

Cluster Server Agent for Oracle e-Business Concurrent Manager Installation and Configuration Guide

AIX, HP-UX, Linux, Solaris

5.0

Cluster Server Agent for Oracle e-Business Concurrent Manager Installation and Configuration Guide

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Agent Version: 5.0

Document version: 5.0 Rev 0

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Introducing the agent for Oracle e-Business Concurrent Manager

This chapter includes the following topics:

- [About the Cluster Server agent for Oracle e-Business Concurrent Manager](#)
- [Supported software](#)
- [How the agent makes Oracle e-Business Concurrent Manager highly available](#)
- [Oracle e-Business Concurrent Manager agent functions](#)
- [Setting up Oracle e-Business Concurrent Manager in a VCS cluster](#)

About the Cluster Server agent for Oracle e-Business Concurrent Manager

Cluster Server (VCS) agents monitor specific resources within an enterprise application. They determine the status of resources and start or stop them according to external events.

The Cluster Server agent for Oracle e-Business Concurrent Manager provides high availability for Oracle e-Business Concurrent Manager in a cluster. The agent for Oracle e-Business Concurrent Manager controls and manages the function of the Concurrent Manager only.

See the Agent Pack Release Notes for the latest updates or software issues for this agent.

The Cluster Server agent for Oracle e-Business Concurrent Manager brings Concurrent Manager instances online, monitor the instances, and bring the instances offline. The agent monitors the system processes and server states, and can shutdown the Oracle e-Business Concurrent Manager instance in case of a failover. It supports both, 11i and R12 releases of Oracle e-Business Component.

Supported software

For information on the software versions that the Cluster Server agent for Oracle e-Business Concurrent Manager supports, see the Symantec Operations Readiness Tools (SORT) site: <https://sort.symantec.com/agents>.

How the agent makes Oracle e-Business Concurrent Manager highly available

The agent provides the following levels of application monitoring:

- Primary or Basic monitoring
This mode has Process check and Health check monitoring options. With the default Process check option, the agent verifies that the Concurrent Manager Instance processes are present in the process table. Process check cannot detect whether processes are in the hung or stopped states.
- Secondary or Detail monitoring
In this mode, the agent runs a utility to verify the status of the Concurrent Manager Instance. The agent detects application failure if the monitoring routine reports an improper function of the Concurrent Manager Instance processes. When this application failure occurs, the Concurrent Manager Instance service group fails over to another node in the cluster.
Thus, the agent ensures high availability for Concurrent Manager Instances.

High availability for Oracle e-Business Concurrent Manager instances running in Solaris zones

Solaris provides a means of virtualizing operating system services, allowing one or more processes to run in isolation from other activity on the system. Such a 'sandbox' is called a 'non-global zone'. Each zone can provide a rich and customized set of services. The processes that run in a 'global zone' have the same set of privileges that are available on a Solaris system today.

VCS provides high availability to applications running in non-global zones by extending the failover capability to zones. VCS is installed in a global zone, and all

the agents and the engine components run in the global zone. For applications running within non-global zones, agents run script entry points inside the zones. If a zone configured under VCS control faults, VCS fails over the entire service group containing the zone.

For more details, refer to the *Cluster Server Administrator's Guide*.

The Cluster Server agent for Oracle e-Business Concurrent Manager is zone-aware and can monitor Oracle e-Business Concurrent Manager instance instances running in non-global zones.

Oracle e-Business Concurrent Manager agent functions

The agent consists of resource type declarations and agent executables. The agent executables are organized into online, offline, monitor, and clean functions.

The following sections elaborate the steps that each agent function performs.

Online

The online function performs the following tasks:

- Performs a preliminary check to ensure that the Concurrent Manager instance is not running already on the specified node in the cluster.
- If any Concurrent Manager processes are running, the function performs a clean operation to end these processes.
- Start the Concurrent Manager instance using the Oracle supplied startup script:

```
adcmctl.sh <start>
```

- Waits for the instance to become online successfully.
The online function exits after either the instance becomes online, or after the timeout period specified in the OnlineTimeout attribute expires.

Offline

The offline function performs the following tasks:

- Performs a preliminary check to ensure that the Concurrent Manager instance is not already offline on the specified node in the cluster.
- Brings the instance offline using the Oracle supplied stop script:

```
adcmctl.sh <stop>
```

- Waits for the instance to become successfully offline.
 The offline function exits after either the instance becomes offline, or after the timeout period specified in the OfflineTimeout attribute expires.

Monitor

The monitor function monitors the state of the Concurrent Manager instance on all nodes in the cluster. The monitor function performs the following tasks:

- Conducts a first level check on the Concurrent Manager instance as follows:
 - The function ensures that the critical processes such as Internal Concurrent Manager, Service Manager, Conflict Resolution Manager, a Concurrent Manager worker process, and the JDBC process for database connection are running smoothly.
 - Apart from the Internal Concurrent Manager process, if any other processes are missing, the function waits for the Internal Concurrent Manager process to start the missing processes. If the Internal Concurrent Manager process starts the missing processes, the monitor function continues to complete the first level check.
 If the Internal Concurrent Manager process is missing, the first level check fails, and the function brings the Concurrent Manager instance offline.
- If the SecondLevelMonitor attribute is equal to 1, the monitor function performs a more thorough check of the Concurrent Manager instance.
 The monitor function executes the Oracle supplied afimchk.sql script to check the state of the Concurrent Manager instance.
- Depending upon the MonitorProgram attribute, the monitor function can perform a customized check using a user-supplied monitoring utility.
 review the details about executing a custom monitor program.
 See [“Executing a customized monitoring program”](#) on page 40.

Clean

The clean function performs the following tasks:

- Checks the reason why the clean function was invoked.
- If the function was invoked because of a failed offline operation, the clean function looks for all the processes running for the Concurrent Manager instance, and cleans the processes.
- In all other cases, the clean function attempts to gracefully shut down the Concurrent Manager instance.

If a graceful shutdown fails, the clean function looks for all the processes running for the Concurrent Manager instance, and cleans the processes.

Setting up Oracle e-Business Concurrent Manager in a VCS cluster

Follow the steps below to set up Oracle e-Business Concurrent Manager in a cluster:

- Set up a VCS cluster.
For more information on installing and configuring Cluster Server, refer to the Cluster Server installation and configuration guides.
- Install and configure Oracle e-Business Concurrent Manager for High Availability.
See [“About configuring the Cluster Server agent for Oracle e-Business Concurrent Manager”](#) on page 33.
- Install the Cluster Server agent for Oracle e-Business Concurrent Manager.
See [“Installing the agent in a VCS environment”](#) on page 26.
- Configure the service groups for Oracle e-Business Concurrent Manager.
See [“About configuring service groups for Oracle e-Business Concurrent Manager”](#) on page 51.

Installing and configuring Oracle e-Business Concurrent Manager for high availability

This chapter includes the following topics:

- [About Oracle eBusiness Concurrent Manager](#)
- [Uniquely identifying Oracle e-Business Concurrent Manager server instances](#)
- [Monitoring Oracle e-Business Concurrent Manager instance](#)
- [About configuring Oracle e-Business Concurrent Manager for high availability](#)
- [Migrating existing installation of Oracle e-Business Concurrent Manager from physical to virtual hostname](#)
- [Installing Oracle e-Business Concurrent Manager for clustering purposes](#)
- [Configuring a Concurrent Manager instance for clustering](#)
- [Setting up zones on Solaris for Oracle e-Business Concurrent Manager](#)

About Oracle eBusiness Concurrent Manager

A Concurrent Manager program ensures the efficient and smooth functioning of all the concurrent business processes.

Oracle applications by default have built-in Concurrent Managers that enable you to maintain the performance of your business processes. The Oracle e-Business suite have the following in-built Concurrent Managers:

- **Internal Concurrent Manager (ICM)**
This is a master manager that controls the behaviour of all the other concurrent managers. The ICM starts and shuts down the individual concurrent managers. In case of a failure it resets the other concurrent managers to handle the priority tasks of the failed manager.
- **Standard Manager (SM)**
The SM functions to run any reports and batch processes that have not been defined to run in any specific product manager. Examples of specific concurrent managers include the Inventory Manager, CRP Inquiry Manager, and the Receivables Tax Manager.
- **Conflict Resolution Manager (CRM)**
The CRM functions to check concurrent program definitions for incompatibility rules. However, the ICM can be configured to take over the CRM's job to resolve incompatibilities.
- **Transaction Manager (TM)**
The TM is responsible for taking the load off the concurrent request table for pooling the request submitted by the user. The TM takes care of these requests and sends it directly to the SM. In a RAC environment the TM is required to be activated on each node within the RAC environment.

Uniquely identifying Oracle e-Business Concurrent Manager server instances

To support identification, independence, and mobility of Oracle e-Business Concurrent Manager units, create a unique UNIX User account for each Concurrent Manager unit.

Note: Do not use the `root` account as a UNIX user of a Concurrent Manager component. The agent for Oracle e-Business Concurrent Manager uses the UNIX account information to isolate the processes running for a particular instance, before executing a `kill` command. If an instance is configured using a `root` account, the clean function may attempt to kill the processes that `root` owns.

For example, if you deploy separate instances of an Oracle e-Business Concurrent Manager, you can create dedicated separate UNIX users accounts to each of these units.

Note: A UNIX user account is unique for all components of a working Oracle e-Business Suite, that also comprises a Concurrent Manager instance.

If you provide such dedicated UNIX user accounts, the following holds true:

- The online function can start multiple Concurrent Manager instances on the same machine, with different user accounts.
- The monitor function can differentiate between two identical instances on the same machine using their UNIX user accounts.
For example, if two Concurrent Manager instances are running on the same machine, the monitor function can use their user accounts to differentiate the processes and resources belonging to individual resource instances.
- If multiple instances are running on a machine, the clean function can use the UNIX user accounts to filter out the processes running for a particular instance. Therefore, the operation can selectively kill the processes running for an instance, while not adversely affecting the working of other instances on the same machine.

Table 2-1 illustrates the relation between a UNIX user account, UNIX group user account, and a set of Concurrent Manager instances.

