

Veritas™ Cluster Server Agent for Microsoft Sharepoint® 2010 Search Service Application Configuration Guide

Windows Server 2008 (x64), Windows
Server 2008 R2 (x64)

6.0.1

Veritas Cluster Server Agent for SharePoint 2010 Search Service Application Configuration Guide

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Introducing the VCS agent for SharePoint Search Service Application

This chapter includes the following topics:

- [About the VCS agent for SharePoint Search service application configuration guide](#)
- [About the SharePoint Search service application](#)
- [About the VCS agent for SharePoint Search service application](#)

About the VCS agent for SharePoint Search service application configuration guide

This guide describes how to configure a Microsoft SharePoint 2010 Search service application with Veritas Cluster Server (VCS) for Windows or Storage Foundation HA for Windows (SFW HA) for high availability.

For related information about SQL Server, refer to the *Veritas Storage Foundation and High Availability Solutions HA and Disaster Recovery Solutions Guide for Microsoft SQL Server 2008 and 2008 R2*.

About the SharePoint Search service application

A SharePoint Search service application is used to create indexes and to service search requests. The application crawls the contents of websites and creates an index, which is used to serve the client requests for search.

A Search service application contains the following components:

- **Admin**
This component stores the configuration data and security descriptors. Each Search service application instance can only have one Admin component.
- **Crawl (Crawl Server or Indexer)**
This component crawls (accesses and catalogs) the associated website contents and creates the index. It propagates the index files to Query Server. After propagating all the index files, they are removed the Crawler.
- **Query (Query Server)**
This component is are responsible for serving search queries. A Query Server is a server that runs one or more Query components. Query Servers store the full or partial search index.

About the VCS agent for SharePoint Search service application

VCS application agents monitor specific resources within an enterprise application. The VCS agent for Microsoft SharePoint 2010 Search service application provides high availability for the Search service application in a VCS cluster.

The VCS agent monitors the 'SharePoint Server Search 14' service and the following application components:

- **Admin**
- **Crawl**
- **Query**

How the VCS agent makes SharePoint Search service application highly available

When the agent detects a system failure, the application service group switches to the next available system listed in the service group's SystemList attribute. VCS starts the configured application on the new system and brings the components online, thus ensuring high availability. For example, if the node on which the Search service application Admin component is running faults, the agent brings the Admin component online on the failover node.

If a configured component fails, the agent reports its status as UNKNOWN. An administrator can then intervene and troubleshoot the problem with the component.

Note: A Search service application with FAST Search is not supported.

VCS agent for SharePoint Search service application - functions

Agent functions include the following:

Online	Starts the configured application and its components.
Monitor	Verifies the status of the configured application components, and accordingly reports the status of the resources as follows: <ul style="list-style-type: none">■ If a component is Ready, the agent reports ONLINE.■ If a component is Disabled, the agent reports UNKNOWN.
Offline	Stops monitoring the Search service application and its components, but does not take the application offline.

VCS agent for SharePoint Search service application - state definitions

Agent state definitions are as follows:

ONLINE	Indicates that the configured application components are running on the cluster node.
OFFLINE	Indicates that the agent is not currently monitoring the application components.
FAULTED	Indicates that the agent is unable to start the configured application components on the cluster node.
UNKNOWN	Indicates that the agent is unable to determine the status of the configured application components on the cluster node. This state is also reported when the component's status is anything other than Enabled or Ready.

Installing and configuring the Symantec High Availability solution

This chapter includes the following topics:

- [About installing VCS agents](#)
- [About configuring the cluster](#)

About installing VCS agents

Install VCS for Windows or SFW HA on all the systems where you want to configure the application. During installation, the product installer installs the VCS agents required for making the applications highly available.

You must install the VCS agents before configuring the application with VCS for Windows or SFW HA.

Refer to the appropriate guide for instructions:

- *Veritas Cluster Server Installation and Upgrade Guide*
- *Veritas Storage Foundation and High Availability Solutions Installation and Upgrade Guide*

About configuring the cluster

After installing the software, set up the components required to run VCS for Windows or SFW HA.

The VCS Cluster Configuration Wizard (VCW) sets up the cluster infrastructure, including LLT and GAB, the user account for the VCS Helper service, and provides an option for configuring the Symantec Product Authentication Service in the cluster. The wizard also configures the ClusterService group, which contains resources for notification and global clusters (GCO). You can also use VCW to modify or delete cluster configurations.

Refer to the appropriate guide for instructions:

- *Veritas Cluster Server Administrator's Guide*
- *Veritas Storage Foundation and High Availability Solutions - Solutions Guide*

Configuring the SharePoint Search Service Application service group

This chapter includes the following topics:

- [Prerequisites for configuring a service group for a SharePoint Search service application](#)
- [Installing and configuring SharePoint Server 2010](#)
- [Changing the index location of the Crawl and Query components](#)
- [Configuring a service group for a SharePoint Search service application manually](#)
- [Configuring the service group for a Search service application using the wizard](#)
- [Verifying the application service group](#)
- [Configuring a Search service application for disaster recovery](#)

Prerequisites for configuring a service group for a SharePoint Search service application

Before you configure the service group for a SharePoint Search service application, make sure that you have completed the following activities:

- Install SFW HA 6.0.1 or VCS 6.0.1 for Windows.
See [“About installing VCS agents”](#) on page 13.
- Configure the cluster.

See [“About configuring the cluster”](#) on page 13.

- Ensure that you have installed Agent Pack Q4 2012.
See the *Veritas Cluster Server 6.0.1 Agent Pack Readme*.
- Install Microsoft SharePoint 2010 and configure the shared storage to be used for high availability.
See [“Installing and configuring SharePoint Server 2010”](#) on page 16.
- Create the SharePoint Search service application (or edit an existing application) that you want to configure for high availability.
- Change the index location of the Crawl and Query components from the default location to that on the shared storage.
See [“Changing the index location of the Crawl and Query components”](#) on page 17.
- Ensure that the Search Query and Site Settings service is running on all the cluster nodes that will be part of the service group.
The Search Query and Site Settings service is an Internet Information Services (IIS) service. By default, this service runs on each server that includes a search query component. The service manages the query processing tasks, which include sending queries to one or more of the appropriate query components and building the results set. At least one instance of the service must be running to serve queries.
- Ensure that the SharePoint Server Search 14 Windows service is configured to run under the SharePoint FarmAdmin credentials.

Installing and configuring SharePoint Server 2010

Install Microsoft SharePoint Server 2010 and configure the farm.

For installation and configuration instructions, see the Microsoft SharePoint Server documentation.

Before you proceed, note the following:

- Symantec recommends that you first configure SQL Server for high availability before configuring SharePoint Server 2010.
- While installing SharePoint Server, ensure that you select **Server Farm** installation and then select **Complete** installation (Microsoft SharePoint Server 2010 installer > **Server Type** tab).

Note: The **Stand-alone** Server Type installation is not supported.

- During configuration, for the database server name for the farm configuration database, specify the SQL Server that you configured for high availability earlier.

Changing the index location of the Crawl and Query components

By default, the indexes of the SharePoint Search service application components are stored on the local disk. Before you create a corresponding application service group, you must change the index location of each Crawl and Query component to the shared storage.

To change the index location

- 1 From the Start menu, launch the SharePoint 2010 Central Administration web page.
- 2 In the Application Management section, click **Manage service applications**.
- 3 Select the required Search service application, and click the **Manage** button.

- 4
- On the Search Administration page, click the **Modify** button for Search Application Topology.

