Symantec™ High Availability Agent for Oracle e-Business Components Installation and Configuration Guide

AIX, HP-UX, Linux, Solaris

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Symantec High Availability Agent for Oracle e-Business Components Installation and Configuration Guide

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Chapter 1

Introducing the Symantec High Availability Agent for Oracle e-Business Components

This chapter includes the following topics:

About the Symantec High Availability agent for Oracle e-Business Components

Symantec High Availability agents monitor specific resources within an enterprise application. They determine the status of resources and start or stop them according to external events.

The Symantec High Availability agent for Oracle e-Business Components provides high availability for all Oracle e-Business components in a cluster.

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

The Symantec High Availability agent for Oracle e-Business Components brings the component instances online, monitors the instances, and brings the instances offline. The agent monitors the system processes and server states, and can shutdown the Oracle e-Business component instance in case of a failover. It supports both, 11i and R12 releases of Oracle e-Business Component.

The agent manages the following Oracle e-Business components:

Version	Components
R12	■ Administration Listener ■ OPMN ■ OC4J Forms Server ■ OC4J OACORE ■ OC4J OAFM ■ HTTP Server ■ Fulfillment Server
11i	■ Administration Listener ■ Forms Server ■ Forms Metrics Server ■ Forms Metrics Client ■ Forms Listener ■ FulfillmentServer ■ Report Server ■ Discoverer 4 ■ 9iAS R1 Web Application Server ■ 9iAS R1 Web Application Server Listener

Note: To configure Discoverer 10g component, you must install Oracle AS9 agent.

Supported software

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

How the agent makes Oracle e-Business Components 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 Oracle e-Business Components instance processes are present in the process table. Process check cannot detect whether processes are in hung or stopped states.
- Secondary or Detail monitoring
  In this mode, the agent runs a utility to verify the status of the Oracle e-Business Components instance. The agent detects application failure if the monitoring routine reports an improper function of the Oracle e-Business Components instance processes. When this application failure occurs, the Oracle e-Business Components instance service group fails over to another node in the cluster. Thus, the agent ensures high availability for Oracle e-Business Components instances.

High availability for Oracle e-Business Components 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, *Symantec Cluster Server Administrator's Guide*.

The Symantec High Availability agent for Oracle e-Business Components is zone-aware and can monitor appshort instances running in non-global zones.

Oracle e-Business Components 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 Oracle e-Business component instance is not running already on the specified node in the cluster.
- If any Oracle e-Business component processes are running, the function performs a clean operation to end these processes.
- Depending upon the component, the online function begins an Oracle supplied startup script to start the instance.
- For the specific component instance, the online function waits for the respective processes to start successfully.

Review the startup scripts for each component and the list of processes that the script starts for a component instance.

See "Detecting application failure" on page 14.

The online function exits either after all the processes start successfully, 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 Oracle e-Business component instance is not already offline on the specified node in the cluster.
- Depending upon the component, the offline function begins an Oracle supplied stop script to stop the instance.
- For the specific component instance, the offline function waits for the respective processes to stop successfully.

Review the startup scripts for each component and the list of processes that the script stops for a component instance.

See "Detecting application failure" on page 14.

The offline function exits either after all the processes stop successfully, or after the timeout period specified in the OfflineTimeout attribute expires.

Monitor

The monitor function monitors the state of the Oracle e-Business component instance on all nodes in the cluster. The function performs the following tasks:

- Conducts a first level check on the specific component instance to ensure that the processes are running smoothly.
- If the SecondLevelMonitor attribute is greater than zero, the monitor function performs a thorough check of all the components running.
  Review the information about how first and second level monitor functions work.
  See "Detecting application failure" on page 14.
- 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 45.

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 specified component instance, and cleans the processes.
- In all other cases, the clean function attempts to gracefully shutdown the specified component instance.

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

Detecting application failure

The agent monitor function is responsible for checking if a particular Oracle e-Business component instance is running successfully. The function performs a two-level process check to verify that the processes are running for an instance.

The function performs a primary process check to verify the existence of appropriate component processes. The function uses the ServerType attribute value to determine which processes must be present for a particular Oracle e-Business component.

Table 1-1 lists the scripts and processes for Oracle e-Business 11i component instances.

Table 1-1 Scripts and Processes for Oracle e-Business 11i Component Instances

Oracle component	Oracle script to start or stop the component	List of processes
Forms Server	adfrmctl.sh	f60srvm, f60webmx
Forms Metric Server	adfmsctl.sh	d2ls60
Forms Metric Client	adfmcctl.sh	d2lc60
Reports Server	adrepctl.sh	rwmts60
Web Server	adapcctl.sh	httpd
Discoverer	addisctl.sh	osagent, oad
RPC Listener	adalnctl.sh	tnslsnr
Fulfillment Server	jtffmctl.sh	java.*FulfillmentServer*

Table 1-2 lists the scripts and process for Oracle e-Business R12 component instances

Table 1-2 Scripts and Processes for Oracle e-Business R12 Component Instances

Oracle component	Oracle script to start or stop the component	List of processes
OPMN	adopmnctl.sh	opmn
Forms Server (Servlet Mode)	adformsctl.sh	forms
Forms Server (Socket Mode)	adformsrvctl.sh	frmsrv
OACORE Server	adcorectl.sh	oacore
OAFM Server	adoafmctl.sh	oafm
Web Server	adapcctl.sh	httpd
RPC Listener	adalnctl.sh	tnslsnr
Fulfillment Server	jtffmctl.sh	java.*FulfillmentServer*

If the value of the SecondLevelMonitor attribute is greater than zero, the monitor function proceeds to perform deeper and more thorough check on the instance processes.

The following checks are performed for 11i Oracle e-Business Components:

- If ServerType is equal to Listener, the monitor function performs the TNSPING Test. This test uses the Oracle supplied TNSPING command utility to verify that an application listener is responding to the SQLNET requests.
- For all other values of the ServerType attribute, the monitor function performs a socket connection test on the port that is specified for the particular component. If the socket connection is functional, the monitor function reports the instance as online.

The following checks are performed for R12 Oracle e-Business Components:

- If ServerType is equal to Listener, the monitor function performs the LSNRCTL Test. This test uses the Oracle supplied LSNRCTL command utility to verify that an application listener is responding to the SQLNET requests.
- If the ServerType is opmn, the monitor function performs `opmnctl status` test, where opmnctl is a command provided by oAS 10g to verify the opmn and managed processes.
- For all other ServerType values, the monitor function runs the `opmnctl status -noheaders -fmt prt%sta` command and filters the ServerType.
  For example, for the processes in instance: VIS_ebiz1.ebiz1.vxindia.veritas.com, the output of the command `$ opmnctl status -noheaders -fmt prt%sta` shows:

```
OC4J:oafm   | Alive
OC4J:forms  | Alive
OC4J:oacore | Alive
HTTP_Server | Alive
```

Note: OPMN does not manage Forms Server, if configured in Socket Mode. In this case Second Level monitor performs socket connection test on the port on which the Form Server is running.

The agent supports multiple instances of Forms Server, OAFM Server, OACORE Server, and Fulfillment Server. The agent uses the Oracle Home directory to uniquely map multiple OracleApps resources with the appropriate server processes.

Setting up Oracle e-Business Components in a VCS cluster

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

- Set up a VCS cluster.
  Refer to the *Symantec Cluster Server Installation Guide* for more information on installing and configuring VCS.
- Install and configure Oracle e-Business Components for High Availability.
  See "About configuring the Symantec High Availability agent for Oracle e-Business Components" on page 39.
- Install the Symantec High Availability agent for Oracle e-Business Components.
  See "Installing the agent in a VCS environment" on page 31.
- Configure the service groups for Oracle e-Business Components.
  See "About configuring service groups for Oracle e-Business Components" on page 48.

