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# **R12 UPGRADE!!! MAINTENANCE WIZARD MADE IT EASY**

This Wizard provides the easiest way to take up Oracle Applications E-Business Suite upgrades and make the upgrade process very systematic. This tool incorporates latest technology with 10gAS as middleware, Oracle 10g database as tool's data repository and internet browser client GUI.

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## *Introduction*

Oracle technology has improved on regular bases and it's still changing based on process and business demands. Oracle application has gone in to lot of facelifts changes starting from 10.7 to 11.0 to 11i. This is a complete journey which has improved technology as well as business process and requirements. Present Oracle application is enrich of many new technical features on every tier. Similarly many new products families, products, modules have been added to Oracle Application ERP and CRM application. Product evaluation, enhancement has become the regular habit of industry and in continuation of same Oracle has released a newer version of Oracle application R12. Needless to say it has many new enhancements and enriched with new features. R12 is enjoying the benefit of 10g Architecture on every tier.

Keeping the existing system up to date is always a challenge from Technical and Functional point of view. Always there will be debate on 'patch or not to patch'. Business users are always happy with no more changes coming in to system. They do not want to invite testing/risk to business but technical staff is always standing with patches and new technology stack in hand.

Lack of stream lined execution process, systematic procedure and automation in upgrade always worried the management to utter anything on upgrade plans. Most of the places customer wanted to upgrade when it becomes extremely necessary or the roadblock.

Considering all pains and troubles, it always has been a demand to find a streamline, synchronous, procedural, systematic, automated and easy approach to upgrade Oracle Application. Maintenance Wizard is something like matching all above expectations. There had been previous releases of MW i.e 1.x but MW 2.0 is much better and doable version. This is a self service tool to run upgrade through wizards and streamline technical as well as functional requirements.

MW is capable of creating a step by step approach to be followed in upgrade. MW is capable of tagging all technical logs at one place and making audit possible in entire upgrade execution and any point of time.

We have found MW very useful if you are planning to upgrade to R12. Our paper will be covering most of the R12 MW parts in different sections. Enjoy reading.

## *R12 Technology and Emergence*

The *Oracle Applications Architecture* is a framework for multi-tiered, distributed computing that supports Oracle Applications products. In this model, various *servers* or *services* are distributed among three levels, or *tiers*.

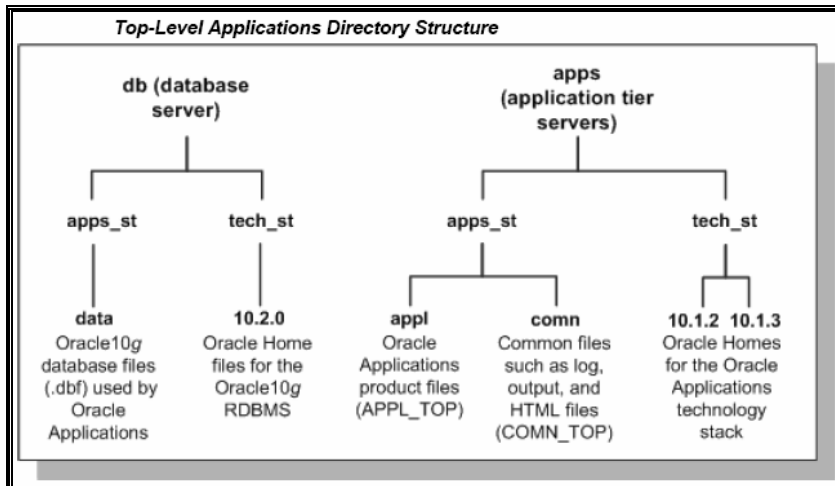
Three tiers are

- Desk top tier
- Application Tier
- Database tier

The new release of R12 is true three tier architecture based on 10g architecture. Middle tier has Oracle 10g Application Server with OC4J, web listener, BC4J and JSP technology. Now R12 uses Oracle database 10g release 2 as default database, it gets installed along with oracle application installation. Oracle Application server 10.1.3 has been used extensively for web listener and J2EE framework. There are no more Jserv and it has been replaced by Oracle Container for Java (OC4J). This has been used from 10.1.3 Oracle Home and most of the services get started from 10.1.3. The Applications modules (packaged in the file formsapp.eap) are deployed into the OC4J-Forms instance running out of the 10.1.3 ORACLE\_HOME, while the frmweb executable is invoked out of the 10.1.2 ORACLE\_HOME. Hence the three home stories are still going on with Oracle Applications; namely Database home, 10g AS 10.1.3 and 10g 10.1.2.

Oracle Application R12 has changed the File system architecture as well. The new concept of INST\_TOP (Instance top) got introduced. The top level directory for an Application instance is referred as instance top. Instance home helps in sharing technology stack with multiple application instances. Centralization of configuration and log files helps in managing the instances more effectively.

Laying out technology stack, data top and common top has been changed significantly. Two new subdirectories META-INF and WEB-INF, introduced to meet J2EE specifications under Common top.



