Oracle® Solaris Cluster Data Service for Oracle GlassFish Server Message Queue Guide

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Contents

Preface

Oracle Solaris Cluster Data Service for Oracle GlassFish Server Message Queue Guide explains how to install and configure Oracle Solaris Cluster data services.

Note – This Oracle Solaris Cluster release supports systems that use the SPARC and x86 families of processor architectures. In this document, "x86" refers to the larger family of 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.

Bash is the default shell for Oracle Solaris 11. Machine names shown with the Bash shell prompt are displayed for clarity.

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	Description	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://www.oracle.com/technetwork/indexes/documentation/index.html.

Topic	Documentation
Hardware installation and administration	*Oracle Solaris Cluster 4.0 Hardware Administration Manual* Individual hardware administration guides
Concepts	*Oracle Solaris Cluster Concepts Guide*
Software installation	*Oracle Solaris Cluster Software Installation Guide*
Data service installation and administration	*Oracle Solaris Cluster Data Services Planning and Administration Guide* and individual data service guides
Data service development	*Oracle Solaris Cluster Data Services Developer's Guide*
System administration	*Oracle Solaris Cluster System Administration Guide* *Oracle Solaris Cluster Quick Reference*
Software upgrade	*Oracle Solaris Cluster Upgrade Guide*
Error messages	*Oracle Solaris Cluster Error Messages Guide*
Command and function references	*Oracle Solaris Cluster Reference Manual* *Oracle Solaris Cluster Data Services Reference Manual* *Oracle Solaris Cluster Geographic Edition Reference Manual* *Oracle Solaris Cluster Quorum Server Reference Manual*

Access to Oracle Support

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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 operating environment (for example, Oracle Solaris 11)
- The release number of Oracle Solaris Cluster (for example, Oracle Solaris Cluster 4.0)

Use the following commands to gather information about 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
`pkg list`	Reports which packages are installed
`prtdiag -v`	Displays system diagnostic information
`/usr/cluster/bin/clnode show-rev`	Displays Oracle Solaris Cluster release and package version information for each node

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

◆ ◆ ◆ CHAPTER 1

Installing and Configuring HA for Oracle GlassFish Message Queue

This chapter describes the procedures to install and configure Oracle Solaris Cluster HA for Oracle GlassFish Message Queue (HA for Oracle GlassFish Message Queue).

Note – This release of HA for Oracle GlassFish Message Queue supports the following releases of software:

- Oracle GlassFish Message Queue 4.4
- Sun Java System Message Queue 3.5 through 4.3

In this manual, references to Oracle GlassFish Message Queue software also apply to Sun Java System Message Queue software unless specifically stated otherwise.

This chapter contains the following sections.

HA for Oracle GlassFish Message Queue Overview

Use the information in this section to understand how HA for Oracle GlassFish Message Queue enables Oracle GlassFish Message Queue for high availability.

HA for Oracle GlassFish Message Queue is a data service with appropriate extension properties to configure a failover messaging service.

Configure HA for Oracle GlassFish Message Queue as a failover data service to enable the Oracle GlassFish 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 Oracle GlassFish Message Queue is an integral part of the application server. Oracle GlassFish Message Queue is a robust Java Messaging Service (JMS) provider for JMS clients. Oracle GlassFish Message Queue is packaged with the Application Server installation. See the installation guide for your version of Oracle GlassFish Message Queue for information about Oracle GlassFish Message Queue. Implementation of HA for Oracle GlassFish 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 HA for Oracle GlassFish 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 HA for Oracle GlassFish Message Queue

Task	For Instructions
Plan Oracle GlassFish Message Queue installation and configuration	"Planning the Oracle GlassFish 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 configureOracle GlassFish Message Queue	"How to Install the Oracle GlassFish Message Queue" on page 14
Verify Oracle GlassFish Message Queue installation	"How to Verify the Oracle GlassFish Message Queue Installation and Configuration" on page 14
Plan HA for Oracle GlassFish Message Queue installation and configuration	"Planning the HA for Oracle GlassFish Message Queue Installation and Configuration" on page 15

TABLE 1–1 Task Map: Installing and Configuring HA for Oracle GlassFish Message Queue *(Continued)*

