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Oracle SQL Developer Data Modeler 3.0: Technical Overview

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  - Integrated version control for collaborative development
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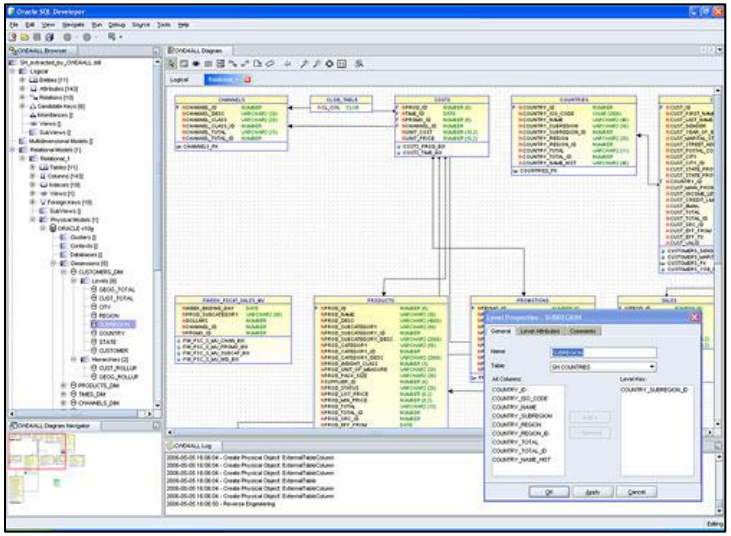
Why Do You Need to Model Today?

- A diagram is a powerful communication tool
- Different models provide different solutions
  - Logical Model (Conceptual model) for architects and users
  - Relational Model (Schema or Data Design) for developers
  - Physical model for database administrators
  - Viewer for all users
- Data models improve application development
- Maintenance is easier
- Quality is improved
- Good models drive standards

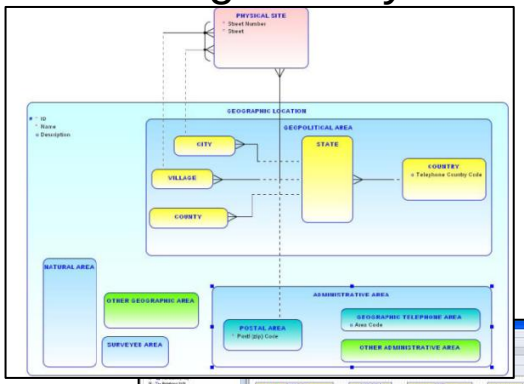
Oracle SQL Developer Data Modeler - Overview

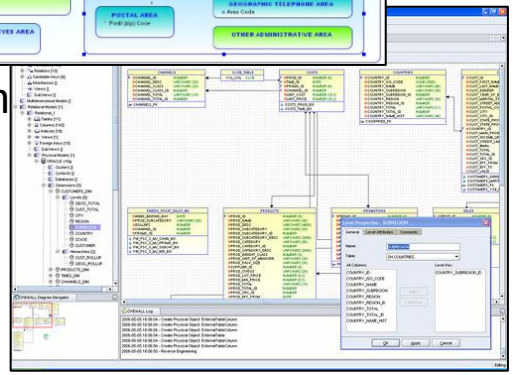
- A **no cost** diagramming and data modeling tool
- A single tool for different users and functionality
  - Data Architect builds logical data models
  - Database Developer models relational models (tables and columns)
  - DBA adds tablespaces, partitions
- Use data models to
  - Verify accuracy and completeness of data requirements and business rules with customers
  - Build standards-driven DDL scripts
- Metadata is stored in XML files



Oracle SQL Developer Data Modeler

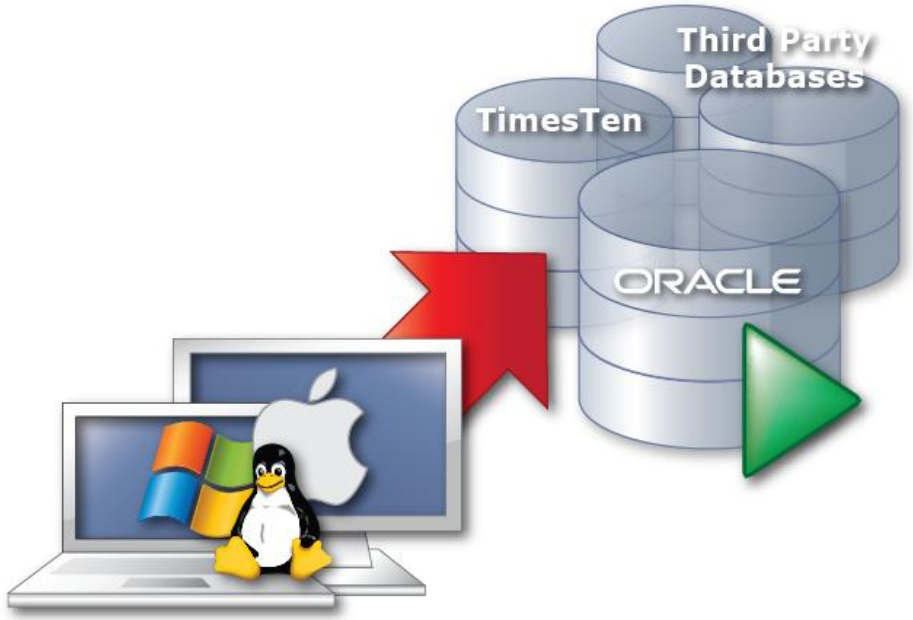
- Multi-level Data Modeling across platforms within one integrated system
  - Designing logical Entity Relation Diagrams (ERD)
  - Multi-dimensional modeling
  - User Defined Data Types
  - Building relational schema designs
  - Generating and executing DDL scripts
  - Reverse engineering of existing data structures
  - Import of data models from CA ERwin and Oracle Design
  - Multi-level relational and physical design environment
- Multiple platform support
- Multiple database support
- Increases migration productivity
- Read only visualization of database data models





Technology and Architecture

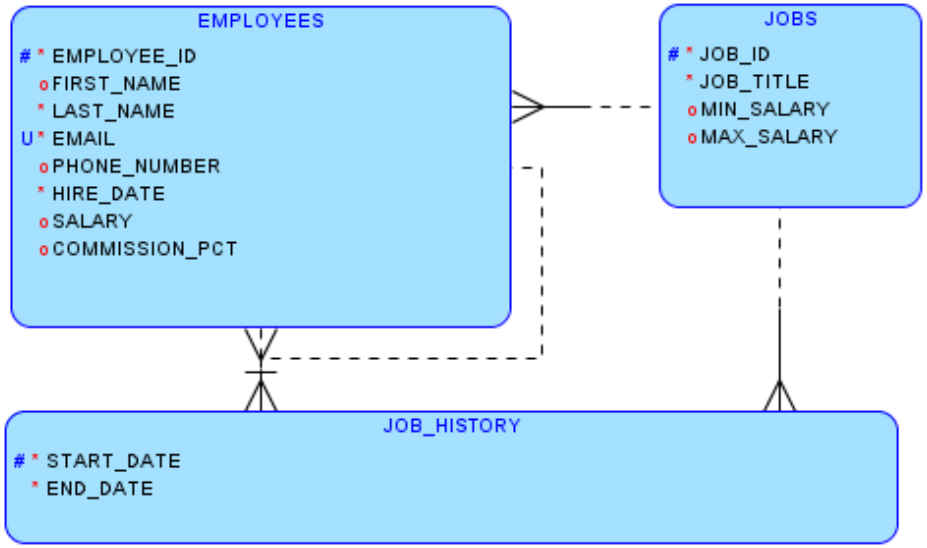
- Technology and Architecture
  - Java based
  - Implemented as independent, standalone product
- Database support
  - Oracle 9i, 10g, and Oracle 11g
  - Third-party databases
    - Microsoft SQL Server
    - DB2, UDB
- Platform support
  - Windows
  - Linux
  - Mac OSX



