Oracle Adapter for Databases

ORACLE AS ADAPTERS

KEY FEATURES

- Expose database operations as Services

- Non-intrusive and automatic mapping between relational schema and XML

- Comprehensive integration
  - Query
  - Data Manipulation
  - Stored Procedures/Functions
  - Publish database events

- Out of the Box support for Oracle, Sybase, DB2, SQL Server, Informix

- Support for JDBC 1.x and 2.0 complaint databases

- Seamless integration with Oracle AS Product components

- Rich Query Support
  - Join across multiple tables and views
  - Query By Example

- Comprehensive DML Support
  - Insert
  - Update
  - Delete
  - Write
  - Merge

- Sophisticated event publish
  - Physical delete
  - Logical Delete
  - Control table
  - Index Sequencing
  - Timestamp Sequencing

- Standards based support
  - JCA 1.5

Most organizations have a great deal invested in relational databases and have many database instances distributed throughout the enterprise. Developing applications based on relational databases is one of the greatest challenges and involves translating from relational data to XML/Java objects and back. In addition, the end user needs to understand and integrate database transactions, queries, caching, locking, sequencing and other key database concepts. The Oracle Adapter for Databases provides out-of-the-box, highly performing database connectivity solution.
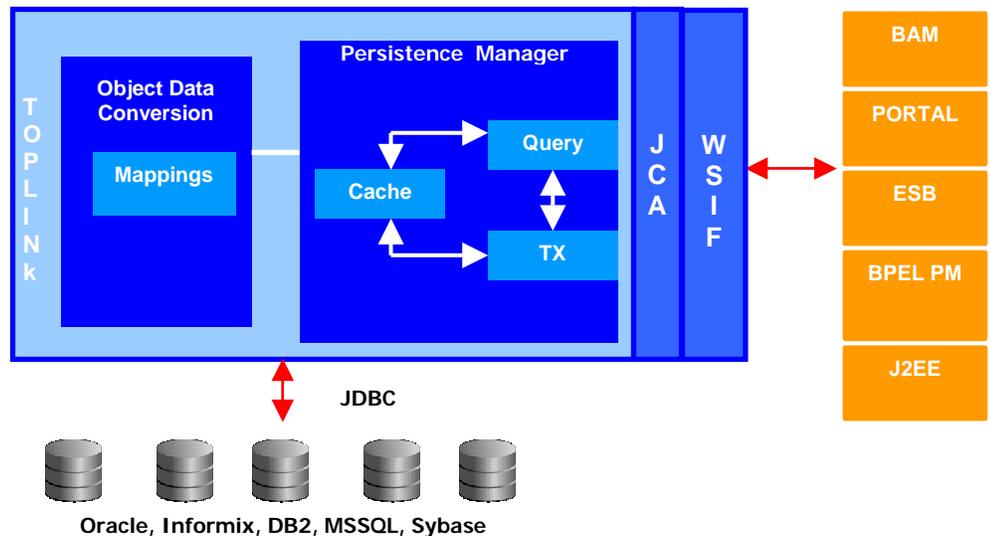

Figure 1: Database Adapter Architecture Diagram

Comprehensive Database connectivity

It supports a rich set of databases – Oracle, DB2, Microsoft SQL, Sybase, Informix and can support any standard JDBC 1.x, 2.0 compliant database. The Adapter can be used for invoking stored procedures, performing data manipulation operations and queries. The Adapter supports a wide variety of

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- XML
- WSDL
- WSIF

• Easy-to-use, Rich Design-Time
  - Comprehensive relational type support
  - Dynamic object to relational mapping
  - No SQL or JDBC coding required.

