What's New with SQL Developer Data Modeler

Heli Helskyaho

HrOUG 2015

Miracle Finland Oy

Introduction, Heli

* Graduated from Helsinki University (Master of Science, computer science)
* Worked with Oracle products since 1993, worked for IT since 1990
* Database!
* CEO for Kantamestarit Oy since 2000
* CEO for Miracle Finland Oy since 10/2010
* Oracle ACE Director since 2013 (ACE since 2011)
* Author of the book Oracle SQL Developer Data Modeler for Database Design Mastery (Oracle Press, 2015)

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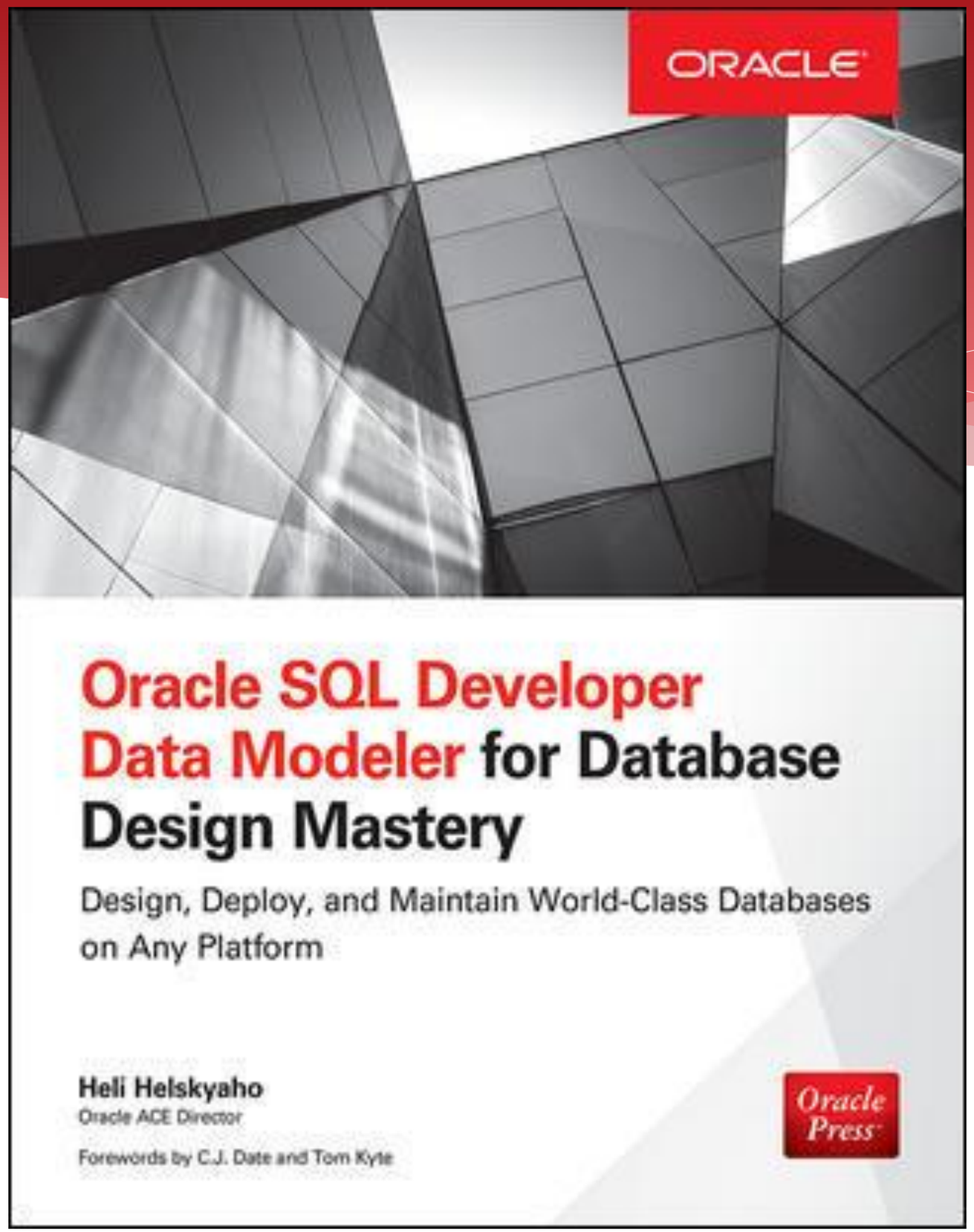

