Oracle Banking Trade Finance

Approot Object Conversion Utility

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Application Root Object Conversion

1.1 Introduction

This document explains the process involved in object conversion in Approot.

1.2 Pre-requisites

This topic provides systematic instructions for pre-requisites.

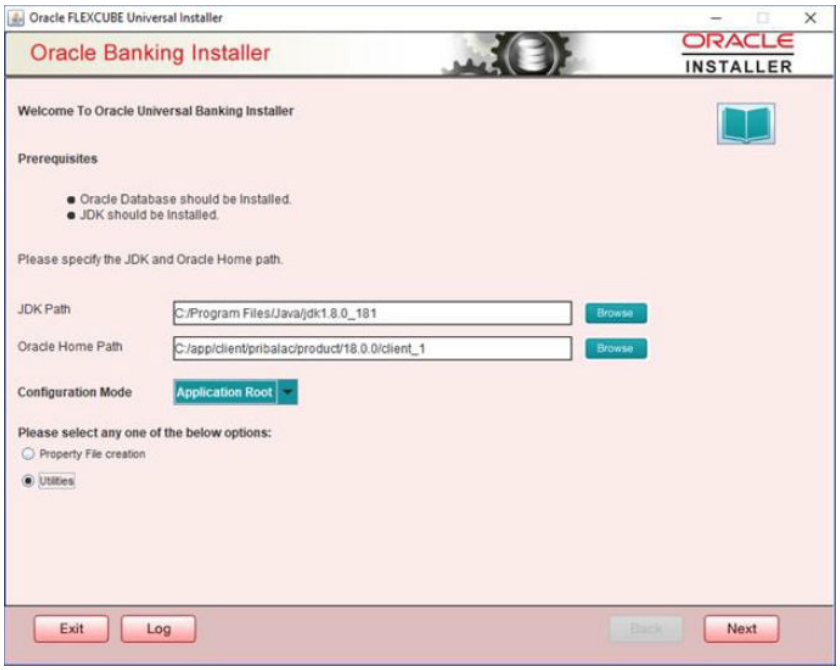
The below steps has to be completed in a sequential order before using this utility.

1. CDB is created with 18c database and ‘Application Template PDB’ is created under this CDB and the OBTFobjects are loaded.
2. Application root creation followed by application seed creation.
3. Application installation version 1.0 has to be done in approot with user being made explicit.Application_Installation.sql

1.3 Application Root - PDB Model Configuration

To build the application for setup using the installer, follow the steps given below.

1. Double-click ‘`FCUBSInstaller.bat`’ batch file to launch Oracle Banking Trade Finance Installer. The following screen is displayed. Select **Utilities** option, configuration mode as “**Application Root**” and click ‘**Next**’ button.



2. Select '**Approot object Conversion**" in Utility Screen and click **Next** as shown below:

3. In the Approot object conversion screen, enter application name and Approot Schema details.

   Options of conversion include:

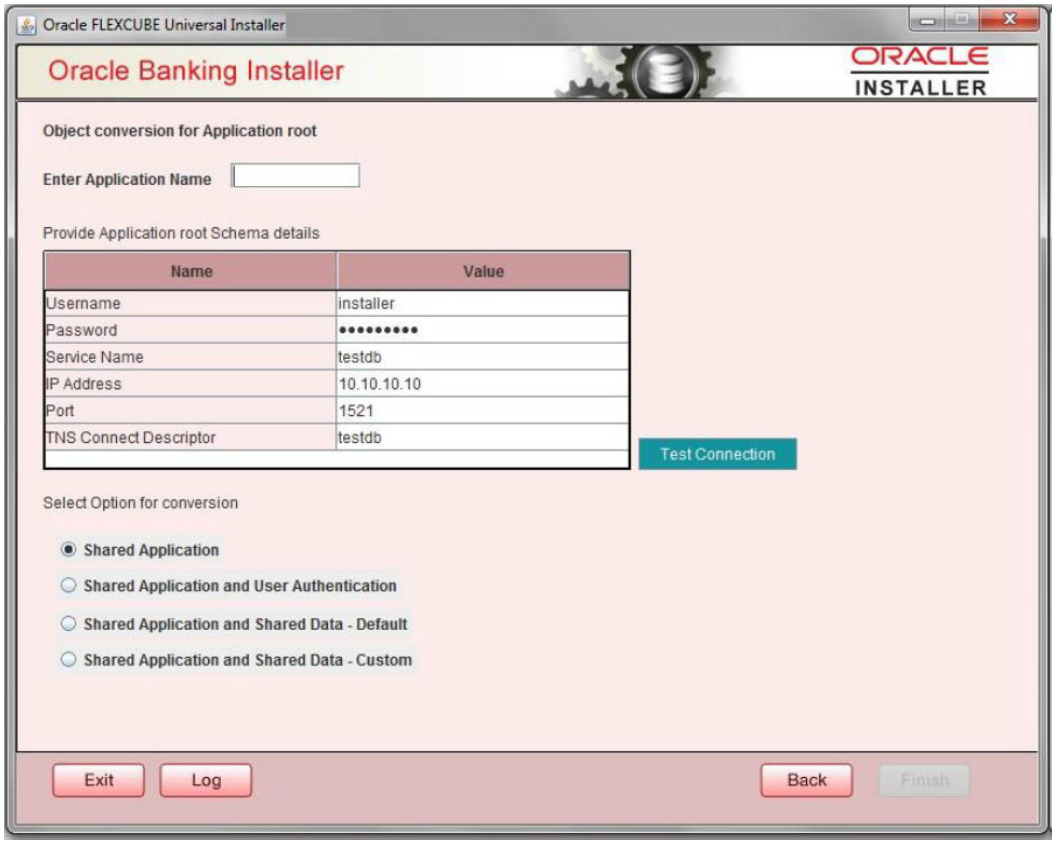
   - **Shared Application**
   - **Shared Application and User Authentication**
   - **Shared Application and Shared Data – Default**

- **Shared Application and Shared Data – Custom**

Shared Application

1. When '**Shared Application**' is selected, there will not be any common data and only application is shared.
2. After selecting the radio button, user will have to input the Application name and the Application root schema details where the conversion has to be applied and click on '**Test Connection**'.
3. When Application name is not inputted, error will be displayed to input the same. User has to make sure that application name is the one mentioned in pre-requisites with installation done for version 1.0.
4. Once the Connection is successful, '**Finish**' button will be enabled and the object conversion will be completed at this step.
5. Execution will take few minutes and post completion, a dialog box displays '**Compilation Success**' message in the front end.

