# Design Your Databases Using Oracle SQL Developer Data Modeler

ITOUG Tech Day Milano

30.1.2019

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# Introduction, Heli

* Graduated from University of Helsinki (Master of Science, computer science), currently a doctoral student, researcher and lecturer (databases, Big Data, Multi-model Databases, methods and tools for utilizing semi-structured data for decision making) at University of Helsinki
* Worked with Oracle products since 1993, worked for IT since 1990
* Data and Database!
* CEO for Miracle Finland Oy
* Oracle ACE Director
* Ambassador/EOUC (EMEA Oracle Users Group Community)
* Public speaker and an author
* Winner of Devvy for Database Design Category, 2015
* Author of the  book Oracle SQL Developer Data Modeler for Database Design Mastery (Oracle Press, 2015), co-author for Real World SQL and PL/SQL: Advice from the Experts (Oracle Press, 2016)

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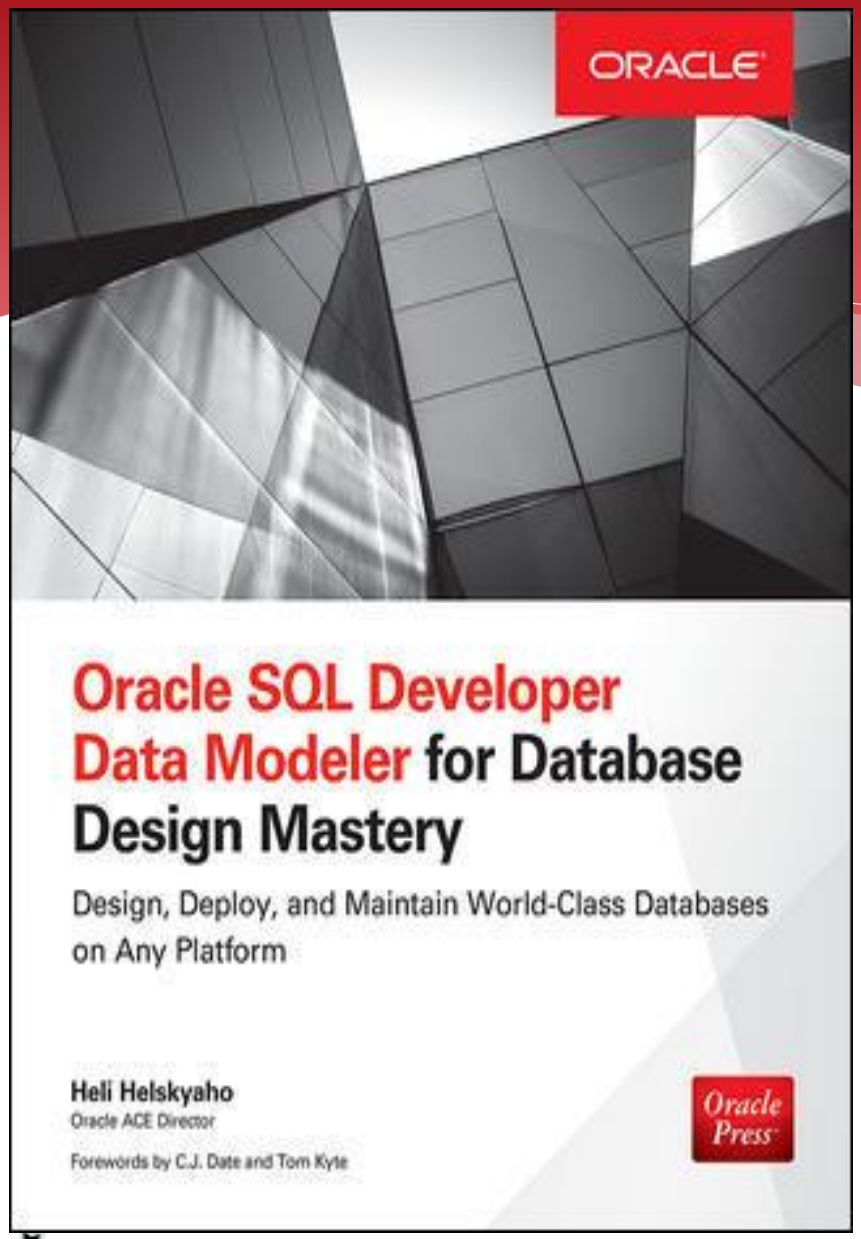


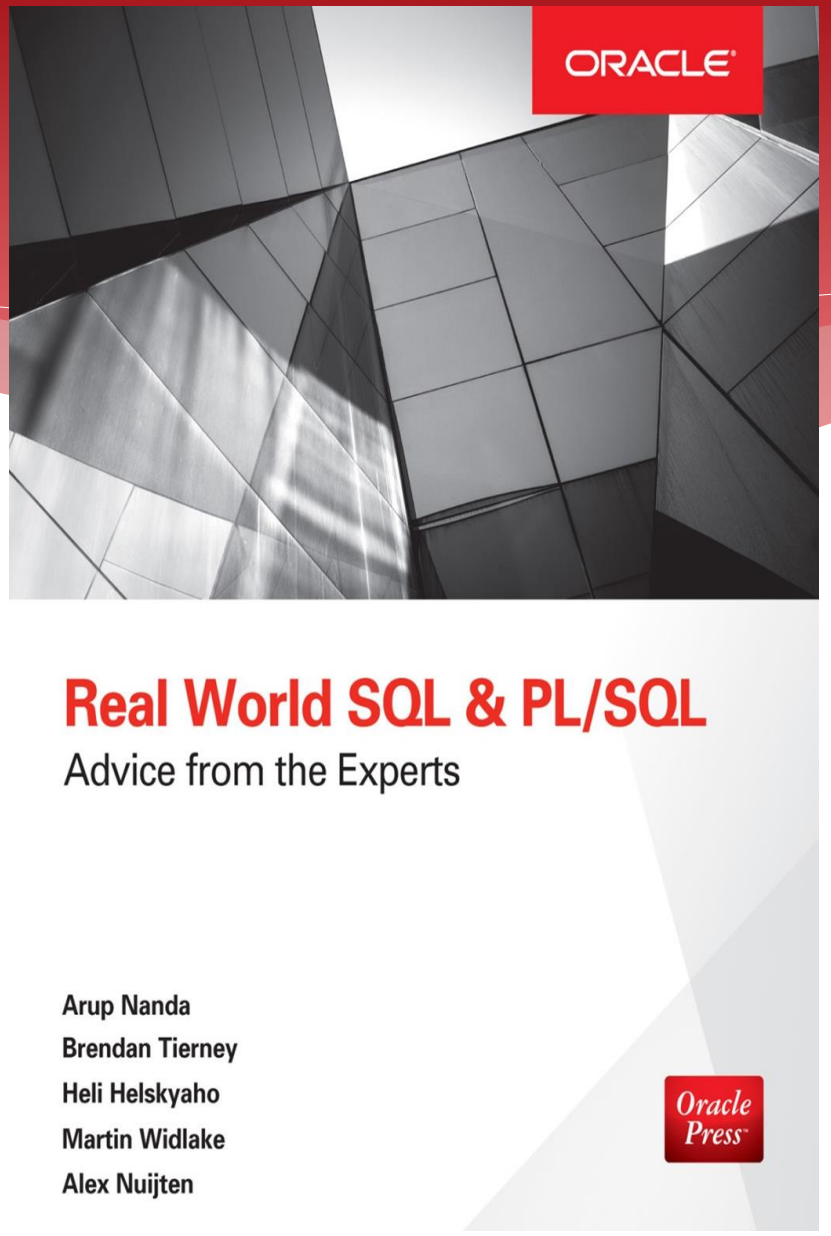


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**Helskyaho Heli,** Valin-Raki Elise

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# Introduction, Heli

* Been an Oracle Designer user since 1996 and Data Modeler user since 2010
* Been solving performance problems since 1993
  * Absolutely convinced that good database *design* and *documentation* will *reduce* this work.
  * Absolutely convinced that it is *easier* to solve problems on database that has been *documented*

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# What is database design?

* 4 (5) phases, over and over again
  * Requirement analysis (DM: logical)
  * Conceptual design (DM: logical)
  * Logical design (DM: relational)
  * Physical design (DM: physical)
  * (Transaction design) (DM: process)

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# What is Data Modeler?

* A tool for database design (supports all the ”new” Oracle features)
* Logical, relational, physical models, DDLs,…
* Multidimensional models (DW), Data Flows etc.
* For **designing** and **documenting** the **data architecture** and the **database**
* Support for all the phases in database design and easy moving from one to another, support for reverse engineering
* Support for version control and multiuser environment: XML files and Subversion

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# What is Data Modeler?

* Import: Oracle repository, existing databases, Oracle Designer, file import (Erwin, Bachman), …
* Export: DDL, CSV, …
* Reporting (in tool itself and also Reporting Repository)
* Standards: Design Rules, Preferences, Naming Standards, Domains, …
* Data Modeler viewer integrated in SQL Developer (3.0 ->), also reports

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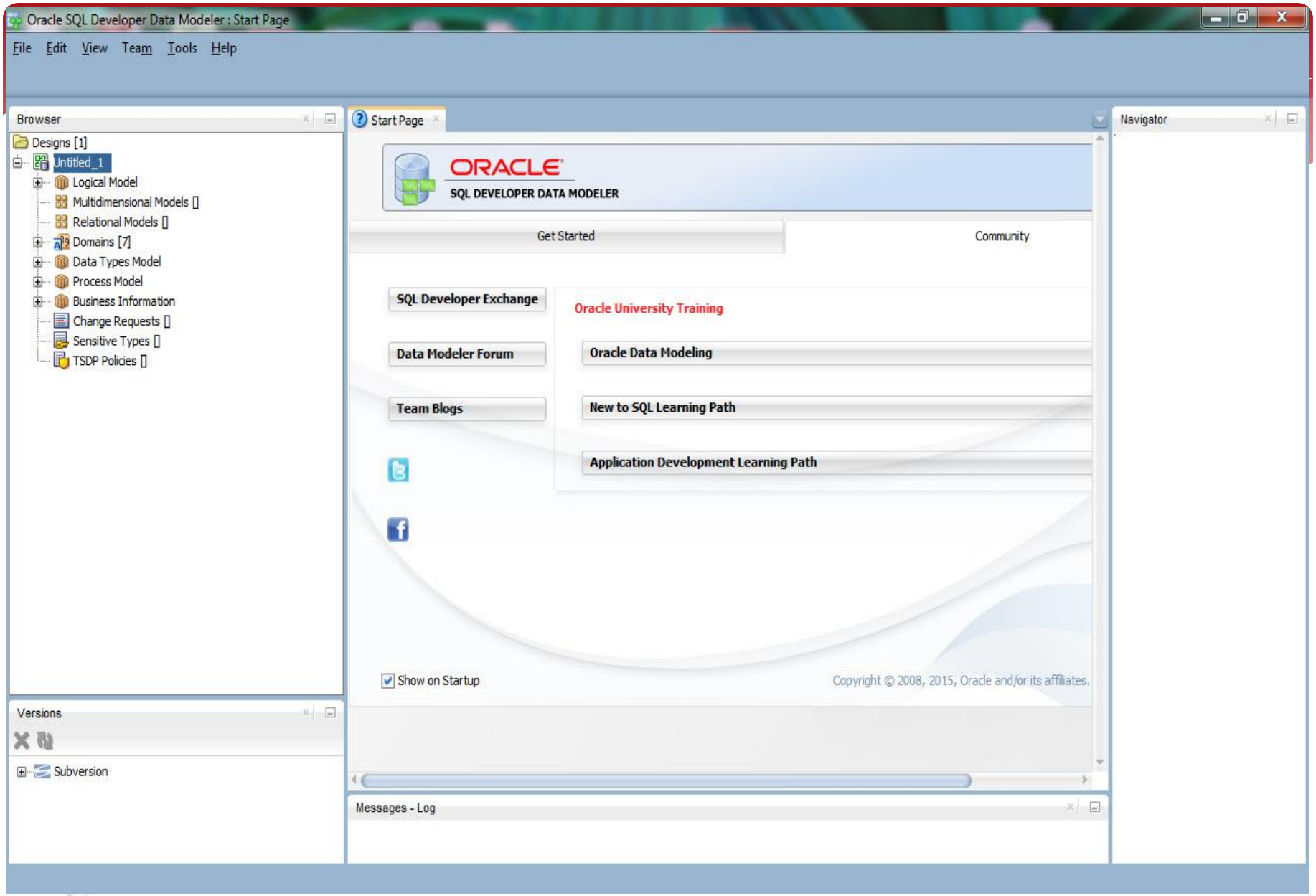


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# Logical model

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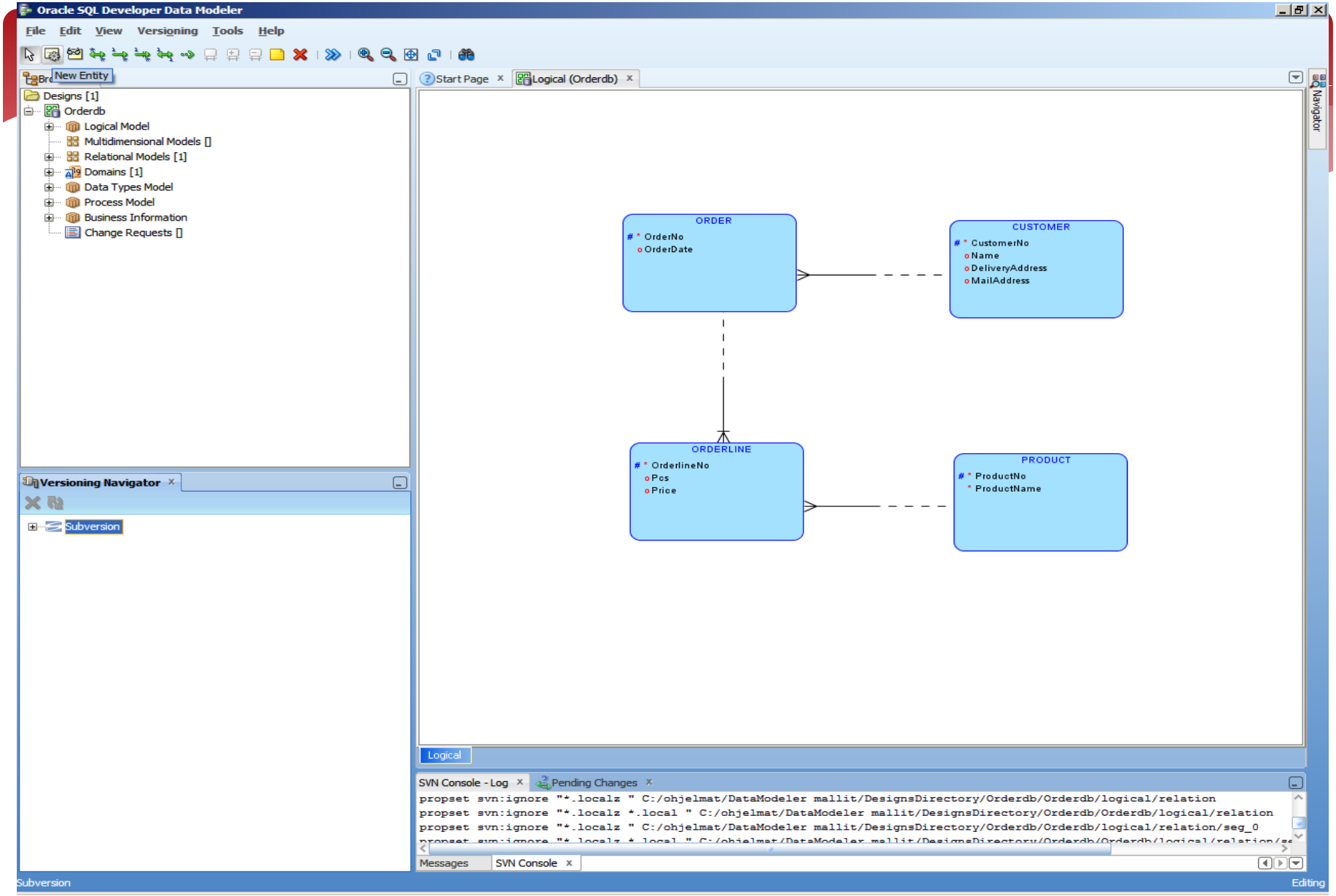


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# Entity

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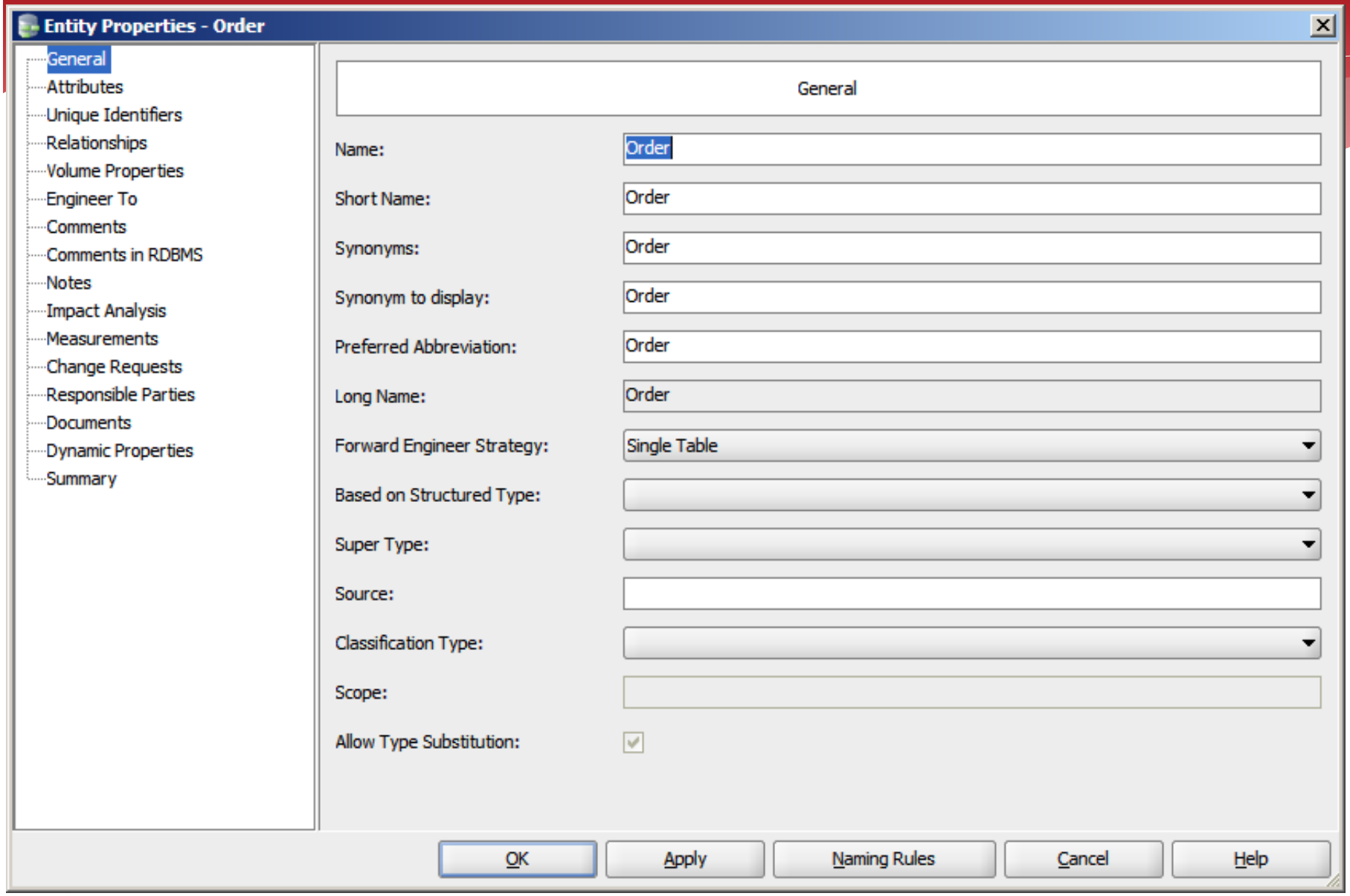


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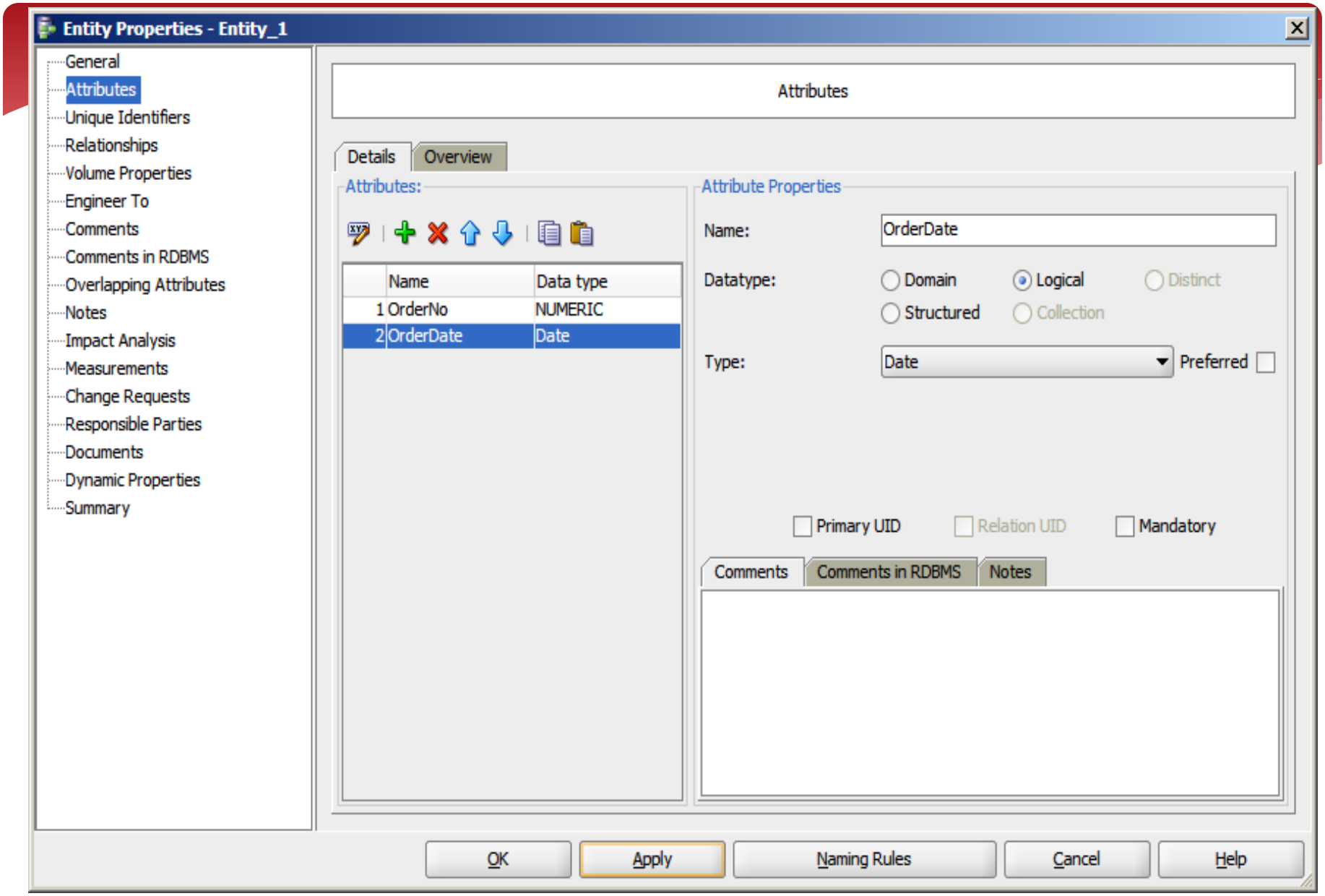


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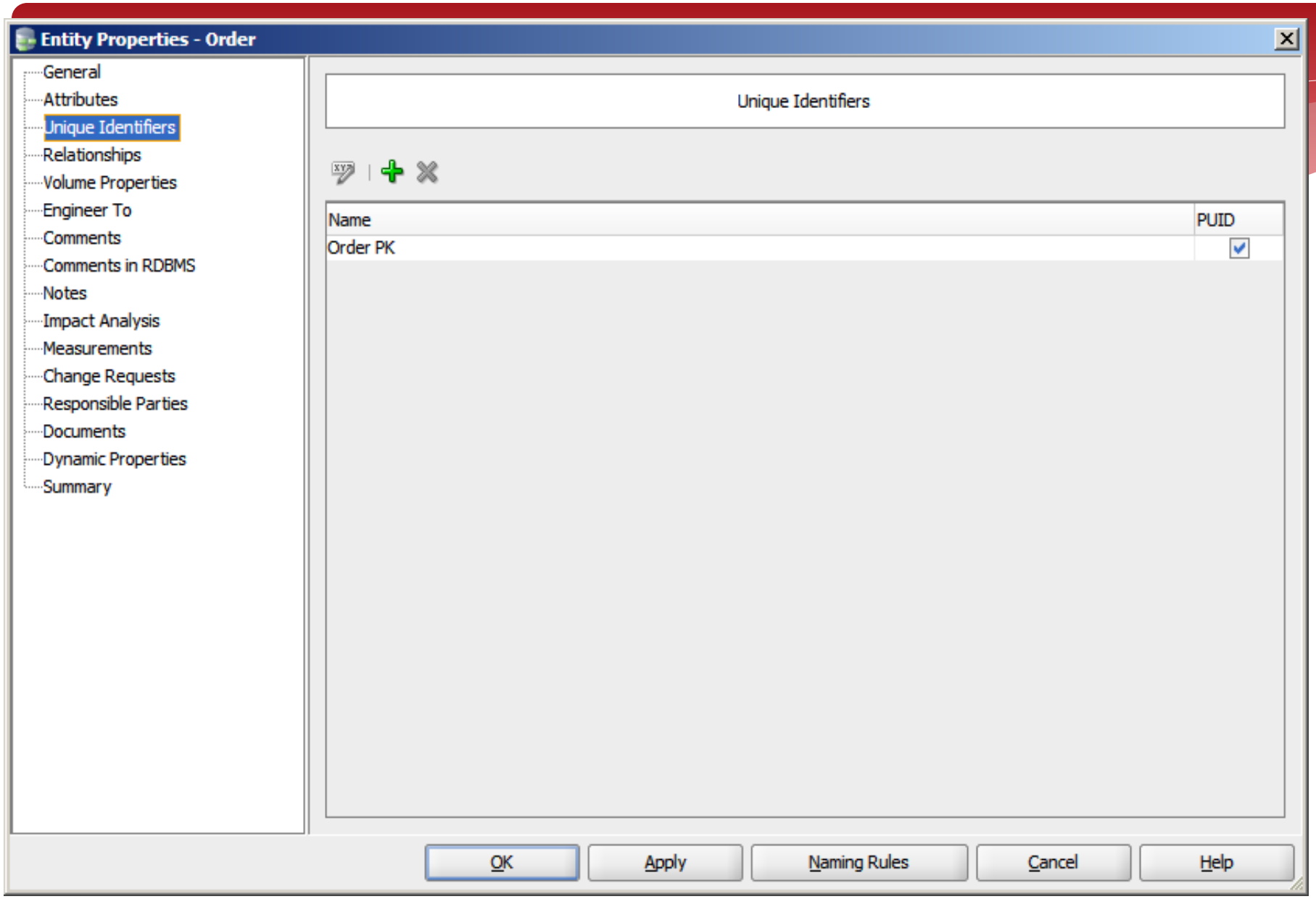


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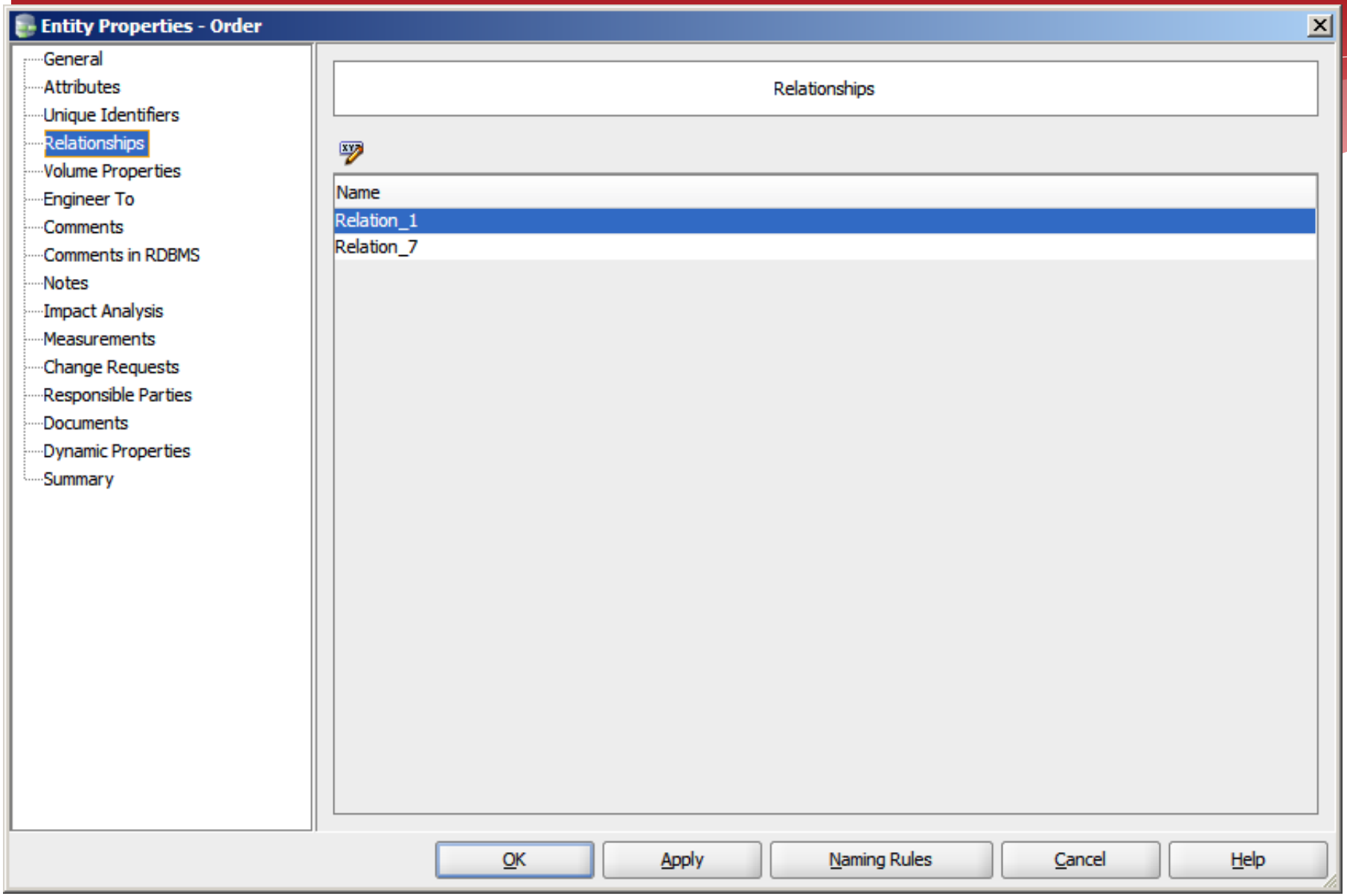


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# Relationship

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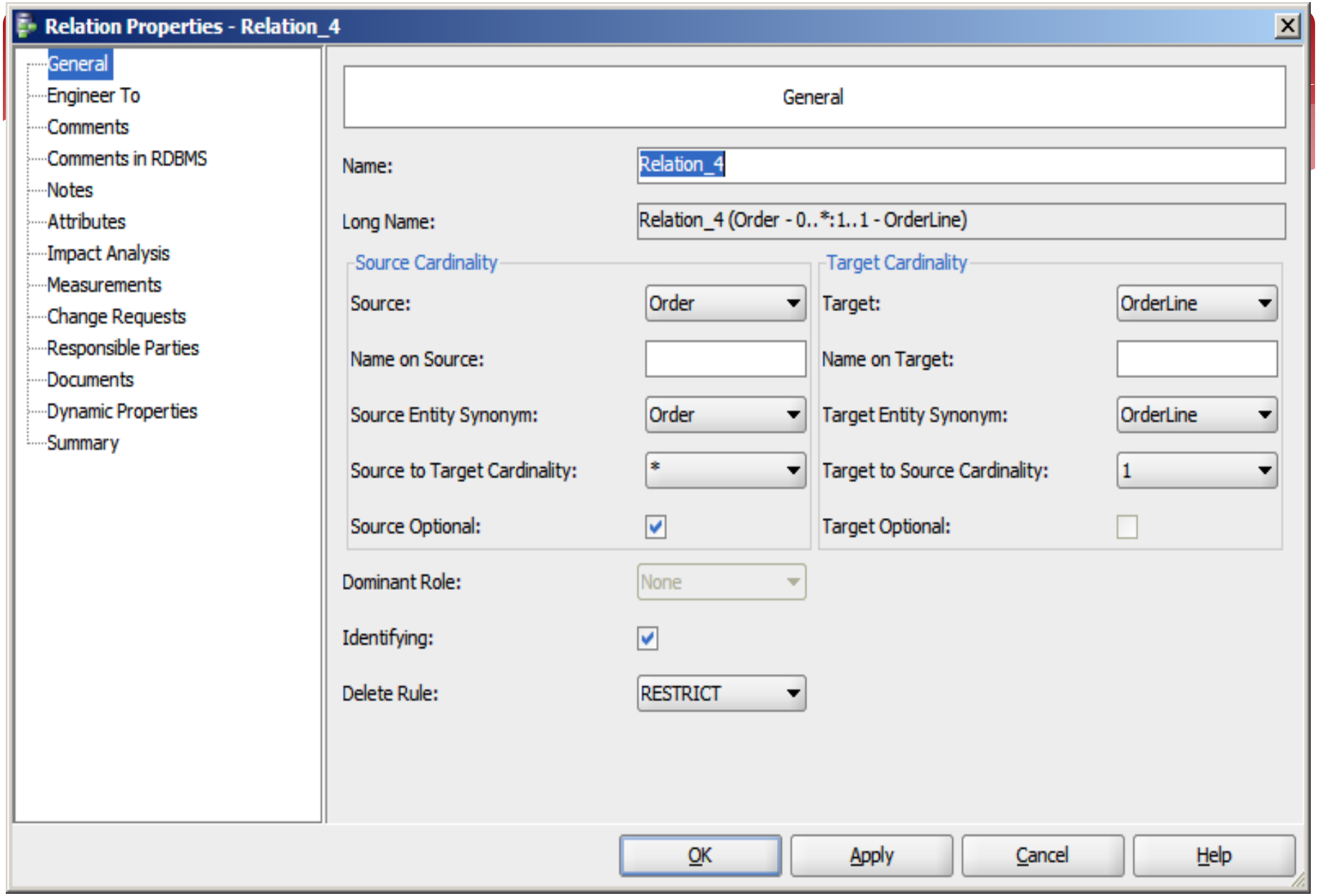


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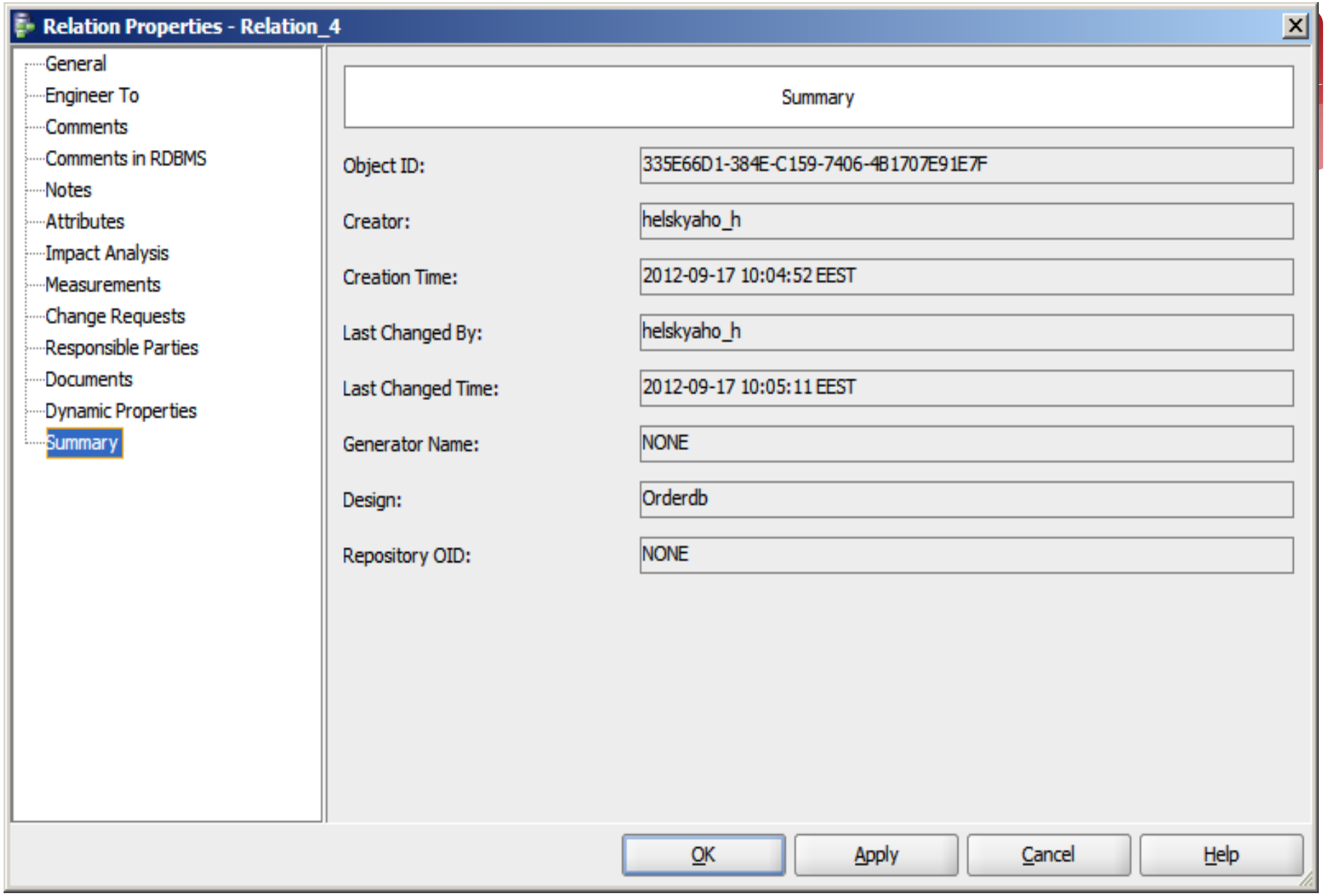


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# From logical to relational

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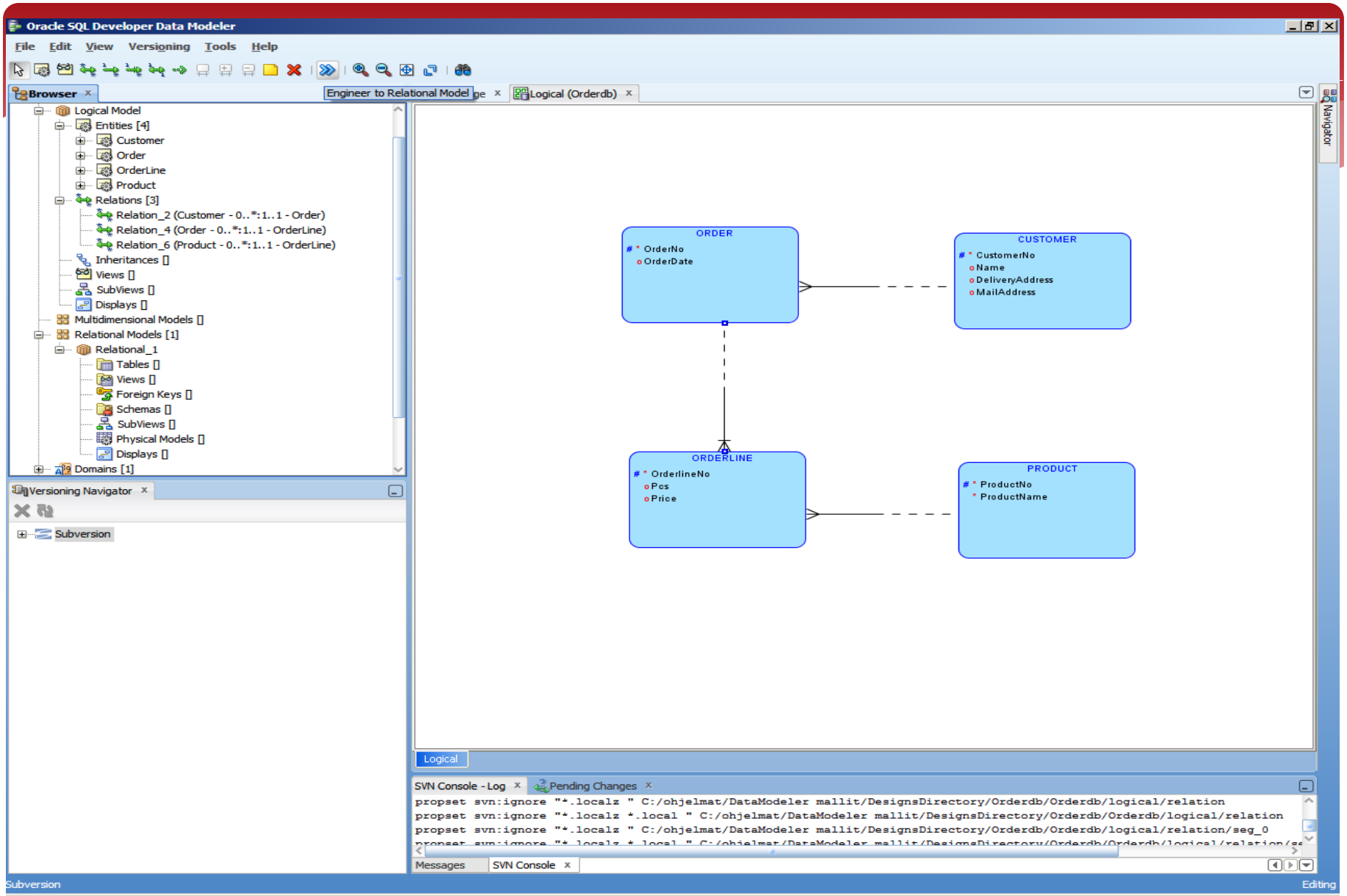


