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PRIMAVERA

Primavera Portfolio Management 8.0
Oracle 10g Configuration Supplement

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This purpose of this document is to outline the process by which the Primavera® Portfolio Management Oracle Database Configuration Utility creates the Oracle Instance, Schema, and TNS Names entries.
If you have any questions about this information, please contact Customer Support via the customer support portal at http://support.oracle.com.

The Oracle Database Configuration Utility serves as an easy method to perform the steps to configure a new or pre-existing installation of Oracle 10g to be used with Primavera® Portfolio Management. The utility is located on the Primavera® Portfolio Management installation media listed under the directory 'Utilities'.

Configuration for a new installation of Oracle for which there is no instance defined consists of four steps.

1. Oracle Instance Creation.
2. TNS Names Entries for Connecting to the Instance.
3. Oracle Schema Creation.
4. Other Settings.

Each of these steps for configuration could be performed manually without the use of the Oracle Database Configuration Utility. In the case of difficulty running the utility or other corporate Oracle DBA concerns the steps are defined as follows.

1. Oracle Instance Creation.

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 in the instance creation command below 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. Under certain circumstances, the General_Purpose.DBC template will be pre-configured for a different character set. In this case we recommend creating a custom template according to the instructions in Appendix B.

The instance creation commands are listed below:

The following commands should be executed in command window (Start → Run → cmd <ENTER>):

```
<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\10.2.0\db_1”)
<TEMPLATE_NAME> – either `General_Purpose.DBC` or a custom template created according to the instructions in Appendix B.
<ORACLE_SID> – a Primavera® Portfolio Management Oracle Instance name which will be created (for example: ORCL)

Please, note that all paths with spaces should be written in double quotes.

The dbca utility changes default sys password “change_on_install” to “oracle” using the command below.

The following command should be executed in sqlplus window (Start → Run → sqlplus “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%

2. The TNS Names Entry definition.

The <ORACLE_HOME\network\admin\netca.rsp file needed for the netca utility is created by the Oracle Database Configuration Utility. Its content (based on a server called <HOSTNAME> and ORACLE_SID called <ORACLE_SID> looks like the following:

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

Where:

HOSTNAME – a name of the host where the database is installed
ORACLE_SID – a Primavera® Portfolio Management Oracle Instance name which will was created (for example: ORCL)
ORACLE_HOME – a path to Oracle Home (for example: “C:\oracle\product\10.2.0\db_1”)

Note that the netca.rsp file must exist before running the netca utility.

The TNS and LISTENER entries are added by means of netca utility.

The command and template files are listed below.

The following command should be executed in command window (Start → Run → cmd <ENTER>):

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

Where:

ORACLE_HOME – a path to Oracle Home (for example: “C:\oracle\product\10.2.0\db_1”)

New entry is appended to the <ORACLE_HOME>\network\admin\tnsnames.ora file at the instance creation stage by means of netca utility. This entry (based on a server called <HOSTNAME> and ORACLE_SID called <ORACLE_SID> looks like the following:

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

Where:

HOSTNAME – a name of the host where the database is installed
ORACLE_SID – a Primavera® Portfolio Management Oracle Instance name which will was created (for example: ORCL)
ORACLE_HOME – a path to Oracle Home (for example: “C:\oracle\product\10.2.0\db_1”)

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> looks like the following:

```
SID_LIST_LISTENER =
  (SID_LIST =
    (SID_DESC =
      (SID_NAME = PLSExtProc)
      (ORACLE_HOME = <ORACLE_HOME>)
      (PROGRAM = extproc)
    )
  )

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

Where:

HOSTNAME – a name of the host where the database is installed
ORACLE_HOME – a path to Oracle Home (for example: “C:\oracle\product\10.2.0\db_1”)

The AUTHENTICATION_SERVICES entry is commented in <ORACLE_HOME>\network\admin\sqlnet.ora file at the instance creation stage by means of Oracle Database Configuration Utility. This entry looks like the following:

```
# SQLNET.AUTHENTICATION_SERVICES= (NTS) # This parameter commented by Primavera®
Portfolio Management
```

3. Primavera® Portfolio Management Schema Creation.

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, named <USERNAME>_USER.ora and <USERNAME>_TEMP.ora, respectively.

The commands to create the user tablespaces are shown below (based on chosen 512MB size for user tablespace):

The following command should be executed in sqlplus window (Start → Run → sqlplus "sys as sysdba" <ENTER>). Please, note that a default sys password is oracle.

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

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\10.2.0\oradata\ORCL)
```

Note that TEMPORARY TABLESPACE MAXSIZE could be changed from the mentioned 5000M in cases of very large databases and enough storage space.
Note also that the datafiles location path can be changed during the user creation.

Next, a user is created using the following script:

The following command should be executed in sqlplus window (Start → Run → sqlplus "sys as sysdba" <ENTER>). Please, note that a default sys password is oracle.

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

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

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

Where:

USERNAME – oracle schema name used for Primavera® Portfolio Management
installation
PASSWORD – oracle user password
```

Note that the newly created user can be checked by means of the following SQL query:
select * from dba_users where username = '<USERNAME>';

4. Other Settings.

The Oracle Database Configuration Utility also enables the following settings for the Oracle Instance.
(Please, note that a default sys password is oracle)

- Granting SELECT on V$INSTANCE to public. (This is to enable determining the host name for generating a unique database id.)

