Metalink Note: 560977.1: Real Application Testing for Earlier Releases

What is being announced?

Oracle Database 11g introduced Database Replay and SQL Performance Analyzer as part of the Real Application Testing option to enable businesses identify issues with system changes before production deployment. **This note provides information on the Real Application Testing functionality available for pre-11g database releases.** The main goal of making Real Application Testing functionality available in earlier releases is to enable customers to upgrade to higher database releases.

SQL Performance Analyzer allows users to identify SQL performance regressions caused by system changes such as adding an index, gathering optimizer statistics, implementing partitioning, RDBMS upgrades, etc. SQL Performance Analyzer assesses the impact of change on SQL response times by executing each SQL serially with production context (bind variables, optimizer environment, etc.) before and after a change and then provides a report highlighting any performance divergences.

Database Replay allows users to perform comprehensive testing of database and infrastructure changes using real application workloads. It allows capture of production workload including concurrency, think time, and transactions dependencies, and allows users to replay the workload on a test system with the exact same production characteristics so that all problems can be identified and remediate in test before deploying the change to production.

Please check the “Licensing Information” manual on OTN for details regarding licensing of Real Application Testing Option.

What do you need to do?

What you need to do to use Real Application Testing functionality in earlier releases?

Real Application Testing functionality for pre-11g database releases is installed using the “opatch” utility and following instructions for the generic and platform specific “README” for the patches. If you want to only use Database Replay or SQL Performance Analyzer, then only the patch for that particular functionality needs to be applied. If you want to use both Database Replay and SQL

Performance Analyzer, the patches for both the functionalities need to be applied.

Database Replay

To help customers upgrade to Oracle Database 11g, the "capture" functionality of Database Replay has been made available in previous releases as shown in the table below. ***The replay of the captured workload can only be done on Oracle Database 11g and higher.***

Please refer to Oracle documentation on OTN for information on the capture part of Database Replay available for the earlier releases.

Table 1: Database Replay Availability Information for All Platforms Except Windows.

Source DB Upgrade from release	Destination DB Upgrade to any release	What patch you need to apply?	Download Information	Comments
9.2.0.8.0	>=11.1.0.6.0	9.2.0.8.0 + one off patch 6973309	One-off patch can be downloaded from Metalink	
10.2.0.2.0	>=11.1.0.6.0	10.2.0.2.0 + one off patch 6870469	One-off patch can be downloaded from Metalink	
10.2.0.3.0	>=11.1.0.6.0	10.2.0.3.0 + one off patch 6974999	One-off patch can be downloaded from Metalink	
10.2.0.4.0	>= 11.1.0.6.0	10.2.0.4.0 Patchset	Patchset can be downloaded from Metalink: **6810189**	· Functionality already exists in Patchset, download from Metalink, no additional patches required · Enable workload capture by following instructions below

Table 2: Database Replay availability information Windows platform:

Source DB Upgrade from release	Destination DB Upgrade to any release	What patch you need to apply?	Download Information	Comments
9.2.0.8.0 For Windows 32-bit	>=11.1.0.6.0	9.2.0.8.0 + patch bundle 7047008	Patch bundle can be downloaded from Metalink	Patch Available as part of Bundle 18.
9.2.0.8.0 For Windows Itanium 64-bit	>=11.1.0.6.0	9.2.0.8.0 + patch bundle 7047015	Patch bundle can be downloaded from Metalink	Patch Available as part of Bundle 18.
10.2.0.3.0 For Windows 32-bit	>=11.1.0.6.0	10.2.0.3.0 + patch bundle 6998002	Patch bundle can be downloaded from Metalink	Patch Available as part of Bundle 23.
10.2.0.3.0 For Windows Itanium 64-bit	>=11.1.0.6.0	10.2.0.3.0 + patch bundle 6998003	Patch bundle can be downloaded from Metalink	Patch Available as part of Bundle 23.
10.2.0.3.0 For Windows 64-bit AMD64 AND Intel EM64T XP AND 2003	>=11.1.0.6.0	10.2.0.3.0 + patch bundle 6998004	Patch bundle can be downloaded from Metalink	Patch Available as part of Bundle 23.
10.2.0.4.0 (Windows 32-bit, Windows Itanium Windows 64-bit AMD64 AND Intel EM64T XP AND 2003)	>= 11.1.0.6.0	10.2.0.4.0 Patchset	Patchset can be downloaded from Metalink: 6810189	· Functionality already exists in Patchset, download from Metalink, no additional patches required· Enable workload capture by following instructions below