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Introduction, Heli

* 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 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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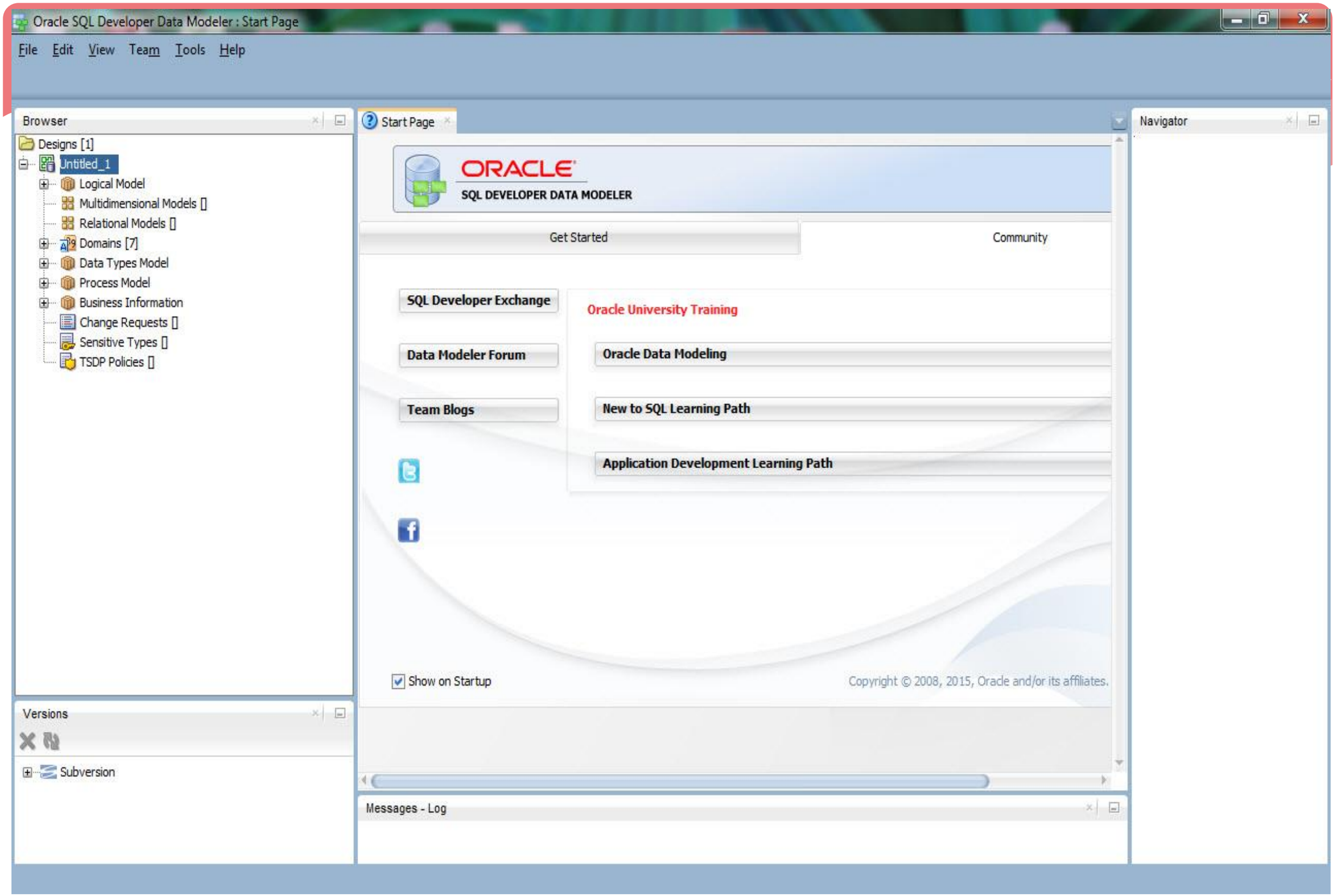

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Agenda for this presentation

* Journaling tables and other Table DDL Transformation Scripts
* User Defined Properties
* Search
* Compare
* Reverse Engineer

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Preferences and Properties

* Every version brings new Preferences and Properties to better enable you to tune the tool for your needs

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Journaling

* How to create journaling tables in DM 4.1?