Features

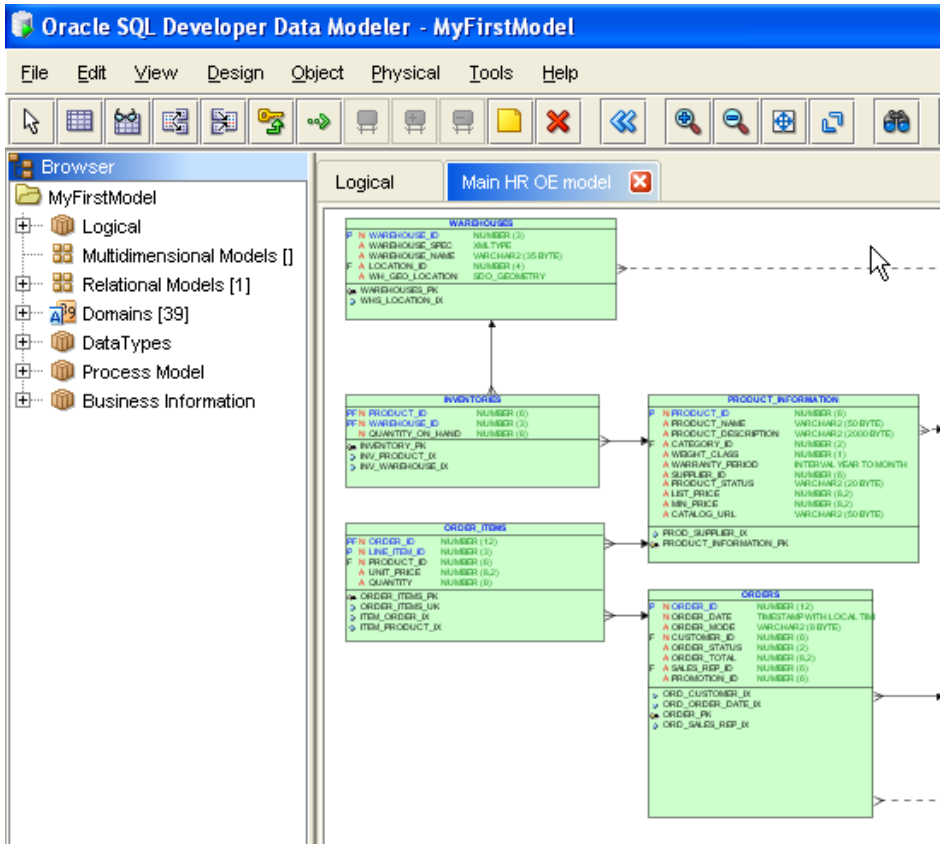
Logical Modeling

- Model entities, attributes and relations
- Support for
  - Super type
  - Sub types
- Transform one logical to many relational and multi-dimensional models
- Support for configurable forward and reverse engineering
- Support for different modeling notations



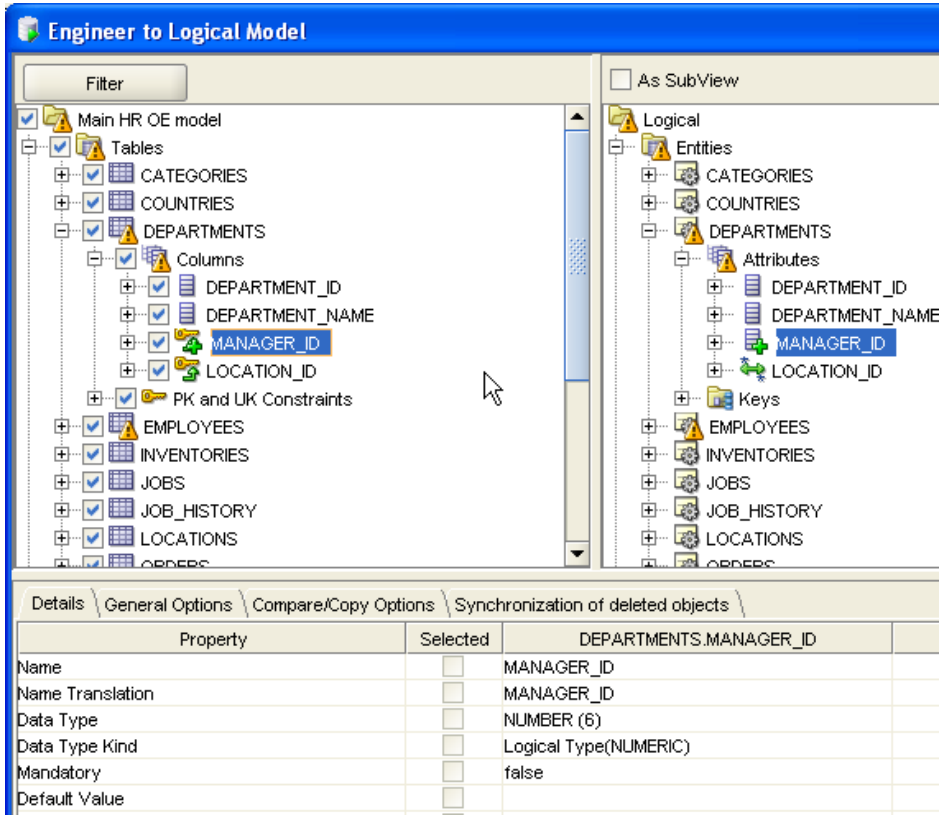
Relational Modeling

- Model tables, columns and FKs
- Create one logical for one or more relational models
- Support configurable forward and reverse engineering
- Use subviews to work with a subset of tables
- Provide different displays of the same model



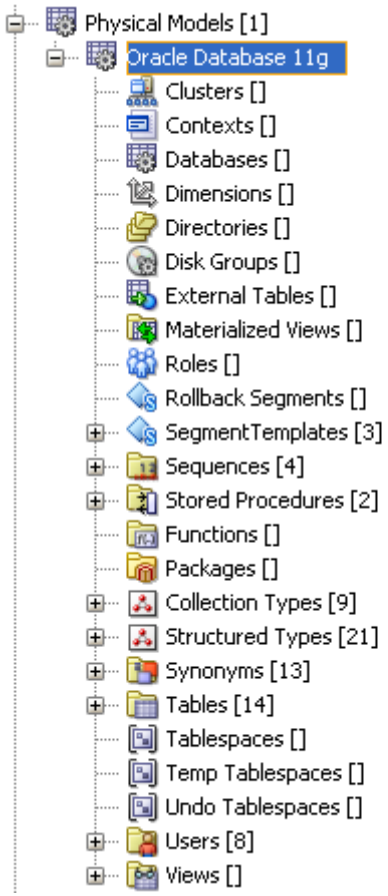
Forward and Reverse Engineering (Transformation)