• Robust Proven Technology
  - Guaranteed exactly once message delivery
  - Scalable and highly available

KEY BENEFITS:

• Rich data format support
• Comprehensive error management
• Rapid implementation and deployment
• Highly scalable and performing architecture
• Complete Management through Oracle Application Server 10g

RELATED PRODUCT AND SERVICES

The OracleAS 10*g* Adapter is part of the OracleAS 10*g* product family. Related products include:

• Oracle AS Integration BPEL PM
• Oracle AS Integration InterConnect
• Oracle AS Portal

GETTING STARTED

For additional information on Oracle AS 10*g* Integration, please visit www.oracle.com

• You can download OracleAS 10*g* Enterprise Edition at: http://otn.oracle.com
• You can purchase the OracleAS 10*g* Enterprise Edition at: http://oraclestore.oracle.com

data manipulation operations namely insert, update, merge, write and delete services.

 A single Adapter can be used to connect to a variety of databases.

Highly flexible object to relational mapping

 The Adapter provides automatic mapping between any existing relational schema to XML and is non-intrusive to the relational schema and no changes need to be made to it. It supports complex object models and automatically builds references to other objects based on the underlying database schema.

 In addition, one can add/drop constraints at the object level .The underlying TopLink technology creates a set of meta-data "descriptors", that describe the object to relational mappings and uses this information at run-time to dynamically generate the required SQL statements.

Auto-generated mappings save developers from any tediousness of attribute by attribute mapping. The descriptors can be changed without having to re-compile the classes they represent. No programming is required.

Comprehensive Query support

It has a robust query framework. It is capable of executing complex queries that can span across multiple tables and views. It supports Query operations such as nested joins, outer joins and sub-selects. In addition, it supports Query by Example that enables the "Where" clause of a "SELECT" statement to be generated dynamically at run-time.

Hand-coding SQL selects is not required, making your projects easier to maintain and database vendor neutral.

Rich support for publishing database events

The Adapter is capable of capturing database changes or events and offers multiple ways of publishing the event data ranging from simple and intrusive to sophisticated and non-intrusive. The Adapter is capable of capturing insert, update and delete events to both parent and child rows. By non-intrusive it can poll target tables without performing updates to or otherwise marking processed rows.

The event architecture is highly scalable and multiple Adapter endpoints can be configured in a load-balanced fashion to consume event bursts.

Easy-to-use Design-time tools

Oracle Adapters provide a unique design time experience for easy-to-use and rapid configuration of Adapters. The Adapter design-time wizard dynamically introspects the underlying database objects and creates corresponding XML schemas on the fly. It launches a sophisticated Query Builder wizard for creating complex queries.

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Standards Support and integration with Oracle AS product components

The Adapter for Databases supports open standards such as JCA, XML, Web Services (WSDL) and Web Service Invocation Framework (WSIF) and is truly portable across J2EE platforms. The Adapter seamlessly integrates with all Oracle Application Server product components and database services can be web-enabled, exposed as portlets or integrated with a business process without any coding effort.

Robust architecture

- The Adapter supports extensive error handling and repair capabilities including auto-connection retries and setting up of a business process for handling correction of data errors.

- The Adapter SDK exposes performance metrics to provide visibility into the time spent on each processing step within the Adapter. The performance metrics can be monitored using the Oracle Enterprise Manager.

- The Adapter caches the underlying data leading to higher performance.

- The Adapter can dynamically scale run-time connections and can exploit the underlying OC4J (Oracle AS – J2EE container) connection pooling service for the above.

- The Adapter supports two-phase commit protocol and can participate in Oracle Application Server initiated global transactions as a Resource Manager.

- The Adapter is deployable in Oracle Application Server clusters leading to a highly scalable architecture.

- The Adapter can be completely managed and monitored by the Oracle Application Server Console.

- The Adapter supports batching of messages for increased performance. Multiple messages can be batched together as a single transaction while performing data manipulation operations. Likewise database roundtrips are minimized with auto-enabled features like batch relationship reading and batch writing.

Summary

Oracle Adapter for Database offers the most productive and complete standards based connectivity solution for accessing relational databases.

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