

# DBMS\_AVTUNE

The `DBMS_AVTUNE` package analyzes query access levels and aggregation workloads for each auto-cache enabled analytic view (AV) and creates or drops AV auto-caches to improve the overall performance of the SQL queries on that AV.

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- [DBMS\\_AVTUNE Overview](#)
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- [Summary of DBMS\\_AVTUNE Subprograms](#)

## DBMS\_AVTUNE Overview

This package allows you to create a cache on an existing AV. It also enables the AV for auto caching. You can also create, refresh, and remove a star cache.

### Usage Notes

- It is intended that the owner of the AV is also the user calling this package. Calling this package on an AV in another schema is not supported.
- Before you use any other procedure in this package, you need to call the `AUTO_CACHE_ENABLE` procedure. After the AV is enabled, auto-tuning will continue till the AV is disabled. You can call any other procedures on an enabled AV to manually tune the AV for more fine-grained control of the performance.

## DBMS\_AVTUNE Security Model

The `DBMS_AVTUNE` package runs under `AUTHID CURRENT_USER`. The SQL generated through use of the package is executed as the current user, and `EXECUTE` privilege on the package is granted to `PUBLIC`.

## Summary of DBMS\_AVTUNE Subprograms

This table lists the `DBMS_AVTUNE` package subprograms and briefly describes them.

**Table 41-1 DBMS\_AVTUNE Package Subprograms**

Procedure	Description
<a href="#">AUTO_CACHE_CREATE Procedure</a>	This procedure creates a cache on an existing analytic view.
<a href="#">AUTO_CACHE_DISABLE Procedure</a>	This procedure disables an analytic view for auto caching and removes all auto-caches.
<a href="#">AUTO_CACHE_ENABLE Procedure</a>	This procedure enables analytic views for auto caching and sets auto-cache settings for analytic views. This procedure throws an error if the AV is already enabled.

**Table 41-1 (Cont.) DBMS\_AVTUNE Package Subprograms**

Procedure	Description
<a href="#">AUTO_CACHE_MODIFY Procedure</a>	This procedure modifies tuning parameters originally supplied in the enable call.
<a href="#">AUTO_CACHE_REFRESH Procedure</a>	This procedure forces a refresh immediately of all auto-caches for the analytic view.
<a href="#">AUTO_CACHE_REMOVE Procedure</a>	This procedure manually removes the auto-cache defined for the specified levels.
<a href="#">AUTO_CACHE_TUNE Procedure</a>	This procedure forces the tuning process to run immediately for the analytic view and implement changes.
<a href="#">AUTO_CACHE_STAR_DISABLE Procedure</a>	This procedure removes the star cache on the attribute dimension <code>dim_name</code> .
<a href="#">AUTO_CACHE_STAR_ENABLE Procedure</a>	This procedure creates a star cache on the attribute dimension <code>dim_name</code> .
<a href="#">AUTO_CACHE_STAR_MODIFY Procedure</a>	This procedure modifies the parameters specified in the enable call.
<a href="#">AUTO_CACHE_STAR_REFRESH Procedure</a>	This procedure refreshes the star cache for the attribute dimension <code>dim_name</code> .

## AUTO\_CACHE\_CREATE Procedure

This procedure creates a cache on an existing analytic view.

### Syntax

```
DBMS_AVTUNE.AUTO_CACHE_CREATE (  
    av_name      IN  VARCHAR2,  
    level_group  IN  LEVEL_LIST,  
    av_owner     IN  VARCHAR2);
```

### Parameters

**Table 41-2 AUTO\_CACHE\_CREATE Procedure Parameters**

Parameter	Description
<code>av_name</code>	The name of the analytic view.
<code>level_group</code>	Represents the levels to cache.
<code>av_owner</code>	The owner of the AV, defaulting to the current schema.

### Example

```
execute dbms_avtune.auto_cache_create('UNITS_HCUBE_AVTUNE',  
    dbms_avtune.level_list(dbms_avtune.level('PRODUCT', 'ROLLUP', 'CLASS'),  
    dbms_avtune.level('TIME', 'CALENDAR', 'YEAR')));
```

## AUTO\_CACHE\_DISABLE Procedure

This procedure disables an analytic view for auto caching and removes all auto-caches.

