Symantec™ Disaster Recovery Orchestrator Agent for Microsoft SQL Server 2008 and 2008 R2 Configuration Guide

Microsoft Azure

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Symantec™ Disaster Recovery Orchestrator Agent for Microsoft SQL Server 2008 and 2008 R2 Configuration Guide

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Contents

Introducing the Disaster Recovery Orchestrator agent for Microsoft SQL Server 2008 and 2008 R2

This chapter includes the following topics:

- About Disaster Recovery Orchestrator agents

- About resource monitoring

- About the agent functions and attributes

- About the Disaster Recovery Orchestrator agents for SQL Server 2008 and 2008 R2

- How the Disaster Recovery Orchestrator agent monitors SQL Server

About Disaster Recovery Orchestrator agents

Agents are modules that plug into the Disaster Recovery Orchestrator framework, and that help manage the components of the configured applications and the various infrastructure resources.

The agents are installed when you install Disaster Recovery Orchestrator Client. These agents start, stop, and monitor the components of the configured applications and report their state changes. If an application or its components fail, these agents restart the applications and their components on the system.

A system requires one agent per component to monitor all the components of that type. For example, a single GenericService agent manages all the services that are configured using the GenericService components. When the agent starts, it obtains the necessary configuration information from these components and then monitors the configured applications. The agent then periodically updates Disaster Recovery Orchestrator with the component and application status.

Agents perform the following operations:

- Brings the components online

- Takes the components offline

- Monitors the components and reports the state changes

Disaster Recovery Orchestrator agents are classified as follows:

- Infrastructure agents
  These agents are packaged with the base software, and they include agents for mount points, network cards and ports, generic services, heartbeats, and processes. These agents are immediately available for use after you install Disaster Recovery Orchestrator.

- Application agents
  These agents are used to monitor third-party applications such as Microsoft SQL Server, custom applications, and so on. For further information about the Disaster Recovery Orchestrator agent for a supported application, refer to the corresponding configuration guide.

About resource monitoring

Disaster Recovery Orchestrator employs an event-based monitoring framework to determine the status of the configured application and its components. This framework is called the Intelligent Monitoring Framework (IMF), and it is implemented using custom as well as native operating system-based notification mechanisms.

IMF provides instantaneous state change notifications. Disaster Recovery Orchestrator agents detect this state change and then trigger the necessary actions.

IMF provides the following key benefits:

- Instantaneous notification
  Faster fault detection results in faster failover and thus less application down time.

- Reduction in system resource utilization
  Conventional resource monitoring occurs every 60 seconds by default. With IMF event-based monitoring there is less reliance on conventional monitoring and so this interval can be increased. Thus Disaster Recovery Orchestrator

reduces CPU utilization and provides significant benefits in terms of system resource utilization.

■ Ability to monitor large number of components
Due to the ability to increase conventional monitor cycle intervals, IMF allows monitoring of more components with a lower system resource utilization.

How IMF works

IMF is enabled by default for a component if its Disaster Recovery Orchestrator agent supports IMF.

The following steps outline how IMF-based monitoring works:

1. A Disaster Recovery Orchestrator agent waits for the components to report the same steady state (either Online or Offline) for two consecutive monitor cycles. Then, it registers the components for IMF-based monitoring.

2. The agent then registers itself for receiving certain operating system-specific or custom event notifications.

3. If a component fails, the agent executes a monitor cycle to determine its state. If the state is Offline, Disaster Recovery Orchestrator takes the necessary corrective action, depending on the configuration.

4. If the component state remains the same, the agent moves to a Wait state and then waits for the next event to occur.

About the agent functions and attributes

Every agent has a collection of attributes and performs a definite set of functions.

An agent uses the values of its attributes to configure the corresponding application component to function in a specific way. By modifying attribute values you can change the way in which Disaster Recovery Orchestrator agent manages the component.

