



Sun Cluster Data Service for Oracle E-Business Suite Guide for Solaris OS



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Preface

Sun Cluster Data Service for Oracle E-Business Suite Guide for Solaris OS explains how to install and configure Sun™ Cluster HA for Oracle E-Business Suite.

Note – This Sun 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 Sun software and hardware. Do not use this document as a planning or pre-sales 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 Solaris™ Operating System (Solaris OS) and expertise with the volume-manager software that is used with Sun Cluster software.

Using UNIX Commands

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

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

Typographic Conventions

The following table describes the typographic 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 <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name%</code> you have mail.
AaBbCc123	What you type, contrasted with onscreen computer output	<code>machine_name%</code> su Password:
<i>aabcc123</i>	Placeholder: replace with a real name or value	The command to remove a file is <i>rm filename</i> .
<i>AaBbCc123</i>	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . <i>A cache</i> is a copy that is stored locally. Do <i>not</i> 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 the C shell, Bourne shell, and Korn shell.

TABLE P-2 Shell Prompts

Shell	Prompt
C shell	<code>machine_name%</code>
C shell for superuser	<code>machine_name#</code>
Bourne shell and Korn shell	<code>\$</code>
Bourne shell and Korn shell for superuser	<code>#</code>

Related Documentation

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

Topic	Documentation
Data service administration	<i>Sun Cluster Data Services Planning and Administration Guide for Solaris OS</i> Individual data service guides
Concepts	<i>Sun Cluster Concepts Guide for Solaris OS</i>
Overview	<i>Sun Cluster Overview for Solaris OS</i>
Software installation	<i>Sun Cluster Software Installation Guide for Solaris OS</i>
System administration	<i>Sun Cluster System Administration Guide for Solaris OS</i>
Hardware administration	<i>Sun Cluster 3.1 - 3.2 Hardware Administration Manual for Solaris OS</i> Individual hardware administration guides
Data service development	<i>Sun Cluster Data Services Developer's Guide for Solaris OS</i>
Error messages	<i>Sun Cluster Error Messages Guide for Solaris OS</i>
Command and function reference	<i>Sun Cluster Reference Manual for Solaris OS</i>

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

Related Third-Party Web Site References

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

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Documentation, Support, and Training

The Sun web site provides information about the following additional resources:

- [Documentation](http://www.sun.com/documentation/) (<http://www.sun.com/documentation/>)
- [Support](http://www.sun.com/support/) (<http://www.sun.com/support/>)
- [Training](http://www.sun.com/training/) (<http://www.sun.com/training/>)

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. To share your comments, go to <http://docs.sun.com> and click Feedback.

Getting Help

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

- Your name and email address (if available)
- Your company name, address, and phone number
- The model number and serial number of your systems
- The release number of the Solaris Operating System (for example, Solaris 10)
- The release number of Sun Cluster (for example, Sun Cluster 3.2)

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

Command	Function
<code>prtconf -v</code>	Displays the size of the system memory and reports information about peripheral devices
<code>psrinfo -v</code>	Displays information about processors
<code>showrev -p</code>	Reports which patches are installed
<code>prtdiag -v</code>	Displays system diagnostic information
<code>/usr/cluster/bin/clnode show-rev</code>	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 Oracle E-Business Suite

This chapter explains how to install and configure Sun Cluster HA for Oracle E-Business Suite.

This chapter contains the following sections.

- “Sun Cluster HA for Oracle E-Business Suite Overview” on page 9
- “Overview of Installing and Configuring Sun Cluster HA for Oracle E-Business Suite” on page 11
- “Planning the Sun Cluster HA for Oracle E-Business Suite Installation and Configuration” on page 11
- “Installing and Configuring Oracle E-Business Suite” on page 14
- “Verifying the Installation and Configuration of Oracle E-Business Suite” on page 21
- “Installing the Sun Cluster HA for Oracle E-Business Suite Packages” on page 29
- “Registering and Configuring Sun Cluster HA for Oracle E-Business Suite” on page 31
- “Verifying the Sun Cluster HA for Oracle E-Business Suite Installation and Configuration” on page 39
- “Upgrading Sun Cluster HA for Oracle E-Business Suite” on page 39
- “Understanding the Sun Cluster HA for Oracle E-Business Suite Fault Monitor” on page 41
- “Debugging Sun Cluster HA for Oracle E-Business Suite” on page 42

Sun Cluster HA for Oracle E-Business Suite Overview

Note – Throughout this document a non-global zone may be referred to as a zone. A global zone will always be referred to as a global zone.

The Sun Cluster HA for Oracle E-Business Suite data service provides a mechanism for the orderly startup and shutdown, fault monitoring, and automatic failover of the Oracle E-Business Suite.

Oracle E-Business Suite is a complete set of business applications that enables you to efficiently manage business processes by using a unified open architecture. This architecture is a framework for multi tiered, distributed computing that supports Oracle products. The tiers that compose Oracle E-Business Suite are the database tier, applications tier, and desktop tier. These tiers can be distributed as a logical grouping and can be grouped on one or more nodes.

TABLE 1 Oracle E-Business Suite Architecture

Desktop Tier	Application Tier	Database Tier
	Web Server	
	Forms Server	
Web Browser	Concurrent Server	Database Server
	Reports Server	
	Admin Server	
	Discoverer Server	

The distributed nature of Oracle E-Business Suite requires more than one cluster data service if all application and database tiers are to be managed by the cluster.

The following tables list the Oracle E-Business Suite components and the corresponding cluster data service that provides high availability to that component.

TABLE 2 Protection of Components

Component	Protected by
Database Server	Sun Cluster HA for Oracle (Database and Listener)
Web Server	Sun Cluster HA for Apache
Forms Server	Sun Cluster HA for Oracle E-Business Suite
Concurrent Manager Server	Sun Cluster HA for Oracle E-Business Suite
Concurrent Manager Listener	Sun Cluster HA for Oracle (Listener)
Reports Server	Sun Cluster HA for Oracle E-Business Suite

The Admin Server and Discoverer Server are not normally run within Sun Cluster and therefore are not protected by Sun Cluster HA for Oracle E-Business Suite.

Overview of Installing and Configuring Sun Cluster HA for Oracle E-Business Suite

The following table summarizes the tasks for installing and configuring Sun Cluster HA for Oracle E-Business Suite and provides cross-references to detailed instructions for performing these tasks. Perform the tasks in the order that they are listed in the table.