Table 2-1 Relation between CM instances and UNIX accounts

Concurrent Manager instances	UNIX user account	UNIX group account
Concurrent Mgr 1, that includes: <ul style="list-style-type: none">■ Concurrent Mgr Server■ Concurrent Mgr Listener■ Reports Server	oraccms1	dba
Concurrent Mgr 2, that includes: <ul style="list-style-type: none">■ Concurrent Mgr Server■ Concurrent Mgr Listener■ Reports Server	oraccms2	dba
Oracle 8.1.7 Instance	oracle	dba

Monitoring Oracle e-Business Concurrent Manager instance

The monitor operation performs a process level check to ensure proper functioning of an Oracle Concurrent Manager instance. The ProcMon attribute specifies the

processes that must successfully run for a particular Oracle Concurrent Manager instance type. The monitor operation uses this list of processes to scan the process table, and verifies that the processes are running successfully. The default values of ProcMon Attribute are FNDLIBR and FNDSM.

The base processes for a concurrent manager are FNDLIBR and FNDSM. These processes must be running for a running concurrent manager instance. Both executables are located at \$FND_TOP/bin.

The FNDLIBR process manages the following types of Concurrent Managers:

- Marketing Data Mining Manager
- Transportation Manager
- Session History Cleanup
- UWQ Worklist Items Release for Crashed session
- Collections Manager
- OAM Metrics Collection Manager
- Contracts Core Concurrent Manager
- Standard Manager
- WMS Task Archiving Manager
- Oracle Provisioning Manager

The FNDSM is an executable and core component in Generic Service Management Framework (GSM). You start the FNDSM services via application listener on all nodes in an Application Tier in E-Business Suite.

About configuring Oracle e-Business Concurrent Manager for high availability

The guidelines for configuring Oracle e-Business Concurrent Manager for high availability are as follows:

- In a service group, keep the single point of failure as minimal as possible and watch the application startup time.
- Assign a virtual hostname to the component within the switchover environment. Because the physical hostname changes with the switchover, this is a must-have requirement.
- Based on the expected failover time, configure the reconnection parameters for all software components and enable its automatic reconnection.

Migrating existing installation of Oracle e-Business Concurrent Manager from physical to virtual hostname

The Oracle e-Business Suite is bound to the hostname, and not to the IP address. There are two ways to migrate the pre-installed and configured Oracle e-Business Suite instance from a physical to a virtual hostname

1. Clone the existing instance with the virtual hostname using the Oracle-provided 'Rapid Clone' utility. For more information about the procedure for Rapid Cloning of Oracle e-Business Suite Release 11i and Release 12, see the following Oracle metalink documents:
 - Cloning Oracle Applications Release 11i with Rapid Clone [ID 230672.1]
 - Cloning Oracle Applications Release 12 with Rapid Clone [ID 406982.1]
2. Rename the physical hostname, that is, use the existing hostname as the virtual hostname and change the physical hostname. In this case, you need to re-configure VCS to use the new physical hostname.

Note: Before bringing the application under VCS control, verify that application is running as before.

Installing Oracle e-Business Concurrent Manager for clustering purposes

Perform the following procedure to install the Oracle e-Business Concurrent Manager on a node, and prepare the node for clustering.

Configure a disk group and a file system

Configure a disk group and file system that is large enough to hold the Oracle e-Business Concurrent Manager component.

Refer to the Oracle e-Business installation documentation for details about space requirements for a Concurrent Manager component.

Obtain virtual IP addresses for the node

Configure a virtual IP address for the Concurrent Manager instance, and resolve the address by adding the address to the local files or to the DNS system.

Install the Oracle e-Business Concurrent Manager component

Perform the following steps to install the Oracle e-Business Concurrent Manager component.

To install the Oracle e-Business Concurrent Manager component

- 1 Mount the file system.
- 2 Enable the IP address assigned to the Concurrent Manager component.
- 3 Run the Oracle supplied installer:

```
$ rapidwiz -servername <virtual hostname>
```

where:

<virtual hostname> is the virtual host name of the CM instance.

- 4 Follow the instructions in the installation GUI, and complete the component installation.

Configuring a Concurrent Manager instance for clustering

After installing the Oracle e-Business Concurrent Manager component, you must create a resource for the instance. To create a resource, define the properties of the instance in the VCS environment.

For example, you can create a resource of type OracleAppsCM for a Concurrent Manager instance with the following configuration details.

For OracleAppsCM 11i:

```
OracleAppsCM oraappsCM
(
  Critical = 0
  User = ebiz
  OracleHome = "/ebiz/visora/8.0.6"
  ScriptHome = "/ebiz/viscomn/admin/scripts/VIS_ebiz"
  SQLDIR = "/ebiz/visappl/fnd/11.5.0/sql"
  EnvFile = "/ebiz/visappl/APPSVIS_ebiz.env"
  DB_USER = APPS
  DB_Password = APPS
  VirtualHostname = ebiz
)
```

For OracleAppsCM R12:

```
OracleAppsCM oraappsCM
(
  Critical = 1
  User = applmgr
  OracleHome = "/ebiz/oracle/VIS/apps/tech_st/10.1.2"
  ScriptHome = "/ebiz/oracle/inst/apps/VIS_ebiz1/admin/scripts/"
  SQLDIR = "/ebiz/oracle/VIS/apps/apps_st/appl/fnd/12.0.0/sql"
  EnvFile = "/ebiz/oracle/VIS/apps/apps_st/appl/APPSVIS_ebiz1.env"
  DB_USER = apps
  DB_Password = apps
  User = applmgr
  SecondLevelMonitor = 5
  VirtualHostname = ebiz
)
```

Ensure that the value of VirtualHostname is equal to the value of *<virtual hostname>*.

See [“Installing Oracle e-Business Concurrent Manager for clustering purposes”](#) on page 18.

Setting up zones on Solaris for Oracle e-Business Concurrent Manager

An example of creating a zone for Oracle e-Business Concurrent Manager on Solaris is as follows:

Step 1: Create the zone.

```
bash-3.00# zonecfg -z OraCM_zone
OraCM_zone: No such zone configured
Use 'create' to begin configuring a new zone.
zonecfg:OraCM_zone> create
zonecfg:OraCM_zone> set zonepath=/export/zones/OraCM_zone
```

Step 2: Add the network information to the zone configuration.

```
zonecfg:OraCM_zone> add net
zonecfg:OraCM_zone:net> set address=10.212.98.193
zonecfg:OraCM_zone:net> set physical=bge0
zonecfg:OraCM_zone:net> end
```

Step 3: Add a comment for the zone. This step is optional.

```
zonecfg:OraCM_zone> add attr
zonecfg:OraCM_zone:attr> set name=comment
```

```
zonecfg:OraCM_zone:attr> set type=string
zonecfg:OraCM_zone:attr> set value="This is
OraCM_zone zone for Oracle e-Business Concurrent Manager System ERP."
zonecfg:OraCM_zone:attr> end
```

Step 4: Verify and commit the zone configuration.

```
zonecfg:OraCM_zone> verify
zonecfg:OraCM_zone> commit
zonecfg:OraCM_zone> exit

bash-3.00# zoneadm list -cv
ID NAME STATUS PATH
0 global running /
- OraCM_zone configured /export/zones/OraCM_zone
```

Step 5: Install the zone.

```
bash-3.00# zoneadm list -cv
ID NAME STATUS PATH
0 global running /
- OraCM_zone configured /export/zones/OraCM_zone

bash-3.00# zoneadm -z OraCM_zone install
Preparing to install zone <OraCM_zone>.
Creating list of files to copy from the global zone.
Copying <6208> files to the zone.
Initializing zone product registry.
Determining zone package initialization order.
Preparing to initialize <1420> packages on the zone.
Initialized <1420> packages on zone.
Zone <OraCM_zone> is initialized.
Installation of <113> packages was skipped.
Installation of these packages generated warnings: <VRTSat>
The file </export/zones/OraCM_zone/root/var/sadm/system/logs/install_log>
contains a log of the zone installation.

bash-3.00# zoneadm list -cv
ID NAME STATUS PATH
0 global running /
- OraCM_zone installed /export/zones/OraCM_zone
```

Step 6: Configure the zone.

To configure the zone for the first time do the following. Login to the zone console from the first terminal with the following command:

```
bash-3.00# zlogin -C OraCM_zone
[Connected to zone 'OraCM_zone' console]
Now, from the second terminal, start the zone.

bash-3.00# zoneadm -z OraCM_zone boot
You will see the following message on the first terminal.
[NOTICE: Zone booting up]
SunOS Release 5.10 Version Generic_118833-36 64-bit
Copyright 1983-2006 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.
Hostname: OraCM_zone
Loading smf(5) service descriptions: 25/25
Select a Language
0. English
1. Japanese
2. Korean
3. Simplified Chinese
4. Traditional Chinese
Please make a choice (0 - 4), or press h or ? for help:
```

For more information on setting up zones, refer to the Solaris 10 Administration Guide.

Installing, upgrading, and removing the agent for Oracle e-Business Concurrent Manager

This chapter includes the following topics:

- [Before you install the Cluster Server agent for Oracle e-Business Concurrent Manager](#)
- [About the ACC library](#)
- [Installing the ACC library](#)
- [Installing the agent in a VCS environment](#)
- [Uninstalling the agent in a VCS environment](#)
- [Removing the ACC library](#)
- [Upgrading the agent in a VCS environment](#)

Before you install the Cluster Server agent for Oracle e-Business Concurrent Manager

You must install the Cluster Server agent for Oracle e-Business Concurrent Manager on all the systems that will host Oracle e-Business Concurrent Manager service groups.

Before you install the agent for Oracle e-Business Concurrent Manager, ensure that the following prerequisites are met.

- Install and configure Cluster Server.
For more information on installing and configuring Cluster Server, refer to the Cluster Server installation and configuration guides.
- Remove any previous version of this agent.
To remove the agent,
See [“Uninstalling the agent in a VCS environment”](#) on page 29.
- Install the latest version of ACC Library.
To install or update the ACC Library package, locate the library and related documentation in the Agent Pack tarball,
See [“Installing the ACC library”](#) on page 25.

