Oracle® Solaris Cluster Data Service for Sun Java System Message Queue Guide

ORACLE®

110714@25097

Contents

Preface

Oracle Solaris Cluster Data Service for Sun Java System Message Queue Guide explains how to install and configure HA for Sun Java System Message Queue.

Note – This Oracle Solaris Cluster release supports systems that use the SPARC and x86 families of processor architectures: UltraSPARC, SPARC64, AMD64, and Intel 64. In this document, x86 refers to the larger family of 64-bit x86 compatible products. Information in this document pertains to all platforms unless otherwise specified.

This document is intended for system administrators with extensive knowledge of Oracle 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 book assume knowledge of the Oracle Solaris Operating System and expertise with the volume-manager software that is used with Oracle Solaris Cluster software.

Using UNIX Commands

This document contains information about commands that are specific to installing and configuring Oracle Solaris 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 Oracle Solaris Operating System
- Oracle Solaris Operating System man pages
- Other software documentation that you received with your system

Typographic Conventions

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

TABLE P–1 Typographic Conventions

Typeface	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	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*.
		A *cache* is a copy that is stored locally.
		Do *not* save the file.
		Note: Some emphasized items appear bold online.

Shell Prompts in Command Examples

The following table shows the default UNIX system prompt and superuser prompt for shells that are included in the Oracle Solaris OS. Note that the default system prompt that is displayed in command examples varies, depending on the Oracle Solaris release.

TABLE P–2 Shell Prompts

Shell	Prompt
Bash shell, Korn shell, and Bourne shell	`$`
Bash shell, Korn shell, and Bourne shell for superuser	`#`
C shell	`machine_name%`
C shell for superuser	`machine_name#`

Related Documentation

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

Topic	Documentation
Data service administration	*Oracle Solaris Cluster Data Services Planning and Administration Guide*
	Individual data service guides
Concepts	*Oracle Solaris Cluster Concepts Guide*
Overview	*Oracle Solaris Cluster Overview*
Software installation	*Oracle Solaris Cluster Software Installation Guide*
System administration	*Oracle Solaris Cluster System Administration Guide*
Hardware administration	*Oracle Solaris Cluster 3.3 Hardware Administration Manual*
	Individual hardware administration guides
Data service development	*Oracle Solaris Cluster Data Services Developer's Guide*
Error messages	*Oracle Solaris Cluster Error Messages Guide*
Command and function reference	*Oracle Solaris Cluster Reference Manual*

For a complete list of Oracle Solaris Cluster documentation, see the release notes for your release of Oracle Solaris 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 – Oracle is not responsible for the availability of third-party web sites mentioned in this document. Oracle 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. Oracle 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.

Documentation, Support, and Training

See the following web sites for additional resources:

- Documentation (http://docs.sun.com)
- Support (http://www.oracle.com/us/support/systems/index.html)
- Training (http://education.oracle.com) – Click the Sun link in the left navigation bar.

Oracle Welcomes Your Comments

Oracle welcomes your comments and suggestions on the quality and usefulness of its documentation. If you find any errors or have any other suggestions for improvement, go to http://docs.sun.com and click Feedback. Indicate the title and part number of the documentation along with the chapter, section, and page number, if available. Please let us know if you want a reply.

Oracle Technology Network (http://www.oracle.com/technetwork/index.html) offers a range of resources related to Oracle software:

- Discuss technical problems and solutions on the Discussion Forums (http://forums.oracle.com).
- Get hands-on step-by-step tutorials with Oracle By Example (http://www.oracle.com/technology/obe/start/index.html).
- Download Sample Code (http://www.oracle.com/technology/sample_code/index.html).

Getting Help

If you have problems installing or using Oracle Solaris 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 number and serial number of your systems
- The release number of the Oracle Solaris Operating System (for example, Oracle Solaris 10)
- The release number of Oracle Solaris Cluster (for example, Oracle Solaris Cluster 3.3)

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
/usr/cluster/bin/clnode show-rev	Displays Oracle Solaris Cluster release and package version information

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

◆ ◆ ◆

1

Installing and Configuring Oracle Solaris Cluster HA for Sun Java System Message Queue

This chapter describes the procedures to install and configure the Oracle Solaris Cluster HA for Sun Java System Message Queue.

This chapter contains the following sections.

