

Symantec™ ApplicationHA agent for Microsoft Exchange 2010 Configuration Guide

Windows on Hyper-V

6.1

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Introducing ApplicationHA agents

This chapter includes the following topics:

- [About ApplicationHA agents](#)
- [About intelligent monitoring framework](#)
- [About the agent functions and attributes](#)
- [About the ApplicationHA agent for Exchange Server 2010 database](#)
- [How ApplicationHA agents monitor Microsoft Exchange 2010](#)

About ApplicationHA agents

Agents are application-specific modules that plug into the ApplicationHA framework that manages the components of the configured applications.

The agents are installed when you install ApplicationHA. These agents start, stop, and monitor the components of the configured applications and report its state changes. If an application or its components fail, these agents restart the applications and its components on the virtual machine.

A virtual machine has one agent per component that monitors all the components of that type. For example, a single GenericService agent manages all 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 agents then periodically updates ApplicationHA 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

ApplicationHA agents are classified in the following categories:

- Infrastructure agents (bundled 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 ApplicationHA.
- Application agents
Application agents are used to monitor third party applications such as Microsoft SQL Server, Microsoft Exchange and so on. These agents are packaged separately and are available in the form of an agent pack that gets installed when you install ApplicationHA.
The 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 installation.
Refer to the Symantec Operations Readiness Tools (SORT) Website for information on the latest agent pack availability:
<https://sort.symantec.com>

This document describes the ApplicationHA bundled agents along with their resource type definitions, attribute definitions, and sample configurations.

About intelligent monitoring framework

ApplicationHA provides Intelligent Monitoring Framework (IMF) to determine the status of the configured application and its components. IMF employs an event-based monitoring framework that is implemented using custom as well as native operating system-based notification mechanisms.

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

IMF provides the following key benefits:

- Instantaneous notification
Faster fault detection resulting in faster fail over and thus less application down time.
- Ability to monitor large number of components
With reduced CPU consumption, IMF effectively monitors a large number of components.
- Reduction in system resource utilization

Reduced CPU utilization by ApplicationHA agent processes when number of components being monitored is high. This provides significant performance benefits in terms of system resource utilization.

About the agent functions and attributes

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

Attributes are the set of variables whose values configures the corresponding application component to function in a specific way. By modifying attribute values you can change the way in which ApplicationHA agent manages the component.

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

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 if 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/application has faulted
UNKNOWN	Indicates that the agent encountered errors while monitoring the configured component

About the ApplicationHA agent for Exchange Server 2010 database

The Symantec ApplicationHA database agent for Microsoft Exchange 2010 provides monitoring support for Exchange 2010 databases. The agent monitors the Exchange 2010 mailbox databases, brings them online, and takes them offline.

The agent also starts the following Exchange services if they are not running already, and monitors their status:

- 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 Replication Service (MSEExchangeRepl)**
 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 (MSEExchangeSA)**
 The Exchange component responsible for monitoring, maintenance, and Active Directory lookup services, and ensuring that operations run smoothly.
- **Microsoft Exchange Information Store (MSEExchangeIS)**
 The Exchange storage used to hold messages in users' mailboxes and in public folders.
- **Microsoft Exchange Mail Submission (MSEExchangeMailSubmission)**
 Introducing the Symantec ApplicationHA agent for Microsoft Exchange Server 2010 About the Exchange Server 2010 database agent 10 This service submits messages from the Mailbox Server to the Hub Transport Server.

The agent internally monitors these services; the Exchange 2010 application monitoring configuration does not contain separate resources for these services.

Agent functions

Online	<p>The agent performs the following actions as part of its online function:</p> <ul style="list-style-type: none"> ■ Checks if the mailbox database file is available on the configured volume. ■ Checks the status of the Microsoft Exchange Information Store (MSEExchangeIS) service and starts the service if it is not running. ■ Starts the MSEExchangeADTopology, MSEExchangeRepl, MSEExchangeSA, and MSEExchangeMailSubmission Exchange services. ■ Mounts the Exchange mailbox database on the system.
Offline	<p>Dismounts the Exchange mailbox database from the system.</p>

Monitor	<p>The agent performs the following actions as part of its monitor function:</p> <ul style="list-style-type: none"> ■ Verifies the status of the mailbox database on the system. If the database is mounted, the agent reports the resource as ONLINE. If the database is dismounted, the agent resource is marked as OFFLINE. ■ If the agent cannot retrieve the database status, the agent queries the Service Control Manager (SCM) for the status of the Microsoft Exchange Information Store (MSEExchangeIS) service. If the service is running, the agent reports the resource as UNKNOWN; otherwise the resource is marked as OFFLINE.
Clean	Forcibly dismounts the Exchange mailbox database from the system.