TABLE 3 Tasks for Installing and Configuring Sun Cluster HA for Oracle E-Business Suite

Task	Instructions
Plan the installation	“Planning the Sun Cluster HA for Oracle E-Business Suite Installation and Configuration” on page 11
Install and configure the Oracle E-Business Suite software	“How to Install and Configure Oracle E-Business Suite” on page 14
Verify the installation and configuration	“How to Verify the Installation and Configuration of Oracle E-Business Suite” on page 21
Install Sun Cluster HA for Oracle E-Business Suite packages	“How to Install the Sun Cluster HA for Oracle E-Business Suite Packages” on page 29
Register and configure Sun Cluster HA for Oracle E-Business Suite resources	“How to Register and Configure Sun Cluster HA for Oracle E-Business Suite” on page 31
Verify the Sun Cluster HA for Oracle E-Business Suite installation and configuration	“How to Verify the Sun Cluster HA for Oracle E-Business Suite Installation and Configuration” on page 39
Upgrade the Sun Cluster HA for Oracle E-Business Suite data service	“How to Upgrade to the New Version of Sun Cluster HA for Oracle E-Business Suite” on page 39
Tune the Sun Cluster HA for Oracle E-Business Suite fault monitor	“Understanding the Sun Cluster HA for Oracle E-Business Suite Fault Monitor” on page 41
Debug Sun Cluster HA for Oracle E-Business Suite	“How to Turn on Debugging for Sun Cluster HA for Oracle E-Business Suite” on page 42

Planning the Sun Cluster HA for Oracle E-Business Suite Installation and Configuration

This section contains the information you need to plan your Sun Cluster HA for Oracle E-Business Suite installation and configuration.

Configuration Restrictions

The configuration restrictions in the subsections that follow apply only to Sun Cluster HA for Oracle E-Business Suite.



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

Restriction for the supported configurations of Sun Cluster HA for Oracle E-Business Suite

The Sun Cluster HA for Oracle E-Business Suite data service can only be configured as a failover service.

Oracle E-Business Suite can be deployed in the global zone or non-global zone.

Oracle E-Business Suite is installed using `rapidwiz` onto a single-node, two-node or multi-node installation.

In a single-node installation, you install the Database, Web, Forms, Concurrent Manager, and Reports Server onto a single node.

In a two-node installation, one node contains the Database, Concurrent Manager and Reports server; and the other node contains the Forms and Web Server.

In a multi-node installation, you can specify any combination of up to five nodes to install the Database, Web, Forms, Concurrent Manager, and Reports Server.

- **Database Server**, using `rapidwiz`, install the Database Server as a single database instance. The Database Server must be managed by Sun Cluster HA for Oracle as a failover service in the cluster.
- **Web Server**, using `rapidwiz`, install the Web Server (Apache) onto a node. If this will run in the cluster, then the Web Server is managed by Sun Cluster HA for Apache and can be deployed as either a failover or scalable service in the cluster.
- **Forms, Concurrent Manager and Reports Server**, depending on how you install using `rapidwiz`, you can install the Forms, Concurrent Manager and Reports Server onto the same node or onto different nodes. All of these components are managed by Sun Cluster HA for Oracle E-Business Suite as a failover service in the cluster.

Restriction for the location of Oracle E-Business Suite files

The Oracle E-Business Suite files are the data files that are created when you install Oracle E-Business Suite using the `rapidwiz` installer.

The Oracle E-Business Suite files must be placed on shared storage as either a cluster file system or a highly available local file system. The following tables show the mount points and acceptable file system types.

Mount Point	Filesystem Type
<dbname>DATA	Cluster file system or highly available file system.
<dbname>DB	Local, cluster file system or highly available file system.
<dbname>ORA	Local, cluster file system or highly available file system.

Mount Point	Filesystem type
<dbname>COMN_TOP	Cluster file system or highly available file system.
<dbname>APPL_TOP	Cluster file system or highly available file system.
<dbname>APPLCSF	Cluster file system or highly available file system.

Configuration Requirements

The configuration requirements in this section apply only to Sun Cluster HA for Oracle E-Business Suite.



Caution – If your data service configuration does not conform to these requirements, the data service configuration might not be supported.

Determine which Solaris zone Oracle E-Business Suite will use

Solaris zones provides a means of creating virtualized operating system environments within an instance of the Solaris 10 OS. Solaris zones allow one or more applications to run in isolation from other activity on your system. For complete information about installing and configuring a Solaris Container, refer to *System Administration Guide: Solaris Containers-Resource Management and Solaris Zones*.

You must determine which Solaris zone Oracle E-Business Suite will use. Oracle E-Business Suite can run within a global zone or non-global zone configuration.

Installing and Configuring Oracle E-Business Suite

This section contains the procedures you need to install and configure Oracle E-Business Suite.

▼ How to Install and Configure Oracle E-Business Suite

This section contains the procedures you need to install and configure Oracle E-Business Suite.

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

- 2 Determine which Solaris zone to use.**

Refer to “Determine which Solaris zone Oracle E-Business Suite will use” on page 13 for more information.

- 3 If a zone will be used, create the zone.**

Refer to *System Administration Guide: Solaris Containers-Resource Management and Solaris Zones* for complete information about installing and configuring a zone.

- 4 If a zone is being used, ensure the zone is booted.**

Repeat this step on all nodes of the cluster if a zone is being used.

Boot the zone if it is not running.

```
# zoneadm list -v
# zoneadm -z zonename boot
```

- 5 Create a cluster file system or highly available local file system for the Oracle E-Business Suite files.**

Refer to *Sun Cluster Software Installation Guide for Solaris OS* for information about creating a cluster file system and to *Sun Cluster Data Services Planning and Administration Guide for Solaris OS* for information about creating a highly available local file system.

- 6 Mount the highly available local file system.**

Perform this step from the global zone on one node of the cluster.

- **If a non-ZFS highly available local file system is being used for Oracle E-Business Suite, perform one of the following steps.**

Note – Ensure that the node has ownership of the disk set or disk group.

For Solaris Volume Manager, type:

```
# metaset -s disk-set -t
```

For Veritas Volume Manager, type:

```
# vxdg -C import disk-group
# vxdg -g disk-group startall
```

- **If the global zone is being used for Oracle E-Business Suite, type:**

```
# mount highly-available-local-filesystem
```

- **If a zone is being used for Oracle E-Business Suite, create the mount point on all zones of the cluster that are being used for Oracle E-Business Suite.**

```
# zlogin zonename mkdir highly-available-local-filesystem
```

Mount the highly available local file system on one of the zones being used.

```
# mount -F lofs highly-available-local-filesystem \
> /zonepath/root/highly-available-local-filesystem
```

- **If a ZFS highly available local file system is being used for Oracle E-Business Suite, perform one of the following steps.**

- **If the global zone is being used for Oracle E-Business Suite, type:**

```
# zpool import -R / HAZpool
```

- **If a zone is being used for Oracle E-Business Suite, type:**

```
# zpool export -f HAZpool
# zpool import -R /zonepath/root HAZpool
```

7 Plumb the Oracle E-Business Suite logical hostname.

Perform this step in the global zone on one node of the cluster for each logical hostname being used by Oracle E-Business Suite.

- **If the global zone is being used for Oracle E-Business Suite, type:**

```
# ifconfig interface addif logical-hostname up
```

- **If a zone is being used for Oracle E-Business Suite, type:**

```
# ifconfig interface addif logical-hostname up zone zonename
```

8 Enable logical host interpositioning.

Perform this step on all cluster nodes where Oracle E-Business Suite will run.

To provide logical host interpositioning for Oracle E-Business Suite you must create a symbolic link from

```
/usr/lib/secure/libschost.so.1 to /usr/cluster/lib/libschost.so.1
```

On all cluster nodes where Oracle E-Business Suite will run.

```
# cd /usr/lib/secure
# ln -s /usr/cluster/lib/libschost.so.1 libschost.so.1
```

9 Install the Oracle E-Business Suite software.

Perform this step in the global zone or zone on one node of the cluster.

a. As root user, execute `rapidwiz`.

