

Create an Optimizer Trace in Database 12c

How to generate an optimizer trace file

Sometimes it is necessary to know the details of how the Oracle Optimizer created an execution plan. This can be done by creating an Optimizer trace file, also known as a 10053 trace. The trace file will be created in the `USER_DUMP_DEST` directory. The trace file can be created in several ways, and this brief will show the two most common methods of creating the trace file that should cover most situations.

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Capture an Optimizer trace by running the SQL statement

To create an optimizer trace by running the SQL statement, create a SQL*Plus session and perform the following steps:

Step 1: To make it easier to find the trace file you can add a unique string to the trace file by issuing the following command before turning trace on:

```
alter session set tracefile_identifier='IDENTIFY_MY_TRACE';
```

where `IDENTIFY_MY_TRACE` is any string that you want to use to identify the trace file.

Step 2: The trace file generated may be large so it is recommended that the following alter session command be issued prior to creating the trace file:

```
alter session set max_dump_file_size = unlimited;
```

Step 3: Enable the optimizer trace by running the the following ALTER SESSION command:

```
alter session set events 'trace[rdbsms.SQL_Optimizer.*]';
```

Now run the SQL statement. Note that this method requires a hard parse to capture the trace data so you may need to add a comment to the SQL statement to make it unique or flush the shared pool if you are on a non-production environment. Alternatively, you can use EXPLAIN PLAN for the statement(s).

Step 4: To turn the tracing off:

```
alter session set events 'trace[rdbsms.SQL_Optimizer.*]' off;
```

Step 5: The trace file will be located in the `USER_DUMP_DEST` directory. This directory can be found by issuing the command:

```
show parameter user_dump_dest
```

Capture an Optimizer trace for an already existing SQL statement

If you don't control the SQL execution then you can still create an Optimizer trace file if you know the `SQL_ID` of the SQL statement. The `SQL_ID` can then be added to the

DBMS_SQLDIAG.DUMP_TRACE command (added to DBMS_SQLDIAG in Oracle Database 11g R2) to create an Optimizer trace for any SQL statement that has been run and is in the shared pool. Note that this procedure will automatically trigger a hard parse of the statement.

The following will show an example for SQL_ID '1n482vfrxw014':

```
begin
  DBMS_SQLDIAG.DUMP_TRACE (
    p_sql_id=>'1n482vfrxw014',
    p_child_number=>0,
    p_component=>'Compiler',
    p_file_id=>'MY_SPECIFIC_STMT_TRC');
end;
/
```

After running the procedure above you can find the trace file in the USER_DUMP_DEST directory. To make it easier to find the trace file you should set the P_FILE_ID parameter to a string that starts with an alphabetic character and does not contain any leading or trailing white space.

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