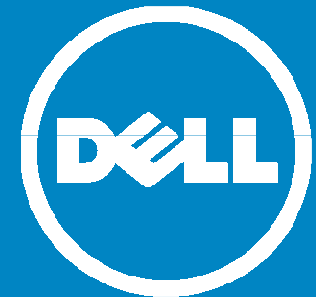# Toad for Oracle

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DELL

Toad ® for Oracle

Toad for Oracle is a productivity toolset that provides efficient and accurate development and administration to Oracle database professionals of all skill and experience levels. It is the most widely-used tool of its kind on the market.

Which version is right for me

- Toad for Oracle Freeware   (available from Toadworld.com)
- Toad for Oracle BASE edition
- Toad for Oracle Professional edition
- Toad for Oracle Xpert edition (includes SQL Optimizer for Oracle)
- Toad for Oracle Development Suite
- Toad for Oracle DBA Suite (Exadata, RAC and non-RAC versions available)

Edition	Persona(s)	Feature	Function	Benefit
All Editions	DBAs	Oracle® 12c support	Support for the latest release of the Oracle database, 12c – includes support for Oracle's multi-tenancy feature	Multi-tenancy is a new feature of the Oracle 12c database. It enables the hosting of multiple database instances on a single DB server. This helps organizations who are conducting database consolidation.
All Editions	DBAs	**ETL functionality**	Import/Export data to other DB platforms via ODBC	A convenient way to ensure data integrity across database platforms.
All Editions	Developers	**Code Refactoring**	Fixes inefficient database queries by restructuring	Helps developers build better-performing queries by providing them with the ability to restructure them.
All Editions	All	**Database Login**	Enhancements to the Login screen enable diagnosis of database connection issues and provide recommendations for resolution.	During Toad installation/configuration, there may be challenges connecting to your databases. The Database Login screen now pinpoints the issue and makes recommendations for how to resolve.
All Editions	DBAs	**Schema management**	Updates made to Toad schema management functionality allow you to save and restore data sets and options.	The ability to save and restore data sets and options makes it easier for you to work between Test and Production databases.
All Editions	Developers	**Git SCM support**	Version control support for Git SCM has been added.	Greater flexibility in the VCS that can be used in conjunction with Toad

SQL Optimization for Oracle

Toad Xpert

What is the COST ?

- **The cost is the time spent on single block reads, plus the time spent on multiblock reads, plus the CPU time required, all divided by the time is takes to do a single block read.**

  This means that the cost of a query is the PREDICTED EXECUTION TIME, counted in **number of single block read times** and is effectively the unit of measure of the cost.

Emerging Markets

SQL Plan Management : extra help

- One of the biggest challenges any DBA faces is the ability to identify not only which SQL statements are performing poorly, but also capturing the best execution plans for SQL statements and making those plans available to all statements that could benefit from them.

- The evolution of these solutions makes for an interesting history lesson.

  - Oracle 8i **stored outlines** fix the execution plan
  - Oracle 10G **SQL Profiles** hold additional information that vastly improve the execution plan, but they still need to be refreshed (DBMS_SQLTUNE)
  - Oracle 11G stores a history and can switch when necessary – otherwise known as **plan baselines**

    ```
    ALTER SESSION SET optimizer_capture_sql_plan_baselines=TRUE;
    ALTER SESSION SET optimizer_use_sql_plan_baselines=TRUE;
    ```

Emerging Markets
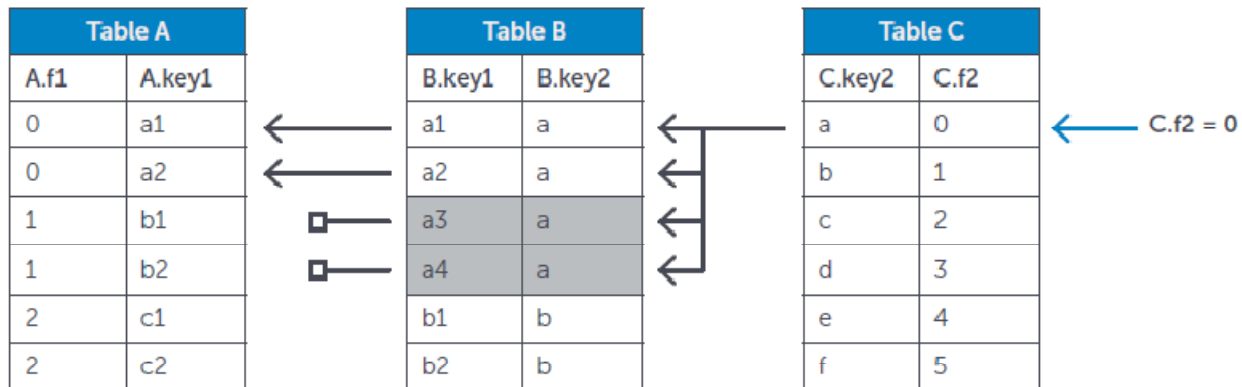
SQL Optimization for Oracle

