Storage Foundation and High Availability Solutions HA and Disaster Recovery Solutions Guide for Microsoft SharePoint 2013

Windows

7.0

VERITAS™

Storage Foundation and High Availability Solutions HA and Disaster Recovery Solutions Guide for Microsoft SharePoint 2013

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Contents

1

Introducing the VCS agent for SharePoint Server 2013

This chapter includes the following topics:

About high availability support for SharePoint Server

The high availability (HA) solution for SharePoint Server is a combination of monitoring and recovery support for SharePoint applications and high availability support for SQL Server databases used by SharePoint Server.

The SharePoint high availability configuration components are as follows:

- VCS provides an agent for SharePoint that performs the task of managing the SharePoint Web Applications, Service Applications, and services configured in the server farm. Depending on the configuration, the agent monitors, starts, and stops the SharePoint components in the cluster.

- SharePoint Web Applications are configured in a VCS parallel service group. A parallel service group runs simultaneously on multiple nodes in a cluster. The parallel service group manages the Web Applications configured in the farm. The state of the parallel service group represents the state of the Web Applications configured in the farm. If a Web Application becomes unavailable, the agent attempts to restart the application in the farm.

- SharePoint Service Applications and services are configured in a separate service group that is created locally on each cluster node. The service group manages the components configured on the local node only. If any of the components become unavailable, the agent attempts to restart the component on the local node.

- The VCS SQL Server database agents are used to configure high availability for the SharePoint databases. The agents monitor the health of the SharePoint databases as well as underlying resources and hardware. If a failure occurs, predefined actions bring up SQL Server on another node in the cluster.

About the VCS agent for Microsoft SharePoint Server 2013

The VCS application agent for Microsoft SharePoint Server manages SharePoint Server Service Applications, Web Applications, and services in a VCS cluster. The agent provides monitoring support in making a SharePoint Server applications highly available in a VCS environment.

Depending on the configuration, the agent performs the following operations:

- Monitors, starts, and stops the configured SharePoint services.

- Monitors the configured Web Applications, brings them online, and takes them offline.

- Monitors the configured Service Applications, brings them online, and takes them offline.

If any of the configured SharePoint component fails or is unavailable, the agent attempts to restart the component on the local node. If the component fails to start, the agent declares the resource as faulted.

SharePoint Server agent functions

Agent functions include the following

Online	Starts the configured Web Applications, Service Applications, or services.
Offline	Stops the configured Web Applications and Service Applications. The agent also stops monitoring the configured services on the node.
Monitor	Verifies the status of the configured Web Application, Service Application or service. If the components are running, the agent reports the resource as online. If any of the components are not running, the agent reports the resource as FAULTED.
Clean	Forcibly stops the configured Web Applications and Service Applications. The agent also stops monitoring the configured services on the node.

SharePoint Server agent state definitions

Agent state definitions are as follows:

Online	Indicates that the configured Web Applications, Service Applications, or services are running on the cluster node.
Offline	Indicates that the configured Web Applications and Service Applications are stopped on the cluster node. It also indicates that the monitoring for the services is also stopped.
Faulted	Indicates that the agent is unable to start the configured Web Applications, Service Applications, or services on the cluster node.
Unknown	Indicates that the agent is unable to determine the status of the configured SharePoint components on the cluster node.

SharePoint Server agent resource type definition

The resource type represents the VCS configuration definition of the agent and specifies how the agent is defined in the cluster configuration file, main.cf.

The SharePoint Server agent is represented by the SharePointServer resource type.

```
type SharePointServer (
static i18nstr ArgList[] = { AppType, AppName, Description, AppPoolMon,
FarmAdminAccount, FarmAdminPassword, ServiceIDList, StopSPSService }
str AppType
i18nstr AppName
```

```
i18nstr Description
str AppPoolMon = NONE
i18nstr FarmAdminAccount
str FarmAdminPassword
i18nstr ServiceIDList[]
boolean StopSPSService = 0
)
```

SharePoint Server agent attribute definitions

Review the tables of required and optional attributes to familiarize yourself with the agent attributes for a SharePointServer resource type. This information will assist you during the agent configuration.

