SnapCenter® Software 4.1

Getting Started Guide

August 2019 | 215-13428_2019-08_en-us
doccomments@netapp.com

Updated for 4.1.1

NetApp®

Contents

Deciding whether to read the SnapCenter Getting Started information

Read this information if you want streamlined workflows for installing SnapCenter Server and SnapCenter plug-ins, and creating backups and generating reports. You can also read about SnapCenter architecture.

For detailed information on each step in the workflows, see the SnapCenter installation and setup information.

Installing and setting up SnapCenter

SnapCenter overview

SnapCenter Software is a simple, centralized, scalable platform that provides application-consistent data protection for applications, databases, host file systems and VMs running on ONTAP systems anywhere in the Hybrid Cloud.

SnapCenter leverages NetApp Snapshot, SnapRestore, FlexClone, SnapMirror, and SnapVault technologies to provide the following:

- Fast, space-efficient, application-consistent, disk-based backups
- Rapid, granular restore and application-consistent recovery
- Quick, space-efficient cloning

SnapCenter includes both the SnapCenter Server and individual lightweight plug-ins. You can automate deployment of plug-ins to remote application hosts, schedule backup, verification, and clone operations, and monitor all data protection operations.

SnapCenter can be deployed in the following ways:

- On premise to protect the following:
  - Data that is on ONTAP FAS or AFF primary systems and replicated to ONTAP FAS or AFF secondary systems
  - Data that is on ONTAP Select primary systems
- On premise in a Hybrid Cloud to protect the following:
  - Data that is on ONTAP FAS or AFF primary systems and replicated to Cloud Volumes ONTAP or NetApp Private Storage secondary systems
- In a public cloud to protect the following:
  - Data that is on Cloud Volumes ONTAP (formerly ONTAP Cloud) primary systems

SnapCenter includes the following key features:

- Centralized, application-consistent data protection
  Data protection is supported for Microsoft Exchange Server, Microsoft SQL Server, Oracle Databases on Linux, SAP HANA database, Windows Host Filesystems, and VMware VMs and Datastores running on ONTAP systems.
  Data protection is also supported for other standard or custom applications and databases by providing a framework to create user-defined SnapCenter plug-ins. This enables data protection for other applications and databases from the same single-pane-of-glass. By leveraging this framework, NetApp has released SnapCenter custom plug-ins for IBM DB2, MongoDB, MySQL etc. on the NetApp Automation Store.
- Policy-based backups
  Policy-based backups leverage NetApp Snapshot copy technology to create fast, space-efficient, application-consistent, disk-based backups. Optionaliy. you can automate protection of these backups to secondary storage by updates to existing protection relationships.
- Back ups for multiple resources
  You can back up multiple resources (applications, databases, host file systems, or VMs) of the same type, at the same time, by using SnapCenter resource groups.
- Restore and recovery

SnapCenter provides rapid, granular restores of backups and application-consistent, time-based recovery. You can restore from any destination in the Hybrid Cloud.

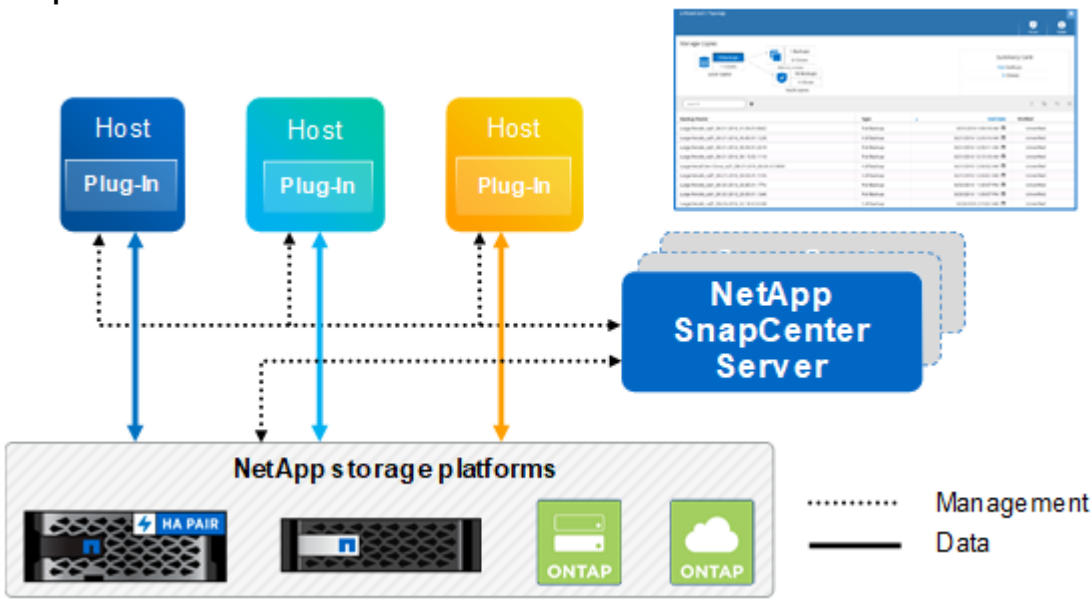
- Cloning
  SnapCenter provides quick, space-efficient, application-consistent cloning, which enables accelerated software development. You can clone on any destination in the Hybrid Cloud.
- Single user management graphical user interface (GUI)
  The SnapCenter GUI provides a single, one-stop interface for managing backups and clones of a resource in any destination in the Hybrid Cloud.
- REST APIs, Windows cmdlets, Linux commands
  SnapCenter includes REST APIs for most functionality for integration with any orchestration software, and use of Windows PowerShell cmdlets and a Linux command-line interface.
- Centralized data protection Dashboard and reporting
- Role-Based Access Control (RBAC) for security and delegation.
- Repository database with High Availability
  SnapCenter provides a built-in repository database with High Availability to store all backup metadata.
- Automated push install of plug-ins
  You can automate a remote push of SnapCenter plug-ins from the SnapCenter Server host to application hosts.
- Load balancing and High Availability
  Load balancing and High Availability for the SnapCenter Server is provided by an integration with Application Request Routing (ARR) and Microsoft Windows Network Load Balancing (NLB), with support for horizontal scaling.

SnapCenter architecture

The SnapCenter platform is based on a multitiered architecture that includes a centralized management server (SnapCenter Server) and a SnapCenter plug-in host.

