Primavera Portfolio Management Oracle 11g and 12c Configuration Supplement
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Overview

The *Primavera Portfolio Management Oracle 11g, and 12c Configuration Supplement* describes how to use the Primavera Portfolio Management Oracle Database Configuration Utility to create the Oracle instance, schema, and TNS names entries.

The Oracle Database Configuration Utility serves as an easy method to perform the steps to configure a new or pre-existing installation of Oracle 11g or Oracle 12c to be used with Primavera Portfolio Management. The utility is located on the Primavera Portfolio Management installation media listed in the **Utilities** directory.

Configuring a New Oracle 11g or Oracle 12c Installation

To configure a new installation of Oracle manually for which there is no instance defined, complete the following steps:

1) ***Creating the Oracle Instance*** (on page 9)
2) ***Creating the TNS Names Entries to Connect to the Instance*** (on page 11)
3) ***Creating the Primavera Portfolio Management Schema*** (on page 13)
4) ***Setting Initialization Parameters*** (on page 15)

> **Note**: These configuration steps can also be performed using the Oracle Database Configuration Utility.

If you have any questions, contact Customer Support at http://support.oracle.com.

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Creating the Oracle Instance

The Oracle Instance creation step consists of executing a dbca utility which uses predefined template files to create the instance and perform some system configuration steps.

The `General_Purpose.DBC` template, used to create the Oracle instance, is pre-configured to use a character set specific to the locale of the operating system on which you install. The preferred character set for Primavera Portfolio Management databases is `WE8MSWIN1252`.

> **Note**: The `General_Purpose.DBC` template can also be pre-configured for a different character set. In that case , see Appendix B instructions to create a custom template.

1) For Oracle 11g or 12c, create new container database and pluggable database as follows:

```
<ORACLE_HOME>\bin\dbca -silent -createDatabase
-gdbname <ORACLE_SID> –sid % ORACLE_SID %
-templateName <TEMPLATE_NAME> -responseFile NO_VALUE -characterSet
WE8MSWIN1252 –
sysPassword <SYS_PASSWORD> -systemPassword <SYSTEM_PASSWORD>
-createAsContainerDatabase true -numberOfPDBs <No.of PDBs> -pdbName
<PDB_NAME>
-pdbAdminPassword <PDBAdmin_PASSWORD> -datafileDestination
<DESTINATION>
```

or

Create new Pluggable for an existing Container Database as follows:

```
<ORACLE_HOME>\bin\dbca -silent -createPluggableDatabase -sourceDB
<CDB_NAME>
-pdbName <PDB_NAME> -pdbAdminUserName <PDB_ADMIN_USER_NAME>
-pdbAdminPassword <<PDB_ADMIN_USER_PASSWORD> -createUserTableSpace
true
<ORACLE_HOME>\bin\dbca -silent -createPluggableDatabase -sourceDB
<CDB_NAME>
-pdbName <PDB_NAME> -pdbAdminUserName <PDB_ADMIN_USER_NAME>
-pdbAdminPassword <<PDB_ADMIN_USER_PASSWORD> -createUserTableSpace
true
```

where:

`<ORACLE_HOME>`: A path to Oracle Home. For example, "C:\oracle\product\12.1.0.2\db_1".

`<TEMPLATE_NAME>`: The `General_Purpose.DBC` or a custom template created according to Appendix B.

`<ORACLE_SID>`: The Primavera Portfolio Management Oracle Instance name which will be created. For example, ORCL.

`<CDB_NAME>`: The container database.

`<PDB_NAME>`: The pluggable database.

`<PDB_ADMIN_USER_NAME>`: The administration user name of the pluggable database.

<PDB_ADMIN_USER_PASSWORD>: The administration user's password for the pluggable database.

