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| **Document ID**  **WORKING PLAN** |  |
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Xanh Pôn Hospital

**INFORMATION TECHNOLOGY CENTER**

Upgrade Oracle

Database Software

**Hanoi, Jul-2016**

# Overview

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| --- | --- | --- | --- | --- | --- | --- |
| General Informations | | | | | | |
| **Title** | Upgrade Oracle Database Software | | | | | |
| **Jobs** | Reasons to work | Follow Oracle’s recommendation | | | | |
| Content of work | 1. Apply required patches before upgrading process 2. Install and patch Oracle Database to 11.2.0.4 3. Upgrade Database to 11.2.0.4 4. Check result | | | | |
| **Informations** | Date & time to work |  | | | | |
| Place to work |  | | | | |
| Target machines |  | | | | |
| Interrupted services |  | | | | |
| Estimated interrupted time | 4 hours. | | | | |
| Backup data |  | | | | |
| **Engineers** | Company | Name | Phone number | Fields | Sign | |
| HIPT |  |  |  |  | |
| **Managers** | HIPT |  |  |  | |  |
| **Attached papers** |  | | | | | |

# Working scenario

## Reasons to work : Follow Oracle’s recommendations.

## Steps to work

* Stop application
* Apply required patches
* Install and patch Oracle Database to 11.2.0.4
* Upgrade Database to 11.2.0.4
* Check result after the upgrading DB.
* Start application and check.

***Step’s order must be followed***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Target Machines** | **Time/Date** | **Operations** | **Engineers** |
|  |  |  | Stop application | System team & HIT |
|  |  |  | Apply required patches | Oracle VN |
|  |  |  | Install and patch Oracle Database to 11.2.0.4 | Oracle VN |
|  |  |  | Upgrade Database to 11.2.0.4 | Oracle VN |
|  |  |  | Check result | OracleVN,  DBA |
|  |  |  | Start application and check | System team & HIT |

# Detail commands to execute

## Pre-Patch Activities:

|  |  |
| --- | --- |
| Step | Activities |
|  | Health check using RDA |
|  | Take a full backup of all the databases. This backup will be used for restoration in case of serious failure during the patching process |

## Install Oracle Database 11.2.0.4.0:

Refer Oracle MOS Doc ID: **1565291.1**

* Prepare Installation Software
* Perform 11.2.0.4 Database Software Installation with OUI
* Update OPatch in New Database Home on All Database Servers

| Step | Activities |
| --- | --- |
|  | Prepare Installation Software *Create ORACLE\_HOME directory*  (root)# mkdir -p /u01/app/oracle/product/11.2/dbhome\_1  (root)# chown oracle /u01/app/oracle/product/11.2/dbhome\_1  (root)# chgrp -R oinstall /u01/app/oracle/product/11.2/dbhome\_1  ***Unzip file oracle software***  (oracle)$ unzip -q /u01/app/oracle/stage/p13390677\_112040\_Linux-x86-64\_1of7.zip -d /u01/app/oracle/stage (oracle)$ unzip -q /u01/app/oracle/stage/p13390677\_112040\_Linux-x86-64\_2of7.zip -d /u01/app/oracle/stage |
|  | Perform 11.2Database Software Installation with OUI (oracle)$ unset ORACLE\_HOME ORACLE\_BASE ORACLE\_SID (oracle)$ export DISPLAY=<your\_xserver>:0 (oracle)$ cd /u01/app/oracle/stage/database (oracle)$ ./runInstaller   1. On Configure Security Updates screen, fill in required fields, and then click Next. 2. On Download Software Updates screen, select Skip software updates, and then click Next. 3. On Select Installation Option screen, select Install database software only, and then click Next. 4. On Grid Installation Options screen, select Oracle Real Application Clusters database installation, click Select All. Verify all database servers are present in the list and are selected, and then click Next. 5. On Select Product Languages screen, select languages, and then click Next. 6. On Select Database Edition, select Enterprise Edition, click Select Options to choose components to install, and then click Next. 7. On Specify Installation Location, enter /u01/app/oracle/product/11.2.0.4/dbhome\_1 as the Software Location for the Database home, and then click Next.    * It is recommended that the Database home NOT be placed under /opt/oracle. 8. On Privileged Operating System Groups screen, verify group names, and then click Next. 9. On Perform Prerequisite Checks screen, similar to the CVU check discussed earlier: OS Kernel parameter checks may fail with errors like CRS-10051 and/or PRVG-1201. See the instructions listed during CVU verification earlier: try the workaround of changing read permissions for sysctl.conf on all compute nodes and as a last alternative to double check these minimum values manually. If these are the only failures: then click 'Ignore All', and then click Next. Be aware failed checks other than OS Kernel parameter settings must be investigated. 10. On Summary screen, verify information presented about installation, and then click Install. 11. On Install Product screen, monitor installation progress. 12. On Execute Configuration scripts screen, execute root.sh on each database server as instructed, and then click OK 13. On Finish screen, click Close. |

