

## ORACLE GOLDENGATE 11G

### REAL-TIME ACCESS TO REAL-TIME INFORMATION

#### KEY FEATURES

High-performance data replication  
Heterogeneous sources and targets  
Conflict detection and resolution  
Real-time and deferred apply  
Event marker infrastructure  
Flexible topology support  
Data encryption  
ETL and JMS integration  
Routing and compression  
Automated memory management  
Initial load capability

#### KEY BENEFITS

Enhance decision-making with real-time data  
Access mission-critical applications without disruption  
Increase IT flexibility with heterogeneous infrastructure support  
Enable high-performance data replication with minimal impact on production systems  
Ensure transactional integrity across heterogeneous source and target systems

*To succeed in today's competitive environment, you need real-time information. This requires a platform that can unite information from disparate systems across your enterprise without compromising availability and performance.*

*Oracle GoldenGate 11g is a high-performance software application for real-time transactional change data capture, transformation, and delivery, offering log-based bidirectional data replication. The application enables you to ensure that your critical systems are operational 24/7, and the associated data is distributed across the enterprise to optimize decision-making.*

### Real-Time Access to Real-Time Information

Business-critical systems must offer the highest availability, ensure fast and easy access to the right data, and quickly adapt to changing business and IT demands. With transaction volume increasing at an exponential rate as more and more business processes are conducted online, many organizations need a better solution to collect and deliver immediate access to the tremendous amount of enterprise data.

Oracle GoldenGate 11g provides real-time capture, transformation, routing, and delivery of database transactions across heterogeneous systems. The software facilitates high-performance, low-impact data movement with subsecond latency to a wide variety of databases and platforms while maintaining transaction integrity.

### What's New in Oracle GoldenGate 11g?

Oracle GoldenGate 11g offers tighter integration into Oracle applications and technologies, support for additional heterogeneous systems, and improved performance. Oracle GoldenGate 11g's new features include:

- Certification for operational reporting solutions on Oracle Applications such as Oracle E-Business Suite, Oracle PeopleSoft, and Oracle JD Edwards.
- Support for more data types and direct loads for Oracle Database, and certification on Oracle Exadata.
- Expanded heterogeneity via:
  - Log-based capture from, and delivery to Microsoft SQL Server 2008, IBM DB2 v9.7, and MySQL
  - Native delivery to Oracle TimesTen databases.
  - Capture from JMS-based messaging systems
  - Delivery to IBM DB2 for i.
- For the Oracle Database, simplified recovery to significantly reduce recovery windows for long running transactions in case of process interruptions.
- Increased transaction tracing flexibility to easily identify bottlenecks and tune the

Oracle GoldenGate offers low-impact capture, routing, transformation, and delivery of change data across heterogeneous systems in real time. The software helps organizations achieve continuous availability and real-time integration for their mission-critical data.

#### RELATED PRODUCTS

The following products enable organizations to more completely optimize their solutions for access to real-time information:

Oracle GoldenGate Veridata Management Pack for Oracle GoldenGate  
 Oracle GoldenGate Application Adapters  
 Oracle Data Integrator Enterprise Edition  
 Oracle Active Data Guard  
 Oracle SOA Suite

data integration solution for optimum performance.

- For Microsoft SQL Server databases, supports OLE DB to connect to the database.

Using Oracle GoldenGate 11g customers can reduce IT costs and risk, while achieving a faster time to value for operational and analytical systems. Oracle GoldenGate leverages a component-based architecture to help companies address the continuous availability and real-time integration demands of enterprise systems.

#### Maintain Continuous Availability to Critical Systems

Oracle GoldenGate 11g helps organizations eliminate the downtime caused by both unplanned and planned outages, and improve system performance and scalability. The software can be configured to support the following scenarios:

- **Zero-downtime operations.** Enable uninterrupted business operations during system upgrade, migration, and maintenance activities.
- **Disaster recovery and data protection.** Create and maintain an immediate failover with up-to-the-minute data to minimize recovery time for mission-critical systems—deploy with Oracle Database across database versions or operating systems, or in non-Oracle environments.
- **Data distribution.** Synchronize data for distributed applications in real time across geographies for reliable access to timely data.
- **Query offloading.** Ensure high performance for production systems while still supporting necessary read-only activities by replicating data between heterogeneous sources and targets.

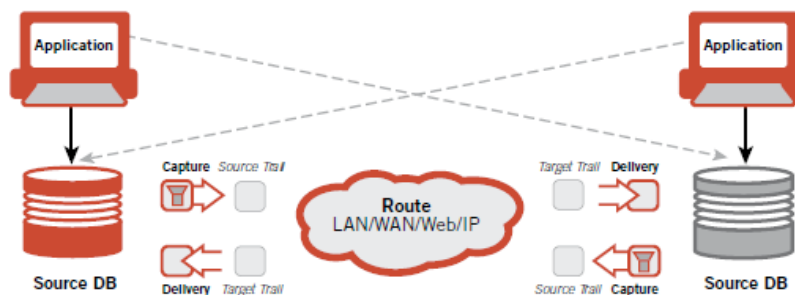
#### Enable Real-Time Data Integration Across the Enterprise

Oracle GoldenGate 11g captures and delivers real-time change data to data warehouses, operational data stores, reporting systems, and other online transaction processing (OLTP) databases with minimal performance impact. This access to real-time information enables improved business insight.