Search Application Topology

Current

Modify

Category	Server Name	Status
Admin		
Administration Component	SPS_R2_N2	Online
Crawl - VCSW2K284\NEWSQL\NewSearch_CrawlStoreDB_4127603b599f4696a8bb8b1d30dae83		
Crawl Component 0	SPS_R2_N2	Online
Databases		
Administration Database : NewSearch_DB_f94c45e9ed9d46c68af68b62da7ff0cb	VCSW2K284 \NEWSQL	
Crawl Database : NewSearch_CrawlStoreDB_4127603b599f4696a8bb8b1d30dae83	VCSW2K284 \NEWSQL	
Property Database : NewSearch_PropertyStoreDB_eebf2176ed3546d58b2797a431d6dd7c	VCSW2K284 \NEWSQL	
Index Partition - 0 - VCSW2K284\NEWSQL\NewSearch_PropertyStoreDB_eebf2176ed3546d58b2797a431d6dd7c		
Query Component 0	SPS_R2_N2	Online

- 5 For each Crawl or Query component that you want to configure under VCS, select the component and click the **Edit Properties** menu to change its Index location.

Central Administration ► Manage Search Topology

Use this page to add, remove, or modify components of the topology of this Search Service Application.

Topology for Search Service Application: NewSearch

[Learn more about search topology](#)

New ▼
 View ▼

Category	Server Name	Pending Changes
Admin		
Administration Component	SPS_R2_N2	
Crawl - VCSW2K284\NEWSQL\NewSearch_CrawlStoreDB_4127603b599f4696a8bb8b1d30dae83		
Crawl Component 0	SPS_R2_N2	
Databases		
Administration Database : NewSearch_DB_f94c45e9ed9d46c68af68b62da7ff0cb	VCSW2K284\NEWSQL	
Crawl Database : NewSearch_CrawlStoreDB_4127603b599f4696a8bb8b1d30dae83	VCSW2K284\NEWSQL	
Property Database : NewSearch_PropertyStoreDB_eebf2176ed3546d58b2797a431d6dd7c	VCSW2K284\NEWSQL	
Index Partition - 0 - VCSW2K284\NEWSQL\NewSearch_PropertyStoreDB_eebf2176ed3546d58b2797a431d6dd7c		
<div> <div>Query Component 0</div> <div> Edit Properties Add Mirror Delete </div> </div>	SPS_R2_N2	<div> <div>Apply Topology Changes</div> <div>Cancel</div> </div>

- 6 On the Edit Query Component dialog box, change the default value in the Location of Index field to the shared storage path.

The screenshot shows the 'Edit Query Component' dialog box with the following fields and options:

- Server:** Select a server to host this query component. The dropdown menu shows 'SPS_R2_N2'.
- Associated Property Database:** Select the property database to associate with this query component. The dropdown menu shows 'VCSW2K284\NEWSQLNewSearch_'.
- Location of Index:** Specify the location on this server that will be used for storage of the index files after receiving them from the crawl components. The space used for the index files will increase with the number of items in an index partition. The text box contains 'Q:\QueryIndexComp' and is highlighted with a green border.
- Failover-only Query Component:** Set this query component as failover-only. A failover-only query component will receive queries only in the event of a failure of the primary query component in the same index partition. There is an unchecked checkbox labeled 'Set this query component as failover-only'.

At the bottom of the dialog box are 'OK' and 'Cancel' buttons.

- 7 Click the **OK** button to close the dialog box.
- 8 Click the **Apply Topology Changes** button to save the changes.

Configuring a service group for a SharePoint Search service application manually

Use Veritas Cluster Manager (Java Console) to add a new service group for a SharePoint Search service application.

For information about using the Veritas Cluster Manager, see the *Veritas Cluster Server Administrator's Guide*.

To configure the application service group manually

- 1 Create a service group by providing the following values:
 - Service group name
 - Systems that will be part of the service group for the Search service application
 - Service group type

The service group should be of the type **Failover**.

■ Service group template

In the SWFHA environment, select the **SharepointSearch-VMGroup** template.

In the VCS environment, select **SharepointSearch-NetAppGroup** template.

- 2 Launch the SharePoint 2010 Management Shell, and execute the following PowerShell script:

```
C:\Program Files\Veritas\Cluster  
Server\bin\SharePointSearch\SearchServiceAppDetails.ps1
```

Provide the application name as input. The script retrieves the details of the Search service application components and displays them on the screen. These details include the property values of the Admin, Crawl, and Query components. Some of these values are to be used as attribute values for the agent resources.

The following graphic depicts a sample output of the script.

```

Administrator: SharePoint 2010 Management Shell
PS C:\Program Files\Veritas\cluster server\bin\SharePointSearch> .\SearchService
AppDetails.ps1
Please enter the Search Application Name:: NewSearch

Getting Details about Search Application.....

Details of SharePoint Search application NewSearch
-----
NewSearch is Online
Admin Component is on server UCSW2K287
Location for Temp Index Storage for Admin Component is on server C:\Program Fil
es\Microsoft Office Servers\14.0\Data\Office Server\Applications
Admin DatabaseName : NewSearch_DB_f94c45e9ed9d46c68af68b62da7ff0cb

Crawl Components Details
-----
Number of Crawl Components : 1
Name of Crawl Components :
CrawlComponent ID : 422a3a73-9d3d-4dd1-b411-ec187975af7c
CrawlComponent Name : cce65f70-1747-42b7-b877-bb82db4b0a68-crawl-1
CrawlComponent Server is SPS_R2_M2
CrawlComponent IndexLocation is S:\CrawlStore
CrawlComponent State is Ready
Registry Entries to be set in RegRep Resource :
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Office Server\14.0\Search\Applications\cce
65f70-1747-42b7-b877-bb82db4b0a68-crawl-1

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Office Server\14.0\Search\Components\cce65
f70-1747-42b7-b877-bb82db4b0a68-crawl-1

Query Components Details
-----
Number of Query Components : 1
QueryComponent Name is cce65f70-1747-42b7-b877-bb82db4b0a68-query-1
QueryComponent ID is dcb7d24d-cadb-44ee-a84a-504f7bf88cce
QueryComponent Server is SPS_R2_M2
QueryComponent IndexLocation is Q:\QueryIndexComp
QueryComponent State is Ready
QueryComponent PropagationStatus is Idle
Registry Entries to be set in RegRep Resource :
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Office Server\14.0\Search\Applications\cce
65f70-1747-42b7-b877-bb82db4b0a68-query-1

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Office Server\14.0\Search\Components\cce65
f70-1747-42b7-b877-bb82db4b0a68-query-1
PS C:\Program Files\Veritas\cluster server\bin\SharePointSearch> _

```

- 3 In the Cluster Explorer, update the attributes of the storage resources (for example, VMDg and MountV in the SFW HA environment) and network resources with appropriate values.
- 4 Update the Query Share resource (for example, SharePointSearch_VM_Query_Share) attributes by copying over the values of the corresponding Query component properties as follows:
 - PathName = IndexLocation

Note: Do not include the drive letter when copying over this value.

- ShareName = Name
 - LanmanResName: Leave this attribute value empty.
- 5 Update the following attributes of the Admin, Crawl, and Query resources with the appropriate values:
- SPSFarmAdmin
 - Domain
 - Password
 - SearchAppName
 - ComponentID
- The component ID is not required for the Admin resource.
For the Crawl or Query resource, copy the value of the corresponding Crawl or Query ComponentID property.
- 6 On the systems that are hosting the Crawl and Query components, back up the registry keys for those components. These registry keys are displayed in the output of the PowerShell script that you ran previously.

