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Oracle Database 12c: Administration Workshop

Student Guide – Volume I
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Oracle Database Management Tools



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Using SQL*Plus

SQL*Plus is:

- A command-line tool
- Used interactively or in batch mode

```
$ sqlplus hr

SQL*Plus: Release 12.1.0.2.0 Production on Mon Oct 6 13:28:12 2014

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Enter password:
Last Successful login time: Mon Oct 06 2014 13:24:35 +00:00

Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production
With the Partitioning, OLAP, Advanced Analytics and Real Application Testing options

SQL> SELECT last_name FROM employees;
LAST_NAME
-----
Abel
Ande
...
```

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You can use the SQL*Plus command-line interface to execute SQL*Plus, SQL, and PL/SQL commands to:

- Enter, edit, run, store, retrieve, and save SQL commands and PL/SQL blocks
- Format, calculate, store, and print query results
- List column definitions for any table
- Send messages to and accept responses from an end user
- Perform database administration

To start SQL*Plus:

1. Open a terminal window.
2. At the command-line prompt, enter the SQL*Plus command in the following form:
 \$ sqlplus <userid>/<pwd> or /nolog
3. If you use the NOLOG option, you must enter CONNECT followed by the username you want to connect as.
 SQL> connect <username>
4. When prompted, enter the user's password. SQL*Plus starts and connects to the default database.

Calling SQL*Plus from a Shell Script

```
$ ./batch_sqlplus.sh
SQL*Plus: Release 12.1.0.1.0 Production on Thu Nov 15 09:10:48 2012
Copyright (c) 1982, 2012, Oracle. All rights reserved.

Last Successful login time: Wed Nov 14 2012 12:10:11 +00:00

Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.1.0 - 64bit Production
With the Partitioning, OLAP, Advanced Analytics,
Unified Auditing options

SQL>      COUNT(*)
-----
          107
SQL> 107 rows updated.
SQL>
Commit complete.
SQL> Disconnected from Oracle Database 12c Enterprise Edition Release 12.1.0.1.0
- 64bit Production
With the Partitioning, OLAP, Advanced Analytics, Real Application Testing
and Unified Auditing options
$
```

Name of this file: batch_sqlplus.sh
Count employees and give raise.
sqlplus hr/hr <<EOF
select count(*) from employees;
update employees set salary = salary*1.10;
commit;
quit
EOF

Output

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You can call SQL*Plus from a shell script or BAT file by invoking sqlplus and using the operating system scripting syntax for passing parameters.

In this example, the SELECT, UPDATE, and COMMIT statements are executed before SQL*Plus returns control to the operating system.

Calling a SQL Script from SQL*Plus

```
script.sql      select * from departments where location_id = 1400;  
                  quit
```

↓ Output

```
$ sqlplus hr/hr @script.sql
```

```
SQL*Plus: Release 12.1.0.1.0 Production on Thu Nov 15 09:32:36 2012  
  
Copyright (c) 1982, 2012, Oracle. All rights reserved.  
  
Last Successful login time: Thu Nov 15 2012 09:30:49 +00:00  
  
Connected to:  
Oracle Database 12c Enterprise Edition Release 12.1.0.1.0 - 64bit Production  
With the Partitioning, OLAP, Advanced Analytics, Real Application Testing  
and Unified Auditing options  
  
DEPARTMENT_ID DEPARTMENT_NAME          MANAGER_ID LOCATION_ID  
-----  
       60 IT                         103        1400  
  
Disconnected from Oracle Database 12c Enterprise Edition Release 12.1.0.1.0 - 64bit  
Production  
With the Partitioning, OLAP, Advanced Analytics, Real Application Testing  
and Unified Auditing options
```

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You can call an existing SQL script file from within SQL*Plus. This can be done at the command line when first invoking SQL*Plus, as shown in the slide. It can also be done from inside a SQL*Plus session simply by using the "@" operator. For example, this example shows executing the script from within an already established SQL*Plus session:

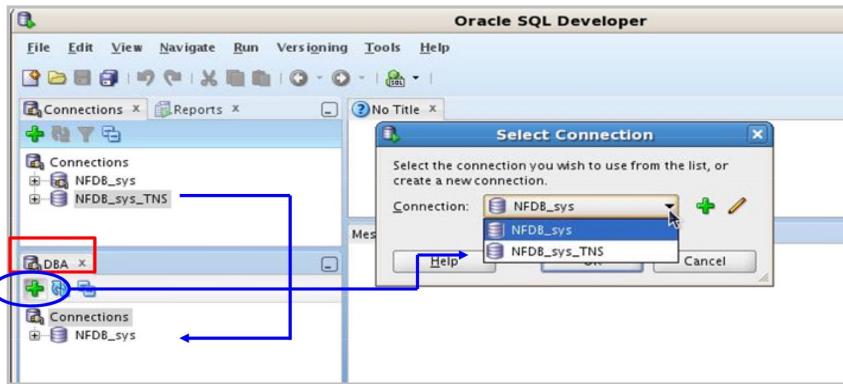
```
SQL> @script.sql
```

Note: The default file extension for script files is .sql. When a script is saved from SQL*Plus by using the SAVE command, this extension is automatically supplied. Scripts with this extension can be executed without supplying the extension at execution time, as in the following example:

```
SQL> @script
```