- Each logical model to maps to one or more relational models
- Each relational model maps to one logical model
- Each relational model maps to one or more physical models
- Each physical model maps to one relational model
- Engineering options
  - General
  - Compare/copy
  - Synchronization
- Include design glossary and naming standards



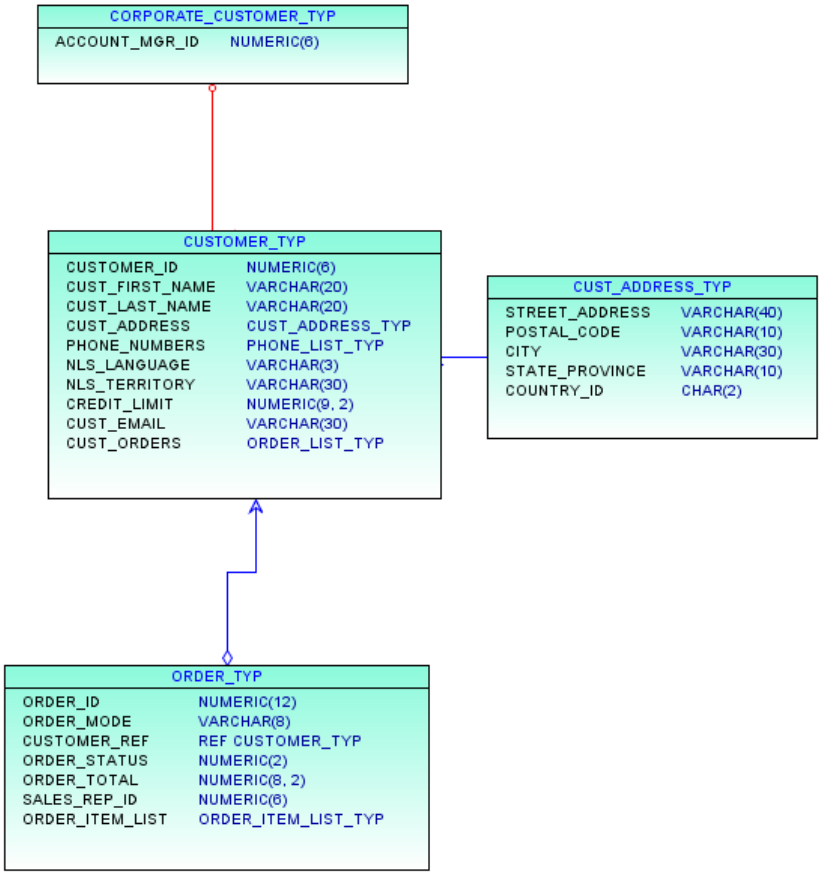
Physical Modeling

- One relational model for many physical models
- Add support for
  - Tablespaces
  - Users
  - Roles
  - Stored procedures
- Propate properties
  - Apply properties to many elements at once
- Supports
  - Oracle9i, Oracle Database 10g and Oracle Database 11g
  - Microsoft SQL Server 2000 and 2005
  - IBM DB2/390 and DB2 LUW



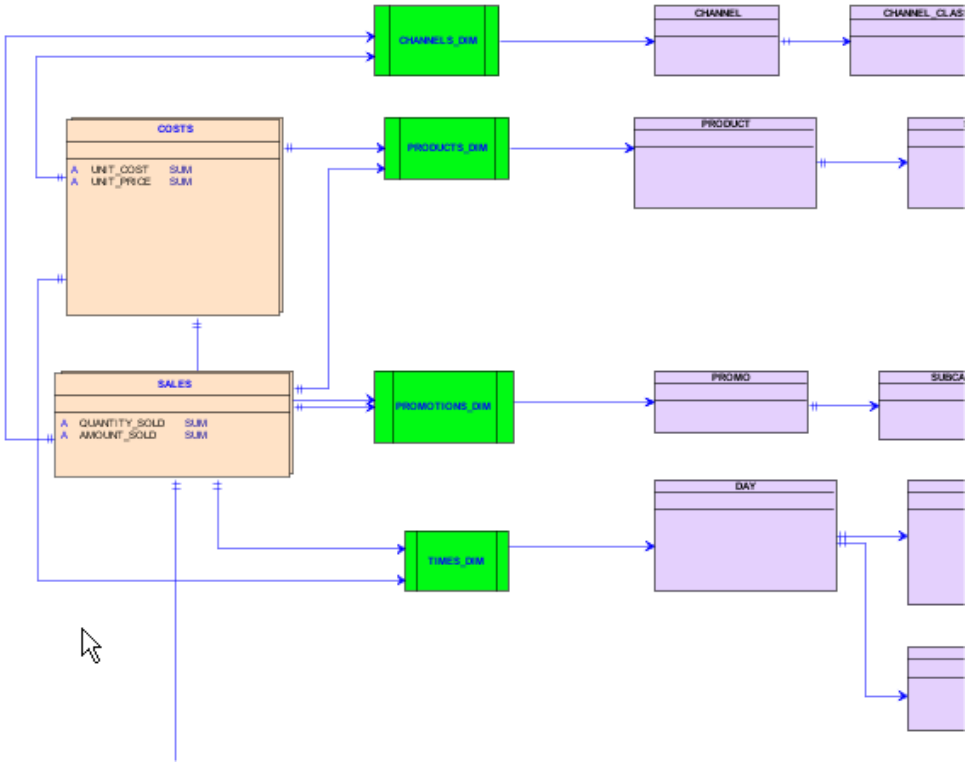
Modeling DataTypes

- Support for SQL99 (Object Relational Modeling)
  - Distinct Types
  - (Predefined) Structured Types
  - (Predefined) Collection Types
- Used in logical models
- Used in relational models
- Included on import
- Generated in DDL