Note: It is important to back up these registry keys so that you can use them to restore the Search service application if the need arises.

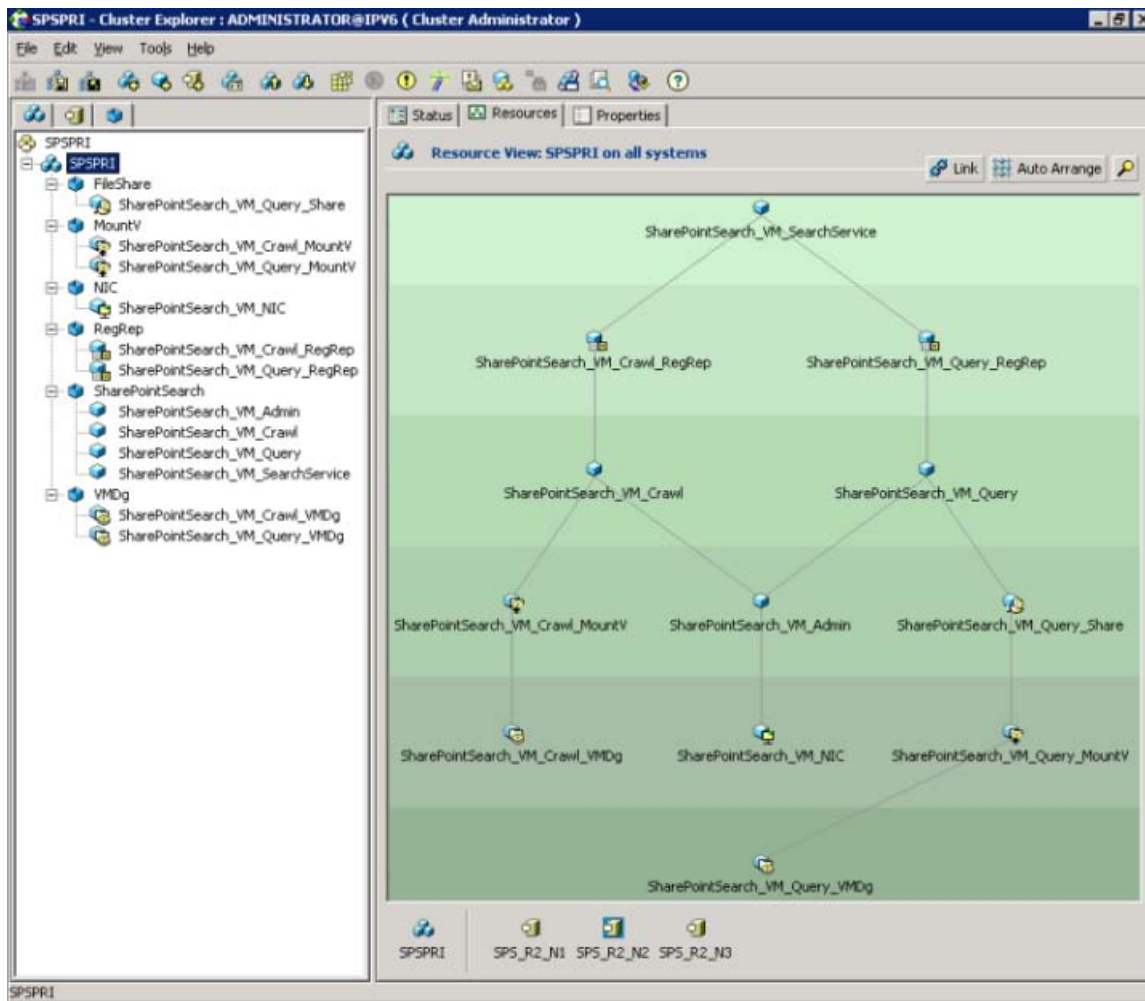
- 7 In the Cluster Explorer, update the Keys attribute of all the RegRep resources by copying over the registry key names of the corresponding Crawl or Query component.
- A sample key-value pair for the Query component is as follows:

HKLM\SOFTWARE\Microsoft\ Office Server\14.0\Search\Applications\ 3c8f51e3-ce82-45c9-bc99-81567c24beae-query-1	3c8f51e3-ce82-45c9-bc99-81567c24beae-query-1_App.reg
HKLM\SOFTWARE\Microsoft\ Office Server\14.0\Search\Components\ 3c8f51e3-ce82-45c9-bc99-81567c24beae-query-1	3c8f51e3-ce82-45c9-bc99-81567c24beae-query-1_Comp.reg

Note: Make sure that the values are unique by appending a string to indicate the key type.

- 8** Do not provide any attribute values for the SearchService resource.
- 9** Enable each resource in the service group.
 - When enabling the SearchService resource, a warning about its empty attributes is displayed. Ignore the warning and proceed.
 - When enabling the Query Share resource, a warning about the LanmanResName attribute is displayed. Ignore the warning and proceed.
- 10** Bring the service group online.

The following graphic depicts a sample service group configuration.



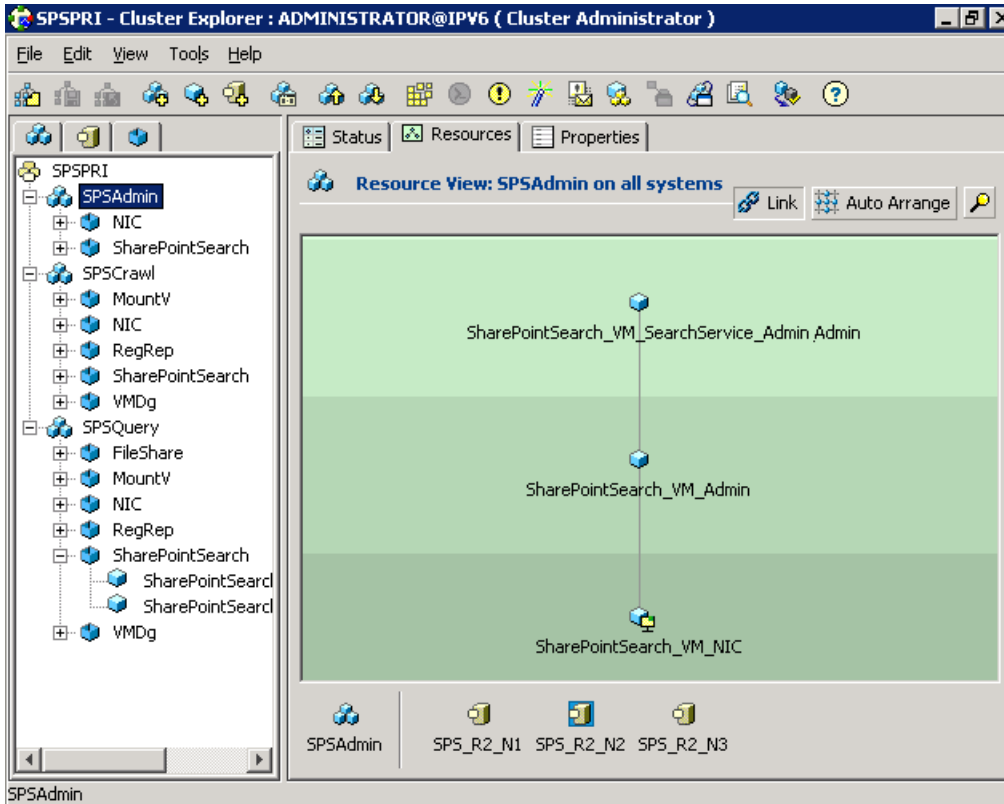
- 11** Optionally, you can split the service group depending on the Search service application components that you want to monitor. To do so, retain the resources required for that agent and delete the others.

