STEPS TO CREATE THE CONTAINER DATABASE NAMED ORCLPDB AND ITS TWO PDBS NAMED orclpdb1 AND orclpdb2

Note:

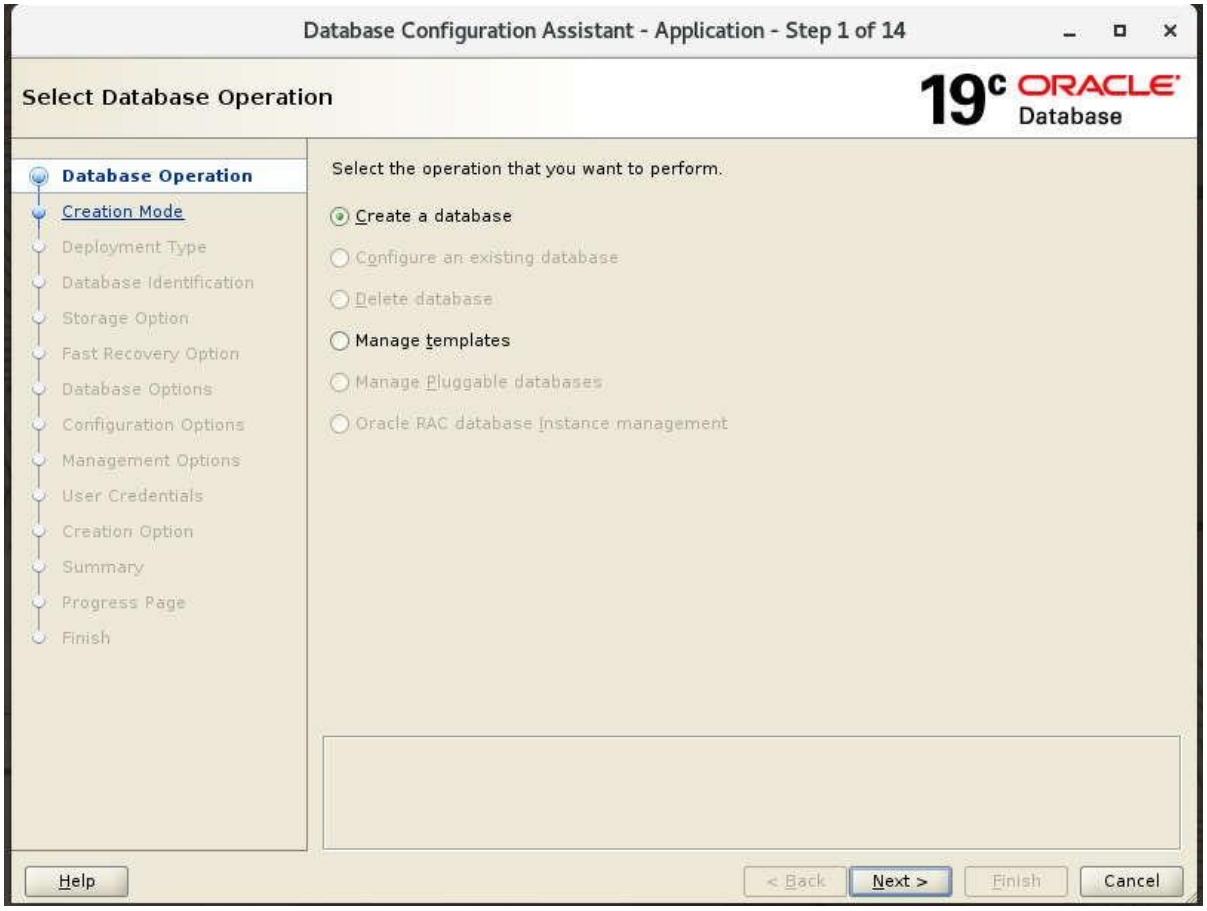
- Execute xhost + command as root.
- Login as oracle user using the su – oracle command.
- Note: If the LISTENER is down then start using this command:

```
[oracle@host01 ~]$ lsnrctl status
[oracle@host01 ~]$ lsnrctl start
```

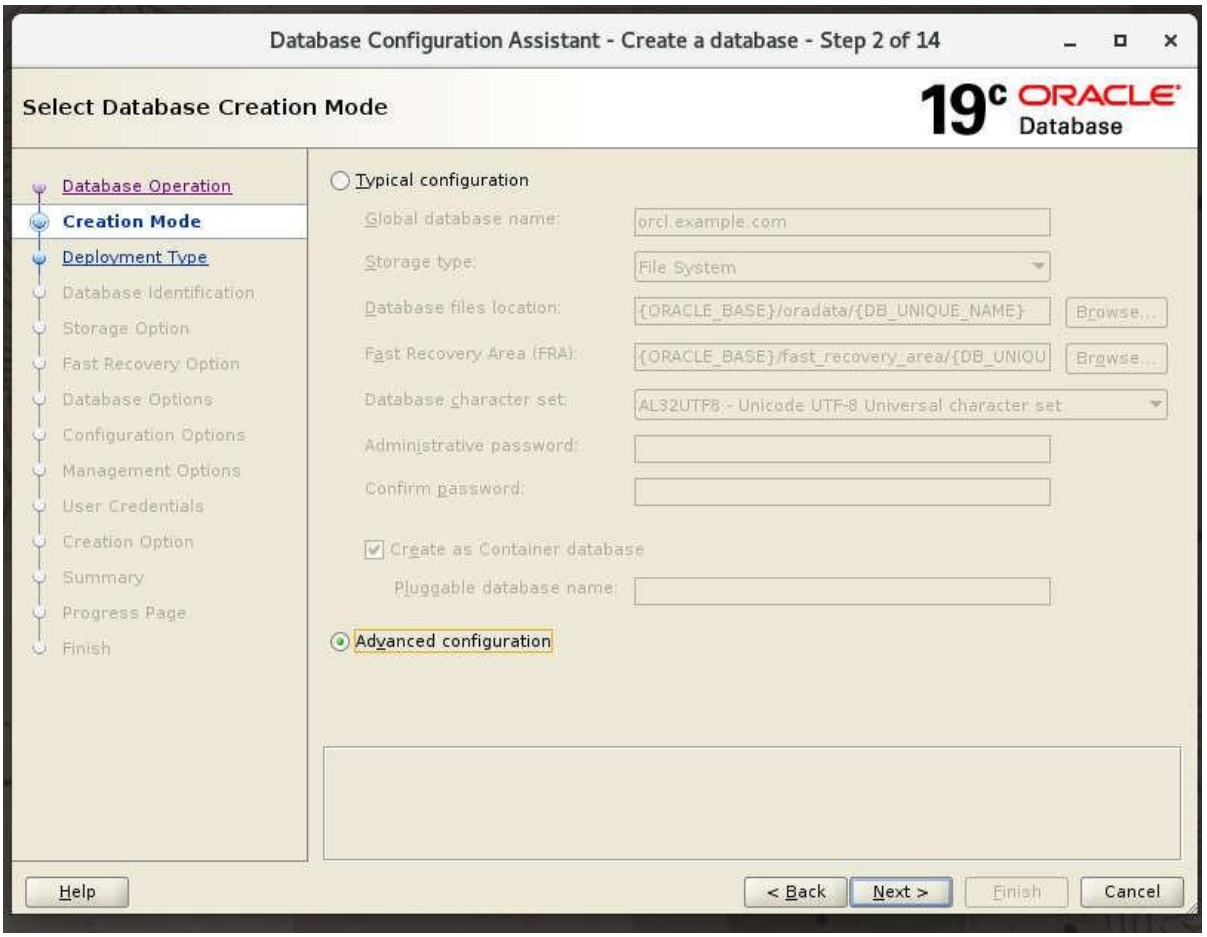
1. Open a terminal window and invoke **dbca**.

```
[oracle@host01 dbhome_1]$ cd
[oracle@host01 /]$ dbca
```