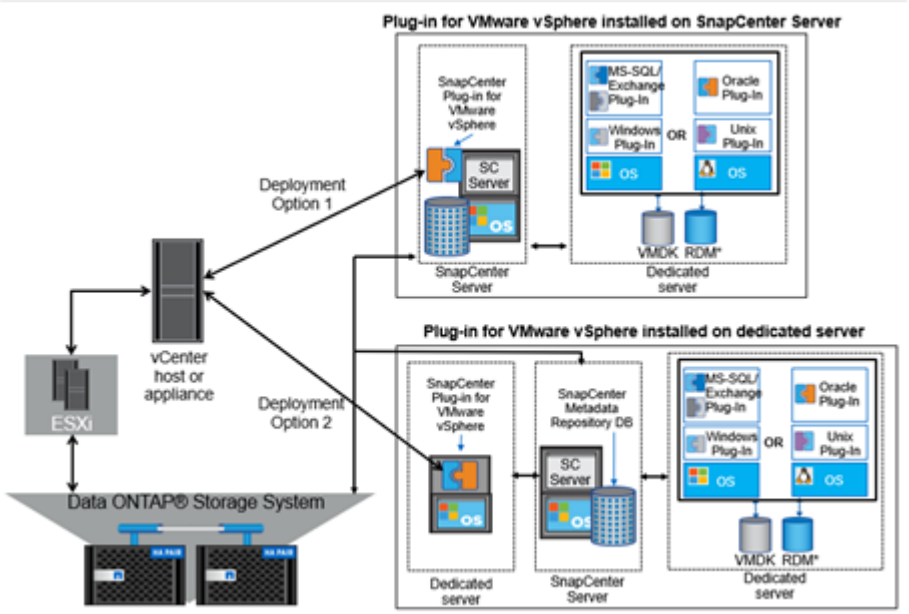
SnapCenter supports multisite data center. The SnapCenter Server and the plug-in host can be at different geographical locations.

SnapCenter architecture



SnapCenter Plug-in for VMware vSphere

The Plug-in for VMware vSphere supports data protection of virtualized resources. It can be installed on the same host as the SnapCenter Server or on a dedicated Windows host.



*RDM is not supported for backups of VMs or datastores using the web client GUI in vCenter. However, RDM is supported for application-consistent backups using other SnapCenter plug-ins (for example, backups of Microsoft SQL Server or Oracle databases residing on RDMs).

The communication path for the Plug-in for VMware vSphere is as follows:

1. The Plug-in for VMware vSphere interacts with the SnapCenter Server to back up virtual infrastructure, for example VMs, VMDKs, and datastores. If the plug-in is installed on a dedicated host, the SnapCenter Server connects to the remote host through the Plug-in for VMware vSphere to protect the virtual resources.

2. The SnapCenter Server can interact with other plug-ins (for example, SnapCenter Plug-in for Microsoft SQL Server or SnapCenter Plug-in for Oracle Database) in addition to the Plug-in for VMware vSphere, to back up a database workload that resides on VMDKs or RDM LUNs.
3. SnapCenter connects to ONTAP storage systems to create Snapshot copies or to perform restore operations.
4. The Plug-in for VMware vSphere connects to a vCenter instance. One instance of the Plug-in for VMware vSphere is required for each instance of vCenter.

SnapCenter components

SnapCenter consists of the SnapCenter Server and SnapCenter plug-ins. You should install only the plug-ins that are appropriate for the data you want to protect.

SnapCenter includes the following components:

- SnapCenter Server
- SnapCenter Plug-ins Package for Windows, which includes the following plug-ins:
  - SnapCenter Plug-in for Microsoft SQL Server
  - SnapCenter Plug-in for Microsoft Windows
  - SnapCenter Plug-in for VMware vSphere
  - SnapCenter Plug-in for Microsoft Exchange Server
  - SnapCenter Plug-in for SAP HANA Database
- SnapCenter Plug-ins Package for Linux, which includes the following plug-ins:
  - SnapCenter Plug-in for Oracle Database
  - SnapCenter Plug-in for UNIX
  - SnapCenter Plug-in for SAP HANA Database
- SnapCenter Custom Plug-ins
  Custom plug-ins are community-supported and can be downloaded from the *NetApp ToolChest*.

SnapCenter licenses

SnapCenter requires several licenses to enable data protection operations. The type of SnapCenter licenses you install depends on your storage environment and the features that you want to use.

- SnapCenter Standard controller-based licenses
  Required if you are using FAS or AFF storage controllers
- SnapCenter Standard capacity-based licenses
  Required to protect data on ONTAP Select and ONTAP Cloud platforms
- ONTAP licenses, one of the following:
  - SnapMirror license
  - SnapVault license
- Additional licenses

Some additional licenses might be required, depending on your platform. Examples of additional licenses are SnapRestore, FlexClone, vSphere Standard, and various protocol-based licenses. The *Release Notes* contain a complete list of required licenses.

SnapCenter Software Release Notes

Best Practice: It is recommended, but not required, that you also add SnapCenter Standard licenses to secondary destinations. If SnapCenter Standard licenses are not enabled on secondary destinations, you cannot use SnapCenter after performing a failover operation. However, a FlexClone license is required on secondary destinations to perform clone and verification operations.

The installation and setup documentation contains details about managing licenses.

Installing and setting up SnapCenter

SnapCenter plug-ins

Each SnapCenter plug-in supports specific environments, databases, and applications.

This Plug-in...	Is included in this install package...	Requires these other plug-ins...	Is installed on this location...	And supports Windows or Linux...
Plug-in for VMware vSphere	Plug-ins Package for Windows	If using Plug-in for Oracle Database, all plug-ins in the Plug-ins Package for Linux If using Plug-in for SQL Server, all plug-ins in the Plug-ins Package for Windows	VM host running Windows	If using Plug-in for Oracle Database, Linux If using Plug-in for SQL Server, Windows
Plug-in for SQL Server	Plug-ins Package for Windows	Plug-in for Windows	SQL Server host	Windows
Plug-in for Windows	Plug-ins Package for Windows		Windows host	Windows
Plug-in for Exchange	Plug-ins Package for Windows	Plug-in for Windows	Exchange Server host	Windows
Plug-in for Oracle Database	Plug-ins Package for Linux	Plug-in for UNIX	Oracle host	Linux
Plug-in for SAP HANA Database	Plug-ins Package for Linux and Plug-ins Package for Windows	Plug-in for UNIX or Plug-in for Windows	HDBSQL client host	Linux or Windows
Custom Plug-ins	*NetApp ToolChest*	For file system backups, Plug-in for Windows	Custom application host	Linux or Windows

SnapCenter Plug-in for VMware vSphere features

- Automates backup, restore, mount, unmount, attach, and detach operations for VMware virtual machines (VMs), VMDKs, and datastores in your SnapCenter environment using a VMware vSphere web client GUI on vCenter.
- Enables other SnapCenter plug-ins to perform application-aware data protection operations on virtualized databases (in Windows or Linux systems) and on Windows file systems on virtual machine disks (VMDKs), raw device mappings (RDMs), and NFS datastores.
- Requires VMware Storage VMotion required for restore operations in SAN (VMFS) environments

  The restore workflow for VMware file system (VMFS) restore operations utilizes the VMware Storage VMotion feature. Storage VMotion is a part of the vSphere Standard License but is not available with the vSphere Essentials or Essentials Plus licenses.