Table 1-1   SharePoint Server agent required attributes

Required Attributes	Definition
AppType	Defines whether the agent is configured to monitor a SharePoint Web Application, Service Application, or service.
	This attribute can take one of the following values:
	■ WebApp
	■ ServiceApp
	■ SPSService
	The default value is WebApp.
	If this attribute value is set to WebApp or ServiceApp, then you must specify a value for the AppName attribute.
	If this attribute value is set to SPSService, the AppName attribute value is ignored.
	Type and Dimension: string-scalar

Table 1-1 SharePoint Server agent required attributes *(continued)*

Required Attributes	Definition
AppPoolMon	Defines the monitoring modes for the application pool associated with the Web site being monitored.
	Configure this attribute only if AppType attribute value is set to WebApp and IIS is configured to run in the Worker Process Isolation mode.
	The attribute can take one of the following values:
	■ NONE: Indicates that the agent does not monitor the application pool associated with the Web site. ■ DEFAULT: Indicates that the agent monitors the root application pool associated with the Web site. If this attribute is set, the agent starts, stops, and monitors the root application pool associated with the Web site. If the root application pool is stopped externally, the service group faults; the agent then attempts to restart the root application pool. ■ ALL: Indicates that the agent starts all the application pools associated with the Web site, but monitors and stops the root application pool only. If any application pool is stopped externally, the service group faults; the agent then attempts to restart the application pool.
	The default value is NONE.
	Type and Dimension: string-scalar
ServiceIDList	Defines the service IDs of the SharePoint services that are managed by the agent. This attribute is always local.
	This attribute can take the following values:
	■ If AppType attribute value is set to WebApp, specify the service ID of the Microsoft SharePoint Foundation Web Application service. ■ If AppType attribute value is set to ServiceApp, specify the service ID of the service on which the Service Application depends. ■ If AppType attribute value is set to SPSService, specify the service IDs of the SharePoint services.
	Note: If you are configuring this attribute manually, use the VCS hadiscover command or the SharePoint server cmdlets to retrieve the service IDs.
	Type and Dimension: string-vector

Table 1-2   SharePoint Server agent optional attributes

Optional Attribute	Definition
AppName	The name of the SharePoint Web Application or Service Application that is managed by the agent. The value of this attribute depends on the value of the AppType attribute.
	This attribute can take the following values:
	■ If AppType attribute value is set as WebApp, specify the Web Application name.
	■ If AppType attribute value is set as ServiceApp, specify the application pool ID for the SharePoint Service Application.
	Note: This attribute is ignored if AppType attribute value is set as SPSService.
	Type and Dimension: string-scalar
Description	The display name of the service ID specified in the ServiceIDList attribute
	Type and Dimension: string-scalar
FarmAdminAccount	A user account that has the SharePoint Server Farm Admin privileges.
	User name can be of the form
	username@domain.com, domain\username, or
	domain.com\username.
	The agent uses the Farm Admin user account context to manage the services specified in the ServiceIDList attribute value.
	Type and Dimension: string-scalar
FarmAdminPassword	The password of the user specified in the FarmAdminAccount attribute value.
	The password is stored in the VCS configuration in an encrypted form.
	Type and Dimension: string-scalar

Table 1-2   SharePoint Server agent optional attributes *(continued)*

Optional Attribute	Definition
StopSPSService	When a resource in the VCS cluster is taken offline: ■ If the value of this attribute is set to true, the agent stops all the SharePoint services in its ServiceIDList. ■ If the value of this attribute is set to false, the agent does not change the state of the SharePoint services in its ServiceIDList, but it stops monitoring the services. The default value of this attribute is false. Type and Dimension: boolean

Installing and configuring the Symantec High Availability solution

This chapter includes the following topics:

- About installing the product
- About configuring the cluster

About installing the product

Install InfoScale Enterprise on all the systems where you want to configure the agent.

Refer to the appropriate guide for instructions:

- *Veritas InfoScale Installation and Upgrade Guide*

About configuring the cluster

After installing the software, set up the components required to run VCS for Windows of 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:

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

Installing and configuring SharePoint Server 2013 for high availability

This chapter includes the following topics:

- Installing and configuring SharePoint Server
- Configuring SharePoint Server service groups
- Verifying the SharePoint cluster configuration
- Considerations when modifying a SharePoint service group

Installing and configuring SharePoint Server

Install and configure Microsoft SharePoint Server on all the nodes that will be part of the SharePoint Server service group and configure the farm.