  The command to be executed using sqlplus window (Start → Run → sqlplus "sys as sysdba" <ENTER>):

  grant SELECT on V_$INSTANCE to public;

- Granting SELECT on DBA_PENDING_TRANSACTIONS to public. (This is to enable determining the in doubt distributed transactions)

  The command to be executed using sqlplus window (Start → Run → sqlplus "sys as sysdba" <ENTER>):

  grant SELECT on DBA_PENDING_TRANSACTIONS to public;

- Granting EXECUTE on the PL/SQL package DBMS_LOCK to public. (This is to enable using user locks for contention handling on the cache messages table.)

  The command to be executed using sqlplus window (Start → Run → sqlplus "sys as sysdba" <ENTER>):

  grant EXECUTE on DBMS_LOCK to public;

5. 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.

Several parameter values are considered "must have". They are:

1)	fixed_date:	'' (empty string)
2)	nls_date_format:	'MM/DD/YYYY'
3)	nls_sort:	BINARY

The rest are recommended but optional:

1)	audit_trail:	NONE
2)	cursor_sharing:	FORCE
3)	db_block_checking:	FALSE
4)	db_file_multiblock_read_count:	8
5)	disk_asynch_io:	TRUE
6)	java_pool_size:	52428800
7)	license_max_sessions:	0 or more than 100
8)	fast_start_mttr_target	60
9)	open_cursors:	more than or equals 30000
10)	pga_aggregate_target:	see calculation below
11)	processes:	more than or equals 400
12)	session_cached_cursors:	50
13)	sessions:	more than or equals 445
14)	sga_target:	see calculation below
15)	sga_max_size:	see calculation below
16)	cpu_count	see calculation below
17)	shared_pool_size:	0
18)	db_cache_size	0
19)	timed_statistics:	TRUE
20)	transactions:	more than or equals 490
21)	undo management:	AUTO
22)	workarea_size_policy:	AUTO
23)	compatible:	10.2.0.1.0
24)	optimizer_features_enable:	10.2.0.2
25)	statistics_level	TYPICAL

Calculated parameters:

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

Oracle SP File:

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

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

If Oracle instance does not use 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 should be restarted after updating the initialization parameters.

6. User Analysis

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

Appendix A

Creating a Database Template from an existing database for use with DBCA Utility

Database template is valid for specific Oracle Version and Operating System.

Install and configure a new database. This database must be configured according to Primavera® Portfolio Management standards.

If database is using pfile (init.ora)

Copy init.ora from %ORACLE_BASE%\admin\<SID>\pfile to %ORACLE_HOME%\database\init<SID>.ora

Example:

```
copy C:\oracle\product\10.2.0\admin\ORCL\pfile\init.ora
C:\oracle\product\10.2.0\db_1\database\initORCL.ora
```

If database is using spfile

Create pfile from spfile:

```
sqlplus “sys/<password> as sysdba”

create pfile from spfile;
shutdown immediate
```

Rename spfile

Example:

```
ren C:\oracle\product\10.2.0\db_1\database\SPFILEORCL.ORA
C:\oracle\product\10.2.0\db_1\database\SPFILEORCL.ORA.BAK
```

Start the database:

```
sqlplus “sys/<password> as sysdba”

startup
```

Add the following grants:

```
sqlplus “sys/<password> as sysdba”

grant execute on sys.DBMS_LOCK to public;
grant select on sys.DBA_PENDING_TRANSACTIONS to public;
grant select on sys.V_$INSTANCE to public;
```

Resize undo tablespace to 1024M.

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;
```

Run 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: 10.2
<LOCATION> - a location where the compressed datafiles will be transferred, for example:
“C:\Program Files\Oracle\Primavera Portfolio Management\Portfolios\misc\ocu”
```

Check for the errors in the log file <ORACLE_HOME>\cfgtoollogs\dbca\silentN.log

Example:

```
dbca -silent -createCloneTemplate -sourceDB ORCL -sysDBAUserName sys -sysDBAPassword
oracle  -templateName 10.2.0.2 -datafileJarLocation
“C:\Program Files\Oracle\Primavera Portfolio Management\Portfolios\misc\ocu”
```

As a result of this command the following files will be created:

```
Template file:      <ORACLE_HOME>\assistants\dbca\templates\10.2.0.2.DBC
Data file:
    C:\Program Files\Oracle\Primavera Portfolio Management\Portfolios\misc\sql\PS10.2.DFB
Control file:
    C:\Program Files\Oracle\Primavera Portfolio Management\Portfolios\misc\sql\PS10.2.CTL
```

Test created database templates (create a new database)

Delete existing instance:

```
oradim –delete –sid <SID>

Where:

<SID> - Oracle SID of the existing database, for example: ORCL
```

Create new database using previously created template:

```
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: 10.2.0.2
<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"
```

Check for the errors in the log file
<ORACLE_HOME>\cfgtoollogs\dbca\<ORACLE_SID>\<ORACLE_SID>.log

Example:

```
dbca -silent -createDatabase -templateName 10.2.0.2 -gdbname ORCL -sysPassword oracle -
systemPassword manager -sid ORCL -continueOnNonFatalErrors true -datafileJarLocation
"C:\Program Files\Oracle\Primavera Portfolio Management\Portfolios\misc\ocu"
```

