

Veritas™ High Availability Agent for WebSphere MQ Installation and Configuration Guide

AIX, HP-UX, Linux, Solaris

5.1

Veritas High Availability Agent for WebSphere MQ Installation and Configuration Guide

The software described in this book is furnished under a license agreement and may be used only in accordance with the terms of the agreement.

Agent version: 5.1

Document version: 5.1.2

Legal Notice

Copyright © 2008 Symantec Corporation. All rights reserved.

Symantec, the Symantec Logo, Veritas and Veritas Storage Foundation are trademarks or registered trademarks of Symantec Corporation or its affiliates in the U.S. and other countries. Other names may be trademarks of their respective owners.

The product described in this document is distributed under licenses restricting its use, copying, distribution, and decompilation/reverse engineering. No part of this document may be reproduced in any form by any means without prior written authorization of Symantec Corporation and its licensors, if any.

THE DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID. SYMANTEC CORPORATION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE FURNISHING, PERFORMANCE, OR USE OF THIS DOCUMENTATION. THE INFORMATION CONTAINED IN THIS DOCUMENTATION IS SUBJECT TO CHANGE WITHOUT NOTICE.

The Licensed Software and Documentation are deemed to be commercial computer software as defined in FAR 12.212 and subject to restricted rights as defined in FAR Section 52.227-19 "Commercial Computer Software - Restricted Rights" and DFARS 227.7202, "Rights in Commercial Computer Software or Commercial Computer Software Documentation", as applicable, and any successor regulations. Any use, modification, reproduction release, performance, display or disclosure of the Licensed Software and Documentation by the U.S. Government shall be solely in accordance with the terms of this Agreement.

Symantec Corporation
20330 Stevens Creek Blvd.
Cupertino, CA 95014

<http://www.symantec.com>

Technical Support

Symantec Technical Support maintains support centers globally. Technical Support's primary role is to respond to specific queries about product features and functionality. The Technical Support group also creates content for our online Knowledge Base. The Technical Support group works collaboratively with the other functional areas within Symantec to answer your questions in a timely fashion. For example, the Technical Support group works with Product Engineering and Symantec Security Response to provide alerting services and virus definition updates.

Symantec's maintenance offerings include the following:

- A range of support options that give you the flexibility to select the right amount of service for any size organization
- Telephone and Web-based support that provides rapid response and up-to-the-minute information
- Upgrade assurance that delivers automatic software upgrade protection
- Global support that is available 24 hours a day, 7 days a week
- Advanced features, including Account Management Services

For information about Symantec's Maintenance Programs, you can visit our Web site at the following URL:

www.symantec.com/techsupp/

Contacting Technical Support

Customers with a current maintenance agreement may access Technical Support information at the following URL:

www.symantec.com/business/support/assistance_care.jsp

Before contacting Technical Support, make sure you have satisfied the system requirements that are listed in your product documentation. Also, you should be at the computer on which the problem occurred, in case it is necessary to replicate the problem.

When you contact Technical Support, please have the following information available:

- Product release level
- Hardware information
- Available memory, disk space, and NIC information
- Operating system

- Version and patch level
- Network topology
- Router, gateway, and IP address information
- Problem description:
 - Error messages and log files
 - Troubleshooting that was performed before contacting Symantec
 - Recent software configuration changes and network changes

Licensing and registration

If your Symantec product requires registration or a license key, access our technical support Web page at the following URL:

www.symantec.com/techsupp/

Customer service

Customer service information is available at the following URL:

www.symantec.com/techsupp/

Customer Service is available to assist with the following types of issues:

- Questions regarding product licensing or serialization
- Product registration updates, such as address or name changes
- General product information (features, language availability, local dealers)
- Latest information about product updates and upgrades
- Information about upgrade assurance and maintenance contracts
- Information about the Symantec Buying Programs
- Advice about Symantec's technical support options
- Nontechnical presales questions
- Issues that are related to CD-ROMs or manuals

Documentation feedback

Your feedback on product documentation is important to us. Send suggestions for improvements and reports on errors or omissions to clustering_docs@symantec.com. Include the title and document version (located on the second page), and chapter and section titles of the text on which you are reporting.

Maintenance agreement resources

If you want to contact Symantec regarding an existing maintenance agreement, please contact the maintenance agreement administration team for your region as follows:

Asia-Pacific and Japan	contractsadmin@symantec.com
Europe, Middle-East, and Africa	semea@symantec.com
North America and Latin America	supportolutions@symantec.com

Additional enterprise services

Symantec offers a comprehensive set of services that allow you to maximize your investment in Symantec products and to develop your knowledge, expertise, and global insight, which enable you to manage your business risks proactively.

Enterprise services that are available include the following:

Symantec Early Warning Solutions	These solutions provide early warning of cyber attacks, comprehensive threat analysis, and countermeasures to prevent attacks before they occur.
Managed Security Services	These services remove the burden of managing and monitoring security devices and events, ensuring rapid response to real threats.
Consulting Services	Symantec Consulting Services provide on-site technical expertise from Symantec and its trusted partners. Symantec Consulting Services offer a variety of prepackaged and customizable options that include assessment, design, implementation, monitoring, and management capabilities. Each is focused on establishing and maintaining the integrity and availability of your IT resources.
Educational Services	Educational Services provide a full array of technical training, security education, security certification, and awareness communication programs.

To access more information about Enterprise services, please visit our Web site at the following URL:

www.symantec.com

Select your country or language from the site index.

Contents

Technical Support	4	
Chapter 1	Introducing the Veritas High Availability Agent for WebSphere MQ	9
	About the Veritas agent for WebSphere MQ	9
	What's new in this agent	10
	Supported software	10
	WebSphere MQ agent functions	11
	Online	11
	Offline	12
	Monitor	12
	Clean	13
Chapter 2	Installing, upgrading, and removing the agent for WebSphere MQ	15
	Before you install the Veritas agent for WebSphere MQ	15
	Prerequisites for enabling i18n support	16
	About ACC Library	17
	Installing the ACC library	17
	Installing the agent in a VCS environment	18
	Installing the agent in a VCS One environment	19
	Installing the high availability agents	20
	Removing the agent in a VCS environment	21
	Removing the agent in a VCS One environment	22
	Removing the ACC library	23
	Upgrading the agent for WebSphere MQ	24
Chapter 3	Preparing to configure the agent for WebSphere MQ	25
	About configuring the Veritas agent for WebSphere MQ	25
	Importing the agent types files for VCS	25
	Adding the agent type definitions for VCS One	26
	WebSphere MQ agent attributes	28
	Executing a customized monitoring program	30