### Syntax

```
DBMS_AVTUNE.AUTO_CACHE_DISABLE (
    av_name      IN  VARCHAR2,
    av_owner     IN  VARCHAR2);
```

### Parameters

**Table 41-3 AUTO\_CACHE\_DISABLE Procedure Parameters**

Parameter	Description
av_name	The name of the analytic view to disable caching on.
av_owner	The owner of the AV, defaulting to the current schema.

## AUTO\_CACHE\_ENABLE Procedure

This procedure enables analytic views for auto caching and sets auto-cache settings for analytic views. This procedure throws an error if the AV is already enabled. It is not possible to update an already enabled AV using this procedure.

### Syntax

```
DBMS_AVTUNE.AUTO_CACHE_ENABLE (
    av_name      IN  VARCHAR2,
    refresh_intvl IN  NUMBER,
    num_queries  IN  NUMBER,
    avg_query_time IN NUMBER,
    total_cache_pct IN NUMBER,
    init_max_pct  IN  NUMBER,
    init_numhier  IN  NUMBER,
    init_fixed_lvls IN LEVEL_LIST,
    run_mode     IN  VARCHAR2,
    av_owner     IN  VARCHAR2);
```

### Parameters

**Table 41-4 AUTO\_CACHE\_ENABLE Procedure Parameters**

Parameter	Description
av_name	The name of the analytic view to enable caching on.
refresh_intvl	The number of minutes to wait between each cache refresh. The default value is 10 minutes.
num_queries	The minimum number of queries to consider for caches. The default value is 1.
avg_query_time	The average number of seconds each query should take before being considered for caches. The default value is 3.
total_cache_pct	The maximum percentage of the fact table you wish to cache. The default value is 50.

**Table 41-4 (Cont.) AUTO\_CACHE\_ENABLE Procedure Parameters**

Parameter	Description
init_max_pct	The maximum percentage of the fact table for the initial cache. The default value is 1%.
init_numhier	The maximum number of hierarchies to use for each dimension in the initial cache.
init_fixed_lvls	The levels you definitely want in the initial cache.
run_mode	This parameter is not used. Always use the default value.
av_owner	The owner of the AV, defaulting to the current schema.

## AUTO\_CACHE\_MODIFY Procedure

This procedure modifies the tuning parameters originally supplied in the enable call. The parameters remain unchanged if `NULL` is specified.

### Syntax

```
DBMS_AVTUNE.AUTO_CACHE_MODIFY (  
    av_name          IN  VARCHAR2,  
    refresh_intvl    IN  NUMBER,  
    num_queries      IN  NUMBER,  
    avg_query_time   IN  NUMBER,  
    total_cache_pct  IN  NUMBER,  
    av_owner         IN  VARCHAR2);
```

### Parameters

**Table 41-5 AUTO\_CACHE\_MODIFY Procedure Parameters**

Parameter	Description
av_name	The name of the analytic view to enable caching on.
refresh_intvl	The number of minutes to wait between each cache refresh. The default value is 10 minutes.
num_queries	The minimum number of queries to consider for caches. The default value is 1.
avg_query_time	The average number of seconds each query should take before being considered for caches. The default value is 3.
total_cache_pct	The maximum percentage of the fact table you wish to cache. The default value is 50.
av_owner	The owner of the AV, defaulting to the current schema.

## AUTO\_CACHE\_REFRESH Procedure

This procedure forces a refresh immediately of all auto-caches for the analytic view.

### Syntax

```
DBMS_AVTUNE.AUTO_CACHE_REFRESH (  
    av_name          IN  VARCHAR2,  
    av_owner         IN  VARCHAR2);
```

## Parameters

**Table 41-6** AUTO\_CACHE\_REFRESH Procedure Parameters

Parameter	Description
av_name	The name of the analytic view.
av_owner	The owner of the AV, defaulting to the current schema.

## AUTO\_CACHE\_REMOVE Procedure

This procedure manually removes the auto-cache defined for the specified levels.

### Syntax

```
DBMS_AVTUNE.AUTO_CACHE_REMOVE (  
    av_name      IN  VARCHAR2,  
    level_group  IN  LEVEL_LIST,  
    av_owner     IN  VARCHAR2);
```

## Parameters

**Table 41-7** AUTO\_CACHE\_REMOVE Procedure Parameters

Parameter	Description
av_name	The name of the analytic view.
level_group	Represents the levels to cache.
av_owner	The owner of the AV, defaulting to the current schema.

## AUTO\_CACHE\_TUNE Procedure

This procedure forces the tuning process to run immediately for the analytic view and implement changes.

