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Information Management

Secrets of Successful
Database 11g Upgrades
in an E-Business Suite Environment

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1 DOCUMENT CONTROL

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2 ASSUMPTIONS

This paper will be addressing upgrades to 11gR1 in an Oracle E-Business Suite environment. In order to provide a reasonable level of detail on the steps involved in a successful upgrade, certain assumptions about the environment will be made.

- The operating system is Linux x86 (in the examples, Oracle Enterprise Linux 4 is used).
- For both, 11i and 12, the examples used will be based on a Vision installation.
  - 11i => 11.5.10.2 upgraded to 9.2.0.8 (note if you installed in either 32 or 64 bit, and the database has been converted to the other: make sure you follow the instructions in note 412271.1 or you will corrupt your database when you upgrade).
  - 12 => 12.0.4 out of the box
- No NLS, no RAC, no Database Vault, etc.

3 INTRODUCTION

As companies are faced with the end of primary support (as well as the desire to access new database features), more and more companies are examining their options in regard to the database with their E-Business Suite installations. One thing is consistently clear with this effort, it is a major undertaking. There is no more fundamental piece of the installation than the database, which means everything must be tested. Because of the required testing effort, companies are finding that it makes sense to upgrade to the latest certified release so that they do not need to upgrade the database again for as long as possible.

Database Version	End of Premier Support	End of Extended Support[*]	End of Sustaining Support
9.2	**Ended in July 2007**	*July 2010*	Indefinite
10.1	**Ended in January 2009**	January 2012	Indefinite
10.2	*July 2010*	July 2013	Indefinite
11.1	August 2012	August 2015	Indefinite

If you are on 9.2 or 10.1, you need to fast track your upgrade plans. If you are on 10.2, be aware that your support costs are scheduled to increase in July 2011 since Oracle has waived the first year fee for extended support.

I will attempt to give you detailed guidance on the upgrade process with reference to the Metalink notes and other Oracle documentation used to drive through the upgrade. Since I am addressing both 11i and 12 during the upgrade process, I will attempt to make it clear if a step being described applies to one or the other (or both). I am dividing the process of upgrading into four primary steps, getting to a stable baseline version for the E-Business Suite, ensuring that the upgrade is on a supported version of the Daylight Savings files, the actual upgrade and finally post upgrade support. You can safely separate the effort involved in the first three steps, i.e. do the applications changes in production one month, the daylight saving changes the next month and complete the database upgrade later.

Backups will not be explicitly discussed, but a minimal backup strategy is to take a backup before and after each of these three critical steps.

There are 3 common types of patching activity that will be done throughout the upgrade process.

- Applications tier, applications patch
  - These patches are applied with adpatch.
  - In order to apply these patches, you will need to have sourced the APPS$ {CONTEXT_NAME}.env file, and will need to have used adadmin to put the system in maintenance mode. The database and listener will have to be running during patch application.
- adgrants.sql

---

[*]   Extended Support is only available for the terminal release, e.g. 9.2.08 and 10.1.05

- ○ adgrants.sql will need to be copied from either the directory that the patch was unzipped into (<PATCH DIR>), or $APPL_TOP/admin. It will be copied to the database tier's ORACLE_HOME/appsutil/admin
  - ○ On the database tier, from $ORACLE_HOME/appsutil/admin, run `sqlplus '/ as sysdba' @adgrants APPLSYS`
- • Oracle Home patching
  - ○ These patches are applied using opatch.
  - ○ To run opatch, you will need to have ORACLE_HOME set to the home being patched and set PATH=$ORACLE_HOME/OPatch:$PATH
  - ○ The default R12 install does not use a central Oracle inventory. If you are using R12, you may need to add -invPtrLoc $ORACLE_HOME/oraInst.loc to the end of your opatch commands

4 GETTING THE APPLICATIONS READY

The first step in the process is getting onto the appropriate version of the E-Business Suite. The patch levels that are discussed here are designed to be able to support all subsequent steps in the upgrade process. At the end of this process, nothing will have been done to upgrade the database or to address Daylight Savings issues.   To simplify the upgrade process, I am assuming the the applications tier is shutdown unless otherwise stated and that maintenance mode is enabled for the applications.

4.1 11.5.10.2

At the end of this process, the 11.5.10.2 environment will be on ATG RUP 6, AD.I.6, converted from Jinitiator to JRE 1.6.0.x and on Developer 6i Patch Level 19.

