

Symantec™ ApplicationHA Agent for Microsoft Exchange Server 2007 Configuration Guide

Windows Server 2003 (x64), Windows
Server 2008 (x64)

6.0

Symantec™ ApplicationHA Agent for Microsoft Exchange Server 2007 Configuration Guide

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Introducing the Symantec ApplicationHA agent for Microsoft Exchange Server 2007

This chapter includes the following topics:

- [About the Symantec ApplicationHA agents](#)
- [About server roles and application monitoring support for Exchange 2007](#)
- [About the Symantec ApplicationHA agents for Exchange Server 2007](#)
- [How Symantec ApplicationHA agent monitors Exchange Server 2007](#)

About the Symantec ApplicationHA agents

Agents are the processes that manage applications and resources of the predefined resource types which are configured for applications and components on a system. The agents are installed when you install Symantec ApplicationHA. These agents start, stop, and monitor the corresponding resources that are configured for the applications and report state changes.

Symantec ApplicationHA agents are classified as follows:

- **Infrastructure agents**
Infrastructure agents are packaged (bundled) with the base software and include agents for mount points, generic services, and processes. These agents are immediately available for use after you install Symantec ApplicationHA.

For more details about the infrastructure agents, refer to the *Symantec™ ApplicationHA Generic Agents Guide*.

■ Application agents

Application agents are used to monitor third party applications such as Oracle, Microsoft SQL Server, and Microsoft Exchange. These agents are packaged separately and are available in the form of an agent pack that gets installed when you install Symantec ApplicationHA.

An agent pack is released on a quarterly basis. The agent pack includes support for new applications as well as fixes and enhancements to existing agents. You can install the agent pack on an existing ApplicationHA guest components installation.

Refer to the Symantec Operations Readiness Tools (SORT) Web site for information on the latest agent pack availability.

<https://sort.symantec.com>

The following sections provide details about the agent for Microsoft Exchange Server 2007.

For more details about other application agents, refer to the application-specific configuration guide.

About server roles and application monitoring support for Exchange 2007

The Exchange Server 2007 server roles allow an administrator to split the functions of an Exchange server and place each role, or a combination of roles, on different servers in the organization.

Using the Symantec ApplicationHA agents for Microsoft Exchange Server 2007, you can monitor the supported Exchange Server 2007 roles and their corresponding services. The agents that monitor the roles are ExchService2007, GenericService, IIS, MountMonitor, and ServiceMonitor.

Note: The Exchange 2007 server roles must be installed on the system if you want to configure them for application monitoring.

Symantec provides application monitoring support for the following three server roles:

■ Client Access server role

The Client Access server role makes it possible to use Exchange 2007 functionalities and features, such as Outlook Web Access, Exchange ActiveSync, the offline address book, the Autodiscover and Availability services, and

Outlook Anywhere. It handles communications between clients and Microsoft Exchange.

The Symantec ApplicationHA agent for Microsoft Exchange Server 2007 provides monitoring support for the Client Access server role services.

- **Hub Transport server role**

The Exchange 2007 Hub Transport server role is deployed inside your organization's Active Directory. It handles all internal mail flow, applies organizational message routing policies, and is responsible for delivering messages to a recipient's mailbox.

The Symantec ApplicationHA agent for Microsoft Exchange Server 2007 provides monitoring support for the Hub Transport server role services.

- **Mailbox server role**

The Exchange 2007 Mailbox server role hosts both mailbox and public folder databases, and provides calendar access for users and messaging records management (MRM).

The Symantec ApplicationHA agent for Microsoft Exchange Server 2007 provides monitoring support for the Mailbox server role services. Additionally, you can also configure application monitoring for Mailbox databases using the detail monitoring feature. In detail monitoring, the agent monitors the Exchange 2007 mailbox databases.

Server role services

The Symantec ApplicationHA agents for Microsoft Exchange Server 2007 monitors the supported Exchange roles and their corresponding services.

The agents start the required Exchange services if they are not running already, and monitor their status.

