Sun Cluster 3.1 Data Service for Sun ONE Message Queue

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Preface

The Sun Cluster 3.1 Data Service for Sun ONE Message Queue contains procedures to install and configure the Sun Cluster data services.

This document is intended for system administrators with extensive knowledge of Sun software and hardware. Do not use this document as a planning or presales guide. Before reading this document, you should have already determined your system requirements and purchased the appropriate equipment and software.

The instructions in this document assume knowledge of the Solaris™ operating environment and expertise with the volume manager software used with Sun Cluster.

UNIX Commands

This document contains information on commands specific to installing and configuring Sun Cluster data services. It might not contain information on basic UNIX® commands and procedures, such as shutting down the system, booting the system, and configuring devices. For that information, see one or more of the following:

- Online documentation for the Solaris software environment
- Solaris operating environment man pages
- Other software documentation that you received with your system

Typographic Conventions

Typeface or Symbol	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your file. Use `ls -a` to list all files. `% You have mail.`
`AaBbCc123`	What you type, when contrasted with on-screen computer output	`% su` `Password:`
AaBbCc123	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this.
	Command-line variable; replace with a real name or value	To delete a file, type `rm` *filename*.

Shell Prompts

Shell	Prompt
C shell	*machine_name*`%`
C shell superuser	*machine_name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

Related Documentation

Application	Title	Part Number
Installation	*Sun Cluster 3.1 Software Installation Guide*	816-3388
Hardware	*Sun Cluster 3.1 Hardware Administration Manual*	817–0168
	Sun Cluster 3.x Hardware Administration Collection at `http://docs.sun.com/db/coll/1024.1`	
API development	*Sun Cluster 3.1 Data Services Developer's Guide*	816-3385
Data Services	*Sun Cluster 3.1 Data Service Planning and Administration Guide*	817–1526
	Sun Cluster 3.1 Data Service Collection at `http://docs.sun.com/db/coll/573.10`	
Administration	*Sun Cluster 3.1 System Administration Guide*	816-3384
Cluster concepts	*Sun Cluster 3.1 Concepts Guide*	816-3383
Error Messages	*Sun Cluster 3.1 Error Messages Guide*	816-3382
Man Pages	*Sun Cluster 3.1 Man Page Reference Manual*	816–5251
Release Notes	*Sun Cluster 3.1 Release Notes*	816-5317
	Sun Cluster 3.1 Data Service Release Notes	817–1790
	Sun Cluster 3.1 Release Notes Supplement	816-3381

Sun Documentation Online

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Help

If you have problems installing or using Sun Cluster, contact your service provider and provide the following information:

- Your name and E-mail address (if available)
- Your company name, address, and phone number
- The model and serial numbers of your systems
- The release number of the operating environment (for example, Solaris 8)
- The release number of Sun Cluster (for example, Sun Cluster 3.0)

Use the following commands to gather information about each node on your system for your service provider.

Command	Function
`prtconf -v`	Displays the size of the system memory and reports information about peripheral devices.
`psrinfo -v`	Displays information about processors.
`showrev –p`	Reports which patches are installed.
`prtdiag -v`	Displays system diagnostic information.
`scinstall -pv`	Displays Sun Cluster release and package version information.

Also have available the contents of the `/var/adm/messages` file.

Installing and Configuring Sun Cluster HA for Sun ONE Message Queue

This chapter describes the procedures to install and configure the Sun Cluster HA for Sun ONE Message Queue.

This chapter contains the following procedures.

- "How to Configure and Activate Network Resources" on page 12
- "How to Install the Sun ONE Message Queue" on page 14
- "How to Verify the Sun ONE Message Queue Installation and Configuration" on page 15
- "How to Install the `SUNWscs1mq` Package" on page 17
- "How to Register and Configure the Sun Cluster HA for Sun ONE Message Queue as a Failover Data Service" on page 19
- "Configuring the `SUNW.HAStoragePlus` Resource Type" on page 23
- "How to Verify the Sun Cluster HA for Sun ONE Message Queue Installation and Configuration" on page 24

Sun Cluster HA for Sun ONE Message Queue Overview

Use the information in this section to understand how the Sun Cluster HA for Sun ONE Message Queue enables the Sun ONE Message Queue for high availability.

The Sun Cluster HA for Sun ONE Message Queue is a data service with appropriate extension properties to configure a failover messaging service.