Our first step in getting ATG RUP 6 installed will be to upgrade to AD.I.6 (patch 6502082). The patch driver, u6502082.drv is applied with adpatch. This patch requires running adgrants.sql as a SYSDBA user. So, copy adgrants.sql from $APPL_TOP/admin to the RDBMS Oracle home in the appsutil/admin directory. Then on the database tier, run

```
cd $ORACLE_HOME/appsutil/admin
sqlplus '/ as sysdba' @adgrants APPLSYS_user
```

The next step in the process is to revoke PUBLIC access from the apps user. Apply patch 5989593 and follow the above process for adgrants.sql again (failure to do this will result in later steps failing). Next apply BNE.D with patch 3218526. The final prerequisite for ATG RUP 6 is the apply the Reports Manager patch FRM.H, 4206794. As with previous ATG patches, Oracle is kind enough to provide us with a validation script. Unzip patch 5903765, 11i.ATG_PF.H.delta.6 (ATG RUP 6)[*]. In the patch directory,

```
cd fnd/patch/115/bin
./txkprepatchcheck.pl -script=ValidateRollup
-outfile=/tmp/txkValidateRollup.html -appspass=APPS_user_password
```

If you prefer text output, use

```
./txkprepatchcheck.pl -script=ValidateRollup
-outfile=/tmp/txkValidateRollup.txt -reporttype=text
-appspass=APPS_user_password
```

Examine the output of txkprepatchek.pl to verify that you can proceed with application of patch 5903765. If all of the tests pass, apply the patch. Otherwise, you will need to resolve those issues first. Do not apply ATG RUP6 until you have run the validation script and everything passes.

---

[*] As an aside, this patch is the first time I encountered a potentially serious flaw with NFS on a Windows Storage Server. This patch contains two distinct files, fnd/media/psbbrand.gif and fnd/media/PSBBRAND.gif. When the patch is unzipped on an NFS share mounted from Windows Storage Server, the second file attempts to overwrite the first. If these two files are not distinct, application of the patch fails. If you ever unzip a patch and get an error about overwriting a file that was created by the unzip in progress, unzip the the patch to an alternate location.

There are several patches and actions that must be taken to complete the application of ATG RUP6. The first patches to apply are 4619025 and 5970422. Make sure to follow note 444524.1 in determining if your installation needs additional patches. As seems to be the case with all of the ATG rollups, apply patch 4583125 and then run Autoconfig. If you have not already done it, you must create the new tablespace APPS_TS_TOOLS.

```
CREATE TABLESPACE APPS_TS_TOOLS DATAFILE 'datafile_name.dbf' SIZE 500M
EXTENT MANAGEMENT LOCAL AUTOALLOCATE;
```

You will also need to copy the fonts for XML Publisher to $OA_JRE_TOP/lib/fonts and $JRE_TOP/lib/fonts from $FND_TOP/resource. The fonts you need to copy are ALBANYWT.ttf, ALBANWTJ.ttf, ALBANWTK.ttf, ALBANWTS.ttf and ALBANWTT.ttf. If these files are not present, apply patch 3639533. Review and apply the workflow steps from the patch note regarding the notification mailer and concurrent request. Also review the enhanced user security which is now available. Finally install the updated help files using patch 6330890.

Error correction support ended for Jinitiator in the E-Business Suite at the end of July 2009. You should take this opportunity to convert from Jinitiator to Sun JRE. I recommend that you go to the current version of 1.6.0, 1.6.0.16. Follow the instructions in Metalink Note 290807.1 for this conversion.

The last step in this phase is to upgrade Developer 6i to patch level 19. As with all Developer 6i patching, this can be a tedious process, so be very careful when applying all of the required one off patches. In a shell configured for the applications tier, you need to set the following environment variables:

```
PATH=$ORACLE_HOME/OPatch:$ORACLE_HOME/bin:$PATH
```

Unzip patch 6194129

```
cd developer6i_patch19
./patch_install.sh 2>&1 | tee /tmp/patch_install.log
```

review the log file, and if it is clean, proceed with

```
cd $ORACLE_HOME/procbuilder60/lib; make -f ins_procbuilder.mk install
cd $ORACLE_HOME/forms60/lib;make -f ins_forms60w.mk install
cd $ORACLE_HOME/graphics60/lib;make -f ins_graphics60w.mk install

LD_LIBRARY_PATH=$LD_LIBRARY_PATH: \
$ORACLE_HOME/network/jre11/lib/i686/native_threads

cd $ORACLE_HOME/reports60/lib;make -f ins_reports60w.mk install
```