Chapter 2

Installing and configuring Oracle e-Business Components for high availability

This chapter includes the following topics:

About Oracle e-Business Components

An Oracle ERP application comprises various functional modules, each catering to an individual enterprise business function.

Oracle eBusiness Components serves as the Application Server Level components which provides the base for these functional modules.

For example, HTTP_Server provides the Web Server for hosting the Oracle e-Business Web Interface, Form Server provides the Oracle Forms Interface, the Administration Listener provides the communication channel between Database and Apps Tier and so on.

About configuring Oracle e-Business Components for high availability

The guidelines for configuring Oracle e-Business Components 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. Since 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.

Installing Oracle e-Business components for clustering purposes

Perform the following steps to install the Oracle e-Business components and prepare the nodes for clustering.

Decide the type of installation as single-node or multiple-node

You can either install all the e-Business components on a single node in a cluster, or you can install the components on multiple nodes in the cluster.

Assume that you install the e-Business components on multiple nodes, as shown in the following example

For Oracle Apps 11i:

- Install the Oracle database component on node 1.
- Install the Oracle Web Server component on node 2.
- Install the Forms Server and the Reports Server on node 3.

For Oracle Apps R12:

- Install Web and Forms services on node 1.

- Install Applications database services on node 2.
- Install Concurrent processing services on node 3.

Configure a disk group and a file system

Depending upon the number of components to install, configure a disk group and file system that is large enough to hold the components.

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

If you decide to create a VISION demo database, allocate space in the disk group and the file system accordingly.

Obtain virtual IP addresses for each node

For each Oracle e-Business component, you must configure a virtual IP address. Configure the virtual IP addresses, and resolve the addresses by adding them to the local files or to the DNS system.

Install the Oracle e-Business component

For each component perform the following steps:

To install the Oracle e-Business component

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

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

   where:

   <virtual hostname> is the virtual hostname of the components instance.
4. Follow the instructions mentioned on the wizard.

Migrating existing installation of Oracle e-Business Components 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 on 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]
   - Adding an Alias Hostname with Oracle E-Business Suite Release 12 [Id 603883.1]
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.

Configuring Oracle e-Business components for cluster support

After installing the Oracle e-Business components, the VCS agent for Oracle e-Business components manages and monitors individual components. In case of Oracle Process Manager and Notification Server (OPMN) it is thus required to disable its default behavior; automatic restart of its managed processes (OAFM, OACORE, HTTP_Server and FormsServer), during its failure. To disable this behavior you must configure the OPMN daemon by disabling the **restart-on-death** option for components managed by VCS within the opmn.xml Oracle Application Server configuration file.

Note: To view the list of OPMN managed components refer to the Oracle Application Server configuration file `opmn.xml`. This file is located at $INST_TOP/ora/10.1.3/opmn/conf/

For components installed, modify the `opmn.xml` file and from the process-set tag of each ias-component set the **restart-on-death** parameter to 'False'.

For example, to modify this setting for a HTTP_server and Forms component, refer to the following configuration details.

Note: The example shows a sample section of the `opmn.xml` file. It illustrates the changes that must be made for every OPMN managed component that is managed under VCS.

```
<ias-component id="HTTP_Server">
               <process-type id="HTTP_Server" module-id="OHS">
                    <environment>
                           <variable id="DEFAULT_LOGS_DIR" value= \
                            "/ebiz/oracle/inst/apps/ \
                            VIS_ebiz2/logs/ora/10.1.3/Apache" \
                            append="true"/>
                    </environment>

                  <module-data>
                     <category id="start-parameters">
                        <data id="start-mode" value="ssl-enabled"/>
                        <data id="config-file" value="/ebiz/oracle/ \
                         inst/apps/VIS_ebiz2/ora/ \
                         10.1.3/Apache/Apache/conf/httpd.conf"/>
                     </category>
               </module-data>
               <process-set id="HTTP_Server" restart-on-death="false" \
                numprocs="1"/>
            </process-type>
         </ias-component>
         <ias-component id="OC4J">
            <process-type id="forms" module-id="OC4J" status="enabled" \
             working-dir="$ORACLE_HOME/j2ee/home">
               <module-data>
                  <category id="start-parameters">
                     <data id="java-options" value="-server -verbose:gc \
                      -Xmx256M -Xms64M -XX:MaxPermSize=128M \
                      -XX:NewRatio=2 \
                      -XX:+PrintGCTimeStamps -XX:+UseT
LAB -XX:+UseParallelGC -XX:ParallelGCThreads=2 -Djava.security.policy= \
$ORACLE_HOME/j2ee/oacore/config/java2.policy -Djava.awt.headless=true \
-Dhttp.webdir.ena
ble=false -Doracle.security.jazn.config=/ebiz/oracle/ \
inst/apps/VIS_ebiz2/ora/10.1.3/j2ee/forms/config/jazn.xml"/>
                     <data id="java-bin" value="/ebiz/oracle/inst/apps/ \
                      VIS_ebiz2/admin/scripts/java.sh"/>
                     <data id="oc4j-options" value="-out /ebiz/oracle/ \
```

```
                    inst/apps/VIS_ebiz2/logs/ora/10.1.3/opmn/ \
                    formsstd.out -err /ebiz/oracle/inst/apps/VIS_e
biz2/logs/ora/10.1.3/opmn/formsstd.err" />
                </category>
                <category id="stop-parameters">
                   <data id="java-options" value="-server -verbose:gc \
                    -Xmx256M -Xms64M -XX:MaxPermSize=128M \
                    -XX:NewRatio=2 \
                    -XX:+PrintGCTimeStamps -XX:+UseT
LAB -XX:+UseParallelGC -XX:ParallelGCThreads=2 -Djava.security.policy= \
$ORACLE_HOME/j2ee/oacore/config/java2.policy -Djava.awt.headless=true \
-Dhttp.webdir.ena
ble=false"/>
              </category>
              </module-data>
              <start timeout="600" retry="2"/>
              <stop timeout="120"/>
              <restart timeout="720" retry="2"/>
              <port id="default-web-site" range="22000-22004" \
               protocol="ajp"/>
              <port id="rmi" range="20500-20504"/>
              <port id="jms" range="23500-23504"/>
              <process-set id="default_group" restart-on-death= \
               "false" numprocs="1"/>
            </process-type>
  </ias-component>
```

See “Installing Oracle e-Business components for clustering purposes” on page 19.

Configuring the OracleApps resource for Fulfillment Server

If you plan to configure the OracleApps resource for Fulfillment Server, you must modify the jtffmctl.sh script in the ScriptHome directory, before you start the Fulfillment Server process. This ensures that the agent uses the OracleHome attribute to uniquely identify the correct Fulfillment Server among multiple instances.