The agents monitor the following services for the corresponding Exchange 2007 roles:

Client Access server role services

- **Microsoft Exchange AD Topology service (MSExchangeADTopology)**
This service provides Active Directory topology information to the Exchange services. If this service is stopped, most Exchange services cannot start.
- **Microsoft Exchange Monitoring (MSExchangeMonitoing)**
Provides a remote procedure call (RPC) server that can be used to invoke diagnostic cmdlets. This service does not have any dependencies.
- **Microsoft Exchange File Distribution (MSExchangeFDS)**

Used to distribute offline address book and custom Unified Messaging prompts. This service is dependent upon the Microsoft Exchange Active Directory Topology and Workstation services.

- **Microsoft Exchange IMAP4 (MSEExchangeImap4)**
Provides Post Office Protocol version 3 (POP3) services to POP3 clients. This service is dependent upon the Microsoft Exchange Active Directory Topology service.
- **Microsoft Exchange POP3 (MSEExchangePop3)**
Provides POP3 services to POP3 clients. This service is dependent upon the Microsoft Exchange Active Directory Topology service.
- **Microsoft Exchange Service Host (MSEExchangeServiceHost)**
Configures the RPC virtual directory in Internet Information Services (IIS), and registry data for ValidPorts, NSPI Interface Protocol Sequences, and AllowAnonymous for Outlook Anywhere. This service is dependent upon the Microsoft Exchange Active Directory Topology service.

Hub Transport server role services

- **Microsoft Exchange AD Topology service (MSEExchangeADTopology)**
This service provides Active Directory topology information to the Exchange services. If this service is stopped, most Exchange services cannot start.
- **Microsoft Exchange Monitoring (MSEExchangeMonitoing)**
Provides a remote procedure call (RPC) server that can be used to invoke diagnostic cmdlets. This service does not have any dependencies.
- **Microsoft Exchange Anti-spam Update (MSEExchangeAntiSpamUpdate)**
Used to automatically download antispam filter updates from Microsoft Update. This service does not have any dependencies.
- **Microsoft Exchange EdgeSync (MSEExchangeEdgeSync)**
Connects to ADAM instance on subscribed Edge Transport servers over secure Lightweight Directory Access Protocol (LDAP) channel to synchronize data between a Hub Transport server and an Edge Transport server. This service is dependent upon the Microsoft Exchange Active Directory Topology service. If there are no Edge Subscriptions configured, this service can be disabled.
- **Microsoft Exchange Transport (MSEExchangeTransport)**
Provides Simple Message Transfer Protocol (SMTP) server and transport stack. This service is dependent upon the Microsoft Exchange Active Directory Topology service.
- **Microsoft Exchange Transport Log Search (MSEExchangeTransportLogSearch)**

Provides message tracking and transport log searching. This service has no dependencies.

Mailbox server role services

- **Microsoft Exchange AD Topology service (MSExchangeADTopology)**
This service provides Active Directory topology information to the Exchange services. If this service is stopped, most Exchange services cannot start.
- **Microsoft Exchange Monitoring (MSExchangeMonitoing)**
Provides a remote procedure call (RPC) server that can be used to invoke diagnostic cmdlets. This service does not have any dependencies.
- **Microsoft Exchange Replication Service (MSExchangeRepl)**
This service provides replication functionality for Mailbox Server role databases and is used by Local Continuous Replication (LCR) and Cluster Continuous Replication (CCR).
- **Microsoft Exchange System Attendant (MSExchangeSA)**
The Exchange component responsible for monitoring, maintenance, and Active Directory lookup services, and ensuring that operations run smoothly.
- **Microsoft Exchange Information Store (MSExchangeIS)**
The Exchange storage used to hold messages in users' mailboxes and in public folders.
- **Microsoft Exchange Mail Submission (MSExchangeMailSubmission)**
This service submits messages from the Mailbox Server to the Hub Transport Server.
- **Microsoft Exchange Mailbox Assistants (MSExchangeMailboxAssistants)**
Provides functionality for Calendar Attendant, Resource Booking Attendant, Out of Office Assistant, and Managed Folder Mailbox Assistant. This service is dependent upon the Microsoft Exchange Active Directory Topology service.
- **Microsoft Exchange Search Indexer (MSExchangeSearch)**
Provides content to the Microsoft Search (Exchange Server) service for indexing. This service is dependent upon the Microsoft Exchange Active Directory Topology service and the Microsoft Search (Exchange Server) service.
- **Microsoft Search (Exchange) (msftesql-Exchange)**
Provides full-text indexing of mailbox data content. This is a Microsoft Exchange-customized version of Microsoft Search. This service is dependent upon the Remote Procedure Call (RPC) service.
- **Microsoft Exchange Service Host (MSExchangeServiceHost)**
Configures the RPC virtual directory in Internet Information Services (IIS), and registry data for ValidPorts, NSPI Interface Protocol Sequences, and

AllowAnonymous for Outlook Anywhere. This service is dependent upon the Microsoft Exchange Active Directory Topology service.