Note: All paths with spaces must be enclosed within double-quotes.

or

Create an Oracle 11g / 12c database using the non-interactive/silent mode Database Configuration Assistant (DBCA):

a. From the Command window, select **Start**, **Run**, enter cmd, <ENTER>):

b. Enter the following commands:

```
<ORACLE_HOME>\bin\dbca  -silent  -createDatabase
/-templateName  <TEMPLATE_NAME>
/ -gdbname   <ORACLE_SID>  -sid  % <ORACLE_SID>%
/ -continueOnNonFatalErrors  true
/ -datafileJarLocation   <ORACLE_HOME>\assistants\dbca\templates
```

where:

<ORACLE_HOME>: A path to Oracle Home. For example, "C:\oracle\product\11.2.0.0\db_1".

<TEMPLATE_NAME>: The General_Purpose.DBC or a custom template created according to Appendix B.

<ORACLE_SID>: The Primavera Portfolio Management Oracle Instance name which will be created. For example, ORCL.

2) From a SQLPlus window, change the default sys password “change_on_install” to “oracle” as follows:

```
“sys/change_on_install as sysdba” <ENTER>
alter user sys identified by oracle;
```

The datafiles are placed in the default location %ORACLE_BASE%\oradata\%<ORACLE_SID>%

Creating the TNS Names Entries to Connect to the Instance

To add TNS and LISTENER entries you will need to use the netca utility. The `<ORACLE_HOME\network\admin\netca.rsp` file needed for the netca utility is created by the Oracle Database Configuration Utility. It's content, based on a server called `<HOSTNAME>` and `ORACLE_SID` called `<ORACLE_SID>` looks like the following:

```
[oracle.net.ca]
INSTALLED_COMPONENTS={"server","net8"}
INSTALL_TYPE=""custom""
LISTENER_NUMBER=1
LISTENER_NAMES={"LISTENER"}
LISTENER_PROTOCOLS={"TCP;1521"}
LISTENER_START=""LISTENER""
NAMING_METHODS={"TNSNAMES","EZCONNECT"}
NSN_NUMBER=1
NSN_NAMES={"PPM"}
NSN_SERVICE={"<ORACLE_SID>"}
NSN_PROTOCOLS={"TCP;<HOSTNAME>;1521"}
```

> **Note**: The `netca.rsp` file must exist before running the netca utility.

1) From the Command window, execute the following command:

   ```
   <ORACLE_HOME>\bin\netca /silent /responsefile
   <ORACLE_HOME>\network\admin\netca.rsp
   ```

2) A new entry is appended to the `<ORACLE_HOME>\network\admin\tnsnames.ora` file at the instance creation stage by means of the netca utility.

   This entry, based on a server called <HOSTNAME> and ORACLE_SID called <ORACLE_SID> appears as follows:

   ```
   PPM =
     (DESCRIPTION =
       (ADDRESS_LIST =
         (ADDRESS = (PROTOCOL = TCP)(HOST = <HOSTNAME>)(PORT = 1521))
       )
       (CONNECT_DATA =
         (SERVICE_NAME = <ORACLE_SID>)
       )
     )
   ```

   Where:

   `<HOSTNAME>:` The name of the host where the database is installed.

`<ORACLE_SID>`: A Primavera Portfolio Management Oracle Instance name which was created. For example, *ORCL*.

3) A new entry is appended to the <ORACLE_HOME>\network\admin\listener.ora file at the instance creation stage by means of netca utility.

   This entry, based on a server called <HOSTNAME> and ORACLE_HOME called <ORACLE_HOME> appears as follows:

```
SID_LIST_LISTENER =
  (SID_LIST =
    (SID_DESC =
      (SID_NAME = CLRExtProc)
      (ORACLE_HOME = <ORACLE_HOME>)
      (PROGRAM = extproc)
      (ENVS = "EXTPROC_DLLS=ONLY:<ORACLE_HOME>\bin\oraclr11.dll")

LISTENER =
  (DESCRIPTION_LIST =
    (DESCRIPTION =
      (ADDRESS = (PROTOCOL = TCP)(HOST = <HOSTNAME>)(PORT = 1521))
    )
  )
```

   Where:

   `<HOSTNAME>`: The name of the host where the database is installed.

   `<ORACLE_HOME>`: A path to Oracle Home. For example, `“C:\oracle\product\11.2.0\db_1”`.