Appendix B

Creating a Database Template from an existing Template for use with DBCA Utility

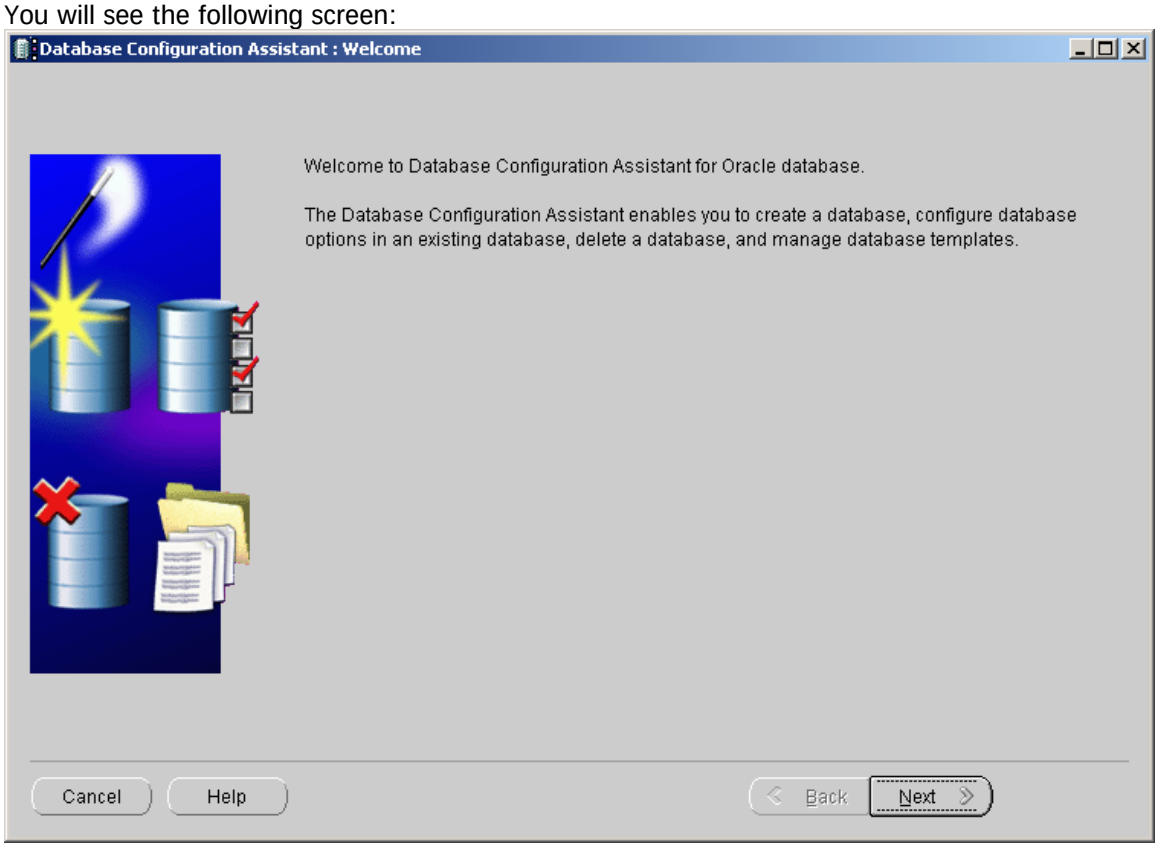
Run dbca as follows:

```
<ORACLE_HOME>\bin\dbca
```

where:

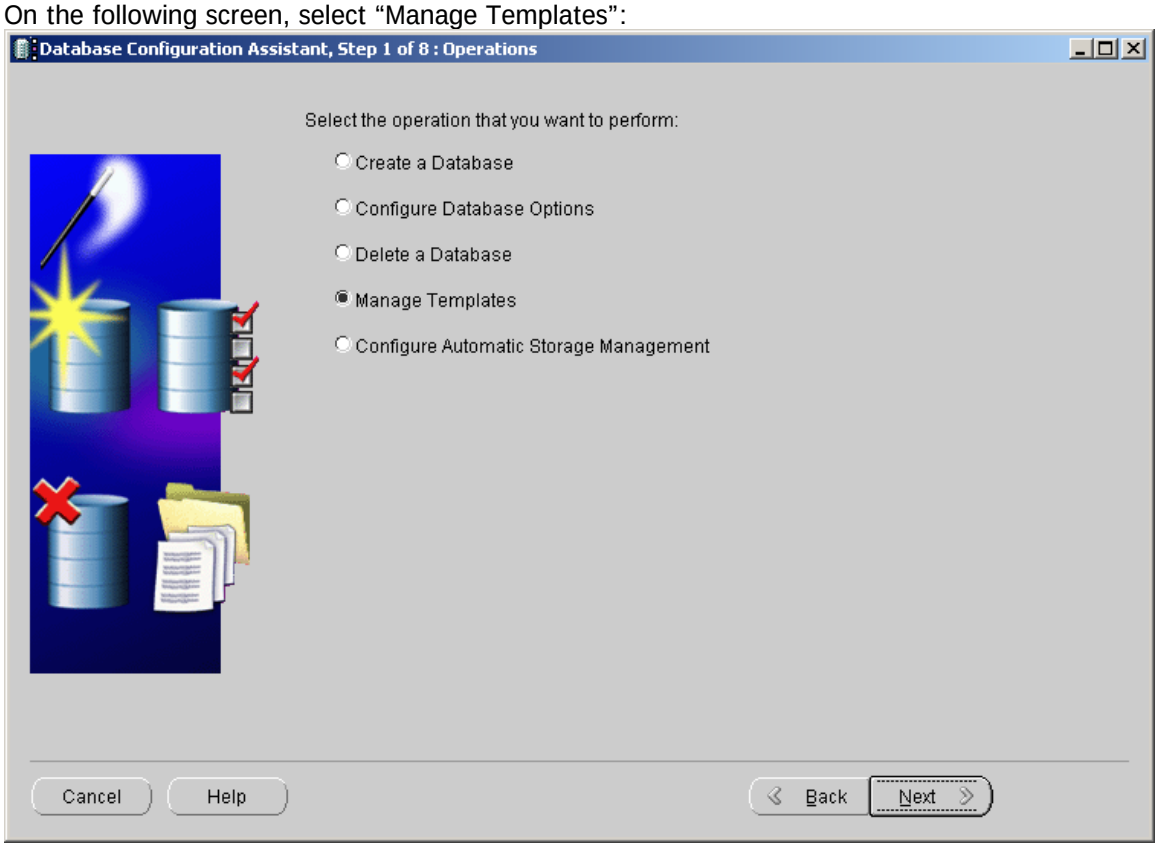
<ORACLE_HOME> – a path to Oracle Home (for example: “C:\oracle\product\10.2.0\db_1”)

