Oracle9i Application Server Cold Failover Cluster Infrastructure Upgrade to Oracle Application Server 10*g* (9.0.4) Cold Failover Cluster Infrastructure

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1 Overview

The Oracle Application Server Infrastructure which contains the Identity Management (IM) and Metadata Repository (MR) has been one of the components where continuous improvements in the areas of High Availability are being made. The Infrastructure, usually installed on a different host than the middle tier, provides centralized security and management services and a metadata repository to one or more application server instances on the middle tier. Depending on the deployment option(s) and requirements of the business, the infrastructure tier can be a critical layer for continuous operation, and therefore important to be highly available. With the previous Oracle9*i* Application Server Release 2 (9.0.2.3), a High Availability Cold Failover Cluster (HA CFC) solution was provided through a series of documented post-install steps., which are being implemented today.

This document describes the process of upgrading the Oracle9*i* Application Server Release 2 (9.0.2.3), CFC Infrastructure configuration (also referred to as the source environment) to the Oracle Application Server 10*g* (9.0.4), CFC Infrastructure configuration (also referred to as the target environment). The 9.0.4 release now provides Out-of-the-box (OOTB) installs for high availability, one of which is the Cold Failover Cluster Infrastructure architecture, whereas the 9.0.2 release required a handcrafted CFC configuration from a single instance 9.0.2 install, using library inter-positioning. (Reference *'Oracle 9i Application Server Infrastructure: Improved Availability with Hardware Cluster'* at http://otn.oracle.com/products/ias/hi_av/9ias_cfc.pdf for 9.0.2 CFC details). For this reason, an automated OOTB upgrade from 9.0.2 CFC to 9.0.4 CFC is not currently available.

The diagram below depicts the OracleAS Cold Failover (Infrastructure) Configuration.

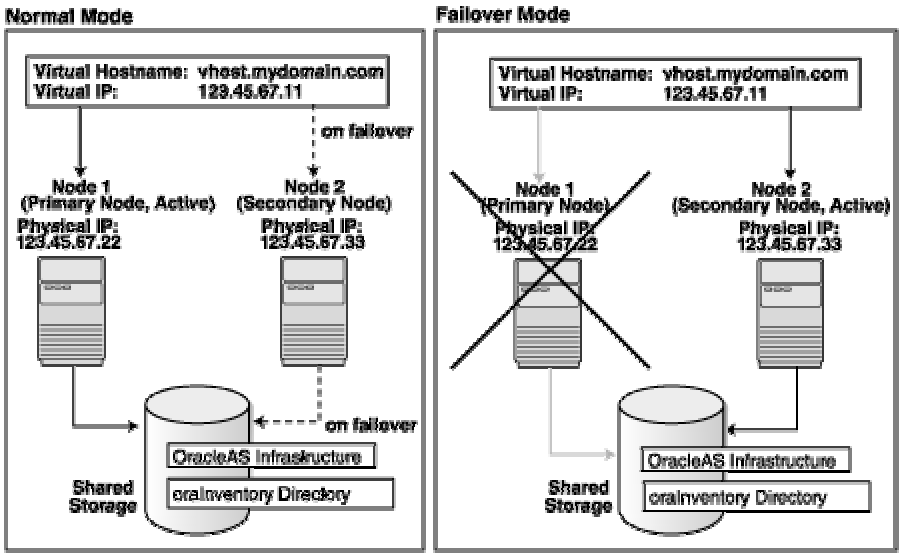
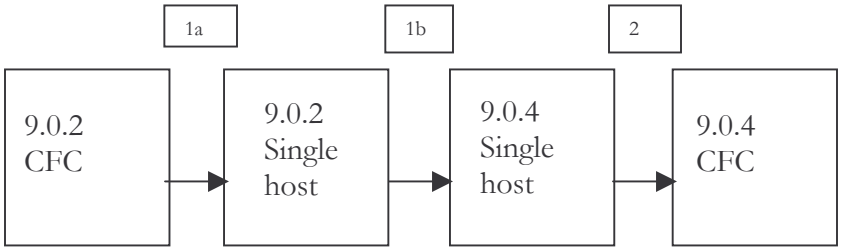


Figure: OracleAS Cold Failover (Infrastructure) Configuration

The upgrade procedure described below consists of a series of steps, which will require some downtime, so this process will need to be properly planned and prepared to minimize the overall outage as much as possible. The high level steps for this procedure are as follows:

- Upgrade 9.0.2 CFC to 9.0.4 (single host)
  - Transform 9.0.2 CFC to 9.0.2 (single host)
  - Upgrade from 9.0.2 (single host) to 9.0.4 (single host)
- Transform from 9.0.4 (single host) to 9.0.4 HA CFC



Some additional notes about this procedure:

- This method can be used for the following Operating Systems:
  - Solaris Operating System (SPARC)
  - HP HP-UX PA-RISC (64-bit)
  - Linux x86

  Note: This paper provides example commands and mentions for the Solaris operating system, only. If you are performing the 9.0.2 CFC upgrade to 9.0.4 CFC on any other supported operating system listed above, refer to Chapter 9 of the "Oracle

Application Server 10g Installation Guide 10g (9.0.4)" for your operating system for the equivalent commands for that operating system. Any exceptions that are not mentioned in Chapter 9 will be listed within this paper. Also, section 5 is included for the Linux operating system.

- The *'Oracle Application Server 10g Upgrading to 10g (9.0.4) for UNIX'* guide is extensively used for upgrade from 9.0.2 CFC. http://download-west.oracle.com/docs/cd/B10467_11/migrate.904/migrate/toc.htm
- The same set of systems is used for the upgrade.
- All the examples in the procedure outlined below are SUN and Veritas specific.

2 Preliminary Tasks and Information

2.1 Source Environment

- Oracle 9i Application Server Release 2 (9.0.2.3) – CFC Configuration
- RDBMS Version is 9.0.1.4

2.2 Target Environment

- Oracle Application Server 10*g* (9.0.4) – CFC Configuration
- RDBMS Version is 9.0.1.5

2.3 Getting Started

- Source infrastructure configuration is Oracle 9i Application Server Release 2 (9.0.2.3). If not, then install required patches to bring Infrastructure to 9.0.2.3 configuration.
- RDBMS Version is 9.0.1.4
- Update an entry in the 9.0.2 Oracle Internet Directory to be able to have 9.0.4 Mid Tier talk to 9.0.2 infrastructure. Perform *'Update an Entry in the 9.0.2 Oracle Internet Directory'* from *'Oracle Application Server 10*g *Installation Guide 10*g *(9.0.4) for Solaris Operating System (SPARC)'* guide http://download-west.oracle.com/docs/cd/B10467_05/install.904/install/compat.htm#sthref109
- Read the complete procedure and keep the followings tasks performed ahead of time to reduce down time:
  - Obtain Oracle AS Backup & Recovery tool
  - Create 'staticports.ini' file for 9.0.4 CFC install

- Check logs after Oracle Application Server upgrade, Database Upgrade, Backup & Recovery, and other such logical steps to ensure the results of that step is in line with what was expected.

3 Upgrade Procedure

3.1 Upgrade 9.0.2 CFC to 9.0.4 single instance

3.1.1 Prepare to Upgrade Metadata Repository and apply RDBMS 9.0.1.5 Patch Set

Preparing to upgrade the Metadata Repository. Perform *'4.2 Preparing to Upgrade the Metadata Repository'* from *'Oracle Application Server 10*g *Upgrading to 10*g *(9.0.4) 10*g *(9.0.4) for UNIX'* guide.
http://download-west.oracle.com/docs/cd/B10467_11/migrate.904/migrate/metarep.htm#sthref520

This step includes installing RDBMS 9.0.1.5 Patch Set.

At this stage, we will convert 9.0.2 CFC environment into 9.0.2 single instance environment by stopping the cluster ware, and then upgrade this 9.0.2 single instance into 9.0.4 single instance.

Make sure machine meets OS, OS patches, Software patches and Kernel parameters requirements as specified in *'Oracle Application Server 10*g *Installation Guide 10*g *(9.0.4) for Solaris Operating System (SPARC)'* guide***.***

3.1.2 Shutdown the cluster

You should have access to the console for this step.

Oracle Application Server 10*g* (9.0.4) doesn't support direct upgrade from Oracle 9i Application Server Release 2 (9.0.2.0.3) on a hardware cluster. So for the duration of upgrade to 9.0.4 single instance, the clusterware must be stopped.

Shutdown the cluster software
From the console issue following command:
scshutdown –g 0 –y (from one node)

This will halt the 2 nodes leaving them in the boot (OK) prompt, where they can be booted in non-cluster mode.