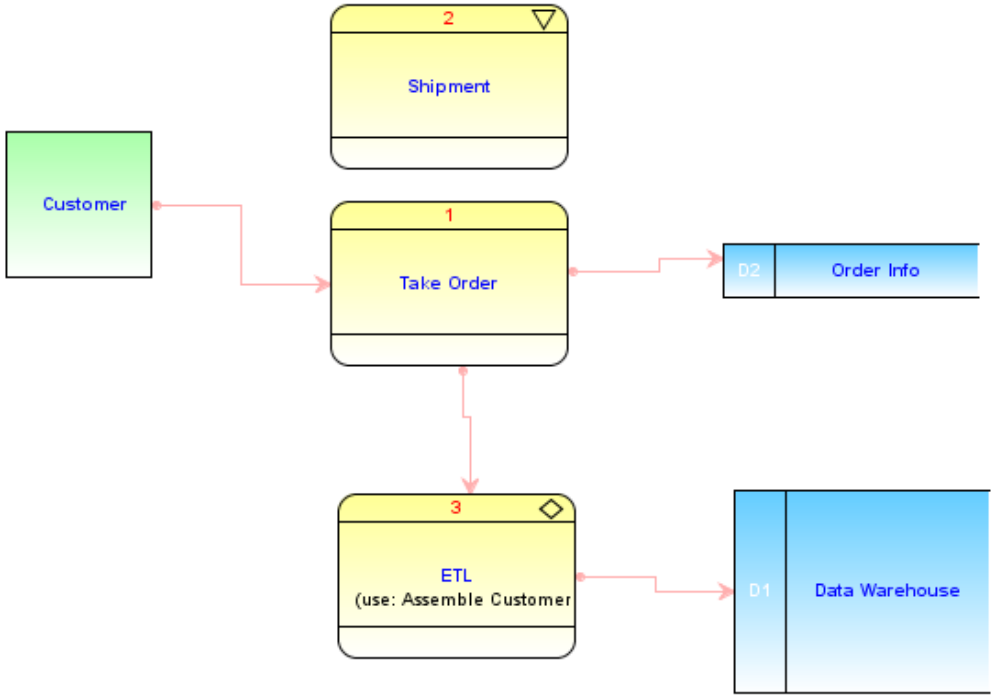
Multi-Dimensional Modeling

- Modeling of Cubes, Dimensions, Levels and Hierarchies, Measures and slices
- Start from ROLAP, XMLA or from scratch
- Generate Oracle Analytical Workspaces



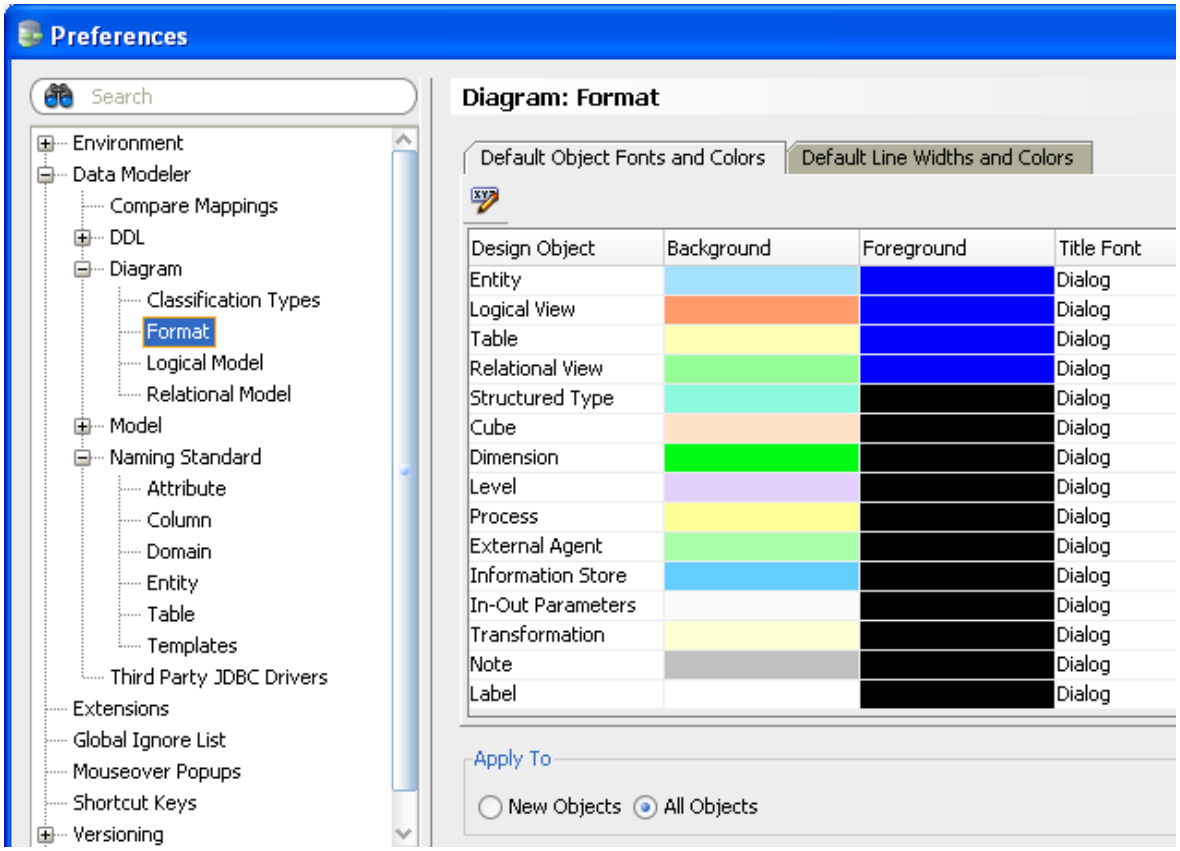
Working with Data Flow Diagrams

- Data Flow
  - External Agents
  - Processes
    - Primitive
    - Composite
    - Transformation
  - Information Flow
    - Information Store



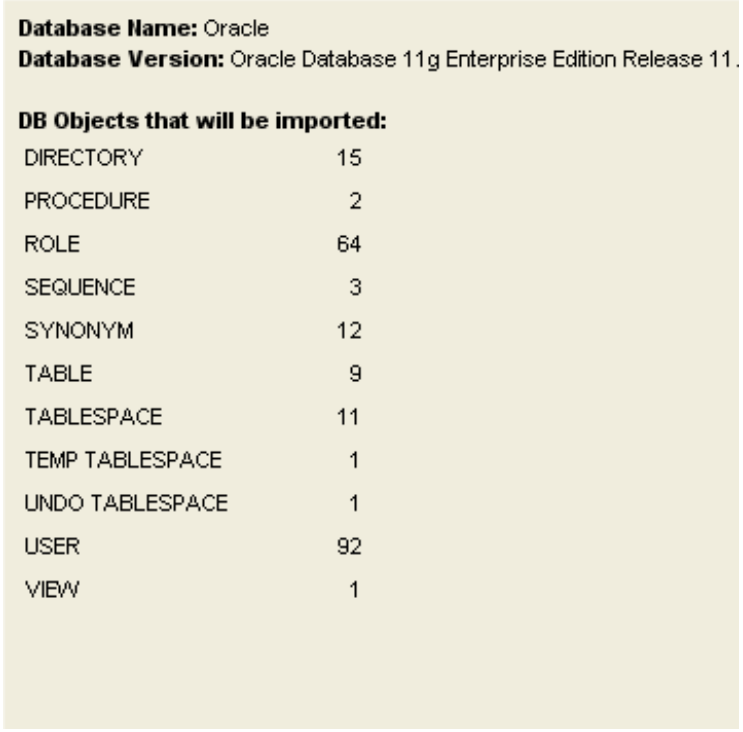
Formatting and General Appearance

- Granular and general control
- Set per item type
- Synchronize tree with diagram
- Set notation