Configure the Sun Cluster HA for Sun ONE Message Queue as a failover data service to enable the Sun ONE Message Queue for high availability. See "Planning for Sun Cluster Data Services" in *Sun Cluster 3.1 Data Service Planning and Administration Guide* for general information about data services.

The Sun ONE Message Queue is an integral part of the application server. The Sun ONE Message Queue is a robust Java Messaging Service (JMS) provider for JMS clients. The Sun ONE Message Queue is packaged with the Sun ONE Application Server installation. Refer to Sun ONE Message Queue documentation for information about the Sun ONE Message Queue. Implementation of the Sun Cluster HA for Sun ONE Message Queue does not assume the existence of programs on which your architecture depends. Programs on which your architecture depends such as databases and web servers should be configured to be highly available, but might run on a different cluster.

Task Map: Installing and Configuring Sun Cluster HA for Sun ONE Message Queue

The following table lists the sections that describe the installation and configuration tasks. Perform these tasks in the order that they are listed.

TABLE 1–1 Task Map: Installing and Configuring the Sun Cluster HA for Sun ONE Message Queue

Task	For Instructions
Plan the Sun ONE Message Queue installation and configuration	"Planning the Sun ONE Message Queue Installation and Configuration" on page 11
Configure and activate network resources	"How to Configure and Activate Network Resources" on page 12
Install and configure the Sun ONE Message Queue	"How to Install the Sun ONE Message Queue" on page 14
Verify the Sun ONE Message Queue installation	"How to Verify the Sun ONE Message Queue Installation and Configuration" on page 15
Plan the Sun Cluster HA for Sun ONE Message Queue installation and configuration	"Planning the Sun Cluster HA for Sun ONE Message Queue Installation and Configuration" on page 16
Install the Sun Cluster HA for Sun ONE Message Queue package	"How to Install the `SUNWscs1mq` Package" on page 17
Register and Configure the Sun Cluster HA for Sun ONE Message Queue as a failover data service	"How to Register and Configure the Sun Cluster HA for Sun ONE Message Queue as a Failover Data Service" on page 19

TABLE 1–1 Task Map: Installing and Configuring the Sun Cluster HA for Sun ONE Message Queue *(Continued)*

Task	For Instructions
Configure resource extension properties	"Configuring the Sun Cluster HA for Sun ONE Message Queue Extension Properties" on page 22
Verify the Sun Cluster HA for Sun ONE Message Queue installation and configuration	"Verifying the Sun Cluster HA for Sun ONE Message Queue Installation and Configuration" on page 24
View or understand fault-monitor information	"Understanding the Sun Cluster HA for Sun ONE Message Queue Fault Monitor" on page 25

Note – If you run multiple data services in your Sun Cluster configuration, you can set up the data services in any order, with the following exception. If the Sun Cluster HA for Sun ONE Message Queue depends on the Sun Cluster HA for DNS, you must set up DNS first. For details, see *Sun Cluster 3.1 Data Service for Domain Name Service (DNS)* for details. DNS software is included in the Solaris operating environment. If the cluster is to obtain the DNS service from another server, configure the cluster to be a DNS client first.

Planning the Sun ONE Message Queue Installation and Configuration

To install and configure the Sun ONE Message Queue, use this section as a checklist in conjunction with the worksheets in the *Sun Cluster 3.1 Release Notes*.

Consider the following before you start your installation. Store static files and data on the local file system of each cluster node. Dynamic data should reside on the cluster file system so that you can view or update the data from any cluster node. The Sun ONE Message Queue binaries and configuration files must be highly available and accessible to application-server instances that are running on all nodes.

Configuring and Activating Network Resources

Before you install and configure the Sun ONE Message Queue, set up the network resources that the service uses after installation and configuration. To configure and activate the network resources, use the following command-line procedure.

▼ How to Configure and Activate Network Resources

To perform this procedure, you need the following information about your configuration.

- The names of the cluster nodes that can master the data service.
- The network resource that clients use to access the Sun ONE Message Queue. Normally, you set up this hostname when you install the cluster. See the*Sun Cluster 3.1 Concepts Guide* for details on network resources.

1. **Become superuser on a cluster member.**

2. **Verify that all of the network addresses that you use have been added to your name service database.**

   You should have performed this verification during the Sun Cluster installation.

