Symantec™ ApplicationHA Agent for JBoss Application Server Configuration Guide

Linux on VMware

6.0

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Introducing the Symantec ApplicationHA Agent for JBoss Application Server

This chapter includes the following topics:

- About the Symantec ApplicationHA agent for JBoss Application Server
- About installing and removing the ApplicationHA agent for JBoss Application Server
- Supported software
- JBoss Application agent functions
- Uniquely identifying JBoss Application Server Configurations

About the Symantec ApplicationHA agent for JBoss Application Server

The Symantec ApplicationHA agents monitor specific resources within an enterprise application. They determine the status of resources and start or stop them according to external events. The Symantec ApplicationHA agent for JBoss Application Server provides high availability for one or more JBoss Application Server Configuration.

About installing and removing the ApplicationHA agent for JBoss Application Server

When you run the installer or uninstall program that accompanies the quarterly agent pack release of high availability agents from Symantec, the latest version of the ApplicationHA agent for JBoss Application Server is automatically installed or removed. For more information, see the *Symantec ApplicationHA Agent Pack Installation Guide.*

Supported software

The Symantec ApplicationHA agent for JBoss Application Server supports the following software versions:

- Symantec ApplicationHA agent for JBoss Application Server can be installed and run inside virtual machines that have Symantec ApplicationHA 6.0 installed.

- The following versions of the Veritas Operations Manager components are supported:
  - Veritas Operations Manager Management Server 4.1 or later
  - Veritas Operations Manager managed host for Linux: 4.1 or later
  - Veritas Operations Manager Add-on for Symantec ApplicationHA Management

Supported application versions

Table 1-1 lists the JBoss Application Server versions that Symantec ApplicationHA 6.0 currently supports on virtual machine.

Table 1-1   Supported application versions

Application	Version
JBoss Application Server	5.1.x

Note: Install all JBoss Application Server components including JBossWS-CXF.

Supported VMware versions

The following VMware Servers and management clients are currently supported:

- VMware ESX Server version 4.0 (for ApplicationHA initiated reboot only), 4.1, 4.1 Update 1
- VMware ESXi Server version 4.0, 4.1, 5.0
- VMware vCenter Server version 4.0, 4.1, 4.1 Update 1, 5.0

  Note: VMware Fault Tolerance is not supported in case of vCenter Server 4.1

- VMware vSphere Client version 4.0, 4.1, 5.0

Supported guest operating systems

Table 1-2 shows the supported operating systems for this release.

Table 1-2   Supported guest operating systems

Operating systems	Levels	Kernel version
Red Hat Enterprise Linux 5	U3 or later	2.6.18-128.el5

Note: Only 64-bit operating systems are supported.

JBoss Application agent functions

The agent consists of resource type declarations and agent executables. The agent executables are organized into online, offline, monitor, and clean functions.

Online

When you click **Start Application**, ApplicationHA ensures that the JBoss Application Server Configurations are running.

Offline

When you click **Stop Application**, ApplicationHA ensures that the resource is given enough time to go offline successfully. The offline function uses a wait period that the OfflineTimeout attribute specifies. This enables the JBoss Application Server Configuration to complete the offline sequence before allowing further probing of the resource.

Monitor

The monitor function conducts a first level check on the JBoss Application Server Configuration to ensure that the process of JBoss Application Server Configuration is running. The agent identifies the process for the JBoss Application Server component by applying the pattern matching on command lines of processes running in the system.

The second level check uses the utility `twiddle.sh` provided along with JBoss Application Server.

Clean

The clean function attempts to gracefully shut down the JBoss Application Server Configuration. If the shut down is not successful, then the agent identifies the server configuration process and kills it.

Uniquely identifying JBoss Application Server Configurations

You can configure one or more JBoss Application Server Configurations running on a single virtual host but the Application HA agent must be able to identify each configuration separately. This is done using the installation path of the JBoss Application Server and the server configuration name. The installation path is given by the attribute JBossHome and the ServerConfig attributes gives the server configuration name. It is important that the agent for JBoss Application Server can uniquely identify a configuration on a node that is hosting more than one simultaneous JBoss Application Server Configurations. The agent must identify the server configuration process before the agent kills the process of a non-responsive or a failed configuration.

For more details on the attributes:

See "Attribute definition for JBoss Application Server agent " on page 26.

Configuring application monitoring with Symantec ApplicationHA

This chapter includes the following topics:

About configuring application monitoring with ApplicationHA

This chapter describes the steps to configure application monitoring with ApplicationHA in a virtualization environment.