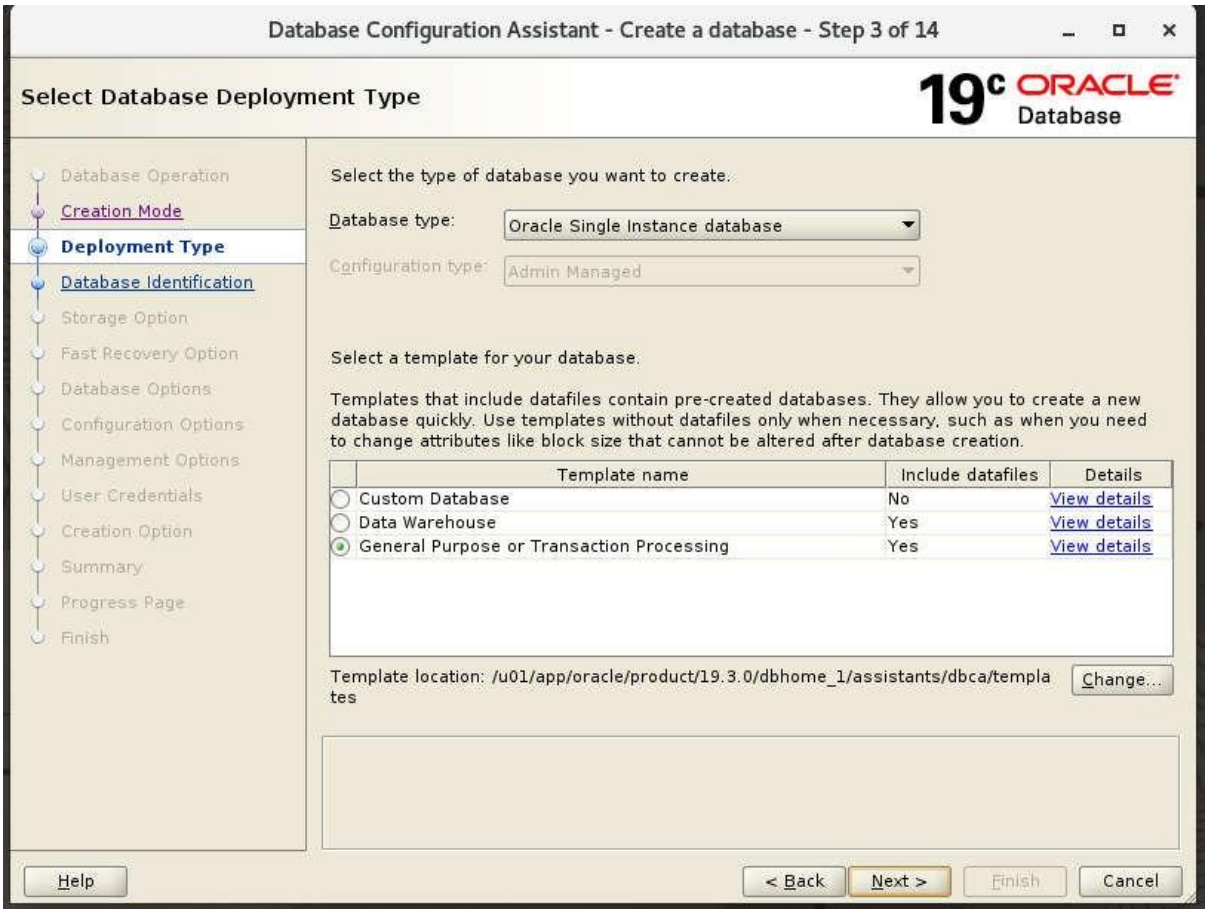
2. Select **Create Database** and click N**ext**.



3. Select **Advanced Configuration** and click **Next**.

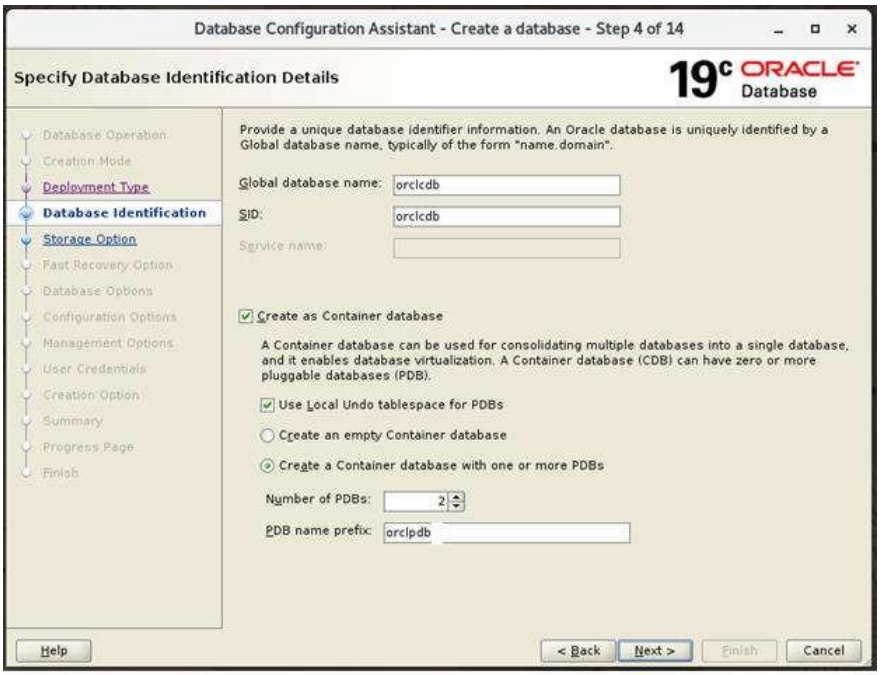


4. Choose **Oracle Single Instance database** as the Database Type. Choose **General Purpose or Transaction Processing** template. Click **Next**.