Prerequisites for installing the agent to support Solaris zones

Ensure that you meet the following prerequisites to install the agent for Oracle e-Business Concurrent Manager:

- Install Oracle e-Business Concurrent Manager inside the Solaris zones.
- Install and configure the VCS environment to support Solaris zones. Refer to the VCS user documentation for details.
- Install the required version of ACC Library.
- Remove any previous version of this agent.

About the ACC library

The operations of a Cluster Server agent depend on a set of Perl modules known as the ACC library. The library must be installed on each system in the cluster that runs the agent. The ACC library contains common, reusable functions that perform tasks, such as process identification, logging, and system calls.

Instructions to install or remove the ACC library on a single system in the cluster are given in the following sections. The instructions assume that the ACCLib tar file has already been extracted.

Note: The LogDbg attribute should be used to enable debug logs for the ACCLib-based agents when the ACCLib version is 6.2.0.0 or later and VCS version is 6.2 or later.

Installing the ACC library

Install the ACC library on each system in the cluster that runs an agent that depends on the ACC library.

To install the ACC library

- 1 Log in as a superuser.
- 2 Download ACC Library.

You can download either the complete Agent Pack tar file or the individual ACCLib tar file from the Symantec Operations Readiness Tools (SORT) site (<https://sort.symantec.com/agents>).

- 3 If you downloaded the complete Agent Pack tar file, navigate to the directory containing the package for the platform running in your environment.

AIX	<code>cd1/aix/vcs/application/acc_library/version_library/pkgs</code>
HP-UX	<code>cd1/hpux/generic/vcs/application/acc_library/version_library/pkgs</code>
Linux	<code>cd1/linux/generic/vcs/application/acc_library/version_library/rpms</code>
Solaris	<code>cd1/solaris/dist_arch/vcs/application/acc_library/version_library/pkgs</code> where <code>dist_arch</code> is <code>sol_sparc</code> .

- 4 If you downloaded the individual ACCLib tar file, navigate to the `pkgs` directory (for AIX and Solaris), or `rpms` directory (for Linux).
- 5 Install the package. Enter **Yes**, if asked to confirm overwriting of files in the existing package.

AIX	<code># installp -ac -d VRTSacclib.bff VRTSacclib</code>
HP-UX	<code># swinstall -s 'pwd' VRTSacclib</code>
Linux	<code># rpm -i \ VRTSacclib-VersionNumber-GA_GENERIC.noarch.rpm</code>
Solaris	<code># pkgadd -d VRTSacclib.pkg</code>

Note: The LogDbg attribute should be used to enable debug logs for the ACCLib-based agents when the ACCLib version is 6.2.0.0 or later and VCS version is 6.2 or later.

Installing the agent in a VCS environment

Install the agent for Oracle e-Business Concurrent Manager on each node in the cluster.

To install the agent in a VCS environment

- 1 Download the agent from the Symantec Operations Readiness Tools (SORT) site: <https://sort.symantec.com/agents>.

You can download either the complete Agent Pack tar file or an individual agent tar file.

- 2 Uncompress the file to a temporary location, say /tmp.
- 3 If you downloaded the complete Agent Pack tar file, navigate to the directory containing the package for the platform running in your environment.

```
AIX      cd1/aix/vcs/application/oracleapps_agent/  
          vcs_version/version_agent/pkggs
```

```
HP-UX    cd1/hpux/generic/vcs/application/oracleapps_agent/  
          vcs_version/version_agent/pkggs
```

```
Linux    cd1/linux/generic/vcs/application/oracleapps_agent/  
          vcs_version/version_agent/rpms
```

```
Solaris  cd1/solaris/dist_arch/vcs/application/oracleapps_agent/  
          vcs_version/version_agent/pkggs
```

where, *dist_arch* is sol_sparc.

If you downloaded the individual agent tar file, navigate to the pkggs directory (for AIX and Solaris), or rpms directory (for Linux).

- 4 Log in as a superuser.

5 Install the package.

```
AIX          # installp -ac -d  
              VRTSvcsoc11.rte.bff VRTSvcsoc11.rte  
  
HP-UX        # swinstall -s `pwd` VRTSvcsoc11  
  
Linux        # rpm -ihv \  
              VRTSvcsoc11-AgentVersion-GA_GENERIC.noarch.rpm  
  
Solaris      # pkgadd -d . VRTSvcsoc11
```

6 After installing the agent package, you must import the agent type configuration file.

Installing the agent IPS package on Oracle Solaris 11 systems

To install the agent IPS package on an Oracle Solaris 11 system**1** Copy the VRTSvcsoc11.p5p package from the pkgs directory to the system in the /tmp/install directory.**2** Disable the publishers that are not reachable as package install may fail if any of the already added repositories are unreachable.

```
# pkg set-publisher --disable <publisher name>
```

where the publisher name is obtained using the `pkg publisher` command.

3 Add a file-based repository in the system.

```
# pkg set-publisher -g /tmp/install/VRTSvcsoc11.p5p Symantec
```

4 Install the package.

```
# pkg install --accept VRTSvcsoc11
```

5 Remove the publisher from the system.

```
# pkg unset-publisher Symantec
```

6 Enable the publishers that were disabled earlier.

```
# pkg set-publisher --enable <publisher name>
```

Installing agent packages on Solaris brand non-global zones

With Oracle Solaris 11, you must install the agent package inside non-global zones. The native non-global zones are called Solaris brand zones.

To install the agent package on Solaris brand non-global zones

- 1 Ensure that the SMF service
`svc:/application/pkg/system-repository:default` and
`svc:/application/pkg/zones-proxyd:default` are online on the global zone.

```
# svcs svc:/application/pkg/system-repository:default
# svcs svc:/application/pkg/zones-proxyd:default
```
- 2 Log on to the non-global zone as a superuser.
- 3 Ensure that the SMF service
`svc:/application/pkg/zones-proxy-client:default` is online inside non-global zone:

```
# svcs svc:/application/pkg/zones-proxy-client:default
```
- 4 Copy the `VRTSvc soc11.p5p` package from the `pkgs` directory to the non-global zone (for example, at the `/tmp/install` directory).
- 5 Disable the publishers that are not reachable, as package install may fail if any of the already added repositories are unreachable.

```
# pkg set-publisher --disable <publisher name>
```
- 6 Add a file-based repository in the non-global zone.

```
# pkg set-publisher -g/tmp/install/VRTSvc soc11.p5p Symantec
```
- 7 Install the package.

```
# pkg install --accept VRTSvc soc11
```
- 8 Remove the publisher on the non-global zone.

```
# pkg unset-publisher Symantec
```
- 9 Clear the state of the SMF service, as setting the file-based repository causes the SMF service `svc:/application/pkg/system-repository:default` to go into the maintenance state.

```
# svcadm clear svc:/application/pkg/system-repository:default
```
- 10 Enable the publishers that were disabled earlier.

```
# pkg set-publisher --enable <publisher>
```

Note: Perform steps 2 through 10 on each non-global zone.

Installing the agent in a Solaris 10 brand zone

To install the Oracle e-Business Concurrent Manager agent in a Solaris 10 brand zone:

- Ensure that the ACC library package, VRTSacclib, is installed in the non-global zone.

To install VRTSacclib in the non-global zone, run the following command from the global zone:

```
# pkgadd -R /zones/zone1/root -d VRTSacclib.pkg
```

- To install the agent package in the non-global zone, run the following command from the global zone:

```
# pkgadd -R zone-root/root -d . VRTSvcsoc11
```

For example: # pkgadd -R /zones/zone1/root -d . VRTSvcsoc11

Uninstalling the agent in a VCS environment

You must uninstall the agent for Oracle e-Business Concurrent Manager from a cluster while the cluster is active.

To uninstall the agent in a VCS environment

- 1 Log in as a superuser.
- 2 Set the cluster configuration mode to read/write by running the following command from any node in the cluster:

```
# haconf -makerw
```

- 3 Remove all Oracle e-Business Concurrent Manager resources from the cluster. Run the following command to verify that all resources have been removed:

```
# hares -list Type=OracleAppsCM
```

- 4 Remove the agent type from the cluster configuration by running the following command from any node in the cluster:

```
# hatype -delete OracleAppsCM
```

Removing the agent's type file from the cluster removes the include statement for the agent from the `main.cf` file, but the agent's type file is not removed from the cluster configuration directory. You can remove the agent's type file later from the cluster configuration directory.

- 5 Save these changes. Then set the cluster configuration mode to read-only by running the following command from any node in the cluster:

```
# haconf -dump -makero
```

- 6 Use the platform's native software management program to remove the agent for Oracle e-Business Concurrent Manager from each node in the cluster.

Run the following command to uninstall the agent:

AIX	<code># installp -u VRTSvcsoc11.rte</code>
HP-UX	<code># swremove VRTSvcsoc11</code>
Linux	<code># rpm -e VRTSvcsoc11</code>
Solaris	<code># pkgrm VRTSvcsoc11</code>

Removing the ACC library

Perform the following steps to remove the ACC library.

To remove the ACC library

- 1 Ensure that all agents that use ACC library are removed.
- 2 Run the following command to remove the ACC library package.

AIX	<code># installp -u VRTSacclib</code>
HP-UX	<code># swremove VRTSacclib</code>
Linux	<code># rpm -e VRTSacclib</code>
Solaris	<code># pkgrm VRTSacclib</code>

Upgrading the agent in a VCS environment

Perform the following steps to upgrade the agent with minimal disruption, in a VCS environment.

To upgrade the agent in a VCS environment

- 1 Persistently freeze the service groups that host the application.

```
# hagr -freeze GroupName -persistent
```

- 2 Stop the cluster services forcibly.

```
# hstop -all -force
```

- 3 Ensure that the agent operations are stopped on all the nodes.

```
# ps -ef | grep OracleAppsCM
```

- 4 Uninstall the agent package from all the nodes. Use the platform's native software management program to remove the agent for Oracle e-Business Concurrent Manager from each node in the cluster.

