Sun Cluster 3.1 Data Service for WebLogic Server

Adobe PostScript™

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Contents

Preface

The Sun Cluster 3.1 Data Service for WebLogic Server contains procedures to install and configure the Sun Cluster data services.

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

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

UNIX Commands

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

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

Typographic Conventions

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

Shell Prompts

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

Related Documentation

Application	Title	Part Number
Installation	*Sun Cluster 3.1 Software Installation Guide*	816-3388
Data Services Installation and Configuration	*Sun Cluster 3.1 Data Service Planning and Administration Guide*	817–1526
	Sun Cluster 3.1 Data Service for Apache	817–1532
	Sun Cluster 3.1 Data Service for BroadVision One-To-One Enterprise	817–1542
	Sun Cluster 3.1 Data Service for Domain Name Service (DNS)	817–1533
	Sun Cluster 3.1 Data Service for Netbackup	817–1538
	Sun Cluster 3.1 Data Service for Network File System (NFS)	817–1534
	Sun Cluster 3.1 Data Service for Oracle	817–1527
	Sun Cluster 3.1 Data Service for Oracle Parallel Server/Real Application Clusters	817–1535
	Sun Cluster 3.1 Data Service for SAP	817–1536
	Sun Cluster 3.1 Data Service for SAP liveCache	817–1539
	Sun Cluster 3.1 Data Service for Siebel	817–1540
	Sun Cluster 3.1 Data Service for Sun ONE Application Server	817–1530
	Sun Cluster 3.1 Data Service for Sun ONE Directory Server	817–1529
	Sun Cluster 3.1 Data Service for Sun ONE Message Queue	817–1531
	Sun Cluster 3.1 Data Service for Sun ONE Web Server	817–1528
	Sun Cluster 3.1 Data Service for Sybase ASE	817–1537
	Sun Cluster 3.1 Data Service for DHCP	817–1716
	Sun Cluster 3.1 Data Service for Samba	817–1715
	Sun Cluster 3.1 Data Service for WebSphere MQ	817–1714
	Sun Cluster 3.1 Data Service for WebSphere MQ Integrator	817–1713

Application	Title	Part Number
Hardware	*Sun Cluster 3.x Hardware Administration Manual*	817–0168
	Sun Cluster 3.x Data Service Collection at `http://docs.sun.com/db/coll/1024.1`	
API development	*Sun Cluster 3.1 Data Services Developer's Guide*	816-3385
Administration	*Sun Cluster 3.1 5/03 System Administration Guide*	816-3384
Cluster concepts	*Sun Cluster 3.1 Concepts Guide*	816-3383
Error Messages	*Sun Cluster 3.1 Error Messages Guide*	816-3382
Man Pages	*Sun Cluster 3.1 Reference Manual*	816–5251
Release notes	*Sun Cluster 3.1 Data Service Release Notes*	817–1790
	Sun Cluster 3.1 Release Notes	816-5317
	Sun Cluster 3.1 Release Notes Supplement	816-3381

Sun Documentation Online

The `docs.sun.com`^{SM} Web site enables you to access Sun technical documentation on the Web. You can browse the `docs.sun.com` archive or search for a specific book title or subject 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 E-mail address (if available)
- Your company name, address, and phone number
- The model and serial numbers of your systems
- The release number of the operating environment (for example, Solaris 8)
- The release number of Sun Cluster (for example, Sun Cluster 3.0)

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

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

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

Installing and Configuring Sun Cluster HA for BEA WebLogic Server

This chapter explains how to install and configure Sun Cluster HA for BEA WebLogic Server.

This chapter contains the following procedures.

- "How to Prepare the Nodes" on page 19
- "How to Install BEA WebLogic Server" on page 20
- "How to Verify the BEA WebLogic Server Installation and Configuration" on page 22
- "How to Install the Sun Cluster HA for BEA WebLogic Server Packages" on page 24
- "How to Register and Configure Sun Cluster HA for BEA WebLogic Server as a Failover Data Service" on page 25
- "How to Verify the Sun Cluster HA for BEA WebLogic Server Installation and Configuration" on page 26

Sun Cluster HA for BEA WebLogic Server Overview

Use the information in this section to understand how to make the BEA WebLogic Server application highly available.

BEA WebLogic Server running on Sun Cluster systems delivers a highly available platform for developing and deploying mission-critical e-commerce applications across distributed, heterogeneous application environments.

The Sun Cluster HA for BEA WebLogic Server provides fault monitoring and high availability for the BEA WebLogic Server application. High availability is provided for the WebLogic Administration Server and WebLogic Managed Servers. Because Sun Cluster HA for BEA WebLogic Server only supports the non-clustered BEA WebLogic Servers, the client sessions could be lost during the failover or restart.

Note – Sun Cluster HA for BEA WebLogic Server provides high availability to stand-alone WebLogic Server instances (instances not using WebLogic Server clustering).

For conceptual information on failover services, see the *Sun Cluster 3.1 Concepts Guide*.

TABLE 1–1 Protection of BEA WebLogic Server Components

BEA WebLogic Server Component	Protected by
BEA WebLogic Server	Sun Cluster HA for BEA WebLogic Server
	The resource type is `SUNW.wls`.
BEA WebLogic Server database	The resource type is `SUNW.wls`
HTTP servers	All databases supported by BEA WebLogic Server and supported on Sun Cluster

Installing and Configuring Sun Cluster HA for BEA WebLogic Server

Table 1–2 lists the tasks for installing and configuring Sun Cluster HA for BEA WebLogic Server. Perform these tasks in the order that they are listed.