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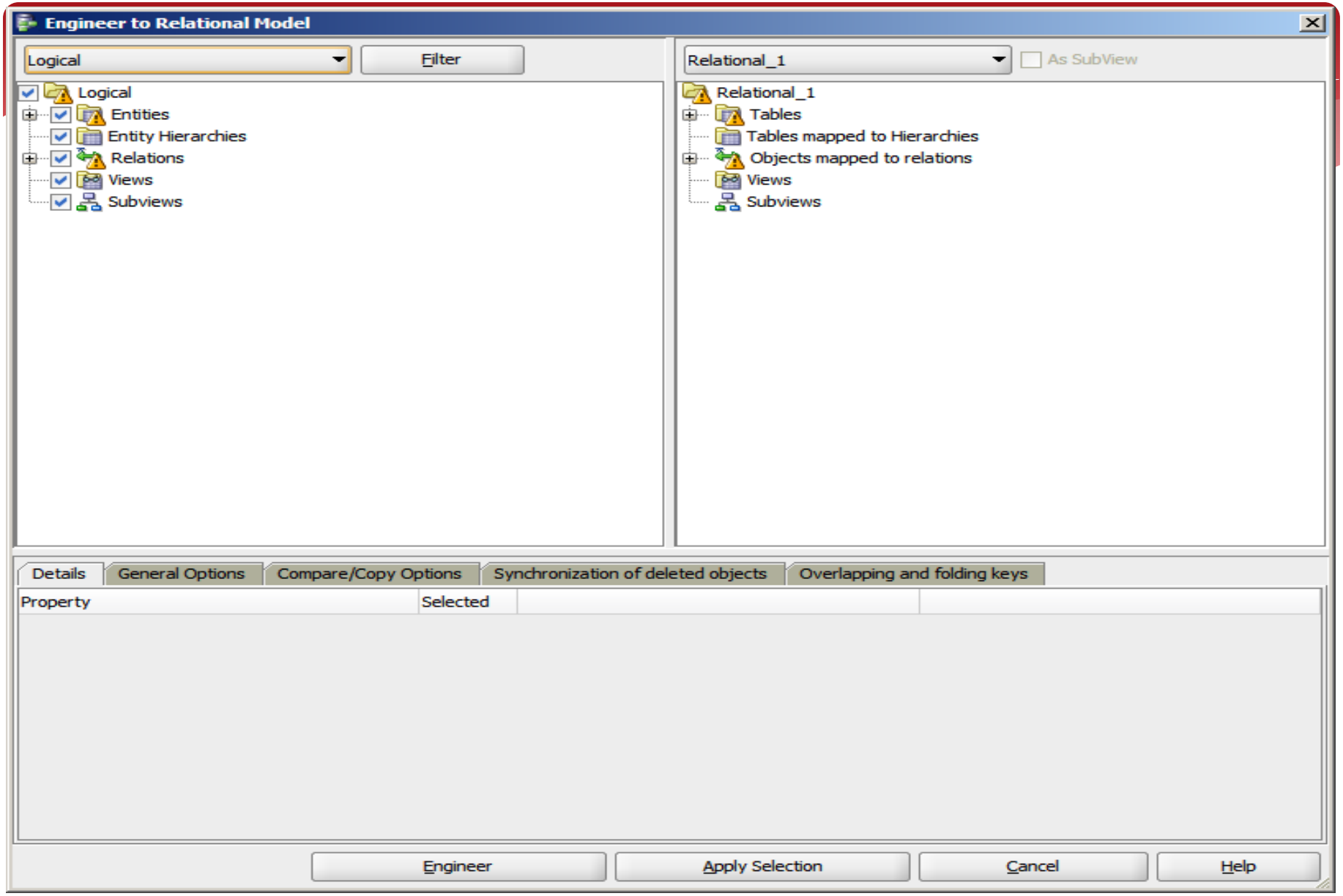


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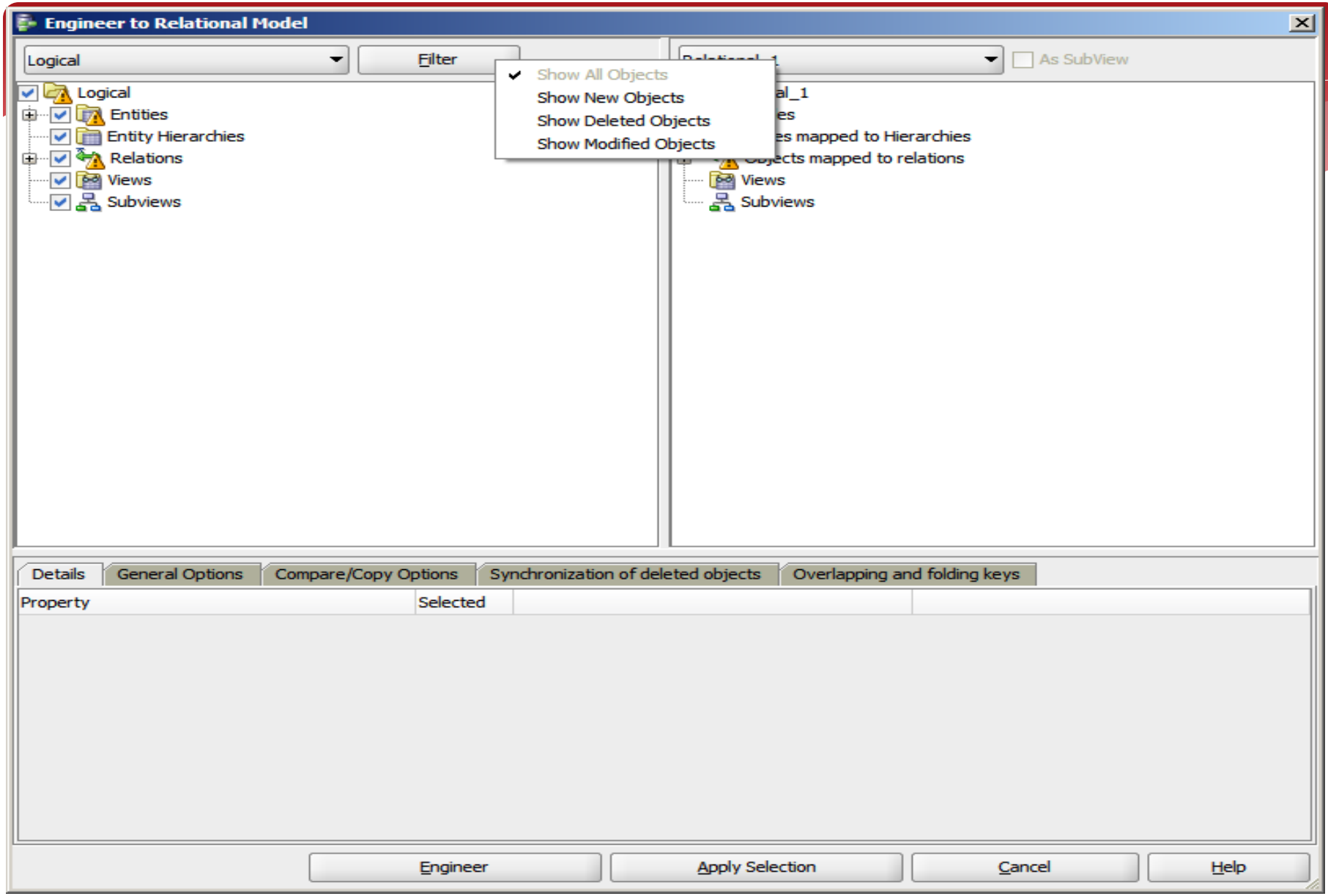


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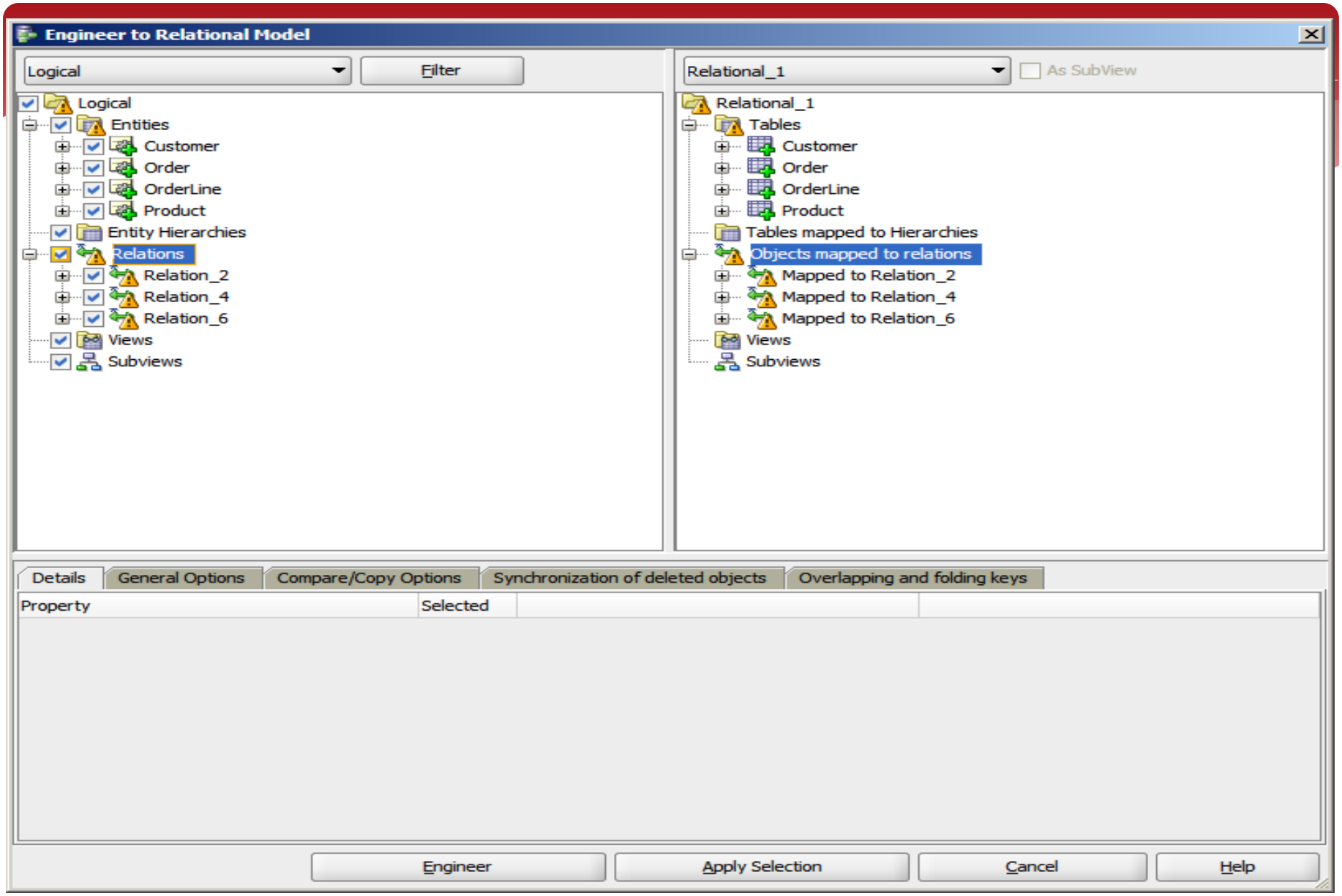


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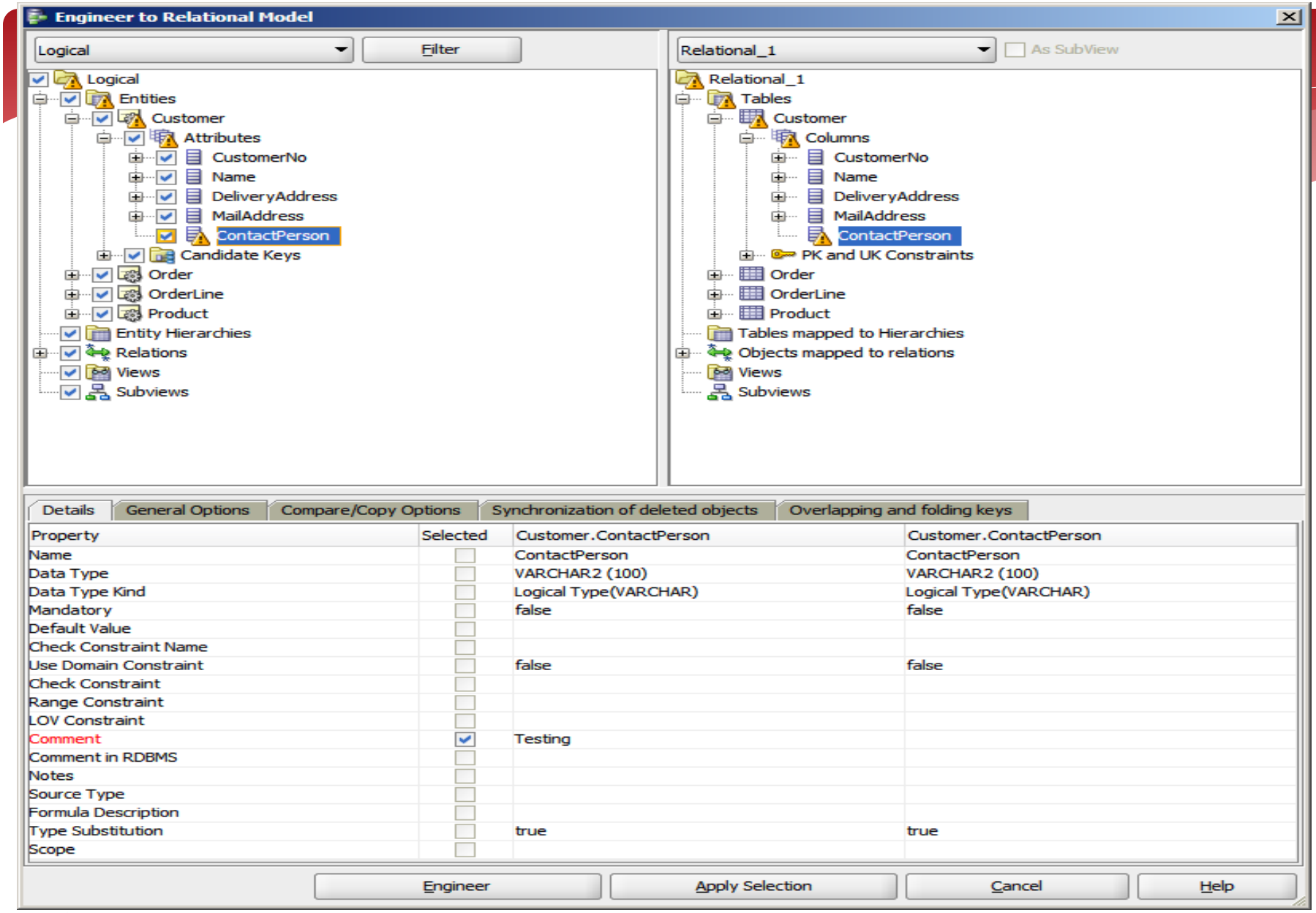


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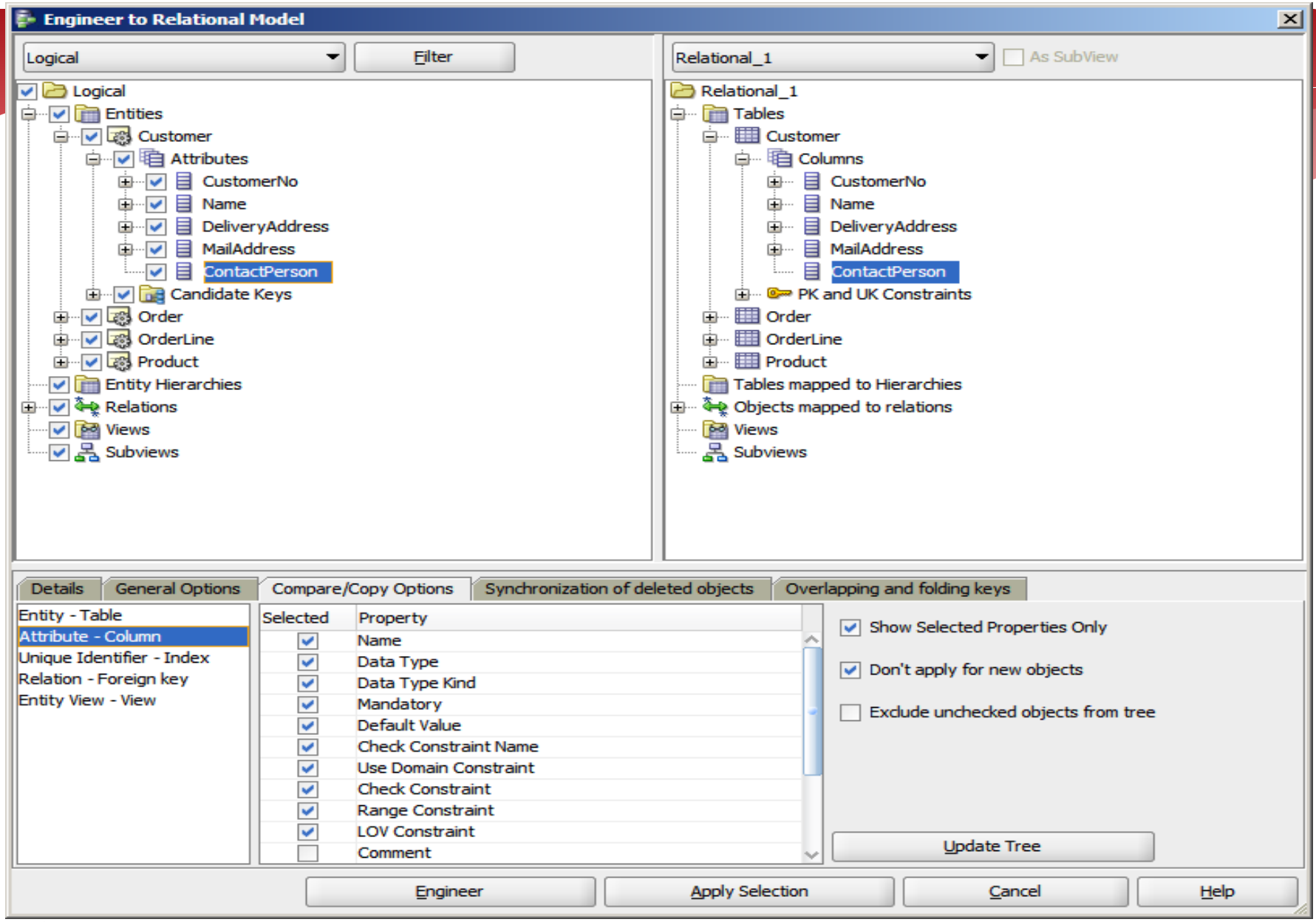


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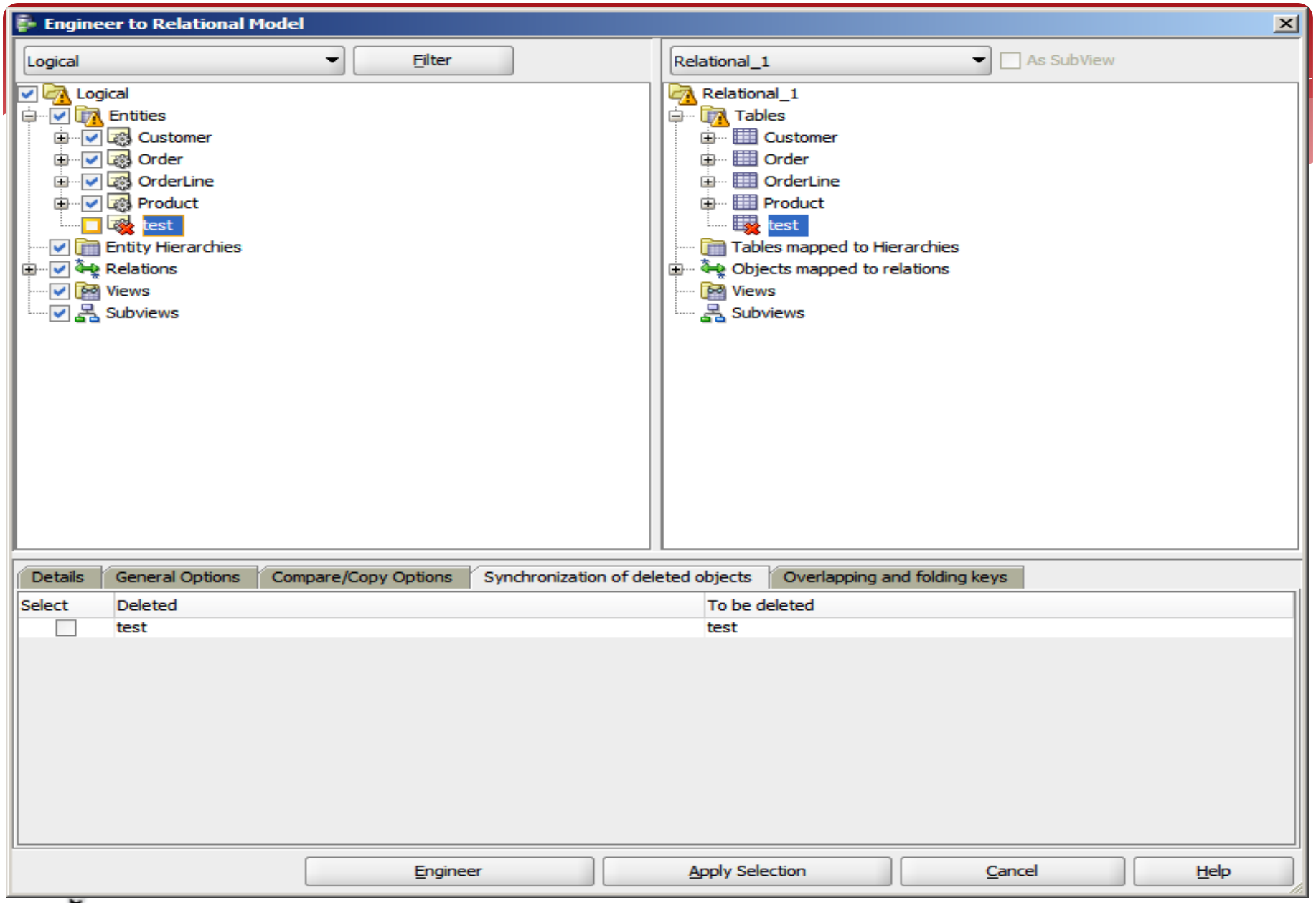


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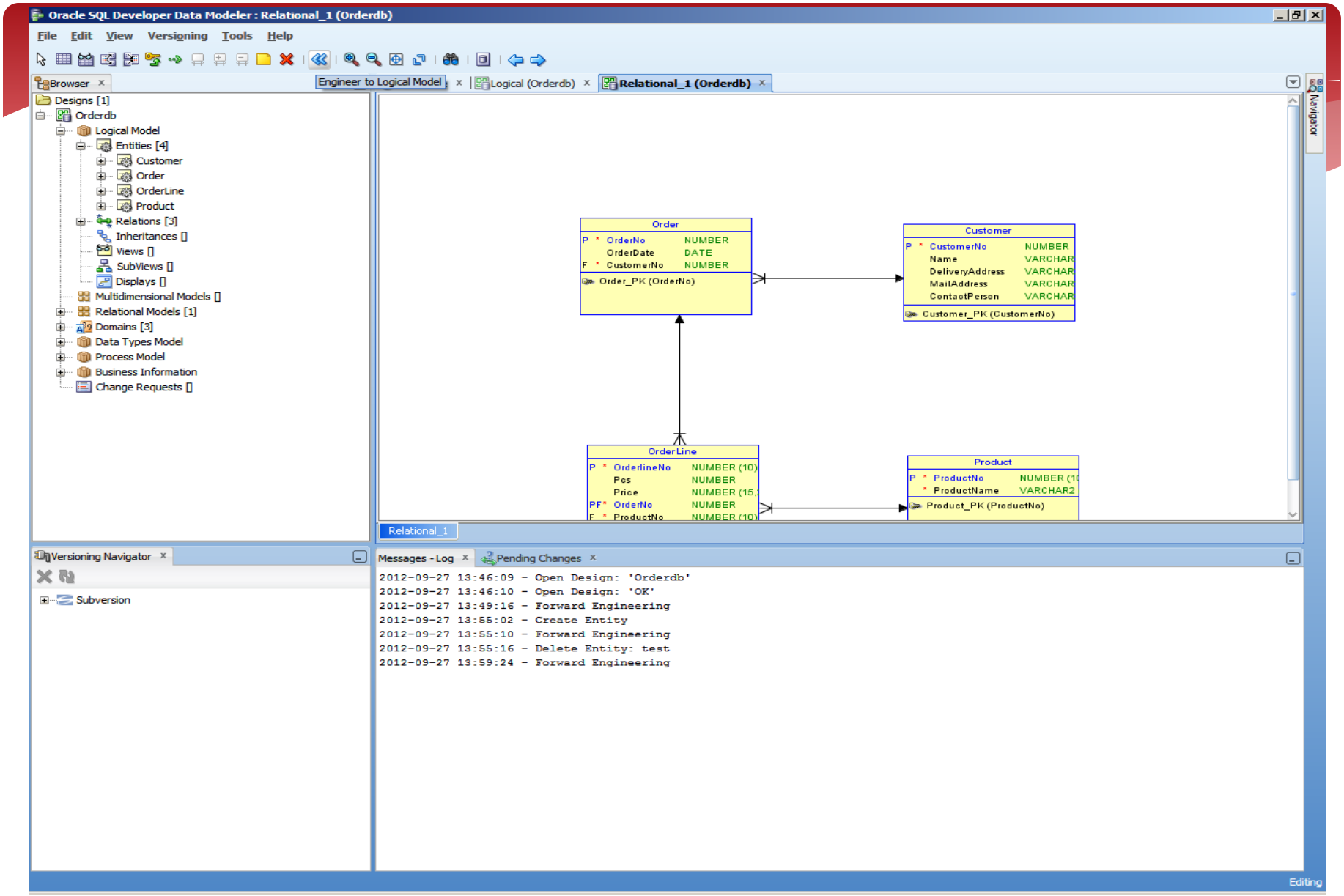


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# Relational model

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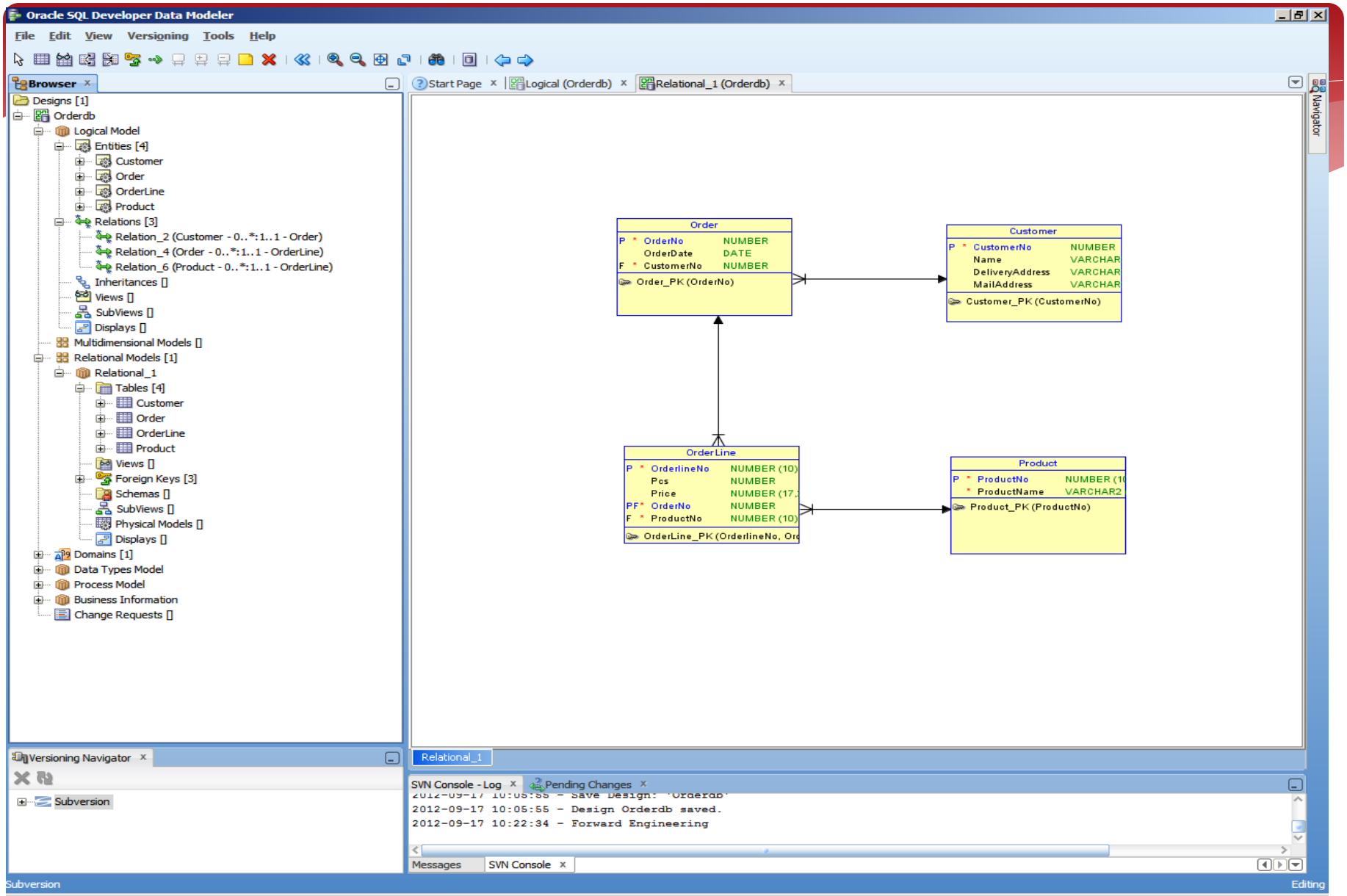


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# Table

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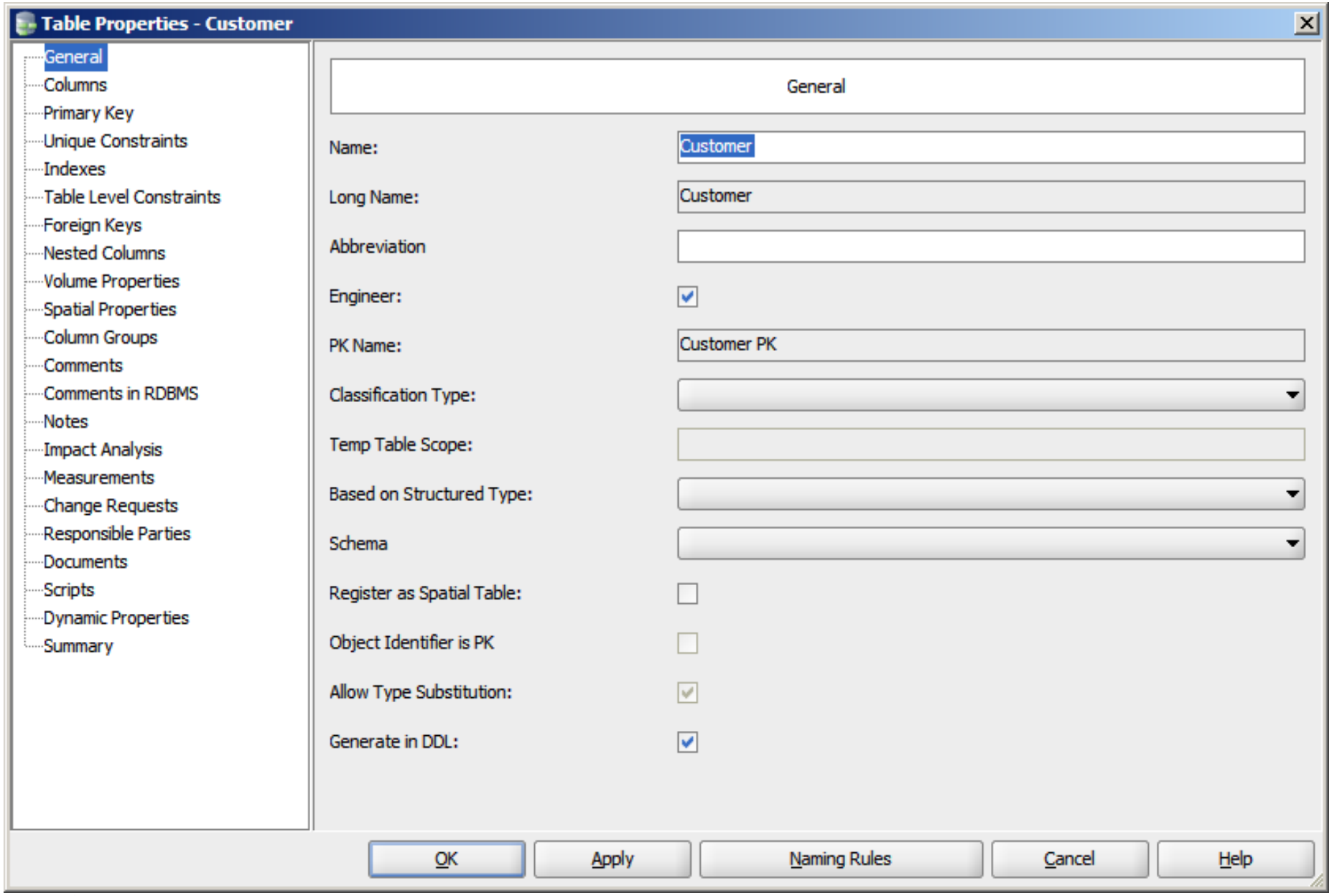


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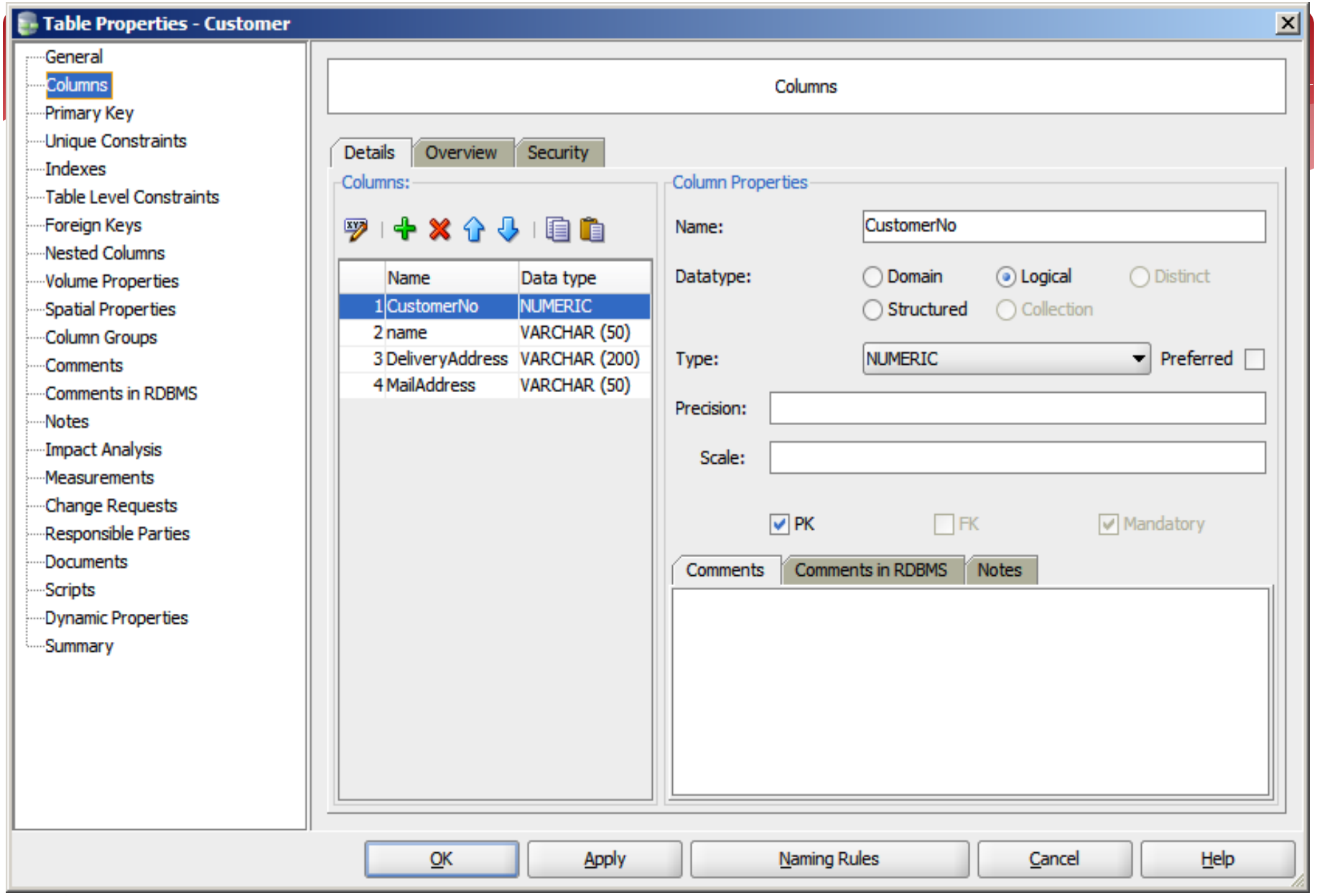


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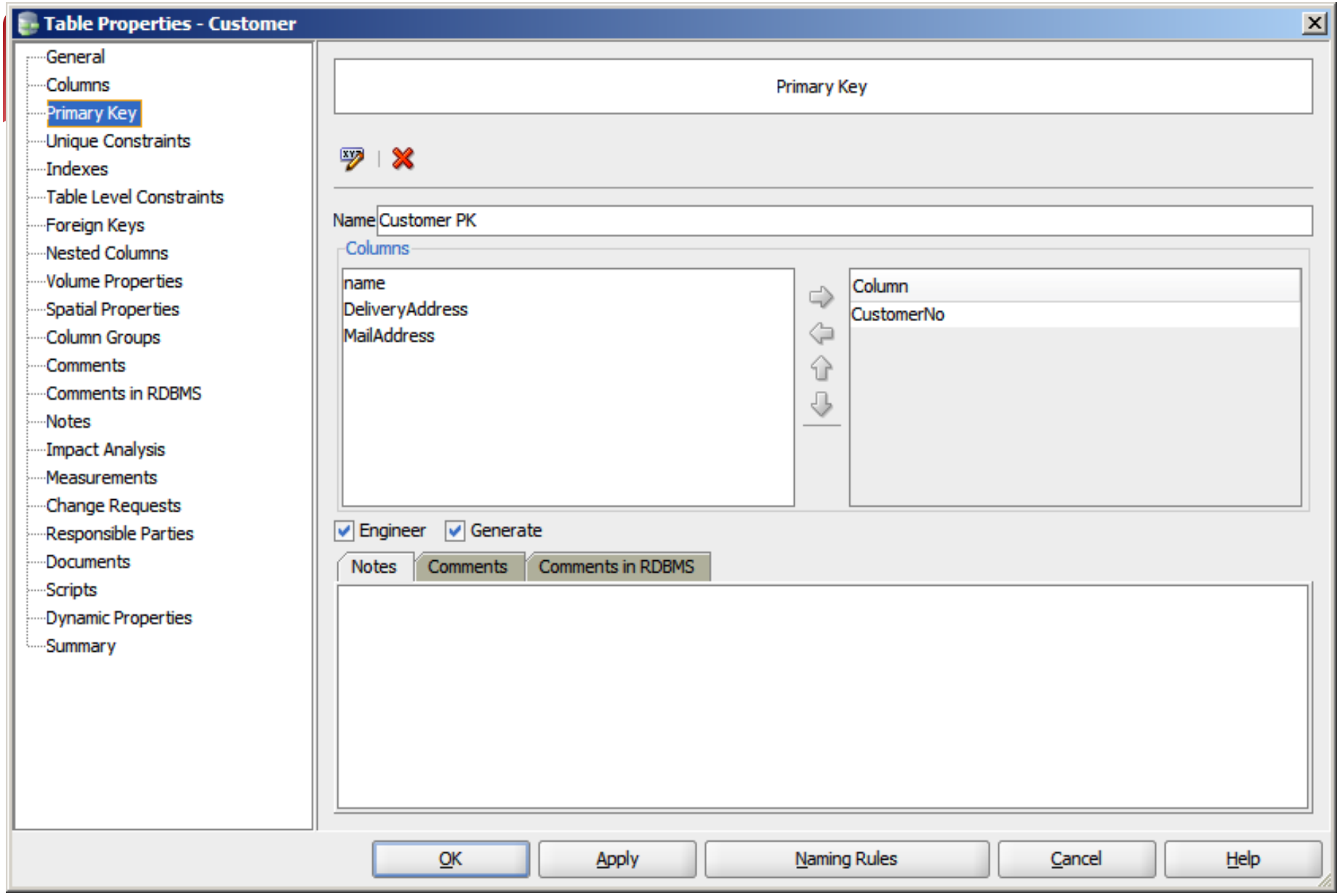