When running `rapidwiz` you must enter the logical hostname as the node name for the Database, Administration, Concurrent Manager, Forms and Web Server. If you are performing a two node or multi node installation you must specify the appropriate logical hostname as the appropriate node for the Database, Administration, Concurrent Manager, Forms and Web Server.

When executing `rapidwiz` save the `config.txt` file in a permanent location, for example, `/var/tmp/config.txt`. If you are installing Oracle E-Business Suite version 12 or later, save the `/var/tmp/conf_SID.txt` file before clicking OK on `rapidwiz` message No install actions found.

```
# cd oracle-ebusiness-suite-install-directory
# ./rapidwiz
```

b. As root user, execute `rapidwiz` for each logical hostname.

Execute `rapidwiz` for each logical hostname that you entered when generating the `/var/tmp/config.txt` file or `/var/tmp/conf_SID` file.

```
# cd oracle-ebusiness-suite-install-directory
# ./rapidwiz -servername logical-hostname
```


- 10 (Optional) Resolving validation error** JSP is not responding, waiting 15 seconds and retesting.

If after installing the Web Server, you encounter the validation error JSP is not responding, waiting 15 seconds and retesting, leave the rapidwiz GUI and follow [Step a](#) through [Step e](#) to resolve the validation error. Then you must return to the rapidwiz GUI to retry the validation.

a. Edit the `httpd_pls.conf` file.

Edit the `httpd_pls.conf` file and add the following entries for *each* physical cluster node within the `VirtualHost _default_ :*` section.

```
Allow from cluster-node
Allow from cluster-node.fqdn
```

```
# su - oraapp-user
$ cd base-directory/sidora/iAS/Apache/Apache/conf
$ vi httpd_pls.conf
$ exit
```

The following example shows the logical hostname `lhost1` and the cluster nodes `clnode1` and `clnode2` that have been added.

```
<VirtualHost _default_ :*>
  <Location />
    Order deny,allow
    Deny from all
    Allow from localhost
    Allow from lhost1
    Allow from lhost1.example.com
    Allow from clnode1
    Allow from clnode1.example.com
    Allow from clnode2
    Allow from clnode2.example.com
  </Location>
</VirtualHost>
```

b. Edit the `oprocmgr.conf` file.

Edit the `oprocmgr.conf` file and add the following entries for *each* physical cluster node within the `VirtualHost _default_ :8100` section.

```
Allow from cluster-node
Allow from cluster-node.fqdn
```

```
# su - oraapp-user
$ cd base-directory/sidora/iAS/Apache/Apache/conf
$ vi oprocmgr.conf
$ exit
```

The following example shows logical hostname `lhost1` and the cluster nodes `clnode1` and `clnode2` that have been added.

```
<IfModule mod_oprocmgr.c>
  Listen 8000
  ProcNode lhost1.example.com 8100

  <VirtualHost _default_:8100>
<IfDefine SSL>
  SSLEngine off
</IfDefine>
  Port 8100
  <Location />
    Order Deny,Allow
    Deny from all
    Allow from localhost
    Allow from lhost1
    Allow from lhost1.example.com
    Allow from clnode1
    Allow from clnode1.example.com
    Allow from clnode2
    Allow from clnode2.example.com
  </Location>/base-directory/sidappl/admin/SID_lhost1.xml
  <Location /oprocmgr-service>
    SetHandler oprocmgr-service
  </Location>
  <Location /oprocmgr-status>
    SetHandler oprocmgr-status
  </Location>
</VirtualHost>
</IfModule>
```

c. Edit the `jserv.properties` file.

Edit the `jserv.properties` file and add the following entries for all physical cluster node within the `security.allowedAddresses` entry.

```
security.allowedAddresses=127.0.0.1, \  
lhost.fqdn,clnode1.fqdn,clnode2.fqdn

# su - oraapp-user
$ cd base-directory/sidora/iAS/Apache/Jserv/etc
$ vi jserv.properties
$ exit
```

The following example shows logical hostname `lhost1` and the cluster nodes `clnode1` and `clnode2` that have been added.

```
security.allowedAddresses=127.0.0.1,lhost1.example.com,clnode1.example.com,clnode2.example.com
```

d. Restart Oracle E-Business Suite.

```
# su - oraapp-user
$ cd base-directory/sidconn/admin/scripts/SID_logical-hostname
$ ./adstpall.sh apps/apps
$ exit
# su - oradb-user
$ cd base-directory/siddb/9.2.0/appsutil/scripts/SID_logical-hostname
$ ./addlnctl.sh stop SID
$ ./addbctl.sh stop immediate
$ ./addbctl.sh start
$ ./addlnctl.sh start SID
$ exit
# su - oraapp-user
$ cd base-directory/sidconn/admin/scripts/SID_logical-hostname
$ ./adstrtal.sh apps/apps
$ exit
```

e. Return to the rapidwiz GUI.

Return to the rapidwiz GUI and click Retry. The JSP check should now work.

11 Post Oracle E-Business Suite Installation, edit listener.ora.

Perform this step from the global zone or zone where you installed Oracle E-Business Suite.

If you are installing Oracle E-Business Suite version 12 or later, create a customSID_app-logical-host.env file.

```
# su - oraapp-user
$ vi app-base_directory/apps/apps_st/appl/customSID_app-logical-host.env
```

Add the following lines to the customSID_app-logical-host.env file:

```
LD_PRELOAD_32=/usr/lib/secure/libschost.so.1
SC_LHOSTNAME=app-logical-host
```

```
export LD_PRELOAD_32 SC_LHOSTNAME
```

If you are installing Oracle E-Business Suite version 11.5.10 or earlier, edit the listener.ora file and add the following entries to the envs= parameter for the SID_NAME=FNDSM entry.

```
envs='LD_LIBRARY_PATH=/usr/dt/lib:/user/openwin/lib:basedir/sidora/8.0.6/lib, \
LD_PRELOAD_32=/usr/lib/secure/libschost.so.1,SC_LHOSTNAME=lhost,MYAPPSORA=...
```

```
# su - oraapp-user
$ cd base-directory/sidora/8.0.6/network/admin/SID_logical-hostname
$ vi listener.ora
```

The following example shows the LD_PRELOAD_32 and SC_LHOSTNAME entries that have been added.

```
SID_LIST_APPS_PROD =
(SID_LIST =
( SID_DESC = ( SID_NAME = FNDSM )
( ORACLE_HOME = /base-directory/sidora/8.0.6 )
( PROGRAM = /base-directory/sidappl/fnd/11.5.0/bin/FNDSM )
( envs=' LD_LIBRARY_PATH=/usr/dt/Lib:/user/openwin/Lib:basedir/sidora/8.0.6 \
/Lib,LD_PRELOAD_32=/usr/Lib/secure/Libschost.so.1,SC_LHOSTNAME=lhost1,MYAPPS=
```

12 Stop Oracle E-Business Suite.

Perform this step from the global zone or zone where you installed Oracle E-Business Suite.

