

Symantec™ ApplicationHA Agent for SAP NetWeaver Configuration Guide

Windows on VMware

6.1

Symantec™ ApplicationHA Agent for SAP NetWeaver Configuration Guide

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Product Version: 6.1

Document Version: 6.1 Ver 1

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Introducing the Symantec ApplicationHA agent for SAP NetWeaver

This chapter includes the following topics:

- About the Symantec ApplicationHA agents
- About the Symantec ApplicationHA agent for SAP NetWeaver
- Supported software
- How the ApplicationHA agent makes SAP NetWeaver highly available
- How the ApplicationHA agent monitors SAP NetWeaver
- Typical SAP server configuration in a VMware virtualization scenario

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 SAP NetWeaver.

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

About the Symantec ApplicationHA agent for SAP NetWeaver

The Symantec ApplicationHA agents monitor specific resources within an enterprise application, determine the status of these resources, and start or stop them according to external events.

The ApplicationHA agent for SAP NetWeaver provides monitoring and control for SAP R/3 and SAP NetWeaver in a virtual machine. The agent is designed to support a wide range of SAP environments, including the traditional Basis architecture and the SAP J2EE Web Application server architecture (NetWeaver). The agent also supports Standalone Enqueue servers in a distributed SAP installation

The agent for SAP NetWeaver brings SAP instances online, monitors the instances, and takes the instances offline. The agent monitors the system processes and server states, and can shut down the instance in case of a fault.

The supported SAP instance types are as follows:

- Central instance
- Dialog instance
- Standalone Enqueue server

Agent functions

The functions of the ApplicationHA agent for SAP NetWeaver include the following:

- | | |
|---------|---|
| Online | <ul style="list-style-type: none">■ Validates the values of the agent attributes required to bring the SAP instance online.■ Performs a preliminary check to ensure that the SAP instance is not running.■ Starts the SAP Windows service <code>SAPSAPSID_InstID</code>, where <code>InstID</code> is the last two characters of the <code>InstName</code> attribute.■ Starts the SAP instance using the <code>startsap.exe</code> utility.■ Ensures that the instance is initialized successfully. |
| Offline | <ul style="list-style-type: none">■ Validates the values of the agent attributes required to bring the SAP instance offline.■ Performs a preliminary check to ensure that the SAP instance is not already offline.■ Stops the SAP instance using the <code>stopsap.exe</code> utility.■ Stops the SAP Windows service. <code>SAPSAPSID_InstID</code>, where <code>InstID</code> is the last two characters of the <code>InstName</code> attribute.■ Kills any remaining SAP instance processes to ensure that the instance processes are removed completely. |
| Monitor | <ul style="list-style-type: none">■ Validates the values of the agent attributes required to monitor the SAP instance.■ Performs a first-level monitor check as follows:<ul style="list-style-type: none">■ The function verifies that the SAP Windows service <code>SAPSAPSID_InstID</code> is running, where <code>InstID</code> is the last two characters of the <code>InstName</code> attribute.■ Verifies that all processes that the <code>ProcMon</code> attribute lists are running.■ If the <code>MonitorProgram</code> attribute specifies a custom monitor program, the monitor function executes the specified program. |

- Clean** In case of a fault event or an unsuccessful attempt to bring a resource online or offline, the clean function removes any remaining SAP instance processes. The clean function performs the following tasks:
- Uses SAP's `sapsrvkill.exe` utility to stop all processes of the particular SAP instance.
 - Stops `SAPSAPSID_InstID`, the SAP Windows service for the instance.
 - The clean function identifies and kills any remaining SAP instance processes using the unique combination of the SAPSID attribute and InstID, that is the last two characters of the InstName attribute. All these processes must also belong to the `SAPServiceSAPSID` or `sapsidadm` user.

Executing a custom monitor program

The monitor function can execute a customized monitoring utility to perform an additional SAP server state check.

The monitor function executes the utility specified in the MonitorProgram attribute if the following conditions are satisfied:

- The specified utility is a valid executable file.
- The first level process check indicates that the SAP server instance is online.