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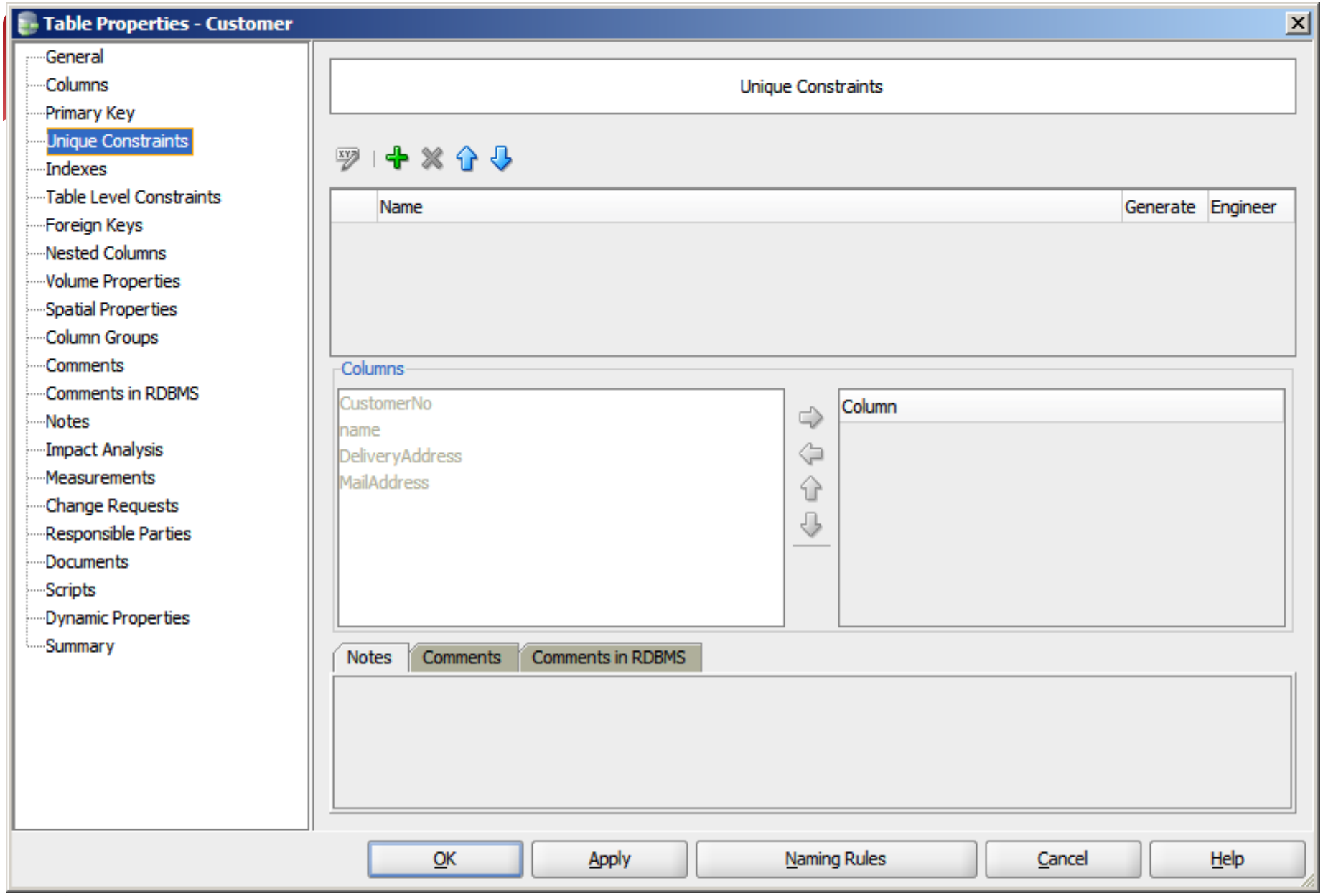


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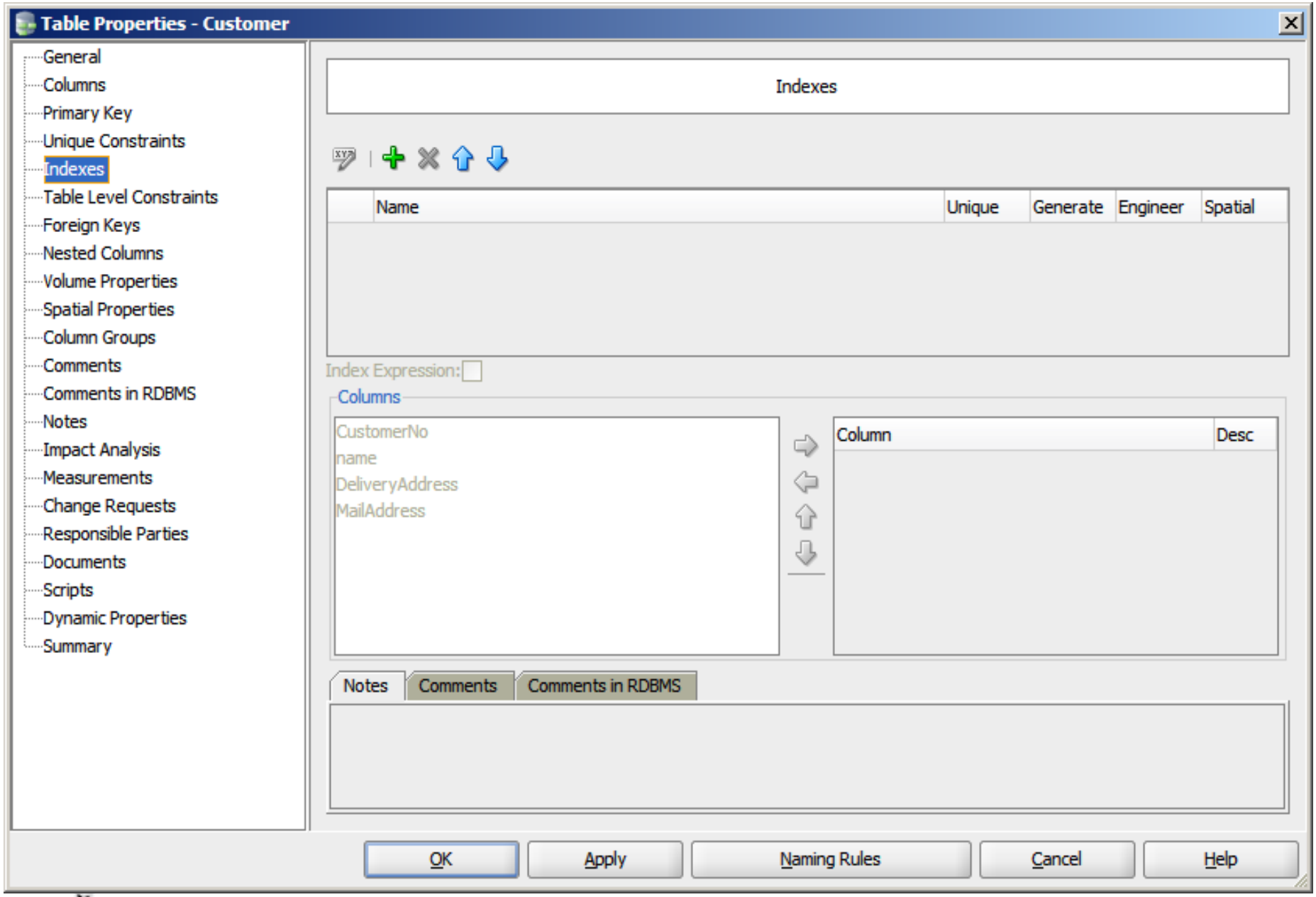


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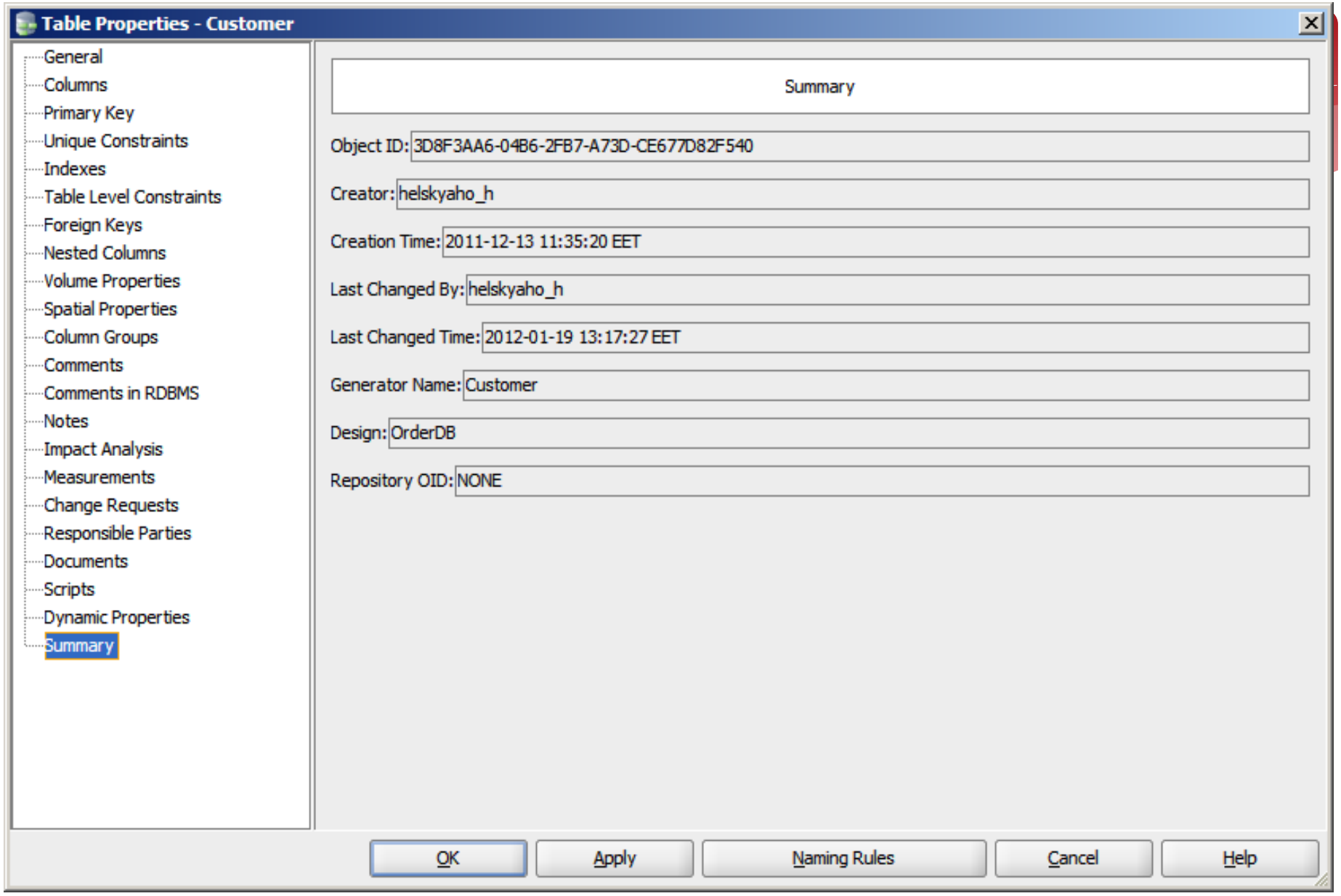


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# Column

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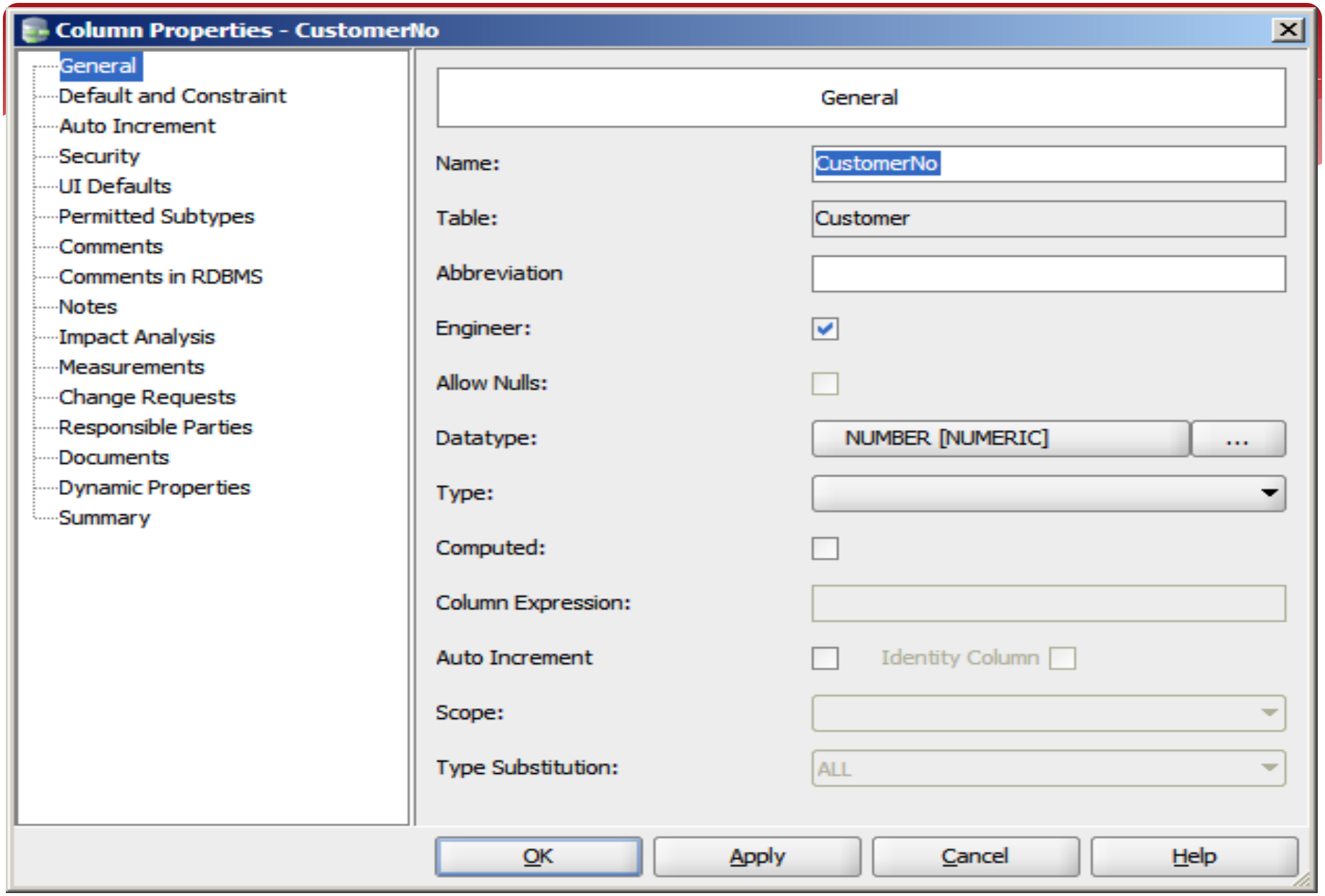


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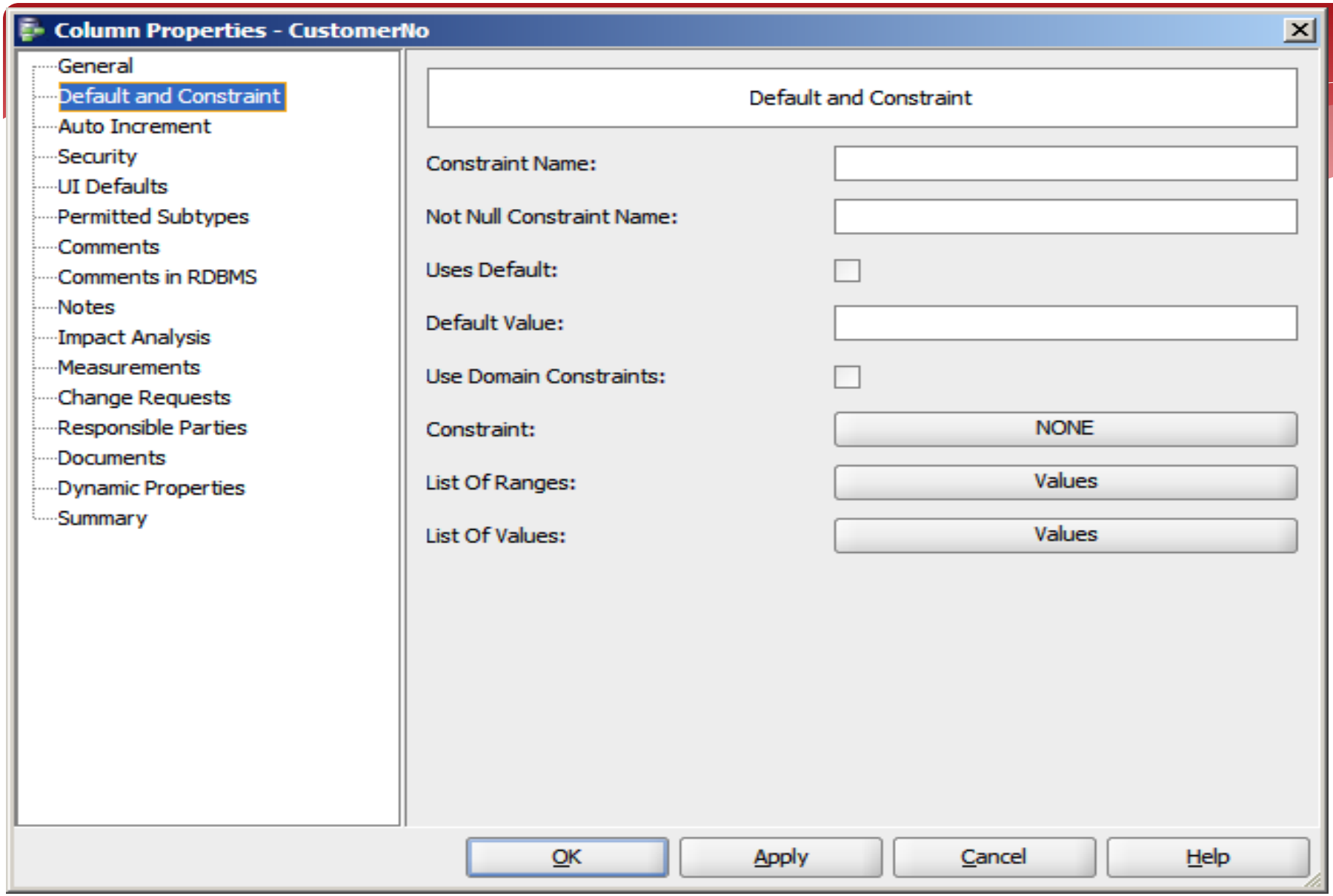


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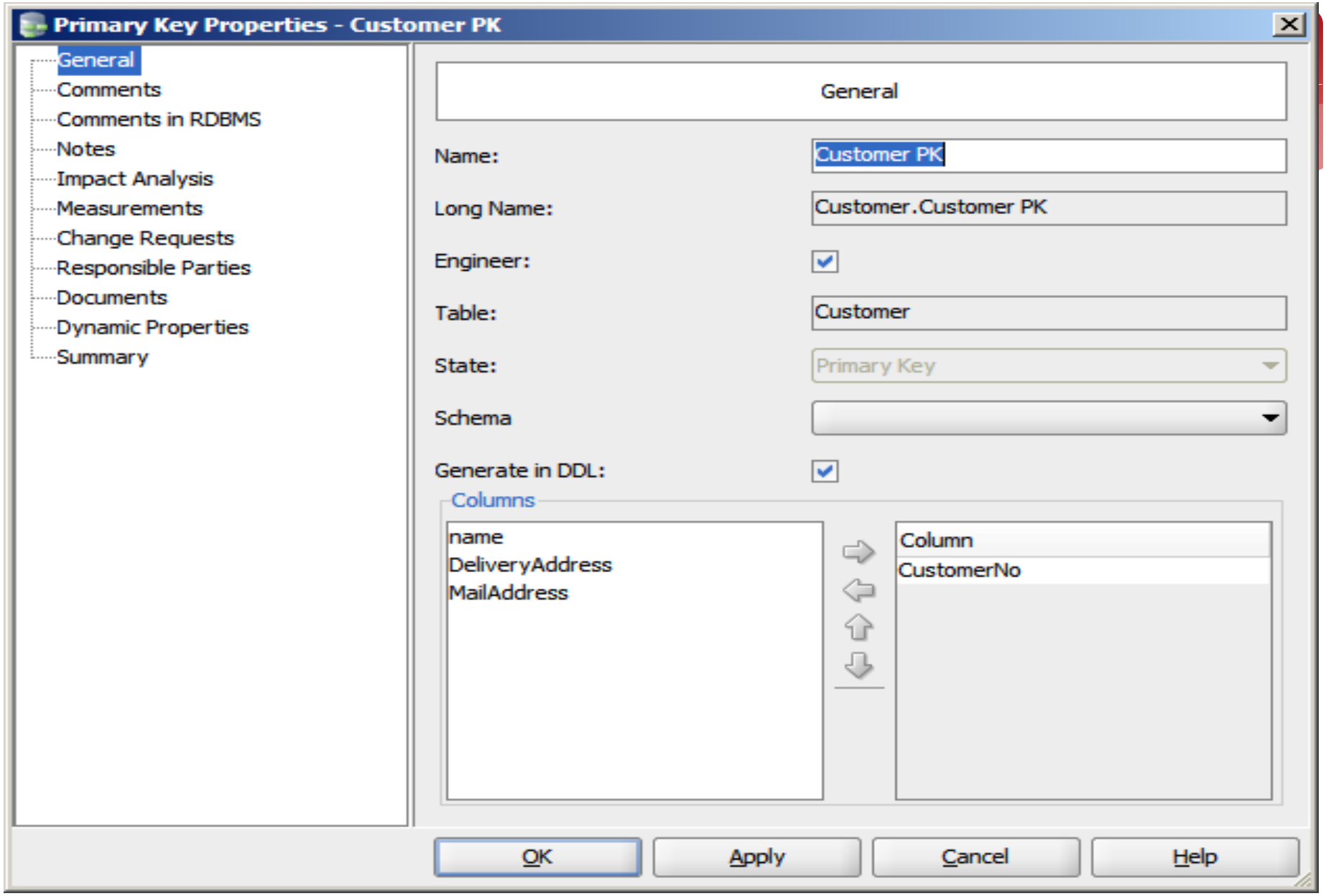


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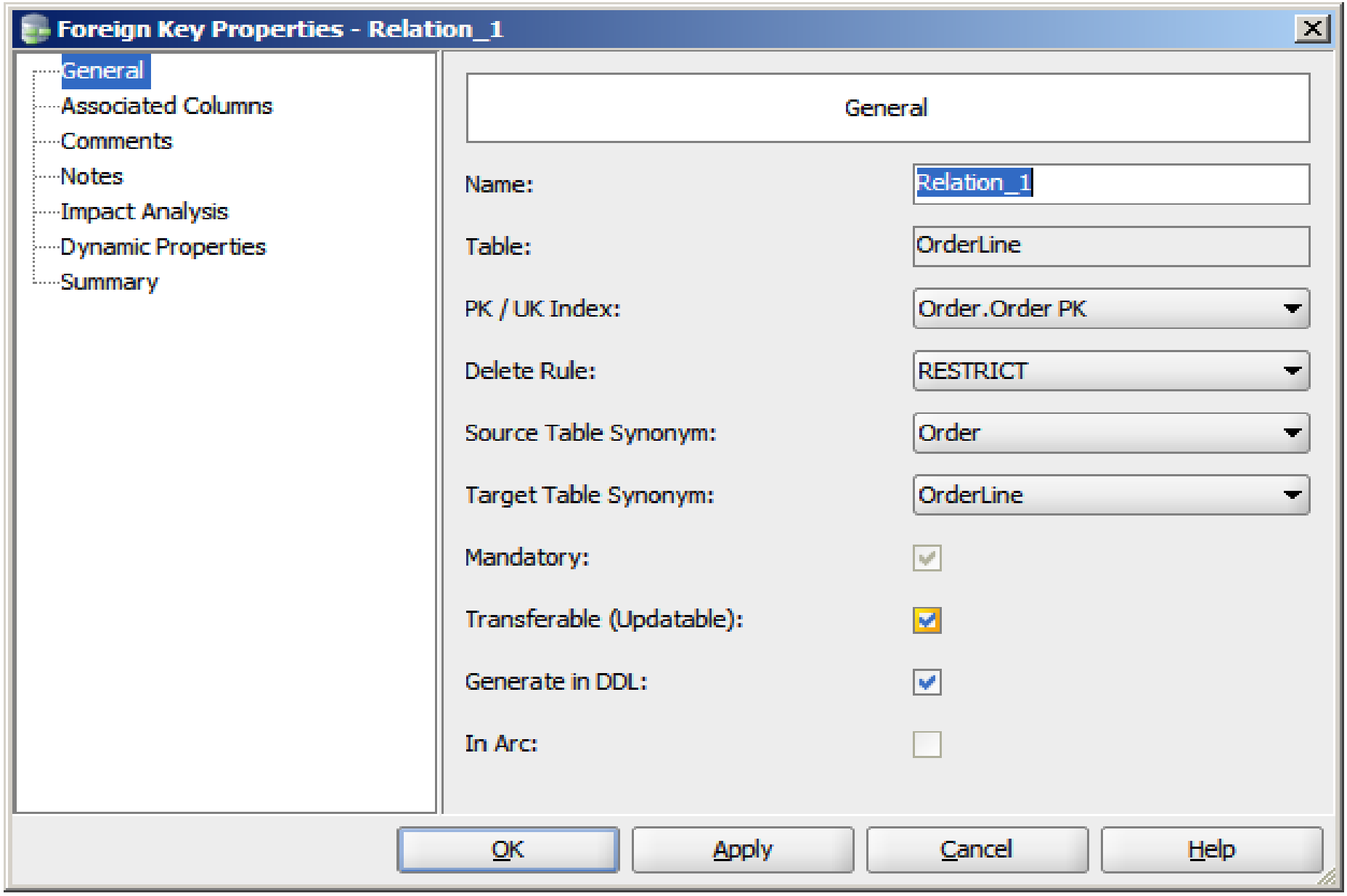


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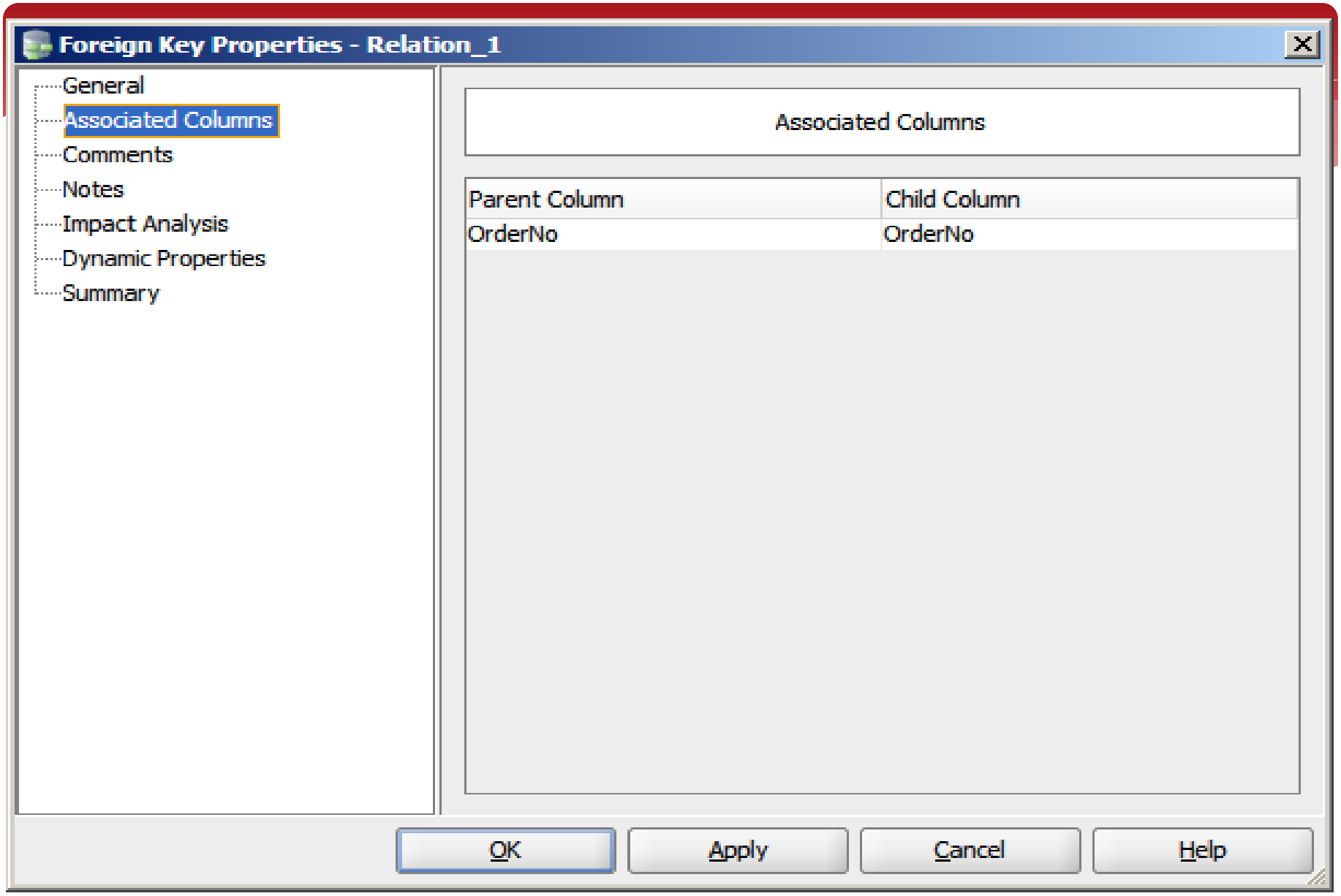


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# From relational to physical

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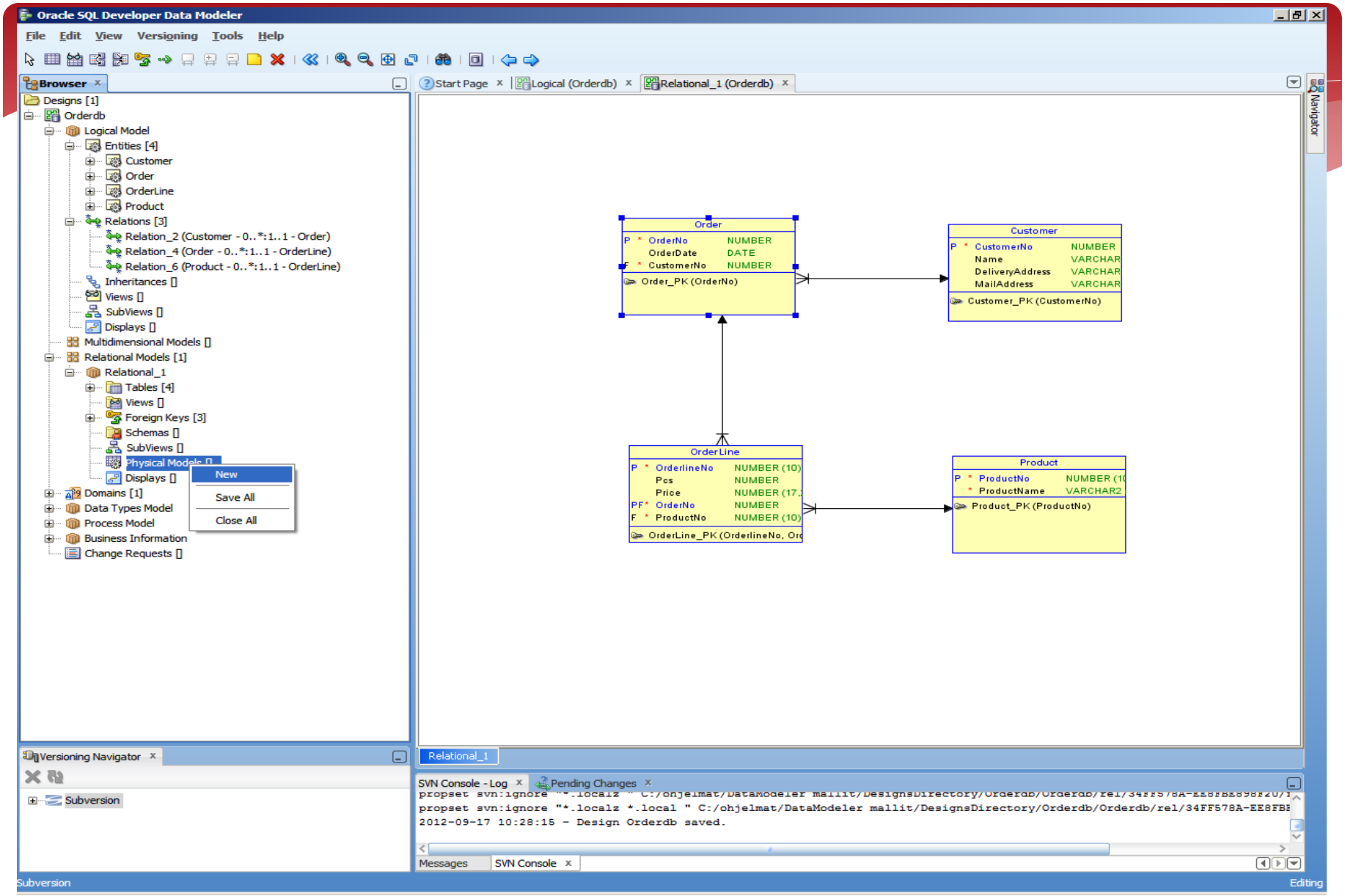


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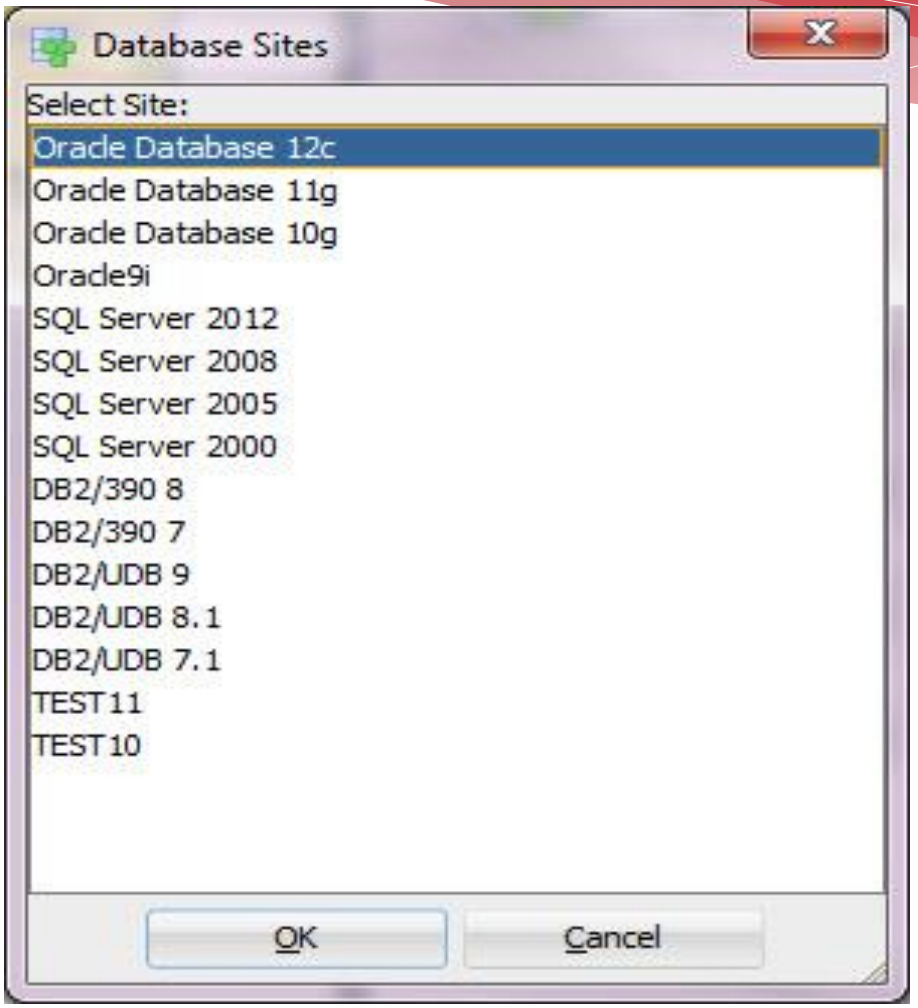


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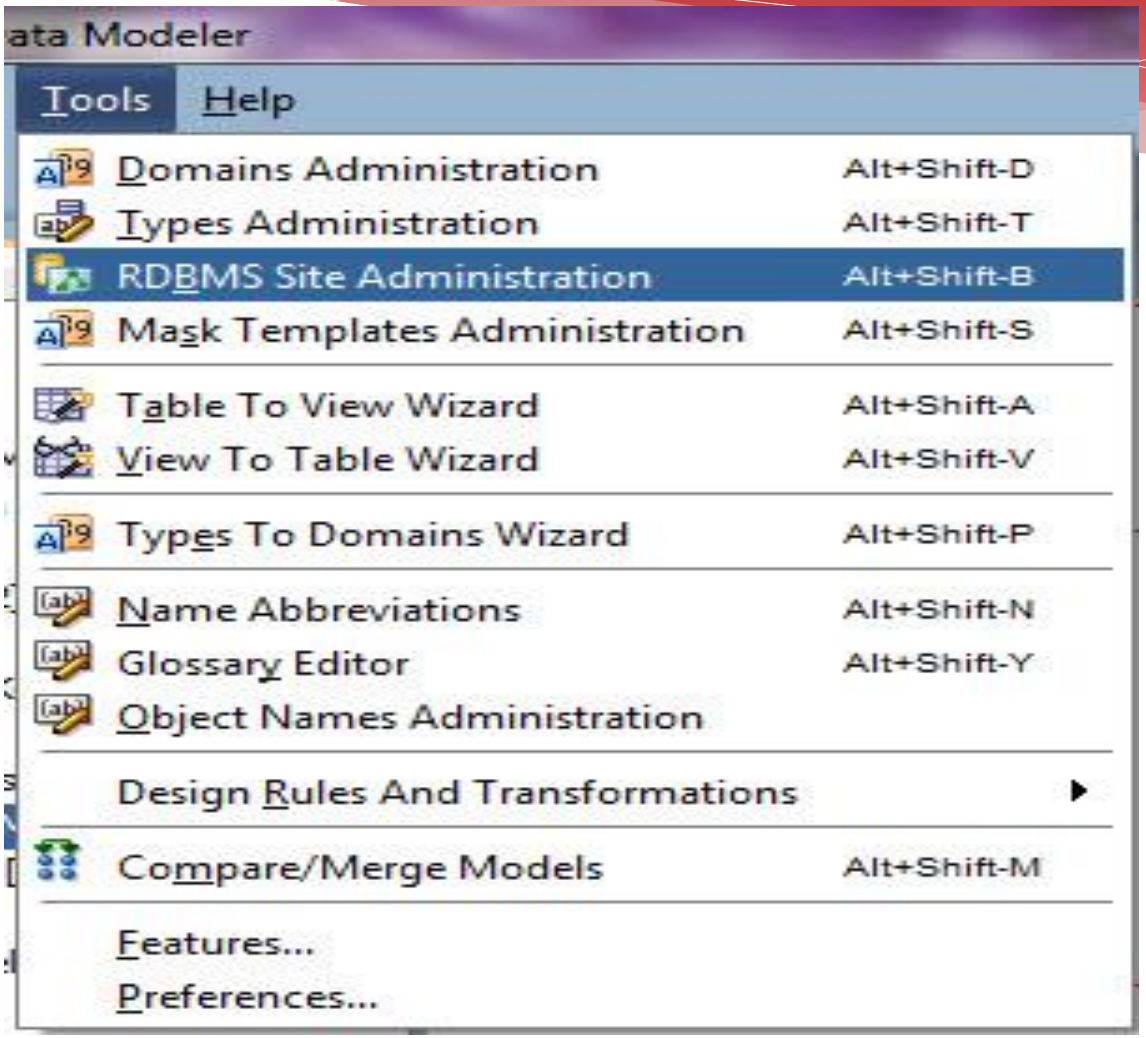