For example, the IP agent monitors an IP address. The specific address to be monitored is identified by value of the `Address` attribute.

Depending on the category to which an agent belongs, an agent performs either or all of the following functions:

Online	Brings the configured component online
Offline	Takes the configured component offline
Monitor	Verifies whether the configured component is online

As part of the Monitor function, an agent reports the following states:

ONLINE	Indicates that the configured component is online
OFFLINE	Indicates that the configured component or application has faulted
UNKNOWN	Indicates that the agent encountered issues while monitoring the configured component

About the Disaster Recovery Orchestrator agents for SQL Server 2008 and 2008 R2

The Disaster Recovery Orchestrator agents for SQL Server provide monitoring support for the following application versions:

- SQL Server 2008 (including SP3)

- SQL Server 2008 R2 (including SP2)

The agents monitor the SQL Server instances and the associated services on the system where the application is installed.

The Disaster Recovery Orchestrator agents for SQL Server are:

- SQL Server 2008 Database Engine agent
  The agent monitors the status of the SQL Server Database Engine service. If the service is not running, the agent declares the corresponding resource as Offline.
  See "About the Disaster Recovery Orchestrator agent for SQL Server Database Engine" on page 13.

- SQL Server 2008 FILESTREAM agent
  The agent monitors the Windows FILESTREAM configuration settings for the SQL Server instance.
  See "About the Disaster Recovery Orchestrator agent for SQL Server FILESTREAM" on page 16.

- GenericService agent
  The agent monitors the SQL Server 2008 Agent service and Analysis service. If the service is not running, the agent declares the corresponding resource as Offline.

About the Disaster Recovery Orchestrator agent for SQL Server Database Engine

The Disaster Recovery Orchestrator agent for SQL Server Database Engine agent monitors the Database Engine service. The agent brings the service online, monitors the status, and takes it offline. If the service is not running, the agent declares its state as offline.

If detail monitoring is configured, the agent checks the health of the configured SQL Server databases or executes a monitoring script. If detail monitoring is successful, the agent declares the application as available.

The SQLServer2008 resource type represents this agent.

Agent functions

Online	Brings the SQL Server service online.
Offline	Takes the SQL Server service offline.
Monitor	Monitors the status of SQL Server services.
	If detail monitoring is configured, then depending on the configuration, the agent performs a database health check or executes a monitoring script.
Clean	Forcibly stops the SQL Server service.

Resource type definition

```
type SQLServer2008 (
  static int IMF{} = { Mode=3, MonitorFreq=5, RegisterRetryLimit=3 }
  static i18nstr IMFRegList[] = { Instance }
  static i18nstr ArgList[] = { Instance, "LanmanResName:VirtualName",
    SQLOnlineTimeout,SQLOfflineTimeout, DetailMonitorInterval,
    SQLDetailMonitorTimeout, Username, Domain, Password, DBList, SQLFile,
    FaultOnDMFailure, LanmanResName:IPResName", SQLClusterAccount }
  str Instance
  str LanmanResName
  int SQLOnlineTimeout = 90
  int SQLOfflineTimeout = 90
  int DetailMonitorInterval
  int SQLDetailMonitorTimeout = 30
  i18nstr Username
  i18nstr Domain
  str Password
  i18nstr DBList[]
```

```
i18nstr SQLFile
boolean FaultOnDMFailure = 1
str SQLClusterAccount
)
```

Agent attributes

Table 1-1	Disaster Recovery Orchestrator agent for SQL Server Database Engine—required attributes

Attribute	Description
Name: **Instance** Type: **String** Dimension: **Scalar**	Name of the SQL Server instance to monitor. If the value of this attribute is empty, the agent monitors the default SQL Server instance (MSSQLSERVER).
Name: **LanmanResName** Type:**String** Dimension: **Scalar**	The Lanman resource name on which the SQLServer2008 resource depends.