Oracle Solaris Cluster HA for Sun Java System Message Queue Overview

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

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

Configure the Oracle Solaris 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 Chapter 1, "Planning for Oracle Solaris Cluster Data Services," in *Oracle Solaris Cluster Data Services Planning and Administration Guide* 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. See *Sun Java System Message Queue 4.1 Installation Guide* for information about the Sun Java System Message Queue. Implementation of the Oracle Solaris 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.

Overview of the Installation and Configuration Process for Oracle Solaris 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 1–1 Task Map: Installing and Configuring the Oracle Solaris 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 Oracle Solaris Cluster HA for Sun Java System Message Queue installation and configuration	"Planning the Oracle Solaris Cluster HA for Sun Java System Message Queue Installation and Configuration" on page 17
Install the Oracle Solaris Cluster HA for Sun Java System Message Queue package	"How to Install the HA for Sun Java System Message Queue Packages" on page 19

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

Task	For Instructions
Register and Configure the Oracle Solaris Cluster HA for Sun Java System Message Queue as a failover data service	"How to Register and Configure the Oracle Solaris Cluster HA for Sun Java System Message Queue as a Failover Data Service" on page 22
Configure the `SUNW.HAStoragePlus` resource type	"Configuring the `SUNW.HAStoragePlus` Resource Type" on page 25
Verify the Oracle Solaris Cluster HA for Sun Java System Message Queue installation and configuration	"Verifying the Oracle Solaris Cluster HA for Sun Java System Message Queue Installation and Configuration" on page 25
Tune the Oracle Solaris Cluster HA for Sun Java System Message Queue fault monitor	"Tuning the Oracle Solaris Cluster HA for Sun Java System Message Queue Fault Monitor" on page 26

Note – If you run multiple data services in your Oracle Solaris Cluster configuration, you can set up the data services in any order, with the following exception. If the Oracle Solaris Cluster HA for Sun Java System Message Queue depends on the Oracle Solaris Cluster HA for DNS, you must set up DNS first. For details, see *Oracle Solaris Cluster Data Service for Domain Name Service (DNS) Guide* 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 *Oracle Solaris Cluster Data Services Planning and Administration Guide*.

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.

Note – The Sun Java System Message Queue can be configured to run in a whole root non-global zone, if required. The Sun Java System Message Queue is not supported in a sparse root non-global zone.

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 *Solaris Cluster Concepts Guide for Solaris OS* for details on network resources.

1 On a cluster member, become superuser or assume a role that provides `solaris.cluster.modify` and `solaris.cluster.modify` RBAC authorization.

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 Oracle Solaris 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 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.

```
# clresourcegroup create [-n node-zone-list] resource-group
```

resource-group

Specifies the name of the resource group. This name can be your choice.

[-n *node-zone-list*]

Specifies a comma-separated, ordered list of zones that can master this resource group. The format of each entry in the list is *node*. In this format, *node* specifies the node name and *zone* specifies the name of a non-global Solaris zone. To specify the global zone, or to specify a node without non-global zones, specify only *node*.

This list is optional. If you omit this list, the global zone of each cluster node can master the resource group.

4   Add network resources to the resource group.

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

clreslogicalhostname create -g *resource-group* [**-h** *hostname, ...*] [**-N** *netiflist*] *lhresource*

-g *resource-group*
  Specifies the name of the resource group.

-h *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 or zone. The format of each entry in the list is *netif@node*. The replaceable items in this format are as follows:

  netif   Specifies an IPMP group name, such as sc_ipmp0, or a public network interface card (NIC). If you specify a public NIC, Oracle Solaris Cluster attempts to create the required IPMP groups.

  node   Specifies the name or ID of a node. To specify the global zone, or to specify a node without non-global zones, specify only *node*.

Note – If you require a fully qualified hostname, you must specify the fully qualified name with the -h option and you cannot use the fully qualified form in the resource name.

Note – Oracle Solaris Cluster does not currently support the use of the adapter name for netif.

---

5   Run the clresourcegroup command to enable the resource group and bring the resource group online.

clresourcegroup online *resource-group*

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 Solaris Cluster software. This section describes the steps to install and enable the Sun Java System Message Queue to run as the Oracle Solaris 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 *Sun Java System Message Queue 4.1 Installation Guide* 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 Oracle Solaris 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 package 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.portmapper.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 the potential primaries of the Sun Java System Message Queue resource group.

