Install SnapCenter Plug-in for Microsoft Windows

SnapCenter Software 4.5

NetApp
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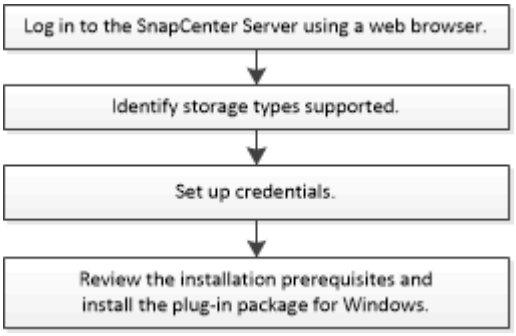
Install SnapCenter Plug-in for Microsoft Windows

Installation workflow of SnapCenter Plug-in for Microsoft Windows

You must install and set up SnapCenter Plug-in for Microsoft Windows if you want to protect Windows files that are not database files.



Installation requirements for SnapCenter Plug-in for Microsoft Windows

You should be aware of certain installation requirements before you install the Plug-in for Windows.

Before you begin to use the Plug-in for Windows, the SnapCenter administrator must install and configure SnapCenter Server and perform prerequisite tasks.

- You must have SnapCenter admin privileges to install the Plug-in for Windows.

  The SnapCenter admin role must have admin privileges.

- You must have installed and configured the SnapCenter Server.
- When installing a plug-in on a Windows host, if you specify a credential that is not built-in or if the user belongs to a local workgroup user, you must disable UAC on the host.
- You must set up SnapMirror and SnapVault if you want backup replication.

Host requirements to install SnapCenter Plug-ins Package for Windows

Before you install the SnapCenter Plug-ins Package for Windows, you should be familiar with some basic host system space requirements and sizing requirements.

Item	Requirements
Operating Systems	Microsoft Windows For the latest information about supported versions, see the NetApp Interoperability Matrix Tool.
Minimum RAM for the SnapCenter plug-in on host	1 GB
Minimum install and log space for the SnapCenter plug-in on host	5 GB You should allocate sufficient disk space and monitor the storage consumption by the logs folder. The log space required varies depending on the number of the entities to be protected and the frequency of data protection operations. If there is no sufficient disk space, the logs will not be created for the recently run operations.
Required software packages	• Microsoft .NET Framework 4.5.2 or later • Windows Management Framework (WMF) 4.0 or later • PowerShell 4.0 or later For the latest information about supported versions, see the NetApp Interoperability Matrix Tool.

Set up your credentials for the Plug-in for Windows

SnapCenter uses credentials to authenticate users for SnapCenter operations. You should create credentials for installing SnapCenter plug-ins, and additional credentials for performing data protection operations on Windows file systems.

What you will need

- You must set up Windows credentials before installing plug-ins.
- You must set up the credentials with administrator privileges, including administrator rights, on the remote host.
- If you set up credentials for individual resource groups, and the user does not have full admin privileges, you must assign at least the resource group and backup privileges to the user.

Steps

1. In the left navigation pane, click **Settings**.
2. In the Settings page, click **Credential**.
3. Click **New**.

4. In the Credential page, do the following:

For this field…	Do this…
Credential name	Enter a name for the credentials.
User name/Password	Enter the user name and password used for authentication. • Domain administrator or any member of the administrator group Specify the domain administrator or any member of the administrator group on the system on which you are installing the SnapCenter plug-in. Valid formats for the Username field are as follows: ◦ `NetBIOS\UserName` ◦ `Domain FQDN\UserName` ◦ `UserName@upn` • Local administrator (for workgroups only) For systems that belong to a workgroup, specify the built-in local administrator on the system on which you are installing the SnapCenter plug-in. You can specify a local user account that belongs to the local administrators group if the user account has elevated privileges or the User Access control feature is disabled on the host system. The valid format for the Username field is as follows: `UserName` Do not use double quotes (") or backtick (`) in the passwords. You should not use the less than (<) and exclamation (!) symbols together in passwords. For example, lessthan<!10, lessthan10<!, backtick`12.
Password	Enter the password used for authentication.