TABLE 1–2 Task Map: Installing and Configuring Sun Cluster HA for BEA WebLogic Server

Task	For Instructions
Plan the BEA WebLogic Server installation	"Planning the Sun Cluster HA for BEA WebLogic Server Installation and Configuration" on page 13
Prepare the nodes and disks	"How to Prepare the Nodes" on page 19

TABLE 1–2 Task Map: Installing and Configuring Sun Cluster HA for BEA WebLogic Server   *(Continued)*

Task	For Instructions
Install and configure BEA WebLogic Server	"How to Install BEA WebLogic Server" on page 20
	"Installing a Database" on page 21
	"Installing a Web Server" on page 22
Verify BEA WebLogic Server installation and configuration	"How to Verify the BEA WebLogic Server Installation and Configuration" on page 22
Install Sun Cluster HA for BEA WebLogic Server packages	"How to Install the Sun Cluster HA for BEA WebLogic Server Packages" on page 24
Register and configure Sun Cluster HA for BEA WebLogic Server as a failover data service	"How to Register and Configure Sun Cluster HA for BEA WebLogic Server as a Failover Data Service" on page 25
Verify Sun Cluster HA for BEA WebLogic Server installation and configuration	"How to Verify the Sun Cluster HA for BEA WebLogic Server Installation and Configuration" on page 26
Understand Sun Cluster HA for BEA WebLogic Server Fault Monitor	"Understanding Sun Cluster HA for BEA WebLogic Server Fault Monitor" on page 30

Planning the Sun Cluster HA for BEA WebLogic Server Installation and Configuration

This section contains the information you need to plan your Sun Cluster HA for BEA WebLogic Server installation and configuration.

Configuration Restrictions

Caution – Your data service configuration might not be supported if you do not observe these restrictions.

This section provides a list of software and hardware configuration restrictions that apply to Sun Cluster HA for BEA WebLogic Server. Use the restrictions in this section to plan the installation and configuration of Sun Cluster HA for BEA WebLogic Server.

For restrictions that apply to all data services, see the *Sun Cluster 3.1 Release Notes*.

- Sun Cluster HA for BEA WebLogic Server provides high availability to stand alone BEA WebLogic Server instances (instances not using BEA WebLogic Server clustering).

- For a Failover Filesystem, all BEA WebLogic Server instances using that filesystem must be configured in a single resource group.

- If the user wants to configure different instances in different resource groups, the BEA WebLogic Server installation must be on a Global File System.

Configuration Requirements

Caution – Your data service configuration might not be supported if you do not adhere to these requirements.

Use the requirements in this section to plan the installation and configuration of Sun Cluster HA for BEA WebLogic Server. These requirements apply to Sun Cluster HA for BEA WebLogic Server only. You must meet these requirements before you proceed with your Sun Cluster HA for BEA WebLogic Server installation and configuration.

For requirements that apply to all data services, see "Configuration Guidelines for Sun Cluster Data Services" in *Sun Cluster 3.1 Data Service Planning and Administration Guide*.

- If the BEA WebLogic Server home directory and other config files are installed on a failover filesystem using HAStoragePlus, then all BEA WebLogic Server resources using that filesystem should be configured in the same resource group.

- If the BEA WebLogic Server depends on any database such as Oracle or Sybase, the administrator must make sure that the database is highly available before configuring and starting the BEA WebLogic Server under Sun Cluster HA for BEA WebLogic Server.

- In BEA WebLogic Server 7.0, the Managed Servers can be configured to start independently in "Managed Server Independence mode." For Sun Cluster HA for BEA WebLogic Server, the administrator must configure all Managed Servers to be able to start independently.

  To configure the Managed Server in the independent mode, see

  `http://e-docs.bea.com/wls/docs70/admin_domain/failures.html#1104833`

- You can configure separate scripts to start the BEA WebLogic Managed Servers. If separate scripts are configured, the Admin Server url and the Managed Server name must be set in the START script. The scripts should be able to start each BEA WebLogic Server instance without arguments.

- If you intend to use a single START script to start several Managed Servers, the Admin url must be specified in the START script and only the Managed Server name should be taken as the argument to the script. For example, if the script used to start the Managed Server is `startMangedWeblogic.sh`, then the Managed Server `petstore_server` should be able to start as follows:

  ```
  node1>cd /global/beahome/weblogic700/domain/petstore
  node1>./startManagedWeblogic.sh petstore_server
  ```

- The BEA WebLogic Server START script needs a `username` and `password`. You can configure a file `boot.properties` to store the `username` and `password` which is encrypted after the first startup of the BEA WebLogic Server. If the `boot.properties` file is used, Sun Cluster HA for BEA WebLogic Server will not be able to do a smooth shutdown of the BEA WebLogic Server because the `username` and `password` will be unavailable. During the Sun Cluster HA for BEA WebLogic Server shutdown, the STOP method will kill the BEA WebLogic Server process using `sigkill`. If a smooth shutdown (using java `weblogic.Admin`) is desired, the `username` and `password` must be configured using the BEA WebLogic Server variables `WLS_USER` and `WLS_PW` in the START script and the extension property `Smooth_shutdown` must be set to `TRUE` when the resource is created.

  Note – To enable `smooth_shutdown` at resource creation or by updating the resource, the BEA WebLogic Server variables `WLS_USER` and `WLS_PW` must be configured with the `username` and `password` accordingly. Otherwise, the associated server will not start under Sun Cluster.