Chapter 4	Configuring the service groups for WebSphere MQ Queue Manager	33
	Configuring service groups for WebSphere MQ Queue Managers	33
	Configuring a WebSphere MQ resource	33
	Configuring a WebSphere MQ listener	37
Chapter 5	Troubleshooting the agent for WebSphere MQ	39
	Using correct software and operating system versions	39
	Meeting prerequisites	39
	Configuring WebSphere MQ Queue Manager resources	40
	Starting the WebSphere MQ Queue Manager instance outside a cluster	40
	Monitoring WebSphere MQ Queue Manager processes	40
	Reviewing error log files	41
	Using WebSphere MQ log files	41
	Reviewing cluster log files	41
	Using trace level logging	42
Appendix A	Sample Configurations	43
	About sample configurations for the agent for WebSphere MQ	43
	Sample agent type definition for WebSphere MQ	43
	VCS 4.x	44
	VCS 5.0	44
	Sample configuration in a VCS environment	45
	Sample configuration in a VCS One environment	47
	Sample service group configurations	47
Index	49

Introducing the Veritas High Availability Agent for WebSphere MQ

This chapter includes the following topics:

- [About the Veritas agent for WebSphere MQ](#)
- [What's new in this agent](#)
- [Supported software](#)
- [WebSphere MQ agent functions](#)

About the Veritas agent for WebSphere MQ

The Veritas High Availability agents monitor specific resources within an enterprise application. They determine the status of resources and start or stop them according to external events.

The Veritas agent for WebSphere MQ provides high availability for all WebSphere MQ Queue Managers in a cluster. The agent can bring a specific WebSphere MQ Queue Manager online and monitor the state of the Queue Manager. The agent can also detect failures and shut down the Queue Manager in case of a failure.

See the following Technical Support TechNote for the latest updates or software issues for this agent:

<http://seer.entsupport.symantec.com/docs/282004.htm>

What's new in this agent

The enhancements in this release of WebSphere MQ agent are as follows:

- Added support for VCS One 2.0.
- Added support for WebSphere MQ version 6.0 and 7.0.
- Added support for Solaris x86 for VCS 4.1 and 5.0
- Added support for Internationalization (i18n).
- Added support for ACC library 5.0 that is compliant with VCS and VCS One.
- Added support for zones on Solaris 10 in a VCS environment.
- Added support for the First Failure Data Capture (FFDC) feature.
- Removed the following attributes:
 - MQImmediateTimeout
 - MQPreemptiveTimeout
 - FirstMonitorDelay
 - VProLogLevel
- Added the following attributes:
 - MQVer
 - MonitorProgram
 - ResLogLevel
 - CommandServer
- Added support for monitoring the Command Server for WebSphere MQ version 6.0 and later. The WebSphere MQ enables remote administration of queue managers. To facilitate this functionality, a Command Server can run within a WebSphere MQ Queue Manager. This Command Server executes commands sent to the Queue Manager.

Supported software

The Veritas agent for WebSphere MQ supports the following software versions:

Veritas Cluster Server	<ul style="list-style-type: none"> ■ AIX–VCS 4.0, 5.0 ■ HP-UX–VCS 4.1, 5.0 ■ Linux–VCS 4.0, 4.1, 5.0 ■ Solaris–VCS 4.0, 4.1, 5.0
Veritas Cluster Server One	VCS One 2.0 on AIX, HP-UX, Linux, and Solaris
ACC Library	<p>5.1 and later</p> <p>Review the ACC Library version for i18n support.</p> <p>See “Prerequisites for enabling i18n support” on page 16.</p>
Operating Systems	<ul style="list-style-type: none"> ■ AIX 5.1, 5.2, 5.3 on pSeries ■ HP-UX 11i version 2, HP-UX 11i version 3 ■ Red Hat Enterprise Linux 3.0, 4.0, 5.0 on Intel ■ SUSE Linux Enterprise Server 10 ■ Solaris 8, 9, 10 on SPARC and x86 <p>Note: The agent supports zones on Solaris 10 in both VCS and VCS One environments.</p>
WebSphere MQ Queue Manager	5.3, 6.0, 7.0

WebSphere MQ 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

The online function performs the following tasks:

- Verifies that the WebSphereMQ is not already online.
- Uses an IBM provided start script to start the WebSphereMQ using the name of the Queue Manager.

You can also configure the online function to source a shell script or a program that the EnvFile attribute specifies. This script or program ensures that the required shell environment variables are properly set before executing the start script.
- Ensures that the WebSphereMQ Queue Manager is up and running successfully. The operation uses the wait period that the OnlineTimeout attribute specifies, to enable the Queue Manager to initialize fully before allowing the monitor function to probe the resource.

Offline

The offline function performs the following tasks:

- Verifies that the WebSphereMQ Queue Manager is not already offline.
- Uses an IBM provided stop script to stop the WebSphereMQ Queue Manager using the name of the Queue Manager.
You can also configure the offline function to source a shell script or a program that the EnvFile attribute specifies. This script or program ensures that the required shell environment variables are properly set before executing the stop script.
- Ensures that the WebSphereMQ Queue Manager is given enough time to go offline successfully. The operation uses a wait period that the OfflineTimeout attribute specifies, to allow the WebSphereMQ Queue Manager to complete the offline sequence before allowing further probing of the resource.

Monitor

The monitor function monitors the states of the WebSphereMQ Queue Managers running on all nodes within the cluster.

The monitor function can monitor the following WebSphereMQ Queue Manager components:

- Queue Manager
- Channel Initiator
- Command Server (If the CommandServer attribute is set to 1)

The function performs the following tasks:

- The first level check searches for all system processes that must be running for a WebSphereMQ Queue Manager. If the first level check does not find these processes running on the node, the check exits immediately, and reports the Queue Manager as offline.
- If the SecondLevelMonitor attribute is set to greater than 0, the monitor function performs a second level check to determine the status of the WebSphereMQ Queue Manager.
The second level check executes the `runmqsc` command and pings the Queue Manager to see if the manager is up and running. This check ensures that the processes are truly available for MQ Queue processing.
- Depending upon the MonitorProgram attribute, the monitor function can perform a customized check using a user-supplied monitoring utility. For details about executing a custom monitor program:
See [“Executing a customized monitoring program”](#) on page 30.

Clean

In case of a failure or after an unsuccessful attempt to online or offline WebSphereMQ Queue Manager, the clean function removes any Queue Manager processes remaining in the system.

The function performs the following tasks:

- Attempts to gracefully shut down the WebSphereMQ Queue Manager.
- If a graceful shutdown fails, the clean function looks for all the processes running for the WebSphereMQ Queue Manager, and cleans the processes.
- The clean function executes the IBM supplied utility, amqiclen to clean the IPC resources that are associated with the WebSphereMQ Queue Manager.
- If the CommandServer attribute is set to 1 for WebSphere MQ version 6.0 or later, the clean function kills the Command Server processes associated with the WebSphereMQ Queue Manager.

