



1Z0-117^{Q&As}

Oracle Database 11g Release 2: SQL Tuning Exam

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QUESTION 1

You are logged in as the HR user and you execute the following procedure:

```
SQL > exec DBMS_STATS.SET_TABLE_PREFS ('HR\\', 'EMPLOYEES\\', 'PUBLISH\\', 'FALSE\\'); SQL> exec  
DBMS_STATS.GATHER_TABLE_STATS ('HR\\', 'EMPLOYEES\\');
```

Which statement is true about the newly gathered statistics?

- A. They are temporary and purged when the session exits.
- B. They are used by the optimizer for all sessions.
- C. They are locked and cannot be overwritten.
- D. They are marked as pending and stored in the pending statistics table.

Correct Answer: D

In previous database versions, new optimizer statistics were automatically published when they were gathered. In 11g this is still the default action, but you now have the option of keeping the newly gathered statistics in a pending state until you choose to publish them.

The DBMS_STATS.GET_PREFS function allows you to check the 'PUBLISH' attribute to see if statistics are automatically published. The default value of TRUE means they are automatically published, while FALSE indicates they are held in a pending state.

Reference: Statistics Collection Enhancements in Oracle Database 11g Release 1, Pending Statistics

QUESTION 2

An application accessing your database got the following error in response to SQL query:

ORA-12827: insufficient parallel query slaves available

View the parallel parameters for your instance:



NAME	TYPE	VALUE
fast_start_parallel_rollback	string	LOW
parallel_adaptive_multi_tuning	boolean	TRUE
parallel_automatic_tuning	boolean	FALSE
parallel_degree_limit	string	32
parallel_degree_policy	string	LIMITED
parallel_execution_message_size	integer	16384
parallel_force_local	boolean	FALSE
parallel_io_cap_enabled	boolean	FALSE
parallel_max_servers	integer	128
parallel_min_servers	integer	50
parallel__server	Integer	0
parallel_server_instances	string	AUTO
parallel_server	boolean	1
parallel_servers_target	integer	8
parallel_threads_servers_per_cpu	integer	2

No hints are used and the session use default parallel settings.

What four changes could you make to help avoid the error and ensure that the query executes in parallel?

- A. Set PARELLEL_DEGREE_POLICY to AUTO.
- B. Increase the value of PARELLEL_MAX_SERVERS.
- C. Increase PARELLEL_SERVERS_TARGET.
- D. Decrease PARELLEL_MIN_PERCENT.
- E. Increase PARELLEL_MIN_SERVERS.
- F. Decrease PARELLEL_MIN_TIME_THRESHOLD.
- G. Increase PARELLEL__MIN_TIME_THRESHOLD.

Correct Answer: ACDG

C: PARALLEL_SERVERS_TARGET specifies the number of parallel server processes allowed to run parallel statements before statement queuing will be used. When the parameter PARALLEL_DEGREE_POLICY is set to AUTO, Oracle will queue SQL statements that require parallel execution, if the necessary parallel server processes are not available. Statement queuing will begin once the number of parallel server processes active on the system is equal to or greater than PARALLEL_SERVER_TARGET.

By default, PARALLEL_SERVER_TARGET is set lower than the maximum number of parallel server processes allowed on the system (PARALLEL_MAX_SERVERS) to ensure each parallel statement will get all of the parallel server resources required and to prevent overloading the system with parallel server processes.

D: Note: ORA-12827: insufficient parallel query slaves available Cause: PARALLEL_MIN_PERCENT parameter was specified and fewer than minimum slaves were acquired Action: either re-execute query with lower



PARALLEL_MIN_PERCENT or wait until some running queries are completed, thus freeing up slaves

A, G: PARALLEL_MIN_TIME_THRESHOLD specifies the minimum execution time a statement should have before the statement is considered for automatic degree of parallelism. By default, this is set to 30 seconds. Automatic degree of parallelism is only enabled if PARALLEL_DEGREE_POLICY is set to AUTO or LIMITED.

QUESTION 3

Which type of SQL statement would be selected for tuning by the automatic SQL framework?

- A. Serial queries that are among the costliest in any or all of the four categories: the past week, any day in the past week, any hour in the past week, or single response, and have the potential for improvement
- B. Serial queries that have been tuned within the last 30days and have been SQL profiled by the SQL tuning Advisor.
- C. Serial and parallel queries that top the AWR Top SQL in the past week only and have been SQL profiled by the SQL Tuning Advisor.
- D. Serial queries that top the AWR Top SQL in the past week only and whose poor performance can be traced to concurrency issues.
- E. Serial and parallel queries that are among the costliest in any or all of the four categories: the past week, and day in the past week, any hour in the past week, or a single response, and that can benefit from access method changes.

Correct Answer: E

The Automatic Tuning Optimizer is meant to be used for complex and high-load SQL statements that have non-trivial impact on the entire system. The Automatic Database Diagnostic Monitor (ADDM) proactively identifies high-load SQL statements which are good candidates for SQL tuning.

Note:

* When SQL statements are executed by the Oracle database, the query optimizer is used to generate the execution plans of the SQL statements. The query

optimizer operates in two modes:

a normal mode and a tuning mode.