  Restore operations in NFS environments use ONTAP commands and do not require VMware Storage Vmotion.
- Does not support single Snapshot copies of databases and VMs together. Backups for VMs and databases must be scheduled and run independently, which creates separate Snapshot copies, even if the databases and VMs are hosted in the same volume. Application backups must be scheduled by using the SnapCenter GUI; VM and datastore backups must be scheduled by using the SnapCenter web client GUI in vCenter.
- Supports restoring VMs, VMDKs, and files and folders on a guest OS.
- Supports migrating backups from Virtual Storage Console for VMware vSphere (VSC) 6.x or earlier to SnapCenter.

  Note: If you are using VSC with SnapManager for Virtual Infrastructure (SMVI), you can use the *NetApp Import Utility for SnapCenter and Virtual Storage Console* to migrate the backups, backup jobs, and storage connections. The utility is in the NetApp Support ToolChest.

  NetApp ToolChest: NetApp Import Utility for SnapCenter and Virtual Storage Console

SnapCenter Plug-in for Microsoft SQL Server features

- Automates application-aware backup, restore, and clone operations for Microsoft SQL Server databases in your SnapCenter environment.
- Supports Microsoft SQL Server databases on VMDK and RDM LUNs when you also use SnapCenter Plug-in for VMware vSphere.
- Supports provisioning SMB shares only. Support is not provided for backing up SQL Server databases on SMB shares.
- Supports importing backups from SnapManager for Microsoft SQL Server to SnapCenter.

SnapCenter Plug-in for Microsoft Windows features

- Enables application-aware data protection for other plug-ins that are running in Windows hosts in your SnapCenter environment.
- Automates application-aware backup, restore, and clone operations for Microsoft file systems in your SnapCenter environment.
- Supports storage provisioning, Snapshot copy consistency, and space reclamation for Windows hosts.

  Note: The Plug-in for Windows provisions SMB shares and Windows file systems on physical and RDM LUNs but does not support backup operations for Windows file systems on SMB shares.

SnapCenter Plug-in for Microsoft Exchange Server features

- Automates application-aware backup and restore operations for Microsoft Exchange Server databases and Database Availability Groups (DAGs) in your SnapCenter environment.
- Supports virtualized Exchange Servers on RDM LUNs when you also use SnapCenter Plug-in for VMware vSphere.
- Supports migrating backups from SnapManager 7.x to SnapCenter.

SnapCenter Plug-in for Oracle Database features

- Automates application-aware backup, restore, recovery, verify, mount, unmount, and clone operations for Oracle databases in your SnapCenter environment.
- Supports Oracle databases for SAP, however, SAP BR*Tools integration is not provided.
- Supports importing backups from SnapManager for Oracle and SnapManager for SAP to SnapCenter.

SnapCenter Plug-in for UNIX features

- Enables the Plug-in for Oracle Database to perform data protection operations on Oracle databases by handling the underlying host storage stack on Linux systems.
- Supports Network File System (NFS) and storage area network (SAN) protocols on a storage system that is running ONTAP.
- Supports Oracle databases on VMDK and RDM LUNs when you also use SnapCenter Plug-in for VMware vSphere.

SnapCenter Plug-in for SAP HANA Database features

- Automates application-aware backup, restore, and cloning of SAP HANA databases in your SnapCenter environment.

SnapCenter Custom Plug-ins features

- Supports custom plug-ins to manage applications or databases that are not supported by otherSnapCenter plug-ins. Custom plug-ins are not provided as part of the SnapCenter installation.
- Supports creating mirror copies of backup sets on another volume and performing disk-to-disk backup replication.
- Supports both Windows and Linux environments. In Windows environments, custom applications via custom plug-ins can optionally utilize SnapCenter Plug-in for Microsoft Windows to take file system consistent backups.

MySQL, DB2, and MongoDB custom plug-in samples for SnapCenter Software can be downloaded from the *NetApp ToolChest*. You can create your own custom plug-ins by referring to the developer's guide for creating custom plug-ins.

Note: MySQL, DB2, and MongoDB custom plug-ins are supported via the NetApp communities only.

NetApp supports the capability to create and use custom plug-ins; however, the custom plug-ins you create are not supported by NetApp.

When to use the SnapCenter GUI and the vCenter GUI

SnapCenter Plug-in for VMware vSphere is different from other SnapCenter plug-ins because you use the web client GUI in vCenter for all backup and restore operations for VMs, VMDKs, and datastores. For all other plug-ins, you use the SnapCenter GUI for backup and restore operations. You can also use the Dashboard in the vCenter web client GUI to monitor the list of protected and unprotected VMs.

Note: The Plug-in for VMware vSphere supports the vCenter web client. It does not support vCenter thick clients.

To work with the Plug-in for VMware vSphere to protect VMs and datastores, you use the VMware vSphere web client interface in vCenter. The web client GUI integrates with NetApp Snapshot copy technology on the storage system. This enables you to back up VMs and datastores in seconds and restore VMs without taking a host offline.

Use this GUI...	To perform these operations...	And to access these backups...
Plug-in for VMware vSphere web client GUI in vCenter	VM and datastore backup VMDK attach and detach Datastore mount and unmount VM restore VMDK restore Guest file and folder restore	Backups of VMs and datastores performed by using the Plug-in for VMware vSphere GUI in vCenter.
SnapCenter GUI	Backup and restore of virtualized databases and applications, including protecting Microsoft SQL Server databases, Microsoft Exchange databases, and Oracle databases.	Backups performed by using the SnapCenter GUI.

Note: You must use the SnapCenter web client GUI in vCenter to perform SnapCenter operations. Although it is possible to perform some operations using VMware tools, for example, mounting or renaming a datastore, those operations will not be registered in the SnapCenter repository and, therefore, will not be recognized.

Note: SnapCenter does not support single Snapshot copies of databases and VMs together. Backups for VMs and databases must be scheduled and run independently, which creates separate Snapshot copies, even if the databases and VMs are hosted in the same volume. Application backups must be scheduled by using the SnapCenter GUI; VM and datastore backups must be scheduled by using the SnapCenter web client GUI in vCenter.

Both vCenter and SnapCenter job monitors display all SnapCenter jobs, regardless of which GUI was used to start the job.

Example for protecting a Microsoft SQL Server database that is running on VMs

To perform an application-consistent backup of a Microsoft SQL Server database that is running on VMs, you use the SnapCenter GUI to start a backup of the database.

SnapCenter uses the SnapCenter Plug-in for Microsoft SQL Server and the SnapCenter Plug-in for Microsoft Windows to perform the operation, and uses the Plug-in for VMware vSphere to communicate with vCenter.

You also use the SnapCenter GUI to access or restore the backup.

Example for protecting an Oracle database that is running on VMs

To perform an application-consistent backup of an Oracle database that is running on VMs, you use the SnapCenter GUI to start a backup of the database.

