OVA from Fix Central.

IBM® Fix Central

Deploying the appliance

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Deploy the appliance to integrate into the IBM Spectrum® Virtualize vSphere Remote Plug-in architecture.

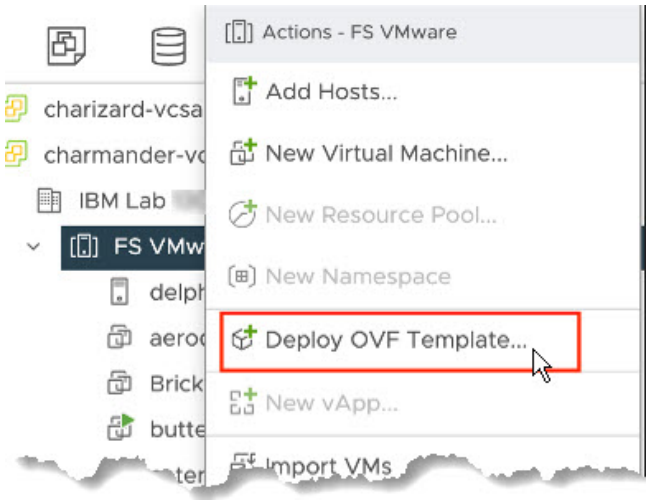
Before you begin

Verify that the vSphere Remote Plug-in appliance (OVA) was downloaded from IBM Fix Central (see Downloading the vSphere Remote Plug-in).

Procedure

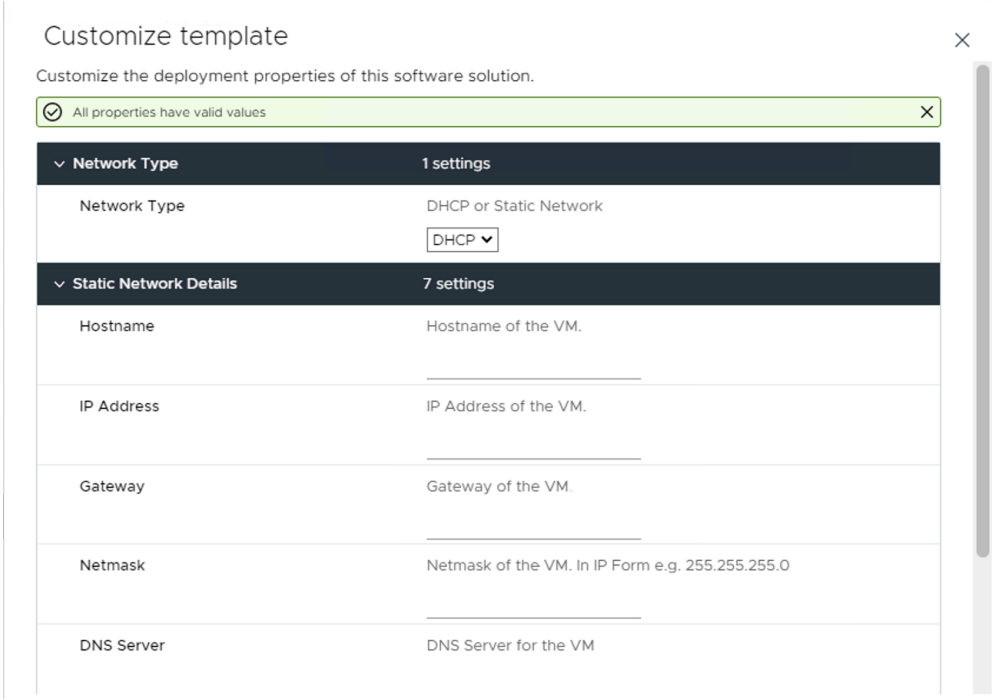
1. From the vSphere Client, right-click on the VMware cluster that the appliance will be deployed to and select Deploy OVF Template.