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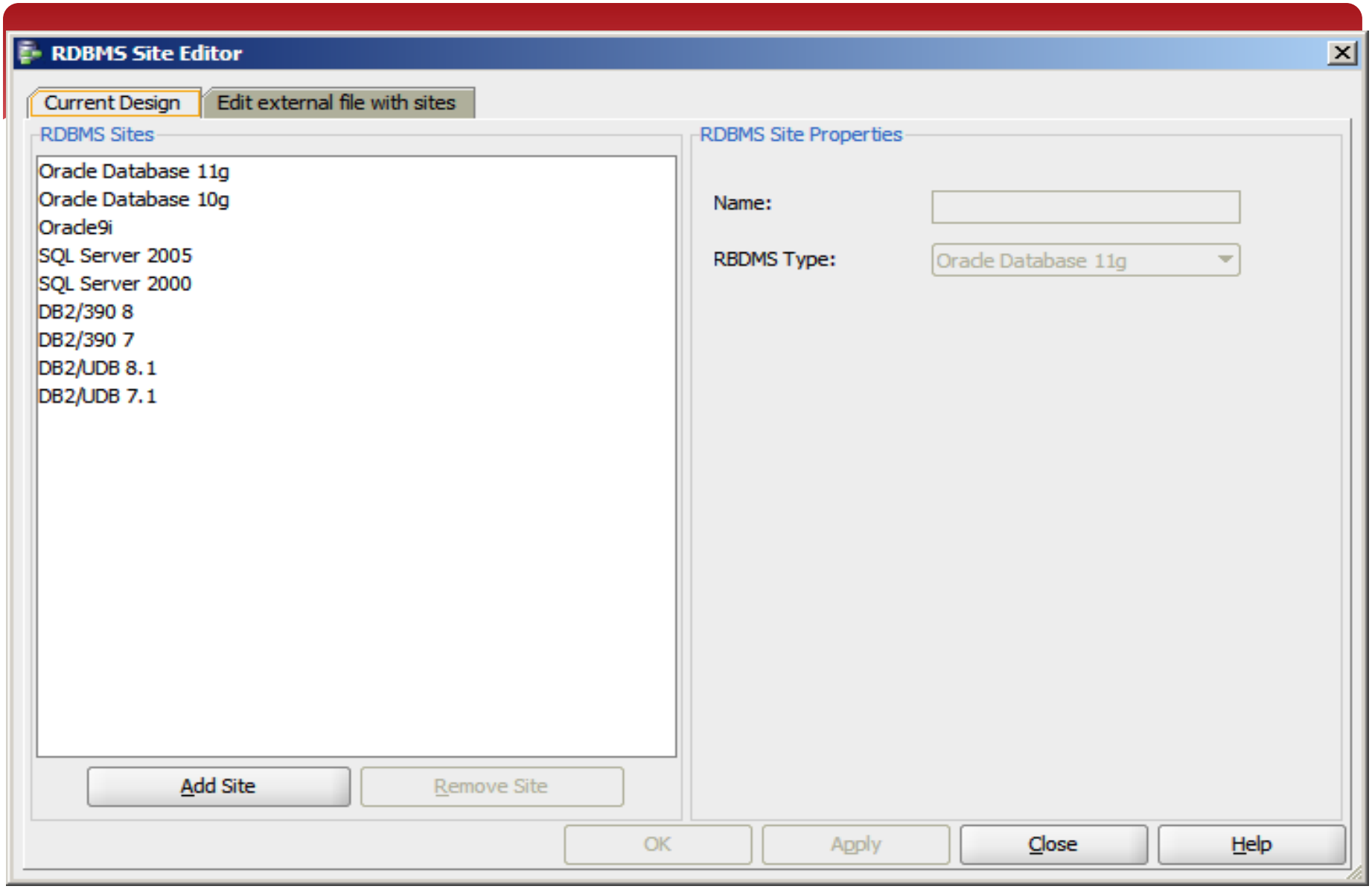


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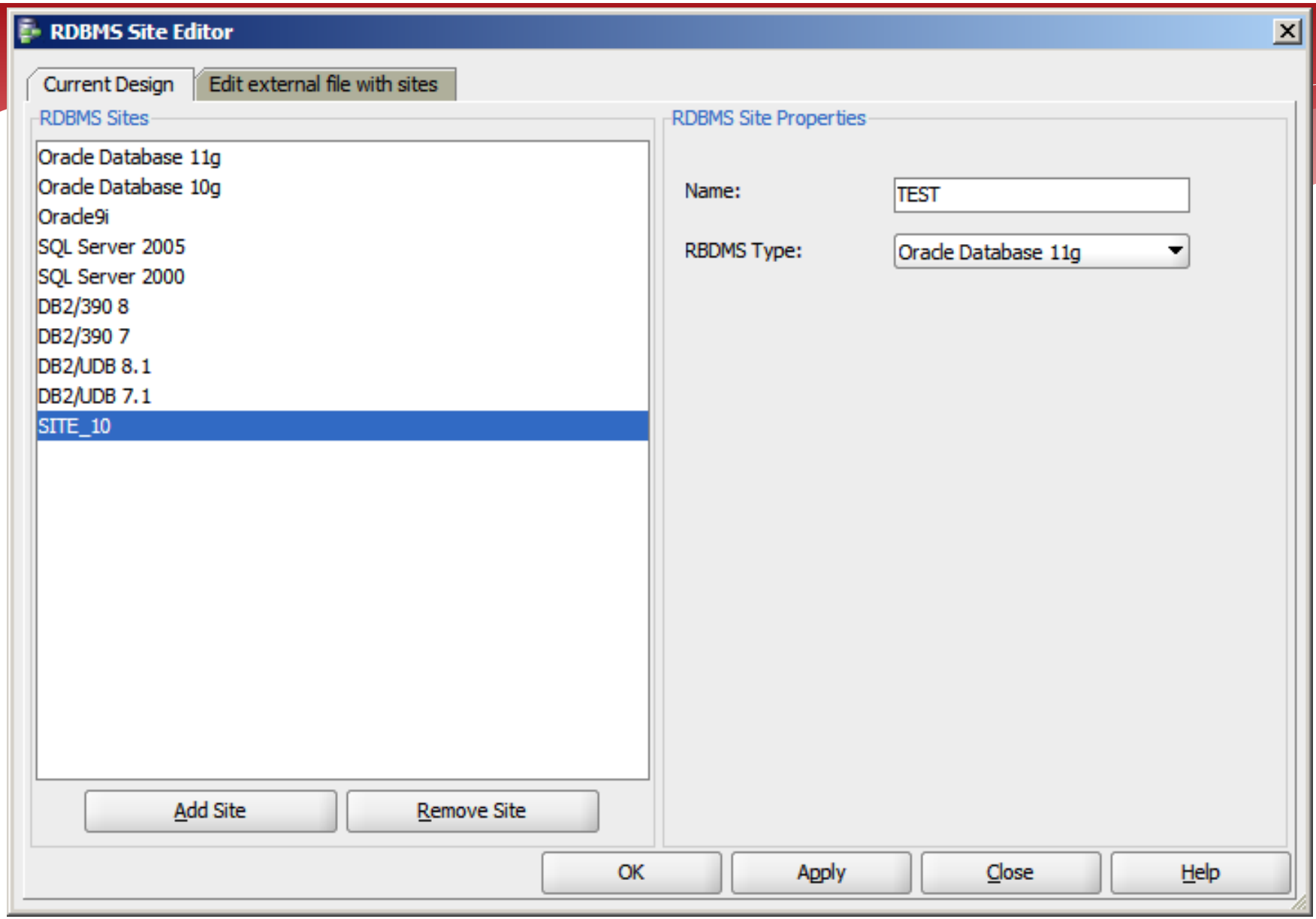


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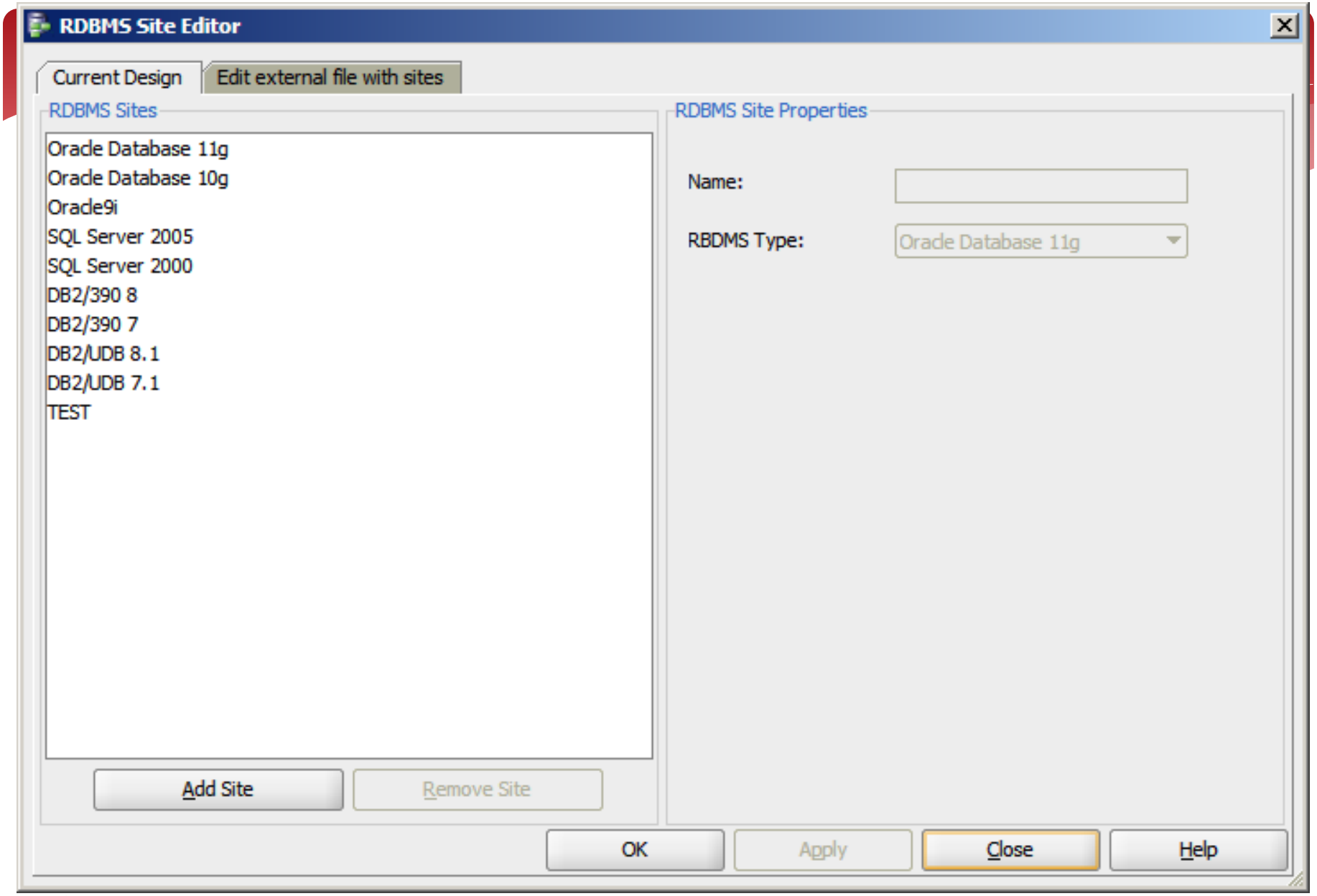


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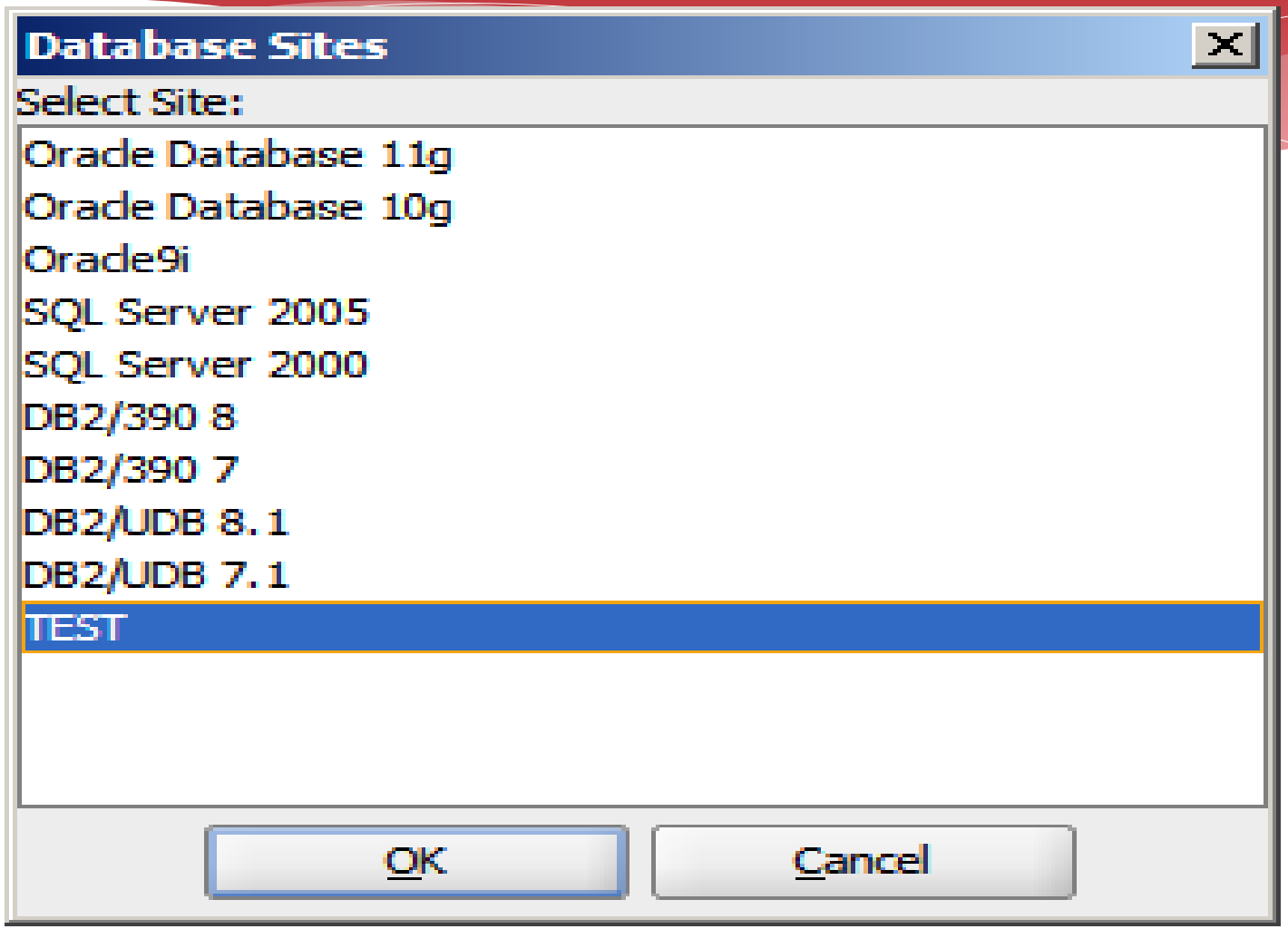


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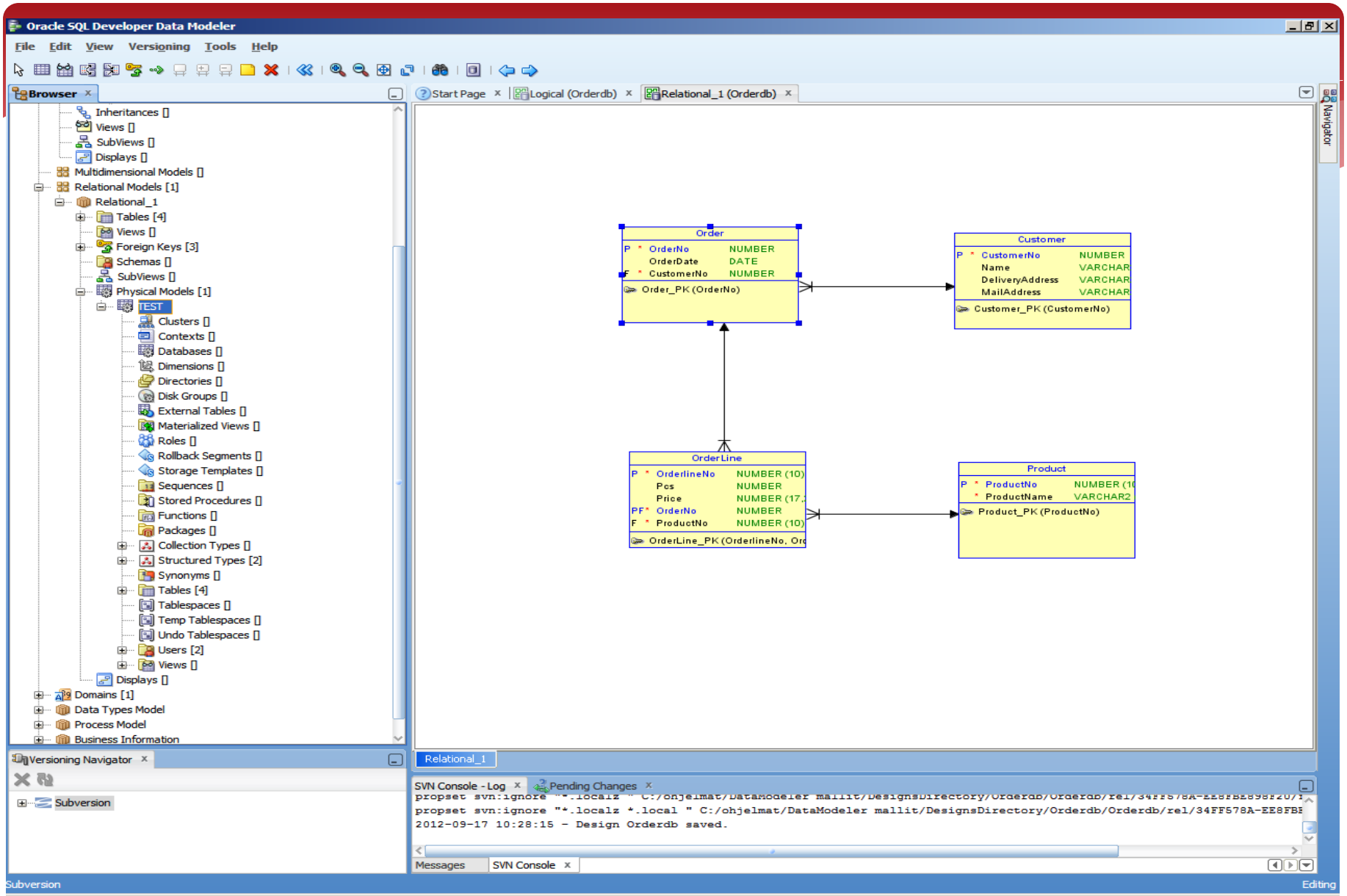


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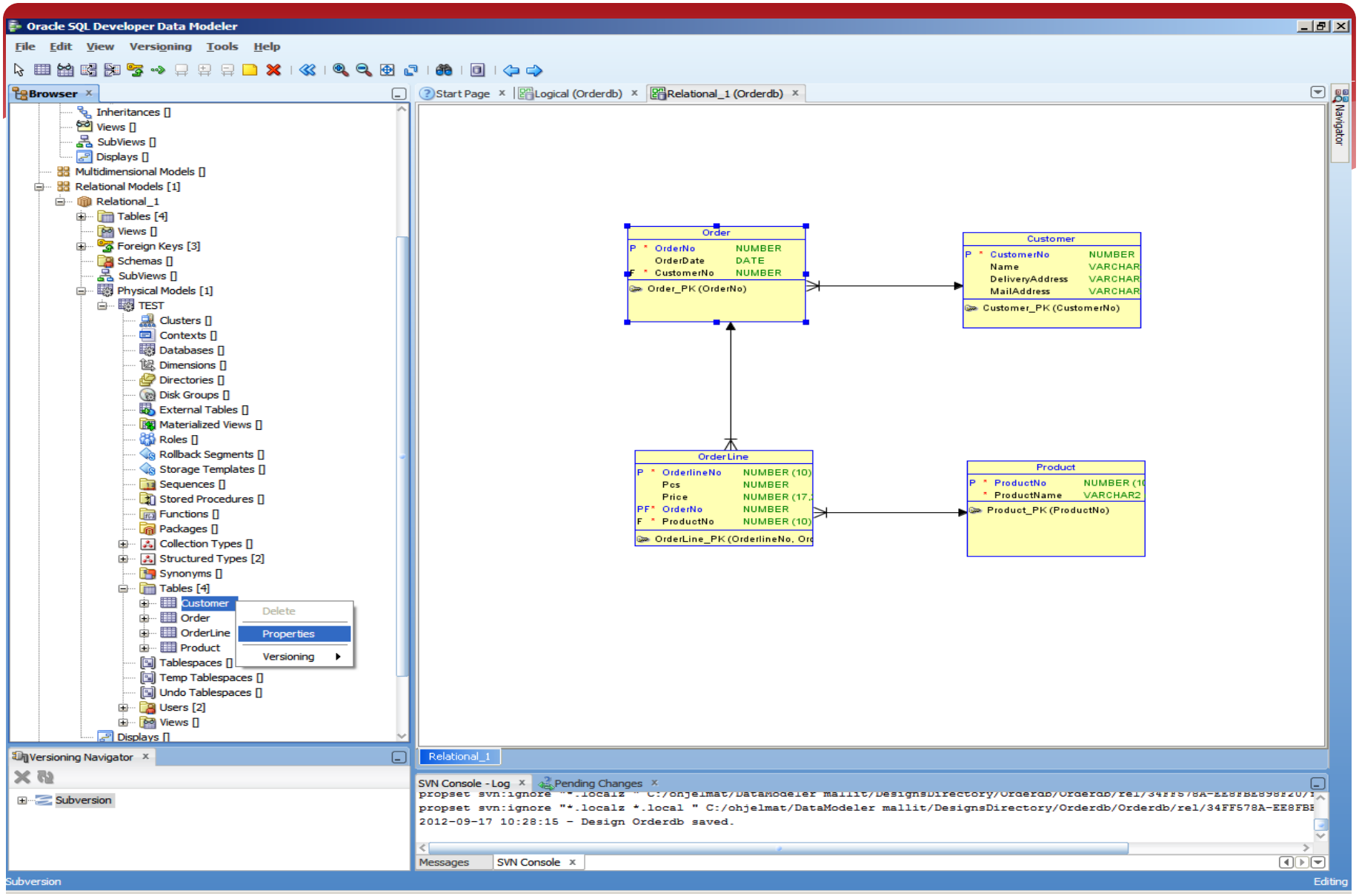


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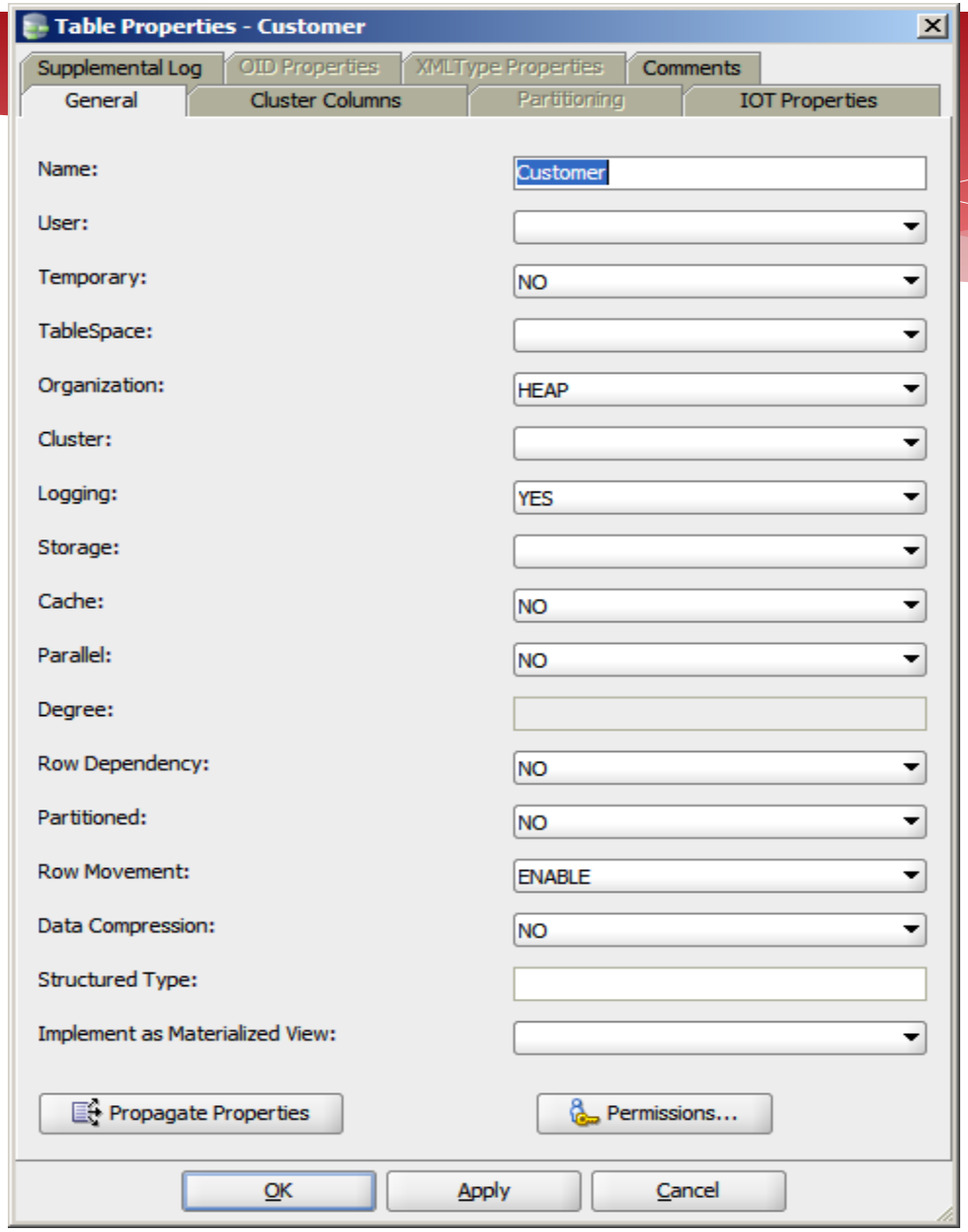


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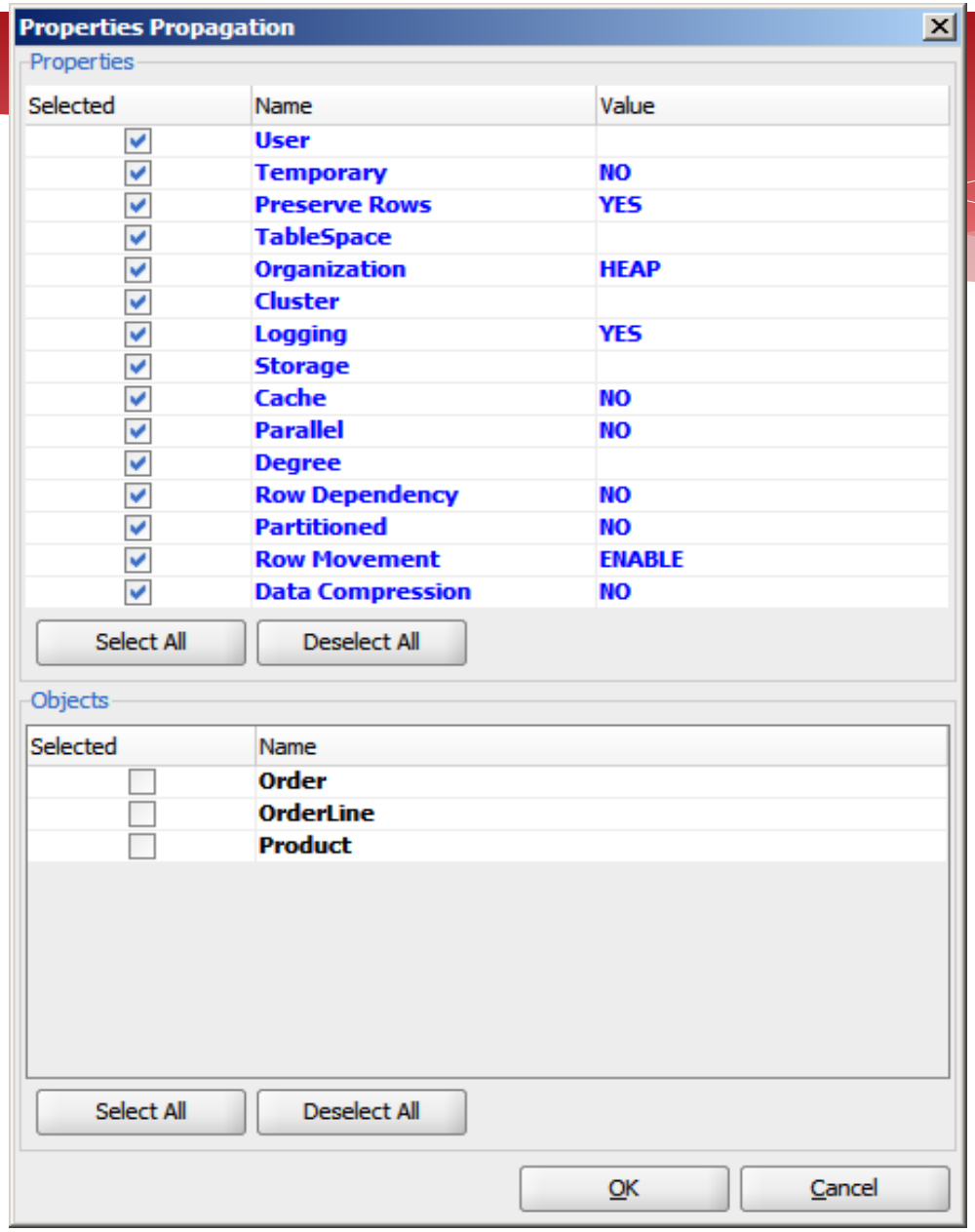


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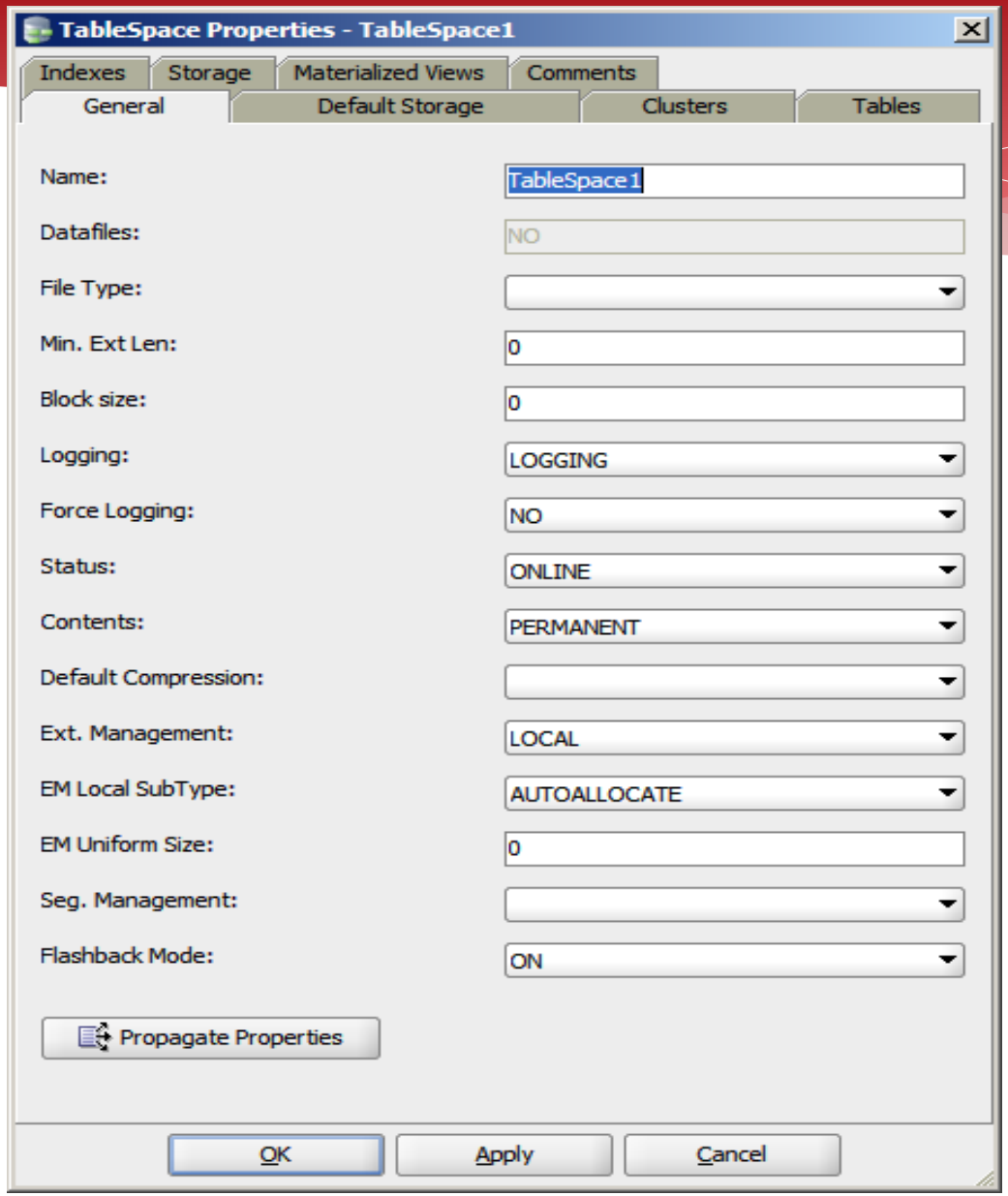


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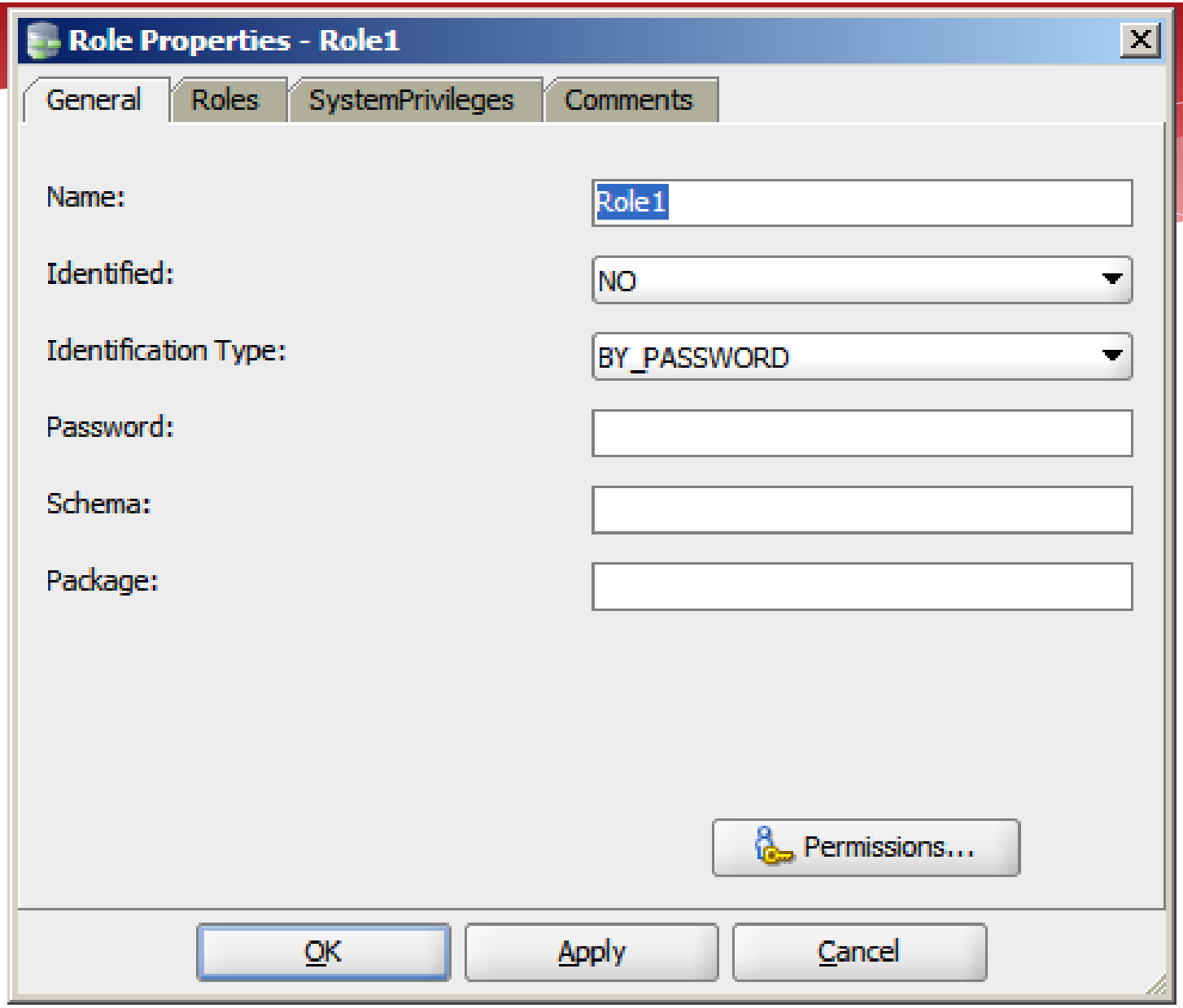


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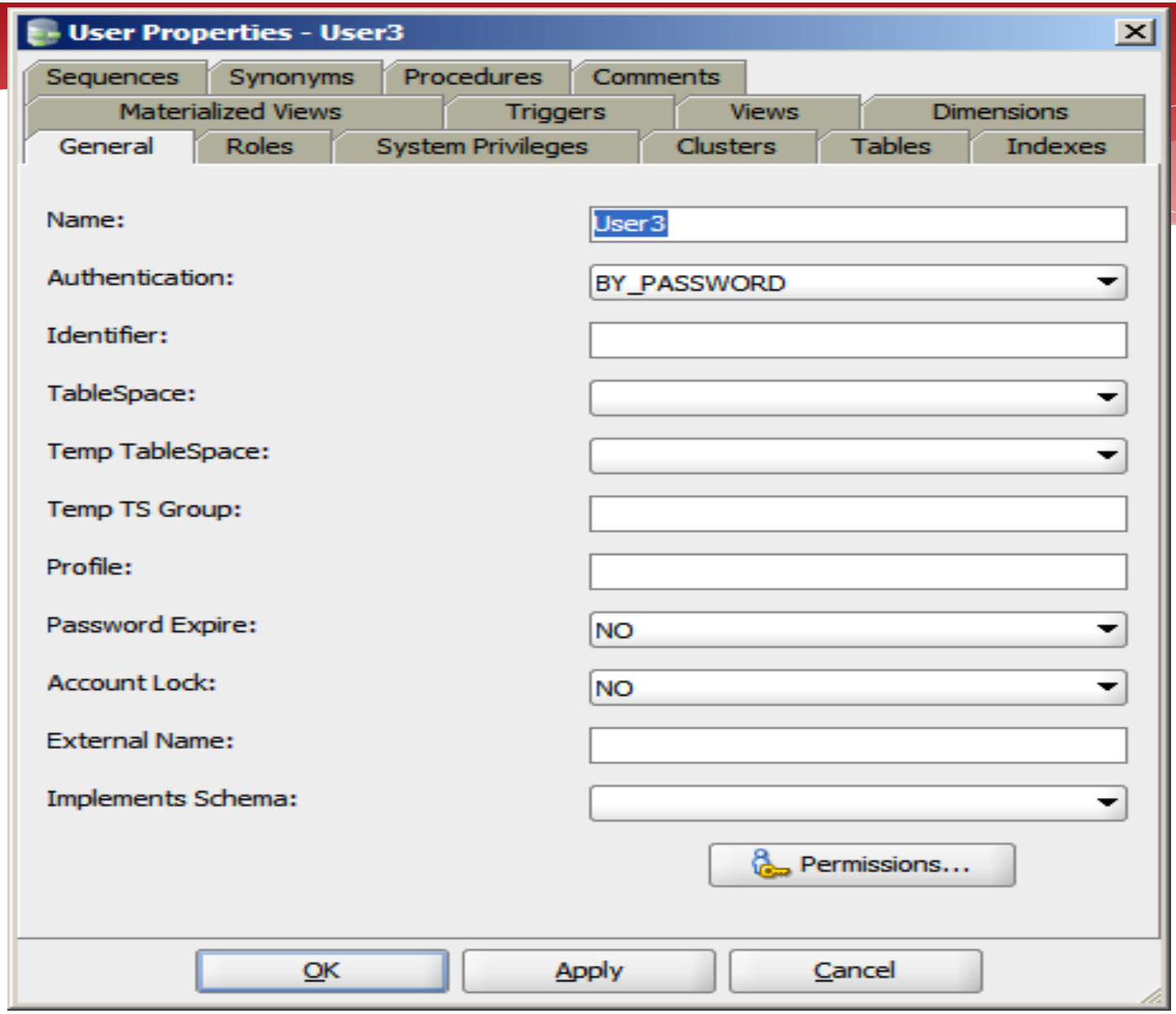


