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OPATCH Utility (RDBMS Patching)

OPatch is a java based utility that allows the application and rolling back of interim patches to an Oracle product. The program requires Java(JVM) to be present on the current system. OPatch expects users to have commands such as fuser, jar, ar and make on Unix platforms and jar on Windows platforms to be available in their PATH.

- **How to check the Opatch version?**

Normally Opatch directory will not available with PATH variable, so we need to add it.

```
[oracle@erp ~]$ export PATH=$PATH:/app/oracle/ajidb/11.2.0/OPatch/
```

```
[oracle@erp ~]$ opatch version
```

```
Invoking OPatch 11.1.0.6.6
```

```
OPatch Version: 11.1.0.6.6
```

```
OPatch succeeded.
```

- **How to know which version is the correct version of Opatch for your RDBMS home?**

We can verify whether the Opatch version for your RDBMS release is correct or not using metalink note:357221.1.

This note ID gives the compatibilities between OPatch version and RDBMS version.

- **How to get the latest version of OPatch?**

You can download the latest version of OPatch from metalink using following URL.

<http://updates.oracle.com/download/6880880.html>

From the above link, we will get the latest Opatch Universal Installer, download it.

To install this patch simply extract the file "zipped file" using unzip or winzip, depending upon the platform. We should extract the zip file directly under the ORACLE_HOME.

- **How to run the utility**

OPatch tool requires JDK to be present in the Oracle Home.

It requires JDK version of 1.5.0 or higher for proper functioning.

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It can be invoked directly using

```
/opatch [] [options]
```

Patch commands are as follows :

```
Apply
napply
rollback
nrollback
lsinventory
lsinv
query
util
prereq
version
-help
-h
```

We can use the following command format to view help information:

```
/opatch [] -help
```

OPatch can be manually invoked using Perl:

```
/perl /opatch.pl [options]
```

We can use the following command format to view help information:

```
/perl /opatch.pl [] -help
```

In the release dropdown we can select the OPatch release that we want to download based on your RDBMS version. Please read the README.txt before applying the patch.

- **What is Oracle Database Inventory and where it is located?**

Oracle Inventory is the location or the place where all the information about an Oracle Home is stored and maintained. Whenever we install an RDBMS Oracle Home, a new inventory gets created. Applying any new patch to Oracle Home will update the inventory for that Oracle Home and record the details for the patch applied. This inventory is in the form of XML files.

The location of inventory is defined in a file called oraInst.loc. The path for this file is provided while installing Oracle Home. If we don't supply any path, this file will be present at central location /etc/oraInst.loc. Also we can have a central inventory if it's not used by any other oracle installation. If the central inventory is used by previous Oracle installation we can create local inventory. The content of oraInst.loc file is as shown below.

```
[oracle@erp ~]$ cd $ORACLE_BASE/oraInventory/  
[oracle@erp oraInventory]$ cat oraInst.loc
```

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```
inventory_loc=/app/oracle/oraInventory
```

```
inst_group=oinstall
```

Here “inventory_loc” gives the location of Inventory directory where as inst_group gives the name of the group which is the owner of this inventory.

- **How to create Local Inventory?**

We can create local inventory at any location while installing Oracle Home. You need to use -invPtrLoc variable along with runInstaller command and give the location of oraInst.loc. Otherwise the default path assumed for oraInst.loc is /etc/oraInst.loc.

```
./runInstaller -invPtrLoc /app/oracle/oraInventory/oraInst.loc
```

After the installation starts it will ask for location of oraInventory directory and group which should own it. It will make entry of these into oraInst.loc file.

Various options available with opatch utility

You can get all the options using opatch -help

```
Usage: opatch [ -help ] [ -r[eport] ] [ command ]
```

```
command := apply
```

```
lsinventory
```

```
napply
```

```
nrollback
```

```
rollback
```

```
query
```

```
version
```

```
prereq
```

```
util
```

```
:= -help    Displays the help message for the command.
```

```
-report    Print the actions without executing.
```

example:

```
‘opatch -help’
```

```
‘opatch apply -help’
```

```
‘opatch lsinventory -help’
```

```
‘opatch prereq -help’
```

```
‘opatch rollback -help’
```

```
‘opatch util -help’
```

```
OPatch succeeded.
```

We can get specific help for any command of opatch using opatch -help.

Example

```
[oracle@erp ~]opatch apply -help.
```

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- **When Applying single patch using opatch, We should follow the below steps.**

1. We must read the Readme.txt file included in opatch file, look for any prerequisites steps/ post installation steps or and DB related changes. Also, make sure that you have the correct opatch version required by this patch.
2. All take a working backup of database along with Oracle Home and oraInventory
3. Make a note of all Invalid objects in the database prior to the patch.
4. Shutdown all the oracle processes running from that Oracle Home, including the Listener and Database instance, Management agent etc.
tar czvf /app/backup/oracle.tar.gz \$ORACLE_HOME
Unzip the patch in \$ORACLE_HOME/patches
5. If you are applying a single intrim patch to oracle home, then change the location to the directory of that patch and then invoke following command.
Example if I need to apply patch 6972343 to RDBMS Oracle Home
[oracle@erp ~]\$ cd \$ORACLE_HOME/patches/6972343
[oracle@erp ~]\$opatch apply

If you have created local inventory then you need to give the correct path for local inventory stored in oraInst.loc. If you have updated /etc/oraInst.loc with correct location of your inventory, then above command will work, If not you can give the correct location by giving local oraInst.loc file.

