164

DBMS_RESOURCE_MANAGER

The DBMS_RESOURCE_MANAGER package maintains plans, consumer groups, and plan directives. It also provides semantics so that you may group together changes to the plan schema.

This chapter contains the following topics:

> **See Also:**
>
> For more information on using the Database Resource Manager, see *Oracle Database Administrator's Guide*

DBMS_RESOURCE_MANAGER Deprecated Subprograms

The SET_INITIAL_CONSUMER_GROUP Procedure has been deprecated with Oracle Database 11*g*.

> **Note:**
>
> Oracle recommends that you do not use deprecated procedures in new applications. Support for deprecated features is for backward compatibility only.

DBMS_RESOURCE_MANAGER Security Model

The invoker must have the ADMINISTER_RESOURCE_MANAGER system privilege to execute these procedures.

The procedures to grant and revoke this privilege are in the package DBMS_RESOURCE_MANAGER_PRIVS.

DBMS_RESOURCE_MANAGER Constants

The DBMS_RESOURCE_MANAGER package defines several constants for specifying parameter values.

These are shown in the following table.

Table 164-1 DBMS_RESOURCE_MANAGER Constants

Constant	Type	Value	Description
CLIENT_ID	VARCHAR2(30)	CLIENT_ID	Client identifier of the session
CLIENT_MACHINE	VARCHAR2(30)	CLIENT_MACHINE	Name of the computer from which the client is making the connection
CLIENT_OS_USER	VARCHAR2(30)	CLIENT_OS_USER	Operating system user name of the client that is logging in
CLIENT_PROGRAM	VARCHAR2(30)	CLIENT_PROGRAM	Name of the client program used to log in to the server
MODULE_NAME	VARCHAR2(30)	MODULE_NAME	Module name in the currently running application as set by the SET_MODULE Procedure in the DBMS_APPLICATION_INFO package, or the equivalent OCI attribute setting
MODULE_NAME_ACTION	VARCHAR2(30)	MODULE_NAME_ACTION	A combination of the current module and the action being performed as set by either of the following procedures in the DBMS_APPLICATION_INFO package, or their equivalent OCI attribute setting: • SET_MODULE Procedure • SET_ACTION Procedure The attribute is specified as the module name followed by a period (.), followed by the action name (*module_name.action_name*).
ORACLE_FUNCTION	VARCHAR2(30)	ORACLE_FUNCTION	Function the session is currently executing. Valid functions are the BACKUP, COPY, DATALOAD, and INMEMORY. BACKUP is set for sessions that are doing backup operations using RMAN. COPY is set for sessions that are doing image copies using RMAN. DATALOAD is set for sessions that are loading data using Oracle Data Pump.
ORACLE_USER	VARCHAR2(30)	ORACLE_USER	Oracle Database user name
SERVICE_MODULE	VARCHAR2(30)	SERVICE_MODULE	Combination of service and module names in this form: *service_name.module_name*
SERVICE_MODULE_ACTION	VARCHAR2(30)	SERVICE_MODULE_ACTION	Combination of service name, module name, and action name, in this form: *service_name.module_name.action_name*
SERVICE_NAME	VARCHAR2(30)	SERVICE_NAME	Service name used by the client to establish a connection

Summary of DBMS_RESOURCE_MANAGER Subprograms

This table lists the `DBMS_RESOURCE_MANAGER` subprograms and briefly describes them.

Table 164-2 DBMS_RESOURCE_MANAGER Package Subprograms

Subprogram	Description
BEGIN_SQL_BLOCK Procedure	Indicates the start of a block of SQL statements to be treated as a group by resource manager
CALIBRATE_IO Procedure	Calibrates the I/O capabilities of storage
CLEAR_PENDING_AREA Procedure	Clears the work area for the resource manager
CREATE_CATEGORY Procedure	Creates a new resource consumer group category
CREATE_CDB_PLAN Procedure	Creates entries which define consolidation resource plans.
CREATE_CDB_PLAN_DIRECTIVE Procedure	Creates the plan directives of the consolidation resource plan
CREATE_CDB_PROFILE_DIRECTIVE Procedure	Creates the performance profile directives of the consolidation resource plan
CREATE_CONSUMER_GROUP Procedure	Creates entries which define resource consumer groups
CREATE_PENDING_AREA Procedure	Creates a work area for changes to resource manager objects
CREATE_PLAN Procedure	Creates entries which define resource plans
CREATE_PLAN_DIRECTIVE Procedure	Creates resource plan directives
CREATE_SIMPLE_PLAN Procedure	Creates a single-level resource plan containing up to eight consumer groups in one step
DELETE_CATEGORY Procedure	Deletes an existing resource consumer group category
DELETE_CDB_PLAN Procedure	Deletes the consolidation resource plan
DELETE_CDB_PLAN_DIRECTIVE Procedure	Deletes the plan directive of the consolidation resource plan
DELETE_CDB_PROFILE_DIRECTIVE Procedure	Deletes the performance profile directive of the consolidation resource plan
DELETE_CONSUMER_GROUP Procedure	Deletes entries which define resource consumer groups
DELETE_PLAN Procedure	Deletes the specified plan as well as all the plan directives it refers to
DELETE_PLAN_CASCADE Procedure	Deletes the specified plan as well as all its descendants (plan directives, subplans, consumer groups)
DELETE_PLAN_DIRECTIVE Procedure	Deletes resource plan directives
DEQUEUE_PARALLEL_STATEMENT Procedure	Dequeues a parallel statement from the parallel statement queue
END_SQL_BLOCK Procedure	Indicates the end of a block of SQL statements that should be treated as a group by resource manager
SET_CONSUMER_GROUP_MAPPING Procedure	Adds, deletes, or modifies entries for the login and run-time attribute mappings

Table 164-2 (Cont.) DBMS_RESOURCE_MANAGER Package Subprograms

Subprogram	Description
SET_CONSUMER_GROUP_MAPPING_PRI Procedure	Creates the session attribute mapping priority list
SET_INITIAL_CONSUMER_GROUP Procedure	Assigns the initial resource consumer group for a user (Caution: Deprecated Subprogram)
SUBMIT_PENDING_AREA Procedure	Submits pending changes for the resource manager
SWITCH_CONSUMER_GROUP_FOR_SESS Procedure	Changes the resource consumer group of a specific session
SWITCH_CONSUMER_GROUP_FOR_USER Procedure	Changes the resource consumer group for all sessions with a given user name
SWITCH_PLAN Procedure	Sets the current resource manager plan
UPDATE_CATEGORY Procedure	Updates an existing resource consumer group category
UPDATE_CDB_AUTOTASK_DIRECTIVE Procedure	Updates the plan directives with regard to automated maintenance tasks
UPDATE_CDB_DEFAULT_DIRECTIVE Procedure	Updates the default values for a consolidation plan
UPDATE_CDB_PLAN Procedure	Updates the consolidation resource plan
UPDATE_CDB_PLAN_DIRECTIVE Procedure	Updates the plan directives for a consolidation resource plan
UPDATE_CDB_PROFILE_DIRECTIVE Procedure	Updates the performance profile directives of the consolidation resource plan
UPDATE_CONSUMER_GROUP Procedure	Updates entries which define resource consumer groups
UPDATE_PLAN Procedure	Updates entries which define resource plans
UPDATE_PLAN_DIRECTIVE Procedure	Updates resource plan directives
VALIDATE_PENDING_AREA Procedure	Validates pending changes for the resource manager

BEGIN_SQL_BLOCK Procedure

This procedure, to be used with parallel statement queuing, indicates the start of a block of SQL statements that should be treated as a group by resource manager.

Syntax

```
DBMS_RESOURCE_MANAGER.BEGIN_SQL_BLOCK;
```

Usage Notes

For more information, see "Parallel Statement Queuing" and "Managing Parallel Statement Queuing with Resource Manager" in *Oracle Database VLDB and Partitioning Guide*.

CALIBRATE_IO Procedure

This procedure calibrates the I/O capabilities of storage. Calibration status is available from the `V$IO_CALIBRATION_STATUS` view and results for a successful calibration run are located in `DBA_RSRC_IO_CALIBRATE` table.

Syntax

```
DBMS_RESOURCE_MANAGER.CALIBRATE_IO (
   num_physical_disks      IN  PLS_INTEGER DEFAULT 1,
   max_latency             IN  PLS_INTEGER DEFAULT 20,
   max_iops                OUT PLS_INTEGER,
   max_mbps                OUT PLS_INTEGER,
   actual_latency          OUT PLS_INTEGER);
```

Parameters

Table 164-3 CALIBRATE_IO Procedure Parameters

Parameter	Description
`num_physical_disks`	Approximate number of physical disks in the database storage. This parameter is used to determine the initial I/O load for the calibration run.
`max_latency`	Maximum tolerable latency in milliseconds for database-block-sized IO requests
`max_iops`	Maximum number of I/O requests per second that can be sustained. The I/O requests are randomly-distributed, database-block-sized reads.
`max_mbps`	Maximum throughput of I/O that can be sustained, expressed in megabytes per second. The I/O requests are randomly-distributed, 1 megabyte reads.
`actual_latency`	Average latency of database-block-sized I/O requests at `max_iops` rate, expressed in milliseconds

Usage Notes

- Only users with the SYSDBA privilege can run this procedure. Qualified users must also turn on `timed_statistics`, and ensure `asynch_io` is enabled for datafiles. This can be achieved by setting `filesystemio_options` to either `ASYNCH` or `SETALL`. One can also query the `asynch_io` status by means of the following SQL statement:

  ```
  col name format a50
  SELECT name, asynch_io FROM v$datafile f,v$iostat_file i
    WHERE f.file#        = i.file_no
    AND   filetype_name  = 'Data File'
   /
  ```

- Only one calibration can be run at a time. If another calibration is initiated at the same time, it will fail.
- For an Oracle Real Application Clusters (Oracle RAC) database, the workload is simultaneously generated from all instances.
- In a multitenant container database (CDB), calibration can only be run from the CDB root (`CDB$ROOT`).

- Calibration is extremely disruptive to the database performance. It is strongly recommended to run calibration only when database users can tolerate severe deterioration to database performance.
- For optimal calibration results, no other database workloads should be running.