Now comes the tedious part of a Developer 6i patch, all of the one-offs that require manual backups.

apply 7423534

```
cd $ORACLE_HOME/forms60
mv java java.pre7423534
mkdir java
cd java
tar xvf <PATCH>/forms60java.tar
```

apply 8402746

```
cd $ORACLE_HOME/forms60/java/oracle/forms/handler
cp AlertDialog.class AlertDialog.class.pre7594318
cp BlockScroller.class BlockScroller.class.pre7594318
cp ComponentItem.class ComponentItem.class.pre7594318
```

```
        cp FormCanvas.class FormsCanvas.class.pre7594318
        cp FormWindow.class FormWindow.class.pre7594318
        cp UICommon.class UICommon.class.pre7594318
        cp FormsMouseWheelHandler.class FormsMouseWheelHandler.class.pre7594318
        cd ../ui
        cp VBean.class VBean.class.pre7594318
        cd <PATCH_DIR>/oracle/forms/handler
        cp *.class $ORACLE_HOME/forms60/java/oracle/forms/handler/
        cd ../ui
        cp *.class $ORACLE_HOME/forms60/java/oracle/forms/ui/
        cd $ORACLE_HOME/forms60/java
        cp -r oracle/ewt oracle/ewt.pre7594318
        jar xvf <PATCH_DIR>/ewt3.jar
        rm META-INF/MANIFEST.MF
        rmdir META-INF
```
Verify new EWT version
```
        ls -la $ORACLE_HOME/forms60/java/oracle/ewt | grep 3_4_49
```
regenerate jar files using adadmin
apply 6125732
```
        cd <PATCH_DIR>
        sh patch.sh
```
apply 6857221
```
        cd <PATCH_DIR>
        sh patch.sh
        adrelink.sh force=y "fnd f60webmx"
```
apply 7657973
```
        cd $ORACLE_HOME/forms60/java/oracle/forms/ui/mdi
        cp MDIContainer.class MDIContainer.class.pre7657973
        cp MDIContainer\$1.class MDIContainer\$1.class.pre7657973
        cd <PATCH_DIR>/oracle/forms/ui/mdi
        cp *.class $ORACLE_HOME/forms60/java/oracle/forms/ui/mdi/
```
regenerate jar files using adadmin
apply 3830807
```
        cd <PATCH_DIR>
        sh ./patch.sh
```
use adadmin to relink all applications executables
apply 4586086
```
        cd $ORACLE_HOME/forms60/lib
        mv env_forms60.mk env_forms60.mk.pre4586086
        cd <PATCH_DIR>
        cp env_forms60.mk $ORACLE_HOME/forms60/lib
        cd $ORACLE_HOME/forms60/lib
        make -f cus_forms60w.mk libso_install   This is from the instructions,
        in the 11.5.10.2 Vision installation, this was not a known target
        adrelink.sh force=y "fnd f60webmx"
```
Relink applications executables
adadmin
```
        Maintain Applications Files Menu
        Relink Applications Programs
        Enter list of products to link ('all' for all products)[all] : fnd
        Generate specific executables for each selected product [No] ? Y
        Relink with debug information [No] ? N
```

```
     Enter executables to relink, or enter 'all' [all] : f60webmx ar60run
ar60runb ar60rund
```

To finish the upgrade to Developer 6i Patch Level 19, you need to use adpatch to apply the interoperability patch, 7343387. After applying the patch, verify that fndforms.jar and fndewt.jar in $OA_JAVA/oracle/apps/fnd/jar have been regenerated by the patch. If not, make an attempt to regenerate them using adadmin. If that fails as well, you need to open an SR or go to a backup, something is seriously wrong.

Finally, run $ORACLE_HOME/bin/f60gen help=y. Verify that you have successfully upgraded by checking that the version of forms is 6.0.8.28.x and the version of PL/SQL is 8.0.6.3.y (x and y can be any values).

Run adpreclone.pl on both the database and applications tiers and up are done with the first step of your upgrade.

4.2   12.0

For E-Business Suite 12, you need to upgrade to a minimum of 12.0.4, but you should go to 12.0.6 to avoid some potential pitfalls during cloning. In R12, Oracle has provided a new utility admsi.pl to help analyze the required steps involved in applying a patch. I strongly encourage you to use this utility by making the first step in installing any patch be running admsi.pl in the background and reviewing the instructions from admsi.pl against what you have determined from your own analysis.

