# SnapCenter Custom Plug-ins

## SnapCenter Software 4.6

NetApp
September 29, 2025

This PDF was generated from https://docs.netapp.com/us-en/snapcenter-46/protect-scc/concept_snapcenter_custom_plug_ins_overview.html on September 29, 2025. Always check docs.netapp.com for the latest.

# Table of Contents


SnapCenter Custom Plug-ins . . . 1
- SnapCenter Custom Plug-ins overview . . . 1
- What you can do with the SnapCenter Custom Plug-ins and Storage plug-in . . . 1
- SnapCenter Custom Plug-ins features . . . 2
- Storage types supported by SnapCenter Custom Plug-ins . . . 3
- Minimum ONTAP privileges required for custom plug-in . . . 3
- Prepare storage systems for SnapMirror and SnapVault replication for custom plug-ins . . . 7
- Define a backup strategy . . . 8
- Backup strategy for custom plug-ins . . . 8
  - Backup schedules of custom plug-in resources . . . 8
  - Number of backup jobs needed . . . 9
- Types of restore strategies supported for manually added custom plug-in resources . . . 9
  - Complete resource restore . . . 9
  - File level restore . . . 9

# SnapCenter Custom Plug-ins

## SnapCenter Custom Plug-ins overview

You can develop custom plug-ins for applications that you use and then use SnapCenter to backup, restore, or clone these applications. Like other SnapCenter plug-ins, your custom plug-ins act as host-side components of the NetApp SnapCenter Software, enabling application-aware data protection and management of resources.

When Custom Plug-ins are installed, you can use SnapCenter with NetApp SnapMirror technology to create mirror copies of backup sets on another volume and use NetApp SnapVault technology to perform disk-to-disk backup replication. The Custom Plug-ins can be used in both Windows and Linux environments.

SnapCenterCLI does not support SnapCenter Custom Plug-ins commands.

NetApp provides the Storage plug-in to perform data protection operations of the data volume on the ONTAP storage using the custom plug-in framework built into SnapCenter.

You can install the custom plug-in and storage plug-in from the Add Host page.

Add hosts and install plug-in packages on remote hosts.

NetApp also provides MySQL, MAXDB, DB2, SYBASE, DPGLUE, MongoDB, ORASCPM, and PostgreSQL custom plug-ins. These plug-ins can be downloaded from the NetApp Storage Automation Store.

SnapCenter support policy will cover support for SnapCenter custom plug-in framework, core engine, and the associated APIs. Support will not cover the plug-in source code and the associated scripts built on the custom plug-in framework.

You can create your own custom plug-ins by referring to Develop a plug-in for your application.

## What you can do with the SnapCenter Custom Plug-ins and Storage plug-in

You can use the SnapCenter Custom Plug-ins for data protection operations.

**Custom plug-in**

- Add resources such as databases, instances, documents, or tablespaces.
- Create backups.
- Restore from backups.
- Clone backups.
- Schedule backup operations.
- Monitor backup, restore, and clone operations.
- View reports for backup, restore, and clone operations.

**Storage plug-in**

You can use the storage plug-in for data protection operations.

- Take consistency group Snapshot copies of the storage volumes across ONTAP clusters.
- Backup custom applications using the built in pre and post scripting framework

  You can backup ONTAP volume, LUN, or a Qtree.

- Update Snapshot copies taken on the primary to an ONTAP secondary, leveraging the existing replication relationship (SnapVault/SnapMirror/unified replication) using SnapCenter policy

  ONTAP primary and secondary can be ONTAP FAS, AFF, Select, or Cloud ONTAP.

- Recover complete ONTAP volume, LUN, or files.

  You should provide the respective file path manually as the browse or indexing features are not built into the product.

  Qtree or directory restore is not supported but you can clone and export only the Qtree if the backup scope is defined at a Qtree level.

# SnapCenter Custom Plug-ins features

SnapCenter integrates with the plug-in application and with NetApp technologies on the storage system. To work with Custom Plug-ins, you use the SnapCenter graphical user interface.

- **Unified graphical user interface**

  The SnapCenter interface provides standardization and consistency across plug-ins and environments. The SnapCenter interface enables you to complete consistent backup, restore, recovery, and clone operations across plug-ins, use centralized reporting, use at-a-glance dashboard views, set up role-based access control (RBAC), and monitor jobs across all plug-ins.

- **Automated central administration**

  You can schedule backup operations, configure policy-based backup retention, and perform restore operations. You can also proactively monitor your environment by configuring SnapCenter to send email alerts.

