Sun Cluster Data Service for Sun Java System Message Queue Guide for Solaris OS

Contents

Preface

Sun Cluster Data Service for Sun Java System Message Queue Guide for Solaris OS explains how to install and configure Sun™ Cluster HA for Sun ONE Message Queue on both SPARC® and x86 based systems.

Note – In this document, the term "x86" refers to the Intel 32-bit family of microprocessor chips and compatible microprocessor chips made by AMD.

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 System and expertise with the volume manager software that is used with Sun Cluster.

Note – Sun Cluster software runs on two platforms, SPARC and x86. The information in this document pertains to both platforms unless otherwise specified in a special chapter, section, note, bulleted item, figure, table, or example.

UNIX Commands

This document contains information about commands that are specific to installing and configuring Sun Cluster data services. The document does *not* contain comprehensive information about basic UNIX® commands and procedures, such as shutting down the system, booting the system, and configuring devices. Information about basic UNIX commands and procedures is available from the following sources:

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

Typographic Conventions

The following table describes the typographic changes that are used in this book.

TABLE P–1 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories, and onscreen computer output	Edit your `.login` file. Use `ls -a` to list all files. `machine_name% you have mail.`
AaBbCc123	What you type, contrasted with onscreen computer output	`machine_name%` **su** `Password:`
AaBbCc123	Command-line placeholder: replace with a real name or value	The command to remove a file is `rm` *filename*.
AaBbCc123	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the *User's Guide*. These are called *class* options. Do *not* save the file. (Emphasis sometimes appears in bold online.)

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the
C shell, Bourne shell, and Korn shell.

TABLE P–2 Shell Prompts

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

Related Documentation

Information about related Sun Cluster topics is available in the documentation that is
listed in the following table. All Sun Cluster documentation is available at
`http://docs.sun.com`.

Topic	Documentation
Data service administration	*Sun Cluster Data Services Planning and Administration Guide for Solaris OS*
	Individual data service guides
Concepts	*Sun Cluster Concepts Guide for Solaris OS*
Overview	*Sun Cluster Overview for Solaris OS*
Software installation	*Sun Cluster Software Installation Guide for Solaris OS*
System administration	*Sun Cluster System Administration Guide for Solaris OS*
Hardware administration	*Sun Cluster 3.x Hardware Administration Manual for Solaris OS*
	Individual hardware administration guides
Data service development	*Sun Cluster Data Services Developer's Guide for Solaris OS*

Topic	Documentation
Error messages	*Sun Cluster Error Messages Guide for Solaris OS*
Command and function reference	*Sun Cluster Reference Manual for Solaris OS*

For a complete list of Sun Cluster documentation, see the release notes for your release of Sun Cluster at `http://docs.sun.com`.

Related Third-Party Web Site References

Third-party URLs that are referenced in this document provide additional related information.

Note – Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused or alleged to be caused by or in connection with use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

Accessing Sun Documentation Online

The docs.sun.com^SM Web site enables you to access Sun technical documentation online. You can browse the docs.sun.com archive or search for a specific book title or subject. The URL is `http://docs.sun.com`.

Ordering Sun Documentation

Sun Microsystems offers select product documentation in print. For a list of documents and how to order them, see "Buy printed documentation" at `http://docs.sun.com`.

Help

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

- Your name and email address (if available)
- Your company name, address, and phone number
- The model and serial numbers of your systems
- The release number of the Solaris Operating System (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
SPARC: 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 Java System Message Queue

This chapter describes the procedures to install and configure the Sun Cluster HA for Sun Java System Message Queue. This data service was formerly known as Sun Cluster HA for Sun ONE Message Queue.

This chapter contains the following procedures.

Sun Cluster HA for Sun Java System Message Queue Overview

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

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

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

The Sun Java System Message Queue is an integral part of the application server. The Sun Java System Message Queue is a robust Java Messaging Service (JMS) provider for JMS clients. The Sun Java System Message Queue is packaged with the Sun Java System Application Server installation. Refer to Sun Java System Message Queue documentation for information about the Sun Java System Message Queue. Implementation of the Sun Cluster HA for Sun Java System 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 Java System 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 Task Map: Installing and Configuring the Sun Cluster HA for Sun Java System Message Queue

Task	For Instructions
Plan the Sun Java System Message Queue installation and configuration	"Planning the Sun Java System Message Queue Installation and Configuration" on page 13
Configure and activate network resources	"How to Configure and Activate Network Resources" on page 14
Install and configure the Sun Java System Message Queue	"How to Install the Sun Java System Message Queue" on page 16
Verify the Sun Java System Message Queue installation	"How to Verify the Sun Java System Message Queue Installation and Configuration" on page 17
Plan the Sun Cluster HA for Sun Java System Message Queue installation and configuration	"Planning the Sun Cluster HA for Sun Java System Message Queue Installation and Configuration" on page 18