- Microsoft Exchange Transport Log Search (MSEExchangeTransportLogSearch)
Provides message tracking and transport log searching. This service has no dependencies.

About the Symantec ApplicationHA agents for Exchange Server 2007

The Symantec ApplicationHA agents for Microsoft Exchange Server 2007 monitors various services corresponding to the Client Access, Hub Transport, and Mailbox server roles of Exchange 2007. The agents that monitor these roles are ExchService2007, GenericService, IIS, MountMonitor, and ServiceMonitor.

The agents start the required Exchange services if they are not running already, and monitor their status.

For more information about the server roles and services, See [“About server roles and application monitoring support for Exchange 2007”](#) on page 10.

The following are the agents and the corresponding services that they monitor for the Client Access, Hub Transport, and Mailbox server roles of Exchange 2007:

About the ExchService2007 agent

The ExchService2007 (Exchange Service) agent brings the following Exchange services online, monitors their status, and takes them offline. Each Microsoft Exchange service is configured as an ApplicationHA resource of type ExchService2007.

- Microsoft Exchange System Attendant (MSEExchangeSA)
- Microsoft Exchange Information Store (MSEExchangeIS)
- Microsoft Exchange Mail Submission (MSEExchangeMailSubmission)

Additionally, you can also configure the agent to monitor the following optional services:

- Microsoft Exchange Mailbox Assistants (MSEExchangeMailboxAssistants)
- Microsoft Exchange Replication Service (MSEExchangeRepl)
- Microsoft Exchange Search Indexer (MSEExchangeSearch)
- Microsoft Exchange Service Host (MSEExchangeServiceHost)
- Microsoft Exchange Transport Log Search (MSEExchangeTransportLogSearch)

■ Microsoft Search (msftesql-Exchange)

ExchService2007 agent functions

Online	Starts the configured Exchange service.
Offline	Stops the configured Exchange service.
Monitor	<p>Determines the state of the configured Exchange service by querying the Service Control Manager (SCM).</p> <p>The agent monitors and verifies the state of all the databases that are selected for detail monitoring. The agent behavior varies depending on how the attributes are configured.</p> <p>See See “Detail monitoring and agent behavior” on page 17. for more information.</p>

ExchService2007 agent state definitions

ONLINE	Indicates that the configured Exchange service has started.
OFFLINE	Indicates that the configured Exchange service has stopped.
UNKNOWN	Indicates that the agent is unable to determine the state of the configured Exchange service.

ExchService2007 agent resource type definition

The Exchange Service agent is represented by the ExchService2007 resource type.

```
type ExchService2007 (
    static il8nstr ArgList[] = { Service, "LanmanResName:VirtualName",
    DetailMonitor, FaultOnMountFailure, DBList }
    str Service
    str LanmanResName
    int DetailMonitor = 0
    boolean FaultOnMountFailure = 0
    il8nstr DBList[]
)
```

ExchService2007 agent attributes

Review the following information to familiarize yourself with the required agent attributes for an ExchService2007 resource type. This information will assist you during the agent configuration.

Table 1-1 describes the ExchService2007 agent required attributes.

Table 1-1 ExchService2007 agent required attributes

Required Attributes	Type and Dimension	Definition
Service	string-scalar	<p>The name of the Exchange service to be monitored. This attribute can take any of the following values:</p> <ul style="list-style-type: none">■ MExchangeIS■ MExchangeMailSubmission■ MExchangeSA■ MExchangeMailboxAssistants■ MExchangeServiceHost■ MExchangeTransportLogSearch■ MExchangeSearch■ msftesql-Exchange■ MExchangeRepl
LanmanResName	string-scalar	<p>Note: This attribute is not applicable for Symantec ApplicationHA.</p>

Table 1-2 describes the ExchService2007 agent optional attributes.

Note: The following optional attributes will be used only if the value of the Service attribute is MExchangeIS (Microsoft Exchange Information Store service). The MExchangeIS is installed as part of the Mailbox server role, and these attributes are used for detail monitoring for the Mailbox server role.