   Application_Installation.sql

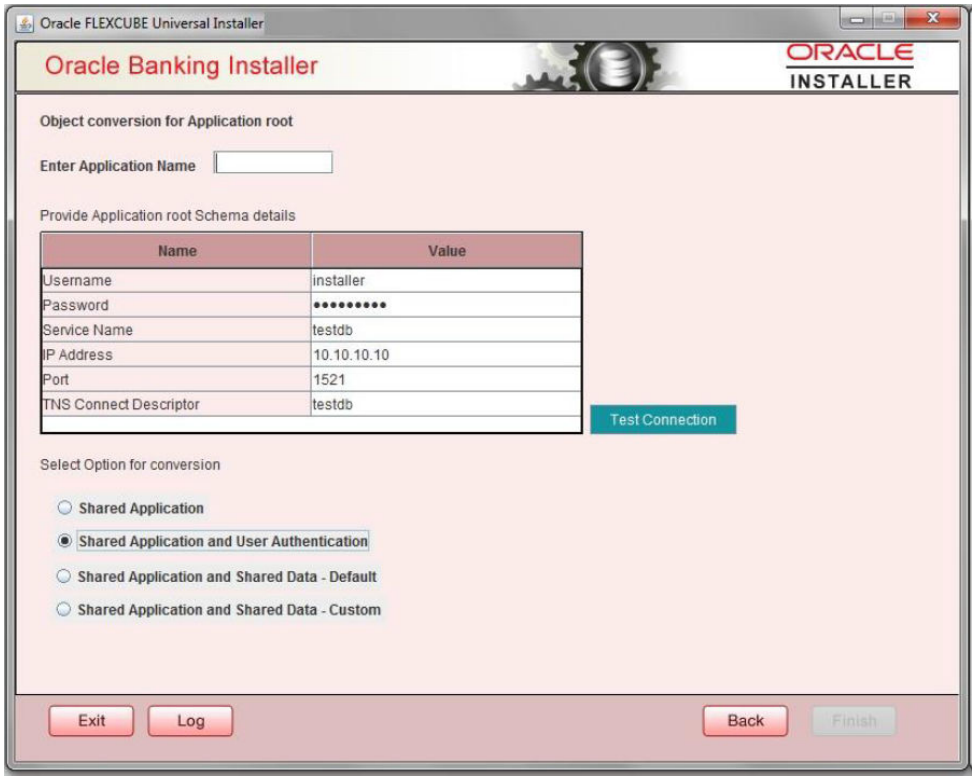


   Application_PDB_Creation.sql

Shared Application and User Authentication

1. When '**Shared Application and User authentication**' is selected, only user authentication related data will be shared along with a shared application,

2. After selecting the radio button, user will have to input the Application name and Application root schema details where the conversion has to be applied and click on '**Test Connection**'.
3. When Application name is not inputted, error will be displayed to input the same. User has to make sure that application name is the one mentioned in pre-requisites with installation done for version 1.0.
4. Once the Connection is successful, '**Finish**' button will be enabled and the object conversion will be completed at this step.
5. Execution will take few minutes and post completion, a dialog box displays '**Compilation Success**' message in the front end.