> **See Also:**
>
> *Oracle Database Performance Tuning Guide* for more information about calibration

Examples

Example of using I/O Calibration procedure

```
SET SERVEROUTPUT ON
DECLARE
  lat  NUMBER;
  iops INTEGER;
  mbps INTEGER;
BEGIN
-- DBMS_RESOURCE_MANAGER.CALIBRATE_IO (<DISKS>, <MAX_LATENCY>, iops, mbps, lat);
   DBMS_RESOURCE_MANAGER.CALIBRATE_IO (2, 10, iops, mbps, lat);

end;
/
```

View for I/O calibration results

```
SQL> desc V$IO_CALIBRATION_STATUS
  Name                                      Null?    Type
  ----------------------------------------- -------- ----------------------------
  STATUS                                             VARCHAR2(13)
  CALIBRATION_TIME                                   TIMESTAMP(3)

SQL> desc gv$io_calibration_status
  Name                                      Null?    Type
  ----------------------------------------- -------- ----------------------------
  INST_ID                                            NUMBER
  STATUS                                             VARCHAR2(13)
  CALIBRATION_TIME                                   TIMESTAMP(3)

Column explanation:
-------------------
STATUS:
  IN PROGRESS   : Calibration in Progress (Results from previous calibration
                  run displayed, if available)
  READY         : Results ready and available from earlier run
  NOT AVAILABLE : Calibration results not available.

CALIBRATION_TIME: End time of the last calibration run
```

DBA table that stores I/O Calibration results

```
SQL> desc DBA_RSRC_IO_CALIBRATE
  Name                                      Null?    Type
  ----------------------------------------- -------- ----------------------------
  START_TIME                                         TIMESTAMP(6)
  END_TIME                                           TIMESTAMP(6)
  MAX_IOPS                                           NUMBER
```

```
  MAX_MBPS                                                  NUMBER
  MAX_PMBPS                                                 NUMBER
  LATENCY                                                   NUMBER
  NUM_PHYSICAL_DISKS                                        NUMBER

comment on table DBA_RSRC_IO_CALIBRATE is
'Results of the most recent I/O calibration'
/
comment on column DBA_RSRC_IO_CALIBRATE.START_TIME is
'start time of the most recent I/O calibration'
/
comment on column DBA_RSRC_IO_CALIBRATE.END_TIME is
'end time of the most recent I/O calibration'
/
comment on column DBA_RSRC_IO_CALIBRATE.MAX_IOPS is
'maximum number of data-block read requests that can be sustained per second'
/
comment on column DBA_RSRC_IO_CALIBRATE.MAX_MBPS is
'maximum megabytes per second of maximum-sized read requests that can be
sustained'
/
comment on column DBA_RSRC_IO_CALIBRATE.MAX_PMBPS is
'maximum megabytes per second of large I/O requests that
can be sustained by a single process'
/
comment on column DBA_RSRC_IO_CALIBRATE.LATENCY is
'latency for data-block read requests'
/
comment on column DBA_RSRC_IO_CALIBRATE.NUM_PHYSICAL_DISKS is
'number of physical disks in the storage subsystem (as specified by user)'
/
```

CLEAR_PENDING_AREA Procedure

This procedure clears pending changes for the resource manager.

Syntax

```
DBMS_RESOURCE_MANAGER.CLEAR_PENDING_AREA;
```

CREATE_CATEGORY Procedure

This procedure creates a new consumer group category. The primary purpose of this attribute is to support Exadata I/O Resource Manager category plans.

The view `DBA_RSRC_CATEGORIES` defines the currently defined categories. The `ADMINISTRATIVE`, `INTERACTIVE`, `BATCH`, `MAINTENANCE`, and `OTHER` categories are available.

Syntax

```
DBMS_RESOURCE_MANAGER.CREATE_CATEGORY (
   category    IN    VARCHAR2,
   comment     IN    VARCHAR2 DEFAULT NULL);
```

Parameters

Table 164-4 CREATE_CATEGORY Procedure Parameters

Parameter	Description
category	Name of consumer group category
comment	User comment

CREATE_CDB_PLAN Procedure

Creates entries which define consolidation resource plans.

Syntax

```
DBMS_RESOURCE_MANAGER.CREATE_CDB_PLAN (
   plan                    IN    VARCHAR2(32),
   comment                 IN    VARCHAR2(2000) DEFAULT NULL);
```

Parameters

Table 164-5 CREATE_CDB_PLAN Procedure Parameters

Parameter	Description
plan	Name of the consolidation plan
comment	User comment

Usage Notes

This procedure can be run only from the CDB root (CDB$ROOT).

CREATE_CDB_PLAN_DIRECTIVE Procedure

This procedure creates the plan directives of the consolidation resource plan. Plan directives specify the resource allocation policy for pluggable databases (PDBs).

Syntax

```
DBMS_RESOURCE_MANAGER.CREATE_CDB_PLAN_DIRECTIVE (
   plan                    IN    VARCHAR2,
   pluggable_database      IN    VARCHAR2,
   comment                 IN    VARCHAR2 (2000) DEFAULT '',
   shares                  IN    NUMBER          DEFAULT NULL,
   utilization_limit       IN    NUMBER          DEFAULT NULL,
   parallel_server_limit   IN    NUMBER          DEFAULT NULL,
   memory_limit            IN    NUMBER          DEFAULT 100,
   memory_min              IN    NUMBER          DEFAULT 0);
```

Parameters

Table 164-6 CREATE_CDB_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
plan	Name of the consolidation plan
pluggable_database	Name of the PDB
comment	User comment
shares	Specifies the share of resource allocation for the PDB. CPU Resource Manager and Exadata I/O Resource Manager are enabled by specifying shares for each PDB. The shares parameter is also used for Parallel Statement Queuing. If no share is specified, the default is obtained from the default directive, specified through UPDATE_CDB_DEFAULT_DIRECTIVE Procedure.
utilization_limit	Specifies the maximum percentage of the CDB's CPU and Exadata I/O resources that the PDB can utilize. CPU Resource Manager and Exadata I/O Resource Manager can also be limited by setting the CPU_COUNT parameter for the PDB.
parallel_server_limit	Parallel servers that the PDB can use after which parallel statements are queued. Alternatively, you can set the parallel_servers_target at the PDB level. A PDB can set a lower limit for parallel execution servers than the limit specified in the CDB resource plan. When the PARALLEL_SERVERS_TARGET initialization parameter is set in a PDB, and parallel execution server limit is specified for a PDB in the CDB resource plan, then the lower limit is used. For example, assume that the parallel_servers_target initialization parameter is set to 100 in the CDB root and parallel_server_limit is set to 70 for hrpdb in the CDB resource plan. Also, assume that hrpdb has its parallel_servers_target initialization parameter set to 50. In this case, the limit for parallel execution servers for hrpdb is 50, because 50 is lower than the CDB resource plan limit of 70 for hrpdb. **Note:** Oracle recommends, that you use parallel_servers_target parameter instead of parallel_servers_limit in a CDB resource plan.
memory_limit	This parameter is only applicable to Oracle Exadata storage for configuring the Exadata Smart Flash Cache and Exadata PMEM Cache.
memory_min	This parameter is only applicable to Oracle Exadata storage for configuring the Exadata Smart Flash Cache and Exadata PMEM Cache.

Usage Notes

- The default value for `shares`, `utilization_limit`, and `parallel_server_limit` is `NULL`. When a user specifies `NULL`, or does not specify a value, this indicates that the default value should be used.
- This procedure can be run only from the CDB root (`CDB$ROOT`).

CREATE_CDB_PROFILE_DIRECTIVE Procedure

This procedure creates the performance profile directives of the consolidation resource plan. The directives specify the resource allocation policy for pluggable databases (PDBs) that use the performance profile.

For a PDB to use the new performance profile, the PDB must have the `DB_PERFORMANCE_PROFILE` initialization parameter set to the profile name.

This procedure provides an easy way to specify the directive for a large number of PDBs with the same resource requirements. Each PDB with a `DB_PERFORMANCE_PROFILE` initialization parameter set to the performance profile name inherits the settings specified by this directive, including the shares, utilization limit, and so on.

Syntax

```
DBMS_RESOURCE_MANAGER.CREATE_CDB_PROFILE_DIRECTIVE (
   plan                   IN    VARCHAR2,
   profile                IN    VARCHAR2,
   comment                IN    VARCHAR2 (2000) DEFAULT '',
   shares                 IN    NUMBER          DEFAULT NULL,
   utilization_limit      IN    NUMBER          DEFAULT NULL,
   parallel_server_limit  IN    NUMBER          DEFAULT NULL,
   memory_limit           IN    NUMBER          DEFAULT 100,
   memory_min             IN    NUMBER          DEFAULT 0);
```

Parameters

Table 164-7 CREATE_CDB_PROFILE_DIRECTIVE Procedure Parameters

Parameter	Description
`plan`	Name of the consolidation plan
`profile`	Name of the performance profile
`comment`	User comment
`shares`	Specifies the share of resource allocation for PDBs that use the performance profile. CPU Resource Manager and Exadata I/O Resource Manager are enabled by specifying shares for each PDB. The `shares` parameter is also used for Parallel Statement Queuing. If no share is specified, the default is obtained from the default directive, specified through UPDATE_CDB_DEFAULT_DIRECTIVE Procedure.
`utilization_limit`	Specifies the maximum percentage of CPU Resource Manager and Exadata I/O Resource Manager that PDBs that use the performance profile can utilize.
`parallel_server_limit`	Specifies the maximum percentage of `parallel_servers_target` parallel servers that PDBs that use the performance profile can use.

Table 164-7 (Cont.) CREATE_CDB_PROFILE_DIRECTIVE Procedure Parameters

Parameter	Description
memory_limit	This parameter is only applicable to Oracle Exadata storage for configuring the Exadata Smart Flash Cache and Exadata PMEM Cache.
memory_min	This parameter is only applicable to Oracle Exadata storage for configuring the Exadata Smart Flash Cache and Exadata PMEM Cache.