- **Nondisruptive NetApp Snapshot copy technology**

  SnapCenter uses NetApp Snapshot copy technology with the SnapCenter Custom Plug-ins to back up resources. Snapshot copies consume minimal storage space.

Using the Custom Plug-ins feature also offers the following benefits:

- Support for backup, restore, and clone workflows
- RBAC-supported security and centralized role delegation

  You can also set the credentials so that the authorized SnapCenter users have application-level permissions.

- Creation of space-efficient and point-in-time copies of resources for testing or data extraction by using NetApp FlexClone technology

  A FlexClone license is required on the storage system where you want to create the clone.

- Support for the consistency group (CG) Snapshot copy feature of ONTAP as part of creating backups.
- Capability to run multiple backups simultaneously across multiple resource hosts

  In a single operation, Snapshot copies are consolidated when resources in a single host share the same volume.

- Capability to create Snapshot copy using external commands.
- Capability to create file system consistent Snapshot copies in Windows environments.

# Storage types supported by SnapCenter Custom Plug-ins

SnapCenter supports a wide range of storage types on both physical and virtual machines. You must verify the support for your storage type before installing SnapCenter Custom Plug-ins.

| Machine | Storage type |
|---|---|
| Physical and NFS direct mounts on the VM hosts (VMDKs and RDM LUNs are not supported.) | FC-connected LUNs |
| Physical and NFS direct mounts on the VM hosts (VMDKs and RDM LUNs are not supported.) | iSCSI-connected LUNs |
| Physical and NFS direct mounts on the VM hosts (VMDKs and RDM LUNs are not supported.) | NFS-connected volumes |

# Minimum ONTAP privileges required for custom plug-in

The minimum ONTAP privileges that are required vary according to the SnapCenter plug-ins you are using for data protection.

| All-access commands: Minimum privileges required for ONTAP 8.3.0 and later |
|---|
| event generate-autosupport-log |
| job history show<br><br>job stop |

| All-access commands: Minimum privileges required for ONTAP 8.3.0 and later |
| --- |
| lun attribute show<br>lun create<br>lun delete<br>lun geometry<br>lun igroup add<br>lun igroup create<br>lun igroup delete<br>lun igroup rename<br>lun igroup show<br>lun mapping add-reporting-nodes<br>lun mapping create<br>lun mapping delete<br>lun mapping remove-reporting-nodes<br>lun mapping show<br>lun modify<br>lun move-in-volume<br>lun offline<br>lun online<br>lun resize<br>lun serial<br>lun show |
| network interface |

| All-access commands: Minimum privileges required for ONTAP 8.3.0 and later |
| --- |
| snapmirror policy add-rule<br>snapmirror policy modify-rule<br>snapmirror policy remove-rule<br>snapmirror policy show<br>snapmirror restore<br>snapmirror show<br>snapmirror show-history<br>snapmirror update<br>snapmirror update-ls-set<br>snapmirror list-destinations |
| version |

| All-access commands: Minimum privileges required for ONTAP 8.3.0 and later |
| --- |
| volume clone create |
| volume clone show |
| volume clone split start |
| volume clone split stop |
| volume create |
| volume destroy |
| volume file clone create |
| volume file show-disk-usage |
| volume offline |
| volume online |
| volume modify |
| volume qtree create |
| volume qtree delete |
| volume qtree modify |
| volume qtree show |
| volume restrict |
| volume show |
| volume snapshot create |
| volume snapshot delete |
| volume snapshot modify |
| volume snapshot rename |
| volume snapshot restore |
| volume snapshot restore-file |
| volume snapshot show |
| volume unmount |

| All-access commands: Minimum privileges required for ONTAP 8.3.0 and later |
| --- |
| vserver cifs |
| vserver cifs share create |
| vserver cifs share delete |
| vserver cifs shadowcopy show |
| vserver cifs share show |
| vserver cifs show |
| vserver export-policy create |
| vserver export-policy delete |
| vserver export-policy rule create |
| vserver export-policy rule show |
| vserver export-policy show |
| vserver iscsi connection show |
| vserver show |

| Read-only commands: Minimum privileges required for ONTAP 8.3.0 and later |
| --- |
| network interface |

# Prepare storage systems for SnapMirror and SnapVault replication for custom plug-ins

You can use a SnapCenter plug-in with ONTAP SnapMirror technology to create mirror copies of backup sets on another volume, and with ONTAP SnapVault technology to perform disk-to-disk backup replication for standards compliance and other governance-related purposes. Before you perform these tasks, you must configure a data-protection relationship between the source and destination volumes and initialize the relationship.

