301
UTL_RPADV

The `UTL_RPADV` package provides subprograms to collect and analyze statistics for the Oracle Replication components in a distributed database environment. This package uses the Oracle Replication Performance Advisor to gather statistics.

This chapter contains the following topic:

UTL_RPADV Overview

This package enables you to collect and analyze statistics about the performance or Oracle Replication components. You can either collect statistics on demand or you can create a monitoring job that continually monitors Oracle Replication performance.

When this package is used on an Oracle Database 11*g* Release 2 (11.2) database, it can monitor Oracle Database 10*g* Release 2 (10.2) and later databases. It cannot monitor databases before release 10.2.

DBMS_COMPARISON Security Model

Security on this package can be controlled by either granting `EXECUTE` on this package to selected users or roles, or by granting `EXECUTE_CATALOG_ROLE` to selected users or roles.

If subprograms in the package are run from within a stored procedure, then the user who runs the subprograms must be granted `EXECUTE` privilege on the package directly. It cannot be granted through a role.

To ensure that the user who runs the subprograms in this package has the necessary privileges, configure an Oracle Replication administrator and connect as the Oracle Replication administrator when using this package.

UTL_RPADV Operational Notes

To use this package, you must connect to an Oracle database as an Oracle Replication administrator and run the `utlrpadv.sql` script in the `rdbms/admin` directory in `ORACLE_HOME`.

The `utlrpadv.sql` script creates the following tables:

- STREAMS$_PA_COMPONENT Table
- STREAMS$_PA_COMPONENT_LINK Table
- STREAMS$_PA_COMPONENT_PROP Table
- STREAMS$_PA_COMPONENT_STAT Table

- STREAMS$_PA_CONTROL Table
- STREAMS$_PA_DATABASE Table
- STREAMS$_PA_DATABASE_PROP Table
- STREAMS$_PA_MONITORING Table
- STREAMS$_PA_PATH_BOTTLENECK Table
- STREAMS$_PA_PATH_STAT Table
- STREAMS$_PA_SHOW_COMP_STAT Table
- STREAMS$_PA_SHOW_PATH_STAT Table

The Oracle Replication Performance Advisor populates these tables when it is run.

STREAMS$_PA_COMPONENT Table

The `STREAMS$_PA_COMPONENT` table displays information about the Oracle Replication components at each database.

Table 301-1 STREAMS$_PA_COMPONENT Table

Column	Datatype	NULL	Description
`COMPONENT_ID`	`NUMBER`	`NOT NULL`	Identification number assigned to the component by the Oracle Replication Performance Advisor
`COMPONENT_NAME`	`VARCHAR2(194)`		Name of the component
`COMPONENT_DB`	`VARCHAR2(128)`		Name of the database that contains the component
`COMPONENT_TYPE`	`VARCHAR2(20)`		Type of the component The following types are possible: • `CAPTURE` for a capture process • `PROPAGATION SENDER` for a propagation sender • `PROPAGATION RECEIVER` for a propagation receiver • `APPLY` for an apply process • `QUEUE` for a queue
`COMPONENT_CHANGED_TIME`	`DATE`		Time when the component was last changed

STREAMS$_PA_COMPONENT_LINK Table

The `STREAMS$_PA_COMPONENT_LINK` table displays information about how information flows between Oracle Replication components.

Table 301-2 STREAMS$_PA_COMPONENT_LINK Table

Column	Datatype	NULL	Description
`PATH_ID`	`NUMBER`	`NOT NULL`	Identification number assigned to the path by the Oracle Replication Performance Advisor

Table 301-2 (Cont.) STREAMS$_PA_COMPONENT_LINK Table

Column	Datatype	NULL	Description
PATH_KEY	VARCHAR2(4000)		Unique key assigned to the path by the Oracle Replication Performance Advisor
SOURCE_COMPONENT_ID	NUMBER	NOT NULL	Source component ID for the path The path starts with this component.
DESTINATION_COMPONENT_ID	NUMBER	NOT NULL	Destination component ID for the path The path ends with this component.
POSITION	NUMBER		Position of the component in the path

STREAMS$_PA_COMPONENT_PROP Table

The STREAMS$_PA_COMPONENT_PROP table displays information about capture processes and apply processes necessary for analysis by the Replication Performance Advisor.