CREATE_CONSUMER_GROUP Procedure

This procedure creates entries which define resource consumer groups.

Syntax

```
DBMS_RESOURCE_MANAGER.CREATE_CONSUMER_GROUP (
   consumer_group  IN VARCHAR2,
   comment         IN VARCHAR2 DEFAULT NULL,
   cpu_mth         IN VARCHAR2 DEFAULT NULL,
   mgmt_mth        IN VARCHAR2 DEFAULT 'ROUND-ROBIN',
   category        IN VARCHAR2 DEFAULT 'OTHER');
```

Parameters

Table 164-8 CREATE_CONSUMER_GROUP Procedure Parameters

Parameter	Description
consumer_group	Name of the consumer group
comment	User comment
cpu_mth	Name of CPU resource allocation method (deprecated)
mgmt_mth	Name of CPU resource allocation method
category	Describes the category of the consumer group. The primary purpose of this attribute is to support Exadata I/O Resource Manager category plans. The view DBA_RSRC_CATEGORIES defines the currently defined categories. Categories can be modified, using the CREATE_CATEGORY Procedure, UPDATE_CATEGORY Procedure, and DELETE_CATEGORY Procedure.

CREATE_PENDING_AREA Procedure

This procedure makes changes to resource manager objects.

All changes to the plan schema must be done within a pending area. The pending area can be thought of as a "scratch" area for plan schema changes. The administrator creates this pending area, makes changes as necessary, possibly validates these changes, and only when the submit is completed do these changes become active.

Syntax

```
DBMS_RESOURCE_MANAGER.CREATE_PENDING_AREA;
```

Usage Notes

You may, at any time while the pending area is active, view the current plan schema with your changes by selecting from the appropriate user views.

At any time, you may clear the pending area if you want to stop the current changes. You may also call the `VALIDATE` procedure to confirm whether the changes you have made are valid. You do not have to perform your changes in a given order to maintain a consistent group of entries. These checks are also implicitly done when the pending area is submitted.

> **Note:**
>
> Oracle allows "orphan" consumer groups (in other words, consumer groups that have no plan directives that refer to them). This is in anticipation that an administrator may want to create a consumer group that is not currently being used, but will be used in the future.

For resource plans, the following rules must be adhered to, and they are checked whenever the validate or submit procedures are executed:

- No plan schema may contain any loops.
- All plans and consumer groups referred to by plan directives must exist.
- All plans must have plan directives that refer to either plans or consumer groups.
- All percentages in any given level must not add up to greater than 100 for the emphasis resource allocation method.
- No plan may be deleted that is currently being used as a top plan by an active instance.
- The plan directive parameter, `parallel_degree_limit_p1`, may only appear in plan directives that refer to consumer groups (that is, not at subplans).
- There cannot be more than 28 plan directives coming from any given plan (that is, no plan can have more than 28 children).
- There cannot be more than 28 consumer groups in any active plan schema.
- Plans and consumer groups use the same namespace; therefore, no plan can have the same name as any consumer group.
- There must be a plan directive for `OTHER_GROUPS` somewhere in any active plan schema.This ensures that a session not covered by the currently active plan is allocated resources as specified by the `OTHER_GROUPS` directive.

> **Note:**
>
> These rules are not applicable for CDB resource plans.

If any of the preceding rules are broken when checked by the `VALIDATE` or `SUBMIT` procedures, then an informative error message is returned. You may then make changes to fix one or more problems and reissue the validate or submit procedures.

CREATE_PLAN Procedure

This procedure creates entries which define resource plans.

Syntax

```
DBMS_RESOURCE_MANAGER.CREATE_PLAN (
   plan                       IN   VARCHAR2,
   comment                    IN   VARCHAR2 DEFAULT NULL,
   cpu_mth                    IN   VARCHAR2 DEFAULT NULL, -- deprecated
   active_sess_pool_mth       IN   VARCHAR2 DEFAULT 'ACTIVE_SESS_POOL_ABSOLUTE',
   parallel_degree_limit_mth  IN   VARCHAR2 DEFAULT
                                      'PARALLEL_DEGREE_LIMIT_ABSOLUTE',
   queueing_mth               IN   VARCHAR2 DEFAULT 'FIFO_TIMEOUT',
   mgmt_mth                   IN   VARCHAR2 DEFAULT 'EMPHASIS',
   sub_plan                   IN   BOOLEAN DEFAULT FALSE,
   max_iops                   IN   NUMBER DEFAULT NULL,
   max_mbps                   IN   NUMBER DEFAULT NULL);
```

Parameters

Table 164-9 CREATE_PLAN Procedure Parameters

Parameter	Description
plan	Name of the resource plan
comment	User comment
cpu_mth	Allocation method for CPU resources (deprecated)
active_sess_pool_mth	Active session pool resource allocation method. Limits the number of active sessions. All other sessions are inactive and wait in a queue to be activated. ACTIVE_SESS_POOL_ABSOLUTE is the default and only method available.
parallel_degree_limit_mth	Resource allocation method for specifying a limit on the degree of parallelism of any operation. PARALLEL_DEGREE_LIMIT_ABSOLUTE is the default and only method available.
queueing_mth	Queuing resource allocation method. Controls order in which queued inactive sessions will execute. FIFO_TIMEOUT is the default and only method available
mgmt_mth	Resource allocation method for specifying how much resources (for example, CPU or I/O) each consumer group or sub-plan gets • EMPHASIS - for multilevel plans that use percentages to specify how I/O resources are distributed among consumer groups • RATIO - for single-level plans that use ratios to specify how I/O resources are distributed
sub_plan	If TRUE, indicates that this plan is only intended for use as a sub-plan. Sub-plans are not required to have an OTHER_GROUPS directive. Default is FALSE.
max_iops	Nonoperative
max_mbps	Nonoperative

Usage Notes

If you want to use any default resource allocation method, then you do not need to specify it when creating or updating a plan.

CREATE_PLAN_DIRECTIVE Procedure

This procedure creates resource plan directives.

> **Note:**
>
> The parameters `max_utilization_limit` and `parallel_target_percentage` are deprecated with Oracle Database 11*g* Release 1 (11.1.0.1), and are replaced by `utilization_limit` and `parallel_server_limit`.

Syntax

```
DBMS_RESOURCE_MANAGER.CREATE_PLAN_DIRECTIVE (
   plan                          IN VARCHAR2,
   group_or_subplan              IN VARCHAR2,
   comment                       IN VARCHAR2 DEFAULT NULL,
   cpu_p1                        IN NUMBER   DEFAULT NULL, -- deprecated
   cpu_p2                        IN NUMBER   DEFAULT NULL, -- deprecated
   cpu_p3                        IN NUMBER   DEFAULT NULL, -- deprecated
   cpu_p4                        IN NUMBER   DEFAULT NULL, -- deprecated
   cpu_p5                        IN NUMBER   DEFAULT NULL, -- deprecated
   cpu_p6                        IN NUMBER   DEFAULT NULL, -- deprecated
   cpu_p7                        IN NUMBER   DEFAULT NULL, -- deprecated
   cpu_p8                        IN NUMBER   DEFAULT NULL, -- deprecated
   active_sess_pool_p1           IN NUMBER   DEFAULT NULL,
   queueing_p1                   IN NUMBER   DEFAULT NULL,
   parallel_degree_limit_p1      IN NUMBER   DEFAULT NULL,
   switch_group                  IN VARCHAR2 DEFAULT NULL,
   switch_time                   IN NUMBER   DEFAULT NULL,
   switch_estimate               IN BOOLEAN  DEFAULT FALSE,
   max_est_exec_time             IN NUMBER   DEFAULT NULL,
   undo_pool                     IN NUMBER   DEFAULT NULL,
   max_idle_time                 IN NUMBER   DEFAULT NULL,
   max_idle_blocker_time         IN NUMBER   DEFAULT NULL,
   switch_time_in_call           IN NUMBER   DEFAULT NULL, -- deprecated
   mgmt_p1                       IN NUMBER   DEFAULT NULL,
   mgmt_p2                       IN NUMBER   DEFAULT NULL,
   mgmt_p3                       IN NUMBER   DEFAULT NULL,
   mgmt_p4                       IN NUMBER   DEFAULT NULL,
   mgmt_p5                       IN NUMBER   DEFAULT NULL,
   mgmt_p6                       IN NUMBER   DEFAULT NULL,
   mgmt_p7                       IN NUMBER   DEFAULT NULL,
   mgmt_p8                       IN NUMBER   DEFAULT NULL,
   switch_io_megabytes           IN NUMBER   DEFAULT NULL,
   switch_io_reqs                IN NUMBER   DEFAULT NULL,
   switch_for_call               IN BOOLEAN  DEFAULT NULL,
   max_utilization_limit         IN NUMBER   DEFAULT NULL,  -- deprecated
   parallel_target_percentage    IN NUMBER   DEFAULT NULL,  -- deprecated
   parallel_server_limit         IN NUMBER   DEFAULT NULL,
   utilization_limit             IN NUMBER   DEFAULT NULL,
   switch_io_logical             IN NUMBER   DEFAULT NULL,
   switch_elapsed_time           IN NUMBER   DEFAULT NULL,
```

```
shares                      IN NUMBER   DEFAULT NULL,
parallel_stmt_critical      IN VARCHAR2 DEFAULT NULL,
session_pga_limit           IN NUMBER   DEFAULT NULL,
pq_timeout_action           IN NUMBER   DEFAULT NULL,
parallel_queue_timeout      IN NUMBER   DEFAULT NULL,);
```

> **Note:**
>
> Oracle recommends that you use `shares` instead of `mgmt_p*`.