Consider the following points before you proceed:

- You configure an application for monitoring on a virtual machine using the Application Monitoring Configuration Wizard.

- The Application Monitoring Configuration Wizard is launched when you click **Configure Application Monitoring** on the ApplicationHA tab of the VMware vSphere Client.

- In this release, the wizard allows you 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.

■ After you have configured monitoring for an application using the wizard, you can configure monitoring for other applications residing in the same virtual machine, using Veritas Cluster Server (VCS) commands.
For more information read the following technote:
http://www.symantec.com/docs/TECH159846

Before configuring application monitoring for JBoss Application Server

Ensure that you complete the following tasks before configuring application monitoring for JBoss Application Server on a virtual machine:

■ Install ApplicationHA Console.

■ Install ApplicationHA guest components on the virtual machine that you need to monitor.

■ Install VMware Tools on the virtual machine. Install a version that is compatible with VMware ESX server.

■ Install the VMware vSphere Client.

■ Assign ApplicationHA - Configure Application Monitoring (Admin) privileges to the logged-on user on the virtual machine where you want to configure application monitoring.

■ Install the application and the associated components that you wish to monitor on the virtual machine.

■ If you have configured a firewall, ensure that your firewall settings allow access to ports used by ApplicationHA installer, wizards, and services.
Refer to the *Symantec ApplicationHA Installation and Upgrade Guide* for a list of ports and services used.

Configuring application monitoring for JBoss Application Server

Perform the following steps to configure monitoring for JBoss Application Server on a virtual machine.

1   Launch the VMware vSphere Client and connect to the VMware vCenter Server that hosts the virtual machine.

    The vSphere Client is used to configure and control application monitoring.

2   From the vSphere Client's Inventory view in the left pane, select the virtual machine where you want to configure application monitoring for JBoss Application Server.

3   From the vSphere Client's Management view in the right pane, click the **ApplicationHA** tab.

    The ApplicationHA view displays the status of all the supported applications that are installed on the selected virtual machine.

4   In the ApplicationHA view, click **Configure Application Monitoring**.

    This launches the Application Monitoring Configuration Wizard.

5   Review the information on the Welcome screen and then click **Next**.

    The wizard lists all the supported applications for the system.

6   Select **JBoss Application Server** and then click **Next**.

    The JBoss Application Server Specification screen appears.

7   On the JBoss Application Server Specification page, enter the JBoss Home Directory and the Server Configuration Base Directory. Then click **Next**.

    The JBoss Application Server Configuration screen appears.

Note: The server configurations which have no bootstrap beans to load into the micrcontainer and no deployments, will not be shown in the list of server configuration on Application Inputs page. For example, `minimal`.

To verify the bootstrap beans loaded into the micrcontainer with server deployment, the ApplicationHA framework will check for the presence of the files `jboss-beans.xml` and `bootstrap.xml` , located at:

<ServerBaseDir>/*<ServerConfig>*/deployers/jbossws.deployer/META-INF/jboss-beans.xml

<ServerBaseDir>/*<ServerConfig>*/conf/bootstrap.xml

---

8   Select the various JBoss Application Server Configurations that you want to monitor. The various configurations are shown in a list on the left side. You can enable one or more configurations to monitor. For each server configuration, enter the following fields:

User	System User under which the JBoss Application Server is executed.
Administrative User	Administrative user within JBoss Application Server.
Administrative Password	Password of Administrative user within JBoss Application Server.
Startup Arguments	Startup arguments to pass the startup script of JBoss Application Server (optional).
Environment File	Optional environment file to source before starting JBoss Application Server (optional).
Binding Set	The name of the set of bindings to use for the JBoss Application Server Configuration. Every server configuration has unique binding set like default-port, port-01 or port-02, and so on
JNDI Url	Modify the default value of the IP address and the port in the link which appears by default in the JNDI Url field according to your JBoss Application Server settings. `jnp://<ipaddress>:<port>`

9   Click **Next**

The wizard will proceed to configure the resources and display their status.

10   Select the **JBoss Application Server Configuration**, specify the settings, and then click **Next**.

The wizard performs the application monitoring configuration tasks. The ApplicationHA Configuration screen displays the status of each task.

11   After all the tasks are complete, click **Next**.

Note: If the configuration tasks fail, click **View Logs** to check the details of the failure.

You then have to run the wizard again to configure the application monitoring.

---

12   Click **Finish** to complete the wizard.

This completes the application monitoring configuration.