If you are installing Oracle E-Business Suite version 12 or later, type:

```
# su - oraapp-user
$ cd app-base-directory/inst/apps/SID_app-logical-hostname/admin/scripts
$ ./adstpall.sh apps/apps
$ exit
# su - oradb-user
$ cd db-base-directory/SID/db/tech_st/*/appsutil/scripts/SID_db-logical-hostname
$ ./addlnctl.sh stop SID
$ ./addbctl.sh stop immediate
```

If you are installing Oracle E-Business Suite version 11.5.10 or earlier, type:

```
# su - oraapp-user
$ cd app-base-directory/SIDconn/admin/scripts/SID_app-logical-hostname
$ ./adstpall.sh apps/apps
$ exit
# su - oradb-user
$ cd db-base-directory/SID/db/9.2.0/appsutil/scripts/SID_db-logical-hostname
$ ./addlnctl.sh stop SID
$ ./addbctl.sh stop immediate
```

13 Unmount the highly available local file system.

Perform this step from the global zone on the node where you installed Oracle E-Business Suite.

- To unmount a non-ZFS highly available local file system that is being used for the Oracle E-Business Suite, perform one of the following steps.

- If the global zone is being used for Oracle E-Business Suite, type:

```
# umount highly-available-local-filesystem
```

- If a zone is being used for Oracle E-Business Suite, type:

```
# umount /zonepath/root/highly-available-local-filesystem
```

- If a ZFS highly available local file system is being used for Oracle E-Business Suite, type:

```
# zpool export -f HAZpool
```

14 Unplumb the Oracle E-Business Suite logical hostname.

Perform this step from the global zone on one node of the cluster for each logical hostname being used by Oracle E-Business Suite.

```
# ifconfig interface removeif logical-hostname
```

Verifying the Installation and Configuration of Oracle E-Business Suite

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

▼ How to Verify the Installation and Configuration of Oracle E-Business Suite

This procedure does not verify that your application is highly available because you have not yet installed your data service.

Perform this procedure on one node or zone of the cluster unless a specific step indicates otherwise.

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

- 2 If a zone is being used for Oracle E-Business Suite, ensure that the zone is booted.

Repeat this step on all nodes on the cluster if a zone is being used.

Boot the zone if it is not running.

```
# zoneadm list -v
# zoneadm -z zonename boot
```

- 3 Mount the highly available local file system.

Perform this step from the global zone on one node of the cluster.

- If a non-ZFS highly available local file system is being used for the Oracle E-Business Suite files, perform one of the following steps.

Note – Ensure that the node has ownership of the disk set or disk group.

For Solaris Volume Manager, type:

```
# metaset -s disk-set -t
```

For Veritas Volume Manager, type:

```
# vxdg -C import disk-group
# vxdg -g disk-group startall
```

- **If the global zone is being used for Oracle E-Business Suite, type:**

```
# mount highly-available-local-filesystem
```

- **If a zone is being used for Oracle E-Business Suite, mount the highly available local file system on one of the zones being used.**

```
# mount -F lofs highly-available-local-filesystem \
> /zonepath/root/highly-available-local-filesystem
```

- **If a ZFS highly available file system is being used for Oracle E-Business Suite, perform one of the following steps.**

- **If the global zone is being used for Oracle E-Business Suite, type:**

```
# zpool import -R / HAZpool
```

- **If a zone is being used for Oracle E-Business Suite, type:**

```
# zpool import -R /zonepath/root HAZpool
```

4 Plumb the Oracle E-Business Suite logical hostname.

Perform this step for each logical hostname being used by Oracle E-Business Suite.

- a. **If the global zone is being used for Oracle E-Business Suite, type:**

```
# ifconfig interface addif logical-hostname up
```

- b. **If a zone is being used for Oracle E-Business Suite, type:**

```
# ifconfig interface addif logical-hostname up zone zonename
```

5 If a zone is being used, log in to the zone.

```
# zlogin zonename
```

6 Start Oracle E-Business Suite.

- If you are using Oracle E-Business Suite version 12 or later, perform the following:

```
# su - oradb-user
$ cd db-base-directory/SID/db/tech_st/*/appsutil/scripts/ \
SID_db-logical-hostname
$ ./addbctl.sh start
$ ./addlnctl.sh start SID
$ exit
# su - oraapp-user
$ cd app-base-directory/inst/apps/SID_app-logical-hostname/admin/scripts
$ ./adstrtal.sh apps/apps
$ exit
```

- If you are using Oracle E-Business Suite version 11.5.10 or earlier, perform the following:

```
# su - oradb-user
$ cd db-base-directory/SID/db/9.2.0/appsutil/scripts/ \
SID_db-logical-hostname
$ ./addbctl.sh start
$ ./addlnctl.sh start SID
$ exit
# su - oraapp-user
$ cd app-base-directory/SIDconn/admin/scripts/SID_app-logical-hostname
$ ./adstrtal.sh apps/apps
$ exit
```

7 Test that a client can access Oracle E-Business Suite by using a Windows Client.

- If you are using Oracle E-Business Suite version 12 or later, perform the following:

- a. Log in to Standalone Diagnostics at

http://ebs-logical-host.domainname:8000/OA_HTML/DiagLogin.jsp.

- b. Log in with Userid `sysadmin` and Password `sysadmin`. Then click Login.

- c. Click the Basic tab and click Run All.

Note – Some diagnostics tests might fail as Oracle E-Business Suite is not fully configured.

- d. From the Application drop-down menu, select HTML Platform. Then click Run All Groups.

- e. From the Application drop-down menu, select Application Object Library. Then click Run All Groups.

- f. From the Application drop-down menu, select CRM Foundation. Then click Run All Groups.
- If you are using Oracle E-Business Suite version 11.5.10 or earlier, perform the following:
 - a. Log in to Standalone Diagnostics at
`http://ebs-logical-host.domainname:8000/OA_HTML/US/ICXINDEX.htm`.
 - b. Log in with Userid `sysadmin` and Password `sysadmin`. Then click System Admin.
 - c. Double-click Requests and double-click Run.
 - d. Click OK on Single requests.
 - e. Type Active Users in the Name field.
 - f. Click OK to submit the request.
 - g. Click Refresh Data until you see the message Active Users is Completed.
 - h. Click View Output.

8 Stop Oracle E-Business Suite.

- If you are using Oracle E-Business Suite version 12 or later, perform the following:


```
# su - oraapp-user
$ cd app-base-directory/inst/apps/SID_app-logical-hostname/admin/scripts
$ .adstpall.sh apps/apps
$ exit
# su - oradb-user
$ cd db-base-directory/SID/db/tech_st/*/appsutil/scripts/ \
SID_db-logical-hostname
$ ./addlnctl.sh stop SID
$ ./addbctl.sh stop immediate
```
- If you are using Oracle E-Business Suite version 11.5.10 or earlier, perform the following:


```
# su - oraapp-user
$ cd app-base-directory/SIDcomn/admin/scripts/SID_app-logical-hostname
$ .adstpall.sh apps/apps
$ exit
# su - oradb-user
$ cd db-base-directory/SID/db/9.2.0/appsutil/scripts/ \
SID_db-logical-hostname
$ ./addlnctl.sh stop SID
$ ./addbctl.sh stop immediate
```


9 If a zone is being used, log out from the zone.

```
# exit
```

10 Unmount the highly available local file system.

Perform this step only in the global zone.