5. Click **OK**.

   After you finish setting up credentials, you might want to assign credential maintenance to a user or group of users on the **User and Access** page.

Configure gMSA on Windows Server 2012 or later

Windows Server 2012 or later enables you to create a group Managed Service Account (gMSA) that provides automated service account password management from a managed domain account.

What you will need

- You should have a Windows Server 2012 or later domain controller.
- You should have a Windows Server 2012 or later host, which is a member of the domain.

Steps

1. Create a KDS root key to generate unique passwords for each object in your gMSA.
2. For each domain, run the following command from the Windows domain controller: Add-KDSRootKey -EffectiveImmediately
3. Create and configure your gMSA:
   a. Create a user group account in the following format:

      ```
      domainName\accountName$
      ```

   b. Add computer objects to the group.
   c. Use the user group you just created to create the gMSA.

      For example,

      ```
      New-ADServiceAccount -name <ServiceAccountName> -DNSHostName <fqdn>
      -PrincipalsAllowedToRetrieveManagedPassword <group>
      -ServicePrincipalNames <SPN1,SPN2,…>
      ```

   d. Run `Get-ADServiceAccount` command to verify the service account.
4. Configure the gMSA on your hosts:
   a. Enable the Active Directory module for Windows PowerShell on the host where you want to use the gMSA account.

      To do this, run the following command from PowerShell:

```
PS C:\> Get-WindowsFeature AD-Domain-Services

Display Name                            Name                Install
State
------------                            ----
-------------
[ ] Active Directory Domain Services   AD-Domain-Services  Available


PS C:\> Install-WindowsFeature AD-DOMAIN-SERVICES

Success Restart Needed Exit Code      Feature Result
------- -------------- ---------      --------------
True    No             Success        {Active Directory Domain
Services, Active ...
WARNING: Windows automatic updating is not enabled. To ensure that
your newly-installed role or feature is
automatically updated, turn on Windows Update.
```

b. Restart your host.

c. Install the gMSA on your host by running the following command from the PowerShell command prompt: `Install-AdServiceAccount <gMSA>`

d. Verify your gMSA account by running the following command: `Test-AdServiceAccount <gMSA>`

5. Assign the administrative privileges to the configured gMSA on the host.
6. Add the Windows host by specifying the configured gMSA account in the SnapCenter Server.

   SnapCenter Server will install the selected plug-ins on the host and the specified gMSA will be used as the service log on account during the plug-in installation.

Configure gMSA on Windows Server 2012 or later

Windows Server 2012 or later enables you to create a group Managed Service Account (gMSA) that provides automated service account password management from a managed domain account.

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Steps

1. Create a KDS root key to generate unique passwords for each object in your gMSA.
2. For each domain, run the following command from the Windows domain controller: Add-KDSRootKey -EffectiveImmediately
3. Create and configure your gMSA:

a. Create a user group account in the following format:

```
domainName\accountName$
```

b. Add computer objects to the group.

c. Use the user group you just created to create the gMSA.

For example,

```
New-ADServiceAccount -name <ServiceAccountName> -DNSHostName <fqdn>
-PrincipalsAllowedToRetrieveManagedPassword <group>
-ServicePrincipalNames <SPN1,SPN2,…>
```

d. Run `Get-ADServiceAccount` command to verify the service account.

