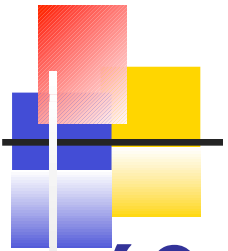


OAUG Database SIG – Tips and Tricks of Upgrading an E- Business Suite 11i Application to 11g R2

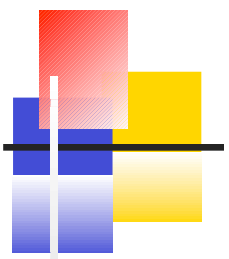
Presented by Kaberi Nayak

Senior Oracle Apps DBA



Speaker's Background

- Over 17 years of experience with Oracle Databases supporting Oracle E-Business Suite Applications environments (Rel 10 -> 12.1)
- Vice-chair of OAUG Upgrade SIG
- Vice-chair of OAUG Database SIG
- Co-chair of DCOAUG
- Member of OAUG Membership Committee
- Member of OAUG Education Committee
- Member of OAUG Fusion Council Committee
- Presenter and panel member at OAUG, DCOAUG, Oracle OpenWorld and Collaborate Conferences
- Currently working at Mitre Corporation as a Senior Oracle Apps DBA for last 11+ years



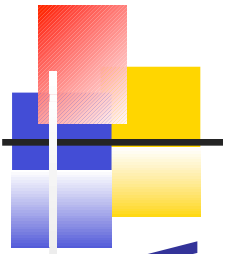
11g R2 Presentation Agenda

- Why upgrade to 11g R2 ?
- Know the Desupport Dates for Database versions
- Know the Upgrade Path, Decide Upgrade Method
- Important MOS notes and Documentation
- System Considerations and Requirements
- Minimum Software Requirements
- Overall 11g R2 Upgrade Steps Using Oracle Upgrade Best Practices



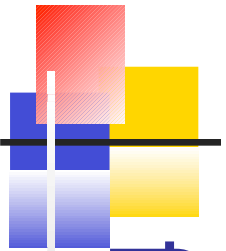
11g R2 Presentation Agenda (cont'd)

- Initialization parameter changes in 11g R2
- Upgrading database to 11g R2 at Mitre Corporation for E-Business Suite 11i (11.5.10 CU2) Application
- Screenshots for 11g R2 software installation and upgrade of EBS 11i database
- Some Tips for DBA's for Upgrading 11g R2 for EBS 11i
- Q & A