Installing, upgrading, and removing the agent for WebSphere MQ

This chapter includes the following topics:

- [Before you install the Veritas agent for WebSphere MQ](#)
- [Installing the ACC library](#)
- [Installing the agent in a VCS environment](#)
- [Installing the agent in a VCS One environment](#)
- [Removing the agent in a VCS environment](#)
- [Removing the agent in a VCS One environment](#)
- [Removing the ACC library](#)
- [Upgrading the agent for WebSphere MQ](#)

Before you install the Veritas agent for WebSphere MQ

You must install the Veritas agent for WebSphere MQ on all the systems that will host a WebSphere MQ Queue Manager service group.

Ensure that you meet the following prerequisites to install the agent for WebSphere MQ.

For VCS, do the following:

- Install and configure Veritas Cluster Server.
- Remove any previous version of this agent.
- Install the latest version of ACC Library.
To install or update the ACC Library package, locate the library and related documentation on the agentpack disc.
See “About ACC Library” on page 17.

For VCS One, do the following:

- Install and configure Veritas Cluster Server One.
- Remove any previous version of this agent.

Prerequisites for enabling i18n support

Perform the following steps to enable i18n support to the agent:

- Install ACCLib version 5.1.2.0 or later.
You can find the latest version of ACCLib on the agent pack disc at the following location:

Platform	Location
AIX	cd1/platform/application/acc_library/vcs/version_library/pkggs/
HP-UX	cd1/platform/ <i>arch_dist</i> /application/acc_library/vcs/version_library/pkggs/ where <i>arch_dist</i> takes the value 'generic'
Linux	cd1/platform/ <i>arch_dist</i> /application/acc_library/vcs/version_library/rpms/ where <i>arch_dist</i> takes the value 'generic'
Solaris	cd1/platform/ <i>arch_dist</i> /application/acc_library/vcs/version_library/pkggs/ where <i>arch_dist</i> takes the following values: 'sparc' for Solaris SPARC 'sol_x64' for Solaris x64

- Copy the latest ag_i18n_inc.pm module from the following location on the agent pack disc.

Note: Review the readme.txt for instructions to copy this module.

VCS 5.0 cd1/platform/*arch_dist*/application/i18n_support/vcs/5.0

VCS 4.1	cd1/ <i>platform/arch_dist</i> /application/i18n_support/vcs/4.1
VCS 4.0	cd1/ <i>platform/arch_dist</i> /application/i18n_support/vcs/4.0

where *arch_dist* takes the following values:

'sparc' for Solaris SPARC

'sol_x64' for Solaris x64

'generic' for HP-UX and Linux

Note: *arch_dist* is not applicable to AIX.

About ACC Library

The operations for the Veritas agent for WebSphere MQ depend on a set of Perl modules known as the ACC library. The library must be installed on each system in the cluster that will run the agent for WebSphere MQ. The ACC library contains common, reusable functions that perform tasks, such as process identification, logging, and system calls.

Note: If you are installing the agent for WebSphere MQ in a VCS 5.0 or VCS One environment, do not install the ACC library package separately. If you are installing the agent in a VCS 4.x environment, you must install the ACC library package before installing the agent.

Installing the ACC library

Install the ACC library on each system in the cluster that runs an agent that depends on the ACC library.

To install the ACC library

- 1 Log in as superuser.
- 2 Navigate to the pkgs directory (the pkgs directory on the CD).

AIX	<code>cd_mount/aix/application/acc_library/vcs/version_library/pkgs</code>
HP-UX	<code>cd_mount/hpux/generic/application/acc_library/vcs/version_library/pkgs</code>
Linux	<code>cd_mount/linux/generic/application/acc_library/vcs/version_library/rpms</code>
Solaris	<code>cd_mount/solaris/dist_arch/application/acc_library/vcs/version_library/pkgs</code> where <i>dist_arch</i> is sparc or sol_x64.

- 3 Install the package. Enter **Yes** if asked to confirm overwriting of files in the existing package.

AIX	<code># installp -ac -d VRTSacclib.rte.bff VRTSacclib.rte</code>
HP-UX	<code># swinstall -s `pwd` VRTSacclib</code>
Linux	<code># rpm -i \ VRTSacclib-<i>VersionNumber</i>-GA_GENERIC.noarch.rpm</code>
Solaris	<code># pkgadd -d . VRTSacclib</code>

- 4 For HP-UX, install the HP-UX patch PHCO_29042 if it is not already installed.

Installing the agent in a VCS environment

Install the agent for WebSphere MQ on each node in the cluster.

To install the agent

- 1 Log in as superuser.
- 2 Navigate to the directory containing the package for the platform running in your environment.

```
AIX      cd_mount/aix/application/webspheremq_agent/  
        vcs_version/version_agent/pkggs
```

```
HP-UX   cd_mount/hpux/generic/application/webspheremq_agent/  
        vcs_version/version_agent/pkggs
```

```
Linux   cd_mount/linux/generic/  
        application/webspheremq_agent/vcs_version/  
        version_agent/rpms
```

```
Solaris cd_mount/solaris/dist_arch/application/  
        webspheremq_agent/vcs_version/version_agent/pkggs
```

- 3 Install the package.

```
AIX      # installp -ac -d VRTSmq6.rte.bff VRTSmq6.rte
```

```
HP-UX   # swinstall -s `pwd` VRTSmq6
```

```
Linux   # rpm -ihv \  
        VRTSmq6-AgentVersion-GA_GENERIC.noarch.rpm
```

```
Solaris # pkgadd -d . VRTSmq6
```

Installing the agent in a VCS One environment

You must install the agent for WebSphere MQ on all the application nodes of the server farm that will host the WebSphere MQ Queue Manager service group.

You can install the agent for WebSphere MQ using the `installagpack` program.

The `installagpack` program installs the following agents:

- Oracle

- Sybase
- WebLogic Server
- WebSphere Application Server
- WebSphere MQ

Following are the commonly used options that installagpack program supports:

- | | |
|---------------|--|
| -addtypes | Use this option to add the type definition for the agents that are shipped with agent pack installer.

See “Adding the agent type definitions for VCS One” on page 26. |
| -rmtypes | Use this option to remove the type definition for the agents that are shipped with agent pack installer. |
| -responsefile | Use this option to perform automated VCS One High Availability Agents Installation using the system and the configuration information that is stored in a specified file instead of prompting for information.

The responsefile <i>response_file</i> must be a full path name. If -responsefile option is not specified, the response file is automatically generated as installagpack <i>RANDSTRING</i> .response, where <i>RANDSTRING</i> is a six character string of random alpha-numerals. You must edit the response file to use it for subsequent installations. Variable field definitions are defined within the file. |
| -rsh | Use this option to specify that rsh and rcp are to be used for communication between systems instead of ssh and scp. This option requires that systems be preconfigured such that rsh commands between systems execute without prompting for passwords or confirmations. |

Installing the high availability agents

Installing the agent packs involves the following phases:

- [Installing the agent packages](#)
- Adding the agent resource type definitions
See [“Adding the agent type definitions for VCS One”](#) on page 26.

Installing the agent packages

You can add the agent packages on one or more application nodes of a specific platform type.