SnapCenter uses the SnapCenter Plug-in for Oracle Database and the SnapCenter Plug-in for UNIX to perform the operation, and uses the Plug-in for VMware vSphere to communicate with vCenter.

You also use the SnapCenter GUI to access or restore the backup.

Example for protecting a VM

To perform a host-level backup of a VM in which a database application is running (not an application-consistent backup), you use the SnapCenter VMware vSphere web client GUI in vCenter to start the backup.

SnapCenter uses the Plug-in for VMware vSphere to perform the operation.

You also use the VMware vSphere web client GUI in vCenter to access or restore the backup.

Installation and navigation tour videos for SnapCenter

You can watch these videos for an overview of the installation and setup of your new system and for a tour of the navigation options in SnapCenter software.

Video: Overview of the SnapCenter interface

Introduces the SnapCenter graphical user interface that you use to back up, restore, and clone enterprise applications, databases, file systems, virtual machines, and datastores. This video is the first of two interface overview videos.

NetApp video: Overview of the SnapCenter interface

Video: Tour through the SnapCenter interface

Explains each of the options in the SnapCenter graphical user interface that you use to back up, restore, and clone enterprise applications, databases, file systems, virtual machines, and datastores. This video is the second of two interface overview videos. Learn about monitoring backup operations, using log reports, reporting, scheduling backups, and managing clones.

NetApp video: Tour through SnapCenter navigation pane options

Preparing storage systems for SnapMirror and SnapVault replication

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.

Note: 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.

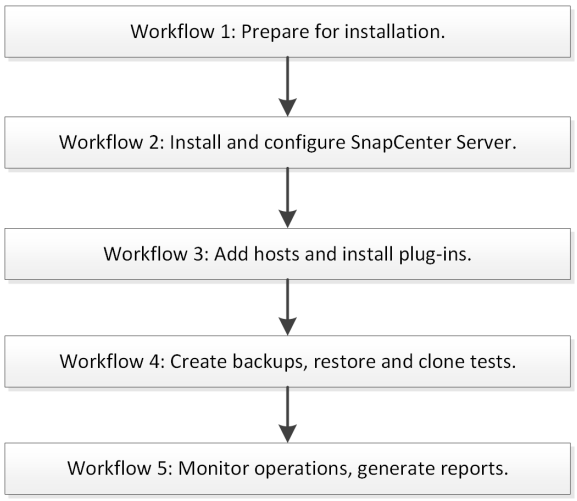
A data protection relationship replicates data on primary storage (the source volume) to secondary storage (the destination volume). When you initialize the relationship, ONTAP transfers the data blocks referenced on the source volume to the destination volume.

Note: SnapCenter does not support cascade relationships between SnapMirror and SnapVault volumes (**Primary > Mirror > Vault**). Use fanout relationships only (**Primary > Mirror**, **Primary > Vault**).

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.

Workflow overview

To get started with SnapCenter, you must install the SnapCenter Server, add a host which automatically installs the appropriate plug-in, then run a backup.

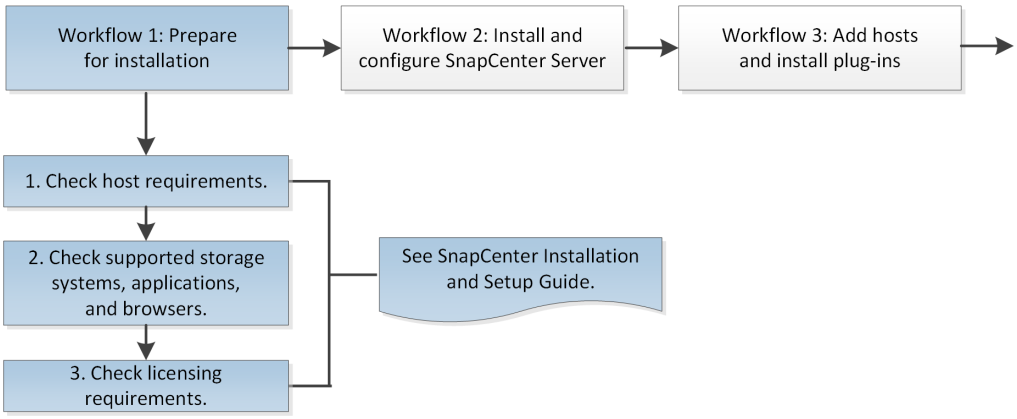


This getting started information briefly explains each part of the workflow. For details beyond this condensed getting started information, see the installation or data protection information specific to your application or file system in the SnapCenter Documentation Center.

- SnapCenter concepts
  Concepts
- Installing and setting up SnapCenter
  Installing and setting up SnapCenter

Workflow 1: Prepare for installation

Before installing SnapCenter, you must verify that your environment meets all of the SnapCenter requirements.



The steps in this workflow are condensed and simplified. Details about each step are included in the appropriate documentation.

Installing and setting up SnapCenter

1. Check host requirements

You should be familiar with the following:

- Domain and workgroup requirements
- Space and sizing requirements
- SAN host requirements
- Operating system requirements
- Connection and port requirements
- SnapCenter repository requirements

2. Check supported storage systems, applications, and browsers

You should be familiar with the following:

- Supported storage systems (ONTAP)
- Supported applications
- Supported browsers (Chrome, Internet Explorer, and Microsoft Edge)
- Use of Microsoft Network Load Balancing features
- Use of Application Request Routing features
- High availability for the SnapCenter MySQL repository