13 To view the status of the configured application on a virtual machine, in the inventory view of the vSphere Client, click the appropriate virtual machine, and then click the **ApplicationHA** tab.

The ApplicationHA view appears.

By default, the Component List tab appears. The tab lists each component of the configured application and the status description of each component.

For more information on viewing and administering applications by using the vSphere Client, see the *Symantec ApplicationHA User's Guide.*

14 To view component dependency for the monitored application, click the
Component Dependency tab.

The component dependency graph appears.

By default, the component dependency graph shows the configured resources.
The left pane displays component groups and/or configured applications.
The right pane displays components of the selected component group or
application.

For more information on viewing component dependency for any configured
application, see the *Symantec ApplicationHA User's Guide.*

Troubleshooting the agent for JBoss Application Server

This chapter includes the following topics:

■ Starting the JBoss Application Server Configuration outside the Symantec ApplicationHA environment

■ Reviewing error log files

Starting the JBoss Application Server Configuration outside the Symantec ApplicationHA environment

If you face problems while working with a resource, you must disable the resource within the cluster framework. A disabled resource is not under the control of the cluster framework, and so you can test the JBoss Application Server Configuration independent of the cluster framework. Refer to the cluster documentation for information about disabling a resource.

You can then restart the JBoss Application Server Configuration outside the cluster framework..

Note: Use the same parameters that the resource attributes define within the cluster framework while restarting the resource outside the cluster framework.

A sample procedure to start a JBoss Application Server Configuration outside the ApplicationHA environment, is illustrated as follows.

To start a server configuration outside the ApplicationHA environment

1 Log in as superuser onto the host on which the JBoss Application Server Configuration to run.

2 Use the values defined in the agent attributes to initiate the start program.

   For example, assume that the following values are assigned:

Attribute	Value
User	root
JBossHome	/usr/local/EnterprisePlatform-5.1.2/jboss-eap-5.1/jboss-as
AdminUser	admin
AdminPassword	admin
ServerConfig	`production`
ServerBaseDir	/usr/local/EnterprisePlatform-5.1.2/jboss-eap-5.1/jboss-as/server
BindingSet	ports-01
StartArgs	""

   In the example below we will use the IP Address as 127.0.0.1

3 Go to the bin directory inside the directory specified by JBossHome:

```
/usr/local/EnterprisePlatform-5.1.2/jboss-eap-5.1/jboss-as/bin
```

4 Start the JBoss Application Server with the following command:

```
./run.sh -c production \
  -Djboss.server.base.dir=/usr/local/EnterprisePlatform-5.1.2/ \
  jboss-eap-5.1/jboss-as/server \
  -Djboss.server.base.url=file:/usr/local/EnterprisePlatform-5.1.2/ \
  jboss-eap-5.1/jboss-as/server \
  -Djboss.service.binding.set=ports-01 \
  -Djava.rmi.server.hostname=127.0.0.1 \
  -Djboss.bind.address=127.0.0.1
```

5 Ensure that the JBoss Application Server Configuration starts successfully.

   If the JBoss Application Server Configuration works properly outside the ApplicationHA framework, you can attempt to implement the server within the framework.

Reviewing error log files

If you face problems while using JBoss Application Server or the agent for JBoss Application Server, use the log files described in this section to investigate the problems.

Using JBoss Application Server log files

If the JBoss Application Server is facing problems, access the log files of the JBoss Application Server to further investigate the problem. The log files are located as follows:

■ *<ServerBaseDir>*/*<ServerConfig>*/log/server.log

■ *<ServerBaseDir>*/*<ServerConfig>*/log/boot.log

Reviewing ApplicationHA log files

In case of problems while using the agent for JBoss Application Server, you can access the ApplicationHA log files at the following location:

/var/VRTSvcs/log/JBoss_A.log

Reviewing cluster log files

In case of problems while using the agent for JBoss Application Server, you can also access the engine log file for more information about a particular resource. The engine log files are located at the following location:

The VCS engine log file is /var/VRTSvcs/log/engine_A.log.

Using trace level logging

The ResLogLevel attribute controls the level of logging that is written in an ApplicationHA log file for each JBoss Application Server resource. You can set this attribute to TRACE, which enables very detailed and verbose logging.

If you set ResLogLevel to TRACE, a very high volume of messages are produced. Symantec recommends that you localize the ResLogLevel attribute for a particular resource.