Table 1-2 ExchService2007 agent optional attributes

Optional Attribute	Type and Dimension	Definition
DetailMonitor	integer-scalar	<p>The interval at which the agent performs detail monitoring on the databases specified in the DBList attribute.</p> <p>Setting this value to 0 disables detail monitoring, and this value is set to 0 by default.</p>
FaultOnMountFailure	boolean-scalar	<p>This flag is used to control the agent behavior in case of detail monitoring. It is applicable to Exchange databases that are selected for detail monitoring.</p> <p>If this flag is set to true and a database that is set to mount automatically on startup is dismounted, the agent will fault the service group.</p> <p>The default value is 0 (false).</p>
DBList	string-vector	<p>List of databases for which the agent will perform detail monitoring.</p>

Detail monitoring and agent behavior

You can configure the Symantec ApplicationHA agent for Exchange Server 2007 to perform detail monitoring on the Mailbox server role databases by specifying the desired databases in the DBList attribute. The frequency at which the agent monitors the database is determined by the Detail Monitor attribute. If you have selected databases but do not want the agent to perform detail monitoring on those databases, you do not have to delete the selected databases from the DBList attribute. You can disable detail monitoring by just setting the value of the Detail Monitor attribute to 0. That way, you do not have to select the databases again.

[Table 1-3](#) describes the agent behavior depending on the state of the databases selected for detail monitoring and the FaultonMountFailure attribute settings.

Table 1-3 Detail monitoring and agent behavior

Exchange database set to mount on startup	Exchange database state	FaultonMountFailure attribute value	Agent state
Yes	Mounted	Does not matter	Online
Yes	Dismounted	1 (True)	Offline (Service group will fault)
		0 (False)	Unknown (Administrative action required)
No	Mounted	Does not matter	Online
No	Dismounted	Does not matter	Unknown (Administrative action required)

You may want to dismount the Mailbox server databases for performing certain administrative operations. In such cases, to avoid the agent from faulting the service group, you can set the FaultonMountFailure attribute value to 0 (false), and then dismount the database and perform the operations.

Once done, you can again mount the databases, set the FaultonMountFailure attribute to 1 (true) and restore the agent behavior to fault the service group if a database is dismounted.

About the GenericService agent

The GenericService agent brings services online, takes them offline, and monitors their status. A service is an application type that is supported by Windows, and conforms to the interface rules of the Service Control Manager (SCM). Services are configured as resources of type GenericService. You can configure the GenericService agent to monitor multiple services by defining a resource for each service to be monitored.

To monitor the following Exchange 2007 services, the GenericService agent will be used:

- Microsoft Exchange Anti-spam Update (MSEExchangeAntiSpamUpdate)
- Microsoft Exchange EdgeSync (MSEExchangeEdgeSync)
- Microsoft Exchange Transport (MSEExchangeTransport)

- Microsoft Exchange File Distribution (MSExchangeFDS)
- Microsoft Exchange IMAP4 (MSExchangeImap4)
- Microsoft Exchange POP3 (MSExchangePop3)

For more information about the GenericService agent, see the *Symantec™ ApplicationHA Generic Agents Guide*.

About the IIS agent

The Microsoft Internet Information Services (IIS) agent for IIS provides monitoring support for sites configured using Microsoft Internet Information Services (IIS).

The Exchange Client Access server role configures a Web site in IIS. If that site is stopped, you will not be able to access your Exchange 2007 mailbox using the Microsoft Office Outlook Web Access (OWA). To monitor this site, we use the IIS agent.

The agent monitors the Web sites and the associated application pools configured on a machine. The agent brings IIS sites online, monitors their status, and takes them offline.

For more information about the IIS agent, see the *Symantec™ ApplicationHA Agent for Microsoft Internet Information Services (IIS) Configuration Guide*.

About the MountMonitor agent

The MountMonitor agent monitors the mount path of the configured storage. It is independent of how the underlying storage is managed. The mount path can be a drive letter or a folder mount.

For more information about the MountMonitor agent, see the *Symantec™ ApplicationHA Generic Agents Guide*.

About the ServiceMonitor agent

The ServiceMonitor agent monitors a service or starts a user-defined script and interprets the exit code of the script. A service is an application type supported by Windows that conforms to the interface rules of the Service Control Manager (SCM). The agent can be configured to monitor a service using theSCMor through a user-defined script.