- Because the agent runs the server START script as root, all required environment variables must be set in the START script or set in a separate file and sourced by the START script before starting the server. For details, see

  `http://e-docs.bea.com/wls/docs70/adminguide/startstop.html#1086359`

- To enable the discovery of running Managed Servers after a failover and restart of an Administration Server, make sure the Administration server START script does not include `-Dweblogic.management.discover+=false`. This setting disables

the Administration Server from discovering its running Managed Servers. For details, see

```
http://e-docs.bea.com/wls/docs70/admin_domain/failures.html#1104811
```

- Make sure that the hostnames used in the `server_url` and `monitor_uri_list` are resolvable. If you use Fully Qualified Domain Names (FQDNs), then DNS must be enabled and `/etc/nsswitch.conf` must have the correct entries to resolve the hostnames using DNS.

Standard Data Service Configurations

Use the standard configurations in this section to plan the installation and configuration of Sun Cluster HA for BEA WebLogic Server. Sun Cluster HA for BEA WebLogic Server supports the standard configurations in this section.

In addition to the standard configurations provided in this section, the following BEA WebLogic Server configurations are possible.

- Separate START script for each BEA WebLogic Server (Administration and Managed).
- Single START script for all Managed Servers which takes the Managed Server name as the input.
- Setting the `username` and `password` in `boot.properties`.

  This configuration allows only forced shutdown by Sun Cluster HA for BEA WebLogic Server.

- Setting the `username` and `password` in the START script.

  This configuration allows smooth shutdown by Sun Cluster HA for BEA WebLogic Server.

Note – The BEA WebLogic Server is currently supported as a Failover data service.

Sun Cluster HA for BEA WebLogic Server might support additional configurations. However, you must contact your Sun service provider for information on additional configurations.

Simple Configuration

This simple configuration for Sun Cluster HA for BEA WebLogic Server uses two resource groups configured as follows.

- RG1 containing logical-host-1 and WLS-Admin-Server-resource
- RG2 containing logical-host-2 and WLS-Managed-Server-resource

RG1 and RG2 are failover resource groups

This configuration is possible only if the BEA WebLogic Server is installed on a Global File System. See Figure 1–1 for an illustration of this configuration.
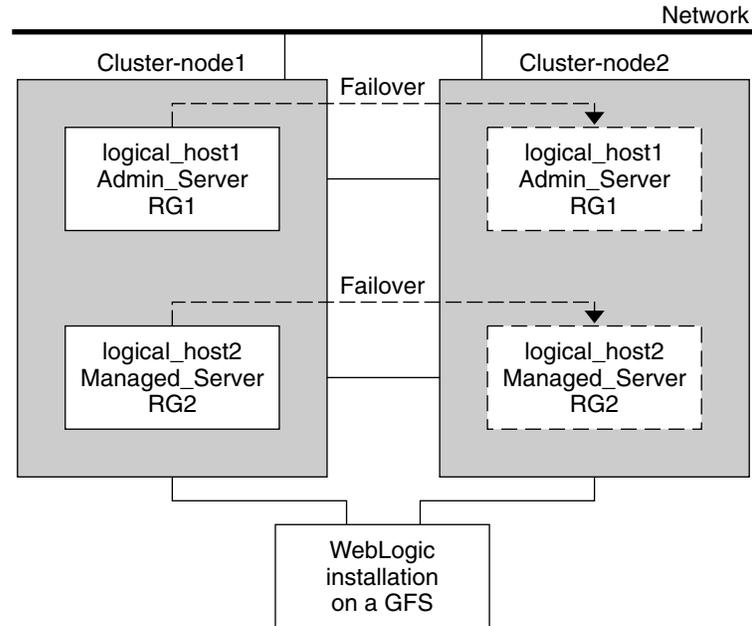
FIGURE 1–1 Sun Cluster HA for BEA WebLogic Server Simple Configuration

Configuration 1

In this configuration RG1, RG2, RG3, and RG4 are failover Resource Groups configured as follows.

- RG1 containing logical-host-1 and WLS-Admin-resource
- RG2 containing logical-host-2 and WLS-Managed-Server-resource2
- RG3 containing logical-host-3 and WLS-Managed-Server-resource3
- RG4 containing logical-host-4 and WLS-Managed-Server-resource4

This configuration is possible only if the BEA WebLogic Server is installed on a Global File System.

Configuration 2

In this configuration, RG1, RG2, and RG3 are failover Resource Groups configured as follows.

- RG1 containing logical-host-1, WLS-Admin-resource, and WLS-Managed-Server-resource1

- RG2 containing logical-host-2, WLS-Managed-Server-resource2, WLS-Managed-Server-resource3, and WLS-Managed-Server-resource4

- RG3 containing logical-host-3, WLS-Managed-Server-resource5, WLS-Managed-Server-resource6, WLS-Managed-Server-resource7

This configuration is possible only if the BEA WebLogic Server is installed on a Global File System.

Configuration 3

If the BEA WebLogic Server is installed on a Failover File system using HAStoragePlus, all the BEA WebLogic Server instances must be configured in the same Failover resource group which has a dependency on the Failover filesystem.

RG1 contains logical-host-resource resources and all Administration and Managed-Server resources.

For information on how to register a resource with dependency on an HAStoragePlus resource, see "Enabling Highly Available Local File Systems" in *Sun Cluster 3.1 Data Service Planning and Administration Guide*.