- **To unmount a non-ZFS highly available local file system that is being used for Oracle E-Business Suite, perform one of the following steps.**

- **If the global zone is being used for Oracle E-Business Suite, type:**

```
# umount highly-available-local-filesystem
```

- **If a zone is being used for Oracle E-Business Suite, unmount the highly available local file system from the zone.**

```
# umount /zonepath/root/highly-available-local-filesystem
```

- **If a ZFS highly available file system is being used for Oracle E-Business Suite, type:**

```
# zpool export -f HAZpool
```

11 Unplumb the Infrastructure logical IP address.

Perform this step for each logical hostname being used by Oracle E-Business Suite.

```
# ifconfig interface removeif logical-hostname
```

12 Relocate the shared storage to another node and mount the highly available local file system.

Perform this step on another node of the cluster.

- **If a non-ZFS highly available local file system is being used for the Oracle E-Business Suite files, perform one of the following steps.**

Note – Ensure that the node has ownership of the disk set or disk group.

For Solaris Volume Manager, type:

```
# metaset -s disk-set -t
```

For Veritas Volume Manager, type:

```
# vxdg -C import disk-group
# vxdg -g disk-group startall
```

- **If the global zone is being used for Oracle E-Business Suite, type:**

```
# mount highly-available-local-filesystem
```

- If a zone is being used for Oracle E-Business Suite, mount the highly available local file system on one of the zones being used.

```
# mount -F lofs highly-available-local-filesystem \
> /zonepath/root/highly-available-local-filesystem
```

- If a ZFS highly available file system is being used for Oracle E-Business Suite, perform one of the following steps.

- If the global zone is being used for Oracle E-Business Suite, type:

```
# zpool import -R / HAZpool
```

- If a zone is being used for Oracle E-Business Suite, type:

```
# zpool import -R /zonepath/root HAZpool
```

13 Plumb the Oracle E-Business Suite logical hostname.

Perform this step on another node of the cluster for each logical hostname being used by Oracle E-Business Suite.

- If the global zone is being used for Oracle E-Business Suite, type:

```
# ifconfig interface addif logical-hostname up
```

- If a zone is being used for Oracle E-Business Suite, type:

```
# ifconfig interface addif logical-hostname up zone zonename
```

14 If a zone is being used, log in to the zone.

```
# zlogin zonename
```

15 Start Oracle E-Business Suite.

- If you are using Oracle E-Business Suite version 12 or later, perform the following:

```
# su - oradb-user
$ cd db-base-directory/SID/db/tech_st/*/appsutil/scripts/ \
SID_db-logical-hostname
$ ./addbctl.sh start
$ ./addlnctl.sh start SID
$ exit
# su - oraapp-user
$ cd app-base-directory/inst/apps/SID_app-logical-hostname/admin/scripts
$ ./adstrtal.sh apps/apps
$ exit
```

- If you are using Oracle E-Business Suite version 11.5.10 or earlier, perform the following:

```
# su - oradb-user
$ cd db-base-directory/SID/db/9.2.0/appsutil/scripts/ \
```

```

SID_db-logical-hostname
$ ./addbctl.sh start
$ ./addlnctl.sh start SID
$ exit
# su - oraapp-user
$ cd app-base-directory/SIDconn/admin/scripts/SID_app-logical-hostname
$ ./adstrtal.sh apps/apps
$ exit

```

16 Test that a client can access Oracle E-Business Suite by using a Windows Client.

- If you are using Oracle E-Business Suite version 12 or later, perform the following:

- a. Log in to Standalone Diagnostics at
http://ebs-logical-host.domainname:8000/OA_HTML/DiagLogin.jsp.
- b. Log in with Userid `sysadmin` and Password `sysadmin`. Then click Login.
- c. Click the Basic tab and click Run All.

Note – Some diagnostics tests might fail as Oracle E-Business Suite is not fully configured.

- d. From the Application drop-down menu, select HTML Platform. Then click Run All Groups.
 - e. From the Application drop-down menu, select Application Object Library. Then click Run All Groups.
 - f. From the Application drop-down menu, select CRM Foundation. Then click Run All Groups.
- If you are using Oracle E-Business Suite version 11.5.10 or earlier, perform the following:
 - a. Log in to Standalone Diagnostics at
http://ebs-logical-host.domainname:8000/OA_HTML/US/ICXINDEX.htm.
 - b. Log in with Userid `sysadmin` and Password `sysadmin`. Then click System Admin.
 - c. Double-click Requests and double-click Run.
 - d. Click OK on Single requests.
 - e. Type Active Users in the Name field.
 - f. Click OK to submit the request.

g. Click Refresh Data until you get the message Active Users is Completed.

h. Click View Output.

17 Stop Oracle E-Business Suite.

- If you are using Oracle E-Business Suite version 12 or later, perform the following:

```
# su - oraapp-user
$ cd app-base-directory/inst/apps/SID_app-logical-hostname/admin/scripts
$ .adstpall.sh apps/apps
$ exit
# su - oradb-user
$ cd db-base-directory/SIDdb/tech_st/*/appsutil/scripts/SID_db-logical-hostname
$ ./addlnctl.sh stop SID
$ ./addbctl.sh stop immediate
```

- If you are using Oracle E-Business Suite version 11.5.10 or earlier, perform the following:

```
# su - oraapp-user
$ cd app-base-directory/SIDconn/admin/scripts/SID_app-logical-hostname
$ .adstpall.sh apps/apps
$ exit
# su - oradb-user
$ cd db-base-directory/SIDdb/9.2.0/appsutil/scripts/ \
SID_db-logical-hostname
$ ./addlnctl.sh stop SID
$ ./addbctl.sh stop immediate
```

18 If a zone is being used, log out from the zone.

```
# exit
```

19 Unmount the highly available local file system.

Perform this step in the global zone only.

- To unmount a non-ZFS highly available local file system that is being used for Oracle E-Business Suite, perform one of the following steps.

- If the global zone is being used for Oracle E-Business Suite, type:

```
# umount highly-available-local-filesystem
```

- If a zone is being used for Oracle E-Business Suite, unmount the highly available local file system from the zone.

```
# umount /zonepath/root/highly-available-local-filesystem
```

- If a ZFS highly available file system is being used for Oracle E-Business Suite, type:

```
# zpool export -f HAZpool
```

20 Unplumb the Oracle E-Business Suite logical hostname.

Perform this step for each logical hostname being used by Oracle E-Business Suite.

```
# ifconfig interface removeif logical hostname
```

Installing the Sun Cluster HA for Oracle E-Business Suite Packages

If you did not install the Sun Cluster HA for Oracle E-Business Suite packages during your initial Sun Cluster installation, perform this procedure to install the packages. To install the packages, use the Sun Java™ Enterprise System Installation Wizard.