Task	For Instructions
Install the HA for Oracle GlassFish Message Queue package	"How to Install the HA for Oracle GlassFish Message Queue Package" on page 17
Register and Configure HA for Oracle GlassFish Message Queue as a failover data service	"How to Register and Configure HA for Oracle GlassFish Message Queue as a Failover Data Service" on page 18
Configure the `SUNW.HAStoragePlus` resource type	"Configuring the `SUNW.HAStoragePlus` Resource Type" on page 22
Verify the HA for Oracle GlassFish Message Queue installation and configuration	"Verifying the HA for Oracle GlassFish Message Queue Installation and Configuration" on page 22
Tune the HA for Oracle GlassFish Message Queue fault monitor	"Tuning the HA for Oracle GlassFish Message Queue Fault Monitor" on page 23

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 HA for Oracle GlassFish Message Queue configuration depends on Oracle Solaris Cluster HA for DNS, you must set up DNS first. For details, see *Oracle Solaris Cluster Data Service for DNS Guide* for details. DNS software is included in the Oracle 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 Oracle GlassFish Message Queue Installation and Configuration

To install and configure Oracle GlassFish Message Queue, use this section as a checklist.

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 Oracle GlassFish 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 Oracle GlassFish 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 Oracle GlassFish Message Queue. Normally, you set up this hostname when you install the cluster. See the *Oracle Solaris Cluster Concepts Guide* 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-list] resource-group
```

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

[-n *node-list*]
Specifies a comma-separated, ordered list of nodes that can master this resource group. The format of each entry in the list is *node*. In this format, *node* specifies the node name. To specify the global zone, 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 IPMP groups that are on each node. 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, 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 Oracle GlassFish Message Queue

This section describes the steps to install and enable Oracle GlassFish Message Queue to run as HA for Oracle GlassFish Message Queue.

Note – If you run Oracle GlassFish 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 Oracle GlassFish Message Queue.

▼ How to Install the Oracle GlassFish Message Queue

Use the following procedure to install Oracle GlassFish Message Queue. Only the sections that are specific to Oracle GlassFish Message Queue are included here. See the installation guide for your version of Oracle GlassFish Message Queue 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 HA for Oracle GlassFish Message Queue starts and stops the application after you have configured the data service.

---

1. **Install the Oracle GlassFish 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 Oracle GlassFish Message Queue Installation and Configuration

This section describes how to verify the Oracle GlassFish Message Queue installation and configuration.

▼ How to Verify the Oracle GlassFish Message Queue Installation and Configuration

Use this procedure to verify the Oracle GlassFish 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 Oracle GlassFish Message Queue resource group.**

Planning the HA for Oracle GlassFish Message Queue Installation and Configuration

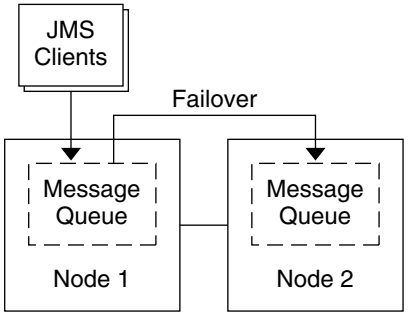
This section contains the information that you need to plan your HA for Oracle GlassFish Message Queue installation and configuration.

Standard Data Service Configurations

Use the standard configurations in this section to plan the installation and configuration of HA for Oracle GlassFish Message Queue. HA for Oracle GlassFish 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 Oracle GlassFish 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 the `r_properties(5)` man page for a description of the `Resource_dependencies` property.

Configuration Planning Questions

Use the questions in this section to plan the installation and configuration of HA for Oracle GlassFish 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 Oracle GlassFish Message Queue Package

If you did not install the HA for Oracle GlassFish Message Queue package during your initial Oracle Solaris Cluster installation, perform this procedure to install the package.

▼ How to Install the HA for Oracle GlassFish Message Queue Package

Perform this procedure on each cluster node where you want the HA for Oracle GlassFish Message Queue software to run.

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

2 **Ensure that the `solaris` and `ha-cluster` publishers are valid.**

```
# pkg publisher
PUBLISHER                             TYPE     STATUS   URI
solaris                               origin   online   solaris-repository
ha-cluster                            origin   online   ha-cluster-repository
```

For information about setting the `solaris` publisher, see "Set the Publisher Origin To the File Repository URI" in *Copying and Creating Oracle Solaris 11 Package Repositories*.

3 **Install the HA for Oracle GlassFish Message Queue software package.**