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To do this, run the following command from PowerShell:

```
PS C:\> Get-WindowsFeature AD-Domain-Services

Display Name                            Name                Install
State
------------                            ----
-------------
[ ] Active Directory Domain Services   AD-Domain-Services  Available


PS C:\> Install-WindowsFeature AD-DOMAIN-SERVICES

Success Restart Needed Exit Code      Feature Result
------- -------------- ---------      --------------
True    No             Success        {Active Directory Domain
Services, Active ...
WARNING: Windows automatic updating is not enabled. To ensure that
your newly-installed role or feature is
automatically updated, turn on Windows Update.
```

b. Restart your host.

c. Install the gMSA on your host by running the following command from the PowerShell command prompt: `Install-AdServiceAccount <gMSA>`

d. Verify your gMSA account by running the following command: `Test-AdServiceAccount <gMSA>`

5. Assign the administrative privileges to the configured gMSA on the host.
6. Add the Windows host by specifying the configured gMSA account in the SnapCenter Server.

   SnapCenter Server will install the selected plug-ins on the host and the specified gMSA will be used as the service log on account during the plug-in installation.

Add hosts and install SnapCenter Plug-in for Microsoft Windows

You can use the SnapCenter Add Host page to add Windows hosts. The SnapCenter Plug-in for Microsoft Windows is automatically installed on the specified host. This is the recommended method for installing plug-ins. You can add a host and install a plug-in either for an individual host or a cluster.

What you will need

- You must be a user that is assigned to a role that has the plug-in install and uninstall permissions, such as the SnapCenter Admin role.
- When installing a plug-in on a Windows host, if you specify a credential that is not built-in or if the user belongs to a local workgroup user, you must disable UAC on the host.
- The SnapCenter user should be added to the “Log on as a service” role of the Windows Server.
- You should ensure that the message queueing service is in running state.
- If you are using group Managed Service Account (gMSA), you should configure gMSA with administrative privileges.

  Configure group Managed Service Account on Windows Server 2012 or later for Windows File System

About this task

- You cannot add a SnapCenter Server as a plug-in host to another SnapCenter Server.
- Windows plug-ins
  - Microsoft Windows
  - Microsoft Exchange Server
  - Microsoft SQL Server
  - SAP HANA
  - Custom plug-ins
- Installing plug-ins on a cluster

  If you install plug-ins on a cluster (WSFC, Oracle RAC, or Exchange DAG), they are installed on all of the nodes of the cluster.

- E-series storage

  You cannot install the Plug-in for Windows on a Windows host connected to E-series storage.

Steps

1. In the left navigation pane, click **Hosts**.
2. Ensure that **Managed Hosts** is selected at the top.
3. Click **Add**.
4. On the Hosts page, do the following:

For this field…	Do this…
Host Type	Select the **Windows** type of host. SnapCenter Server adds the host and then installs the Plug-in for Windows if it is not already installed on the host.
Host name	Enter the fully qualified domain name (FQDN) or the IP address of the host. SnapCenter depends on the proper configuration of the DNS. Therefore, the best practice is to enter the fully qualified domain name (FQDN). You can enter the IP addresses or FQDN of one of the following: • Stand-alone host • Windows Server Failover Clustering (WSFC) If you are adding a host using SnapCenter and it is part of a subdomain, you must provide the FQDN.
Credentials	Select the credential name that you created or create the new credentials. The credential must have administrative rights on the remote host. For details, see information about creating a credential. Details about credentials, including the user name, domain, and host type, are displayed by placing your cursor over the credential name you provided. The authentication mode is determined by the host type that you specify in the Add Host wizard.

5. In the Select Plug-ins to Install section, select the plug-ins to install.

   For new deployments, no plug-in packages are listed.

6. (Optional) Click **More Options**.

