Oracle Database Express Edition (XE) 21c
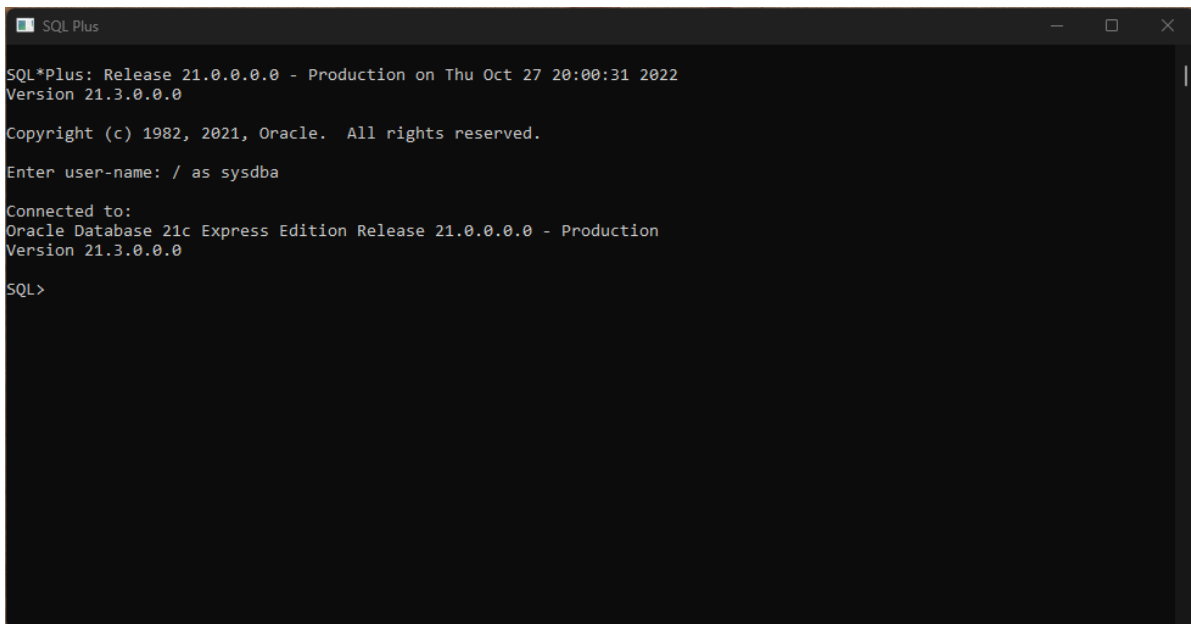## for Windows 10+

SOFTWARES

- Oracle Database Express Edition (XE) 21c

- SQL Developer

PDB CONFIGURATION

1. After installing Oracle XE to access the database, start the SQL Plus terminal and type `/ as sysdba`.

   HOW IT WORKS: When you enter `SYS` or a slash `/` as the user name and provide the `AS SYSDBA` clause, your access is authenticated using operating system authentication. The `SYS` user is automatically granted the `SYSDBA` privilege upon installation. `SYSDBA` is administrative privilege required to perform high-level administrative operations such as creating, starting up, shutting down, backing up, or recovering the database. `SYSDBA` system privilege is for fully empowered database administrators.

2. List Pluggable Databases (PDBs) by typing `SELECT name FROM v$pdbs;`

3. Now you can clone the default XEPDB1 database or just use it (skip to 5. step). To clone type:

`CREATE PLUGGABLE DATABASE [new_pdb_name] FROM xepdb1`

`FILE_NAME_CONVERT=('xepdb1','[new_pdb_name]');`

4. The cloned database has the status *mounted*. To check the status use:

   `SELECT name, open_mode FROM v$pdbs;`

   To open the new PDB in read / write mode type:

   `ALTER PLUGGABLE DATABASE [pdb_name] OPEN;`

```
SQL Plus                                                                                    —    □    ✕

SQL*Plus: Release 21.0.0.0.0 - Production on Thu Oct 27 21:34:14 2022
Version 21.3.0.0.0

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Enter user-name: / as sysdba

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> SELECT name, open_mode FROM v$pdbs;

NAME
--------------------------------------------------------------------------------
OPEN_MODE
----------
PDB$SEED
READ ONLY

XEPDB1
READ WRITE

INVPDB
MOUNTED


SQL> ALTER PLUGGABLE DATABASE invpdb OPEN;

Pluggable database altered.
```

```
SQL Plus                                                                                    —    □    ✕
SQL> ALTER PLUGGABLE DATABASE invpdb OPEN;

Pluggable database altered.

SQL> SELECT name, open_mode FROM v$pdbs;

NAME
--------------------------------------------------------------------------------
OPEN_MODE
----------
PDB$SEED
READ ONLY

XEPDB1
READ WRITE

INVPDB
READ WRITE


SQL>
```

