



SQLcl: The Next Generation of SQL*Plus?

Oded Raz  & Zohar Elkayam 

Brillix

www.dbaces.com




About Oded Raz

- Founder of Brillix and co-CEO
- Oracle ACE Director since 2010
- Over 20 years of experience as DBA
- Identity & Access solution specialist



About Zohar Elkayam

- CTO at Brillix
- Oracle ACE Associate since 2014 
- DBA, team leader, Oracle University instructor and a senior consultant for over 17 years
- Editor of iIDBA – Israel Database Community website
- Blogger – www.realdbamagic.com



Agenda

- SQL*Plus and what is it good for
- Introducing SQLcl
- How to install and how to use SQLcl
- SQLcl new features and demo
- Q&A

SQL*Plus

- Introduced in Oracle 5 (1985)
- Looks very simple but has tight integration with other Oracle infrastructure and tools
- Very good for reporting, scripting, and automation
- Replaced old CLI tool called ...
 UFI (“User Friendly Interface”)

What's Wrong With SQL*Plus?

- Nothing really wrong with SQL*Plus – it is being updated constantly but it is missing a lot of functionality
- SQL*Plus forces us to use GUI tools to complete some basic tasks
- Easy to understand, a bit hard to use
- Not easy for new users or developers

Introducing SQLcl

- SQLcl is a new command line interface (CLI) for SQL users and DBAs
- It is part of the SQL Developer suite – developed by the same team: Oracle Database Development Tools Team
- Can do most of what SQL*Plus does and much more
- Minimal installation, minimal requirements



Introducing SQLcl (cont.)

- It's still in the early adopter version (current version: 4.2.0.15.121.1046, May 4, 2015)
- Uses Java, one version for Windows, Linux and OS X
- Planned to be shipped out with Oracle Database 12cR2

Current Status

- Early Adopter version
- QA still logging bugs from SQL*Plus regression tests
- Adding support for existing SQL*Plus commands/syntax
- Adding new commands

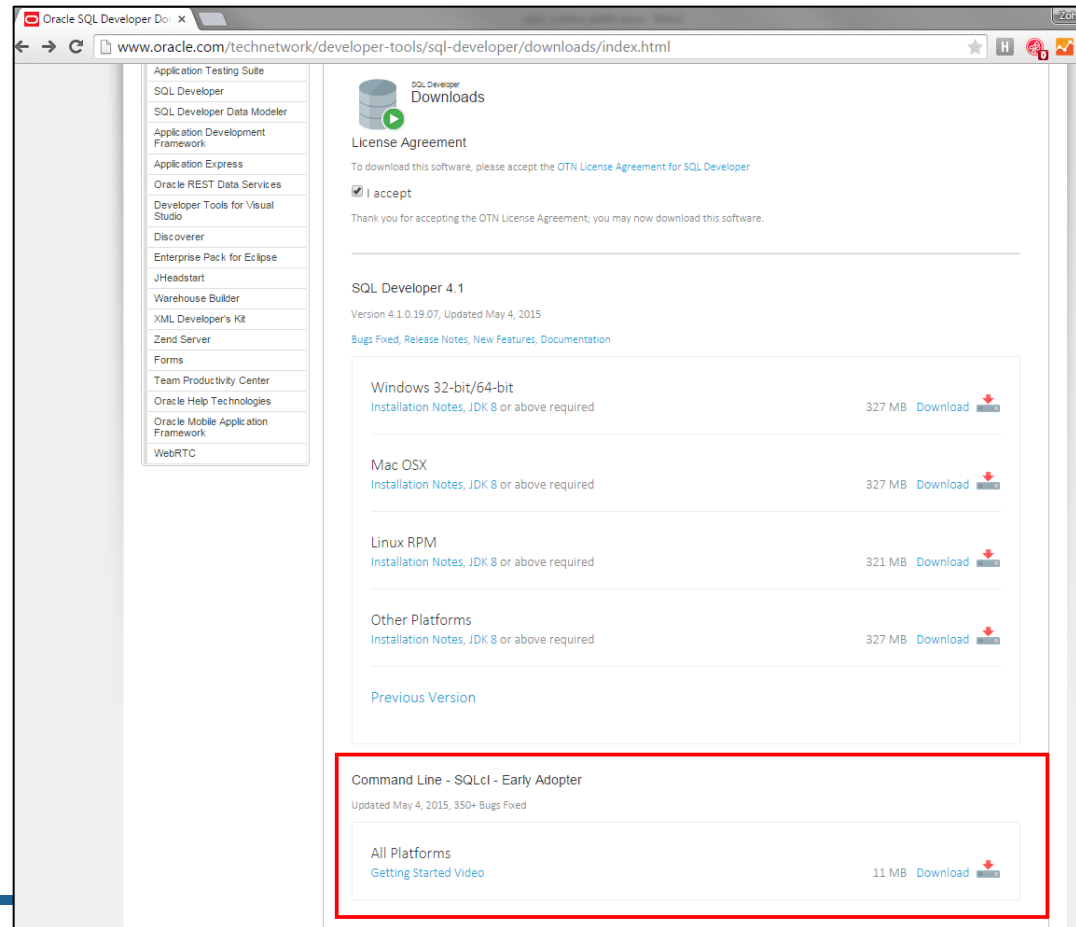
- But can it do...?
 - Yes
 - Not yet
 - No