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Copy the file

* dr_custom_scripts.xml
  * from datamodeler\datamodeler\types\
  * to your Default System Types Directory

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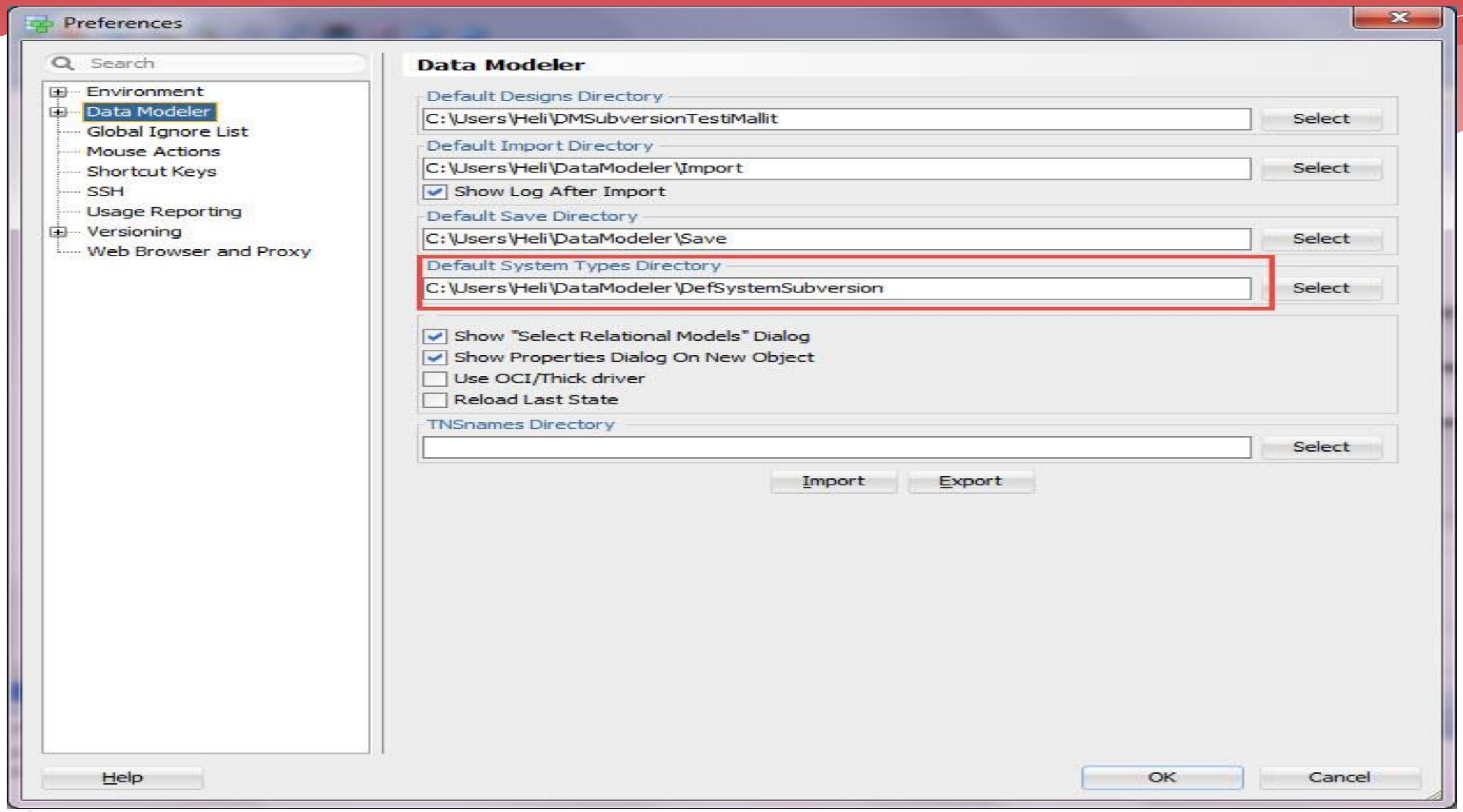
Where is Default System Types Directory?