## *Upgrade Path and requirement*

R12 has a lot of new features introduced and ready to use, 10g technology proved to be better in terms of performance and scalability. Fusion integration is in and around 10g technology and R12 has entire technical competency for possible integrations. The integration Hub '10g application server' makes R12 ready to work with any third party enterprise. Oracle Fusion middleware makes IdM work with E-Biz and third party LDAP integration. Database 10g has its own class of features and few of them like AWR, ADDM, Data guard, database Active session history, Query optimizer etc. High availability options like RAC and Data guard is very high performing and stable on 10g database. There is always a trend to move in to new technology and R12 is kind of application you should go for. The upgrade process is more stable, easy and quicker than earlier releases. There are no time consuming category steps and even the technical steps have been reduced by providing pre-patched application. adaimgr is not required hence it has reduced the required lengthy downtime windows. The TUMS reports earlier releases was the only way to find 'not to be done' functional tasks. There are documents available from Oracle which provides step by step instruction to upgrade the application from 11i to R12. There is direct upgrade possible from 11.5.7 onwards to R12. Any release prior to 11.5.7 must be upgraded to 11.5.10.2 before upgrading to R12. Database will also be upgraded to 10g in R12 upgrade process.

However there was still scope left on automating technical tasks as well. The maintenance wizard is the right choice to minimize the manual work and use reusability components during upgrade process.

## *Maintenance Wizard (MW) overview and features*

**Upgrade process management** : Gives complete picture of the upgrade activities which are required for the E-Biz system under consideration.

**Application Upgrade specifics** : Reports are generated from existing application environments.

**Database upgrade specifics** : MW project can also be configured for database upgrades from 9i till 10gR2. Step by step execution of database upgrade is possible in MW.

**Multiple platform supported** : MW can be setup on Unix/Linux platform but MW can upgrade applications on any platforms.

**Select the secured shell** : SSH( Secured Shell) or RSH( Remote Shell ) can be selected for enabling access between MW node and application system nodes.

**Multiple projects can be handled** : Single MW setup can hold multiple upgrade projects. Even separate projects can be created for each of upgrade iteration.

**Multiple Responsibility and users** : Separate users can be created for different projects / tasks and can be assigned different responsibilities for carrying out upgrade tasks. Like admin users for project management, engineer users for upgrade tasks execution etc.

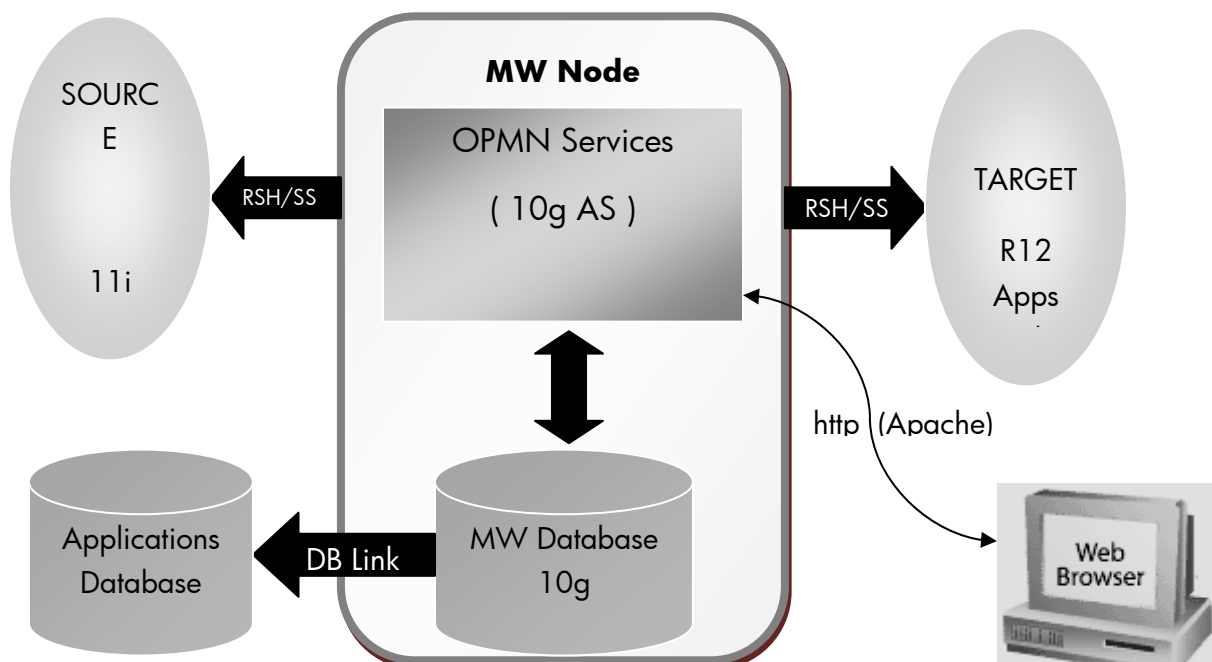
**Logs and reports** : For all the upgrade steps log is generated and is saved for future reference. Also for manual steps comments section is provided for better documentation.