Run the following command to uninstall the agent:

```
AIX          #installp -u VRTSvcsoc11.rte
```

```
HP-UX        #swremove VRTSvcsoc11
```

```
Linux        #rpm -e VRTSvcsoc11
```

Solaris For Solaris 10:

```
#pkgrm VRTSvcsoc11
```

For Solaris 11:

```
# pkg uninstall VRTSvcsoc11
```

- 5 Install the new agent on all the nodes.

See [“Installing the agent in a VCS environment”](#) on page 26.

- 6 Copy the new `OracleAppsCMTypes.cf` file from the agent's conf directory, to the VCS conf directory `/etc/VRTSvcs/conf/config`.

VCS 4.x	■ AIX	/etc/VRTSvcs/conf/sample_OracleAppsCM/
	■ HP-UX	OracleAppsCMTypes.cf
	■ Linux	
	■ Solaris	

VCS 5.x or later	■ AIX	/etc/VRTSagents/ha/conf/OracleAppsCM/
	■ HP-UX	OracleAppsCMTypes.cf
	■ Linux	
VCS 5.0	■ Solaris SPARC	/etc/VRTSagents/ha/conf/OracleAppsCM/OracleAppsCMTypes50.cf
VCS 5.1 or later	■ Solaris SPARC	/etc/VRTSagents/ha/conf/OracleAppsCM/OracleAppsCMTypes51.cf

Note: If you are using Solaris SPARC, copy the `OracleAppsCMTypes50.cf` file for VCS 5.0 (and its intermediate Maintenance Packs) and `OracleAppsCMTypes51.cf` file for VCS 5.1 or later.

- 7 Check for the changes in the resource values required, if any, due to the new agent types file.

Note: To note the list of changed attributes, compare the new type definition file with the old type definition file.

- 8 Start the cluster services.

```
# hstart
```

- 9 Start the agent on all nodes, if not started.

```
# haagent -start OracleAppsCM -sys SystemName
```

- 10 Unfreeze the service groups once all the resources come to an online steady state.

```
# hagrps -unfreeze GroupName -persistent
```


Configuring the agent for Oracle e-Business Concurrent Manager

This chapter includes the following topics:

- [About configuring the Cluster Server agent for Oracle e-Business Concurrent Manager](#)
- [Importing the agent types files in a VCS environment](#)
- [Oracle e-Business Concurrent Manager agent attributes](#)
- [Executing a customized monitoring program](#)
- [Creating soft links to JDBC properties file](#)
- [Configuring Virtual Host Name for Concurrent Manager instance](#)

About configuring the Cluster Server agent for Oracle e-Business Concurrent Manager

After installing the Cluster Server agent for Oracle e-Business Concurrent Manager, you must import the agent type configuration file. After importing this file, review the attributes table that describes the resource type and its attributes, and then create and configure Oracle e-Business Concurrent Manager resources.

To view the sample agent type definition and service groups configuration:

See [“About sample configurations for the agents for Oracle e-Business Concurrent Manager”](#) on page 60.

Importing the agent types files in a VCS environment

To use the agent for Oracle e-Business Concurrent Manager, you must import the agent types file into the cluster.

You can import the agent types file using the VCS graphical user interface or using the command line interface.

To import the agent types file using the VCS graphical user interface

- 1 Start the Cluster Manager (Java Console) and connect to the cluster on which the agent is installed.
- 2 Click **File > Import Types**.
- 3 In the **Import Types** dialog box, select the following file:

- For VCS 5.x and later on AIX and Linux

```
/etc/VRTSagents/ha/conf/OracleAppsCM/OracleAppsCMTypes.cf
```

- For VCS 5.1 and later on Solaris SPARC

```
/etc/VRTSagents/ha/conf/OracleAppsCM/OracleAppsCMTypes51.cf
```

- For VCS 5.0 on Solaris SPARC

```
/etc/VRTSagents/ha/conf/OracleAppsCM/OracleAppsCMTypes50.cf
```

- For VCS 4.x on AIX, Linux, and Solaris

```
/etc/VRTSvcsc/conf/sample_OracleAppsCM/OracleAppsCMTypes.cf
```

- For VCS 4.x on Solaris zones

```
/etc/VRTSvcsc/conf/sample_OracleAppsCM/OracleAppsCMTypes_zones.cf
```

- 4 Click **Import**.
- 5 Save the VCS configuration.

The Oracle e-Business Concurrent Manager agent type is now imported to the VCS engine.

You can now create Oracle e-Business Concurrent Manager resources. For additional information about using the VCS GUI, refer to the *Cluster Server Administrator's Guide*.

To import the agent types file using the command line interface (CLI):

- 1 Log on to any one of the systems in the cluster as the superuser.
- 2 Create a temporary directory.

```
# mkdir ./temp  
  
# cd ./temp
```

- 3 For VCS 5.0 and later, run the following script to import the agent types file:

```
# sh /etc/VRTSagents/ha/conf/OracleAppsCM/OracleAppsCMTypes.cmd
```

- 4 For VCS 4.x, copy the sample file Types.cf and then create a dummy main.cf file:.

```
# echo 'include "OracleAppsCMTypes.cf"' > main.cf
```

Create the Oracle e-Business Concurrent Manager instance resource type as follows:

```
■ # hacf -verify  
  
■ # haconf -makerw  
  
■ # sh main.cmd  
  
■ # haconf -dump
```

The Oracle e-Business Concurrent Manager agent type is now imported to the VCS engine.

You can now create Oracle e-Business Concurrent Manager resources. For additional information about using the VCS CLI, refer to the *Cluster Server Administrator's Guide*.

Oracle e-Business Concurrent Manager agent attributes

[Table 4-1](#) lists the attributes required for configuring Concurrent Manager.

Table 4-1 Required attributes

Required attributes	Description
ProcMon	<p>This attribute is used by the monitor function to determine the processes to be observed during the process-level check. The monitor function uses the elements of the vector to build a list of processes to be monitored and verifies that all processes listed in the vector are running.</p> <p>Note: Each Oracle Application module starts different Concurrent Manager processes, each with its own unique signature. The number and type of processes vary depending on the Oracle e-Business Application installed.</p> <p>Type and dimension: string-vector</p> <p>Default: "FNDLIBR, FNDSM"</p> <p>Example: FNDLIBR, FNDSM</p>
ProcClean	<p>This attribute is used by the clean function to identify the processes to be observed, during a clean function. The clean function uses the vector elements and ProcMon elements to build a list of Concurrent Manager processes to be cleaned, if the normal shutdown process fails.</p> <p>Note: Each Oracle Application module starts different Concurrent Manager processes, each with its own unique signature. The number and type of processes vary depending on the Oracle e-Business Application installed.</p> <p>Type and dimension: string-vector</p> <p>Default: "FNDLIBR, FNDSM"</p> <p>Example: FNDLIBR, FNDSM</p>
DB_USER	<p>The user name of the Concurrent Manager database administrator. This user name is used to construct the start-up command for the online function:</p> <p>ScriptHome/adcmctl.sh start <DB_USER>/<DB_Password></p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example: APPS</p>

Table 4-1 Required attributes (*continued*)

Required attributes	Description
DB_Password	<p>The encrypted password to the Concurrent Manager database account. This password is used to construct the start-up command for the online function.</p> <p>Encrypt this password using <code>vsencrypt -agent <cleartext password></code></p> <p>The output of this command is an encrypted password. DB_Password must be set to the encrypted value.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example: APPS</p>
EnvFile	<p>The directory path of the file that must be sourced with the UNIX shell. You must source this file to set the environment before executing agent scripts for online, offline, monitor, and clean functions.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example for 11i: /ebiz/visappl/APPSVIS_ebiz.env</p> <p>Example for R12: /ebiz/oracle/VIS/apps/apps_st/appl/APPSVIS_ebiz.env</p>
ORACLE_HOME	<p>The directory path to the file that contains the Oracle Database client binaries. These binaries are exclusive to a particular Concurrent Manager instance, and are located in the Oracle e-Business Concurrent Manager software directory.</p> <p>This attribute is used in the monitor and clean functions to locate the environment setup file, and the Oracle client binaries that are used in second-level monitoring and clean functions.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example for 11i: /ebiz/visora/8.0.6</p> <p>Example for R12: /oracle/VIS/apps/tech_st/10.1.2</p>

Table 4-1 Required attributes (*continued*)

Required attributes	Description
ResLogLevel	<p>The logging detail performed by the agent for the resource. Valid values are:</p> <p>ERROR: Only logs error messages.</p> <p>WARN : Logs above plus warning messages.</p> <p>INFO: Logs above plus informational messages.</p> <p>TRACE: Logs above plus trace messages. TRACE is very verbose and should only be used during initial configuration or for troubleshooting and diagnostic functions.</p> <p>Type and dimension: string-scalar</p> <p>Default: INFO</p> <p>Example: TRACE</p>
ScriptHome	<p>The absolute path of the Oracle e-Business scripts directory. This directory contains the scripts to start and stop a Concurrent Manager instance.</p> <p>Type and dimension: string-scalar</p> <p>Example for 11i: /ebiz/viscomn/admin/scripts/VIS_ebiz</p> <p>Example for R12: /ebiz/oracle/inst/apps/VIS_ebiz1/admin/scripts</p> <p>Default: ""</p>
SQLDIR	<p>The absolute path of the Oracle e-Business sql scripts directory. This directory contains the afimchk.sql script that is used during second-level monitor function.</p> <p>Type and dimension: string-scalar</p> <p>Example for 11i: /ebiz/visappl/fnd/11.5.10/sql</p> <p>Example for R12: /ebiz/oracle/VIS/apps/apps_st/appl/fnd/12.0.0/sql</p> <p>Default: ""</p>

Table 4-1 Required attributes (*continued*)

Required attributes	Description
User	<p>UNIX user name used to start and stop a Concurrent Manager instance. The clean function also uses this user name to kill residual processes.</p> <p>Review the information about setting UNIX user names.</p> <p>See “Uniquely identifying Oracle e-Business Concurrent Manager server instances” on page 15.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example: oracle</p>
VirtualHostname	<p>Virtual hostname that is associated with a Concurrent Manager instance.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example: con_mgr_01</p>

[Table 4-2](#) lists the optional attributes for configuring Concurrent Manager.