Table 1-2	Disaster Recovery Orchestrator agent for SQL Server Database Engine—optional attributes

Attribute	Description
Name: **SQLOnlineTimeout** Type: **Integer** Dimension: **Scalar**	Number of seconds that may elapse before the Online function aborts. Default value: 90
Name: **SQLOfflineTimeout** Type: **Integer** Dimension: **Scalar**	Number of seconds that may elapse before the Offline function aborts. Default value: 90

Table 1-2   Disaster Recovery Orchestrator agent for SQL Server Database Engine—optional attributes *(continued)*

Attribute	Description
Name: **DetailMonitorInterval** Type: **Integer** Dimension: **Scalar**	Defines the level of detail monitoring that the agent performs for SQL Server. The value 0 (zero) indicates that the agent performs only the basic monitoring of the instance service. A non-zero value indicates the number of online monitor cycles that the agent must wait before performing detail monitoring. Symantec recommends that you set this value to an integer between 1 and 12. The value 1 would make the agent perform detail monitoring at each monitor cycle. The value 2 would make the agent perform detail monitoring at every other monitor cycle. This interpretation may be extended to other values. If this attribute is set to a non-zero value, then the following attributes must be assigned appropriate values: ■ For script-based monitoring: SQLFile, Username, Password, Domain, and SQLDetailMonitorTimeOut ■ For databases list-based monitoring: Username, Password, Domain, and DBList Default value: 5
Name: **FaultOnDMFailure** Type: **Boolean** Dimension: **Scalar**	Defines whether the agent faults the SQL Server resource when the detail monitoring fails. ■ If the value is set to True, the agent faults the configured SQL Server resource when the detail monitoring fails. In this case, the SQL Server resource may go into OFFLINE state. ■ If the value is set to False, the agent does not fault the SQL Server resource when the detail monitoring fails. In this case, the SQL Server resource may go into the UNKOWN state. Default value: True
Name: **SQLDetailMonitorTimeout** Type: **Integer** Dimension: **Scalar**	Number of seconds that may elapse before the detail monitoring routine aborts. Default value: 30
Name: **Username** Type: **String** Dimension: **Scalar**	User account in whose context the detail monitoring is performed. If the DetailMonitorInterval attribute is set to a non-zero value, the value of this attribute must not be empty.
Name: **Domain** Type: **String** Dimension: **Scalar**	Domain of the user account specified in the Username attribute.

Table 1-2   Disaster Recovery Orchestrator agent for SQL Server Database Engine—optional attributes *(continued)*

Attribute	Description
Name: **Password** Type: **String** Dimension: **Scalar**	Password for the user account specified in the Username attribute. If the DetailMonitorInterval attribute is set to a non-zero value, the value of this attribute must not be empty. This password is encrypted.
Name: **SQLFile** Type: **String** Dimension: **Scalar**	Location of the SQL file executed during a monitor cycle If the DetailMonitorInterval attribute is set to a non-zero value, then either the script-based detail monitoring or the database list-based detail monitoring must be configured.
Name: **DBList** Type: **String** Dimension: **Vector**	List of databases for which the agent must perform detail monitoring. If the DetailMonitorInterval attribute is set to a non-zero value, then either the script-based detail monitoring or the database list-based detail monitoring must be configured. If both the SQLFile attribute and the DBList attribute are configured, then the DBList attribute takes precedence.

About the Disaster Recovery Orchestrator agent for SQL Server FILESTREAM

The Disaster Recovery Orchestrator agent for SQL Server FILESTREAM enables FILESTREAM storage for the specified SQL Server instance, monitors its status, and disables it.

FILESTREAM enables SQL Server-based applications to store unstructured data, such as documents and images, on the file system.

The FILESTREAM resource type represents this agent.

Agent functions

Online	Enables FILESTREAM on the system.
Offline	Disables FILESTREAM on the system.
Monitor	Monitors FILESTREAM status on the system. If the agent is unable to query the status of FILESTREAM or if FILESTREAM is disabled on the system, the FILESTREAM resource in the application monitoring configuration faults.

