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Technical Notes
IBM Oracle International Competency Center (ICC)

Jul 28, 2011 *email address: ibmoracl@us.ibm.com*

Hints and Tips on migrating Oracle EBS 11.5.10 and Discoverer 10g from Linux Red Hat 4 to IBM AIX 6.1

This paper is based on our experiences migrating an Oracle E-Business Suite 11.5.10 & Oracle Database 10*g* (10.2.0.3) & Discoverer 10*g* (10.1.2.2.0) from Linux Red Hat 4.3 to AIX 6.1.
The Oracle Discoverer version also was migrated and updated to 10.1.2.3.
Our work involved also re-hosting from an HP Proliant DL380 G5 server to an IBM POWER7 System. The source and target environments are a single solution node.
Please note, special attention needs to be given to the customized code during this kind of migration.
This document is published "as-is". There is no guarantee from IBM that the procedures described below will work on every installation. The note merely describes the experience of the author at a specific installation.

Setting up the Environment

I. Installing Pre-requisites for E-Business Suite 11.5.10 on AIX 6.1

First of all, we must have installed and configured products to install the AIX 6.1
These steps are detailed in the My Oracle Support (MOS) Note: 287453.1 (Oracle Applications 11.5.10 - Installation Update Notes for Linux x86, Solaris SPARC, MS Windows, HP-UX PA-RISC, HP-Tru64, IBM AIX).
We must review also the MOS's note: 230672.1 (Cloning Oracle Applications Release 11i with Rapid Clone) in the Section 1: Prerequisites. Some prerequisites with its versions or higher are: ZIP 2.3, UNZIP 5.52, JDK 1.3.1, JRE 1.18, PERL 5.005.
About the software zip it can be download in: ftp://ftp.info-zip.org/pub/infozip/unix/aix
Also, I recommend you read the My Oracle Support Note: 282036.1 (Minimum Software Versions and Patches Required to Support Oracle Products on IBM Power Systems).

A consideration that is not included in MOS note is to install the C & C++ GNU in the AIX system. Also, the file systems used by Oracle Database, Oracle e-Business Suite and Oracle Discoverer must be created in the target environment.

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II. Migration of Oracle Database 10g

1) **Install the Oracle Database 10g on the target server**. It is available in the url: http://www.oracle.com/technetwork/indexes/downloads/index.html
Install the software in the following order:
   - Oracle Database 10g Release 2 (10.2.0.1.0) for AIX5L
   - Oracle Database 10g Companion CD Release 2 (10.2.0.1.0) for AIX5L.
   - Install the patchset 5337014 (10.2.0.3 Patchset for Oracle Database Server) for my scenario. (10.2.0.5 is the terminal patch set for this version).

   One consideration when we run the runInstaller for the version 10.2.0.1, we must run the runInstaller with the following option: ./runInstaller –ignoreSysPrereqs
   We must install the products: Spatial, interMedia and Oracle Text.

2) **Migration of the database**
   For the migration of the database we provide some hints based on our experiences:
   If the database version is 10.2.0.4 or later, it must be working according to the MOS note: 362205.1 (10g Release 2 Export/Import Process for Oracle Applications Release 11i).
   If the version is 10.2.0.3, as in our case, we used MOS note: 230627.1 (9i Export/Import Process for Oracle Applications Release 11i), because I got some bugs in the note: 331221.1 for the database version 10.2.0.3.
   I will detail all the steps that I have fixed based in the note: 230627.1 due to the fact that it is oriented to a version Oracle Database 9*i*.

   a) **In the source.**
      a.1) Validate that it has the AD Minipack F (Patch: 2141471) or later.
      a.2) Apply the patch: 4872830, this patch includes a template for the export and import for the database.
      a.3) Apply the patch: 722586.2 to every application tier server node.
      a.4) Execute the query: select * from global_name and it must give you one in return row.
      a.5) Copy the template $AU_TOP/patch/115/import/auexpimp.dat to database server node.
      a.6) Modify the file copied, only a recommendation:
      In the template you will find:
      file=(dmpfil1, dmpfil2, dmpfil3, dmpfil4) and filesize=536870912
      I recommend you only to use file and not to use filesize.
      Also comment out or remove the toid_novalidate parameter.
      a.7) Copy the parameter file of source database to target database.
      a.8) Execute the following script:
      sqlplus system/xxx @AD_TOP/patch/115/sql/adclondb.sql 10
      It will create two database templates with the structure of the source database that it then will use; the templates have the names: adpostcrdb.sql and adcrdb.sql.
      a.9) Execute the script with the user SYS:
      sqlplus / as sysdba @AU_TOP/patch/115/sql/auque1.sql
      This script will create a spool named auque2.sql in the current directory.
      This script has the advanced queue settings that must be copied to the target environment.
      a.10) Stop services of E-Business Suite and set the database in restrict mode.
      a.11) Export database with the template ($AU_TOP/patch/115/import/auexpimp.dat).
      exp parfile=<export parameter file name>
      a.12) Copy the following files to the target environment:
      $APPL_TOP/admin/addb1020.sql