Parameters

Table 164-10 CREATE_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
`plan`	Name of the resource plan
`group_or_subplan`	Name of the consumer group or subplan
`comment`	Comment for the plan directive
`cpu_p1`	-- deprecated: use `mgmt_p1` or, even better, shares instead
`cpu_p2`	-- deprecated: use `mgmt_p2` or, even better, shares instead
`cpu_p3`	-- deprecated: use `mgmt_p3` or, even better, shares instead
`cpu_p4`	-- deprecated: use `mgmt_p4` or, even better, shares instead
`cpu_p5`	-- deprecated: use `mgmt_p5` or, even better, shares instead
`cpu_p6`	-- deprecated: use `mgmt_p6` or, even better, shares instead
`cpu_p7`	-- deprecated: use `mgmt_p7` or, even better, shares instead
`cpu_p8`	-- deprecated: use `mgmt_p8` or, even better, shares instead
`active_sess_pool_p1`	Specifies maximum number of sessions that can currently have an active call
`queueing_p1`	Specified time (in seconds) after which a call in the inactive session queue (waiting for execution) will time out. Default is `NULL`, which means unlimited.
`parallel_degree_limit_p1`	Specifies a limit on the degree of parallelism for any operation. Default is `NULL`, which means unlimited. If the value is 0, then all operations will be serial.
`switch_group`	Specifies consumer group to switch to, once a switch condition is met. If the group name is `CANCEL_SQL`, then the current call is canceled when the switch condition is met. If the group name is `KILL_SESSION`, then the session is killed when the switch condition is met. If the group name is `LOG_ONLY`, then no action is taken other than recording this event via SQL monitor.Default is `NULL`.
`switch_time`	Specifies the time on CPU (not elapsed time) that a session can execute before an action is taken. Default is `NULL`, which means unlimited. As with other switch directives, if `switch_for_call` is `TRUE`, the number of CPUs is accumulated from the start of a call. Otherwise, the number of CPUs is accumulated for the length of the session.

Table 164-10 (Cont.) CREATE_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
switch_estimate	If TRUE, tells Oracle to use its execution time estimate to automatically switch the consumer group of an operation before beginning its execution. This is used in conjunction with the switch_time directive. Default value is FALSE.
max_est_exec_time	Specifies the maximum execution time (in CPU seconds) allowed for a session. If the optimizer estimates that an operation will take longer than MAX_EST_EXEC_TIME, the operation is not started and ORA-07455 is issued. If the optimizer does not provide an estimate, this directive has no effect. Default is NULL, which means unlimited.
undo_pool	Limits the size in kilobytes of the undo records corresponding to uncommitted transactions by this consumer group
max_idle_time	Indicates the maximum session idle time. Default is NULL, which means unlimited.
max_idle_blocker_time	Maximum amount of time in seconds that a session can be idle while blocking another session's acquisition of a resource
switch_time_in_call	Deprecated. If this parameter is specified, switch_time is set to switch_time_in_call (in seconds) and switch_for_call is effectively set to TRUE. It is better to use switch_time and switch_for_call.
mgmt_p1	Resource allocation value for level 1 (replaces cpu_p1): • EMPHASIS - specifies the resource percentage at the first level • RATIO - specifies the weight of resource usage
mgmt_p2	Resource allocation value for level 2 (replaces cpu_p2) • EMPHASIS - specifies the resource percentage at the second level • RATIO - non-applicable
mgmt_p3	Resource allocation value for level 3 (replaces cpu_p3) • EMPHASIS - specifies the resource percentage at the third level • RATIO - non-applicable
mgmt_p4	Resource allocation value for level 4 (replaces cpu_p4) • EMPHASIS - specifies the resource percentage at the fourth level • RATIO - non-applicable
mgmt_p5	Resource allocation value for level 5 (replaces cpu_p5) • EMPHASIS - specifies the resource percentage at the fifth level • RATIO - non-applicable
mgmt_p6	Resource allocation value for level 6 (replaces cpu_p6) • EMPHASIS - specifies the resource percentage at the sixth level • RATIO - non-applicable
mgmt_p7	Resource allocation value for level 7 (replaces cpu_p7) • EMPHASIS - specifies the resource percentage at the seventh level • RATIO - non-applicable
mgmt_p8	Resource allocation value for level 8 (replaces cpu_p8) • EMPHASIS - specifies the resource percentage at the eighth level • RATIO - non-applicable

Table 164-10 (Cont.) CREATE_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
switch_io_megabytes	Specifies the amount of I/O (in MB) that a session can issue before an action is taken. Default is NULL, which means unlimited. As with other switch directives, if switch_for_call is TRUE, the number of CPUs is accumulated from the start of a call. Otherwise, the number of CPUs is accumulated for the length of the session.
switch_io_reqs	Specifies the number of I/O requests that a session can issue before an action is taken. Default is NULL, which means unlimited. As with other switch directives, if switch_for_call is TRUE, the number of CPUs is accumulated from the start of a call. Otherwise, the number of CPUs is accumulated for the length of the session.
switch_for_call	Specifies that if an action is taken because of the switch_time, switch_io_megabytes, switch_io_reqs, switch_io_logical or switch_elapsed_time parameters, the consumer group is restored to its original consumer group at the end of the top call. Default is NULL, which means that the original consumer group is not restored at the end of the top call.
max_utilization_limit	-- deprecated: use utilization_limit instead
parallel_target_percentage	-- deprecated: use parallel_sever_limit instead
parallel_queue_timeout	Specifies the time (in seconds) that a parallel statement may remain in its Consumer Group's parallel statement queue before it is removed and terminated with an error (ORA- 07454). **Note:** You can use the pq_timeout_action parameter to specify the action to be taken when a parallel statement is removed from the queue.
parallel_sever_limit	Specifies the maximum percentage of parallel_servers_target parallel servers that the Consumer Group can use, after which parallel statements are queued.
utilization_limit	Resource limit. Currently it includes CPU and I/O for Exadata. For CPU, this limits the CPU utilization for the consumer group. For Exadata I/O, this limits the disk utilization for the consumer group. This does not apply to parallel servers.
switch_io_logical	Number of logical IOs that will trigger the action specified by switch_group. As with other switch directives, if switch_for_call is TRUE, the number of logical IOs is accumulated from the start of a call. Otherwise, the number of logical IOs is accumulated for the length of the session.
switch_elapsed_time	Elapsed time that will trigger the action specified by switch_group. As with other switch directives, if switch_for_call is TRUE, the elapsed time is accumulated from the start of a call. Otherwise, the elapsed time is accumulated for the length of the session.

Table 164-10 (Cont.) CREATE_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
shares	Specifies the share of resource allocation for the consumer group. CPU Resource Manager and Exadata I/O Resource Manager are enabled by specifying shares for each consumer group. The shares parameter is also used for Parallel Statement Queuing. If CPU Resource Manager and Exadata I/O Resource Manager are enabled, then the default value is 1.
parallel_stmt_critical	If set to BYPASS_QUEUE, parallel statements from the Consumer Group are not queued, regardless of the PARALLEL_DEGREE_POLICY parameter value. If set to QUEUE, all the parallel statements from the consumer group, irrespective of the parallel_degree_policy parameter value, are eligible for queuing. Default is FALSE, which means that parallel statements are eligible for queuing, based on the parallel_degree_policy parameter value.
session_pga_limit	Maximum amount of untunable PGA (in MB) that a session in this consumer group can allocate before being terminated. NULL (default) indicates no limit. SQL operations that allocate tunable PGA (operations that can opt to use temp space) are not controlled by this limit.
pq_timeout_action	Specifies the action to be taken when a parallel statement is removed from the queue due to parallel_queue_timeout. The values are: • CANCEL — The parallel statement is terminated with error ORA-7454 • RUN — The SQL statement runs immediately, and might get downgraded if parallel servers are unavailable The default action of this parameter is CANCEL.

Usage Notes

- All parameters default to NULL.
- For max_idle_time and max_idle_blocker_time, PMON will check these limits once a minute. If it finds a session that has exceeded one of the limits, it will forcibly kill the session and clean up all its state.
- The parameter switch_for_call is mostly useful for three-tier applications where the mid-tier server is implementing session pooling. By using switch_for_call, the resource usage of one client will not affect a future client that happens to be executed on the same session.
- An error is thrown if PQ_TIMEOUT_ACTION is specified, but PARALLEL_QUEUE_TIMEOUT is not specified.
- Specifies the action to be taken when a parallel statement is removed from the queue.

CREATE_SIMPLE_PLAN Procedure

This procedure creates a single-level resource plan containing up to eight consumer groups in one step. You do not need to create a pending area manually before creating a resource plan,

or use the CREATE_CONSUMER_GROUP and CREATE_RESOURCE_PLAN_DIRECTIVES procedures separately.

Syntax

```
DBMS_RESOURCE_MANAGER.CREATE_SIMPLE_PLAN (
   simple_plan      IN  VARCHAR2  DEFAULT NULL,
   consumer_group1  IN  VARCHAR2  DEFAULT NULL,
   group1_cpu       IN  NUMBER    DEFAULT NULL,   -- deprecated
   consumer_group2  IN  VARCHAR2  DEFAULT NULL,
   group2_cpu       IN  NUMBER    DEFAULT NULL,   -- deprecated
   consumer_group3  IN  VARCHAR2  DEFAULT NULL,
   group3_cpu       IN  NUMBER    DEFAULT NULL,   -- deprecated
   consumer_group4  IN  VARCHAR2  DEFAULT NULL,
   group4_cpu       IN  NUMBER    DEFAULT NULL,   -- deprecated
   consumer_group5  IN  VARCHAR2  DEFAULT NULL,
   group5_cpu       IN  NUMBER    DEFAULT NULL,   -- deprecated
   consumer_group6  IN  VARCHAR2  DEFAULT NULL,
   group6_cpu       IN  NUMBER    DEFAULT NULL,   -- deprecated
   consumer_group7  IN  VARCHAR2  DEFAULT NULL,
   group7_cpu       IN  NUMBER    DEFAULT NULL,   -- deprecated
   consumer_group8  IN  VARCHAR2  DEFAULT NULL,
   group8_cpu       IN  NUMBER    DEFAULT NULL,   -- deprecated
   group1_percent   IN  NUMBER    DEFAULT NULL,
   group2_percent   IN  NUMBER    DEFAULT NULL,
   group3_percent   IN  NUMBER    DEFAULT NULL,
   group4_percent   IN  NUMBER    DEFAULT NULL,
   group5_percent   IN  NUMBER    DEFAULT NULL,
   group6_percent   IN  NUMBER    DEFAULT NULL,
   group7_percent   IN  NUMBER    DEFAULT NULL,
   group8_percent   IN  NUMBER    DEFAULT NULL);
```

