

ORACLE CHANGE MANAGEMENT PACK FOR ORACLE DATABASE 11^g

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KEY FEATURES

- Capture and version database definitions in baselines
- Compare databases or baselines to track changes
- Reverse engineer object or schema definitions
- Leverage Oracle Enterprise Manager capabilities to schedule baseline captures and comparisons during maintenance periods using preferred credentials.

Oracle Change Management Pack for Oracle Database 11g provides an integrated solution for database administrators and application developers to manage database changes. Using the data dictionary metadata management APIs in Oracle Database 11g, Oracle Change Management Pack allows developers and administrators to rapidly compare schema objects before and after an application upgrade, identify out-of-band changes made to the database as well as track changes to database initialization, authorization and storage settings.

Managing Schema Changes

Database administrators are faced with the daunting task of supporting more and more database applications each year without any increase in headcount. These enterprise applications are usually complex and often create hundreds of thousands of database entities, ranging from users and roles to tables and indexes to business logic, captured in triggers and packages, within the database. Enterprises frequently extend these applications with custom objects to support the company's business processes. This complexity puts the burden on database administrators to analyze the impact of the changes to support the application upgrade process.

Oracle Change Management Pack for Oracle Database 11g provides the change management infrastructure to associate application modules with database objects. This allows application developers and DBAs to track changes to the objects as the database schema evolves over each application upgrade cycle. By creating a unique definition, called baseline, for each application module and mapping its dependency on the various database objects, application developers can compare an application module baseline with the upgraded database application schema to see how it has evolved from one application version to the next.

Oracle Change Management Pack is powerful enough to identify detailed differences between the dependent database objects before and after application upgrades. For instance, it can show new columns that were added to existing tables, old tables that were dropped in the new schema. It can even show detailed business logic changes made to PL/SQL based objects, such as triggers or procedures. This allows the application developer to quickly assess the impact of the database change and modify the application modules accordingly to comply with the upgraded database schema.

Dictionary Comparisons > Comparison: HR Employee Promotion v9.3 > Comparison: HR Employee Promotion v9.3[1] >

View Differences: ADD_JOB_HISTORY

Left Source	HR Employee Promotion v9.2[1]	Right Source	database
Object Type	Procedure	Schema	HR
Object Name	ADD_JOB_HISTORY		

Differences

[Expand All](#) | [Collapse All](#)

Attributes	HR Employee Promotion v9.2[1]	database
Procedure		
Source	PROCEDURE add_job_history (p_emp_id job_history.employee_id%type , p_start_date ...	PROCEDURE "ADD_JOB_HISTORY" (p_emp_id job_history.employee_id%type , p_start_d ...

☒ **TIP** To view the DDL for the left or right object, click on 'Left DDL' or 'Right DDL' below.

Source Differences

Show

Line	HR Employee Promotion v9.2	Result	database	Line
1	PROCEDURE add_job_history		PROCEDURE "ADD_JOB_HISTORY" (p_emp_id job_history.employee_id%type	1
2	(p_emp_id job_history.employee_id%type			
		<	UPDATE EMPLOYEES set bonus = commission_pct*salary	12
			where employee_id = p_emp_id;	13

Figure 1: Comparing business logic changes in application upgrades

Production Compliance

There are many causes of downtime that database administrators have to deal with, ranging from hardware failures to performance problems. However, one of the hardest problems that DBAs face is to identify out-of-band changes made to production environments, such as initialization parameters, or *ad hoc* additions of new access structures, such as indexes or materialized views. These changes are more insidious because they are often made by well-meaning but inexperienced administrators in order to fix production problems. However, the net outcome to end-users is more harm than good, such as slow application performance. The troubleshooting DBA needs to make a rapid assessment of the database changes to find the problem and restore the application quickly to its optimal operating levels.

The Change Management Pack for Oracle Database 11g is specifically designed to support today's complex enterprise applications. With a few mouse clicks, DBAs can easily capture and version gold definitions of large application schemas, such as Oracle E-Business Suite 11i, which can contain over 400,000 database objects. Compare this with the numbers of steps needed to capture and maintain the object definitions manually. These gold definitions captured by the Change Management Pack, also called baselines, represent the ideal schema, authorization and initialization settings for the database.

Database administrators can now quickly and easily identify out-of-band changes made to application schema objects, such as a new index, or database initialization parameter changes or user-object privileges, by comparing the current database with the previously captured gold baseline versions. Change Management Pack allows DBAs to analyze the root cause of this type of application downtime and identify the changes needed to restore the application to expected service levels.

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KEY BENEFITS

Accelerate application upgrades by tracking changes to dependent objects

Rapidly identify root causes of application downtime by ensure compliance of production environments with established standards.

RELATED PRODUCTS AND SERVICES:

- Oracle Diagnostic Pack
- Oracle Tuning Pack
- Oracle Database 11g Real Application Testing option
- Oracle Configuration Pack for Database

Dictionary Comparisons > Comparison: OE Production Downtime compare >
Comparison: OE Production Downtime compare[1]

Left Source: **Order Entry Production Schema v9.2[1]**
 Left Type: **Baseline**
 Owner: **SYSMAN**

Right Source: **database**
 Right Type: **Database**
 Creation Date: **Jun 22, 2007 6:37:26 PM (UTC-07:00)**

View Differences: Initialization Parameters

Show: **Different**

Result	Name	Order Entry Production Schema v9.2[1]	database
	open_cursors	300	400

Objects

Object Type: **All Types** Schema: Object Name:

Show: **Right Only - Present only in the right source** Results: **Results**

(Add Comment) (Ignore Result) (Undo Ignore Result)

Select All | Select None

Select Schema	Name ^	Result	Type	Most Recent Comment	Details
<input type="checkbox"/> OE	ORDER_PRODUCT_ITEMS_IDX	<	INDEX		

Figure 2: Comparing database parameter and object changes

When an object, such as an index, is dropped from the database, the DBA can use the previously captured baseline to generate the object definition for the index in SQL and restore the application schema to its original state. The Change Management Pack can generate SQL definitions for specific objects, a given schema or the entire database. Developers and administrators have the same flexibility in executing comparisons for specific objects, a set of schema or the entire database.

Integrated with Oracle Enterprise Manager

Oracle Change Management Pack is complete integrated with Oracle Enterprise Manager, which allows application developers to access schema definitions and perform comparisons across baselines, versions and databases. Database administrators can execute baseline captures or comparison on demand or at a pre-determined times using the job scheduling capabilities in Enterprise Manager. Oracle Change Management also uses the Preferred Credentials capabilities, which allows application developers to access database schema structures without having to keep track of individual user access privileges.

Thanks to the scalability and automation in the Change Management Pack for Oracle Database 11g, database administrators can rapidly track, analyze and manage database changes to accelerate upgrade cycles and reduce application downtime.

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