To install the Veritas high availability agents

- 1 Mount the Agent Pack software disc on the application node where you plan to run the installation.
- 2 Depending on the platform type, navigate to the directory containing the installer for the VCS One agents:

AIX `cd aix/high_availability_agents`

HP-UX `cd hpux/hpux<os_version>/high_availability_agents`

Linux `cd linux/dist_arch/high_availability_agents`

Where *dist* is the Linux distribution and *arch* is the architecture.

Solaris `cd solaris/dist_arch/high_availability_agents`

where *dist_arch* is *sparc* or *sol_x64*

- 3 Enter the command to start the agent pack installation:

```
# ./installagpack
```

- 4 Enter the name of an application node or application nodes where you want to install the agents.
- 5 Review the output as the installation program installs the agent packages.
You can view installation logs in the `/var/VRTS/install/logs` directory.

Removing the agent in a VCS environment

You must uninstall the agent for WebSphere MQ from a cluster while the cluster is active.

To uninstall the agent in a VCS environment

- 1 Log in as a superuser.
- 2 Set the cluster configuration mode to read/write by typing the following command from any node in the cluster:

```
# haconf -makerw
```

- 3 Remove all WebSphere MQ Queue Manager resources from the cluster. Use the following command to verify that all resources have been removed:

```
# hares -list Type=WebSphereMQ6
```

- 4 Remove the agent type from the cluster configuration by typing the following command from any node in the cluster:

```
# hatype -delete WebSphereMQ6
```

Removing the agent's type file from the cluster removes the include statement for the agent from the main.cf file, but the agent's type file is not removed from the cluster configuration directory. You can remove the agent's type file later from the cluster configuration directory.

- 5 Save these changes. Then set the cluster configuration mode to read-only by typing the following command from any node in the cluster:

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

- 6 Use the platform's native software management program to remove the agent for WebSphere MQ from each node in the cluster.

Execute the following command to uninstall the agent:

```
AIX # installp -u VRTSmq6.rte
```

```
HP-UX # swremove VRTSmq6
```

```
Linux # rpm -e VRTSmq6
```

```
Solaris # pkgrm VRTSmq6
```

Removing the agent in a VCS One environment

You can remove the Veritas high availability agents that you installed using the `installagpack` program.

To remove the Veritas high availability agents from application nodes

- 1 Mount the Agent Pack software disc on the application node where you plan to run the `uninstallagpack` program.
- 2 Depending on the platform type, navigate to the directory containing the uninstaller for the VCS One agents:

AIX `cd aix/high_availability_agents`

HP-UX `cd hpux/hpux<os_version>/high_availability_agents`

Linux `cd linux/dist_arch/high_availability_agents`

Where `dist` is the Linux distribution and `arch` is the architecture.

Solaris `cd solaris/dist_arch/high_availability_agents`

where `dist_arch` is `sparc` or `sol_x64`

- 3 Start the `uninstallagpack` program.

```
# ./uninstallagpack
```

- 4 Enter the name of the application nodes separated by spaces on which you want to uninstall the agent pack.
- 5 Review the output as the program verifies the agent pack that you installed and removes the agent packages.

You can view logs in the `/var/VRTS/install/logs` directory.

Removing the ACC library

Perform the following steps to remove the ACC library.

To remove the ACC library

- 1 Ensure that all agents that use ACC library are removed.
- 2 Run the following command to remove the ACC library package.

AIX `# installp -u VRTSaccplib.rte`

HP-UX `# swremove VRTSaccplib`

Linux `# rpm -e VRTSaccplib`

Solaris `# pkgrm VRTSaccplib`

Upgrading the agent for WebSphere MQ

To upgrade the agent, first remove the older version of the agent.

See [“Removing the agent in a VCS environment”](#) on page 21.

See [“Removing the agent in a VCS One environment”](#) on page 22.

Then, follow the instructions to install the new agent software.

See [“Installing the agent in a VCS environment”](#) on page 18.

See [“Installing the agent in a VCS One environment”](#) on page 19.

Preparing to configure the agent for WebSphere MQ

This chapter includes the following topics:

- [About configuring the Veritas agent for WebSphere MQ](#)
- [Importing the agent types files for VCS](#)
- [Adding the agent type definitions for VCS One](#)
- [WebSphere MQ agent attributes](#)
- [Executing a customized monitoring program](#)

About configuring the Veritas agent for WebSphere MQ

After installing the Veritas agent for WebSphere MQ, you must import the agent type configuration file. After importing this file, you can create and configure a WebSphere MQ Queue Manager resource. Before you configure a resource, review the attributes table that describes the resource type and its attributes.

To view the sample agent type definition and service groups configuration.

See [“About sample configurations for the agent for WebSphere MQ”](#) on page 43.

Importing the agent types files for VCS

To use the agent for WebSphere MQ, you must import the agent types file into the cluster.

To import the agent types file using the Veritas Cluster Server graphical user interface

- 1 Start the Veritas Cluster Manager and connect to the cluster on which the agent is installed.
- 2 Click **File > Import Types**.
- 3 In the Import Types dialog box, select the following file:

VCS 4.x /etc/VRTSvcsc/conf/sample_WebSphereMQ6/WebSphereMQ6Types.cf

VCS 5.0 /etc/VRTSagents/ha/conf/WebSphereMQ6/WebSphereMQ6Types.cf

- 4 Click **Import**.
- 5 Save the VCS configuration.

The WebSphere MQ Queue Manager agent type is now imported to the VCS engine.

You can now create WebSphere MQ Queue Manager resources. For additional information about using the VCS GUI, refer to the *Veritas Cluster Server User's Guide*.

Adding the agent type definitions for VCS One

For VCS One, you must add the agent type definitions to the Policy Master database configuration. You can perform this task on the Policy Master (PM) system or from any other application node in the server farm.

Note: You must add the agent resource type definitions only one time per platform type.

To add the Veritas high availability agent resource types to the PM database configuration

- 1 If you plan to add the resource type definitions from the application node where you ran the installer, then you must set up rsh or passwordless ssh communications between this application node and the PM system.

For information on configuring ssh for remote communication, refer to *Veritas Application Director Installation Guide*.

- 2 Make sure that the PM daemon is running. Depending on the system you choose to add the resource types, run the following command:

From any application node in the server farm `# haclus -display`
 The output should show ClusterState is RUNNING.

From the Policy Master system `# haadmin -state`
 The output should show the PMSG is ONLINE on one node, OFFLINE on the other.

- 3 Perform the following steps only if you plan to run the installation program on the Policy Master system:
 - Mount the Agent Pack software disc.
 - Depending on the platform type, navigate to the directory containing the installer for the agents:

AIX `cd aix/high_availability_agents`

HP-UX `cd hpux/hpux<os_version>/high_availability_agents`

Linux `cd linux/dist_arch/high_availability_agents`
 Where *dist* is the Linux distribution and *arch* is the architecture.