**Customization** : MW upgrade steps also has steps to carry out customization upgrade. These are mostly manual steps.

**Patching** : MW detects the patches to be applied on source , downloads them from updates.oracle.com and , merge them to single patch and applies merge/normal patch. E.g. Pre-upgrade patches/ Post upgrade patches.

### *Setting up Maintenance Wizard for R12 upgrade*

- Finalize Infrastructure :-
- 10g AS & Database Setup
- MW package install



MW

Maintenance Wizard Architecture



## Upgrade Tasks

- Maintenance Wizard Setup

Maintenance wizard step involves creating project using MW UI. Project can be created for carrying out different tasks like 11i to R12 application upgrade, database upgrade and maintenance pack assistance. Once a project is created project admin users ( for changing project configuration, defining nodes, user admin etc ), engineer users ( for performing upgrade steps, MW configuration steps, post upgrade steps etc ) are created. Using project admin user the nodes involved in upgrade are defined viz. source 11i middle tier node/s ( web, forms, concurrent manager, reports etc ), source database node, target R12 node/s. Once this data collection is completed, the nodes are registered and information entered is compiled

- Configure MW for 11i to R12 upgrade

MW configuration activity is carried out by engineer user. Configuration step actually checks validity of all the information entered while project creation and node definition. It checks for node accessibility using ssh/rsh, creates environment files on all application node EOF home directory, checks for application context file, environment file and patch staging directory. It also verifies if the directories for APPL\_TOP, IAS\_TOP, ORACLE\_HOME exists and are accessible to particular users.

Other steps in configuration of MW involves creation of database link in MW database pointing to source apps database, checks the source system to mark steps which are not required as automatically complete and finally it generates list of patches which are required to be applied to make the system ready for R12 upgrade.

- 11i Pre-upgrade Steps

This step is generated dynamically from previous step and application of all Pre-requisite patches by creating a single merged patch is carried out during this step. Once this step is verified successfully, the system is ready to go for R12 upgrade from application perspective.

- R12 Setup

As the name says the step means installing R12 applications using rapidinstall in upgrade mode to setup R12 filesystem and RDBMS home. During the install the environment parameters provided should be same as those given while R12 node definition. This step can be carried out even before setting up MW.

- Before starting R12 upgrade process

The source application is brought to 11i.AD.1 patchset level in this step. There are many application technology as well as other product family steps which needs to be completed to make system fully R12 upgrade compatible. TUMS reports are executed to remove unwanted steps during the upgrade to minimize upgrade efforts. The tasks reported by TUMS reports can be ignored safely and MW marks them automatically completed for you.

- R12 Upgrade Process

This is the step where the application database gets upgraded to release 12 level. R12 AD minipack is applied followed by American English upgrade patch driver u4440000.drv. This steps runs for long time depending on size of database and number of installed applications. This is manual step and needs to be run from a dedicated session on the server. This step then creates list of latest product patches for R12 to be applied and dynamically generates the steps for the patch application. MW also lists the finishing steps like application backup, product specific steps, re-applying customizations if any etc. But most of these steps are manual as it involves functional experts and are highly specific to particular application system.

- Upgrade verification

Steps under verification are mostly manual verification checks related to products ( Products under families : Customer Relationship Management, Financials and Procurement, Projects, Supply Chain Management ). The details for carrying out the verification check are given at each step in MW UI. A step completion comment can be placed wherever required.

- Post Upgrade steps

These tasks mostly manual & consists of applying latest product patches, re-customizing application, submitting & checking normal completion of different products concurrent programs and other application technology tasks.

Final task is to backup upgraded instance of Oracle Applications R12.

Note : For verification & post-upgrade tasks a new MW engineer users can be created and assigned to product specific functional experts.

## *Best Features and benefits from MW*

- Upgrade happens with mouse clicks.
- All execution times are saved in log and no need to maintain separate downtime sheet. Many steps can be re-executed easily and logs for all executions are readily available. This helped in estimating the downtime for the upgrade.
- Multiple projects are supported and each iteration of upgrade can be carried out as a separate project.
- Functional step details from upgrade manual are available on click at the particular step.
- Steps can be executed by logging into MW from any browser supported client.
- Comments regarding step error/troubleshooting/correction/manual fix etc can be added to the step and can be viewed any time. These comments helps a lot in verification and post upgrade steps.
- Different reports can be generated in MW viz. List of assigned steps, Upgrade monitor, responsibility assignments, Node configuration details etc.
- No command line required : Many apps utilities are provided in MW GUI which reduces command line work. Utilities like Patch apply, patch download, patch merge, control adworker, administer services and many more.
- MW created list of required Pre and Post upgrade patches dynamically by checking source/upgraded application system. Lot of effort saved to make system R12 upgrade ready and finding required post upgrade patches as per installed products.
- MW automatically marks the steps as completed/not required after execution of certain setup/check steps ( viz. TUMS report ). This gave clear picture of only required steps.

## *References*

- Oracle Metalink : Note:329476.1 - **Installing the Maintenance Wizard: A Step-by-Step Guide**
- R12 Maintenance Wizard – **User Guide**