Enabling Workload Capture

This step is required for 10.2.0.4.0 only.
By default, the workload capture is disabled on the pre-11g database releases. Database workload capture functionality is enabled on the system by specifying the PRE_11G_ENABLE_CAPTURE initialization parameter. To enable workload capture, run the wrrenbl.sql script at the SQL prompt as sys or system: This step is NOT required for version lower then 10.2.0.4.0.

@$ORACLE_HOME/rdbms/admin/wrrenbl.sql

The wrrenbl.sql script calls the ALTER SYSTEM SQL statement to set the PRE_11G_ENABLE_CAPTURE initialization parameter to TRUE. Please check the OTN documentation mentioned above for more details.

SQL Performance Analyzer

SQL Performance Analyzer functionality has been enhanced and made available in earlier releases to help customers upgrade their databases from versions Oracle 9.x, 10.1.x, and 10.2.x to higher release. Applying the one-off patches as shown below actually installs the SQL Performance Analyzer functionality for that release. After the functionality is installed, customers can then leverage Oracle Database 11g SQL Performance Analyzer functionality to upgrade from any database releases 9.x, 10.1.x, 10.2.x to 10.2 or higher release. The one-off patches that need to be applied depend on the version of the source and the destination databases as given in the table below.

Further information on this topic is available in the technical white paper "**Oracle Real Application Testing: Testing the SQL Performance Impact of Oracle 9i/10g Release 1 to Oracle Database 10g Release 2 upgrade with SQL Performance Analyzer**". It is recommended to review this document before using SQL Performance Analyzer functionality for earlier releases.

Patch 6865809 should be applied on the Oracle Database Release 11.1.0.6 test database that is used to orchestrate SPA on Oracle Database 10.2. The patch enables Oracle 11g test database to consume SQL trace files from previous database releases and generate a SQL Tuning Set (STS). The STS can then be used as input for the SQL Performance Analyzer task.

Patches applied on Oracle Database 10.2 source or destination databases enable "Remote SQL Test Execution" functionality on that release for more accurate analysis of performance data.

Table 3: SQL Performance Analyzer Availability Information. For Windows platform, see additional notes below:

Source DB Upgrade from release	Destination DB Upgrade to release	What patch you need to apply?	Download	Comments
9.x	10.2.0.2.0	i) 11.1.0.6 test DB with Real Application Testing Option + one-off patch: 6865809 AND ii) Destination DB 10.2.0.2 + one-off patch 6903322	One-off patch can be Downloaded from Metalink	· No patches are needed on the source side 9.x · 11g test database does not need to have application schema /data
9.x	10.2.0.3.0	i) 11.1.0.6 test DB with Real Application Testing Option + one-off patch: 6865809 AND ii) Destination DB 10.2.0.3 + one-off patch 6903335	One-off patch can be Downloaded from Metalink	· No patches are needed on the source side 9.x · 11g test database does not need to have application schema /data
9.x	10.2.0.4.0	i) 11.1.0.6 test DB with Real Application Testing Option + one-off patch: 6865809 AND ii) Destination DB 10.2.0.4 + one-off patch: 6877038	One-off patch can be Downloaded from Metalink	· No patches are needed on the source side 9.x · 11g test database does not need to have application schema /data
9.x	11.1.0.6.0	i) 11.1.0.6 DB with Real Application Testing Option	One-off patch can be Downloaded	· No patches are needed on the source side