Parameters

Table 164-11 CREATE_SIMPLE_PLAN Procedure Parameters

Parameter	Description
simple_plan	Name of the resource plan
consumer_group1	Name of the consumer group
group1_cpu	Percentage for group (deprecated)
consumer_group2	Name of the consumer group
group2_cpu	Percentage for group (deprecated)
consumer_group3	Name of the consumer group
group3_cpu	Percentage for group (deprecated)
consumer_group4	Name of the consumer group
group4_cpu	Percentage for group (deprecated)
consumer_group5	Name of the consumer group
group5_cpu	Percentage for group (deprecated)
consumer_group6	Name of the consumer group
group6_cpu	Percentage for group (deprecated)
consumer_group7	Name of the consumer group
group7_cpu	Percentage for group (deprecated)

Table 164-11 (Cont.) CREATE_SIMPLE_PLAN Procedure Parameters

Parameter	Description
consumer_group8	OTHER_GROUPS - all sessions that aren't mapped to a consumer group.
group8_cpu	Percentage for group (deprecated)
group1_percent	Percentage of resources allocated for this consumer group
group2_percent	Percentage of resources allocated for this consumer group
group3_percent	Percentage of resources allocated for this consumer group
group4_percent	Percentage of resources allocated for this consumer group
group5_percent	Percentage of resources allocated for this consumer group
group6_percent	Percentage of resources allocated for this consumer group
group7_percent	Percentage of resources allocated for this consumer group
group8_percent	Percentage of resources allocated to other groups

DELETE_CATEGORY Procedure

This procedure deletes an existing resource consumer group category.

Syntax

```
DBMS_RESOURCE_MANAGER.DELETE_CATEGORY (
   category        IN    VARCHAR2);
```

Parameters

Table 164-12 DELETE_CATEGORY Procedure Parameters

Parameter	Description
category	Name of consumer group category

DELETE_CDB_PLAN Procedure

This procedure deletes the consolidation resource plan.

Syntax

```
DBMS_RESOURCE_MANAGER.DELETE_CDB_PLAN (
   plan    IN    VARCHAR2(32)    DEFAULT NULL);
```

Parameters

Table 164-13 DELETE_CDB_PLAN Procedure Parameters

Parameter	Description
plan	Name of the consolidation plan

Usage Notes

This procedure can be run only from the CDB root (CDB$ROOT).

DELETE_CDB_PLAN_DIRECTIVE Procedure

This procedure deletes the plan directives of the consolidation resource plan. Once the plan directive is deleted, the pluggable database will get the default resource allocation.

Syntax

```
DBMS_RESOURCE_MANAGER.DELETE_CDB_PLAN_DIRECTIVE (
   plan                    IN    VARCHAR2(32)   DEFAULT NULL,
   pluggable_database      IN    VARCHAR2(32)   DEFAULT NULL);
```

Parameters

Table 164-14 DELETE_CDB_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
plan	Name of the consolidation plan
pluggable_database	Name of the pluggable database in which the plan directive is to be deleted

Usage Notes

This procedure can be run only from the CDB root (CDB$ROOT).

DELETE_CDB_PROFILE_DIRECTIVE Procedure

This procedure deletes the performance profile directive of the consolidation resource plan. Once the directive is deleted, the pluggable databases (PDBs) that use the performance profile use the default resource allocation.

For a PDB to use a performance profile, the PDB must have the DB_PERFORMANCE_PROFILE initialization parameter set to the performance profile name.

Syntax

```
DBMS_RESOURCE_MANAGER.DELETE_CDB_PROFILE_DIRECTIVE (
   plan          IN    VARCHAR2(32)   DEFAULT NULL,
   profile       IN    VARCHAR2(32)   DEFAULT NULL);
```

Parameters

Table 164-15 DELETE_CDB_PROFILE_DIRECTIVE Procedure Parameters

Parameter	Description
plan	Name of the consolidation plan
profile	Name of the performance profile directive to be deleted

Usage Notes

This procedure can be run only from the CDB root (CDB$ROOT).

DELETE_CONSUMER_GROUP Procedure

This procedure deletes entries which define resource consumer groups.

Syntax

```
DBMS_RESOURCE_MANAGER.DELETE_CONSUMER_GROUP (
   consumer_group IN VARCHAR2);
```

Parameters

Table 164-16 DELETE_CONSUMER_GROUP Procedure Parameters

Parameters	Description
consumer_group	Name of the consumer group to be deleted

DELETE_PLAN Procedure

This procedure deletes the specified plan as well as all the plan directives to which it refers.

Syntax

```
DBMS_RESOURCE_MANAGER.DELETE_PLAN (
   plan IN VARCHAR2);
```

Parameters

Table 164-17 DELETE_PLAN Procedure Parameters

Parameter	Description
plan	Name of the resource plan to delete

DELETE_PLAN_CASCADE Procedure

This procedure deletes the specified plan and all of its descendants (plan directives, subplans, consumer groups). Mandatory objects and directives are not deleted.

Syntax

```
DBMS_RESOURCE_MANAGER.DELETE_PLAN_CASCADE (
   plan IN VARCHAR2);
```

Parameters

Table 164-18 DELETE_PLAN_CASCADE Procedure Parameters

Parameters	Description
plan	Name of the plan

Usage Notes

If DELETE_PLAN_CASCADE encounters any error, then it rolls back the operation, and nothing is deleted.

DELETE_PLAN_DIRECTIVE Procedure

This procedure deletes resource plan directives.

Syntax

```
DBMS_RESOURCE_MANAGER.DELETE_PLAN_DIRECTIVE (
   plan              IN VARCHAR2,
   group_or_subplan  IN VARCHAR2);
```

Parameters

Table 164-19 DELETE_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
plan	Name of the resource plan
group_or_subplan	Name of the group or subplan

DEQUEUE_PARALLEL_STATEMENT Procedure

This procedure dequeues a parallel statement from the parallel statement queue.

If the PARALLEL_DEGREE_POLICY initialization parameter is set to AUTO or ADAPTIVE, then parallel statement queuing is enabled. If a parallel statement is in the parallel statement queue, then you can use this procedure to dequeue the parallel statement so that it runs immediately.

Syntax

```
DBMS_RESOURCE_MANAGER.DEQUEUE_PARALLEL_STATEMENT (
   session_id      IN  PLS_INTEGER,
   session_serial  IN  PLS_INTEGER,
   inst_id         IN  PLS_INTEGER  DEFAULT NULL,
   sql_id          IN  VARCHAR2 DEFAULT NULL);
```

Parameters

Table 164-20 DEQUEUE_PARALLEL_STATEMENT Procedure Parameters

Parameter	Description
session_id	The session id of the session running the parallel statement to be dequeued.
session_serial	The serial number of the session.
inst_id	Instance ID where the session is running. If NULL, then the current instance is used.
sql_id	The SQL ID of the session's statement to dequeue. If the session is running SQL with a different SQL ID, then the statement is not dequeued.

END_SQL_BLOCK Procedure

This procedure, to be used with parallel statement queuing, indicates the end of a block of SQL statements that should be treated as a group by resource manager.

Syntax

```
DBMS_RESOURCE_MANAGER.END_SQL_BLOCK;
```

Usage Notes

For more information, see "Parallel Statement Queuing" and "Managing Parallel Statement Queuing with Resource Manager" in *Oracle Database VLDB and Partitioning Guide*.

SET_CONSUMER_GROUP_MAPPING Procedure

This procedure adds, deletes, or modifies entries that map sessions to consumer groups, based on the session's login and runtime attributes.

Syntax

```
DBMS_RESOURCE_MANAGER.SET_CONSUMER_GROUP_MAPPING(
   attribute        IN VARCHAR2,
   value            IN VARCHAR2,
   consumer_group   IN VARCHAR2 DEFAULT NULL);
```

Parameters

Table 164-21 SET_CONSUMER_GROUP_MAPPING Procedure Parameters

Parameters	Description
`attribute`	Mapping attribute to add or modify. It can be one of the Constants listed.
`value`	Attribute value to match. This includes both absolute mapping and regular expressions.
`consumer_group`	Name of the mapped consumer group, or `NULL` to delete a mapping

Usage Notes

- If no mapping exists for the given attribute and value, a mapping to the given consumer group will be created. If a mapping already exists for the given attribute and value, the mapped consumer group will be updated to the one given. If the `consumer_group` argument is `NULL`, then any mapping from the given attribute and value will be deleted.
- The subprogram supports simple regex expressions for the `value` parameter. It implements the same semantics as the SQL `'LIKE'` operator. Specifically, it uses `'%'` as amulticharacter wildcard and `'_'` as a single character wildcard. The `'\'` character can be used to escape the wildcards. Note that wildcards can only be used if the attribute is one of the following:
  - `CLIENT_OS_USER`
  - `CLIENT_PROGRAM`
  - `CLIENT_MACHINE`
  - `MODULE_NAME`

  - MODULE_NAME_ACTION
  - SERVICE_MODULE
  - SERVICE_MODULE_ACTION
- Consumer group mapping comparisons for DBMS_RESOURCE_MANAGER.CLIENT_PROGRAM are performed by stripping the @ sign and following characters from V$SESSION.PROGRAM before comparing it to the CLIENT_PROGRAM value supplied.

SET_CONSUMER_GROUP_MAPPING_PRI Procedure

Multiple attributes of a session can be used to map the session to a consumer group. This procedure prioritizes the attribute mappings.