The monitor function interprets the utility exit code as follows:

110 or 0	SAP server instance is online
100 or 1	SAP server instance is offline
99	SAP server instance is unknown
Any other value	SAP server instance is unknown

Resource type definition

The resource type definition for the ApplicationHA agent for SAP NetWeaver is as follows:

```
type SAPNW04 (  
    static i18nstr ArgList[] = { SAPSID, SecondLevelMonitor,  
    EPPProgramTimeout, SAPHome, SAPMonHome, SAPHost, ProcMon,  
    SAPServiceUser, SAPAdminDomain, SAPAdmin, SAPAdminPassword,  
    ResLogLevel, InstType, InstName, InstProfile, EnqSrvResName,  
    MonitorProgram }  
    str SAPSID
```

```
int SecondLevelMonitor
int EPPProgramTimeout = 10
str SAPHome
str SAPMonHome
str SAPHost
str ProcMon[]
str SAPServiceUser
str SAPAdminDomain
str SAPAdmin
str SAPAdminPassword
str ResLogLevel = INFO
str InstType = CENTRAL
str InstName
str InstProfile
str EnqSrvResName
str MonitorProgram
)
```

Agent attribute definitions

Review the following information to familiarize yourself with the agent attributes for an SAP NetWeaver instance. This information will assist you during the agent configuration.

Table 1-1 lists the attributes that are required for configuring an SAP NetWeaver instance.

Table 1-1 Required Attributes

Required attributes	Description
InstName	<p>Uniquely identifies an SAP server instance, along with the SAPSID attribute. The last two characters of this attribute specify the value of the InstID attribute. The InstID and SAPSID attributes together uniquely identify an SAP instance.</p> <p>Some examples include the following:</p> <ul style="list-style-type: none"> ■ DVEBMGS00: SAP BASIS Central instance ■ DVBGS02 : SAP BASIS Central instance minus Enqueue and Message servers ■ ASCS03: SAP ABAP Standalone Enqueue server ■ D05: SAP ABAP Dialog instance ■ JC06: SAP Java Central instance ■ SCS07: SAP Java Central Services instance ■ J08: SAP Java Dialog instance <p>Type and dimension: string-scalar</p> <p>Example: DVEBMGS00</p> <p>Default: ""</p>
InstProfile	<p>Full path to the instance profile of the SAP server instance.</p> <p>Typically, the instance profile is located in the <drive>:\usr\sap\SAPSID\SYS\profile directory. The format of the profile name is SAPSID_InstName_HOSTNAME. Path names following the Unified Naming Convention (UNC) are also valid for this attribute.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example: c:\usr\sap\EP1\SYS\profile\EP1_SCS02_SAPEP1SCS</p>

Table 1-1 Required Attributes (*continued*)

Required attributes	Description
InstType	<p>SAP server instance type. Valid values include the following:</p> <ul style="list-style-type: none"> ■ CENTRAL: SAP Central instance ■ DIALOG: SAP Dialog instance ■ ENQUEUE: SAP Standalone Enqueue server instance ■ AENQUEUE: SAP Standalone Enqueue server instance Add-In (ABAP) ■ JENQUEUE: SAP Central Services instance Add-In (Java) <p>Type and dimension: string-scalar Default: CENTRAL Example: DIALOG</p>
ProcMon	<p>The list of SAP processes that the monitor function must monitor during a first-level check of an SAP instance.</p> <p>See “Monitoring an SAP instance” on page 22.</p> <p>Type and dimension: vector Default: "" Example: disp+work.exe msg_server.exe</p>
ResLogLevel	<p>The logging detail performed by the agent for SAP NetWeaver for the resource. Valid values include the following:</p> <p>INFO: Logs error messages.</p> <p>TRACE: Logs error and trace messages. TRACE is very verbose and should only be used during initial configuration or for troubleshooting and diagnostic operations.</p> <p>Type and dimension: string-scalar Default: INFO Example: TRACE</p>
SAPAdmin	<p>Windows user name used to start the SAP instance. This user must be dedicated to all the SAP instances within an SAP system. The format is <i>sapsidadm</i>.</p> <p>Type and dimension: string-scalar Default: "" Example: ec4adm</p>

Table 1-1 Required Attributes (*continued*)

Required attributes	Description
SAPAdminDomain	<p>Windows domain name to which the SAPAdmin user belongs.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example: VRTSGPS</p>
SAPAdminPassword	<p>Password for the SAPAdmin user.</p> <p>Use the <code>vcscrypt -agent</code> command to encrypt the password.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example: vxfgh28skbsj</p>
SAPHost	<p>Hostname under which the SAP instance is to run.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example: sap04smcsaw</p>
SAPHome	<p>The absolute path to the SAP base directory. This attribute is used to locate programs that the agent for SAP NetWeaver uses for start, stop, and clean functions.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example 1: c:\usr\sap\EC4\SYS\exe\run</p> <p>Example 2: c:\usr\sap\EC4\ASCS01\exe</p>