The first step in upgrading to 12.0.6 is to apply 7305220 (R12.AD.A.DELTA.6).
   • Apply adgrants.sql from the patch directory
   • Apply critical patch 676723 with adpatch
   • Apply patch 7305220 with adpatch
You are now ready to upgrade to 12.0.6
   • Apply patch 6728000 (12.0 Release Update Pack 6) with adpatch
   • Apply the legislative updates
        ◦ Check Metalink Note 145837.1 for any prerequisite HR and Payroll patches that apply
          to your environment,
        ◦ Apply any identified prerequisites
        ◦ Run the data install program to configure for hrglobal.drv
             ▪ java oracle.apps.per.DataInstall *apps_user apps_password* thin
               db_tier_host:*db_listener_port*:*ORACLE_SID*
                  • select global and all other legislations that are in use in your installation
        ◦ Use adpatch to apply $PER_TOP/patch/115/driver/hrglobal.drv
             ▪ If you have used hrglobal.drv to install previous legislative updates, you will be
               asked if you wish to reapply the patch. Continue with the patch application.
   • Apply the 12.0.6 online documentation, patch 7109200, using adpatch
There are currently two post upgrade patches that you will need to install, use adpatch to install 8222387 (supersedes 7649893 from the documentation) and 7653364. The final step that must be done on all installations is to update Autoconfig for the database tier.
   • On the applications tier, run $ADMIN_SCRIPTS_HOME/adautocfg.sh
   • Create appsutil.zip
        ◦ perl $AD_TOP/bin/admkappsutil.pl

- ◦ Copy $INST_TOP/admin/out/apputil.zip to the ORACLE_HOME on the database tier.
- Apply the new appsutil.zip on the database tier
  - ◦ `cd $ORACLE_HOME`
  - ◦ `unzip -o appsutil.zip`
  - ◦ `cd appsutil/scripts/$CONTEXT_NAME`
  - ◦ `./adautocfg.pl`
- From note 743368.1, apply any other product specific steps that apply to you installation.

At this point, you have made significant changes to your environment, make sure you run adpreclone.pl on all tiers prior to cloning.

5 DAYLIGHT SAVINGS PATCHES

In order to upgrade to database 11g, the DST patches must be version 4 or higher (if higher, you will need to patch again after the database upgrade, so do not patch past version 4 at this time). There are multiple components in the system that will need to be patched. First, make sure your OS is patched (in Oracle Linux, up2date tzdata). Second, make sure the jdk on the system is appropriately patched. Next check the version installed in the database. The method to do this varies with release for 9i, install utltzver.sql in $ORACLE_HOME/rdbms/admin and run it as sysdba. You can retrieve this script from Metalink at https://metalink2.oracle.com/cgi-bin/cr/getfile.cgi?p_attid=412160.1:utltzver_3 For 10g and higher, as sysdba, SELECT version from v$timezone_file. In either case, if the result is below 4, you will need to patch the database.

Next, you will need to check the version of the Oracle JVM. This is a two step process. First, you create the java program used to test your install and then you run the test.

As sysdba, run the following pl/sql block:

```
create or replace java source named "OffsetFromStandard" as
import java.util.Calendar;
import java.util.GregorianCalendar;
import java.util.TimeZone;

public class OffsetFromStandard
{

 public static int getDSTOffset(
    String timezone,
    int year,
    int month,
    int mday,
    int hour,

  int min,
   int sec)
  {
    int RetVal = -360000000;
    String[] TZs = TimeZone.getAvailableIDs();
    for
(int i = 0; i < TZs.length; i++)
    {
      if (timezone.equals(TZs[i]))
      {
        TimeZone tz = TimeZone.getTimeZone(timezone);
        GregorianCalendar c = new GregorianCalendar(tz);
        c.set(year, month-1, mday, hour, min, sec);
        RetVal
= c.get(Calendar.DST_OFFSET);
      };
    }
    return RetVal;
  }
```

```
        }
        /

        alter java class "OffsetFromStandard" resolve
        /

        CREATE OR REPLACE function get_dst_offset (timezone VARCHAR2,

            year NUMBER,
                                                    month NUMBER,

          mday NUMBER,
                                                    hour NUMBER,

         min NUMBER,
                                                     sec NUMBER) RETURN
        NUMBER AS
        LANGUAGE JAVA NAME 'OffsetFromStandard.getDSTOffset
        (java.lang.String, int, int, int, int, int, int) return int';
        /

        CREATE OR REPLACE function test_dst(timezone VARCHAR2,

                                                    year NUMBER,
                                                    month NUMBER,

                                                    mday NUMBER,
                                                     hour NUMBER,

                                                     min NUMBER,
                                                      sec NUMBER) RETURN
        varchar2 as
          retval varchar2(40);
        begin
          select case get_dst_offset (timezone,year,month,mday,hour,min,sec)
            when
        3600000 then 'Timestamp is *in* DST'
            when 0 then 'Timestamp is *not* in DST'
            when -360000000 then 'Time Zone not valid'

          else 'Error' end into retval from dual;
          return retval;
        end;
        /
```

