Sun Cluster 3.1 Data Service for Oracle E-Business Suite Guide

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

Table 1–1 lists the tasks for installing and configuring Sun Cluster HA for Oracle E-Business Suite. Perform these tasks in the order that they are listed.

TABLE 1–1 Task Map: Installing and Configuring Sun Cluster HA for Oracle E-Business Suite

Task	For Instructions, Go To
Plan the installation	"Sun Cluster HA for Oracle E-Business Suite Overview" on page 6
	"Planning the Sun Cluster HA for Oracle E-Business Suite Installation and Configuration" on page 7
Install and configure Oracle E-Business Suite	"How to Install and Configure Oracle E-Business Suite" on page 12
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Install Sun Cluster HA for Oracle E-Business Suite Packages	"How to Install the Sun Cluster HA for Oracle E-Business Suite Packages by Using the `scinstall` Utility" on page 19
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TABLE 1–1 Task Map: Installing and Configuring Sun Cluster HA for Oracle E-Business Suite *(Continued)*

Task	For Instructions, Go To
Verify 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 27
Understand Sun Cluster HA for Oracle E-Business Suite fault monitor	"Understanding the Sun Cluster HA for Oracle E-Business Suite Fault Monitor" on page 27
Debug Sun Cluster HA for Oracle E-Business Suite	"Debug Sun Cluster HA for Oracle E-Business Suite" on page 29

Sun Cluster HA for Oracle E-Business Suite Overview

Oracle E-Business Suite is a complete set of business applications that enables customers to efficiently manage business processes, using a unified open architecture. This architecture is a framework for multitiered, 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 together on one node or more nodes.

TABLE 1–2 Oracle E-Business Suite Architecture

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

The distributed nature of Oracle E-Business Suite requires more than one Sun Cluster Data Service if all application and database tiers are to be managed by Sun Cluster.

The following table lists the Oracle E-Business Suite components and their appropriate Sun Cluster Data Service that provides protection.

TABLE 1–3 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.

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

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

Consider the restrictions in this section to plan the installation and configuration of Sun Cluster HA for Oracle E-Business Suite. This section provides a list of software and hardware configuration restrictions that apply to Sun Cluster HA for Oracle E-Business Suite only.

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

- **The Sun Cluster HA for Oracle E-Business Suite data service deployment –** The Sun Cluster HA for Oracle E-Business Suite data service consists of three components, Forms Server, Concurrent Manager Server and Reports Server. These

components are installed using the Rapid Wizard Installation tool (`rapidwiz`).

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

In a `single-node` installation, the Database, Web, Forms, Concurrent Manager and Reports Server are installed 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 any combination of up to five nodes can be specified to install the Database, Web, Forms, Concurrent Manager and Reports Server.

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

- **Installing Oracle E-Business Suite onto Cluster File Systems —** When installing Oracle E-Business Suite using Rapid Install, you must adhere to these restrictions.

  The following tables show the mount points and acceptable file system types, for example Local, Failover File System (FFS) or Global File System (GFS).

TABLE 1–4 Database Tier

Mount Point	Filesystem Type
<dbname>DATA	FFS or GFS
<dbname>DB	Local, FFS or GFS
<dbname>ORA	Local, FFS or GFS

TABLE 1–5 Application Tier

Mount Point	Filesystem type
<dbname>COMN_TOP	FFS or GFS
<dbname>APPL_TOP	FFS or GFS
<dbname>APPLCSF	FFS or GFS

Note – It is considered best practice when mounting Global File Systems to mount them with the /global prefix and to mount Failover File Systems with the /local prefix. However, be aware that this is simply viewed as best practice.

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 Oracle E-Business Suite. These requirements apply to Sun Cluster HA for Oracle E-Business Suite only. You must meet these requirements before you proceed with your Sun Cluster HA for Oracle E-Business Suite installation and configuration.

- **Oracle E-Business Suite components and their dependencies —**The Sun Cluster HA for Oracle E-Business Suite data service can be configured to protect an Oracle E-Business Suite instance and its respective components. These components, and their dependencies between each other, are briefly described below.

TABLE 1–6 Oracle E-Business Suite components and their dependencies (via → symbol)

Component	Description
Forms Server	→ *SUNW.HAStoragePlus* resource The SUNW.HAStoragePlus resource manages the Oracle E-Business Suite File System Mount points and ensures that Oracle E-Business Suite is not started until these are mounted.
Concurrent Manager Listener	→ *SUNW.HAStoragePlus* resource The SUNW.HAStoragePlus resource manages the Oracle E-Business Suite File System Mount points and ensures that Oracle E-Business Suite is not started until these are mounted.
Concurrent Manager Server	→ *SUNW.HAStoragePlus* resource → *Concurrent Manager Listener* resource → *Oracle Database Server* resource The SUNW.HAStoragePlus resource manages the Oracle E-Business Suite File System Mount points and ensures that Oracle E-Business Suite is not started until these are mounted.