   Figure 1. Deploying the OVF Template



2. In the Select an OVF Template step of the Deploy OVF Template wizard, select Local file > Upload Files.
3. From the local file system, select the IBM Spectrum Virtualize vSphere Remote Plug-in OVA.
4. In the Select a name and folder step, provide a name of the virtual machine followed by selecting a folder for it to be deployed into.
5. In the Select a compute resource step, select a VMware cluster or specific ESXi host that the virtual machine (VM) will run on.
6. Verify that the appropriate version of the appliance is being deployed and other chosen details are correct from within the Review details step.
7. Read and accept appropriate license agreements in the License Agreements step.
8. In the Select storage, select a compatible VMFS or vVol datastore, where the appliance will be installed to.
9. In the Select networks step, select the VM Network to use for the plug-in.
   Note: You must select a network that can communicate with vCenter management network.
10. Pre-configure the networking details from within the Customize Template step.
    Networking details that are provided here are automatically configured in the operating system of the VM upon deployment.

Figure 2. Customizing the OVA template



a. Under Network Type, select either DHCP or Static configuration.
b. If Static IP configuration is selected, complete the necessary information:
   - Hostname (optional)
   - IP Address
   - Gateway
   - Netmask
   - DNS Server(s)
   - DNS Domain (optional)

11. Use the Ready to complete step to review the final list of chosen settings.
12. Click Finish to deploy the OVA with proper customizations.
13. After the OVA is successfully deployed, power on the appliance.
    The plug-in appliance should be available on the network.
14. The administrator can now SSH into the appliance.
    Note: Initial log in has a default password of `IBMplugin` and requires the user to change the password before continuing.

Registering the vSphere Remote Plug-in

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Register the IBM Spectrum® Virtualize vSphere Remote Plug-in to use the plug-in.

Before you begin

Be sure that all of the deployment steps that are specified in Deploying the appliance are completed successfully.

Procedure

1. Log in to the vSphere plug-in appliance as root.
2. Use the **ibm-plugin** command to register the plug-in with vCenter(s).

   ```
   ibm-plugin register -u <vCenter Username> -v <FQDN_of_vCenter>
   ```

   The registration command displays the thumbprint of the vSphere instance for verification. In addition, the vCenter password for the vCenter username that was included in the command is requested.

What to do next

After the plug-in is successfully deployed, successful deployment message appears in both a banner as well as within a temporary notification (see Figure 1). In addition, in Recent Tasks there are now tasks for both Download plug-in and Deploy plug-in with Completed status (see Figure 2).
Click REFRESH BROWSER on the banner, to complete the plug-in activation.
Important: Refreshing the browser is necessary in order to ensure the plug-in activation.

Figure 1. Completing the plug-in activation: Refresh browser

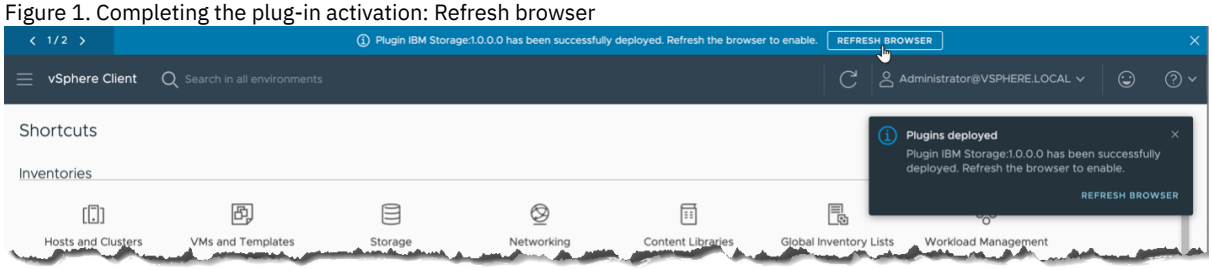
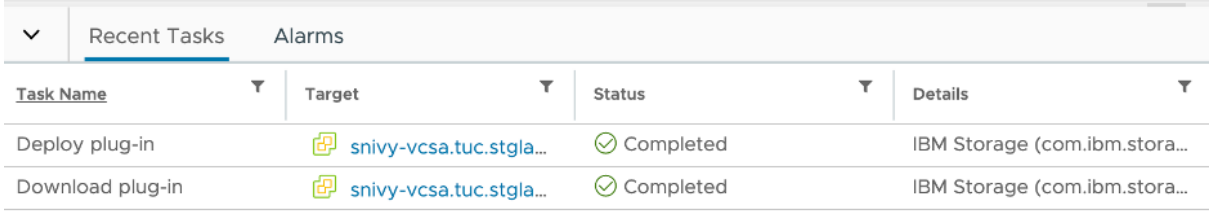


Figure 2. Recent Tasks with Completed status



- **Registering with linked vCenters**
  The plug-in appliance supports multiple vCenters in linked-mode configuration. Linked-mode allows multiple vCenters that are linked to have access to the same plug-in from any of the vCenters that are linked together.