You will see the following screen:



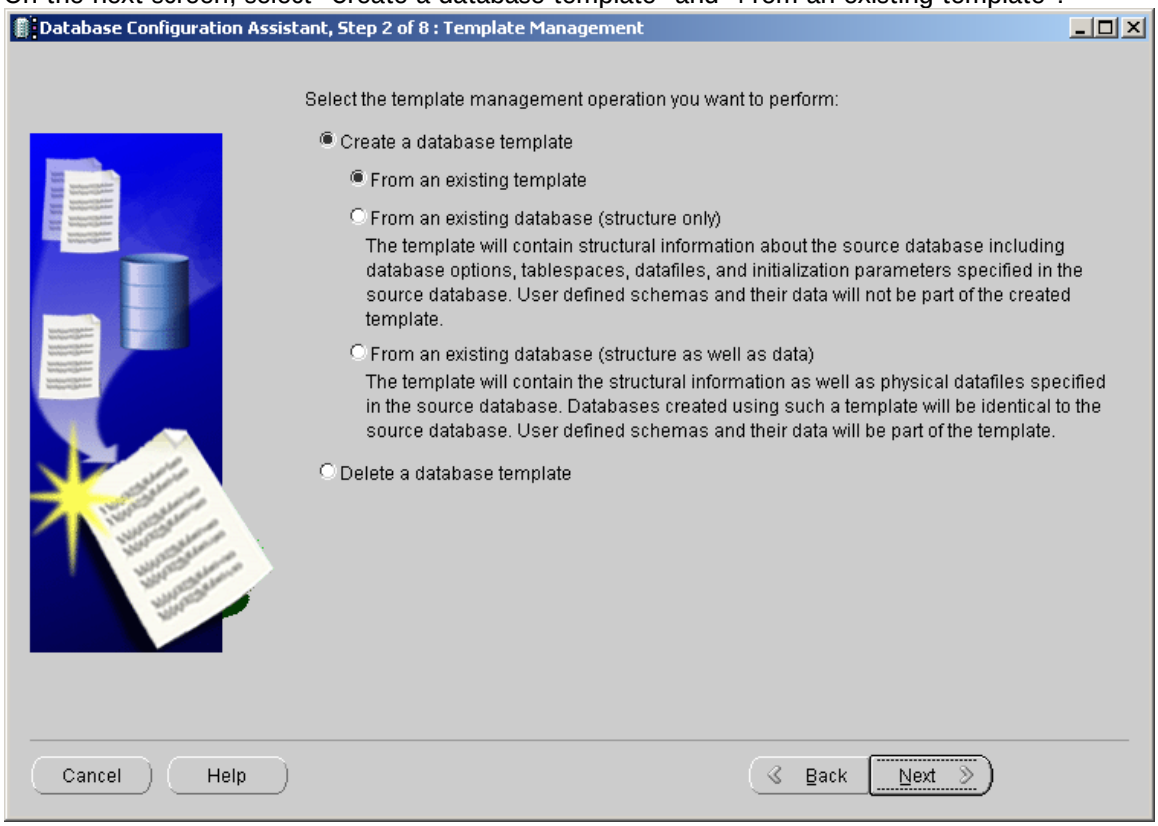
Click “Next”.

On the following screen, select “Manage Templates”:



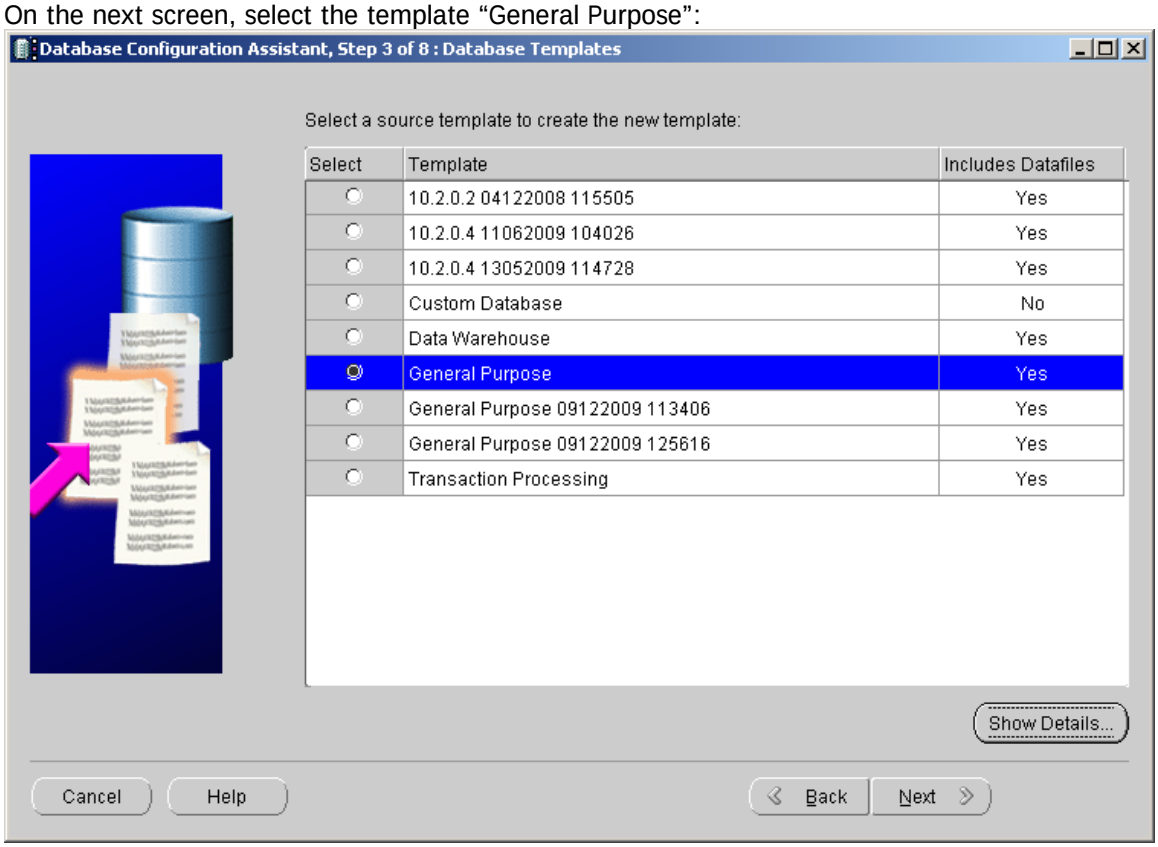
Click “Next”.