Clean	Cleans up the resource state after the resource fails to come online, fails to go offline, or fails to be detected as online even though it is in the ONLINE state.

Resource type definition

```
type SQLFilestream (
static i18nstr ArgList[] = { InstanceName }
i18nstr InstanceName
)
```

Agent attributes

Table 1-3   Disaster Recovery Orchestrator agent for SQL Server FILESTREAM—required attribute

Attribute	Description
Name: **InstanceName** Type: **String** Dimension: **Scalar**	Name of the SQL Server instance for which FILESTREAM is configured. If the value of this attribute is empty, the agent monitors the default SQL Server instance (MSSQLSERVER).

How the Disaster Recovery Orchestrator agent monitors SQL Server

The Disaster Recovery Orchestrator agents for SQL Server monitor the configured resources, determine the status of these resources, bring them online, and take them offline. The agents detect an application failure if the configured SQL Server instance or associated services become unavailable. The agents try to start the application services for a configurable number of attempts. If the application services fail to start, the agents consider this as an application failure.

The agent for SQL Server provides the following levels of monitoring support:

- Basic monitoring
  In the basic level monitoring, the agent monitors and determines if the configured resources are online and the corresponding SQL Server instance and associated services are running.

- Detail monitoring
  In detail monitoring, the agent runs a user-defined SQL script or connects to the configured databases to verify the status of SQL Server instance.

- In the case of script-based monitoring, it detects an application failure if the script execution fails.

- In the case of DB-list based monitoring, the agent attempts to connect to the configured DBs.

The following exit codes indicate the status of the script execution or the status of the connection to the configured DBs:

Exit code	Status
0	Success; the agent reports that the SQL Server resource is in the ONLINE state.
Any other	The value of the FaultOnDMFailure attribute determines the state of the resource as follows: - If the value is set to `True`, the agent might report that the SQL Server resource is in the OFFLINE state. This implies that the resource has faulted. - If the value is set to `False`, the agent might report that the SQL Server resource is in the UNKNOWN state.

Configuring disaster recovery

This chapter includes the following topics:

- Considerations for configuring an application for recovery
- Configuring an application for disaster recovery
- Finalizing the application recovery configuration

Considerations for configuring an application for recovery

This section lists the considerations for configuring an application for disaster recovery (DR).

Software and network

Consider the following software configuration requirements before configuring an application for DR:

- Make sure that the latest Adobe Flash Player plugin is available for the browser that you use to access the Console UI.
- Adobe Flash Player must be enabled for use on systems that run Windows Server 2012.
- The authentication (AT) service requires that an endpoint with the port number 14153 is configured on the Console host and the Client hosts.
- The application that you want to configure for DR must be configured for monitoring on the on-premises application host and the cloud application host. If application monitoring is not configured on any of these systems, the Disaster

Recovery Orchestrator Configuration Wizard prompts you to do so. You can launch the Application Monitoring Configuration Wizard from within the DR configuration wizard. After the application monitoring configurations are in place on both the systems, you can proceed to configure the application for recovery.

Configuration

- Ensure that User Access Control (UAC) is disabled on all the systems that participate in the DR solution.

- Ensure that the appropriate users are configured on the Privilege Settings view of the Console UI.

- The following SQL Server configuration items on the cloud application hosts must match those on the corresponding on-premises application hosts exactly:

  - Installation directory, name, and ID of each instance

  - Drive letters of the data volumes

  - Installation directory and name of each user-defined database

  - Users

- Ensure that the following patches are installed on the on-premises application host and the cloud application host for SQL Server. These patches are required for the sqlcmd utility commands to work, and they must be installed in the following order:

  - http://www.microsoft.com/en-us/download/confirmation.aspx?id=36434

  - http://www.microsoft.com/en-us/download/confirmation.aspx?id=36433

Storage and replication

Consider the following storage and replication requirements before configuring an application for DR:

- During the time that Disaster Recovery Orchestrator Console is hosted on the virtual machine, a disk must not be manually attached or detached. Disaster Recovery Orchestrator must manage the addition or removal of any storage on this virtual machine.