For this field…	Do this…
Port	Either retain the default port number or specify the port number. The default port number is 8145. If the SnapCenter Server was installed on a custom port, that port number will be displayed as the default port. If you manually installed the plug-ins and specified a custom port, you must specify the same port. Otherwise, the operation fails.
Installation Path	The default path is C:\Program Files\NetApp\SnapCenter. You can optionally customize the path. For SnapCenter Plug-ins Package for Windows, the default path is C:\Program Files\NetApp\SnapCenter. However, if you want, you can customize the default path.
Add all hosts in the cluster	Select this check box to add all of the cluster nodes in a WSFC.
Skip preinstall checks	Select this check box if you already installed the plug-ins manually and you do not want to validate whether the host meets the requirements for installing the plug-in.
Use group Managed Service Account (gMSA) to run the plug-in services	Select this check box if you want to use group Managed Service Account (gMSA) to run the plug-in services. Provide the gMSA name in the following format: *domainName\accountName$*. gMSA will be used as a log on service account only for SnapCenter Plug-in for Windows service.

7. Click **Submit**.

   If you have not selected the **Skip prechecks** checkbox, the host is validated to see whether it meets the requirements to install the plug-in. The disk space, RAM, PowerShell version, .NET version, and location are validated against the minimum requirements. If the minimum requirements are not met, appropriate error or warning messages are displayed.

   If the error is related to disk space or RAM, you can update the web.config file located at `C:\Program Files\NetApp\SnapCenter` WebApp to modify the default values. If the error is related to other

parameters, you must fix the issue.

> In an HA setup, if you are updating web.config file, you must update the file on both nodes.

8. Monitor the installation progress.

Install SnapCenter Plug-in for Microsoft Windows on multiple remote hosts using PowerShell cmdlets

If you want to install SnapCenter Plug-in for Microsoft Windows on multiple hosts at one time, you can do so by using the `Install-SmHostPackage` PowerShell cmdlet.

You must have logged in to SnapCenter as a domain user with local administrator rights on each host on which you want to install plug-ins.

Steps

1. Launch PowerShell.
2. On the SnapCenter Server host, establish a session using the `Open-SmConnection` cmdlet, and then enter your credentials.
3. Add the standalone host or the cluster to SnapCenter using the `Add-SmHost` cmdlet and the required parameters.

   The information regarding the parameters that can be used with the cmdlet and their descriptions can be obtained by running *Get-Help command_name*. Alternatively, you can also refer to the SnapCenter Software Cmdlet Reference Guide.

4. Install the plug-in on multiple hosts using the `Install-SmHostPackage` cmdlet and the required parameters.

   You can use the `-skipprecheck` option when you have installed the plug-ins manually and do not want to validate whether the host meets the requirements to install the plug-in.

Install the SnapCenter Plug-in for Microsoft Windows silently from the command line

You can install the SnapCenter Plug-in for Microsoft Windows locally on a Windows host if you are unable to install the plug-in remotely from the SnapCenter GUI. You can run the SnapCenter Plug-in for Microsoft Windows installation program unattended, in silent mode, from the Windows command line.

What you will need

- You must have installed Microsoft .Net 4.5.2 or later.
- You must have installed PowerShell 4.0 or later.
- You must have turned on Windows message queuing.
- You must be a local administrator on the host.

Steps

1. Download the SnapCenter Plug-in for Microsoft Windows from your install location.

   For example, the default installation path is C:\ProgramData\NetApp\SnapCenter\Package Repository.

   This path is accessible from the host where the SnapCenter Server is installed.

2. Copy the installation file to the host on which you want to install the plug-in.
3. From the command prompt, navigate to the directory where you downloaded the installation file.
4. Enter the following command, replacing variables with your data:

   ```
   "snapcenter_windows_host_plugin.exe"/silent / debuglog"" /log""
   BI_SNAPCENTER_PORT= SUITE_INSTALLDIR="" BI_SERVICEACCOUNT= BI_SERVICEPWD=
   ISFeatureInstall=SCW
   ```

   For example:

   ```
   `"C:\ProgramData\NetApp\SnapCenter\Package Repository
   \snapcenter_windows_host_plugin.exe"/silent /debuglog"C:
   \HPPW_SCW_Install.log" /log"C:\" BI_SNAPCENTER_PORT=8145
   SUITE_INSTALLDIR="C: \Program Files\NetApp\SnapCenter"
   BI_SERVICEACCOUNT=domain\administrator BI_SERVICEPWD=password
   ISFeatureInstall=SCW`
   ```

   All the parameters passed during the installation of Plug-in for Windows are case sensitive.