Now as sysdba, run the check:

```
        set serveroutput  on
        begin
           if  test_dst('America/New_York',  2007,  3,  11,  11,  0,  0)=
        'Timestamp  is  *in*  DST'  then
               dbms_output.put_line('V3  (or  later)  Time  Zone  Update  is
        applied');
           else
```

```
        dbms_output.put_line('V3 (or later) Time Zone Update is
not applied');
    end if;
    if test_dst('America/Edmonton', 2007, 3, 11, 11, 0, 0) =
'Timestamp is *in* DST' then
        dbms_output.put_line('V4 (or later) Time Zone Update is
applied');
    else
        dbms_output.put_line('V4 (or later) Time Zone Update is
not applied');
    end if;
    if test_dst('Pacific/Auckland', 2008, 4, 5, 11, 0, 0) =
'Timestamp is *in* DST' then
        dbms_output.put_line('V6 (or later) Time Zone Update is
applied');
    else
        dbms_output.put_line('V6 (or later) Time Zone Update is
not applied');
    end if;
    if test_dst('Australia/Adelaide', 2008, 4, 5, 11, 0, 0) =
'Timestamp is *in* DST' then
        dbms_output.put_line('V7 (or later) Time Zone Update is
applied');
    else
        dbms_output.put_line('V7 (or later) Time Zone Update is
not applied');
    end if;
    if test_dst('Indian/Mauritius', 2008, 10, 26, 11, 0, 0) =
'Timestamp is *in* DST' then
        dbms_output.put_line('tzdata2008f (or later) Time Zone
Update is applied');
    else
        dbms_output.put_line('tzdata2008f (or later) Time Zone
Update is not applied');
    end if;
    dbms_output.put_line('The TEST_DST function can be used to
test your ''own'' time zones');
end;
/
```

If you are not told that the V4 update is applied, you will need to patch the Oracle JVM.

If you do not need to patch, congratulations, proceed to the next section. However, if you do need to patch, the next step is to identify data that may need to be dealt with manually. If your database contains any TIMESTAMP with LOCAL TIME ZONE data, you will need to refer to Metalink note 756454.1. The following sql will identify this data:

```
select c.owner || '.' || c.table_name || '(' || c.column_name
       || ') -' || c.data_type || ' ' col
   from dba_tab_cols c, dba_objects o
 where c.data_type like '%LOCAL TIME ZONE'
       and c.owner=o.owner
     and c.table_name = o.object_name
     and o.object_type = 'TABLE'
```

```
      order by  col
      /
```

Next you will need to identify any TIMESTAMP data that needs to be be saved, Save the script utltzuv10.sql in $ORACLE_HOME/rdbms/admin. You can get this script from Metalink at https://metalink2.oracle.com/cgi-bin/cr/getfile.cgi?p_attid=756112.1:utltzuv10_1 Run this script as sysdba. Check the results by running the following query as sysdba, `SELECT * FROM SYS.SYS_TZUV2_TEMPTAB`. If any data is returned, follow steps 4-8 of Metalink note 359145.1.