An extract from the main.cf file is as follows:

```
OracleApps fulfillment_server (
     Critical = 0
     ResLogLevel = TRACE
     User = applmgr
```

```
OracleAppsVersion = 12
OracleHome = "/oraem/oraebiz/oracle/VIS/apps/tech_st/10.1.2"
ScriptHome = "/oraem/oraebiz/oracle/VIS/inst/apps/VIS_oraebiz/
              admin/scripts"
EnvFile = "/oraem/oraebiz/oracle/VIS/apps/apps_st/appl/
           APPSVIS_oraebiz.env"
ServerType = FulfillmentServer
VirtualHostname = oraebiz
)
```

To configure the OracleApps resource for Fulfillment Server, you must modify the `jtffmctl.sh` script and add the following text before the `-Dengine.ServerID` string:

```
<space>-Doracle.home=/oraem/oraebiz/oracle/VIS/apps/tech_st
/10.1.2<space>
```

For example:

The jtffmctl.sh script is available at:`/oraem/oraebiz/oracle/VIS/inst/apps/VIS_oraebiz/admin/scripts/jtffmctl.sh`

An extract from the modified script is as follows:

```
 _oraebiz/appl/fnd/12.0.0/secure/VIS.dbc -Doracle.home=/oraem
/oraebiz/oracle/VIS/apps/tech_st/10.1.2 -Dengine.ServerID=5000 -Ddebug=off…
```

Setting up zones on Solaris for Oracle e-Business Components

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

Step 1: Create the zone.

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

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

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

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

```
zonecfg:OraEBiz_zone> add attr
zonecfg:OraEBiz_zone:attr> set name=comment
zonecfg:OraEBiz_zone:attr> set type=string
zonecfg:OraEBiz_zone:attr> set value="This is
OraEBiz_zone zone for Oracle e-Business Components."
zonecfg:OraEBiz_zone:attr> end
```

Step 4: Verify and commit the zone configuration.

```
zonecfg:OraEBiz_zone> verify
zonecfg:OraEBiz_zone> commit
zonecfg:OraEBiz_zone> exit
bash-3.00# zoneadm list -cv
ID NAME STATUS PATH
0 global running /
- OraEBiz_zone configured /export/zones/OraEBiz_zone
```

Step 5: Install the zone.

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

bash-3.00# zoneadm -z OraEBiz_zone install
Preparing to install zone <OraEBiz_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 <OraEBiz_zone> is initialized.
Installation of <113> packages was skipped.
Installation of these packages generated warnings: <VRTSat>
The file </export/zones/OraEBiz_zone/root/var/sadm/system/
logs/install_log>
contains a log ofthe zone installation.

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

Step 7: 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 OraEBiz_zone
[Connected to zone 'OraEBiz_zone' console]
Now, from the second terminal, start the zone.

bash-3.00# zoneadm -z OraEBiz_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: OraEBiz_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*.

Chapter 3

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

This chapter includes the following topics:

Before you install the Symantec High Availability agent for Oracle e-Business Components

You must install the Symantec High Availability agent for Oracle e-Business Components on all the systems that will host Oracle e-Business Components service groups.

Ensure that you meet the following prerequisites to install the agent for Oracle e-Business Components.

- Install and configure Symantec Cluster Server.
  For more information on installing and configuring Symantec Cluster Server, refer to the *Symantec Cluster Server Installation Guide*.
- Remove any previous version of this agent.
  To remove the agent,
  See "Uninstalling the agent in a VCS environment" on page 35.
- 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 28.

Prerequisites for installing the agent to support Solaris zones

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

- Install Oracle e-Business Components 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 VCS 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 agent's tar file has already been extracted.

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 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	*cd1*/aix/vcs/application/acc_library/*version*_library/pkgs
HP-UX	*cd1*/hpux/generic/vcs/application/acc_library/*version*_library/pkgs
Linux	*cd1*/linux/generic/vcs/application/acc_library/*version*_library/rpms
Solaris	*cd1*/solaris/*dist_arch*/vcs/application/acc_library/*version*_library/pkgs where *dist_arch* is sol_sparc or sol_x64.

4. If you downloaded the individual ACCLib tar file, navigate to the pkgs directory (for AIX, HP-UX, 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	`# installp -ac -d VRTSacclib.bff VRTSacclib`
HP-UX	`# swinstall -s 'pwd' VRTSacclib`
Linux	`# rpm -i \` `VRTSacclib-VersionNumber-GA_GENERIC.noarch.rpm`
Solaris	`# pkgadd -d VRTSacclib.pkg`

Installing the ACC library IPS package on Oracle Solaris 11 systems

To install the ACC library IPS package on an Oracle Solaris 11 system

1. Copy the VRTSacclib.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>`

3 Add a file-based repository in the system.

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

4 Install the package.

```
# pkg install --accept VRTSacclib
```

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 the ACC library package on Solaris brand non-global zones

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

To install the ACC library 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 VRTSacclib.p5p package from the pkgs directory to the non-global zone (for example at `/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/VRTSacclib.p5p Symantec
```

7 Install the package.

```
# pkg install --accept VRTSacclib
```

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 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 VCS environment

Install the agent for Oracle e-Business Components 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/pkgs`

HP-UX `cd1/hpux/generic/vcs/application/oracleapps_agent/`*`vcs_version`*`/`*`version`*`_agent/pkgs`

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/pkgs`

where, *dist_arch* is sol_x64 or sol_sparc

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

4 Log in as superuser.

5 Install the package.

AIX
```
# installp -ac -d
VRTSvcsoa11.rte.bff VRTSvcsoa11.rte
```

HP-UX
```
# swinstall -s ‘pwd‘ VRTSvcsoa11
```

Linux
```
# rpm -ihv \
VRTSvcsoa11-AgentVersion-GA_GENERIC.noarch.rpm
```

Solaris
```
# pkgadd -d . VRTSvcsoa11
```

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 VRTSvcsoa11.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/VRTSvcsoa11.p5p Symantec
   ```
4. Install the package

   ```
   # pkg install --accept VRTSvcsoa11
   ```
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 VRTSvcsoa11.p5p package from the pkgs directory to the non-global zone (for example at `/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/VRTSvcsoa11.p5p Symantec
```

7 Install the package.

```
# pkg install --accept VRTSvcsoa11
```

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 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 Components agent in a Solaris 10 brand zone:

- Ensure that the ACClibrary 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 . VRTSvcsoa11
  ```

  For example: `# pkgadd -R /zones/zone1/root -d . VRTSvcsoa11`

Uninstalling the agent in a VCS environment

You must uninstall the agent for Oracle e-Business Components 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 typing the following command from any node in the cluster:

   ```
   # haconf -makerw
   ```

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

   ```
   # hares -list Type=OracleApps
   ```

4. Remove the agent type from the cluster configuration by typing the following command from any node in the cluster:

   ```
   # hatype -delete OracleApps
   ```

   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 typing 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 Components from each node in the cluster.

Execute the following command to uninstall the agent:

AIX	# `installp -u VRTSvcsoa11.rte`
HP-UX	# `swremove VRTSvcsoa11`
Linux	# `rpm -e VRTSvcsoa11`
Solaris	# `pkgrm VRTSvcsoa11`
	Note: To uninstall the agent IPS package on a Solaris 11 system:
	`# pkg uninstall VRTSvcsoa11`

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	`# installp -u VRTSacclib`
HP-UX	`# swremove VRTSacclib`
Linux	`# rpm -e VRTSacclib`
Solaris	`# pkgrm VRTSacclib`
	Note: To uninstall the ACClib IPS package on a Solaris 11 system:
	`# pkg uninstall VRTSacclib`

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.

   ```
   # hagrp -freeze GroupName -persistent
   ```

2. Stop the cluster services forcibly.

   ```
   # hastop -all -force
   ```

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

   ```
   # ps -ef | grep OracleApps
   ```

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 Components from each node in the cluster.

   Execute the following command to uninstall the agent:

AIX	`# installp -u VRTSvcsoa11.rte`
HP-UX	`# swremove VRTSvcsoa11`
Linux	`# rpm -e VRTSvcsoa11`

Solaris	For Solaris 10:
	`# pkgrm VRTSvcsoa11`
	For Solaris 11:
	`# pkg uninstall VRTSvcsoa11`

5. Install the new agent on all the nodes.

   See "Installing the agent in a VCS environment" on page 31.