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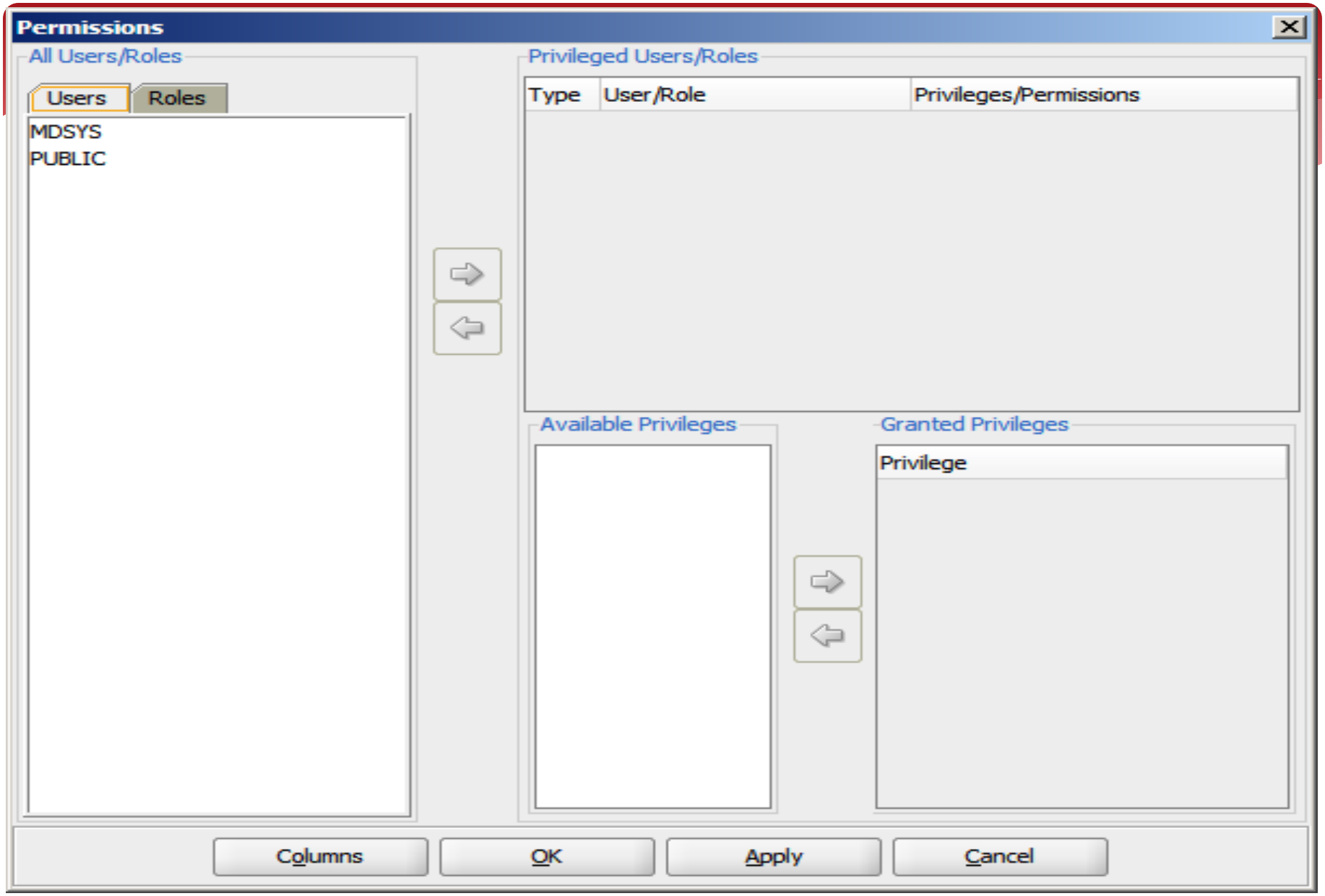


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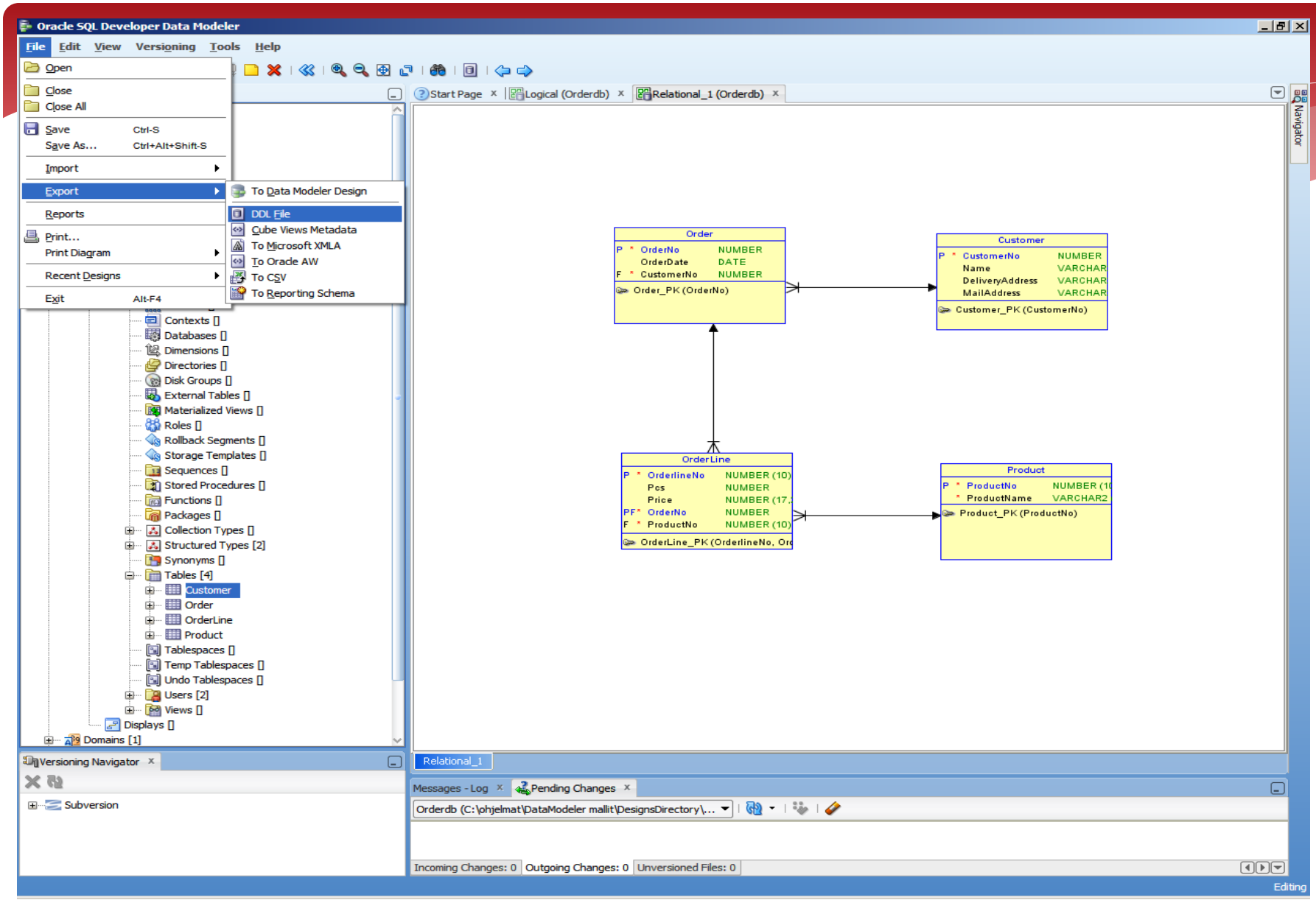


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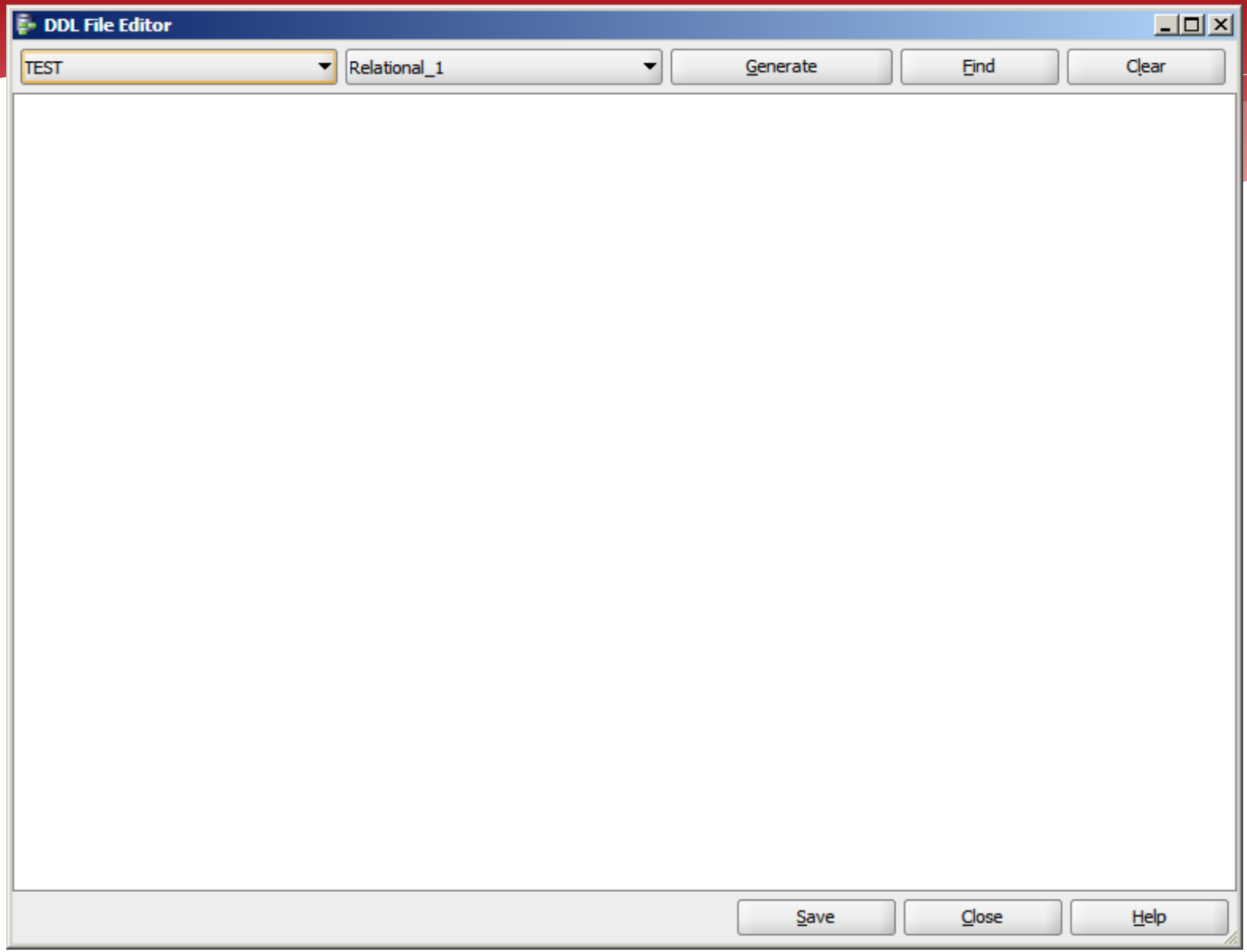


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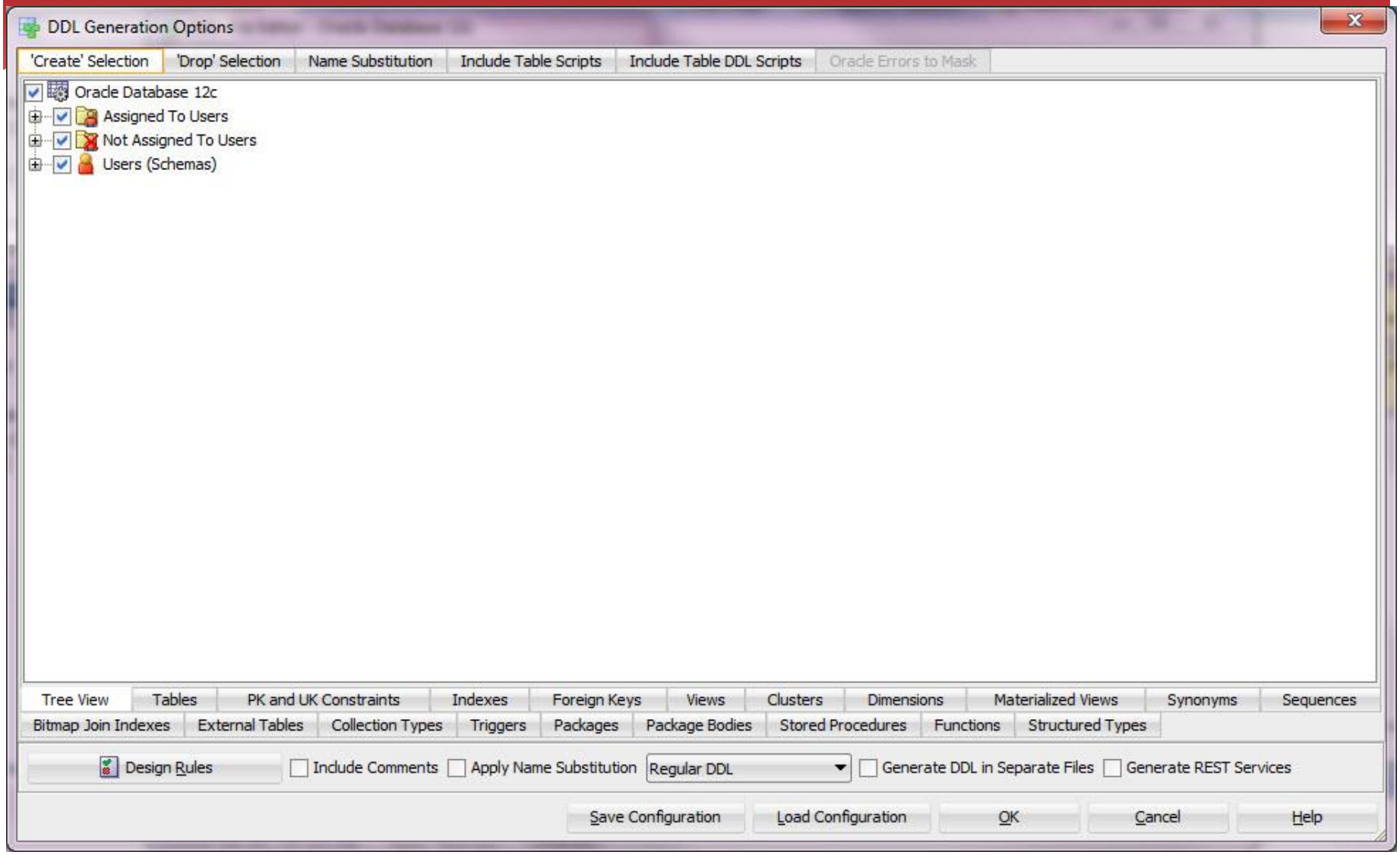


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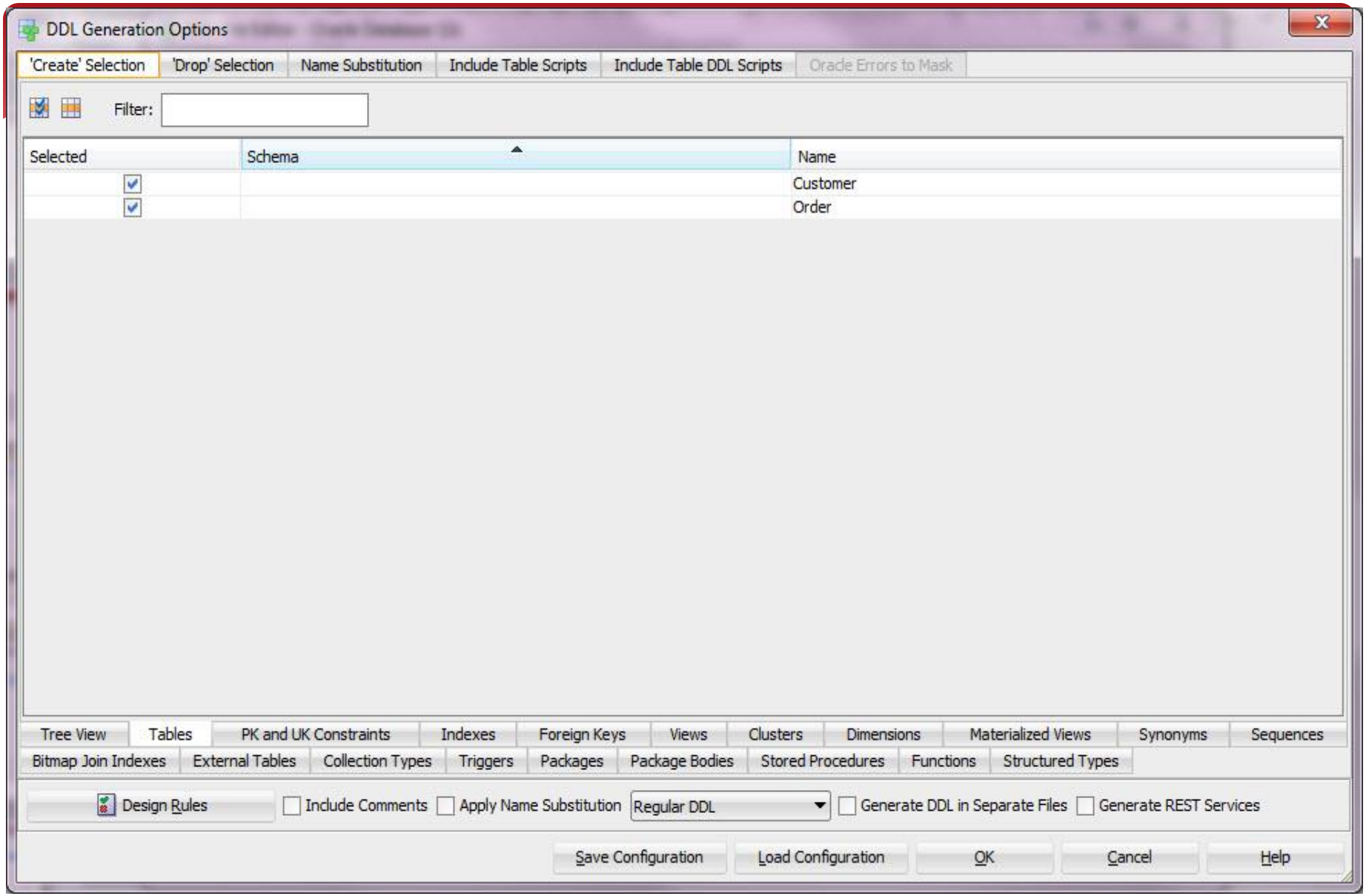


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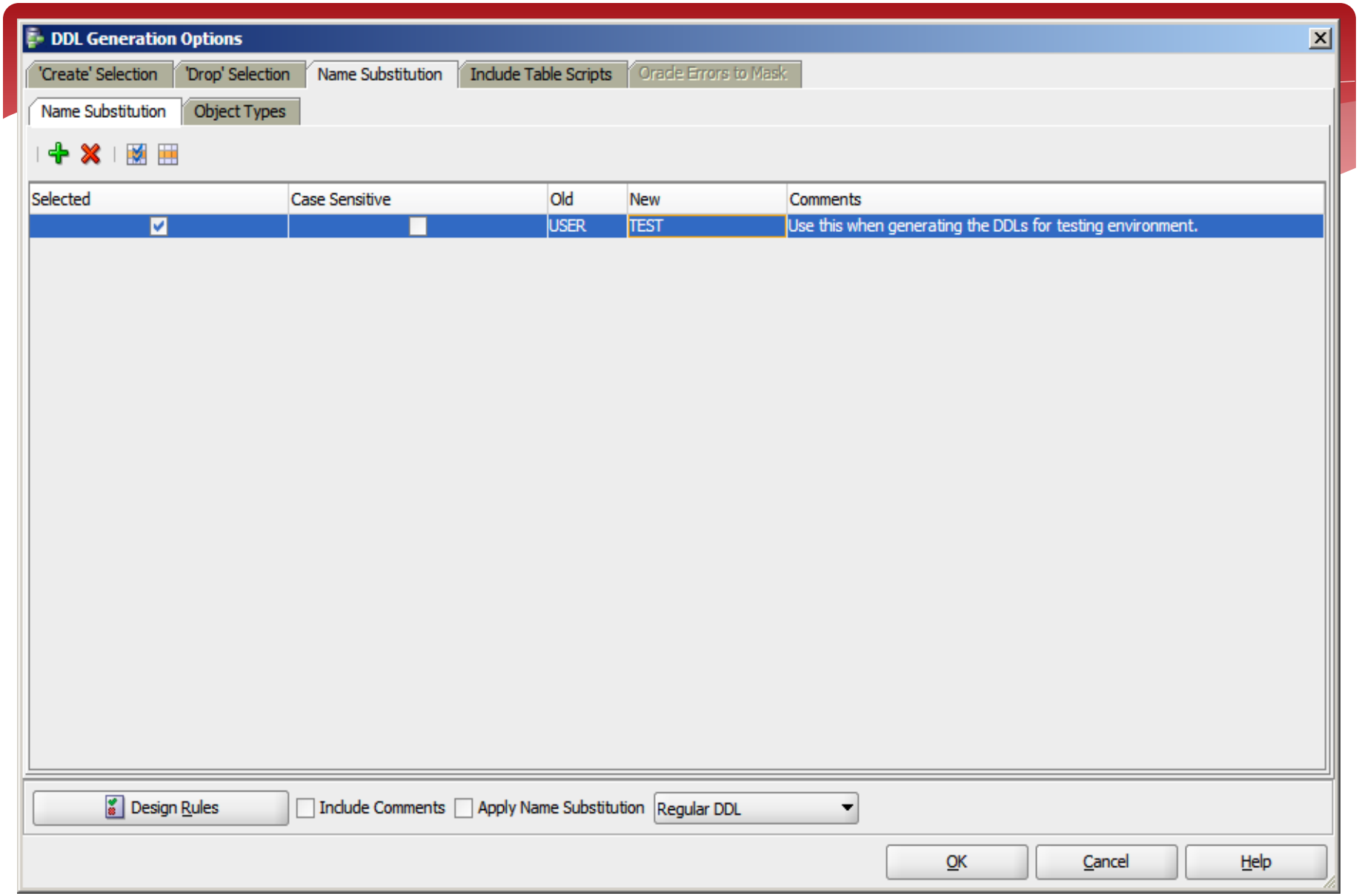


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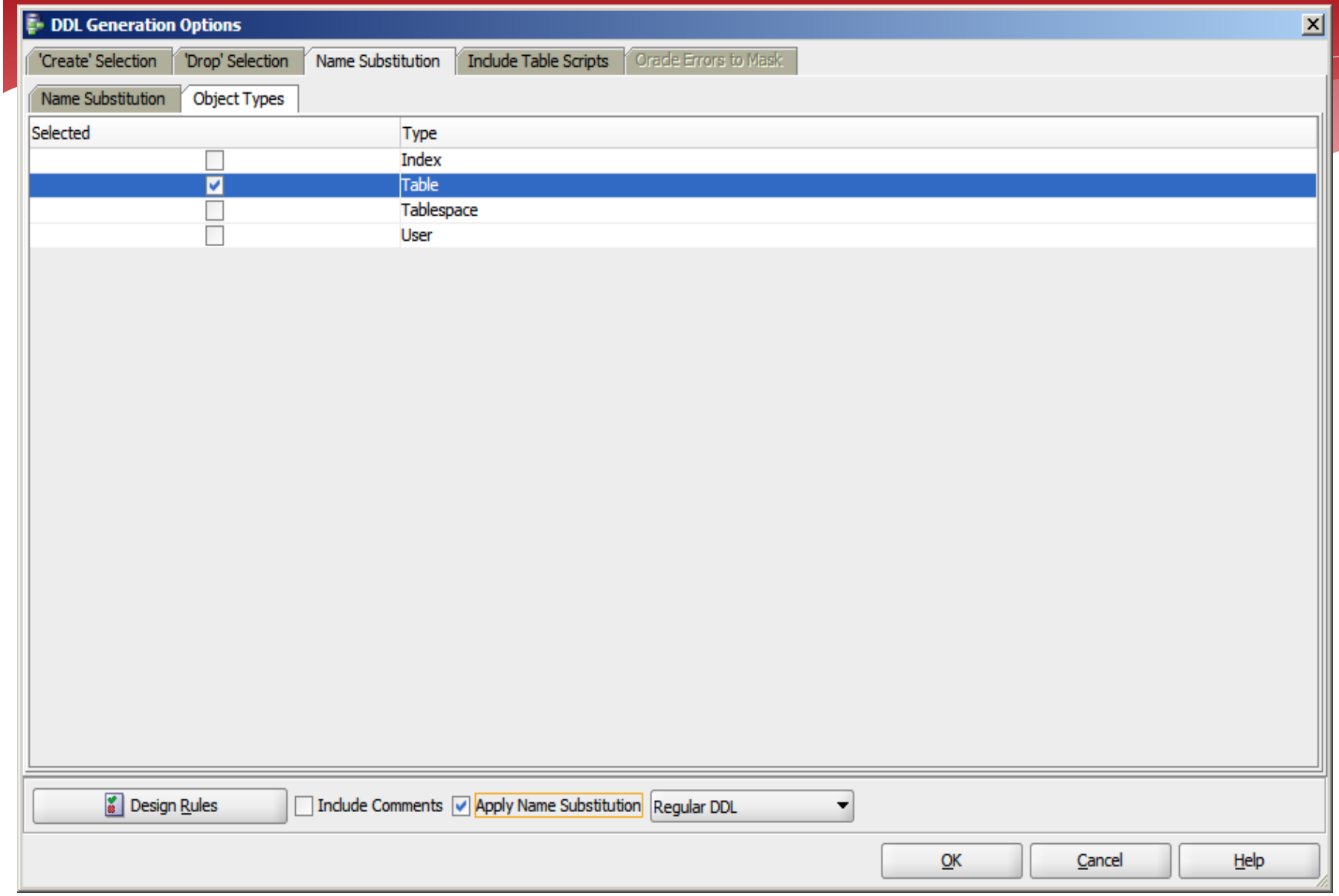


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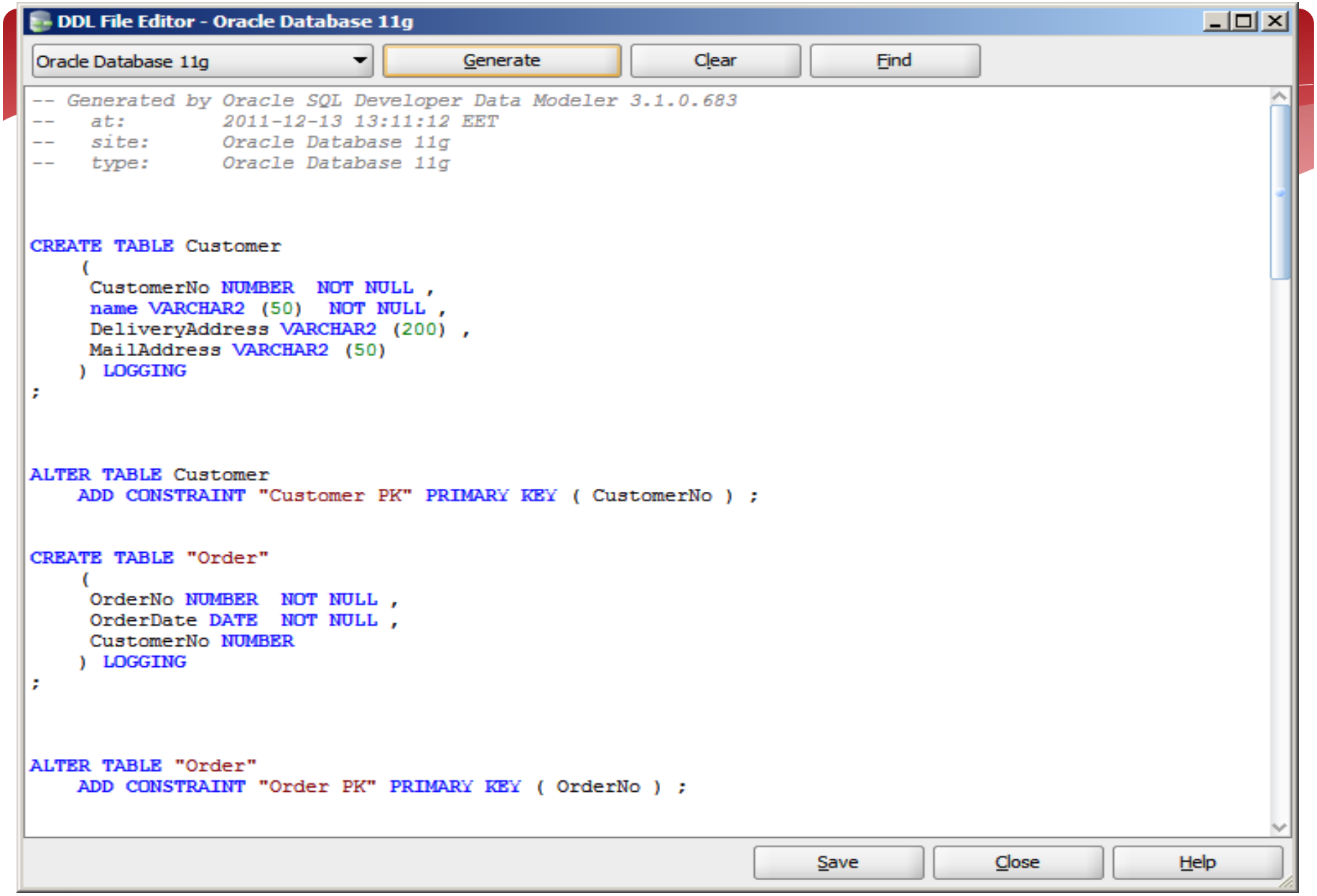


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# Data Modeler and agile

Requirement analysis (Logical, ER: main concepts)

Conceptual design (Logical, ER: the big picture)

Logical design (Logical ER: iteration 1-n, Relational iteration 1-n)

Physical design (Relational iteration 1-n, Physical iteration 1-n, DLLs 1-n iteration)

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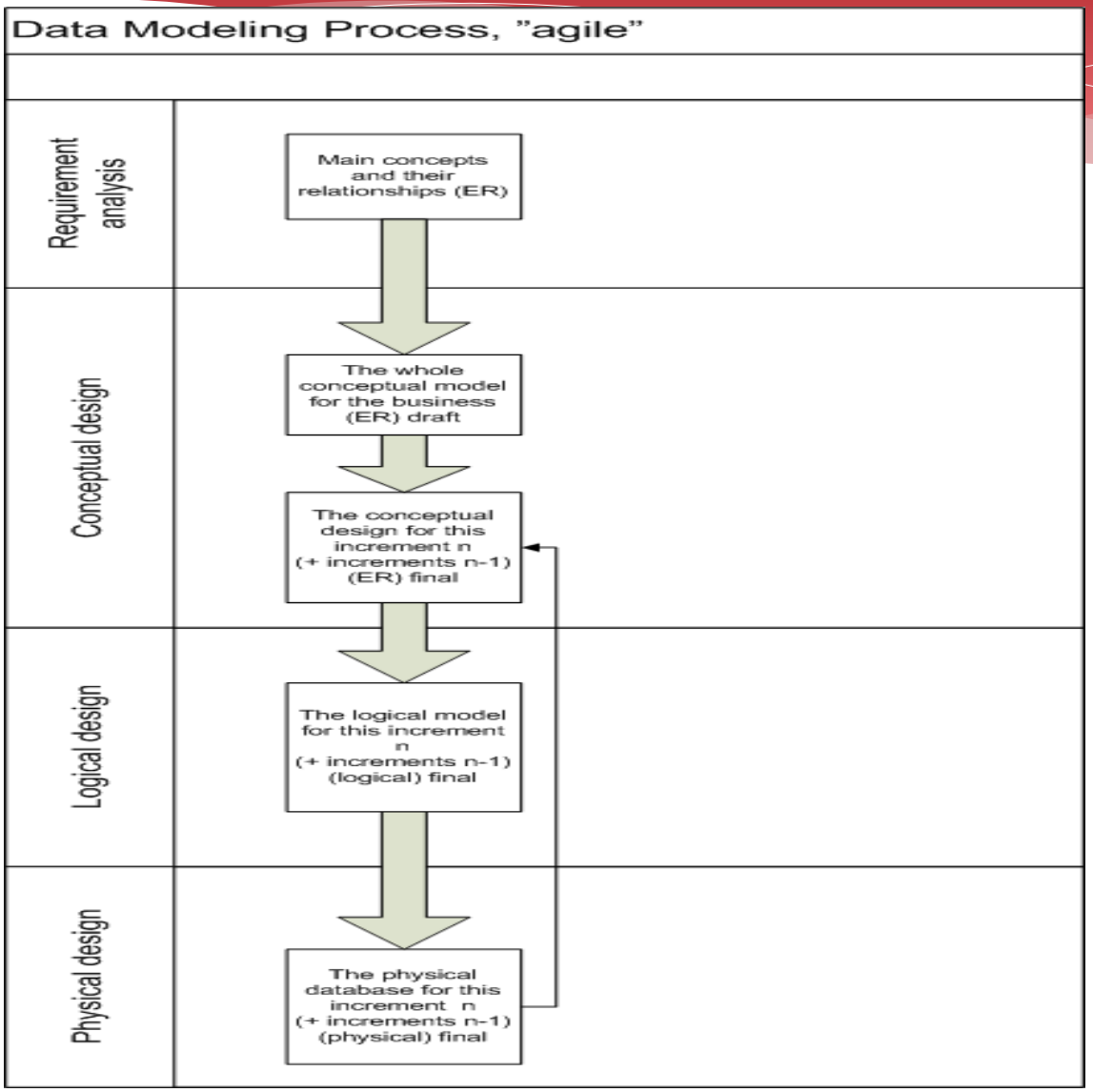


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# Other functionalities

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# Export/Import

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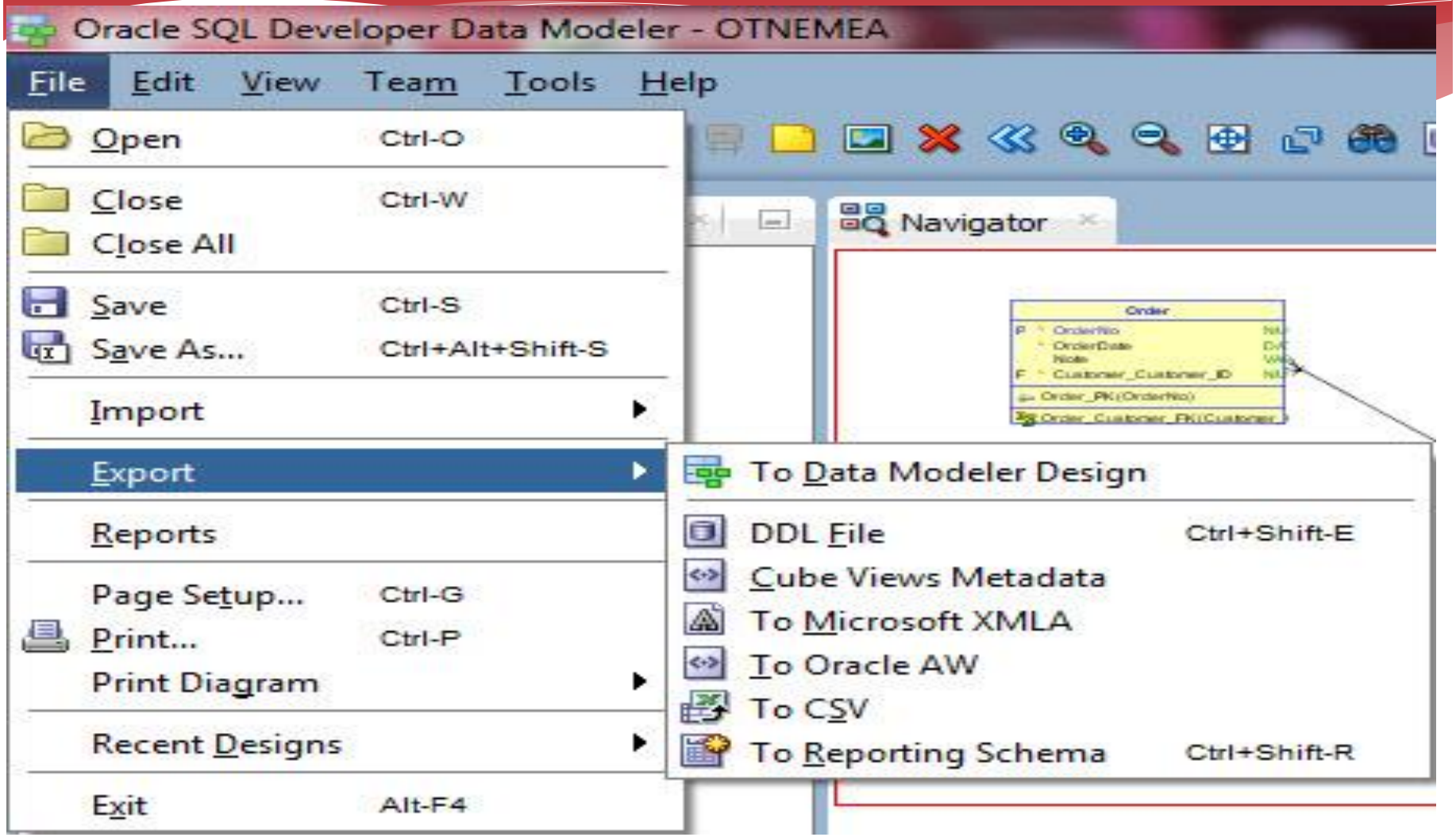


