Oracle® Tuning Pack

Readme

Release 2.1.0.0.0 for Windows

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1 Introduction

1.1 Purpose of this Document

This document notes differences between the delivered Oracle Tuning Pack **2.1** product and its documented functionality. It also includes information on the Oracle Tuning Pack documentation, and late-breaking information concerning this production release.

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2 Installation and Configuration

2.1 Installing the Oracle Tuning Pack

Installing the Oracle Tuning Pack will upgrade your Oracle Enterprise Manager (EM) installation to the required version 2.1. Note: Oracle Enterprise Manager 2.1 should not be installed into any other existing oracle_home. Create a separate oracle_home for EM 2.1.

2.2 Beta Kits

All beta kits for the Oracle Tuning Pack, Oracle Diagnostics Pack, and Oracle Change Management Pack must be de-installed prior to installing this production release of the Oracle Tuning Pack.

2.3 Installation Instructions

Refer to the **Installation Guide for Change Management, Diagnostics, and Tuning Packs** document for hardware and software requirements. Refer to the **Oracle Enterprise Manager Database Tuning with the Oracle Tuning Pack** guide for instructions on configuring the Oracle Tuning Pack products.

2.4 Oracle Database Compatibility Matrix

The following matrix lists the compatibility of the Oracle Tuning Pack Release **2.1** with specific releases of the Oracle Server. If a component is certified to run with a specific server release, then a "yes" is placed for that entry.

	Oracle Server			
Feature	7.3.x	8.0.x	8.1.5	8.1.6
Oracle Tuning Pack	Yes	Yes	Yes	Yes

3 Documentation and Help

3.1 Online Documentation

The Oracle Enterprise Manager products provide online documentation in HTML format.

3.2 Online Help

The Oracle Enterprise Manager products provide online context-sensitive help. You can access online help for a product in multiple ways:

- Use the Help menu. The Contents page lists the major help topics by title. The Index page lists topics by key words. The Find page is a Windows user option that can be set up with a wizard.

- Move the mouse pointer to your specific area of interest, then press F1 key.

- If you want help on a particular dialog box, press its Help button.

4 Oracle SQL Analyze

4.1 Repository Information

SQL Analyze uses a data repository that is shared with other Oracle Tuning Pack applications. This Tuning Pack repository is created as part of the Oracle Enterprise Manager repository.   Create the Oracle Enterprise Manager repository by running the Enterprise Manager Configuration Assistant.   Refer to the Oracle Enterprise Manager Configuration Guide for information on using the Configuration Assistant.

4.2 Shared Repository

As previously noted, SQL Analyze uses a data repository that is shared with other Oracle Tuning Pack applications and multiple users can read the repository from multiple Tuning Pack applications. The last user who saves to the repository will override previous data. Because of this, you must be careful about performing repository operations from concurrently open Tuning Pack applications.   A known problem related to this (bug #778225) involves the following series of steps: You open a SQL Analyze repository that contains a database service with SQL nodes. Before expanding the list of SQL nodes, you delete the same database service from the Oracle Expert navigator. If you then try to expand the SQL node list for the database service in SQL Analyze, an application error will occur.

4.3 Object Privileges

The user account logged into SQL Analyze requires certain object privileges. You can create a database role (SQLADMIN) which can be used to grant SQL Analyze users privileges required for sql monitoring and tuning. Create this role by running the VMQROLE.SQL found in the oracle_home\sysman\admin directory.

4.4 Rules of Thumb

The SQL Tuning Wizard "Rule of Thumb" tuning for queries containing MINUS and UNION does not support statements containing * in the column list.   The workaround is to list the column names in the query.

4.5 Threads

SQL Analyze is multi-threaded. The maximum number of threads allowed per session is three by default. If you wish to increase or decrease this number, use the SQL Analyze - View menu - Preferences, and set the number of Database Sessions per User. The minimum allowable value is one and the maximum is ten.

4.6 Canceling Operations

Canceling certain operations (e.g., TopSQL, Get Index Recommendations or SQL History retrieval) may take a long time, depending on the size of the database.

4.7 SQL History

The SQL History feature is a repository of SQL statements associated with a specific database service that have been collected from the SQL cache. The SQL History is shared between SQL Analyze, Oracle Expert and the Index Tuning Wizard. If you have saved a SQL History from either Oracle Expert or the Index Tuning Wizard, then that SQL History will be available to SQL Analyze. If you open a SQL History container in SQL Analyze for a database service that does not have a previously saved SQL History, then SQL Analyze will create a SQL History for that database service. The default setting for the SQL History option is to exclude recursive SQL (SQL generated by Oracle). Therefore, if you do not have any application SQL in the SQL cache and you have elected to excluded recursive SQL, then the new SQL History will be blank.