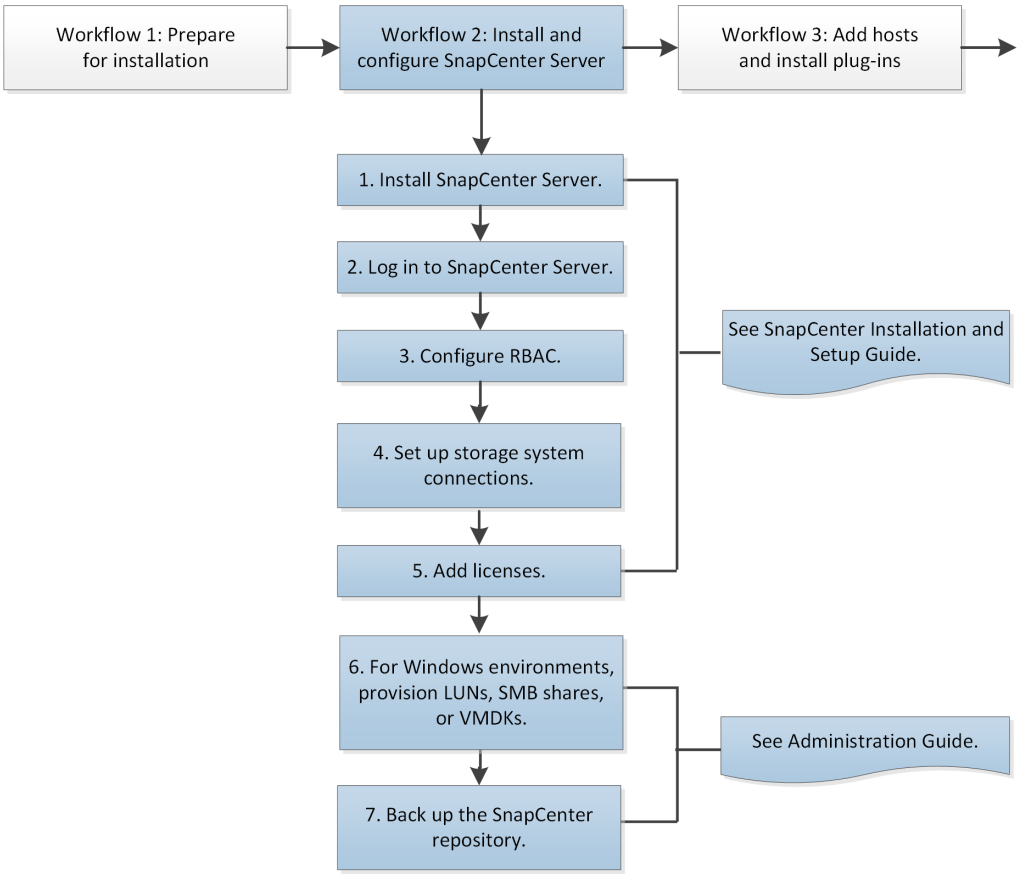
3. Check licensing requirements

You should be familiar with viewing, retrieving, and adding the following:

- SnapCenter Standard controller-based licenses
- SnapCenter Standard capacity-based licenses

Workflow 2: Install and configure SnapCenter Server

About this task



The steps in this workflow are condensed and simplified. Details about each step are included in the appropriate documentation.

Installing and setting up SnapCenter

Performing administrative tasks

Steps

1. Install SnapCenter Server.
   a. Download the SnapCenter Server installation package from NetApp Support Site.

      NetApp Support

   b. Double-click the downloaded `.exe` file to start the InstallShield wizard.

   c. Enter the required information in the wizard.

On this wizard page...	Do the following...
Network Load Balancing	Optional: Enable and configure NLB on the host.
Application Request Routing	Optional: Configure the ARR farm for SnapCenter.
Credentials	Enter the credentials to log in to SnapCenter as the administrator.
Installation Folder	Browse and provide the path where you want to install SnapCenter Server and the SnapCenter repository. • The SnapCenter Server web component and SnapCenter SMCore Service are installed at the default location `C:\Program Files\NetApp`. • The repository component is installed at the default location `C:\ProgramData\NetApp\SnapCenter`.
SnapCenter Ports Configuration	Enter the port details. The default ports are auto populated but you can specify a custom port.
MySQL Database Connection	Enter the MySQL database password.
Ready to Install	Click **Install**.

2. Log in to SnapCenter Server.

   a. Launch SnapCenter from the shortcut located on your local host desktop, with the URL provided at the end of the installation, or from the URL provided by your SnapCenter administrator.

   b. Enter your user credentials.

To specify the following...	Use one of these formats...
Domain administrator	***NetBIOS\UserName*** ***UserName@UPN suffix*** For example, username@netapp.com ***Domain FQDN\UserName***
Local administrator	***UserName***

   Note: If you are logging into SnapCenter for the first time, you must log in using the credentials that you provided during the install process.

   c. If you are assigned more than one role, select from the **Role** box the role you want to use for this login session.

Note: If you have untrusted Active Directory domains that you want SnapCenter to support, you must register those domains with SnapCenter before proceeding to the next step. See details in the administration documentation.

Performing administrative tasks

3. Configure role-based access control (RBAC) by adding users or groups to roles and then assigning users or groups access to assets.

To perform this...	Do the following...
Add users or groups to roles	**a.** Click **Settings > Roles** and then select the role to which you want to add the user. **b.** Click **Modify** and then click **Next** until you reach the Users/ Groups page. **c.** On the Users/Groups page, specify the domain to which the user belongs and enter a user or group name, then click **Add**. **d.** Click **Next** to view the summary, and then click **Finish**.
Assign users or groups access to assets	**a.** Click **Settings > User Access** and then select the type of asset from the **Asset** drop-down list. **b.** Click **Assign** and then select **Domain or Workgroup** as the Authentication type. **c.** Enter the required information, then click **Add**, and then click **OK**.

4. Set up storage system connections

   If you are planning to replicate Snapshot copies to a SnapMirror or SnapVault destination, you must set up storage system connections for the destination SVM as well as the source SVM.

   a. Click **Storage Systems > New**.

   b. Enter the required information in the wizard.

In this field...	Do the following...
Storage Type	Select ONTAP SVM.
Platform	Select the platform. If the SVM is the secondary storage system in a backup relationship, select the **Secondary** check box.
Storage System	Enter a unique storage system name or IP address.
User name/Password	Enter the credentials used (usually vsadmin) to access the storage system. Use vsadmin when adding an SVM. Use "admin" when adding a cluster.
Protocol	Select the protocol used for connection to the SVM that was configured during SVM setup, typically HTTPS.
Port	Enter the port that the storage system accepts. The defaults typically work.
Timeout	Enter the seconds that should elapse before communication attempts are halted. The default value is 60 seconds.
Preferred IP	If the SVM has multiple management interfaces, select the **Preferred IP** check box, and then enter the preferred IP address for SVM connections.

5. Add licenses.

To perform this...	Do the following...
Add a controller-based license using the ONTAP command line	**a.** Log in to the NetApp cluster using the ONTAP command line. **b.** Add the SnapManagerSuite license key: `system license add -license-code <license_key>` **c.** Verify that the SnapManagerSuite license is installed: `license show`
Add a capacity-based license using the SnapCenter GUI	**a.** Click **Settings > Software** and then click **Add** () in the License section. **b.** Enter the required information in the wizard. Select a method to obtain the license. On the Notifications page, enter the capacity threshold at which SnapCenter sends email, EMS, and AutoSupport notifications. The default threshold is 90 percent. **c.** Click **Settings > Global Settings > Notification Server Settings** and configure the SMTP server for email notifications. Recommendation: Select the **AutoSupport** check box.

6. Provision LUNs, SMB shares, or VMDKs for Windows environments

You can assign NetApp storage to supported Windows Server hosts. You must have installed and configured the SnapCenter Plug-ins Package for Windows by adding a Windows host.

You can also provision LUNs on supported VMware guest operating systems that are running on supported versions of VMware ESXi.

a. Configure LUN storage

You can configure an FC-connected or iSCSI-connected LUN. You can also connect an existing LUN to a Windows host.

