

SQL*Plus

Oracle Database Administration

Objectives

You will learn:

- Purpose and features of SQL*Plus.
- Starting/stopping SQL*Plus.
- Configuring SQL*Plus.
- Executing commands.
- SQL buffer.
- Formatting columns.

What is SQL*Plus

- SQL*Plus is an interactive and batch query tool that is installed with Oracle Database Server or Client installation.
- It has a command-line user interface, a Windows Graphical User Interface (GUI) and the iSQL*Plus web-based user interface.
- SQL*Plus has its own commands and environment, and provides access to the Oracle Database. It provides the capability for SQL, PL/SQL, and SQL*Plus commands to be entered and for operating system commands to perform the following:
 - Format, perform calculations on, store, and print from query results.
 - Examine table and object definitions.
 - Develop and run batch scripts.
 - Perform database administration.

Start SQL*Plus

- Open a UNIX or a Windows terminal and enter the SQL*Plus command:

```
sqlplus
```

- Or enter the SQL*Plus command in the form:

```
sqlplus username/password
```

Start SQL*Plus

- Open a UNIX or a Windows terminal and enter the SQL*Plus command:

```
sqlplus username/password@connect_identifier
```

- To hide a password, enter the SQL*Plus command in the form:

```
sqlplus username@connect_identifier
```

iSQL*Plus Session

- Enter the iSQL*Plus URL in the web browser's location or address field.
- The iSQL*Plus URL looks like:

```
http://machine_name.domain:port/isqlplus
```

Connecting to a Different Database

- To connect to a different database from a current command-line session

```
connect username/password@connect_identifier
```

Unlocking the Sample Tables

- The HR account needs to be unlocked before the HR sample schema can be used.
- To unlock the HR account, log in as the SYSTEM user and enter the following command, where password is the password to be defined for the user HR:

```
ALTER USER HR IDENTIFIED BY password ACCOUNT UNLOCK;
```

Configuring SQL*Plus

- There are two operating system files to do this:
 - The Site Profile file, glogin.sql, for site wide settings, and settings for the iSQL*Plus sessions from an iSQL*Plus Application Server.
 - Additionally, in the command-line user interface and the Windows GUI, the User Profile, login.sql, sets user specific settings.

Site Profile

- A Site Profile script is created during installation. It is used by the database administrator to configure session wide behavior for SQL*Plus Command-line, Windows GUI and iSQL*Plus connections.
- The Site Profile script is generally named glogin.sql. SQL*Plus or the iSQL*Plus Server executes this script whenever a user starts a SQL*Plus or iSQL*Plus session and successfully establishes the Oracle Database connection.

Global Login

```
-- DESCRIPTION
-- SQL*Plus global login "site profile" file
--
-- Add any SQL*Plus commands here that are to be executed when a
-- user starts SQL*Plus, or uses the SQL*Plus CONNECT command
--
-- USAGE
-- This script is automatically run
-- Used by Trusted Oracle
COLUMN ROWLABEL FORMAT A15

-- Used for the SHOW ERRORS command
COLUMN LINE/COL FORMAT A8
COLUMN ERROR FORMAT A65 WORD_WRAPPED

-- Used for the SHOW SGA command
COLUMN name_col_plus_show_sga FORMAT a24
```

Global Login

-- Defaults for SHOW PARAMETERS

COLUMN name_col_plus_show_param FORMAT a36 HEADING NAME

COLUMN value_col_plus_show_param FORMAT a30 HEADING VALUE

-- Defaults for SHOW RECYCLEBIN

COLUMN origname_plus_show_recyc FORMAT a16 HEADING 'ORIGINAL NAME'

COLUMN objectname_plus_show_recyc FORMAT a30 HEADING 'RECYCLEBIN NAME'

COLUMN objtype_plus_show_recyc FORMAT a12 HEADING 'OBJECT TYPE'

COLUMN droptime_plus_show_recyc FORMAT a19 HEADING 'DROP TIME'

-- Defaults for SET AUTOTRACE EXPLAIN report

COLUMN id_plus_exp FORMAT 990 HEADING i

COLUMN parent_id_plus_exp FORMAT 990 HEADING p

COLUMN plan_plus_exp FORMAT a60

COLUMN object_node_plus_exp FORMAT a8

COLUMN other_tag_plus_exp FORMAT a29

COLUMN other_plus_exp FORMAT a44

Entering and Executing Commands

- Three kinds of commands can be entered:
 - SQL commands, for working with information in the database.
 - PL/SQL blocks, also for working with information in the database.
 - SQL*Plus commands, for formatting query results, setting options, and editing and storing SQL commands and PL/SQL blocks.

The SQL Buffer

- The SQL buffer stores the most recently entered SQL command or PL/SQL block (but not SQL*Plus commands).
- The command or block remains in the buffer until replaced by the next SQL command or PL/SQL block.
- The buffer contents can be viewed with the LIST command.