Table 4-2 Optional attributes

Optional attributes	Description
MonitorProgram	<p>The full pathname and command-line arguments for an externally provided monitor program.</p> <p>Review the information about setting this attribute.</p> <p>See “Executing a customized monitoring program” on page 40.</p> <p>Type and dimension: string-scalar</p> <p>Default: ""</p> <p>Example 1: /usr/ebiz/visappl/work/myMonitor.sh</p> <p>Example 2: /usr/ebiz/visappl/work/myMonitor.sh arg1 arg2</p>

Table 4-2 Optional attributes (*continued*)

Optional attributes	Description
SecondLevelMonitor	<p>Used to enable second-level monitoring. Second-level monitoring is a deeper, more thorough state check of the Concurrent Manager instance. The numeric value specifies how often the monitoring routines must run. 0 means never run the second-level monitoring routines, 1 means run routines every monitor interval, 2 means run routines every second monitor interval, and so on.</p> <p>Note: Exercise caution while setting SecondLevelMonitor to large numbers. For example, if the MonitorInterval is set to 60 seconds and the SecondLevelMonitor is set to 100, then the agent executes a process check every 100 minutes, which may not be as often as intended. For maximum flexibility, no upper limit is defined for SecondLevelMonitor.</p> <p>Type and dimension: integer-scalar</p> <p>Example: 1</p> <p>Default: 0</p>

Executing a customized monitoring program

The monitor function executes a custom monitor program to perform a user-defined Oracle e-Business Concurrent Manager instance server state check.

The monitor function executes the utility specified in the MonitorProgram attribute if the following conditions are satisfied:

- The MonitorProgram attribute value is set to a valid executable program.
- The first-level process check indicates that the Oracle e-Business Concurrent Manager instance is online.
- The SecondLevelMonitor attribute is either set to 0 (false), or SecondLevelMonitor is set to 1 (true) and the second-level check indicates that the Oracle e-Business Concurrent Manager instance is online.

This feature allows cluster administrators to define custom programs that can further determine the state of the Oracle e-Business Concurrent Manager instance.

The monitor function interprets the utility exit code as follows:

110 or 0	Oracle e-Business Concurrent Manager server instance is online
----------	--

100 or 1	Oracle e-Business Concurrent Manager server instance is offline
99	Oracle e-Business Concurrent Manager server instance is unknown
Any other value	Oracle e-Business Concurrent Manager server instance is unknown

To ensure that the custom monitor program is always available to the agent application, Symantec recommends storing the file in a shared directory that is available on an online Oracle system.

Creating soft links to JDBC properties file

Each Oracle application component attempts to connect to the Oracle database for configuration information, for example, instance metadata. For a successful database session, the application accesses the JDBC properties file to obtain the correct database session properties' information. The JDBC file name must be VirtualName_DBNAME, where VirtualName is the virtual name of the Oracle application database resource and DBNAME is the name of the database that is specified during installation.

To avoid problems while accessing the JDBC properties file, Symantec recommends creating a soft link to the JDBC properties file for each node in the cluster.

For example, consider a cluster that has four nodes, oranode1, oranode2, oranode3, and oranode4. The virtual name of the Oracle application database resource is ORADB. The DBNAME is vis. The resource is an Oracle 9iAS instance, where \$APPL_TOP is equal to /ora_apps/web/visappl. The 9iAS UNIX user ID is oraweb.

To create a soft link for each node of the cluster, login as a oraweb user and run the following commands:

```
$ cd /ora_apps/web/visappl/fnd/11.5.0/secure
$ ln -s ORADB_vis.dbc oranode1_vis.dbc
$ ln -s ORADB_vis.dbc oranode2_vis.dbc
$ ln -s ORADB_vis.dbc oranode3_vis.dbc
$ ln -s ORADB_vis.dbc oranode4_vis.dbc
```

If you configure a Concurrent Manager instance in a clustered environment, you must create a soft link to the virtual hostname of the CM instance. For example, if the virtual hostname running the CM instance is oraccms, run this command to create a soft link:

```
$ ln -s ORADB_vis.dbc oraccms_vis.dbc
```

Note: Oracle Apps R12 has inbuilt and separate instance homes for each instance. Additionally, the DB_TOP, APPL_TOP and COMMON_TOP instances are shared by all separate instances. Thus, in case of Oracle Apps R12, you are not required to create the soft links to JDBC properties file.

Configuring Virtual Host Name for Concurrent Manager instance

An Oracle e-Business Concurrent Manager instance is configured on a node in the cluster. This node has a physical host name, and the Concurrent Manager instance has a virtual host name.

Before configuring the resource for the Concurrent Manager instance, you must ensure that the VCS environment recognizes the virtual host name of Concurrent Manager instance, and not the physical host name of the server.

Perform the following steps before you configure a resource for the Concurrent Manager instance.

To prepare to configure a resource for Concurrent Manager instance

- 1 Stop the listener process of the Concurrent Manager instance using the following commands for 11i and R12 respectively:

```
$COMMON_TOP/admin/scripts/<CONTEXT_NAME>/adalnctl.sh stop
```

```
$INST_TOP/admin/scripts/adalnctl.sh stop
```

where, <CONTEXT_NAME> is a variable that refers to <SID>_<hostname>.

- 2 Stop all other processes of the Concurrent Manager instance using the following commands for 11i and R12 respectively:

```
$COMMON_TOP/admin/scripts/<CONTEXT_NAME>/adcmctl.sh stop APPS/APPS
```

```
$INST_TOP/admin/scripts/adcmctl.sh stop APPS/APPS
```

- 3 To check which listener file the Concurrent Manager instance is using, do the following:

- Run the command.

```
$ grep ORA_ENVFILE adalnctl.sh
```

- Run the command using the file that the preceeding command returned.

```
$ grep TNS_ADMIN <file>
```

- Go to the TNS_ADMIN directory.

```
$ cd $TNS_ADMIN
```

- Open the listener.ora file.

```
$ vi listener.ora
```

4 Add the following lines in the listener.ora file:

AIX For VCS 4.0

```
LDR_PRELOAD=/opt/VRTSvcs/bin/OracleAppsCM/libvuname.so
VHOSTNAME=<virtual hostname>
```

For VCS 5.0

```
LDR_PRELOAD=/opt/VRTSagents/ha/bin/OracleAppsCM/ \
libvuname.so
VHOSTNAME=<virtual hostname>
```

HP-UX For VCS 4.1

```
LD_PRELOAD=/opt/VRTSvcs/bin/OracleAppsCM/libvuname.sl
VHOSTNAME=<virtual hostname>
```

For VCS 5.0

```
LD_PRELOAD=/opt/VRTSagents/ha/bin/OracleAppsCM/ \
libvuname.sl
VHOSTNAME=<virtual hostname>
```

Linux For VCS 4.1

```
LD_PRELOAD=/opt/VRTSvcs/bin/OracleAppsCM/libvuname.so
VHOSTNAME=<virtual hostname>
```

For VCS 5.0

```
LD_PRELOAD=/opt/VRTSagents/ha/bin/OracleAppsCM/ \
libvuname.so
VHOSTNAME=<virtual hostname>
```

```
Linux LD_PRELOAD=libvuname.so
x86_64 VHOSTNAME=<virtual hostname>
```

```
Solaris LD_PRELOAD_32=/usr/lib/secure/libvuname.so
VHOSTNAME=<virtual hostname>
```

where, <virtual hostname> is the virtual host name of the Concurrent Manager instance.

An example of how the listener.ora file looks in an HP-UX system is shown as follows.

```

APPS_VIS =
  (ADDRESS_LIST =
    (ADDRESS= (PROTOCOL= TCP) (Host= ebiz) (Port= 1626))
  )
SID_LIST_APPS_VIS =
  (SID_LIST =
    ( SID_DESC = ( SID_NAME = FNDSM )
      ( ORACLE_HOME = /ebiz/visora/8.0.6 )
      ( PROGRAM = /ebiz/visappl/fnd/11.5.0/bin/FNDSM )
      ( envs='MYAPPSORA=/ebiz/visappl/APPSVIS_ebiz.env,PATH=/usr/bin:/usr/
        ccs/bin:/bin,FNDSM_SCRIPT=/ebiz/v
iscomn/admin/scripts/VIS_ebiz/gsmstart.sh,LD_PRELOAD=/opt/VRTSvcs/bin/OracleAppsCM/
libvuname.sl,VHOSTNAME=ebiz' )
    )
    ( SID_DESC = ( SID_NAME = FNDFS )
      ( ORACLE_HOME = /ebiz/visora/8.0.6 )
      ( PROGRAM = /ebiz/visappl/fnd/11.5.0/bin/FNDFS )
      ( envs='EPC_DISABLED=TRUE,NLS_LANG=American_America.UTF8,
LD_LIBRARY_PATH=/usr/dt/lib:/usr/openwin/lib
:/ebiz/visora/8.0.6/lib,SHLIB_PATH=/usr/lib:/usr/dt/lib:/usr/openwin/lib:/
ebiz/visora/8.0.6/lib,LIBPATH=/usr/dt/lib:/usr/openwin/lib:/ebiz/visora/
8.0.6/lib,APPLFSTT=VIS_BALANCE;VIS_806_BALANCE;VIS;VIS_FO,APPLFSWD=/ebiz/
visappl/admin;/ebiz/viscomn/temp;/ebiz/viscomn/html/oam/nonUix/launchMode/
restricted,LD_PRELOAD=/opt/VRTSvcs/bin/OracleAppsCM/libvuname.sl,VHOSTNA
ME=ebiz' )
    )
  )
STARTUP_WAIT_TIME_APPS_VIS = 0
CONNECT_TIMEOUT_APPS_VIS = 10
TRACE_LEVEL_APPS_VIS = OFF
LOG_DIRECTORY_APPS_VIS = /ebiz/visora/8.0.6/network/admin
LOG_FILE_APPS_VIS = APPS_VIS
TRACE_DIRECTORY_APPS_VIS = /ebiz/visora/8.0.6/network/admin
TRACE_FILE_APPS_VIS = APPS_VIS
IFILE =
/ebiz/visora/8.0.6/network/admin/VIS_ebiz/VIS_ebiz_listener_ifi
le.ora