TABLE 1–6 Oracle E-Business Suite components and their dependencies (via → symbol) *(Continued)*

Component	Description
Reports Server	→ *SUNW.HAStoragePlus* resource The SUNW.HAStoragePlus resource manages the Oracle E-Business Suite File System Mount points and ensures that Oracle E-Business Suite is not started until these are mounted.

As shown above, the Concurrent Manager Server is dependent on the Oracle Database Server. If the Rapid Install `single-node` or `two-node` installation method was chosen then the Database and Concurrent manager will be within the same node (Resource Group).

However, if `multi-node` is chosen then you may have installed the Database Server and Concurrent Manager Server on different nodes (Resource Groups) and subsequently to preserve the dependency listed above, the Sun Cluster HA for Oracle E-Business Suite data service manages the start/restart dependencies, between the Concurrent Manager Server and Database Server.

Each Oracle E-Business Suite component has a configuration and registration file under `/opt/SUNWscebs/xxx/util`, where `xxx` is a three character abbreviation for the respective Oracle E-Business Suite component. These files allow you to register the Oracle E-Business Suite components with Sun Cluster.

Within these files, the appropriate dependencies have already been applied.

EXAMPLE 1–1 Oracle E-Business Suite configuration and registration files for Sun Cluster

```
# cd /opt/SUNWscebs
#
# ls -l cmg/util
total 16
-rwxr-xr-x   1 root     sys         1410 Jun 11 17:17 cmg_config
-rwxr-xr-x   1 root     sys          840 Jun 11 17:17 cmg_register
-rwxr-xr-x   1 root     sys         4105 Jun 11 17:17 copy_env
# ls -l frm/util
total 4
-rwxr-xr-x   1 root     sys          701 Jun 11 17:17 frm_config
-rwxr-xr-x   1 root     sys          619 Jun 11 17:17 frm_register
# ls -l rep/util
total 4
-rwxr-xr-x   1 root     sys          701 Jun 11 17:17 rep_config
-rwxr-xr-x   1 root     sys          619 Jun 11 17:17 rep_register
# more cmg/util/cmg*
::::::::::::::
cmg_config
::::::::::::::
#
# Copyright 2003 Sun Microsystems, Inc.  All rights reserved.
# Use is subject to license terms.
#
```

EXAMPLE 1–1 Oracle E-Business Suite configuration and registration files for Sun Cluster *(Continued)*

```
# This file will be sourced in by cmg_register and the parameters
# listed below will be used.
#
# These parameters can be customized in (key=value) form
#
#           RS - name of the resource for the application
#           RG - name of the resource group containing RS
#       HAS_RS - name of the HAStoragePlus SC resource
#       LSR_RS - name of the Concurrent Manager Listener SC resource
#     CON_HOST - name of the Concurrent Manager logical hostname
#  CON_COMNTOP - name of the Concurrent Manager COMMON_TOP directory
# CON_APPSUSER - name of the Concurrent Manager application userid
#      APP_SID - name of the application SID
#  APPS_PASSWD - name of the password for the APPS userid
#  ORACLE_HOME - name of the Oracle home directory
#    CON_LIMIT - Minimum number of Concurrent Managers
#                represented as a percentage i.e. 70 = 70%
#                (Note - Omit the % sign)
#         MODE - Specifies if Oracle E-Business Suite is running
#                32|64-bit code and if the LD_PRELOAD pathname
#                will have a symlink in /usr/lib/secure
#                       Default value = 32/Y
#                (Note - Refer to the Sun Cluster 3.1 Data Service
#                 for Oracle E-Business Suite for more information)
#

RS=
RG=
HAS_RS=
LSR_RS=
CON_HOST=
CON_COMNTOP=
CON_APPSUSER=
APP_SID=
APPS_PASSWD=
ORACLE_HOME=
CON_LIMIT=
MODE=32/Y
::::::::::::::
cmg_register
::::::::::::::
#
# Copyright 2003 Sun Microsystems, Inc.  All rights reserved.
# Use is subject to license terms.
#

. `dirname $0`/cmg_config


scrgadm -a -j $RS -g $RG -t SUNW.gds \
-x Start_command="/opt/SUNWscebs/cmg/bin/start_cmg \
-R $RS -G $RG -C $CON_COMNTOP -U $CON_APPSUSER -P $APPS_PASSWD \
```

EXAMPLE 1–1 Oracle E-Business Suite configuration and registration files for Sun Cluster *(Continued)*

```
-S $APP_SID -H $CON_HOST -O $ORACLE_HOME -L $CON_LIMIT -M $MODE" \
-x Stop_command="/opt/SUNWscebs/cmg/bin/stop_cmg \
-R $RS -G $RG -C $CON_COMNTOP -U $CON_APPSUSER -P $APPS_PASSWD \
-S $APP_SID -H $CON_HOST -O $ORACLE_HOME -L $CON_LIMIT -M $MODE" \
-x Probe_command="/opt/SUNWscebs/cmg/bin/probe_cmg \
-R $RS -G $RG -C $CON_COMNTOP -U $CON_APPSUSER -P $APPS_PASSWD \
-S $APP_SID -H $CON_HOST -O $ORACLE_HOME -L $CON_LIMIT -M $MODE" \
-y Port_list=23/tcp -y Network_resources_used=$LSR_RS \
-x Stop_signal=9 \
-y Resource_dependencies=$HAS_RS,$LSR_RS
#
```

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

Use this procedure to install and configure Oracle E-Business Suite.