Table 301-3 STREAMS$_PA_COMPONENT_PROP Table

Column	Datatype	NULL	Description
COMPONENT_ID	NUMBER	NOT NULL	Identification number assigned to the component by the Oracle Replication Performance Advisor

Table 301-3 (Cont.) STREAMS$_PA_COMPONENT_PROP Table

Column	Datatype	NULL	Description
PROP_NAME	VARCHAR2(30)		Property name For a capture process, the component properties include the following: • SOURCE_DATABASE - The source database for the changes captured by the capture process • PARALLELISM - The setting for the parallelism capture process parameter • OPTIMIZATION_MODE - Indicates whether the capture process uses combined capture and apply (greater than zero) or does not use combined capture and apply (0) For an apply process, the component properties include the following: • SOURCE_DATABASE - The source database for the messages applied by the apply process • PARALLELISM - The setting for the parallelism apply process parameter • APPLY_CAPTURED - Indicates whether the apply process applies captured messages (YES) persistent messages (NO) • MESSAGE_DELIVERY_MODE - Either buffered or persistent
PROP_VALUE	VARCHAR2(30)		Property value

STREAMS$_PA_COMPONENT_STAT Table

The STREAMS$_PA_COMPONENT_STAT table displays performance statistics and session statistics about each Oracle Replication component.

Table 301-4 STREAMS$_PA_COMPONENT_STAT Table

Column	Datatype	NULL	Description
ADVISOR_RUN_ID	NUMBER		Identification number of the Oracle Replication Performance Advisor run
ADVISOR_RUN_TIME	DATE		Time when the Oracle Replication Performance Advisor was run for the advisor run ID

Table 301-4 (Cont.) STREAMS$_PA_COMPONENT_STAT Table

Column	Datatype	NULL	Description
COMPONENT_ID	NUMBER		Identification number assigned to the component by the Oracle Replication Performance Advisor
STATISTIC_TIME	DATE		Time when the statistic was recorded
STATISTIC_NAME	VARCHAR2(64)		Name of the statistic
STATISTIC_VALUE	NUMBER		Value recorded for the statistic
STATISTIC_UNIT	VARCHAR2(64)		Unit of measurement for the statistic
SUB_COMPONENT_TYPE	VARCHAR2(64)		Type of the subcomponent Only capture processes and apply processes have subcomponents. The following capture process subcomponent types are possible: • LOGMINER READER for a builder server of a capture process • LOGMINER PREPARER for a preparer server of a capture process • LOGMINER BUILDER for a reader server of a capture process • CAPTURE SESSION for a capture process session The following apply process subcomponent types are possible: • PROPAGATION SENDER+RECEIVER for sending LCRs from a capture process directly to an apply process in a combined capture and apply configuration in which both the capture process and apply process run on a single database • APPLY READER for a reader server of an apply process • APPLY COORDINATOR for a coordinator process of an apply process • APPLY SERVER for a reader server of an apply process
SESSION_ID	NUMBER		Identification number of the session for the component. Query the V$SESSION view for information about the session.
SESSION_SERIAL#	NUMBER		Session serial number of the session for the component. Query the V$SESSION view for information about the session.

STREAMS$_PA_CONTROL Table

The STREAMS$_PA_CONTROL table displays the parameters set for the COLLECT_STATS procedure in this package. The parameters control the monitoring behavior.

Table 301-5 STREAMS$_PA_CONTROL Table

Column	Datatype	NULL	Description
ADVISOR_RUN_ID	NUMBER		Identification number of the Oracle Replication Performance Advisor run
ADVISOR_RUN_TIME	DATE		Time when the Oracle Replication Performance Advisor was last run
PARAM_NAME	VARCHAR2(30)		The name of the parameter
PARAM_VALUE	VARCHAR2(4000)		The value set for the parameter
PARAM_UNIT	VARCHAR2(30)		The unit of the parameter

STREAMS$_PA_DATABASE Table

The STREAMS$_PA_DATABASE table displays information about each database that contains Oracle Replication components.

Table 301-6 STREAMS$_PA_DATABASE Table

Column	Datatype	NULL	Description
GLOBAL_NAME	VARCHAR2(128)	NOT NULL	Global name of the database analyzed by the Oracle Replication Performance Advisor
LAST_QUERIED	DATE		The time when the Performance Advisor successfully collected information from a database in its last run
ERROR_NUMBER	NUMBER		The error number of the error encountered when the database was last queried
ERROR_MESSAGE	VARCHAR2(4000)		The error message of the error encountered when the database was last queried

STREAMS$_PA_DATABASE_PROP Table

The STREAMS$_PA_DATABASE_PROP table displays Oracle Replication database property information necessary for analysis by the Replication Performance Advisor.