   Note – To avoid name service look-up failures, ensure that all of the logical hostnames are present in the `/etc/inet/hosts` file on all of the cluster nodes. Configure name service mapping in the `/etc/nsswitch.conf` file on the servers to check the local files before trying to access NIS, NIS+, or DNS.

   ---

3. **Create a failover resource group to contain the network and application resources.**

   # **scrgadm -a -g** *resource-group* [**-h** *nodelist*]

`-g` *resource-group*	Specifies the name of the resource group. This name can be your choice.
[`-h` *nodelist*]	Specifies an optional comma-separated list of physical node names for the Sun ONE Message Queue that identify potential masters. The order here determines the order in which the nodes are considered primary during failover.

Note – Use the `-h` option to specify the order of the node list. If all of the nodes in the cluster are potential masters, you do not need to use the `-h` option.

---

4. **Add network resources to the resource group.**

   Use the following command to add a logical hostname to a resource group.

   `# scrgadm -a -L -g` *resource-group* `-l` *hostname, ...* `[-n` *netiflist*`]`

`-L`	Specifies that a network resource is being added.
`-g` *resource-group*	Specifies the name of the resource group.
`-l` *hostname, …*	Specifies a comma-separated list of network resources.
`-n` *netiflist*	Specifies an optional, comma-separated list that identifies the IP Networking Multipathing groups that are on each node. Each element in *netiflist* must be in the form of `netif@node`. `netif` can be given as an IP Networking Multipathing group name, such as `sc_ipmp0`. The node can be identified by the node name or node ID, such as `sc_ipmp0@1` or `sc_ipmp@phys-schost-1`.

   Note – Sun Cluster does not currently support the use of the adapter name for `netif`.

   ---

5. **Run the `scswitch` command to enable the resource group and bring the resource group online.**

   `# scswitch -Z -g` *resource-group*

`-Z`	Moves the resource group to the `MANAGED` state and brings the resource group online.
`-g` *resource-group*	Specifies the name of the resource group.

Installing and Configuring the Sun ONE Message Queue

The Sun ONE Message Queue is a Java 2 Enterprise Edition (J2EE™) 1.3 compliant messaging service. This queue is designed to meet the needs of enterprise customers and run under the control of Sun Cluster software. This section describes the steps to install and enable the Sun ONE Message Queue to run as the Sun Cluster HA for Sun ONE Message Queue.

Note – If you run the Sun ONE Message Queue and another messaging service server and they use the same network resources, configure them to listen on different ports. Otherwise, a port conflict might occur between the two services.

Use the following procedure to install the Sun ONE Message Queue.

▼ How to Install the Sun ONE Message Queue

Use the following procedure to install the Sun ONE Message Queue. Only the sections that are specific to the Sun ONE Message Queue are included here. See the Sun ONE Message Queue documentation for details.

Note – Do not set the `AUTOSTART` property to `YES` in the `/etc/imq/imqbrokerd.conf` file. The `AUTOSTART` property is set to `NO` by default because Sun Cluster HA for Sun ONE Message Queue starts and stops the application after you have configured the data service.

---

1. **Install the Sun ONE Message Queue packages on all the nodes of the cluster if they are not already installed.**
2. **Identify a location on a global file system where you intend to keep your message queue (for example, `/global/s1mq`).**

   You can create a separate directory for this file system.
3. **On any node set `IMQ_VARHOME` and run the `imqbrokerd` command to create the configuration directory and files.**

```
# IMQ_VARHOME=/global/s1mq
# export IMQ_VARHOME
```

```
# imqbrokerd -name hamq1
```

4. **Set the `imq.jms.tcp.hostname` property to the logical hostname by editing `$IMQ_VARHOME/instances/hamq1/props/config.properties`.**

Verifying the Sun ONE Message Queue Installation and Configuration

This section contains the procedure that you need to verify the Sun ONE Message Queue installation and configuration.

▼ How to Verify the Sun ONE Message Queue Installation and Configuration

Use this procedure to verify the Sun ONE Message Queue installation and configuration. This procedure does not verify that your application is highly available.