Installing

- Download from: [SQL Developer Download page](http://www.oracle.com/technetwork/developer-tools/sql-developer/downloads/index.html)

- Unzip the file

- Run it



Prerequisites

- Very small footprint: 11MB
- Needs Java 7/8 runtime environment (no need for JDK)
- No need for installer or setup
- No need for any other additional software or licence

Connecting to the Database

- No need for Oracle Client
- Thin connection: EZConnect connect style out of the box
`connect host:port/service`
- Support TNS, Thick and LDAP connection when Oracle home detected
- Auto-complete connection strings
- Can show JDBC for connection information

Object Completion and Easy Edit

- Use the tab key to complete commands
- Can be used to list tables, views or other queryable objects
- Can be used to replace the * with actual column names
- Use the arrow keys to move around the command
- Use CTRL+W and CTRL+S to jump to the beginning/end of commands

Command History

- 100 command history buffer
- Commands are persistent between sessions (watch out for security!)
- Use UP and DOWN arrow keys to access old commands
- Usage:
 - history
 - history usage
 - History script
 - history full
 - History clear [session?]
- Load from history into command buffer:
 - history <number>

Describe, Information and info+

- Describe lists the column of the tables just like SQL*Plus
- Information shows column names, default values, indexes and constraints.
- In 12c database information shows table statistics and In memory status
- Works for table, views, sequences, and code objects
- Info+ shows additional information regarding column statistics and column histograms

Repeat

- Repeats the current SQL or PL/SQL in the buffer the specified number of times with specified sleep intervals
- Looks like the “watch” command in Linux
- Usage:
repeat <iterations> <sleep>

Repeat as “tail -f alert.log”

- Jeff Smith (@thatjeffsmith) had a [cool implementation](#) for the repeat command on Oracle 12c:
- tail -f on the alert log

```
SELECT
To_Char(Originating_Timestamp, 'DD-MON-YYYY HH24:MI:SSxFF')
Time_Entry, substr(trim(message_text), 0, 75) || '...'
ABBR_MESSAGE_TEXT
FROM X$dbga1ertext
ORDER BY Originating_Timestamp DESC, indx desc
fetch FIRST 15 ROWS ONLY;
```

DDL and DBMS_METADATA

- Extract DDL of objects using a single command
DDL <object name>
- Uses DBMS_METADATA.GET_DDL to extract the object
- We can modify the output using TRANSFORM_PARAM:

```
exec dbms_metadata.set_transform_param  
(dbms_metadata.session_transform, 'SEGMENT_ATTRIBUTES',  
false);
```

Alias

- Alias is a command which allows us to save a SQL, PL/SQL or SQL*Plus scripts, and assign it a shortcut command.
- Command can receive parameters using bind variables
- Aliases are session persistent and being saved
- Usage:
 - `alias` - for list of aliases
 - `alias list <aliasName>` - for definition
 - Setting an alias:
 - `alias my_command=sql;` (terminate with ;)
 - `alias my_code=begin command; end;` (terminate with /)

Alias Example

- We want to show the DDL command without the segment part but the transformation is on the session level.