Boot the boxes in exclusive mode

On the console from 2 nodes you will have boot prompt. Type 'boot –x' on both the nodes.

OK> boot –x

The rest of the procedure will be performed on the node that was originally used to install 9.0.2 CFC.

Note:
The command to shutdown Red Hat Cluster Manager on Red Hat Enterprise Linux AS 2.1 is:

 # /sbin/service cluster stop

The command to shutdown HP Serviceguard on HP-UX 11.0 or 11i is:

 # /usr/sbin/cmhaltcl

Both command need to be executed as root. For other clusterware versions on other operating system versions, consult your System Administrator.

3.1.3 Mount file system and Enable Virtual hostname

You should have root access for this step.

Mount file system

Mount file system on the node that was originally used to install 9.0.2 CFC.

Example using Veritas Volume Manager on Sun Solaris 8:

 # vxdg import <Veritas Diskgroup Name>
 # vxvol –g <Veritas Diskgroup Name> startall
 # mount /dev/vx/dsk/<Veritas Diskgroup Name>/<volume_name> <mount_point>

 # vxdg import cfc1-dg
 # vxvol –g cfc1-dg startall
 # mount /dev/vx/dsk/cfc1-dg/cfc1_vol1 /cfc

- cfc1-dg is Veritas Diskgroup
- cfc1_vol1 is volume_name
- /cfc is the file system mount_point

Example on Linux:

 # /bin/mount /dev/sdd3 /cfc

Example on HP-UX:

 # /usr/sbin/vgchange –c n /dev/vgsh1
 # /usr/sbin/vgchange –a y /dev/vgsh1
 # /usr/sbin/mount /dev/vgsh1/1vol1 /cfc

Enable Virtual hostname

- Make sure setup environment is same as of 9.0.2 CFC environment
- Make sure LD_PRELOAD and LHOSTNAME environment variables are properly defined.
- Enable logical IP address

Syntax on Solaris:
 # ifconfig <interface> addif <logical-ip> up

Example on Solaris:
 # ifconfig eri0 addif 144.25.144.46 up

(where eri0 is the public interface on which logical IP address is enabled)

Example on Linux:
 # /sbin/ifconfig eth0:1 144.25.144.46

(where eth0 is the primary public interface)

Example on HP-UX:
 # /usr/sbin/ifconfig lan0:1 144.25.144.46

(where lan0 is the primary public interface)

3.1.4 Start Database Server, Database Listener and Oracle Internet Directory Server in 9.0.2 environment

$ lsnrctl start
$ sqlplus '/ as sysdba'
SQL> startup
SQL> quit
$ oidmon start
$ oidctl server=oidldapd configset=0 instance=1 start

To confirm OID server is running, issue following commands:

$ ldapbind –p <Non-SSL port>
$ ldapbind –p <SSL port> -U 1

Both commands should return "bind successful"

Example:
$ ldapbind –p 4032
$ ldapbind –p 4031 -U 1

3.1.5 Change hostname to virtual hostname

You should have root access for this step.

Before the upgrade process, we need to change the physical hostname (temporarily) and make it same as virtual hostname.

(Please ensure that root does NOT have the variables LD_PRELOAD or LHOSTNAME set)

 # hostname <Virtual Hostname>
Virtual Hostname is the hostname logical IP is mapped to. You can get it from /etc/hosts file.

Example:
 # hostname myim

Where 'myim' is the virtual hostname.

Note:
On Linux, use the fully qualified hostname. For example:
hostname myim.mydomain.com

3.1.6 Upgrade Identity Management

Now from a different window (session), start the process to Upgrade Identity Management Services. Perform '*5* Upgrading the Identity Management Services' from 'Oracle Application Server 10g Upgrading to 10g (9.0.4) 10g (9.0.4) for UNIX' guide.
http://download-west.oracle.com/docs/cd/B10467_11/migrate.904/migrate/identmgt.htm#sthref676

Setup Environment

Log in to the computer on which Oracle9*i*AS Release 2 (9.0.2) is installed, as the same operating system user that performed the Oracle9*i*AS Release 2 (9.0.2) installation.

Make sure LD_PRELOAD and LHOSTNAME environment variables are NOT defined (NOT set).