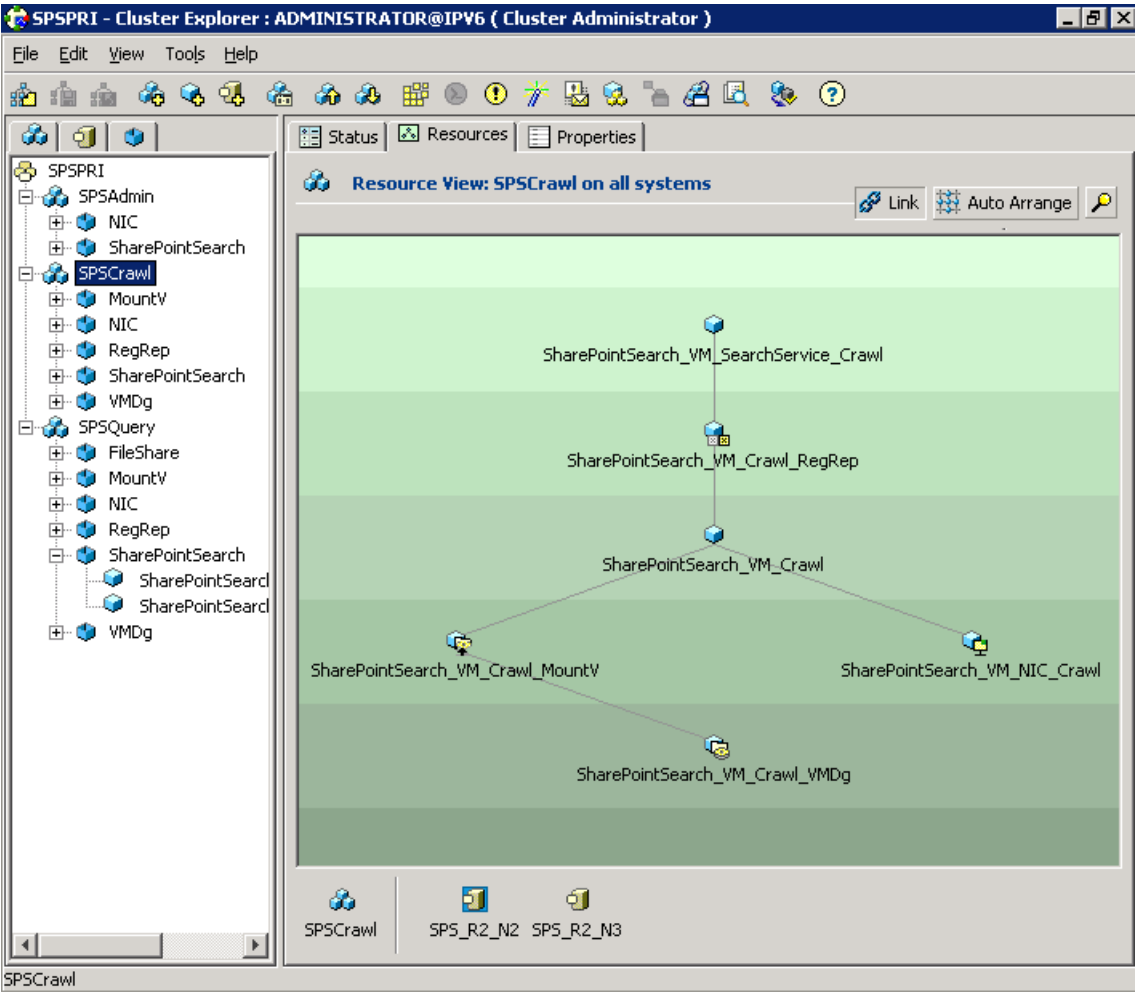
Take the following requirements into consideration:

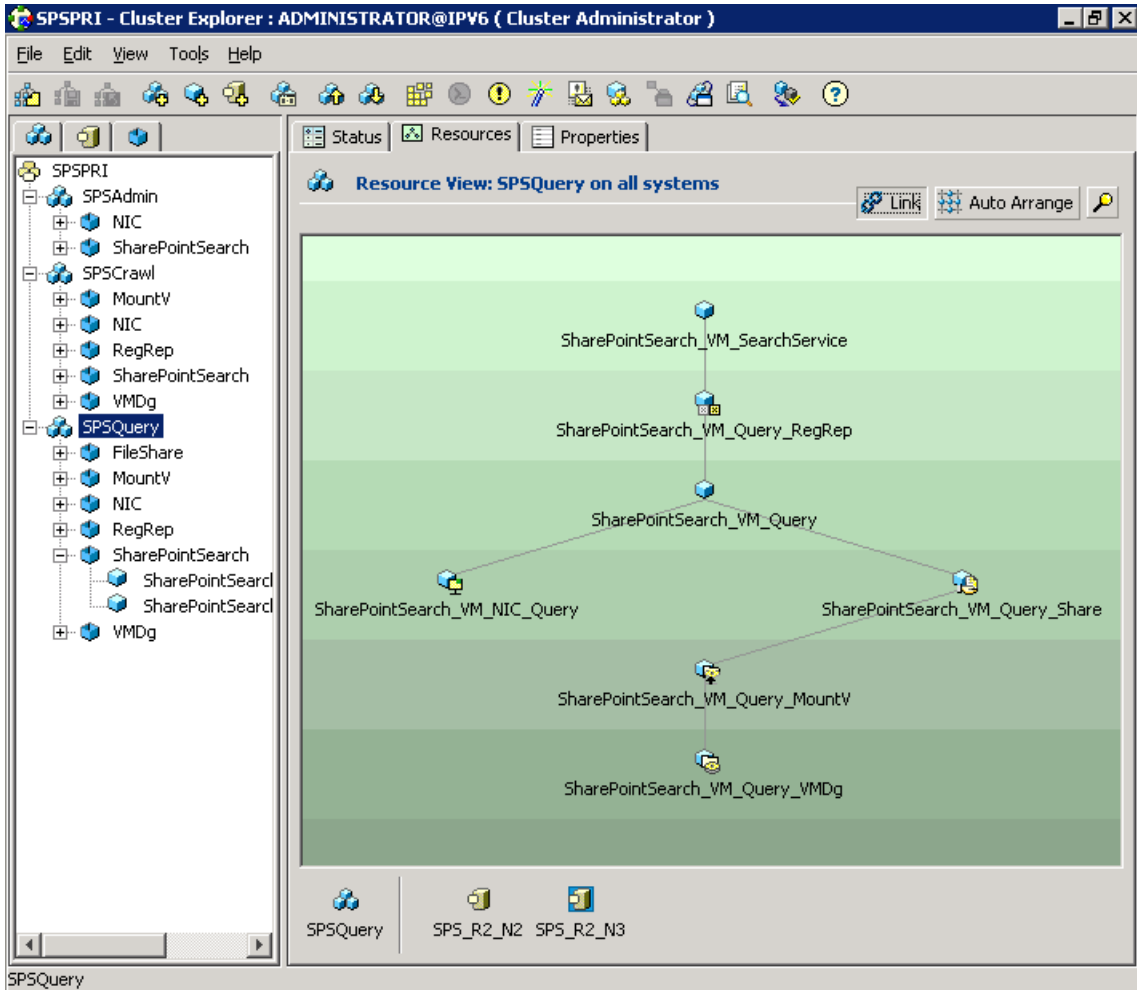
- For each service group pertaining to Crawl or Query component, make sure that the agent resource is a child of the RegRep resource, and the RegRep resource is a child of the SearchService resource.
- For the service group pertaining to the Admin component, make sure that the agent resource is a child of the SearchService resource.