5. Switch to PDB container by typing `ALTER SESSION SET CONTAINER = [pdb_name];` .
Check if you are in the correct container with the command `show con_name` .

```
SQL Plus                                                                    —    □    ×

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Enter user-name: / as sysdba

Connected to:
Oracle Database 21c Express Edition Release 21.0.0.0.0 - Production
Version 21.3.0.0.0

SQL> SELECT name FROM v$pdbs;

NAME
--------------------------------------------------------------------
PDB$SEED
XEPDB1
INVPDB

SQL> ALTER SESSION SET CONTAINER = invpdb;

Session altered.

SQL> show con_name

CON_NAME
------------------------------
INVPDB
SQL>
```

6. Create new user in PDB using:

    `CREATE USER [user_name] IDENTIFIED BY [user_password];`

    And grant permissions[1] to the new user using:

    `GRANT CREATE SESSION, CREATE TABLE TO [user_name];`

```
SQL Plus                                                                    —    □    ×
OPEN_MODE
----------
PDB$SEED
READ ONLY

XEPDB1
READ WRITE

INVPDB
READ WRITE


SQL> ALTER SESSION SET CONTAINER = invpdb;

Session altered.

SQL> show con_name

CON_NAME
------------------------------
INVPDB
SQL> CREATE USER invadm IDENTIFIED BY admin123;

User created.

SQL> GRANT CREATE SESSION, CREATE TABLE TO invadm;

Grant succeeded.

SQL>
```
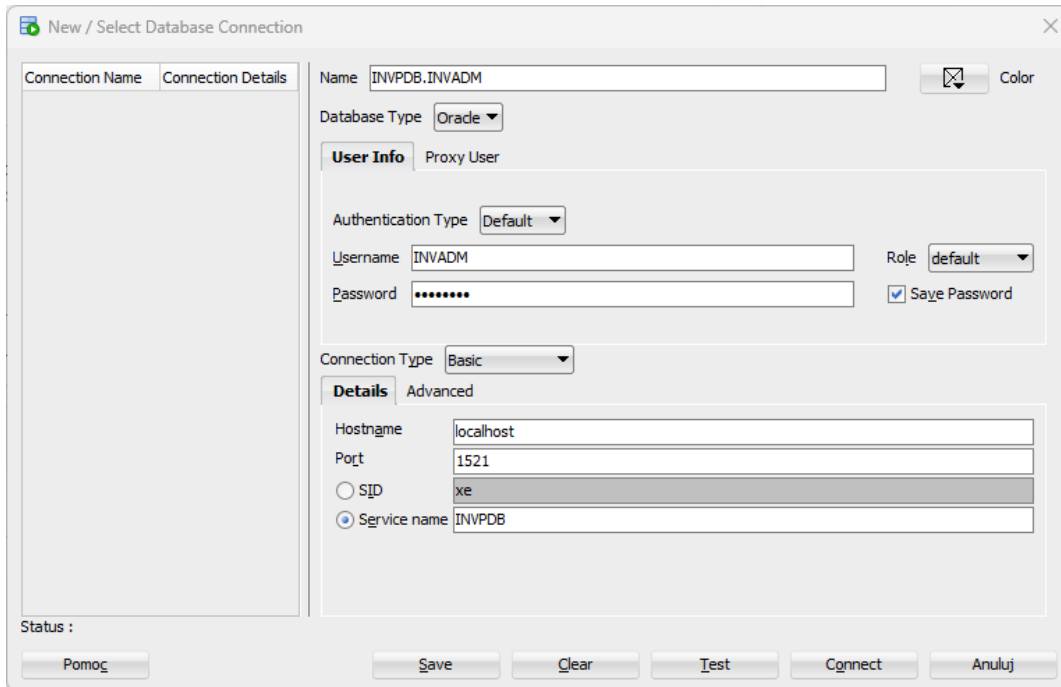
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[1]List of permissions: https://docs.oracle.com/database/121/TTSQL/privileges.htm#TTSQL339.

CONNECTION CONFIGURATION

Name your connection and use the credentials of the created user to connect. Remember to set the *Service name* to the name of the PDB you want to connect to. Leave the rest unchanged.

DISABLING DATABASE SERVICE AUTOSTART

By default Oracle Database XE starts with Windows. To change it go to *Search → Services → OracleServiceXE → Properites → Startupt type → Manual.* There also you can start it or shut it down.