1.What is Opactch in Oracle?
The Opatch utility is a tool that allows the application and rollback of interim patches to Oracle products. This chapter provides information on using Opatch to apply patches.

2. What are different Types of Patches?

Regular Patchset: To upgrade to higher version we use database patchset. Please do not confuse between regular patchests and patch set updates (PSU). Consider the regular patchset is super set of PSU. Regular Patchset contain major bug fixes. In comparison to regular patch PSU will not change the version of oracle binaries such as sqlplus, import/export etc. The importance of PSU is automatically minimized once a regular patchset is released for a given version. It is mainly divided into two types:

Security or Critical Patch Update (CPU): Critical patch update quarterly delivered by oracle to fix security issues.

Patch set updated (PSU): It include CPU and bunch of other one-off patches. It is also quarterly delivered by oracle.

Interim (one-off) Patch: It is also known as patchset exception or one-off patch or interim patch. This is usually a single fix for single problem or enhancement. It released only when there is need of immediate fix or enhancement that cannot wait until for next release of patchset or bundle patch. It is applied using OPATCH utility and is not cumulative.

Bundle Patches: Bundle Patches includes both the quarterly security patches as well as recommended fixes (for Windows and Exadata only). When you try to download this patch, you will find bundle of patches (different set of file) instead of single downloaded file (usually incase patchset).

3. Opatch options and description?
* **apply**: Installs an interim patch. Refer to "apply Command" for more information.
* **napply**: Installs n number of patches (hence napply). Refer to "napply Command" for more   information.
* **auto**: Applies Oracle Clusterware patches. Refer to "auto Command" for more information.
* **lsinventory**: Lists what is currently installed on the system. Refer to "lsinventory Command" for more information.
* **query**: Queries a given patch for specific details. Refer to "query Command" for more information.
* **rollback**: Removes an interim patch. Refer to "rollback Command" for more information.
* **version**: Prints the current version of the patch tool. Refer to "version Command" for more information.

4. What are the features of opatch?
* **Scalability**: Opatch is scalable to support a large number of patches.
* **Reliability**: Opatch is reliable and protects the Oracle home and inventory. It can bring back the Oracle home to a stable state from patch application failures. It can also easily detect patch conflicts.
* **Availability**: Opatch's online patching improves system availability by allowing database patches   to be applied without needing to shut down databases.
* **Portability**: Opatch is compatible with all operating systems for which Oracle releases software.
* **Robust**: Opatch is very robust. It is very easy to apply a patch as well as remove it.
* **Easy to maintain**: Opatch is easy to maintain and is also extensible.
* **Support for Silent Operation**: Opatch supports silent operation. This mode allows you to run the software without any user interaction.
* **Support for Real Application Clusters**: Opatch supports RAC and works well in that setup. It is easy to extend it to Enterprise Manager Grid   Control.
* **Easy to debug**: Opatch has various levels of logging and tracing mechanisms. It also has a debug option that helps to easily diagnose software problems.

5. Opatch supports the following tasks:

Applying an interim patch.

Rolling back the application of an interim patch.

Detecting a conflict when applying an interim patch after previous interim patches have been applied. It also suggests the best options to resolve a conflict.

Reporting on installed products and interim patches.

6. What is CPU patch?

Critical Patch Update (CPU) - Release of security fixes each quarter instead the cumulative database security patch for the quarter.

7. What is PSU patch?

Patch Set Updates (PSU) - Cumulative patches that include both the security fixes and priority fixes. They are "version upgrades" modifying the las number of version (11.2.0.1.1, 11.2.0.1.2,...).

8. What is SPU patch?

Security Patch Update (SPU) - It is the new terminology of CPU (From October 2012). SPU's can't be applied if any PSU's have been applied unless your database is upgraded with a new base version.

9. In which months oracle release CPU patches?

JAN, APR, JUL, OCT

10. When we applying single Patch, can you use opatch utility?

Yes, we can use Opatch incase of single patch. The only type of patch that can't be used with OPatch is a patchset.

11. Is it possible to apply OPATCH without downtime?

As you know for apply patch your database and listener must be down. When you apply OPTACH it will update your current ORACLE_HOME. Thus coming to your question to the point in fact it is not possible without or zero downtime in case of single instance but in RAC you can Apply Opatch without downtime as there will be more separate ORACLE_HOME and more separate instances (running once instance on each ORACLE_HOME).