On the next screen, select “Create a database template” and “From an existing template”:



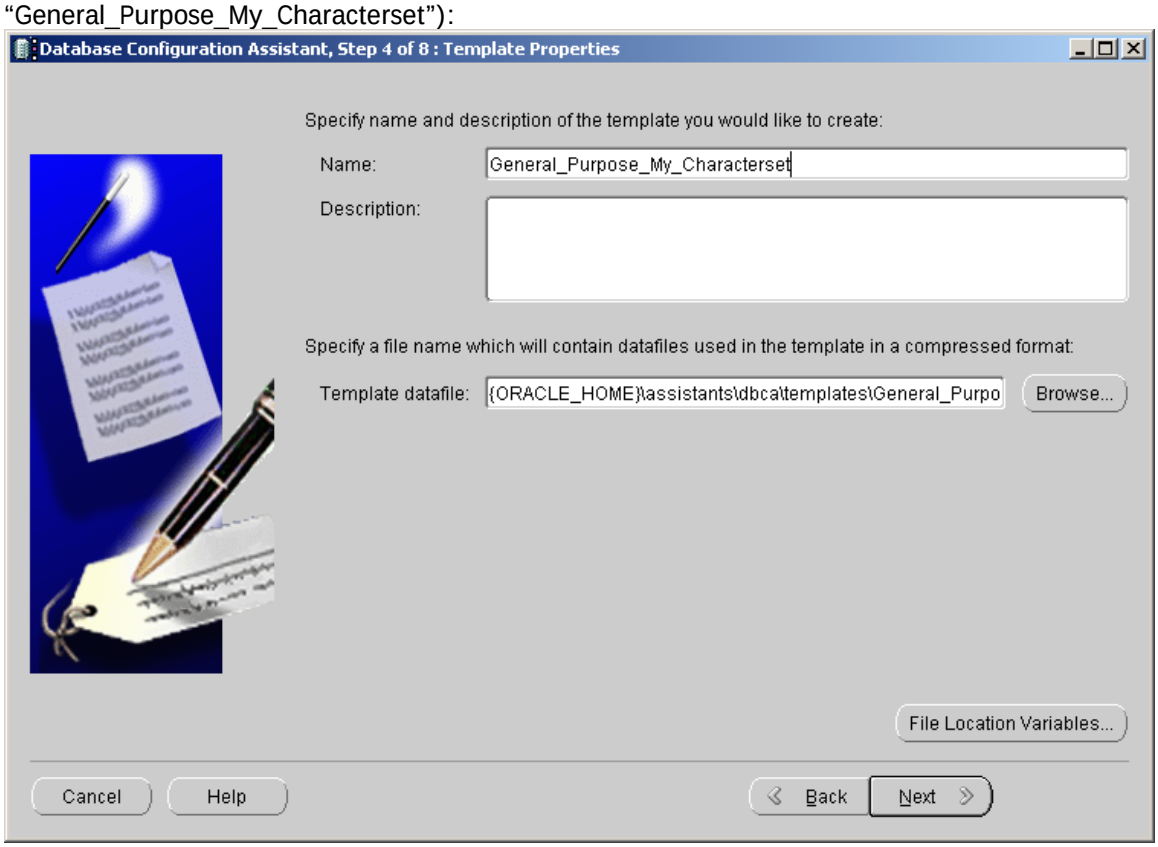
Click “Next”.