Throughout the following next sections, references will be made to certain values for the deployment of Oracle E-Business Suite. The following list shows these values used in subsequent examples.

- <*dbname*> - `PROD`
- <*dbname*>*COMN_TOP* - `/global/mnt10/d01`
- <*dbname*>*CON_APPSUSER* - `ebs`
- <*Logical Hostname*> - `lhost1`

Note – For this section, follow Oracle's *Oracle Applications, Installing Oracle Applications* manual to install Oracle E-Business Suite.

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1. **Determine how Oracle E-Business Suite will be deployed in Sun Cluster – Here you need to determine how Oracle E-Business Suite will be deployed.**

a. Determine which installation method will be used with Oracle's rapid install program `rapidwiz`.

b. Determine which Cluster File System will be used by Oracle E-Business Suite.

2. **Ensure that the Logical Hostname for Oracle E-Business Suite is available – Depending on how Oracle E-Business Suite is deployed using `rapidwiz`, you need to ensure that each Logical Hostname used by `rapidwiz` is available.**

Note – To do this you will need to complete steps 1–9 in section "How to Register and Configure Sun Cluster HA for Oracle E-Business Suite as a Failover Service" on page 20

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3. **Mount the Oracle E-Business Suite Cluster File Systems – After you have determined how Oracle E-Business Suite will be deployed within Sun Cluster, you must ensure the Cluster File System is mounted.**

Note – If Failover File Systems will be used by the Oracle E-Business Suite instance, you must mount these manually.

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4. **Install Oracle E-Business Suite using rapidwiz – It is recommended that Oracle E-Business Suite be installed onto a Global File System, however for a discussion of the advantages and disadvantages of installing the software on local versus cluster files systems, see "Determining the Location of the Application Binaries" on page 3 of the** *Sun Cluster Data Services Installation and Configuration Guide***.**

a. Run `rapidwiz` to build the `config.txt` file for the Oracle E-Business Suite deployment you have chosen for example `single-node`, `two-node` or `multi-node`.

b. Save the `config.txt` file for Oracle E-Business Suite for example `/var/tmp/config.txt`

c. Run `rapidwiz` for each Logical Hostname that was used when building the `config.txt` file, using the `-servername` parameter.

```
# rapidwiz -servername <Logical Hostname>
```

Note – After the Concurrent Manager has been installed using `rapidwiz`, you need to amend the Concurrent Manager Listener `listener.ora` file so that it can listen on the `Logical Hostname`. This next step needs to be completed before continuing with `rapidwiz` for the Web Server and Forms Server installation of Oracle E-Business Suite.

---

d. Amend the Concurrent Manager Listener `listener.ora` file so that it recognizes the `Logical Hostname`.

Note – The output from the following `grep` commands are used as input to subsequent commands, for example the output from the `grep` command will normally be used in the next command, usually well known directories and/or file names will be added to obtain further information or simply edited.

```
# grep PROD.CON_COMNTOP /var/tmp/config.txt
PROD.CON_COMNTOP=/global/mnt10/d01/oracle/prodcomn
#
# su ebs
# cd /global/mnt10/d01/oracle/prodcomn/admin/scripts/PROD
#
# ./adalnctl.sh stop
# ./adcmctl.sh stop apps/apps
#
# grep ORA_ENVFILE= adalnctl.sh
ORA_ENVFILE="/global/mnt10/d01/oracle/prodora/8.0.6/PROD.env"
#
# grep TNS_ADMIN= /global/mnt10/d01/oracle/prodora/8.0.6/PROD.env
TNS_ADMIN="/global/mnt10/d01/oracle/prodora/8.0.6/network/admin/PROD"
#
# vi /global/mnt10/d01/oracle/prodora/8.0.6/network/admin/PROD/listener.ora
#
        Add LD_PRELOAD_32=/usr/lib/secure/libloghost.so.1
        and LHOSTNAME=<Logical Hostname>

        to the envs= parameter for the SID_NAME=FNDSM_<SID> enrty
```