```
# pkg install ha-cluster/data-service/glassfish-message-queue
```

4 **Verify that the package installed successfully.**

```
$ pkg info ha-cluster/data-service/glassfish-message-queue
```

Installation is successful if output shows that `State` is `Installed`.

5 **Perform any necessary updates to the Oracle Solaris Cluster software.**

For instructions on updating single or multiple packages, see Chapter 11, "Updating Your Software," in *Oracle Solaris Cluster System Administration Guide*.

Registering and Configuring HA for Oracle GlassFish Message Queue

This procedure describes how to use the Oracle Solaris Cluster maintenance commands to register and configure HA for Oracle GlassFish 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 HA for Oracle GlassFish 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 HA for Oracle GlassFish Message Queue.
- The port where Oracle GlassFish Message Queue listens.

Setting HA for Oracle GlassFish Message Queue Extension Properties

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

See the `r_properties(5)` man page for details on all the Oracle Solaris Cluster resource 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 HA for Oracle GlassFish 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 Oracle GlassFish Message Queue if you have not performed the steps in "Configuring and Activating Network Resources" on page 12.**

   ```
   # clresourcegroup create [-n node-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 12.**

```
# 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 Oracle GlassFish Message Queue Extension Properties," for a description of the `Smooth_Shutdown` extension property.

6 **Add the Oracle GlassFish Message Queue resource instance to the failover resource group.**

Note – Use of the `Bin_dir` property requires a minimum of Oracle GlassFish Message Queue 4.4.

[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 Bin_dir=bin-directory
-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 Bin_dir=bin-directory
-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 12.

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

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

`-p Bin_dir=`*bin-directory*
Specifies the location where the Oracle GlassFish Message Queue binaries, particularly `imqbrokerd` and `imqcmd`, are installed. Requires at least Oracle GlassFish Message Queue 4.4.

`-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 Oracle GlassFish 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 Oracle GlassFish 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 HA for Oracle GlassFish Message Queue

This example shows how to register HA for Oracle GlassFish 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 (Oracle GlassFish 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 Oracle GlassFish 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 Bin_dir=/opt/mq/bin \
-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 HA for Oracle GlassFish Message Queue With Smooth_Shutdown Enabled

This example shows how to register HA for Oracle GlassFish 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 (Oracle GlassFish 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 Oracle GlassFish 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 synchronizes actions between HA storage and the data service. `SUNW.HAStoragePlus` also has an additional feature to make a local file system highly available. HA for Oracle GlassFish 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.

Verifying the HA for Oracle GlassFish 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 HA for Oracle GlassFish Message Queue Installation and Configuration

Use this procedure to verify that you installed and configured HA for Oracle GlassFish Message Queue correctly.

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

   ```
   # clresourcegroup online resource group
   ```

2. **Connect to Oracle GlassFish Message Queue from a web browser to verify that the Oracle GlassFish 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 Oracle GlassFish Message Queue resource groups.**

Tuning the HA for Oracle GlassFish Message Queue Fault Monitor

The HA for Oracle GlassFish Message Queue fault monitor is contained in the resource that represents Oracle GlassFish Message Queue. You create this resource when you register and configure HA for Oracle GlassFish Message Queue. For more information, see "Registering and Configuring HA for Oracle GlassFish Message Queue" on page 17.

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 HA for Oracle GlassFish 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*
- The `r_properties(5)` man page

Operations by the Fault Monitor During a Probe

The HA for Oracle GlassFish Message Queue fault monitor uses the `Smooth_shutdown` extension property. For instructions on setting this property, see "Setting HA for Oracle GlassFish Message Queue Extension Properties" on page 18.

The HA for Oracle GlassFish Message Queue probe sends a request to the server to query the health of the Oracle GlassFish 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 Oracle GlassFish Message Queue server to listen on all the IP address and port combinations that are probed. The Oracle GlassFish 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.

◆ ◆ ◆ APPENDIX A

HA for Oracle GlassFish Message Queue Extension Properties

This section describes the extension properties for the resource type `SUNW.s1mq`. This resource type represents the Apache application in an 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:

`Bin_dir`
For a minimum of version 4.4, indicates the location of Oracle GlassFish Message Queue server binaries. You must specify this property at resource creation time.

Data type String

Default `/usr/bin`

Range Not applicable

Tunable At creation

`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. HA for Oracle GlassFish 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 Oracle GlassFish 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

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