Registering with linked vCenters

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The plug-in appliance supports multiple vCenters in linked-mode configuration. Linked-mode allows multiple vCenters that are linked to have access to the same plug-in from any of the vCenters that are linked together.

Note: While the plug-in supports multiple vCenters in linked-mode, it does not support multiple vCenters that are not linked. If multiple vCenters are not linked, each vCenter needs its own deployment of the plug-in appliance.
Each vCenter in the linked-mode configuration must be registered separately to the plug-in by using the **ibm-plugin** command with register parameter. Use the **ibm-plugin status** to view successful registration with all linked-mode vCenters. For more information, see Checking the plug-in status.

```
Registered vCenters:
     - linked-vcsa-1.domain.com
     - linked-vcsa-2.domain.com
```

Unregistering the vSphere Remote Plug-in

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Unregistering the IBM Spectrum® Virtualize vSphere Remote Plug-in removes the plug-in from vCenter and removes the vCenter registration from the plug-in appliance.

Use the **ibm-plugin** command to unregister the plug-in with any vCenter provided.

```
ibm-plugin unregister -u <vCenter Username> -v <FQDN_of_vCenter>
```

The following output confirms successful unregistration:

```
Plugin successfully unregistered from vCenter.
```

Similarly to registration, unregistering a plug-in from vCenter displays a successful undeployment message and appropriate completion in the Recent Tasks display.
Important: Click REFRESH BROWSER to complete the removal of the plug-in from the vCenter user interface.

Figure 1. Completing the plug-in undeployment: Refresh browser

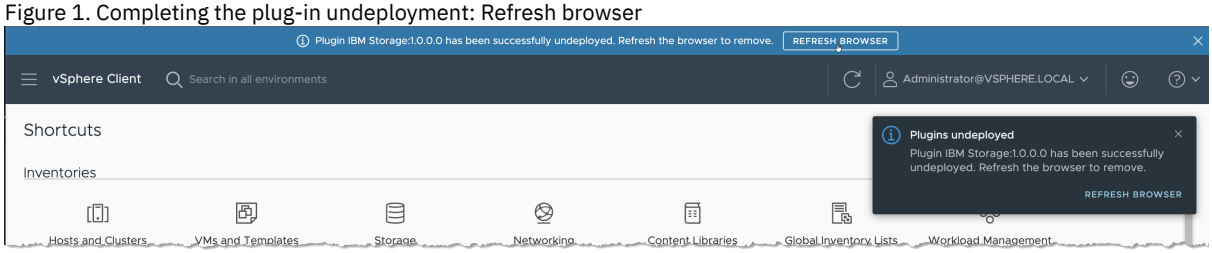
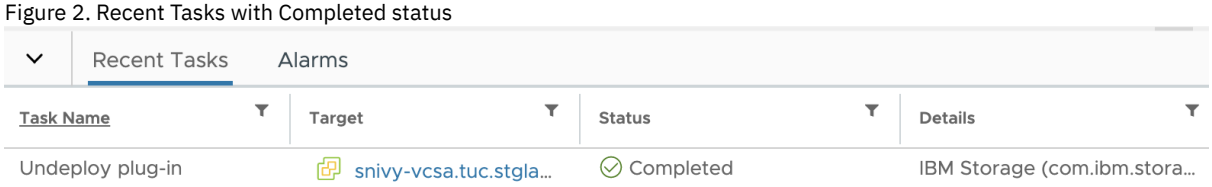


Figure 2. Recent Tasks with Completed status



Forced unregistration

Unregistration requires communication between the plug-in appliance and vCenter. In the case that the vCenter is unable to be communicated with, force the unregistration of the plug-in from the appliance.