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

VCS 4.x	■ AIX ■ HP-UX ■ Linux ■ Solaris	`/etc/VRTSvcs/conf/sample_OracleApps/OracleAppsTypes.cf`

VCS 5.x or later	■ AIX ■ HP-UX ■ Linux	`/etc/VRTSagents/ha/conf/OracleApps/OracleAppsTypes.cf`
VCS 5.0	■ Solaris SPARC and x64	`/etc/VRTSagents/ha/conf/OracleApps/OracleAppsTypes50.cf`
VCS 5.1 or later	■ Solaris SPARC and x64	`/etc/VRTSagents/ha/conf/OracleApps/OracleAppsTypes51.cf`

Note: If you are using Solaris SPARC or Solaris x64, copy the OracleAppsTypes50.cf file for VCS 5.0 (and its intermediate Maintenance Packs) and OracleAppsTypes51.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.

```
# hastart
```

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

```
# haagent -start OracleApps -sys SystemName
```

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

```
# hagrp -unfreeze GroupName -persistent
```

Chapter 4

Configuring the agent for Oracle e-Business Components

This chapter includes the following topics:

About configuring the Symantec High Availability agent for Oracle e-Business Components

After installing the Symantec High Availability agent for Oracle e-Business Components, 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 Components resources.

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

See "About sample configurations for the agent for Oracle e-Business Components" on page 57.

Importing the agent types files in a VCS environment

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

You can import the agent types file using the Symantec Cluster Server (VCS) graphical user interface or via 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:

VCS 4.x	■ AIX ■ HP-UX ■ Linux ■ Solaris	`/etc/VRTSvcs/conf/sample_OracleApps/OracleAppsTypes.cf`
VCS 4.x	Solaris Zones	`/etc/VRTSvcs/conf/sample_OracleApps/OracleAppsTypes_zones.cf`
VCS 5.x or later	■ AIX ■ HP-UX ■ Linux	`/etc/VRTSagents/ha/conf/OracleApps/OracleAppsTypes.cf`
VCS 5.0	Solaris SPARC and x64	`/etc/VRTSagents/ha/conf/OracleApps/OracleAppsTypes50.cf`
VCS 5.1 or later	Solaris SPARC and x64	`/etc/VRTSagents/ha/conf/OracleApps/OracleAppsTypes51.cf`

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

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

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

Agent attributes for Oracle e-Business components

Table 4-1 lists the attributes required for configuring an Oracle component instance.

Table 4-1 Required attributes

Required attributes	Description
ResLogLevel	The logging detail performed by the agent for the resource. Valid values are: ERROR: Only logs error messages. WARN : Logs above plus warning messages. INFO: Logs above plus informational messages. TRACE: Logs above plus trace messages. TRACE is very verbose and should only be used during initial configuration or for troubleshooting and diagnostic operations. Type and dimension: string-scalar Default: INFO Example: TRACE
User	UNIX user name used to start and stop an Oracle e-Business component instance. The clean operation also uses this user name to kill residual processes. Type and dimension: string-scalar Default: "" Example: oracle
OracleAppsVersion	The Oracle Applications e-Business version number The valid values are: ■ 11- For configuring Oracle Applications e-Business 11i release ■ 12- For configuring Oracle Applications e-Business R12 release Type and dimension: integer Default: "" Example: 12

Table 4-1 Required attributes *(continued)*

Required attributes	Description
ORACLE_HOME	The absolute path to the directory that contains the Oracle client libraries, that are located within the Oracle e-Business software directory. **Note:** The R12 release follows the absolute path as 10.1.2 ORACLE_HOME for Listener and 10.1.3 ORACLE_HOME for OPMN and its managed processes and Fulfillment Server. This attribute is used in the monitor function to locate the environment setup file, and the Oracle client binaries that are used in second-level monitor routines. For 11i release, this attribute is not required: ■ when the SecondLevelMonitor attribute is equal to 0. ■ when the ServerType attribute is equal to FormsMetricsServer, FormsMetricsClient, FormsServer, ReportServer, or WebServer. Type and dimension: string-scalar Default: "" Example for 11i: /ebiz/visora/8.0.6 Example for R12 (for 10.1.2 ORACLE_HOME): /ebiz/oracle/VIS/apps/tech_st/10.1.2 Example for R12 (for 10.1.3 ORACLE_HOME): /ebiz/oracle/VIS/apps/tech_st/10.1.3
ScriptHome	The absolute path of the Oracle e-Business scripts directory. This directory contains the scripts to start and stop an e-Business component instance. Type and dimension: string-scalar Default: "" Example for 11i: $COMMON_TOP/admin/scripts/VIS_ebiz Example for R12: $INST_TOP/admin/scripts

Table 4-1 Required attributes *(continued)*

Required attributes	Description
EnvFile	The directory path of the file that must be sourced with the UNIX shell. ■ For Oracle Apps 11i, you must source this file to set the environment before executing agent scripts for online, offline, monitor, and clean functions. ■ For Oracle Apps R12, you must source this file only for SecondLevelMonitoring Type and dimension: string-scalar Default: "" Example for 11i: /ebiz/visappl/APPSVIS_ebiz.env Example for R12: /ebiz/oracle/inst/apps/VIS_ebiz1/ora/10.1.3/VIS_ebiz.env
ServerType	Type of server. Valid values for Oracle Apps 11i are: ■ Listener ■ FormsServer ■ FormsMetricsServer ■ FormsMetricsClient ■ ReportServer ■ WebServer ■ Discoverer ■ FulfillmentServer Valid values for Oracle Apps R12 are: ■ OPMN ■ WebServer ■ OAFM ■ OACORE ■ FormsServer ■ Listener ■ FulfillmentServer Type and dimension: string-scalar Default: "" Example: FormsServer

Table 4-1 Required attributes *(continued)*

Required attributes	Description
Port	The port number that is associated with a particular type of server, as specified in the ServerType attribute. The monitor function uses this attribute as an argument for second-level monitor check. For Oracle Apps 11i, this attribute is not required when the, ■ SecondLevelMonitor attribute is equal to 0. ■ ServerType attribute is equal to FormsMetricsServer, FormsMetricsClient, Discoverer. **Note:** For Oracle Apps R12 this attribute is reqd only when the FormServer is configured in socket mode. Type and dimension: integer-scalar Default: "" Example: 8080
DBConnectString	The string used to connect database to the listener. This attribute is used while performing second-level monitoring on the listener. Type and dimension: string-scalar Default: "" Example: VIS
VirtualHostname	The virtual hostname that is associated with an Oracle e-Business component instance. Type and dimension: string-scalar Default: "" Example: ora_com_01

Table 4-2 lists the optional attributes for configuring an Oracle component instance.

Table 4-2 Optional attributes

Optional attributes	Description
MonitorProgram	The full pathname and command-line arguments for an externally provided monitor program. For information about setting this attribute, refer to See "Executing a customized monitoring program" on page 45. Type and dimension: string-scalar Default: "" Example 1: /usr/ebiz/visappl/work/myMonitor.sh Example 2: /usr/ebiz/visappl/work/myMonitor.sh arg1 arg2
SecondLevelMonitor	Used to enable second-level monitoring. Second-level monitoring is a deeper, more thorough state check of the configured Oracle Apps components. 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. **Note:** Exercise caution while setting SecondLevelMonitor to large numbers. For example, if the MonitorInterval 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. Type and dimension: integer-scalar Default: 0 Example: 1

Executing a customized monitoring program

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

- The MonitorProgram attribute value is set to a valid executable program.
- The first-level process check indicates that the Oracle e-Business Components 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 Components instance is online.