Syntax

```
DBMS_RESOURCE_MANAGER.SET_CONSUMER_GROUP_MAPPING_PRI(
   explicit               IN NUMBER,
   oracle_user            IN NUMBER,
   service_name           IN NUMBER,
   client_os_user         IN NUMBER,
   client_program         IN NUMBER,
   client_machine         IN NUMBER,
   module_name            IN NUMBER,
   module_name_action     IN NUMBER,
   service_module         IN NUMBER,
   service_module_action  IN NUMBER,
   client_id              IN NUMBER DEFAULT 11);
```

Parameters

Table 164-22 SET_CONSUMER_GROUP_MAPPING_PRI Procedure Parameters

Parameters	Description
explicit	Priority of the explicit mapping
oracle_user	Priority of the Oracle user name mapping
service_name	Priority of the client service name mapping
client_os_user	Priority of the client operating system user name mapping
client_program	Priority of the client program mapping
client_machine	Priority of the client machine mapping
module_name	Priority of the application module name mapping
module_name_action	Priority of the application module name and action mapping
service_module	Priority of the service name and application module name mapping
module_name_action	Priority of the service name, application module name, and application action mapping
client_id	Client identifier

Usage Notes

- This procedure requires that you include the pseudo-attribute explicit as an argument. It must be set to 1. It indicates that explicit consumer group switches have the highest priority. You explicitly switch consumer groups with these package procedures:

  - DBMS_SESSION.SWITCH_CURRENT_CONSUMER_GROUP
  - DBMS_RESOURCE_MANAGER.SWITCH_CONSUMER_GROUP_FOR_SESS
  - DBMS_RESOURCE_MANAGER.SWITCH_CONSUMER_GROUP_FOR_USER
- Each priority value must be a unique integer from 1 to 11. Together, they establish an ordering where 1 is the highest priority and 11 is the lowest.

SET_INITIAL_CONSUMER_GROUP Procedure

This deprecated procedure sets the initial resource consumer group for a user.

The initial consumer group of a user is the consumer group to which any session created by that user initially belongs.

> **Note:**
>
> This procedure is deprecated in Release 11gR1. While the procedure remains available in the package, Initial Consumer Group is set by the session-to-consumer group mapping rules.

Syntax

```
DBMS_RESOURCE_MANAGER.SET_INITIAL_CONSUMER_GROUP (
   user             IN   VARCHAR2,
   consumer_group   IN   VARCHAR2);
```

Parameters

Table 164-23 SET_INITIAL_CONSUMER_GROUP Procedure Parameters

Parameters	Description
user	Name of the user
consumer_group	User's initial consumer group

Usage Notes

- The ADMINISTER_RESOURCE_MANAGER or the ALTER USER system privilege are required to be able to execute this procedure. The user, or PUBLIC, must be directly granted switch privilege to a consumer group before it can be set to be the user's initial consumer group. Switch privilege for the initial consumer group cannot come from a role granted to that user.

  > **Note:**
  >
  > These semantics are similar to those for ALTER USER DEFAULT ROLE.

- If the initial consumer group for a user has never been set, then the user's initial consumer group is automatically the consumer group: DEFAULT_CONSUMER_GROUP.

- DEFAULT_CONSUMER_GROUP has switch privileges granted to PUBLIC; therefore, all users are automatically granted switch privilege for this consumer group. Upon deletion of a consumer group, all users having the deleted group as their initial consumer group now have DEFAULT_CONSUMER_GROUP as their initial consumer group. All currently active sessions belonging to a deleted consumer group are switched to DEFAULT_CONSUMER_GROUP.

SUBMIT_PENDING_AREA Procedure

This procedure submits pending changes for the resource manager. It clears the pending area after validating and committing the changes (if valid).

> **Note:**
>
> A call to SUBMIT_PENDING_AREA may fail even if VALIDATE_PENDING_AREA succeeds. This may happen if a plan being deleted is loaded by an instance after a call to VALIDATE_PENDING_AREA, but before a call to SUBMIT_PENDING_AREA.

Syntax

```
DBMS_RESOURCE_MANAGER.SUBMIT_PENDING_AREA;
```

SWITCH_CONSUMER_GROUP_FOR_SESS Procedure

This procedure changes the resource consumer group of a specific session. It also changes the consumer group of any parallel execution servers that are related to the top user session. This procedure is RAC instance specific. You need to connect to the PDB in same RAC instance where the session to be switched is running, and then run this procedure.

Syntax

```
DBMS_RESOURCE_MANAGER.SWITCH_CONSUMER_GROUP_FOR_SESS (
   session_id      IN NUMBER,
   session_serial  IN NUMBER,
   consumer_group  IN VARCHAR2);
```

Parameters

Table 164-24 SWITCH_CONSUMER_GROUP_FOR_SESS Procedure Parameters

Parameter	Description
session_id	SID column from the view V$SESSION
session_serial	SERIAL# column from view V$SESSION.
consumer_group	Name of the consumer group to which to switch

SWITCH_CONSUMER_GROUP_FOR_USER Procedure

This procedure changes the resource consumer group for all sessions with a given user ID. It also changes the consumer group of any parallel execution servers that are related to the top user session.

Syntax

```
DBMS_RESOURCE_MANAGER.SWITCH_CONSUMER_GROUP_FOR_USER (
   user            IN VARCHAR2,
   consumer_group  IN VARCHAR2);
```

Parameters

Table 164-25 SWITCH_CONSUMER_GROUP_FOR_USER Procedure Parameters

Parameter	Description
user	Name of the user
consumer_group	Name of the consumer group to which to switch

Usage Notes

- The SWITCH_CONSUMER_GROUP_FOR_SESS Procedure and the SWITCH_CONSUMER_GROUP_FOR_USER procedures let you raise or lower the allocation of CPU resources of certain sessions or users. This provides a functionality similar to the nice command on UNIX.
- These procedures cause the session to be moved into the newly specified consumer group immediately.

SWITCH_PLAN Procedure

This procedure sets the current resource manager plan.

Syntax

```
DBMS_RESOURCE_MANAGER.SWITCH_PLAN(
   plan_name                    IN   VARCHAR2,
   sid                          IN   VARCHAR2 DEFAULT '*',
   allow_scheduler_plan_switches IN   BOOLEAN DEFAULT TRUE);
```

Parameters

Table 164-26 SWITCH_PLAN Procedure Parameters

Parameter	Description
plan_name	Name of the plan to which to switch. Passing in an empty string ('') for the plan_name, disables the resource manager
sid	The sid parameter is relevant only in an Oracle Real Application Clusters environment. This parameter lets you change the plan for a particular instance. Specify the sid of the instance where you want to change the plan. Or specify '*' if you want Oracle to change the plan for all instances.

Table 164-26 (Cont.) SWITCH_PLAN Procedure Parameters

Parameter	Description
allow_scheduler_plan_switches	FALSE - disables automated plan switches by the job scheduler at window boundaries. To reenable automated plan switches, switch_plan must be called again by the administrator with allow_scheduler_plan_switches set to TRUE. By default automated plan switches by the job scheduler are enabled.

UPDATE_CATEGORY Procedure

This procedure updates an existing resource consumer group category.

Syntax

```
DBMS_RESOURCE_MANAGER.UPDATE_CATEGORY (
   category        IN    VARCHAR2,
   new_comment     IN    VARCHAR2  DEFAULT NULL);
```

Parameters

Table 164-27 UPDATE_CATEGORY Procedure Parameters

Parameter	Description
category	Name of consumer group category
new_comment	User comment

Usage Notes

To clear (reset to the directive's default value), use the value -1.

UPDATE_CDB_AUTOTASK_DIRECTIVE Procedure

This procedure updates the plan directives with regard to automated maintenance tasks in the CDB root (CDB$ROOT).

By default, all maintenance tasks occur directly in the PDBs themselves.

Syntax

```
DBMS_RESOURCE_MANAGER.UPDATE_CDB_AUTOTASK_DIRECTIVE (
   plan                        IN    VARCHAR2,
   new_comment                 IN    VARCHAR2       DEFAULT NULL,
   new_shares                  IN    NUMBER         DEFAULT NULL,
   new_utilization_limit       IN    NUMBER         DEFAULT NULL,
   new_parallel_server_limit   IN    NUMBER         DEFAULT NULL,
   new_memory_limit            IN    NUMBER         DEFAULT NULL,
   new_memory_min              IN    NUMBER         DEFAULT NULL);
```

Parameters

Table 164-28 UPDATE_CDB_AUTOTASK_DIRECTIVE Procedure Parameters

Parameter	Description
plan	Name of the consolidation plan
new_comment	New user comment
new_shares	Specifies the new share of resource allocation for CDB root's automated maintenance tasks
new_utilization_limit	Specifies the new maximum percentage of CPU that automated maintenance tasks in the CDB root can utilize
new_parallel_server_limit	Specifies the new maximum percentage of parallel_servers_target parallel servers that automated maintenance tasks in the CDB root are allowed to use
new_memory_limit	This parameter is only applicable to Oracle Exadata storage for configuring the Database Smart Flash Cache and PMEM Cache.
new_memory_min	This parameter is only applicable to Oracle Exadata storage for configuring the Database Smart Flash Cache and PMEM Cache.

Usage Notes

- By default for automated maintenance tasks, the values are
  - shares: -1
  - utilization_limit: 90
  - parallel_server_limit: 100
- The shares = -1 means that the automated maintenance tasks get an allocation of 20% of the system. If the user specifies the shares, it behaves the same properties as the other CDB plan directive functions. If the user does not change the shares or later changes it back to -1, autotask will get 20% of the system.
- This procedure can be run only from the CDB root.
- To clear (reset to the directive's default value), use the value -1.

UPDATE_CDB_DEFAULT_DIRECTIVE Procedure

This procedure updates the plan directives of the consolidation resource plan.

Syntax

```
DBMS_RESOURCE_MANAGER.UPDATE_CDB_DEFAULT_DIRECTIVE (
   plan                        IN    VARCHAR2    DEFAULT NULL,
   new_comment                 IN    VARCHAR2    DEFAULT NULL,
   new_shares                  IN    NUMBER      DEFAULT NULL,
   new_utilization_limit       IN    NUMBER      DEFAULT NULL,
   new_parallel_server_limit   IN    NUMBER      DEFAULT NULL,
   new_memory_limit            IN    NUMBER      DEFAULT NULL,
   new_memory_min              IN    NUMBER      DEFAULT NULL);
```

Parameters

Table 164-29 UPDATE_CDB_DEFAULT_DIRECTIVE Procedure Parameters

Parameter	Description
plan	Name of the consolidation plan
new_commnent	New user comment
new_shares	Specifies the share of resource allocation for the pluggable database. CPU Resource Manager and Exadata I/O Resource Manager are enabled by specifying shares for each PDB. The new_shares parameter is also used for Parallel Statement Queuing.
new_utilization_limit	Specifies the maximum percentage of CPU that the pluggable database can utilize.
new_parallel_server_limit	Specifies the maximum percentage of parallel_servers_target parallel servers that the pluggable database can use.
new_memory_limit	This parameter is only applicable to Oracle Exadata storage for configuring the Database Smart Flash Cache and PMEM Cache.
new_memory_min	This parameter is only applicable to Oracle Exadata storage for configuring the Database Smart Flash Cache and PMEM Cache.