Note the following before you proceed:

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

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

- VCS does not require you to install the SharePoint Server components on shared storage. You can install SharePoint on the local system disks.

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

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

Configuring SharePoint Server service groups

Configuring the SharePoint Server service group involves the following tasks:

- Creating a parallel service group for the SharePoint Web Applications running on the front-end Web servers.

- Creating service groups for SharePoint Service Applications or services locally on the application servers.

Use the VCS SharePoint Server 2013 Configuration Wizard to create the required service groups and its resources and define the attribute values for the configured resources.

Note the following before you proceed:

- The wizard discovers the Web Applications, Service Applications, and services in the farm where the local node resides and then configures them in the service groups.

- The wizard automatically configures all the discovered SharePoint applications and services configured in the local cluster farm. With the new SharePoint Server 2013 wizard, you can also select the stopped services which you want to configure in the service application service group. If you do not want to configure an application or a service, host it on a server outside the local cluster.

- The wizard has a single workflow that performs service group creation as well as modification tasks. If you wish to add or remove a SharePoint component from the configuration, you must run the wizard again. If you run the wizard after configuring the SharePoint service groups, the wizard modifies the existing service group configuration. The wizard rediscovers the SharePoint configuration in the farm and then adds or removes resources depending on the changes made.

  For example, if you add a node to the server farm, the wizard adds the required resources and service groups to the configuration. If an application is removed from the server farm, the wizard removes the corresponding resources from the service group and also updates the VCS configuration.

- If you have configured the Web Applications and Service Applications in different clusters, then you must run the configuration wizard once from a node in each cluster.

- After configuring the SharePoint service groups, you can add custom resources such as IP or NIC to monitor the network availability of the cluster nodes in the configuration. You can add these resources manually from the Cluster Manager (Java Console).

  If you run the wizard again, these custom resources are ignored.

Before you configure a SharePoint service group

Before you configure a SharePoint service group, do the following:

- Verify that you have configured a cluster using the VCS Cluster Configuration Wizard (VCW).

- Verify that you have installed and configured SharePoint Server on all the nodes that will be part of the SharePoint service groups.

- Ensure that the SharePoint Server Timer service is running on all the nodes that will be part of the SharePoint service groups.

- Ensure that the Veritas Command Server service is running on all the nodes that will be part of the SharePoint service groups.

- Verify that the Veritas High Availability Daemon (HAD) is running on the system from where you run the VCS SharePoint Server 2013 Configuration Wizard.

- Ensure that you have VCS Cluster Administrator privileges. This privilege is required to configure service groups.

- Ensure that the logged-on user has SharePoint Server Farm Administrator privileges on the SharePoint Server.

- Ensure that you run the wizard from a node where SharePoint Server is installed and configured.

- If you have configured a firewall, add the required ports and services to the Firewall Exception list.

  For a detailed list of services and ports used by the product, refer to the *Veritas InfoScale Installation and Upgrade Guide*.

Creating a SharePoint service group

Complete the following steps to create a service group for SharePoint Server.

To create the SharePoint Server service group

1   Launch the VCS SharePoint Server 2013 Configuration Wizard.

Launch SharePoint Server 2013 Configuration Wizard from **Start > All Programs > Symantec > Veritas Cluster Server > Configuration tools > SharePoint Server 2013 Configuration Wizard** or, on Windows 2012 operating systems, from the **Apps** menu in the **Start** screen.

2   Review the information in the Welcome panel and click **Next**.

3   On the Farm Admin User Details panel, specify the SharePoint Farm Admin user credentials and then click **Next**.

Farm Name	Displays the name of the farm configuration database where the nodes reside.
Farm Admin User Name	Specify a user account that has Farm Admin privileges in the SharePoint farm where the current node resides.
	Click the ellipsis button to launch the Windows Select User dialog box and then specify the appropriate user account.
	The Farm Admin user account is used to manage the SharePoint applications and services configured in the SharePoint service groups in the cluster.
Password	Type the password of the user account specified in the Farm Admin User Name field.
	The wizard stores the user password in the VCS configuration in an encrypted form.