See Figure 1–2 for an illustration of this configuration.
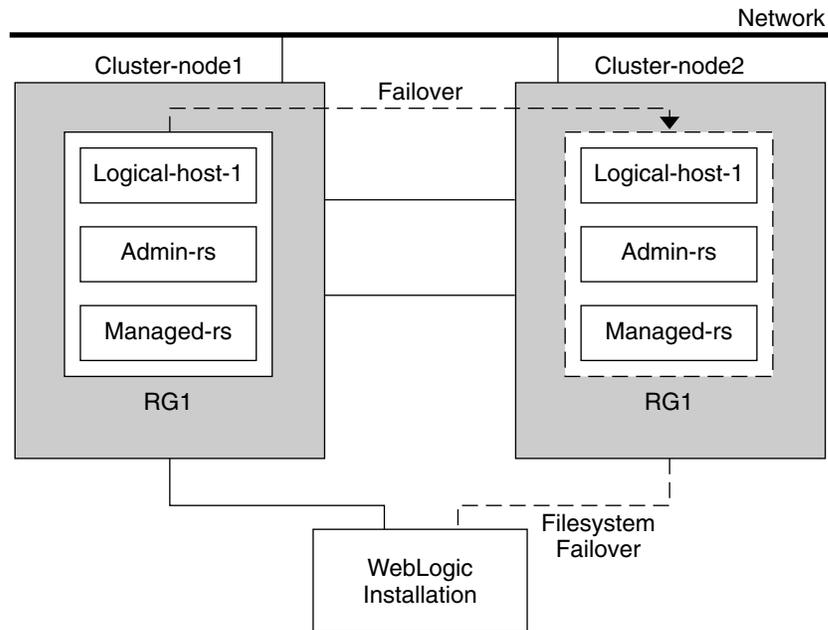
FIGURE 1–2 Sun Cluster HA for BEA WebLogic Server File System Failover Configuration

Preparing the Nodes and Disks

This section contains the procedures you need to prepare the nodes and disks.

Note – The following steps are based on the Simple Configuration described in "Simple Configuration" on page 16.

▼ How to Prepare the Nodes

Use this procedure to prepare for the installation and configuration of BEA WebLogic Server.

1. **Create a failover resource group to hold the logical hostname and the BEA Administration Server resources.**

   # **scrgadm -a -g** *RG1* **[-h nodelist]**

2. **Add the logical hostname resource.**

The *logical-host–1* is the hostname the BEA WebLogic Admin Server will be listening on. This can be set from the WebLogic console.

```
# scrgadm -a -L -g RG1 -l logical-host-1
```

3. **Bring the resource group online.**

```
# scswitch -Z -g RG1
```

4. **Create a failover resource to hold the logical hostname and the WebLogic Managed Server resources.**

   Note – Depending on the number of BEA WebLogic Servers and on the configuration planned, create the resource groups and the *logical_hostname* resources. (Refer to "Standard Data Service Configurations" on page 16.)

```
# scrgadm -a -g RG2 [-h nodelist]
```

5. **Add the logical hostname resource.**
   The *logical-host-2* is the hostname the BEA WebLogic Admin Sever will be listening on.

```
# scrgadm -a -L -g RG2 -l logical-host-2
```

6. **Bring the resource group online.**

```
# scswitch -Z -g RG2
```

Installing and Configuring the BEA WebLogic Server Application

This section contains the procedures you need to install and configure the BEA WebLogic Server application.

▼ How to Install BEA WebLogic Server

Note – This procedure is based on the configuration described in "Simple Configuration" on page 16. If you are planning a different configuration, you must configure the BEA WebLogic Server accordingly.

1. **Follow the BEA WebLogic Server documentation to install the BEA WebLogic Server on the global filesystem or a failover filesystem.**

2. **Follow the BEA WebLogic Server Administration Guide to configure the WebLogic Domain.**

   Note – Enter the logical hostname or its IP address when configuring the BEA WebLogic Servers.

3. **After completing all necessary configuration for the domain, shut down the Administration Server.**

4. **Edit the Administration Server START script and the Managed Server START script setting the `WLS_USER` and `WLS_PW`.**
   The START scripts should be able to run without any arguments.

   Note – The WLS_USER and WLS_PW are required by the agent to do a smooth shutdown of the BEA WebLogic Server. If this is a security issue, you can set these properties in the boot.properties file. However, the smooth shutdown will not be possible and the agent will do a force shutdown of the BEA WebLogic Server.

5. **In the Managed Server START script, set the `ADMIN_URL` and the `SERVER_NAME` variables.**
   This script should be able to run without any arguments.

6. **Set the necessary environment variables in the `setWLSEnv.sh` or the `startWLS.sh` scripts.**
   These environment variables include any additional CLASSPATH or LD_LIBRARY_PATH, etc. These scripts contain all necessary environmental variables such as CLASSPATH and LD_LIBRARY_PATH.

7. **Verify that the `config.xml` file is in the same directory as the START scripts.**

Installing a Database

If you are using a database with BEA WebLogic Server, install the database by using its installation documentation. If the database you are using has a highly available agent on Sun Cluster, install that version.

Installing a Web Server

If you are using a web server with BEA WebLogic Server, install the web server by using its installation documentation. If the web server you are using has a highly available agent on Sun Cluster, install that version.

Verifying the BEA WebLogic Server Installation and Configuration

This section contains the procedure you need to verify the BEA WebLogic Server installation and configuration.