State definitions

ONLINE	Indicates that the configured mailbox database is mounted and active on the system
OFFLINE	Indicates that the configured mailbox database is dismounted from the system.
UNKNOWN	Indicates that the agent is unable to determine the status of the configured mailbox database on the system

Resource type definition

The Exchange 2010 database agent is represented by the Exch2010DB resource type.

```
type Exch2010DB (
  static i18nstr ArgList[] = { DBName, MonitorService }
  i18nstr DBName
  boolean MonitorService = 1
)
```

Attributes definitions

[Table 1-1](#) describes the Exchange 2010 database agent required attributes.

Table 1-1 Exchange 2010 database agent required attributes

Attributes	Description
DBName	Name of the Exchange 2010 mailbox databases to be monitored.

Table 1-1 Exchange 2010 database agent required attributes (*continued*)

Attributes	Description
MonitorService	<p>Defines whether the agent should monitor the critical Exchange 2010 services.</p> <p>The value 1 (True) indicates that the agent monitors the critical services. The value 0 (False) indicates that it does not.</p> <p>Default is 1 (True).</p> <p>If this attribute is set to 1 (True), the agent monitors the following Exchange 2010 services internally:</p> <ul style="list-style-type: none"> ■ Microsoft Exchange System Attendant (MSEExchangeSA) ■ Microsoft Exchange Mail Submission (MSEExchangeMailSubmission) ■ Microsoft Exchange AD Topology service (MSEExchangeADTopology) ■ Microsoft Exchange Replication Service (MSEExchangeRepl) ■ Microsoft Exchange Information Store (MSEExchangeIS) <p>Note: You cannot define which Exchange 2010 services should be monitored by the agent.</p>

How ApplicationHA agents monitor Microsoft Exchange 2010

The ApplicationHA agent for Exchange Server 2010 monitors the configured application, determines the status of the configured resources, brings them online, and takes them offline. The agent detects an application failure if the configured Exchange databases or service becomes unavailable. The agent attempts to start the service and mount the database for a configurable number of attempts. If the database cannot be mounted and the services do not start, the agent considers this as an application failure and reports the "Application critical state" to the Hyper-V host.

Depending on the configuration, the Hyper-V host then restarts the virtual machine. After the virtual machine restarts, the agent starts the configured Web sites and the associated application pools and brings the configured resources online on the system.

Configuring application monitoring

This chapter includes the following topics:

- [Considerations for configuring application monitoring](#)
- [Configuring application monitoring](#)

Considerations for configuring application monitoring

Symantec ApplicationHA provides an interface, Symantec ApplicationHA Health View, to configure and administer application monitoring.

A shortcut to access the Health View is created on the system's desktop after you install ApplicationHA. 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://VMNameorIP:5634/vcs/admin/application_health.html?priv=ADMIN`

Consider the following before you configure application monitoring:

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

To configure application monitoring on the same virtual machine, for any additional applications, you must use the VCS commands.

To configure another application using the wizard, you must first unconfigure the existing application monitoring configuration.

- The wizard runs in a logged-on user context. You must thus ensure that the logged-on user has administrative privileges on the virtual machine where you want to configure application monitoring.
- 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 used, refer to the *Symantec ApplicationHA Deployment Guide*.
- If the application data is stored on nested mount points, then it is required to set the dependency between these mount points. This enables ApplicationHA to monitor all the nested mount points.

To define the dependency between the nested mount points, you must set the value for MountDependsOn attribute of the MountMonitor agent. The value of this attribute must be specified as a key-value pair.

Where,

Key= mount path

Value= volume name

- After configuring Exchange 2010 databases for monitoring, if you create another database 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 all the components.

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.

- Verify that Microsoft Exchange Server 2010 Mailbox Server role is installed and the databases that you want to monitor are created on the virtual machine.

Configuring application monitoring

Perform the following steps to configure monitoring for Microsoft Exchange 2010 on a virtual machine using the Symantec ApplicationHA Configuration Wizard.

Note: You can configure monitoring for multiple services and processes in a single wizard workflow. However, you cannot configure multiple applications simultaneously. To configure another application, run the wizard again.

To configure application monitoring for Microsoft Exchange 2010

- 1 Launch the Symantec ApplicationHA Health View, using the shortcut created or in a browser, using the following URL:
`https://VMNameorIP:5634/vcs/admin/application_health.html?priv=ADMIN`
- 2 Click **Configure Application Monitoring** to launch the Symantec ApplicationHA Configuration Wizard.
- 3 Review the information on the Welcome panel and then click **Next**.
- 4 On the Application Selection panel, click **Microsoft Exchange 2010** in the Supported Applications list.
- 5 On the Exchange Database Selection panel, select the Exchange databases that you want to monitor and then click **Next**.

The Databases box displays the databases discovered on the local system.
- 6 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 Hyper-V host.

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

This completes the application monitoring configuration.

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

For more details refer to the *Symantec ApplicationHA Deployment Guide*.

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