- Make sure that the NIC resource is part of the service group for each component.

The following graphics depict a sample service group configuration for each Search service application component.







Configuring the service group for a Search service application using the wizard

The SharePoint Search Configuration Wizard allows you to create or delete a service group. However, you cannot modify an existing service group using the wizard. To modify a SharePoint Search service application, you must first delete any associated service groups. After modifying the application, you need to create the service groups again.

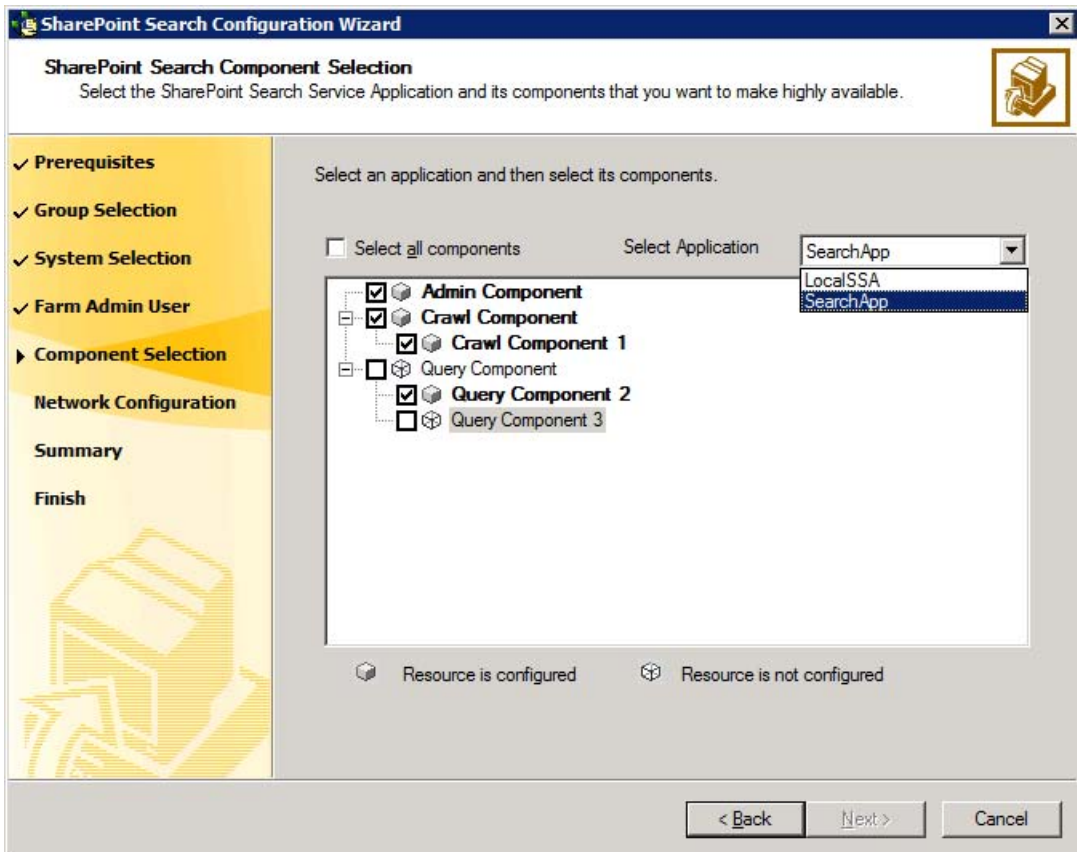
To configure the application service group using the wizard

- 1** Launch the wizard by clicking **Start > Symantec > Veritas > Configuration Tools > SharePoint Search Configuration Wizard**.
- 2** Review the prerequisites and other instructions on the Welcome panel, and click **Next**.
- 3** On the Group Selection panel, select **Create service group** and click **Next**.
- 4** On the System Selection panel, provide the following input:
 - Provide a name for the service group.
 - Select systems in the Available Cluster Systems list and click the left-arrow button.
Select one or more systems, according to the number of nodes on which to configure the service group.
To remove a system from the list, select it again and click the right-arrow button.
 - Specify the priority order of the systems by using the up or down arrow buttons in the Systems in Priority Order list.
 - To enable the service group to automatically come online on one of the systems, select the **Include selected systems in the service group's AutoStartList attribute** checkbox.Click **Next**.
- 5** On the Farm Admin User panel, specify the password for the Farm Admin user.
The Farm Name and Farm Admin User Name are populated automatically.
- 6** On the Component Selection panel, specify the application and its components to be monitored as follows:
 - The **Search Application** drop-down list is populated with the Search service applications configured in the SharePoint farm. Select the application for which you want to configure a service group.
 - All the components of the selected application are displayed; select the checkboxes against the components that you wish to monitor using this service group.
Optionally, use the **Select all components** checkbox to indicate that all the components of the selected application should be monitored.

Note: Some component names might appear in bold with a different icon. The corresponding check boxes might appear selected, which indicates that those components are already being monitored as part of another service group.

You cannot deselect such components, but you can select the other components of the application for which resources have not been configured. No resources are created for components that are already part of another service group.

Click **Next**.



- 7** On the Network Configuration panel, review the selected systems and their network adapters, and click **Next**.

To change the network adapter for a system, use the drop-down box in the Adapter Display Name column.
- 8** On the Summary panel, review the service groups, resources, and attributes.

You can edit a service group or resource name by clicking the name and pressing **F2**.

Click **Next**.
- 9** When prompted to confirm the configuration changes that you are about to make, click **Yes**.

Along with the Search service application failover service group, a parallel service group named SharePointSearch-QueryProcessor is automatically created to monitor the Search Query and Site Settings service. If this parallel service group already exists in the cluster, any new nodes that are configured for the components that you selected in step **6** are added to its system list.
- 10** On the Finish panel, click **Finish** to exit the wizard.

To bring the newly created service group online immediately, select **Bring the service group online** before clicking **Finish**.

Verifying the application service group

This section provides steps to verify a service group configuration by bringing the service group online, taking it offline, and switching the service group to another cluster node.

You should perform a Site Search to verify whether SharePoint Search service application configured under VCS is working.

Bringing the service group online

Perform the following steps to bring the service group online from the VCS Java Console.

To bring a service group online

- 1 On the **Service Groups** tab of the Cluster Explorer configuration tree, right-click the service group.

or

Select the cluster in the Cluster Explorer configuration tree, select the **Service Groups** tab, and right-click the service group icon in the view panel.
- 2 Choose **Online**, and choose the appropriate system from the pop-up menu. (Right-click > Online > *system_name*)

Taking the service group offline

Perform the following steps to take the service group offline from the VCS Java Console.

To take a service group offline

- 1 On the **Service Groups** tab of the Cluster Explorer configuration tree, right-click the service group.

or

Select the cluster in the Cluster Explorer configuration tree, select the **Service Groups** tab, and right-click the service group icon in the view panel.
- 2 Choose **Offline**, and choose the appropriate system from the pop-up menu. (Right-click > Offline > *system_name*)

Switching the service group

The process of switching a service group involves taking it offline on its current system and bringing it online on another system.