4.8 Changing Schema Objects

If you change schema objects (i.e., adding an index from EM Schema Manager) while SQL Analyze is running, SQL Analyze will automatically use these changes in any subsequent operations. However, in order to view these changes in the SQL Analyze - Object Properties, you must refresh the Object Properties view by using the Refresh button.

4.9 Execution Results

The data results set retrieved by queries run from SQL Analyze can be viewed by using the Execution Results tool bar button. In order to provide fast access to this data, the results sets are cached in local memory by SQL Analyze. The number of rows cached can be controlled by the user through the SQL Analyze - View menu - Preferences - Execution Results setting. **You should check this setting to ensure that you have limited the number of rows to be displayed. Be aware that a high number of cached rows may cause the program to run out of memory.**

4.10 Object Properties

The SQL Analyze "Object Properties" display shows the "Date Last Analyzed" for databases versions 7.3.4 and higher.

4.11 Open SQL Function

SQL Analyze - File Menu "Open SQL" restrictions: SQL statements contained in SQL files opened with the "Open SQL" function can be imported into SQL Analyze only if each statement begins on a new line and is terminated with a semicolon. SQL files can not contain SQL comments beginning with REM.

4.12 Parsed SQL Statements

If you load SQL statements from a file and there is an error in parsing one of the SQL statements, SQL Analyze will only show the statements that were successfully parsed prior to the error. It will not show any statements that followed the incorrect SQL statement.

4.13 Plan Tables

If the user does not have a plan-table named PLAN_TABLE in his schema, SQL Analyze will create a PLAN_TABLE for the user. For this to work, the user must have permissions to create the plan table. If the user does not have these permissions, SQL Analyze will attempt to create this table and fail. The user will have to exit the application and obtain privileges to create a table or create the PLAN_TABLE, then run SQL Analyze.

4.14 Recursive SQL Statements

In TopSQL, you now have the option to filter-out recursive SQL statements. However, if you login as user SYS, TopSQL will filter-out your non-recursive SQL statements too. So if you login as SYS, do not select the option to filter-out recursive SQL statements.

4.15 Explain Plans

SQL Analyze allows users to create an explain plan for a SQL statement run by any user. It does this by validating a schema name with an object name. If an object belongs to multiple schemas, it interacts with the user to resolve the schema name. However, public synonyms cannot be qualified. So if you are trying to get an explain plan containing a public synonym and you also have a table, view or a private synonym in your schema, the explain plan you get may not be the same as the one seen by other user.

4.16 View Definition Dialog

The View definition dialog can only be used to display view names selected from a syntactically valid SQL statement.

4.17 ANALYZE Command

Running the ANALYZE command removes the "parsing user ID" and "parsing schema ID" fields for statements that are in the shared pool when ANALYZE was run.

4.18 Stability Feature

Regarding SQL statements using the Oracle8 Plan Stability feature: SQL statements brought into SQL Analyze from either 1/ the TopSQL feature or 2/ through the launch of SQL Analyze tuning from the Diagnostics Pack Performance Manager application, or 3/ exported from a SQL file, will automatically be checked for the use of the Plan Stability feature. If a stabilized plan outline is detected for the SQL statement then the user will receive an information notice and will not be allowed to work on the statement in SQL Analyze. Note that this automatic check excludes stabilized SQL statements that are copied into or created by hand in the SQL edit window.

5 Oracle Expert

5.1 Oracle Expert Tuning Session

 Oracle Expert uses the concept of a "tuning session" to help you organize and focus your database tuning. You can create multiple tuning sessions for a given database. **It is highly recommended that you focus a given tuning session on a subset of the database (i.e., tune specific important tables first), rather than attempting to tune all of your tables in the same tuning session.** Although it is technically possible to tune all tables in one session, the amount of time required to collect and analyze data for a large database can be high, and the volume of output (recommendations and reports) can be unwieldy.

5.2 Partitioned Tables

Oracle Expert does not currently support tuning of tables that use the Oracle8 partitioning feature. Partitioned tables will be ignored during data collection.

5.3 Autotune

The Autotune feature requires a local TNSNAMES.ORA entry for the target database. (Bug # 1166862)

5.4 New Features

Oracle Expert 2.1 includes a new features that allows the user to collect an aggregate history of their database application SQL. A SQL History can be collected, viewed, edited and appended to for each database service targeted for tuning. Workload data used by Oracle Expert can be gathered from the SQL History or from any of the previous sources, included: the SQL cache, Oracle Trace or an export file (.xdl) created from another tuning session. Note that the SQL History is also used by Oracle SQL Analyze and the Oracle Index Tuning Wizard.