   Enter the values for the following variables:

Variable	Value
/debuglog"<Debug_Log_Path>	Specify the name and location of the suite installer log file, as in the following example: Setup.exe /debuglog"C:\PathToLog\setupexe.log".
BI_SNAPCENTER_PORT	Specify the port on which SnapCenter communicates with SMCore.
SUITE_INSTALLDIR	Specify host plug-in package installation directory.
BI_SERVICEACCOUNT	Specify SnapCenter Plug-in for Microsoft Windows web service account.
BI_SERVICEPWD	Specify the password for SnapCenter Plug-in for Microsoft Windows web service account.
ISFeatureInstall	Specify the solution to be deployed by SnapCenter on remote host.

The *debuglog* parameter includes the path of the log file for SnapCenter. Writing to this log file is the preferred method of obtaining troubleshooting information, because the file contains the results of checks that the installation performs for plug-in prerequisites.

If necessary, you can find additional troubleshooting information in the log file for the SnapCenter for Windows package. Log files for the package are listed (oldest first) in the *%Temp%* folder, for example, *C:\temp*\.

The installation of Plug-in for Windows registers the plug-in on the host and not on the SnapCenter Server. You can register the plug-in on the SnapCenter Server by adding the host using the SnapCenter GUI or PowerShell cmdlet. After the host is added, the plug-in is automatically discovered.

Monitor SnapCenter plug-in package installation status

You can monitor the progress of SnapCenter plug-in package installation by using the Jobs page. You might want to check the progress of installation to determine when it is complete or if there is an issue.

About this task

The following icons appear on the Jobs page and indicate the state of the operation:

- In progress
- Completed successfully
- Failed
- Completed with warnings or could not start due to warnings
- Queued

Steps

1. In the left navigation pane, click **Monitor**.
2. In the **Monitor** page, click **Jobs**.
3. On the **Jobs** page, to filter the list so that only plug-in installation operations are listed, do the following:
   a. Click **Filter**.
   b. Optional: Specify the start and end date.
   c. From the Type drop-down menu, select **Plug-in installation**.
   d. From the Status drop-down menu, select the installation status.
   e. Click **Apply**.
4. Select the installation job and click **Details** to view the job details.
5. In the **Job Details** page, click **View logs**.

Configure CA certificate

Generate CA Certificate CSR file

You can generate a Certificate Signing Request (CSR) and import the certificate that can be obtained from a Certificate Authority (CA) using the generated CSR. The certificate will have a private key associated with it.

CSR is a block of encoded text that is given to an authorized certificate vendor to procure the signed CA certificate.

For information to generate a CSR, see How to generate CA Certificate CSR file.

> If you own the CA certificate for your domain (*.domain.company.com) or your system (machine1.domain.company.com), you can skip generating the CA Certificate CSR file. You can deploy the existing CA certificate with SnapCenter.

For cluster configurations, the cluster name (virtual cluster FQDN), and the respective host names should be mentioned in the CA certificate. The certificate can be updated by filling the Subject Alternative Name (SAN) field before procuring the certificate. For a wild card certificate (*.domain.company.com), the certificate will contain all the hostnames of the domain implicitly.

Import CA certificates

You must import the CA certificates to the SnapCenter Server and the Windows host plug-ins using the Microsoft management console (MMC).