4) Ensure the `AUTHENTICATION_SERVICES` entry is not commented in the `<ORACLE_HOME>\network\admin\sqlnet.ora` file.

```
SQLNET.AUTHENTICATION_SERVICES= (NTS)
```

Creating the Primavera Portfolio Management Schema

The tablespaces for the Primavera Portfolio Management schema are defined by the names of `<USERNAME>_USER` and `<USERNAME>_TEMP`. They are created on two data files: `<USERNAME>_USER.ora` and `<USERNAME>_TEMP.ora`

1) Use the following commands to create the user tablespaces as shown below based on chosen 512MB size for user tablespace:

```
SQL> CREATE TABLESPACE <USERNAME>_USER DATAFILE
'<DATA_PATH>\<USERNAME>_USER.ora' SIZE 512M REUSE AUTOEXTEND ON;

SQL> CREATE TEMPORARY TABLESPACE <USERNAME>_TEMP TEMPFILE
'<DATA_PATH>\<USERNAME>_TEMP.ora' SIZE 100M REUSE AUTOEXTEND ON MAXSIZE
5000M;
```

Where:

`<USERNAME>:` Oracle schema name used for Primavera Portfolio Management installation.

`<DATA_PATH>`: A path to the datafiles. For example, C:\oracle\product\11.2.0\oradata\ORCL or C:\app\oracle\oradata\cdb\pdb\<USER_NAME>_USER.ora.

- **Notes**:
- For very large databases and enough storage space, `TEMPORARY TABLESPACE MAXSIZE` can be changed from the mentioned 5000M.
- The datafiles location path can be changed during user creation.

2) Create a user as follows:

```
SQL> CREATE USER <USERNAME> IDENTIFIED BY <PASSWORD> DEFAULT TABLESPACE
<USERNAME>_USER TEMPORARY TABLESPACE <USERNAME>_TEMP QUOTA UNLIMITED ON
<USERNAME>_USER PROFILE DEFAULT ACCOUNT UNLOCK;

SQL> GRANT CONNECT, RESOURCE, CREATE VIEW, CREATE TABLE TO <USERNAME>;

SQL> GRANT READ, WRITE ON DIRECTORY DATA_PUMP_DIR TO <USERNAME>;

SQL> GRANT SELECT ON sys.V_$INSTANCE TO <USERNAME>;

SQL> GRANT EXECUTE ON sys.DBMS_LOCK TO <USERNAME>;
```

Where:

`<USERNAME>:` Oracle schema name used for Primavera Portfolio Management installation.

`<PASSWORD>:` Oracle user password

`<DATA_PATH>`: A path to the datafiles. For example, C:\oracle\product\11.2.0\oradata\ORCL or C:\app\oracle\oradata\cdb\pdb\<USER_NAME>_USER.ora.

3) Check for the new user as follows:

```
SQL> Select * from dba_users where username = '<USERNAME>';
```

Setting Initialization Parameters

Oracle initialization parameters are set at instance creation. During existing instance analysis, current initialization parameters are compared to a set of recommended values. The list of recommended initialization parameters exists in the XML file <PS_HOME>\misc\ocu\PS_INIT.XML where PS_HOME is the Primavera® Portfolio Management installation directory.

Parameter	Oracle 11g / 12c
fixed_date	' ' (empty string)
nls_date_format	'MM/DD/YYYY'
nls_sort	BINARY

The following are recommended, but optional:

Parameter	Oracle 11g / 12c
audit_trail	NONE
cursor_sharing	FORCE
db_block_checking	FALSE
db_cache_size	*parameter does not exist*
db_file_multiblock_read_count	8
disk_asynch_io	TRUE
fast_start_mttr_target	60
java_pool_size	52428800
license_max_sessions	0 or more than 100
open_cursors	more than or equals 30,000
Processes	more than or equals 400
session_cached_cursors	50
sessions	more than or equals 445
shared_pool_size	*parameter does not exist*
statistics_level	TYPICAL
timed_statistics	TRUE
Transactions	more than or equals 490
undo_management	AUTO
workarea_size_policy	AUTO
pga_aggregate_target	*parameter does not exist*