```

5 Navigate to the following directory for 11i and R12 respectively:

```

cd $COMMON_TOP/admin/scripts/<CONTEXT_NAME>

cd $INST_TOP/admin/scripts

```

6 Add these lines in the adalnctl.sh and adcmctl.sh files:

AIX

For VCS 4.0

```
LDR_PRELOAD=/opt/VRTSvcs/bin/OracleAppsCM/libvuname.so
VHOSTNAME=<virtual hostname>
export LDR_PRELOAD VHOSTNAME
```

For VCS 5.0

```
LDR_PRELOAD=/opt/VRTSagents/ha/bin/OracleAppsCM/ \
libvuname.so
VHOSTNAME=<virtual hostname>
export LDR_PRELOAD VHOSTNAME
```

HP-UX

For VCS 4.1

```
LD_PRELOAD=/opt/VRTSvcs/bin/OracleAppsCM/libvuname.sl
VHOSTNAME=<virtual hostname>
export LD_PRELOAD VHOSTNAME
```

For VCS 5.0

```
LD_PRELOAD=/opt/VRTSagents/ha/bin/OracleAppsCM/ \
libvuname.sl
VHOSTNAME=<virtual hostname>
export LD_PRELOAD VHOSTNAME
```

Linux

For VCS 4.1

```
LD_PRELOAD=/opt/VRTSvcs/bin/OracleAppsCM/libvuname.so
VHOSTNAME=<virtual hostname>
export LD_PRELOAD VHOSTNAME
```

For VCS 5.0

```
LD_PRELOAD=/opt/VRTSagents/ha/bin/OracleAppsCM/ \
libvuname.so
VHOSTNAME=<virtual hostname>
export LD_PRELOAD VHOSTNAME
```

Linux x86_64

```
LD_PRELOAD=libvuname.so
VHOSTNAME=<virtual hostname>
export LD_PRELOAD VHOSTNAME
```

```
Solaris      LD_PRELOAD_32=/usr/lib/secure/libvuname.so
             VHOSTNAME=<virtual hostname>
             export LD_PRELOAD_32 VHOSTNAME
```

7 On Solaris, create the symbolic links as follows:

For VCS 4.1

- \$ ln -s /opt/VRTSvcs/bin/OracleAppsCM/libvuname.so /usr/lib/libvuname.so
- \$ ln -s /opt/VRTSvcs/bin/OracleAppsCM/libvuname.so /usr/lib/secure/libvuname.so

For VCS 5.0

- \$ ln -s /opt/VRTSagents/ha/bin/OracleAppsCM/libvuname.so /usr/lib/libvuname.so
- \$ ln -s /opt/VRTSagents/ha/bin/OracleAppsCM/libvuname.so /usr/lib/secure/libvuname.so

8 On Linux x_64, create the symbolic links as follows:

For VCS 4.1

- \$ ln -s /opt/VRTSvcs/bin/OracleAppsCM/libvuname.so /lib/libvuname.so
- \$ ln -s /opt/VRTSvcs/bin/OracleAppsCM/libvuname64.so /lib64/libvuname.so

For VCS 5.0

- \$ ln -s /opt/VRTSagents/ha/bin/OracleAppsCM/libvuname.so /lib/libvuname.so

- \$ ln -s /opt/VRTSagents/ha/bin/OracleAppsCM/libvuname64.so
/lib64/libvuname.so

9 Manually change the permission of the library files.

AIX For VCS 4.0

```
$ chmod 555 /opt/VRTSvcs/bin/OracleAppsCM/libvuname.so
```

For VCS 5.0

```
$ chmod 555 /opt/VRTSagents/ha/bin/OracleAppsCM/libvuname.so
```

HP-UX For VCS 4.1

```
$ chmod 555 /opt/VRTSvcs/bin/OracleAppsCM/libvuname.sl
```

For VCS 5.0

```
$ chmod 555 /opt/VRTSagents/ha/bin/OracleAppsCM/ \
libvuname.sl
```

Linux For VCS 4.1

```
$ chmod 555 /opt/VRTSvcs/bin/OracleAppsCM/libvuname.so
```

For VCS 5.0

```
$ chmod 555 /opt/VRTSagents/ha/bin/OracleAppsCM/ \
libvuname.so
```

Linux
x86_64

For VCS 4.1

```
$ chmod 555 /opt/VRTSvcs/bin/OracleAppsCM/libvuname.so  
$ chmod 555 /opt/VRTSvcs/bin/OracleAppsCM/libvuname64.so
```

For VCS 5.0

```
$ chmod 555 /opt/VRTSagents/ha/bin/OracleAppsCM/libvuname.so  
$ chmod 555 /opt/VRTSagents/ha/bin/OracleAppsCM/libvuname64.so
```

Set the user or group ID on execution

For VCS 4.1

```
$ chmod ug+s /opt/VRTSvcs/bin/OracleAppsCM/libvuname.so  
$ chmod ug+s /opt/VRTSvcs/bin/OracleAppsCM/libvuname64.so
```

For VCS 5.0

```
$ chmod ug+s /opt/VRTSagents/ha/bin/OracleAppsCM/libvuname.so  
$ chmod ug+s /opt/VRTSagents/ha/bin/OracleAppsCM/libvuname64.so
```

Solaris

For VCS 4.1

```
$ chmod 555 /opt/VRTSvcs/bin/OracleAppsCM/libvuname.so
```

For VCS 5.0

```
$ chmod 555 /opt/VRTSagents/ha/bin/OracleAppsCM/libvuname.so
```

Configuring the service groups for Oracle e-Business Concurrent Manager using the CLI

This chapter includes the following topics:

- [About configuring service groups for Oracle e-Business Concurrent Manager](#)
- [Before configuring the service groups for Oracle e-Business Concurrent Manager](#)
- [Configuring service groups for Oracle e-Business Concurrent Manager](#)
- [Creating Service Groups for Oracle e-Business Concurrent Manager under Solaris non-global zones](#)
- [Configuring Oracle e-Business Concurrent Manager resources for Solaris zones support](#)

About configuring service groups for Oracle e-Business Concurrent Manager

Configuring the Oracle e-Business Concurrent Manager service group involves creating the Oracle e-Business Concurrent Manager service group, its resources, and defining attribute values for the configured resources. You must have administrator privileges to create and configure a service group.

You can configure the service groups using one of the following:

- The Cluster Manager (Java console)
- Veritas Infoscale Operations Manager
- The command line

See [“Configuring service groups for Oracle e-Business Concurrent Manager”](#) on page 52.

Before configuring the service groups for Oracle e-Business Concurrent Manager

Before you configure the Oracle e-Business Concurrent Manager service group, you must:

- Verify that Cluster Server is installed and configured on all nodes in the cluster where you will configure the service group.
For more information on installing and configuring Cluster Server, refer to the Cluster Server installation and configuration guides.
- Verify that the Cluster Server agent for Oracle e-Business Concurrent Manager is installed on all nodes in the cluster.
See [“Installing the agent in a VCS environment”](#) on page 26.

Configuring service groups for Oracle e-Business Concurrent Manager

While setting up a cluster, you must always ensure that the cluster has some spare capacity to handle the Oracle e-Business Concurrent Manager failover scenarios. For example, in case of a backend database failure, the cluster must be able to run another database instance in conjunction with other running applications.

For more information, refer to the Cluster Server installation and configuration guides.

The cluster should be able to provide application failover by encapsulating the resources required for an application into a service group. A service group is a virtualized application that can switch between the cluster nodes. It contains a set of dependent resources, such as disk groups, disk volumes, file systems, IP addresses, NIC cards, and dependent application processes. It also includes logic about the dependencies between the application components.

These service groups should thus be configured such that the cluster can start, stop, monitor, and switch the service groups between the nodes, depending upon the server faults or resource faults. An administrator should also be proactively able

to move a service group between cluster nodes to perform preventative maintenance or apply patches.

Perform the following steps to add a service group for Oracle e-Business Concurrent Manager

- 1 Create a service group for OraCM.

```
# hagrps -add OraCM
```

For more details on creating a service group refer to the *Cluster Server Administrator's Guide*.

- 2 Modify the SystemList attribute for the group, to add systems.

For example,

```
# hagrps -modify OraCM SystemList vcssx074 0 vcssx075 1
```

- 3 Create resources for NIC, IP, DiskGroup, Volume and Mount in the service group.

For example,

```
# hares -add OraCM_nic NIC OraCM
```

```
# hares -add OraCM_ip IP OraCM
```

For more details on creating and modifying resource attributes for NIC, IP, DiskGroup, Volume and Mount refer to the *Cluster Server Bundled Agents Reference Guide*.

- 4 Create links between the resources.

For example,

```
# hares -link OraCM_ip OraCM_nic
```

- 5 Create OraCM_cm resource for Oracle e-Business Concurrent Manager.

For example,

```
# hares -add OraCM_cm OraAppsCM OraCM
```

- 6 Create OraCM_lsnr resource for Oracle e-Business Listener.

For example,

```
# hares -add OraCM_lsnr OraApps OraCM
```

Based on the Oracle Concurrent Manager instance you are clustering, modify the resource attributes. For more information on agent attributes,

See [“Oracle e-Business Concurrent Manager agent attributes”](#) on page 35.

7 Create resource dependencies for OraAppsCM resource.

The OraAppsCM resource depends on the IP and Mount resources.

```
# hares -link OraCM_cm OraCM_ip
```

8 Verify the final resource dependencies for OraCM server group.

```
# hares -dep
```

For example,

Group	Parent	Child
OraCM	OraCM_cm	OraCM_lsnr
OraCM	OraCM_lsnr	OraCM_mnt
OraCM	OraCM_lsnr	OraCM_ip
OraCM	OraCM_ip	OraCM_nic
OraCM	OraCM_mnt	OraCM_dg

Creating Service Groups for Oracle e-Business Concurrent Manager under Solaris non-global zones

Perform the following steps to create the service groups for Oracle e-Business Concurrent Manager under Solaris non-global zones.