Verify that /bin/hostname (/usr/bin/hostname on HP-UX) returns the proper hostname (original virtual hostname).

Metalink Note 263073.1

Follow the procedure listed in Metalink Note 263073.1 before proceeding with the next step.

Upgrade Identity Management

Use Oracle Universal Installer to Upgrade Identity Management. Perform *'5.1.3 Using Oracle Universal Installer to Upgrade Identity Management'* from *'Oracle Application Server 10*g *Upgrading to 10*g *(9.0.4) 10*g *(9.0.4) for UNIX'* guide.
http://download-west.oracle.com/docs/cd/B10467_11/migrate.904/migrate/identmgt.htm#CHDFDFDA

Note: When the Installer prompts for an ORACLE Home, it is asking for a **NEW** Oracle Home destination where the upgrade will be performed. **DO NOT USE THE EXISTING ORACLE HOME.**

Note: You will be asked to shutdown OID and the listener but leave the database up:

$ oidctl server=oidldpapd configset=0 instance=1 stop
$ oidmon stop
$ lsnrctl stop

Note: If some configuration assistant fails because of 'Invalid User' type error, try comparing password of the user in oidadmin Vs. database server and make them the same to ensure the configuration assistant completes its processing.

Example: Ultrasearch CA failed.

Use **oidadmin** (myim.domain.com:4032)
- ⇨ **Entry Management**
- ⇨ **cn=OracleContext**
- ⇨ **cn=Products**
- ⇨ **cn=IAS**
- ⇨ **cn=Infrastructure Databases**
- ⇨ **orclReferenceName**

- ⇨ **orclResourceName=WKSYS**
- ⇨ **Make oidadmin password same as that in the database**

3.1.7 Start OracleAS Infrastructure and Test Infrastructure and Mid Tier

Start OracleAS Infrastructure
Verify that your environment is pointing to the new 9.0.4 ORACLE_HOME.
Startup DB and the listener
Startup OracleAS Infrastructure components

Perform starting procedure from *'3 - Starting and Stopping'* from *"Oracle Application Server 10g Administrator's Guide 10g (9.0.4)'* guide.
http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/start.htm

Test Infrastructure
Test the partner application oiddas by accessing:
http://hostname.com:7777/oiddas multiple times and validate that everything is working.

Test the Single Sign-On administration application by accessing:
http://hostname.com:7777/pls/orasso multiple times and validate that everything is working.

Test Mid-Tier
Use appropriate Mid Tier guide for testing procedure.

3.1.8 Upgrade Metadata Repository Upgrade (Based on the Mid Tier currently installed)

Perform Metadata Repository Upgrade
Verify that your environment is pointing to the new 9.0.4

Perform *'4 Performing Metadata Repository Upgrade'* from the '*Oracle Application Server 10g Upgrading to 10g (9.0.4) for UNIX'* guide.
http://download-west.oracle.com/docs/cd/B10467_11/migrate.904/migrate/metarep.htm - sthref513

Upgrade Portal (Mid Tier) Repository
Perform '4.5 Upgrading OracleAS Portal Repository' from the '*Oracle Application Server 10g Upgrading to 10g (9.0.4) for UNIX*' guide for Portal Mid Tier.

http://download-west.oracle.com/docs/cd/B10467_11/migrate.904/migrate/metarep.htm#sthref590

Make sure alias is defined for the connect string in the tnsnames.ora file in $ORACLE_HOME/network/admin directory.

Example:

j1.us.oracle.com
(DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=myim.domain.com)(PORT=1521))
(CONNECT_DATA=(SID=iasdb)))

us.oracle.com should be the same domain name as defined in $ORACLE_HOME/network/admin/sqlnet.ora

Verify using **tnsping j1**

When executing the upgrade script, during 'precheck' and 'upgrade' use j1 instead of the complete connect string.
Perform *'4.5.6 Executing the OracleAS Portal Repository Upgrade Script'* from *'Oracle Application Server 10g Upgrading to 10g (9.0.4) 10g (9.0.4) for UNIX'* guide.
http://download-west.oracle.com/docs/cd/B10467_11/migrate.904/migrate/metarep.htm#sthref601

Perform Completing Portal (Mid Tier) Upgrade
Perform *'3.8.4 Completing the OracleAS Portal Middle Tier Upgrade'* from *'Oracle Application Server 10g Upgrading to 10g (9.0.4) 10g (9.0.4) for UNIX'* guide.
http://download-west.oracle.com/docs/cd/B10467_11/migrate.904/migrate/midtier.htm#sthref351