▼ How to Verify the BEA WebLogic Server Installation and Configuration

Use this procedure to verify the BEA WebLogic Server Administration Server, BEA WebLogic Managed Server, and database installation and configuration. This procedure does not verify that your application is highly available because you have not installed the data service yet.

Note – The following steps are for the configuration described in "Simple Configuration" on page 16. If you are planning a different configuration, you must configure the BEA WebLogic Server accordingly.

---

1. **Verify that the** *logical_-host-1* **and** *logical-host-2* **configured in RG1 and RG2 are online on cluster***cluster-node1***.**

2. **If you are using a database, verify that the database is running.**

3. **Go to the directory containing the Administration Server and the Managed Server START scripts configured in the section "Installing and Configuring the BEA WebLogic Server Application" on page 20.**

4. **Start the Administration Server by running the Administration Server START script.**

   ```
   example:
   cluster-node1>cd /global/wls/user_projects/petstore
   cluster-node1>./startWebLogic.sh
   ```

5. **After the Administration Server starts successfully, start the Managed Server.**

   ```
   example:
   cluster-node1>cd /global/wls/user_projects/petstore
   cluster-node1>./startManagedWebLogic.sh
   ```

6. **Make sure that you can successfully connect to the** *logical-host-1* **and** *logical-host-2* **from a client.**

7. **Verify that the Administration Server and the Managed Servers are in the RUNNING mode on cluster-node1.**

8. **Shut down the Administration Server and the Managed Server.**

9. **Switch the Resource Groups RG1 and RG2 to cluster-node2.**

   This will bring down *logical-host-1* and *logical-host-2* on cluster-node1 and bring them up on cluster-node2.

   scswitch -z -g *RG1* **-h** *cluster-node2*
   scswitch -z -g *RG2* **-h** *cluster-node2*

10. **Repeat Step 4, Step 5, and Step 6 on cluster-node2.**

11. **Verify that the Administration Server and the Managed Servers are in the RUNNING mode on cluster-node2.**

12. **If the clients can successfully connect to the Administration Server and the Managed Server on each of the potential master nodes, you have successfully configured the BEA WebLogic Servers to work with the Sun Cluster HA for BEA WebLogic Server.**

13. **Stop the Administration Server and the Managed Servers and proceed to the next session to install the Sun Cluster HA for BEA WebLogic Server.**

Installing the Sun Cluster HA for BEA WebLogic Server Packages

This section contains the procedure you need to install the Sun Cluster HA for BEA WebLogic Server packages.

▼ How to Install the Sun Cluster HA for BEA WebLogic Server Packages

Use this procedure to install the Sun Cluster HA for BEA WebLogic Server packages. You need the Sun Cluster Agents CD-ROM to perform this procedure. This procedure assumes that you did not install the data service packages during your initial Sun Cluster installation.

1. **Load the Sun Cluster Agents CD-ROM into the CD-ROM drive.**

2. **Run the `scinstall` utility with no options.**

   This step starts the `scinstall` utility in interactive mode.

3. **Choose the menu option, Add Support for New Data Service to This Cluster Node.**

   The `scinstall` utility prompts you for additional information.

4. **Provide the path to the Sun Cluster Agents CD-ROM.**

   The utility refers to the CD-ROM as the "data services cd."

5. **Specify the data service to install.**

   The `scinstall` utility lists the data service that you selected and asks you to confirm your choice.

   Note – The `scinstall` utility might display an error message saying that this data service is not supported. Ignore this message and proceed to the next step.

   ---

6. **Exit the `scinstall` utility.**

7. **Unload the CD-ROM from the drive.**

Registering and Configuring the Sun Cluster HA for BEA WebLogic Server

This section contains the procedures you need to configure Sun Cluster HA for BEA WebLogic Server.

Sun Cluster HA for BEA WebLogic Server Extension Properties

Use the extension properties in "Extension Properties" on page 30 to create your resources. Use the command scrgadm -x parameter-value to configure extension properties when you create your resource. Use the procedure in "Administering Data Service Resources" in *Sun Cluster 3.1 Data Service Planning and Administration Guide* to configure the extension properties if you have already created your resources. You can update some extension properties dynamically. You can update others, however, only when you create or disable a resource. The Tunable entries indicate when you can update each property. See Appendix A for details on all Sun Cluster properties.

▼ How to Register and Configure Sun Cluster HA for BEA WebLogic Server as a Failover Data Service

Use this procedure to configure Sun Cluster HA for BEA WebLogic Server as a failover data service. The following steps assume that you are using the configuration described in "Simple Configuration" on page 16 and have configured the BEA WebLogic Serves as mentioned in "Installing and Configuring the BEA WebLogic Server Application" on page 20. These steps assume that you have already created resource groups RG1 and RG2 and have also created *logical-host-1* and *logical-host-2* resources in these resource groups. Refer to "How to Prepare the Nodes" on page 19 for procedures to create logical hostname resources. If you are planning a different configuration, you must configure the BEA WebLogic Server resources accordingly.

Note – Before you start Sun Cluster HA for BEA WebLogic Server, if you are using a database, check that your database is accessible.

---

1. **Add the BEA WebLogic Server resource type.**

   ```
   # scrgadm -a -t SUNW.wls
   ```

2. **Create a BEA WebLogic Admin Server resource in the RG1 resource group.**

   ```
   # scrgadm -a -j admin-rs -t SUNW.wls -g RG1\
   -x Confdir_list=/global/bea/beahome/weblogic700\
   -x Server_url=http://logical-host-1:7001\
   -x Start_script=/global/bea/beahome/user_projects\
   /petstore/startWebLogic.sh
   ```

> **Note –** This configuration does not enable smooth shutdown. The Sun Cluster HA for BEA WebLogic Server stop method will force shutdown the BEA WebLogic Administration Server (kill the process). Refer to "Creating a Resource Which Will Shutdown Smoothly" on page 29 for the configuration to enable smooth shutdown. For more information, see "STOP Method" on page 34.