The MSExchangeADTopology service will be configured using this agent. The ServiceMonitor agent is used to configure the MSExchangeADTopology service because it is a service that is required to be running for all the three server roles of Exchange 2007: Client Access, Hub Transport, and Mailbox. In a scenario where a user configures only the Mailbox server role and not the other two roles, and if

something goes wrong with the Mailbox server role, the MExchangeADTopology service should not be stopped as it would affect the other server roles.

Note: The ServiceMonitor resource cannot be made dependent on other resources.

For more information about the ServiceMonitor agent, see the *Symantec™ ApplicationHA Generic Agents Guide*.

How Symantec ApplicationHA agent monitors Exchange Server 2007

The Exchange Server 2007 agents monitor the configured application, determines the status of the configured resources, brings them online, and takes them offline. The agents detect an application failure if the configured Exchange roles or their corresponding services becomes unavailable. The agents attempt to start the role or service for a configurable number of attempts. If the role or service does not start, the agents consider this as an application failure and reports the status to VMware HA.

Depending on the configuration, VMware HA then restart the virtual machine. After the computer restarts, the agents start the application roles and services, and bring the configured resources online on the system.

Configuring application monitoring with Symantec ApplicationHA

This chapter includes the following topics:

- [About configuring application monitoring with Symantec ApplicationHA](#)
- [Before configuring application monitoring](#)
- [Configuring application monitoring for Exchange Server 2007](#)
- [Administering application monitoring using the ApplicationHA tab](#)

About configuring application monitoring with Symantec ApplicationHA

This chapter describes the steps to configure application monitoring for Microsoft Exchange 2007 databases with Symantec ApplicationHA in a VMware virtualization environment.

Consider the following before you proceed:

- You can configure application monitoring on a virtual machine using the Symantec ApplicationHA Configuration Wizard. The wizard is launched when you click **Configure Application Monitoring** on the ApplicationHA tab in VMware vSphere Client.
- Apart from the Symantec ApplicationHA Configuration Wizard, you can also configure application monitoring using the Veritas Cluster Server (VCS) commands. For more information, refer to the following Technote:

<http://www.symantec.com/docs/TECH159846>

- Symantec recommends that you first configure application monitoring using the wizard before using VCS commands to add additional components or modify the existing configuration.

Apart from the application monitoring configuration, the wizard also sets up the other components required for Symantec ApplicationHA to successfully monitor the applications.

- You can use the wizard to configure monitoring for only one application per virtual machine.

To configure another application using the wizard, you must first unconfigure the existing application monitoring configuration. Or, you can use the command-line interface (CLI) to configure more than one applications.

- After configuring Exchange 2007 roles for monitoring, if you create another role or service, then these new components are not monitored as part of the existing configuration.

In this case, you can either use the VCS commands to add the components to the configuration or unconfigure the existing configuration and then run the wizard again to configure the required roles.

Note: When you configure or unconfigure application monitoring, it does not affect the state of the application. The application runs unaffected on the virtual machine. This also does not require any additional steps on the vCenter Server.

- If a configured application fails, Symantec ApplicationHA attempts to start the application on the computer. If the application does not start, Symantec ApplicationHA communicates with VMware HA to take corrective action. Symantec ApplicationHA tries to stop the other configured applications in a predefined order before communicating with VMware HA. This avoids the other applications from getting corrupted due to a computer restart.

A single failed application can bring down other healthy applications running on the virtual machine. You must take this behavior into consideration while configuring application monitoring on a virtual machine.

Before configuring application monitoring

Note the following prerequisites before configuring application monitoring for Exchange Server 2007 on a virtual machine:

- Verify that you have installed Symantec ApplicationHA (console and guest components) in your VMware environment.
For information about installing Symantec ApplicationHA, refer to the *Symantec™ ApplicationHA Installation and Upgrade Guide*.
- Verify that VMware Tools is installed on the virtual machine.
Install the version that is similar to or later than that available with VMware ESX 4.1.
- Verify that you have installed VMware vSphere Client. The vSphere Client is used to configure and control application monitoring.
You can also perform the application monitoring operations directly from a browser window using the following URL:

```
https://<virtualmachineNameorIPAddress>:5634/vcs/admin/  
application_health.html?priv=ADMIN
```

Note: While using a browser to perform application monitoring operations, if the Symantec ApplicationHA version displayed in the application health view is not correct, it may be because older version information is cached by the browser. To correct this, clear the browser cache and try again. If this is also observed while using the vSphere Client, then re-launch the vSphere Client and try again.