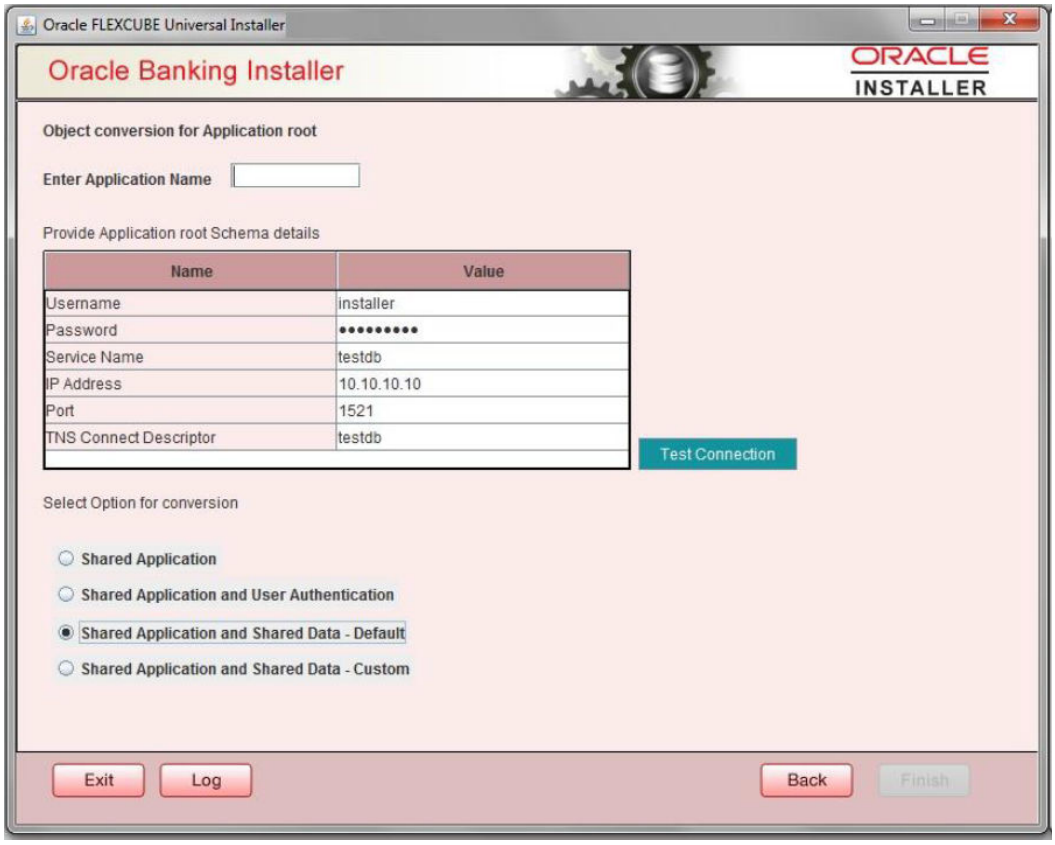


Application_Template_PDB_Creation.sql

Shared Application & Shared Data - Default

1. When Shared Application & Shared Data - Default is selected, all the function groups listed will be installed in the application root.
2. After selecting the Radio button, user will have to input the Application name and Application root schema details where the conversion has to applied and click on '**Test Connection**'.
3. When Application name is not inputted, error will be displayed to input the same. User has to make sure that application name is the one mentioned in pre-requisites with installation done for version 1.0.
4. Once the Connection is successful, '**Finish**' button will be enabled and the object conversion will be completed at this step.

5. Execution will take few minutes and post completion, a dialog box displays '**Compilation Success**' message in the front end.



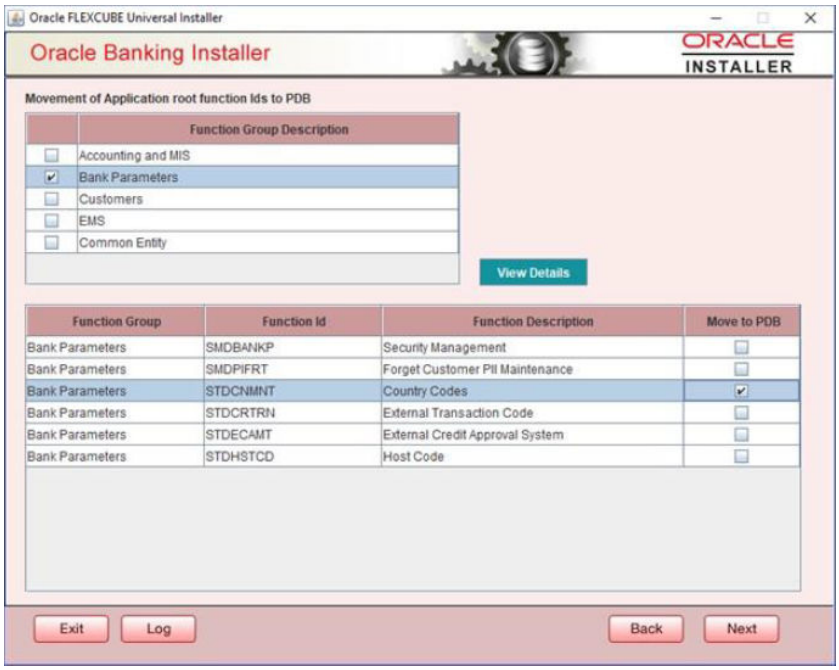
Shared Application & Shared Data - Custom

1. When Shared Application & Shared Data – Custom is selected, all the function groups listed will be installed in the application root.
2. After selecting the Radio button, user will have to input the Application name and Application root schema details where the conversion has to applied and click on 'Test Connection'.
3. When Application name is not inputted, error will be displayed to input the same. User has to make sure that application name is the one mentioned in pre-requisites with installation done for version 1.0.
4. Once the Connection is successful, 'Next' button will be enabled to take through the steps of movement of function ids to pdbs.
5. After selecting the Radio button, user will have to input the Application name and Application root schema details where the conversion has to applied and click on 'Test Connection'.
6. Once the Connection is successful, 'Finish' button will be enabled to continue with the next steps of object conversion.

   Approot_AppSeed_sync.sql

Approot_PDB_Sync.sql

7. In the Next Screen, user can opt-out the entities which are not required to be the candidates of approot and those function ids will be moved to PDB.
8. There will be two multiblocks available.
   a. First multiblock will list the details of function groups which are the Approot candidates.
   b. Second multiblock will list the function ids corresponding to each of the function group in the first block.
9. Second multiblock will have the check box '**Move to PDB**' against each function ID.



10. User can select more than one function group and the respective function ids will also be appended to the second multiblock against the function group on click of '**View Details**' button.
11. Once the selection is completed, '**Next**' button has to clicked to move to the next screen where the complete list of function ids.
12. The dependent function ids of the selected functions opted to move to PDB will be listed in the below section.

    fn_error_handler.sql

13. Object conversion can be completed by clicking on the **Finish** button.
14. Execution will take few minutes and post completion, a dialog box displays '**Compilation Success**' message in the front end.