Table 301-7 STREAMS$_PA_DATABASE_PROP Table

Column	Datatype	NULL	Description
GLOBAL_NAME	VARCHAR2(128)	NOT NULL	Global name of the database analyzed by the Oracle Replication Performance Advisor
PROP_NAME	VARCHAR2(30)		Property name The database properties include the following: • VERSION • COMPATIBILITY • MANAGEMENT_PACK_ACCESS • DB_UNIQUE_NAME
PROP_VALUE	VARCHAR2(30)		Property value

STREAMS$_PA_MONITORING Table

The STREAMS$_PA_MONITORING table displays information about each monitoring job running in a database.

Table 301-8 STREAMS$_PA_MONITORING Table

Column	Datatype	NULL	Description
JOB_NAME	VARCHAR2(30)	NOT NULL	Name of the monitoring job
CLIENT_NAME	VARCHAR2(30)		Name of the client that submitted the job **See Also:** "Full Monitoring Job Names"
QUERY_USER_NAME	VARCHAR2(30)		User granted privileges to view the monitoring results
SHOW_STATS_TABLE	VARCHAR2(30)		Name of the table used by the SHOW_STATS procedure to display statistics
STARTED_TIME	TIMESTAMP		Time the monitoring job started
STOPPED_TIME	TIMESTAMP		Time the monitoring job last stopped
ALTERED_TIME	TIMESTAMP		Time the monitoring job was last altered
STATE	VARCHAR2(30)		State of the monitoring job, either ENABLED or STOPPED

STREAMS$_PA_PATH_BOTTLENECK Table

The STREAMS$_PA_PATH_BOTTLENECK table displays information about Oracle Replication components that might be slowing down the flow of messages.

Table 301-9 STREAMS$_PA_PATH_BOTTLENECK Table

Column	Datatype	NULL	Description
ADVISOR_RUN_ID	NUMBER		Identification number of the Oracle Replication Performance Advisor run
ADVISOR_RUN_TIME	DATE		Time when the Oracle Replication Performance Advisor was last run
ADVISOR_RUN_REASON	VARCHAR2(4000)		Reason for the bottleneck
PATH_ID	NUMBER		Identification number assigned to the path by the Oracle Replication Performance Advisor
PATH_KEY	VARCHAR2(4000)		Unique key assigned to the path by the Oracle Replication Performance Advisor
COMPONENT_ID	NUMBER		Identification number assigned to the component by the Oracle Replication Performance Advisor
TOP_SESSION_ID	NUMBER		Session ID of the top component. Query the V$SESSION view for information about the session.
TOP_SESSION_SERIAL#	NUMBER		Session serial number of the top component. Query the V$SESSION view for information about the session.
ACTION_NAME	VARCHAR2(32)		Action name for the top session

Table 301-9 (Cont.) STREAMS$_PA_PATH_BOTTLENECK Table

Column	Datatype	NULL	Description
BOTTLENECK_IDENTIFIED	VARCHAR2(30)		Whether a bottleneck was identified

STREAMS$_PA_PATH_STAT Table

The STREAMS$_PA_PATH_STAT table displays performance statistics about each stream path.

Table 301-10 STREAMS$_PA_PATH_STAT Table

Column	Datatype	NULL	Description
ADVISOR_RUN_ID	NUMBER		Identification number of the Oracle Replication Performance Advisor run
ADVISOR_RUN_TIME	DATE		Time when the Oracle Replication Performance Advisor was run for the advisor run ID
PATH_ID	NUMBER		Identification number assigned to the path by the Oracle Replication Performance Advisor
PATH_KEY	VARCHAR2(4000)		Unique key assigned to the path by the Oracle Replication Performance Advisor
STATISTIC_TIME	DATE		Time when the statistic was recorded
STATISTIC_NAME	VARCHAR2(64)		Name of the statistic
STATISTIC_VALUE	NUMBER		Value recorded for the statistic
STATISTIC_UNIT	VARCHAR2(64)		Unit of measurement for the statistic

STREAMS$_PA_SHOW_COMP_STAT Table

The STREAMS$_PA_SHOW_COMP_STAT table displays statistics for Oracle Replication components.

Table 301-11 STREAMS$_PA_SHOW_COMP_STAT Table

Column	Datatype	NULL	Description
ADVISOR_RUN_ID	NUMBER		Identification number of the Oracle Replication Performance Advisor run
ADVISOR_RUN_TIME	DATE		Time when the Oracle Replication Performance Advisor was last run
PATH_ID	NUMBER		Identification number assigned to the path by the Oracle Replication Performance Advisor
POSITION	NUMBER		Position of the component in the path
COMPONENT_ID	NUMBER		Identification number assigned to the component by the Oracle Replication Performance Advisor
COMPONENT_NAME	VARCHAR2(194)		Name of the component