Solaris `cd solaris/dist_arch/high_availability_agents`
 where *dist_arch* is sparc or sol_x64

- 4 Enter the command to start the agent pack installer for adding resource types to the Policy Master configuration database. Use the `-addtypes` flag:

```
# ./installagpack -addtypes
```

Note: The `-addtypes` option must be run from the client for which you want to add resource types. Depending on the platform type, navigate to the directory containing the agent pack installer. The agent pack installer determines the client platform and adds types specific to that platform.

- 5 When the installer prompts, enter the virtual IP address of the Policy Master.
- 6 If you are running the command from an application node, then review the output as the installer verifies communication with the Policy Master system.
- 7 Review the output as the installer adds the agent types to the PM database configuration and copies the appropriate `types.xml` files to the PM system.

You can view installation logs in the `/var/VRTS/install/logs` directory.

WebSphere MQ agent attributes

Refer to the required and optional attributes while configuring the agent for WebSphere MQ Queue Manager.

Table 3-1 shows the required attributes for configuring a WebSphere MQ Queue Manager.

Table 3-1 Required attributes

Required attributes	Description
CommandServer	<p>Decides whether the monitor function must monitor the command server process. This attribute is applicable for WebSphere version 6.0 and later.</p> <p>If this attribute is set to 1, the agent for WebSphere MQ monitors the command server process, <code>amqpcsea</code>. If this process faults, the agent for WebSphere MQ restarts the process.</p> <p>If you set this attribute to 0, the agent for WebSphere MQ does not monitor the <code>amqpcsea</code> process.</p> <p>Type and dimension: Boolean-scalar</p> <p>Default: 0</p> <p>Example: 1</p>

Table 3-1 Required attributes (*continued*)

Required attributes	Description
MQUser	<p>UNIX user name of the owner of the WebSphere MQ directories and executables. The agent functions use this name to execute all WebSphere MQ commands. This user name also owns the WebSphere MQ processes.</p> <p>This user name does not have to be unique within a cluster. The login shell for this user must be Bourne, Korn, or C-shell.</p> <p>Type and dimension: string-scalar</p> <p>Default: mqm</p> <p>Example: mqusr1</p>
MQVer	<p>Version of the WebSphere MQ Queue Manager. Valid values are 5.3, 6.0, and 7.0.</p> <p>Type and dimension: string-scalar</p> <p>Default: 6.0</p> <p>Example: 5.3</p>
QueueManager	<p>Name of the WebSphere MQ Queue Manager that the cluster server manages.</p> <p>You must uniquely define this attribute for each Queue Manager within the cluster. This attribute also uniquely identifies the processes running for a specific WebSphere MQ Queue Manager.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example: venus.queue.manager</p>
ResLogLevel	<p>The logging detail performed by the agent for the resource. Valid values are:</p> <p>ERROR: Only logs error messages.</p> <p>WARN : Logs above plus warning messages.</p> <p>INFO: Logs above plus informational messages.</p> <p>TRACE: Logs above plus trace messages. TRACE is very verbose and should only be used during initial configuration or for troubleshooting and diagnostic functions.</p> <p>Type and dimension: string-scalar</p> <p>Default: INFO</p> <p>Example: TRACE</p>

Table 3-2 shows the optional attributes for configuring a WebSphere MQ Queue Manager.

Table 3-2 Optional attributes

Optional attribute	Description
EnvFile	<p>Full path to the file that the WebSphere MQ sources to set the environment variables.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example: /was/MQ/setEnv.sh</p>
MonitorProgram	<p>Absolute path name of an external, user-supplied monitor executable. For information about setting this attribute:</p> <p>See “Executing a customized monitoring program” on page 30.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example 1: /ibm/mq/myMonitor.sh</p> <p>Example 2: /ibm/mq/myMonitor.sh arg1 arg2</p>
SecondLevelMonitor	<p>Used to enable second-level monitoring. Second-level monitoring is a deeper, more thorough state check of the WebSphere MQ Queue Manager. 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.</p> <p>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 the runmqsc command is executed every 100 minutes, which may not be as often as intended. For maximum flexibility, no upper limit is defined for SecondLevelMonitor.</p> <p>Type and dimension: integer-scalar</p> <p>Default: 0</p> <p>Example: 1</p>

Executing a customized monitoring program

The monitor function can execute a customized monitoring utility to perform an additional WebSphere MQ Queue Manager 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 WebSphere MQ Queue Manager instance is online.

- The SecondLevelMonitor attribute is either set to 0 or 1, and the second level check indicates that the WebSphere MQ Queue Manager instance is online.
- The SecondLevelMonitor attribute is set to greater than 1, but the second level check is deferred for this monitoring cycle.

The monitor function interprets the utility exit code as follows:

110 or 0	WebSphere MQ Queue Manager server instance is online
100 or 1	WebSphere MQ Queue Manager server instance is offline
99	WebSphere MQ Queue Manager server instance is unknown
Any other value	WebSphere MQ Queue Manager server instance is unknown

To ensure that the customized utility is always available to the agent, Symantec recommends storing the file in a shared directory that is available on the online node.

Configuring the service groups for WebSphere MQ Queue Manager

This chapter includes the following topics:

- [Configuring service groups for WebSphere MQ Queue Managers](#)

Configuring service groups for WebSphere MQ Queue Managers

You can cluster WebSphere MQ Queue Managers in a clustered environment, and you can use the Veritas agent for WebSphere MQ to manage these components.

Configuring a WebSphere MQ resource

In a clustered environment, you can configure a WebSphere MQ resource using the following methods:

- [Active-passive configuration](#)
The active-passive configuration is an easier method of configuration. This method limits the configuration to one service group running a WebSphere MQ Queue Manager on a particular node at one time.
- [Active-active configuration](#)
The active-active configuration allows multiple service groups running WebSphere MQ Queue Managers on a particular node simultaneously. This configuration incurs additional complexity in configuration and maintenance.

Active-passive configuration

Use this configuration only where you need WebSphere MQ Queue Managers in a clustered environment.

On the node that hosts the service group, perform the following steps:

To configure a WebSphere MQ Queue Manager using active-passive configuration

- 1 Ensure that a file system is located on a shared disk.
This file system must be in the same service group in which the WebSphere MQ is to be created.
- 2 If required, copy the WebSphere MQ default files from the local copy in to the /var/mqm directory. This directory is a WebSphere MQ configuration item that is not changeable.
- 3 Mount the file system at the /var/mqm directory.
- 4 Use the WebSphere MQ tools to create the WebSphere MQ Queue Manager. Refer to the WebSphere MQ documentation for details.
- 5 Define this WebSphere MQ Queue Manager as a resource in the service group.

See [“Sample service group configurations”](#) on page 47.

You can now create additional Queue Managers on the same node on which the service group is currently online.

Ensure that you always define the additional Queue Manager as a cluster server resource in the same service group where other Queue Managers are defined.

Active-active configuration

In an active-active configuration, you can configure each WebSphere MQ Queue Manager in a separate service group and each Queue Manager can fail over independent of each other.