- **Real-time data warehousing.** Provide continuous, real-time capture and delivery of the most-recent change data between OLTP systems and the data warehouse. Oracle GoldenGate integrates easily with Oracle Data Integrator Enterprise Edition 11g and other extract, transform, and load (ETL) solutions. Oracle GoldenGate 11g is certified to capture from and deliver to Oracle Exadata Storage Server to enable real-time data warehousing or data consolidation solutions.
- **Operational reporting.** Offload reporting activity from production databases to lower-cost secondary systems with current data for real-time reporting. Oracle GoldenGate 11g is certified to support major Oracle applications, including Oracle E-Business Suite, JD Edwards, PeopleSoft and Siebel CRM, for operational reporting solutions.
- **Operational data integration.** Integrate operational data between OLTP systems in real time. Enable service-oriented architectures, including Oracle SOA Suite, to operate with real-time data by publishing changed data via Java Message Service (JMS) using Oracle GoldenGate Application Adapters.

## Robust Modular Architecture

The Oracle GoldenGate software architecture is comprised of three primary components: Capture, Trail Files, and Delivery. This modular approach allows each component to perform its tasks independently of the others, accelerating data replication and ensuring data integrity.



**Figure 1: Oracle GoldenGate leverages a component-based architecture to optimize real-time information access and availability.**

## Capture

Oracle GoldenGate's Capture module resides on the source database and looks for new transactional activity. The Capture module reads the result of insert, update, and delete operations by directly accessing the database transaction (redo) logs, and then immediately captures new and changed data for distribution.

The Capture module only moves committed transactions—filtering out intermediate activities and rolled-back operations—which not only reduces infrastructure load but also eliminates potential data inconsistencies. Further optimization is achieved through transaction grouping and optional compression features.

Oracle GoldenGate 11g can also capture messages from JMS messaging systems to deliver to heterogeneous databases in real time for scalable and reliable data distribution.

## Trail Files

Oracle GoldenGate's Trail Files contain the database operations for the changed data in a transportable, platform-independent data format. Trail Files are a critical component within Oracle GoldenGate's optimized queuing mechanism. They reside on the source and/or target server but exist outside of the database to ensure heterogeneity, improved reliability, and minimal data loss. This architecture minimizes impact to the source system because no additional tables or queries to the database are required to support the data capture process. The Capture module reads once, and then immediately moves the captured data to the external Trail File for delivery to the target(s).

In the event of an outage at the source and/or target, the Trail Files contain the most-recent data up to the point of the outage, and the data is applied once the systems are online again.

## Delivery

Oracle GoldenGate's Delivery module takes the changed data from the latest Trail File and applies it to the target database using native SQL for the appropriate relational database management system. Delivery can be made to any open database connectivity-compliant database. The Delivery module applies each transaction in the same order as it was committed and within the same transactional context as at the source, enabling consistency and referential integrity at the target. To enhance IT flexibility, captured data can also be delivered to a Java Message Service destination or as a flat file using Oracle GoldenGate Application Adapters.

## Key Features and Benefits

Oracle GoldenGate 11g provides the following features and benefits that enable you to achieve real-time data integration and continuous availability for mission-critical systems:

**Real-time data.** Immediately captures, routes, transforms, and delivers transactional data to other systems with subsecond latency. Improves organizational decision-making through enterprise-wide visibility into accurate, up-to-date information.

**Heterogeneous support.** Supports heterogeneous databases and platforms to increase IT flexibility. Extracts data from existing IT investments and lowers your total cost of ownership while unifying data from all enterprise systems.

**Reliability.** Delivers all committed records to the target, even in the event of network outages. Moves data without requiring system interruption or outage windows.

**High performance with low impact.** Moves thousands of transactions per second with negligible impact on source and target systems. Enables to access critical information in real time without bogging down production systems.

**Transaction integrity.** Maintains transaction commit boundaries and atomicity, consistency, isolation, and durability (ACID) properties as transactions are moved between source and target systems. Ensures data consistency and referential integrity across multiple masters, back-up systems, and reporting databases.

**Integration.** Integrates with Oracle Data Integrator Enterprise Edition and complements other ETL solutions. Via Oracle GoldenGate Application Adapters, it allows to capture from, or deliver to, Java Message Service-based messaging solutions such as Oracle WebLogic.

**Flexible topology support.** Moves data in one-source-to-one-target, one-to-many, many-to-one, many-to-many, cascading, and bidirectional configurations.

**Conflict detection and resolution.** Enables conflict detection and resolution in multi-master configurations where two systems can modify separate instances of the same table.

**Event based infrastructure.** Triggers immediate actions based on specific database operations captured and stored in Trail Files.

**Routing and compression.** Utilizes TCP/IP to send data and eliminate geographical distance constraints. Applies additional compression to the data as it is routed.

**Data encryption.** Securely transmits data for domestic and international applications with

variable key length encryption.

**Deferred apply.** Applies data immediately or at a deferred time chosen by the user, without losing transaction integrity.

**Automated memory management.** Automatically adjusts transaction memory based on the size and number of transactions being capturing.

**Bounded Recovery.** Persists uncommitted operations to disk to enable fast and simple data recovery for long running transactions in the event that the replication process is paused or interrupted.

## Conclusion

Oracle GoldenGate 11g helps organizations harness the value of their IT investments and improve business operations by providing continuous access to mission-critical information in real time. With support for a wide array of continuous availability, disaster tolerance, and data integration scenarios, the software provides a modular foundation that easily scales to address the high-volume, low-impact data integration and replication challenges faced by enterprises today.

## Contact Us

For more information about Oracle GoldenGate visit [oracle.com](http://oracle.com) or call +1.800.ORACLE1 to speak to an Oracle representative.



Oracle is committed to developing practices and products that help protect the environment

Copyright © 2010, Oracle and/or its affiliates. All rights reserved.

This document is provided for information purposes only and the contents hereof are subject to change without notice. This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. UNIX is a registered trademark licensed through X/Open Company, Ltd. 0410

**SOFTWARE. HARDWARE. COMPLETE.**