- **SQL Optimization**

    – SQL rewrites / hints & index recommendations

    – Deploy plans using stored outlines or planned baselines

- **Batch SQL Optimization (SQL & PL/SQL code review)**

- **Plan Control of SQL Plan Baselines / Stored Outlines**

- **Index Impact Analysis**

    – What could be the affect of deploying an index
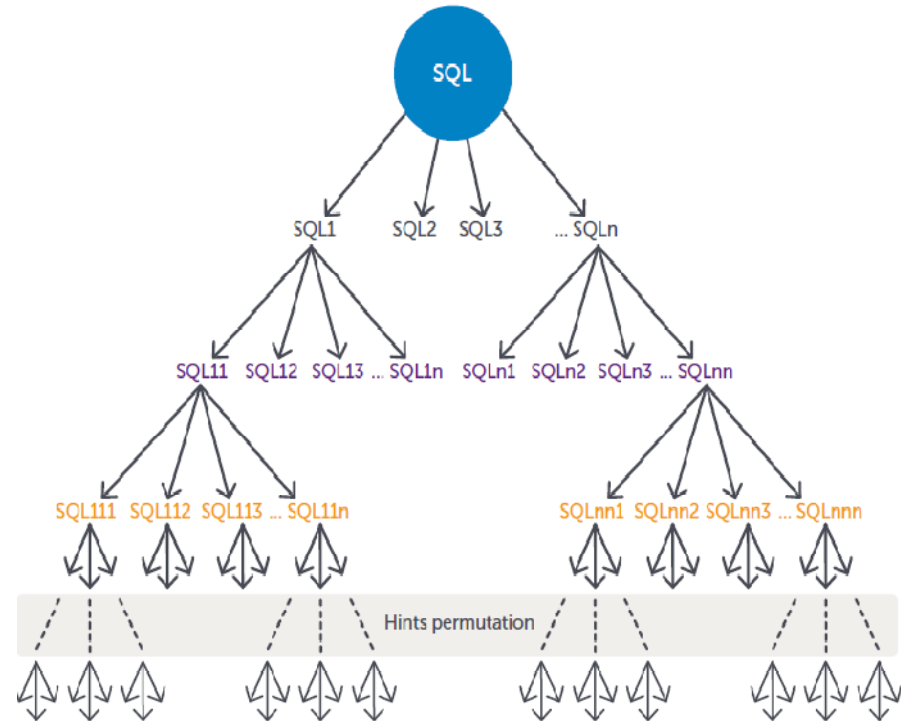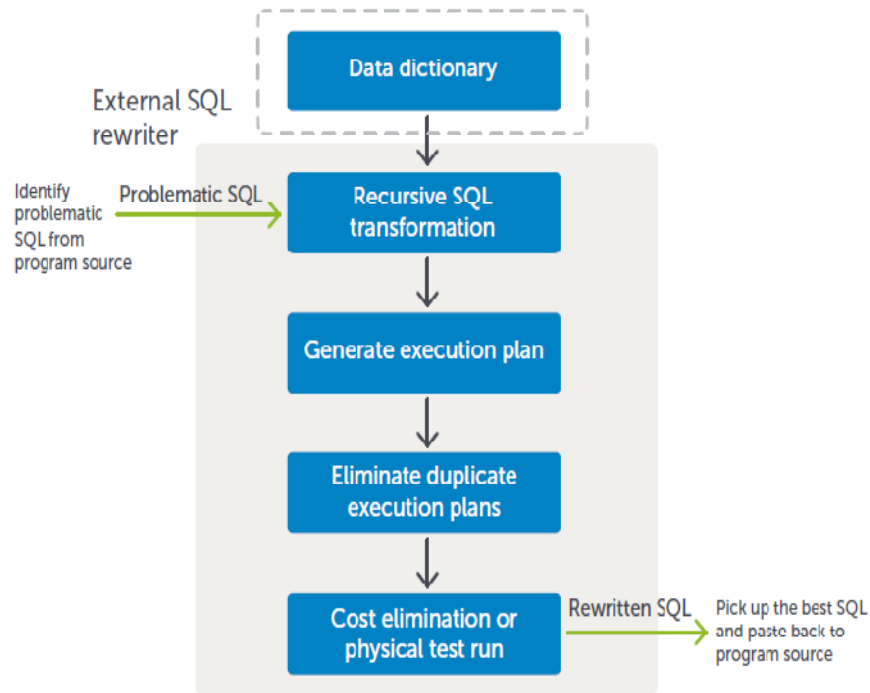
- **Application index recommendation**

Emerging Markets

Consider the following example

```
SELECT *
FROM A, B, C
WHERE A.key1 = B.key1
AND B.key2 = C.key2
AND C.f2 = 0
AND A.f1 = 0
```

Table A	
A.f1	A.key1
0	a1
0	a2
1	b1
1	b2
2	c1
2	c2

Table B	
B.key1	B.key2
a1	a
a2	a
a3	a
a4	a
b1	b
b2	b

Table C	
C.key2	C.f2
a	0
b	1
c	2
d	3
e	4
f	5

C.f2 = 0

Emerging Markets

SQL Optimization for Oracle

External SQL rewriter

Data dictionary

Identify problematic SQL from program source → Problematic SQL →

Recursive SQL transformation

Generate execution plan

Eliminate duplicate execution plans

Cost elimination or physical test run → Rewritten SQL → Pick up the best SQL and paste back to program source

SQL

SQL1   SQL2   SQL3   ... SQLn

SQL11 SQL12 SQL13 ... SQL1n   SQLn1 SQLn2 SQLn3 ... SQLnn

SQL111 SQL112 SQL113 ... SQL11n   SQLnn1 SQLnn2 SQLnn3 ... SQLnnn

Hints permutation

Emerging Markets

Demo

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