12. You have collection of patch(nearly 100 patches) or patchset. How can you apply only one patch from it?

With Napply itself (by providing patch location and specific patch id) you can apply only one patch from a collection of extracted patches. For more information check the opatch util NApply –help. It will give you clear picture.

For Example:

opatch util napply <patch_location> -id 9 -skip_subset -skip_duplicate

This will apply only the patch id 9 from the patch location and will skip duplicate and subset of patch installed in your ORACLE_HOME.

13. How to Apply Opatch in Oracle?

* You MUST read the Readme.txt file included in opatch file, look for any prereq. steps/ post installation steps or and DB related changes. Also, make sure that you have the correct opatch version required by this patch.

* Make sure you have a good backup of database.

* Make a note of all Invalid objects in the database prior to the patch.

* Shutdown All the Oracle Processes running from that Oracle Home , including the Listener and Database instance, Management agent etc.

* You MUST Backup your oracle Home and Inventory

  tar -cvf $ORACLE_HOME $ORACLE_HOME/oraInventory | gzip > Backup_Software_Version.tar.gz

* Unzip the patch in $ORACLE_HOME/patches

* cd to the patch directory and do opatch -apply to apply the patch.
* Read the output/log file to make sure there were no errors.
* Log file location : /d02/oracle/ebs12/db/tech_st/11.2.0.3.0/cfgtoollogs/opatch/opatch2016-03-30_21-41-45PM_1.log

14. Oracle version 11.2.0.1.0 what does each number refers to?
  Oracle version number refers:
  11 - Major database release number
   2 - Database Maintenance release number
   0 - Application server release number
   1 - Component Specific release number
   0 - Platform specific release number

15. Is Opatch (utility) is also another type of patch?

OPatch is utility from oracle corp. (Java based utility) that helps you in applying interim patches to Oracle's software and rolling back interim patches from Oracle's software. Opatch also able to Report already installed interim patch and can detect conflict when already interim patch has been applied. This program requires Java to be available on your system and requires installation of OUI. Thus from the above discussion coming to your question it is not ideal to say OPATCH is another patch.

16. When we applying single Patch, can you use OPATCH utility?

Yes, you can use Opatch in case of single patch. The only type of patch that cannot be used with OPatch is a patchset

When you are applying Patchsets, you can use OUI.

Yes, Patcheset uses OUI. A patch set contains a large number of merged patches, to change the version of the product or introduce new functionality. Patch sets are cumulative bug fixes that fix all bugs and consume all patches since the last base release. Patch sets and the Patch Set Assistant are usually applied through OUI-based product specific installers.

17. You have collection of patch (nearly 100 patches) or patchset. How can you apply only one patch from patcheset or patch bundle at ORACLE_HOME?
With Napply itself (by providing patch location and specific patch id) you can apply only one patch from a collection of extracted patch. For more information check the opatch util NApply –help. It will give you clear picture.

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18. How can you find the PSU installed version?

PSU references at 5th place in the oracle version number which makes it easier to track such as (e.g. 10.2.0.3.1).
To determine the PSU version installed, use OPATCH utility:

OPATCH lsinv -bugs_fixed | grep -i PSU

To find from the database:

Select substr(action_time,1,30) action time, substr (id,1,10) id, substr(action,1,10) action,substr(version,1,8) version, substr(BUNDLE_SERIES,1,6) bundle, substr(comments,1,20) comments from registry$history;

19. What happens when you give "STARTUP UPGRADE"?

$sqlplus "/as sysdba"
SQL> STARTUP UPGRADE

Note:

The UPGRADE keyword enables you to open a database based on an earlier Oracle Database release. It also restricts logons to AS SYSDBAsessions, disables system triggers, and performs additional operations that prepare the environment for the upgrade.
You might be required to use the PFILE option to specify the location of your initialization parameter file.
Once the database is started in upgrade mode, only queries on fixed views execute without errors until after the catupgrd.sql script is run. Before running catupgrd.sql, queries on any other view or the use of PL/SQL returns an error.

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* Unzip the patch in $ORACLE_HOME/patches
* cd to the patch direcory and do opatch -apply to apply the patch.
* Read the output/log file to make sure there were no errors.
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21. Oracle version 11.2.0.1.0 what does each number refers to?
 Oracle version number refers:
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23. what you will do if your oracle inventory crashed in middle of patching?

24. how you will identify which patch is suitable for your RAC database?

25. suppose you have applied 70% patch and you will get error like pre patch not applied, what you will do?

26. how to apply patch step by step?