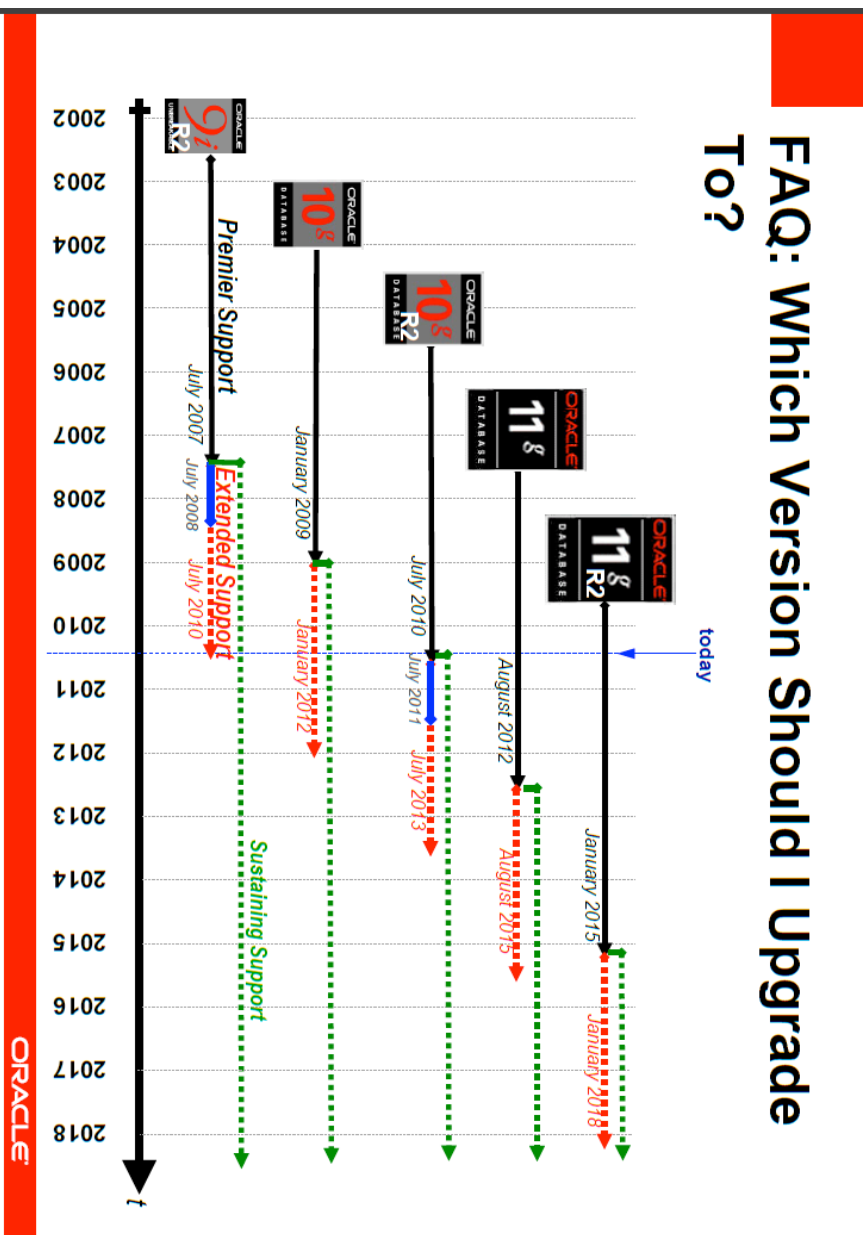
Why Upgrade DB to 11g R2?

- Oracle Desupport dates for earlier versions of databases
- You would like to be current on Oracle Support for Upgrade and Support from Oracle on bug fixes and issues
- Consideration of applications that depends on DB version
- Use New Features of the latest DB Version

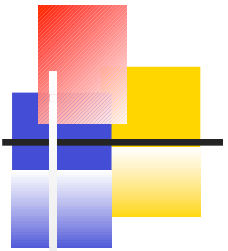


Important Desupport Dates for Database Versions

FAQ: Which Version Should I Upgrade
To?

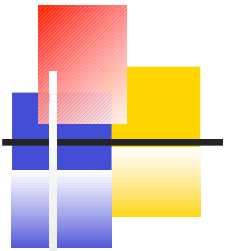


ORACLE



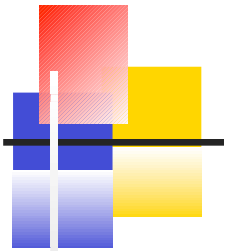
Two major Path considerations for 11g R2 upgrade:

- Upgrading an Oracle E-Business Suite Release 11i database server and instance from Oracle9i/Release 2 (9.2.0), Oracle 10g Release 1 (10.1.0), Oracle 10g Release 2 (10.2.0), or Oracle Database 11g Release 1 (11.1.0) to Oracle Database 11g Release 2 (11.2.0)
- Applying the latest certified Oracle Database 11g Release 2 (11.2.0) patch set to an Oracle E-Business Suite Release 11i database server and instance that are already using Oracle Database 11g Release 2 (11.2.0) – This is not certified for EBS 11i yet, even though 11.2.0.2 just released



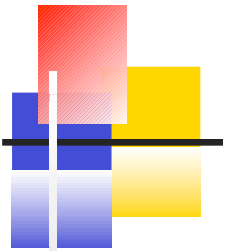
Latest Update on 11.2.0.2 Patch Set release:

- Note: 1189783.1 - Important Changes to Oracle Database Patch Sets Starting With 11.2.0.2
- **Packaging:** Starting with the first patch set for Oracle Database 11g Release 2 (11.2.0.2), Oracle Database patch sets are full installations of the Oracle Database software. In past releases, Oracle Database patch sets consisted of a set of files that replaced files in an existing Oracle home. Beginning with Oracle Database 11g Release 2, patch sets are full installations that replace existing installations.