3. **Create a BEA WebLogic Managed Server resource in the RG2 resource group.**

```
# scrgadm -a -j managed-rs -t SUNW.wls -g RG2 \
-x Confdir_list=/global/bea/beahome/weblogic700\
-x Server_url=http://logical-host-2:7004\
-x Start_script=/global/bea/beahome/user_projects\
/petstore/startManagedWebLogic.sh
```

Verifying the Sun Cluster HA for BEA WebLogic Server Installation and Configuration

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

▼ How to Verify the Sun Cluster HA for BEA WebLogic Server Installation and Configuration

Use this procedure to verify that you installed and configured Sun Cluster HA for BEA WebLogic Server correctly.

1. **Bring the BEA WebLogic Server resource groups online on the cluster.**

```
# scswitch -z -g RG1 -h cluster-node1
# scswitch -z -g RG2 -h cluster-node1
```

The BEA WebLogic Administration and Managed Servers must be online on cluster-node1.

2. **Make sure that you can successfully connect to the BEA WebLogic servers from a client and that both the Administration Server and the Managed Server are in the RUNNING mode.**

3. **Switch the resource groups to cluster-node2.**

```
# scswitch -z -g RG1 -h cluster-node2
# scswitch -z -g RG2 -h cluster-node2
```

The BEA WebLogic Administration and Managed Servers must go offline on cluster-node1 and go online on cluster-node2. Make sure the BEA WebLogic Server processes on cluster-node1 are stopped. Because smooth shutdown is not enabled, the BEA WebLogic Server process will be killed by the Sun Cluster HA for BEA WebLogic Server STOP method instead of being shutdown smoothly. Refer to "Creating a Resource Which Will Shutdown Smoothly" on page 29 for the configuration enabling smooth shutdown. For more information, see "STOP Method" on page 34 for configuration enabling smooth shutdown.

4. **Make sure that you can successfully connect to the BEA WebLogic servers from the client and that both the Administration Server and the Managed Server are in the RUNNING mode.**

Note – The client sessions may be lost when the BEA WebLogic Servers go offline on cluster-node1 and come online on cluster-node2.

---

5. **On cluster-node2, kill the Administration Server process.**

   The Fault Monitor must detect this and restart the Administration Server.

6. **Kill the Administration Server process repeatedly.**

   The Administration Server Resource group will failover after the number of retries exceeds the retry count within the retry interval.

7. **On cluster-node2, kill the Managed Server process.**

   The Fault Monitor must detect this and restart the Managed Server.

8. **Kill the Managed Server process repeatedly.**

   The Managed Server Resource group will failover after the number of retries exceeds the retry count within the retry interval.

   If the previous steps are successful, you have correctly configured Sun Cluster HA for BEA WebLogic Server.

Note – Once the BEA WebLogic Administration and Managed servers are in production under Sun Cluster control, do not start or stop the servers manually or through the Administration Console. If you need to perform maintenance on the servers, you must first disable their associated resources.

Alternate Sun Cluster HA for BEA WebLogic Server Configurations

The installation, registration, and configuration procedures in this chapter assume that you are installing a Simple Configuration as described in "Simple Configuration" on page 16. This section provides examples of other possible Sun Cluster HA for BEA WebLogic Server configurations.

Creating a Simple BEA WebLogic Server Resource

This configuration assumes that the START script, `startWebLogic.sh`, can start the BEA WebLogic Server without any arguments to the script. The `username` and `password` needed to start the BEA WebLogic Server can be configured within this START script or in the `boot.properties` file.

```
# scrgadm -a -j bea-rs -t SUNW.wls- -g bea-rg\
-x Confdir_list=/global/bea/beahome/weblogic700\
-x Server_url=http://logical_host1:7001\
-x Start_script=/global/bea/beahome/user_projects\
/petstore/startWebLogic.sh
```

Creating a Resource with a Server Name Argument

If the BEA WebLogic Server START script `startManagedWebLogic.sh` uses a Managed Server name as an argument, then the extension property `Server_name` can be set. The START script `startManagedWebLogic.sh` can be used to start several Managed Servers. The `ADMIN_URL` must be configured within the START script. To start the BEA WebLogic Server manually, use the following commands.

```
cluster-node-1> cd /global/wls/user_projects/petstore
cluster-node-1> ./startManagedWebLogic.sh petstore1
```

To configure a Sun Cluster HA for BEA WebLogic Server resource whose start script takes the server name `petstore1`, use the following commands.

```
# scrgadm -a -j bea-rs -t SUNW.wls -g bea-rg\
-x Confdir_list=/global/bea/beahome/weblogic700\
-x Server_url\http://logical_host1:7001\
-x Start_script=/global/bea/beahome/user_projects\
/petstore/startWebLogic.sh\
-x Server_name=petstore1
```

To configure another Sun Cluster HA for BEA WebLogic Server resource which uses the same START script for a different server, `petstore2`, use the following commands.

```
# scrgadm -a -j bea-rs -t SUNW.wls -g bea-rg\
-x Confdir_list=/global/bea/beahome/weblogic700\
-x Server_url\http://logical_host1:7001\
-x Start_script=/global/bea/beahome/user_projects\
/petstore/startWebLogic.sh\
-x Server_name=petstore2
```

Creating a Resource Which Will Shutdown Smoothly

The default for the Sun Cluster HA for BEA WebLogic Server STOP method kills the BEA WebLogic Server process to shutdown the instance. If this is not desirable, set the Smooth_shutdown extension property to TRUE to enable smooth shutdown of the BEA WebLogic Server. If this extension property is enabled, the WLS_USER and WLS_PW must be set in the START script. If this is a security concern, then you must let Sun Cluster HA for BEA WebLogic Server perform the default force shutdown (kill the process).