Step 1: Set up the non-global zone configuration.

```
# hazonesetup servicegroup_name zoneres_name zone_name password  
systems
```

For example,

```
# hazonesetup OraCMZone OraCMZone_zone OraCM_zone XXXXX vcssun70
```

Step 2: Verify the non-global configuration.

```
# hazoneverify servicegroup_name
```

For example,

```
# hazoneverify OraCMZone
```

Note: Whenever you make a change that effects the zone configuration, run the `hazonesetup` command to reconfigure the zones in VCS. Make sure that the zone configuration files are consistent on all nodes at all times. The files are located at `/etc/zones/zone_name.xml`.

See [“Sample configuration file for Oracle e-Business Concurrent Manager under Solaris zones”](#) on page 63.

Configuring Oracle e-Business Concurrent Manager resources for Solaris zones support

To enable the agent for Oracle e-Business Concurrent Manager to support Solaris zones, ensure that you perform the following configuration steps:

- Install Oracle e-Business Concurrent Manager on dedicated Solaris zones.
- Preferably, follow the Symantec recommendation of installing zones on a shared disk for convenient configuration, failover, and maintenance.
- Make sure that the name of the Solaris zone is the same as the virtual host name that you use to install and configure the Oracle e-Business Concurrent Manager.
- In a VCS environment, ensure that you have set the value of ContainerName attribute to the name of the Solaris zone.
By default, the agent function executes in the Global zone.

Troubleshooting the agent for Oracle e-Business Concurrent Manager

This chapter includes the following topics:

- [Using the correct software and operating system versions](#)
- [Meeting prerequisites](#)
- [Configuring Oracle e-Business Concurrent Manager resources](#)
- [Starting the Oracle e-Business Concurrent Manager instance outside a cluster](#)
- [Reviewing error log files](#)

Using the correct software and operating system versions

Ensure that you use correct software and operating system versions.

For information on the software versions that the agent for Oracle e-Business Concurrent Manager supports, see the Symantec Operations Readiness Tools (SORT) site: <https://sort.symantec.com/agents>.

Meeting prerequisites

Before installing the agent for Oracle e-Business Concurrent Manager, ensure that the following prerequisites are met.

For example, you must install the ACC library on VCS before installing the agent for Oracle e-Business Concurrent Manager.

See [“Before you install the Cluster Server agent for Oracle e-Business Concurrent Manager”](#) on page 23.

Configuring Oracle e-Business Concurrent Manager resources

Before using an e-Business component resource, ensure that you configure the resource properly.

Refer to the agent attributes for the list of resource types with which you can configure the component resource.

For information about setting the agent attributes review the following:

- [About sample configurations for the agents for Oracle e-Business Concurrent Manager](#)

Starting the Oracle e-Business Concurrent Manager instance outside a cluster

If you face problems while working with a resource, you must disable the resource within the cluster framework. A disabled resource is not under the control of the cluster framework, and so you can test the Oracle e-Business Concurrent Manager instance independent of the cluster framework. Refer to the cluster documentation for information about disabling a resource.

To restart the resource outside the framework

- 1 Ensure that you freeze the service group, so that the cluster does not take control of the resource running the CM component instance.
- 2 Start the component using the Oracle supplied script:

```
# adcmctl.sh start dbuser/dbpassword
```

where:

dbuser and *dbpassword* are the values specified in the DB_USER and DB_Password attributes.

Ensure that the CM component instance starts successfully. To check the status of the CM resource, you can run the `afimchk.sql` command manually. For example:

```
# sqlplus dbuser/dbpassword @afimchk.sql
```

If the instance works properly outside the cluster framework, you can attempt to implement the instance within the framework.

To stop the resource outside the framework

- 1 Ensure that you freeze the service group, so that the cluster does not take control of the resource running the CM component instance.
- 2 Stop the component using the Oracle supplied script:

```
# adcmctl.sh stop dbuser/dbpassword
```

where:

dbuser and *dbpassword* are the values specified in the DB_USER and DB_Password attributes.

Ensure that the CM component instance stops successfully. To check the status of the CM resource, you can run the `afimchk.sql` command manually. For example:

```
# sqlplus dbuser/dbpassword @afimchk.sql
```

If the instance works properly outside the cluster framework, you can attempt to implement the instance within the framework.

Reviewing error log files

If you face problems while using Oracle e-Business Concurrent Manager or the agent for Oracle e-Business Concurrent Manager, use the log files described in this section to investigate the problems.

Reviewing the screen output

While starting or stopping the Oracle e-Business CM instance, you can review the command output displayed on the screen to analyze the problem.

Using trace level logging

If you set ResLogLevel to TRACE, a very high volume of messages are produced. Symantec recommends that you localize the ResLogLevel attribute for a particular resource.

Note: Starting with version 5.1.1.0 of the ACC library, the TRACE level logs for any ACCLib based agent are generated locally at the location
`/var/VRTSvcs/log/Agent_A.log`.

The LogDbg attribute should be used to enable the debug logs for the ACCLib-based agents when the ACCLIB version is 6.2.0.0 or later and the VCS version is 6.2 or later.

To enable debug logs for all resources of type OracleAppsCM

- ◆ Enable the debug log.

```
# hatype -modify OracleAppsCM LogDbg DBG_5
```

To override the LogDbg attribute at resource level

- ◆ Override the LogDbg attribute at the resource level and enable the debug logs for the specific resource.

```
# hares -override OracleAppsCM LogDbg
# hares -modify OracleAppsCM LogDbg DBG_5
```

Sample Configurations

This appendix includes the following topics:

- [About sample configurations for the agents for Oracle e-Business Concurrent Manager](#)
- [Sample agent type definition](#)
- [Sample agent type definition with Solaris zone support](#)
- [Sample configuration file for Oracle e-Business Concurrent Manager under Solaris zones](#)
- [Sample service group configuration](#)
- [Sample service group configuration with Solaris zone support](#)

About sample configurations for the agents for Oracle e-Business Concurrent Manager

The sample configuration graphically depicts the resource types, resources, and resource dependencies within the service group. Review these dependencies carefully before configuring the agents for Oracle e-Business Concurrent Manager. For more information about these resource types, refer to the *Cluster Server Bundled Agents Reference Guide*.

Sample agent type definition

The sample agent type definition for Oracle e-Business Concurrent Manager is as follows:

For VCS 4.x

```

type OracleAppsCM
(
static str ArgList[] = { ResLogLevel, State, IState,
                        User, OracleHome,
                        ScriptHome, SQLDIR, EnvFile,
                        DB_USER, DB_Password, VirtualHostname,
                        SecondLevelMonitor, MonitorProgram,
                        ProcMon, Proclean }

str ResLogLevel = INFO
str User
str OracleHome
str ScriptHome
str SQLDIR
str EnvFile
str DB_USER
str DB_Password
str VirtualHostname
int SecondLevelMonitor = 0
str MonitorProgram
str ProcMon[] = {FNDLIBR, FNDMS}
str ProClean[] = {}
)

```

Sample Oracle e-Business Concurrent Manager instance

An excerpt of the main.cf file for an Oracle e-Business Concurrent Manager 11i instance is as follows.

```

OracleAppsCM oraccms_cm (
  ResLogLevel      = TRACE
  ScriptHome       = "/ora_apps/ccms/viscomn/admin/scripts/VIS"
  DB_USER          = apps
  DB_Password      = apps
  User             = oraccms
  SecondLevelMonitor = 1
  ORACLE_HOME      = "/ora_apps/ccms/visora/8.0.6"
  EnvFile          = "VIS.env"
  SQLDIR           = "/ora_apps/ccms/visappl/fnd/11.5.0/sql"
)

```

An excerpt of the main.cf file for an Oracle e-Business Concurrent Manager R12 instance is as follows.

```
OracleAppsCM oraccms_cm (  
  ResLogLevel      = TRACE  
  ScriptHome       = "/ebiz/oracle/inst/apps/VIS_ebiz1/admin/scripts/"  
  DB_USER          = apps  
  DB_Password      = apps  
  User             = applmgr  
  SecondLevelMonitor = 5  
  ORACLE_HOME      = "/ebiz/oracle/VIS/apps/tech_st/10.1.2"  
  EnvFile          = "/ebiz/oracle/VIS/apps/apps_st/appl/APPSVIS_ebiz1.env"  
  SQLDIR           = "/ebiz/oracle/VIS/apps/apps_st/appl/fnd/12.0.0/sql"  
  VirtualHostName  = "ebiz"  
)
```

Sample agent type definition with Solaris zone support

The sample agent type definition for Oracle e-Business Concurrent Manager with Solaris zone support is as follows:

For VCS 4.x

```
type OracleAppsCM (  
  static str ContainerType = Zone  
  static str ArgList[] = { ResLogLevel, State, IState, User,  
    OracleHome, ScriptHome, SQLDIR, EnvFile, DB_USER,  
    DB_Password, VirtualHostname , SecondLevelMonitor,  
    MonitorProgram, ProcMon, ProcClean}  
  str ResLogLevel = INFO  
  str User  
  str OracleHome  
  str ScriptHome  
  str SQLDIR  
  str EnvFile  
  str DB_USER  
  str DB_Password  
  str VirtualHostname  
  int SecondLevelMonitor = 0  
  str MonitorProgram  
  str ProcMon[] = {FNDLIBR, FNDMSM}  
  str ProcClean[] = {}  
  str ContainerName  
)
```