Latest Update on 11.2.0.2 Patch Set release(cont'd):

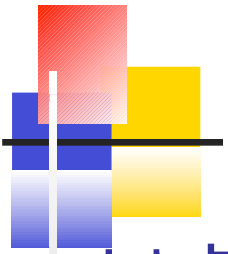
- Because Oracle Database 11g Release 2 and later patch sets are a full installation. Oracle patch sets are now released as several installation bundles, just as are the base releases:
 - Oracle Grid Infrastructure
 - Oracle Database Client
 - Companion/examples
 - Oracle Gateways
 - Oracle Database Server



Latest Update on 11.2.0.2 Patch Set

release(cont'd):

- **Simplified new installation:** Because the release 11.2.0.2 patch set is a full installation package, if you are installing Oracle Database on a system without an existing Oracle Database installation, then you can simply install the release 11.2.0.2 patch set. You are no longer required to install the base release, and then apply the patch set.



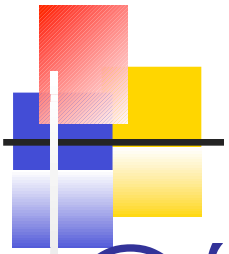
Important Notes and Documentation for 11g R2 Upgrade:

- Note: **881505.1**
- Note: **216205.1**
- Oracle Database Upgrade Guide 11g Release 2 (11.2) – **E17222-04**
- These documents are pretty stable with multiple successful 11g R2 upgrades completed by many customers



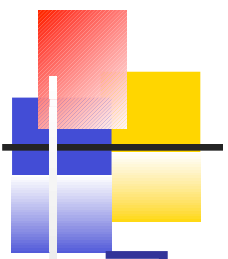
System Configuration and Requirements:

- Upgrading Packages That Are Not Installed by Default like Access Control to Network Utility Packages, e.g. UTL_TCP...
- Upgrading Oracle ASM Installed with Oracle Grid Infrastructure
- Upgrading Oracle Clusterware and Oracle ASM Instances
- Upgrading with Read-Only and Offline Tablespace



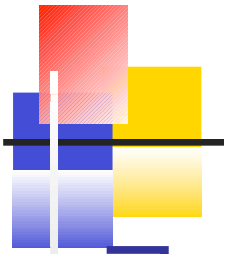
System Configuration and Requirements (cont'd):

- Upgrading Using Standby Databases
- Upgrading Your Operating System
- Migrating Data to a Different Operating System
- Upgrading Databases That Use Oracle Streams Downstream Capture
- Upgrading Databases That Use Oracle Database Vault



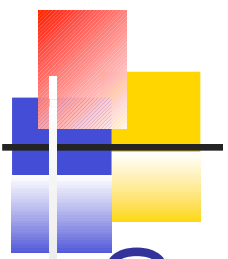
Minimum Software Requirements:

- Oracle Database Enterprise Edition
 - Make sure direct upgrade is supported from your current version
- Oracle EBS 11i CU2 with additional patches (8815204, 5644137 and 6400762)
- ATG Rollup 6 (5903765)
- Developer 6i Patchset 18



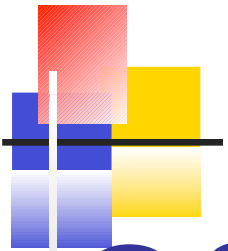
Minimum Software Requirements (cont'd):

- Comply with DST and Timezone Rule changes in EBS 11i



Overall Steps for 11g R2 Upgrade:

- Apply GL patch 6815663 only on windows OS
- Migrate to Oracle Portal 10g if currently using Portal
- Deregister the current database server if plan to modify the database port, host, SID, or database name parameter on the database server, you must also update AutoConfig on the database tier and deregister the current database server node
- Update application tier context file with new database listener port number if modified as follows:



Overall Steps for 11g R2 Upgrade (cont'd):

- s_dbhost - New database hostname
- s_dbdomain New database domain name
- s_db_serv_sid New database SID
- s_dbport New database listener port
- s_apps_jdbc_connect_descriptor NULL
- Prepare to create the 11.2.0.2 Oracle home
- Install the base 11.2.0.2 software
- Install Oracle Database 11g Products from the 11g Examples CD
- Create nls/data/9idata directory