Note – The following shows the contents of the `listener.ora` file after it has been modified. If `autoconfig` is used after `listener.ora` has been modified, you will need to reapply these changes, that is `autoconfig` will back out these changes so you will need to reapply them. The following text has been indented slightly so that it fits the page.

```
# more /global/mnt10/d01/oracle/prodora/8.0.6/network/admin/PROD/listener.ora
# $Header: admk80ln_ux.sql 115.7 2002/05/17 10:10:59 pkm ship        $
# LISTENER.ORA For Oracle Applications
# This file is automatically generated
APPS_PROD =
  (ADDRESS_LIST =
    (ADDRESS= (PROTOCOL= TCP)(Host= lhost1)(Port= 1626))
  )
SID_LIST_APPS_PROD =
  (SID_LIST =
    ( SID_DESC = ( SID_NAME = FNDSM_PROD )
        ( ORACLE_HOME = /global/mnt10/d01/oracle/prodora/8.0.6 )
        ( PROGRAM = /global/mnt10/d01/oracle/prodappl/fnd/11.5.0/bin/FNDSM )
```

```
        ( envs='LD_PRELOAD_32=/usr/lib/secure/libloghost.so.1, \
                    LHOSTNAME=lhost1, \
        MYAPPSORA=/global/mnt10/d01/oracle/prodappl/APPSORA.env, \
        DISPLAY=clusterix1:0.0,PATH=/usr/bin:/usr/ccs/bin:/bin, \
        FNDSM_SCRIPT=/global/mnt10/d01/oracle/prodappl/fnd/11.5.0/bin/gsmstart.sh' )
    )
    ( SID_DESC = ( SID_NAME = FNDFS  )
        ( ORACLE_HOME = /global/mnt10/d01/oracle/prodora/8.0.6 )
        ( PROGRAM = /global/mnt10/d01/oracle/prodappl/fnd/11.5.0/bin/FNDFS )
        ( envs='EPC_DISABLED=TRUE,NLS_LANG=AMERICAN_AMERICA.US7ASCII, \
        LD_LIBRARY_PATH=/usr/dt/lib:/usr/openwin/lib: \
        /global/mnt10/d01/oracle/prodora/8.0.6/lib, \
        SHLIB_PATH=/usr/lib:/usr/dt/lib:/usr/openwin/lib: \
        /global/mnt10/d01/oracle/prodora/8.0.6/lib, \
        LIBPATH=/usr/dt/lib:/usr/openwin/lib: \
        /global/mnt10/d01/oracle/prodora/8.0.6/lib' )
    )
  )
STARTUP_WAIT_TIME_APPS_PROD = 0
CONNECT_TIMEOUT_APPS_PROD = 10
TRACE_LEVEL_APPS_PROD = OFF
LOG_DIRECTORY_APPS_PROD = /global/mnt10/d01/oracle/prodora/8.0.6/network/admin
LOG_FILE_APPS_PROD = APPS_PROD
TRACE_DIRECTORY_APPS_PROD = /global/mnt10/d01/oracle/prodora/8.0.6/network/admin
TRACE_FILE_APPS_PROD = APPS_PROD
```

e. Create a symbolic link for `libloghost.so.1`.

To facilitate Oracle E-Business Suite working with a `Logical Hostname` the program `libloghost.so.1` is supplied to interrupt the system call when retrieving the hostname and instead return the `Logical Hostname`.

Note – The interrupted system call is only made whenever the Concurrent Manager Listener is running and when the Concurrent Manager Server is started or stopped.

The library that contains the `libloghost.so.1` program must reside in a secure library in order to prevent warning messages whenever such a system call is made.

To facilitate the library being within a secure directory, you need to create the following symbolic link on all nodes within Sun Cluster that will host the Sun Cluster HA for Oracle E-Business Suite data service.

```
# cd /usr/lib/secure
#
# ln -s /opt/SUNWscebs/cmg/lib/32/libloghost.so.1 libloghost.so.1
```

If you do not want to have

/opt/SUNWscebs/cmg/lib/32/libloghost.so.1

running from a secure library, you will need to do the following.

Amend the previous step (that is step 4d) to replace

/usr/lib/secure/libloghost.so.1

with

/opt/SUNWscebs/cmg/lib/32/libloghost.so.1, for example

```
LD_PRELOAD_32=/opt/SUNWscebs/cmg/lib/32/libloghost.so.1
```

Furthermore, when registering the Concurrent Manager Resource, you will need to specify that you are not using a secure library, however this is explained within step 13 in section "How to Register and Configure Sun Cluster HA for Oracle E-Business Suite as a Failover Service" on page 20

Running /opt/SUNWscebs/cmg/lib/32/libloghost.so.1 outside of a secure library will cause similar warning messages to appear, however these can be ignored.

```
ld.so.1: <cmd>: warning: /opt/SUNWscebs/cmg/lib/32/libloghost.so.1:
open failed: illegal insecure pathname
```

f. Copy the <Logical_hostname>_<dbname>.bdc file to prefix the physical hostname of the Sun Cluster nodes, instead of the logical hostname. This is required for Client access. In this example the logical hostname is lhost1 and the physical Sun Cluster nodes are clusterix1 and clusterix2.

```
# grep PROD.FRM_APPLTOP= /var/tmp/config.txt
PROD.FRM_APPLTOP=/global/mnt11/d01/oracle/prodappl
#
# cd /global/mnt11/d01/oracle/prodappl/fnd/11.5.0/secure
#
# cp lhost1_prod.dbc clusterix1_prod.dbc
# cp lhost1_prod.dbc clusterix2_prod.dbc
```

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

Use this procedure to verify the installation and configuration. This procedure does not verify that your application is highly available because you have not yet installed your data service.

Note – Before verifying the Installation and Configuration of Oracle E-Business Suite, ensure that the logical hostname and file systems are mounted. To do this you will need to complete steps 1–9 in "How to Register and Configure Sun Cluster HA for Oracle E-Business Suite as a Failover Service" on page 20.