The SQL Buffer

- The command or block in the SQL buffer command can be executed using the RUN or /(slash) commands.
- RUN displays the command or block in the buffer before executing it.
- /(slash) executes the command or block in the buffer without displaying it first.

DESCRIBE Command

- To list the column definitions of the columns in the sample view `EMP_DETAILS_VIEW`, enter:

```
DESCRIBE EMP_DETAILS_VIEW
```
- `DESCRIBE` accesses information in the Oracle Database data dictionary.

Ending a SQL Command

- A SQL command can be entered in one of three ways:
 - with a semicolon (;). A semicolon (;) informs SQL*Plus that the command is to be run.
 - with a slash (/) on a line by itself. A slash (/) informs SQL*Plus that the command is to be run.
 - with a blank line. A blank line in a SQL statement or script informs SQL*Plus that a command has been finished being entered, but that it has not been run yet.

Stopping a Command while it is Running

- Assume that the first page of a 50 page report has been displayed and the rest of the page does not have to be displayed.
- Press Cancel, the system's interrupt character, which is typically CTRL+C.
- SQL*Plus stops the display. In iSQL*Plus, click the Cancel button.

Running Operating System Commands

- To run an operating system command, enter the SQL*Plus command HOST followed by the operating system command.
- For example, this SQL*Plus command runs the command, DIRECTORY *.SQL:

```
HOST DIRECTORY *.SQL
```

Saving Changes to the Database Automatically

- Changes can be specified to make the information stored in the database using the SQL Database Manipulation Language (DML) commands UPDATE, INSERT, and DELETE - which can be used independently or within a PL/SQL block.
- These changes are not made permanent until a SQL COMMIT command or a SQL Database Control Language (DCL) or Database Definition Language (DDL) command (such as CREATE TABLE) has been entered. The autocommit feature can also be used. The SQL*Plus autocommit feature causes pending changes to be committed after a specified number of successful SQL DML transactions.
- To turn the autocommit feature on, enter:

```
SET AUTOCOMMIT ON
```

Line Edit

APPEND text	A text	Adds text at the end of the current line.
CHANGE/old/new	C/old/new	Changes old to new in the current line.
CHANGE/text	C/text	Deletes text from the current line.
CLEAR BUFFER	CL BUFF	Deletes all lines.
DEL	(none)	Deletes the current line.
DEL n	(none)	Deletes line n.
DEL *	(none)	Deletes the current line.
DEL n *	(none)	Deletes line n through the current line.
DEL LAST	(none)	Deletes the last line.
DEL m n	(none)	Deletes a range of lines (m to n).
DEL * n	(none)	Deletes the current line through line n.
INPUT	I	Adds one or more lines.
INPUT	text I text	Adds a line consisting of text.
LIST	; or L	Lists all lines in the SQL buffer.
LIST n	L n or n	Lists line n.
LIST *	L *	Lists the current line.
LIST n *	L n *	Lists line n through the current line.
LIST LAST	L LAST	Lists the last line.
LIST m n	L m n	Lists a range of lines (m to n).
LIST * n	L * n	Lists the current line through line n.

Formatting Columns

- Changing column headings
- Default headings
- Changing default headings
- **COLUMN column_name HEADING
column_heading**

Column Heading

- Splitting a column heading.

```
COLUMN SALARY HEADING 'MONTHLY | SALARY'
```

```
COLUMN LAST_NAME HEADING 'LAST | NAME'
```

Formatting NUMBER Columns

- When displaying NUMBER columns, either accept the SQL*Plus default display width or it can be changed using the COLUMN command.

```
COLUMN SALARY FORMAT $99,990
```

Starting and Mounting

- To start an Oracle Database instance, without mounting the database, enter:
`STARTUP NOMOUNT`
- To start an instance, mount the database, but leave the database closed, enter:
`STARTUP MOUNT`

Opening the Database

- To start an instance using the Oracle Database Server parameter file INITSALES.ORA, mount and open the database named SALES, and restrict access to database administrators, enter:
- To start an instance using the Oracle Database Server parameter file INITSALES.ORA, mount and open the database named SALES in exclusive mode, and restrict access to administrative personnel, enter:

```
STARTUP OPEN sales PFILE=INITSALES.ORA RESTRICT
```

```
STARTUP OPEN sales PFILE=INITSALES.ORA EXCLUSIVE  
RESTRICT
```

Shutting Down a Database

- Closing the database
 - When a database is closed, all database and recovery data in the SGA are written to the datafiles and redo log files, and all online datafiles are closed.
- Dismounting the database
 - Dismounting the database disassociates the database from an instance and closes the control files of the database.
- Shutting down the instance
 - Shutting down an instance reclaims the SGA from memory and terminates the background Oracle Database processes that constitute an Oracle Database instance.