Table 1-1 Required Attributes *(continued)*

Required attributes	Description
SAPServiceUser	<p>Windows user name used to start the SAP Windows service for an SAPSID. This user must be dedicated to all the SAP services under one SAP system, and must not be used by any other SAP service or instance under a different SAP system.</p> <p>Note: Do not include the domain name in the value for this attribute. Use the SAPAdminDomain attribute to specify domain information.</p> <p>Type and dimension: string-scalar Default: "" Example: SAPServiceEC4</p>
SAPSID	<p>SAP system name. This attribute starts with an alphabetic character and is exactly 3 characters in length. Ensure that the alphabetic characters used in this attribute are in uppercase only. SAPSID is defined during the SAP installation.</p> <p>Type and dimension: string-scalar Default: "" Example: EC4</p>

Table 1-2 shows the optional attributes for configuring an SAP NetWeaver instance.

Table 1-2 Optional attributes

Optional attributes	Description
MonitorProgram	<p>The full pathname and command-line arguments for an externally provided monitor program.</p> <p>Type and dimension: string-scalar Default: ""</p> <p>Example 1: <drive>:\usr\sap\EC4\ASCS00\work\myMonitor.exe</p> <p>Example 2: <drive>:\usr\sap\EC4\ASCS00\work\myMonitor.exe arg1 arg2</p>

Table 1-2 Optional attributes (*continued*)

Optional attributes	Description
EnqSrvResName	<p>Specifies the SAP Central Services instance resource name. This attribute is set for only Enqueue Replication Server (ERS) and will be used by both Enqueue and Enqueue Replication Servers to query others status during startup and failover.</p> <p>Type and dimension: string-scalar</p> <p>Default: No default</p> <p>Example: SAPPI1SCS_scs</p>

Supported software

For the latest information about supported operating systems and software, see the Software Compatibility List at:

<http://www.symantec.com/docs/TECH209010>

The Symantec ApplicationHA agent for SAP NetWeaver is supported in the following environments:

Symantec ApplicationHA	6.1
SAP NetWeaver	2004, 2004s

SAP NetWeaver components compatibility matrix

Table 1-3 lists the compatibility matrix for SAP NetWeaver technology components.

Table 1-3 Compatibility matrix for SAP NetWeaver technology components

EP	BW BI	XI PI	MDM MDS	SAP Kernel/SAP Web AS
7.0	7.0	7.0	5.5, 7.1	7.00
-	-	-	2.0	6.40
6.0	3.5	3.0	-	6.40 6.20

Table 1-3 Compatibility matrix for SAP NetWeaver technology components
(continued)

EP	BW BI	XI PI	MDM MDS	SAP Kernel/SAP Web AS
-	3.1	-	-	6.20

Table 1-4 lists the compatibility matrix for SAP NetWeaver application components.

Table 1-4 Compatibility matrix for SAP NetWeaver application components

R/3 and R/3 Enterprise ECC	SCM APO	SRM	CRM EBP	KW	Solution Manger	SAP Kernel/SAP Web AS
6.0 (ERP 2005) 6.0 EhPx	5.0 5.1 (SCM 2007) 7.0	5.0 6.0 (SRM 2007) 7.0	5.0 (CRM 2005) CRM 2007 7.0	-	7.0 (formerly 4.0) 7.0 EhPx	7.00
5.0 (ERP 2004) 4.7x200	4.1	4.0 SR1	4.0	7.0	3.20	6.40 6.20
4.7x110	4.0	4.0 3.1	3.0	-	3.10	6.20
4.6C	3.1	-	-	-	-	4.6D

How the ApplicationHA agent makes SAP NetWeaver highly available

The Symantec ApplicationHA agent for SAP NetWeaver continuously monitors the SAP instance processes to verify that they function properly. The agent provides the following level of application monitoring:

- Primary or Basic monitoring

This mode has Process check and Health check monitoring options. With the default Process check option, the agent verifies that the SAP instance processes

makes SAP NetWeaver highly available are present in the process table. Process check cannot detect whether processes are in hung or stopped states.

How the ApplicationHA agent monitors SAP NetWeaver

The SAP NetWeaver agent monitors the configured resources, determines the status of these resources, brings them online, and takes them offline. The agent detects an application failure if the configured service becomes unavailable. The agent attempts to start the service for a configurable number of attempts. If the services do not start, the agent considers this as an application failure and reports the status to VMware HA.