Application Installation

Purpose

It is used for application installation.

Syntax

```
SET VERIFY ON
SET HEAD ON
SET FEEDBACK 1
SET ARRAY 1
SET LINESIZE 10000
SET PAGESIZE 50000
SET LONG 10000
SET ECHO ON
SET TRIMSPOOL ON
SET COLSEP ';'
SET SERVEROUT OFF
clear screen
SPOOL ON
SET SQLBLANKLINES ON
SET SERVEROUTPUT ON
SET ERRORLOGGING ON
SET ECHO ON
prompt Welcome to Application PDB Configuration
SPOOL "&SPOOL_PATH"
/* Inputs are recieved */
/* Connect CDB as sys user */
accept P_CDB_USER Prompt 'Enter CDB Schema Username: '
accept P_CDB_PWD Prompt  'Enter CDB Schema Password: '
accept P_CDB_HOST Prompt 'Enter CDB Schema Host: '
accept P_CDB_PORT Prompt 'Enter CDB Schema Port: '
accept P_APPROOT_NAME Prompt 'Enter Application Root Name: '
accept P_APPLICATION_NAME Prompt   'Enter application name to be installed: '
accept P_COMMON_USER Prompt 'Enter Common User Name: '

/* Connecting to Application Root As SYSDBA*/
conn &P_CDB_USER/
&P_CDB_PWD@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=&P_CDB_HOST)(PORT=&P_CDB_PORT)))(CONNECT_DATA=(SERVER=DEDICATED)
(SERVICE_NAME=&P_APPROOT_NAME))) as sysdba;

alter pluggable database application &P_APPLICATION_NAME begin install '1.0';
    exec dbms_pdb.set_user_explicit('&P_COMMON_USER');
alter pluggable database application &P_APPLICATION_NAME end install;

SET ERRORLOGGING OFF
SPOOL OFF
```

Application_PDB_Creation

Purpose

It isused in the application PDB creation.

Syntax

/* Pre-requisites: Step 2 on application root and application seed has to be completed.*/

SET VERIFY ON SET HEAD ON SET FEEDBACK 1 SET ARRAY 1 SET LINESIZE 10000 SET PAGESIZE 50000 SET LONG 10000 SET ECHO ON SET TRIMSPOOL ON SET COLSEP ';' SET SERVEROUT OFF clear screen SPOOL ON SET SQLBLANKLINES ON SET SERVEROUTPUT ON SET ERRORLOGGING ON SET ECHO ON prompt Welcome to Application PDB Configuration SPOOL "&SPOOL_PATH" /* Inputs are recieved */ /* Connect Approot as sys user */ accept P_CDB_USER Prompt 'Enter CDB Username: ' accept P_CDB_PWD Prompt 'Enter CDB Password: ' accept P_CDB_HOST Prompt 'Enter CDB Host: ' accept P_CDB_PORT Prompt 'Enter CDB Port: ' accept P_CDB_NAME Prompt 'Enter CDB Schema Name: ' accept P_DB_MOUNTED_PATH Prompt 'Enter Approot mounted path for approot application seed creation: [Eg: /scratch/db1800dat]' accept P_APPROOT_NAME Prompt 'Enter Application Root Name: ' accept P_APPPDB_NAME Prompt 'Please provide name for Application PDB Name -- Application Root associated PDB: ' /* Connecting to Application Root As SYSDBA*/ conn &P_CDB_USER/ &P_CDB_PWD@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=&P_CDB_HOST)(PORT=&P_CDB_PORT))) (CONNECT_DATA=(SERVER=DEDICATED) (SERVICE_NAME=&P_APPROOT_NAME))) as sysdba; /* Creating Application Associated PDB*/ CREATE pluggable database &P_APPPDB_NAME FROM &P_APPROOT_NAME$SEED file_name_convert=('&P_DB_MOUNTED_PATH/ &P_CDB_NAME/SEED&P_APPROOT_NAME/','&P_DB_MOUNTED_PATH/ &P_APPROOT_NAME/&P_APPPDB_NAME/'); ALTER pluggable database &P_APPPDB_NAME OPEN; SET ERRORLOGGING OFF SPOOL OFF

Application_Template_PDB_Creation

Purpose

This script is used for application template PDB creation.