This configuration is complex to implement and maintain. However, this configuration provides the flexibility that some applications may require. This method also supports many-to-one and many-to-many cluster configurations.

On the node that hosts the service group to which the WebSphere MQ Queue Manager belongs, perform the following steps:

To configure a WebSphere MQ Queue Manager using active-active configuration

- 1 Use the WebSphere MQ tools to create the WebSphere MQ Queue Managers that you require. Refer to the WebSphere MQ documentation for details.
- 2 Create a file system for each WebSphere MQ on the shared disk. Add each file system to a separate service group.

See [Figure A-1](#) on page 47.

- 3 Move the log directory from the `/var/mqm/log/QueueManager` directory to a directory on each file system. Ensure that you copy the sub-directories also. If a period occurs in the name of the Queue Manager, replace the period with `!`. For example, if the queue name is `venus.veritas` and the filesystem is `/mq/venus`, execute the following commands:

```
# mkdir /mq/venus/log
# cp -rp /var/mqm/log/venus!veritas /mq/venus/log
```

- 4 Remove the QueueManager directory:

```
# rm -r /var/mqm/log/venus!veritas
```

- 5 Create a symbolical link between the `/var/mqm/log/QueueManager` directory and the directory on the file system on which you copied the data in step 3. Ensure that the permissions for all the copied files, directories, and symbolic links are the same as the original files and are owned by "mqm:mqm".

For example:

```
# ln -s /mq/venus/log /var/mqm/log/venus!veritas
# chown mqm:mqm /var/mqm/log/venus!veritas
```

- 6 Move the `qmgr` directory from the `/var/mqm/qmgr/QueueManager` directory to a directory on the shared file system that you created in step 1.
- 7 Ensure that you copy the sub-directories also.

If a period occurs in the name of the Queue Manager, replace the period with `!`. For example, if the queue name is `venus.veritas` and the filesystem is `/mq/venus`, execute the following commands:

```
# mkdir /mq/venus/qmgrs
# cp -rp /var/mqm/qmgrs/venus!veritas /mq/venus/qmgrs
```

8 Remove the QueueManager directory:

```
# rm -r /var/mqm/qmgrs/venus!veritas
```

9 Create a symbolical link between the /var/mqm/qmgrs/QueueManager directory and the directory on the file system on which you copied the data in step 6.

Ensure that the permissions for all the copied files, directories, and symbolic links are the same as the original files and are owned by "mqm:mqm".

For example:

```
# ln -s /mq/venus/qmgrs /var/mqm/qmgrs/venus!veritas  
  
chown mqm:mqm /var/mqm/qmgrs/venus!veritas
```

10 Define the Queue Managers as resources in separate service groups.

See [Figure A-1](#) on page 47.

The WebSphere MQ can run on many nodes in the cluster. These nodes are defined in the SystemList attribute. On all such nodes, perform the following steps:

- Create a symbolical link between the /var/mqm/log/QueueManager and the directory in which the logs were copied in step 3.
- Create a symbolical link between the /var/mqm/qmgr/QueueManager and the directory in which the qmgr directory was copied in step 6.
- Add the following lines at the end of the /var/mqm/mqs.ini file using a text editor:

```
QueueManager:  
  Name=QueueManager  
  Prefix=/var/mqm  
  Directory=QueueManager
```

If all these nodes are to handle the queues, then copy the /var/mqm/mqs.ini file from the first node to all other nodes.

Follow these steps whenever you want to add new WebSphere MQ Queue Managers in the cluster.

Configuring a WebSphere MQ listener

A WebSphere MQ Queue Manager uses a Listener to listen for requests on a specific IP address. You must configure a Listener resource in the cluster using a bundled application agent.

An example listener resource configuration is shown as follows. In this example, the virtual IP address is set to 1.2.3.4 and the Queue Manager name is venus.veritas.

You can replace these values with the virtual IP address and Queue Manager name defined within the cluster.

```
Application was4WSMQ_listen
(
  User          = mqm
  StartProgram  = "/opt/mqm/bin/runmqslr -t tcp
                  -i 1.2.3.4 -m venus.veritas &"
  StopProgram   = "/opt/mqm/bin/endmqslr -m venus.veritas"
  MonitorProcesses = {" /opt/mqm/bin/runmqslr -t tcp
                      -i 1.2.3.4 -m venus.veritas" }
```

For details about the WebSphere MQ listener, refer to the WebSphere MQ documentation.

Troubleshooting the agent for WebSphere MQ

This chapter includes the following topics:

- [Using correct software and operating system versions](#)
- [Meeting prerequisites](#)
- [Configuring WebSphere MQ Queue Manager resources](#)
- [Starting the WebSphere MQ Queue Manager instance outside a cluster](#)
- [Monitoring WebSphere MQ Queue Manager processes](#)
- [Reviewing error log files](#)

Using correct software and operating system versions

Ensure that no issues arise due to incorrect software and operating system versions. For the correct versions of operating system and software to be installed on the resource systems:

See [“Supported software”](#) on page 10.

Meeting prerequisites

Before installing the agent for WebSphere MQ, double check that you meet the prerequisites.

For example, you must install the ACC library on VCS before installing the agent for WebSphere MQ.

See [“Before you install the Veritas agent for WebSphere MQ”](#) on page 15.

Configuring WebSphere MQ Queue Manager resources

Before using a WebSphere MQ Queue Manager resource, ensure that you configure the resource properly. For a list of attributes used to configure all WebSphere MQ Queue Manager resources, refer to the agent attributes.

Starting the WebSphere MQ Queue Manager instance outside a cluster

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 WebSphere MQ Queue Manager instance independent of the cluster framework. Refer to the cluster documentation for information about disabling a resource.

You can then restart the WebSphere MQ Queue Manager instance 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 WebSphere MQ Queue Manager instance outside the cluster framework, is illustrated as follows.

To restart the WebSphere MQ Queue Manager outside the framework

- 1 Log in to the WebSphere MQ Queue Manager as an MQUser.

```
# su - MQUser
```

- 2 Start the WebSphere MQ Queue Manager.

```
# strmqm QueueManagerName
```

If the WebSphere MQ Queue Manager works properly outside the cluster framework, you can then attempt to implement the Queue Manager within the cluster framework.

