

An Oracle White Paper  
October 2013

# Oracle Data Integrator 12c New Features Overview

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## Executive Overview

Oracle Data Integrator (ODI) is a best-of-breed data integration platform focused on fast bulk data movement and handling complex data transformations.

Oracle Data Integrator is fully integrated with the Oracle technology stack, including Oracle Database, Exadata Database Machine, Exalogic, Big Data Appliance, WebLogic Server, Business Intelligence, and Oracle Applications. Oracle Data Integrator is the strategic data integration platform for Oracle.

The 12c version of Oracle Data Integrator continues to push this state of the art technology in data integration further ahead of the rest of the industry. Oracle continues to invest on this strategic data integration platform.

This whitepaper describes in detail some of the new features and capabilities offered in the Oracle Data Integrator 12c platform.

# Oracle Data Integrator 12.1.2.0.0 Release

## Feature Highlights:

### Design-Time Experience and Productivity

#### Design-Time Experience

Oracle Data Integrator 12c introduces superior productivity with a new flow-based declarative user interface. The enhanced user experience is simple yet powerful and comprehensive. The Oracle Data Integrator Studio client is entirely redesigned in this release to improve user experience and productivity. The new user interface combines the simplicity and ease-of-use of the declarative approach with the flexibility and extensibility of configurable flows. This blend simplifies common data integration design and deployment use cases, shortening implementation times. Data integration designers describe source and target data formats and data integration processes. The business user or the developer can focus on describing what to do, not how to do it. Mappings (the successor of the Interface concept in Oracle Data Integrator 11g) connect sources to targets through a flow of components such as: Join, Filter, Aggregate, Set, Split, etc. Oracle Data Integrator generates, deploys and manages the code required to implement those processes across the various source and target systems.

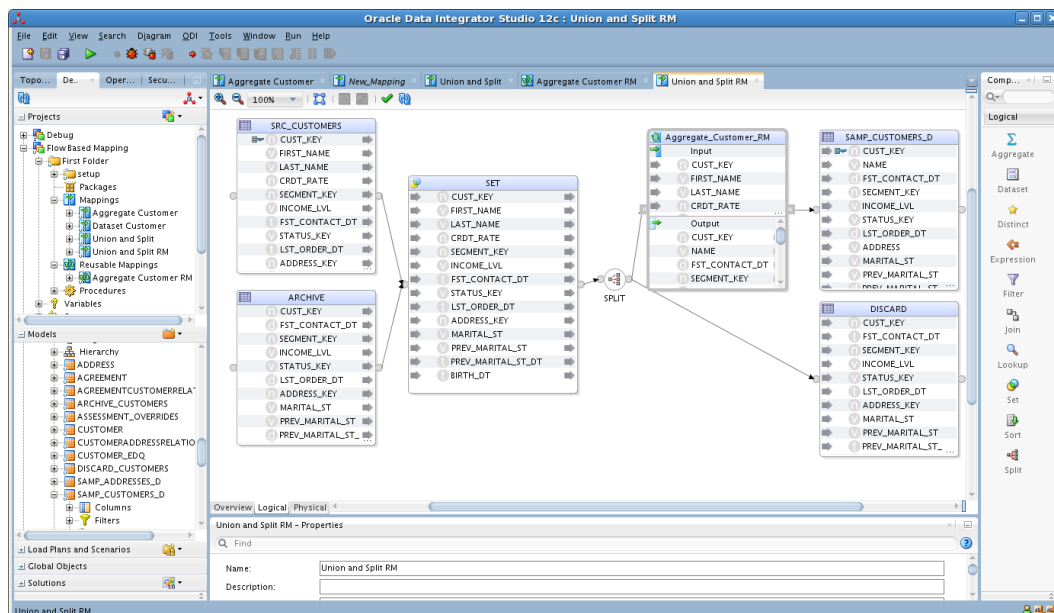


Figure 1 – Oracle Data Integrator Flow-Based Declarative User Interface

## Reusable Mappings

Oracle Data Integrator’s paradigm is also enriched with the ability to seamlessly reuse mapping logic during development, giving developers a simpler and more efficient technique for providing solutions to their completion. Reusable mappings can be used to encapsulate flow sections that can then be reused in multiple mappings. A reusable mapping can have generic input and output signatures to connect to an enclosing flow, and it can also contain sources and targets that are encapsulated inside the reusable mapping.