If the database needed to be patched, use opatch to apply the appropriate version of 5632264. If the Oracle JVM requires patching, you will be applying patch number 5865568, but the process is different for 9.2 and 10.2. For 9.2,

```
      $ cd $ORACLE_HOME/javavm/admin
      $ mkdir saved_ncomp
      $ mv libjox9java_util.so libjox9oracle_aurora_genmsg.so
      libjox9oracle_aurora_sqljdecl.so saved_ncomp
      $ cd PATCH_DIR
      $ opatch apply
```

Change the following init.ora parameters:

```
      _sys_trig_enabled=FALSE
      job_queue_processes=0
      aq_tm_processes=0
      $ sqlplus '/ as sysdba'
      SQL> startup migrate
      SQL> create or replace java system;
      SQL> shutdown
```

Restore the init.ora parameters

```
      $ sqlplus '/ as sysdba'
      SQL> startup
      SQL> @?/rdbms/admin/utlrp
```

For 10.2, upgrade the Oracle JVM by backing up and removing the following files from $ORACLE_HOME/javavm/lib/zi:

```
      Africa/Timbuktu
      America/Buenos_Aires
      America/Catamarca
      America/Coral_Harbour
      America/Cordoba
      America/Indianapolis
      America/Jujuy
      America/Louisville
      America/Mendoza
      Europe/Belfast
      Pacific/Yap
```

Now, you are ready to apply patch 5865568.

```
      $ cd PATCH_DIR
      $ opatch apply
      $ sqlplus '/ as sysdba'
      SQL> @?/javavm/admin/fixTZa
```
If the result does not include 'Bug is in fact present', go to the README.txt file in PATCH_DIR.

```
SQL> shutdown
SQL> startup migrate
SQL> @?/javavm/admin/fixTZb
```
If the result does not include 'Bug is no longer present', go to the README.txt file
```
SQL> shutdown
SQL> startup
```

If you had to patch the database, then you must also patch the client, i.e the applications tier. After you have patched the client. The system has been successfully upgraded to version 4 timezone files.

5.1 11.5.10.2

To complete the Daylight Savings patches, use adpatch to apply 5699501. Refer to note 403311.1 for any other product specific patches to apply.

5.2 12.0.6

Since 12.0.6 contains 10.1.0.2 and 10.1.0.3 oracle homes, you need to patch there by following the instructions in note 397387.1 for manually applying the 10.1.0.5 version of patch 5632264. This consists of going into the oracore/zoneinfo directory in both oracle homes, backing up timezone.dat, timezlrg.dat and readme.txt, then copying the files in PATCH_DIR/oracore/zoneinfo   to the oracle homes.

6 COLLECT PRODUCTION DATA

At this point your system is ready to upgrade to 11g. However, depending upon the amount of patching you had to do to get your system to the appropriate applications and daylight savings patch levels, any previous performance baselines you have collected may no longer be applicable. In order to minimize the isolation of any issues will occur during the database upgrade, you may wish to run the system until you have had an opportunity to collect new performance baselines for your business critical processes. This may be an area of contention with your users since it will require a second down time and a second round of testing. However, based on experience during upgrades with multiple companies, the benefits are worth the additional cost. For example, the SQL being run on the system may have changed as a result of these changes which means any prior performance baselines may not be valid. A bigger reason (but one most users will deny) is that the testing was probably incomplete. If something does not function correctly post upgrade, it is extremely helpful to know where it broke, if you have patched all the way through the database upgrade, you will no longer know this.

7 PREPARING TO UPGRADE

There are a few remaining preparation steps that must take place before you can actually start the upgrade process. First you will need to apply the correct interoperability patch and apply the latest Autoconfig for your platform. Fore release 12, this means apply 6928236 and 7207440. For 11.5.10.2, apply 6328363 and 7011280. In addition for release 12, you must apply 6400501 on the applications tier. This patch exists for different database versions, make sure you apply the version for 10.1.0.5.

7.1 RELEASE 11.5.10.2 INSTRUCTIONS
1. Apply interoperability patch 6328363
    1. Apply the patch driver
2. Update Autoconfig with patch 7011280
    1. Apply the patch driver
    2. Move Autoconfig to the dbtier by creating a new appsutil.zip
    3. Apply and run autoconfig on the db tier
    4. Run autoconfig on the appstier

7.2 RELEASE 12 INSTRUCTIONS
1. Apply the interoperability patch 6928236
    1. Apply the latest adgrants.sql from the patch directory.
    2. Apply the patch driver
2. Update Autoconfig
    1. Apply patch 7207440
        1. Apply the patch driver
        2. Move Autoconfig to the dbtier by creating a new appsutil.zip
        3. Apply and run autoconfig on the db tier
        4. Run autoconfig on the appstier
3. Apply patch 6400501 to the apps tier Oracle Home
    1. Apply the patch with opatch
    2. cd $ORACLE_HOME/forms/lib32 (lib if no lib32)
    3. make -f ins_forms.mk install
    4. cd $ORACLE_HOME/reports/lib32 (lib if no lib32)
    5. make -f ins_reports.mk install