To switch a service group

- 1 On the **Service Groups** tab of the Cluster Explorer configuration tree, right-click the service group.

or

Select the cluster in the Cluster Explorer configuration tree, select the **Service Groups** tab, and right-click the service group icon in the view panel.
- 2 Choose **Switch To**, and choose the appropriate system from the pop-up menu. (Right-click > Switch To > *system_name*)

Disabling the service group

To disable the agent, you must change the service group for a Search service application to the OFFLINE state. You can switch the agent to another system.

To disable a service group

- 1 On the **Service Groups** tab of the Cluster Explorer configuration tree, right-click the service group.

or

Select the cluster in the Cluster Explorer configuration tree, select the **Service Groups** tab, and right-click the service group icon in the view panel.
- 2 Choose **Disable**, and choose the appropriate system from the pop-up menu. (Right-click > Disable > *system_name*)

Configuring a Search service application for disaster recovery

To configure a Search service application for disaster recovery, the cluster nodes on the primary and those on the secondary site must be part of the same SharePoint farm.

Use the Disaster Recovery Configuration Wizard (DR wizard) for additional applications. For more information, see the *Veritas Storage Foundation and High Availability Solutions, Solutions Guide*.

If the service group for a Search service application does not contain a MountV resource, you cannot use the DR wizard to configure disaster recovery. For example, a service group that is only configured to monitor the Admin component of a Search service application does not contain a MountV resource. You need to manually configure disaster recovery for such a service group.

To configure disaster recovery for a service group that only monitors the Admin component

- 1 Make sure that the global clustering option (GCO) has been set up for the cluster on the primary as well as the secondary site.
- 2 Launch the Java GUI, and connect to the DR site.
- 3 Add a new failover service group with the same name as the one on the primary site.
- 4 Copy all the resources of the service group from the primary site and paste them into the service group at the secondary site.
- 5 At the secondary site, perform the following tasks sequentially:

- Create dependency links between the resources similar to the service group at the primary site.
- Verify the attributes for all the resources.
- Edit the NIC resource attribute to provide the MAC addresses for each system.
- Enable all resources.
Ignore the warning that appears for the Search Service resource.

Note: Do not bring the service group online.

6 At the primary site, make the service group global.

On the Global Group Configuration Wizard, select the cluster on secondary site, and provide the remote cluster information when prompted.

Administering the SharePoint Search Service Application service group

This chapter includes the following topics:

- [About administering the application service group](#)
- [Modifying the application service group](#)
- [Deleting the application service group](#)

About administering the application service group

This chapter describes the administrative tasks that you can perform on application service groups such as modifying the service group configuration and deleting a service group.

Modifying the application service group

To modify a SharePoint Search service application, you must first delete any associated service groups. After modifying the application, you need to create the service groups again.

To modify the service group

- 1 Delete the service group for the Search service application using the SharePoint Search Configuration wizard.
- 2 Remount the volumes that were taken offline by the wizard.

- 3 Make the desired changes to the Search service application.
- 4 Create the service group using one of the following methods:
 - Using the SharePoint Search Configuration wizard
See [“Configuring the service group for a Search service application using the wizard”](#) on page 28.
 - Using the service group templates
See [“Configuring a service group for a SharePoint Search service application manually”](#) on page 20.

Deleting the application service group

Deleting a service group for the Search service application is required in the following scenarios:

- When you want to modify the application
After deleting a service group, you need to remount the volumes that were taken offline by the wizard.
- When you decide to stop monitoring the application
When you delete a service group using the wizard, all the resources are taken offline. Any new search queries will fail, because the index locations are unavailable. To continue processing queries further, you need to remount the volumes that were taken offline by the wizard.

To delete a service group using the wizard

- 1 Launch the wizard by clicking **Start > Symantec > Veritas > Configuration Tools > SharePoint Search Configuration Wizard**.
- 2 On the Welcome panel, click **Next**.
- 3 On the Group Selection panel, select **Delete service group**.
All the service groups that are configured in the cluster are listed.
Select the service group that you want to delete, and click **Next**.
- 4 On the Summary panel, review the service groups, resources, and attributes that will be deleted, and click **Next**.

- 5 When prompted to confirm the configuration changes that you are about to make, click **Yes**.

When the last service group for a Search service application is deleted from a cluster node, the node is removed from the system list of the SharePointSearch-QueryProcessor service group.

After all the service groups for a Search service application in the cluster are deleted, the SharePointSearch-QueryProcessor service group is also deleted.

- 6 On the Finish panel, click **Finish** to exit the wizard.

Troubleshooting

This chapter includes the following topics:

- [About troubleshooting VCS agents](#)
- [Troubleshooting issues with SharePoint Search service application components](#)
- [VCS logging](#)
- [Agent error messages and descriptions](#)

About troubleshooting VCS agents

This chapter lists issues that you might encounter with the SharePoint Search service application components and the possible solutions. It also lists the error messages associated with the VCS agent for the application. Each message includes a description and a recommended solution, if applicable.

Troubleshooting issues with SharePoint Search service application components

You might encounter problems when using the VCS agent for a SharePoint Search service application. For example, the Crawl or Query component might be in the Not Responding state.

To troubleshoot when the Crawl or Query component is not responding

- 1 Launch the SharePoint 2010 Central Administration web page.
- 2 On the Search Administration page, view the details of the relevant Search service application.

- 3 Check the Status of the Crawl or Query component.
If the Status is "Not Responding", perform the following steps.
- 4 Launch the SharePoint 2010 Management Shell, and execute the following PowerShell script:

```
C:\Program Files\Veritas\Cluster Server\bin\SharePointSearch\SearchServiceAppDetails.ps1
```


Provide the application name as input. The script displays the details of the Search service application components.
- 5 Make sure that the storage for the index location on the Crawl Server or Query Server is accessible.
- 6 Restart the SharePoint Server Search 14 service.
- 7 Wait for a reasonable amount of time, and then verify that the component status is Online.
- 8 Ensure the following for the Query component only:
 - The ShareName attribute of the FileShare resource (for example, SharePointSearch_VM_Query_Share) has the correct value. Compare it with the Name property of the Query component in the output of the PowerShell script.
 - The FileShare resource is online.
- 9 If the component status is still not Online, then on the CrawlComponent or QueryComponent Server, perform one of the following tasks:
 - If you created the service group manually, restore the registry keys that you backed up before creating the service group or after modifying the Search service application.
See [“Configuring a service group for a SharePoint Search service application manually”](#) on page 20.
 - If you created the service group using the SharePoint Search Configuration Wizard, restore the registry keys that the wizard backed up.
See [“Restoring the Crawl or Query component registry keys”](#) on page 40.
- 10 Restart the SharePoint Server Search 14 service, and then check the component status again.

Restoring the Crawl or Query component registry keys

You might need to restore the registry keys for the Crawl or Query components if they stop responding.

To restore the registry keys backed up by the wizard

- 1 Open Windows Explorer on the node where you ran the SharePoint Search Configuration Wizard to create the service group.

- 2 Navigate to the
`%vcs_home%\bin\SharePointSearch\RegistryBackupForComponents` folder.

`%vcs_home%` is the folder where VCS is installed, for example:

```
C:\Program Files\Veritas\cluster server
```

- 3 Two files exist for each component in this folder, and they are named as follows:

```
applicationName_applicationGUID-componentName_timestamp_keyType.reg
```

For example:

```
SearchApp_0c301859-27f9-4013-a992-822bd8be56e3-query-2  
_2012-12-07_14_33_41_Application.reg
```

and

```
SearchApp_0c301859-27f9-4013-a992-822bd8be56e3-query-2  
_2012-12-07_14_33_44_Component.reg
```

Identify the backup files that contain the appropriate application and component registry keys.