1. **Ensure that the logical hostname is running.**
2. **Set `IMQ_VARHOME` and start the message broker manually:**

```
# IMQ_VARHOME=/global/s1mq
# export IMQ_VARHOME
# imqbrokerd -name hamq1
```

3. **Stop the broker.**

```
# /usr/bin/imqcmd shutdown bkr -b hostname:port
```

4. **Repeat Step 2 on all of the potential primaries of the Sun ONE Message Queue resource group.**

Planning the Sun Cluster HA for Sun ONE Message Queue Installation and Configuration

This section contains the information that you need to plan your Sun Cluster HA for Sun ONE Message Queue installation and configuration.

Standard Data Service Configurations

Use the standard configurations in this section to plan the installation and configuration of the Sun Cluster HA for Sun ONE Message Queue. The Sun Cluster HA for Sun ONE Message Queue might support additional configurations. However, you must contact your Enterprise Services representative for information on additional configurations.

The following figure illustrates a standard failover configuration for the Sun ONE Message Queue.

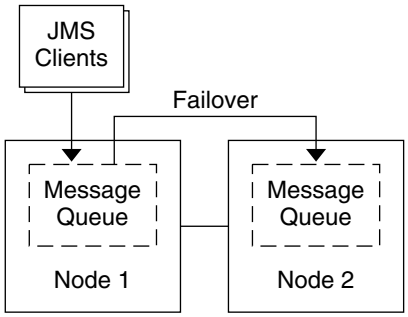

FIGURE 1–1 Two-Node Cluster with Failover Data Service Configuration

Configuration Considerations

If you choose to use your message service with another highly available application, resource dependencies might exist. See "Standard Properties" in *Sun Cluster 3.1 Data Service Planning and Administration Guide* for a description of the `Resource_dependencies` property.

Configuration Planning Questions

Use the questions in this section to plan the installation and configuration of the Sun Cluster HA for Sun ONE Message Queue. Insert the answers to these questions into the data service worksheets in the "Data Service Configuration Worksheets and Examples" in *Sun Cluster 3.1 Release Notes*. See "Considerations" in *Sun Cluster 3.1 Data Service Planning and Administration Guide* for information that might apply to these questions.

- What resource groups will you use for network addresses and application resources and the dependencies between them?
- What is the logical hostname (for failover services) for clients that will access the data service?
- Where will the system configuration files reside?

Installing the Sun Cluster HA for Sun ONE Message Queue Package

The Sun Cluster HA for Sun ONE Message Queue package is called `SUNWscs1mq`. Use the `scinstall`(1M) utility to install `SUNWscs1mq` on a cluster. Do not use the `-s` option with `scinstall` to install all of the data service packages on the CD.

If you installed the data service packages during your initial Sun Cluster installation, proceed to "Registering and Configuring the Sun Cluster HA for Sun ONE Message Queue" on page 18. Otherwise, use the following procedure to install the `SUNWscs1mq` package.

▼ How to Install the `SUNWscs1mq` Package

You need the Sun Cluster 3.1 Agents CD-ROM to complete this procedure. Perform this procedure on all cluster members that can master the Sun Cluster HA for Sun ONE Message Queue.

1. **Load the Sun Cluster 3.1 Agents CD-ROM into the CD-ROM drive.**
2. **Run the `scinstall` utility with no options.**
   This step starts the `scinstall` utility in interactive mode.
3. **Specify the data service to install. Choose S1MQ. S1MQ may be on the list of unsupported data services that is displayed after the list of supported data services.**

The `scinstall` utility prompts you for additional information.

4. **Provide the path to the Sun Cluster 3.1 Agents CD-ROM.**
   The utility refers to the CD as the "data services cd."
5. **Specify the data service to install.**
   The `scinstall` utility lists the data service that you selected and asks you to confirm your choice.
6. **Exit the `scinstall` utility.**
7. **Unload the CD from the drive.**

Registering and Configuring the Sun Cluster HA for Sun ONE Message Queue

This procedure describes how to use the `scrgadm` command to register and configure the Sun Cluster HA for Sun ONE Message Queue.

Note – See "Tools for Data Service Resource Administration" in *Sun Cluster 3.1 Data Service Planning and Administration Guide* for details about additional options that enable you to register and configure the data service.

To perform this procedure, you need the following information about your configuration.

- The name of the resource type for the Sun Cluster HA for Sun ONE Message Queue is `SUNW.s1mq`.
- The names of the cluster nodes that can master the data service.
- The network resource that clients use to access the Sun Cluster HA for Sun ONE Message Queue.
- The port where the Sun ONE Message Queue listens.