- The disks must not be part of a storage pool. If you use a volume created in a storage pool, the takeover and failback operations will eventually fail.

- The Windows automount feature must be enabled on the Console host. The replication service driver needs the volumes to be mounted so that it can access the file replication configurations.
  For more information, see the Microsoft article:
  http://technet.microsoft.com/en-us/library/cc753703.aspx

- Sufficient space must be available on the volumes that are used to store the application data.
  If required, the volumes can be resized even after replication is configured.

- The application data must be stored at identical locations on the on-premises application host and the corresponding cloud application host. This is required for configuring replication between the two sites, which ensures that application data is synchronized.

  The following criteria must be satisfied:

  - The folders to be mapped for replication must exist at both locations.

  - The drive letters of the volumes on which the folders are located must match exactly.

- The journal file size must be defined appropriately. Although the minimum requirement is 1 GB, Symantec recommends that you set the journal file size to 10 GB for better performance.
  Specify a size that fits within the space that is currently available on the volume. You can change the journal file size for each application later from the corresponding Settings page.

- The disk on which the journal file is located (replication log volume) must not be detached while the replication is in progress.

Configuring an application for disaster recovery

To configure an application for disaster recovery (DR), it must first be configured for monitoring. The Disaster Recovery Orchestrator Configuration Wizard checks for application monitoring configurations on the on-premises application host and the cloud application host.

To configure an application for disaster recovery

1   Sign in to the Disaster Recovery Orchestrator Console UI from a web browser.

2   On the command bar, click **Configure**.

3   On the On-Premises System Information panel, provide the following input:

    - Select the name of the on-premises system that hosts the application.

    - Enter the user name and password of a domain user who has the privileges to configure the application for DR.
      You may specify the current user or a different user. However, the user must have local administrator privileges on the on-premises system.

    Click the Next arrow.

The wizard searches for application monitoring configurations on the specified system, and proceed as follows:

- If the wizard does not find any application monitoring configurations, it displays a message and prompts you to configure an application for monitoring. Click **Configure** to launch the Application Monitoring Configuration Wizard, and step through the wizard.

  Note: Make sure that pop-up blockers are not enabled on the browser.

  See "Configuring application monitoring" on page 27.
  After you exit the Application Monitoring Configuration Wizard, click the right arrow at the bottomr right corner on the DR configuration wizard.

- If the wizard finds any applications that are configured for monitoring but not configured for DR, it displays the next page.

4 On the Application Virtual Machine Mapping page, specify the following:

- Select the on-premises application that you want to map to a cloud virtual machine for DR.

- Select the name of the cloud virtual machine that hosts the application.

- Enter the user name and password of a domain user who has the privileges to configure the application for DR.
  You may specify the current user or a different user. However, the user must have local administrator privileges on the cloud application host.

Click the Next arrow.

The wizard searches for application monitoring configurations on the specified virtual machine, and proceeds as it did earlier for the on-premises application in step 3. Take the appropriate action to proceed.

5 On the Data Mapping for Replication panel, and map the application data folders to the corresponding folders on the cloud application host.

If the Disaster Recovery Orchestrator Configuration Wizard is able to identify the data folders that configured for the application, they are selected by default.

If you do not want to replicate any specific folders, remove them from the Selected Folders list on the right.

Click the Next arrow.

6 On the Replication Journal Information panel, provide the following information:

- A location and size for the on-premises journal file

- A location and size for the cloud journal file

Click the Next arrow.

7 On the Virtual Computer Name panel, specify the following:

   ■ Select the IP address to be used to access the on-premises application.

   ■ Enter a unique virtual name for the application.