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

The monitor function interprets the utility exit code as follows:

110 or 0	Oracle e-Business Components server instance is online
100 or 1	Oracle e-Business Components server instance is offline
99	Oracle e-Business Components server instance is unknown
Any other value	Oracle e-Business Components 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 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.

Chapter 5

Configuring the service groups for Oracle e-Business Components using the CLI

This chapter includes the following topics:

About configuring service groups for Oracle e-Business Components

Configuring the Oracle e-Business Components service group involves creating the Oracle e-Business Components 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 Operations Manager
- The command-line

Before configuring the service groups for Oracle e-Business Components

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

- Verify that VCS is installed and configured on all nodes in the cluster where you will configure the service group.
  Refer to the *Symantec Cluster Server Installation Guide* for more information.
- Verify that the Symantec High Availability agent for Oracle e-Business Components is installed on all nodes in the cluster.
  See "Installing the agent in a VCS environment" on page 31.

Configuring Oracle e-Business Components resources for Solaris zones support

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

- Install Oracle e-Business Components 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 Components.
- 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.

Chapter 6

Troubleshooting the agent for Oracle e-Business Components

This chapter includes the following topics:

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 Components supports, see the Symantec Operations Readiness Tools (SORT) site: https://sort.symantec.com/agents.

Meeting prerequisites

Before installing the agent for Oracle e-Business Components, double check that you meet the prerequisites.

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

See "Before you install the Symantec High Availability agent for Oracle e-Business Components" on page 27.

Configuring Oracle e-Business Components 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 agent for Oracle e-Business Components

Starting the Oracle e-Business Components 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 Components instance independent of the cluster framework. Refer to the cluster documentation for information about disabling a resource.

You can then restart the Oracle e-Business Components instance outside the cluster framework.

Note: Use the same parameters that the resource attributes define within the cluster framework while restarting the resource outside the cluster framework.

A sample procedure to start a appshort instance outside the cluster framework, is illustrated as follows.

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 e-Business component instance.

2 Start the component using the following Oracle supplied scripts:

Oracle component for Oracle Apps 11i	Oracle script to start or stop the component	List of processes
Forms Server	adfrmctl.sh	f60srvm, f60webmx
Forms Metric Server	adfmsctl.sh	d2ls60
Forms Metric Client	adfmcctl.sh	d2lc60
Reports Server	adrepctl.sh	rwmts60
Web Server	adapcctl.sh	httpd
Discoverer	addisctl.sh	osagent, oad
RPC Listener	adalnctl.sh	tnslsnr
Fulfillment Server	jtffmctl.sh	java.*FulfillmentServer*

Oracle component for Oracle Apps R12	Oracle script to start or stop the component	List of processes
OPMN	adopmnctl.sh	opmn
Forms Server (Servlet Mode)	adformsctl.sh	forms
Forms Server (Socket Mode)	adformsrvctl.sh	frmsrv
OACORE Server	adcorectl.sh	oacore
OAFM Server	adoafmctl.sh	oafm
Web Server	adapcctl.sh	httpd
RPC Listener	adalnctl.sh	tnslsnr
Fulfillment Server	jtffmctl.sh	java.*FulfillmentServer*

For example, to start a Forms Server component instance, run this command:

For Oracle Apps 11i

```
# adfrmctl.sh start
```

For Oracle Apps R12

```
# adformsctl.sh start
```

These scripts are located in the $COMMON_TOP/admin/scripts/*CONTEXT_NAME*/ directory for the Oracle Apps 11i and in the $INST_TOP/admin/scripts directory for the Oracle Apps R12.

Where, *CONTEXT_NAME* is the name of the context file. The format of the context file is SID_*hostname*

Ensure that the component instance starts successfully. 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 e-Business component instance.
2. Stop the component using the Oracle supplied scripts.

   For example, to stop a Forms Server component instance, run this command:

   For Oracle Apps 11i

   ```
   # adfrmctl.sh stop
   ```

   For Oracle Apps R12

   ```
   # adformsctl.sh stop
   ```

   These scripts are located in the $COMMON_TOP/admin/scripts/*CONTEXT_NAME*/ directory for the Oracle Apps 11i and in the $INST_TOP/admin/scripts directory for the Oracle Apps R12.

   Where, *CONTEXT_NAME* is the name of the context file. The format of the context file is SID_*hostname*

   Ensure that the component instance stops successfully. 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 Components or the agent for Oracle e-Business Components, 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.

Reviewing cluster log files

In case of problems while using the agent for Oracle e-Business Components, you can access the engine log file for more information about a particular resource. The engine log file is located at `/var/VRTSvcs/log/engine_A.log`.

Using trace level logging

The ResLogLevel attribute controls the level of logging that is written in a cluster log file for each Oracle e-Business Components resource. You can set this attribute to TRACE, which enables very detailed and verbose 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.

To localize ResLogLevel attribute for a resource

1. Identify the resource for which you want to enable detailed logging.
2. Localize the ResLogLevel attribute for the identified resource:

   ```
   # hares -local Resource_Name ResLogLevel
   ```

3. Set the ResLogLevel attribute to TRACE for the identified resource:

   ```
   # hares -modify Resource_Name ResLogLevel TRACE -sys SysA
   ```

4. Note the time before you begin to operate the identified resource.
5. Test the identified resource. The function reproduces the problem that you are attempting to diagnose.
6. Note the time when the problem is reproduced.

7 Set the ResLogLevel attribute back to INFO for the identified resource:

```
# hares -modify Resource_Name ResLogLevel INFO -sys SysA
```

8 Review the contents of the log file.

Use the time noted in Step 4 and Step 6 to diagnose the problem.

You can also contact Symantec support for more help.

Appendix A

Sample Configurations

This appendix includes the following topics:

About sample configurations for the agent for Oracle e-Business Components

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

Sample agent type definition

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

For VCS 4.x

```
type OracleApps (
 static str ArgList[] = { ResLogLevel, State, IState,
                          User, OracleAppsVersion, OracleHome,
                          ScriptHome,
                          EnvFile,ServerType, Port,
                          DBConnectString,
```

```
                        SecondLevelMonitor,
                        MonitorProgram }
 str ResLogLevel = INFO
 str User
 int OracleAppsVersion
 str OracleHome
 str ScriptHome
 str EnvFile
 str ServerType
 str Port
 str DBConnectString
 int SecondLevelMonitor = 0
 str MonitorProgram
)
```

For VCS 5.0

```
type OracleApps (
        static str AgentFile = "/opt/VRTSvcs/bin/Script50Agent"
        static str AgentDirectory = "/opt/VRTSagents/ha/bin/OracleApps"
        static str ArgList[] = { ResLogLevel, State, IState, User,
        OracleAppsVersion, OracleHome, ScriptHome, EnvFile,
        ServerType, Port, DBConnectString, SecondLevelMonitor,
        MonitorProgram, VirtualHostname}
        str ResLogLevel = INFO
        str User
        int OracleAppsVersion
        str OracleHome
        str ScriptHome
        str EnvFile
        str ServerType
        str Port
        str DBConnectString
        int SecondLevelMonitor = 0
        str MonitorProgram
        str VirtualHostname
)
```

Sample Oracle HTTP Server instance

An excerpt of the main.cf file for an Oracle HTTP Server instance is as follows.