## Multiple Target Support

Oracle Data Integrator’s flow-based declarative user interface allows for a mapping to load multiple targets as part of a single flow. Whether one or multiple targets, the order of target loading can be specified, and the Split component can be optionally used to route rows into different targets, based on one or several conditions.

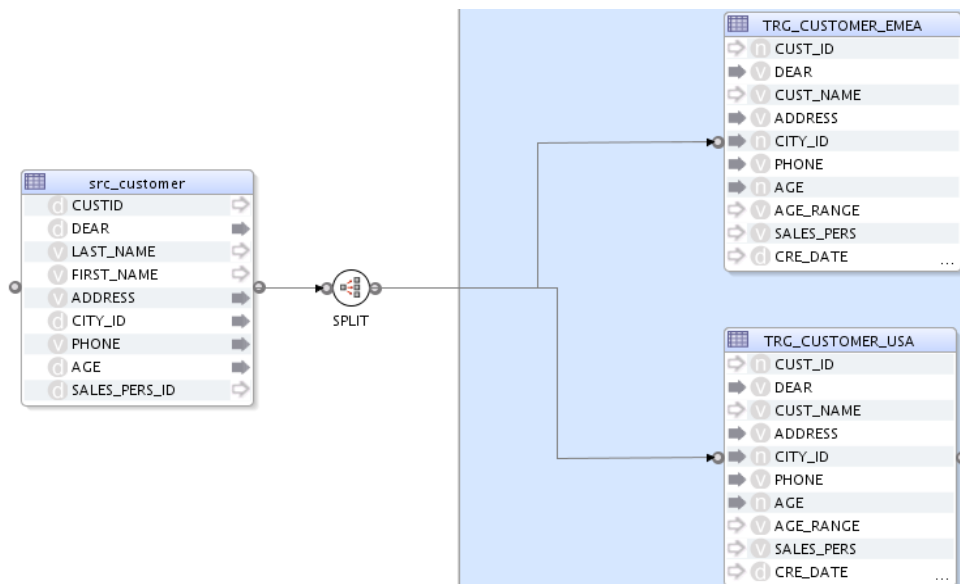


Figure 2 – Multiple Target Mapping

## Step-by-Step Debugger

Oracle Data Integrator 12c introduces a step-by-step debugger. Mappings, Packages, Procedures, and Scenarios can be debugged in a step-by-step manner. Users are able to manually traverse task execution within these objects and set breakpoints to interrupt execution at pre-defined locations. Values of variables can be introspected and changed during a debugging session, and data of underlying sources and targets can be queried, including the content of uncommitted transactions for better insight.