Syntax

```
(SET VERIFY ON
SET HEAD ON
SET FEEDBACK 1
SET ARRAY 1
SET LINESIZE 10000
SET PAGESIZE 50000
SET LONG 10000
SET ECHO ON
SET TRIMSPOOL ON
SET COLSEP ';'
SET SERVEROUT OFF
clear screen
SPOOL ON
SET SQLBLANKLINES ON
SET SERVEROUTPUT ON
SET ERRORLOGGING ON
SET ECHO ON
prompt Welcome to Application Template PDB Configuration
SPOOL "&SPOOL_PATH"
/* CDB sys user name and password to be given */
accept P_CDB_USER Prompt 'Enter CDB Schema Username: [Eg: sys]'
accept P_CDB_PWD Prompt 'Enter CDB Schema Password: [Eg: PASSWORD]'
accept P_CDB_HOST Prompt 'Enter CDB Schema Host: [Eg: fcubs.in.oracle.com]'
accept P_CDB_PORT Prompt 'Enter CDB Schema Port: [Eg: 1521]'
accept P_CDB_NAME Prompt 'Enter CDB Service Name: [Eg: FCUBSCDB]'
accept P_DB_MOUNTED_PATH Prompt 'Enter CDB mounted path: [Eg: /scratch/
db1800dat]'

accept P_APP_TEMPLATE_PDB Prompt 'Enter Name for Application Template PDB to
be created: [Eg: pdbfcubs]'
accept P_COMMON_USER Prompt 'Enter Common Username to be created: [Eg:
fcubs]'
accept P_COMMON_USER_PWD Prompt 'Enter Pwd for Common User : [Eg: fcubs]'
accept P_COMMON_TSPACE Prompt 'Enter TableSpace Name :[Eg: fcubs]'

/* Connecting to CDB as sysdba */
CONN &P_CDB_USER/&P_CDB_PWD@&P_CDB_NAME AS sysdba;

create pluggable database &P_APP_TEMPLATE_PDB ADMIN USER sourceadmin
IDENTIFIED BY sourceadmin
file_name_convert=('pdbseed','&P_APP_TEMPLATE_PDB');

alter pluggable database &P_APP_TEMPLATE_PDB open;
alter pluggable database &P_APP_TEMPLATE_PDB save state;
```

```
/*connecting to template pdb as sysdba */
conn &P_CDB_USER/
&P_CDB_PWD@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=&P_CDB_HOST)(PORT=&P_CDB_PORT)))(CONNECT_DATA=(SERVER=DEDICATED)
(SERVICE_NAME=&P_APP_TEMPLATE_PDB))) as sysdba;
create tablespace &P_COMMON_USER datafile '&P_DB_MOUNTED_PATH/
&P_CDB_NAME/&P_APP_TEMPLATE_PDB/&P_COMMON_TSPACE..dbf' size 100M
autoextend on next 10M maxsize 30000M;

CREATE USER &P_COMMON_USER IDENTIFIED BY &P_COMMON_USER_PWD default
tablespace &P_COMMON_USER quota unlimited on &P_COMMON_USER;

grant execute on dbms_sql to &P_COMMON_USER;
grant execute on dbms_lock to &P_COMMON_USER;
grant execute on dbms_job to &P_COMMON_USER;
grant execute on dbms_alert to &P_COMMON_USER;
grant execute on dbms_refresh to &P_COMMON_USER;
grant execute on dbms_pipe to &P_COMMON_USER;
grant execute on dbms_shared_pool to &P_COMMON_USER;
grant execute on dbms_application_info to &P_COMMON_USER;
grant execute on utl_file to &P_COMMON_USER;
grant select on v_$process to &P_COMMON_USER;
grant select on v_$session to &P_COMMON_USER;
grant select on v_$instance to &P_COMMON_USER;
grant select on v_$timer to &P_COMMON_USER;
grant select on v_$database to &P_COMMON_USER;
grant select on v_$parameter to &P_COMMON_USER;