4   On the Web Applications Details panel, review the list of Web Applications that the wizard discovers in the farm and then click **Next**.

The wizard configures these Web Applications in a parallel service group. The wizard configures only those components that are part of the local cluster.

5 On the Service Applications Details panel, review the list of Service Applications and running services that the wizard discovers in the farm. You can also select the stopped services that you want to configure as part of the service group. Click **Next**.

The wizard configures these Service Applications and services in a local service group on each node. The wizard configures only those components that are part of the local cluster.

The wizard configures resources for the services currently running on the system. To configure a resource for a service stopped on the system and which can be started independently, click **Advanced Service Configuration**. The Service Selection dialog box appears.

In the Service Selection dialog box, select a system to view the list of services stopped on it. Select the services to be configured as resources in the service group. Click **OK**.

6 On the Service Groups Summary panel, review the service group configuration, edit the service group and resource names if required, and then click **Next**.

Resources	Displays a list of configured service groups and its resources. The wizard assigns unique names to service group and resources.
	■ For parallel service groups, the wizard uses the following naming convention: FarmConfigurationDatabaseName-WebApplications
	■ For local service groups, the wizard uses the following naming convention: FarmConfigurationDatabasename-NodeName-ServiceApps
	You can edit resource names only in the create mode. You cannot modify names of service groups and resources that already exist in the configuration.
	To edit a name, select the resource name and either click it or press the F2 key. Edit the resource name and then press the Enter key to confirm the changes. To cancel editing a resource name, press the Esc key.
Attributes	Displays the attributes and their configured values, for a resource selected in the Resources list.

7 Click **Yes** on the message that informs that the wizard will run commands to modify the service group configuration. The wizard starts running commands to create the service groups. Various messages indicate the status of these commands.

8 On the completion panel, check **Bring the service group online** check box to bring the SharePoint service groups online in the cluster, and then click **Finish**.

This completes the SharePoint service group configuration.

Verifying the SharePoint cluster configuration

Failover simulation is an important part of configuration testing. To verify the configuration in the cluster, you can take the service groups offline, or manually stop the configured applications on the active cluster node.

You can also simulate a local cluster failover for the SQL databases configured in the VCS SQL Server service group. Refer to the VCS SQL documentation for instructions.

Use Veritas Cluster Manager (Java Console) to perform all the service groups operations.

To take the service groups offline and bring them online

1 In the Veritas Cluster Manager (Java Console), click the cluster in the configuration tree, click the Service Groups tab, and right-click the service group icon in the view panel.

- Click **Offline** and then choose the local system.

- In the dialog box, click **Yes**. The service group you selected is taken offline on the node.
  If there is more than one service group, you must repeat this step until all the service groups are offline.

2 Verify that the applications and services configured in the service groups are in the stopped state.

3 To start all the stopped services, bring all the services groups online on the node.

To manually stop the configured applications and services

1   To verify that the SharePoint applications and services are properly configured with VCS, manually stop these components either from the SharePoint Central Administration console or from the IIS Manager.

2   From the IIS Manager, in the Connections pane on the left, select a configured Web site and then in the Actions pane on the right, click Stop. The status of the Web Site will show as stopped.

3   In the Cluster Manager (Java Console) the corresponding service group resource state may temporarily show as faulted as the SharePoint agent attempts to start the stopped application.

4   When the resource comes online, refresh the IIS Manager view to verify that the IIS site is in the started state.

Considerations when modifying a SharePoint service group

Note the following while modifying SharePoint service groups:

■   The wizard has a single workflow that performs service group creation as well as modification tasks. If you wish to add or remove a SharePoint component from the configuration, you must run the wizard again.

   If you run the wizard after configuring the SharePoint service groups, the wizard modifies the existing service group configuration. The wizard rediscovers the SharePoint configuration in the farm and then adds or removes resources depending on the changes made.

   For example, if you add a node to the server farm, the wizard adds the required resources and service groups to the configuration. If an application is removed from the server farm, the wizard removes the corresponding resources from the service group and also updates the VCS configuration.

■   When you run the wizard after configuring the SharePoint service groups, the wizard ignores any custom resources that you may have added to the service groups. If you wish to add, remove, or modify those custom resources, you must do so manually. The wizard does not provide any options to modify custom resources.