Oracle SQL Developer: Connections

Perform DBA operations in the DBA navigator by using DBA connections:



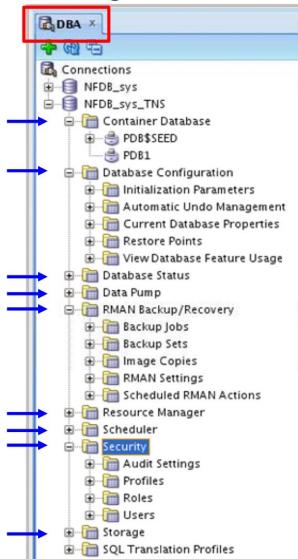
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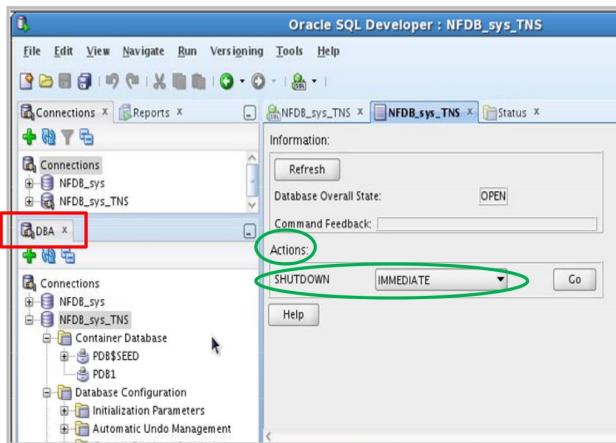
Oracle SQL Developer is a tool that allows stand-alone graphical browsing and development of database schema objects, as well as execution of database administrative tasks. SQL Developer enables users with database administrator privileges to view and edit certain information relevant to DBAs and perform DBA operations. To perform DBA operations, use the DBA navigator, which is similar to the Connections navigator in that it has nodes for all defined database connections. If the DBA navigator is not visible, select View, then DBA. You should add only connections for which the associated database user has DBA privileges, or at least privileges for the desired DBA navigator operations on the specified database.

Oracle SQL Developer: DBA Actions

Using DBA features through DBA navigator



Performing DBA actions



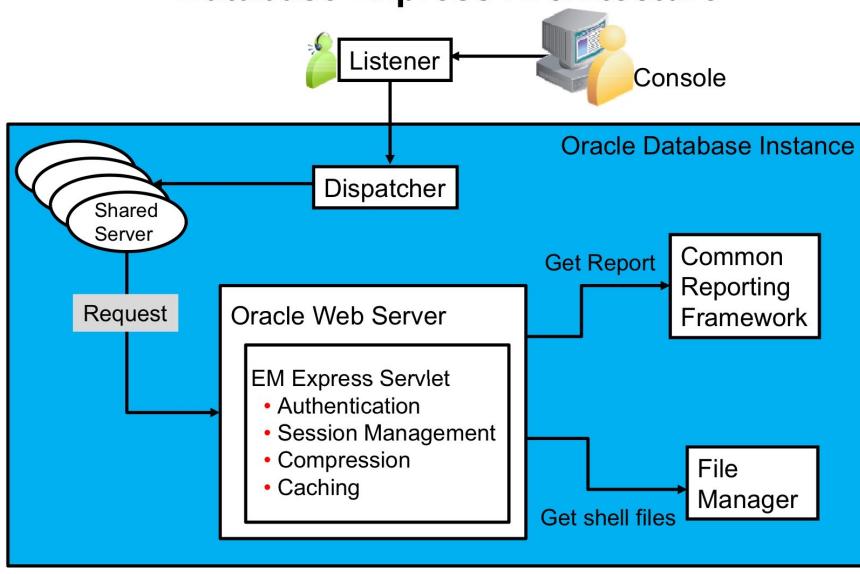
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The DBA operations that can be performed are the following:

- Database startup/shutdown
- Database configuration: Initialization Parameters, Automatic Undo Management, Current Database Properties, Restore Points, View Database Feature Usage
- Database status view
- Data Pump export and import jobs
- RMAN backup/recovery actions
- Resource Manager configuration
- Scheduler setting
- Security configuration like audit settings, profiles, roles, and users
- Storage configuration for archive logs, control files, data files, redo log groups, tablespaces, and temporary tablespace groups

Oracle Enterprise Manager Database Express Architecture



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Oracle Enterprise Manager Database Express is a lightweight administration tool. It provides an out-of-box browser-based management solution for a single Oracle database (or database cluster), including performance monitoring, configuration management, administration, diagnostics and tuning.

Oracle Enterprise Manager Database Express uses a web-based console, communicating with the built-in web server available in XML DB.

As requests from the console are processed, the Enterprise Manager Database Express servlet handles the requests, including authentication, session management, compression, and caching. The servlet passes requests for reports to the Common Reporting Framework and actions requiring shell files to the File Manager.