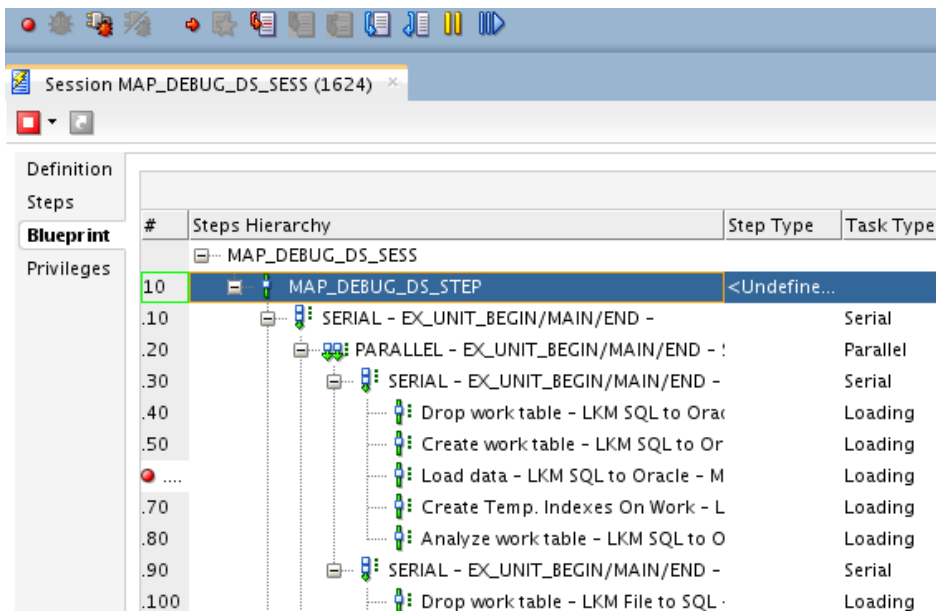


Figure 3 – Debugger – Controlling the Execution Flow

## Knowledge Module Architecture

Oracle Data Integrator has introduced a new style of Knowledge Module, called Component-Style Knowledge Modules in addition to Template-Style Knowledge Modules available from Oracle Data Integrator 11g. This new style of Knowledge Module provides an extensible component framework that improves the overall mapping design, where for example users are able to declare the transformation order. These also improve reusability as they can be plugged together; in addition to helping avoid code and data duplication as well as providing improved Oracle connectivity.

## Runtime Performance Enhancements

### Lower Session Overhead and Enhanced Parallelism

Oracle Data Integrator 12c introduces improved runtime execution to enhance performance. Various changes have been made to reduce overhead of session execution, including the introduction of blueprints, which allow Oracle Data Integrator to cache execution plans for sessions. Additionally, improved parallelism functionality increases Oracle Data Integrator's already high performance architecture. The enhancement comes from loading sources in parallel into the staging area. Parallelism of loads can be customized in the physical view of a map. Users also have the option to use unique names for temporary database objects, allowing parallel execution of the same mapping.

### Superior Oracle GoldenGate Integration

High performance E-LT capabilities integrated with Oracle GoldenGate enable faster and more efficient loading and transformation of real-time data into a data warehouse. Customers can now easily configure and deploy real-time data warehousing solutions without impacting source systems or batch window dependencies.

The integration of Oracle GoldenGate as a source for the Change Data Capture (CDC) framework inside of Oracle Data Integrator has been improved in the following areas:

- Oracle GoldenGate Gate source and target systems are now configured as data servers in Oracle Data Integrator's Topology. Capture and Delivery processes are represented by physical and logical schemas. This representation in Topology allows separate physical configuration for multiple environments, following the overarching philosophy around contexts.
- Most Oracle GoldenGate parameters can be added to Capture and Delivery processes in the physical schema configuration. The user interface provides support for selecting parameters from a library of parameters. This minimizes the need for the modification of the Oracle GoldenGate parameter files after generation.
- A single Oracle Data Integrator mapping can be used for journalized Change Data Capture load and bulk load of a target. This is enabled through the use of the Oracle GoldenGate Journalizing Knowledge Modules as well as the definition of multiple deployment specifications attached to a single mapping. This powerful feature allows a single mapping logical design to be reused in different physical configurations.
- Oracle GoldenGate parameter files can now be automatically deployed to source and target Oracle GoldenGate instances through the JAgent technology. In addition, Oracle GoldenGate instances can now be started or stopped from Oracle Data Integrator.



## Oracle Architecture for Enterprise-Scale Deployment

### Standalone Agent Management with WebLogic Management Framework

Oracle Data Integrator standalone agents are managed through the WebLogic Management Framework. The following advantages come as a result:

- User-interface driven configuration through the Configuration Wizard
- Multiple configurations can be maintained in separate domains
- Node Manager can be used to control and automatically restart agent

### Enterprise Security Enhancements

Oracle Data Integrator 12c can further integrate with leading Identity Management solutions through its integration with the Oracle Platform Security Services (OPSS) which provide an authorization model and control access to resources. Enterprise roles can be mapped into Oracle Data Integrator roles to authorize enterprise users across different tools.