Depending on the configuration, VMware HA can then restart the virtual machine. After the machine restarts, the agent starts the application services and brings the configured resources online on the system.

Typical SAP server configuration in a VMware virtualization scenario

A typical SAP server configuration in a VMware virtualization scenario has the following characteristics:

- The `<Drive:> \usr\sap` directory is shared by default on SAP Global host with name `sapmnt`; this directory is accessed from the Application Server node (VM).
- The SAP NetWeaver application server instance binaries are installed locally.

Installing and configuring SAP NetWeaver for ApplicationHA

This chapter includes the following topics:

- About SAP NetWeaver
- Monitoring an SAP instance
- About installing SAP NetWeaver for ApplicationHA

About SAP NetWeaver

All SAP NetWeaver components (example, BI, XI, EP) run on top of the SAP NetWeaver Application Server.

The following SAP system installations are possible with SAP NetWeaver Application Server (AS):

- SAP NetWeaver Application Server ABAP (ABAP only)
- SAP NetWeaver AS Java (Java only)
- SAP NetWeaver Application Server Add-In (ABAP and Java)

Depending on the SAP NetWeaver component to be installed, the Web Application Server type is determined. For example, SAP NetWeaver EP 6.0 requires a Java stack, hence SAP NetWeaver AS Java (or Add-In) needs to be installed. SAP NetWeaver XI 3.0 requires SAP NetWeaver AS Add-In.

SAP system components

An SAP application instance has multiple services or components which are typically deployed across multiple servers. SAP identifies the following services as critical to the application environment, representing potential single points of failure:

- Database Instance
- Central Instance (DVEBMGSxx or JCxx)
- Central Services Instance (SCSxx or ASCSxx)
- Enqueue Replication Server (ERSxx)
- Dialog Instance (Dxx or Jxx)

Where xx takes the value of an SAP Instance number ranging from 00 to 99.

Note: The required interaction of the Enqueue Replication Server with the Central Services Instance in the high availability setup mandates the use of a failover cluster. Symantec Application HA is not designed for this purpose. If you want a high availability configuration including the Enqueue Replication Server, use Cluster Server (VCS) or Veritas InfoScale Availability.

Monitoring an SAP instance

The monitor function performs process level check to ensure the proper functioning of an SAP instance.

The ProcMon attribute specifies the processes that must be running successfully for a particular SAP instance type. The monitor function uses this list of processes to scan the process table, and verify that the processes are running successfully.

Table 2-1 contains valid values for the ProcMon attribute.

Table 2-1 Valid values for the ProcMon attribute

SAP usage type	SAP instance type	Value for ProcMon attribute
ABAP	<ul style="list-style-type: none"> ■ CENTRAL ■ DIALOG ■ ENQUEUE 	<p>For CENTRAL:</p> <ul style="list-style-type: none"> ■ Mandatory: disp+work.exe ■ Optional: igswd.exe, icman.exe, gwrdd.exe, and msg_server.exe <p>Note: msg_server.exe is not applicable for a Central instance, if a Standalone Enqueue server instance is configured.</p> <p>For DIALOG:</p> <ul style="list-style-type: none"> ■ Mandatory: disp+work.exe ■ Optional: igswd.exe, icman.exe and gwrdd.exe <p>For ENQUEUE:</p> <ul style="list-style-type: none"> ■ Mandatory: ensrver.exe ■ Optional: msg_server.exe
Java	<ul style="list-style-type: none"> ■ CENTRAL ■ DIALOG ■ ENQUEUE 	<p>For CENTRAL:</p> <ul style="list-style-type: none"> ■ Mandatory: jcontrol.exe ■ Optional: icman.exe <p>For DIALOG:</p> <ul style="list-style-type: none"> ■ Mandatory: jcontrol.exe ■ Optional: icman.exe <p>For ENQUEUE</p> <ul style="list-style-type: none"> ■ Mandatory: ensrver.exe ■ Optional: igswd