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$APPL_TOP/admin/adsy1020.sql
$APPL_TOP/admin/adjv1020.sql
$APPL_TOP/admin/admsc1020.sql
$APPL_TOP/admin/adstats.sql
$APPL_TOP/admin/adgrants.sql
$APPL_TOP/admin/adstats.sql
$AD_TOP/ad/11.5.0/patch/115/sql/adctxpkg.sql
Now we must copy the template we have at point a.6 to the target environment, and also the DMP file generated by the export process.

b) <u>In the target.</u>

b.1) Startup in mode nomount the target database with the parameter undo_management in MANUAL.
b.2) Run the script created at point a.8 named adcrdb.sql.
sqlplus / as sysdba @adcrdb.sql
b.3) Modify the parameter undo_management into AUTO.
b.3) Run the following scripts:
sqlplus / as sysdba @addb1020.sql
sqlplus system/xxx @adsy1020.sql
sqlplus system/xxx @adjv1020.sql
b.4) Create a temporary tablespace (this step is optional):
(Here I have created a tablespace's size TEMP of 10 GB where my database's size is 100 GB).
SQL> create temporary tablespace TEMP tempfile 'xxx ' size xG;
SQL> alter database default temporary tablespace TEMP;
sqlplus system/xxx @admsc1020.sql FALSE SYSAUX TEMP $ORACLE_HOME/dm/admin
Then run the following scripts:
sqlplus sys/xxx as sysdba @adpostcrdb.sql
b.5) Then we must disable the automatic statistics gathering:
SQL> shutdown immediate;
SQL> startup restrict;
SQL> @adstats.sql (Copied in the point a.12).
b.6) Set up the hidden parameter _use_realfree_heap = false (Only for AIX platform).
b.7) Modify the template copied at point a.6 and change the following lines:

- Remove the parameters "compress=y"
- The parameter toid_no_validate must have this value:
  toid_novalidate=(SYS.AQ$_AGENT, SYS.AQ$_JMS_USERPROPERTY, SYS.AQ$_JMS_USERPROPARRAY, SYS.AQ$_JMS_MESSAGE, SYS.AQ$_JMS_TEXT_MESSAGE, SYS.AQ$_JMS_BYTES_MESSAGE, SYS.AQ$_JMS_STREAM_MESSAGE, SYS.AQ$_JMS_MAP_MESSAGE, SYS.AQ$_JMS_OBJECT_MESSAGE, SYSTEM.REPCAT$_OBJECT_NULL_VECTOR, MDSYS.SDO_GEOMETRY)
- Add the following parameters:
  - Ignore=y
  - Analyze=n
  - Commit=y

b.8) Execute the following script, it is detailed in the MOS's note: 300172.1 (Obsolescence of KOREAN_LEXER Lexer Type).

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SQL> execute ctx_ddl.create_preference('ko_morph_lexer','korean_morph_lexer');

b.9) Execute the import process:

imp parfile=<imp parameter file name>

b.10) Remove the hidden parameter _use_realfree_heap setted up at point b.6.

b.11) Execute the script created at point a.9.

sqlplus / as sysdba @auque2.sql

b.12) Review the import process log and the indexes that failed with the text *"KOREAN_LEXER is desupported"* rebuild it with the following option:

alter index <index_name> rebuild parameters ('REPLACE LEXER SYS.ko_morph_lexer');

b.13) Execute the script copied at point a.12, it is documented in the MOS's note: 372263.1 (AD_CTX_DDL Package Is Missing After Upgrade And Migration Of The Database).

sqlplus / as sysdba @adctxpkg.sql <PASSWORD_USER_SYSTEM> CTXSYS APPS

b.14) Execute the script included in the MOS's note: 183825.1 (How to Backup and Restore Java Classes and Privileges only).