Parameter	Oracle 11g / 12c
sga_target	see calculated parameters below
sga_max_size	see calculated parameters below
cpu_count	see calculated parameters below
compatible	11.2.0.0 or 12.1.0.2

Calculated Parameters

Calculate following parameters:

- sga_target is max (512M, 0.7 x RAM)
- sga_max_size is max (512M, 0.7 x RAM)
- pga_aggregate_target is max (50M, 0.1 x RAM)
- cpu_count according to the number of processors

Oracle SP File

The Oracle Database Configuration Utility checks if the instance uses the `sp` file. In this case all initialization parameters are adjusted in the `sp` file using syntax:

```
alter system set <parametr> = <value> scope=spfile;
```

If the Oracle instance does *not* use the sp file, the Oracle Database Configuration Utility will update `init.ora` file. The search path for the `init.ora` file is as follows:

1) ORA_ORCL_PFILE registry value
2) <ORACLE_HOME>\database\init<SID>.ora
3) Redirection (IFILE=) from <ORACLE_HOME>\database\init<SID>.ora

In both cases the database restart the database after updating the initialization parameters.

User Analysis

When an existing user name is entered in the new user screen of the ODCU, the existing user schema is analyzed. The following parameters are checked for an existing user:

- User tablespace quota must be at least 50M
- User tablespace free space must be at least 50M
- Datafile AUTOEXTEND flag must be ON
- User must have read and write grant on DATA_PUMP_DIR directory
- Use must have “create table” and “create view” grants

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Creating a Database Template from an Existing Database for the DBCA Utility

A database template is valid for a specific Oracle version and Operating System (OS). When you install and configure a new database, it must be configured according to Primavera® Portfolio Management standards.

1) Create an init.ora using any of the following methods:
   - If the database uses pfile (`init.ora`), copy `init.ora` from `%ORACLE_BASE%\admin\<SID>\pfile` to `%ORACLE_HOME%\database\init<SID>.ora.`

     For example, copy `C:\oracle\product\11.2.0\admin\ORCL\pfile\init.ora` to `C:\oracle\product\11.2.0\db_1\database\initORCL.ora.`
   - If the database uses an spfile:

   a. Use the `create pfile from spfile` command to automatically create the pfile in the default directory, (ORACLE_HOME\database):

```
sqlplus “sys/<password> as sysdba”
create pfile from spfile;
shutdown immediate
```

   b. Rename the spfile.

      For example, `ren C:\oracle\product\110.2.0\db_1\database\SPFILEORCL.ORA C:\oracle\product\110.2.0\db_1\database\SPFILEORCL.ORA.BAK`

2) Start the database.

```
sqlplus "sys / <password> as sysdba"
startup
```

3) Resize undo tablespace to 1024M. For example:

```
sqlplus “sys/<password> as sysdba”
-- Find UNDO tablespace name
select tablespace_name from dba_tablespaces where tablespace_name like
'UNDO%';
-- Find UNDO tablespace datafile
select file_name, bytes from dba_data_files where tablespace_name =
'UNDOTBS1';
-- Resize the UNDO Tablespace datafile to 1G
```

```
alter database datafile 'C:\APP\QALAB\ORADATA\ORCL\UNDOTBS01.DBF'
resize 1024M;
```

4) Run the dbca utility to create a template of the database.

```
dbca -silent -createCloneTemplate -sourceDB <SID>  -sysDBAUserName sys
-sysDBAPassword <SYS_PASSWD> -templateName <VERSION>
-datafileJarLocation <LOCATION>
```

Where:

`<SID>:` Oracle SID of existing database installed in the previous step. For example, `ORCL`

`<SYS_PASSWD>`: A password of sys user. For example, `oracle.`

`<VERSION>`: A template name. For example, `11.210.2.`

`<LOCATION>`: A location where the compressed datafiles will be transferred. For example, `"C:\Program Files\Oracle\Primavera Portfolio Management\Portfolios\misc\ocu"`