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

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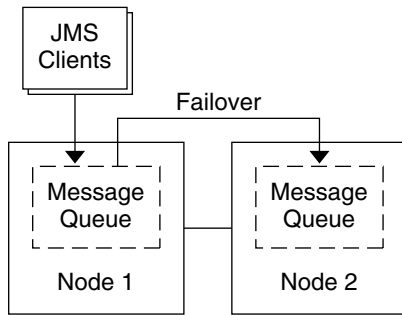
Configuration Considerations

If you choose to use your message service with another highly available application, resource dependencies might exist. See Appendix A, "Standard Properties," in *Oracle Solaris Cluster Data Services 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 Oracle Solaris Cluster HA for Sun Java System Message Queue. See "Considerations for Installing and Configuring a Data Service" in *Oracle Solaris Cluster Data Services 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 HA for Sun Java System Message Queue Packages

If you did not install the HA for Sun Java System Message Queue packages during your initial Oracle Solaris Cluster installation, perform this procedure to install the packages. To install the packages, use the installer program.

Note – You need to install the HA for Sun Java System Message Queue packages in the global cluster and not in the zone cluster.

▼ How to Install the HA for Sun Java System Message Queue Packages

Perform this procedure on each cluster node where you are installing the HA for Sun Java System Message Queue packages.

You can run the `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.

Note – Even if you plan to configure this data service to run in non-global zones, install the packages for this data service in the global zone. The packages are propagated to any existing non-global zones and to any non-global zones that are created after you install the packages.

Before You Begin Ensure that you have the Oracle Solaris Cluster installation media.

If you intend to run the `installer` program with a GUI, ensure that your `DISPLAY` environment variable is set.

1 **On the cluster node where you are installing the data service packages, become superuser.**

2 **Load the Oracle Solaris Cluster installation media into the DVD-ROM drive.**

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

3 **Change to the installation wizard directory of the DVD-ROM.**

- **If you are installing the data service packages on the SPARC platform, type the following command:**

  `# cd /cdrom/cdrom0/Solaris_sparc`

- **If you are installing the data service packages on the x86 platform, type the following command:**

  `# cd /cdrom/cdrom0/Solaris_x86`

4 **Start the installation wizard.**

`# ./installer`

5 **When you are prompted, accept the license agreement.**

6 **From the list of Oracle Solaris Cluster agents under Availability Services, select the data service for Sun Java System Message Queue.**

7 **If you require support for languages other than English, select the option to install multilingual packages.**

English language support is always installed.

8 **When prompted whether to configure the data service now or later, choose Configure Later.**

Choose Configure Later to perform the configuration after the installation.

9 **Follow the instructions on the screen to install the data service packages on the node.**

The installation wizard displays the status of the installation. When the installation is complete, the wizard displays an installation summary and the installation logs.

10 **(GUI only) If you do not want to register the product and receive product updates, deselect the Product Registration option.**

The Product Registration option is not available with the CLI. If you are running the installation wizard with the CLI, omit this step.

11 **Exit the installation wizard.**

12 **Unload the installation media from the DVD-ROM drive.**

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

    b. **Eject the DVD-ROM.**

```
# eject cdrom
```

Next Steps See to register HA for Sun Java System Message Queue and to configure the cluster for the data service.

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

This procedure describes how to use the Oracle Solaris Cluster maintenance commands to register and configure the Oracle Solaris Cluster HA for Sun Java System Message Queue.

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

Setting Oracle Solaris Cluster HA for Sun Java System Message Queue Extension Properties

The section that follows contains instructions for registering and configuring Oracle Solaris Cluster HA for Sun Java System Message Queue resources. For information about the extension properties, see Appendix A, "HA for Sun Java System Message Queue Extension Properties." The Tunable entry indicates when you can update a property.

See Appendix A, "Standard Properties," in *Oracle Solaris Cluster Data Services Planning and Administration Guide* for details on all the Oracle Solaris Cluster properties.

To set an extension property of a resource, include the following option in the `clresource(1CL)` command that creates or modifies the resource:

-p *property*=*value*

-p *property*
    Identifies the extension property that you are setting.

value
    Specifies the value to which you are setting the extension property.

You can also use the procedures in Chapter 2, "Administering Data Service Resources," in *Oracle Solaris Cluster Data Services Planning and Administration Guide* to configure resources after the resources are created.