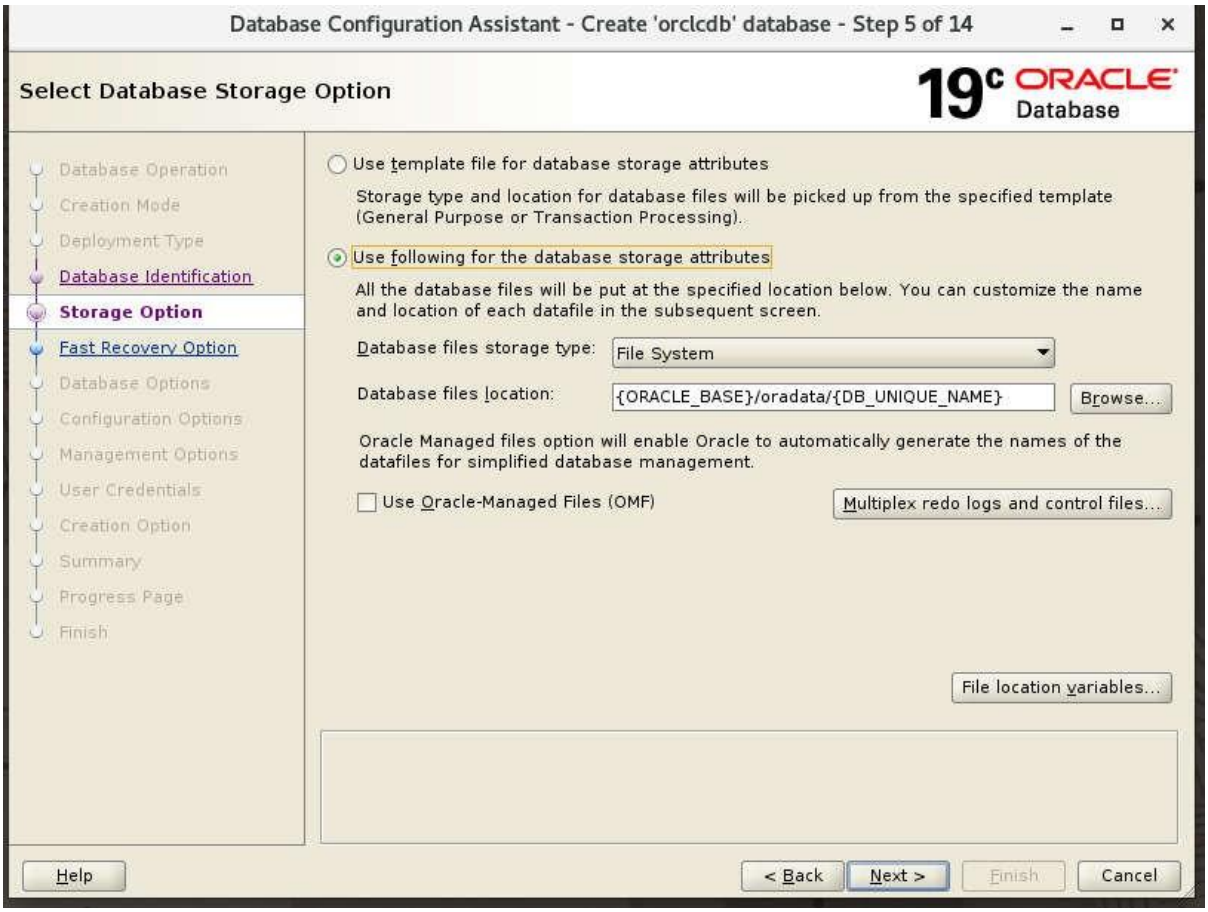


5. Verify and update these entries as per screen shot and click **Next**:

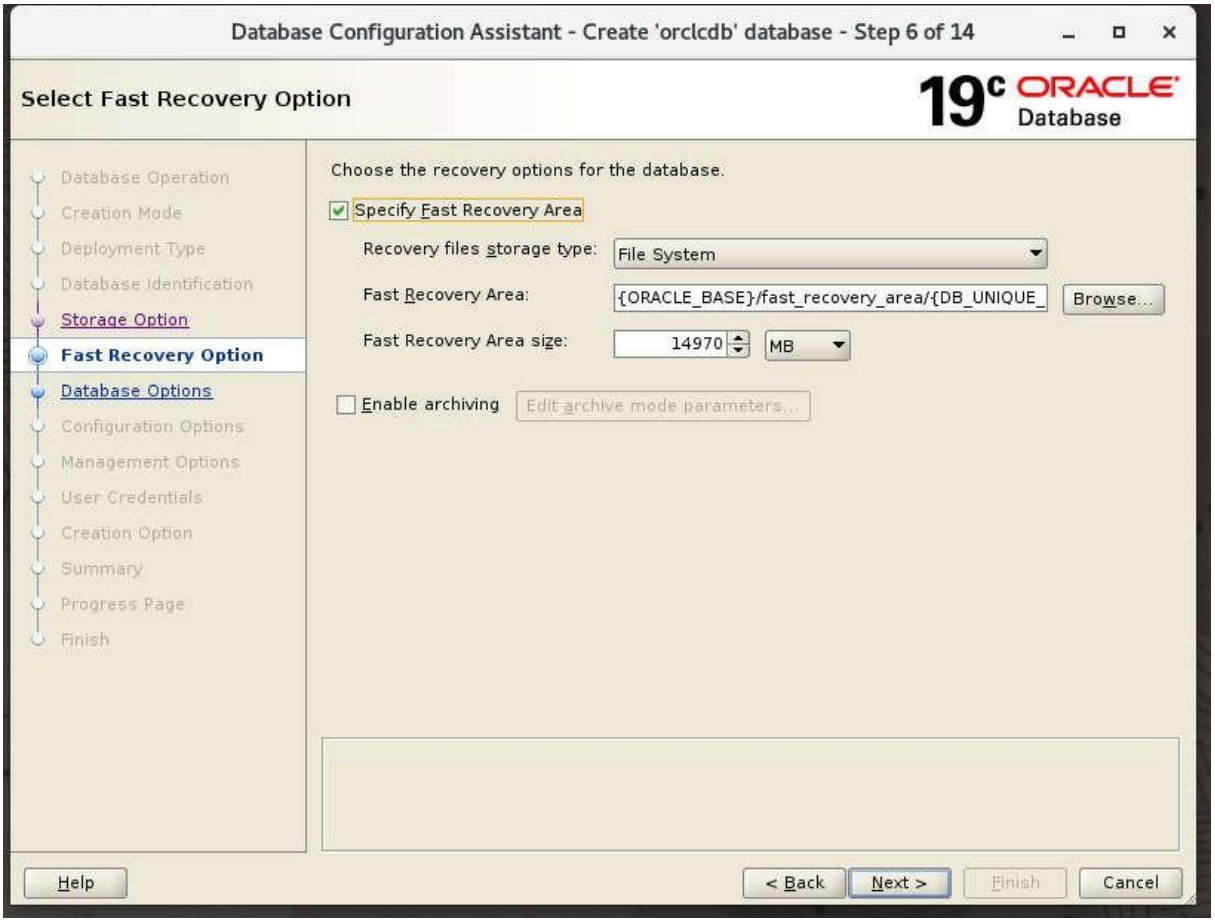
- Global database name: **orclcdb**
- SID: **orclcdb**
- Check **Create as Container database**
- Check **Use Local Undo Tablespace for PDBs**
- Choose **Create a Container database with one or more PDBs**
- Number of PDBS: **2**
- PDB name prefix: **orclpdb**