Note – For this section, follow Oracle's *Oracle Applications, Installing Oracle Applications* manual to install Oracle E-Business Suite Client. Furthermore, you must ensure that Oracle E-Business Suite has been started.

- **Test a client can access Oracle E-Business Suite, using a Windows Client.**

  http://<logical_hostname>/8000/OA_HTML/US/ICXINDEX.htm

  Userid/Password **sysadmin/sysadmin**

  Then double click on **Requests**

  Then double click on **Run**

  Select **OK** to "Single requests"

  Enter **Active users** in the Name field

  Select **OK** to submit the request

  Click **Refresh Data** until "Active Users" is "Completed"

  Click **View output**"

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. Perform this procedure on each cluster node where you are installing the Sun Cluster HA for Oracle E-Business Suite packages. To complete this procedure, you need the Sun Cluster Agents CD-ROM.

If you are installing more than one data service simultaneously, perform the procedure in "Installing the Software" in *Sun Cluster 3.1 10/03 Software Installation Guide*.

Install the Sun Cluster HA for Oracle E-Business Suite packages by using one of the following installation tools:

- The Web Start program
- The `scinstall` utility

Note – The Web Start program is *not* available in releases earlier than Sun Cluster 3.1 Data Services 10/03.

▼ How to Install the Sun Cluster HA for Oracle E-Business Suite Packages by Using the Web Start Program

You can run the Web Start program with a command-line interface (CLI) or with a graphical user interface (GUI). The content and sequence of instructions in the CLI and the GUI are similar. For more information about the Web Start program, see the `installer`(1M) man page.

1. **On the cluster node where you are installing the Sun Cluster HA for Oracle E-Business Suite packages, become superuser.**

2. **(Optional) If you intend to run the Web Start program with a GUI, ensure that your `DISPLAY` environment variable is set.**

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

   If the Volume Management daemon `vold`(1M) is running and configured to manage CD-ROM devices, it automatically mounts the CD-ROM on the `/cdrom/scdataservices_3_1_vb` directory.

4. **Change to the Sun Cluster HA for Oracle E-Business Suite component directory of the CD-ROM.**

   The Web Start program for the Sun Cluster HA for Oracle E-Business Suite data service resides in this directory.

   ```
   # cd /cdrom/scdataservices_3_1_vb/components/SunCluster_HA_EBS_3.1
   ```

5. **Start the Web Start program.**

   ```
   # ./installer
   ```

6. **When you are prompted, select the type of installation.**

   - To install only the C locale, select Typical.
   - To install other locales, select Custom.

7. **Follow instructions on the screen to install the Sun Cluster HA for Oracle E-Business Suite packages on the node.**

   After the installation is finished, the Web Start program provides an installation summary. This summary enables you to view logs that the Web Start program created during the installation. These logs are located in the `/var/sadm/install/logs` directory.

8. **Exit the Web Start program.**

9. **Unload the Sun Cluster Agents CD-ROM from the CD-ROM drive.**

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

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

      ```
      # eject cdrom
      ```

▼ How to Install the Sun Cluster HA for Oracle E-Business Suite Packages by Using the `scinstall` Utility

Use this procedure to install the Sun Cluster HA for Oracle E-Business Suite packages. You need the Sun Cluster Agents CD-ROM to perform this procedure. This procedure assumes that you did not install the data services packages during your initial Sun Cluster installation.

If you installed the Sun Cluster HA for Oracle E-Business Suite packages as part of your initial Sun Cluster installation, proceed to "Registering and Configuring Sun Cluster HA for Oracle E-Business Suite" on page 20.

Otherwise, use this procedure to install the Sun Cluster HA for Oracle E-Business Suite packages. Perform this procedure on all nodes that can run Sun Cluster HA for Oracle E-Business Suite data service.

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 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.
6. **Exit the `scinstall` utility.**
7. **Unload the CD from the drive.**

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.

▼ How to Register and Configure Sun Cluster HA for Oracle E-Business Suite as a Failover Service

Use this procedure to configure Sun Cluster HA for Oracle E-Business Suite as a failover data service. 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 by Using the `scinstall` Utility" on page 19.

Otherwise, use this procedure to configure the Sun Cluster HA for Oracle E-Business Suite data service as a failover service.

Note – Depending on how you installed Oracle E-Business Suite using `rapidwiz` you may need to repeat some of the next steps, for example if a `two-node` installation was performed you will require two Failover Resource Groups (step 6) an additional SUNW.HAStoragePlus (step7) and Logical Hostname (step 8) resources, in separate resource groups.