5) Check for the errors in the log file, `<ORACLE_HOME>\cfgtoollogs\dbca\silentN.log`.

```
dbca -silent -createCloneTemplate -sourceDB ORCL -sysDBAUserName sys
-sysDBAPassword oracle  -templateName 11.2.0.4 -datafileJarLocation
"C:\Program Files\Oracle\Primavera Portfolio
Management\Portfolios\misc\ocu"
```

The following files will be created:

- A template file: `<ORACLE_HOME>\assistants\dbca\templates\11.2.0.4.DBC`
- A data file: `C:\Program Files\Oracle\Primavera Portfolio Management\Portfolios\misc\sql\PS11.2.DFB`
- A control file: `C:\Program Files\Oracle\Primavera Portfolio Management\Portfolios\misc\sql\PS11.2.CTL`

6) Test the created database templates.

7) Delete the existing instance as follows:

```
oradim –delete –sid <SID>
```

Where:

`<SID>`: Oracle SID of the existing database. For example, `ORCL`.

8) Create a new database using the previously created template as follows:

```
dbca -silent -createDatabase -templateName <VERSION> -gdbname <SID> -sid
<SID> -sysPassword <SYS_PASSWD> -systemPassword <SYSTEM PASSWD>
-continueOnNonFatalErrors true -datafileJarLocation <LOCATION>
```

Where:

`<VERSION>`: A template name. For example, `11.2.0.4.`

`<SID>`: Oracle SID of a new database. For example, `ORCL`.

`<LOCATION>`: A location of the compressed datafiles. For example, `"C:\Program Files\Oracle\Primavera Portfolio Management\Portfolios\misc\ocu".`

9) Check for the errors in the log file, `<ORACLE_HOME>\cfgtoollogs\dbca\<ORACLE_SID>\<ORACLE_SID>.log`

```
dbca -silent -createDatabase -templateName 11.2.0.4-gdbname ORCL
-sysPassword oracle -systemPassword manager -sid ORCL
-continueOnNonFatalErrors true -datafileJarLocation
“C:\Program Files\Oracle\Primavera Portfolio
Management\Portfolios\misc\ocu”
```

Appendix B

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Creating a Database Template from an Existing Template for the DBCA Utility

To create a database template from an existing template:

1) Run the DBCA utility as follows:
   `<ORACLE_HOME>\bin\dbca`
   where:
   `<ORACLE_HOME>`: A path ot Oracle Home. For example, `"C:\oracle\product\11.2.0\db_1"`.
2) On the **Welcome** screen, select **Next**.

   > **Note**: Select **Next** on each screen to advance to the next step in the sequence.

3) On the **Database Operations** screen, select **Manage Templates**.
4) On the **Template Management** screen, select the following options:
   - **Create a database template** and
   - **From an existing template**
5) On the **Database Templates** screen, select **General Purpose or Transaction Processing Template**.
6) On the **Template Properties** screen enter the following information:
   - **Name**: A name for the new template. For example, "*General_Purpose_My_Characterset*".
   - **Description**: A description of the new template.
   - **Data file Backup**: The folder location of the data file backup.
7) On the **Storage Locations** screen, select the following options:
   - **Use Database File Locations from Template**.
   - **Specify Flash Recovery Area**
   - **Flash Recovery Area** and retain the default Flash Recovery folder location.
   - **Flash Recovery Area Size**: Enter an MB value that is at least three times the area of the database size.
8) On the **Initialization Parameters** screen:
   - Select the **Character Sets** tab.
   - Select **Use the default** option to use the Database Character Set, *WE8MSWIN1252*.
9) On the **Summary** screen, review the information.

10) Select **Finish**.
11) On the **Confirmation** screen, review the summary.
12) Select **OK** to create the custom template.

    You can now use the custom template in the instance creation command instead of the template name "General_Purpose.DBC". For detailed instructions, see ***Creating the Oracle Instance*** (on page 9).

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Oracle Primavera Primavera Portfolio Management Oracle 11g and 12c Configuration Supplement

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