Overall Steps for 11g R2 Upgrade(cont'd):

- Apply additional 11.2.0.2 RDBMS patches for Unix/Linux
 - Tips: You can apply Jan'11 PSU patch
- Shut down Applications server processes and database listener
- Shutdown the database
- Take a backup of the OH software and the database
- Drop table SYS.ENABLED\$INDEXES if it exists
- Prepare and upgrade the database using Database Upgrade Assistant (dbua)
 - Tip: DBUA gives you option to upgrade Timezone to latest update at the same time



Overall Steps for 11g R2 Upgrade(cont'd):

Modify initialization parameters

- Follow Note: 216205.1 for 11g R2 init.ora

Install Oracle Data Mining and OLAP

- If already installed in the database,
 - SQL> connect / as sysdba; SQL>
@\$ORACLE_HOME/rdbms/admin/dminst.sql SYSAUX TEMP
 - SQL> connect / as sysdba; SQL>
@\$ORACLE_HOME/olap/admin/olap.sql SYSAUX TEMP

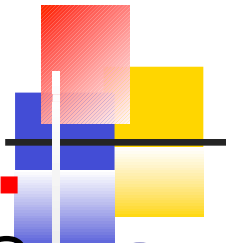
After DB upgrade:

- Fix Korean lexers if upgrading from 10.1 or earlier release
- Start the new database listener
- Run adgrants.sql from \$APPL_TOP/admin as sysdba
- Grant create procedure privilege on CTXSYS



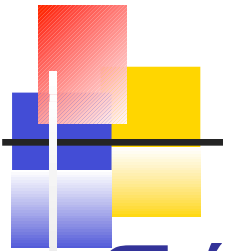
Overall Steps for 11g R2 Upgrade(cont'd):

- Grant create procedure privilege on CTXSYS
 - \$AD_TOP/patch/115/sql/adctxprv.sql as APPS user
- Set CTXSYS parameter
 - \$ sqlplus "/ as sysdba" SQL> exec ctxsys.ctx_adm.set_parameter('file_access_role', 'public');
- Implement and run AutoConfig on database tier under new OH
- Gather statistics for SYS schema by running adstats.sql from \$APPL_TOP/admin as sysdba
- Re-create custom database links
- Apply Oracle Human Resources (HRMS) patch 7721754 if using HRMS
- Re-create grants and synonyms
- Restart Applications server processes



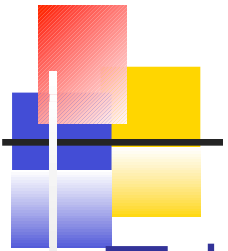
Overall Steps for 11g R2 Upgrade(cont'd):

- Check overall basic application services and components
- Backup new 11g R2 OH software and the database
- Release environment for testing by developers, Users, Q&A team
- TEST, TEST, TEST.....
- Many production issues identified later after 11g R2 upgrade can be reduced by testing rigorously



Screenshots for 11g R2 installation and Upgrade:

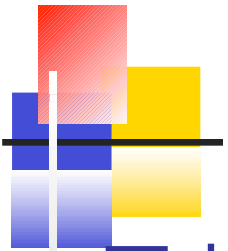
- If time permits will show the screenshots of the 11g R2 software installation and the upgrade of the database from 10g R2 to 11g R2 (11.2.0.2)



Initialization parameters changed in 11g

R2:

- Follow Note: 216205.1, Section 2.6
 - Common database initialization parameters
 - Release-specific database initialization parameters for 11gR2
 - Database initialization parameter sizing



Initialization parameters changed in 11g

R2 (Cont'd):

- Follow Note: 216205.1, Section 2.6
 - Common database initialization parameters
 - Release-specific database initialization parameters for 11gR2
 - Database initialization parameter sizing



Initialization parameters changed in 11g

R2 (Cont'd):