To localize ResLogLevel attribute for a resource

1   Make the ApplicationHA configuration writable:

```
# haconf -makerw
```

2   Identify the JBoss Application resource for which you want to enable detailed logging.

3   Localize the ResLogLevel attribute for the identified resource:

```
# /opt/VRTS/bin/hares -local JBoss_<count>_res \
ResLogLevel
```

4   Set the ResLogLevel attribute to TRACE for the identified resource:

```
# /opt/VRTS/bin/hares -modify JBoss_<count>_res \
ResLogLevel TRACE -sys SysA
```

5   Note the time before you begin to operate the identified resource.

6   Test the identified resource. The function reproduces the problem that you are attempting to diagnose.

7   Note the time when the problem is reproduced.

8   Set the ResLogLevel attribute back to INFO for the identified resource:

```
# /opt/VRTS/bin/hares -modify JBoss_<count>_res \
ResLogLevel INFO -sys SysA
```

9   Review the contents of the log file. Use the time noted in Step 4 and Step 6 to diagnose the problem.

Using agent for JBoss Application Server log files

In case of problems while using the agent for JBoss Application Server, you can access the agent log files for more information. The agent saves output of every operation process in the temporary folder of the resource system. If the temporary folder is /tmp, the log files are saved using the following naming format:

```
/tmp/.VRTSAgentName/ResourceName_EntryPointName.out
```

Let the resource name be JBoss_1_res. For example:

```
/tmp/.VRTSJBoss/JBoss_1_res_online.out
/tmp/.VRTSJBoss/JBoss_1_res_offline.out
/tmp/.VRTSJBoss/JBoss_1_res_clean.out
/tmp/.VRTSJBoss/JBoss_1_res_monitor.out
```

Note: These files are overwritten each time you execute the corresponding operation process. In case you want to save the information, make a copy of the files to another location.

Resource type definitions

This appendix includes the following topics:

- About the resource type and attribute definitions
- Resource type definition for JBoss Application Server agent

About the resource type and attribute definitions

The resource type represents the configuration definition of the agent and specifies how the agent is defined in the configuration file. The attribute definitions describe the attributes associated with the agent. The required attributes describe the attributes that must be configured for the agent to function.

Resource type definition for JBoss Application Server agent

Examples of agent type definition files are:

```
type JBoss (
        static boolean AEPTimeout = 1
        static str AgentFile = "/opt/VRTSvcs/bin/Script50Agent"
        static str AgentDirectory = "/opt/VRTSagents/ha/bin/JBoss"
        static str ArgList[] = { ResLogLevel, State, IState, User,
          EnvFile, AdminUser, AdminPassword, MonitorProgram,
          SecondLevelMonitor, StartArgs, StopArgs, JBossHome,
          ServerBaseDir, ServerConfig, BindingSet, JNDIUrl }
        str ResLogLevel = INFO
        str User = root
        str EnvFile
        str AdminUser = admin
```

```
            str AdminPassword
            str MonitorProgram
            int SecondLevelMonitor = 0
            str StartArgs
            str StopArgs
            str JBossHome
            str ServerBaseDir
            str ServerConfig
            str BindingSet = "ports-default"
            str JNDIUrl = "jnp://127.0.0.1:1099"
        )
```

Attribute definition for JBoss Application Server agent

Refer to the following required and optional attributes while configuring the agent for JBoss Application Server.

Table A-1 lists the required attributes for the agent for JBoss Application Server.

Table A-1   Required attributes

Required attribute	Description
JBossHome	The absolute path to JBoss Application Server home directory. JBossHome is used to uniquely identify theJBoss Application Server. It is usually a directory named `jboss-as` under the directory specified during installation..
	Type and dimension: string-scalar
	Default: ""
	Example: /usr/local/EnterprisePlatform-5.1.1/jboss-eap-5.1/jboss-as
AdminUser	The administrative username which is used to perform shutdown of the JBoss Application Server. For example: admin
	Type and dimension: string-scalar
	Default: admin
AdminPassword	Password for the administrative user. This is specified during the installation.
	Default: ""