SQL*Plus Command Reference

@ ("at" sign)
@@ (double "at" sign)
/ (slash)
ACCEPT
APPEND
ARCHIVE LOG
ATTRIBUTE
BREAK
BTITLE
CHANGE
CLEAR
COLUMN
COMPUTE
CONNECT
COPY
DEFINE
Predefined Variables
DEL
DESCRIBE
DISCONNECT
EDIT
EXECUTE
EXIT

SQL*Plus Command Reference

GET
HELP
HOST
INPUT
LIST
PASSWORD
PAUSE
PRINT
PROMPT
RECOVER
REMARK
REPFOOTER
REPHEADER
RUN
SAVE
SET
SET System Variable Summary
SET APPINFO{ON | OFF | text}
SET ARRAY[SIZE] {15 | n}
SET AUTO[COMMIT]{ON | OFF | IMM[EDIATE] | n}
SET AUTOP[RINT] {ON | OFF}
SET AUTORECOVERY [ON | OFF]
SET AUTOT[RACE] {ON | OFF | TRACE[ONLY]} [EXP[LAIN]] [STAT[ISTICS]]

SQL*Plus Command Reference

```
SET BLO[CKTERMINATOR] { . | c | ON | OFF }
SET CMDS[EP] { ; | c | ON | OFF }
SET COLSEP { | text }
SET COM[patibility]{V7 | V8 | NATIVE}
SET CON[CAT] { . | c | ON | OFF }
SET COPYC[OMMIT] { 0 | n }
SET COPYTYPECHECK { ON | OFF }
SET DEF[INE] { & | c | ON | OFF }
SET DESCRIBE [DEPTH { 1 | n | ALL}] [LINENUM { ON | OFF}] [INDENT { ON | OFF}]
SET ECHO { ON | OFF }
SET EDITF[ILE] file_name[.ext]
SET EMB[EDDED] { ON | OFF }
SET ESC[APE] { \ | c | ON | OFF }
SET FEED[BACK] { 6 | n | ON | OFF }
SET FLAGGER { OFF | ENTRY | INTERMED[IATE] | FULL }
SET FLU[SH] { ON | OFF }
SET HEA[DING] { ON | OFF }
SET HEADS[EP] { | | c | ON | OFF }
SET INSTANCE [instance_path | LOCAL]
SET LIN[ESIZE] { 80 | n }
SET LIN[ESIZE] { 150 | n } in iSQL*Plus
SET LOBOF[FSET] { 1 | n }
SET LOGSOURCE [pathname]
SET LONG { 80 | n }
SET LONGC[HUNKSIZE] { 80 | n }
```

SQL*Plus Command Reference

```
SET MARK[UP] HTML [ON | OFF] [HEAD text] [BODY text] [TABLE text] [ENTMAP {ON | OFF}]
    [SPOOL {ON | OFF}] [PRE[FORMAT] {ON | OFF}]
SET NEWP[AGE] {1 | n | NONE}
SET NULL text
SET NUMF[ORMAT] format
SET NUM[WIDTH] {10 | n}
SET PAGES[IZE] {14 | n}
SET PAU[SE] {ON | OFF | text}
SET RECSEP {WR[APPED] | EA[CH] | OFF}
SET RECSEPCHAR { | c}
SET SERVEROUT[PUT] {ON | OFF} [SIZE n] [FOR[MAT] {WRA[PPED]
| WOR[D_WRAPPED] | TRU[NCATED]}]
SET SHIFT[INOUT] {VIS[IBLE] | INV[ISIBLE]}
SET SHOW[MODE] {ON | OFF}
SET SQLBL[ANKLINES] {ON | OFF}
SET SQLC[ASE] {MIX[ED] | LO[WER] | UP[PER]}
SET SQLCO[NTINUE] {> | text}
SET SQLN[UMBER] {ON | OFF}
SET SQLPLUSCOMPAT[IBILITY] {x.y[.z]}
SQL*Plus Compatibility Matrix
SET SQLPRE[FIX] {# | c}
SET SQLP[ROMPT] {SQL> | text}
SET SQLT[ERMINATOR] {; | c | ON | OFF}
SET SUF[FIX] {SQL | text}
```

SQL*Plus Command Reference

```
SET TAB {ON | OFF}
SET TERM[OUT] {ON | OFF}
SET TI[ME] {ON | OFF}
SET TIMI[NG] {ON | OFF}
SET TRIM[OUT] {ON | OFF}
SET TRIMS[POOL] {ON | OFF}
SET UND[ERLINE] {- | c | ON | OFF}
SET VER[IFY] {ON | OFF}
SET WRA[P] {ON | OFF}
SHOW
SHUTDOWN
SPOOL
START
STARTUP
STORE
TIMING
TTITLE
UNDEFINE
VARIABLE
WHENEVER OSERROR
WHENEVER SQLERROR
```