For Oracle Apps 11i

```
OracleApps OraApps_HTTPSrvr
(
OracleAppsVersion    = 11
User                 = oraweb
ScriptHome           = "/ora_apps/web/viscomn/admin/scripts/VIS"
ServerType           = WebServer
Port                 = 8002
EnvFile              = "VIS.env"
SecondLevelMonitor   = 5
)
```

For Oracle Apps R12

```
OracleApps OraApps_HTTPSrvr
(
OracleAppsVersion    = 12
User                 = applmgr
ORACLE_HOME          = "/ebiz/oracle/VIS/apps/tech_st/10.1.3"
ScriptHome           = "/ebiz/oracle/inst/apps/VIS_ebiz1/admin/scripts"
ServerType           = WebServer
EnvFile              = "/ebiz/oracle/inst/apps/VIS_ebiz1/ora/10.1.3/\
                       VIS_ebiz.env"
SecondLevelMonitor   = 5
)
```

Sample Oracle OPMN instance

```
OracleApps OraApps_OPMN
(
OracleAppsVersion    = 12
ORACLE_HOME          = "/ebiz/oracle/VIS/apps/tech_st/10.1.3"
ScriptHome           = "/ebiz/oracle/inst/apps/VIS_ebiz1/admin/scripts"
ServerType           = OPMN
User                 = applmgr
SecondLevelMonitor   = 5
EnvFile              = "/ebiz/oracle/inst/apps/VIS_ebiz1/ora/10.1.3/\
                       VIS_ebiz.env"
)
```

Sample Oracle OACORE instance

```
OracleApps OraApps_OACORE
(
```

```
OracleAppsVersion    = 12
ORACLE_HOME          = "/ebiz/oracle/VIS/apps/tech_st/10.1.3"
ScriptHome           = "/ebiz/oracle/inst/apps/VIS_ebiz1/admin/scripts"
ServerType           = OACORE
User                 = applmgr
SecondLevelMonitor   = 5
EnvFile              = "/ebiz/oracle/inst/apps/VIS_ebiz1/ora/10.1.3/\
                       VIS_ebiz.env"
)
```

Sample Oracle OAFM instance

```
OracleApps OraApps_OAFM
(
OracleAppsVersion    = 12
ORACLE_HOME          = "/ebiz/oracle/VIS/apps/tech_st/10.1.3"
ScriptHome           = "/ebiz/oracle/inst/apps/VIS_ebiz1/admin/scripts"
ServerType           = OAFM
User                 = applmgr
SecondLevelMonitor   = 5
EnvFile              = "/ebiz/oracle/inst/apps/VIS_ebiz1/ora/10.1.3/\
                       VIS_ebiz.env"
)
```

Sample Oracle Forms Listener instance

An excerpt of the main.cf file for an Oracle Forms Listener instance is as follows.

```
OracleApps oraforms_lsnr
(
OracleAppsVersion = 11
ScriptHome        = "/ora_apps/forms/viscomn/admin/scripts/VIS"
ServerType        = Listener
User              = oraforms
ORACLE_HOME       = "/ora_apps/forms/visora/8.0.6"
EnvFile           = "VIS.env"
)
```

Sample Oracle Forms Server instance

An excerpt of the main.cf file for an Oracle Forms Server instance is as follows.

For Oracle Apps 11i

```
OracleApps OraApps_FormsSrvr
(
OracleAppsVersion  = 11
ScriptHome         = "/ora_apps/forms/viscomn/admin/scripts/VIS"
ServerType         = FormsServer
User               = oraforms
SecondLevelMonitor = 5
)
```

For Oracle Apps R12

```
OracleApps OraApps_FormsSrvr
(
OracleAppsVersion    = 12
ORACLE_HOME          = "/ebiz/oracle/VIS/apps/tech_st/10.1.3"
ScriptHome           = "/ebiz/oracle/inst/apps/VIS_ebiz1/admin/scripts"
ServerType           = FormsServer
User                 = applmgr
SecondLevelMonitor   = 5
EnvFile              = "/ebiz/oracle/inst/apps/VIS_ebiz1/ora/10.1.3/\
                       VIS_ebiz.env"
)
```

For Oracle Apps 11i, the dependency of resources is as follows:

- OraApps_HTTPSrvr requires OraApps_ip
- OraApps_HTTPSrvr requires OraApps_mnt
- OraApps_FormsLsnr requires OraApps_FormsSrvr
- OraApps_FormsSrvr requires OraApps_ip
- OraApps_FormsSrvr requires OraApps_mnt
- OraApps_mnt requires OraApps_dg

For Oracle Apps R12, the dependency of resources is as follows:

- OraApps_FormsSrvr requires OraApps_OPMN
- OraApps_OACORE requires OraApps_OPMN
- OraApps_OAFM requires OraApps_OPMN
- OraApps_HTTPSrvr requires OraApps_OPMN
- OraApps_OPMN requires OraApps_ip
- OraApps_OPMN requires OraApps_mnt
- OraApps_mnt requires OraApps_dg

Sample agent type definitions with Solaris zone support

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

For VCS 4.x

```
type OracleApps (
        static str ContainerType = Zone
        static str ArgList[] = { ResLogLevel, State, IState, User,
        OracleAppsVersion, OracleHome, ScriptHome, EnvFile,
        ServerType, Port, DBConnectString, SecondLevelMonitor,
        MonitorProgram, VirtualHostname}
        str ResLogLevel = INFO
        str User
        int OracleAppsVersion
        str OracleHome
        str ScriptHome
        str EnvFile
        str ServerType
        str Port
        str DBConnectString
        int SecondLevelMonitor = 0
        str MonitorProgram
        str VirtualHostname
        str ContainerName
)
```

For VCS 5.0

```
type OracleApps (
        static str ContainerType = Zone
        static str AgentFile = "/opt/VRTSvcs/bin/Script50Agent"
        static str AgentDirectory = "/opt/VRTSagents/ha/bin/OracleApps"
        static str ArgList[] = { ResLogLevel, State, IState, User,
        OracleAppsVersion, OracleHome, ScriptHome, EnvFile,
        ServerType, Port, DBConnectString, SecondLevelMonitor,
        MonitorProgram, VirtualHostname}
        str ResLogLevel = INFO
        str User
        int OracleAppsVersion
        str OracleHome
        str ScriptHome
```

```
        str EnvFile
        str ServerType
        str Port
        str DBConnectString
        int SecondLevelMonitor = 0
        str MonitorProgram
        str VirtualHostname
        str ContainerName
)
```

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.

For example, you can group an instance each of a Forms Server, a Forms Listener, a Forms Metric Client, and a Forms Metric Server within a 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.

The following figures presents sample configuration service groups for different components of Oracle e-Business 11i.

Note: For each sample service group, the Oracle e-Business components are dependent on underlying virtual IP address and shared disk resources to support local fail-over.

Figure A-1 shows a service group with Oracle 9iAS Web Application Server resource.

The resource depends on an IP and Mount resource. The application administrator must also configure an application "listener" for the web application server. In this case, the listener resource is dependent on the Web Application Server instance.