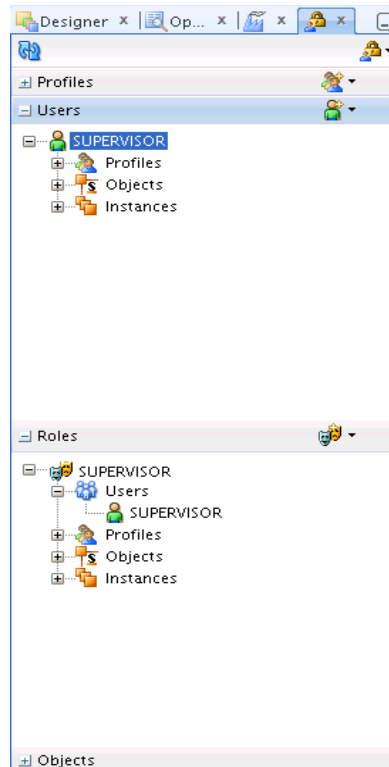


Figure 4 – Oracle Platform Security Services Integration

### Unified Administration and Monitoring

Oracle introduces Management Pack for Oracle Data Integrator, which leverages Oracle Enterprise Manager Cloud Control's advanced management capabilities, to provide an integrated and top-down solution for your Oracle Data Integrator environments. Management Pack for Oracle Data Integrator provides a consolidated view of your entire Oracle Data Integrator infrastructure enabling users to

monitor and manage all their components centrally from Oracle Enterprise Manager Cloud Control. Key features of the pack include the following:

- Manage multiple Oracle Data Integrator domains from a single location
- Monitor Oracle Data Integrator components availability and performance out-of-the-box; access historical data, track logs, and receive notifications of potential problems
- Trace end-to-end Oracle Data Integrator Sessions activity, review execution statistics and drill-down from a particular Step or Task into a detailed report of Oracle databases activity
- Control Service Level Agreements (SLA) with robust and scalable alerting capabilities
- Obtain real-time and historical in-depth performance statistics for the Oracle Data Integrator Standalone and JEE Agents
- Discover and model dependencies between Oracle Data Integrator and various components such as databases or other Oracle Fusion Middleware products automatically using the Oracle Enterprise Manager Cloud Control framework

Management Pack for Oracle Data Integrator supports both 11g (11.1.1.7.0 and higher) and 12c versions of Oracle Data Integrator.