Table 301-11 (Cont.) STREAMS$_PA_SHOW_COMP_STAT Table

Column	Datatype	NULL	Description
COMPONENT_TYPE	VARCHAR2(30)		Type of the component The following types are possible: • CAPTURE for a capture process • PROPAGATION SENDER for a propagation sender • PROPAGATION RECEIVER for a propagation receiver • APPLY for an apply process • QUEUE for a queue
SUB_COMPONENT_TYPE	VARCHAR2(30)		Type of the subcomponent Only capture processes and apply processes have subcomponents. The following capture process subcomponent types are possible: • LOGMINER READER for a builder server of a capture process • LOGMINER PREPARER for a preparer server of a capture process • LOGMINER BUILDER for a reader server of a capture process • CAPTURE SESSION for a capture process session The following apply process subcomponent types are possible: • PROPAGATION SENDER+RECEIVER for sending LCRs from a capture process directly to an apply process in a combined capture and apply configuration in which both the capture process and apply process run on a single database • APPLY READER for a reader server of an apply process • APPLY COORDINATOR for a coordinator process of an apply process • APPLY SERVER for a reader server of an apply process
SESSION_ID	NUMBER		Identification number of the session for the component. Query the V$SESSION view for information about the session.
SESSION_SERIAL#	NUMBER		Session serial number of the session for the component. Query the V$SESSION view for information about the session.
STATISTIC_ALIAS	VARCHAR2(30)		Name of the statistic
STATISTIC_NAME	VARCHAR2(128)		Name of the statistic
STATISTIC_VALUE	NUMBER		Value recorded for the statistic
STATISTIC_UNIT	VARCHAR2(128)		Unit of measurement for the statistic

STREAMS$_PA_SHOW_PATH_STAT Table

The STREAMS$_PA_SHOW_PATH_STAT table displays statistics for the stream paths in an Oracle Replication configuration. A monitoring job uses this table as the default table for the statistics collected for stream paths.

Table 301-12 STREAMS$_PA_SHOW_PATH_STAT Table

Column	Datatype	NULL	Description
PATH_ID	NUMBER		Identification number assigned to the path by the Oracle Replication Performance Advisor
ADVISOR_RUN_ID	NUMBER		Identification number of the Oracle Replication Performance Advisor run
ADVISOR_RUN_TIME	DATE		Time when the Oracle Replication Performance Advisor was last run
SETTING	VARCHAR2(2000)		Setting for the Oracle Replication Performance Advisor Run
STATISTICS	VARCHAR2(4000)		Component-level statistics
SESSION_STATISTICS	VARCHAR2(4000)		Session-level statistics
OPTIMIZATION	NUMBER		Whether the path uses the combined capture and apply optimization 0 (zero) means that the path does not use the combined capture and apply optimization. 1 means that the path uses the combined capture and apply optimization.

Summary of UTL_RPADV Subprograms

This table lists the UTL_RPADV subprograms and briefly describes them.

Table 301-13 UTL_RPADV Package Subprograms

Subprogram	Description
ALTER_MONITORING Procedure	Alters the monitoring job submitted by the current user.
COLLECT_STATS Procedure	Uses the Oracle Replication Performance Advisor to gather statistics about the Oracle Replication components and subcomponents in a distributed database environment.
IS_MONITORING Function	Checks whether a monitoring job is currently running.
SHOW_STATS Procedure	Generates output that includes the statistics gathered by the COLLECT_STATS procedure.
SHOW_STATS_HTML Procedure	Generates HTML output that includes the statistics gathered by the COLLECT_STATS procedure.
START_MONITORING Procedure	Starts a monitoring job.
STOP_MONITORING Procedure	Stops a monitoring job.

ALTER_MONITORING Procedure

This procedure alters the monitoring job submitted by the current user.

Syntax

```
UTL_RPADV.ALTER_MONITORING(
   interval                     IN NUMBER  DEFAULT NULL,
   top_event_threshold          IN NUMBER  DEFAULT NULL,
   bottleneck_idle_threshold    IN NUMBER  DEFAULT NULL,
   bottleneck_flowctrl_threshold IN NUMBER  DEFAULT NULL,
   retention_time               IN NUMBER  DEFAULT NULL);
```