This script is detailed here:

```
spool setjvmprivs.sql
set echo off
set feedback off
set heading off
set linesize 80
set pagesize 1000
column stmt format a70 word_wrapped
select 'exec '||stmt
from (select seq, 'dbms_java.grant_permission('''||grantee||''','''||
          type_schema||':'||type_name||'''','''||name||''','''||action||
          ''');' stmt
     from dba_java_policy
     where grantee not in ('JAVADEBUGPRIV', 'JAVASYSPRIV', 'JAVAUSERPRIV',
                  'JAVA_ADMIN', 'JAVA_DEPLOY', 'SYS', 'PUBLIC') and
          type_name!='oracle.aurora.rdbms.security.PolicyTablePermission'
     union all
     select seq,'dbms_java.grant_policy_permission('''||a.grantee||''','''||
          u.name||''','''||permition||''','''||action||''');' stmt
     from sys.user$ u,
        (select seq, grantee,
              to_number(substr(name,1,instr(name,':')-1)) userid,
              substr(name,instr(name,':')+1,instr(name,'#') -
                   instr(name,':')-1) permition,
              substr(name,instr(name,'#')+1 ) action
         from dba_java_policy
         where grantee not in ('JAVADEBUGPRIV', 'JAVASYSPRIV',
                        'JAVAUSERPRIV', 'JAVA_ADMIN', 'JAVA_DEPLOY',
                        'SYS', 'PUBLIC') and
               type_name =
                  'oracle.aurora.rdbms.security.PolicyTablePermission') a
     where u.user#=userid) order by seq;
```


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```
column stmt clear
set pagesize 24
set heading on
spool off
```

Then we must run the script generated.
b.15) Execute the steps included in the MOS's note: 951291.1 (EMCA Fails With Error "ORA-24170: SYSMAN.MGMT_NOTIFY_Q_N is created by AQ,cannot be dropped directly" While Dropping SYSMAN Schema).
The script is detailed here:

```
sqlplus / as sysdba
alter system enable restricted session;
execute
dbms_aqadm.drop_queue_table(queue_table=>'MGMT_NOTIFY_QTABLE',force
=>TRUE);
execute sysman.emd_maintenance.remove_em_dbms_jobs;
execute sysman.setEMUserContext('',5);
revoke dba from sysman;

declare
 cursor c1 IS
  select owner, synonym_name name
  from dba_synonyms
  where table_owner = 'SYSMAN';
begin
 for r1 IN c1 loop
  if r1.owner = 'PUBLIC' then
   execute immediate 'DROP PUBLIC SYNONYM '||r1.name;
  else
   execute immediate 'DROP SYNONYM '||r1.owner||'.'||r1.name;
  end if;
 end loop;
end;
/