In normal mode, the optimizer compiles the SQL and generates an execution plan. The normal mode of the optimizer generates a reasonable execution plan for the vast majority of SQL statements. Under normal mode, the optimizer operates with very strict time constraints, usually a fraction of a second, during which it must find a good execution plan.

In tuning mode, the optimizer performs additional analysis to check whether the execution plan produced under normal mode can be improved further. The output of the query optimizer is not an execution plan, but a series of actions, along with their rationale and expected benefit for producing a significantly superior plan. When running in the tuning mode, the optimizer is referred to as the Automatic Tuning Optimizer.

Reference: Oracle Database Performance Tuning Guide, Automatic SQL Tuning

QUESTION 4



Auto DOP is enabled for your instance. You execute the following statements:

```
SQL > ALTER TABLE employees PARALLEL 2;  
SQL> ALTER TABLE departments NOPARALLEL;
```

```
SQL SELECT /*+ PARALLEL (3) */ last_name, d.department_name  
FROM employees e, departments_id=d.department_id  
WHERE e.department_id=d.department_id;
```

Which three are true about the execution of the join?

- A. Dictionary DOP is used to calculate statements DOP.
- B. Hinted DOP is used to calculate statement DOP.
- C. The EMPLOYEES table is accessed in parallel.
- D. The DEPARTMENTS table is accessed in parallel.
- E. The hint operates at the level of each table accessed by the statement.

Correct Answer: BCE

C: As per ALTER TABLE employees PARALLEL 2;

Incorrect:

not D: As per ALTER TABLE departments NOPARALLEL;

QUESTION 5

Your instance has these parameter settings:

```
PARALLEL_DEGREE_POLICY=AUTO  
PARALLEL_SERVERS_TARGET=64  
PARALLEL_MIN_PERCENT=25  
PARALLEL_MAX_SERVERS=128  
PARALLEL_MIN_SERVERS=0  
PARALLEL_MIN_TIME_THRESHOLD=10  
PARALLEL_DEGREE_LIMIT=8
```

Which three statements are true about these settings if no hints are used in a SQL statement?

- A. A statement estimated for more than 10 seconds always has its degree of parallelism computed automatically.
- B. A statement with a computed degree of parallelism greater than 8 will be queued for a maximum of 10 seconds.
- C. A statement that executes for more than 10 seconds always has its degree of parallelism computed automatically.
- D. A statement with a computed degree of parallelism greater than 8 will raise an error.



E. A statement with any computed degree of parallelism will be queued if the number of busy parallel execution processes exceeds 64.

F. A statement with a computed degree of parallelism of 20 will be queued if the number of available parallel execution processes is less 5.

Correct Answer: CEF

C (not A): PARALLEL_MIN_TIME_THRESHOLD specifies the minimum execution time a statement should have before the statement is considered for automatic degree of parallelism. By default, this is set to 30 seconds. Automatic degree of parallelism is only enabled if PARALLEL_DEGREE_POLICY is set to AUTO or LIMITED.

: PARALLEL_DEGREE_LIMIT integer

A numeric value for this parameter specifies the maximum degree of parallelism the optimizer can choose for a SQL statement when automatic degree of parallelism is active. Automatic degree of parallelism is only enabled if PARALLEL_DEGREE_POLICY is set to AUTO or LIMITED.

E: PARALLEL_SERVERS_TARGET specifies the number of parallel server processes allowed to run parallel statements before statement queuing will be used. When the parameter PARALLEL_DEGREE_POLICY is set to AUTO, Oracle will queue SQL statements that require parallel execution, if the necessary parallel server processes are not available. Statement queuing will begin once the number of parallel server processes active on the system is equal to or greater than PARALLEL_SERVER_TARGET.

F: PARALELL_MIN_MINPERCENT

PARALLEL_MIN_PERCENT operates in conjunction with PARALLEL_MAX_SERVERS and PARALLEL_MIN_SERVERS. It lets you specify the minimum percentage of parallel execution processes (of the value of PARALLEL_MAX_SERVERS) required for parallel execution. Setting this parameter ensures that parallel operations will not execute sequentially unless adequate resources are available. The default value of 0 means that no minimum percentage of processes has been set.

Consider the following settings: PARALLEL_MIN_PERCENT = 50 PARALLEL_MIN_SERVERS = 5
PARALLEL_MAX_SERVERS = 10

If 8 of the 10 parallel execution processes are busy, only 2 processes are available. If you then request a query with a degree of parallelism of 8, the minimum 50% will not be met.

Note: With automatic degree of parallelism, Oracle automatically decides whether or not a statement should execute in parallel and what degree of parallelism the statement should use. The optimizer automatically determines the degree of parallelism for a statement based on the resource requirements of the statement.

However, the optimizer will limit the degree of parallelism used to ensure parallel server processes do not flood the system. This limit is enforced by PARALLEL_DEGREE_LIMIT.

Values:

CPU

IO

integer

A numeric value for this parameter specifies the maximum degree of parallelism the optimizer can choose for a SQL statement when automatic degree of parallelism is active. Automatic degree of parallelism is only enabled if PARALLEL_DEGREE_POLICY is set to AUTO or LIMITED.



Reference: PARALLEL_MIN_TIME_THRESHOLD PARALLEL_DEGREE_LIMIT PARALELL_MIN_MINPERCENT
PARALELL_SERVERS_TARGET

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