Enterprise Manager Database Express is available only when the database is open. This means that Enterprise Manager Database Express cannot be used to start up the database. Other operations that require that the database change state, such as enable or disable ARCHIVELOG mode, are also not available in Enterprise Manager Database Express.

Configuring Enterprise Manager Database Express

- Configure an HTTP listener port for each database instance.
 - Verify DISPATCHERS parameter.

```
dispatchers=(PROTOCOL=TCP) (SERVICE=sampleXDB)
```

- Use DBMS_XDB.setHTTPPort procedure.

```
exec DBMS_XDB.setHTTPPort(5500)
```

- Launch Enterprise Manager Database Express:

```
http://hostname:5500/em
```

- Use a different port for each instance.
- Browser requires Flash plug-in.



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Oracle Enterprise Manager Database Express is configurable with a single click in Database Configuration Assistant (DBCA).

Enterprise Manager Database Express requires that the XMLDB components are installed. All Oracle version 12.1.0 databases have XMLDB installed.

To activate Enterprise Manager Database Express in a database, verify that the DISPATCHERS initialization parameter has at least one dispatcher configured for the XMLDB service with the TCP protocol.

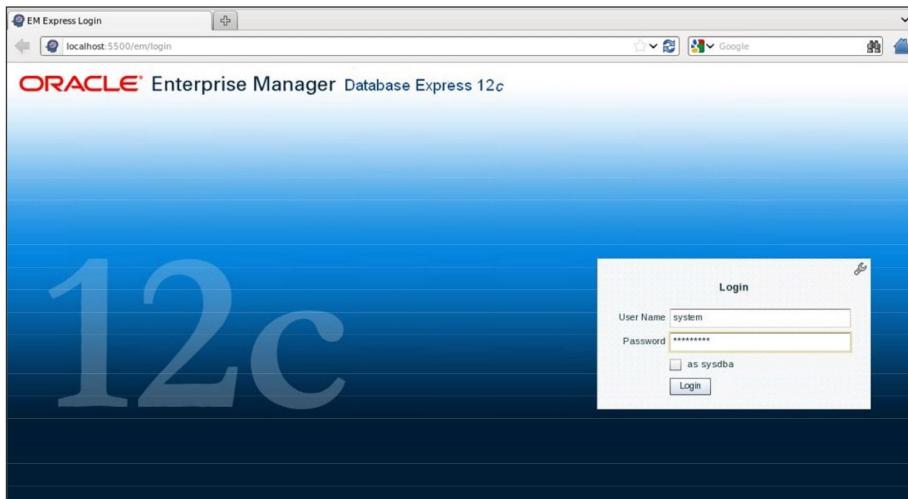
Use the SETHTTPPORT procedure in the DBMS_XDB package to configure a port on the server. Connect to the Enterprise Manager Database Express console with the URL shown in the slide. Substitute the host name of the server and the port number you set by using the SETHTTPPORT procedure.

If you have multiple database instances to monitor on the same machine, set a different port for each. To find the port used for each database instance, execute the following statement:

```
SQL> SELECT dbms_xdb.gethttpport FROM DUAL;
```

Enterprise Manager Database Express uses Shockwave Flash (SWF) files, so the web browser must have the Flash plug-in installed.

Logging In to Oracle Enterprise Manager Database Express

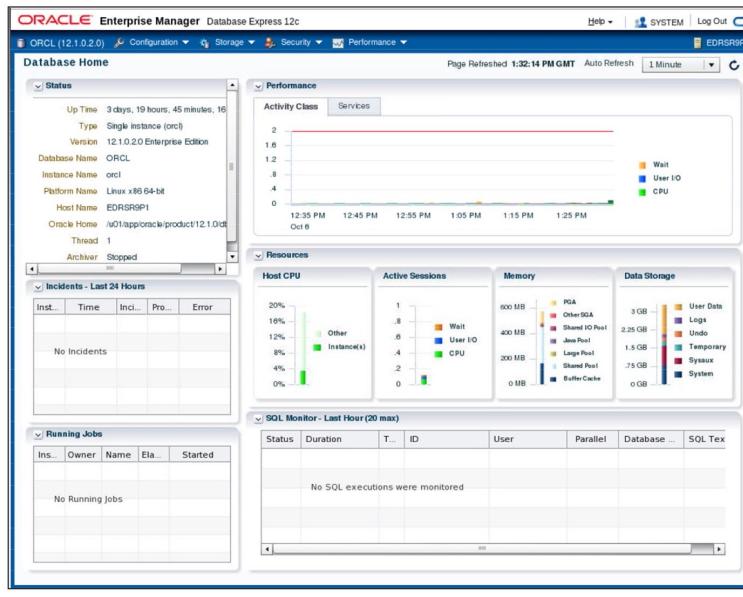


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Launch Enterprise Manager Database Express by using the configured HTTP port. Log in as the database user appropriate to the tasks you want to accomplish.

Using the Database Home Page



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The Enterprise Manager Database Home page presents an overall view of the database instance status and activity.