drop user mgmt_view cascade;
drop ROLE mgmt_user;
drop user sysman cascade;
alter system disable restricted session;
```

b.16) Execute the script adgrants.sql copied at point a.12:
sqlplus / as sysbda @adgrants.sql APPLSYS
b.17) Execute the following grants:

- grant execute on SYS.DBMS_PIPE to owapub;
- grant execute on SYS.DBMS_SYS_SQL to owapub;
- grant execute on CTXSYS.CTX_ADM to apps;
- grant execute on CTX_DDL to apps;
- grant execute CTX_OUTPUT to apps;

If some grants failed, do not be worried.

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b.18) Recreate the database links.
In this point, we should considerer the same domain name value between the GLOBAL_NAME's source and target environment.
b.19) Execute the following script for compile invalid objects:
sqlplus / as sysdba @?/rdbms/admin/utlrp.sql
I recommend to execute this step at least twice.
This step is very important; we mst have the same amount of invalid objects on both databases, (source and target).
b.20) Execute in the source database

- perl $AD_TOP/bin/admkappsutil.pl, it will generate the file: $APPL_TOP/admin/out/appsutil.zip. It must be copied to target database ($ORACLE_HOME).
- We must run the following steps:
  - perl $ORACLE_HOME/nls/data/old/cr9idata.pl (this script will create the folder $ORACLE_HOME/nls/data/9idata)
  - export ORA_NLS10=$ORACLE_HOME/nls/data/9idata
  - sqlplus apps/xxx
  - SQL> FND_CONC_CLONE.SETUP_CLEAN
- Then execute the following commands:
  - unzip -o appsutil.zip
  - cd $ORACLE_HOME/appsutil/bin
  - perl adbldxml.pl tier=db appsuser=apps
  - adconfig.sh contextfile=<CONTEXT_FILE>

Some steps are necessary (on database tier) to execute in the phase of migration of application tier.

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III. Migration of Application e-Business Suite 11.5.10.2

A technical reference of this part is the MOS note: 238276.1 (Migrating to Linux with Oracle Applications Release 11i).
During this part, I will mention some environmental variables as $APPL_TOP, $COMMON_TOP, etc. These variables are set up in the <CONTEXT_FILE>.env created in the Application Tier.

1) **Update current view snapshot**:
In the source application server, we must update our current view snapshot.
Steps:

a) Execute the command: adadmin
b) Go to option: maintain Applications Files menu.
c) Choose option: Maintain snapshot information
d) Then choose option: Update current view snapshot

2) Create the manifest
In the source environment we must execute the following command:
perl $AD_TOP/bin/adgenpsf.pl
This command generates a file in the following directory:
$APPL_TOP/admin/<TWO_TASK>/out/adgenpsf.txt
Then we must upload this file in the following Oracle's page:
https://updates.oracle.com/PlatformMigration
Then Oracle will send you in 30 minutes a patch that we will install at point 6.

3) **Copy the Application Tier**
From the source environment we must copy the following directories to target environment.
a) $APPL_TOP
b) $OA_HTML
c) $OA_JAVA
d) $COMMON_TOP/util
e) $COMMON_TOP/_pages

4) **Copy the security file for JInitiator**
If we wish to have the Source System digital signature, we must copy the file identitydb.obj since source to target environment. This file is localized at home directory of the user owner of the e-Business Suite. If we want a new digital signature we must remove the file $APPL_TOP/admin/appltop.ear.

5) **Clone the AutoConfig on the Target**:
First we must modify the $CONTEXT_FILE with the correct values:
For example: All the entries old hostname must be changed by the new hostname server.
Also review the owners and owner groups; for example this kind of lines:
<appsgroup oa_var="s_appsgroup" osd="unix">oinstall</appsgroup>
And also be careful with tags related to the platform:
For example:
In the source:
<PLATFORM oa_var="s_oraPlatform" osd="Linux">LINUX</PLATFORM>
And we should say:
<PLATFORM oa_var="s_oraPlatform" osd="IBM_AIX">AIXRIOS</PLATFORM>

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Also we must specify the correct AIX JDK and JRE's paths in the following lines in the CONTEXT_FILE:
<JDK_TOP oa_var="s_jdktop"></JDK_TOP>
<JRE_TOP oa_var="s_jretop"></JRE_TOP>
<OA_JDK_TOP oa_var="s_oajdktop"></OA_JDK_TOP>

Then execute it:
cd $APPL_TOP/ad/11.5.0/bin
perl adclonectx.pl migrate java=<ORACLE_HOME_BD> /jdk
contextfile=$APPL_TOP/admin/<TWO_TASK>_<HOSTNAME>.xml

6) Install the Middle Tier Technology Stack.

We must have the media of e-Business Suite 11.5.10 CU2 for AIX.
We must create the stage area. (Do not leave blanks in the directory names).
Then execute it:
cd <STAGE>/Disk1/rapidwiz/rapidwiz –techstack
Then it will install the Developer and iAS technology.
Note: If you try to copy the files (Technology Stack) of any other Application Server and then you try to configure it in its xml files it will have problems post migration. Please do a fresh install.
Note: It is recommendable to apply the last patchset available for Developer 6i.
For example: the patchset 19 - Patch 6194129.

Here I detail the steps for apply the patchset 19 for Developer 6i:

- export ORACLE_HOME=$IAS_ORACLE_HOME/6iserver
- export PATH=$IAS_ORACLE_HOME/6iserver/bin:$PATH
- export LD_LIBRARY_PATH=$IAS_ORACLE_HOME/6iserver/bin:$LD_LIBRARY_PATH
- cp p6194129_60828_AIX5L.zip $ORACLE_HOME
- cd $ORACLE_HOME
- unzip p6194129_60828_AIX5L.zip
- cd developer6i_patch19
- ./patch_install.sh | tee patch_install_p19.log
- cd $ORACLE_HOME/procbuilder60/lib; make -f ins_procbuilder.mk install
- cd $ORACLE_HOME/forms60/lib; make -f ins_forms60w.mk install
- cd $ORACLE_HOME/graphics60/lib; make -f ins_graphics60w.mk install
- export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$ORACLE_HOME/network/jre11/lib/aix/native_threads
- cd $ORACLE_HOME/reports60/lib; make -f ins_reports60w.mk install

7) Execute the AutoConfig.

a) rm –Rf $COMMON_TOP/util/java/1.4/< j2sdk1_xxx>
b) mkdir –p $COMMON_TOP/util/java/1.4/< j2sdk1_xxx>
c) cp <ORACLE_HOME_BD>/jdk/* $COMMON_TOP/util/java/1.4/< j2sdk1_xxx>
d) In the directory $COMMON_TOP/util/unzip we have the binaries of unzip utility for platform, so we must copy the binaries of AIX to the folder: $COMMON_TOP/util/unzip/unzip

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Is important that we do a test, can do it with the following steps:
cd $COMMON_TOP/util/unzip/unzip
./unzip

e) Only for AIX 5.3 we must have always in our environmental variables the following variable:
export LDR_CNTRL=MAXDATA=0x40000000

f) Then we must execute the following command:
cd $APPL_TOP/ad/bin/11.5.0/bin
sh adconfig.sh run=INSTE8_SETUP contextfile=$CONTEXT_FILE
We will get an error message due to the fact that the adconfig uses still some the binaries of Linux, so we can omit the error message.

8) Apply Manifest Patch.

Before of applying the manifest patch, we must have all the application's environment loaded.
We should remove all Linux libraries files from APPL_TOP, we can use the following script:

```
for top_name in `ls $APPL_TOP`
do
   if [ -d $APPL_TOP/$top_name/11.5.0/lib ]; then
      cd $APPL_TOP/$top_name/11.5.0/lib
      rm -f *.o
      rm -f *.a
   fi
done
```

We must apply the manifest patch with the command adpatch. This command is inside of the patch folder.
In my implementation I got the following error when I tried to apply the patch according to its README.

```
Connecting to SYSTEM.....Connected successfully.

Connecting to APPLSYS.....Connected successfully.

Connecting to APPS.....Unable to connect.
```

The password of SYSTEM and APPS users were written correctly.

It is mentioned in the Bug 9918793 (PLATFORM MIGRATION PATCH FAILS TO CONNECT AS APPS USER).

The solution here is executing the patch with the following option:
<folder_patch>/adpatch preinstall=y (Here we must use the binary adpatch included in the patch's folder).

And then run the adpatch with the normal option as it is written in the README.

adpatch options=noprereq (Here we must use the binary adpatch included in the e-Business Suite).

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After that we must apply for the patch: 4139957.

Here we can run the point 7 and it will give a result successful.

9) Regenerate the filesystem objects.

Execute the following command: $AD_TOP/patch/115/bin/adgensgn.sh apps/xxx
If we are working on AIX 5.3 or lower we must set up the environmental variable before we compile the modules:
export PATH=/usr/vacpp/bin:$PATH
Also it is recommended that this variable must be configured in the user's profile of operative system.

Regenerations and recompile files:

a) Generate Applications Files Menu (adadmin)
   a.1) Generate message files
   a.2) Generate form files
   a.3) Generate report files
   a.4) Generate graphics files
   a.5) Generate product JAR files
b) Relink Applications programs (adadmin)
   b.1) Relink Applications programs (all modules)
c) Compile/Reload Applications Database Entities
   c.1) Compile APPS schema
   c.2) Compile menu information
   c.3) Compile flexfields
   c.4) Reload JAR files to database
d) Top Binary:
   d.1) adrelink.sh force=y "crp CYCPLN"
   d.2) adrelink.sh force=y "crp CYCCRP"
   d.3) adrelink.sh force=y "crp CYRRCP"
   d.4) adrelink.sh force=y "crp CYQLIB"
   d.5) adrelink.sh force=y "crp CYCROL"

Then we must apply the patch: 9535311, it is documented in the MOS note: 1240795.1 (Adconfig.sh Fails With Error AC-30202 Unrecognized Action Apecified On Oracle EBS 11.5.10.2)

10) Execute the AutoConfig to complete the Target System configuration.

We must do a change to the following script:
$APPL_TOP/ad/11.5.0/bin/adcvm.sh

Then we must look for the following line:

if ((test "$pltform" = "Solaris") || (test "$pltform" = "Intel_Solaris"));
And we must change it to this line:
if (test "$pltform" = "Solaris") || (test "$pltform" = "Intel_Solaris");

It is documented in the MOS note: 1185307.1 (Autoconfig Error: adcvm.sh[211]: "AIX: 0403-012 A command parameter test is not valid")

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Then we must run the following command:

$AD_TOP/bin/adconfig.sh contextfile=$CONTEXT_FILE

If we get the following error: jtfictx.sh INSTE8_PRF 1, we must review the notes: 107626.1 (DRG-10700: preference does not exist: CTXSYS.DEFAULT_LEXER) and 458061.1 (DRG-11002: missing value for SYNC with Text Index Creation).

11) Compilation to customizations

1. Recompile any custom form or Pro*C on the target system
   We can use the following shell scripts for compile custom forms:

   Custom libraries:

```
cd $AU_TOP/resource
for FILES in $(ls -l *.pll | awk '{print $9}')
do
 VAR2=$(echo $FILES | awk -F'.' '{print $1}')
 VAR3=$(ls -l $FILES | awk '{print "f60gen module=$AU_TOP/resource/" $9 "
userid=apps/xxx  output_file=$AU_TOP/resource/"}')
 echo $VAR3$VAR2.plx module_type=library compile_all=special
done
```

   Forms libraries:

```
cd $XXX_TOP/forms/US
for FILES in $(ls -l *.fmb | awk '{print $9}')
do
 VAR2=$(echo $FILES | awk -F'.' '{print $1}')
 VAR3=$(ls -l $FILES | awk '{print "f60gen module=$XXX_TOP/forms/US/" $9 "
userid=apps/xxx  output_file=$XXX_TOP/forms/US/"}')
 echo $VAR3$VAR2.plx module_type=form compile_all=special
done
```

   In my case the XXX_TOP is the directory XBOL_TOP where I found all the customizations.

2. If we are using UTF8 charset, Discoverer 4i, SSO or Portal 3i or for UTF8 please yo must refer to “Installing Oracle Applications 11i” - Chapter 5,
   a. Setup UTF8 Character set
   b. For Discoverer 4i check the note: 139516.1 (Discoverer 4i with Oracle Applications 11i)

12) Update printer settings

We must set up the new printers if the target system utilizes different printers.
If we have reports at PostScript, we must configure the following file:
$ORACLE_HOME/guicommon6/tk60/admin/uiprint.txt

We must add the printers, for example:

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myprinter:PostScript:2: comment :default.ppd:
where "myprinter" is the name of the printer operating system level to be used to print reports. Also, "default.ppd" can be replaced with the ppd file that contained the printer's requirements. However, if the environment is UTF8 and you must generate PostScript reports, it should remain as "default.ppd".

13) Update Workflow configurations settings

Review the following tables and columns to verify there is no instance-specific data in the Workflow configuration at Target System. We must change manually to the correct value:

Table Name	Column Name	Column Value Data
WF_NOTIFICATION_ATTRIBUTES	TEXT_VALUE	Value starts with http://<old web host> : Update to the new web host.
WF_ITEM_ATTRIBUTE_VALUES	TEXT_VALUE	Value starts with http://<old web host> : Update to the new web host.
WF_SYSTEMS	GUID	Create a new System defined as the new global database name using the Workflow Admin Web Applications responsibility.
WF_SYSTEMS	NAME	Replace it with db global name.
WF_AGENTS	ADDRESS	Update new DB link.
FND_FORM_FUNCTIONS	WEB_HOST_NAME	Update it to the new web hostname.
FND_FORM_FUNCTIONS	WEB_AGENT_NAME	Update it to the new plsql listener name.
FND_CONCURRENT_REQUESTS	LOGFILE_NAME	Update the correct logfile directory path.
FND_CONCURRENT_REQUESTS	OUTFILE_NAME	Update with the new directory path.

We can execute the following scripts for update the tables showed above:

sh $COMMON_TOP/admin/install/$CONTEXT_NAME/txkWfClone.sh

sqlplus apps/xxx

update wf_notification_attributes
set text_value =
REGEXP_REPLACE(text_value,'<old_web_host_name>','<new_web_host_name>')
where text_value like '%<old_web_host_name_domain>%';

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update wf_item_attribute_values
set text_value =
REGEXP_REPLACE(text_value,'<old_web_host_name>','<new_web_host_name>')
where text_value like '%<old_web_host_name_domain>%';

update wf_systems
set name = (select global_name from global_name);

update fnd_form_functions
set web_host_name = '<new_web_host_name_domain>', web_agent_name=(select name from v$database);

commit;

14) Review CLASSPATH setting

Execute the following steps:
$ADJVAPRG –version, if the value given is less than 1.3.1 we must update the variable s_adovar_classpath in the $CONTEXT_FILE and replace appsborg.zip by appsborg2.zip.
$AFJVAPRG –version, if the value given is less than 1.3.1 we must update the variable s_adovar_classpath in the $CONTEXT_FILE and replace appsborg.zip by appsborg2.zip.

15) Oracle Reports 6i NLS Setup

This point is documented in the MOS note: 189708.1 (Oracle Reports 6i Setup Guide for Oracle Applications 11i).
In my scenario all the reports that I had as output a type report PDF failed with the message: emsg: was terminated by signal 4.
The note mentioned says that only PDF outputs are supported by only Latin-1 character sets such as US7ASCII, WE8ISO8859P1 or WE8MSWIN1252. Any other single-byte, multi-byte or Unicode character set such as UTF8 or WE8ISO8859P15 is not supported.