3.2 Transform 9.0.4 single instance to 9.0.4 CFC

3.2.1 Preliminary Setup

Create Staticports file
Create Staticports.ini file for 9.0.4 CFC install.
Refer *'4.5.2.1 Format of the staticports.ini File'* from *'Oracle Application Server 10g Installation Guide 10g (9.0.4) for Solaris Operating System (SPARC)'* guide for details.

http://download-west.oracle.com/docs/cd/B10467_05/install.904/install/reqs.htm#BABEEAAJ

Get port numbers from 9.0.2 install portlist.ini file first, followed by remaining from 9.0.4 portlist.ini file.

portlist.ini file can be found at $ORACLE_HOME/install
Put staticports.ini somewhere safe (outside ORACLE_HOME).

Configure Backup & Recovery tool
Configure the Oracle Application Server Backup & Recovery tool. Configure this tool outside of ORACLE_HOME because this will be used twice in this procedure.

Obtain OracleAS Backup & Recovery tool
Install OracleAS Backup & Recovery tool
Configure OracleAS Backup & Recovery tool
as detailed in *'12 - Oracle Application Server Backup and Recovery Tool'* in *'Oracle Application Server 10g Administrator's Guide 10g (9.0.4)'* guide.
http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/br_tool.htm

3.2.2 Save Environment Details and Backup

Save Environment Details

Save the following files (use `tar` command as root user to preserve permissions). These files can be saved at any location as soon as they are accessible from the target system.

- OracleAS Backup & Recovery tool configuration file - *<B&R tool install dir>/config/config.inp (typically $ORACLE_HOME/*backup_restore)
- OracleAS Static Ports file - *$ORACLE_HOME/install/portlist.ini*
- Password file - *$ORACLE_HOME/dbs/orapw${ORACLE_SID}* (default filename is orapwasdb)

- Note configuration details

  User details (user group)
  DBID
  OracleAS and DB install configuration details
    Directory structure
    Names and passwords
    Backup and Restore install configuration

Directory structure

Backup configuration files

Perform a full configuration file backup as detailed in the *'Oracle Application Server 10g Administrator's Guide 10g (9.0.4)'* guide.
http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/br_tool.htm#1010820

Example:

bkp_restore.pl -v -m backup_config

Backup OracleAS Metadata Repository

Make sure ARCHIVELOG mode is enabled.
Verify/Perform *'13.2.1 Enabling ARCHIVELOG Mode'* from 'Oracle Application Server 10*g* Administrator's Guide10*g* (9.0.4)' guide.
http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/br_bkp.htm#1010465

Perform a full online backup of OracleAS Metadata Repository as detailed in the *'Oracle Application Server 10g Administrator's Guide 10g (9.0.4)'* guide.
http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/br_tool.htm#1010820
Example:

bkp_restore.pl -v -m backup_online

Save files

Tar all the backup files.

Last Archive log

Create the last archive log file

```
sqlplus
SQL> connect / as sysdba
SQL> alter system switch logfile;
```

Copy last archive log file.

3.2.3 Shutdown standalone OracleAS Infrastructure

Shutdown OracleAS Infrastructure (includes database, database listener and all OracleAS components).
Perform shutdown procedure from *'3 - Starting and Stopping'* from *'Oracle Application Server 10g Administrator's Guide 10g (9.0.4)'* guide.
http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/start.htm

At this stage we will start the clusterware, and then transform this 9.0.4 single instance into 9.0.4 CFC.

3.2.4 Start the Cluster

You should have access to the console for this step.

Shutdown the nodes
From the consoles of both the nodes, issue following command:
shutdown –i 0 -g 0 –y (from both nodes of the cluster)

This will halt the 2 nodes leaving them in the boot (OK) prompt, where they can be booted in cluster mode.

Shutthe boxes in cluster mode
Type 'boot' on both the nodes
OK> boot –x

The rest of the procedure will be performed on the node that was originally used to install 9.0.2 CFC (and later for upgrade to 9.0.4 single instance).

Note:
The command to startup Red Hat Cluster Manager on Red Hat Enterprise Linux AS 2.1 is:
 # /sbin/service cluster start
The command to startup HP Serviceguard on HP-UX 11.0 or 11i is:
 # /usr/sbin/cmruncl
Both command need to be executed as root. For other clusterware versions on other operating system versions, consult your System Administrator.

