

# ORACLE DATABASE LITE<sup>®</sup> 10g

## KEY NEW FEATURES IN 10.3

- Automatic Synchronization supports continuous data synchronization in the background without locking database.
- Windows Mobile 5 & 6/CE Standard SDK 5.0 support
- JDK 1.5 compatible
- Supports C++/.Net stored procedures
- Enhanced BLOB support up to 16 TB.
- MDW Quick Start Wizards support Rapid Application Development.
- Mobile Server Repository Diagnostic Tool (MSRDT) allows troubleshooting mobile server repository corruptions.
- Mobile Client installation without administrator privileges.
- New member user privilege to support field force teams.
- RAC support
- Sync repository separation from application data
- File-based synchronization in absence of network connectivity.

*Oracle Database Lite 10g is an integrated and complete solution for rapid development and deployment of high impact, mission critical applications for mobile and lightweight environments. Corporations with mobile workforces can leverage Oracle Database Lite 10g to increase employee productivity, reduce operation costs, and improve customer satisfaction.*

## Oracle Database Lite Overview

Oracle Database Lite 10g is an integrated and complete solution for rapid development and deployment of high impact, mission critical applications for mobile and lightweight environments. It extends the grid environment to mobile devices, allowing mobile workers to access enterprise data and applications in the absence of a network connection. When network connection is available, Oracle Database Lite uses data synchronization to allow these workers to reliably and securely exchange data with a corporate Oracle Database.

The three main components of Oracle Database Lite are 1) client stack available on multiple platforms including various flavors of Windows 32-bit, Windows Mobile, Linux and Symbian OS 2) Mobile Server for synchronization and scalable deployment and management of applications, users, and devices and 3) developer tools that enable quick and simple application development.

## Full-featured Client Stack

The Oracle Database Lite client includes various components that operate in concert to facilitate a seamless user experience and easy remote administration. The client includes a small-footprint database (and associated utilities) optimized for handhelds, laptops and small business environments, supporting single or multi-user deployments. The database provides a secure, relational data store that is self-administering and self-tuning, requiring no DBA involvement. The client also provides rich data synchronization support: a synchronization agent that synchronizes automatically in the background, a GUI application that allows manual invocation of synchronization and APIs that can be invoked by your application. The device agent on the client allows administrators to remotely manage the device by sending commands or querying system and application data. Finally, an update utility supports application life-cycle management by allowing new versions of the application to be downloaded by mobile workers in the field.

## Enterprise Ready Mobile Server

Mobile Server, the core of the Oracle Database Lite product, can be deployed on commodity server hardware running industry standard operating systems including

Windows, Linux, Sun SPARC, HP-UX and IBM AIX. The Mobile Server provides a reliable, bi-directional synchronization system and a powerful administration interface.

### **Robust and Scalable Synchronization System**

Based on a publish-subscribe model, Oracle Database Lite's synchronization system allows efficient asynchronous (non-blocking) data synchronization between thousands of mobile users and your Oracle Database. Clients upload data to an In Queue, download data from their Out Queue, and disconnect. Simultaneously, the synchronization process asynchronously applies the client updates from the In Queue to the enterprise data store, and populates the Out Queue with server updates.

Oracle Database Lite intelligently recovers from network failures during synchronization. If a user experiences a network failure during synchronization, the Database Lite client will resume the function (e.g. upload/download) from the last checkpoint marker rather than restart the transmission.

Mobile Server analyzes information contained in the mobile application to automatically create the application's server-side synchronization logic. Nevertheless, Database Lite's flexible architecture supports rich customization of the synchronization process at multiple levels. Rich callback support allows interleaving various application-specific tasks during the various synchronization phases. Alternatively, developers can choose to optimize only the resource intensive Compose phase of synchronization by implementing java classes that leverage their insights into the data model. Finally, developers can take full control of the synchronization system and independently manage data queues that contain the uploaded data, and the client updates to be downloaded.

Conflicts can occur when the same data has been modified by the server and the client, or by multiple clients. Oracle Database Lite automatically detects such conflicts and resolves them based on rapidly configurable standard resolution rules. Custom rules can also be created to match your business needs. Unresolved errors are trapped and appended to the Error Queue for manual resolution by the administrator.

### **Comprehensive Management and Administration**

Oracle Database Lite employs a secure, centralized repository to support a unified interface for distributing and managing software and data on remote systems. Mobile Manager, a web-based administration interface for Mobile Server, enables 100% server-side management of all mobile applications, devices, users and mobile servers using this repository. The administrator can create users and groups, assign application access privileges, send device commands and retrieve device diagnostic information from a single interface. Integration with enterprise Oracle OID and LDAP directories further simplifies user management. In addition, the administrator can manage the synchronization process by setting its frequency, resolving errors, or analyzing and tuning its performance from the same interface. Further, a scripting language that can be used to batch administration functions minimizes administrator overhead.

### Rapid Application Development Support

The Oracle Database Lite Mobile Development Kit (MDK) is a set of tools, APIs, tutorials and code samples that accelerate the development of mobile applications.

The Mobile Database Workbench (MDW) is a visual development tool for designing replicated databases. Wizards in the MDW accelerate creation of replicated databases by allowing developers to quickly define and customize snapshots (subsets) of enterprise data models for incorporation into the replicated database.