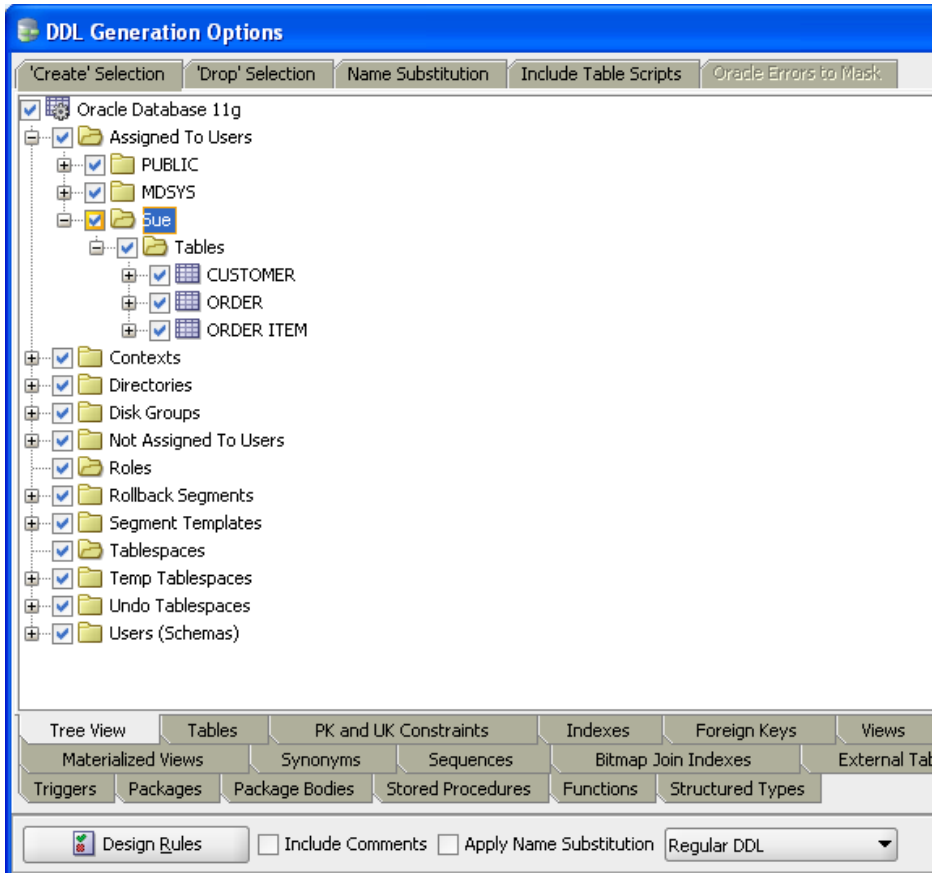
Importing Metadata

- Import using direct connections
  - Oracle Database
  - Microsoft SQL Server
  - IBM DB2 and UDB
  - Generic JDBC based dictionary
    - Examples: MySQL, Teradata
  - Oracle Designer repository
- File import
  - Other Modeling tools
    - CA ERwin
    - Bachman
  - Multi-Dimensional
    - Cube views
    - XMLA



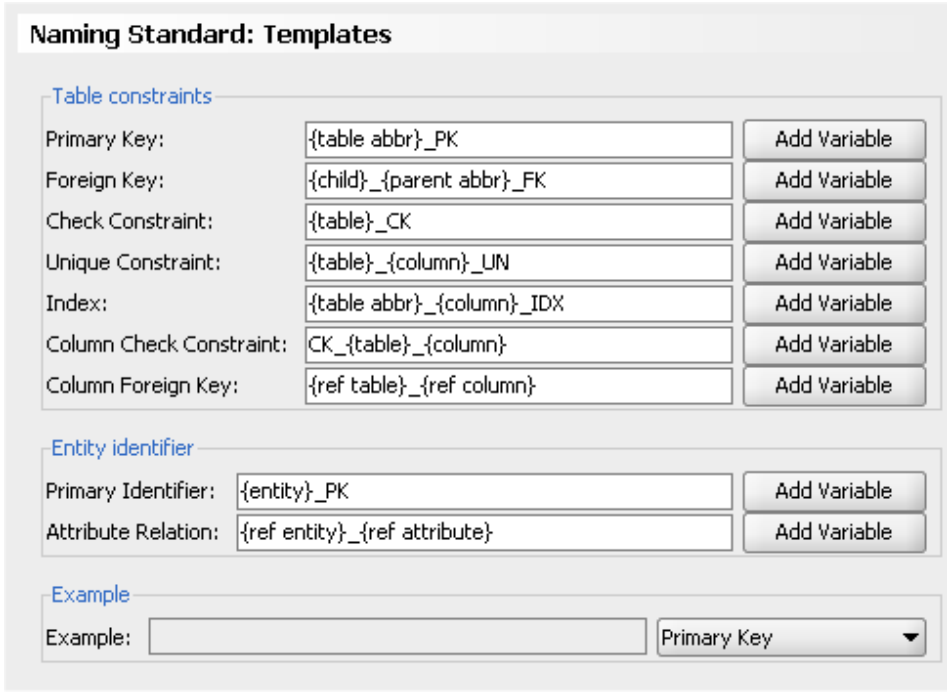
Exporting and Code Generation

- DDL file editor supports
  - Design Rules
  - Object selection
  - Drop objects
  - Table scripts
- Standard database DDL scripts
  - Oracle
  - IBM DB2 and UDB
  - Microsoft SQL Server
- Multi-Dimensional Oracle AW, Cube Views and XMLA
- CSV export



Controlling the Design Environment

- Selection of tools available
  - Domain definition (data types)
  - Name abbreviation in the relational model (Customer to CUST)
  - Compare and merge facilities
  - Design Rules
- Tools Options
  - Naming standards
  - Specify default database
  - Controlling constraints
  - Physical properties
  - Notations (Barker, Bachman, Information Engineering)