6. Choose **Use following for the database storage attributes**, verify values as per the screenshot and click **Next**.



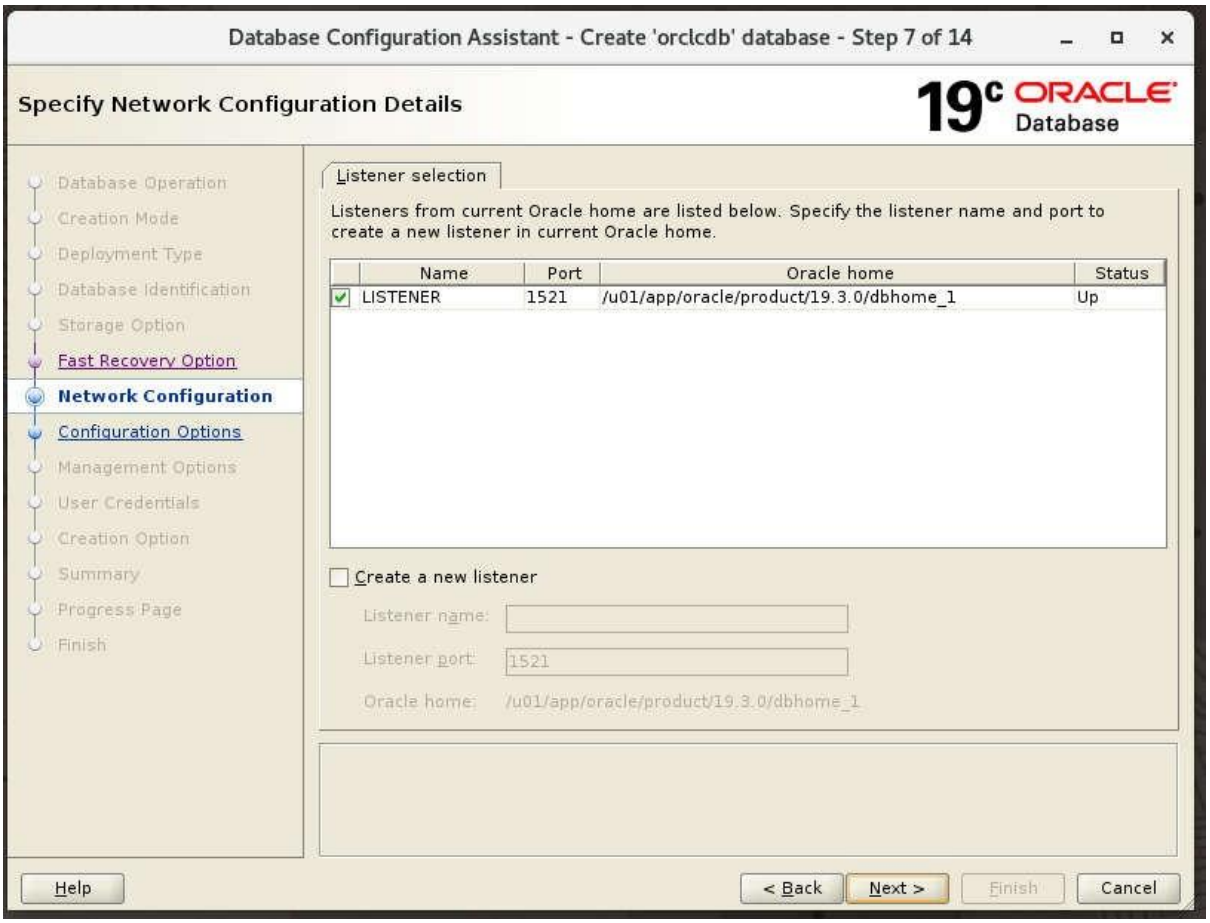
7. Choose **Specify Fast Recovery** and accept the defaults as shown in the screenshot, and click **Next**.



8. Choose settings as per the screenshots and click **Next**.
   Note: If you do not see LISTENER listed, please verify LISTENER is up and running or check **Create a new listener** to create a listener and provide the listener name as **LISTENER** and **Port 1521 or 1522.**

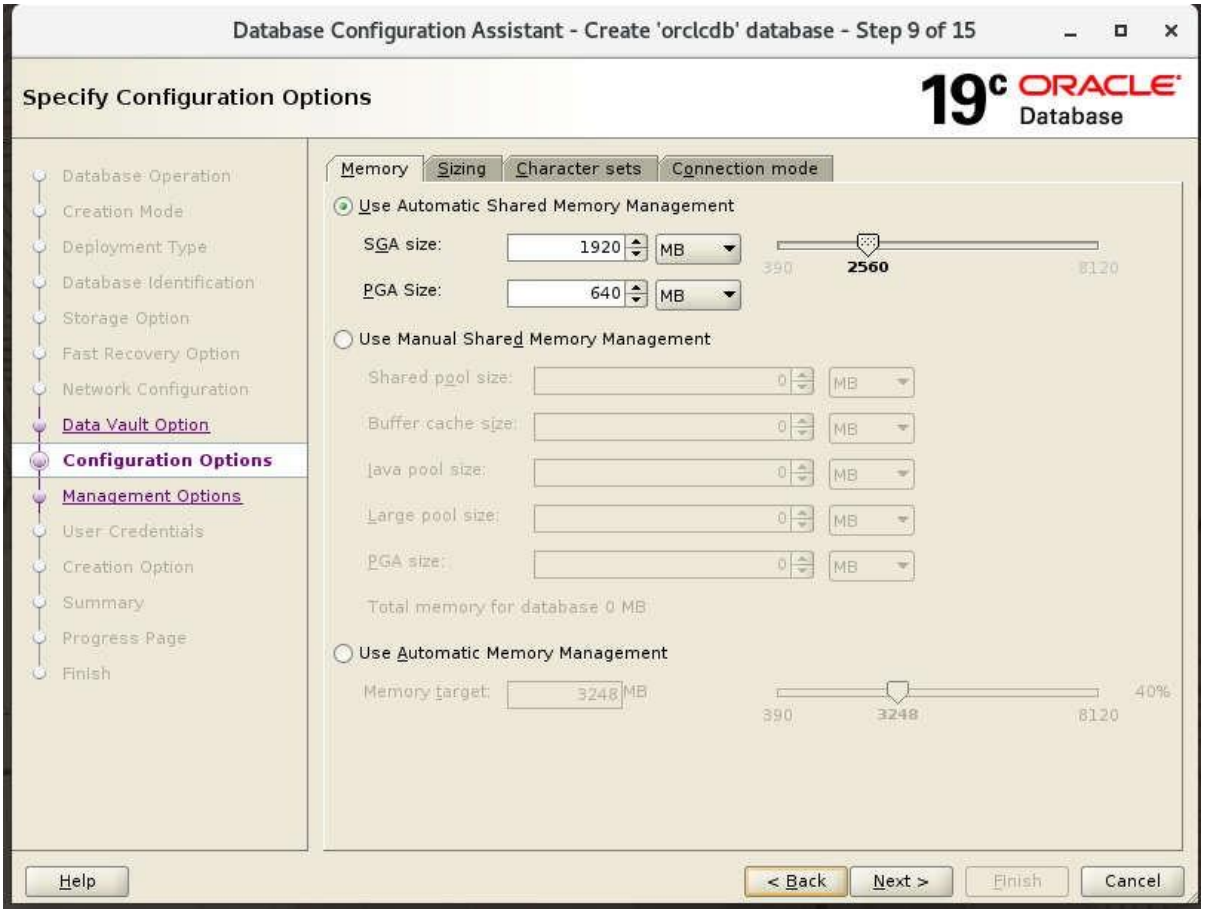
Note: If the LISTENER is down then start using this command:

```
[oracle@host01 ~]$ lsnrctl status
[oracle@host01 ~]$ lsnrctl start
```