To perform this...	Do the following...
Establish an iSCSI session	**i.** Click **Hosts > iSCSI Session**, then select the SVM for the iSCSI target from the **Storage Virtual Machine** list. **ii.** From the **Host** list, select the host for the session, then click **Establish Session**, enter the session information, and then click **Connect**. **iii.** Repeat this procedure to establish a session for each target.
Create igroups	You can create initiator groups (igroups) to specify which hosts can access a given LUN on the storage system. You can use SnapCenter to create, rename, modify, or delete an igroup on a Windows host. **i.** Click **Hosts > Igroup**. **ii.** On the Initiator Groups page, click **New**, then define the igroup, then click **OK**.

To perform this...	Do the following...
Create disks	The Windows host sees LUNs on your storage system as virtual disks. **i.** Click **Hosts > Disks**, then select the host from the **Host** list, and then click **New**. **ii.** On the Create Disk wizard pages, define the disk, then click **Finish**.

b. Create SMB shares

To configure an SMB3 share on a SVM, you can use either the SnapCenter user interface or PowerShell cmdlets. Using the cmdlets is recommended because it enables you to take advantage of templates provided with SnapCenter to automate share configuration.

To do perform this...	Do the following...
Create SMB shares	**i.** Click **Hosts > Shares**, then select the SVM from the **Storage Virtual Machine** list, and then click **New**. **ii.** On the New Share dialog box, define the share, then click **OK**.

7. Back up the SnapCenter repository.

You must use Windows PowerShell cmdlets to configure the repository database for automatic backups.

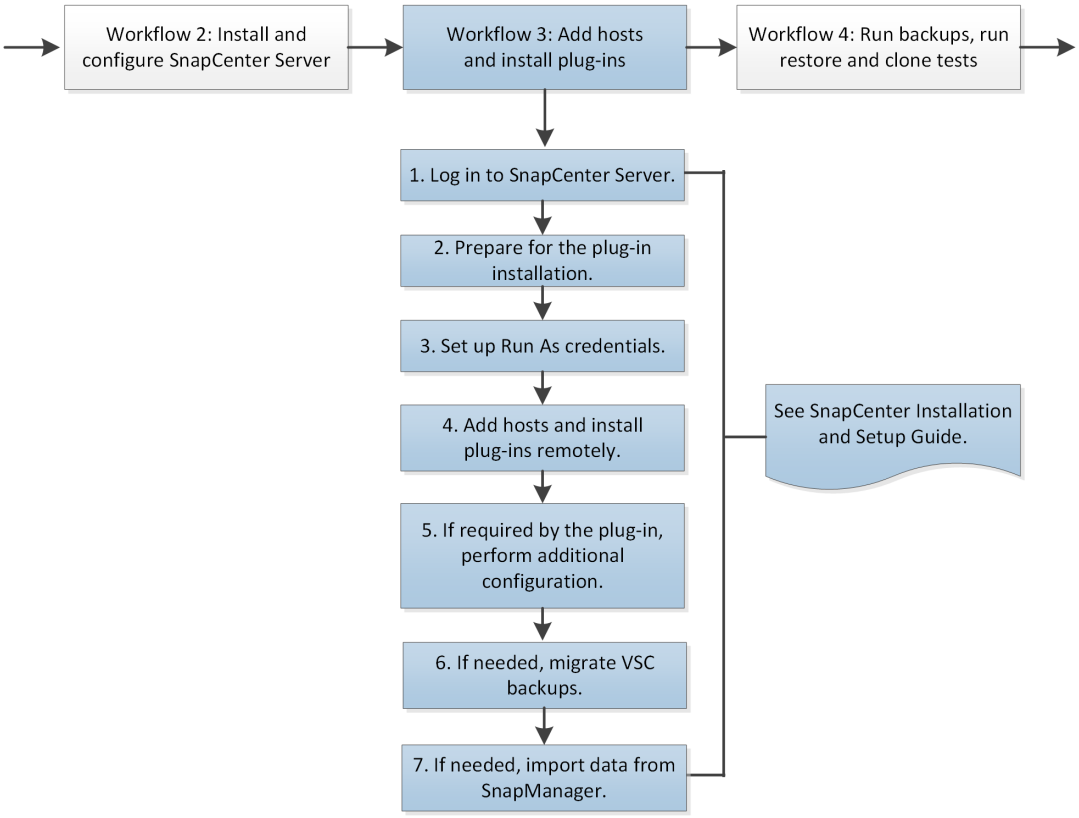
a. Launch PowerShell and then use the `Open-SMConnection` cmdlet to connect to the SnapCenter Server.

b. Use the `Protect-SmRepository` cmdlet to configure backups, including destination, schedule, and retention.

Backups occur automatically according to the configured schedule.

Workflow 3: Add hosts and install plug-ins

About this task



Use the SnapCenter Add Host wizard to add hosts and install the plug-ins packages. The plug-ins are automatically installed on the specified remote hosts.

The steps in this workflow are condensed and simplified. Details about each step are included in the appropriate documentation.

Installing and setting up SnapCenter

Steps

1. Log in to SnapCenter Server.
   a. Start SnapCenter.
   b. Enter your user credentials: `Domain\UserName` or .
   c. If you are assigned more than one role, select from the **Role** box the role you want to use for this login session.
2. Prepare for the plug-in installation

   For each plug-in you install, you should be familiar with the storage types that the plug-in supports, and the installation prerequisites for that plug-in.
3. Set up Run As credentials

SnapCenter uses Run As credentials to authenticate users for SnapCenter operations. You must create Run As credentials for installing SnapCenter plug-ins and additional Run As credentials for performing data protection operations on databases or Windows file systems.

- **For the SnapCenter Plug-in for VMware vSphere**
  The Run As credential user must be a default domain administrator that is provided by Windows or a built-in local administrator on the plug-in host. Workgroup users can use the built-in local administrator account.
- **For all other plug-ins**
  The Run As credential user must have administrator privileges, including administrator rights on the remote host.

a. Click **Settings > Run As Credentials** and then click **New**.

b. Enter the required information in the wizard.

Use the following formats for the username field:

To specify this in the username field...	Use one of the these formats...
Built-in domain administrator	NetBIOS*username* *username@upn* *DomainFQDN**username*
Built-in local administrator	*username*

4. Add hosts and install plug-ins remotely.

a. Click **Hosts**, verify that the **Managed Hosts** tab is selected at the top, and then click **Add**.

b. Enter the required information in the wizard.