When attempting to unregister using the **ibm-plugin unregister** command and the vCenter is not able to communicate, the following message appears:

```
Cannot connect to <fqdn>. Do you want to remove the local plugin config for this vCenter instance? [Y/n]
```

Selecting yes (`Y`) forces the unregistration at the local appliance level, but does not remove the plug-in from vCenter. Manual removal of the plug-in from vCenter is required to complete this operation.
To manually remove the plug-in from vCenter, complete the following steps:

1. Go to the Extension Manager of vCenter.

For example, `https://vcenter.fqdn/mob/?moid=ExtensionManager` where *vcenter.fqdn* is replaced with your vCenter FQDN.

2. Go to Methods > Name and click UnregisterExtension.
3. In the Value field, enter `com.ibm.storageplugin`.
4. Click Invoke Method.

If the unregistration is successful, the `Method Invocation Result: void` message is displayed instead of an error message.

Checking the plug-in status

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Check the plug-in status to verify vCenter registration and version information.

Use the **ibm-plugin** command with the status parameter to check which vCenter(s) are registered to the appliance at any time. Using the **ibm-plugin** command also allows for display of the current version of the plug-in that is available in the appliance.

Linked vCenters are shown together in the registered vCenters section. For example:

```
root@IBM-production-ova [ ~ ]# ibm-plugin status
Plugin Version: 1.0.0

Plugin Registered: True
Registered vCenters:
     - linked-vcsa-1.domain.com
     - linked-vcsa-2.domain.com
```

If the plug-in is not registered to any vCenter, the Plugin Registered boolean shows as *False*. For example:

```
root@IBM-production-ova [ ~ ]# ibm-plugin status
Plugin Version: 1.0.0

Plugin Registered: False
```

Using the vSphere Remote Plug-in

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Use the vSphere Remote Plug-in to manage and control storage objects from within the VMware vSphere Client.

- **Adding a storage device to the plug-in**
  Add any Spectrum Virtualize storage system that meets the minimum requirements to the IBM Spectrum® Virtualize vSphere Remote Plug-in.
- **Using the vSphere Remote Plug-in dashboard**
  Use the vSphere Remote Plug-in to manage and display pertinent information for any registered storage system.
- **Creating a VMFS datastore**
  Use the IBM Spectrum Virtualize vSphere Remote Plug-in to automate the creation of a vSphere Virtual Machine File System (VMFS) datastore.
- **Removing a storage system from the plug-in**
  If the plug-in no longer needs to manage a specific storage system, it can be removed from the plug-in.
- **Editing storage system details**
  After a storage system is added to the plug-in, authentication and alias details can be modified.

Adding a storage device to the plug-in

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Add any Spectrum Virtualize storage system that meets the minimum requirements to the IBM Spectrum® Virtualize vSphere Remote Plug-in.

About this task

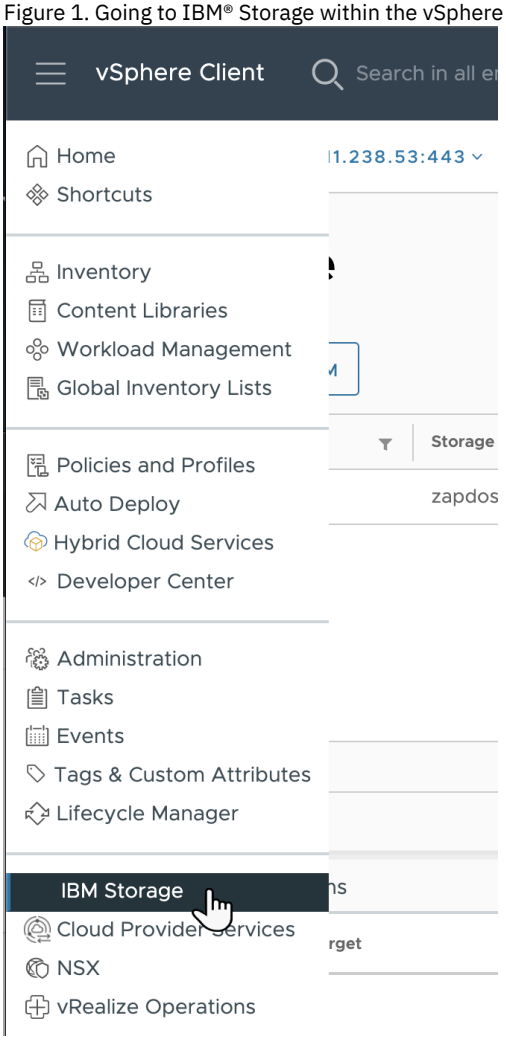
For a full list of compatible storage systems, see Compatibility and minimum requirements.