7.3 INSTALL 11.1 HOME
The next step is to create the new Oracle Home. For consistency in the E-Business Suite, the suggested home is at the same level as the old home, for example in R12, if your current home is db/tech_st/10.2.0, use db/tech_st/11.1.0. Install the database (Enterprise Edition, no starter database) from the 11.1.0.6 distribution. Next install the examples (easiest way I have found is to download this media from OTN). Finally install the 11.1.0.7 patch (6890831) into the new Oracle Home. After completing this installation, you need to create nls/data/9idata. In order to do this, in the new oracle home, run nls/data/old/cr9idata.pl. When you activate the 11g ORACLE_HOME, ORA_NLS10 will need to be set to the full path of the 9idata directory.

7.4   One off patches for 11.5.10.2

Apply 6530141, 6972189, 7111245, 7253531, 7295298 and 7486407 [*] to the new ORACLE HOME using opatch apply.

7.5   One off patches for 12.0.6

Apply 7486407[+] to the new ORACLE HOME using `opatch apply`.
Apply 7684818[‡] to the new ORACLE HOME using `opatch napply -skip_subset -skip_duplicate`.

---

[*]   This patch has post installation steps. Do not run them at this time. They will be run later after running dbua.

[+]   This patch has post installation steps. Do not run them at this time. They will be run later after running dbua.

[±]   This patch has post installation steps. Do not run them at this time. They will be run later after running dbua.

8 UPGRADE THE DATABASE

The upgrade development group within Oracle would like everyone to use dbua to ensure that all required steps are completed.   However, dbua still does not do everything for you. For example, before running dbua (or starting the manual upgrade process), **make sure that SYS.PLAN_TABLE does not exist by dropping it if necessary**. If this table exists during the upgrade, the Oracle Server may be invalid after the upgrade. If that occurs, you must follow the instructions in Note 565600.1. Shutdown the applications tier processes, make a final attempt to compile remaining invalids by running utlrp.sql and gather dictionary stats one last time.

Finally, copy utlu111i.sql from the new ORACLE_HOME/rdbms/sql to /tmp. Run the script in the database to be upgraded while pooling the output to a log file. Examine the resulting log for anything that will prevent the upgrade. You will receive an error about needing to configure Network ACLs for APPS; however, this can safely be ignored. After making sure that there is an entry in /etc/oratab for the instance you are upgrading, run dbua from the new ORACLE_HOME.

8.1 A RELEASE 12 CAVEAT

Before starting the upgrade, drop any existing index on system.repcat$_audit_column on the same columns as the index below. Otherwise, you will get an ORA-1408 when the script runs the command

```
create index system.repcat$_audit_column_f2_idx on
system.repcat$_audit_column(base_sname, base_oname,
base_conflict_type_id, base_reference_name)
```

After dbua completes, configure a new init.ora file using 396009.1 as a guideline.

8.2 RELEASE 12 INITIALIZATION PARAMETERS

After making the changes suggested in the note, make sure you have set the following:
_disable_fast_validate=TRUE
If you are using iRecruitment, also set event 31151 as a fix for bug 6952870:
event="31151 trace name context forever, level=0x100"

8.3 POST INSTALLATION STEPS

Now, you are ready to follow the post installation steps in the 11.1.0.7 release notes. Skip sections 9.1 and 9.2. If you were on a version of the timezones files past v4 prior to the upgrade, you will need to follow the steps in 9.3. Make a note of the steps in 9.4 as you have to do them if you clone this Oracle Home. Review the rest of the steps to make sure that you apply any that are applicable to your system.

At this time you must apply the post patching steps from the one off patches.

8.4 SPECIAL INSTRUCTIONS FROM THE ONE OFF PATCHES FOR 11.5.10.2

```
$ sqlplus '/ as sysdba'
SQL> spool post_install.log
SQL> @?/rdbms/admin/prvtaw.plb
SQL> @?/rdbms/admin/prvtawex.plb
SQL> @?/rdbms/admin/utlrp
SQL> spool off
```

8.5 SPECIAL INSTRUCTIONS FROM THE ONE OFF PATCHES FOR 12.0.6

```
$ sqlplus '/ as sysdba'
SQL> spool post_install.log
SQL> @?/rdbms/admin/prvtaw.plb
SQL> @?/rdbms/admin/prvtawex.plb
SQL> @?/md/admin/catmgdidcode
SQL> @?/rdbms/admin/utlrp
SQL> spool off
```

Migrate TNS_ADMIN by copying the previous one to ORACLE_HOME/network/admin. You will need to fix the oracle home setting in the various files and set TND_ADMIN to the new location. Start the listener with `lsnrctl`.