grant select on v_$nls_parameters to &P_COMMON_USER;
grant select on dba_jobs_running to &P_COMMON_USER;
grant create session to &P_COMMON_USER;
grant create synonym to &P_COMMON_USER;
grant create view to &P_COMMON_USER;
grant create sequence to &P_COMMON_USER;
grant create table to &P_COMMON_USER;
grant create procedure to &P_COMMON_USER;
grant create trigger to &P_COMMON_USER;
grant create type to &P_COMMON_USER;
grant create library to  &P_COMMON_USER;
grant create database link to  &P_COMMON_USER;
grant create any synonym to  &P_COMMON_USER;
grant select on dba_jobs to &P_COMMON_USER;
grant create database link to &P_COMMON_USER;
grant create materialized view to &P_COMMON_USER;
grant execute on dbms_aq to &P_COMMON_USER;
grant execute on dbms_aqadm to &P_COMMON_USER;
grant execute on dbms_job to  &P_COMMON_USER;
grant execute on dbms_lock to  &P_COMMON_USER;
grant execute on dbms_pipe to  &P_COMMON_USER;
grant execute on dbms_refresh to  &P_COMMON_USER;
grant execute on dbms_rls to  &P_COMMON_USER;
create public synonym dbms_shared_pool for sys.dbms_shared_pool;
grant execute on dbms_shared_pool to  &P_COMMON_USER;
grant execute on dbms_sql to  &P_COMMON_USER;
grant execute on utl_file to  &P_COMMON_USER;
grant select on SYS.TRANSPORT_SET_VIOLATIONS to  &P_COMMON_USER;
```

```
grant create evaluation context to  &P_COMMON_USER;
grant create rule to  &P_COMMON_USER;
grant create job to  &P_COMMON_USER;
grant create rule set to  &P_COMMON_USER;
grant exp_full_database to  &P_COMMON_USER;
grant alter tablespace to  &P_COMMON_USER;
grant manage tablespace to  &P_COMMON_USER;
grant execute on DBMS_FILE_TRANSFER to  &P_COMMON_USER;
grant execute on SYS.DBMS_TTS to  &P_COMMON_USER;
grant execute on SYS.DBMS_DATAPUMP to  &P_COMMON_USER;
grant JAVAUSERPRIV to &P_COMMON_USER;
grant execute on dbms_scheduler to  &P_COMMON_USER;
create public synonym UTL_RECOMP for sys.UTL_RECOMP;
grant execute on UTL_RECOMP to &P_COMMON_USER;
grant execute on DBMS_MONITOR to &P_COMMON_USER;
grant select on dba_directories to &P_COMMON_USER;
grant execute on DBMS_CRYPTO to &P_COMMON_USER;
grant select on gv_$session to &P_COMMON_USER;
grant create any directory to &P_COMMON_USER;
grant select on SYS.DBA_SCHEDULER_RUNNING_JOBS to &P_COMMON_USER;
grant execute on sys.dbms_redact to &P_COMMON_USER;
grant SELECT on sys.redaction_policies to &P_COMMON_USER;
grant SELECT on sys.redaction_columns to &P_COMMON_USER;
grant SELECT on sys.redaction_values_for_type_full to &P_COMMON_USER;
grant create session,connect,resource to &P_COMMON_USER;
grant SELECT ON dba_applications to &P_COMMON_USER;
grant SELECT ON dba_app_versions to &P_COMMON_USER;
grant dba to &P_COMMON_USER;

SET ECHO OFF
clear screen
spool off
```