- Section 2.6.1: Removal List for Oracle

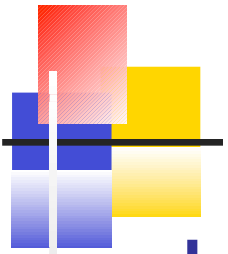
Database 11g Release 2

- __always_anti_join
 - __always_semi_join
 - __complex_view_merging
 - __index_join_enabled
 - __kks_use_mutex_pin
 - __new_initial_join_orders
 - __optimizer_cost_based_transformation
 - __optimizer_cost_model
 - __optimizer_mode_force
 - __optimizer_undo_changes
 - or_expand_nvl_predicate



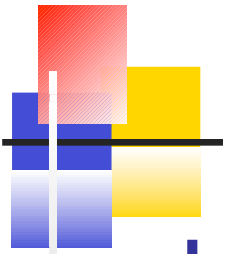
Initialization parameters changed in 11g R2 (Cont'd):

- Please verify this huge list and make sure to remove all these initialization parameters from 11g R2
- Tip: You could precreate these `init<sid>.ora` file ahead of time



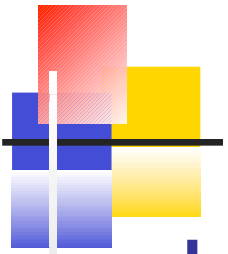
Tips for DBA's

- Apply latest Recommended Patches
- Use DBUA, since it helps to avoid common errors and also upgrades Timezone version same time
- Create an editable init.ora file from existing spfile after the upgrade
- Increase shared pool size before 11g R2 upgrade



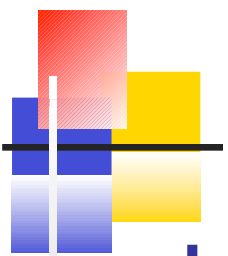
Tips for DBA's (Cont'd)

- Truncate audit records in SYS.AUD\$ to reduce total upgrade time if you have millions of audit records
- Gather Dictionary Statistics prior to database upgrade
- There should be no invalid objects in SYS or SYSTEM user schema



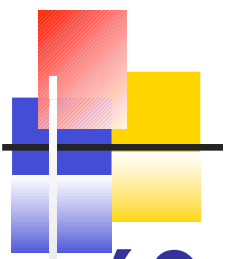
Tips for DBA's (Cont'd)

- Some init.ora parameters can be increased prior to db upgrade if you have resources available on DB server like
 - Log_buffer
 - Db_cache_size
 - Sga_target
 - Db_writer_processes
 - Shared_pool_size



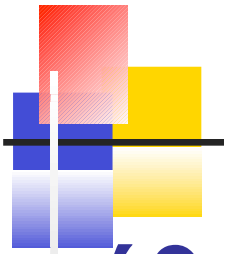
Tips for DBA's (Cont'd)

- Preserve information **BEFORE** and **AFTER** you upgrade the production environment to the new release – very important
 - Accurate Performance Statistics to act as baseline
 - Allows comparison: before and after
 - Measure Query and batch timings
 - System level performance stats (AWR)
 - Save execution plan
 - Save old configuration information (RDA/OCM)
 - Keep a backup copy of current optimizer statistics (Note 465787.1)



Summary

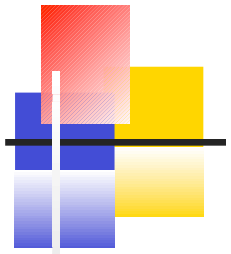
- Taking the time to prepare and create a detail plan - key to a successful database upgrade
- Selecting the right upgrade method for specific technical scenarios and business requirements
- Run few test upgrades to streamline the process and have a good handle of timing for Production rollout

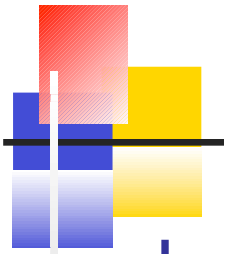


Summary (Cont'd)

- Always have a fallback strategy
- Test the fallback strategy to make it fool proof
- Make sure to test existing processes and also new processes
- Test, Test, Test,

MCQs Questions Answers





Thank you for attending this presentation

- Presentation contact:

Kaberi Nayak

E-mail: kaberinayak@gmail.com

Cell: 703-606-3964