3.2.5 Mount file system and Enable Virtual hostname

You should have root access for this step.

Mount file system

Mount file system on the node that was originally used to install 9.0.2 CFC.

Example using Veritas Volume Manager on Sun Solaris 8:

 # vxdg import <Veritas Diskgroup Name>
 # vxvol –g <Veritas Diskgroup Name> startall
 # mount /dev/vx/dsk/<Veritas Diskgroup Name>/<volume_name> <mount_point>

 # vxdg import cfc1-dg
 # vxvol –g cfc1-dg startall
 # mount /dev/vx/dsk/cfc1-dg/cfc1_vol1 /cfc

- cfc1-dg is Veritas Diskgroup
- cfc1_vol1 is volume_name
- /cfc is the file system mount_point

Example on Linux:

 # /bin/mount /dev/sdd3 /cfc

Example on HP-UX:

 # /usr/sbin/vgchange –c n /dev/vgsh1
 # /usr/sbin/vgchange –a y /dev/vgsh1
 # /usr/sbin/mount /dev/vgsh1/1vol1 /cfc

Enable Virtual hostname

- Make sure setup environment is same as of 9.0.2 CFC environment
- Make sure LD_PRELOAD and LHOSTNAME environment variables are properly defined.
- Enable logical IP address

Example syntax on Solaris:

 # ifconfig <interface> addif <logical-ip> up

Example on Solaris:

 # ifconfig eri0 addif 144.25.144.46 up

(where eri0 is the public interface on which logical IP address is enabled)

Example on Linux:

 # /sbin/ifconfig eth0:1 144.25.144.46

(where eth0 is the primary public interface)

Example on HP-UX:

 # /usr/sbin/ifconfig lan0:1 144.25.144.46

(where lan0 is the primary public interface)

3.2.6 Clean and Setup Environment for 9.0.4 CFC

Make sure hostname is the physical hostname and **NOT** the virtual hostname.

Log in to the computer on which Oracle9*i*AS Release 2 (9.0.2) is installed, as the same operating system user that performed the Oracle9*i*AS Release 2 (9.0.2) installation.

Make sure LD_PRELOAD and LHOSTNAME environment variables are **NOT** set.

Rename /var/opt/oracle to /var/opt/oracle_904SI

 # mv /var/opt/oracle /var/opt/oracle_904SI

Note:
On Linux, execute the following commands:
 # mv /etc/oratab /etc/oratab_904SI
 # mv /etc/oraInst.loc /etc/oraInst.loc_904SI

On HP-UX, execute the following commands:
 # mv /etc/oratab /etc/oratab_904SI
 # mv /var/opt/oracle/oraInst.loc
/var/opt/oracle/oraInst.loc_904SI

Rename or delete original 9.0.2 ORACLE_HOME (CFC) and 9.0.4 ORACLE_HOME (single instance).

 # mv /cfc/902CFC /cfc/902CFC_old
 # mv /cfc/904CFC /cfc/904CFC_old

If because of space limitation, you need to delete these directories, take a backup before deleting. Use 'tar' command to backup and store the tar file to a different directory.

Create oradata directory

$ mkdir /cfc/902CFC/ora9ias/oradata

where /cfc/902CFC/ora9ias was the ORACLE_HOME for 9.0.2 CFC install, and all other directories where datafiles were stored.

3.2.7 Install OracleAS 10g 9.0.4 CFC

Install OracleAS 10g, Release 9.0.4 Infrastructure on Cold Failover Cluster using Virtual Hostname **'myim'.** Use 'Oracle Application Server 10*g* Installation Guide 10*g* (9.0.4) for Solaris Operating System (SPARC)' guide for Installation details.

Make sure to use Staticports.ini file created earlier during install process.

Use command from *'4.5.2 Using Custom Port Numbers (the "Static Ports" Feature)'* from *'Oracle® Application Server 10*g *Installation Guide 10*g *(9.0.4) for Solaris Operating System (SPARC)'* guide.
http://download-west.oracle.com/docs/cd/B10467_05/install.904/install/reqs.htm#sthref208
to start the installer with the staticports.ini file.