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

Task	For Instructions
Install the Sun Cluster HA for Sun Java System Message Queue package	"Installing the Sun Cluster HA for Sun Java System Message Queue Package" on page 19
Register and Configure the Sun Cluster HA for Sun Java System Message Queue as a failover data service	"How to Register and Configure the Sun Cluster HA for Sun Java System Message Queue as a Failover Data Service" on page 22
Configure resource extension properties	"Configuring the Sun Cluster HA for Sun Java System Message Queue Extension Properties" on page 25
Verify the Sun Cluster HA for Sun Java System Message Queue installation and configuration	"Verifying the Sun Cluster HA for Sun Java System Message Queue Installation and Configuration" on page 27
View or understand fault-monitor information	"Operation of the Sun Cluster HA for Sun Java System Message Queue Fault Monitor" on page 28

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 Java System Message Queue depends on the Sun Cluster HA for DNS, you must set up DNS first. For details, see *Sun Cluster Data Service for Domain Name Service (DNS) Guide for Solaris OS* 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 Java System Message Queue Installation and Configuration

To install and configure the Sun Java System Message Queue, use this section as a checklist in conjunction with the worksheets in the "Configuration Worksheets" in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS*.

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 Java System 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 Java System 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 Java System Message Queue. Normally, you set up this hostname when you install the cluster. See the *Sun Cluster Concepts Guide for Solaris OS* 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 Java System 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 Java System Message Queue

The Sun Java System 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 Java System Message Queue to run as the Sun Cluster HA for Sun Java System Message Queue.

Note – If you run the Sun Java System 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 Java System Message Queue.

▼ How to Install the Sun Java System Message Queue

Use the following procedure to install the Sun Java System Message Queue. Only the sections that are specific to the Sun Java System Message Queue are included here. See the Sun Java System Message Queue for Solaris OS 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 Java System Message Queue starts and stops the application after you have configured the data service.

---

1. **Install the Sun Java System 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 Java System Message Queue Installation and Configuration

This section describes how to verify the Sun Java System Message Queue installation and configuration.

▼ How to Verify the Sun Java System Message Queue Installation and Configuration

Use this procedure to verify the Sun Java System 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 Java System Message Queue resource group.**

Planning the Sun Cluster HA for Sun Java System Message Queue Installation and Configuration

This section contains the information that you need to plan your Sun Cluster HA for Sun Java System 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 Java System Message Queue. The Sun Cluster HA for Sun Java System 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 Java System Message Queue.
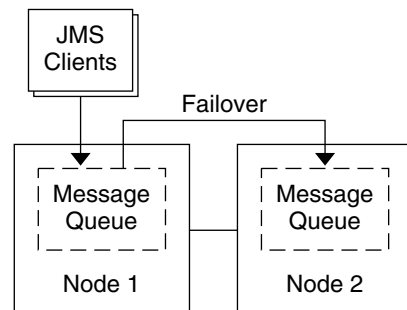
FIGURE 1 Two-Node Cluster with Failover Data Service Configuration

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 Data Services Planning and Administration Guide for Solaris OS* 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 Java System Message Queue. See "Considerations" in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* 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 Java System Message Queue Package

If you did not install the Sun Cluster HA for Sun Java System Message Queue packages during your initial Sun Cluster installation, perform this procedure to install the packages. Perform this procedure on each cluster node where you are installing the Sun Cluster HA for Sun Java System Message Queue packages.

If you are installing more than one data service simultaneously, perform the procedure in "Installing the Software" in *Sun Cluster Software Installation Guide for Solaris OS*.

▼ How to Install the Sun Cluster HA for Sun Java System Message Queue Packages by Using the SUN Java Enterprise System Common Installer Program

You can run the SUN Java Enterprise System Common Installer program with a command-line interface (CLI) or with a graphical user interface (GUI). The content and sequence of instructions in the CLI and the GUI are similar.

To complete this procedure, you need the SUN Java Enterprise System Common Installer CD-ROM.

1. **On the cluster node where you are installing the Sun Cluster HA for Sun Java System Message Queue packages, become superuser.**

2. **(Optional) If you intend to run the SUN Java Enterprise System Common Installer program with a GUI, ensure that your `DISPLAY` environment variable is set.**

3. **Load the SUN Java Enterprise System Common Installer CD-ROM into the CD-ROM drive.**

   If the Volume Management daemon `vold`(1M) is running and configured to manage CD-ROM devices, it automatically mounts the CD-ROM on the `/cdrom` directory.