Parameters

Table 301-14 ALTER_MONITORING Procedure Parameters

Parameter	Description
`interval`	The amount of time, in seconds, between each Performance Advisor run. The maximum is 3600 seconds. If `NULL`, then the current value is not changed.
`top_event_threshold`	A percentage that determines whether a top wait event statistic is collected. The percentage for a wait event must be greater than the value specified in this parameter for the procedure to collect the wait event statistic. For example, if `15` is specified, then only wait events with a value larger than 15% are collected. If `NULL`, then the current value is not changed.
`bottleneck_idle_threshold`	A percentage that determines whether an Oracle Replication component session is eligible for bottleneck analysis based on its `IDLE` percentage. The `IDLE` percentage must be less than or equal to the value specified in this parameter for the Oracle Replication component session to be eligible for bottleneck analysis. For example, if `50` is specified, then only components that are idle 50% of the time or less are eligible for bottleneck analysis. If `NULL`, then the current value is not changed.
`bottleneck_flowctrl_threshold`	A percentage that determines whether an Oracle Replication component session is eligible for bottleneck analysis based on its `FLOW CONTROL` percentage. The `FLOW CONTROL` percentage must be less than or equal to the value specified in this parameter for the Oracle Replication component session to be eligible for bottleneck analysis. For example, if `50` is specified, then only components that are paused for flow control 50% of the time or less are eligible for bottleneck analysis. If `NULL`, then the current value is not changed.
`retention_time`	The number of hours to retain monitoring results. If `NULL`, then the current value is not changed.

Exceptions

Table 301-15 ALTER_MONITORING Procedure Exceptions

Exception	Description
ORA-20113	no active monitoring job found

COLLECT_STATS Procedure

This procedure uses the Oracle Replication Performance Advisor to gather statistics about the Oracle Replication components and subcomponents in a distributed database environment.

> **Note:**
>
> This procedure commits.

Syntax

```
UTL_RPADV.COLLECT_STATS(
   interval                      IN NUMBER  DEFAULT 60,
   num_runs                      IN NUMBER  DEFAULT 10,
   comp_stat_table              IN VARCHAR2  DEFAULT 'STREAMS$_ADVISOR_COMP_STAT',
   path_stat_table              IN VARCHAR2  DEFAULT 'STREAMS$_ADVISOR_PATH_STAT',
   top_event_threshold           IN NUMBER  DEFAULT 15,
   bottleneck_idle_threshold     IN NUMBER  DEFAULT 50,
   bottleneck_flowctrl_threshold IN NUMBER  DEFAULT 50);
```

Parameters

Table 301-16 *COLLECT_STATS Procedure Parameters*

Parameter	Description
interval	The amount of time, in seconds, between each Performance Advisor run. The maximum is 3600 seconds.
num_runs	The number of times that the Oracle Replication Performance Advisor is run by the procedure.
comp_stat_table	The name of the table that stores the statistics collected for Oracle Replication components and subcomponents. Specify the table name as *[schema_name.]object_name*. If the schema is not specified, then the current user is the default. The procedure creates the specified table if it does not exist. Oracle recommends that you use the default table STREAMS$_ADVISOR_COMP_STAT. See "Usage Notes" for more information about this parameter.

Table 301-16 (Cont.) *COLLECT_STATS Procedure Parameters*

Parameter	Description
`path_stat_table`	The name of the table that stores the statistics collected for stream paths. Specify the table name as *`[schema_name.]object_name`*. If the schema is not specified, then the current user is the default. The procedure creates the specified table if it does not exist. Oracle recommends that you use the default table `STREAMS$_ADVISOR_PATH_STAT`. See "Usage Notes" for more information about this parameter.
`top_event_threshold`	A percentage that determines whether a top wait event statistic is collected. The percentage for a wait event must be greater than the value specified in this parameter for the procedure to collect the wait event statistic. For example, if `15` is specified, then only wait events with a value larger than 15% are collected.
`bottleneck_idle_threshold`	A percentage that determines whether an Oracle Replication component session is eligible for bottleneck analysis based on its `IDLE` percentage. The `IDLE` percentage must be less than or equal to the value specified in this parameter for the Oracle Replication component session to be eligible for bottleneck analysis. For example, if `50` is specified, then only components that are idle 50% of the time or less are eligible for bottleneck analysis.
`bottleneck_flowctrl_threshold`	A percentage that determines whether an Oracle Replication component session is eligible for bottleneck analysis based on its `FLOW CONTROL` percentage. The `FLOW CONTROL` percentage must be less than or equal to the value specified in this parameter for the Oracle Replication component session to be eligible for bottleneck analysis. For example, if `50` is specified, then only components that are paused for flow control 50% of the time or less are eligible for bottleneck analysis.

Usage Notes

The table specified in the `path_stat_table` parameter stores stream path statistics. This table also concatenates the component and subcomponent statistics stored in the table specified in the `comp_stat_table` parameter. The `SHOW_STATS` procedure in this package shows only the statistics stored in the table specified in the `path_stat_table` parameter.

IS_MONITORING Function

This function checks whether a monitoring job is currently running. This function either returns `TRUE` if a monitoring job is currently running or `FALSE` if a monitoring job is not currently running.