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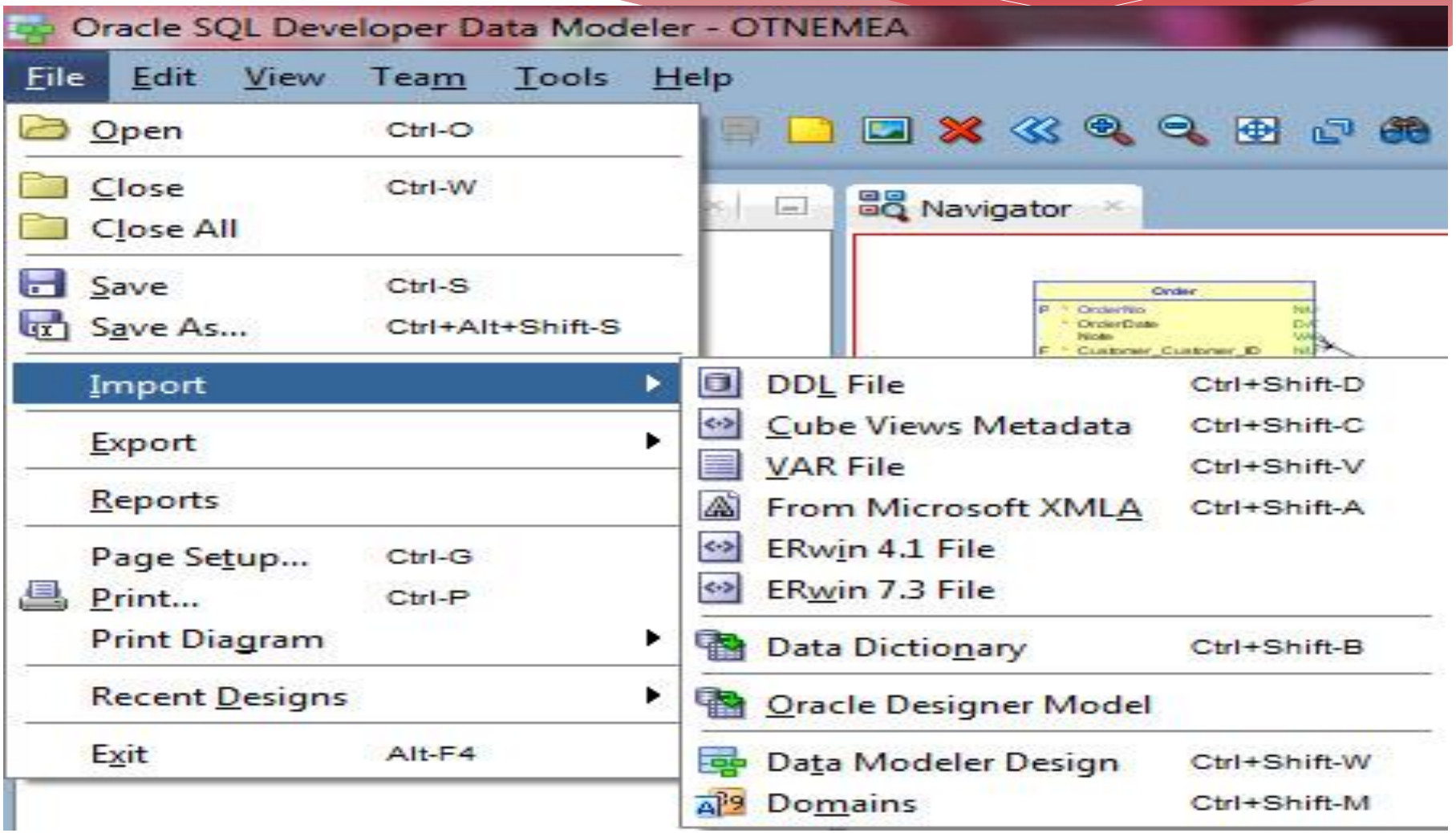


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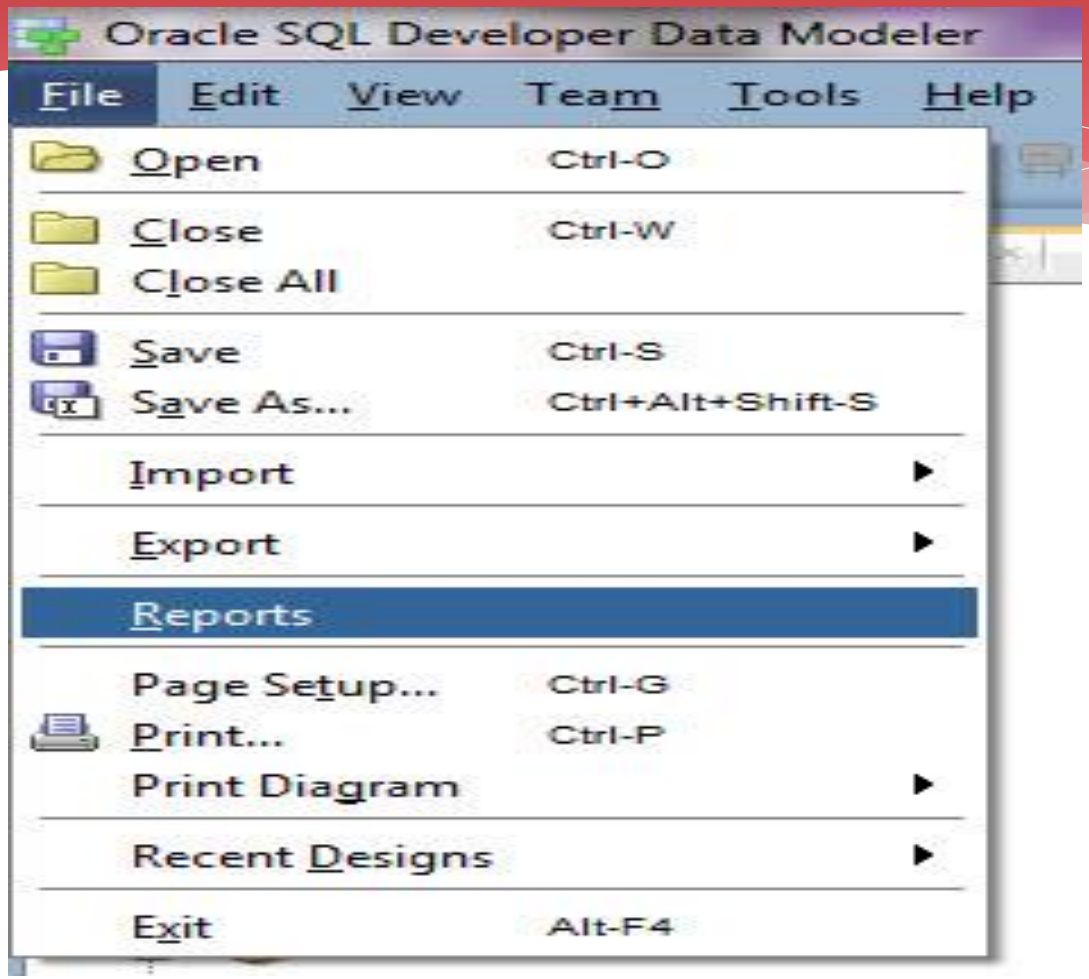


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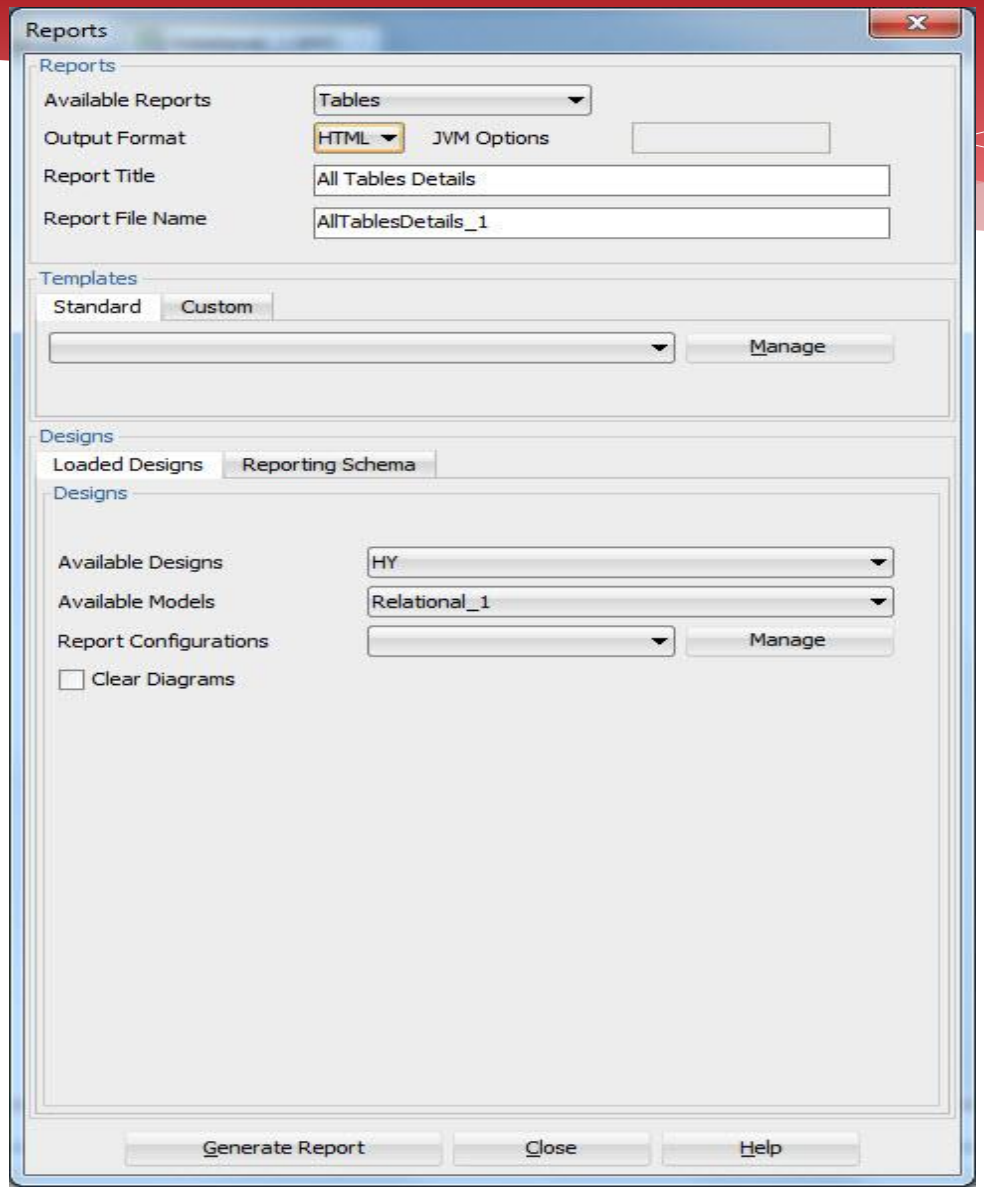


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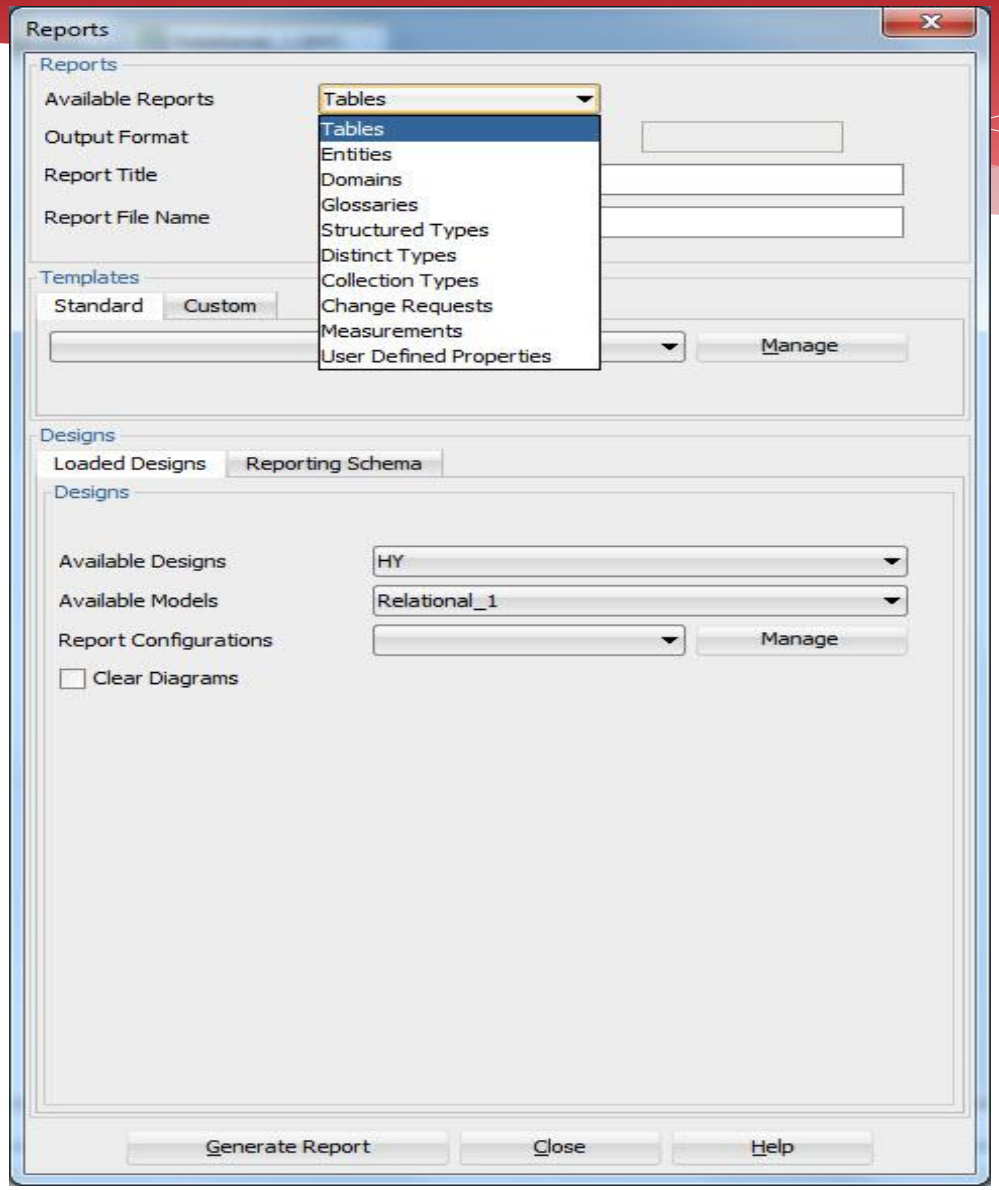


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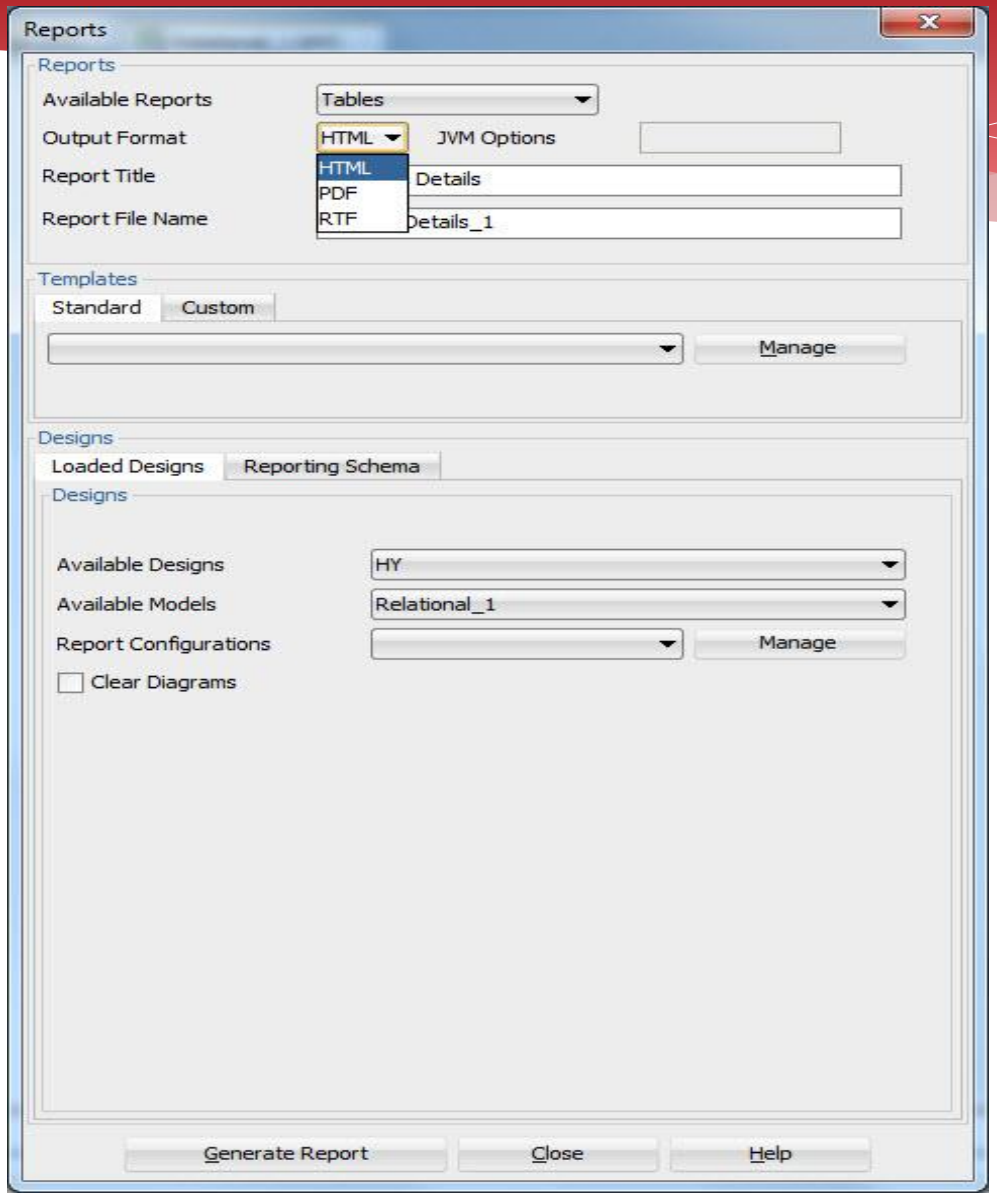


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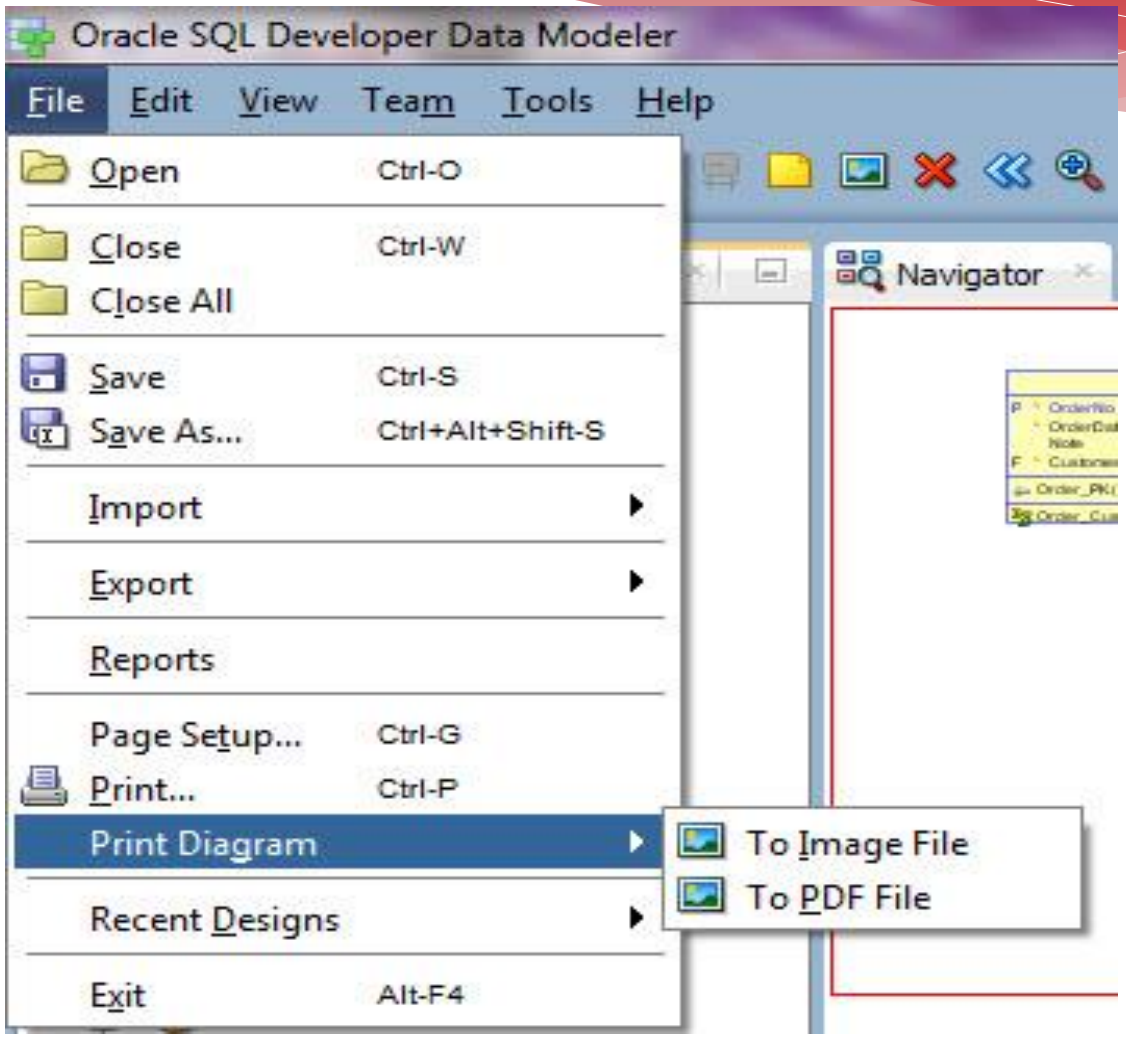


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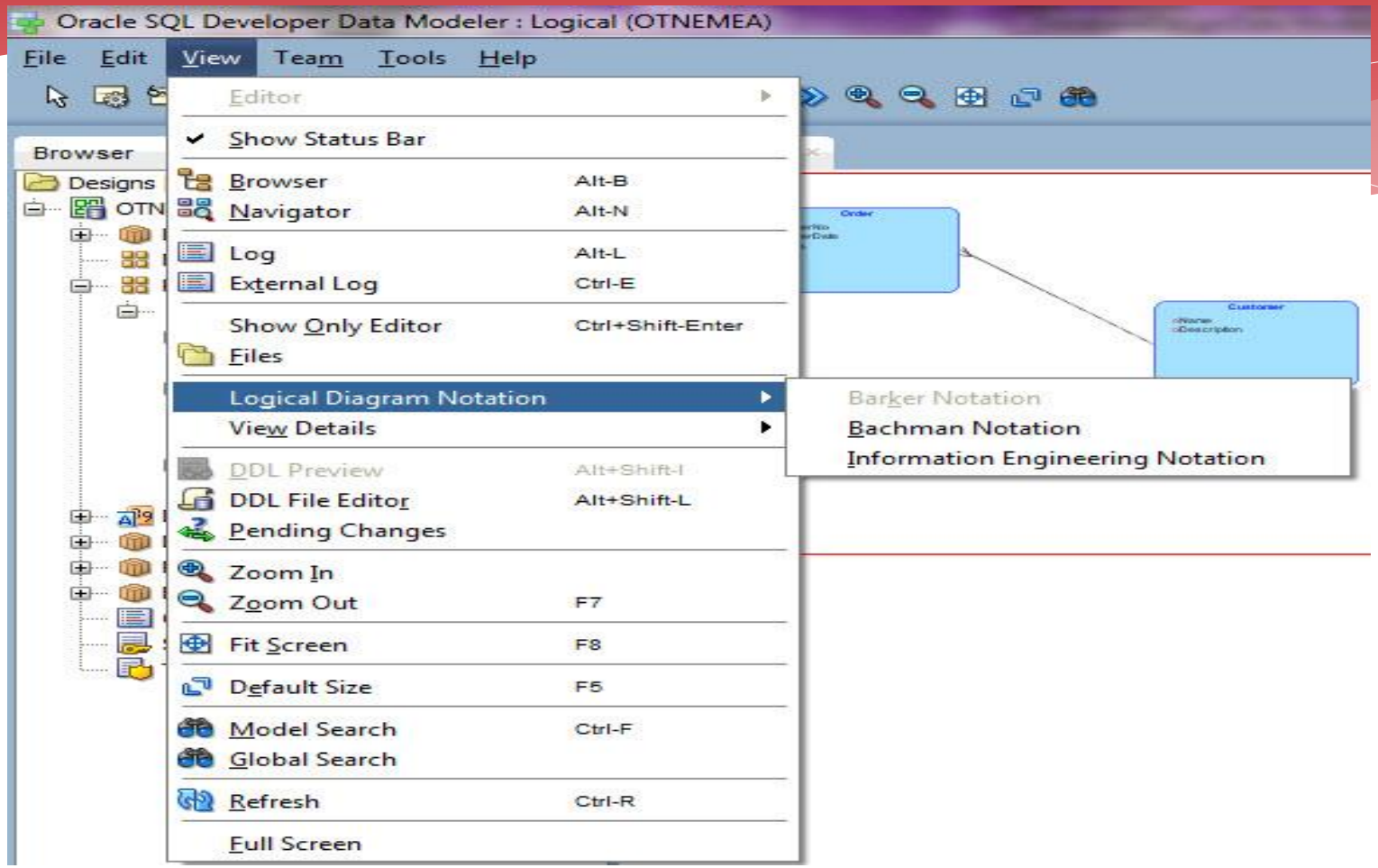


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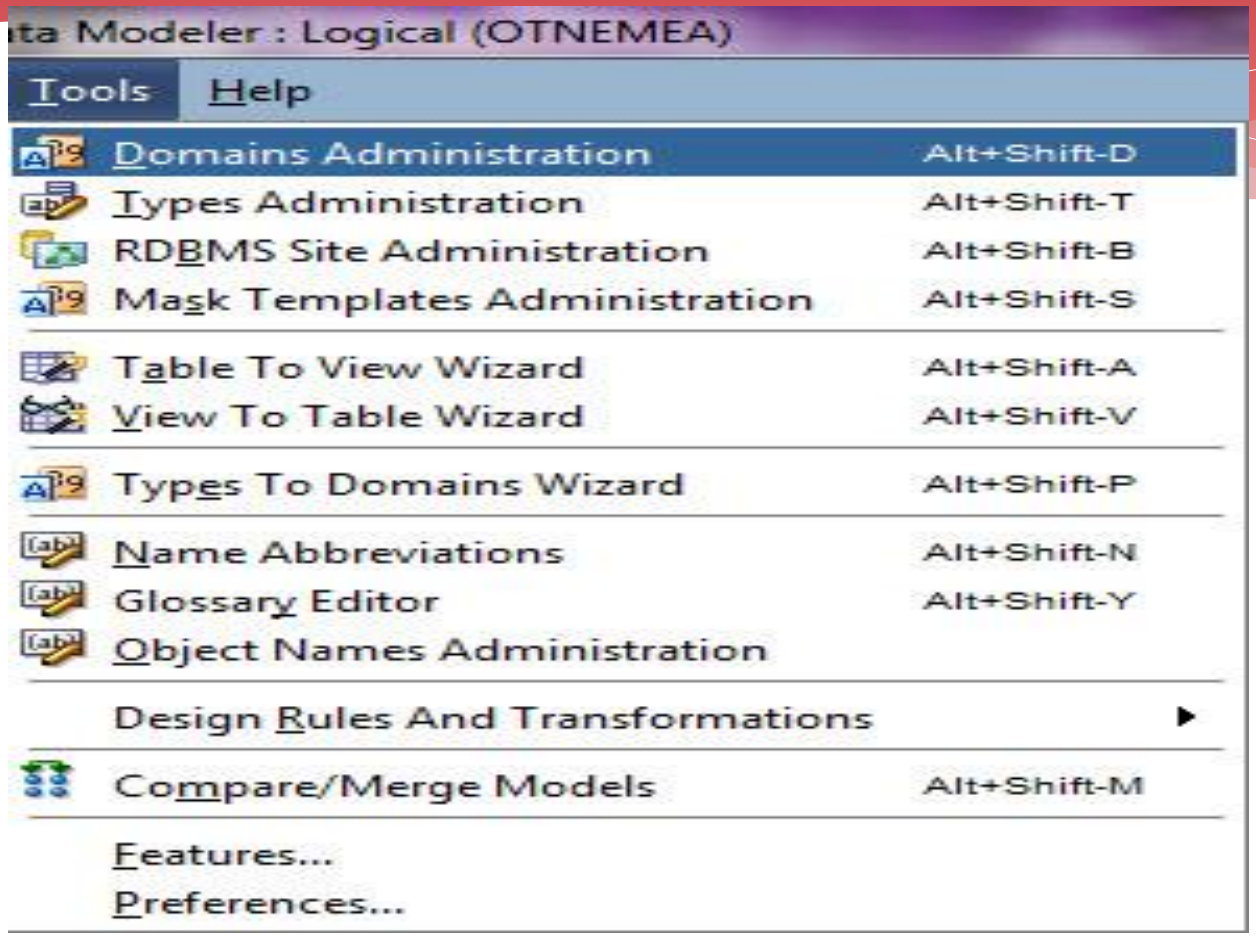
# Domains administration

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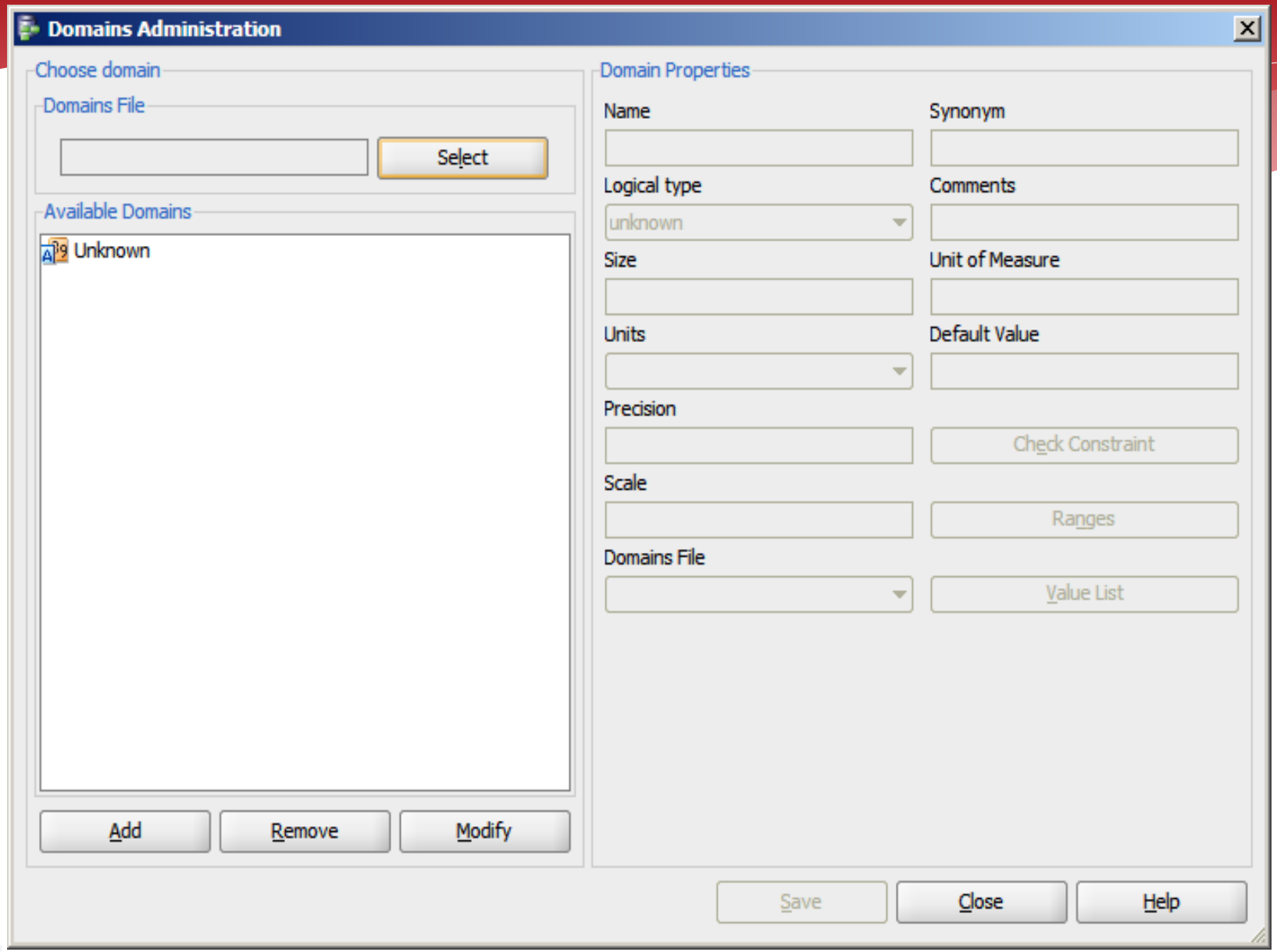


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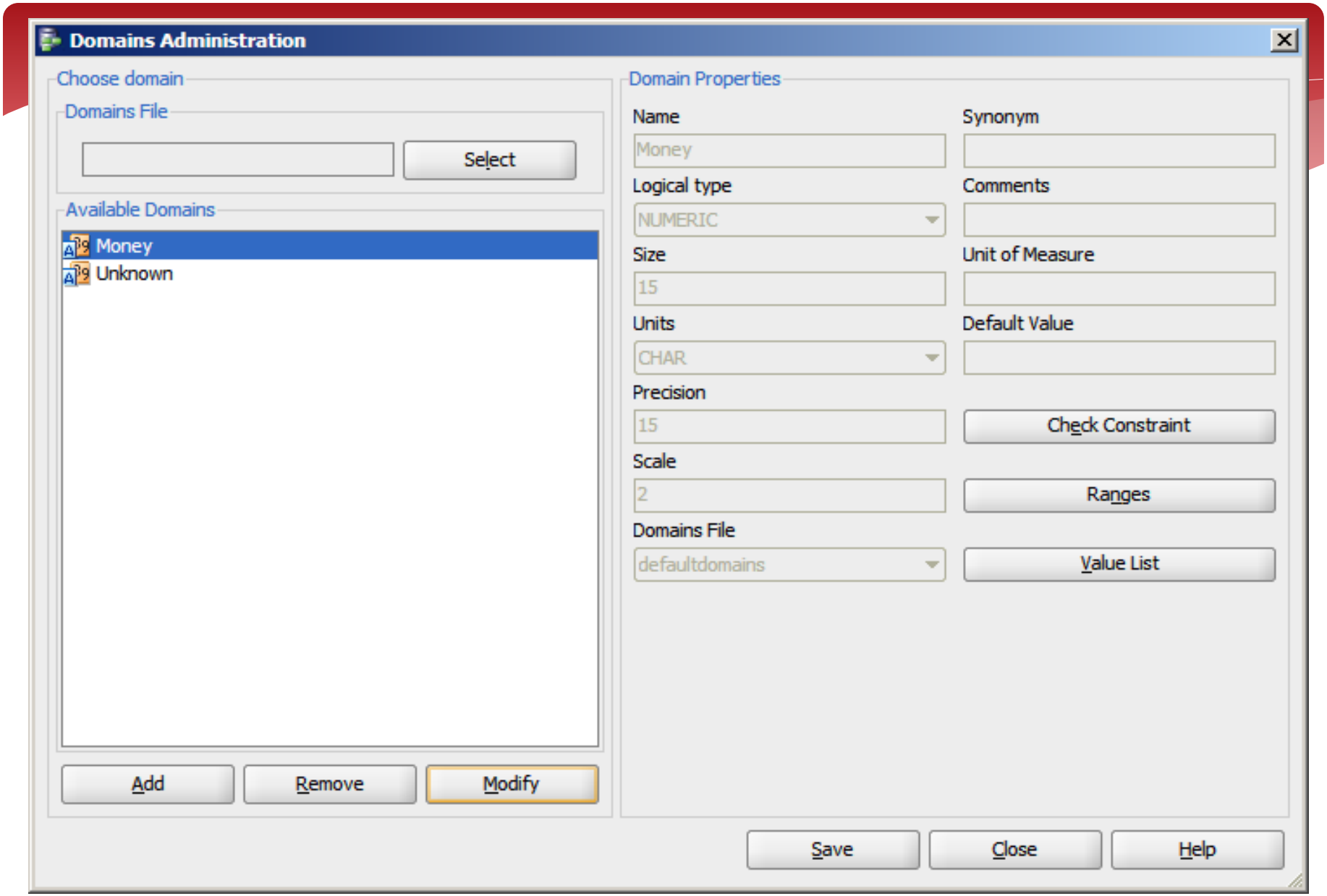


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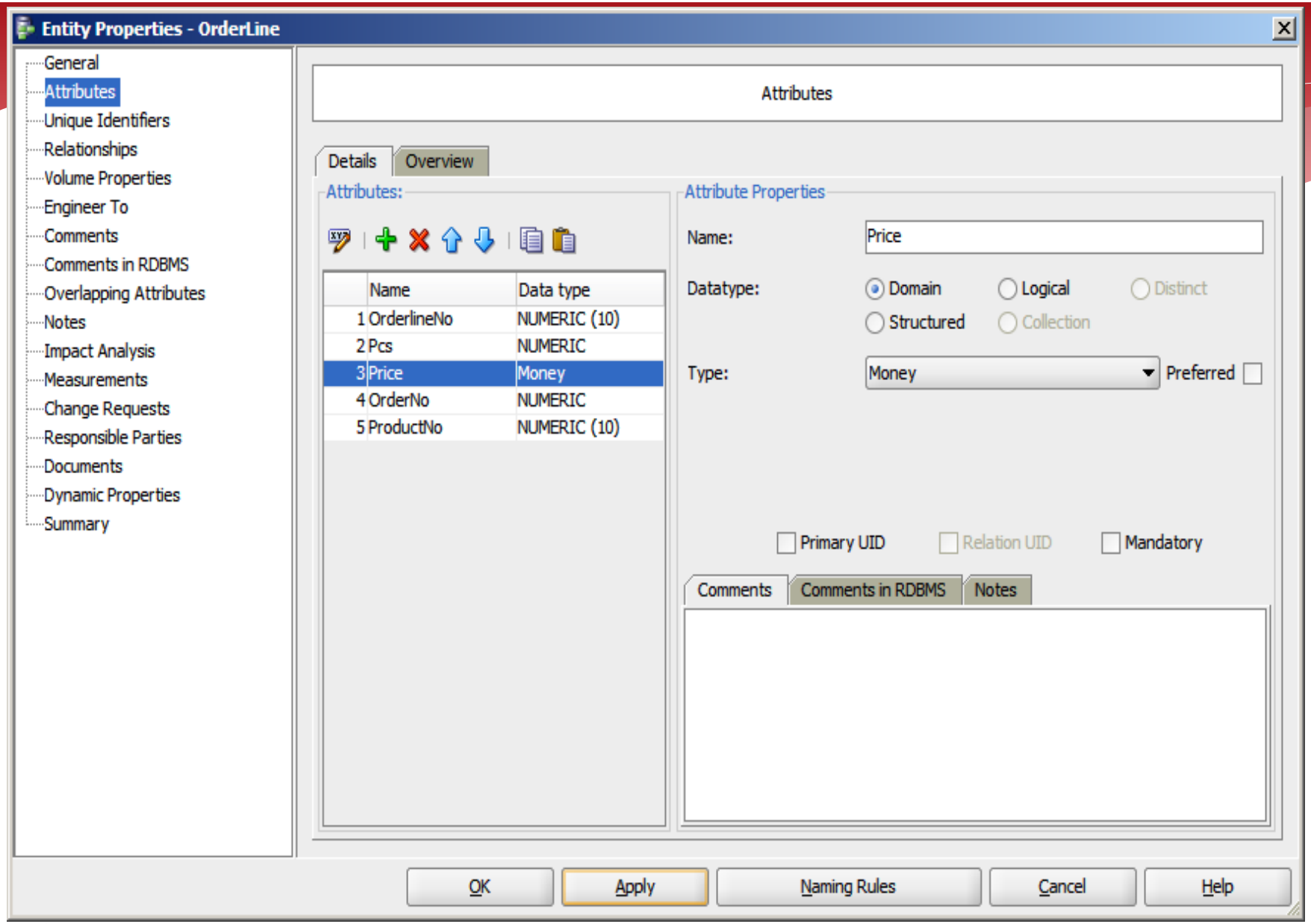


