

Transformation from a single host
Oracle Application Server
Infrastructure to an Oracle
Application Server 10g Cold
Failover Cluster Infrastructure

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Transformation from a single host Oracle Application Server Infrastructure to an Oracle Application Server 10g Cold Failover Cluster Infrastructure

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Transformation from a single host Oracle Application Server Infrastructure to an Oracle Application Server 10g Cold Failover Cluster Infrastructure

(Oracle Application Server 10g, Release 9.0.4)

Introduction

This document describes the procedure for transformation from a single host (non-HA) 9.0.4 Infrastructure (Identity Management (IM) + Metadata Repository (MR)) installation to a 9.0.4 HA Cold Failover Cluster (CFC) Infrastructure configuration.

This procedure can be leveraged to migrate from 9.0.2 non-HA Infrastructure configuration to 9.0.4 CFC Infrastructure configuration.

This transformation will be a 2-step process:

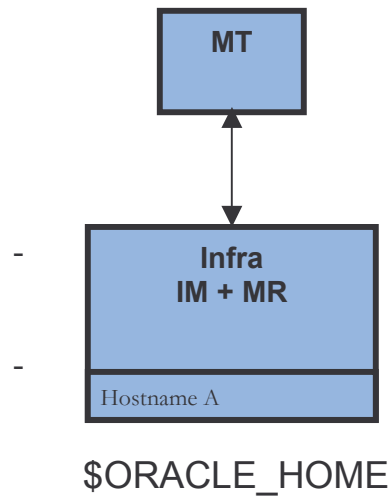
- Upgrade from 9.0.2 to 9.0.4 (same configuration)
- Migrate from 9.0.4 non-HA to 9.0.4 HA CFC

This procedure can be used for following Operating Systems:

- Solaris Operating System (SPARC)
- AIX-Based Systems
- HP HP-UX PA-RISC (64-bit)
- HP Tru64 UNIX and
- Linux x86

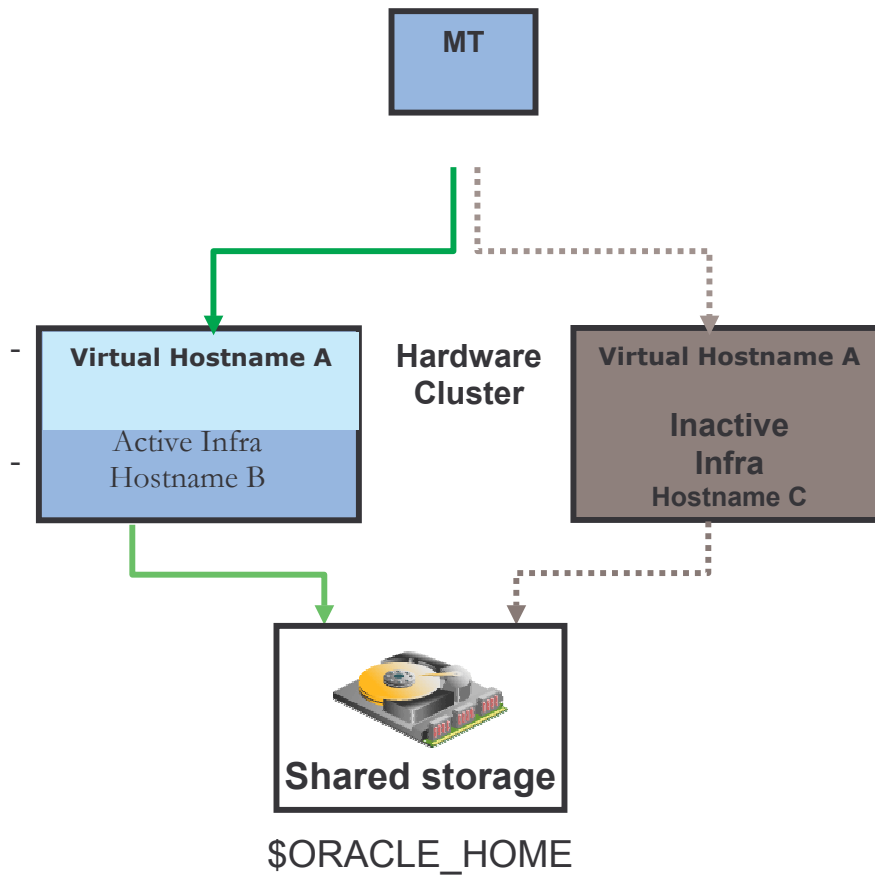
i. Initial (Source) Configuration

Middle tiers (MT) and a single node Infrastructure (IM+MR)



ii. Final (Target) Configuration

Middle tiers (MT) and a HA CFC Infrastructure (IM+MR)



Transformation Procedure

iii. Source System (Hostname A) – Setup information

1. Configure the Oracle Application Server Backup & Recovery tool
 - Obtain OracleAS Backup & Recovery tool
 - Install OracleAS Backup & Recovery tool
 - Configure OracleAS Backup & Recovery tool

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

2. 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 - `<BR tool install dir>/config/config.inp`
 - OracleAS Static Ports file - `$ORACLE_HOME/install/portlist.ini`
 - Password file - `$ORACLE_HOME/dbs/orapwasdb` (default filename is `orapwasdb`)
3. Note configuration details
 - User details (user group)
 - OracleAS and DB install configuration details
 - Directory structure
 - Names and passwords
 - Backup and Restore install configuration
 - Directory structure

iv. Target System (Hardware Cluster with Hostnames B and C) - Prepare

4. Cleanup machines where CFC install need to be performed.
 - Make sure ports listed in `portlist.ini` of the source system are available and not used by any other application.
5. Add configuration details
 - Add user details (user group, password)