A monitoring job is submitted using the `START_MONITORING` procedure.

> **See Also:**
>
> "START_MONITORING Procedure"

Syntax

```
UTL_RPADV.IS_MONITORING(
   job_name    IN VARCHAR2  DEFAULT 'STREAMS$_MONITORING_JOB',
   client_name IN VARCHAR2  DEFAULT NULL)
RETURN BOOLEAN;
```

Parameters

Table 301-17 IS_MONITORING Function Parameters

Parameter	Description
job_name	The name of the job for which to check.
client_name	The name of the client that submitted the job.

SHOW_STATS Procedure

This procedure generates output that includes the statistics gathered by the COLLECT_STATS and START_MONITORING procedures.

The output is formatted so that it can be imported into a spreadsheet for analysis.

> **Note:**
>
> This procedure does not commit.

> **See Also:**
>
> - "COLLECT_STATS Procedure"
> - "START_MONITORING Procedure"

Syntax

```
UTL_RPADV.SHOW_STATS(
   path_stat_table IN VARCHAR2  DEFAULT 'STREAMS$_ADVISOR_PATH_STAT',
   path_id           IN NUMBER    DEFAULT NULL,
   bgn_run_id        IN NUMBER    DEFAULT -1,
   end_run_id        IN NUMBER    DEFAULT -10,
   show_path_id      IN BOOLEAN   DEFAULT TRUE,
   show_run_id       IN BOOLEAN   DEFAULT TRUE,
   show_run_time     IN BOOLEAN   DEFAULT TRUE,
   show_optimization IN BOOLEAN   DEFAULT TRUE,
   show_setting      IN BOOLEAN   DEFAULT FALSE,
   show_stat         IN BOOLEAN   DEFAULT TRUE,
```

```
  show_sess         IN BOOLEAN   DEFAULT FALSE,
  show_legend       IN BOOLEAN   DEFAULT TRUE);
```

Parameters

Table 301-18 *SHOW_STATS Procedure Parameters*

Parameter	Description
path_stat_table	The name of the table that contains the stream path statistics. Specify the table name as *[schema_name.]object_name*. If the schema is not specified, then the current user is the default. When you gather statistics using the COLLECT_STATS procedure, this table is specified in the path_stat_table parameter in the COLLECT_STATS procedure. The default table is STREAMS$_ADVISOR_PATH_STAT. When you gather statistics using the START_MONITORING procedure, you can determine the name for this table by querying the SHOW_STATS_TABLE column in the STREAMS$_PA_MONITORING view. The default table for a monitoring job is STREAMS$_PA_SHOW_PATH_STAT.
path_id	A stream path ID. If non-NULL, then the procedure shows output for the specified stream path only. If NULL, then the procedure shows output for all active stream paths.
bgn_run_id	The first Oracle Replication Performance Advisor run ID to show in the range of runs. See "Usage Notes" for more information about this parameter.
end_run_id	The last Oracle Replication Performance Advisor run ID to show in the range of runs. See "Usage Notes" for more information about this parameter.
show_path_id	If TRUE, then the path ID for each stream path is included in the output. If FALSE, then the path ID for each stream path is not included in the output.
show_run_id	If TRUE, then the Oracle Replication Performance Advisor run ID is included in the output. If FALSE, then the Oracle Replication Performance Advisor run ID is not included in the output.
show_run_time	If TRUE, then the Oracle Replication Performance Advisor run time is included in the output. If FALSE, then the Oracle Replication Performance Advisor run time is not included in the output.
show_optimization	If TRUE, then path output includes information pertaining to the combined capture and apply optimization. If FALSE, then path output does not include information pertaining to the combined capture and apply optimization.
show_setting	If TRUE, then the settings for the threshold parameters are included in the output. The threshold parameters are the top_event_threshold, bottleneck_idle_threshold, and bottleneck_flowctrl_threshold parameters in the COLLECT_STATS procedure. If FALSE, then the settings for the threshold parameters are not included in the output.

Table 301-18 (Cont.) *SHOW_STATS Procedure Parameters*

Parameter	Description
show_stat	If TRUE, then the component-level and subcomponent-level statistics are included in the output. These components include capture processes, queues, propagation senders, propagation receivers, and apply processes. The subcomponents are the subcomponents for capture processes and apply processes. If FALSE, then the component-level and subcomponent-level statistics are not included in the output.
show_sess	If TRUE, then the session-level statistics are included in the output. Session-level statistics include IDLE, FLOW CONTROL, and EVENT statistics. If FALSE, then the session-level statistics are not included in the output.
show_legend	If TRUE, then the legend is included in the output. The legend describes the abbreviations used in the output. If FALSE, then the legend is not included in the output.