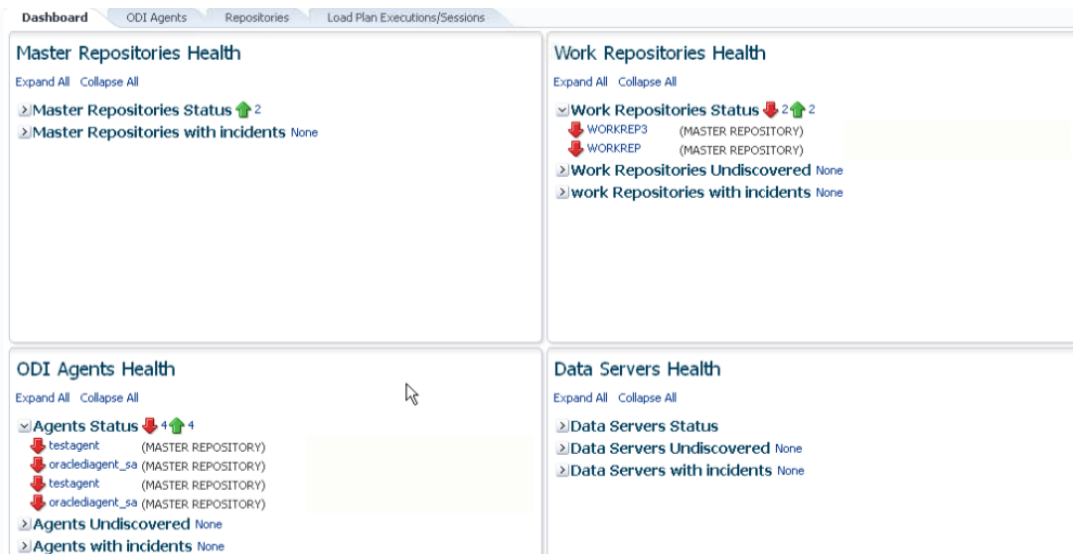


Figure 5 – Management Pack for Oracle Data Integrator Homepage

## Migrating to Oracle’s Strategic Data Integration Platform

### Oracle Warehouse Builder Integration

Oracle Data Integrator provides improved interoperability with Oracle Warehouse Builder (OWB), providing the foundation for customers to start migrating to Oracle’s strategic Oracle Data Integrator platform. Oracle Warehouse Builder jobs can now be executed in Oracle Data Integrator through the OdiStartOwbJob tool. The Oracle Warehouse Builder repository can also be configured as a Data Server in Topology. Users will thus also find all the Oracle Warehouse Builder job execution details displayed in Operator, Oracle Data Integrator Console, and Enterprise Manager.

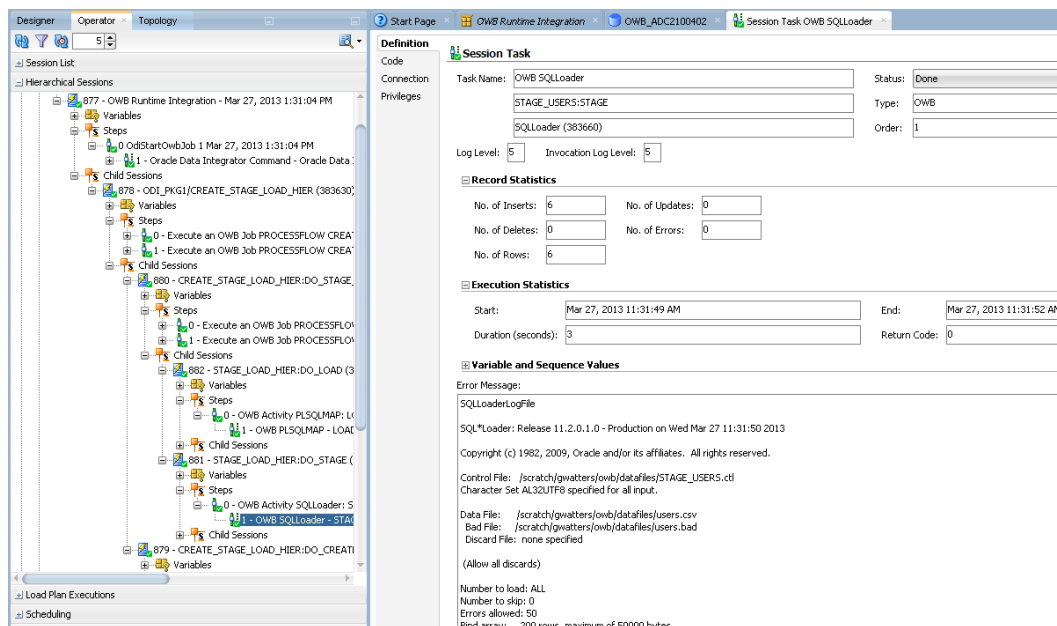


Figure 6 – Oracle Warehouse Builder Integration - Runtime

## Other Features

### XML Driver Enhancements

Support for XML Schema constructs further includes:

- **List and Union:** List or Union based elements are mapped into VARCHAR columns.
- **Substitution Group:** Elements based on substitution groups create a table each for all types of the substitution group.
- **Mixed Content:** Elements with mixed content map into a VARCHAR column that contains text and markup content of the element.
- **Annotation:** Content of XML schema annotations is stored in the table metadata.

### Unique Repository IDs

Master and Work Repositories now use unique IDs following the GUID convention. This avoids collisions during import of artifacts and allows simpler management and consolidation of multiple repositories in any given project or organization.

## Conclusion

With the Oracle Data Integrator 12c release Oracle introduced several new enhancements such as a redesigned declarative flow-based user interface, reusable mappings, runtime performance enhancements, tighter integration with Oracle GoldenGate integration, XML improvements, Oracle Warehouse Builder integration.

The Oracle Data Integrator 12c release continues to improve Oracle's strategic Data Integration platform while preserving the key product differentiators: Declarative Design, Knowledge Modules, Hot-Pluggability, and E-LT.



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October 2013  
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