Monitoring WebSphere MQ Queue Manager processes

The agent for WebSphere MQ monitors the following processes:


```

MQ 5.3      "amqhasmx X_QUEUE_MANAGER_X( |\$) ",
            "amqzllp0 .*-m *X_QUEUE_MANAGER_X( |\$) ",
            "amqzlaa0 .*-m *X_QUEUE_MANAGER_X( |\$) ",
            "amqrrmfa .*-m *X_QUEUE_MANAGER_X( |\$) ",
            "runmqchi .*-m *X_QUEUE_MANAGER_X( |\$) ",
            "amqzdmaa .*-m *X_QUEUE_MANAGER_X( |\$) ",
            "amqzfuma .*-m *X_QUEUE_MANAGER_X( |\$) ",
            "amqzma0 .*-m *X_QUEUE_MANAGER_X( |\$) ",

MQ 6.0 and "amqrrmfa .*-m *X_QUEUE_MANAGER_X( |\$) ",
later      "runmqchi .*-m *X_QUEUE_MANAGER_X( |\$) ",
            "amqzdmaa .*-m *X_QUEUE_MANAGER_X( |\$) ",
            "amqzfuma .*-m *X_QUEUE_MANAGER_X( |\$) ",
            "amqzma0 .*-m *X_QUEUE_MANAGER_X( |\$) ",
            "amqzmuc0 .*-m *X_QUEUE_MANAGER_X( |\$) ",
            "amqzmur0 .*-m *X_QUEUE_MANAGER_X( |\$) ",
    
```

Reviewing error log files

If you face problems while using WebSphere MQ Queue Manager or the agent for WebSphere MQ, use the log files described in this section to investigate the problems.

Using WebSphere MQ log files

If a WebSphere MQ Queue Manager is facing problems, you can access the server log files to further diagnose the problem. The WebSphere MQ Queue Manager log files are located in the *<Queue Manager Home>/qmgrs/<Queue Manager Name>/errors* directory.

Reviewing cluster log files

In case of problems while using the agent for WebSphere MQ, 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*.
- The VCS One engine log file is */var/VRTSvcsone/log/engine_A.log*.
- The VCS One client log file is */var/VRTSvcsone/log/vcsoneclientd_A.log*.

Using trace level logging

The `ResLogLevel` attribute controls the level of logging that is written in a cluster log file for each WebSphere MQ Queue Manager 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 Identify the resource for which you want to enable detailed logging.
- 2 Localize the `ResLogLevel` attribute for the identified resource:

```
# hares -local Resource_Name ResLogLevel
```

- 3 Set the `ResLogLevel` attribute to `TRACE` for the identified resource:

```
# hares -modify Resource_Name ResLogLevel TRACE -sys SysA
```

- 4 Note the time before you begin to operate the identified resource.
- 5 Test the identified resource. The function reproduces the problem that you are attempting to diagnose.
- 6 Note the time when the problem is reproduced.
- 7 Set the `ResLogLevel` attribute back to `INFO` for the identified resource:

```
# hares -modify Resource_Name ResLogLevel INFO -sys SysA
```

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

You can also contact Symantec support for more help.

Sample Configurations

This appendix includes the following topics:

- [About sample configurations for the agent for WebSphere MQ](#)
- [Sample agent type definition for WebSphere MQ](#)
- [Sample configuration in a VCS environment](#)
- [Sample configuration in a VCS One environment](#)
- [Sample service group configurations](#)

About sample configurations for the agent for WebSphere MQ

The sample configuration graphically depicts the resource types, resources, and resource dependencies within the service group. Review these dependencies carefully before configuring the agent for WebSphere MQ. For more information about these resource types, see the *Veritas Cluster Server Bundled Agents Reference Guide*.

Sample agent type definition for WebSphere MQ

After importing the agent types into the cluster, if you save the configuration on your system disk using the `haconf -dump` command, you can find the `WebSphereMQ6Types.cf` file in the `/etc/VRTSvc/conf/config` cluster configuration directory.

Examples of agent type definition files follow.

VCS 4.x

```
type WebSphereMQ6
(
    static str ArgList[] = { ResLogLevel, State, IState,
                           QueueManager, CommandServer, MQUser,
                           MQVer, EnvFile, SecondLevelMonitor,
                           MonitorProgram }

    str ResLogLevel = INFO
    str QueueManager
    boolean CommandServer = 1
    str MQUser = mqm
    str MQVer = "6.0"
    str EnvFile
    int SecondLevelMonitor
    str MonitorProgram
)
```

VCS 5.0

```
type WebSphereMQ6
(
    static str AgentFile = "/opt/VRTSvcs/bin/Script50Agent"
    static str AgentDirectory =
"/opt/VRTSagents/ha/bin/WebSphereMQ6"
    static str ArgList[] = { ResLogLevel, State, IState,
                           QueueManager, CommandServer, MQUser,
                           MQVer, EnvFile, SecondLevelMonitor,
                           MonitorProgram }

    str ResLogLevel = INFO
    str QueueManager
    boolean CommandServer = 1
    str MQUser = mqm
    str MQVer = "6.0"
    str EnvFile
    int SecondLevelMonitor
    str MonitorProgram
)
```

Sample configuration in a VCS environment

An excerpt from the main.cf file that includes a WebSphere MQ resource follows.

```
group WASMQ_Sol_x64 (
  SystemList = { system_A = 0, system_B = 1 }
)
  DiskGroup DG_OPT (
    DiskGroup = WAS
  )
  DiskGroup DG_VAR (
    DiskGroup = WAS
  )

  Mount Mount_OPT (
    MountPoint = "/opt/mqm"
    BlockDevice = "/dev/vx/dsk/WAS/MQ_Opt"
    FSType = vxfs
    FsckOpt = "-y"
  )

  Mount Mount_VAR (
    MountPoint = "/var/mqm"
    BlockDevice = "/dev/vx/dsk/WAS/MQ_Vol"
    FSType = vxfs
    FsckOpt = "-y"
  )

  Volume Volum_OPT (
    Volume = MQ_Opt
    DiskGroup = WAS
  )

  Volume Volume_VAR (
    Volume = MQ_Vol
    DiskGroup = WAS
  )

  WebSphereMQ6 WASMQ (
    QueueManager = MQ1
    CommandServer = 1
    MQVer = "6.0"
```

```
        SecondLevelMonitor = 5
        MonitorProgram = "/tmp/mp"
    )

Mount_OPT requires Volum_OPT

Mount_VAR requires Volume_VAR

Volum_OPT requires DG_OPT

Volume_VAR requires DG_VAR

WASMQ requires Mount_OPT

WASMQ requires Mount_VAR

// resource dependency tree
//     group WASMQ_Sol_x64
//     {
//     WebSphereMQ6 WASMQ
//     {
//     Mount Mount_OPT
//     {
//     Volume Volum_OPT
//     {
//     DiskGroup DG_OPT
//     }
//     }
//     Mount Mount_VAR
//     {
//     Volume Volume_VAR
//     {
//     DiskGroup DG_VAR
//     }
//     }
//     }
//     }
```

Sample configuration in a VCS One environment

To view a sample VCS One configuration file (main.xml) with an MQ Listener and a WebSphere MQ Queue Manager, go to the /etc/VRTSagents/ha/conf/WebSphereMQ6/ directory.

Sample service group configurations

Figure A-1 shows a sample service group that shows two WebSphere MQ Queue Manager resources.

This simple configuration also requires a Mount and a Disk Group resource.