The Packaging Wizard allows bundling all application components (JSP/servlets, executables, DLLs, images, etc.) into a jar file for simple upload to the Mobile Server from where it can be deployed to mobile or lightweight business environments easily.

Oracle Database Lite's support of familiar data access interfaces and open standards such as ODBC, JDBC and ADO.NET allows you to use any mobile development IDE tools that support these standards, including Oracle JDeveloper.

Tutorials and samples included in the documentation and MDK highlight how to leverage specific features or develop applications using a particular technology or on a particular platform.

**Table 1 Supported data access technologies on supported Database Lite client platforms**

O/S	ODBC	JDBC	ADO.NET
Windows 32-bit	Yes	Yes	Yes
Windows Mobile/CE	Yes	Yes	Yes
Linux	Yes	Yes	N/A
Symbian OS	Yes	Yes	N/A

### High Performance And Scalability

Oracle Database Lite delivers out-of-the-box performance, enabling users of your application to access information quickly and efficiently. A high performance query optimizer determines the most effective way to access information, improving performance and eliminating the need for expert tuning as data distributions change over time. Multiprocessor and dynamic cache sizing support ensures top performance for larger databases and greater numbers of connected users. Finally, Oracle Database Lite provides tools to tune the performance of data synchronization.

Database Lite supports both single-user and multi-user deployment configurations guaranteeing that your Oracle Database Lite applications can adapt to the demands of ever-changing environments. Mobile Server integration with Oracle Application Server (OAS) allows you to scale your Mobile Server deployment by taking advantage of OAS load balancing features.

### End-To-End Security

FIPS-140 compliant device level and data transmission encryption ensures data integrity. The client database included with Oracle Database Lite provides comprehensive 128-bit strong encryption based on the AES standard, and utilities are provided to encrypt/decrypt it to protect your business information on the mobile device. SSL based encryption protects data integrity while data is in transit between the device and the enterprise database.

In addition to built-in security, Oracle Database Lite provides standard device commands as well as the infrastructure to implement new commands in order to support your enterprise's business processes and security best practices. For example, you can issue commands to synchronize and delete the database, uninstall the client or reset the password if you lose the device.

**Table 2 Key Oracle Database Lite features**

Mobile Database	Synchronization System	Mobile Manager
<ul style="list-style-type: none"> <li>ACID compliant; Full transactional processing.</li> <li>Supports data integrity constraints including referential integrity</li> <li>Automatic log-based recovery</li> <li>Maximum database size: 4 GB</li> <li>Binary Large Object (BLOB) support up to 16 TB</li> <li>Multi-user version supports 64 simultaneous connections</li> <li>Java/C++/.Net Stored Procedures &amp; Triggers</li> <li>JDBC, ODBC, ADO.NET data access APIs</li> <li>Various database utilities, e.g.,</li> </ul>	<ul style="list-style-type: none"> <li>Flexible &amp; reliable bi-directional synchronization</li> <li>Publication\Subscription model</li> <li>Asynchronous architecture ensures high scalability</li> <li>Multi-threaded architecture</li> <li>Custom synchronization invocation</li> <li>Automatic (background) Synchronization</li> <li>Push (server-initiated) Synchronization</li> <li>Supports schema evolution</li> <li>SSL encryption &amp; data compression</li> <li>Network failure recovery</li> <li>Built-in and custom</li> </ul>	<ul style="list-style-type: none"> <li>EM compliant UI</li> <li>Can operate standalone or integrated with OAS</li> <li>Single Sign-On support (when used with Oracle Application Server)</li> <li>Scripting language for batch administration</li> <li>Extension APIs available</li> <li>Supports user management</li> <li>Supports application provisioning and deployment</li> <li>Supports device management including remote diagnostics</li> <li>Unified interface to monitor synchronization and resolve errors.</li> </ul>

**KEY BENEFITS**

Oracle Database Lite extends the Grid Environment to enterprise-enable mobile workers. Field workers can access enterprise data store and applications on the go.

Corporations can leverage Oracle Database Lite 10g to increase employee productivity, reduce operation costs, and improve customer satisfaction. Oracle Database Lite has delivered demonstrable impact in sales force automation, data collection, customer relationship management (CRM), and field service applications in a range of industries including financial services, healthcare, transportation, logistics, government and retail.

**RELATED PRODUCTS AND SERVICES:**

Deliver robust enterprise deployments of Oracle Database Lite using

- Oracle Database Enterprise Edition, 10g
- Oracle Application Server, 10g

command line SQL, encryption/decryption, validation, compression, etc.	conflict detection and resolution
<ul style="list-style-type: none"> <li>• SQL-92 support</li> <li>• 128-bit AES encryption</li> <li>• Row-level locking</li> <li>• Localization support</li> </ul>	<ul style="list-style-type: none"> <li>• Synchronizes data and applications</li> </ul>

**Conclusion**

Corporations can leverage Oracle Database Lite 10g to increase employee productivity, reduce operation costs, and improve customer satisfaction. Oracle Database Lite has delivered demonstrable impact in sales force automation, data collection, customer relationship management (CRM), and field service applications in a range of industries including financial services, healthcare, transportation, logistics, government and retail.

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