Usage Notes

Use the bgn_run_id and end_run_id together to specify the range of Oracle Replication Performance Advisor runs to display. Positive numbers show statistics from an earlier run forward. Negative numbers show statistics from a later run backward.

For example, if bgn_run_id is set to 1 and end_run_id is set to 10, then the procedure shows statistics for the first ten Oracle Replication Performance Advisor runs.

However, if bgn_run_id is set to -1 and end_run_id is set to -10, then the procedure shows statistics for the last ten Oracle Replication Performance Advisor runs.

SHOW_STATS_HTML Procedure

This procedure generates HTML output that includes the statistics gathered by the COLLECT_STATS and START_MONITORING procedures.

> **Note:**
>
> This procedure does not commit.

> **See Also:**
>
> - "COLLECT_STATS Procedure"
> - "START_MONITORING Procedure"

Syntax

```
UTL_RPADV.SHOW_STATS_HTML(
   directory       IN VARCHAR2,
   reportname      IN VARCHAR2  DEFAULT 'RPADVREPORT.HTML',
```

```
  comp_stat_table IN VARCHAR2  DEFAULT 'STREAMS$_ADVISOR_COMP_STAT',
  path_id         IN NUMBER    DEFAULT NULL,
  bgn_run_id      IN NUMBER    DEFAULT -1,
  end_run_id      IN NUMBER    DEFAULT -10,
  detailed        IN BOOLEAN   DEFAULT TRUE);
```

Parameters

Table 301-19 SHOW_STATS_HTML Procedure Parameters

Parameter	Description
`directory`	The directory object for the directory on the local computer system into which the generated HTML report is placed The specified directory object must be created using the SQL statement `CREATE DIRECTORY`, and the user who invokes the procedure must have `READ` and `WRITE` privilege on each one.
`reportname`	The name of the HTML report
`comp_stat_table`	The name of the table that stores the statistics collected for Oracle Replication components and subcomponents. Specify the table name as *`[schema_name.]object_name`*. If the schema is not specified, then the current user is the default. When you gather statistics using the `COLLECT_STATS` procedure, this table is specified in the `comp_stat_table` parameter in the `COLLECT_STATS` procedure. The default table is `STREAMS$_ADVISOR_COMP_STAT`. When you gather statistics using the `START_MONITORING` procedure, you can determine the name for this table by querying the `SHOW_STATS_TABLE` column in the `STREAMS$_PA_MONITORING` view. The default table for a monitoring job is `STREAMS$_PA_SHOW_PATH_STAT`. Oracle recommends that you start a monitoring job with the `START_MONITORING` procedure in this package and use the appropriate the `STREAMS$_PA_SHOW_PATH_STAT` table.
`path_id`	A stream path ID. If non-`NULL`, then the procedure shows output for the specified stream path only. If `NULL`, then the procedure shows output for all active stream paths.
`bgn_run_id`	The first Oracle Replication Performance Advisor run ID to show in the range of runs. See "Usage Notes" for more information about this parameter.
`end_run_id`	The last Oracle Replication Performance Advisor run ID to show in the range of runs. See "Usage Notes" for more information about this parameter.
`detailed`	If `TRUE`, then the procedure generates component-level statistics. If `FALSE`, then the procedure does not generate component-level statistics.

Usage Notes

Use the `bgn_run_id` and `end_run_id` together to specify the range of Oracle Replication Performance Advisor runs to display. Positive numbers show statistics from an earlier run forward. Negative numbers show statistics from a later run backward.

For example, if `bgn_run_id` is set to `1` and `end_run_id` is set to `10`, then the procedure shows statistics for the first ten Oracle Replication Performance Advisor runs.

However, if `bgn_run_id` is set to `-1` and `end_run_id` is set to `-10`, then the procedure shows statistics for the last ten Oracle Replication Performance Advisor runs.

START_MONITORING Procedure

This procedure starts a monitoring job.

This procedure runs the `COLLECT_STATS` procedure to gather statistics about the Oracle Replication components and subcomponents in a distributed database environment.

> **Note:**
>
> This procedure commits.