For VCS 5.0

```
type OracleAppsCM (
    static str AgentFile = "/opt/VRTSvcs/bin/Script50Agent"
    static str AgentDirectory = "/opt/VRTSagents/ha/bin/OracleAppsCM"
    static str ArgList[] = { ResLogLevel, State, IState, User,
        OracleHome, ScriptHome, SQLDIR, EnvFile, DB_USER, DB_Password,
        VirtualHostname, SecondLevelMonitor, MonitorProgram, ProcMon,
        ProcClean}
    str ResLogLevel = INFO
    str User
    str OracleHome
    str ScriptHome
    str SQLDIR
    str EnvFile
    str DB_USER
    str DB_Password
    str VirtualHostname
    int SecondLevelMonitor = 0
    str MonitorProgram
    str ProcMon[] = {FNDLIBR, FNDMSM}
    str ProcClean[] = {}
)
```

Sample configuration file for Oracle e-Business Concurrent Manager under Solaris zones

Following is the sample main.cf for OraCMZone service group under Solaris non global zones.

```
group OraCMZone (
    SystemList = { SOL_OraCMZone_sys1 = 0 }
)
DiskGroup OraCMZone_dg (
)
DiskGroup OraCMZone_zone_dg (
)
Mount OraCMZone_mnt (
    MountPoint = "/oracm"
    BlockDevice = "/dev/vx/dsk/OraCM_dg/OraCM_vol"
    FSType = vxfs
    FsckOpt = "-y"
```

```

)
Mount OraCMZone_zone_mnt (
    MountPoint = "/oracmzone"
    BlockDevice = "/dev/vx/dsk/OraCMZone_dg/OraCMZone_vol"
    FSType = vxfs
    FsckOpt = "-y"
)
NIC OraCMZone_zone_nic (
    Device = bge0
    NetworkType = ether
)
OracleAppsCM OraCMZone_cm (
    ResLogLevel = TRACE
    ScriptHome = "/oracm/oracle/inst/apps/VIS_ebiz1/admin/scripts/"
    DB_USER = apps
    DB_Password = xxxxxx
    User = applmgr
    SecondLevelMonitor = 5
    ORACLE_HOME = "/oracm/oracle/VIS/apps/tech_st/10.1.2"
    EnvFile = "/oracm/oracle/VIS/apps/apps_st/appl/APPSVIS_ebiz.env"
    SQLDIR = "/oracm/oracle/VIS/apps/apps_st/appl/fnd/12.0.0/sql"
    VirtualHostName = "ebiz"
)
OracleApps OraCMZone_lsnr (
    OracleAppsVersion = 12
    ORACLE_HOME = "/oracm/oracle/VIS/apps/tech_st/10.1.3"
    ScriptHome = "/oracm/oracle/inst/apps/VIS_ebiz1/admin/scripts"
    ServerType = Listener
    User = applmgr
    SecondLevelMonitor = 5
    EnvFile = "/oracm/oracle/inst/apps/VIS_ebiz1/ora/10.1.3/VIS_ebiz.env"
)
Zone OraCMZone_zone (
    ZoneName = "OraCM_zone"
)
OraCMZone_cm requires OraCMZone_lsnr
OraCMZone_zone requires OraCMZone_mnt
OraCMZone_zone requires OraCMZone_zone_mnt
OraCMZone_zone requires OraCMZone_zone_nic
OraCMZone_mnt requires OraCMZone_dg
OraCMZone_lsnr requires OraCMZone_zone
OraCMZone_zone_mnt requires OraCMZone_zone_dg

```



```

// resource dependency tree
//
// group OraCMZone
// {
//   OracleAppsCM OraCMZone_cm
//   {
//     OracleApps OraCMZone_lsnr
//     {
//       Zone OraCMZone_zone
//       {
//         Mount OraCMZone_mnt
//         {
//           DiskGroup OraCMZone_dg
//         }
//         Mount OraCMZone_zone_mnt
//         {
//           DiskGroup OraCMZone_zone_dg
//         }
//         NIC OraCMZone_zone_nic
//       }
//     }
//   }
// }

```

Sample service group configuration

A service group is composed of different resources, that are related to each other and are formed along traditional Oracle e-Business functional lines. You can independently start, stop, and monitor each resource within a service group.

You can group a Concurrent Manager Server, a Listener, and a Reports Server within a service group. You cannot create another such group within the same service group.

Symantec recommends that a service group must be configured using a virtual IP address and shared disk storage. All resources in a service group share the same virtual IP address, disk storage, and UNIX User account. In event of a failure, an application resource can run on any node in the cluster without being tied to a node specific IP address or to local disk resources.

[Figure A-1](#) describes a sample service group configuration for the Oracle e-Business Concurrent Manager 11i.

The figure depicts a service group containing an Oracle Applications Report Server resource, a Concurrent Manager Listener resource, and a Concurrent Manager Server resource.

The Concurrent Manager Server cannot start successfully unless the Listener is running.

Figure A-1 Sample service group configuration for the Oracle e-Business Concurrent Manager 11i

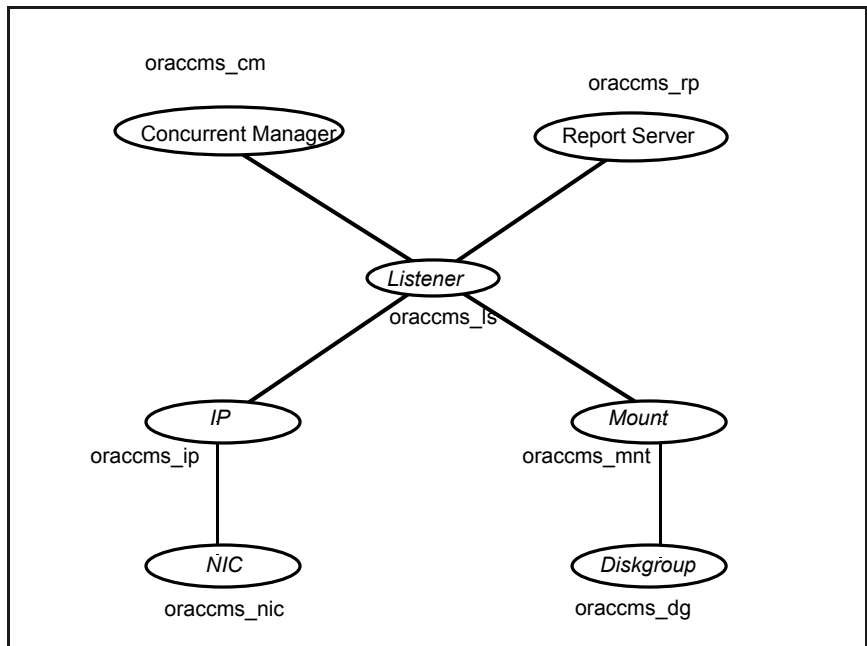
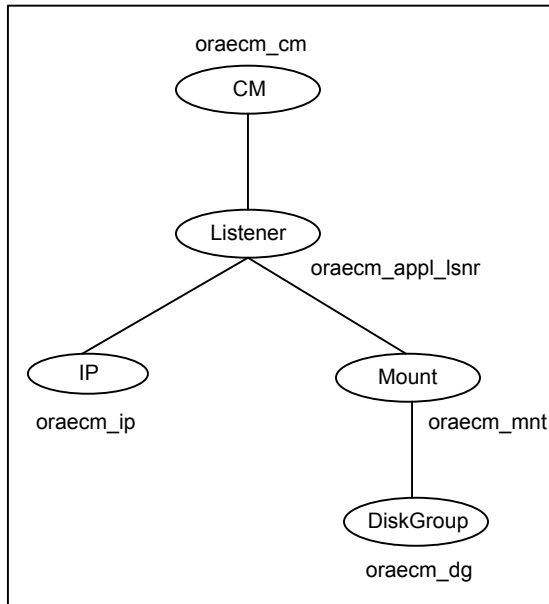


Figure A-2 describes a sample service group configuration for the Oracle e-Business Concurrent Manager R12.

Figure A-2 Sample service group configuration for the Oracle e-Business Concurrent Manager R12

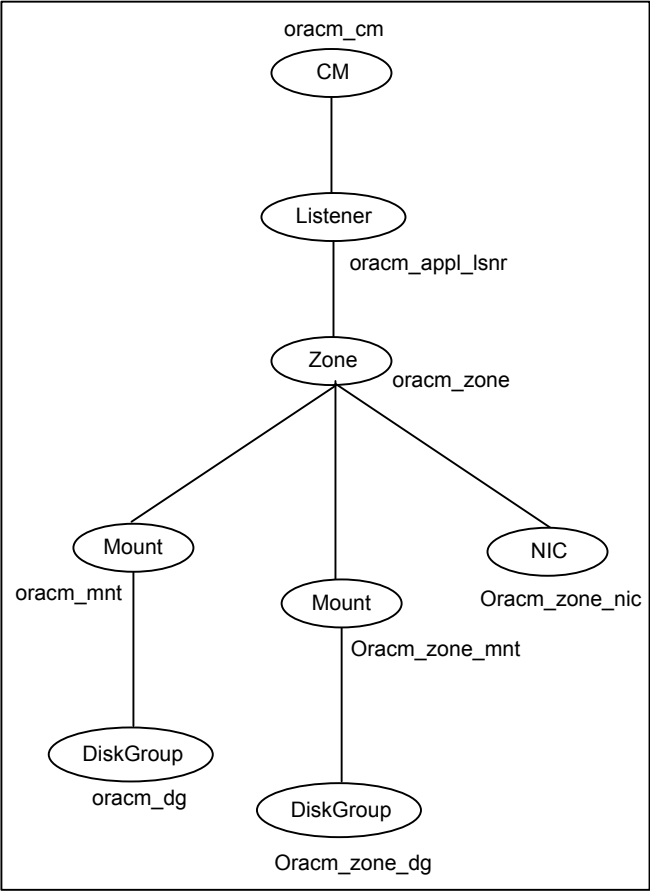


Sample service group configuration with Solaris zone support

The sample service group configuration for Oracle e-Business Concurrent Manager with Solaris zone support is as follows:

[Figure A-3](#) depicts the sample service group configuration with Solaris zone support for Oracle e-Business Concurrent Manager R12.

Figure A-3 Sample service group configuration with Solaris zone support for Oracle e-Business Concurrent Manager R12



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