## Upgrade Oracle Database to 11.2.0.4

* + Backing up the database and creating a Guaranteed Restore Point
  + Analyze the Database to Upgrade with the Pre-Upgrade Information Tool
  + Start instances in restricted mode
  + Upgrade the Database with Database Upgrade Assistant (DBUA)
  + Change Custom Scripts and Environment Variables to Reference the 11.2 Database Home
  + Add Underscore Initialization Parameters Back

| Step | Activities |
| --- | --- |
|  | Check the backup job of database has already finished (including datafiles, spfile, controlfiles) and creating a Guaranteed Restore Point SQL> CREATE RESTORE POINT grpt\_bf\_upgr GUARANTEE FLASHBACK DATABASE;  SQL> SELECT \* FROM V$RESTORE\_POINT where name = 'GRPT\_BF\_UPGR'; |
|  | Analyze the Database to Upgrade with the Pre-Upgrade Information Tool SQL> spool preupgrade\_info.log SQL> @/u01/app/oracle/product/11.2.0.4/dbhome\_1/rdbms/admin/utlu112i.sql |
|  | Start instances in restricted mode (oracle)$ sqlplus / as sysdba  SQL> STARTUP RESTRICT; |
|  | Upgrade the Database with Database Upgrade Assistant (DBUA) **Perform these mandatory actions on the DBUA screens:**   1. On Welcome screen, click Next. 2. On Select Database screen, select the database to be upgraded, and then click Next.    * Enter a local instance name if requested. 3. On Upgrade Options screen, select the desired options, and then click Next.    * If you have a standby database, then do NOT select to turn off archiving during the upgrade. 4. On Recovery and Diagnostic Locations screen, click Next. 5. On Management Options screen, do not select any Enterprise Manager option as this will be done later using the Database Configuration Assistent (DBCA), then click Next. Note that depending on your configuration you may or may not be prompted for this information. 6. On Summary screen, verify information presented about the database upgrade, and then click Finish. 7. On Progress screen, when the upgrade is complete, click OK. 8. On Upgrade Results screen, review the upgrade result and investigate any failures, and then click Close. |
|  | Change Custom Scripts and Environment Variables to Reference the 11.2Database Home The primary database is upgraded and is now running out of the 11.2 database home.  Customized administration and login scripts that reference database home ORACLE\_HOME should be updated to refer to /u01/app/oracle/product/11.2/dbhome\_1. |
|  | Underscore Initialization Parameters During the upgrade DBUA removes obsolete and underscore initialization parameters. One new underscore parameter needs to be double checked for and added if not set.  Run the following command verify this parameter:  SQL> select distinct(value) from gv$parameter where name = '\_file\_size\_increase\_increment';  VALUE -------------------------------------------------------------------------------- 2143289344  If the value for \_file\_size\_increase\_increment is missing or not set to the expected value of 2143289344, set it to the right value  SQL> alter system set \_file\_size\_increase\_increment=2143289344 sid='\*' scope=both;  Values for \_kill\_diagnostics\_timeout and \_lm\_rcvr\_hang\_allow\_time should not exist after the upgrade, run the following command to verify this:  SQL> select distinct(name), value from  gv$parameter where name in ('\_kill\_diagnostics\_timeout','\_lm\_rcvr\_hang\_allow\_time');  NAME                        VALUE -------------------------------------------------------------------------------- \_lm\_rcvr\_hang\_allow\_time    140 \_kill\_diagnostics\_timeout   140  The values need to be removed if still exist. Example as follows:  SYS@SQL> alter system reset \_kill\_diagnostics\_timeout sid='\*' scope=spfile; SYS@SQL> alter system reset \_lm\_rcvr\_hang\_allow\_time sid='\*' scope=spfile;  The value for the init.ora parameter 'listener\_networks' removed before the upgrade needs to be restored now as follows:  SQL> alter system set listener\_networks='<original value>' sid='\*' scope=both; |
|  | ***Remove Guaranteed Restore Point***  If the upgrade has been successful and a Guaranteed Restore Point (GRP) was created, it should be removed now as follows:  SQL> DROP RESTORE POINT GRPT\_BF\_UPGR; |

## Start applications to connect to database and check.

## Total elapsed time to upgrade database on DC:

|  |  |  |
| --- | --- | --- |
| ***Activity*** | ***Time*** | ***Downtime*** |
| **Install Database Software 11.2.0.4** | 2 hours | No |
| **Upgrade database to 11.2.0.4** | 4 hours | Yes |

# Rollback strategy ( Optional)

* Install new Database Software fail
* Upgrade Database to 11.2.0.4 fail
* Problem when running in 11.2.0.4 Database softwar

|  |  |
| --- | --- |
| Step | Activities |
|  | **Install new Database Software fail**  Oracle Database Software will be installed on a new home. Old Database Home will be removed later when not required. |
|  | **Upgrade to Database to 11.2 fail**  A restore point will be created before upgrade. We can flashback to that point at any time. |
|  | **Problem when running in 11.2 Database Software**  If we have issue when running in 11.2.0.4, it is better to resolve issue. In last resort, we can downgrade to 11.2.0.3 by using catdwgrd.sql. |

# Appendix - Scripts to be used