Figure A-1 Sample Service group configuration

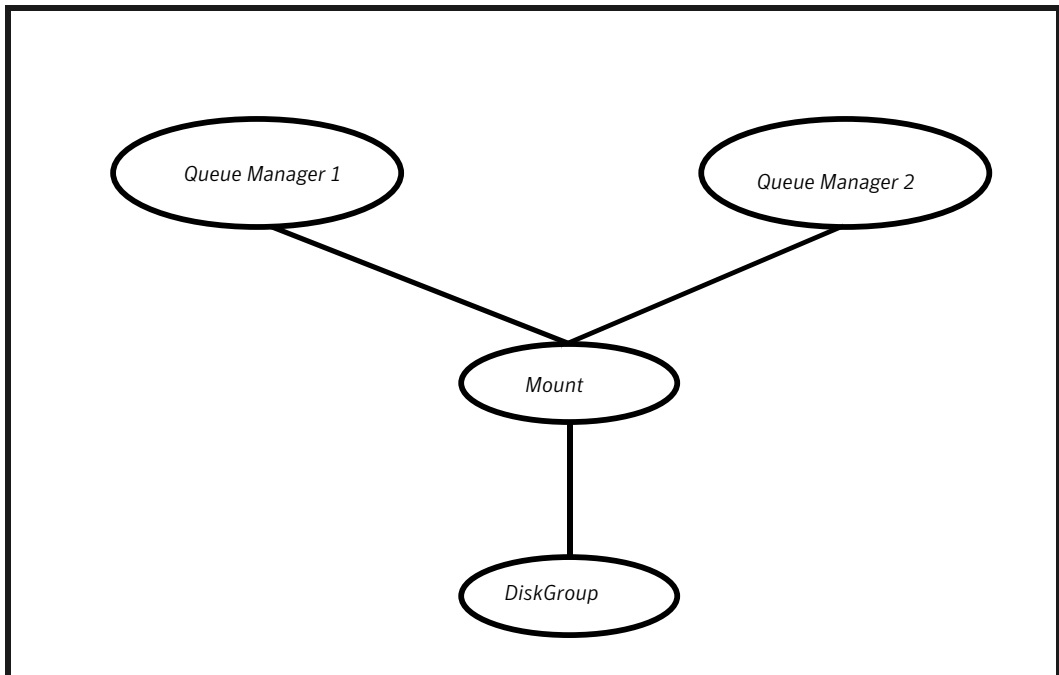
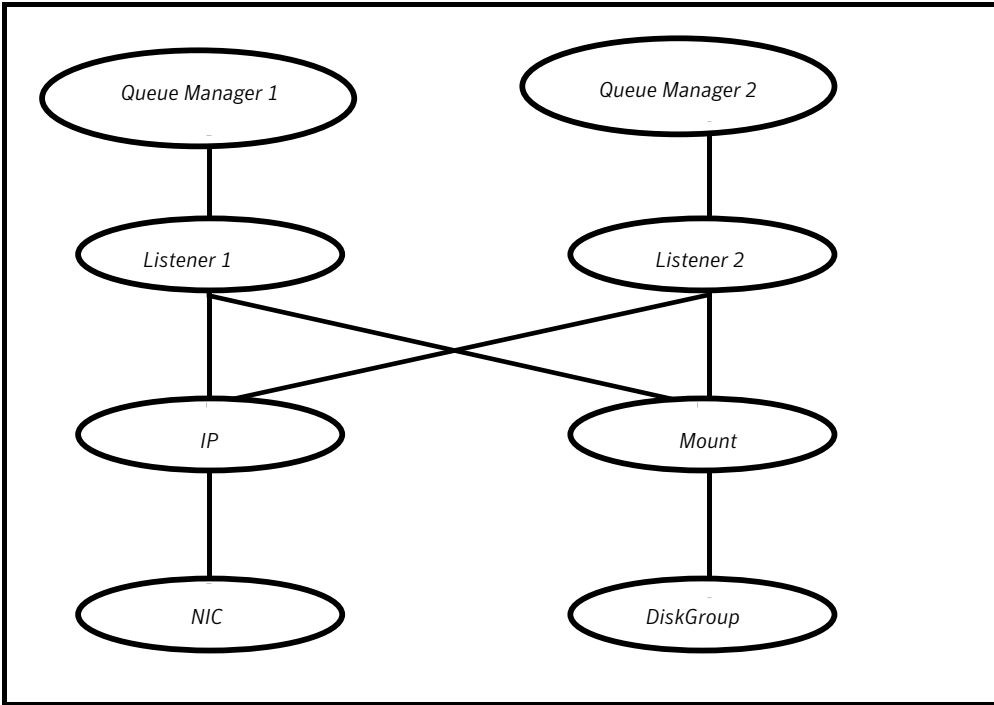


Figure A-2 shows a sample service group that includes two WebSphere MQ Queue Manager resources with associated listeners.

In this example, each resource depends on a listener, which in turn depends on an IP and a Mount resource. This configuration applies to WebSphere MQ when listeners are used to provide remote services to application clients.

Figure A-2 Sample Service group configuration with listeners



Index

A

- about ACC library 17
- ACC library
 - installing 17
 - removing 23
- agent
 - i18n support 16
 - importing agent types files 25
 - installing in VCS One environment 19
 - installing, VCS environment 18
 - overview 9
 - supported software 10
 - uninstalling, VCS environment 21
 - uninstalling, VCS One environment 22
 - upgrading 24
 - what's new 10
- agent attributes
 - CommandServer 28
 - EnvFile 30
 - MonitorProgram 30
 - MQUser 29
 - MQVer 29
 - QueueManager 29
 - ResLogLevel 29
 - SecondLevelMonitor 30
- agent configuration file
 - importing 25
- agent functions
 - clean 13
 - configuring monitor function. *See* executing custom monitor program
 - monitor 12
 - offline 12
 - online 11
- agent installation
 - general requirements 15
 - steps to install 18

C

- clustering
 - active-active configuration 34

- clustering (*continued*)
 - active-passive configuration 34
 - configuring a WebSphere MQ resource 33
 - WebSphere MQ Queue Managers 33
- configuring
 - WebSphere MQ Listener 37
- configuring monitor function 30

E

- executing custom monitor program 30

L

- logs
 - reviewing cluster log files 41
 - reviewing error log files 41
 - using trace level logging 42

R

- removing agent, VCS environment 21
- removing agent, VCS One environment 22

S

- sample configurations
 - sample file 45
 - service group 47
 - VCS environment 45
 - VCS One environment 47
- starting the WebSphere MQ Queue Manager instance
 - outside a cluster 40
- supported software 10

T

- troubleshooting
 - meeting prerequisites 39
 - reviewing error log files 41
 - reviewing cluster log files 41
 - using trace level logging 42
 - using correct software 39

U

- uninstalling agent, VCS environment 21
- uninstalling agent, VCS One environment 22
- upgrading agent 24

V

- VCS
 - supported versions 11
- VCS One
 - supported versions 11

W

- WebSphere MQ Queue Manager
 - configuring resources 40
 - monitoring processes 40
 - starting instance outside cluster 40