On this wizard page...	Do the following...
Hosts	Select the host type and enter the host information. The type of host you select determines which plug-in or plug-ins are installed on the host.
Installed plug-ins	Review the plug-in packages that are currently installed on the host. For new deployments, no plug-in packages are listed.
Plug-ins to install	Select the plug-in package, and then specify the plug-in ports and installation path, if different from the default. **For SnapCenter Plug-in for VMware vSphere**: Specify the vCenter information.
Summary	Review the summary, and then click **Finish**. Monitor the installation process and then refresh the Hosts page to view the newly added host.

c. If you added a vSphere host, SnapCenter automatically registers the Plug-in for VMware vSphere with vCenter Server and installs the Plug-in for VMware vSphere web client on the vCenter Server. Log on to the web client.

i. In your browser, navigate to the VMware vSphere vCenter.

ii. On the VMware screen, click **vSphere Web Client (Flash)**.

iii. On the VMware vCenter Single Sign-On page, log on.

iv. On the VMware vSphere Web Client page, click  in the toolbar and select **SnapCenter Plug-in for VMware vSphere** or click **SnapCenter Plug-in for VMware vSphere** in the left Navigator pane.

5. If required by the plug-in, perform additional configuration.

If you installed...	Do the following...
SnapCenter Plug-in for Microsoft SQL Server	Configure the host log directory and, optionally, a verfiication server. **a.** Click **Hosts > Managed Hosts**, then select an SQL host, and click **Configure Plug-in**. **b.** On the Configure host log directory page, click **Browse**, then enter the log directory information, and then click **Next**. **c.** If you want to configure a verification server, then on the Verification Server page, select the **Setup a SQL Server instance** check box, and enter the server information, then click **Apply** and then click **Next**.
SnapCenter Plug-ins Package for Linux	After installing the SnapCenter Plug-ins Package for Linux, the SnapCenter Plug-in Loader service is started automatically.
SnapCenter Plug-in for SAP HANA Database	Add databases that you want to back up. **a.** In the left navigation pane, select the appropriate plug-in from the drop-down list. **b.** Click **Resources > Add SAP HANA Database**. **c.** On the Provide Resource Details page, enter the required information. **d.** On the Provide Storage Footprint page, select a storage system and choose one or more volumes, LUNs, and qtrees, and then click **Save**. You can click  to add more volumes, LUNs, and qtrees from other storage systems. **e.** On the Resource Settings page, enter the required information.

6. If needed, migrate VSC backups

If you used Virtual Storage Console for VMware vSphere (VSC) with SnapCenter 2.*x*, then you must migrate your VSC hosts (which includes migrating backups, policies, and resource groups) to SnapCenter Plug-in for VMware vSphere for performing backup and restore operations on VMs and datastores.

a. Log on to SnapCenter with the same username that is registered for VSC in SnapCenter.

b. Click **Hosts**, then select a vSphere host, and then click **Migrate** in the toolbar.

c. Enter the required information in the wizard.

On this wizard page...	Do the following...
Host	Enter the VSC host information.
Discover plug-ins	Review the list of plug-ins that are running on the host named in the Host page.
Plug-ins	Enter the install path for the Plug-in for VMware vSphere host. Specify the same vCenter that VSC is using and it must be running VSC 6.0 u3 or later.
Summary	Select the **I have read the above; start the migration** check box, and then click **Finish**.

d. When the migration completes, log on to vCenter and verify that SnapCenter Plug-in for VMware vSphere is listed in the left Navigator pane and in the  menu.

If you do not see SnapCenter Plug-in for VMware vSphere in the vCenter GUI, restart the vCenter web client service. See the data protection guide for VMware vSphere.

Protecting VMs and datastores

e. Complete the post-migration steps.

To complete these post migration steps...	Do the following...
Assign new SCV RBAC roles to Active Directory users.	**i.** Log on to vCenter as the domain administrator. **ii.** Select **vCenter Inventory Lists** (or **Global Inventory Lists** in vCenter 6.5), and then select **Resources** > **vCenter Servers**. **iii.** Right-click the vCenter server and select **Add Permission** from the drop-down menu. **iv.** Assign the new SCV roles to users.
Uninstall VSC from the host or upgrade to VSC 7.0.	**i.** On the VSC host, locate the program to be uninstalled. **ii.** Uninstall the VSC program by using the Windows Uninstall utility.
Remove VSC roles from vCenter.	**i.** Log on to vCenter as the vSphere.local administrator. **ii.** Click  (Home) and select **Administrator** (or **Administration** in vCenter 6.5), and then click **Roles**. **iii.** Delete all the VSC roles.
Restart the vCenter web client service.	See the data protection guide for VMware vSphere for details. *Protecting VMs and datastores*

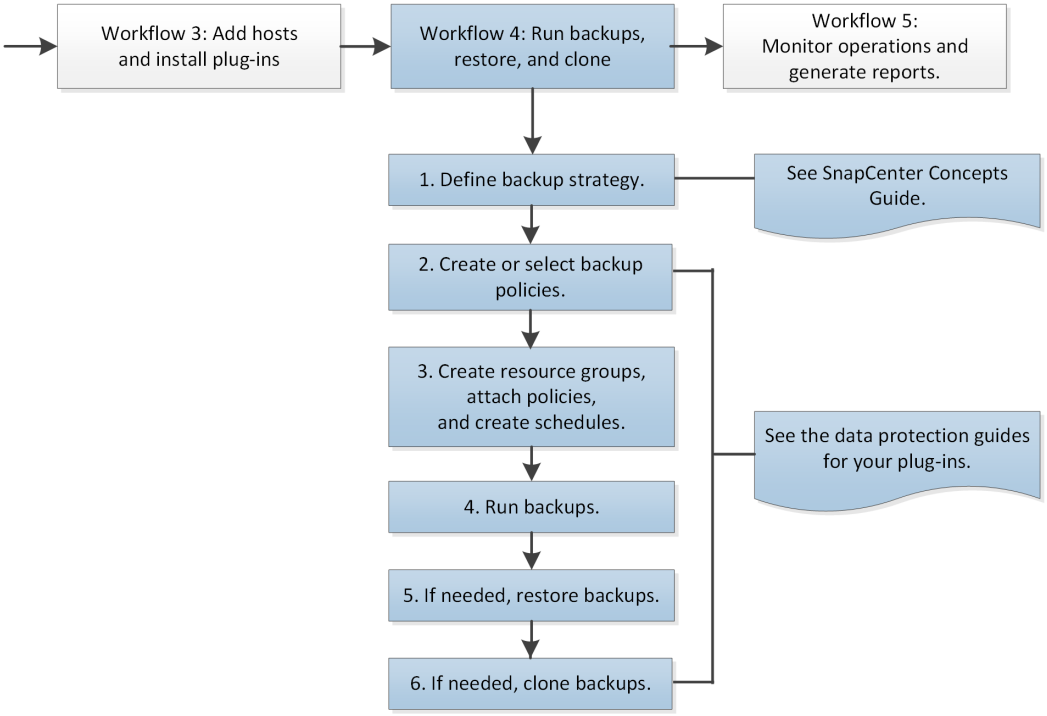
7. If needed, import data from SnapManager.

- Microsoft SQL Server
  You can import only backups that were archived using SnapVault technology, from SnapManager for Microsoft SQL Server to SnapCenter.