   ■ Provide the credentials of the user in whose context the application
      monitoring helper service runs.
      You may specify the current user or a different user. However, the user
      must have DNS administrator privileges and must be a local administrator
      on the on-premises application host and the corresponding cloud application
      host.

      Note: If the user that you specify does not have the appropriate privileges,
      the DR configuration might fail.

   Click the Next arrow.

8 On the Summary panel, review the data that the wizard has collected so far.

   Click the Next arrow.

9 On the Implementation panel, review the progress of the tasks as the wizard
   performs them.

   If an issue occurs, the wizard displays an error message and provides a link
   to the logs that you can use for troubleshooting.

   When all the tasks are completed, click the Next arrow.

10 On the DR Site Preparation panel, take one of the following actions:

   ■ To finalize the application configuration immediately, click **Configure now**.
      See "Finalizing the application recovery configuration" on page 23.

   ■ To finalize the application configuration later, click **Configure later**.
      You must remember to perform this operation by clicking the appropriate
      link from the Applications view later.

   If you do not click either of these buttons and exit the wizard, you can finalize
   the application later.

Finalizing the application recovery configuration

This procedure is the last step in configuring an application for disaster recovery
(DR).

You can finalize an application recovery configuration in one of the following ways.

- On the Finalize Application Recovery Configuration panel of the DR configuration wizard, click **Finalize**.

  The wizard prompts you to confirm whether it should proceed with the final tasks.

  - If you click **Yes**, it proceeds with the tasks required to complete application recovery configuration, and displays the status of each task.

    When all the tasks are completed, click the check mark icon in the lower right corner to exit the wizard.

  - If you click **No**, it does not proceed. You will need to complete the final tasks from the Applications view later.

- On the Applications view of Disaster Recovery Orchestrator Console, click the **Finalize application recovery configuration** link. The wizard prompts you to confirm whether it should proceed with the final tasks, and if you click **Yes**, it displays the Configure dialog box.

  While the tasks are in progress, use the Close button on the top right corner to temporarily close the dialog box. You can click the **Finalize application recovery configuration** link again to reopen the dialog box.

  When all the tasks are completed, click the check mark icon in the lower right corner to close the dialog box.

Configuring application monitoring

This chapter includes the following topics:

- Considerations for configuring an application for monitoring
- Configuring application monitoring

Considerations for configuring an application for monitoring

Disaster Recovery Orchestrator provides an interface, Health View, to configure and administer application monitoring.

The Disaster Recovery Orchestrator Client installer creates a shortcut to the Health View on the system's desktop. The Health View is Web-based and can be accessed using any of the available browser.

You can also access the Health View directly from a browser window using the following URL:

```
https://ClientHost:5634/vcs/admin/application_health.html
```

Replace the *ClientHost* variable with the name of the system that hosts the application and Disaster Recovery Orchestrator Client. On the system itself, you may replace *ClientHost* with **localhost**.

Consider the following before you configure application monitoring:

- SQL Server must be installed in the standalone mode in a non-clustered environment. To do so, on the Installation panel of the SQL Server installer, select the **New SQL Server stand-alone installation or add features to an existing installation** option.

- The SQL Server instances must be installed on the local disk. On the Instance Configuration panel of the SQL Server installer, ensure that the **Instance root directory** resides on the local disk.

- If multiple instances of SQL Server exist, each instance must have a unique name instance ID.

- The SQL Server components (FILESTREAM, SQL Server Agent, Analysis Service) that you want to monitor on the system must be installed.

- SQL Server services, apart from the SQL Browser service, must not be set to start at the end of the SQL Server installation. While installing SQL Server on a system, set the startup type of all the SQL Server services to Manual. However, set the startup type of the SQL Server Browser service to Automatic.

- The SQL Server instances that you want to configure for monitoring must not be installed on the system volume, and must be running.