Usage Notes

- By default, the default values are
  - new_shares: 1
  - utilization_limit: 100
  - parallel_server_limit: 100
- Note that the default values are NULL. This has the same meaning as in UPDATE_CDB_PLAN_DIRECTIVE Procedure. If the user does not specify a value, the value will not be modified.
- This procedure can be run only from the CDB root (CDB$ROOT).
- To clear (reset to the directive's default value), use the value -1.

UPDATE_CDB_PLAN Procedure

This procedure updates the consolidation resource plan.

Syntax

```
DBMS_RESOURCE_MANAGER.UPDATE_CDB_PLAN (
   plan                        IN    VARCHAR2(32),
   new_comment                 IN    VARCHAR2(2000)   DEFAULT NULL);
```

Parameters

Table 164-30 UPDATE_CDB_PLAN Procedure Parameters

Parameter	Description
plan	Name of the consolidation plan
new_comment	User comment

Usage Notes

- This procedure can be run only from the CDB root (CDB$ROOT).
- To clear (reset to the directive's default value), use the value -1.

UPDATE_CDB_PLAN_DIRECTIVE Procedure

Updates the plan directives for a consolidation resource plan. Plan directives specify the resource allocation policy for pluggable databases (PDBs).

Syntax

```
DBMS_RESOURCE_MANAGER.UPDATE_CDB_PLAN_DIRECTIVE (
   plan                        IN    VARCHAR2 (30),
   pluggable_database          IN    VARCHAR2 (30)
   new_comment                 IN    VARCHAR2 (200)  DEFAULT NULL,
   new_shares                  IN    NUMBER          DEFAULT NULL,
   new_utilization_limit       IN    NUMBER          DEFAULT NULL,
   new_parallel_server_limit   IN    NUMBER          DEFAULT NULL,
   new_memory_limit            IN    NUMBER          DEFAULT NULL,
   new_memory_min              IN    NUMBER          DEFAULT NULL);
```

Parameters

Table 164-31 UPDATE_CDB_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
plan	Name of the consolidation plan
pluggable_database	Name of the pluggable database
new_comment	New user comment
new_shares	The share of resource allocation for the pluggable database CPU Resource Manager is enabled by specifying shares for each PDB. The shares parameter is also used for Parallel Statement Queuing. If no share is specified, the default is obtained from the default directive, specified through the UPDATE_CDB_DEFAULT_DIRECTIVE Procedure.
new_utilization_limit	The new maximum percentage of CPU that the pluggable database can utilize
new_parallel_server_limit	The new maximum percentage of parallel_servers_target parallel servers that the pluggable database can use

Table 164-31 (Cont.) UPDATE_CDB_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
new_memory_limit	This parameter is only applicable to Oracle Exadata storage for configuring the Database Smart Flash Cache and PMEM Cache.
new_memory_ min	This parameter is only applicable to Oracle Exadata storage for configuring the Database Smart Flash Cache and PMEM Cache.

Usage Notes

- The default value for the new_* parameters is NULL which indicates that the existing value is left unchanged. If the user does not specify one of the arguments when calling this function, the value is not modified.
- This procedure can be run only from the CDB root (CDB$ROOT).
- To clear (reset to the directive's default value), use the value -1.

UPDATE_CDB_PROFILE_DIRECTIVE Procedure

This procedure updates the performance profile directives of the consolidation resource plan. The directives specify the resource allocation policy for pluggable databases (PDBs) that use the performance profile.

For a PDB to use a performance profile, the PDB must have the DB_PERFORMANCE_PROFILE initialization parameter set to the performance profile name.

Syntax

```
DBMS_RESOURCE_MANAGER.UPDATE_CDB_PROFILE_DIRECTIVE (
   plan                        IN    VARCHAR2,
   profile                     IN    VARCHAR2,
   new_comment                 IN    VARCHAR2 (2000) DEFAULT '',
   new_shares                  IN    NUMBER          DEFAULT NULL,
   new_utilization_limit       IN    NUMBER          DEFAULT NULL,
   new_parallel_server_limit   IN    NUMBER          DEFAULT NULL,
   new_memory_limit            IN    NUMBER          DEFAULT 100,
   new_memory_min              IN    NUMBER          DEFAULT 0);
```

Parameters

Table 164-32 UPDATE_CDB_PROFILE_DIRECTIVE Procedure Parameters

Parameter	Description
plan	Name of the consolidation plan
profile	Name of the performance profile
new_comment	New user comment
new_shares	The share of resource allocation for the PDBs that use the performance profile
new_utilization_limit	The new maximum percentage of CPU that PDBs that use the performance profile can use

Table 164-32 (Cont.) UPDATE_CDB_PROFILE_DIRECTIVE Procedure Parameters

Parameter	Description
new_parallel_server_limit	The new maximum percentage of parallel_servers_target parallel servers that PDBs that use the performance profile can use
new_memory_limit	This parameter is only applicable to Oracle Exadata storage for configuring the Database Smart Flash Cache and PMEM Cache.
new_memory_ min	This parameter is only applicable to Oracle Exadata storage for configuring the Database Smart Flash Cache and PMEM Cache.

Usage Notes

- This procedure can be run only from the CDB root (CDB$ROOT).
- To clear (reset to the directive's default value), use the value -1.

UPDATE_CONSUMER_GROUP Procedure

This procedure updates entries which define resource consumer groups.

Syntax

```
DBMS_RESOURCE_MANAGER.UPDATE_CONSUMER_GROUP (
   consumer_group  IN VARCHAR2,
   new_comment     IN VARCHAR2 DEFAULT NULL,
   new_cpu_mth     IN VARCHAR2 DEFAULT NULL,
   new_mgmt_mth    IN VARCHAR2 DEFAULT NULL,
   new_category    IN VARCHAR2 DEFAULT NULL);
```

Parameters

Table 164-33 UPDATE_CONSUMER_GROUP Procedure Parameter

Parameter	Description
consumer_group	Name of consumer group
new_comment	New user comment
new_cpu_mth	Name of new method for CPU resource allocation (deprecated)
new_mgmt_mth	Name of new method for CPU resource allocation
new_category	New consumer group category

Usage Notes

- If the parameters to the UPDATE_CONSUMER_GROUP procedure are not specified, then they remain unchanged in the data dictionary.
- To clear (reset to the directive's default value), use the value -1.

UPDATE_PLAN Procedure

This procedure updates entries which define resource plans.

Syntax

```
DBMS_RESOURCE_MANAGER.UPDATE_PLAN (
   plan                                IN VARCHAR2,
   new_comment                         IN VARCHAR2 DEFAULT NULL,
   new_cpu_mth                         IN VARCHAR2 DEFAULT NULL, -- deprecated
   new_active_sess_pool_mth            IN VARCHAR2 DEFAULT NULL,
   new_parallel_degree_limit_mth       IN VARCHAR2 DEFAULT NULL,
   new_queueing_mth                    IN VARCHAR2 DEFAULT NULL,
   new_mgmt_mth                        IN VARCHAR2 DEFAULT NULL,
   new_sub_plan                        IN BOOLEAN DEFAULT FALSE,
   new_max_iops                        IN NUMBER DEFAULT NULL,
   new_max_mbps                        IN NUMBER DEFAULT NULL);
```

Parameters

Table 164-34 UPDATE_PLAN Procedure Parameters

Parameter	Description
`plan`	Name of resource plan
`new_comment`	New user comment
`new_cpu_mth`	Name of new allocation method for CPU resources (deprecated)
`new_active_sess_pool_mth`	Name of new method for maximum active sessions
`new_parallel_degree_limit_mth`	Name of new method for degree of parallelism
`new_queueing_mth`	Specifies type of queuing policy to use with active session pool feature
`new_mgmt_mth`	Resource allocation method for specifying how much resources (for example, CPU or I/O) each consumer group or sub-plan gets • `EMPHASIS` - for multilevel plans that use percentages to specify how I/O resources are distributed among consumer groups. • `RATIO` - for single-level plans that use ratios to specify how I/O resources are distributed.
`new_sub_plan`	New setting for whether the plan is only intended for use as a sub-plan
`new_max_iops`	Nonoperative
`new_max_mbps`	Nonoperative

Usage Notes

- If the parameters to UPDATE_PLAN Procedure are not specified, then they remain unchanged in the data dictionary.
- If you want to use any default resource allocation method, then you do not need to specify it when creating or updating a plan.
- To clear (reset to the directive's default value), use the value `-1`.

UPDATE_PLAN_DIRECTIVE Procedure

This procedure updates resource plan directives.

> **Note:**
>
> The parameters `new_max_utilization_limit` and `new_parallel_target_percentage` are deprecated with Oracle Database 11g Release 1 (12.1.0.1), and are replaced by `new_utilization_limit` and `new_parallel_server_limit`.