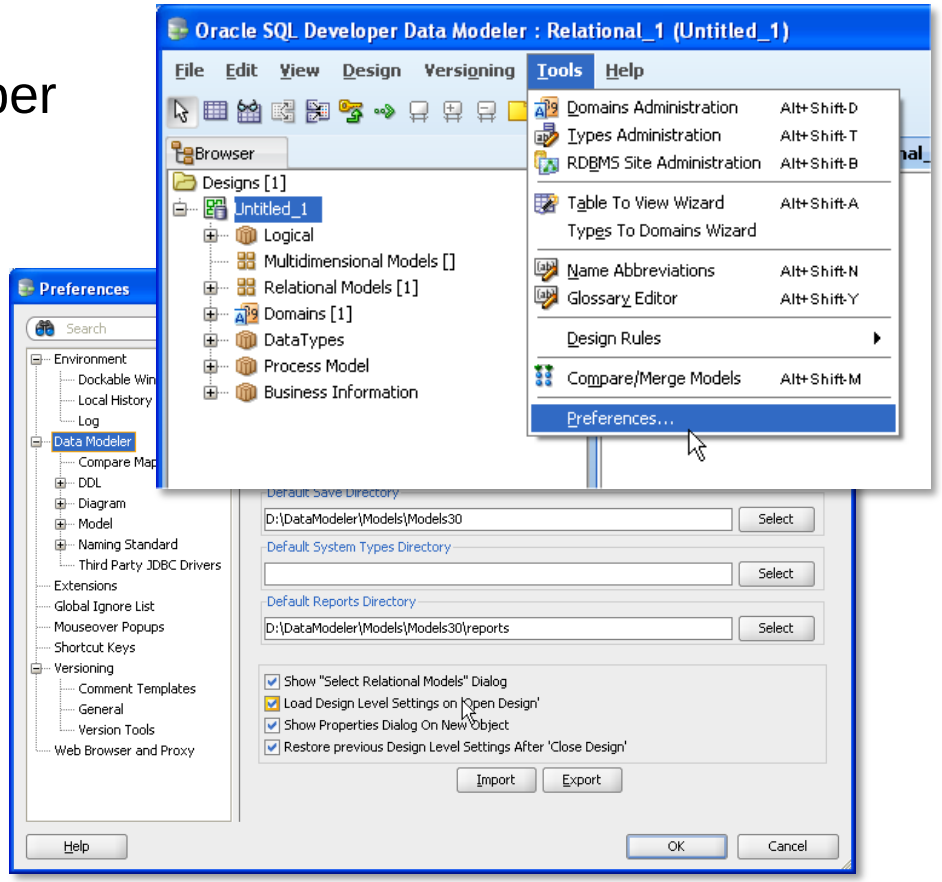
New Features Review

SQL Developer Data Modeler 3.0

- Integrated version control (Subversion) for collaborative development
- Integrated reports
- Incremental Oracle Database 11g features
- Support for multiple open designs
- Import and export packages, and functions
- Addition of custom Design Rules and transformations
- Import from CA ERwin Data Modeler Release 7
- Various additional enhancement requests and feature updates

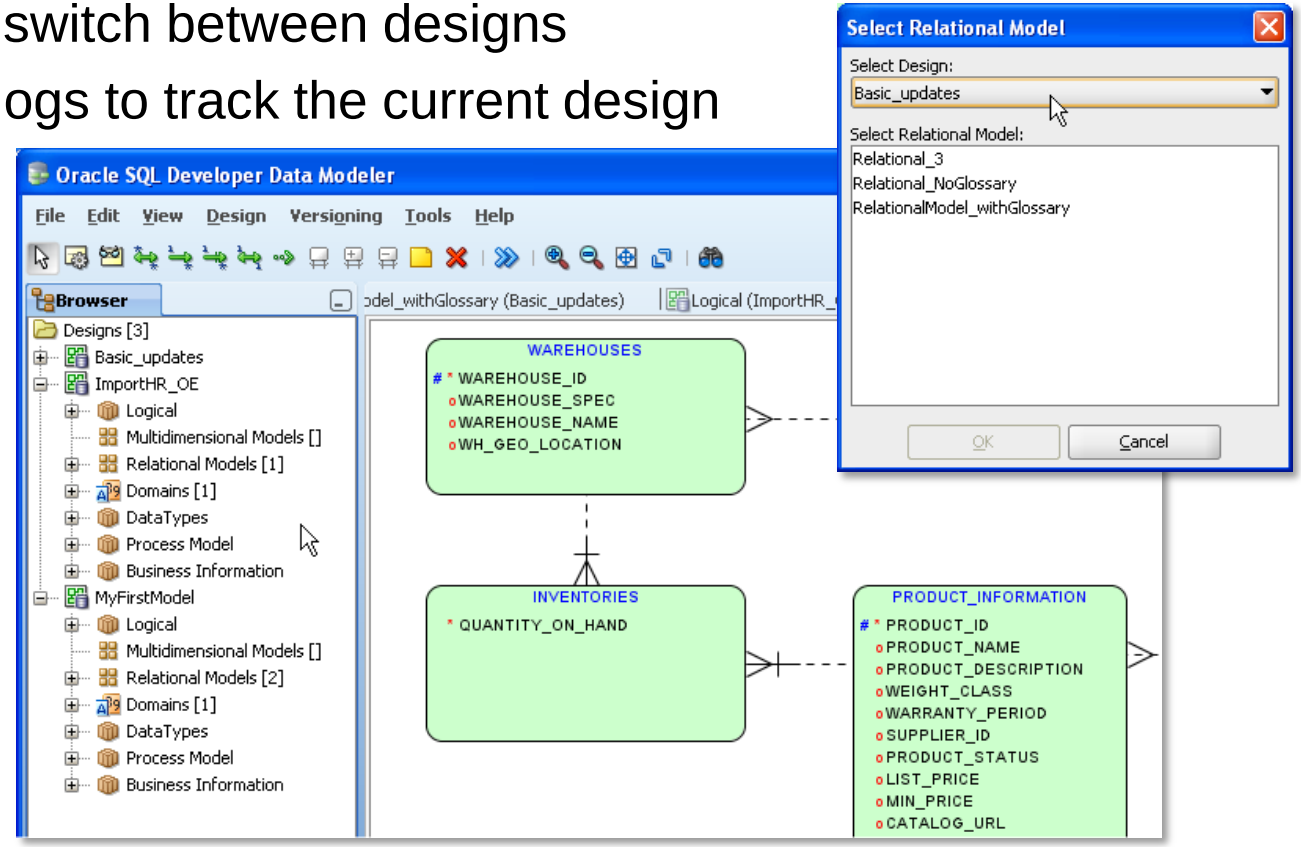
Common IDE: Fusion Client Platform

- Same core technology for SQL Developer, JDeveloper and Data Modeler
- Some features shared
  - Version control
- Common look and feel
- Preference dialog
  - Shortcut keys
  - Managing extensions
  - Set central location for saving and opening files