- Verify that at least one of Microsoft Exchange Server 2007 server roles (Client Access, Hub Transport, or Mailbox server role) is installed. For the Mailbox server role, ensure that the databases that you want to monitor are created on the virtual machine.
- If you have configured a firewall, ensure that your firewall settings allow access to ports used by Symantec ApplicationHA installer, wizard, and services.
For information about the ports that are used, refer to the *Symantec™ ApplicationHA Installation and Upgrade Guide*.
- If you are configuring application monitoring in a disaster recovery environment, ensure that you are using the disaster recovery solution VMware vCenter Site Recovery Manager (SRM). For more information, refer to the *Symantec™ ApplicationHA User's Guide*.

Configuring application monitoring for Exchange Server 2007

Perform the following steps to configure monitoring for Exchange Server 2007 roles on a virtual machine using the Symantec ApplicationHA Configuration Wizard.

To configure application monitoring for Exchange Server 2007

- 1 Launch the vSphere Client and connect to the vCenter Server that manages the virtual machine.
- 2 From the vSphere Server's Inventory view in the left pane, select the virtual machine where you want to configure application monitoring, and then in the right pane select the **ApplicationHA** tab.
- 3 Skip this step if you have already configured the single sign-on during the guest installation.

On the ApplicationHA tab, specify the credentials of a user account that has administrative privileges on the virtual machine and then click **Configure**. The ApplicationHA Console sets up a permanent authentication for the user account.

For more information about single sign-on, refer to the *Symantec™ ApplicationHA User's Guide*.

After the authentication is successful, the ApplicationHA tab refreshes and displays the application health view.

- 4 Click **Configure Application Monitoring** to launch the Symantec ApplicationHA Configuration Wizard.
- 5 Review the information on the Welcome panel and then click **Next**.
- 6 On the Application Selection panel, click **Microsoft Exchange Server 2007** in the Supported Applications list.

You can use the Search box to find the application and then click **Next**.

If you want to download any of the Symantec ApplicationHA agents, click the **Download Application Agents (SORT)** link to download the agents from the Symantec Operations Readiness Tools (SORT) site.

- 7 On the Exchange 2007 Role Selection panel, select the Exchange server roles that you want you monitor, and then click **Configure** to start configuring the roles.

The Roles box displays the list of server roles discovered on the local system.

Exchange 2007 Role Selection

Select the Exchange 2007 roles that you wish to configure for monitoring.

Welcome ▸ Application Selection ▸ **Application Inputs** ▸ Implementation ▸ Finish

Roles	Description
<input checked="" type="checkbox"/> Mailbox	The Mailbox server role holds the Exchange databases within which the user mailboxes are contained. This role is required to host user mailboxes.
<input checked="" type="checkbox"/> Client Access	For detail monitoring, select the Configure detail monitoring check box and provide
<input checked="" type="checkbox"/> Hub Transport	<input type="checkbox"/> Configure detail monitoring Monitor after every <input type="text" value="10"/> cycles. <input type="checkbox"/> Mailbox Databases <input type="checkbox"/> W2K3X64\FRESH\First Storage Group\Mailbox Database <input type="checkbox"/> Restart the Exchange Information Store if detail monitoring fails

ApplicationHA (Version 6.0.00000.407) | [View Logs](#)

[< Back](#)
 [Configure](#)
 [Cancel](#)

■ Mailbox

The Mailbox server role is selected by default, and you cannot unselect it. With this role, you can configure the databases and role services. To enable detail monitoring for the Mailbox databases, select the **Configure detail monitoring** check box and provide the following required details:

Note: If you enable detail monitoring, the computer's memory usage will increase.

- Specify a value for the detail monitoring interval in the **Monitor after every <value> cycles** box. The value should be greater than zero, and Symantec recommends that the specified value should be between 1 to 12.

This value indicates the number of online monitor cycles that the agent must wait before performing detail monitoring. The numeric value specifies how often the monitoring check must run. 1 means, run a detail check every single monitor interval, 2 means run the detail check every second monitor interval. This interpretation may be extended to other values.