If you are coming to SnapCenter from a NetApp SnapManager product and are satisfied with the data protection relationships you have configured, you can skip this section.

A data protection relationship replicates data on primary storage (the source volume) to secondary storage (the destination volume). When you initialize the relationship, ONTAP transfers the data blocks referenced on the source volume to the destination volume.

SnapCenter does not support cascade relationships between SnapMirror and SnapVault volumes (**Primary** > **Mirror** > **Vault**). You should use fanout relationships.

SnapCenter supports the management of version-flexible SnapMirror relationships. For details about version-flexible SnapMirror relationships and how to set them up, see the ONTAP documentation.

SnapCenter does not support **sync_mirror** replication.

# Define a backup strategy

Defining a backup strategy before you create your backup jobs ensures that you have the backups that you require to successfully restore or clone your resources. Your service-level agreement (SLA), recovery time objective (RTO), and recovery point objective (RPO) largely determine your backup strategy.

**About this task**

An SLA defines the level of service that is expected and addresses many service-related issues, including the availability and performance of the service. RTO is the time by which a business process must be restored after a disruption in service. RPO defines the strategy for the age of the files that must be recovered from backup storage for regular operations to resume after a failure. SLA, RTO, and RPO contribute to the data protection strategy.

**Steps**

1. Determine when you should back up your resources.
2. Decide how many backup jobs you require.
3. Decide how to name your backups.
4. Decide if you want Consistency Group Snapshot copies and decide on appropriate options for deleting Consistency Group Snapshot copies.
5. Decide whether you want to use NetApp SnapMirror technology for replication or NetApp SnapVault technology for long term retention.
6. Determine the retention period for the Snapshot copies on the source storage system and the SnapMirror destination.
7. Determine if you want to run any commands before or after the backup operation and provide a prescript or postscript.

# Backup strategy for custom plug-ins

## Backup schedules of custom plug-in resources

The most critical factor in determining a backup schedule is the rate of change for the resource. The more often you back up your resources, the fewer archive logs SnapCenter has to use for restoring, which can result in faster restore operations.

You might back up a heavily used resource every hour, while you might back up a rarely used resource once a day. Other factors include the importance of the resource to your organization, your service-level agreement (SLA) and your recovery point objective (RPO).

SLA defines the level of service expected and addresses many service-related issues, including the availability and performance of service. RPO defines the strategy for the age of the files that must be recovered from

backup storage for regular operations to resume after a failure. SLA and RPO contribute to the data protection strategy.

Backup schedules have two parts, as follows:

- Backup frequency

  Backup frequency (how often backups are to be performed), also called schedule type for some plug-ins, is part of a policy configuration. For example, you might configure the backup frequency as hourly, daily, weekly or monthly. You can access policies in the SnapCenter GUI by clicking **Settings** > **Policies**.

- Backup schedules

  Backup schedules (exactly when backups are to be performed) are part of a resource or resource group configuration. For example, if you have a resource group that has a policy configured for weekly backups, you might configure the schedule to back up every Thursday at 10:00 p.m. You can access resource group schedules in the SnapCenter GUI by clicking **Resources**, then selecting the appropriate plug-in, and clicking **View** > **Resource Group**.

### Number of backup jobs needed

Factors that determine the number of backup jobs that you need include the size of the resource, the number of volumes used, the rate of change of the resource, and your Service Level Agreement (SLA).

The number of backup jobs that you choose typically depends on the number of volumes on which you placed your resources. For example, if you placed a group of small resources on one volume and a large resource on another volume, you might create one backup job for the small resources and one backup job for the large resource.

## Types of restore strategies supported for manually added custom plug-in resources

You must define a strategy before you can successfully perform restore operations using SnapCenter. There are two types of restore strategies for manually added custom plug-in resources.

ⓘ You cannot recover manually added custom plug-in resources.

### Complete resource restore

- Restores all volumes, qtrees, and LUNs of a resource

ⓘ If the resource contains volumes or qtrees, the Snapshot copies taken after the Snapshot copy selected for restore on such volumes or qtrees are deleted and cannot be recovered. Also, if any other resource is hosted on the same volumes or qtrees, then that resource is also deleted.

### File level restore

- Restores files from volumes, qtrees, or directories

- Restores only the selected LUNs

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