- Oracle
  You can import data from SnapManager for Oracle and SnapManager for SAP to SnapCenter. See the installation and setting up information for details.
  Installing and setting up SnapCenter

Workflow 4: Run backups (and restore and clone, if needed)

About this task



The steps in this workflow are condensed and simplified. Details about each step are included in the appropriate documentation.

Concepts

Protecting VMs and datastores

Protecting Microsoft SQL Server databases

Protecting Microsoft Exchange Server databases

Protecting Oracle databases

Protecting SAP HANA databases

Protecting Microsoft Windows file systems

Protecting custom applications

Steps

1. Define backup strategy.

   Determine which databases, files, VMs, or datastores you want to back up. Also determine when you want backups to occur, how many backup copies you want to retain, how long you want to retain backup copies, and whether you want scripts executed before or after backup operations.

2. Create or select backup policies.

   Policies define the backup type, frequency, retention, and replication.

Note: For SnapCenter Plug-in for VMware vSphere, before creating policies or resource groups you must use the VMware vSphere web client GUI to add the SVMs on which the VMs are located. In the VMware vSphere web client GUI, click **Storage Systems** > **Add Storage System** and complete the wizard.

To create policies for...	Do the following...
SnapCenter Plug-in for VMware vSphere (for VM and datastore host-level backups)	**a.** In the VMware vSphere web client GUI, click **Policies**, then click **New Policy** in the toolbar. **b.** Enter the required information on each page of the wizard.
All other plug-ins (for application-consistent backups)	**a.** In the SnapCenter GUI, click **Settings** > **Policies** > **New**. **b.** Enter the required information on each page of the wizard.

3. Create resource groups, attach policies, and create schedules.

   Resource groups define the resources to be backed up, the policy to be used, and the backup schedule.

To create resource groups for...	Do the following...
SnapCenter Plug-in for VMware vSphere (for VM and datastore host-level backups)	**a.** In the VMware vSphere web client GUI, click **Resource Groups** and then click (Create Resource Group). **b.** Enter the required information on each page of the wizard.
All other plug-ins (for application-consistent backups)	**a.** In the SnapCenter GUI, click **Resources**, select a plug-in, then select either **Database** or **File Systems** from the **View** drop-down list. **b.** Click **New Resource Group**, and then enter the required information on each page of the wizard.

4. Run backups.

   Resources in resource groups are automatically backed up according to the policies and schedules that are associated with the resource group. You can also backup individual resources or resource groups on demand.

To run backups for...	Do the following...
SnapCenter Plug-in for VMware vSphere (for VM and datastore host-level backups)	**a.** In the VMware vSphere web client GUI, click  in the toolbar, and then select **SnapCenter Plug-in for VMware** from the drop-down list. **b.** In the left Navigator pane, click **Resource Groups**, then click the **Objects** tab. **c.** Select the resource group you want to back up, and then click  (Run Now) in the toolbar. **d.** If the resource group has multiple policies configured, then in the Backup Now dialog box, select the policy you want to use, and then click **Yes**. **e.** Click **OK** to start the backup. **Note:** You can only back up resource groups, not individual VMs.
All other plug-ins (for application-consistent backups)	**a.** In the SnapCenter GUI, click **Resources**, select a plug-in, then select the type of resource from the **View** drop-down list. **b.** Select one or more specific resources to back up, and then enter the required information on each page of the wizard.

5. If needed, restore backups.

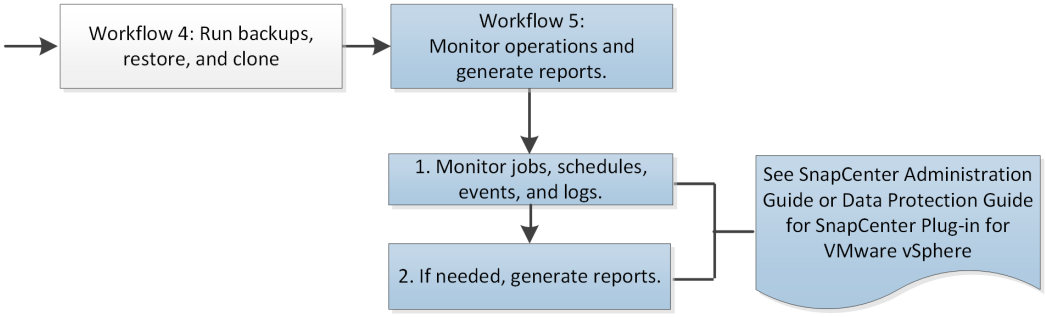
   In the event of data loss, you can restore data from one or more backups to your active file system. File system restore operations copy data from a specified backup to the original location of the file system. Database restore operations copy data and logs to a specified database.

6. If needed, clone backups.

   Clone operations create a copy of a backup.

Workflow 5: Monitor operations and generate reports

About this task



The steps in this workflow are condensed and simplified. Details about each step are included in the appropriate documentation.

Performing administrative tasks

Protecting VMs and datastores

Steps

1. Monitor jobs, schedules, events, and logs.

To monitor jobs, schedules, events, and logs for...	Do the following...
SnapCenter Plug-in for VMware vSphere	**a.** In the VMware vSphere web client GUI, click **Dashboard** > **Job Monitor**. **b.** Double-click a job to view job details. **c.** Click ↻ (refresh icon) to refresh the display on-demand or while the job is running.
All other plug-ins	**a.** In the SnapCenter GUI, click **Monitor** then click what you want to monitor: **Jobs**, **Schedules**, **Events**, or **Logs**. **b.** To monitor jobs, select the job type, the status, and click **Apply**. Then, select a backup and click **Details**.

2. Generate reports.

To generate reports for...	Do the following...
SnapCenter Plug-in for VMware vSphere	**a.** In the VMware vSphere web client GUI, click **Dashboard > Status**. **b.** Click a pie slice in the chart. **c.** Double-click a job to generate a detailed report for that job.
All other plug-ins	**a.** In the SnapCenter GUI, click **Dashboard**, select a plug-in from the list, then click a pie slice in the chart. **b.** On the Reports tab, configure your report, then click **Apply**.

Copyright

Trademark

How to send comments about documentation and receive update notifications

You can help us to improve the quality of our documentation by sending us your feedback. You can receive automatic notification when production-level (GA/FCS) documentation is initially released or important changes are made to existing production-level documents.

If you have suggestions for improving this document, send us your comments by email.

doccomments@netapp.com

To help us direct your comments to the correct division, include in the subject line the product name, version, and operating system.

If you want to be notified automatically when production-level documentation is released or important changes are made to existing production-level documents, follow Twitter account @NetAppDoc.

You can also contact us in the following ways:

- NetApp, Inc., 1395 Crossman Ave., Sunnyvale, CA 94089 U.S.
- Telephone: +1 (408) 822-6000
- Fax: +1 (408) 822-4501
- Support telephone: +1 (888) 463-8277