- We set this alias:

```
alias ddl_fix_output=begin
    dbms_metadata.set_transform_param
    (dbms_metadata.session_transform, 'SQLTERMINATOR', TRUE);
    dbms_metadata.set_transform_param
    (dbms_metadata.session_transform, 'SEGMENT_ATTRIBUTES', false);
end;
/
```

CTAS

- Extract DDL for a table and use it to recreate another table using `select * from`
- Useful when we want to copy a table with partitions or a primary key
- Might not stay in the final version – have a lot of small and annoying issues
- Usage:
`ctas table new_table`

SQLPATH

- SQLPATH is the order in which the CLI is looking for sql scripts (both in SQL*Plus and SQLcl)
- Running a script not from the path requires full path location
- Default search order is:
 1. Current cd directory
 2. Current running directory
 3. The rest of the sqlpath
- Show SQLPATH will show that current search path

CD command

- When we want to change the path in SQL*Plus, we usually can't.
- SQLcl comes with CD command to change that path and make it easier to run scripts:
- Usage:
`cd /u01/app/oracle/scripts`
`Show SQLPATH`

Bridge

- Used mainly to script data move between two connections from the client (no server direct server connections)
- The following functionality is available:
 1. Query tables in other connections
 2. Query tables in multiple connections in the same statement
 3. Insert data from one connection into another
 4. Create a table and insert data into it from another connection

Bridge (cont.)

- Uses JDBC connection string to connect our client to the remote connection.
- Creates a table with the results in the database

- Usage:

```
BRIDGE <targetTableName> as "<jdbcURL>"(<sqlQuery>);
```

- Example:

```
BRIDGE dept_remote as  
"jdbc:oracle:thin:scott/tiger@localhost:1521/orcl"  
(select * from dept);
```

SQL*Plus Output

- SQL*Plus output is generated as text tables
- We can output the data as HTML but the will take over everything we do in SQL*Plus (i.e. describe command)
- We can't use colors in our output
- We can't generate other types of useful outputs (CSV is really hard for example)

Generating Pretty Output

- Outputting query results becomes easier with the “set sqlformat” command (also available in SQL Developer)
- We can create a query in the “regular” way and then switch between the different output styles:
 - ANSIconsole
 - Fixed column size output
 - XML or JSON output
- HTML output generates a built in search field and a responsive html output for the result only

Generating Other Useful Outputs

- We can generate loader ready output (with “|” as a delimiter)
- We can generate insert commands
- We can easily generate CSV output
- Usage:

```
set sqlformat { csv,html,xml,json,ansiconsole,insert,loader,fixed,default}
```

Load Data From CSV File

- Loads a comma separated value (csv) file into a table
- The first row of the file must be a header row and the file must be encoded UTF8
- The load is processed with 50 rows per batch
- Usage:

```
LOAD [schema.]table_name[@db_link] file_name
```

Conclusion

- We talked about SQL*Plus and SQLcl differences
- We saw how to start working with SQLcl
- We tried some of its new features
- There are more new features coming and since it's an EA version, more bug fixes to come

Q&A

Useful Resources

- Kris Rice ([@krisrice](#)) manage Oracle SQL Developer
Blog: <http://krisrice.blogspot.com/>
- Jeff Smith ([@thatjeffsmith](#)) Oracle SQL Developer Product Manager at Oracle
Blog: <http://www.thatjeffsmith.com/>
- Barry McGillin ([@bamcgill](#)) – Oracle
Blog: <http://barrymcgillin.blogspot.com/>

Thank You

Oded Raz

oded@dbaces.co.il

www.dbaces.com



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