```
[oracle@erp ~]$opatch apply -invPtrLoc /app/oracle/oraInst.loc
```

Please Note : when we are applying patch, patch number is NOT provided as an input to opatch command. So we have to to be in the directory of patch since opatch will pick the patch files from current directory.

- **Rolling back a patch**

In case if a patch did not fix the issue or if you has applied wrong patch to oracle home, we can rollback the patch using following comamnd.

```
opatch rollback -id
```

- **Applying bundle patches**

Sometimes if you have to apply bundle patch having many patches, Execute following command to apply all patches.

```
[oracle@erp ~]$opatch util NApply
```

NApply -> Will apply all patches to RDBMS home.

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We can also use -phBaseDir to point to the directory where bundle patch is installed. So you can run opatch command from any location.

```
§ORACLE_HOME/OPatch/patch util NApply -phBaseDir  
/app/oracle/patches/6778860 -invPtrLoc /app/oracle/oraInventory/oraInst.loc
```

We can also apply specific patches using NApply
opatch util napply -id 1,2,3 -skip_subset -skip_duplicate
This will apply patches 1, 2, and 3 which are under < the patch_location > directory.
OPatch will skip duplicate patches and subset patches (patches under that are subsets of patches installed in the ORACLE_HOME)

You can see all the options for NApply using following help command.

```
§ORACLE_HOME/OPatch/patch util NApply -help  
Query the inventory for patches applied
```

```
§ORACLE_HOME/OPatch/patch lsinventory  
[oracle@erp ~]$ opatch lsinventory  
Invoking OPatch 11.1.0.6.6  
Oracle Interim Patch Installer version 11.1.0.6.6  
Copyright (c) 2009, Oracle Corporation. All rights reserved.  
Oracle Home : /app/oracle/ajidb/11.2.0  
Central Inventory : /app/oracle/oraInventory  
from : /etc/oraInst.loc  
OPatch version : 11.1.0.6.6  
OUI version : 11.2.0.1.0  
OUI location : /app/oracle/ajidb/11.2.0/oui
```

If you are using central inventory then -invPtrLoc variable is not required.

You can also get the detailed view of inventory using following command. In case of detail information it gives which are the files that this patch have touched.

```
§ORACLE_HOME/OPatch/patch lsinventory -detail  
Patch 8796511 : applied on Sat May 29 15:59:45 GST 2010  
Unique Patch ID: 11817080  
Created on 25 Sep 2009, 10:27:46 hrs PST8PDT  
Bugs fixed:  
8796511  
Files Touched:  
/kzu.o --> ORACLE_HOME/lib/libserver11.a  
/ktt.o --> ORACLE_HOME/lib/libserver11.a  
ins_rdbms.mk --> ORACLE_HOME/rdbms/lib/ioracle
```

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Patch Location in Inventory:

/app/oracle/ajidb/11.2.0/inventory/oneoffs/8796511

Patch Location in Storage area:

/app/oracle/ajidb/11.2.0/.patch_storage/8796511_Sep_25_2009_10_27_46

\$opatch util [COMMAND]

This operation invokes the chosen utilities on an ORACLE_HOME.

SYNTAX

opatch util [-help] [COMMAND]

Use opatch util [COMMAND] -help to get help on a particular command.

COMMANDS

ApplySql - Apply sql, sql procedure related actions for patches, which are already applied using Apply or NApply operation.

CleanupBackupArea - Remove the backup for restores area of the given patch or for all the patches.

CopyListedDirs - Recursively copy all directories listed in ORACLE_HOME/.patch_storage/< ID>/rac/copy_dirs.txt to remote nodes.

CopyListedDirsTest - Recursively copy a single directory to remote nodes.

CopyListedFiles - Copy all files listed in ORACLE_HOME/.patch_storage/< ID>/rac/copy_files.txt to remote nodes.

CopyListedFilesTest - Copy a single file to remote nodes.

DisableOnlinePatch - Disable and remove the specified online patch(es) on the given database instances.

EnableOnlinePatch -

Install and enable the specified online patch(es) on the given database instances.

installOCM - Install and configure OCM.

LoadXML - Prompt for path/name of the XML file, then check if the XML is correct.

RemoveListedDirs - Recursively remove directories listed in ORACLE_HOME/.patch_storage/< ID>/rac/remove_dirs.txt on remote nodes.

RemoveListedDirsTest - Recursively remove a directory on remote nodes.

RemoveListedFiles - Remove files listed in ORACLE_HOME/.patch_storage/< ID>/rac/remove_files.txt on remote nodes.

RemoveListedFilesTest - Remove a single file on remote nodes.

RestoreOH - Restore the OracleHome to the previous state.

RollbackSql - Rollback sql, sql procedure related actions for patches, which are already rolled back using Rollback or NRollback operation.

RunAnyCommand - Run any command on remote nodes.

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RunLocalMake - Invoke re-link on the local node. Commands are stored in
ORACLE_HOME/.patch_storage/< ID>/make.txt.

RunRemoteMake - Invoke re-link on remote nodes. Commands are stored in
ORACLE_HOME/.patch_storage/< ID>/rac/make_cmds.txt.

UpdateRemoteNodes - Propagate/Remove files/directories to/on remote nodes
using files under ORACLE_HOME/.patch_storage/< ID>/rac/*.

UpdateOPatchVersion

Update the version of OPatch in the inventory of Oracle Home.

Verify

Using the defined ORACLE_HOME and given patch location via
-ph, the program will check to make sure the patch was
applied to the ORACLE_HOME.

Example: 'opatch util verify -ph /tmp/patchLoc'