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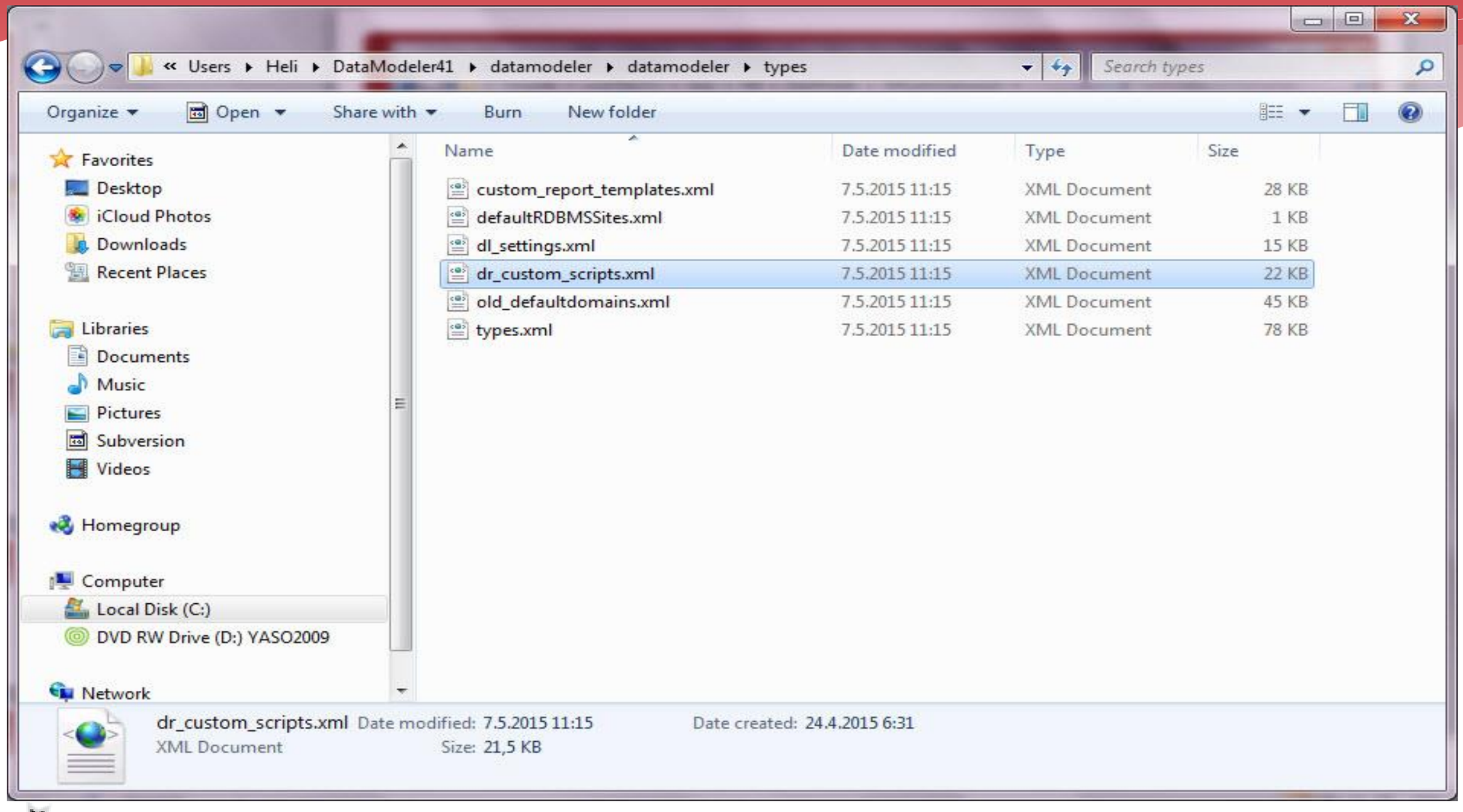
From



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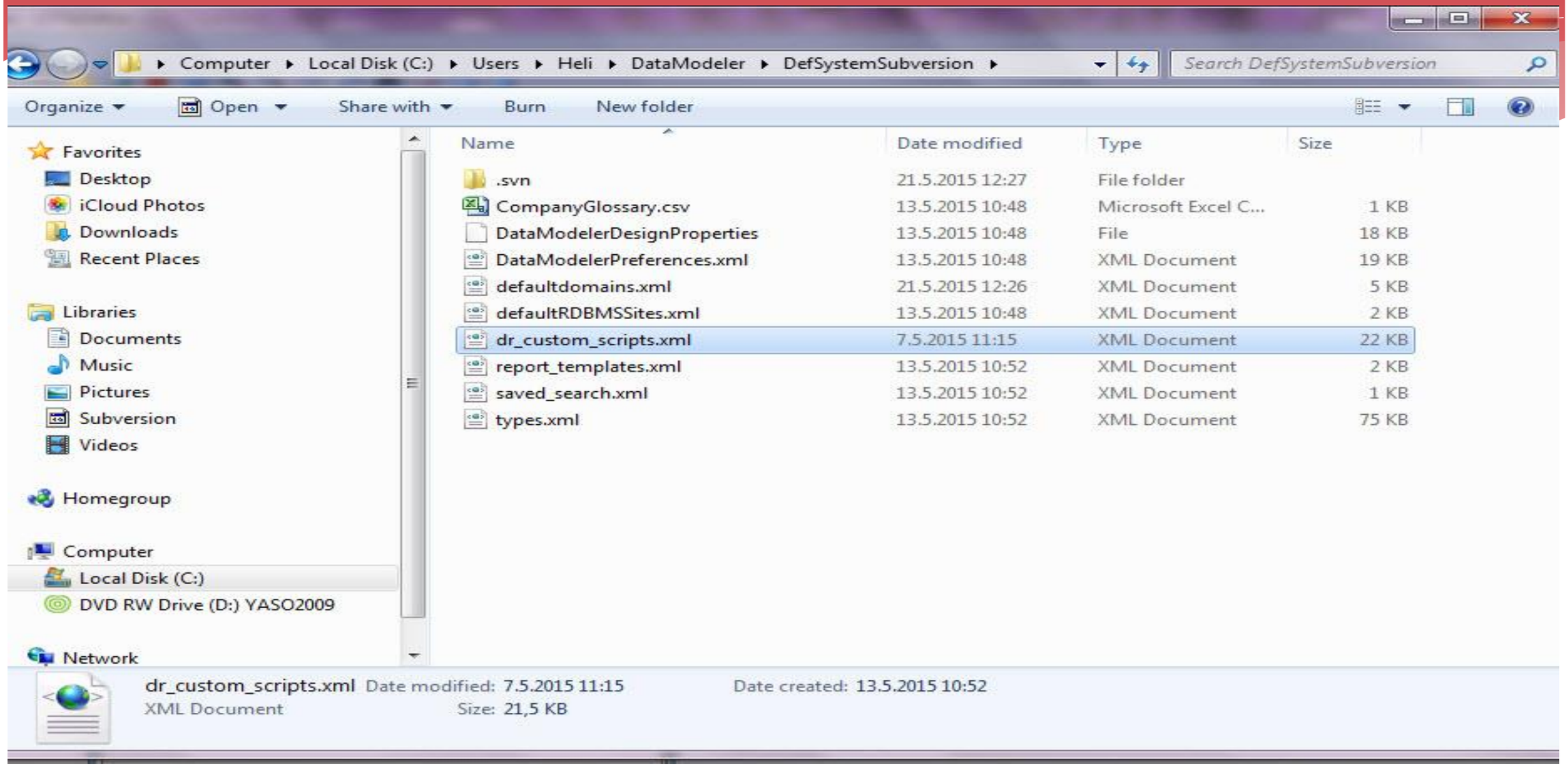