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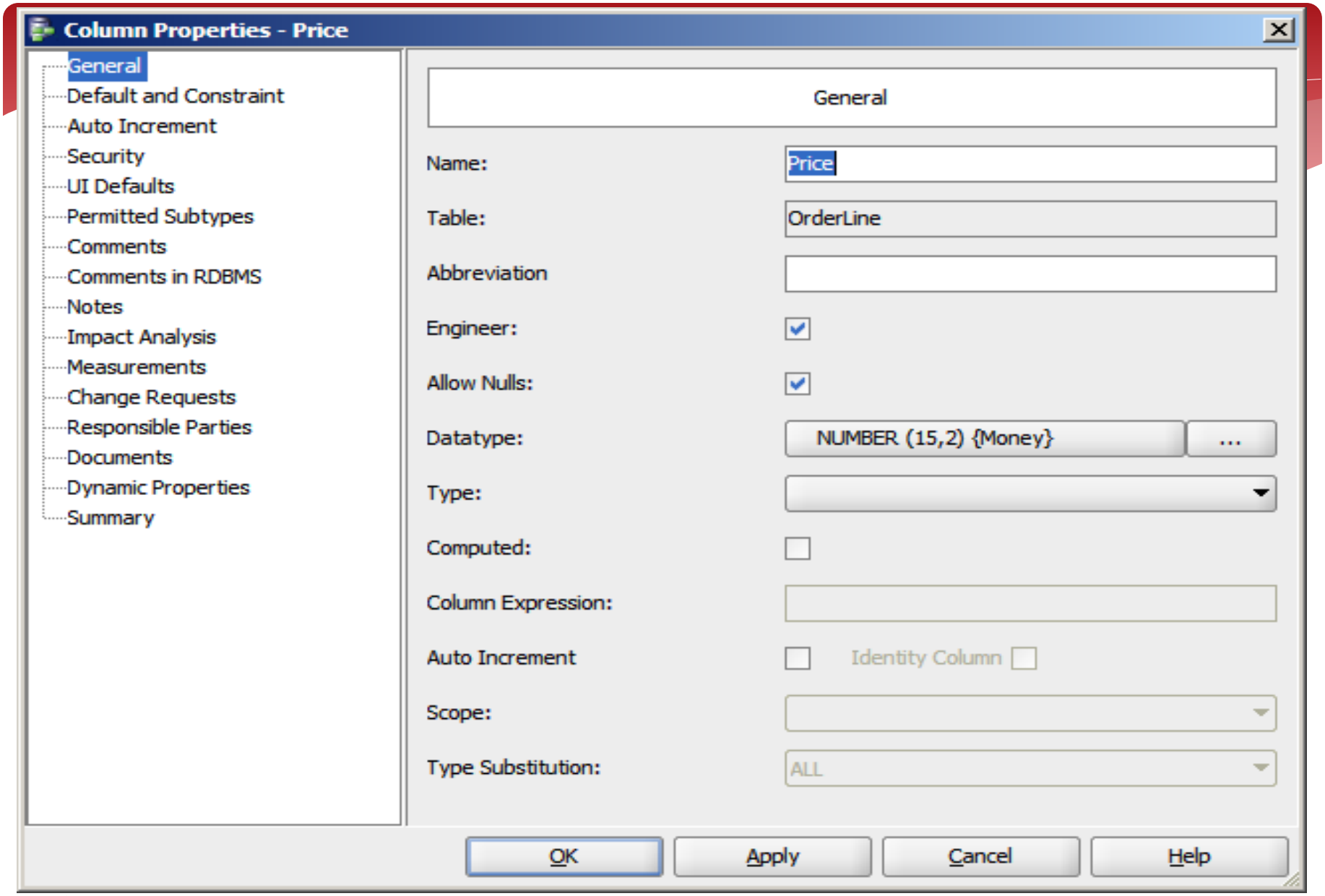


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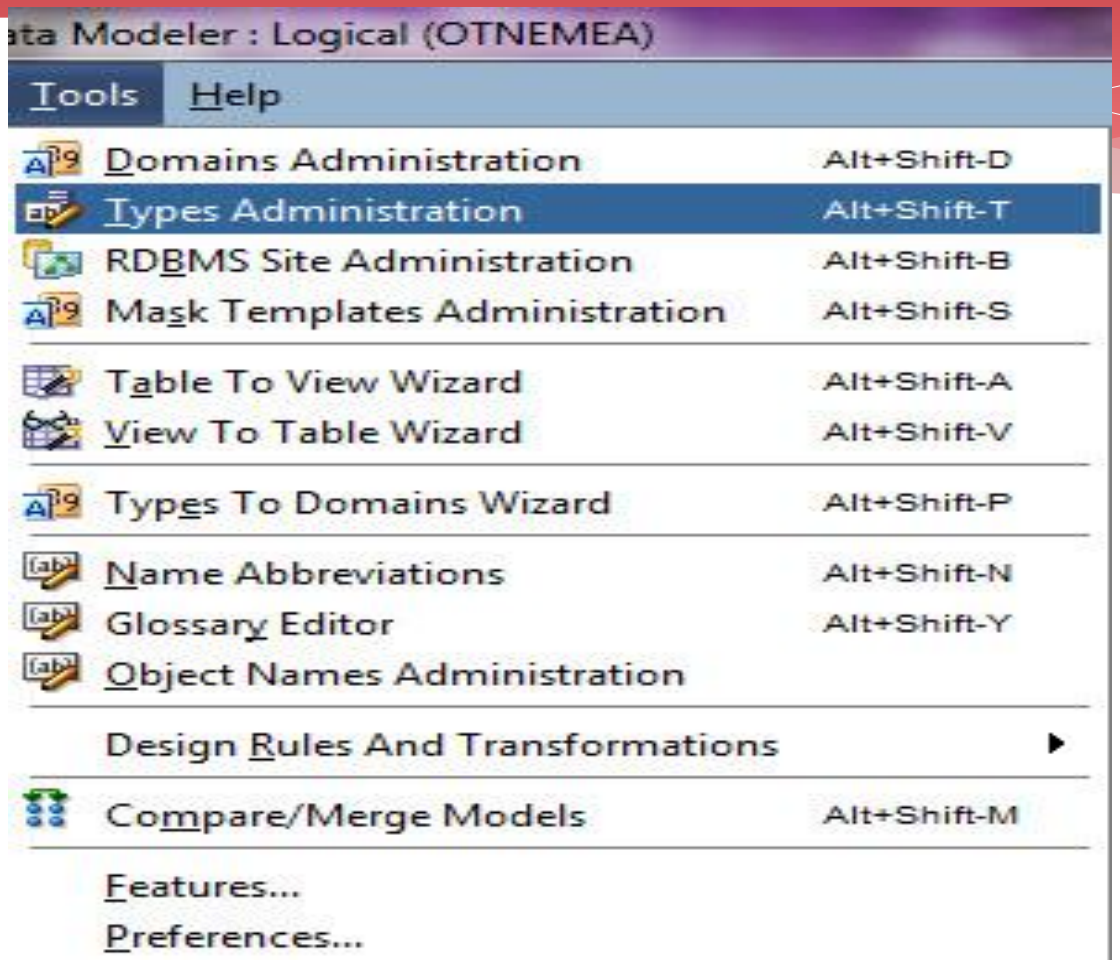


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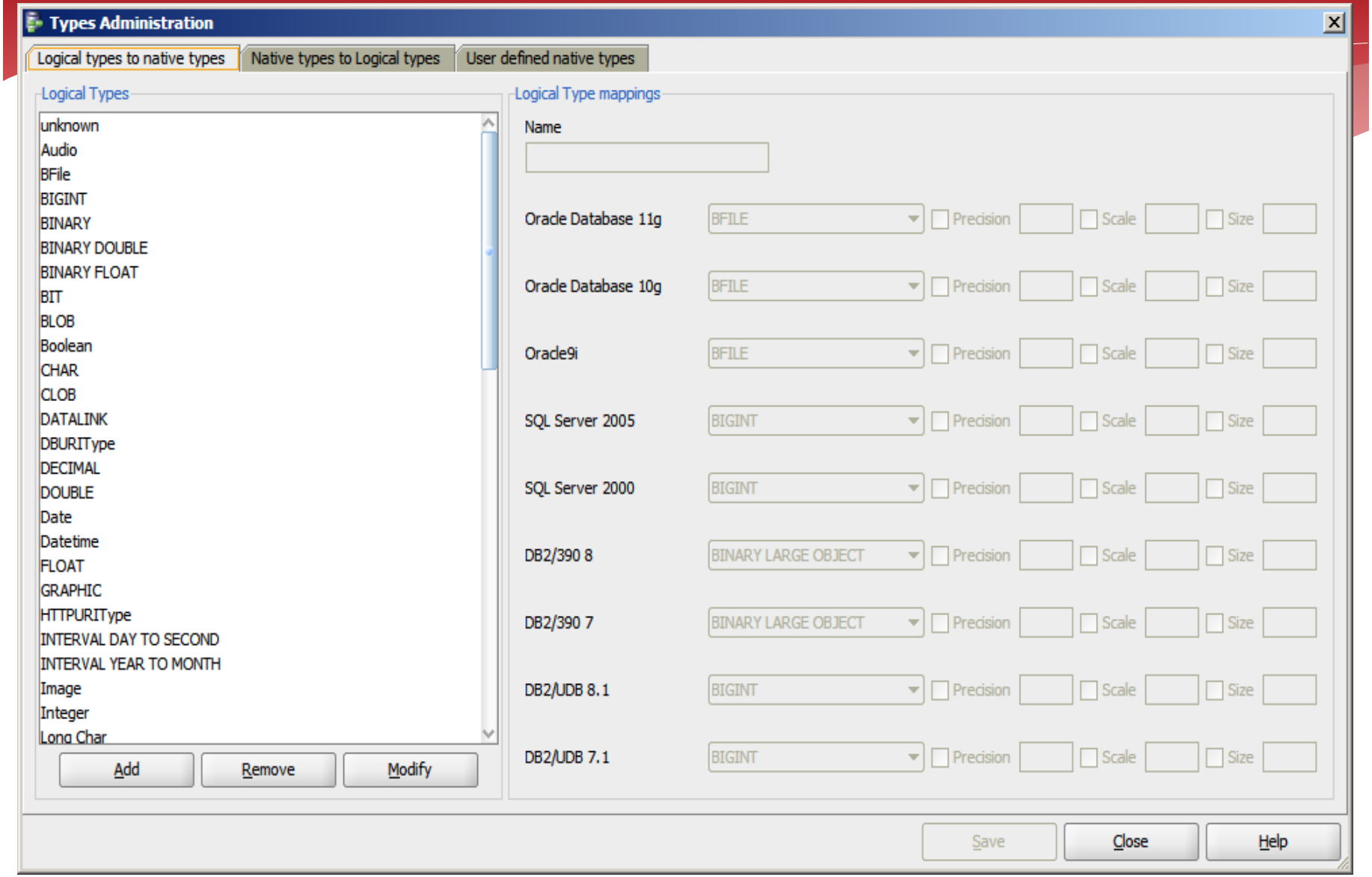


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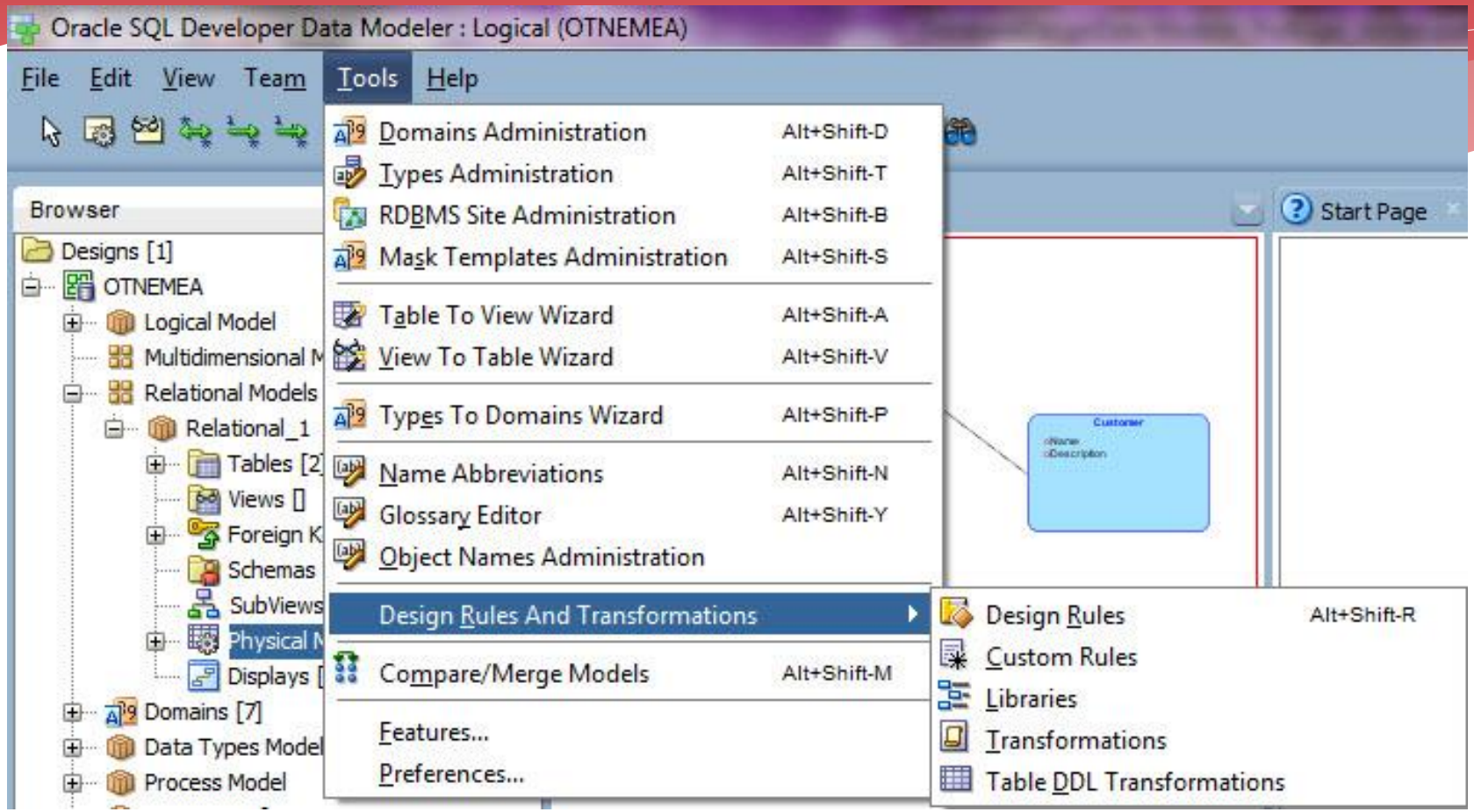
# Design Rules





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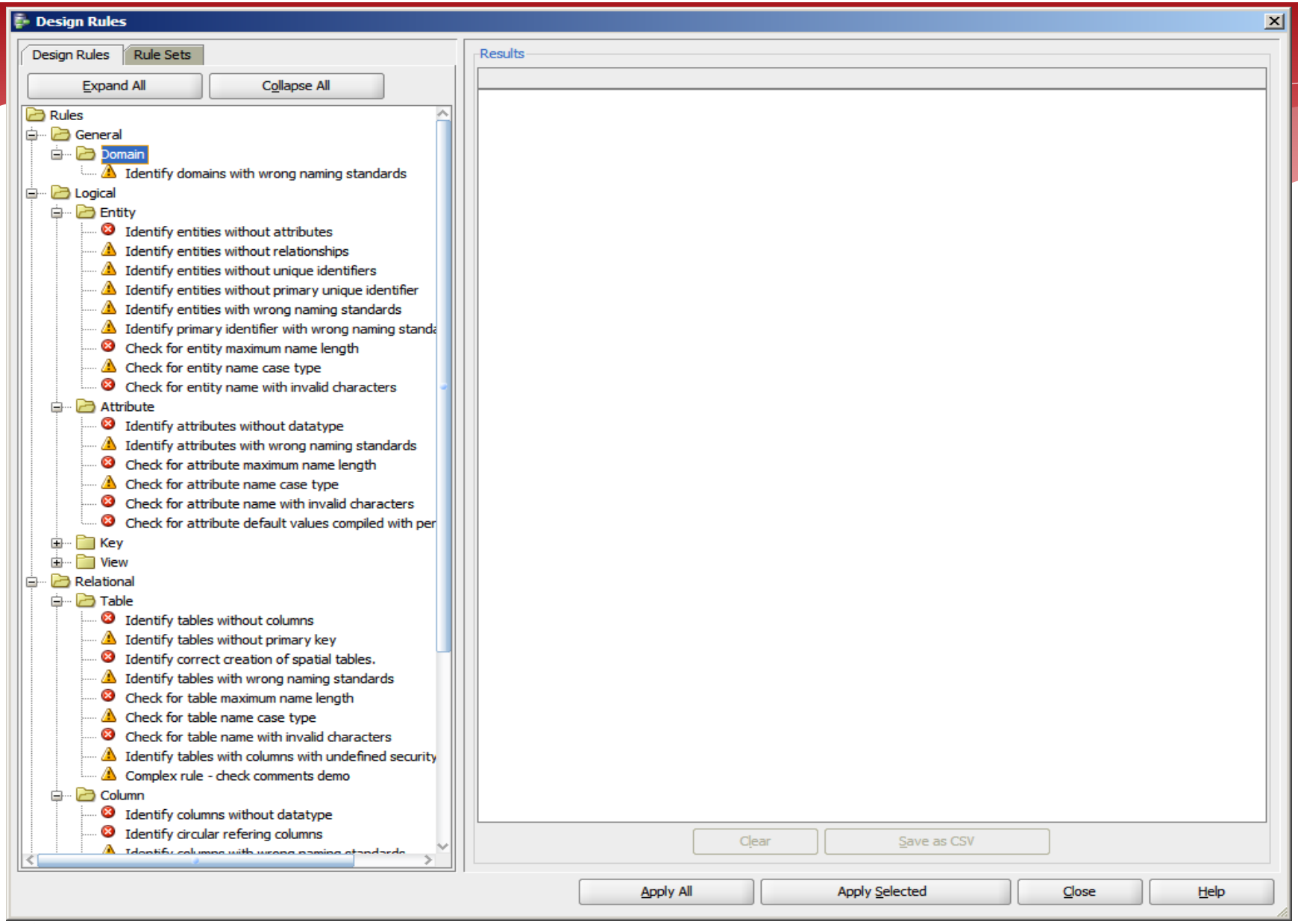


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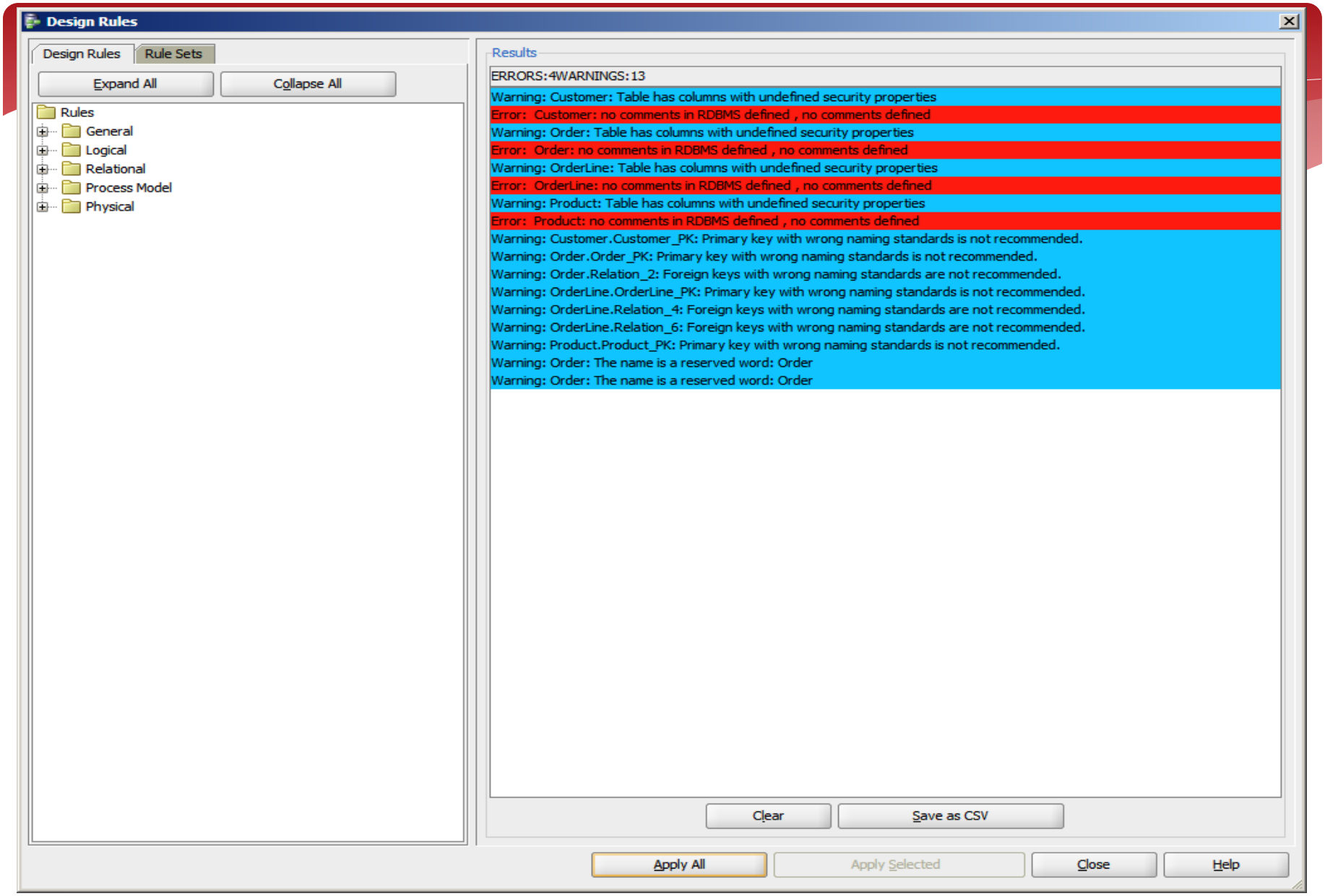


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# Different Compares

* Design vs Design
* Design vs Database
* Database vs Design

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# Different Compares, Designs

* File | Import | Data Modeler Design
  * Compares ”everything”
* Tools | Compare/Merge Models
  * Compares only relational and physical models
  * ALTER DDLs can be generated

* These can be used for instance to compare different versions of the design from version control

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# Different Compares, Database

* Synchronize Model With Data Dictionary
  * Target: model
* Synchronize Data Dictionary With Model
  * Target: database
* File | Import | DDL File
* File | Import | Data Dictionary

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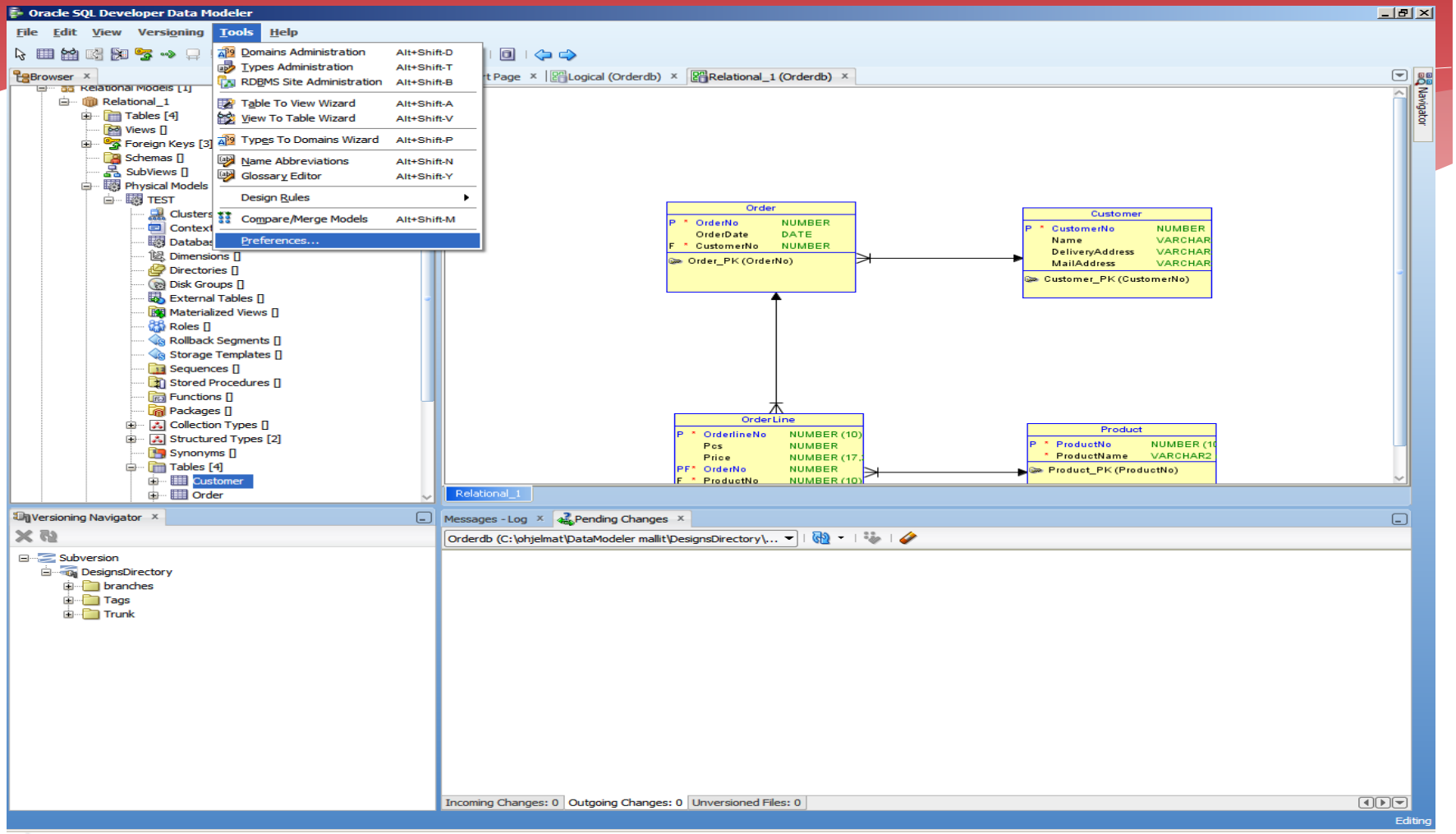
# Preferences

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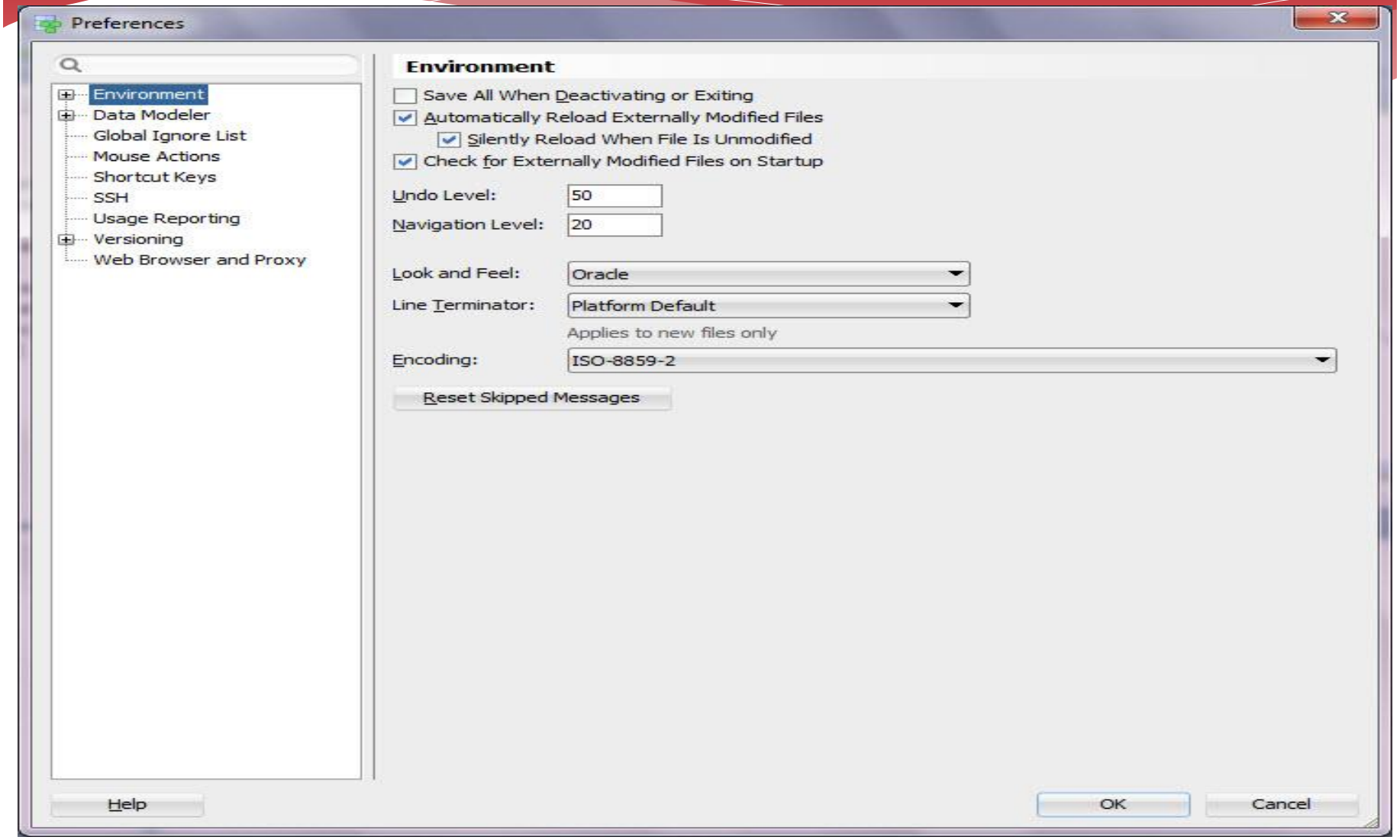


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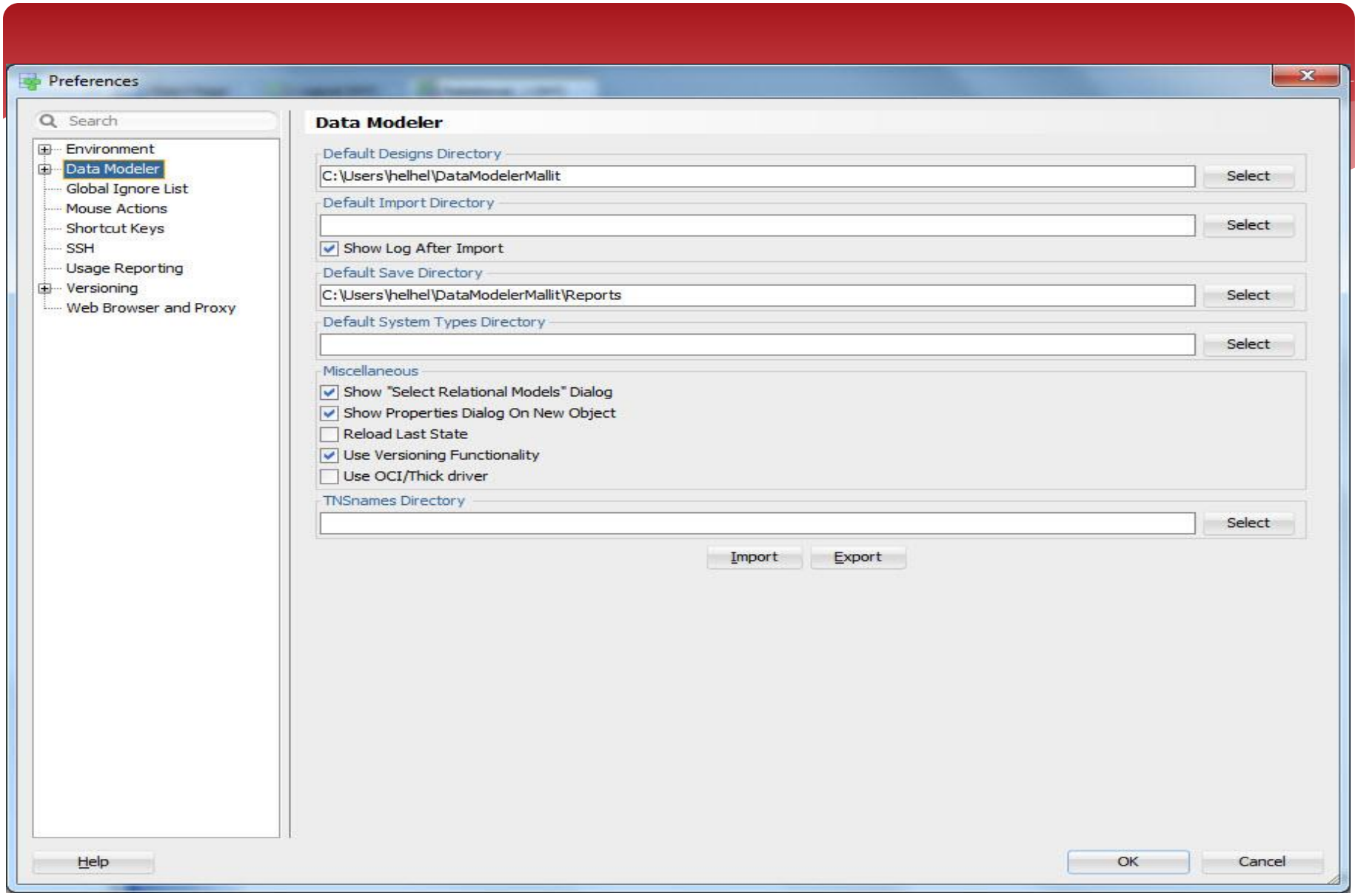


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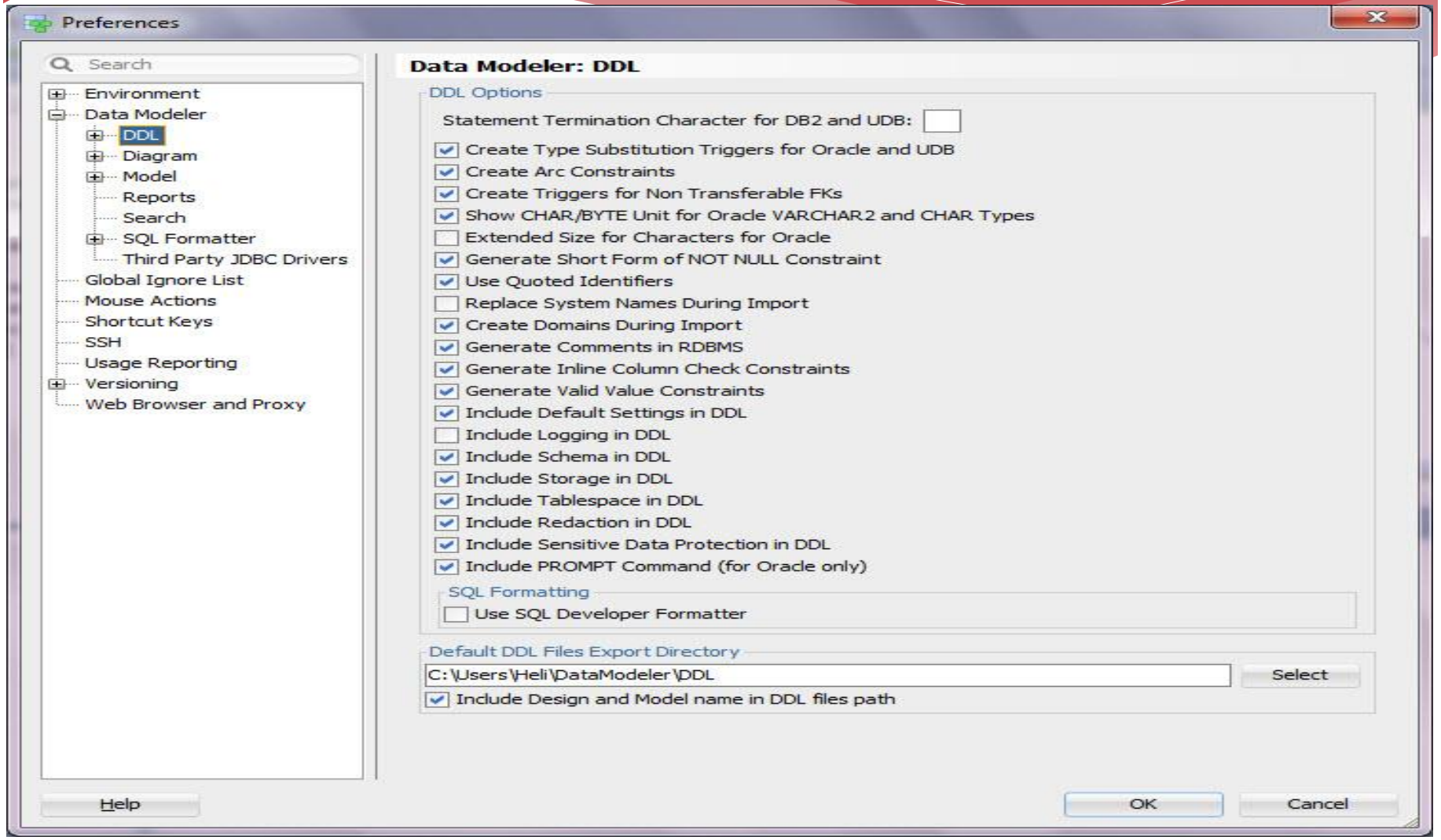


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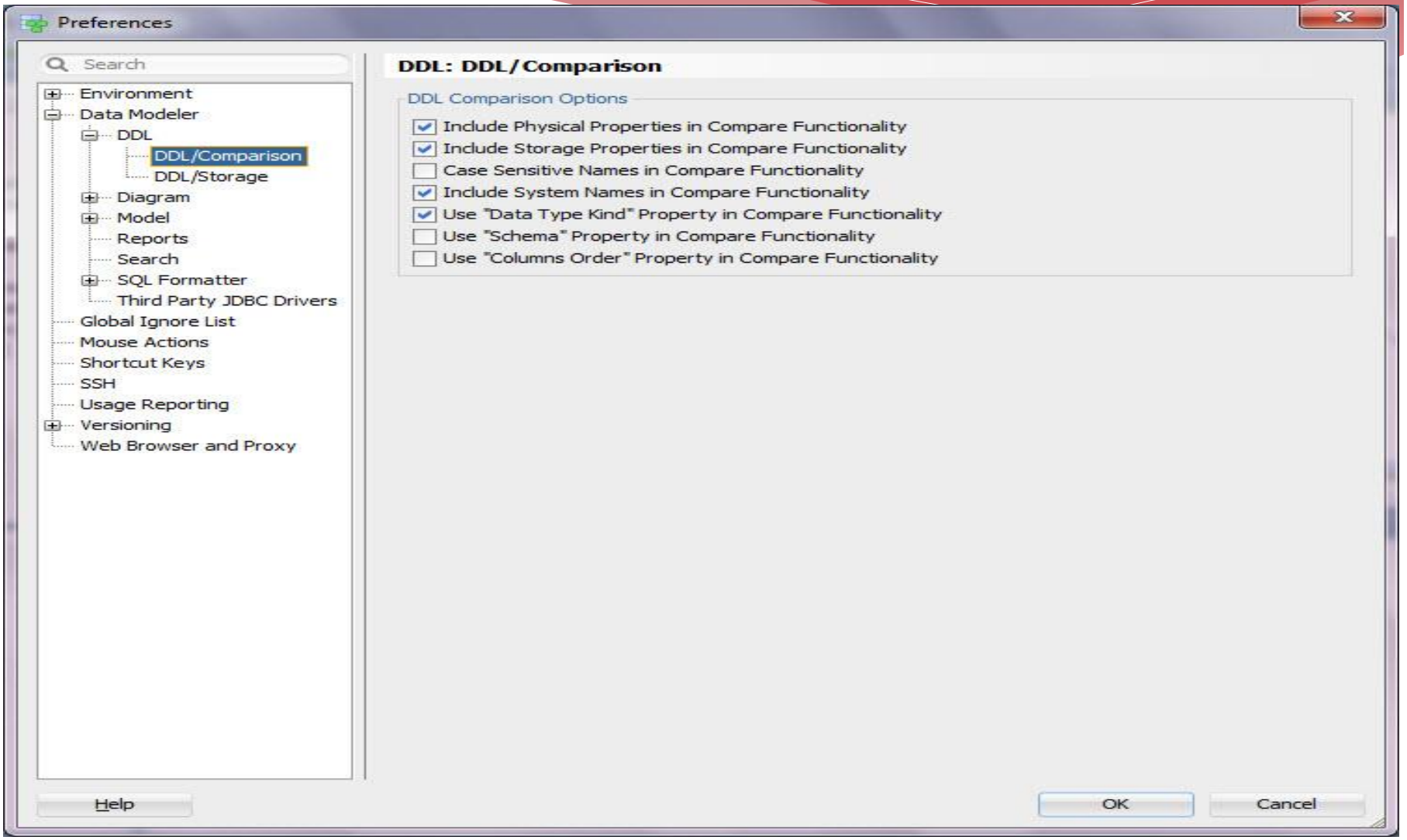