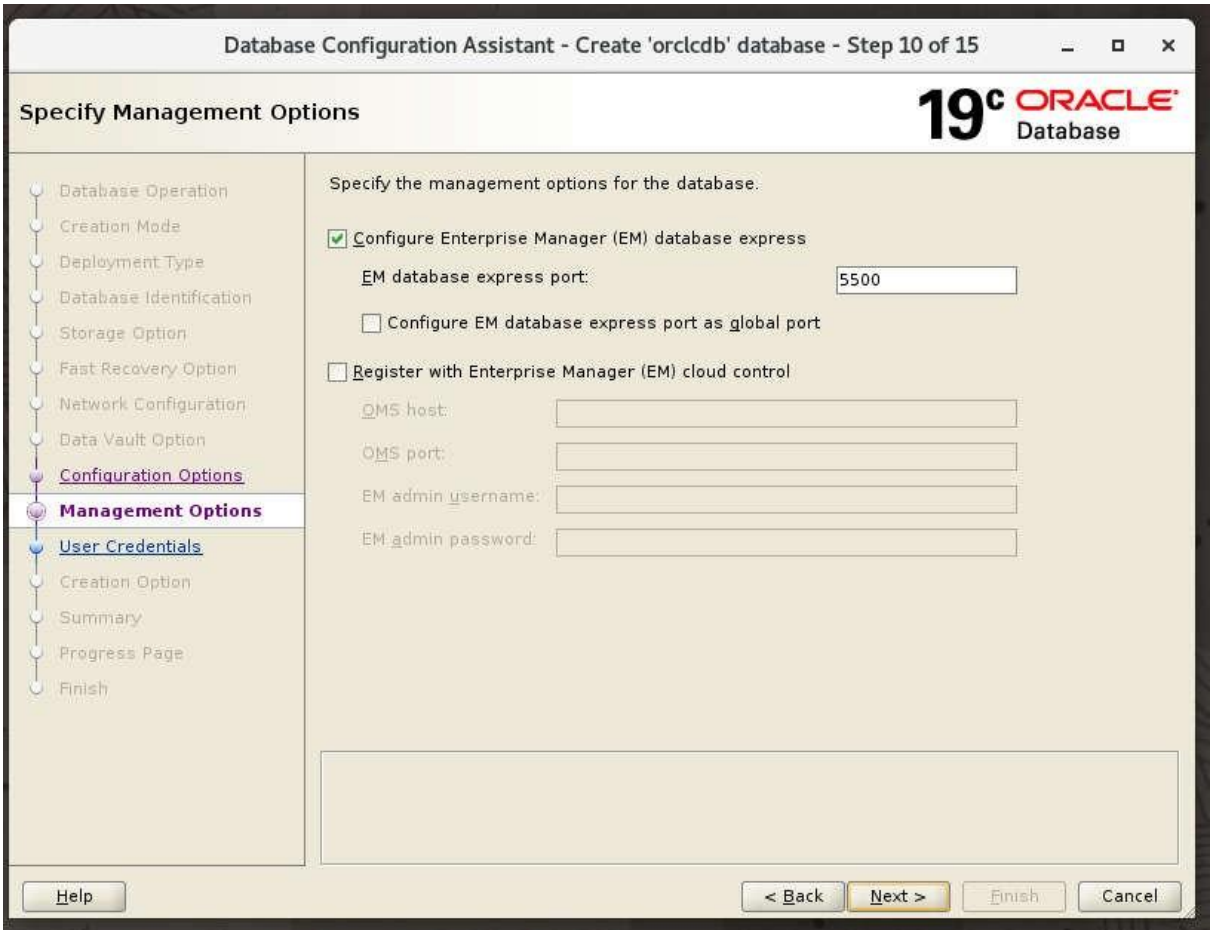


9. No changes on Database Vault or Label Security. Click **Next.**

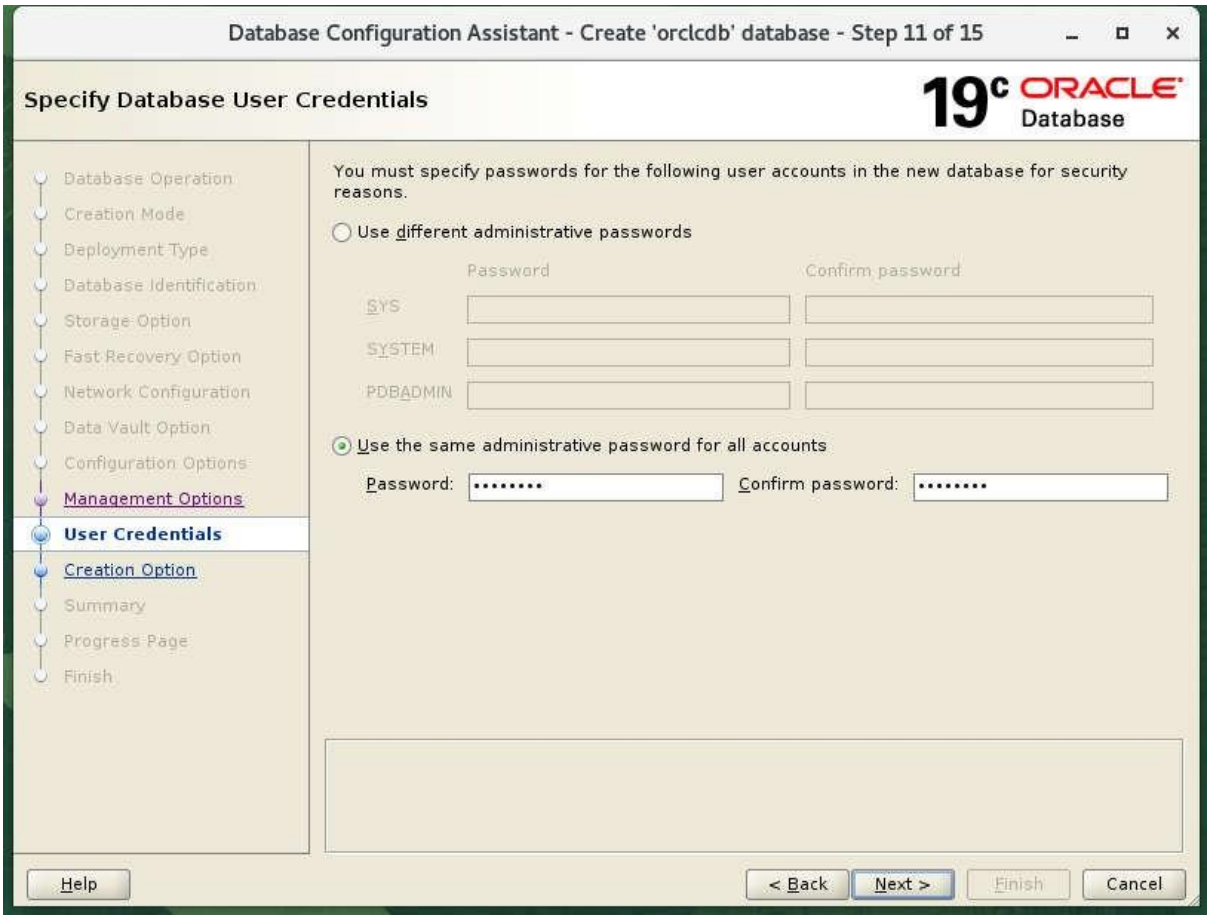
10. In the **Specify Configuration Options** screen, under the **Memory** tab, enter settings as per the screenshot. Click **Next**.