- Make directory structure on the shared disk (for CFC)
6. Get following files from Source System (use tar command as root user to preserve permissions).
 - OracleAS Backup & Recovery tool configuration file - `<B&R tool install dir>/config/config.inp`
 - OracleAS Static Ports file - `ORACLE_HOME/install/portlist.ini`
 - Password file - `ORACLE_HOME/dbs/orapwasdb` (default filename is orapwasdb)
 7. Set virtual hostnames
 - On Solaris, Linux, HP-UX, and AIX, use ifconfig to set 'A' as the virtual hostname for machine 'B'
 - On Tru64 UNIX, use cluamgr to create an 'A' cluster alias and set it's selection priority to a higher value on machine 'B' compared to it's selection priority on machine 'C'

Note: reference Chapter9, "Installing in High Availability Environments" of the Oracle Application Server 10g (9.0.4) Installation Guide for your platform to get example ifconfig and cluamgr commands to perform this step. The links to the Installation Guides are available within the "Related Documents" section at the end of this document.

Make sure to use a different IP Address than that of Source System with physical hostname 'A'

8. Install OracleAS 10g, Release 9.0.4 Infrastructure on Cold Failover Cluster using Virtual Hostname 'A' from machine 'B'.

Refer:http://download-west.oracle.com/docs/cd/B10467_05/install.904/install/ha.htm#sthref763 for CFC HA configuration details

- Make sure same ports are used as in `portlist.ini` of source system. If needed, override ports during installation using **portlist.ini (staticports.ini is just another name for the Static Ports file)**.
9. 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.

10. Shutdown CFC Infrastructure instance

- Shutdown OracleAS Infrastructure
- Shutdown DB
- Shutdown database listener

Refer http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/start.htm#1031691

11. Configure OracleAS Backup & Recovery tool

- Obtain OracleAS Backup & Recovery tool
- Install OracleAS Backup & Recovery tool (same directory structure as source system)
- Configure OracleAS Backup & Recovery tool

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

12. Make following changes to OracleAS Back & Recovery tool configuration:

- Update `<BR tool install dir>/config/config.inp` (change DBID to one from Source System)
- Update `<BR tool install dir>/restore_db_cf.dat`
 - Change DBID to one from Source System
 - Delete “*alter database open resetlogs;*” line

v. Source System (Hostname A) – Full backup

13. Backup configuration files

- Perform a full configuration file backup

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

14. Backup OracleAS Metadata Repository

- Perform a full online backup of OracleAS Metadata Repository
 - Make sure ARCHIVELOG mode is enabled

Refer following for backup procedures and enabling ARCHIVELOG mode

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

And

http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/br_bkp.htm#1010465

15. Save files

- Tar all the backup files

vi. Target System (Hardware Cluster with Hostnames B and C) – Full Restore

16. Get backup files from source system

- Tar file from source system

17. Restore configuration files

- Restore configuration files from backup (**restore_config**)

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

18. Restore OracleAS Metadata Repository

- Copy password file (*orapw_{asdb}*) of the source system to target system.
- Rename directory *\$ORACLE_HOME/oradata/asdb* to *\$ORACLE_HOME/oradata/asdbbak* (asdb is the SID)

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

- Create a new directory *\$ORACLE_HOME/oradata/asdb* (asdb is the SID)
- Restore OracleAS Metadata Repository from backup (**restore_db**)

- Use '-c' option to restore control files

Refer: 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 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 archive log file, restore db has complained for.

vii. Source System (Hostname A) – Incremental backup

19. Copy archive log files

- This step captures all the changes done to the source Metadata Repository during target system setup and restore.
- Copy all archive log files from source system to target system, from the number noted in the previous step.

viii. Target System (Hardware Cluster with Hostnames B and C) – Incremental restore

20. Restore archive log files

- This step captures all the changes done to the source Metadata Repository during target system setup and restore.
- 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

```
sqlplus /nolog
SQL> connect / as sysdba
SQL> recover database using backup controlfile
SQL> <enter filenames one by one in the proper
sequence and enter cancel in the end>
SQL> exit
```

This restore can be done with a script if there are a large number of archive log files.

Repeat step 19 and 20 till only few archive log files are left (preferably one) to minimize the downtime.

ix. Source System (Hostname A) – Final backup and shutdown

21. Create the last archive log file

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

22. Copy last archive log file

- Copy last archive log file from source system to target system.

23. Shutdown standalone OracleAS Infrastructure

- Shutdown OracleAS Infrastructure (includes database, database listener and all OracleAS components).
- Shutdown Hostname **A**

Refer http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/start.htm#1031691

x. Target System (Hardware Cluster with Hostnames B and C) – Final restore and startup

24. 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 archive logs. 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
```

25. Start OracleAS Infrastructure

- Startup DB and the listener
- Startup OracleAS Infrastructure components

Refer: http://download-west.oracle.com/docs/cd/B10464_01/core.904/b10376/start.htm#1031622

26. Test CFC Infra

- 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.

27. Make DNS Switch

28. Test Mid-Tier

- Use appropriate Mid Tier guide for testing procedure.

Related Documents

For more information, refer to these Oracle Resources:

- Oracle Application Server 10g High Availability Guide
- Oracle Application Server 10g Installation Guide
- Oracle Application Server 10g Administrator's Guide
- Oracle Application Server 10g 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 AIX-Based Systems, hp HP-UX PA-RISC (64-bit), hp Tru64 UNIX, and Linux x86' or 'Solaris' – based on which document you want to access.



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