- The same user must be configured as the SQL Server administrator on the on-premises application host and the corresponding cloud application host.

- Disaster Recovery Orchestrator does not support application monitoring for SQL Server 2008 and SQL Server 2008 R2 on the same system simultaneously.

- You can configure application monitoring on a system using the Symantec Application Monitoring Configuration Wizard. To launch the wizard, click **Configure Application Monitoring** on the Health View.

- You can use the wizard to configure monitoring for only one application on each system.
  To configure another application using the wizard, you must first unconfigure the existing application monitoring configuration.

- The wizard executes its tasks in the logged-on user context. Therefore, you must ensure that the logged-on user has administrative privileges on the system where you want to configure application monitoring.

- If you have configured a firewall, ensure that your firewall settings allow access to ports used by the Disaster Recovery Orchestrator installer, wizards, and services.
  For information about the ports used, refer to the *Symantec Disaster Recovery Orchestrator Deployment Guide*.

- After configuring SQL Server for monitoring, if you create another database or service, then these new components are not monitored as part of the existing configuration.
  To monitor any new components that you add, unconfigure the existing application monitoring configuration and then run the wizard again to configure all the components.

> **Note:** When you configure or unconfigure application monitoring, it does not alter the state of the application. The application runs unaffected on the system.

Configuring application monitoring

Perform the following steps to configure application monitoring on a system:

- Symantec recommends that you launch the Application Monitoring Configuration Wizard from within the Disaster Recovery Orchestrator Configuration Wizard. When the DR configuration wizard does not find an application monitoring configuration on the selected system, it displays a message box accordingly. Click **Configure** to launch the Symantec Application Monitoring Configuration Wizard.

- Alternatively, you may create the application monitoring configuration directly on the on-premises application host or the corresponding cloud application host. To do so, launch the Health View using the desktop shortcut or by entering the following URL in a browser:

  `https://system:5634/vcs/admin/application_health.html`

  Replace the *System* variable with the system name or its IP address. If you launch the browser locally on the system that hosts the application, you may replace *System* with **localhost**.

  Click **Configure Application Monitoring** to launch the Symantec Application Monitoring Configuration Wizard.

> **Note:** You can configure monitoring for multiple SQL Server instances in a single wizard workflow.

To configure application monitoring

1. Review the information on the Welcome panel and then click Next.

2. On the Application Selection panel, select the application that you want to configure for monitoring, and click Next.

   This panel lists all the applications on the system that are supported for monitoring. If the list of applications is too long, you might want to search for the application name using the **Search** box.

3. On the SQL Server User Details panel, provide the application administrator credentials, which are required to discover the databases and services.

4. On the SQL Instance Selection page, specify the following:

- All the instances are selected by default. Deselect only those that you do not wish to monitor.

- All the enabled services are selected by default. Deselect only those that you do not wish to monitor.

- If you wish to perform detail monitoring, select **Configure detail monitoring**, and provide the required input.

Click Next.

5   To enable detail monitoring for the selected instances and associated services, select **Configure detail monitoring** and provide the following required details:

- Enter a non-zero value in the **Monitor after every... cycles** box. This value indicates the number of online monitor cycles that the agent must wait before performing detail monitoring.
  Symantec recommends that you set this value between 1 and 12. The default value is 5.

- Select one of the following modes for detail monitoring:

  - Database monitoring
    Select this mode to enable detail monitoring by choosing the desired databases from a list.

  - Script-based monitoring
    Select this mode to enable detail monitoring by using a user-defined SQL script.
    Enter the location of the SQL script on the system.

- Select **Restart the SQL instance if detail monitoring fails** if you want to detect an application failure in case detail monitoring has failed.

6   On the Application Monitoring Configuration panel, the wizard displays the tasks that are performed and the status of each task. After all the tasks are complete, click Next.

If the configuration tasks fail, click **View Logs** to check the details of the failure. Rectify the cause of the failure and run the wizard again to configure the application monitoring.