Example:

$ *mount_point*/904disk1/runInstaller oracle.iappserver.infrastructure:s_staticPorts=*fullpath/to/local/staticports.ini*

Check logs to verify that the correct file is picked up.
Make sure to use correct names (instance name, Global database name), passwords, SID, paths, etc during install.
Example: Make sure to mention the correct oradata directory.

Make sure to install into same ORACLE_HOME name as the upgraded 904 was.

3.2.8 Test CFC Infrastructure

Test the partner application oiddas by accessing:
http://hostname.com:7777/oiddas multiple times and validate that everything is working.

Test the Single Sign-On administration application by accessing:
http://hostname.com:7777/pls/orasso multiple times and validate that everything is working.

3.2.9 Configure OracleAS Backup & Recovery tool

You may not be required to perform this step if you already have Backup & Recovery tool installed and configured in the earlier step.

Obtain OracleAS Backup & Recovery tool
Install OracleAS Backup & Recovery tool
Configure OracleAS Backup & Recovery tool

Set the config, log and db directories to be the same ones as before. For details refer *'12 - Oracle Application Server Backup and Recovery Tool'* from *'Oracle Application Server 10g High Availability Guide 10g (9.0.4)'* guide.
http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/br_tool.htm

3.2.10 Shutdown CFC Infrastructure

Shutdown OracleAS Infrastructure
Shutdown DB
Shutdown database listener

For details refer *'5 - Managing Infrastructure High Availability'* from *'Oracle Application Server 10g High Availability Guide 10g (9.0.4)'* guide.
http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10495/chapter5.htm#1017757

3.2.11 Restore from Backup

Changes to OracleAS Backup & Recovery configuration
Update *<B&R tool install dir>/config/config.inp* (change DBID to one from Source System)

Update *<B&R tool install dir>/restore_db_cf.dat*
Change DBID to one from Source System
Delete "***alter database open resetlogs;"*** line

Restore configuration files
Get backup files - tar file
Restore configuration files

Perform Restore configuration files from backup (**restore_config**) as detailed in the *'Oracle Application Server 10g Administrator's Guide 10g (9.0.4)'* guide.

http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/br_tool.htm#1010820

Example:

bkp_restore.pl -m restore_config -t config_<config backup filename>

Restore Metadata Repository

Copy password file (*orapwasdb*) from backup taken earlier.

Rename directory */cfc/902CFC/ora9ias/oradata/iasdb* to */cfc/902CFC/ora9ias /oradata/iasdbbak* (iasdb is the SID)

$ mv /cfc/902CFC/ora9ias/oradata/iasdb /cfc/902CFC/ora9ias/oradata/iasdbbak

This directory will not be used and can later be removed.

Create a new directory /cfc/902CFC/ora9ias/oradata/iasdb

$ mkdir /cfc/902CFC/ ora9ias/oradata/iasdb

where /cfc/902CFC/ora9ias was the ORACLE_HOME for 9.0.2 CFC install and iasdb is the SID.

Perform Restore OracleAS Metadata Repository from backup **restore_db**) as detailed in the *'Oracle Application Server 10g Administrator's Guide 10g (9.0.4)'* guide.

Use **'-c'** option to restore control files

Example:

bkp_restore.pl -m restore_db –c

http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/br_tool.htm#1010820

*Note that whenever you restore the OracleAS Metadata Repository to a new/clean host, the control file will be restored from backup. If **restore_db** command returns an error and check the log and if restore was completed, we are ok.*

Note which archivelog file, restore_db has complained for.

Restore last archive log file

Copy all archive log files from the number **restore_db** complained in the previous step from source system to target system.

Restore data from archive log files and open resetlogs

sqlplus /nolog
SQL> connect / as sysdba
SQL> recover database using backup controlfile UNTIL CANCEL
SQL> <enter filenames one by one in the proper sequence and enter CANCEL in the end>
SQL> alter database open resetlogs;
SQL> exit

Open resetlogs invalidates all backups and archivelogs. You should immediately perform a complete cold backup of the Metadata Repository, which will serve as the new baseline for your subsequent partial online backups.