Procedure

Use the following procedure to add a storage device to the vSphere Remote Plug-in.

1. From the vSphere Client, go to the plug-in dashboard from the vSphere Client main menu and click IBM Storage.

   Figure 1. Going to IBM® Storage within the vSphere Client



2. From the dashboard, click Add Storage System.
3. In the Connect to Storage step of the wizard, complete the following fields:
   - IP Address or Fully Qualified Domain Name (FQDN)
   - Username (for the administrator account)
   - Password

   Note: The following user roles are allowed: SecurityAdmin, Administrator, RestrictedAdmin, and 3SiteAdmin.
4. Click Validate.
   The validate step checks proper TCP/IP connectivity and authentication credentials to the storage system. When validated, an optional alias field is available.
5. If there is more than one storage pool defined on the storage system, select the appropriate pool to be associated with the plug-in. Both parent and child pools are supported.
   If only a single storage pool is defined, this step is skipped.
6. From the Review step, ensure that all of the parameters are correct.
7. Click Next to attempt to add the storage system to the plug-in.
   Note: If a single pool defined, the Pool is automatically selected.
8. Click Finish to complete the action.
   The storage system displays on the dashboard.

Using the vSphere Remote Plug-in dashboard

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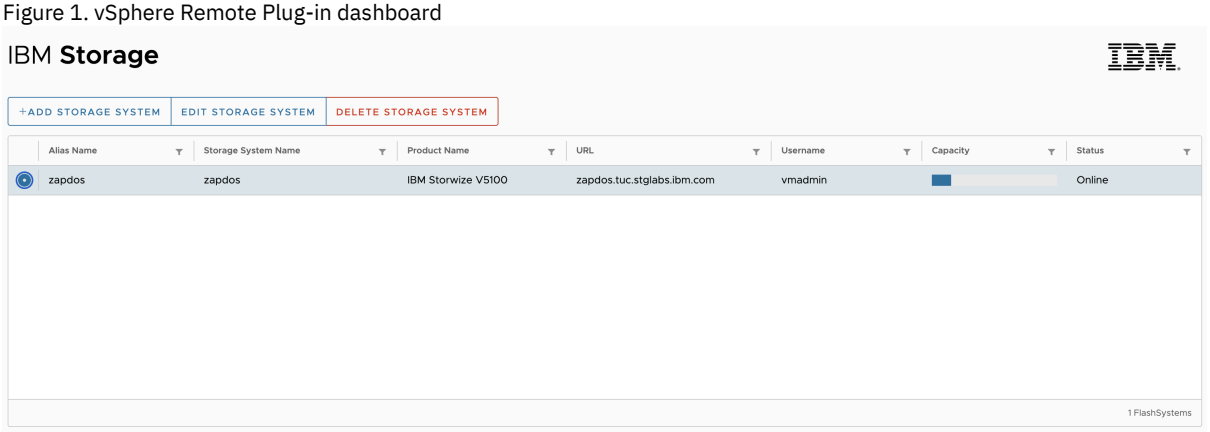
Use the vSphere Remote Plug-in to manage and display pertinent information for any registered storage system.

The following actions can be conducted from the dashboard (see Figure 1):