Figure A-1 Service group with Oracle 9iAS Web Application Server resource

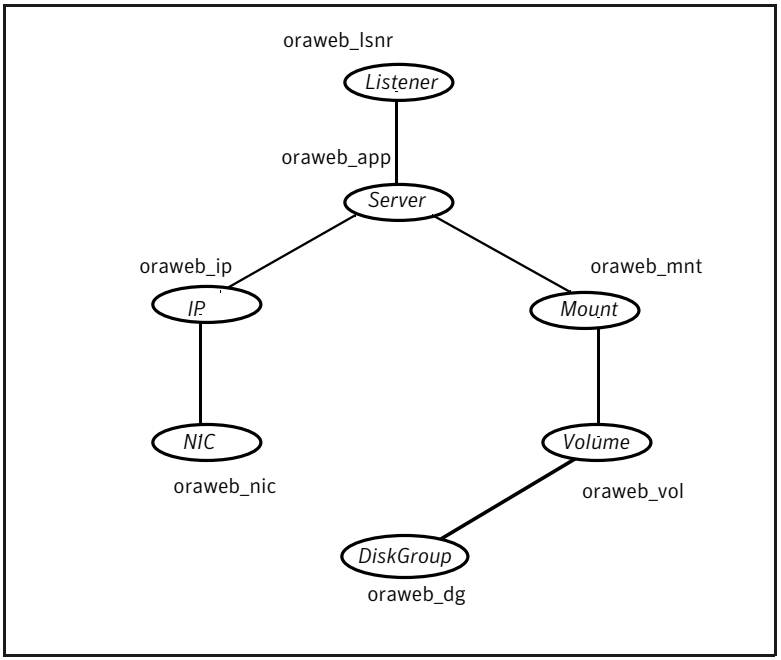


Figure A-2 depicts a service group that contains an Oracle Forms Server component, that includes an instance each of a Forms Server, a Forms Metric Client, a Forms Metric Server, and a Forms Listener.

A separate resource within the group controls each Oracle Forms Server component. In this example, the Listener resource is dependent on the Forms Server, and can easily be dependent directly on the underlying IP and mount resources.

Figure A-2 Service group containing an Oracle Forms Server component

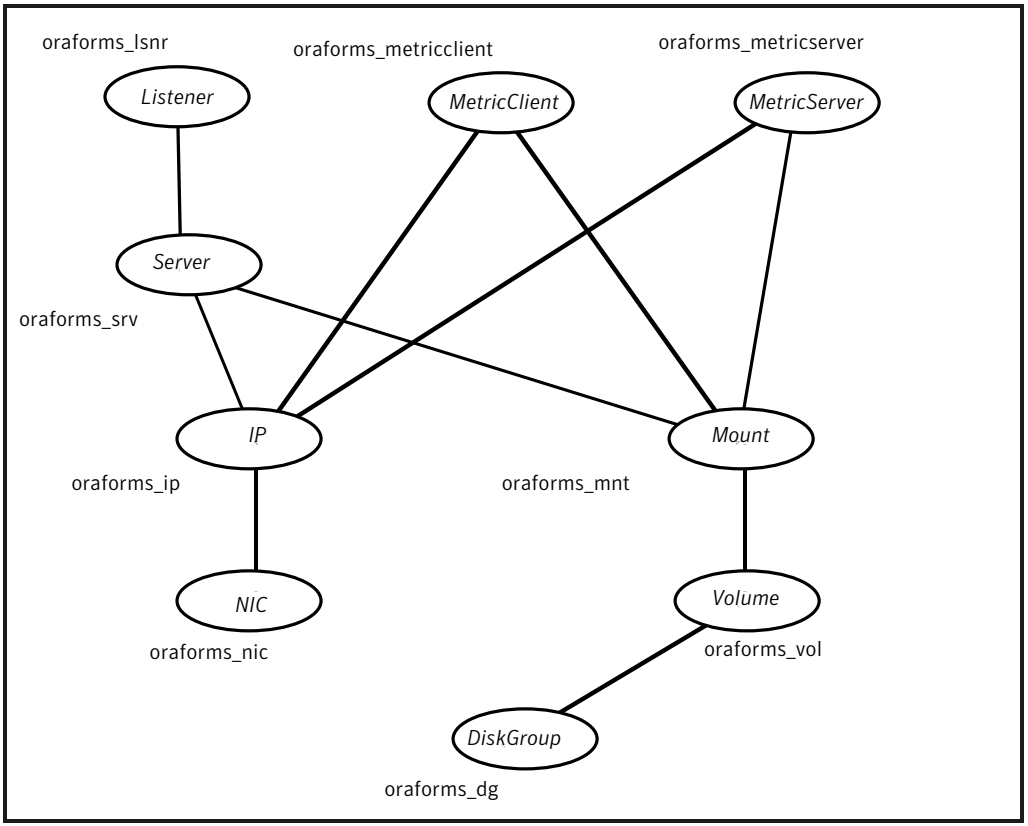


Figure A-3 depicts a common setup for the Oracle Report Server as a companion to the Oracle Concurrent Manager.

The Report Server can also be separately started, stopped, and monitored in this configuration.

Figure A-3 Common setup for the Oracle Report Server as a companion to the Oracle Concurrent Manager

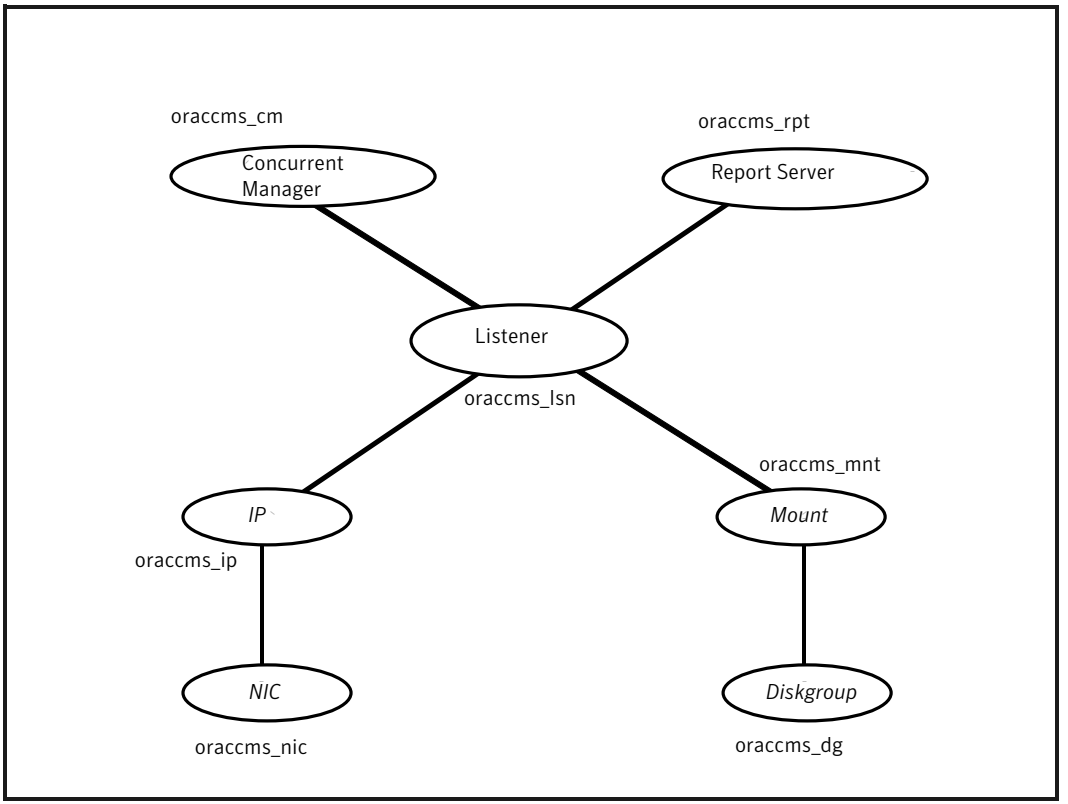
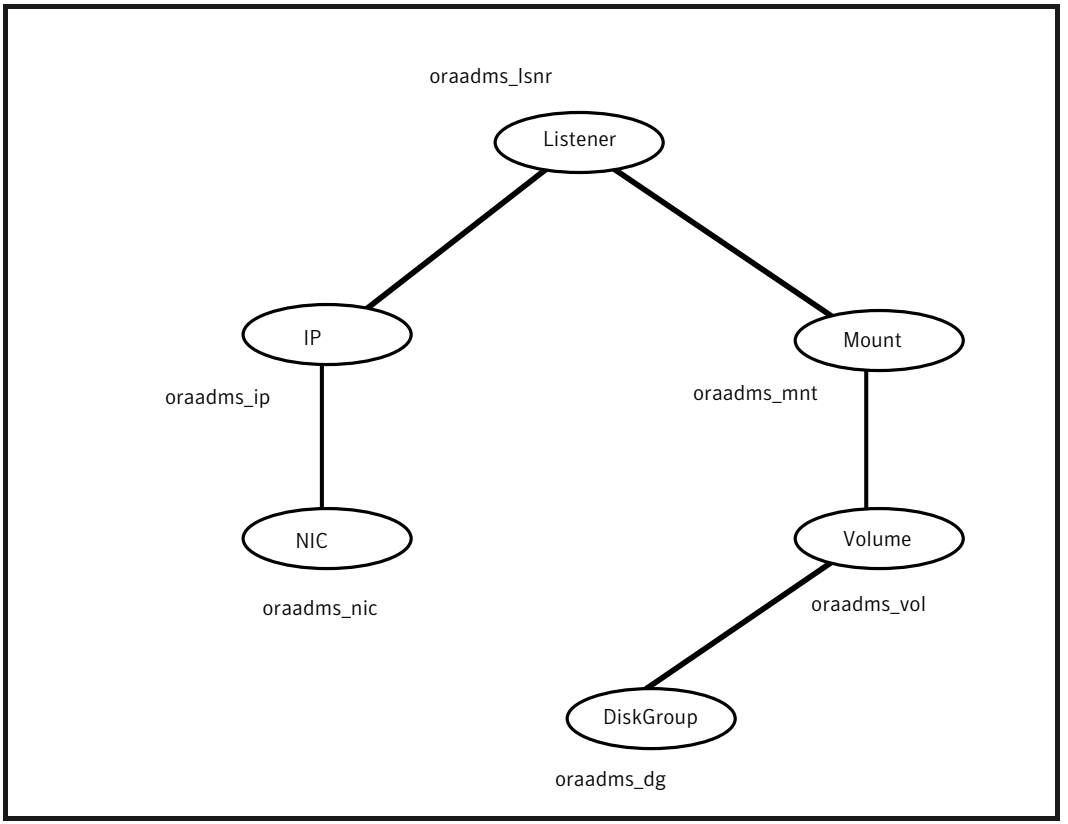