The default value is 10.

- In the Mailbox Databases box, select the Mailbox databases that you want to configure for detail monitoring.
- Select the *Restart the Exchange Information Store service if detail monitoring fails* check box if you want to restart the Exchange Information Store when detail monitoring fails.
- Hub Transport
Select the Hub Transport role to configure the role and its corresponding services for application monitoring.
- Client Access
Select the Client Access server role to configure the role and its corresponding services for application monitoring.

Note: In a Windows Server 2003 operating system, do not create more than one IIS Web sites with the same name for the Client Access role.

- 8 On the ApplicationHA Configuration panel, the wizard performs the application monitoring configuration tasks, creates the required resources, and enables the application heartbeat that communicates with VMware HA. The panel displays 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.

- 9 On the Finish panel, click **Finish** to complete the wizard.

This completes the application monitoring configuration. You can view the application status in the ApplicationHA tab.

The view displays the application as configured and running on the virtual machine. The Description box displays the details of the configured components.

If the application status shows as not running, click **Start Application** to start the configured components on the computer.

Administering application monitoring using the ApplicationHA tab

Note: You can administer application monitoring in two ways. One, using the ApplicationHA tab as described below and two, using the Symantec ApplicationHA Dashboard. Using the ApplicationHA dashboard, you can administer application monitoring in a graphical user interface (GUI). For information about the latter, refer to the *Symantec™ ApplicationHA User's Guide*.

Symantec ApplicationHA provides an interface, the ApplicationHA tab, to configure and control application monitoring. The ApplicationHA tab is integrated with the VMware vSphere Client.

Use the ApplicationHA tab to perform the following tasks:

- configure and unconfigure application monitoring
- start and stop configured applications
- enable and disable application heartbeat
- enter and exit maintenance mode

Using the ApplicationHA tab, you can also manage the Symantec ApplicationHA licenses by clicking the **Licenses** link. For more information, refer to the *Symantec™ ApplicationHA Installation and Upgrade Guide*.

To view the ApplicationHA tab, launch the VMware vSphere Client, select a virtual machine from the Inventory pane, and in the Management pane on the right, click the **ApplicationHA** tab.

If you have not configured single sign-on for the virtual machine, specify the user credentials of a user that has administrative privileges on the virtual machine.

You can also perform the application monitoring operations directly from a browser window using the following URL:

`https://<VMNameorIPAddress>:5634/vcs/admin/application_health.html?priv=ADMIN`

Note: While using a browser to perform application monitoring operations, if the Symantec ApplicationHA version displayed in the application health view is not correct, it may be because older version information is cached by the browser. To correct this, clear the browser cache and try again. If this is also observed while using the vSphere Client, then re-launch the vSphere Client and try again.

To configure or unconfigure application monitoring

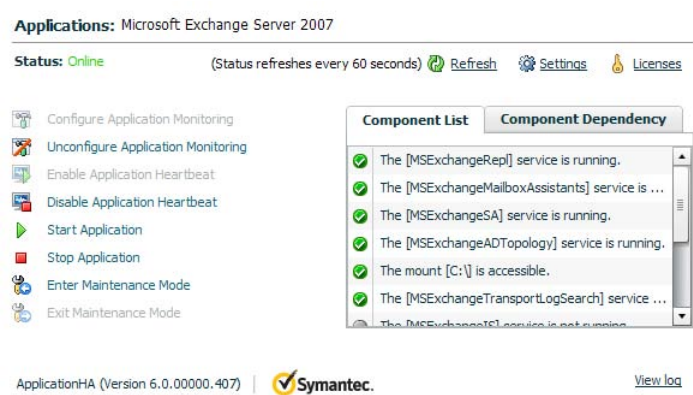
Use the ApplicationHA tab to configure or delete an application monitoring configuration from the virtual machine. This may be required in case you want to re-create the configuration or configure another application using the wizard. You can use the following buttons:

- Click **Configure Application Monitoring** to launch the Symantec ApplicationHA Configuration Wizard. Use the wizard to configure application monitoring.
- Click **Unconfigure Application Monitoring** to delete the application monitoring configuration from the virtual machine.
Symantec ApplicationHA removes all the configured resources for the application and its services.
Note that this does not uninstall Symantec ApplicationHA from the virtual machine. This only removes the configuration. The unconfigure option removes all the application monitoring configuration resources from the virtual machine. To monitor the application, you have to configure them again.