Note – You need to install the Sun Cluster HA for Oracle E-Business Suite packages in the global cluster and not in the zone cluster.

▼ How to Install the Sun Cluster HA for Oracle E-Business Suite Packages

Perform this procedure on each cluster node where you are installing the Sun Cluster HA for Oracle E-Business Suite packages.

You can run the Sun Java Enterprise System Installation Wizard 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 Sun Java Availability Suite DVD-ROM.

If you intend to run the Sun Java Enterprise System Installation Wizard 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 Sun Java Availability Suite DVD-ROM into the DVD-ROM drive.

If the Volume Management daemon `vol(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 Sun Java Enterprise System 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 Sun Java Enterprise System Installation Wizard.

```
# ./installer
```

5 When you are prompted, accept the license agreement.

If any Sun Java Enterprise System components are installed, you are prompted to select whether to upgrade the components or install new software.

6 From the list of Sun Cluster agents under Availability Services, select the data service for Oracle E-Business Suite.

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 Sun Java Enterprise System 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 Sun Java Enterprise System Installation Wizard with the CLI, omit this step.

- 11 Exit the Sun Java Enterprise System Installation Wizard.
- 12 Unload the Sun Java Availability Suite DVD-ROM 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 “[Registering and Configuring Sun Cluster HA for Oracle E-Business Suite](#)” on page 31 to register Sun Cluster HA for Oracle E-Business Suite and to configure the cluster for the data service.

Registering and Configuring Sun Cluster HA for Oracle E-Business Suite

This section contains the procedures you need to configure Sun Cluster HA for Oracle E-Business Suite.

Some procedures within this section require you to use certain Sun Cluster commands. Refer to the relevant Sun Cluster command man page for more information about these commands and their parameters.

▼ How to Register and Configure Sun Cluster HA for Oracle E-Business Suite

Perform this procedure on one node of the cluster only.

This procedure assumes that you installed the data service packages during your initial Sun Cluster installation.

If you did not install the Sun Cluster HA for Oracle E-Business Suite packages as part of your initial Sun Cluster installation, go to “[How to Install the Sun Cluster HA for Oracle E-Business Suite Packages](#)” on page 29.

- 1 **On a cluster member, become superuser or assume a role that provides `solaris.cluster.modify` RBAC authorization.**
- 2 **Register the following resource types.**

```
# clresourcetype register SUNW.HAStoragePlus
# clresourcetype register SUNW.gds
```

3 Create a failover resource group for Oracle E-Business Suite.

```
# clresourcegroup create -n nodelist ebs-rg
```

4 Create a resource for the Oracle E-Business Suite Logical Hostname.

```
# clreslogicalhostname create -g ebs-rg \  
> -h logical-hostname \  
> logical-hostname-resource
```

5 Create a resource for the Oracle E-Business Suite Disk Storage.

- If a ZFS highly available local file system is being used, perform the following:

```
# clresource create -g ebs-rg \  
> -t SUNW.HAStoragePlus \  
> -p Zpools=oracle-ebusiness-suite-zspool \  
> oracle-ebusiness-suite-hastorage-resource
```

- If a cluster file system or a non-ZFS highly available local file system is being used, perform the following:

```
# clresource create -g ebs-rg \  
> -t SUNW.HAStoragePlus \  
> -p FilesystemMountPoints=oracle-ebusiness-suite-filesystem-mountpoint \  
> oracle-ebusiness-suite-hastorage-resource
```

6 Enable the Resource Group.

```
# clresourcegroup online -M ebs-rg
```

7 Register and enable a resource for the Oracle Database.

For complete information about creating and registering a cluster resource for the Oracle Database, refer to [Sun Cluster Data Service for Oracle Guide for Solaris OS](#).

Note – Before creating corresponding resources, you need to register the SUNW.oracle_server resource type.

```
# clresource create -g ebs-rg \  
> -t SUNW.oracle_Server \  
> -p Connect_string=apps/apps \  
> -p ORACLE_SID=SID \  
> -p ORACLE_HOME=oracle-home \  
> -p Alert_log_file=oracle-home/admin/SID \  
> _db-logical-hostname/bdump/alert_SID.log \  
> -p Restart_type=RESOURCE_GROUP_RESTART \  
> -p Resource_dependencies=oracle-ebusiness-suite-hastorage-resource \  
> oracle-resource  
# clresource enable oracle-resource
```


8 Register and enable a resource for the Oracle Listener.

For complete information about creating and registering a cluster resource for the Oracle Listener, refer to *Sun Cluster Data Service for Oracle Guide for Solaris OS*.

Note – The `copy_env` script is used to copy and format the `sid.env` to `sid_ha.env`, which is used by the `User_env` parameter in the following example.

Note – Before creating corresponding resources, you need to register the `SUNW.oracle_listener` resource type.

```
# cd /opt/SUNWscebs/cmg/util
# ./copy_env oracle-home SID_db-logical-host
# clresource create -g ebs-rg \
> -t SUNW.oracle_listener \
> -p Listener_name=SID \
> -p ORACLE_HOME=oracle-home \
> -p User_env=oracle-home/SID_db-logical-hostname_ha.env \
> -p Resource_dependencies=oracle-ebusiness-suite-hastorage-resource \
> listener-resource
# clresource enable listener-resource
```

9 Create and register a resource for the Concurrent Manager Listener.

Note – If deploying Oracle E-Business Suite within a zone cluster you must loopback mount `/var/cluster/logs` within the zone-cluster node, before registering the Oracle E-Business Suite components.

On all the zone-cluster nodes, perform the following step:

```
# mkdir /var/cluster/logs
```

In the global zone where the zone-cluster node is running, perform the following step:

```
# mount -F lofs /var/cluster/logs zonenode zonepath/root/var/cluster/logs
```

After all the Oracle E-Business Suite components have been registered, `/var/cluster/logs` is no longer required within the zone-cluster node. To unmount the previously loopback mounted `/var/cluster/logs`, perform the following step from the global zone where you loopback mounted `/var/cluster/logs`:

```
# umount zonenode zonepath/root/var/cluster/logs
```

Edit the `/opt/SUNWscebs/cmglslr/util/cmglslr_config` file and follow the comments with in that file. After editing the `cmglslr_config` file, you must register the resource.

```
# cd /opt/SUNWscebs/cmglslr/util
# vi cmglslr_config
# ./cmglslr_register
```

- **If you are using Oracle E-Business Suite version 12 or later, use:**

```
COMNTOP=app-base-directory/inst/apps/SID_app-logical-hostname
```

- **If you are using Oracle E-Business Suite version 11.5.10 or earlier, use:**

```
COMNTOP=app-base-directory/SIDcomn
```

The following example shows edits of the `cmglslr_config` file.

```
RS=ebs-cmglslr
RG=ebs-rg
LH=ebs-lh
HAS_RS=ebs-has
COMNTOP=use appropriate COMNTOP
APPSUSER=oraapp-user
APP_SID=SID
VERSION=12.0
```

10 Create and register a resource for the Concurrent Manager.

Note – A value for the `APPS_PASSWD` keyword within the `/opt/SUNWscebs/cmglslr/util/cmglslr_config` file is optional. You can either specify the password within the `/opt/SUNWscebs/cmglslr/util/cmglslr_config` file or within the `/opt/SUNWscebs/.${APP_SID}_passwd` file on each cluster node as super user. Specifying the password within the `/opt/SUNWscebs/.${APP_SID}_passwd` file will prevent the password from being viewed by non super users. Refer the comments within the `/opt/SUNWscebs/cmglslr/util/cmglslr_config` file for an example.