		+ one-off patch: 6865809	from Metalink	9.x · Test DB not required, 11.1.0.6 is the destination db upgraded to
10.1.0.x	10.2.0.2.0	i) 11.1.0.6 test DB with Real Application Testing Option + one-off patch: 6865809 AND ii) Destination DB 10.2.0.2 + one-off patch: 6903322	One-off patch can be Downloaded from Metalink	· No patches are needed on the source side 10.1.x · 11g test database does not need to have application schema /data
10.1.0.x	10.2.0.3.0	i) 11.1.0.6 test DB with Real Application Testing Option + one-off patch: 6865809 AND ii) Destination DB 10.2.0.3 + one-off patch: 6903335	One-off patch can be Downloaded from Metalink	· No patches are needed on the source side 10.1.x · 11g test database does not need to have application schema /data
10.1.0.x	10.2.0.4.0	i) 11.1.0.6 test DB with Real Application Testing Option + one-off patch: 6865809 AND ii) Destination DB 10.2.0.4 + one-off patch :6877038	One-off patch can be Downloaded from Metalink	· No patches are needed on the source side 10.1.x · 11g test database does not need to have application schema /data

10.1.0.x	11.1.0.6.0	i) 11.1.0.6 test DB with Real Application Testing Option + one-off patch: 6865809	One-off patch can be Downloaded from Metalink	· No patches are needed on the source side 10.1.x
10.2.0.2.0	10.2.0.3.0	i) 11.1.0.6 + one off patch: 6865809 AND ii) 10.2.0.2 + one off patch: 6903322 AND iii) 10.2.0.3 + one off patch: 6903335	One-off patch can be Downloaded from Metalink	· Patch Required for source, destination and test databases · 11g test database does not need to have application schema /data
10.2.0.2.0	10.2.0.4.0	i) 11.1.0.6 + one off patch: 6865809 AND ii) 10.2.0.2 + one off patch: 6903322 AND iii) 10.2.0.4 + one off patch: 6877038	One-off patch can be Downloaded from Metalink	· Patch Required for source, destination and test databases · 11g test database does not need to have application schema /data
10.2.0.2.0	11.1.0.6.0	i) 11.1.0.6 + one off patch: 6865809 AND ii) 10.2.0.2 + one off patch: 6903322	One-off patch can be Downloaded from Metalink	· Test DB not required, 11.1.0.6 is the destination db upgraded to
10.2.0.3.0	10.2.0.4.0	i) 11.1.0.6 + one off patch:	One-off patch can be Downloaded	· Patch Required for source,

		6865809 AND ii) 10.2.0.3 + one off patch 6903335 AND iii) 10.2.0.4 + one off patch: 6877038	from Metalink	destination and test databases · 11g test database does not need to have application schema /data
10.2.0.3.0	11.1.0.6.0	i) 11.1.0.6 + one off patch: 6865809 AND ii) 10.2.0.3 + one off patch: 6903335	One-off patch can be Downloaded from Metalink	· Test DB not required, 11.1.0.6 is the destination db upgraded to

Note for Windows Platforms:
* For Windows 32-bit Platform patch number on top of 11.1.0.6.0 database is 7044721.
* For Windows 64-bit AMD64 patch number on top of 11.1.0.6.0 database is 7044728.

Note for 11.1.0.7.0 Database
If you're using 11.1.0.7.0 database for SPA testing, you do not need to apply any of the above-mentioned patches on the 11g SPA system that is used for analysis. All the fixes are already in there. On 10.X database side, you do need the patch as mentioned above.

Who to contact for more information?

Please create a Service Request with Oracle Support

References

Note 466181.1 - 10g Upgrade Companion
Note 562899.1 - TESTING SQL PERFORMANCE IMPACT OF AN ORACLE 9i TO ORACLE DATABASE 10g RELEASE 2 UPGRADE WITH SQL PERFORMANCE ANALYZER

Note 601807.1 - Oracle 11g Upgrade Companion

Keywords

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