On the next screen, select the template “General Purpose”:



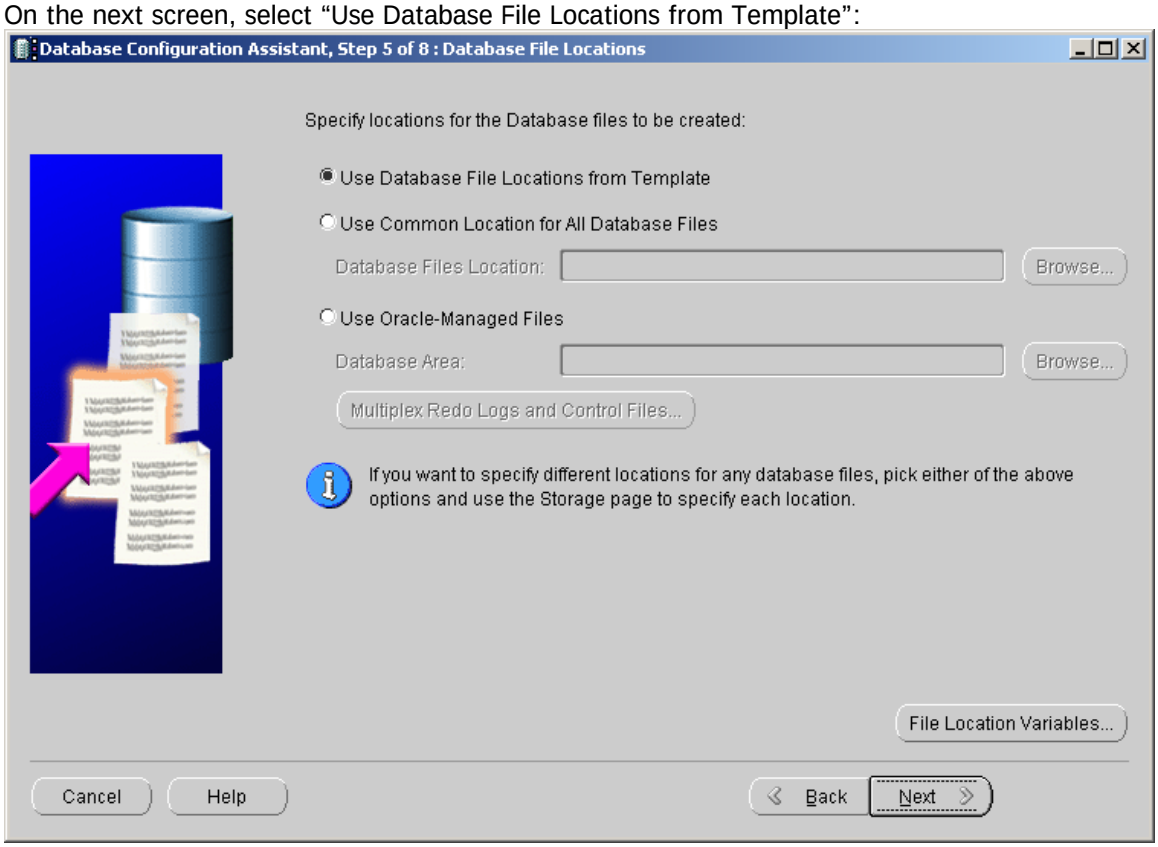
Click “Next”.

On the next screen, give the new template a name (such as “General_Purpose_My_Characterset”):



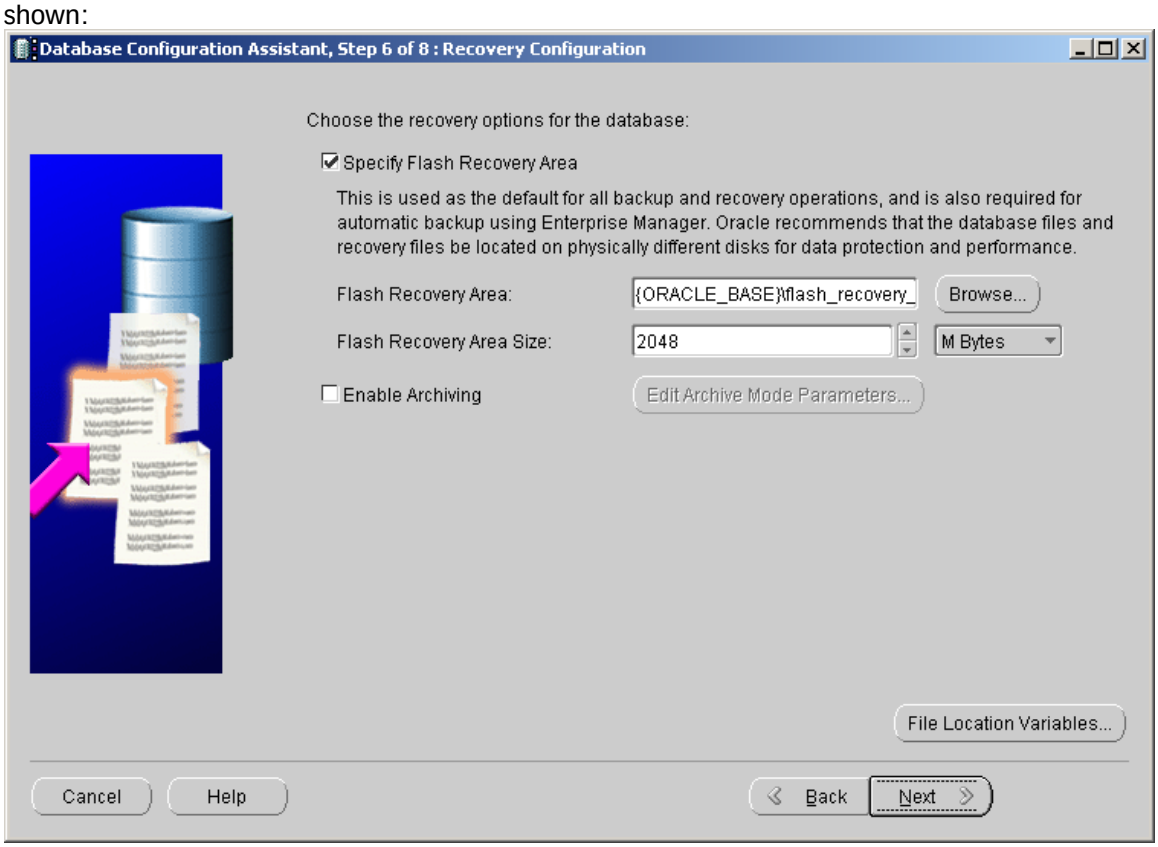
Click “Next”.