Note – If deploying Oracle E-Business Suite within a zone cluster, you must loopback mount `/var/cluster/logs` with in the zone-cluster node before performing this step. See [Step 9](#), for information to loop back mount `/var/cluster/logs`.

Edit the `/opt/SUNWscebs/cmg/util/cmg_config` file and follow the comments within that file. After you have edited the `cmg_config` file, you must register the resource.

```
# cd /opt/SUNWscebs/cmg/util
# vi cmg_config
# ./cmg_register
```

- **If you are using Oracle E-Business Suite version 12 or later, use:**

```
COMNTOP=app-base-directory/inst/apps/SID_app-logical-hostname
```

- **If you are using Oracle E-Business Suite version 11.5.10 or earlier, use:**

```
COMNTOP=app-base-directory/SIDconn
```

The following example shows edits of the `cmg_config` file.

```
RS=ebs-cmg
RG=ebs-rg
LH=ebs-lh
HAS_RS=ebs-has
LSR_RS=ebs-cmglsr
VERSION=11.5.10
COMNTOP=use appropriate COMNTOP
APPSUSER=oraapp-user
APP_SID=SID
APPS_PASSWD=password or empty
if using /opt/SUNWscebs/.${APP_SID}_passwd to store the password.
ORACLE_HOME=oracle_home
CON_LIMIT=50
#
# Required for Oracle E-Business Suite version 11.5.10 CU2 or later
#
ORASVR_RS=ebs1-orasvr
ORALSR_RS=ebs1-oral
```

11 Create and register a resource for the Forms Server.

Note – This step is required only if you are using Oracle E-Business Suite version 11.5.10 or earlier. If you are using Oracle E-Business Suite version 12 or later, go to [Step 14](#).

Note – If deploying Oracle E-Business Suite within a zone cluster, you must loopback mount `/var/cluster/logs` within the zone-cluster node before performing this step. See [Step 9](#), for information to loop back mount `/var/cluster/logs`.

Edit the `/opt/SUNWscebs/frm/util/frm_config` file and follow the comments within that file. After you have edited the `frm_config` file, you must register the resource.

```
# cd /opt/SUNWscebs/frm/util
# vi frm_config
# ./frm_register
```

The following example shows edits of the `frm_config` file.

```
RS=ebs - frm
RG=ebs - rg
LH=ebs - lh
HAS_RS=ebs - has
COMNTOP=base-directory/sidcomm
APPSUSER=oraapp-user
APP_SID=SID
VERSION=11.5.10
```

12 Create and register a resource for the Reports Server.

Note – This step is required only if you are using Oracle E-Business Suite version 11.5.10 or earlier. If you are using Oracle E-Business Suite version 12 or later, go to [Step 14](#).

Note – If deploying Oracle E-Business Suite within a zone cluster, you must loopback mount `/var/cluster/logs` within the zone-cluster node before performing this step. See [Step 9](#), for information to loop back mount `/var/cluster/logs`.

Edit the `/opt/SUNWscebs/rep/util/rep_config` file and follow the comments within that file. After you have edited the `rep_config` file, you must register the resource.

```
# cd /opt/SUNWscebs/rep/util
# vi rep_config
# ./rep_register
```

The following example shows edits of the `rep_config` file.

```
RS=ebs - rep
RG=ebs - rg
LH=ebs - lh
HAS_RS=ebs - has
COMNTOP=base-directory/sidcomm
APPSUSER=oraapp-user
APP_SID=SID
VERSION=11.5.10
```

13 (Optional) Create and register a resource for the Web Server.

Note – This step is required only if you are using Oracle E-Business Suite version 11.5.10 or earlier. If you are using Oracle E-Business Suite version 12 or later, go to [Step 14](#).

```
# cd base-directory/sidconn/admin/scripts/SID_logical-hostname
# ln -s adapcctl.sh apachectl
```

Edit `adapcctl.sh` and modify the `"$control_code"` test to add `-a "$control_code" != "configtest"`.

```
# vi adapcctl.sh
```

The following output shows an amended `adapcctl.sh`.

Note: The output has been realigned to fit the page

```
Find control_code (/control_code)
```

```
Modify
```

```
-----
```

```
control_code="$1"

if test "$control_code" != "start" -a "$control_code" != "stop" \
-a "$control_code" != "status" ; then
    printf "\n$program: You must either specify \
        'start', 'stop', 'status'\n\n"
    printf "\n$program: You must either specify \
        'start', 'stop', 'status'\n\n" >> $LOGFILE
    exit 1;
fi
```

To (Note: We've simply added a test to allow "configtest"

```
-----
```

```
control_code="$1"

if test "$control_code" != "start" -a "$control_code" != "stop" \
-a "$control_code" != "status" \
-a "$control_code" != "configtest" ; then
    printf "\n$program: You must either specify \
        'start', 'stop', 'status'\n\n"
    printf "\n$program: You must either specify \
        'start', 'stop', 'status'\n\n" >> $LOGFILE
```

```

        exit 1;
    fi

    # clresource create -g ebs-rg \
    > -t SUNW.apache \
    > -p Port_list=8000/tmpSID \
    > -p Bin_dir=base-directory/sidcomn/admin/scripts/ \
    > SID_logical-hostname \
    > -p Resource_dependencies=oracle-ebusiness-suite-hastorage-resource \
    > apache-resource

```

14 Create and register a resource for the OPMN Server.

Note – If deploying Oracle E-Business Suite within a zone cluster, you must loopback mount `/var/cluster/logs` within the zone-cluster node before performing this step. See [Step 9](#), for information to loop back mount `/var/cluster/logs`.

If you are installing Oracle E-Business Suite version 12 or later, perform the following:

Edit the `/opt/SUNWscebs/opmn/util/opmn_config` file and follow the comments within that file. After you have edited the `opmn_config` file, you must register the resource.

```

# cd /opt/SUNWscebs/opmn/util
# vi opmn_config
# ./opmn_register

```

The following example shows the edits of the `opmn_config` file.

```

RS=ebs-opmn
RG=ebs-rg
LH=ebs-lh
HAS_RS=ebs-has
VERSION=12.0
COMNTOP=app-base-directory/inst/apps/SID_app-logical-host
APPSUSER=oraapp-user
APP_SID=PROD
APPS_PASSWD=apps
OPMN_COMPONENTS=all

```

15 Enable the Oracle E-Business Suite resources.

```

# clresource enable -g ebs-rg +

```

Verifying the Sun Cluster HA for Oracle E-Business Suite 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 Oracle E-Business Suite Installation and Configuration

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

- 2 Ensure that all the Oracle E-Business Suite resources are online.

```
# cluster status
```

Enable any Oracle E-Business Suite resources that are not online.

```
# clresource enable oracle-ebusiness-suite-resource
```

- 3 Switch the Oracle E-Business Suite resource group to another cluster node or node:zone.

```
# clresourcegroup switch -n node[:zone] ebs-rg
```

Upgrading Sun Cluster HA for Oracle E-Business Suite

Upgrade the Sun Cluster HA for Oracle E-Business Suite data service if the following conditions apply:

- You are upgrading from an earlier version of the Sun Cluster HA for Oracle E-Business Suite data service.
- You need to use the new features of this data service.