▼ How to Register and Configure the Oracle Solaris Cluster HA for Sun Java System Message Queue as a Failover Data Service

Perform the following steps to complete your configuration.

1   On a cluster member, become superuser or assume a role that provides `solaris.cluster.modify` and `solaris.cluster.admin` RBAC authorization.

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.

```
# clresourcegroup create [-n node-zone-list] resource-group
```

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.

```
# clreslogicalhostname create -g resource group -h logical-hostname logical-hostname
```

Note – If you require a fully qualified hostname, you must specify the fully qualified name with the -h option and you cannot use the fully qualified form in the resource name.

---

4   Register the `SUNW.s1mq` resource type for the data service.

```
# clresourcetype register SUNW.s1mq
```

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 have created.

```
Password password
```

See Appendix A, "HA for Sun Java System Message Queue Extension Properties," 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):]
# clresource create -g resource-group -t SUNW.s1mq \
-p Confdir_list=$IMQ_VARHOME/instances/broker \
-p Broker_Name=broker \
-p Network_Resources_Used=logical hostname \
-p Port_list=port/tcp[,port/tcp] resource

[If Smooth_Shutdown is set to TRUE:]
# clresource create -g resource-group -t SUNW.s1mq \
 -p Confdir_list=$IMQ_VARHOME/instances/broker \
-p Broker_Name=broker \
-p Broker_User=user \
-p Network_resources_used=logical hostname \
```

```
-p Port_list=port/tcp[,port/tcp] \
-p Smooth_Shutdown=TRUE resource
```

The resource is created in the enabled state.

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.

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

-p 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.

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

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

-p 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.

-p 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.

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

resource
    Specifies the Sun Java System Message Queue application resource name.

7   **Bring the resource group online.**

```
# clresourcegroup online resource-group
```

resource-group
    Specifies the name of the application resource group that is being enabled.

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

```
# clresourcegroup status
# ps -ef
```

Example 1–1 Registering and Configuring the Oracle Solaris Cluster HA for Sun Java System
Message Queue

This example shows how to register the Oracle Solaris 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.)
# clresourcegroup create -n phys-schost-1,phys-schost-2 s1mq-rg

(Add a logical hostname resource to the resource group.)
# clreslogicalhostname -g s1mq-rg -h schost-1 schost-1

(Register the SUNW.s1mq resource type.)
# clresourcetype register SUNW.s1mq

(Create a Sun Java System Message Queue resource and add it to the
resource group.)
# clresource create -g s1mq-rg \
-t SUNW.s1mq \
-p Confdir_list=$IMQ_VARHOME/instances/hamq1 \
-p Broker_Name=hamq1 \
-p Network_resources_used=schost-1 \
-p Port_list=7676/tcp s1mq-rs

 (Enable the application resource group.)
# clresourcegroup online s1mq-rg
```

Example 1–2 Registering and Configuring Oracle Solaris Cluster HA for Sun Java System Message
Queue With `Smooth_Shutdown` Enabled

This example shows how to register Oracle Solaris 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.)
# clresourcegroup create -n phys-schost-1,phys-schost-2 s1mq-rg

(Add a logical hostname resource to the resource group.)
# clreslogicalhostname create -g s1mq-rg -h schost-1 schost-1

(Register the SUNW.s1mq resource type.)
```

```
# clresourcetype register SUNW.s1mq

(Create a Sun Java System Message Queue resource and add it to the
resource group.)
# clresource create -g s1mq-rg \
-t SUNW.s1mq \
-p Confdir_list=$IMQ_VARHOME/instances/hamq1 \
-p Broker_Name=hamq1 \
-p Broker_User=admin \
-p Network_resources_used=schost-1 \
-p Port_list=7676/tcp \
-p Smooth_Shutdown=TRUE s1mq-rs

(Enable the application resource group.)
# clresourcegroup online s1mq-rg
```

Configuring the `SUNW.HAStoragePlus` Resource Type

The `SUNW.HAStoragePlus` resource type was introduced in Solaris Cluster 3.0 5/02. This 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. Oracle Solaris 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 Device Groups" in *Oracle Solaris Cluster Data Services Planning and Administration Guide* for background information. See "Synchronizing the Startups Between Resource Groups and Device Groups" in *Oracle Solaris Cluster Data Services Planning and Administration Guide* for the procedure. If you are using a Solaris Cluster 3.0 version prior to 5/02, you must set up `SUNW.HAStorage` instead of `SUNW.HAStoragePlus`.

Verifying the Oracle Solaris 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 Oracle Solaris Cluster HA for Sun Java System Message Queue Installation and Configuration

Use this procedure to verify that you installed and configured the Oracle Solaris Cluster HA for Sun Java System Message Queue correctly.

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