- 4 Copy these files to the node that currently owns the Crawl or Query component.
- 5 Run the following command:

```
SharePointSearchWizard.exe "registryFileNameIncludingAbsolutePath"
```

For example:

```
C:\>SharePointSearchWizard.exe "C:\Program Files\Veritas\  
cluster server\bin\SharePointSearch\RegistryBackupForComponents\  
SearchApp_0c301859-27f9-4013-a992-822bd8be56e3-query-2  
_2012-12-07_14_33_41_Application.reg"
```

- 6 A message box appears, informing you that the registry keys were restored successfully. Click **OK**.

VCS logging

VCS generates two error message logs: the engine logs and the agent logs. Log file names are appended by letters. Letter A indicates the first log file, B the second, C the third, and so on.

The agent log is located at %VCS_HOME%\log\agent_A.txt. The format of agent log messages is:

```
Timestamp (Year/MM/DD) | Mnemonic | Severity | UMI | Agent Type |
Resource Name | Entry Point | Message Text
```

The following table describes the agent log message components and their descriptions.

Table 5-1 Log message components and their description

Log message component	Description
Timestamp	Denotes the date and time when the message was logged.
Mnemonic	Denotes which Symantec product logs the message. For Veritas Cluster Server, the mnemonic is 'VCS'.
Severity	<div>Denotes the severity of the message. Severity is classified into the following types:</div> <div><ul style="list-style-type: none">■ CRITICAL indicates a critical error within a VCS process. Contact Technical Support immediately.■ ERROR indicates failure of a cluster component, unanticipated state change, or termination or unsuccessful completion of a VCS action.■ WARNING indicates a warning or error, but not an actual fault.■ NOTE informs the user that VCS has initiated an action.■ INFO informs the user of various state messages or comments.</div> <div>Among these, CRITICAL, ERROR, and WARNING indicate actual errors. NOTE and INFO provide additional information.</div>
Unique Message ID (UMI)	<div>UMI is a combination of Originator ID, Category ID, and Message ID. For example, the UMI for a message generated by the SharePoint agent would resemble: V-16-20083-107.</div> <div>Originator ID for all VCS products is 'V-16.'</div> <div>Category ID for SharePoint agent is 20083.</div> <div>Message ID is a unique number assigned to the message text.</div>

Table 5-1 Log message components and their description (*continued*)

Log message component	Description
Message Text	Denotes the actual message string.

You can view these message logs using Notepad or any text editor. All messages are logged to the engine and the agent logs. Messages of type CRITICAL and ERROR are written to the Windows event log.

A typical agent log resembles:

```
2012/09/20 07:53:51 VCS ERROR V-16-20083-107
SharePointSearch:SharePointSearch_VM_Admin:monitor:
Failed to open connection with the helper process. Error: 2.
```

VCS Cluster Configuration Wizard (VCW) logs

The VCS Cluster Configuration Wizard (VCW) log is located at %allUsersProfile%\Veritas\Cluster Server\vcw.log.

Here, %allusersprofile% is the file system directory containing application data for all users. A typical path is C:\ProgramData\.

The wizard log text is of the format *threadID | message Text*.

ThreadID is the ID of the thread initiated by the wizard and Message Text is the actual message generated by the wizard.

A typical wizard log resembles the following:

```
00000576-00000264: ExecMethod return 00000000.
00000576-00000110: CRegistry::Query for VCS License failed.
Error=0x00000000
00000576-00000264: ExecMethod return 00000000.
00000576-00000264: ExecMethod return 00000001.
00000576-00000127: QueryDWORDValue returned 0x00000001
00000576-00000132: CRegistry::Query for VxSS Root information failed.
Error=0x00000001
```

Agent error messages and descriptions

Each ERROR or WARNING message has a description and a recommended solution.

VCS agent for SharePoint Search service application

The following table lists the description of error messages and recommended solutions for the application agent.

Table 5-2 VCS agent for SharePoint Search service application - error messages

Message	Description
Failed to launch the process 'SPSearchHelperProcess'. Error = Error code.	<p>Make sure that the correct values are provided for the following resource attributes:</p> <ul style="list-style-type: none"> ■ SPSFarmAdmin ■ Domain ■ Password
Invalid Component Type	A resource goes into the UNKNOWN state. Make sure that you have selected one of the available values for the SearchCompType.
Failed to get status of Admin Component. Please ensure that SearchAppName attribute is specified correctly.	The resource corresponding to the Search Admin component goes into the UNKNOWN state. Ensure that the correct Search service application name is specified as the SearchAppName attribute value.
Crawl Component Not Found	Ensure that the ComponentID attribute value contains the correct ID of the Crawl component.
Query Component Not Found	Ensure that the ComponentID attribute value contains the correct ID of the Query component.
Search Service Application Not Found	The resource corresponding to the Search service application component goes into the UNKNOWN state. Ensure that the correct Search service application name is specified as the SearchAppName attribute value.
Attribute ComponentID is not specified for Crawl Component	Ensure that you have specified a value for the ComponentID attribute of the Crawl component.
Attribute ComponentID is not specified for Query Component	Ensure that you have specified a value for the ComponentID attribute of the Query component.

Resource type definitions

This chapter includes the following topics:

- [About resource type definitions](#)
- [VCS agent for SharePoint Search service application](#)

About resource type definitions

This appendix lists the resource type definitions and attribute definitions of the agents. The resource type represents the VCS configuration definition of the agent and specifies how the agent is defined in the configuration file, `main.cf`.

The tables in the following sections describe the attributes associated with the agent. Some of these attributes must be configured for the agent to function properly.

VCS agent for SharePoint Search service application

The VCS agent for SharePoint Search service application is configured as a resource of type `SharePointSearch`.

Resource type definition

The resource definition is as follows:

```
type SharePointSearch (
    static il8nstr ArgList[] = { SPSFarmAdmin, Domain, Password,
        SearchCompType, SearchAppName, ComponentID }
    il8nstr SPSFarmAdmin
    il8nstr Domain
    str Password
```

```
    str SearchCompType
    i18nstr SearchAppName
    str ComponentID
)
```

Attribute definitions

The following table describes the required attributes of the VCS agent for SharePoint Search service application.

Table 6-1 VCS agent for SharePoint Search service application - required attributes

Required attribute	Definition
SPSFarmAdmin	<p>A user account that has the SharePoint Server Farm Admin privileges.</p> <p>The user name can take one of the following forms:</p> <ul style="list-style-type: none">■ username@domain.com■ domain\username■ domain.com\username <p>The agent uses the Farm Admin user account context to monitor the Search service application components.</p> <p>Type and dimension: string-scalar</p>
Domain	<p>The name of the domain to which the user specified in the SPSFarmAdmin attribute value belongs.</p> <p>Type and dimension: string-scalar</p>
Password	<p>The password of the user specified in the SPSFarmAdmin attribute value.</p> <p>The password is stored in the VCS configuration in an encrypted form.</p> <p>Type and dimension: string-scalar</p>

Table 6-1 VCS agent for SharePoint Search service application - required attributes (*continued*)

Required attribute	Definition
SearchCompType	<p>Defines whether the agent is configured to monitor the SharePoint Server Search 14 service or the Search service application components.</p> <p>This attribute can take one of the following values:</p> <ul style="list-style-type: none"> ■ SearchService: If you specify this value, you do not need to provide values for any other type-specific attribute. ■ Admin: If you specify this value, you need to provide values for all the other type-specific attributes, except ComponentID. ■ Crawl: If you specify this value, you need to provide values for all the other type-specific attributes. ■ Query: If you specify this value, you need to provide values for all the other type-specific attributes. <p>Type and dimension: string-scalar</p>
SearchAppName	<p>The name of the SharePoint Search service application that is managed by the agent.</p> <p>This attribute is ignored if the SearchCompType attribute value is set to SearchService.</p> <p>Type and dimension: string-scalar</p>
ComponentID	<p>An identifier that uniquely identifies the application component to be monitored.</p> <p>Type and dimension: string-scalar</p>

Sample configuration

This chapter includes the following topics:

- [About sample configurations](#)
- [Sample configuration file](#)

About sample configurations

This appendix describes a typical service group configured to monitor the state of SharePoint Search service application in a VCS cluster.