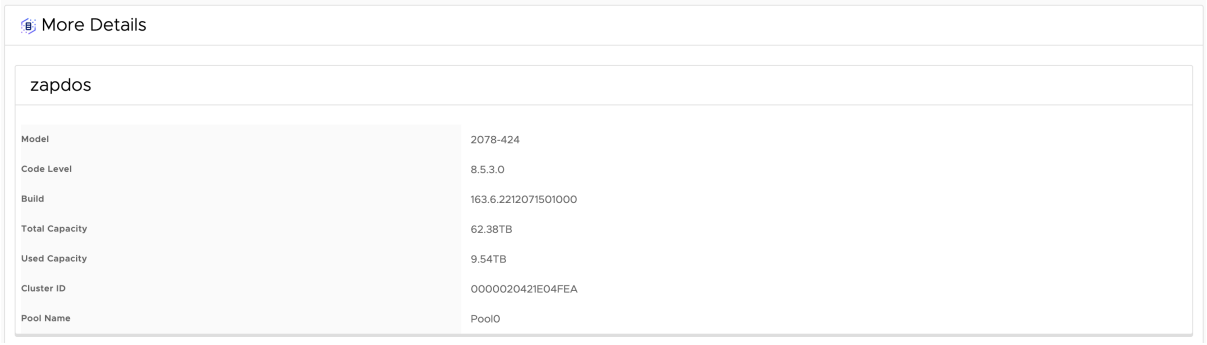
- Adding a storage device to the plug-in
- Editing storage system details
- Removing a storage system from the plug-in

Figure 1. vSphere Remote Plug-in dashboard



Selecting a storage system on the dashboard displays more information about the storage system. This information includes the storage system model number, code level, detailed capacity, and more (see Figure 2).

Figure 2. vSphere Remote Plug-in dashboard - detailed view of a selected storage system



Creating a VMFS datastore

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Use the IBM Spectrum® Virtualize vSphere Remote Plug-in to automate the creation of a vSphere Virtual Machine File System (VMFS) datastore.

Before you begin

Note: The plug-in only supports creation of VMFS6 datastores.
Creation of VMFS datastores includes automating the mapping of the LUN to ESXi hosts as part of the process. The creation process requires that host objects are defined on the storage device and Fibre Channel ports are assigned to the host objects before the automation can be accomplished. Optionally, host cluster objects can also be defined to better manage multiple hosts and associated VMware clusters.

From the Spectrum Virtualize element manager, ensure that equivalent host objects, host cluster objects, and worldwide port names (WWPNs) are assigned to the host objects. Log in to the appropriate Spectrum Virtualize GUI or use the CLI to accomplish the creation of the objects and associated port assignments.

About this task

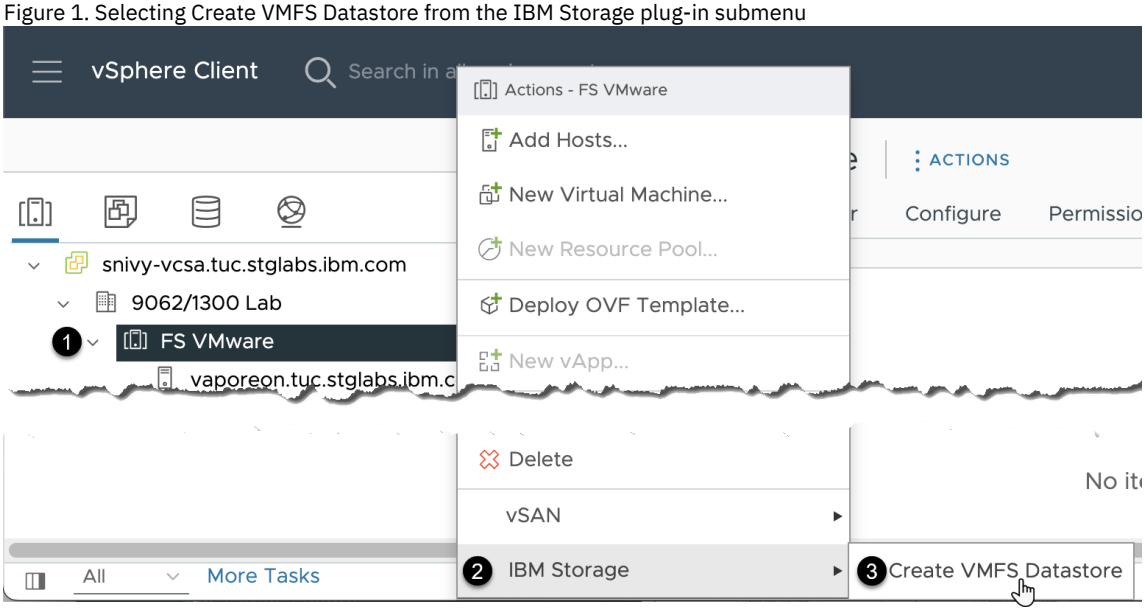
The vSphere Remote Plug-in automates the creation of VMFS datastores by combining the following steps, all within the confines of vCenter:

- Creating the block storage LUN
- Mapping the LUN to a host
- Rescanning the host
- Creating the VMFS datastore on top of the allocated LUN

Procedure

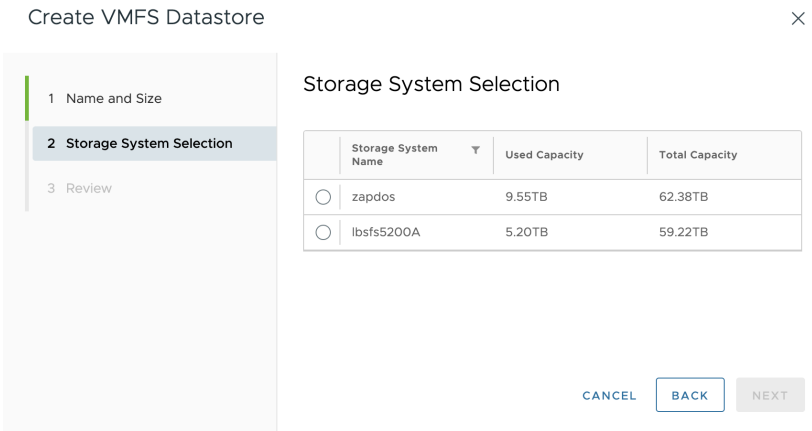
1. From the vSphere Client, right-click on the VMware cluster for which the datastore will be created on.
2. Go to the IBM® Storage plug-in submenu, and select Create VMFS Datastore.

Figure 1. Selecting Create VMFS Datastore from the IBM Storage plug-in submenu



3. In the Name and Size step of the wizard, input a name of the datastore and the size. Size can be modified from the default in terabytes to gigabytes, as required.
4. In the Storage System Selection step, select the storage system for which the datastore will be allocated to.

Figure 2. Create VMFS Datastore - Storage System Selection



Note: All ESXi hosts in the VMware cluster are cross-referenced with host objects and assigned ports in the storage system that is selected. Any discrepancies that might exist between the host objects or port assignments are indicated here. A hyperlink to the Spectrum Virtualize UI is available for easy access to the element manager.

5. Review the choices and click Create.
   Once all tasks are successfully completed, a VMFS6 datastore is now available for use.

Removing a storage system from the plug-in

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If the plug-in no longer needs to manage a specific storage system, it can be removed from the plug-in.

Procedure

1. From the vSphere plug-in Dashboard, select the storage system to remove and click Delete Storage System.
2. Confirm the removal of the storage system from the plug-in.
   Note: Removing a storage system from the plug-in does not delete any logical configuration or settings on the storage system.

Editing storage system details

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After a storage system is added to the plug-in, authentication and alias details can be modified.

Procedure

1. From the vSphere plug-in Dashboard, select the Storage System to edit and click Edit Storage System.
2. Use the form to update the storage system details.
   Any of the following fields can be updated:
   - Alias Name
   - Username
   - Password
3. After the form is updated, click Validate.
   The plug-in attempts to authenticate with the storage system to ensure that the credentials are correct.
4. If everything is authenticated, click Save to complete the changes.

Related information and publications

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You can find additional information and publications that are related to the IBM Spectrum® Virtualize vSphere Remote Plug-in at the following websites:

- IBM® FlashSystem 5200, 5000, 5100, Storwize® V5100, and V5000E documentation
- IBM FlashSystem 7300, 7200, and Storwize V7000 documentation
- IBM FlashSystem® 9500, 9200, and 9100 documentation
- IBM SAN Volume Controller (2145 and 2147) documentation
- SAN Volume Controller and Storwize V7000 Replication Family Services Redbooks publication
- IBM System Storage SAN Volume Controller, IBM Storwize V7000, and IBM FlashSystem 7200 Best Practices and Performance Guidelines Redbooks publication
- VMware vSphere Documentation
- VMware Documentation
- VMware Product Support
- VMware Knowledge Base