4. **Change to the SUN Java Enterprise System Common Installer directory of the CD-ROM.**

   The SUN Java Enterprise System Common Installer resides in this directory.

   ```
   # cd /cdrom/Solaris_sparc
   ```

5. **Start the SUN Java Enterprise System Common Installer program.**

   ```
   # ./installer
   ```

6. **When you are prompted, accept the license agreement and appropriate language support.**

   English language support is available by default.

7. **Select Sun Cluster Agents for Sun Java System under the Availability Services & Sun Cluster 3.1 Subcomponents and proceed.**

   This selection includes all the available Sun Cluster data services for Sun Java System applications, including the Sun Cluster HA for Sun Java System Message Queue.

8. **When you are prompted, select the time of the configuration.**

   - Select `Configure Now` if you want to perform the configuration now. You can progressively accept or override the default values.
   - Select `Configure Later` if you want to perform the configuration after the installation.

9. **(Optional) If you do not want to register the product and receive product updates, uncheck the Product Registration box.**

10. **Follow the instructions on the screen to install the Sun Cluster HA for Sun Java System Message Queue packages on the node.**

    The SUN Java Enterprise System Common Installer program displays the status of the installation. When the installation is complete, the program displays an installation summary and the installation logs.

11. **Exit the SUN Java Enterprise System Common Installer program.**

Before exiting the installer program, please make sure that the Sun Cluster HA for Sun Java System Message Queue has been installed successfully. Check for the presence of the package by executing the following command:

```
# pkginfo -l SUNWscslmq
```

12. **Unload the SUN Java Enterprise System Common Installer CD-ROM from the CD-ROM drive.**

   a. **To ensure that the CD-ROM is not being used, change to a directory that does** *not* **reside on the CD-ROM.**

   b. **Eject the CD-ROM.**

   ```
   # eject cdrom
   ```

Registering and Configuring the Sun Cluster HA for Sun Java System Message Queue

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

Note – See "Tools for Data Service Resource Administration" in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* 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 Java System 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 Java System Message Queue.
- The port where the Sun Java System Message Queue listens.

▼ How to Register and Configure the Sun Cluster HA for Sun Java System 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 Java System Message Queue if you have not performed the steps in "Configuring and Activating Network Resources" on page 14.**

   ```
   # 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 14.**

   ```
   # 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 "Operation of the Sun Cluster HA for Sun Java System Message Queue Fault Monitor" on page 28 for a description of the `Smooth_Shutdown` extension property.

6. **Add the Sun Java System 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 14.

-j *resource*
  Specifies the Sun Java System 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 Java System 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 Java System 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 Java System Message Queue

This example shows how to register the Sun Cluster HA for Sun Java System 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 Java System 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 Java System 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 Java System Message Queue With `Smooth_Shutdown` Enabled

This example shows how to register Sun Cluster HA for Sun Java System 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 Java System 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 Java System 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 Java System Message Queue Extension Properties

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

See "Standard Properties" in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* for details on all Sun Cluster properties.

Table 2 describes the extension properties that you can configure for the Sun Java System Message Queue. The only required extension property for creating a Sun Java System Message Queue resource is the `Confdir_list` property. The `Confdir_list` property specifies a directory in which the Sun Java System 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 2 Sun Cluster HA for Sun Java System 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 Java System 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 Java System 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 Data Services Planning and Administration Guide for Solaris OS* for background information. See "Synchronizing the Startups Between Resource Groups and Disk Device Groups" in *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* 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 Java System 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 Java System Message Queue Installation and Configuration

Use this procedure to verify that you installed and configured the Sun Cluster HA for Sun Java System 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 Java System Message Queue from a web browser to verify that the Sun Java System 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 Java System Message Queue resource groups.**

Operation of the Sun Cluster HA for Sun Java System Message Queue Fault Monitor

This section explains Sun Cluster HA for Sun Java System Message Queue fault monitors.

Extension Properties

The Sun Cluster HA for Sun Java System Message Queue fault monitor uses the following extension properties. You might be able to tune these extension properties.

TABLE 3 Sun Cluster HA for Sun Java System 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 Java System 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 Java System Message Queue probe sends a request to the server to query the health of the Sun Java System Message Queue server. The probe executes the following steps:

1. Probes the Sun Java System 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 Java System Message Queue server to listen on all of the IP address and port combinations that are probed. The Sun Java System 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 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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