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Want to test or edit?

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Oracle SQL Developer Data Modeler - OTNEMEA

File Edit View Team Tools Help

Browser

Designs [1]
OTNEMEA
Logical Model
Multidimensional M
Relational Models
Domains [7]
Data Types Model
Process Model
Business Informat
Change Requests
Sensitive Types []
TSDP Policies []

Domains Administration Alt+Shift-D
Types Administration Alt+Shift-T
RDBMS Site Administration Alt+Shift-B
Mask Templates Administration Alt+Shift-S

Table To View Wizard Alt+Shift-A
View To Table Wizard Alt+Shift-V

Types To Domains Wizard Alt+Shift-P

Name Abbreviations Alt+Shift-N
Glossary Editor Alt+Shift-Y
Object Names Administration

Design Rules And Transformations

Compare/Merge Models Alt+Shift-M

Features...
Preferences...

Design Rules Alt+Shift-R
Custom Rules
Libraries
Transformations
Table DDL Transformations

Start Page

Order
NU
DA
VA
Customer_ID NU
OrderNo)

Overview Vic

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Table DDL Transformation Scripts

Active Script Set: Journal tables

Sets

Name
Journal tables
Empty script

Set Details

Name: Journal tables

Description:

Scripts

	Name	Engine
1	Before Create	Oracle Nashorn
2	Instead Of Create	Oracle Nashorn
3	After Create	Oracle Nashorn
4	End Of Script	Oracle Nashorn

Script

Table To Test: Customer

Library: Method:

```
9  - tableProxy - table definition in physical model
10 */
11 var ddl;
12 var lname;
13 //journal table name suffix
14 jnTabSuf = "_JN";
15 // trigger name suffix
16 jnTrgSuf = "_JNtrg";
17 prompt = model.getAppView().getSettings().isIncludePromptInDDL();
18 useSchema = model.getAppView().getSettings().isIncludeSchemaInDDL();
19 if(model.getStorageDesign().isOpen()){
20     if(useSchema){
21         lname = tableProxy.getLongName();
22     }else{
23         lname = tableProxy.getName();
24     }
```