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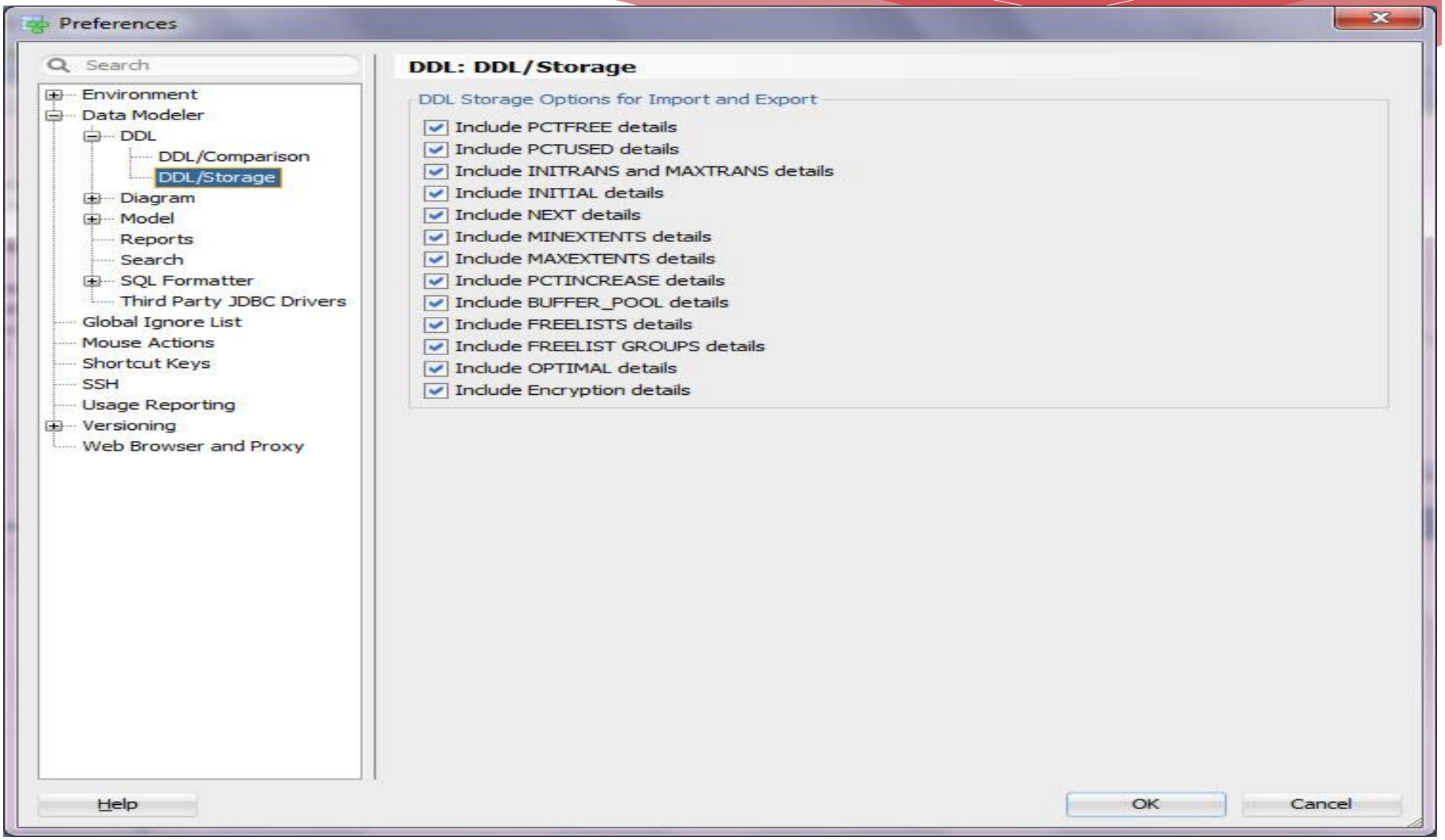


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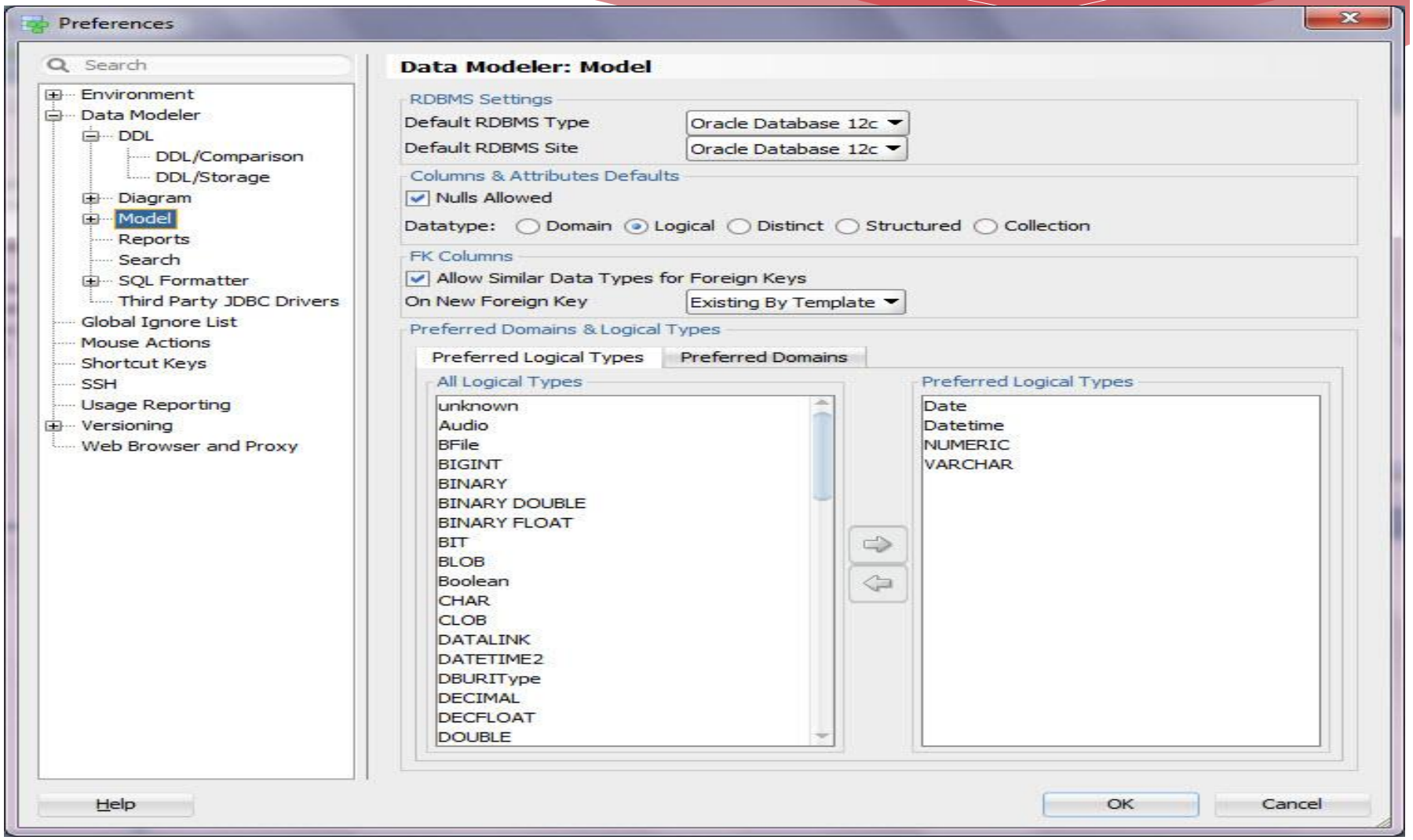


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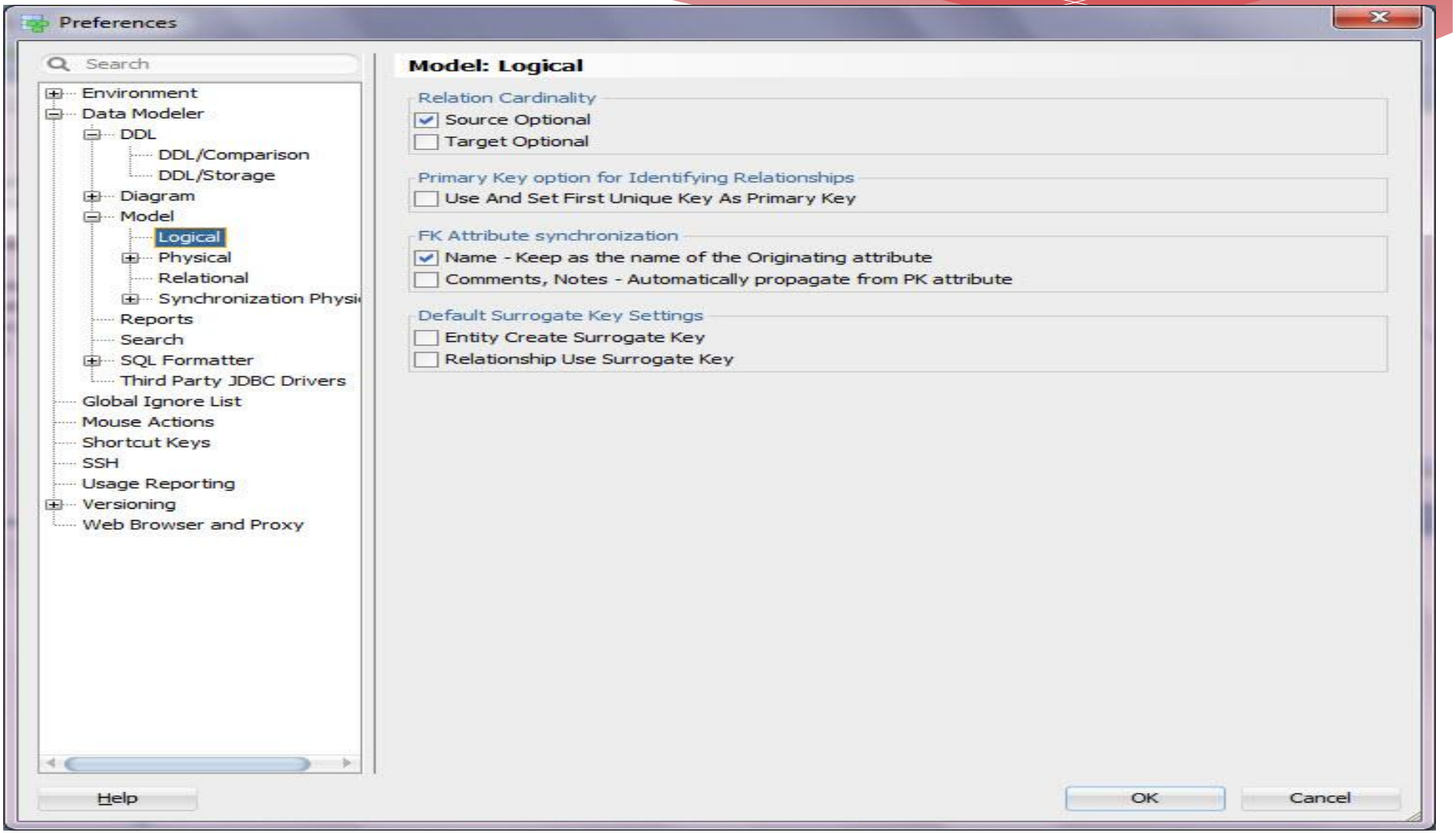


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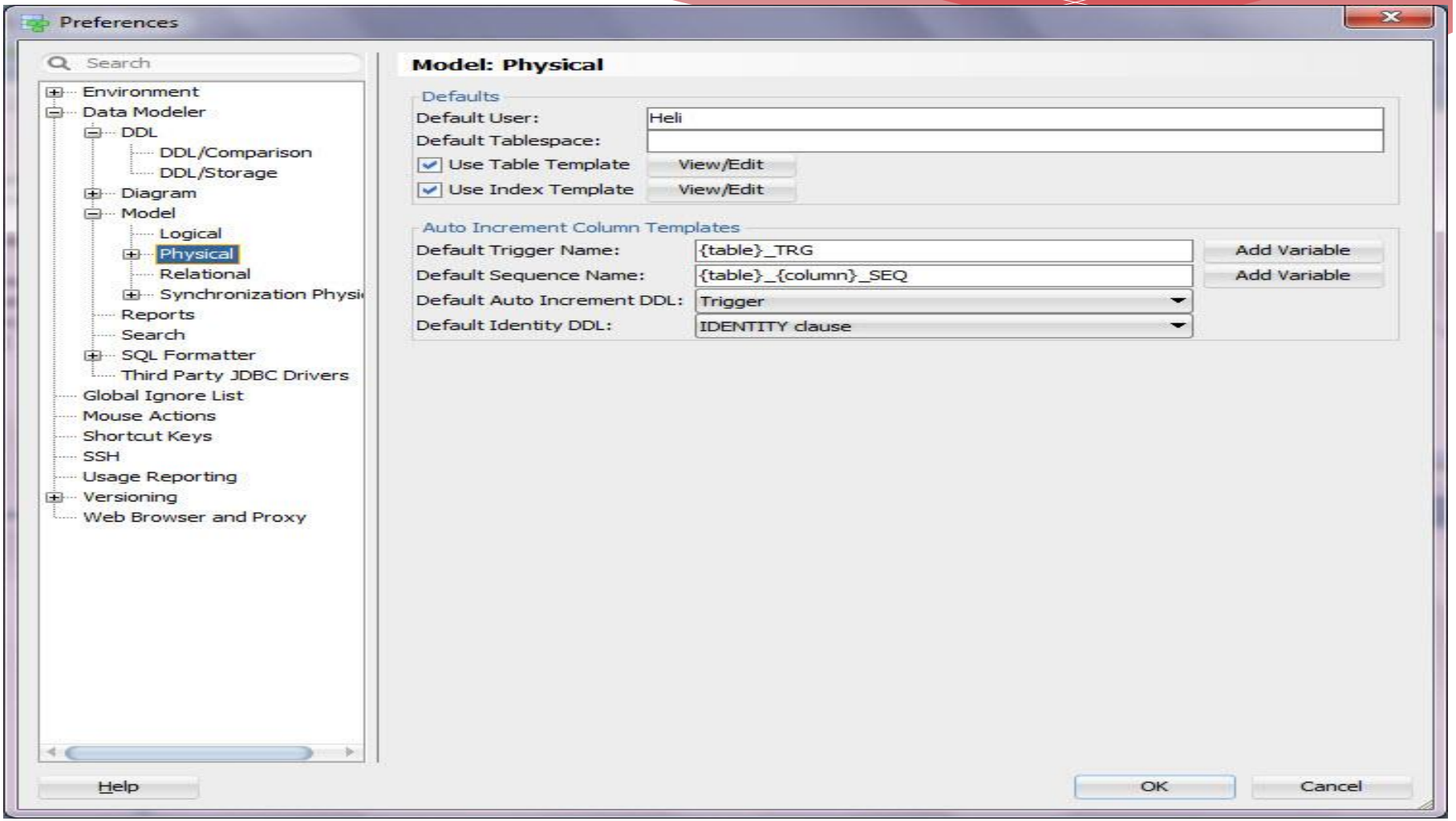


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# Design Properties

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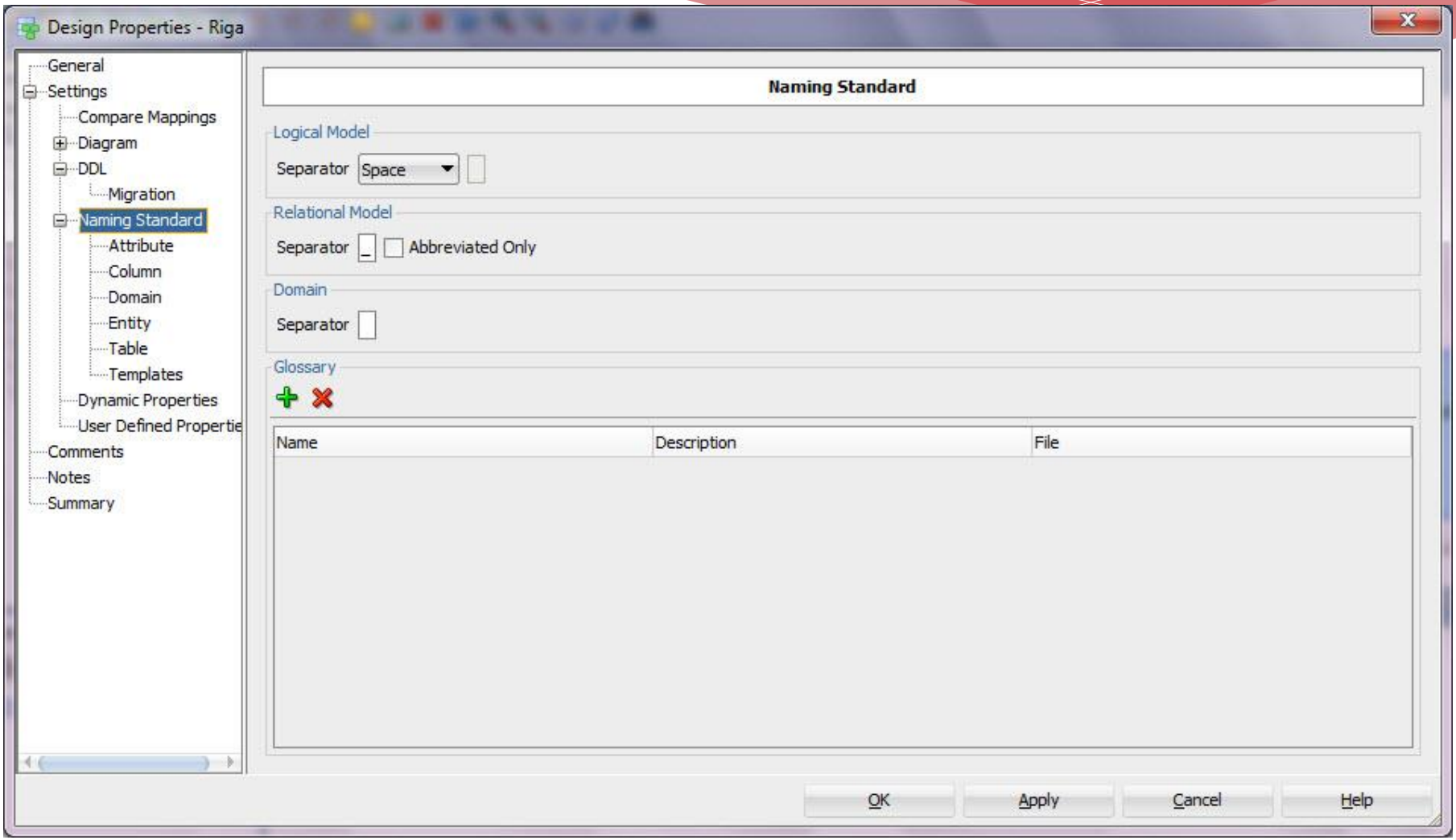


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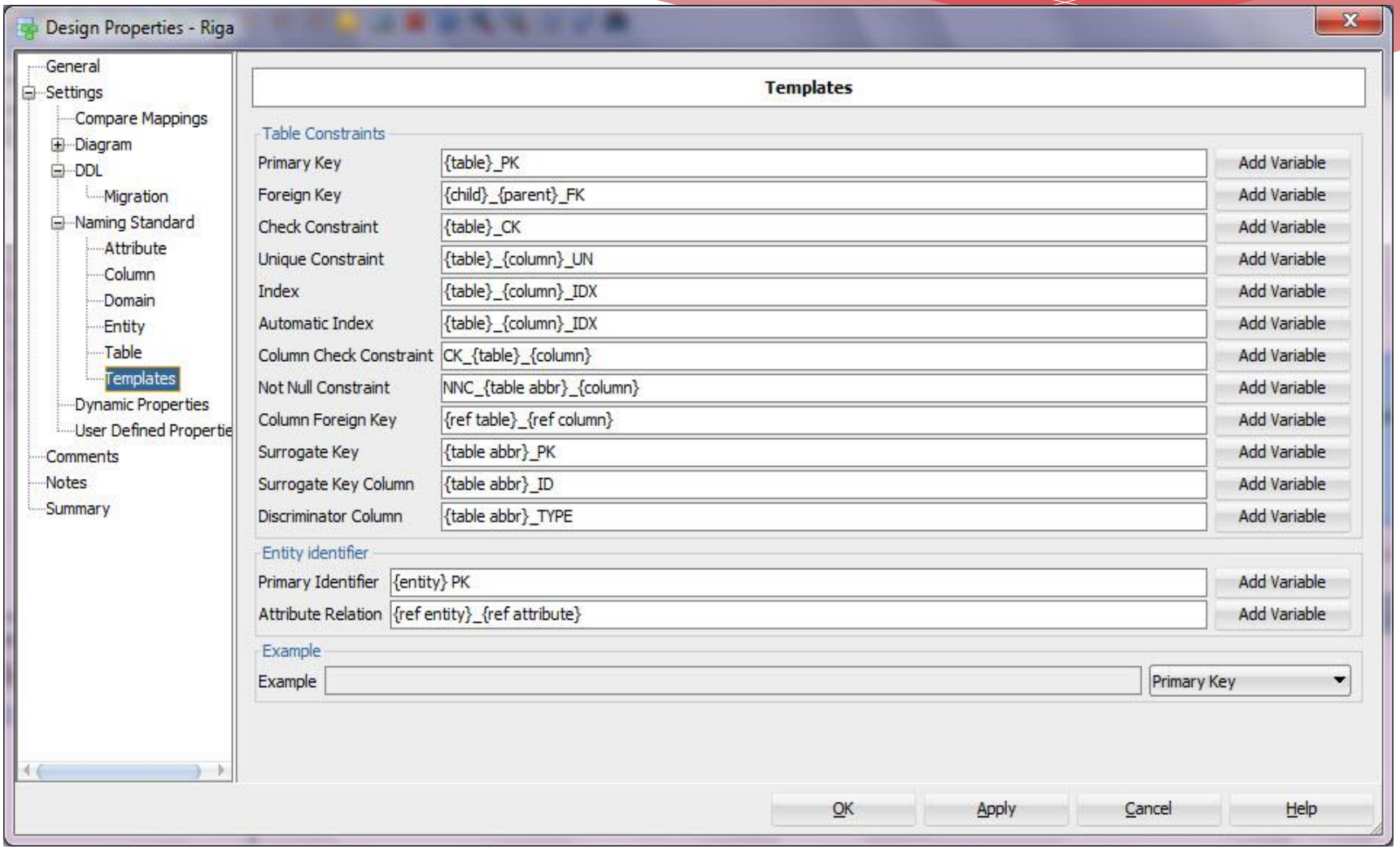


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# Version control (Subversion)

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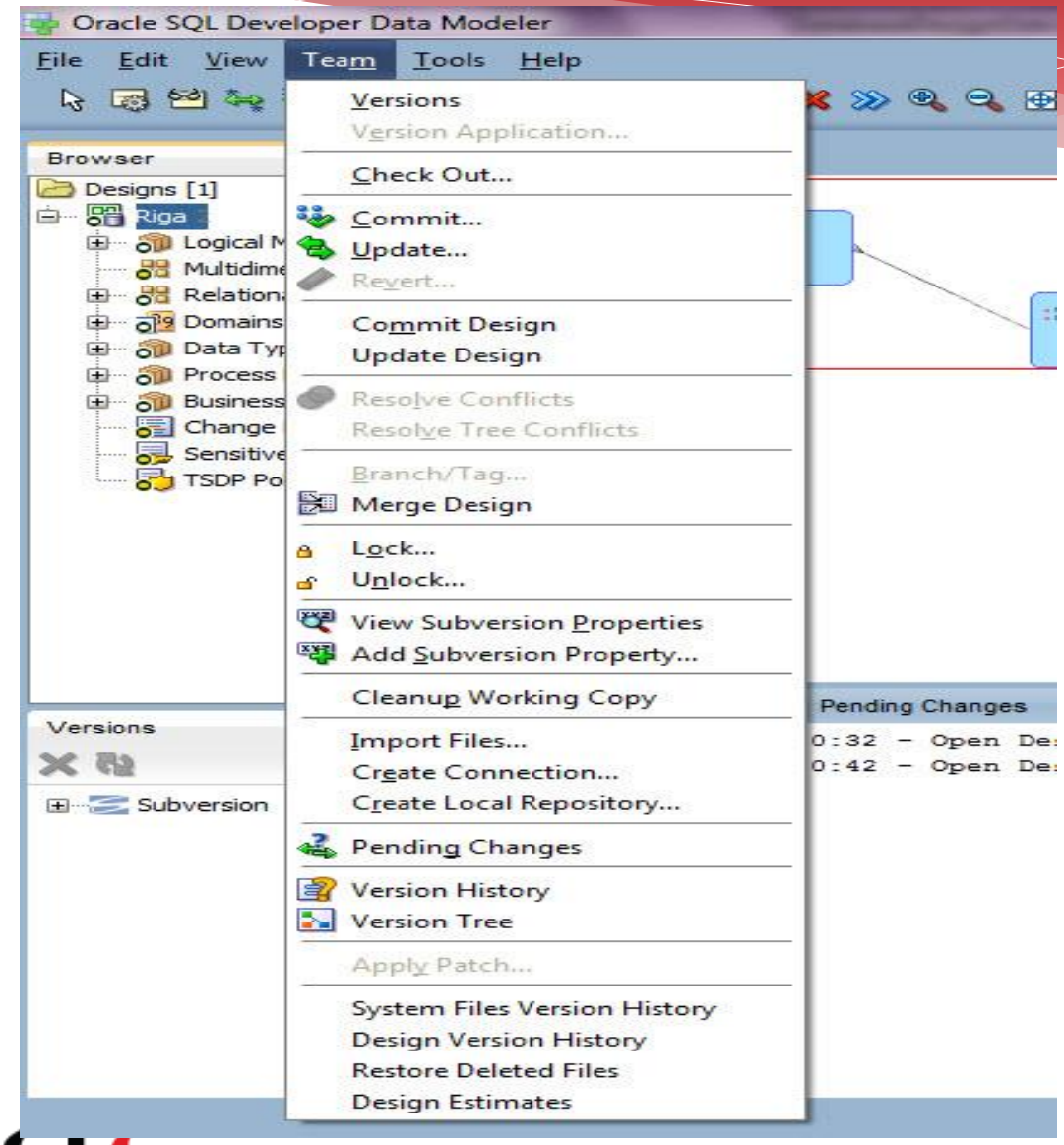


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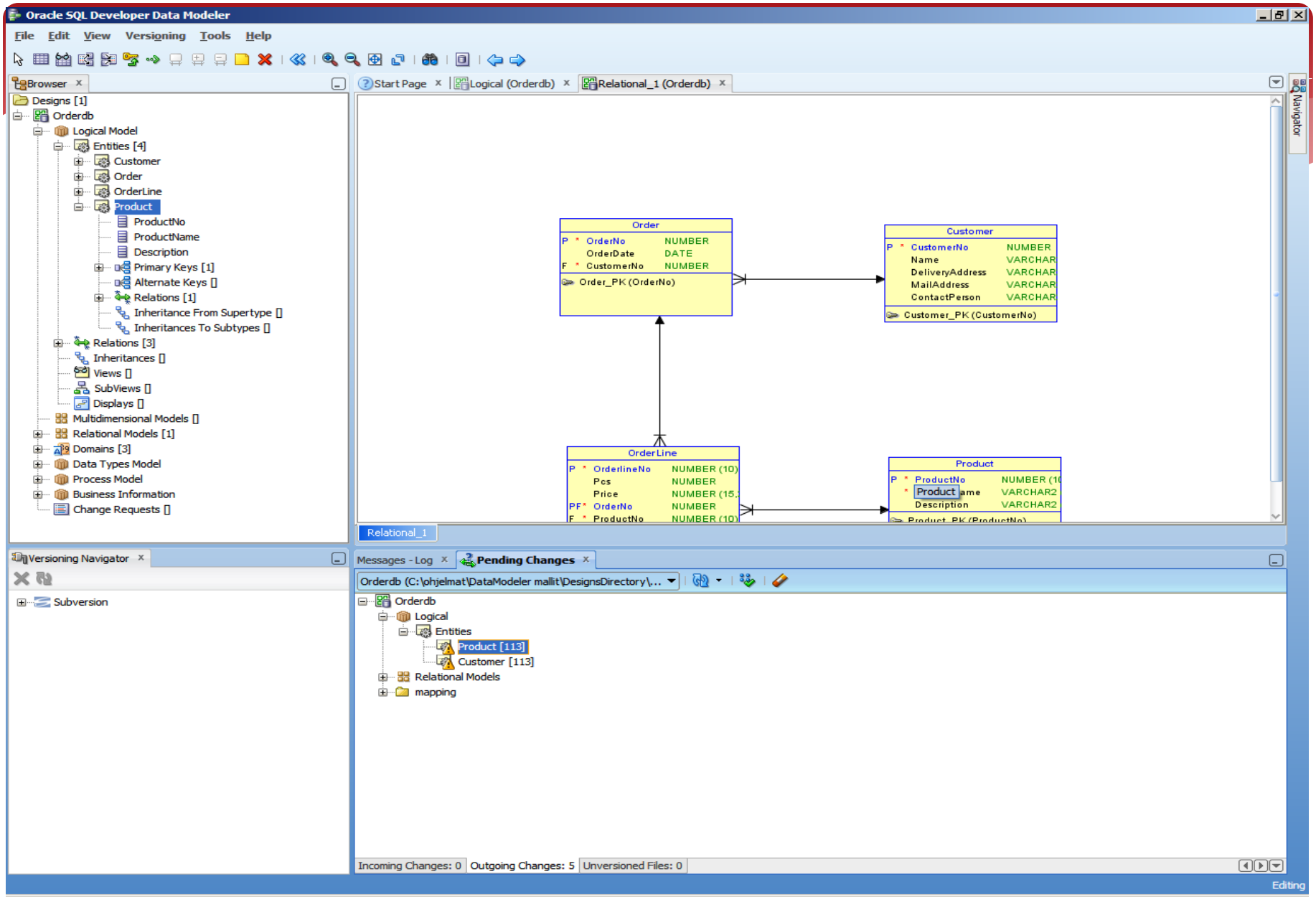


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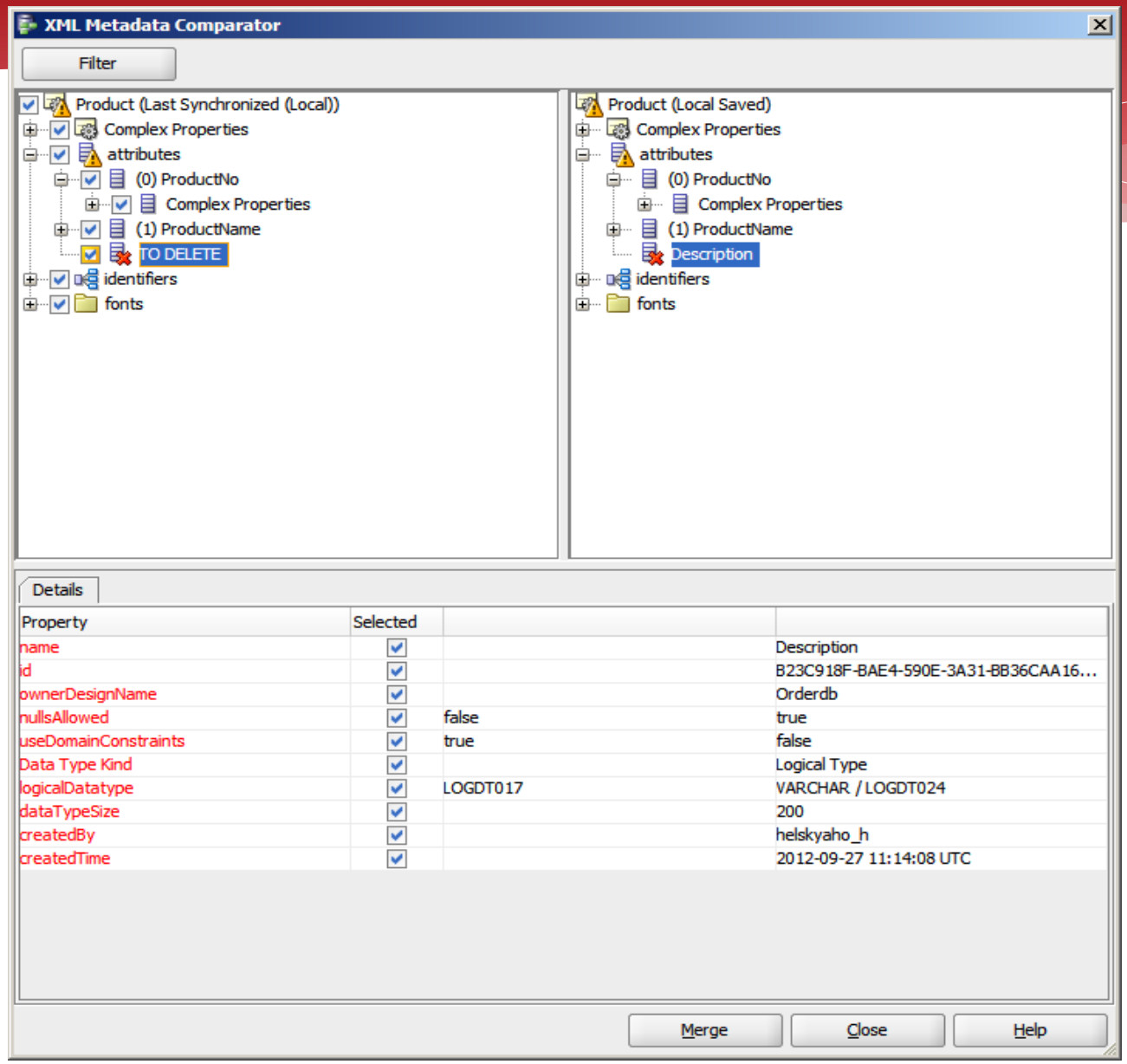


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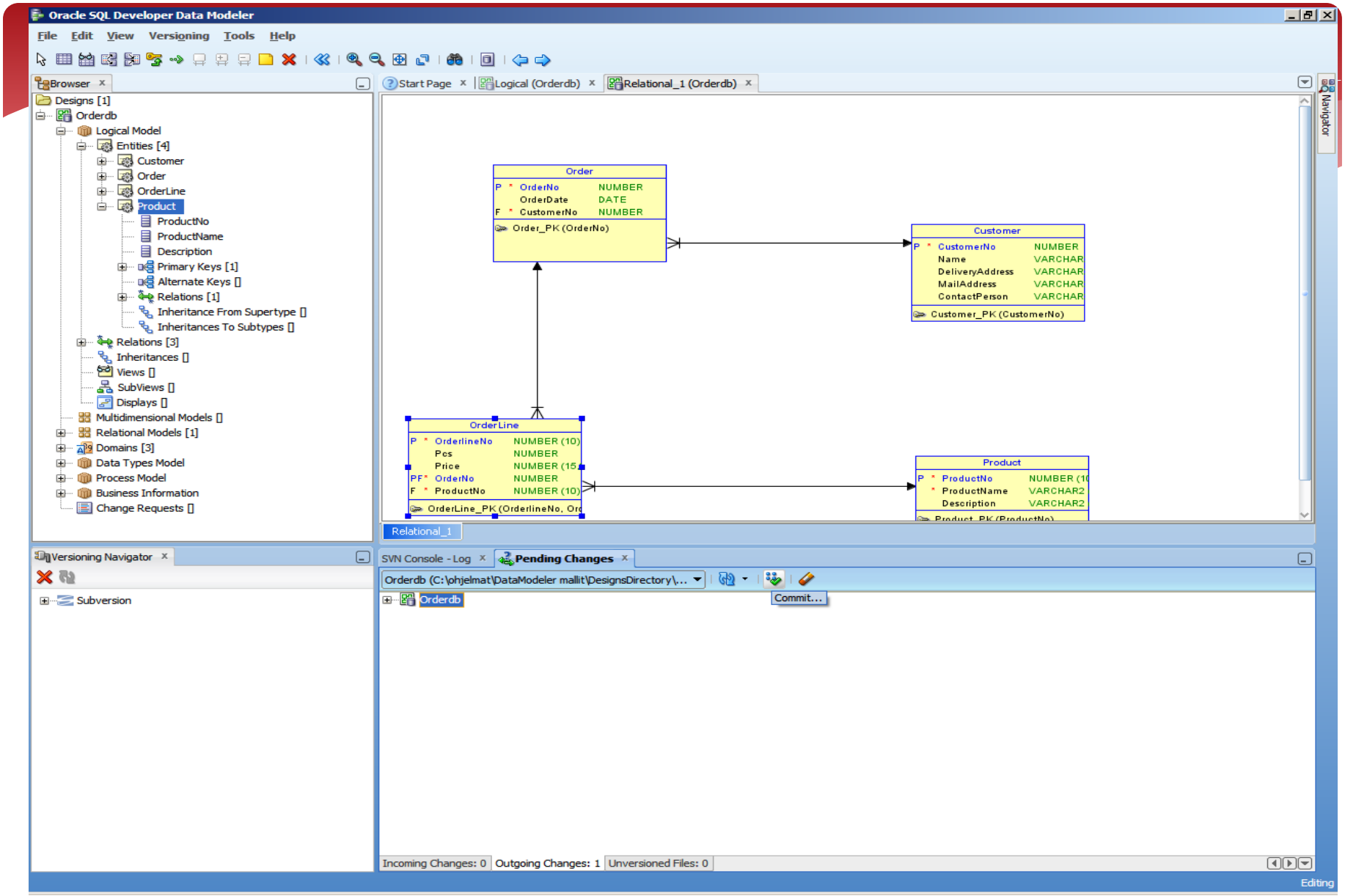


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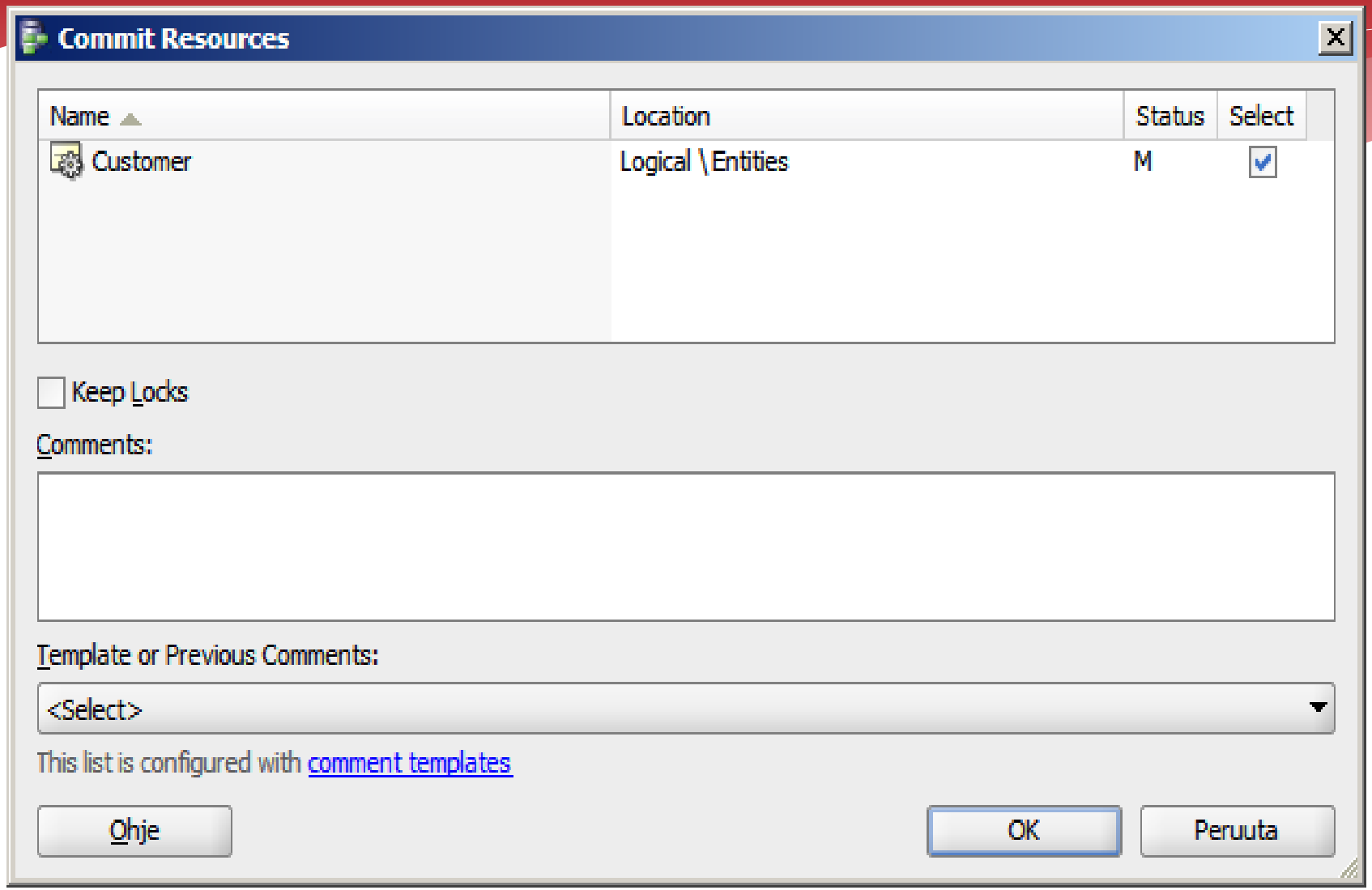


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# Conclusions

* To be able to connect to the database, to see its content online and to maintain the data: **SQL Developer**
* To *design* the database and to maintain the data structures: **Data Modeler**
* To *design* the data architecture: **Data Modeler**

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# Conclusions

* Data Modeler is a good tool; good support for iterative processes
* Enables documenting and versioning (and comparing the versions)
* Enables multiuser environment
* Is free to use
* Support for other databases as well
* I see no reason not to use it!

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# THANK YOU!

QUESTIONS?

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