Steps

1. Go to the Microsoft management console (MMC), and then click **File** > **Add/Remove Snapin**.
2. In the **Add or Remove Snap-ins** window, select **Certificates** and then click **Add**.
3. In the **Certificates snap-in** window, select the **Computer account** option, and then click **Finish**.
4. Click **Console Root** > **Certificates – Local Computer** > **Trusted Root Certification Authorities** > **Certificates**.
5. Right-click on the folder “Trusted Root Certification Authorities”, and then select **All Tasks** > **Import** to start the import wizard.
6. Complete the wizard, as follows:

In this wizard window…	Do the following…
Import Private Key	Select the option **Yes**, import the private key, and then click **Next**.
Import File Format	Make no changes; click **Next**.
Security	Specify the new password to be used for the exported certificate, and then click **Next**.
Completing the Certificate Import Wizard	Review the summary, and then click **Finish** to start the import.

Importing certificate should be bundled with the private key (supported formats are: *.pfx, *.p12, *.p7b).

7. Repeat Step 5 for the “Personal” folder.

Get the CA certificate thumbprint

A certificate thumbprint is a hexadecimal string that identifies a certificate. A thumbprint is calculated from the content of the certificate using a thumbprint algorithm.

Steps

1. Perform the following on the GUI:
   a. Double-click the certificate.
   b. In the Certificate dialog box, click the **Details** tab.
   c. Scroll through the list of fields and click **Thumbprint**.
   d. Copy the hexadecimal characters from the box.
   e. Remove the spaces between the hexadecimal numbers.

      For example, if the thumbprint is: "a9 09 50 2d d8 2a e4 14 33 e6 f8 38 86 b0 0d 42 77 a3 2a 7b", after removing the spaces, it will be: "a909502dd82ae41433e6f83886b00d4277a32a7b".

2. Perform the following from PowerShell:
   a. Run the following command to list the thumbprint of the installed certificate and identify the recently installed certificate by the subject name.

      Get-ChildItem -Path Cert:\LocalMachine\My

   b. Copy the thumbprint.

Configure CA certificate with Windows host plug-in services

You should configure the CA certificate with Windows host plug-in services to activate the installed digital certificate.

Perform the following steps on the SnapCenter Server and all the plug-in hosts where CA certificates are already deployed.

Steps

1. Remove the existing certificate binding with SMCore default port 8145, by running the following command:

   `> netsh http delete sslcert ipport=0.0.0.0:_<SMCore Port>`

   For example:

   ```
   > netsh http delete sslcert ipport=0.0.0.0:8145
   ```

2. Bind the newly installed certificate with the Windows host plug-in services, by running the following

commands:

```
> $cert = "<certificate thumbprint>"

> $guid = [guid]::NewGuid().ToString("B")

> netsh http add sslcert ipport=0.0.0.0: <SMCore Port> certhash=$cert
appid="$guid"
```

For example:

```
> $cert = "a909502dd82ae41433e6f83886b00d4277a32a7b"
> $guid = [guid]::NewGuid().ToString("B")
> netsh http add sslcert ipport=0.0.0.0:8145 certhash=$cert
appid="$guid"
```

Enable CA Certificates for plug-ins

You should configure the CA certificates and deploy the CA certificates in the SnapCenter Server and the corresponding plug-in hosts. You should enable the CA certificate validation for the plug-ins.

What you will need

- You can enable or disable the CA certificates using the run *Set-SmCertificateSettings* cmdlet.
- You can display the certificate status for the plug-ins using the *Get-SmCertificateSettings*.

The information regarding the parameters that can be used with the cmdlet and their descriptions can be obtained by running *Get-Help command_name*. Alternatively, you can also refer to the SnapCenter Software Cmdlet Reference Guide.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Managed Hosts**.
3. Select single or multiple plug-in hosts.
4. Click **More options**.
5. Select **Enable Certificate Validation**.

After you finish

The Managed Hosts tab host displays a padlock and the color of the padlock indicates the status of the connection between SnapCenter Server and the plug-in host.

- indicates that the CA certificate is neither enabled nor assigned to the plug-in host.
- indicates that the CA certificate is successfully validated.
- indicates that the CA certificate could not be validated.
- indicates that the connection information could not be retrieved.

When the status is yellow or green, the data protection operations completes successfully.

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