---

1. **Become superuser on one of the nodes in the cluster that will host Oracle E-Business Suite.**

2. **Register the SUNW.gds resource type.**

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

3. **Register the SUNW.HAStoragePlus resource type.**

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

4. **Register the SUNW.oracle_server and SUNW.oracle_listener resource type.**

   ```
   # scrgadm -a -t SUNW.oracle_server
   # scrgadm -a -t SUNW.oracle_listener
   ```

5. **Register the SUNW.apache resource type.**

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

6. **Create a failover resource group .**

   ```
   # scrgadm -a -g Oracle E-Business Suite-failover-resource-group
   ```

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

   ```
   # scrgadm -a -j Oracle E-Business Suite-has-resource  \
   -g Oracle E-Business Suite-failover-resource-group  \
   -t SUNW.HAStoragePlus  \
   -x FilesystemMountPoints=Oracle E-Business Suite- instance-mount-points
   ```

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

   ```
   # scrgadm -a -L -j Oracle E-Business Suite-lh-resource  \
   -g Oracle E-Business Suite-failover-resource-group \
   -l Oracle E-Business Suite-logical-hostname
   ```

9. **Enable the failover resource group that now includes the Oracle E-Business Suite Disk Storage and Logical Hostname resources.**

   ```
   # scswitch -Z -g Oracle E-Business Suite-failover-resource-group
   ```

10. **Create a resource for the Oracle E-Business Suite Oracle Database.**

Note – For detailed information about Sun Cluster HA for Oracle please refer to the *Sun Cluster Data Services Installation and Configuration Guide*.

```
# grep PROD.DBS_ORA816 /var/tmp/config.txt
PROD.DBS_ORA816=/global/mnt10/d02/oracle/proddb/8.1.7
#
# scrgadm -a -j Oracle E-Business Suite-ORACLE-resource \
-t SUNW.oracle_server  \
-g  Oracle E-Business Suite-failover-resource-group\
-x Connect_string=apps/apps -x ORACLE_SID=PROD \
-x ORACLE_HOME=/global/mnt10/d02/oracle/proddb/8.1.7  \
-x Alert_log_file=/global/mnt10/d02/oracle/proddb/8.1.7/ \
admin/PROD/bdump/alert_PROD
#
# scswitch -e -j Oracle E-Business Suite-ORACLE-resource
```

11. Create a resource for the Oracle E-Business Suite Oracle Listener.

Note – For detailed information about Sun Cluster HA for Oracle please refer to the *Sun Cluster Data Services Installation and Configuration Guide*.

Note – In the example below, the `copy_env` script is used to copy and format the `PROD.env` file to `PROD_ha.env`, which is later used by the `User_env` extension property for the Oracle Listener resource.

```
# grep PROD.DBS_ORA816= /var/tmp/config.txt
PROD.DBS_ORA816=/global/mnt10/d02/oracle/proddb/8.1.7
#
# cd /opt/SUNWscebs/cmg/util
#
# ./copy_env /global/mnt10/d02/oracle/proddb/8.1.7 PROD
#
# scrgadm -a -j Oracle E-Business Suite-ORALSR-resource \
-t SUNW.oracle_listener  \
-g  Oracle E-Business Suite-failover-resource-group\
-x Listener_name=PROD\
-x ORACLE_HOME=/global/mnt10/d02/oracle/proddb/8.1.7 \
-x User_env=/global/mnt10/d02/oracle/proddb/8.1.7/PROD_ha.env
#
# scswitch -e -j Oracle E-Business Suite-ORALSR-resource
```

12. Create a resource for the Oracle E-Business Suite Concurrent Manager Listener.

Note – In the example below, the `copy_env` script is used to copy and format the `PROD.env` file to `PROD_ha.env`, which is later used by within the `User_env` extension property for the Concurrent Manager Listener resource.

```
# grep PROD.CON_ORA806= /var/tmp/config.txt
PROD.CON_ORA806=/global/mnt10/d01/oracle/prodora/8.0.6
#
# cd /opt/SUNWscebs/cmg/util
#
# ./copy_env /global/mnt10/d01/oracle/prodora/8.0.6 PROD
#
# scrgadm -a -j Oracle E-Business Suite-CMGLSR-resource  \
-t SUNW.oracle_listener  \
-x Listener_name=APPS_PROD\
-x ORACLE_HOME=/global/mnt10/d01/oracle/prodora/8.0.6 \
-x User_env=/global/mnt10/d01/oracle/prodora/8.0.6/PROD_ha.env
#
# scswitch -e -j Oracle E-Business Suite-CMGLSR-resource
```

13. Create a resource for the Oracle E-Business Suite Concurrent Manager Server.

```
# grep PROD.CON_COMNTOP /var/tmp/config.txt
PROD.CON_COMNTOP=/global/mnt10/d01/oracle/prodcomn        <- CON_COMNTOP
#
# grep PROD.DBS_ORA816= /var/tmp/config.txt
PROD.DBS_ORA816=/global/mnt10/d02/oracle/proddb/8.1.7    <- ORACLE_HOME
#
# cd /opt/SUNWscebs/cmg/util
```