> **See Also:**
>
> - "COLLECT_STATS Procedure"

Syntax

```
UTL_RPADV.START_MONITORING(
   job_name                     IN VARCHAR2  DEFAULT 'STREAMS$_MONITORING_JOB',
   client_name                  IN VARCHAR2  DEFAULT NULL,
   query_user_name              IN VARCHAR2  DEFAULT NULL,
   interval                     IN NUMBER    DEFAULT 60,
   top_event_threshold          IN NUMBER    DEFAULT 15,
   bottleneck_idle_threshold    IN NUMBER    DEFAULT 50,
   bottleneck_flowctrl_threshold IN NUMBER   DEFAULT 50,
   retention_time               IN NUMBER    DEFAULT 24);
```

Parameters

Table 301-20 START_MONITORING Procedure Parameters

Parameter	Description
`job_name`	The name of the monitoring job to create.
`client_name`	The name of the client.
`query_user_name`	The user who will query the result tables. This procedure grants privileges to the specified user to enable the user to query the result tables.
`interval`	The amount of time, in seconds, between each Performance Advisor run. The maximum is 3600 seconds. The specified interval is used for the interval parameter in the `COLLECT_STATS` procedure.

Table 301-20 (Cont.) START_MONITORING Procedure Parameters

Parameter	Description
top_event_threshold	A percentage that determines whether a top wait event statistic is collected. The percentage for a wait event must be greater than the value specified in this parameter for the procedure to collect the wait event statistic. For example, if 15 is specified, then only wait events with a value larger than 15% are collected.
bottleneck_idle_threshold	A percentage that determines whether an Oracle Replication component session is eligible for bottleneck analysis based on its IDLE percentage. The IDLE percentage must be less than or equal to the value specified in this parameter for the Oracle Replication component session to be eligible for bottleneck analysis. For example, if 50 is specified, then only components that are idle 50% of the time or less are eligible for bottleneck analysis.
bottleneck_flowctrl_threshold	A percentage that determines whether an Oracle Replication component session is eligible for bottleneck analysis based on its FLOW CONTROL percentage. The FLOW CONTROL percentage must be less than or equal to the value specified in this parameter for the Oracle Replication component session to be eligible for bottleneck analysis. For example, if 50 is specified, then only components that are paused for flow control 50% of the time or less are eligible for bottleneck analysis.
retention_time	The number of hours to retain monitoring results.

Exceptions

Table 301-21 START_MONITORING Procedure Exceptions

Exception	Description
ORA-20111	cannot start monitoring due to active EM monitoring job Stop the Oracle Enterprise Manager (EM) monitoring job, and run the START_MONITORING procedure again.
ORA-20112	cannot start monitoring due to active Replication monitoring job Stop the Replication monitoring job, and run the START_MONITORING procedure again.

Usage Notes

The following are usage notes for the START_MONITORING procedure:

- Requirements for the User Running the Procedure
- Full Monitoring Job Names
- Restrictions on Monitoring Jobs

Requirements for the User Running the Procedure

The user who runs the START_MONITORING procedure must meet the following requirements:

- The user must have access to a database link to each database that contains Oracle Replication components.
- The user must have been granted privileges using the DBMS_XSTREAM_AUTH.GRANT_ADMIN_PRIVILEGE procedure, and each database link must connect to a user at the remote database that has been granted privileges using the DBMS_XSTREAM_AUTH.GRANT_ADMIN_PRIVILEGE procedure.

Full Monitoring Job Names

When you submit a monitoring job, the client name and job name are concatenated to form the full monitoring job name. You specify the client name using the client_name parameter and the job name using the job_name parameter when you run the START_MONITORING procedure. The client name for a monitoring job submitted by Oracle Enterprise Manager is always EM.

The following table show examples of full monitoring job names:

Setting for client_name Parameter	Setting for job_name parameter	Full Monitoring Job Name
NULL	STREAMS$_MONITORING_JOB	STREAMS$_MONITORING_JOB
EM	STREAMS$_MONITORING_JOB	EMSTREAMS$_MONITORING_JOB
strm	STREAMS$_MONITORING_JOB	strmSTREAMS$_MONITORING_JOB
strm	mjob1	strmmjob1

Restrictions on Monitoring Jobs

The following restrictions apply to monitoring jobs:

- The limit for the length of the full monitoring job name is 30 bytes.
- Two monitoring jobs cannot have the same full monitoring job name, even if the monitoring jobs were submitted by different schemas. The name check is not case-sensitive. For example, strmSTREAMS$_MONITORING_JOB and STRMSTREAMS$_MONITORING_JOB are considered to be the same name.
- Oracle Enterprise Manager can have at most one monitoring job for each database.
- Each schema can have at most one monitoring job.

STOP_MONITORING Procedure

This procedure stops a monitoring job that was submitted by the current user.

Syntax

```
UTL_RPADV.STOP_MONITORING(
   purge IN BOOLEAN  DEFAULT FALSE);
```

Parameters

Table 301-22 STOP_MONITORING Procedure Parameters

Parameter	Description
`purge`	If `TRUE`, then the procedure purges information about the monitoring job from the result tables. If `FALSE`, then the procedure retains information about the monitoring job in the result tables.