5.5 Workload Requests

Any workload request containing SQL that utilizes a dblink to attach to a database is not validated against the database referenced by the dblink.

5.6 Cancellation Process

The Cancel process does not work when importing workload from an .XDL file.

5.7 Source LInes

Source lines greater than 1024 bytes in import files may cause a syntax error.

5.8 Oracle Expert Tables

Oracle Expert expects the following tables to exist in the target database being tuned in order to perform collection. If any of these tables do not exist during collection, errors may result.

dba_tab_columns	dba_objects
dba_constraints	dba_indexes
dba_users	dba_rollback_segs
dba_segments	dba_sequences
dba_ind_columns	dba_views
dba_tables	dba_clusters

dba_tablespaces	dba_ts_quotas
dba_synonyms	dba_data_files

5.9 SQL Statement Size

If a SQL statement is greater than 8K bytes, an error occurs when attempting to edit the Request that contains the statement. The error reads "Error while attempting to load attribute for display". The Request property sheet is still displayed, but the SQL text is not visible.

5.10 Starting Autotune

In order to use the Oracle Expert "Autotune" feature, you must first select a database from the Oracle Expert Navigator window. Once started, Autotune will continue to run until the Autotune menu - Stop function is invoked for the selected database or the system is rebooted.

5.11 Tuning Sessions

It is currently possible to run more than one Oracle Expert session against the same repository. Oracle Expert does not have integral support for avoiding data conflicts between sessions. Do not run more than one session against the repository at any one time. However, if this is required, each PC session should access a different tuning session.

5.12 SYS and System Schema

Do not attempt to use Oracle Expert to tune the SYS or System schema.

5.13 Schema Collection

A schema collection will halt before completion if a table and cluster in the same schema have the same name (bug #604088).

5.14 importing Tuning Session Data

Importing an Oracle Expert tuning session (.xdl file) that contains extremely large (pages long) SQL statements can cause Oracle Expert to appear to hang and subsequently accessing these SQL statements from the view/edit window may not be possible. (bug # #651722).

5.15 Merging Source Workload

During the workload collection setup, you have the option of merging the source workload with an existing SQL History, or replacing the SQL History with the source workload. In order to use either of these functions ("Merge source workload with existing [SQL History]" or "Replace existing

SQL History with source workload") a SQL History must already exist. Attempting either of these operations without an existing SQL History will result in the following error: *XP-21053: The SQL History Session was not found. (bug # 1158335)*

5.16 Generating Implementation Scripts

When generating Structure Tuning implementation scripts, it is possible that the scripts may contain references to object copies created by Oracle Expert. If so, delete those sections from the script. Only sections containing the original object names should be included in the implementation script. (bug # 1158388)

5.17 Scripts with Partitioned Objects

Generated implementation scripts that involve partitioned objects may contain erroneous partition names; partition names may be inserted into the script several times in error. For example:

Relocate table partition GROYAL."PARTTABLE2_LOCALIDX.LOCAL_ IDX_PART3" LOCAL_IDX_PART3><LOCAL_IDX_PART3> from tablespace "SYSTEM" to RWQA_INDEX

If this occurs, you should correct the problem by editing the script before implementation. (bug # 1158393)

6 Oracle Tablespace Map and Reorg Wizard

6.1 Oracle Tablespace Manager

Note that the Oracle Tablespace Manager application that existed in previous Tuning Pack releases has been replaced in release 2.1 with two new applications: Tablespace Map and Reorg Wizard. You can access both of these applications as follows.

The **Tablespace Map** is always started in the context of a selected tablespace. This is initiated in one of the following ways:

- From the Oracle Enterprise Manager Console: Open the target database by double-clicking on the database object in the Console Navigator tree. Open the Tablespaces container and select the target tablespace. Perform a right-mouse click on that tablespace and select the Show Tablespace Map menu item.

- From the Oracle Storage Manager: Open the Tablespaces container and select the target tablespace. Perform a right-mouse click on that tablespace and select the Show Tablespace Map menu item.