To configure a resource which will shutdown smoothly, use the following commands.

```
# scrgadm -a -j bea-rs -t SUNW.wls -g bea-rg\
-x Confdir_list=/global/bea/beahome/weblogic700\
-x Server_url\http://logical_host1:7001\
-x Start_script=/global/bea/beahome/user_projects\
/petstore/startWebLogic.sh\
-x Server_name=petstore1\
-x Smooth_shutdown=TRUE
```

Creating a Resource Which Will Probe the Database

Sun Cluster HA for BEA WebLogic Server does not probe the database health. If the database is down when Sun Cluster HA for BEA WebLogic Server starts up, the data service will fail to start. If you want Sun Cluster HA for BEA WebLogic Server to probe the database, then your own database probe script can be supplied to Sun Cluster HA for BEA WebLogic Server as an extension property. This database probe must return 0 for success and non-zero for failure.

To configure a resource with the DB_probe script extension property set, use the following commands.

```
# scrgadm -a -j bea-rs -t SUNW.wls -g bea-rg\
-x Confdir_list=/global/bea/beahome/weblogic700\
-x Server_url\http://logical_host1:7001\
-x Start_script=/global/bea/beahome/user_projects\
/petstore/startWebLogic.sh\
```

```
-x Server_name=petstore1\
-x Smooth_shtudown=TRUE\
-x DB_probe_script=/global/bea/script/db_probe_script
```

Creating a Resource That Monitor URIs

To enable the Sun Cluster HA for BEA WebLogic Server resource to monitor URIs that are served by the BEA WebLogic Server configured in the resource, use the following commands to set the extension property `Monitor_uri_list`.

```
# scrgadm -a -j bea-rs -t SUNW.wls -g bea-rg\
-x Confdir_list=/global/bea/beahome/weblogic700\
-x Server_url\http://logical_host1:7001\
-x Start_script=/global/bea/beahome/user_projects\
/petstore/startWebLogic.sh\
-x Server_name=petstore1\
Smooth_shutdown=TRUE\
DB_probe_script=/global/bea/script/db_probe_script\
-x Monitor_uri_list=http://logical_host1:7001/petstore,\
http://logical_host1:7001/bookstore
```

Understanding Sun Cluster HA for BEA WebLogic Server Fault Monitor

Use the information in this section to understand Sun Cluster HA for BEA WebLogic Server Fault Monitors.

Extension Properties

Sun Cluster HA for BEA WebLogic Server uses the following extension properties. You might be able to tune these extension properties. See "Sun Cluster HA for BEA WebLogic Server Extension Properties" on page 25 for more information on how to review or set extension properties.

TABLE 1–3 Sun Cluster HA for BEA WebLogic Server Extension Properties

Name/Data Type	Description
Confdir_list (stringarray)	The complete path to the BEA WebLogic Server home directory, `$WL_HOME`, is set in this extension property.
	Note – If `setWLSEnv.sh` and `startWLS.sh` are not in the standard `$confdir_list/server/bin` location, then you must create links to these files from `$confdir_list/server/bin` directory. If you do not create this link, the BEA WebLogic Server resource creation will fail.
	Default: None
	Tunable: At creation
Start_Script (string)	The complete path to the script that should be used to start the BEA WebLogic Server instance (either Administration or Managed). This script is typically present under the domain name directory along with the `config.xml` file. A separate script or a single script can be configured for starting each BEA WebLogic Server. For more information, see "Configuration Requirements" on page 14 to
	Default: None
	Tunable: At creation
Server_Url (string)	The complete URL of the BEA WebLogic Server, including the protocol used to connect to the server, that this resource is configured to start. The probe method uses this URL to check the health of the server by performing an `HTTP GET` on the URL. The protocol in the URL must be set to http. The complete URL should be in the following form.
	`http://host:port`
	For more information about the `Server_Url`, see the WebLogic documentation at the following website.
	`http://e-docs.bea/com/wls/docs70/adminguide /startstop.html#1161188`
	Make sure that the hostnames used in the `server_url` and `monitor_uri_list` are resolvable. If you use Fully Qualified Domain Names (FQDNs), then DNS must be enabled and `/etc/nsswitch.conf` must have the correct entries to resolve the hostnames using DNS.
	Default: None
	Tunable: At creation

TABLE 1–3 Sun Cluster HA for BEA WebLogic Server Extension Properties   *(Continued)*