Save | Test | Debug | Close | Help

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Generate DDLs

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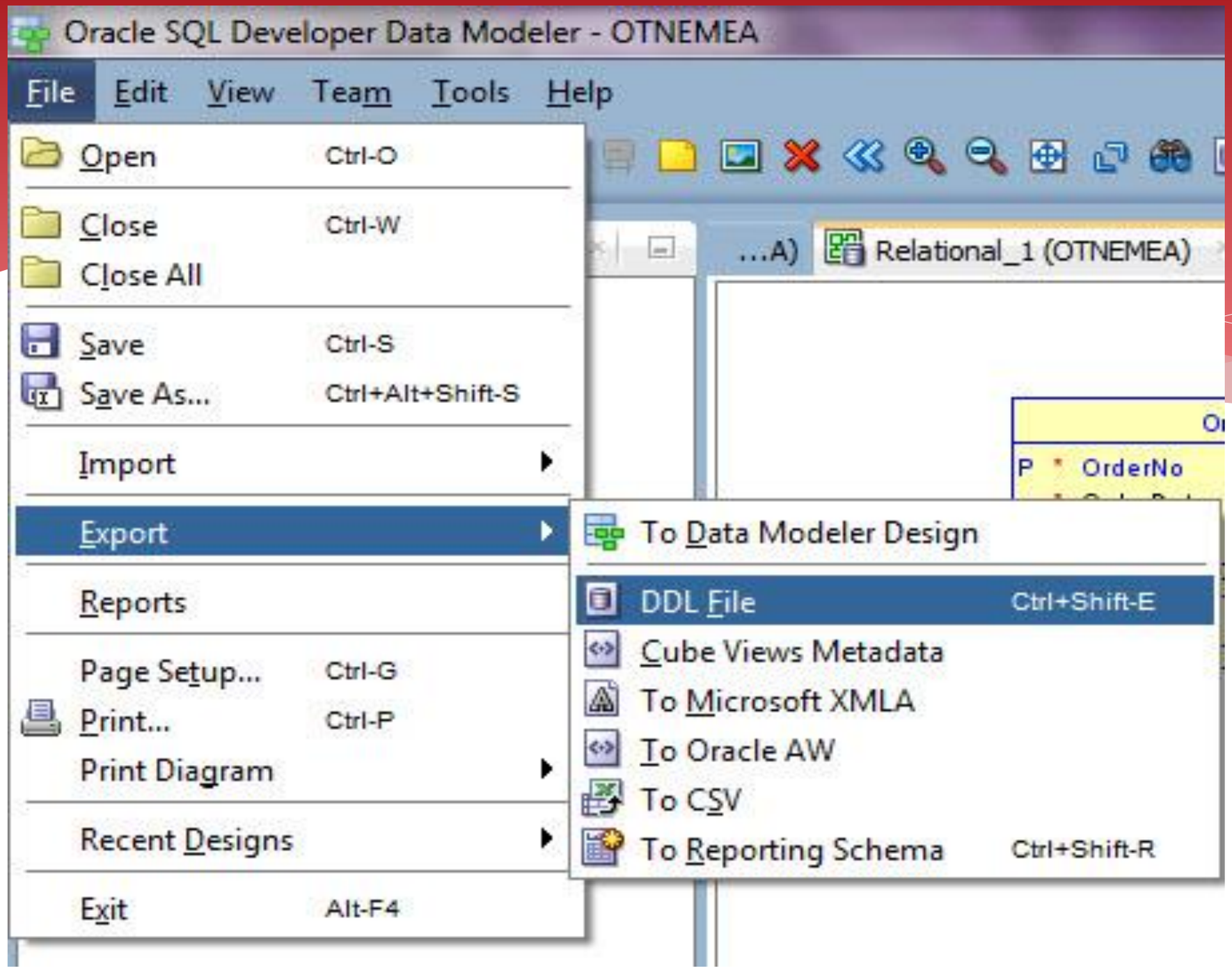

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Select the scripts and tables

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DDL Generation Options

'Create' Selection | 'Drop' Selection | Name Substitution | Include Table Scripts | Include Table DDL Scripts | Oracle Errors to Mask

Filter | Active Script Set: Journal tables

Insert Scripts	Name
☑	Customer
☐	Order

Design Rules | ☐ Include Comments | ☐ Apply Name Substitution | Regular DDL | ☐ Generate DDL in Separate Files | ☐ Generate REST Services

Save Configuration | Load Configuration | OK | Cancel | Help

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DDL File Editor - Oracle Database 12c