7   On the Finish panel, click **Finish** to exit the wizard.

This completes the application monitoring configuration.

Use the Health View to monitor the application status and control application monitoring.

For further information, refer to the *Symantec Disaster Recovery Orchestrator Administration Guide*.

Troubleshooting

This appendix includes the following topics:

- Application configuration issues

Application configuration issues

The following sections describe some of the issues that you might encounter with the application monitoring and recovery configurations, and provide solutions to work around those issues.

Configuration of a SQL Server application for recovery fails with sqlcmd errors

You might encounter errors related to the `sqlcmd` utility on the Implementation panel of the DR configuration wizard. The wizard may fail to take the SQL Server application offline on the cloud application host.

Workaround

Check whether the following required patches have been installed on the systems where SQL Server is hosted:

- http://www.microsoft.com/en-us/download/confirmation.aspx?id=36434

- http://www.microsoft.com/en-us/download/confirmation.aspx?id=36433

If these patches are not installed, install them in the order that was mentioned previously. Then, launch the DR configuration wizard again.

Unable to connect to a SQL Server instance using the system name

By default, the SQL Server instances are identified as follows:

- Default instance: *SystemName*

For example: **Sys_01**

■ Named instance: *SystemName\InstanceName*
For example: **Sys_01\Inst_01**

When configuring SQL Server for recovery in the cloud, the Disaster Recovery Orchestrator Configuration Wizard changes its name to the virtual name that you provide on the Virtual Computer Name panel.

This change is not reversed when removing the application recovery configuration or when uninstalling the product. Therefore, you may not be able to access the SQL Server instances using the system name, which is used by default.

Workaround

After removing a recovery configuration from Disaster Recovery Orchestrator Console or after uninstalling Disaster Recovery Orchestrator Client, change the SQL Server name from the virtual name back to the system name.

Perform the following steps on the on-premises application host and the corresponding cloud application host.

To restore the default SQL Server name

1   Launch the Query Analyzer.

   ■ On Windows Server 2008 R2, click **Start > All Programs > Microsoft SQL Server > Query Analyzer**.

   ■ On Windows Server 2012, open Query Analyzer from the **Apps** menu.

2   In the Connect to SQL Server window, provide the following information:

   ■ In the **SQL Server** field, enter the SQL Server machine name in the format *VirtualName\InstanceName*. For example, **DR_DB\Inst_01**.

   ■ Select the **Start SQL server if it is stopped** checkbox.

   ■ Select either **Windows authentication** or **SQL Server authentication**, and enter the valid values for **Login name** and **Password**.

   Click **OK**.

3   In the SQL Query Analyzer window, find the SQL Server name as follows:

   ■ In the Editor pane, enter:

   `sp_helpserver`

   ■ Press F5.

   ■ Make note of the name listed in the Results pane, for example, DR_DB\Inst_01.

For a named instance, the name will be *VirtualName\InstanceName*. For a default instance, the name will be *VirtualName*.

4 Delete the contents of the Editor pane.

5 Remove the current SQL Server name as follows:

- In the Editor pane, enter:

  ```
  sp_dropserver 'VirtualName\InstanceName'
  ```

  Here, *IirtualName\InstanceName* should be the value that noted in step 3.

  For example, for a named instance enter:

  ```
  sp_dropserver 'DR_DB\Inst_01'
  ```

  For example, for a default instance enter:

  ```
  sp_dropserver 'DR_DB'
  ```

- Press F5.

6 Delete the contents of the Editor pane.

7 Add the new SQL Server name as follows:

- In the Editor pane, enter:

  ```
  sp_addserver 'SystemName\InstanceName', local
  ```

  For example, for a named instance enter:

  ```
  sp_addserver 'Sys_01\Inst_01', local
  ```

  For example, for a default instance enter:

  ```
  sp_addserver 'Sys_01', local
  ```

- Press F5.

Index