The sample configuration file (main.cf) is included for your reference. Review the dependency carefully before configuring the agent.

Sample configuration file

```
include "types.cf"

cluster SPSPri (
    SecureClus = 1
)

system SPS_R2_N1 (

)

system SPS_R2_N2 (

)

system SPS_R2_N3 (

)
```

```

group SPSPRI (
    SystemList = { SPS_R2_N1 = 0, SPS_R2_N2 = 1, SPS_R2_N3 = 2 }
)

FileShare SharePointSearch_VM_Query_Share (
    PathName = "\\QueryIndexComp"
    ShareName = cce65f70-1747-42b7-b877-bb82db4b0a68-query-1
    MountResName = SharePointSearch_VM_Query_MountV
    UserPermissions = { WSS_WPG = FULL_CONTROL }
    ShareComment = "Used by Microsoft Search Server 2010
to copy index files between servers"
)

MountV SharePointSearch_VM_Crawl_MountV (
    MountPath = "S:"
    VolumeName = CrawlVol
    VMDGResName = SharePointSearch_VM_Crawl_VMDg
    ForceUnmount = ALL
)

MountV SharePointSearch_VM_Query_MountV (
    MountPath = "Q:"
    VolumeName = IndexQueryVol
    VMDGResName = SharePointSearch_VM_Query_VMDg
    ForceUnmount = ALL
)

NIC SharePointSearch_VM_NIC (
    MACAddress @SPS_R2_N1 = 02-BF-0A-D9-3D-0B
    MACAddress @SPS_R2_N2 = 02-BF-0A-D9-3D-0B
    MACAddress @SPS_R2_N3 = 00-0C-29-64-B6-3F
)

RegRep SharePointSearch_VM_Crawl_RegRep (
    MountResName = SharePointSearch_VM_Crawl_MountV
    Keys = {
        "HKEY_LOCAL_MACHINE\\SOFTWARE\\Microsoft\\Office Server\\
        14.0\\Search\\Applications\\
        cce65f70-1747-42b7-b877-bb82db4b0a68-crawl-1"
        = "cce65f70-1747-42b7-b877-bb82db4b0a68-crawl-1_App.reg",
        "HKEY_LOCAL_MACHINE\\SOFTWARE\\Microsoft\\Office Server\\
        14.0\\Search\\Components\\
        cce65f70-1747-42b7-b877-bb82db4b0a68-crawl-1"
    }
)

```

```
        = "cce65f70-1747-42b7-b877-bb82db4b0a68-crawl-1_Comp.reg"
    }
)

RegRep SharePointSearch_VM_Query_RegRep (
    MountResName = SharePointSearch_VM_Query_MountV
    Keys = {
        "HKEY_LOCAL_MACHINE\\SOFTWARE\\Microsoft\\Office Server\\
        14.0\\Search\\Applications\\
        cce65f70-1747-42b7-b877-bb82db4b0a68-query-1"
        = "cce65f70-1747-42b7-b877-bb82db4b0a68-query-1_App.reg",
        "HKEY_LOCAL_MACHINE\\SOFTWARE\\Microsoft\\Office Server\\
        14.0\\Search\\Components\\
        cce65f70-1747-42b7-b877-bb82db4b0a68-query-1"
        = "cce65f70-1747-42b7-b877-bb82db4b0a68-query-1_Comp.reg"
    }
)

SharePointSearch SharePointSearch_VM_Admin (
    SPSFarmAdmin = Administrator
    Domain = IPV6
    Password = IWOUlWlQIoJOkOL
    SearchCompType = Admin
    SearchAppName = NewSearch
)

SharePointSearch SharePointSearch_VM_Crawl (
    SPSFarmAdmin = Administrator
    Domain = IPV6
    Password = aogMdoDiaGbgCgd
    SearchCompType = Crawl
    SearchAppName = NewSearch
    ComponentID = 422a3a73-9d3d-4dd1-b411-ec187975af7c
)

SharePointSearch SharePointSearch_VM_Query (
    SPSFarmAdmin = Administrator
    Domain = IPV6
    Password = ftlRitInfLglHli
    SearchCompType = Query
    SearchAppName = NewSearch
    ComponentID = dcb7d24d-cadb-44ee-a84a-504f7bf88cce
)
```

```

SharePointSearch SharePointSearch_VM_SearchService (
    SearchCompType = SearchService
)

VMDg SharePointSearch_VM_Crawl_VMDg (
    DiskGroupName = SPSCrawlDG
    DGGuid = d4df4e41-2f73-43c7-b4bd-dac0c05d52aa
)

VMDg SharePointSearch_VM_Query_VMDg (
    DiskGroupName = SPSIndex
    DGGuid = 0447418c-bcda-4d74-b286-dd15ef958239
)

SharePointSearch_VM_Query_Share requires SharePointSearch_VM_Query_MountV
SharePointSearch_VM_Crawl_MountV requires SharePointSearch_VM_Crawl_VMDg
SharePointSearch_VM_Query_MountV requires SharePointSearch_VM_Query_VMDg
SharePointSearch_VM_Crawl_RegRep requires SharePointSearch_VM_Crawl
SharePointSearch_VM_Query_RegRep requires SharePointSearch_VM_Query
SharePointSearch_VM_Admin requires SharePointSearch_VM_NIC
SharePointSearch_VM_Crawl requires SharePointSearch_VM_Admin
SharePointSearch_VM_Crawl requires SharePointSearch_VM_Crawl_MountV
SharePointSearch_VM_Query requires SharePointSearch_VM_Admin
SharePointSearch_VM_Query requires SharePointSearch_VM_Query_Share
SharePointSearch_VM_SearchService requires SharePointSearch_VM_Crawl_RegRep
SharePointSearch_VM_SearchService requires SharePointSearch_VM_Query_RegRep

// resource dependency tree
//
// group SPSPRI
// {
//   SharePointSearch SharePointSearch_VM_SearchService
//   {
//     RegRep SharePointSearch_VM_Crawl_RegRep
//     {
//       SharePointSearch SharePointSearch_VM_Crawl
//       {
//         SharePointSearch SharePointSearch_VM_Admin
//         {
//           NIC SharePointSearch_VM_NIC
//         }
//       }
//       MountV SharePointSearch_VM_Crawl_MountV

```

```
//      {
//      VMDg SharePointSearch_VM_Crawl_VMDg
//      }
//      }
//      RegRep SharePointSearch_VM_Query_RegRep
//      {
//      SharePointSearch SharePointSearch_VM_Query
//      {
//      SharePointSearch SharePointSearch_VM_Admin
//      {
//      NIC SharePointSearch_VM_NIC
//      }
//      FileShare SharePointSearch_VM_Query_Share
//      {
//      MountV SharePointSearch_VM_Query_MountV
//      {
//      VMDg SharePointSearch_VM_Query_VMDg
//      }
//      }
//      }
//      }
//      }
//      }
```