In my case I had the character set: WE8ISO8859P1
We can obtain this information with this query:
SQL> select value from nls_database_parameters where parameter ='NLS_CHARACTERSET';

Then we must change the value of environmental variable XENVIRONMENT.
Then it shows up:
$ORACLE_HOME/guicommon6/tk60/admin/Tk2Motif_UTF8.rgb
And it must be changed in the operation system level of the user's profile (before of startup services of Application Tier) by the value:
$ORACLE_HOME/guicommon6/tk60/admin/Tk2Motif.rgb
(In my case, I am not using UTF8 as Character Set).

After that we must replace the line in the file
$ORACLE_HOME/guicommon6/tk60/admin/Tk2Motif.rgb:
Tk2Motif*fontMapCs: iso8859-1=UTF8.
By:
Tk2Motif*fontMapCs: iso8859-1=WE8ISO8859P1 (the change is because I have this Character Set).

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16) Setup the XServer

We must be sure that the display had been configured in the $CONTEXT_FILE to set it up in the Operation System. We can execute the following command in the AIX:
cat $CONTEXT_FILE | grep display
Note: The display value should have this format: IP or HOSTNAME : #

If we are using AIX Version 5 and higher, we must execute the following commands with the user root:

Place the following two lines in the /etc/inittab

xvfb:2:respawn:/usr/bin/X11/X -force -vfb -x abx -x dbe -x GLX :#
startX:2:respawn:/etc/rc.startX > /dev/console 2>&1

Then we must create a file named /etc/rc.startX that had the following lines.
#!/bin/ksh
#start the Xserver running on display :2
/usr/bin/X11/mwm -display :2 -multiscreen

Then run a chmod as follows.
chmod +x /etc/rc.startX

These steps are documented in the following url:
https://www-304.ibm.com/support/docview.wss?uid=isg3T1000514

Where the symbol # represents the written value in the $CONTEXT_FILE to the field display.

17) Recreate the appsutil in the Database Tier

Execute the step 2.b.20 of this document.
After that , when you are in the tier database execute the following script connected with the APPS user:
SQL> execute fnd_conc_clone.setup_clean;
Then, run the autoconfig command in the database and then in application tier in this order.

18) Create ConText and Spatial objects

Certain ConText and Spatial objects are not preserved by the import process.
The consolidated export/import utility patch 4872830 that you applied to the source administration server node contains a perl script, dpost_imp.pl, that you can run to generate an AutoPatch driver file. It must be executed in the source environment.
You use this driver file to call the scripts that create these objects.
Run the following command in the target environment:
$ perl $AU_TOP/patch/115/driver/dpost_imp.pl <driver_file>
Then we must use the command adpatch to be applying this patch.

19) Maintain Applications database objects

Run AD Administration since target administration server node. From the Maintain Applications Database Objects menu, perform the following tasks:

a) Re-create grants and synonyms for APPS schema
b) Compile APPS schema

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c) Compile menu information
d) Compile flexfields

If you use Multiple Reporting Currencies:
Maintain Multiple Reporting Currencies schema
Enter Yes for the following options:
a) Update MRC schema itself
b) Compile invalid objects after updating MRC schema objects
c) Recreate MRC triggers in the APPS schema

20) Start all services

Start all services running the following script
$COMMON_TOP/admin/<CONTEXT_NAME>/adstrtal.sh apps/xxx

21) Create DQM indexes

Create DQM indexes following these steps:
a) Log on to Oracle Applications with the "Trading Community Manager" responsibility.
b) Click Control > Request > Run
c) Select "Single Request" option
d) Enter "DQM Staging Program" name
e) Enter the following parameters:
   e.1) Number of Parallel Staging Workers: 4
   e.2) Staging Command: CREATE_INDEXES
   e.3) Continue Previous Execution: NO
   e.4) Index Creation: SERIAL
f) Click "Submit"

If the concurrent request fails we can replace the option CREATE_INDEX by CREATE_MISSING_INVALID_INDEXES.

22) Validate the Services of Workflow