Upgrade the applications statistics table.
```
$ sqlplus '/ as sysdba'
```
SQL> EXECUTE DBMS_STATS.UPGRADE_STAT_TABLE('APPLSYS','FND_STATTAB');

Copy adgrants.sql from APPL_TOP/admin to the ORACLE_HOME/appsutil/admin and run it.
```
Sqlplus '/ as sysdba' @adgrants APPLSYS
```

Copy adctxprv.sql from $AD_TOP/patch/115/sql to appsutil/admin and run it.
```
Sqlplus apps/APPS_PASSWORD  @adctxprv SYSTEM_PASSWORD CTXSYS
```

8.6 VALIDATE WORKFLOW RULESET FOR 12.0.6

In the applications tier, got $FND_TOP/patch/115/sql and run:
sqlplus apps/*APPS_PASSWORD* @wfaqupfix APPLSYS APPS

You should now implement AutoConfig in the 11g Oracle Home

8.7 INSTRUCTIONS FOR 12.0.6

1. Apply patch 4585869 on the applications tier, $IAS_ORACLE_HOME, using opatch
2. On the apps tier, run $_ADTOP/bin/admkappsutil.pl
3. Unzip $INST_TOP/admin/out/appsutil.zip in the RDBMS ORACLE_HOME
4. Copy the jre directory from the old ORACLE_HOME/appsutil to the new ORACLE_HOME/appsutil on the database tier.
5. On the database tier, make sure the environment variables are set correctly.
   - ORACLE_BASE
   - ORACLE_HOME
   - ORACLE_SID
   - PATH, contains ORACLE_HOME/bin, ORACLE_HOME/perl/bin and no other ORACLE_HOMEs
   - LD_LIBRARY_PATH contains ORACLE_HOME/lib and no other ORACLE_HOMEs
   - PERL5LIB points to ORACLE_HOME/perl/lib/*perl_version* and ORACLE_HOME/perl/lib/site_perl/*perl_version*
6. On the database tier, run `adbldxml.pl` from $ORACLE_HOME/apputil/bin
7. On the database tier, run `adconfig.sh` contextfile=*CONTEXT_FILE_GENERATED_IN_LAST_STEP* from $ORACLE_HOME/appsutil/bin.

8. Shutdown all oracle processes including the database and listener
9. Restart the oracle processes

You need to collect current statistics for the SYS schema.
1. Copy adstats.sql from the applications tier, APPL_TOP/admin to the database tier, ORACLE_HOME/appsutil/admin
2. Run adstats.sql in restricted mode.
```
$ sqlplus '/ as sysdba'
SQL> shutdown immediate;
SQL> startup restrict;
SQL> @adstats.sql
$ sqlplus '/ as sysdba'
SQL> shutdown normal;
SQL> startup;
SQL> exit
```

If you have any custom database links, you will need to recreate them. Demantra users need to follow the instructions in note 730883.1. This is also a good time to enable ARCHIVELOG mode if it is not on.

On the applications tier, you must recreate grants and synonyms.
```
$ adadmin
      4. Maintain Applications Database Entities Menu
            2. Recreate grants and synonyms
```

Take the applications out of maintenance mode and restart the applications tier processes.

The final step in the upgrade is to run the concurrent request, Workflow Directory Services User/Role Validation
- p_BatchSize = 10000
- p_Check_Dangling = Yes
- Add missing user/role assignments = Yes
- Update WHO columns in WF tables = No

9 CONCLUSION

The process of upgrading from to 11.1.0.7 with the E-Business Suite can be involved. However, there are several reasons for companies to strongly consider completing the upgrade including being able to stay on premier support, the improvements in the 11g CBO, and the new features of 11g (although many of them will require licenses).

The upgrade process is a relatively easy one compared to past options and does not seem to have the pitfalls for which past upgrades (such as 9.2 to 10.2) developed a reputation.

10 REFERENCES

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