You can start the **Reorg Wizard** in the context of an object that you want to reorganize or in standalone mode. Using the standalone mode allows you select one or more objects for reorganization. The Reorg Wizard can be started in standalone mode from the Enterprise Manager Console tools menu ∕ Tuning Pack, or from the Tuning Pack tool bar. The Reorg Wizard can also be started in the context of the object that you want to reorganize from several Enterprise Manager launch points, as follows:

- If you want to reorganize an entire **tablespace**, you can select the target tablespace from one of the following:

- From the Oracle Enterprise Manager Console: Open the target database by double-clicking on the database object in the Console Navigator tree. Open the Tablespaces container and select the target tablespace. Perform a right-mouse click on that tablespace and select the Reorganize menu item.

  - From the Oracle Storage Manager: Open the Tablespaces container and select the target tablespace. Perform a right-mouse click on that tablespace and select the Reorganize menu item.

- If you want to reorganize a specific **schema object**, you can select the target object from one of the following launch points:

  - From the Oracle Enterprise Manager Console: Open the target database by double-clicking on the database object in the Console Navigator tree. Open the Schema Objects container. You can then select one of the following schema objects: table, cluster, index, table partition, or index partition. Perform a right-mouse click on the selected object and select the Reorganize menu item.

  - From the Oracle Schema Manager: Select one of the following schema objects: table, cluster, index, table partition, or index partition. Perform a right-mouse click on the selected object and select the Reorganize menu item.

- You can also launch the Reorg Wizard from the Oracle **Tablespace Map**, tools menu.

6.2 Segment Analysis

The Tablespace Map "Segment Analysis" feature will flag table, index, cluster and partition segments that have more than 1024 extents; the number at which potential performance degradation may occur for certain DDL operations. This check only applies to "dictionary managed" tablespaces. Segments within a "locally managed" (A.K.A., bitmap) tablespace show no performance degradation when exceeding this number of extents and should therefore not be flagged for this problem by the Segment Analysis.

6.3 Warning Status

If the Tablespace Map Segment Analysis feature detects a "warning" status for excessive row chaining or migration for a segment, and also detects an "alert" status for that same segment, then the "warning" flag, not the "alert" flag, is incorrectly displayed for that segment.

6.4 IOT Tables

If you attempt to perform a Tablespace Map Segment Analysis on a tablespace containing an IOT table that has an overflow segment and has analyzed stats, the Segment Analysis will fail. The Tablespace Map may then appears to be hung as the wait cursor does not reset itself, however, it really isn't and you can continue to use all other capabilities of the product

6.5 Tablespace Size

Attempts to launch the Tablespace Map for a tablespace exceeding 4GB in a database having a small block size (2KB) may fail.

6.6 Contiguous Extents

If using the Tablespace Map to view a tablespace that contains contiguous extents that are the same size as the database block size, it is possible that these contiguous extents may appear as one large black chunk in the Tablespace Map.

6.7 Reorganization Support

The Reorg Wizard does not currently support reorganization for the following objects:

- Index-organized tables

- Hash and composite partitions

- Tables that contain columns of user-defined types

- Indexes on columns of user-defined types

- Function-based indexes

- Domain indexes

Partitioned tables that contain a LOB column can be reorganized on a per-partition basis, but operations that require reorganization of the entire partitioned object (such as the reorganization of a complete tablespace) can not be performed if the partitioned object contains a LOB column.

Note that if you perform a reorganization that includes an object from this unsupported list, a diagnostics message will be displayed in the Impact Summary Report and Reorg Script alerting you of the unsupported object.

6.8 Canceling Scripts

Under certain circumstances, canceling the generation of the Impact Summary and Reorg Script may take a while, during which time the application may appear unresponsive.

6.9 Reorg Job Execution

Reorg job execution may fail if the script includes the reorganization of a table which has constraints that are in the "NOVALIDATE" state.

6.10 Reorganizing Large Objects

Using the Reorg Wizard to rebuild an object containing a long or long raw datatype that exceed 32KB will result in an error, identified through a message containing text such as "Copy with PLSQL block failed due to size of long... invalid command name "oramovelong" (bug # 973609).

6.11 Scripts

The Reorg Wizard produces scripts that employ the optimal DDL methods for the version of the database containing the objects being reorganized.   If your database compatible parameter is set to less than your database version then it is possible that certain DDL commands supported by your database version (e.g., "alter table move" for Oracle 8i) that are used in the script may not be valid, in which case the script would fail.

6.12 Oracle 7.3.4 Database with a non-ASCII Character Set

The Reorg Wizard can not be used against an Oracle 7.3.4 database with a non-ASCII character set (SJIS or EUC). This situation is noted by the following error notice at step 2 of 6 in the Wizard; "VTO-2015: an unexpected internal error occurred. Please disconnect and try again. ORA-01026". (bug # 1150625).