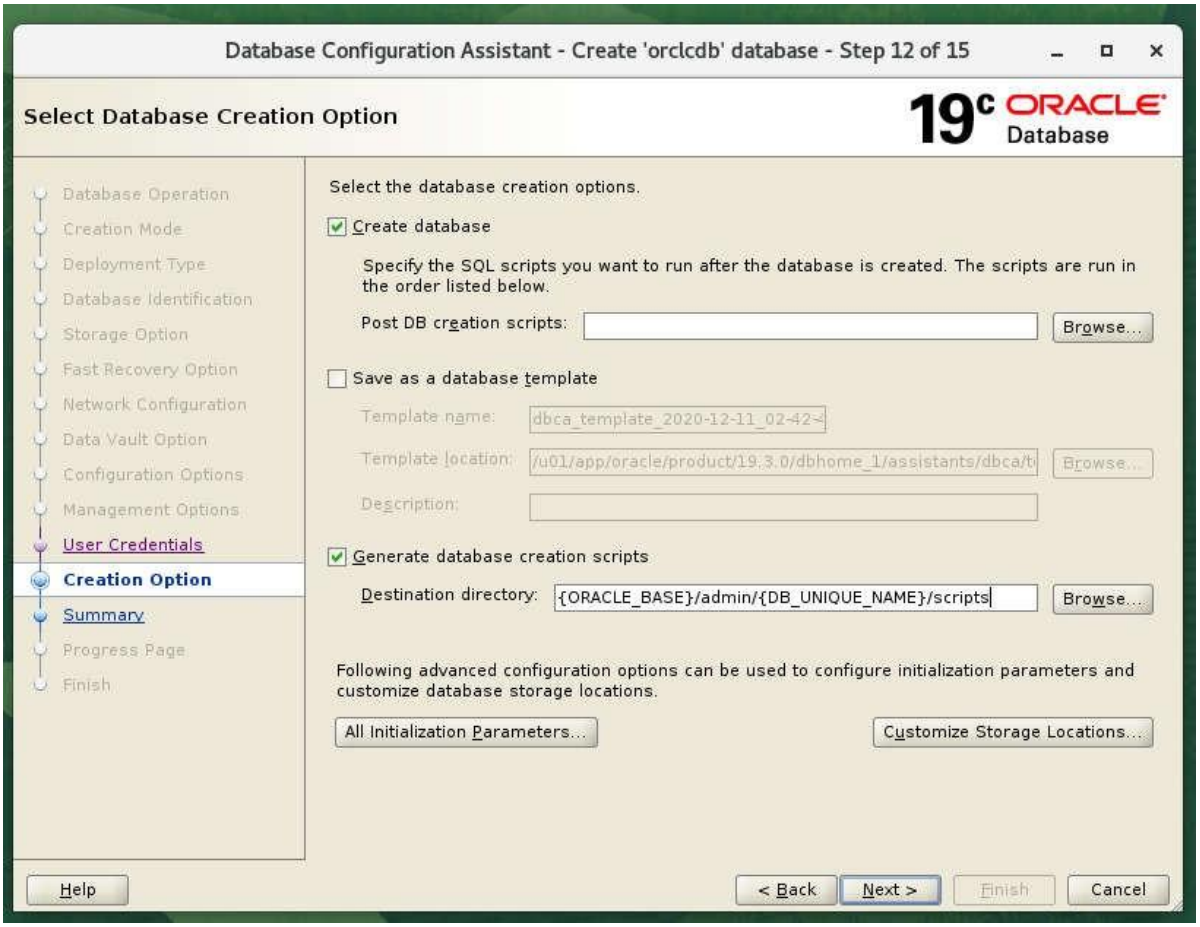
11. Check **Configure Enterprise Manager (EM) database express**. Specify the port **5500** and click **Next .**



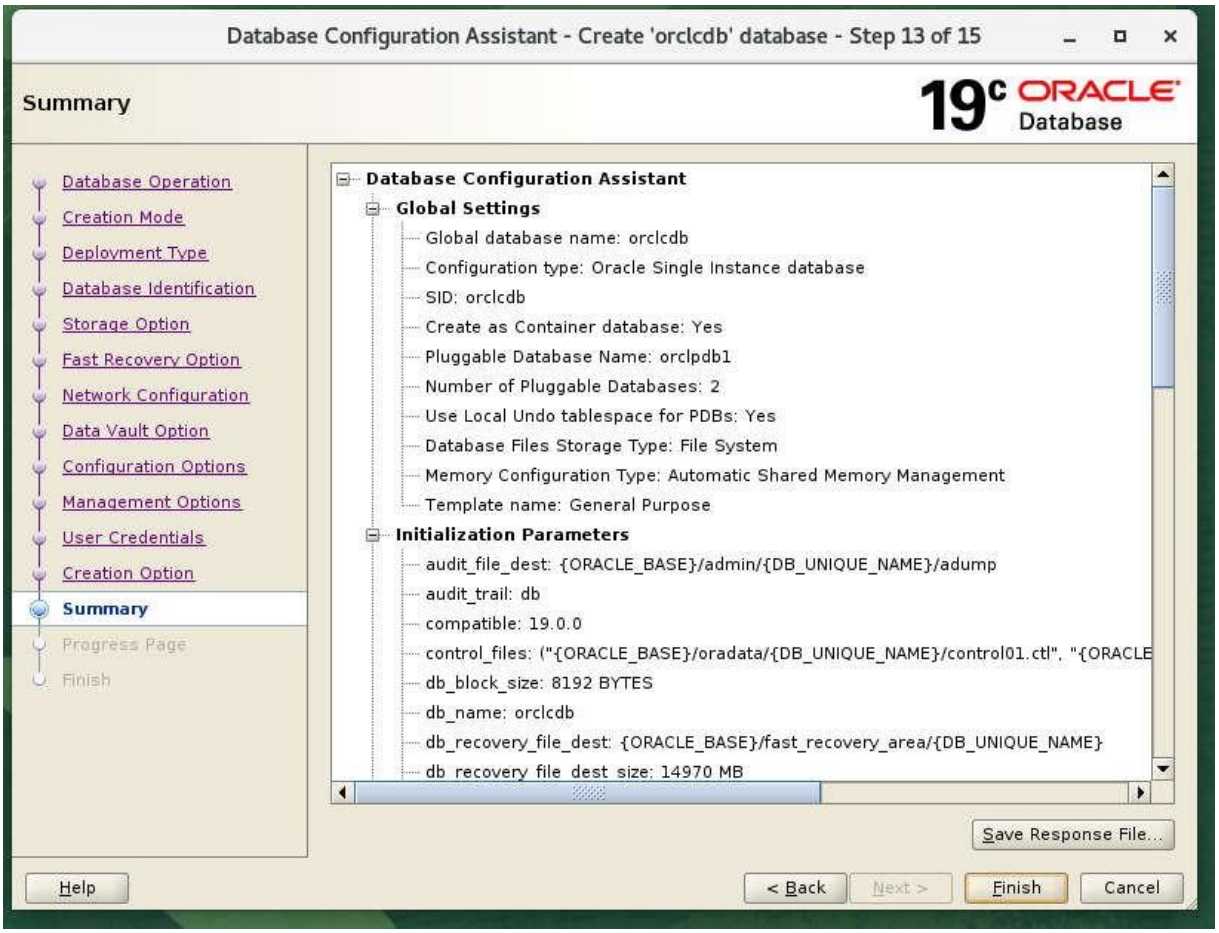
12. Check **Use the same administrative password for all accounts** Password: **fenago.**
Click **Next.**



13. Choose settings as per the screenshot. Click **Next**.



14. Click **Finish**.



Click **Close** once database creation is complete.

This competes the **ORCLCDB** database creation.

15. Verify that the instance is started by checking whether the PMON background process is running.

```
$ ps -ef|grep pmon
```

```
[oracle@host01 ~]$ ps -ef|grep pmon
oracle    8967     1  0 03:27 ?        00:00:00 ora_pmon_orclcdb
oracle   12194 12018  0 04:12 pts/1    00:00:00 grep --color=auto pmon
[oracle@host01 ~]$
```

16. Change to the `$HOME` directory.

```
[oracle@host01 /]$
[oracle@host01 /]$ cd $HOME
[oracle@host01 ~]$ pwd
/home/oracle
[oracle@host01 ~]$
```

17. Connect to the `orclcdb` database instance as the `SYS` user with `SYSDBA` privilege.

```
[oracle@host01 ~]$ . oraenv
  ORACLE_SID = [oracle] ? orclcdb
  The Oracle base remains unchanged with value /u01/app/oracle
  [oracle@host01 ~]$ sqlplus

  SQL*Plus: Release 19.0.0.0.0 - Production on Fri Dec 11
  06:30:36 2020
  Version 19.3.0.0.0

  Copyright (c) 1982, 2019, Oracle. All rights reserved.

  Enter user-name: /as sysdba

  Connected to:
  Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 -
  Production
  Version 19.3.0.0.0
SQL>
```