▼ How to Register and Configure the Sun Cluster HA for Sun ONE Message Queue as a Failover Data Service

Perform the following steps to complete your configuration.

1. **Become superuser on a cluster member.**

2. **Add the resource group for the Sun ONE Message Queue if you have not performed the steps in "Configuring and Activating Network Resources" on page 12.**

   # **scrgadm -a -g** *resource group* [-h *nodelist*]

3. **Add the logical hostname resource to the resource group if you have not performed the steps in "Configuring and Activating Network Resources" on page 12.**

   # **scrgadm -a -L -g** *resource group* **-l** *logical hostname*

4. **Register the resource type for the data service.**

   # **scrgadm -a -t SUNW.s1mq**

-a	Adds the data service resource type
-t SUNW.s1mq	Specifies the predefined resource type name

5. **If the `Smooth_Shutdown` extension property is set to `TRUE`, create a file named `scs1mqconfig` in the `$IMQ_VARHOME/instances/`*broker*`/` directory. Add the following line to the file you created:**

   Password *password*

   See "Understanding the Sun Cluster HA for Sun ONE Message Queue Fault Monitor" on page 25 for a description of the `Smooth_Shutdown` extension property.

6. **Add the Sun ONE Message Queue resource instance to the failover resource group.**

   [If Smooth_Shutdown will be set to FALSE (the default):]

   ```
   # scrgadm -a -j resource -g resource-group -t SUNW.s1mq \
   -x Confdir_list=$IMQ_VARHOME/instances/broker \
   -x Broker_Name=broker \
   -y Network_Resources_Used=logical hostname \
   -y Port_list=port/tcp[,port/tcp]
   ```

   [If Smooth_Shutdown is set to TRUE:]

   ```
   # scrgadm -a -j resource -g resource-group -t SUNW.s1mq \
    -x Confdir_list=$IMQ_VARHOME/instances/broker \
   -x Broker_Name=broker \
   -x Broker_User=user \
   -y Network_resources_used=logical hostname \
   -y Port_list=port/tcp[,port/tcp] \
   -x Smooth_Shutdown=TRUE
   ```

The resource group that contains the application resources is the same resource group that you created for your network resources in "How to Configure and Activate Network Resources" on page 12.

`-j` *resource*
Specifies the Sun ONE Message Queue application resource name.

`-t SUNW.s1mq`
Specifies the type of resource to add.

`-x Confdir_list=$IMQ_VARHOME/instances/`*broker*
Specifies a path for your Sun ONE Message Queue configuration directory. The `Confdir_list` extension property is required. The `Confdir_list` property must have exactly one entry.

`-x Broker_Name=`*broker*
Specifies the name of the broker to monitor.

`-x Broker_User=`*user*
Specifies the user name of the managed broker.

`-y Network_resources_used=`*network-resource*
Specifies a comma-separated list of network resources (logical hostnames) in *resource-group*, which the Sun ONE Message Queue application resource must use.

`-y Port_list=`*port-number/protocol*
Specifies a port number and the protocol to be used, for example, `80/tcp`. The `Port_list` property must have one or two entries.

`-x Smooth_Shutdown=TRUE`
Used to shutdown the broker. Use of the `impcmd` command exposes the broker password in the `imqcmd` command string.

7. **Bring the resource group online.**

```
# scswitch -Z -g resource-group
```

`-Z`	Enables the resource and its monitor.
`-g` *resource-group*	Specifies the name of the application resource group that is being enabled.

8. **Verify that the resource group and application-server resource is online.**

```
# scstat -g
# ps -ef
```

Example—Registering and Configuring the Sun Cluster HA for Sun ONE Message Queue

This example shows how to register the Sun Cluster HA for Sun ONE Message Queue.