Syntax

```
DBMS_RESOURCE_MANAGER.UPDATE_PLAN_DIRECTIVE (
   plan                              IN VARCHAR2,
   group_or_subplan                  IN VARCHAR2,
   new_comment                       IN VARCHAR2 DEFAULT NULL,
   new_cpu_p1                        IN NUMBER   DEFAULT NULL, -- deprecated
   new_cpu_p2                        IN NUMBER   DEFAULT NULL, -- deprecated
   new_cpu_p3                        IN NUMBER   DEFAULT NULL, -- deprecated
   new_cpu_p4                        IN NUMBER   DEFAULT NULL, -- deprecated
   new_cpu_p5                        IN NUMBER   DEFAULT NULL, -- deprecated
   new_cpu_p6                        IN NUMBER   DEFAULT NULL, -- deprecated
   new_cpu_p7                        IN NUMBER   DEFAULT NULL, -- deprecated
   new_cpu_p8                        IN NUMBER   DEFAULT NULL, -- deprecated
   new_active_sess_pool_p1           IN NUMBER   DEFAULT NULL,
   new_queueing_p1                   IN NUMBER   DEFAULT NULL,
   new_parallel_degree_limit_p1      IN NUMBER   DEFAULT NULL,
   new_switch_group                  IN VARCHAR2 DEFAULT NULL,
   new_switch_time                   IN NUMBER   DEFAULT NULL,
   new_switch_estimate               IN BOOLEAN  DEFAULT FALSE,
   new_max_est_exec_time             IN NUMBER   DEFAULT NULL,
   new_undo_pool                     IN NUMBER   DEFAULT NULL,
   new_max_idle_time                 IN NUMBER   DEFAULT NULL,
   new_max_idle_blocker_time         IN NUMBER   DEFAULT NULL,
   switch_time_in_call               IN NUMBER   DEFAULT NULL, -- deprecated
   new_mgmt_p1                       IN NUMBER   DEFAULT NULL,
   new_mgmt_p2                       IN NUMBER   DEFAULT NULL,
   new_mgmt_p3                       IN NUMBER   DEFAULT NULL,
   new_mgmt_p4                       IN NUMBER   DEFAULT NULL,
   new_mgmt_p5                       IN NUMBER   DEFAULT NULL,
   new_mgmt_p6                       IN NUMBER   DEFAULT NULL,
   new_mgmt_p7                       IN NUMBER   DEFAULT NULL,
   new_mgmt_p8                       IN NUMBER   DEFAULT NULL,
   new_switch_io_megabytes           IN NUMBER   DEFAULT NULL,
   new_switch_io_reqs                IN NUMBER   DEFAULT NULL,
   new_switch_for_call               IN BOOLEAN  DEFAULT NULL,
   new_max_utilization_limit         IN NUMBER   DEFAULT NULL,
   new_parallel_target_percentage    IN NUMBER   DEFAULT NULL,
   new_parallel_queue_timeout        IN NUMBER   DEFAULT NULL,
   new_parallel_server_limit         IN NUMBER   DEFAULT NULL,
   new_utilization_limit             IN NUMBER   DEFAULT NULL,
   new_switch_io_logical             IN NUMBER   DEFAULT NULL,
   new_switch_elapsed_time           IN NUMBER   DEFAULT NULL,
   new_shares                        IN NUMBER   DEFAULT NULL,
   new_parallel_stmt_critical        IN VARCHAR2 DEFAULT NULL,
```

```
  new_session_pga_limit            IN NUMBER   DEFAULT NULL,
  new_pq_timeout_action            IN NUMBER   DEFAULT NULL);
```

Parameters

Table 164-35 UPDATE_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
plan	Name of the resource plan
group_or_subplan	Name of the consumer group or subplan
new_comment	Comment for the plan directive
new_cpu_p1	Deprecated - use new_mgmt_p1 instead
new_cpu_p2	Deprecated - use new_mgmt_p2 instead
new_cpu_p3	Deprecated - use new_mgmt_p3 instead
new_cpu_p4	Deprecated- use new_mgmt_p4 instead
new_cpu_p5	Deprecated - use new_mgmt_p5 instead
new_cpu_p6	Deprecated- use new_mgmt_p6 instead
new_cpu_p7	Deprecated- use new_mgmt_p7 instead
new_cpu_p8	Deprecated- use new_mgmt_p8 instead
new_active_sess_pool_p1	Specifies maximum number of concurrently active sessions for a consumer group. Default is NULL, which means unlimited.
new_queueing_p1	Specified time (in seconds) after which a job in the inactive session queue (waiting for execution) will time out. Default is NULL, which means unlimited.
new_parallel_degree_limit_p1	Specifies a limit on the degree of parallelism for any operation. Default is NULL, which means unlimited.
new_switch_group	Specifies consumer group to which this session is switched if other switch criteria are met. Default is NULL. If the group name is 'CANCEL_SQL', the current call will be canceled when other switch criteria are met. If the group name is 'KILL_SESSION', the session will be killed when other switch criteria are met.
new_switch_time	Specifies time (in CPU seconds) that a session can execute before an action is taken. Default is NULL, which means unlimited.
new_switch_estimate	If TRUE, tells Oracle to use its execution time estimate to automatically switch the consumer group of an operation before beginning its execution. Default is FALSE.
new_max_est_exec_time	Specifies the maximum execution time (in CPU seconds) allowed for a session. If the optimizer estimates that an operation will take longer than MAX_EST_EXEC_TIME, the operation is not started and ORA-07455 is issued. If the optimizer does not provide an estimate, this directive has no effect. Default is NULL, which means unlimited.
new_undo_pool	Limits the size in kilobytes of the undo records corresponding to uncommitted transactions by this consumer group
new_max_idle_time	Indicates the maximum session idle time. Default is NULL, which means unlimited.
new_max_idle_blocker_time	Maximum amount of time in seconds that a session can be idle while blocking another session's acquisition of a resource

Table 164-35 (Cont.) UPDATE_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
new_switch_time_in_call	Deprecated. If this parameter is specified, new_switch_time will be effectively set to new_switch_time_in_call and new_switch_for_call will be effectively set to TRUE.
new_mgmt_p1	Resource allocation value for level 1 (replaces new_cpu_p1): • EMPHASIS - specifies the resource percentage at the first level • RATIO - specifies the weight of resource usage
new_mgmt_p2	Resource allocation value for level 2 (replaces new_cpu_p2) • EMPHASIS - specifies the resource percentage at the second level • RATIO - non-applicable
new_mgmt_p3	Resource allocation value for level 3 (replaces new_cpu_p3) • EMPHASIS - specifies the resource percentage at the third level • RATIO - non-applicable
new_mgmt_p4	Resource allocation value for level 4 (replaces new_cpu_p4) • EMPHASIS - specifies the resource percentage at the fourth level • RATIO - non-applicable
new_mgmt_p5	Resource allocation value for level 5 (replaces new_cpu_p5) • EMPHASIS - specifies the resource percentage at the fifth level • RATIO - non-applicable
new_mgmt_p6	Resource allocation value for level 6 (replaces new_cpu_p6) • EMPHASIS - specifies the resource percentage at the sixth level • RATIO - non-applicable
new_mgmt_p7	Resource allocation value for level 7 (replaces new_cpu_p7) • EMPHASIS - specifies the resource percentage at the seventh level • RATIO - non-applicable
new_mgmt_p8	Resource allocation value for level 8 (replaces new_cpu_p8) • EMPHASIS - specifies the resource percentage at the eighth level • RATIO - non-applicable
new_switch_io_megabytes	Specifies the amount of I/O (in MB) that a session can issue before an action is taken. Default is NULL, which means unlimited.
new_switch_io_reqs	Specifies the number of I/O requests that a session can issue before an action is taken. Default is NULL, which means unlimited.
new_switch_for_call	Specifies that if an action is taken because of the new_switch_time, new_switch_io_megabytes, or new_switch_io_reqs parameters, the consumer group is restored to its original consumer group at the end of the top call. Default is FALSE, which means that the original consumer group is not restored at the end of the top call.
new_max_utilization_limit	Deprecated - use new_utilization_limit instead
new_parallel_target_percentage	Deprecated - use new_parallel_server_limit instead
new_parallel_server_limit	Parallel server limit. Setting this overwrites the limit for parallel server set by utilization_limit.

Table 164-35 (Cont.) UPDATE_PLAN_DIRECTIVE Procedure Parameters

Parameter	Description
new_utilization_limit	Resource limit. For CPU, this limits the CPU utilization for the consumer group. For parallel servers, this limits the parallel servers used as a percentage of parallel_servers_target.
new_switch_elapsed_time	Elapsed time that will trigger the action specified by switch_group. As with other switch directives, if new_switch_for_call is TRUE, the elapsed time is accumulated from the start of a call. Otherwise, the elapsed time is accumulated for the length of the session.
new_shares	Specifies the share of resource allocation for the pluggable database. CPU Resource Manager and Exadata I/O Resource Manager are enabled by specifying shares for each PDB. The shares parameter is also used for Parallel Statement Queuing. If CPU Resource Manager and Exadata I/O Resource Manager are enabled, then the default value is 1.
new_parallel_stmt_critical	If set to BYPASS_QUEUE, parallel statements from this consumer group are not queued. If set to QUEUE, all the parallel statements, irrespective of the parallel_degree_policy parameter value, from the consumer group get queued. Default is FALSE, which means that certain parallel statements are eligible for queuing depending upon the parallel_degree_policy parameter value.
new_session_pga_limit	Maximum amount of PGA in MB that sessions in this consumer group can allocate before being terminated. NULL (default) indicates no change.
new_parallel_queue_timeout	Specifies the time (in seconds) that a parallel statement may remain in its Consumer Group's parallel statement queue before it is removed. The default action of this parameter is ERROR. This action can be altered using the new_pq_timeout_action parameter.
new_pq_timeout_action	Specifies the action to be taken when a parallel statement is removed from the queue due to new_parallel_queue_timeout. The values are: • CANCEL — The SQL statement is terminated with error ORA-7454 • RUN — The SQL statement runs immediately, and might get downgraded if parallel servers are unavailable

Usage Notes

- If the parameters for UPDATE_PLAN_DIRECTIVE are left unspecified, then they remain unchanged in the data dictionary.
- For new_max_idle_time and new_max_idle_blocker_time, PMON will check these limits once a minute. If it finds a session that has exceeded one of the limits, it will forcibly kill the session and clean up all its state.
- The parameter new_switch_time_in_call is mostly useful for three-tier applications where the mid-tier server is implementing session pooling. By turning on new_switch_time_in_call, the resource usage of one client will not affect the consumer group of a future client that happens to be executed on the same session.
- To clear (reset to the directive's default value), use the value -1.

VALIDATE_PENDING_AREA Procedure

This procedure validates pending changes for the resource manager.

Syntax

```
DBMS_RESOURCE_MANAGER.VALIDATE_PENDING_AREA;
```