Figure A-4 depicts a setup for the Oracle Administration server service group.

The Administration server is installed as a separate component using the Rapidwiz installer. This configuration shows the use of a unique disk group and mount point dedicated to a single Oracle Administration server instance. The Administration server resource is configured as a "listener".

Figure A-4 Setup for the Oracle Administration Server service group



For Oracle e-Business R12, the OC4J forms replace the forms and reports server with the introduction of Application Server 10g. These forms are managed by Oracle Process Manager and Notification Server (OPMN)

The following figures present sample configuration service groups for different components of Oracle e-Business R12.

Figure A-5 depicts a service group with Oracle oAS 10g OPMN and its managed processes; Web Server, Forms, OAFM and OACORE.

Figure A-5 Service group with Oracle oAS 10g OPMN and its managed processes

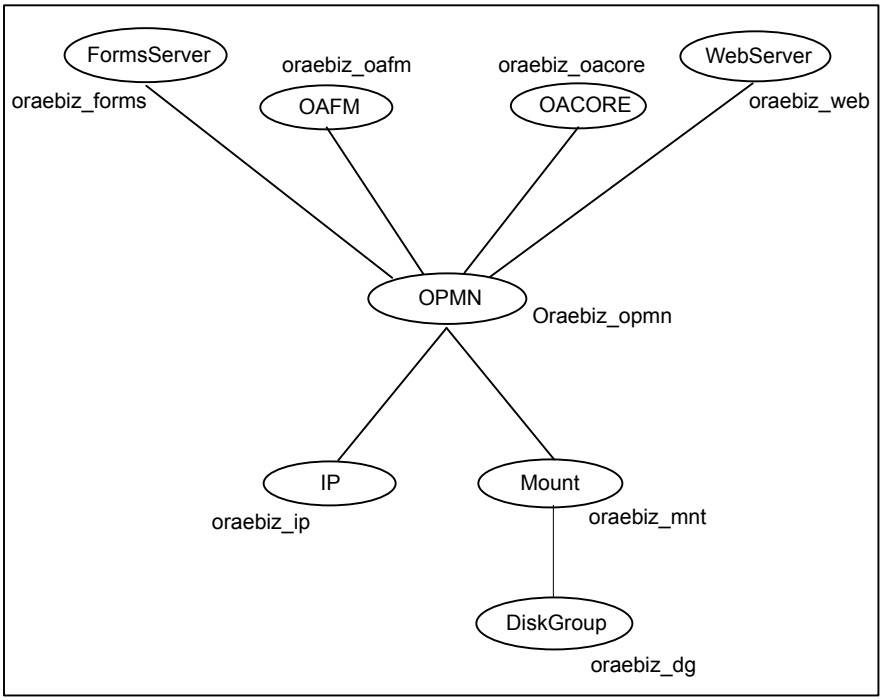
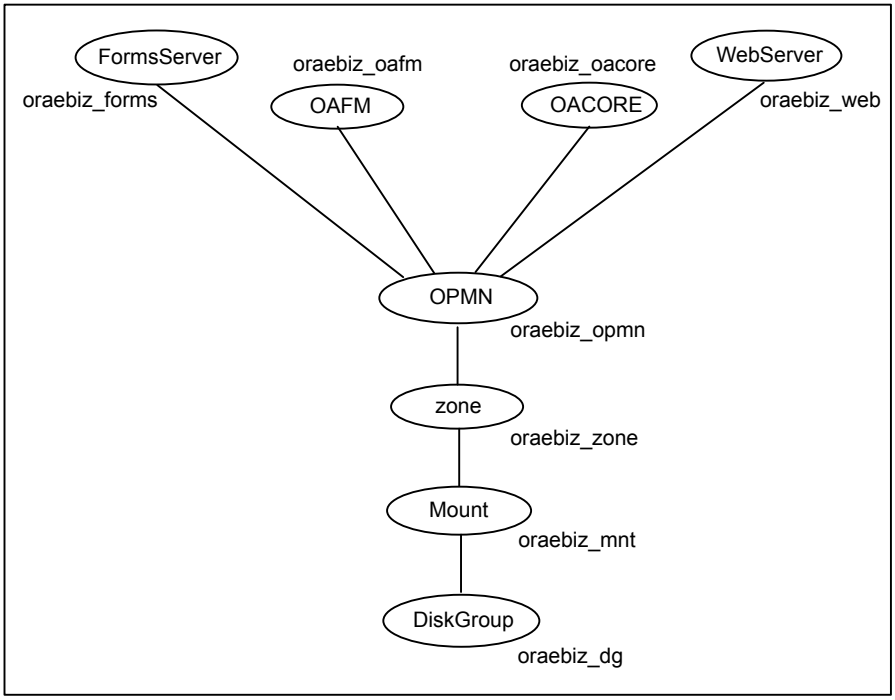


Figure A-6 depicts a service group with Oracle oAS 10g OPMN and its managed processes; Web Server, Forms, OAFM and OACORE, under Solaris zone.

Figure A-6 Service group with Oracle oAS 10g OPMN and its managed processes, under Solaris zone



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