On the next screen, select “Use Database File Locations from Template”:



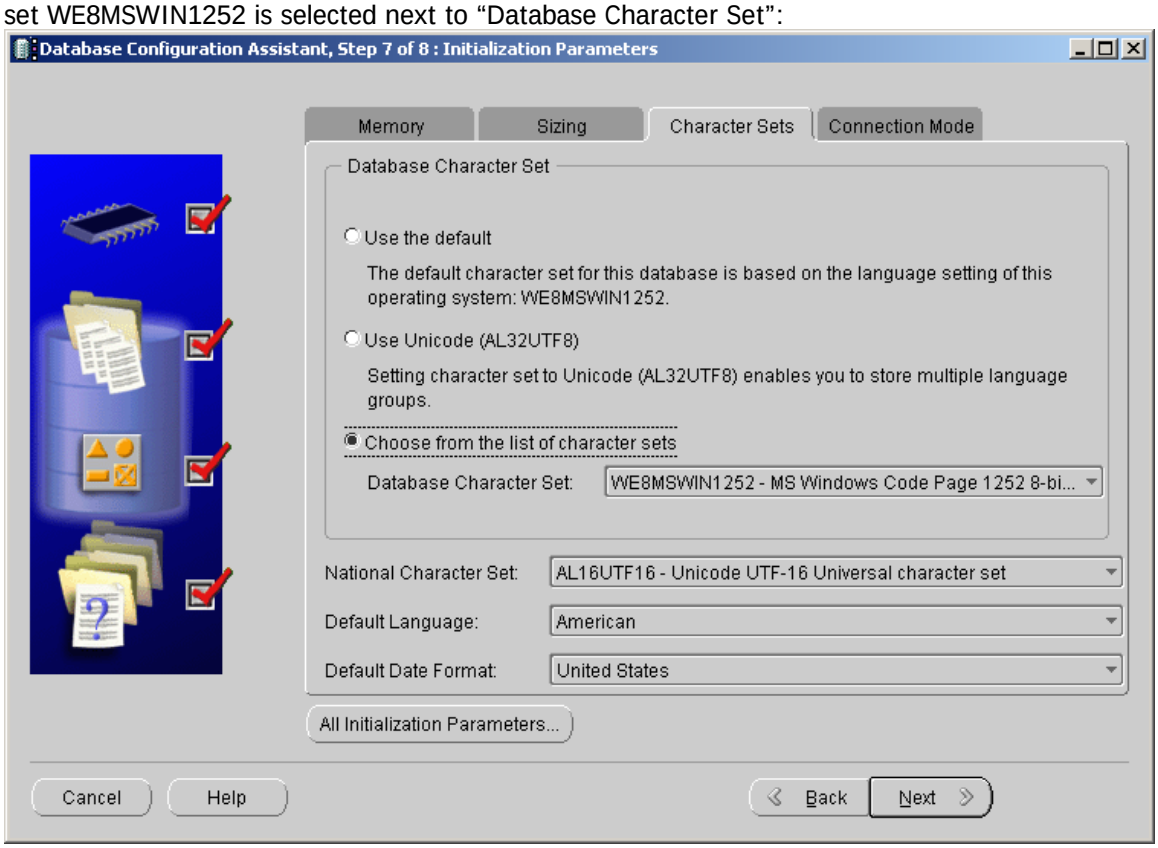
Click “Next”.

On the next screen, select “Specify Flash Recovery Area” and ensure the options are filled in as shown:

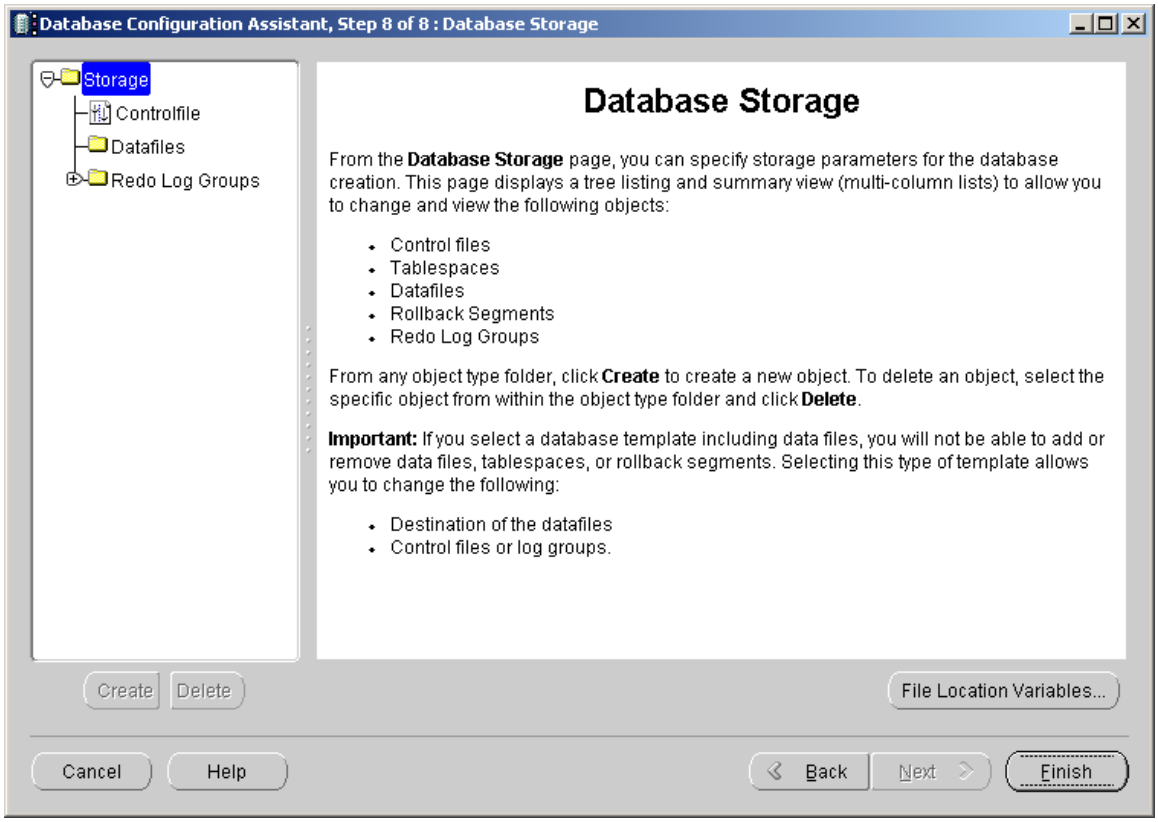


Click “Next”.

On the next screen, select “Choose from the list of character sets” and make sure the character set WE8MSWIN1252 is selected next to “Database Character Set”:

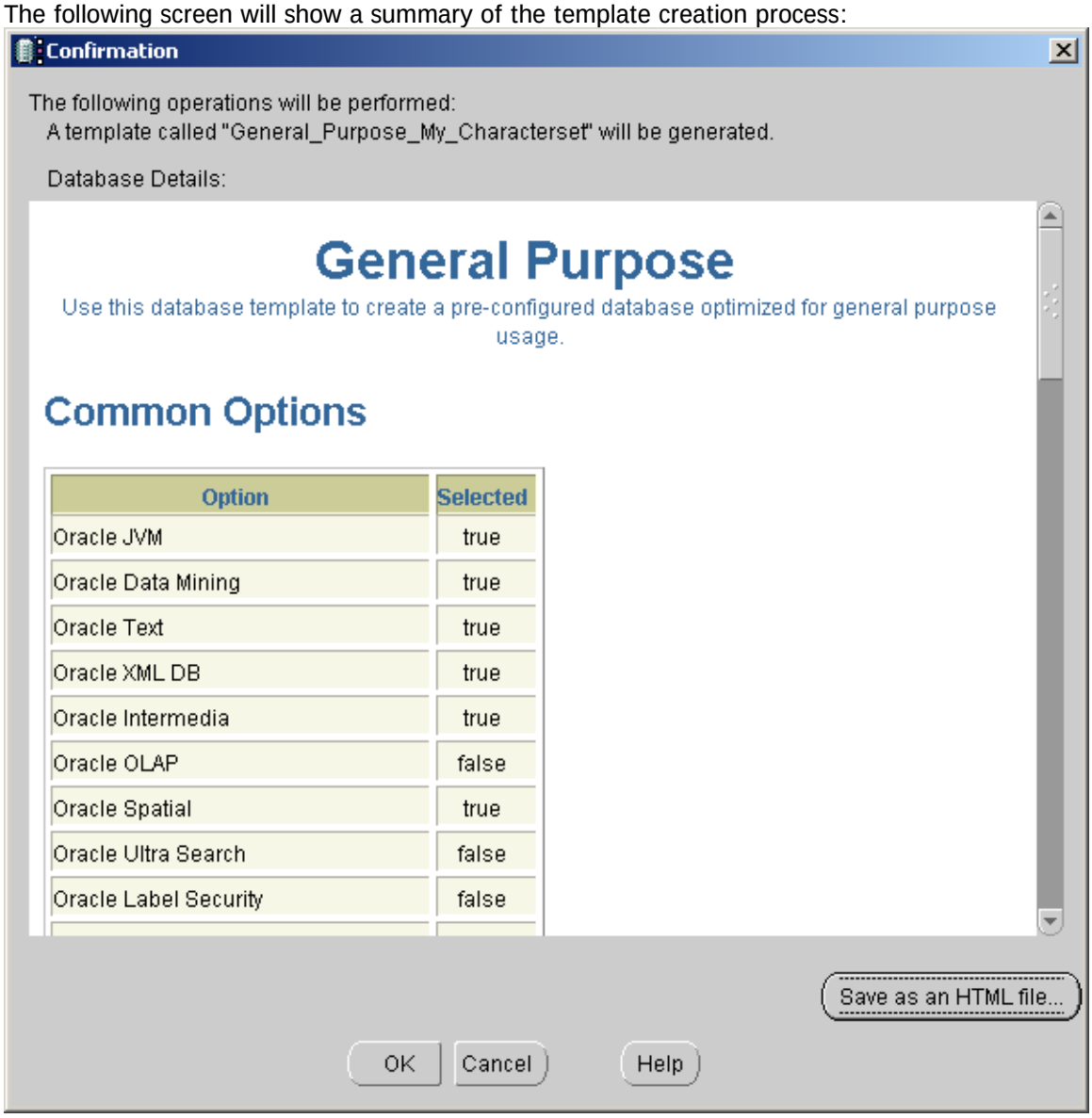


Click “Next”.



Click “Finish”.

The following screen will show a summary of the template creation process:



Click “OK” to create the custom template.

When done, use the custom template created in the preceding steps in the instance creation command instead of the template name “General_Purpose.DBC” on page 4.