Oracle Database 12c | Relational_1 | Generate | Clear

```
41  PROMPT Creating Journal Table for 'Heli.Customer';
42  CREATE TABLE Heli.Customer_JN
43   (JN_OPERATION CHAR(3) NOT NULL
44   ,JN_ORACLE_USER VARCHAR2(30) NOT NULL
45   ,JN_DATETIME DATE NOT NULL
46   ,JN_NOTES VARCHAR2(240)
47   ,JN_APPLN VARCHAR2(35)
48   ,JN_SESSION NUMBER(38)
49   ,Name VARCHAR2 (200 CHAR)
50   ,Description VARCHAR2 (200 CHAR)
51   ,Customer_ID NUMBER NOT NULL
52   );
53
54  PROMPT Creating Journal Trigger for 'Heli.Customer';
55  CREATE OR REPLACE TRIGGER Heli.Customer_JNtrg
56    AFTER
57    INSERT OR
58    UPDATE OR
59    DELETE ON emp2 for each row
60   Declare
61    rec Heli.Customer_JN%ROWTYPE;
62    blank Heli.Customer_JN%ROWTYPE;
63    BEGIN
64      rec := blank;
65      IF INSERTING OR UPDATING THEN
66        rec.Name := :NEW.Name;
67        rec.Description := :NEW.Description;
68        rec.Customer_ID := :NEW.Customer_ID;
69        rec.JN_DATETIME := SYSDATE;
70        rec.JN_ORACLE_USER := SYS_CONTEXT ('USERENV', 'SESSION_USER');
71        rec.JN_APPLN := SYS_CONTEXT ('USERENV', 'MODULE');
72        rec.JN_SESSION := SYS_CONTEXT ('USERENV', 'SESSIONID');
73        IF INSERTING THEN
74          rec.JN_OPERATION := 'INS';
75        ELSIF UPDATING THEN
76          rec.JN_OPERATION := 'UPD';
77        END IF;
```

Save | Find | Close | Help

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What else can I do with those Table DDL Transformation Scripts?

* Anything!
* For instance you want to generate DDL for a RDBMS that is not supported by Data Modeler? Use this functionality (instead of create)!

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User Defined Properties (UDPs)

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Copy the file

* Types.xml
  * from datamodeler\datamodeler\types\
  * to your Default System Types Directory

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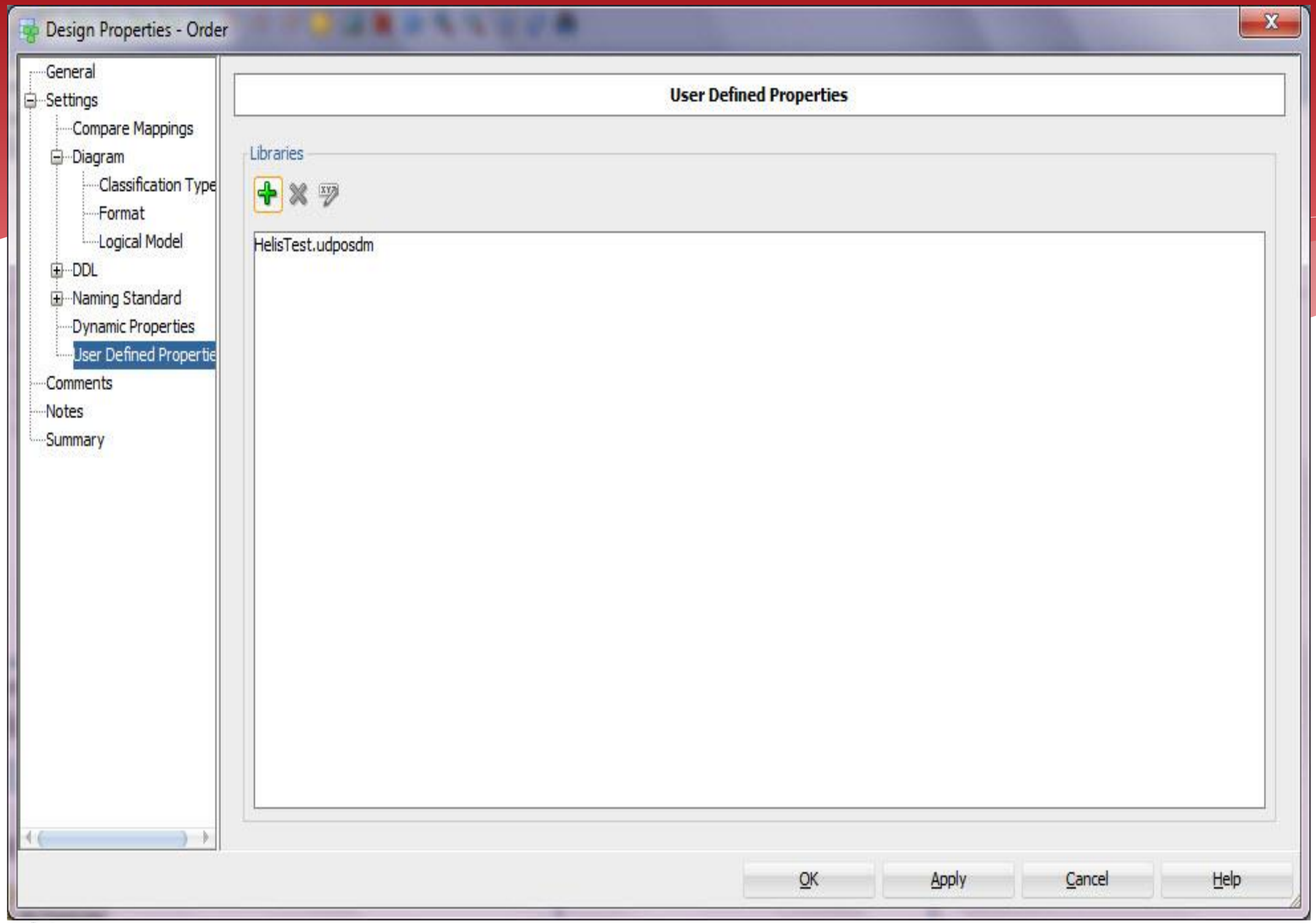