Table 2-1 Valid values for the ProcMon attribute *(continued)*

SAP usage type	SAP instance type	Value for ProcMon attribute
Add-In (ABAP + Java)	<ul style="list-style-type: none"> ■ CENTRAL ■ DIALOG ■ AENQUEUE (ABAP) ■ JENQUEUE (Java) 	<p>For CENTRAL</p> <ul style="list-style-type: none"> ■ Mandatory: disp+work.exe, jcontrol.exe ■ Optional: igswd.exe, msg_server.exe, icman.exe and gwrdr.exe <p>DIALOG</p> <ul style="list-style-type: none"> ■ Mandatory: disp+work.exe, jcontrol.exe ■ Optional: igswd.exe, icman.exe and gwrdr.exe <p>For AENQUEUE (ABAP)</p> <ul style="list-style-type: none"> ■ Mandatory: ensrver.exe ■ Optional: msg_server.exe <p>For JENQUEUE (Java)</p> <ul style="list-style-type: none"> ■ Mandatory: ensrver.exe ■ Optional: msg_server.exe

The monitor function takes a snapshot of the running process table. The function compares the processes that the ProcMon attribute specifies, to the set of running SAP processes. If any process is missing, the function declares the SAP instance as offline, and bypasses further monitor operations.

About installing SAP NetWeaver for ApplicationHA

To install SAP NetWeaver for ApplicationHA on a virtual machine, you can install the SAP instance binaries on local disk or shared disk.

Note: If SAP binaries are installed on a shared disk, ensure that the shared disks get auto mounted during the operating system boot. By default, ApplicationHA does not monitor mount resources. To add mount resources for monitoring, use CLI / Veritas Operation Manager. For more information about mount resource attributes, refer to the Symantec Cluster Server documentation.

Note: If you specify the virtual hostname and IP address while configuring a SAP Application Server instance for monitoring, then ensure the following:

- The IP address is correctly plumbed when the system boots up
- The virtual hostname can be pinged from the virtual machine.

For more details refer to the product documentation.

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 SAP
- Administering application monitoring using the Symantec High Availability tab
- Using SAP server log files
- Reviewing ApplicationHA log files

About configuring application monitoring with Symantec ApplicationHA

This chapter describes the steps to configure application monitoring for SAP NetWeaver 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 Symantec High Availability 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.
- 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 SAP on a virtual machine:

- Verify that you have installed Symantec ApplicationHA (console and guest components) in your VMware environment.
- 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.

- 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

- Ensure that you have installed SAP NetWeaver and that SAP services are configured on the Windows systems hosting SAP Central or Dialog instance.
- If you have configured a firewall, ensure that your firewall settings allow access to ports used by Symantec ApplicationHA installer, wizard, and services.
- If you are configuring application monitoring in a disaster recovery environment, ensure that you are using the VMware disaster recovery solution, VMware vCenter Site Recovery Manager (SRM). For more information, refer to the *Symantec™ ApplicationHA User's Guide*.

Configuring application monitoring for SAP

Perform the following steps to configuring monitoring for SAP NetWeaver on a virtual machine using the Symantec ApplicationHA Configuration Wizard.

To configure application monitoring for SAP

- 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 **Symantec High Availability** tab.

- 3 Skip this step if you have already configured the single sign-on during the guest installation.

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

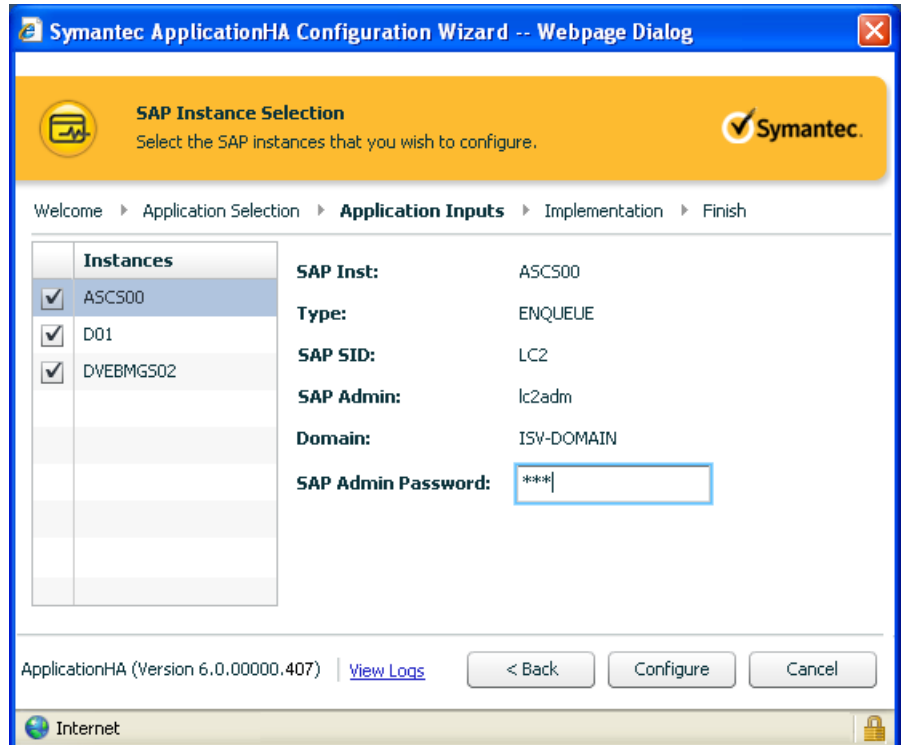
After the authentication is successful, the Symantec High Availability tab refreshes and displays the application health view.