We must validate the services of Workflow as: Notification Mailer, Agent Listeners, Service Components, Background Enginees and Control Queue Cleanup, if they are started.

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IV. Migration of Discoverer 10g

A technical reference of this part is the MOS note: 313418.1 (Using Discoverer 10.1.2 with Oracle E-Business Suite 11i).

1) **Install the Oracle Application Server 10g on the target server**, it is available in the url: http://www.oracle.com/technetwork/indexes/downloads/index.html
   Install the software in the following order:
   - Business Intelligence SE (Business Intelligence).
   - Install the patchset 8746296 (10.2.0.3 Patchset for Oracle Application Server).
   - Install the patch 10031947 (CPUOCT2010 TRACKING BUG FOR APPLICATION SERVER 10.1.2.3 UNIX).

One consideration when we run the runInstaller for the version 10.2.0.1, we must run the runInstaller with the following option: ./runInstaller –ignoreSysPrereqs

2) Copy file dbc.
Copy the file $FND_TOP/secure/<CONTEXT_NAME>/<TWO_TASK>.dbc since the source environment to the following folder: $ORACLE_HOME_DISCOVERER/discoverer/secure on the target environment.

3) Update the tnsnames.ora in target environment.
Update the tnsnames.ora in the folder $ORACLE_HOME_DISCOVERER/network/admin, adding an entry of migrated database connection.

4) Migrating the discoverer preferences from the source to target environment.
These preferences are settings that define the Discoverer environment and control the behavior of Discoverer Plus and Discoverer Viewer.
   a) Copy the file $ORACLE_HOME_DISCOVERER/discoverer/.reg_key.dc from source to target in the same directory but with other file names. For example: .reg_key_aix.dc.
   b) Execute the following command:
      cd $ORACLE_HOME_DISCOVERER/discoverer/util
      perl convertreg.pl $ORACLE_HOME_DISCOVERER/discoverer/reg_key_aix.dc $ORACLE_HOME_DISCOVERER/discoverer/.reg_key.dc

5) Startup services of discoverer
opmnctl startall
Note: It is recommendable that the environmental variable PATH includes the folders: $ORACLE_HOME/bin and $ORACLE_HOME/opmn/bin.

6) **Connect Page in OracleBI Discoverer**
Got to http://<IP>:7777/discoverer/plus
Connect to Oracle Applications in the connect directly section.

We can have some issues of delay on this page.
This can be presented in some internet's navigators as Internet Explorer 8.
The cause of the delay is when the user had navigated in the web page using the IP of server instead of the full qualified name of the Discoverer server. Often it is when the user use the IP directly since the principal portal: http://<IP>:7777/

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To resolve this problem, I changed the file:
$ORACLE_HOME/Apache/Apache/htdocs/index.html
And replace the tags of HTML as <a href="/discoverer/plus"> to
<a href="<servername.domain>/discoverer/plus">

Completing migration

I recommend in first place, that you do all these steps for the first time in a test environment, due to the fact that there can exist new bugs or new steps that didn't include the official page of Oracle and in this paper. It is also very important that in the migration we have available a developer and functional team to fix some wrong customization that have problems in the new environment and also the new environment can be tested functionally with the business process.
Also is important to consider other folders and files that aren't part of e-Business Suite and Oracle Discoverer but they are necessary for the solution. For example in my solution, a lot of reports read a folder named signatures that is a folder with a set of signature images that are read to build each business report.

Additional References

Oracle 11i E-Business Suite - Cross Platform Migration to AIX
http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101174

About the author

Francisco Riccio Chávez is a Senior IT Specialist recognized at Oracle ACE since 2010, his current Oracle Certification levels are: OCP 11i Applications Database Administrator, OCP Oracle Database 10g/11g, OCA OAS 10g, OCA Oracle PLSQL Developer, Oracle Database RAC 10gR2, Managing Oracle Database 10g on Linux, Oracle Database SQL Expert and Oracle Database 11g Essentials for Implementers.
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