Name/Data Type	Description
Monitor_Uri_List (string)	Single URI or list of URIs, separated by a comma, which can be used by the fault monitor to test the functionality of the BEA WebLogic Server by doing an `HTTP GET` on the URI. The `Server_Url` extension property is for simple probes on the hostname and port. This extension property can be used to probe the WLS functionality by retrieving a Java servlet or making the WLS run an application and return an HTTP server code. If the HTTP server return code is 500 (Internal Server Error) or if the connect fails, the probe will take action. See the probe method for more details.
	Make sure that the hostnames used in the `server_url` and `monitor_uri_list` are resolvable. If you use Fully Qualified Domain Names (FQDNs), then DNS must be enabled and `/etc/nsswitch.conf` must have the correct entries to resolve the hostnames using DNS.
	Default: Null
	Tunable: Any time.
Server_name (string)	A single start script can be used to start all the Managed Servers by passing the Managed Server name as an argument to the startup script. If Agent start methods have to pass the server name as an argument to the start script then, configure the Managed Server name in this extension property.
	Default: Null
	Tunable: Any time.
DB_Probe_Script (string)	This extension property can be used to set the complete path to a Database probe script. The HA-WLS probe method probes only the `WLS` instances. The database probe script can be provided using this extension property if the Administrators want the `HA_WLS` to probe the DB also. This probe script must return 0 for success. The BEA WebLogic Servers will be started only if this Database probe returns success. If an `HA-WLS` probe detects a failure in a WLS instance and if this extension property is set, the `HA-WLS` probe will take action only if the Database probe succeeds. Refer to "Probing Algorithm and Functionality" on page 33 for more details.
	Default: Null
	Tunable: Any time.

TABLE 1–3 Sun Cluster HA for BEA WebLogic Server Extension Properties   *(Continued)*

Name/Data Type	Description
Smooth_shutdown	This is an extension property to enable smooth shutdown using `WebLogic.Admin` class. This extension property must be set to TRUE if a smooth shutdown is desired before trying to kill the WLS process. If this extension property is TRUE, then the `WLS_USER` and `WLS_PW` must be set in the `start_script` and not in `boot.properties`. Set this extension property to TRUE if all of the following apply. ■ Setting the `username` and `password` in the `start_script` is not a concern ■ A smooth shutdown is desirable instead of the default, killing the process ■ It is not a concern if the agent stop method reads the username and password from the start script and passes it to the `java weblogic.Admin` command **Default:** False **Tunable:** Any time.

Probing Algorithm and Functionality

The Fault Monitor detects failures and takes action. If the monitor detects a failure in a BEA WebLogic Server, it first restarts the BEA WebLogic Server. If the BEA WebLogic Server fails a certain number of times (configurable by the administrator) within a certain time window (configurable by the administrator), the resource group containing the BEA WebLogic Server will be failed over to another surviving cluster node and restarted.

The Fault Monitor method, by default, probes the server URL set in the extension property `Server_url`. The probe connects to the hostname and the port and then does an HTTP GET request on the URL. If the connect fails, it is considered a complete failure and the resource group containing the BEA WebLogic Server is restarted or failed over to another surviving cluster node and restarted. If the connect succeeds, but the http response code is 500 (internal server error), it is also considered a complete failure and the resource group is restarted or failed over. All other http response codes are considered a success.

If the `monitor_uri_list` extension property is set, the probe method connects to the URIs mentioned in the list and takes action if there is a failure. The probe performs an HTTP GET on the specified URI or URIs.

If a complete failure (URL or URI probe) of the BEA WebLogic Server instance is detected by the probe, and if a database probe script is specified in the extension property `db_probe_script`, the probe method will probe the database before taking any action on the BEA WebLogic Server resource. If the database probe script returns

success (database is up), action is taken on the BEA WebLogic Server resource. If the database probe script returns a failure (database is down), the BEA WebLogic Server probe will not take any action (restart or failover) until the database is up.

START Method

Before starting the BEA WebLogic Server configured in the resource, the BEA WebLogic Server configuration and the resource extension properties are validated. If the `db_probe_script` extension property is set, the database is probed by invoking the script set in the extension property. If the database is up, the BEA WebLogic Server is started by invoking the START script configured in the extension property `Start_script` under `pmf`. If the database is not up, the START method will return success and let the probe method handle the starting of the BEA WebLogic Server. The probe method will wait until the database is up to start the BEA WebLogic Server, as explained in "Probing Algorithm and Functionality" on page 33.

After launching the START script under `pmf`, the START method waits until the BEA WebLogic Server is in RUNNING mode before declaring the START method as successful. While waiting for the BEA WebLogic Server to start up, the probe method tries to connect to the server to check if it is up. There will be some messages displayed on the console during start up. The message "Failed to connect to host logical-host-1 and port 7001: Connection refused" will continue to be displayed until the BEA WebLogic Server starts up completely. Once the BEA WebLogic Server is in the RUNNING mode, the START method sets the status to "Started Successfully".

STOP Method

The STOP method stops the BEA WebLogic Server configured in the resource. By default, the STOP method kills the BEA WebLogic Server by sending a `SIGKILL` to the BEA WebLogic process. If the `smooth_shutdown` extension property is set to TRUE, the STOP method tries to bring down the BEA WebLogic instance by running the command

```
java weblogic.Admin -url hostname:port -username $WLS_USER
-password $WLS_PW SHUTDOWN
```

If this command fails, the BEA WebLogic Server is shut down by using `SIGKILL`. Even if the command succeeds, the STOP method sends `SIGKILL` to make sure the BEA WebLogic process is stopped.

If the `smooth_shutdown` extension property is set to TRUE, make sure the `WLS_USER` and `WLS_PW` are set in the BEA WebLogic Server START script. Once the `Smooth_shutdown` is set to TRUE, the `WLS_USER` and `WLS_PW` must not be removed from the START script unless the extension property is set to FALSE again.

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