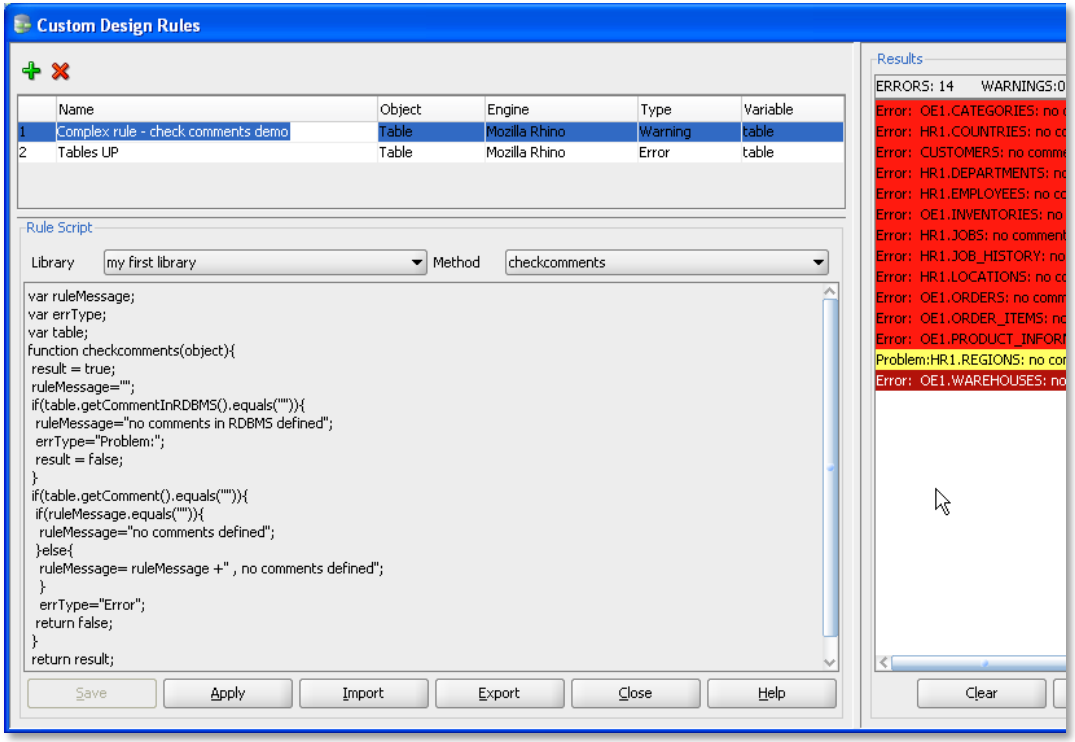
Multiple Open Designs

- Open multiple designs in single Data Modeler browser
- Easy to switch between designs
- Use dialogs to track the current design



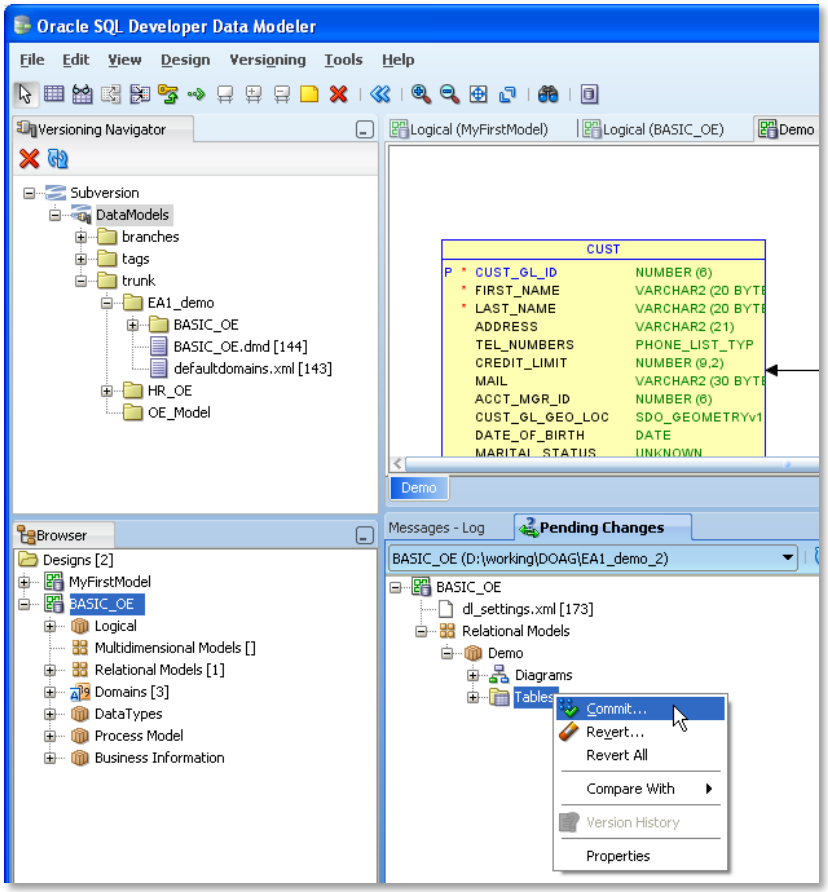
Custom Design Rules and Transformations

- Use scripting engine of choice
- Create user defined transformation scripts
- Apply multiple scripts or rules
- Build up Rule Sets
- Create Libraries



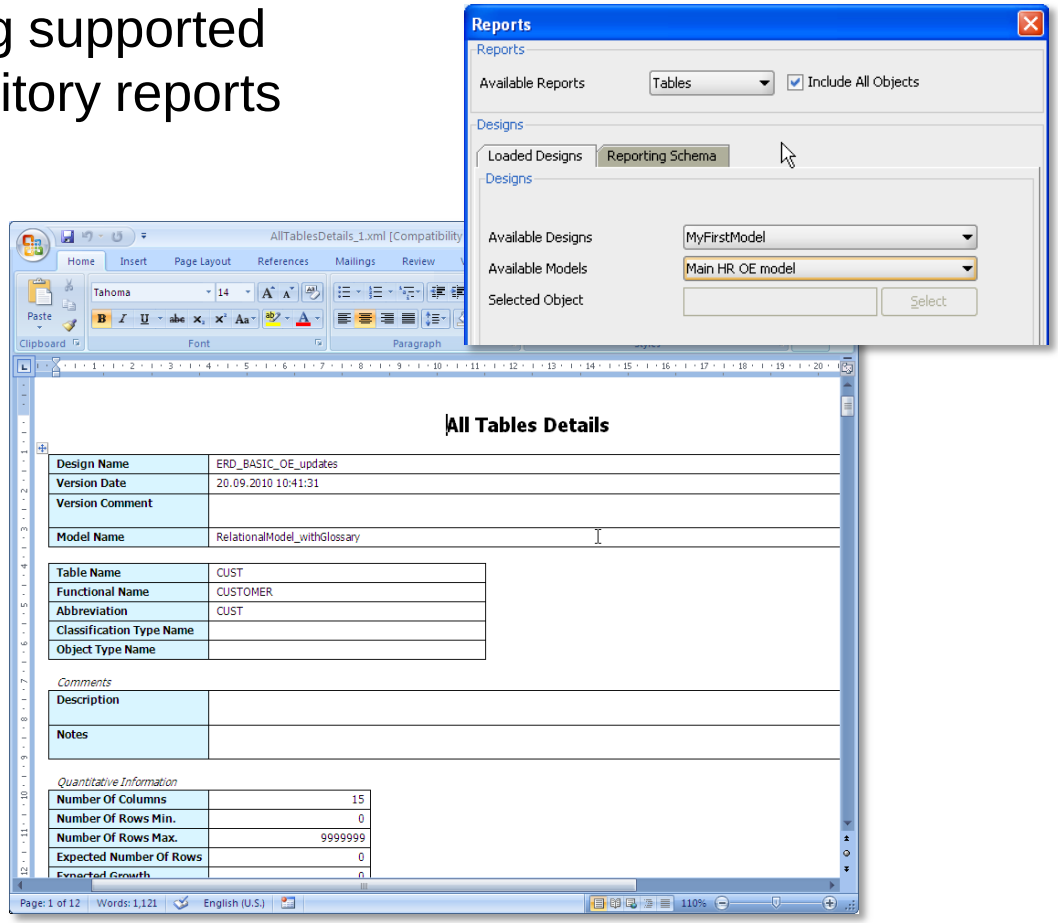
Collaborative Development

- Use Versioning Navigator to connect to Subversion repository
- Start by checking in Design using
  - Data Modeler
  - External client
- Multiple users check out designs
- Pending Changes dialog provides feedback to all users
- Commit changes to repository
- Manage conflicts