Table A-1   Required attributes *(continued)*

Required attribute	Description
ResLogLevel	The logging detail performed by the agent for JBoss Application Server for the resource. Valid values are: ERROR: Only logs error messages. WARN: Logs above plus warning messages. INFO: Logs above plus informational messages. TRACE: Logs above plus trace messages. TRACE is very verbose and should only be used during initial configuration or for troubleshooting and diagnostic operations. Type and dimension: string-scalar Default: INFO Example: TRACE
User	The UNIX user name used to start and stop the JBoss Application Server Configuration. The agent operations use the getpwname(3C) function system call to obtain UNIX user attributes. Hence you can define the user name locally or in a common repository such as NIS, NIS+, or LDAP. Type and dimension: string-scalar Default: root Example: jboss
BindingSet	The name of the set of bindings to use for the JBoss Application Server Configuration. These various binding names are stored in the `bindings-jboss-beans.xml` file under the server configuration directory. Type and dimension: string-scalar Default: ports-default Example: ports-01
JNDIUrl	JNDI Url of the server configuration. This is used to check the status of the server configuration. Default: `jnp://127.0.0.1:1099` Example: `jnp://<ipaddress>:<port>`

Table A-1   Required attributes *(continued)*

Required attribute	Description
ServerConfig	Name of the server configuration to monitor.
	Example: web, production, default, and so on.
	Default: ""
ServerBaseDir	Base directory for server configurations. The directory of each server configuration is within the server base directory.
	Example: /usr/local/EnterprisePlatform-5.1.1/jboss-eap-5.1/jboss-as/server
	Default: ""

Table A-2 lists the optional attributes.

Table A-2   Optional attributes

Optional attribute	Description
MonitorProgram	The full pathname and command-line arguments for an externally provided monitor program.
	Type and dimension: string-scalar
	Default: ""
	Example: /usr/local/bin/jboss_5_monitor.sh

Table A-2   Optional attributes *(continued)*

Optional attribute	Description
SecondLevelMonitor	Used to enable second-level monitoring. Second-level monitoring is a deeper, more thorough state check of the configured ServerConfig. The numeric value specifies how often the monitoring routines must run. ■ 0 means never run the second-level monitoring routines ■ 1 means run routines every monitor interval ■ 2 means run routines every second monitor interval, and so on. The agent uses the JBoss Application Server supplied script `twiddle.sh` scripting tool to perform second-level monitoring. **Note:** Exercise caution while setting SecondLevelMonitor to large numbers. For example, if the MonitorInterval is set to 60 seconds and the SecondLevelMonitor is set to 100, then twiddle.sh is executed every 100 minutes, which may not be as often as intended. Type and dimension: integer-scalar Default: 0 Example: 1
StartArgs	Startup arguments to be passed to the JBoss Application Server startup scripts. Default: ""
StopArgs	Shutdown arguments to be passed to the JBoss Application Server Configuration. Default: ""

Appendix B

Detail monitoring

This appendix includes the following topics:

■ Setting the PATH variable

■ Setting up detail monitoring for ApplicationHA agent for JBoss Application Server

Setting the PATH variable

ApplicationHA commands reside in the `/opt/VRTS/bin` directory. Add this directory to your PATH environment variable.

To set the PATH variable

◆ Perform one of the following steps:

For the Bourne Shell (sh or ksh), type:

```
$ PATH=/opt/VRTS/bin:$PATH; export PATH
```

For the C Shell (csh or tcsh), type:

```
$ setenv PATH :/opt/VRTS/bin:$PATH
```

Setting up detail monitoring for ApplicationHA agent for JBoss Application Server

This section describes the procedure to enable and disable detail monitoring for JBoss Application Server.

To enable detail monitoring for JBoss Application Server

1   Make the ApplicationHA configuration writable:

```
# haconf -makerw
```

2   Freeze the service group to avoid automated actions by ApplicationHA in case of an incomplete configuration:

```
# hagrp -freeze JBoss_1_SG
```

3   Enable detail monitoring for JBoss Application Server resources by using the following ApplicationHA commands:

```
# hares -modify JBoss_1_res SecondLevelMonitor <frequency>
```

Note: For more information on SecondLevelMonitor attribute, See "Attribute definition for JBoss Application Server agent " on page 26.

4   Save the configuration and unfreeze the service group.

```
# hagrp -unfreeze JBoss_1_SG
```

```
# haconf -dump -makero
```

To disable detail monitoring for JBoss Application Server

1   Make the ApplicationHA configuration writable:

```
# haconf -makerw
```

2   Freeze the service group to avoid automated actions by ApplicationHA in case of an incomplete configuration:

```
# hagrp -freeze JBoss_1_SG
```

3   Disable detail monitoring for SAP resources by using the following ApplicationHA commands:

```
# hares -modify JBoss_1_res SecondLevelMonitor 0
```

4   Save the configuration and unfreeze the service group.

```
# hagrp -unfreeze JBoss_1_SG
```

```
# haconf -dump -makero
```