18. Check the current state of PDBs.

```
SQL> SHOW PDBS

    CON_ID CON_NAME                       OPEN MODE  RESTRICTED
---------- ------------------------------ ---------- ----------
         2 PDB$SEED                       READ ONLY  NO
         3 ORCLPDB1                       READ WRITE NO
         4 ORCLPDB2                       READ WRITE NO
```

a. If the PDBs are not open, open them. If it is open, you can skip this step.
Note**: Do not run this command if your PDB is already opened.**

```
SQL> ALTER PLUGGABLE DATABASE ORCLPDB1 OPEN;

Pluggable database altered.

SQL> ALTER PLUGGABLE DATABASE ORCLPDB2 OPEN;

Pluggable database altered.
```

b. Save the state so that PDB1 is opened every time the CDB is opened. Exit SQL*Plus.

```
SQL> ALTER PLUGGABLE DATABASE orclpdb1 SAVE STATE;

Pluggable database altered.

SQL> ALTER PLUGGABLE DATABASE orclpdb2 SAVE STATE;

Pluggable database altered.

SQL> exit
```

19. Check whether the listener is started and if not, start the listener.

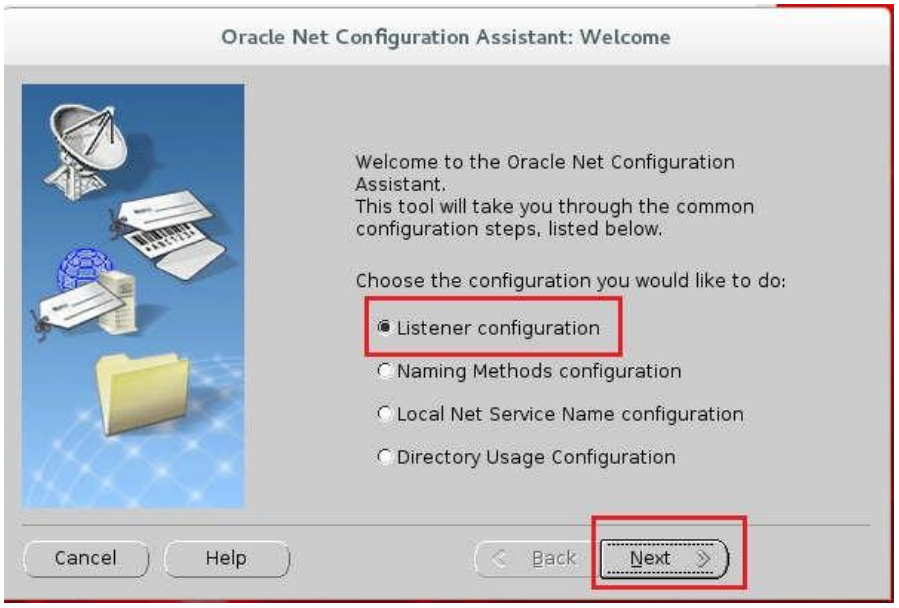
```
[oracle@host01 ~]$ lsnrctl status
[oracle@host01 ~]$ lsnrctl start
```

If `LISTENER` fails to start then execute these steps else skip them:

a. Invoke `netca (Oracle Net Configuration Assistant).`

```
$ netca
```

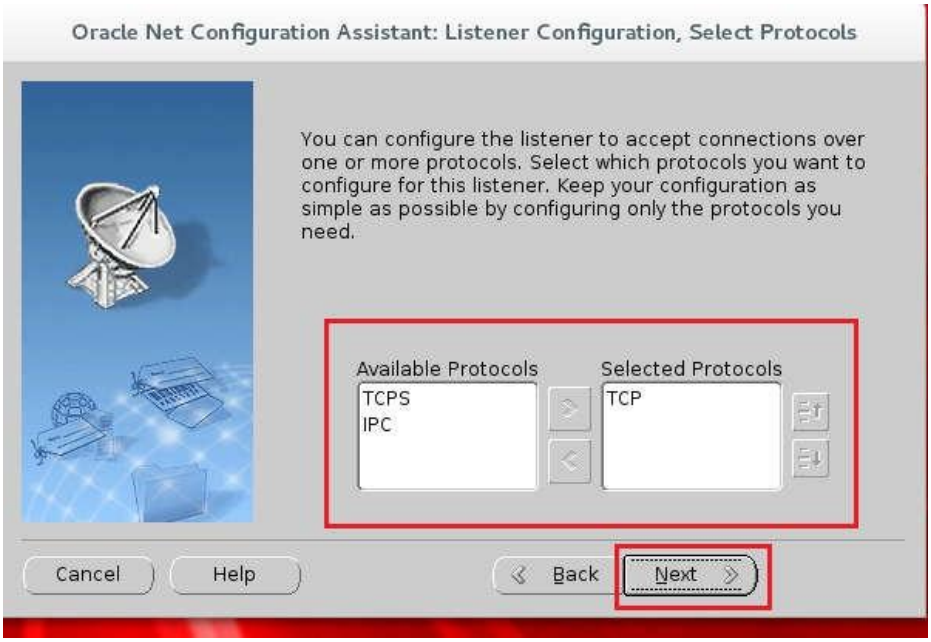
Choose settings as per the screenshot and click **Next**.



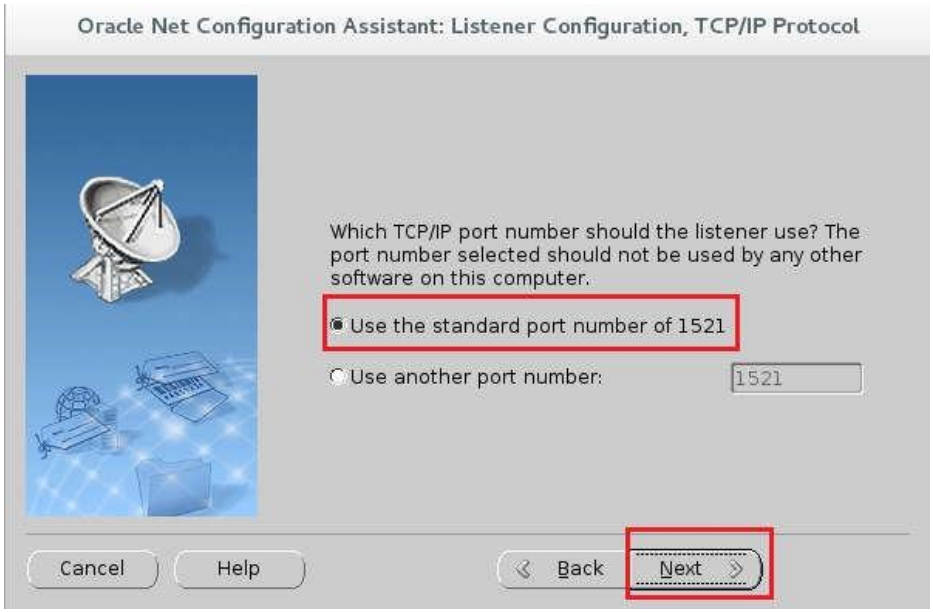
b. Choose settings as per the screenshot and click **Next.**