To view the status of configured applications

Note: To view applications at a component level and their dependencies, see the Component Dependency tab under the ApplicationHA tab. For more information, refer to the *Symantec™ ApplicationHA User's Guide*.

Under the ApplicationHA tab, the Component List tab displays the status of the configured application and the associated services.



For example, if you have configured monitoring for Exchange Server 2007, the Component List tab displays the following information:

```
The mount [mount point] is accessible.
```

```
The [service] service is running.
```

Where, *mount point* and *service* are, respectively, the names of the mount point and the Exchange Server 2007 service that is configured on the virtual machine.

The Component List tab also displays the state of the configured application and its components. The following states are displayed:

online	Indicates that the Exchange services (and Mailbox databases) are accessible on the virtual machine.
offline	Indicates that the Exchange services (and Mailbox databases) are not accessible on the virtual machine.
partial	Indicates that one or more services (or Mailbox databases) were not started on the virtual machine.
faulted	Indicates that the configured services or components (or Mailbox databases) have unexpectedly stopped running.

Click **Refresh** to see the most current status of the configured components. The status is refreshed every 60 seconds by default.

Click **Settings** to change ApplicationHA settings for the configured application and the virtual machine. For more information, refer to the *Symantec™ ApplicationHA User's Guide*.

To start or stop applications

Use the following options on the ApplicationHA tab to control the status of the configured application and the associated components:

- Click **Start Application** to start a configured application.
Symantec ApplicationHA attempts to start the configured application and its services in the required order. The configured resources are also brought online in the appropriate hierarchy.
- Click **Stop Application** to stop a configured application and the services that are running on the virtual machine.

Symantec ApplicationHA begins to stop the configured application and stops corresponding services gracefully. The configured resources are also taken offline in the appropriate hierarchy.

To enable or disable application heartbeat

The VMware virtual machine monitoring feature uses the heartbeat information that VMware Tools captures as a proxy for guest operating system availability. This allows VMware HA to automatically reset or restart individual virtual machines that have lost their ability to send a heartbeat. You can select VM and Application Monitoring if you also want to enable application monitoring.

ApplicationHA tab lets you control the application heartbeat on the virtual machines.

Use the following options on the ApplicationHA tab to control the status of the configured application heartbeat:

- Click **Enable Application Heartbeat** to enable the heartbeat communication between the configured applications running on the virtual machine and VMware HA.

The application heartbeat is enabled by default when an application is configured for monitoring.

- Click **Disable Application Heartbeat** to disable the heartbeat communication between the configured applications running on the virtual machine and VMware HA.

Disabling the application heartbeat does not instruct VMware HA to restart the virtual machine. This option disables the application monitoring feature in the VMware virtual machine monitoring settings.

To suspend or resume application monitoring

After configuring application monitoring you may want to perform routine maintenance tasks on those applications. These tasks may or may not involve stopping the application but may temporarily affect the state of the applications and its dependent components. If there is any change to the application status, Symantec ApplicationHA may try to restore the application state. This may potentially affect the maintenance tasks that you intend to perform on those applications.

If stopping the application is not an option, you can suspend application monitoring and create a window for performing such maintenance tasks. When application monitoring is suspended, ApplicationHA freezes the application configuration, disables the application heartbeat, and stops sending the heartbeat to VMware HA.

The ApplicationHA tab provides the following options:

- Click **Enter Maintenance Mode** to suspend the application monitoring for the applications that are configured on the virtual machine. During the time the monitoring is suspended, Symantec ApplicationHA does not monitor the state of the application and its dependent components. The ApplicationHA tab does not display the current status of the application. If there is any failure in the application or its components, ApplicationHA takes no action.
- Click **Exit Maintenance Mode** to resume the application monitoring for the applications configured on the virtual machine. You may have to click the **Refresh** link in the ApplicationHA tab to see the current status of the application.

When application monitoring is restarted from a suspended state, ApplicationHA does not enable the application heartbeat. Click **Enable Application Heartbeat** to enable it.

If you have made changes that include database addition or change in the underlying storage mount point that was being monitored, then those changes may not reflect in the application monitoring configuration. In such cases, you may have to unconfigure and reconfigure the application monitoring.