Approot_AppSeed_Sync.sql

Purpose

Application Root - PDB Model Configuration

Syntax

```
SET VERIFY ON
SET HEAD ON
SET FEEDBACK 1
SET ARRAY 1
SET LINESIZE 10000
SET PAGESIZE 50000
SET LONG 10000
SET ECHO ON
SET TRIMSPOOL ON
SET COLSEP ';'
SET SERVEROUT OFF
clear screen
SPOOL ON
SET SQLBLANKLINES ON
SET SERVEROUTPUT ON
SET ERRORLOGGING ON
SET ECHO ON
prompt Welcome to Application PDB Configuration
SPOOL "&SPOOL_PATH"
/* Inputs are received */
accept P_APPROOT_USER Prompt 'Enter Approot Schema Username: '
accept P_APPROOT_PWD Prompt  'Enter Approot Schema Password: '
accept P_APPROOT_HOST Prompt 'Enter Approot Schema Host: '
accept P_APPROOT_PORT Prompt 'Enter Approot Schema Port: '
accept P_APPROOT_NAME Prompt 'Enter Application Root Name: '

accept P_APPLICATION_NAME Prompt   'Enter application name to be
upgraded for object conversion: '

/*Connecting to Application seed*/
conn &P_APPROOT_USER/
&P_APPROOT_PWD@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=&P_APPROOT_HOST)(PORT=&P_APPROOT_PORT)))
(CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=&P_APPROOT_NAME$SEED)));

/*Synching object conversion to application seed */
alter pluggable database application &P_APPLICATION_NAME sync;

SET ERRORLOGGING OFF
SPOOL OFF
```

Approot_PDB_Sync

Purpose

Check the approot PDB Sync.

Syntax

```
SET VERIFY ON
SET HEAD ON
SET FEEDBACK 1
SET ARRAY 1
SET LINESIZE 10000
SET PAGESIZE 50000
SET LONG 10000
SET ECHO ON
SET TRIMSPOOL ON
SET COLSEP ';'
SET SERVEROUT OFF
clear screen
SPOOL ON
SET SQLBLANKLINES ON
SET SERVEROUTPUT ON
SET ERRORLOGGING ON
SET ECHO ON
prompt Welcome to Application PDB Sync
SPOOL "&SPOOL_PATH"
/* Inputs are received */
accept P_PDB_USER Prompt 'Enter PDB Schema Username: '
accept P_PDB_PWD Prompt 'Enter PDB Schema Password: '
accept P_PDB_HOST Prompt 'Enter PDB Schema Host: '
accept P_PDB_PORT Prompt 'Enter PDB Schema Port: '

accept P_PDB_NAME Prompt 'Enter the PDB name to be synched: '
accept P_APPLICATION_NAME Prompt 'Enter the application name: '

/*Connecting to pdb */
conn &P_PDB_USER/
&P_PDB_PWD@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=&P_PDB_HOST)(PORT=&P_PDB_PORT)))(CONNECT_DATA=(SERVER=DEDICATED)
(SERVICE_NAME=&P_PDB_NAME)));

/*Synching the application with pdbs */
alter pluggable database application &P_APPLICATION_NAME sync;

SET ERRORLOGGING OFF
SPOOL OFF
```

fn_error_handler

Purpose

This script is used as error handler.

Syntax

```
create table log_error
(Err     VARCHAR2(2000)
,DT        DATE)
/

CREATE OR REPLACE NONEDITIONABLE FUNCTION fn_error_handler(octcode
IN NUMBER,
errcode   IN NUMBER,
statement IN VARCHAR2,
resync    IN NUMBER)
RETURN NUMBER AUTHID CURRENT_USER
 is
retcode NUMBER := DBMS_PDB_APP_CON.SYNC_ERROR_NOT_OK;
PROCEDURE prLog (pErr VARCHAR2)
IS
PRAGMA AUTONOMOUS_TRANSACTION;
BEGIN
INSERT INTO log_error
VALUES (pErr,SYSDATE);
COMMIT;
END prLog;
BEGIN
prLog('fn: '||errcode);
IF errcode IN
(24344,6512,65297,65272,65274,4045,1,2264,1430,1434,955,4063,942,4043,6
5215,2260,904,4023,6510,4097,6508,4088
,2261,44201,2437,22859,12006,1418,21700,980
,1720,1449,1036,2443,2441        --Added Newly on 08-Sep-2020
,22275,1024,12003,                --Added Newly on 24-Nov-2020
1439,6550                        --Added Newly on 24-Nov-2020 --
recheck 1439 some column datatype will have to be corrected
) THEN
retcode := DBMS_PDB_APP_CON.SYNC_ERROR_OK_ALWAYS;
END IF;
prLog('ret: '||retcode);
RETURN retcode;
END;
/
```

Glossary

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