Cluster Information
Node names: phys-schost-1, phys-schost-2
Logical hostname: schost-1
Resource group: resource-group-1 (for all resources)
Resources: schost-1 (logical hostname),
SUNW.s1mq (Sun ONE Message Queue application resource)

(Create a failover resource group.)
```
# scrgadm -a -g resource-group-1 -h phys-schost-1,phys-schost-2
```

(Add a logical hostname resource to the resource group.)
```
# scrgadm -a -L -g resource-group-1 -l schost-1
```

(Register the SUNW.s1mq resource type.)
```
# scrgadm -a -t SUNW.s1mq
```

(Create a Sun ONE Message Queue resource and add it to the resource group.)
```
# scrgadm -a -j s1mq-rs -g s1mq-rg \
-t SUNW.s1mq \
-x Confdir_list=$IMQ_VARHOME/instances/hamq1 \
-x Broker_Name=hamq1 \
-y Network_resources_used=schost-1 \
-y Port_list=7676/tcp
```

(Enable the application resource group.)
```
# scswitch -Z -g s1mq-rg
```

Example—Registering and Configuring Sun Cluster HA for Sun ONE Message Queue With `Smooth_Shutdown` Enabled

This example shows how to register Sun Cluster HA for Sun ONE Message Queue with `Smooth_Shutdown` enabled.

Cluster Information
Node names: phys-schost-1, phys-schost-2
Logical hostname: schost-1
Resource group: resource-group-1 (for all resources)
Resources: schost-1 (logical hostname),
s1mq-1 (Sun ONE Message Queue application resource)

(Create a failover resource group.)
```
# scrgadm -a -g resource-group-1 -h phys-schost-1,phys-schost-2
```

(Add a logical hostname resource to the resource group.)
```
# scrgadm -a -L -g resource-group-1 -l schost-1
```

(Register the SUNW.s1mq resource type.)
```
# scrgadm -a -t SUNW.s1mq
```

(Create a Sun ONE Message Queue resource and add it to the resource group.)

```
# scrgadm -a -j s1mq-rs -g s1mq-rg \
-t SUNW.s1mq \
-x Confdir_list=$IMQ_VARHOME/instances/hamq1 \
-x Broker_Name=hamq1 \
-x Broker_User=admin \
-y Network_resources_used=schost-1 \
-y Port_list=7676/tcp \
-x Smooth_Shutdown=TRUE
```

(Enable the application resource group.)

```
# scswitch -Z -g s1mq-rg
```

Configuring the Sun Cluster HA for Sun ONE Message Queue Extension Properties

This section describes how to configure the Sun Cluster HA for Sun ONE Message Queue extension properties. Typically, you use the command line `scrgadm -x` *parameter=value* to configure extension properties when you create the Sun ONE Message Queue resource. You can also use the procedures that "Administering Data Service Resources" in *Sun Cluster 3.1 Data Service Planning and Administration Guide* describes to configure the Sun Cluster HA for Sun ONE Message Queue extension properties.

See "Standard Properties" in *Sun Cluster 3.1 Data Service Planning and Administration Guide* for details on all Sun Cluster properties.

Table 1–2 describes the extension properties that you can configure for the Sun ONE Message Queue. The only required extension property for creating a Sun ONE Message Queue resource is the `Confdir_list` property. The `Confdir_list` property specifies a directory in which the Sun ONE Message Queue configuration files reside. You can update some extension properties dynamically. You can update other extension properties only when you create the resource. The Tunable entries indicate when you can update each property.

TABLE 1–2 Sun Cluster HA for Sun ONE Message Queue Extension Properties

Name/Data Type	Description
`Confdir_list` (string array)	A path name that points to the configuration directory for the broker. The Sun Cluster HA for Sun ONE Message Queue requires this extension property, and the property must have one entry. **Default:** `None` **Range:** None **Tunable:** At creation
`Broker_Name` (string)	The name of the broker to be monitored. **Tunable:** At creation
`Broker_User` (string)	User name of the managed broker. This property is needed only if `Smooth_Shutdown=TRUE`. **Tunable:** At creation
`Smooth_Shutdown` (Boolean)	Determines if `imqcmd` is used to shutdown the broker. If `Smooth_Shutdown=TRUE` the broker password is set on the command-line and is displayed in the output. If `Smooth_Shutdown=FALSE` the broker is shutdown by using `SIGTERM`. **Default:** `False` **Tunable:** Any time

Configuring the `SUNW.HAStoragePlus` Resource Type

The `SUNW.HAStoragePlus` resource type was introduced in Sun Cluster 3.0 5/02. This new resource type performs the same functions as `SUNW.HAStorage`, and synchronizes actions between HA storage and the data service.

`SUNW.HAStoragePlus` also has an additional feature to make a local file system highly available. Sun Cluster HA for Sun ONE Message Queue is not disk intensive and not scalable, and therefore setting up the `SUNW.HAStoragePlus` resource type is optional.