c. Choose the settings as per the screenshot and click **Next.**

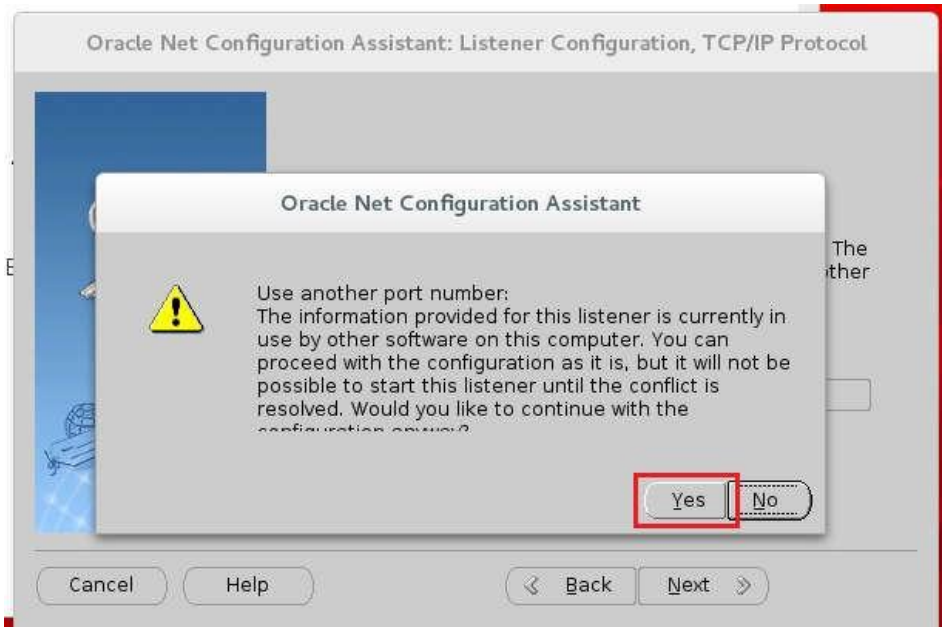
d. Choose settings as per the screenshot and click **Next**:



e. Choose settings as per the screenshot and click **Next.**



f. Click **Yes** if you get this warning:



g. Click No and then **Next**.

h. Click **Next** and **Finish**.

This completes your LISTENER configuration.

20. Verify that you can connect to the `orclpdb1` and `orclpdb2` PDBs by using the service name. Exit SQL*Plus.

Note: If you get an error then proceed to the next step.

```
[oracle@host01 ~]$ . oraenv
ORACLE_SID = [orclcdb] ?
The Oracle base remains unchanged with value /u01/app/oracle
[oracle@host01 ~]$
[oracle@host01 ~]$ sqlplus system/fenago@orclpdb1

…
Copyright (c) 1982, 2018, Oracle.  All rights reserved.
…
Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 -
Production
Version 19.3.0.0.0

SQL>
SQL> exit;

[oracle@host01 ~]$ sqlplus system/fenago@orclpdb2

…
Copyright (c) 1982, 2018, Oracle.  All rights reserved.
…
Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 -
Production
Version 19.3.0.0.0

SQL>
SQL> exit;
```

21. If you are unable to connect to `orclpdb1` and `orclpdb2` using the service name then add these lines to `tnsnames.ora`, else skip these steps.

    a. Navigate to `$ORACLE_HOME/network/admin` and open `tnsnames.ora` :

```
[oracle@host01 /]$ cd $ORACLE_HOME
[oracle@host01 dbhome_1]$ cd network/admin/
[oracle@host01 dbhome_1]$ vi tnsnames.ora
```

    b. Add these lines to `tnsnames.ora`, if not already present:

```
ORCLPDB1 =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = )(PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = ORCLPDB1)
    )
  )

ORCLCDB =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = )(PORT
= 1521))
    (CONNECT_DATA  =
      (SERVER = DEDICATED)
      (SERVICE_NAME = orclcdb)
    )
  )

ORCLPDB2 =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = )(PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = ORCLPDB2)
    )
  )
```

c. Save the file and quit the vi editor (`:wq`).

22. Verify that the `HR` (sample schemas) user was created and there is data in the database.

```
[oracle@host01 /]$ . oraenv
 ORACLE_SID = [orclcdb] ? orclcdb
The Oracle base remains unchanged with value /u01/app/oracle
[oracle@host01 /]$ sqlplus

SQL*Plus: Release 19.0.0.0.0 - Production on Thu Dec 12 06:43:10
2019
Version 19.3.0.0.0

Copyright (c) 1982, 2018, Oracle.  All rights reserved.

Enter user-name: /as sysdba

Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 -
Production
Version 19.3.0.0.0

SQL> conn sys/fenago@orclpdb1 as sysdba
Connected.

SQL> ALTER USER hr IDENTIFIED BY fenago account unlock;

User altered.

Note: If you encounter an error "ORA-01918: user 'HR' does not
exist" then follow these steps to install HR schema.

SQL> conn sys/fenago@orclpdb1
Connected.

SQL> @?/demo/schema/human_resources/hr_main.sql

specify password for HR as parameter 1:
Enter value for 1:
SP2-0137: DEFINE requires a value following equal sign

specify default tablespeace for HR as parameter 2:
Enter value for 2: users
```

```
specify temporary tablespace for HR as parameter 3:
Enter value for 3: temp

specify log path as parameter 4:
Enter value for 4: $ORACLE_HOME/demo/schema/log


PL/SQL procedure successfully completed.

Enter value for pass: fenago

SQL> Select count(*) from employees;

  COUNT(*)
----------
       107
```

Note: Execute the above steps for PDB ORCLPDB2 too.

This completes the network and schema configuration.

23. Create a `labs` directory, download and unzip the lab files (in the `labs` directory) from your subscription page for the practices.

```
[oracle@host01 /]$ cd /home/oracle/
[oracle@host01 ~]$ mkdir labs
[oracle@host01 ~]$ ls
Desktop    Downloads  Music     Public  Templates
Documents  labs       Pictures  stage   Videos
```

a. Repeat step 23 to create `solutions`, `demos`, and `workshop` directories.

24. Execute these to configure EM Express:

a. Configure EM Express by running these commands:

```
$sqlplus / as sysdba
SQL> @?/rdbms/admin/execemx omx
SQL> alter session set container=orclpdb1;
SQL> @?/rdbms/admin/execemx omx
SQL> alter session set container=orclpdb2;
SQL> @?/rdbms/admin/execemx omx
```

b. Update oracle Shell Environment**. Execute these commands:**

```
$ vi /home/oracle/.bashrc
$ export ORACLE_SID=orclcdb
```

c. Configure EM Express for Global Port Use. Execute these commands:

```
$ sqlplus / as sysdba
SQL> exec dbms_xdb_config.setglobalportenabled(TRUE);
```

d. Configure Firefox Browser for EM Express. Execute these steps:

Navigate to https://localhost:5500/em

Note: If you get a security exception then follow these steps:

Your connection is not secure dialog appears. Navigate through:
Advanced
Add exception
Confirm Security Exception
Navigate through Firefox -> Preferences -> Home Page
Use Current Page: https://localhost:5500/em/login

Install full GitHub sample schemas into each PDB

25. Download sample schemas from this location:
    https://github.com/oracle/db-sample-schemas/releases/tag/v19.2
26. Copy the downloaded file to **$ORACLE_HOME/demo/schema/** and unzip.
27. Execute **cd $ORACLE_HOME/demo/schema/**
28. Execute **perl -p -i.bak -e 's#__SUB__CWD__#'$(pwd)'#g' *.sql */*.sql */*.dat**
29. **sqlplus / as sysdba**
30. Execute SQL> **@?/demo/schema/mksample fenago fenago fenagofenago fenago fenago fenago fenago users temp /home/oracle/setup/schema1/ localhost:1521/orclpdb1**

31. Execute SQL> **`@?/demo/schema/mksample fenago fenago fenagofenago fenago fenago fenago fenago users temp /home/oracle/setup/schema1/ localhost:1521/orclpdb2`**