Shutdown database

sqlplus /nolog
SQL> connect / as sysdba
SQL> shutdown
SQL> exit

3.2.12 Start OracleAS Infrastructure

Startup DB and the listener
Startup OracleAS Infrastructure components

Perform starting procedure from *'5.1 Oracle Application Server Cold Failover Clusters'* from *'Oracle Application Server 10g High Availability Guide 10g (9.0.4)'* guide**.**
http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/start.htm

Note: If startup of OID gives error, compare service names as defined in oidadmin and the database. They should match. Check service name in '**tnsnames.ora'** or '**oid'** using **'oidadmin**'. If needed perform following steps to alter service_name.

sqlplus '/ as sysdba'
show parameter service_name
alter system set service_name='iasdb.domain.com,iasdb.myim.domain.com';

alter system register;
exit

3.2.13 Test CFC Infrastructure

Test the partner application oiddas by accessing: http://hostname.com:7777/oiddas multiple times and validate that everything is working.

Test the Single Sign-On administration application by accessing: http://hostname.com:7777/pls/orasso multiple times and validate that everything is working.

3.2.14 Test Failover

Failover means shutting down the application on one node and starting it on the second node. Verify that you can manually failover and failback the infrastructure. For details, Refer details listed earlier along with starting up and stopping Oracle Application Server CFC from *'Oracle Application Server 10g High Availability Guide 10g (9.0.4)'* guide.
http://download-west.oracle.com/docs/cd/B10464_04/core.904/b10495/inframanage.htm#i1009139

3.2.15 Test Mid-Tier

Use appropriate Mid Tier guide for testing procedure.

4 Related Documents

For more information, refer to these Oracle Resources:

- Oracle Application Server 10*g* High Availability Guide
- Oracle Application Server 10*g* Installation Guide
- Oracle Application Server 10*g* Administrator's Guide
- Oracle Application Server 10*g* Release Notes for most current information.
  You can find the latest version of the release note document on Oracle Technology Network:
  http://otn.oracle.com/documentation/ias.html
- For accessing any document Navigate to http://otn.oracle.com/documentation/appserver10g.html and click on 'View Library' for 'Oracle Application Server 10g Online

Documentation 10g (9.0.4) for HP-UX PA-RISC (64-bit), and Linux x86' or 'Solaris' – based on which document you want to access.

5 Considerations for Linux

OCFS

The Oracle Cluster File System (OCFS) is not required or recommended for this solution. Since parallel access to the shared filesystem will not be necessary, a regular filesystem (EXT3) is sufficient.

Before applying the RDBMS 9.0.1.5 Patch

The following command must be issued before running the Patch install:

mv $ORACLE_HOME/inventory/Queries21/unixQueries/2.1.0.8.0/unixQueries.jar $ORACLE_HOME/inventory/Queries21/unixQueries/2.2.0.7.0/

Appendix

Procedure Checklist

Upgrade Procedure Step	Complete
3.1 Upgrade 9.0.2 CFC to 9.0.4 single instance	
3.1.1 Prepare to Upgrade Metadata Repository and apply RDBMS 9.0.1.5 Patch Set	
3.1.2 Shutdown the cluster	
3.1.3 Mount file system and Enable Virtual hostname	
3.1.4 Start Database Server, Database Listener and Oracle Internet Directory Server in 9.0.2 environment	
3.1.5 Change hostname to virtual hostname	
3.1.6 Upgrade Identity Management	
3.1.7 Start OracleAS Infrastructure and Test Infrastructure and Mid Tier	
3.1.8 Upgrade Metadata Repository Upgrade (Based on the Mid Tier currently installed)	
3.2 Transform 9.0.4 single instance to 9.0.4 CFC	
3.2.1 Preliminary Setup	
3.2.2 Save Environment Details and Backup	
3.2.3 Shutdown standalone OracleAS Infrastructure	
3.2.4 Start the Cluster	
3.2.5 Mount file system and Enable Virtual hostname	
3.2.6 Clean and Setup Environment for 9.0.4 CFC	
3.2.7 Install OracleAS 10g 9.0.4 CFC	
3.2.8 Test CFC Infrastructure	
3.2.9 Configure OracleAS Backup & Recovery tool	
3.2.10 Shutdown CFC Infrastructure	
3.2.11 Restore from Backup	
3.2.12 Start OracleAS Infrastructure	
3.2.13 Test CFC Infrastructure	
3.2.14 Test Failover	
3.2.15 Test Mid-Tier	

Oracle9i Application Server Cold Failover Cluster Infrastructure Upgrade to Oracle Application Server 10*g* (9.0.4) Cold Failover Cluster Infrastructure
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