See the SUNW.HAStoragePlus(5) man page and "Relationship Between Resource Groups and Disk Device Groups" in *Sun Cluster 3.1 Data Service Planning and Administration Guide* for background information. See "Synchronizing the Startups Between Resource Groups and Disk Device Groups" in *Sun Cluster 3.1 Data Service Planning and Administration Guide* for the procedure. If you are using a Sun Cluster 3.0 version prior to 5/02, you must set up SUNW.HAStorage instead of SUNW.HAStoragePlus.

Verifying the Sun Cluster HA for Sun ONE Message Queue Installation and Configuration

This section contains the procedure to verify that you installed and configured your data service correctly.

▼ How to Verify the Sun Cluster HA for Sun ONE Message Queue Installation and Configuration

Use this procedure to verify that you installed and configured the Sun Cluster HA for Sun ONE Message Queue correctly.

1. **Ensure that the Message Queue is started under the control of Sun Cluster software.**

   # **scswitch -Z -g** *resource group*

2. **Connect to the Sun ONE Message Queue from a web browser to verify that the Sun ONE Message Queue software functions correctly.**

3. **Run the scswitch command to switch the resource group to another cluster node, such as** *node2***.**

   # **scswitch -z -g** *resource-group* **-h** *node2*

4. **Verify that the resource group and message queue resource is online.**

   # **scstat -g**
   # **ps -ef**

5. **Repeat Step 2 through Step 4 on all of the potential primaries of the Sun ONE Message Queue resource groups.**

Understanding the Sun Cluster HA for Sun ONE Message Queue Fault Monitor

Use the information in this section to understand Sun Cluster HA for Sun ONE Message Queue Fault Monitors.

Extension Properties

Sun Cluster HA for Sun ONE Message Queue Fault Monitor uses the following extension properties. You might be able to tune these extension properties.

TABLE 1–3 Sun Cluster HA for Sun ONE Message Queue Extension Properties

Name/Data Type	Description
`Smooth_shutdown`	The `Smooth_shutdown` extension property enables smooth shutdown using the `imqcmd` command. This extension property must be set to TRUE if a smooth shutdown is desired before trying to kill the Sun ONE Message Queue process. If this extension property is TRUE, then the password must be set in `$IMQ_VARHOME/instances/broker/scs1mqconfig`. Set this extension property to TRUE if ■ It is desirable to use `imqcmd` to shutdown the broker instead of the default of shutting it down by sending it `SIGTERM`. ■ It is not a concern that the agent includes the password in the `imqcmd` command string. **Default:** False **Tunable:**Any time

Probing Algorithm and Functionality

The Sun Cluster HA for Sun ONE Message Queue probe sends a request to the server to query the health of the Sun ONE Message Queue server. The probe executes the following steps:

1. Probes the Sun ONE Message Queue instance according to the time-out value set with the `Probe_timeout` resource property.
2. Connects to the IP address and port combinations defined by the network resource configuration and the `Port_list` setting for the resource group. If the connection succeeds, the probe reads the port mapper information. Finally the probe disconnects. If any part of the connection fails, a failure is recorded.

Heavy network traffic, heavy system load, and misconfiguration can cause the query to fail. Misconfiguration can occur if you did not configure the Sun ONE Message Queue server to listen on all of the IP address and port combinations that are probed. The Sun ONE Message Queue server should service every port for every IP address that is specified for this resource.

The following is a complete probe failure.

The following error message is received upon failure to connect to the server. The %s indicates the hostname and %d indicates the port number.

```
Failed to connect to the host <%s> and port <%d>.
```

3. Accumulates partial failures that happen within the resource property interval `Retry_interval` until they equal a complete failure that requires action.

   The following are partial probe failures.

   - Failure to disconnect from port %d of resource %s.

     ```
     Failed to disconnect from port %d of resource %s.
     ```

   - Failure to complete all probe steps within `Probe_timeout` time.
   - The following error message is received when there is a failure to read data from the server for other reasons. The first %s indicates g the hostname and %d indicates the port number. The second %s indicates further details about the error.

     ```
     Failed to communicate with server %s port %d: %s
     ```

Based on the history of failures, a failure can cause either a local restart or a failover of the data service.

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