### Syntax

```
DBMS_AVTUNE.AUTO_CACHE_TUNE (  
    av_name      IN  VARCHAR2,  
    num_queries  IN  NUMBER,  
    avg_query_time IN NUMBER,  
    run_mode     IN  VARCHAR2,  
    av_owner     IN  VARCHAR2);
```

## Parameters

**Table 41-8** AUTO\_CACHE\_TUNE Procedure Parameters

Parameter	Description
av_name	The name of the analytic view.
num_queries	The minimum number of queries to consider for caches. The default value is 1.

**Table 41-8 (Cont.) AUTO\_CACHE\_TUNE Procedure Parameters**

Parameter	Description
avg_query_time	The average number of seconds each query should take before being considered for caches. The default value is 3.
run_mode	The run_mode parameter is not used. Always use the default value.
av_owner	The owner of the AV, defaulting to the current schema.

## AUTO\_CACHE\_STAR\_DISABLE Procedure

This procedure removes the star cache on the attribute dimension `dim_name`.

### Syntax

```
DBMS_AVTUNE.AUTO_CACHE_STAR_DISABLE (
    dim_name      IN   VARCHAR2,
    dim_owner     IN   VARCHAR2);
```

### Parameters

**Table 41-9 AUTO\_CACHE\_STAR\_DISABLE Procedure Parameters**

Parameter	Description
dim_name	The name of the attribute dimension.
dim_owner	The owner of the attribute dimension.

## AUTO\_CACHE\_STAR\_ENABLE Procedure

This procedure creates a star cache on the attribute dimension `dim_name`. The `av_name` can optionally be passed to qualify the attribute dimension.

### Syntax

```
DBMS_AVTUNE.AUTO_CACHE_STAR_ENABLE (
    dim_name      IN   VARCHAR2,
    av_name       IN   VARCHAR2,
    refresh_intvl IN   NUMBER,
    run_mode      IN   VARCHAR2,
    dim_owner     IN   VARCHAR2,
    av_owner      IN   VARCHAR2);
```

### Parameters

**Table 41-10 AUTO\_CACHE\_STAR\_ENABLE Procedure Parameters**

Parameter	Description
dim_name	The name of the attribute dimension.
av_name	The name of the AV to associate the star cache with, if any. The av_name can optionally be specified to associate the star cache with the given AV. When this is done then the star cache will be refreshed and maintained with the AV instead of independently.

**Table 41-10 (Cont.) AUTO\_CACHE\_STAR\_ENABLE Procedure Parameters**

Parameter	Description
refresh_intvl	The number of minutes to wait between each cache refresh. The default value is 10 minutes.
run_mode	This parameter is not used. Always use the default value.
dim_owner	The owner of the attribute dimension.
av_owner	The owner of the AV, defaulting to the current schema.

## AUTO\_CACHE\_STAR\_MODIFY Procedure

This procedure modifies the parameters specified in the enable call. The parameters remain unchanged if NULL is specified.

### Syntax

```
DBMS_AVTUNE.AUTO_CACHE_STAR_MODIFY (
    dim_name      IN   VARCHAR2,
    av_name       IN   VARCHAR2,
    refresh_intvl IN   NUMBER,
    dim_owner     IN   VARCHAR2,
    av_owner      IN   VARCHAR2);
```

### Parameters

**Table 41-11 AUTO\_CACHE\_STAR\_MODIFY Procedure Parameters**

Parameter	Description
dim_name	The name of the attribute dimension.
av_name	The name of the associated analytic view.
refresh_intvl	The number of minutes to wait for each cache refresh. The default value is 10 minutes.
dim_owner	The owner of the attribute dimension.
av_owner	The owner of the AV, defaulting to the current schema.

## AUTO\_CACHE\_STAR\_REFRESH Procedure

This procedure refreshes the star cache for the attribute dimension `dim_name`.

### Syntax

```
DBMS_AVTUNE.AUTO_CACHE_STAR_REFRESH (
    dim_name      IN   VARCHAR2,
    dim_owner     IN   VARCHAR2);
```

### Parameters

**Table 41-12 AUTO\_CACHE\_STAR\_REFRESH Procedure Parameters**

Parameter	Description
dim_name	The name of the attribute dimension.

**Table 41-12 (Cont.) AUTO\_CACHE\_STAR\_REFRESH Procedure Parameters**

Parameter	Description
<code>dim_owner</code>	The owner of the attribute dimension.