▼ How to Upgrade to the New Version of Sun Cluster HA for Oracle E-Business Suite

You must perform all the steps within this procedure.

Note – Before performing this procedure you should consider if your current Oracle E-Business Suite resources have been modified to have specific timeout values that suit your deployment. If timeout values were previously adjusted you should reapply those timeout values to your new Oracle E-Business Suite resources.

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

2 Disable the Oracle E-Business Suite resources.

```
# clresource disable oracle-ebusiness-suite-resource
```

3 Install the new version of Sun Cluster HA for Oracle E-Business Suite on each cluster.

Refer to [“How to Install the Sun Cluster HA for Oracle E-Business Suite Packages”](#) on page 29 for more information.

4 Delete the Oracle E-Business Suite resources.

```
# clresource delete oracle-ebusiness-suite-resource
```

5 Upgrade the logical hostname interpositioning.

Note – You must repeat the following steps, as the logical host interpositioning file name and variable names have changed. Change the following:

- LHOSTNAME to SC_LHOSTNAME
 - libloghost_32.so.1 to libschost.so.1
-

6 Repeat [Step 8](#) and [Step 11](#) from “[How to Install and Configure Oracle E-Business Suite](#)” on [page 14](#).

7 Reregister the Oracle E-Business Suite resources.

Refer to [“How to Register and Configure Sun Cluster HA for Oracle E-Business Suite”](#) on [page 31](#) for more information.

8 Enable the Oracle E-Business Suite resources.

```
# clresource enable oracle-ebusiness-suite-resource
```


Understanding the Sun Cluster HA for Oracle E-Business Suite Fault Monitor

This section describes the Sun Cluster HA for Oracle E-Business Suite fault monitor probing algorithm or functionality, states the conditions, and recovery actions associated with unsuccessful probing.

For conceptual information about fault monitors, see the *Sun Cluster Concepts Guide*.

Resource Properties

The Sun Cluster HA for Oracle E-Business Suite fault monitor uses the same resource properties as resource type `SUNW.gds`. Refer to the `SUNW.gds(5)` man page for a complete list of resource properties used.

Probing Algorithm and Functionality

The Sun Cluster HA for Oracle E-Business Suite fault monitor is controlled by the extension properties that control the probing frequency. The default values of these properties determine the preset behavior of the fault monitor. The preset behavior should be suitable for most Sun Cluster installations. Therefore, you should tune the Sun Cluster HA for Oracle E-Business Suite fault monitor *only* if you need to modify this preset behavior.

- Setting the interval between fault monitor probes (`Thorough_probe_interval`)
- Setting the timeout for fault monitor probes (`Probe_timeout`)
- Setting the number of times the fault monitor attempts to restart the resource (`Retry_count`)

The Sun Cluster HA for Oracle E-Business Suite fault monitor performs a check within an infinite loop. During each cycle, the fault monitor checks the relevant component and reports either a failure or success.

If the fault monitor is successful, it returns to its infinite loop and continues the next cycle of probing and sleeping.

If the fault monitor reports a failure, a request is made to the cluster to restart the resource. If the fault monitor reports another failure, another request is made to the cluster to restart the resource. This behavior continues whenever the fault monitor reports a failure.

If successive restarts exceed the `Retry_count` within the `Thorough_probe_interval`, a request is made to fail over the resource group onto a different node or zone.

Concurrent Manager Probe

- Test whether at least one FND (Concurrent Manager) process is running. If this test fails, the probe restarts the Concurrent Manager Server resource.
- Test whether the probe can still connect to the Oracle Database. If this test fails, the probe restarts the Concurrent Manager Server resource.
- Calculate the number of concurrent processes running as a percentage of the maximum number of concurrent processes allowed. Then test whether that percentage is less than CON_LIMIT, when the Concurrent Manager Server resource was defined. If the percentage is less than CON_LIMIT, the probe restarts the Concurrent Manager Server resource.

Forms Server Probe

Test whether the `f60srvm` process is running. If `f60srvm` is found, then test whether `f60webmx` process is running. If `f60webmx` is not found, the probe retests after another iteration of the probe to determine whether `f60webmx` is still missing, because `f60srvm` usually restarts `f60webmx`. If after two successive probes, `f60webmx` is still missing or `f60srvm` is not found on any probe, the probe restarts the Forms Server resource.

Reports Server Probe

Test whether `rwmts60` process is running for `REP_APPSUSER`. If this test fails, the probe restarts the Forms Server resource.

Debugging Sun Cluster HA for Oracle E-Business Suite

▼ How to Turn on Debugging for Sun Cluster HA for Oracle E-Business Suite

Sun Cluster HA for Oracle E-Business Suite can be used by multiple Oracle E-Business Suite instances. It is possible to turn debugging on for all Oracle E-Business Suite instances or a particular Oracle E-Business Suite instance.

`/opt/SUNWscebs/xxx/etc/config` allows you to turn on debugging for all Oracle E-Business Suite instances or for a specific Oracle E-Business Suite instance on a particular node or zone within the cluster. If you require debugging to be turned on for Sun Cluster HA for Oracle E-Business Suite across the whole cluster, repeat this step on all nodes within the cluster.

1 Edit the `/etc/syslog.conf` file and change `daemon.notice` to `daemon.debug`.

```
# grep daemon /etc/syslog.conf
*.err;kern.debug;daemon.notice;mail.crit      /var/adm/messages
*.alert;kern.err;daemon.err                  operator
#
```

Change the `daemon.notice` file to `daemon.debug` and restart the `syslogd` command. Note that the following output, from `grep daemon /etc/syslog.conf`, shows that `daemon.debug` has been set.

```
# grep daemon /etc/syslog.conf
*.err;kern.debug;daemon.debug;mail.crit      /var/adm/messages
*.alert;kern.err;daemon.err                  operator
```

Restart the `syslogd` daemon.

- **If you are running Solaris 9, type:**

```
# pkill -1 syslogd
```

- **If you are running Solaris 10, type:**

```
# svcadm disable system-log
# svcadm enable system-log
```

2 Edit the `/opt/SUNWscebs/cm/etconf/config` file.

Perform this step for each component that requires debug output, on each node of Sun Cluster as required.

Edit the `/opt/SUNWscebs/cm/etconf/config` file and change `DEBUG=` to `DEBUG=ALL` or `DEBUG=sun-cluster-resource`.

```
# cat /opt/SUNWscebs/cm/etconf/config
#
# Copyright 2006 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
# ident "@(#)config 1.1 06/03/06 SMI"
#
# Usage:
#     DEBUG=<RESOURCE_NAME> or ALL
#
DEBUG=ALL
```

Note – To turn off debug, reverse the previous steps.

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