```
# clresourcegroup online 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 `clresourcegroup` command to switch the resource group to another cluster node, such as *node2*.

```
# clresourcegroup online -n node2 resource-group
```

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

```
# clresourcegroup status
# ps -ef
```

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

Tuning the Oracle Solaris Cluster HA for Sun Java System Message Queue Fault Monitor

The Oracle Solaris Cluster HA for Sun Java System Message Queue fault monitor is contained in the resource that represents Sun Java System Message Queue. You create this resource when you register and configure Oracle Solaris Cluster HA for Sun Java System Message Queue. For more information, see "Registering and Configuring the Oracle Solaris Cluster HA for Sun Java System Message Queue" on page 20.

System properties and extension properties of this resource control the behavior of the fault monitor. The default values of these properties determine the preset behavior of the fault monitor. The preset behavior should be suitable for most Oracle Solaris Cluster installations. Therefore, you should tune the Oracle Solaris Cluster HA for Sun Java System Message Queue fault monitor *only* if you need to modify this preset behavior.

For more information, see the following sections.

- "Tuning Fault Monitors for Oracle Solaris Cluster Data Services" in *Oracle Solaris Cluster Data Services Planning and Administration Guide*
- "Changing Resource Type, Resource Group, and Resource Properties" in *Oracle Solaris Cluster Data Services Planning and Administration Guide*
- Appendix A, "Standard Properties," in *Oracle Solaris Cluster Data Services Planning and Administration Guide*

Operations by the Fault Monitor During a Probe

The Oracle Solaris Cluster HA for Sun Java System Message Queue fault monitor uses the Smooth_shutdown extension property. For instructions on setting this property, see "Setting Oracle Solaris Cluster HA for Sun Java System Message Queue Extension Properties" on page 21.

The Oracle Solaris 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 instance.

The probe 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 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.

When the probe fails to connect to the server, a complete probe failure occurs. The following error message is sent, where the %s indicates the hostname and %d indicates the port number.

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

The probe 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. The following error message is sent, where %d indicates the port number and %s indicates the resource name.

  ```
  Failed to disconnect from port %d of resource %s.
  ```
- Failure to complete all probe steps within Probe_timeout time.
- Failure to read data from the server for other reasons. The following error message is sent, where the first %s indicates the hostname, %d indicates the port number, and 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.

A

HA for Sun Java System Message Queue Extension Properties

This section describes the extension properties for the resource type `SUNW.s1mq`. This resource type represents the Apache application in a Oracle Solaris Cluster configuration.

For details about system-defined properties, see the `r_properties(5)` man page and the `rg_properties(5)` man page.

The extension properties of the `SUNW.s1mq` resource type are as follows:

`Broker_Name`
    The name of the broker to be monitored.

Data type	String
Default	No default defined
Range	Not applicable
Tunable	At creation

`Broker_User`
    User name of the managed broker. This property is needed only if `Smooth_Shutdown=TRUE`.

Data type	String
Default	No default defined
Range	Not applicable
Tunable	At any time

`Confdir_list`
    A path name that points to the configuration directory for the broker. The Oracle Solaris Cluster HA for Sun Java System Message Queue requires this extension property, and the property must have one entry.

Data type	String array

Default   No default defined

Range   Not applicable

Tunable   At creation

Smooth_Shutdown

Indication of whether to enable smooth shutdown using the imqcmd command.

When this extension property is set to FALSE, the data service attempts to shut down the Sun Java System Message Queue process first with SIGTERM, then with SIGKILL (9).

When this extension property is set to TRUE, the data service attempts a smooth shutdown of the process using the imqcmd command. If this extension property is TRUE, the extension property Broker_User must be set, and the password must be set in $IMQ_VARHOME/instances/broker/scs1mqconfig.

Note – If this property is set to TRUE, the password can be seen in output from the ps command when the data service runs the imqcmd command with the password.

Data type   Boolean

Default   FALSE

Range   Not applicable

Tunable   At any time

Index