Edit the `cmg_config` file and follow the comments with that file, for example

```
# These parameters can be customized in (key=value) form
#
#           RS - name of the resource for the application
#           RG - name of the resource group containing RS
#       HAS_RS - name of the HAStoragePlus SC resource
#       LSR_RS - name of the Concurrent Manager Listener SC resource
#     CON_HOST - name of the Concurrent Manager logical hostname
#  CON_COMNTOP - name of the Concurrent Manager COMMON_TOP directory
# CON_APPSUSER - name of the Concurrent Manager application userid
#      APP_SID - name of the application SID
#  APPS_PASSWD - name of the password for the APPS userid
#  ORACLE_HOME - name of the Oracle home directory
#    CON_LIMIT - Minimum number of Concurrent Managers
#                represented as a percentage i.e. 70 = 70%
#                (Note - Omit the % sign)
#         MODE - Specifies if Oracle E-Business Suite is running
#                32|64-bit code and if the LD_PRELOAD pathname
#                will have a symlink in /usr/lib/secure
#                       Default value = 32/Y
#               (Note - Refer to the Sun Cluster 3.1 Data Service
#                for Oracle E-Business Suite for more information)
#
```

The following is an example for Oracle E-Business Suite.

```
RS=ebs-cmg-res
RG=ebs-rg
HAS_RS=ebs-has-res
LSR_RS=ebs-cmglsr-res
CON_HOST=lhost1
CON_COMNTOP=/global/mnt10/d01/oracle/prodcomn
CON_APPSUSER=ebs
APP_SID=PROD
APPS_PASSWD=apps
ORACLE_HOME=/global/mnt10/d02/oracle/proddb/8.1.7
CON_LIMIT=70
MODE=32/Y
```

If `/opt/SUNWscebs/cmg/lib/32/libloghost.so.1` is not running as a secure library then you must amend `MODE=32/Y` to `MODE=32/N`. Refer back to step 4e in section "How to Install and Configure Oracle E-Business Suite" on page 12. After editing the `cmg_config` file you must now register the resource

```
# ./cmg_register
#
# scswitch -e -j Oracle E-Business Suite-CMG-resource
```

14. Create a resource for the Oracle E-Business Suite Forms Server.

```
# grep PROD.FRM_COMNTOP /var/tmp/config.txt
PROD.FRM_COMNTOP=/global/mnt11/d01/oracle/prodcomn        <- FRM_COMNTOP
#
# cd /opt/SUNWscebs/frm/util
```

Edit the `frm_config` file and follow the comments with that file, for example

```
# These parameters can be customized in (key=value) form
#
#           RS - name of the resource for the application
#           RG - name of the resource group containing RS
#           LH - name of the LogicalHostname SC resource
#       HAS_RS - name of the HAStoragePlus SC resource
#  FRM_COMNTOP - name of the Forms COMMON_TOP directory
# FRM_APPSUSER - name of the Forms application userid
#      APP_SID - name of the application SID
#
```

The following is an example for Oracle E-Business Suite.

```
RS=ebs-frm-res
RG=ebs-rg
LH=ebs-lh-res
HAS_RS=ebs-has-res
ADM_COMNTOP=/global/mnt11/d01/oracle/prodcomn
ADM_APPSUSER=ebs
APP_SID=PROD
```

After editing the `frm_config` file you must now register the resource

```
# ./frm_register
#
```

```
# scswitch -e -j Oracle E-Business Suite-FRM-resource
```

15. Create a resource for the Oracle E-Business Suite Report Server.

```
# grep PROD.ADM_COMNTOP /var/tmp/config.txt
PROD.ADM_COMNTOP=/global/mnt10/d01/oracle/prodcomn        <- ADM_COMNTOP
#
# cd /opt/SUNWscebs/rep/util
```

Edit the `rep_config` file and follow the comments with that file, for example

```
# These parameters can be customized in (key=value) form
#
#           RS - name of the resource for the application
#           RG - name of the resource group containing RS
#           LH - name of the LogicalHostname SC resource
#       HAS_RS - name of the HAStoragePlus SC resource
#  ADM_COMNTOP - name of the Admin COMMON_TOP directory
# ADM_APPSUSER - name of the Admin application userid
#      APP_SID - name of the application SID
#
```

The following is an example for Oracle E-Business Suite.

```
RS=ebs-rep-res
RG=ebs-rg
LH=ebs-lh-res
HAS_RS=ebs-has-res
ADM_COMNTOP=/global/mnt10/d01/oracle/prodcomn
ADM_APPSUSER=ebs
APP_SID=PROD
```

After editing the `rep_config` file you must now register the resource

```
# ./rep_register
#
# scswitch -e -j Oracle E-Business Suite-REP-resource
```

16. Create a resource for the Oracle E-Business Suite Web Server (Apache).

Note – For detailed information about Sun Cluster HA for Apache please refer to the *Sun Cluster Data Services Installation and Configuration Guide*.

```
# grep PROD.WEB_COMNTOP /var/tmp/config.txt
PROD.WEB_COMNTOP=/global/mnt11/d01/oracle/prodcomn        <- WEB_COMNTOP
#
# cd /global/mnt11/d01/oracle/prodcomn/admin/scripts/PROD
# ln -s adapcctl.sh apachectl
#
# vi adapcctl.sh (Add/modify the following)

    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

# scrgadm -a -j Oracle E-Business Suite-WEB-resource  \
-t SUNW.apache  \
-g  Oracle E-Business Suite-failover-resource-group\
-y Port_list=8000/tcp\
-x Bin_dir=/global/mnt11/d01/oracle/prodcomn/admin/scripts/PROD
#
# scswitch -e -j Oracle E-Business Suite-WEB-resource
```

17. Enable each Oracle E-Business Suite resource.

```
# scstat
# scswitch -e -j Oracle E-Business Suite-resource
```

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

Use this procedure to verify that you installed and configured Sun Cluster HA for Oracle E-Business Suite correctly.