- 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 **SAP** 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 SAP Instance Selection panel, select the SAP Instance you want to configure, enter the value of the SAPAdminPassword attribute, and then click **Configure**.



Note: Ensure that you enter a valid password. The wizard accepts incorrect or invalid passwords, but does not start the application

The wizard performs the application monitoring configuration tasks. The wizard creates the required resources and enables the application heartbeat that communicates with VMware HA. The panel displays the status of each task.

- 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 Symantec High Availability 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 Symantec High Availability tab

Note: You can administer application monitoring in two ways. One, using the Symantec High Availability tab as described below and two, using the Symantec High Availability Dashboard. Using the Symantec High Availability 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 Symantec High Availability tab, to configure and control application monitoring. The Symantec High Availability tab is integrated with the VMware vSphere Client.

Use the Symantec High Availability 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 Symantec High Availability 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 Symantec High Availability tab, launch the VMware vSphere Client, select a virtual machine from the Inventory pane, and in the Management pane on the right, click the **Symantec High Availability** 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 Symantec High Availability 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 Symantec High Availability tab. For more information, refer to the *Symantec™ ApplicationHA User's Guide*.

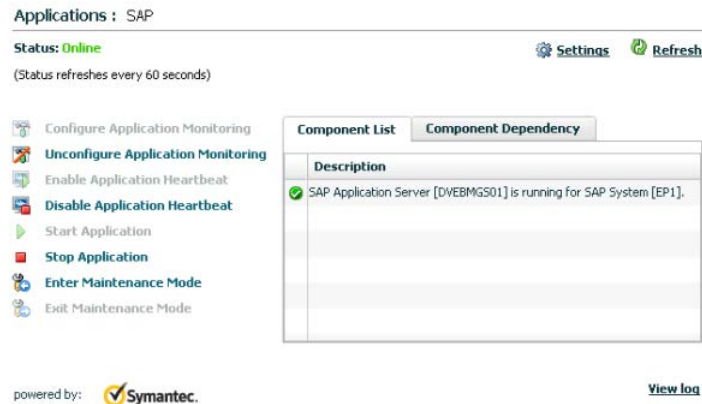
Under the Symantec High Availability tab, the Component List tab displays the status of the configured SAP instances.

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

```
SAP Application Server [Instance Name] is running  
for SAP System [SAP SID]
```

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

- online** Indicates that the configured SAP instances are running on the virtual machine.
- offline** Indicates that the configured SAP instances are not running on the virtual machine.
- partial** Indicates either that the configured SAP instances are being started on the virtual machine or that Symantec ApplicationHA was unable to start one or more of the configured SAP instances.
- faulted** Indicates that the configured SAP instances 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 Symantec High Availability tab to control the status of the configured application and the associated components:

- Click **Start Application** to start the configured SAP instance on the virtual machine.
- Click **Stop Application** to stop a configured SAP instance that is running on the virtual machine.

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.

Symantec High Availability tab lets you control the application heartbeat on the virtual machines.

Use the following options on the Symantec High Availability 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 Symantec High Availability 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 Symantec High Availability 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 Symantec High Availability 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.

Using SAP server log files

If a SAP server is facing problems, you can access the server log files to further diagnose the problem. The SAP log files are located in the

`<Drive>:\usr\sap\SAPSID\InstanceName\work` directory.

Reviewing ApplicationHA log files

In case of problems while using the agent for SAP, you can access log files. The ApplicationHA log files are located in the following directory:

`C:\ProgramData\Symantec\ApplicationHA\Logs\ApplicationHA.log.`