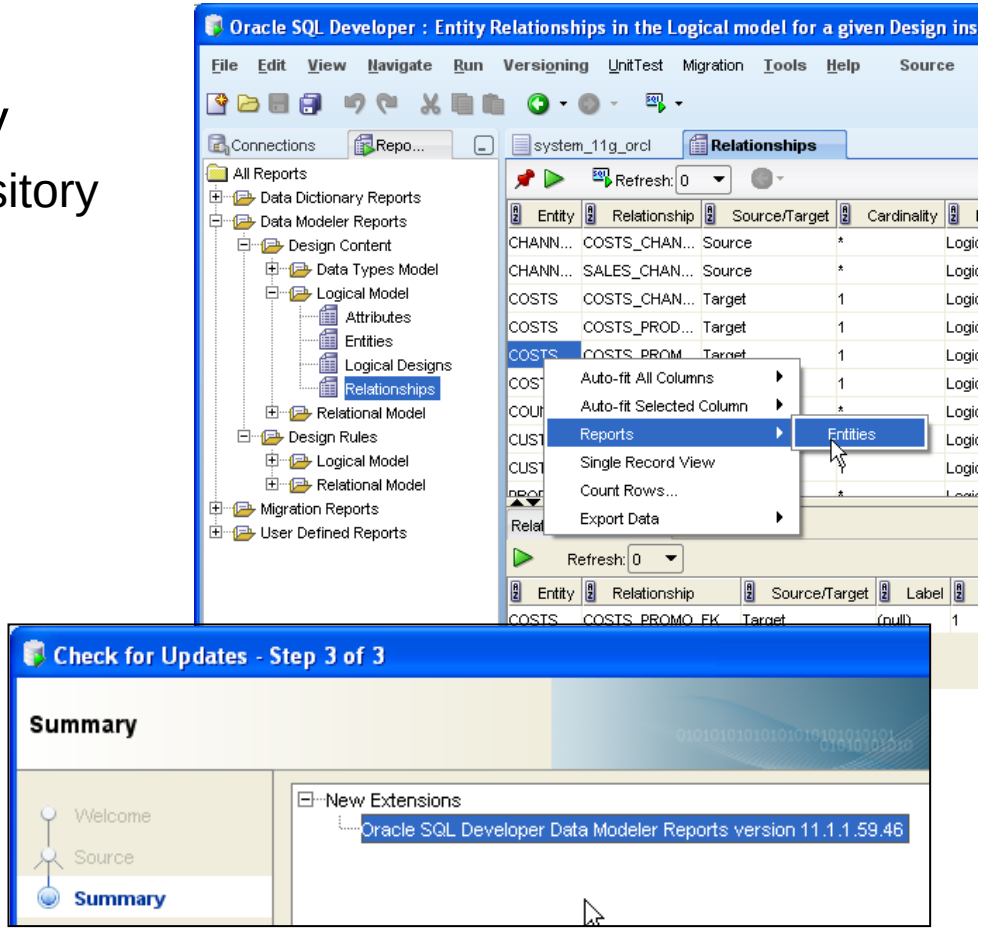
Integrated Reports

- Integrated reporting supported in addition to repository reports
- Generated as XML
- Open in MS Word



Reporting Repository

- Create repository user
- Export design to repository
  - Initial export creates repository
  - Exports initial version to repository
- SQL Developer support
  - Browse repository
  - Import reports
  - Run shipped reports
  - Create your own reports



Packaging Choices

- SQL Developer Data Modeler
  - Free, licensed with the Oracle Database, independent standalone product
- SQL Developer Data Modeler extension
  - Integrated into Oracle SQL Developer 3.0

Summary

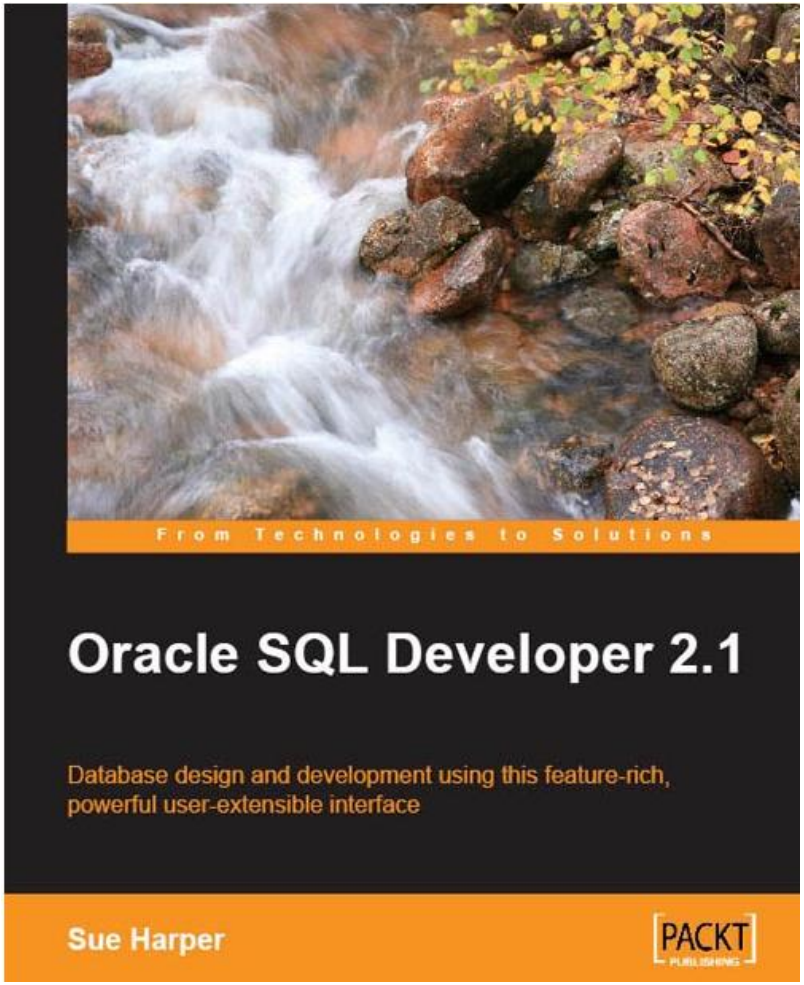
- Oracle SQL Developer Data Modeler provides
  - Logical modeling
  - Relational modeling
  - Physical modeling
  - Forward and reverse engineering
  - Data types modeling
  - Multi-dimensional modeling
  - Data flow diagrams
  - Importing and exporting
  - Design environment control features
  - Integrated and repository based reporting
  - Integrated version control (Subversion) for collaborative development
  - Custom Design Rules and transformations

Finding More Detail

www.oracle.com/technetwork/developer-tools/datamodeler/

- SQL Developer Data Modeler on OTN
  - White papers, Oracle by Example (OBE), online demos, models and scripts
  - www.oracle.com/technetwork/developer-tools/datamodeler/
- SQL Developer Exchange
  - Add feature requests: sqldeveloper.oracle.com
- Forums
  - SQL Developer forums.oracle.com/forums/forum.jspa?forumID= 1317
- Book
  - Oracle SQL Developer 2.1

Finding More Detail

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