1. **Become superuser on one of the nodes in the cluster that will host Oracle E-Business Suite.**

2. **Ensure all the Oracle E-Business Suite resources are online with `scstat`.**

   ```
   # scstat
   ```

   For each Oracle E-Business Suite resource that is not online, use the `scswitch` command as follows.

   ```
   # scswitch -e -j Oracle E-Business Suite- resource
   ```

3. **Run the `scswitch` command to switch the Oracle E-Business Suite resource group to another cluster node, such as *node2*.**

   ```
   # scswitch -z -g Oracle E-Business Suite-failover-resource-group -h node2
   ```

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

Use the information in this section to understand 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's probing algorithm or functionality, states the conditions, messages, and recovery actions associated with unsuccessful probing.

For conceptual information on 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

- **Concurrent Manager Server**
  - Sleeps for Thorough_probe_interval
  - Test to see if at least one `FND (Concurrent Manager)` process is running for `CON_APPSUSER`. If this fails then the probe will restart the Concurrent Manager Server resource.
  - Test to see if we can still connect to the Oracle Database. If this fails then the probe will restart the Concurrent Manager Server resource.
  - Calculate the number of concurrent processes running as a percentage of the maximum number of concurrent processes allowed and test if that percentage is less than `CON_LIMIT`, when the Concurrent Manager Server resource was defined. If the percentage is less than `CON_LIMIT` then the probe will restart the Concurrent Manager Server resource.
  - If all Concurrent Manager Server processes have died, pmf will interrupt the probe to immediately restart the Concurrent Manager Server resource.
  - If the Concurrent Manager Server resource is repeatedly restarted and subsequently exhausts the `Retry_count` within the `Retry_interval` then a failover is initiated for the Resource Group onto another node.
- **Forms Server**
  - Sleeps for Thorough_probe_interval
  - Test to see if the `f60srvm` process is running for `FRM_APPSUSER`. If `f60srvm` is found then test to see if the `f60webmx` process is running. If `f60webmx` is not found then the probe will retest after another iteration of the probe to see if `f60webmx` is still missing, because `f60srvm` usually restarts `f60webmx`. However, if after two successive probes, `f60webmx` is still missing or that `f60srvm` is not found on any probe then the probe will restart the Forms Server resource.
  - If the Forms Server resource is repeatedly restarted and subsequently exhausts the `Retry_count` within the `Retry_interval` then a failover is initiated for the Resource Group onto another node.
- **Report Server**
  - Sleeps for Thorough_probe_interval
  - Test to see if the `rwmts60` process is running for `REP_APPSUSER`. If this fails then the probe will restart the Forms Server resource.

- If the Report Server resource is repeatedly restarted and subsequently exhausts the `Retry_count` within the `Retry_interval` then a failover is initiated for the Resource Group onto another node.

Debug Sun Cluster HA for Oracle E-Business Suite

▼ How to turn debug on for Sun Cluster HA for Oracle E-Business Suite

Use the information in this section to understand how to turn on debug 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. However, it is possible to turn debug on for all Oracle E-Business Suite instances or a particular Oracle E-Business Suite instance.

Each Oracle E-Business Suite component has a `DEBUG` file under `/opt/SUNWscebs/xxx/etc`, where `xxx` is a three character abbreviation for the respective Oracle E-Business Suite component.

These files allow you to turn debug on for all Oracle E-Business Suite instances or for a specific Oracle E-Business Suite instance on a particular node with Sun Cluster. If you require debug to be turned on for Sun Cluster HA for Oracle E-Business Suite across the whole Sun Cluster, you will need to repeat this step on all nodes within Sun Cluster.

1. **Edit `/etc/syslog.conf`**

   Edit `/etc/syslog.conf` 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` to `daemon.debug` and restart `syslogd`. Note that the output below, from the command `grep daemon /etc/syslog.conf`, shows that `daemon.debug` has now been set.

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

```
# pkill -1 syslogd
#
```

2. **Edit `/opt/SUNWscebs/xxx/etc/config`**

   Perform this step for the `xxx` component where `xxx` is a three character abbreviation for the Oracle E-Business Suite component, on each node of Sun Cluster as required. The following example shows turning on debug for the Concurrent Manager Server resource, for example the`cmg` component.

   Edit `/opt/SUNWscebs/cmg/etc/config` and change `DEBUG=` to `DEBUG=ALL` or `DEBUG=`*`resource`*

```
# cat /opt/SUNWscebs/cmg/etc/config
#
# Copyright 2003 Sun Microsystems, Inc.  All rights reserved.
# Use is subject to license terms.
#
# Usage:
#       DEBUG=<RESOURCE_NAME> or ALL
#
DEBUG=ALL
#
```

Note – To turn off debug, simply reverse the steps above.

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