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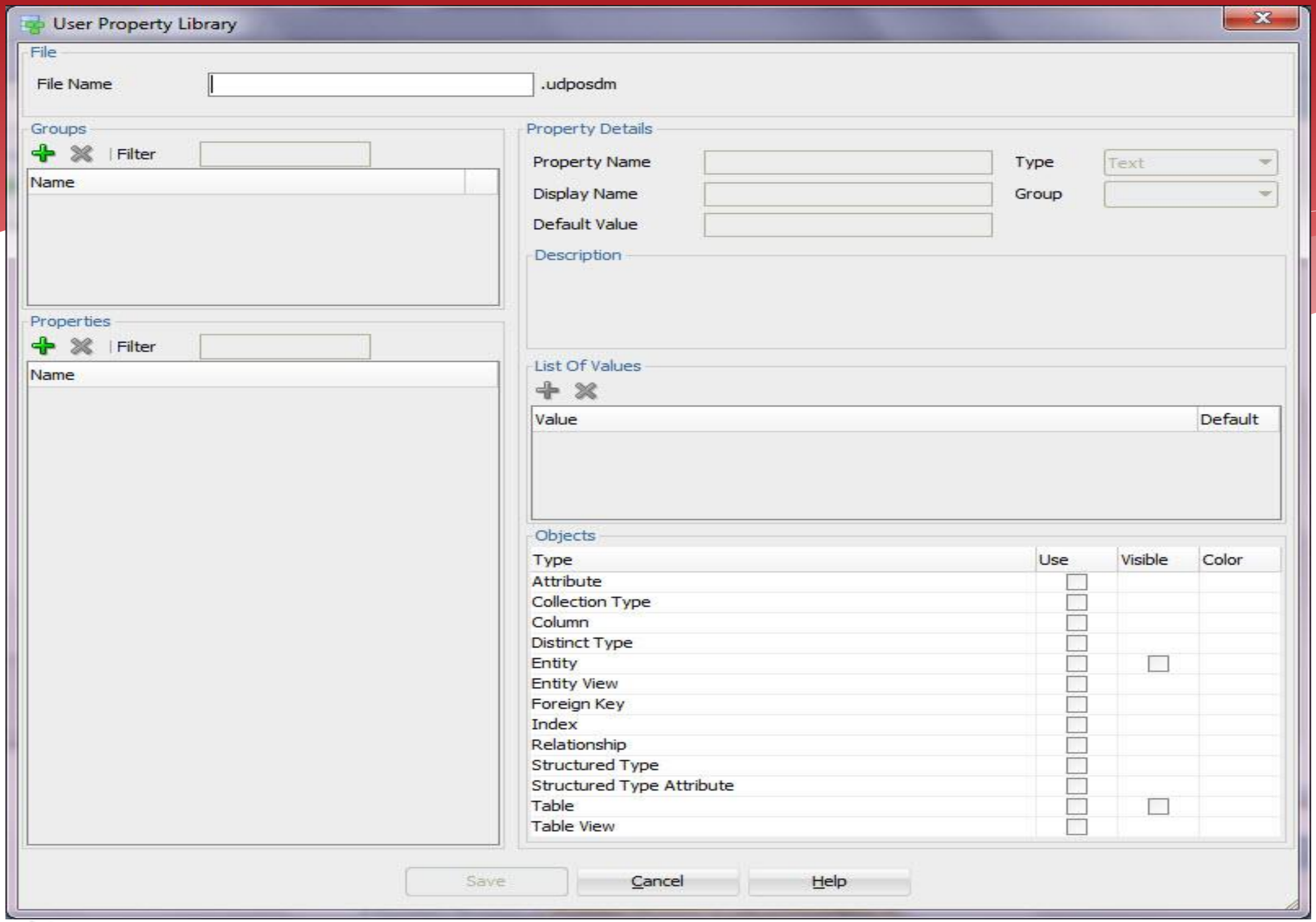

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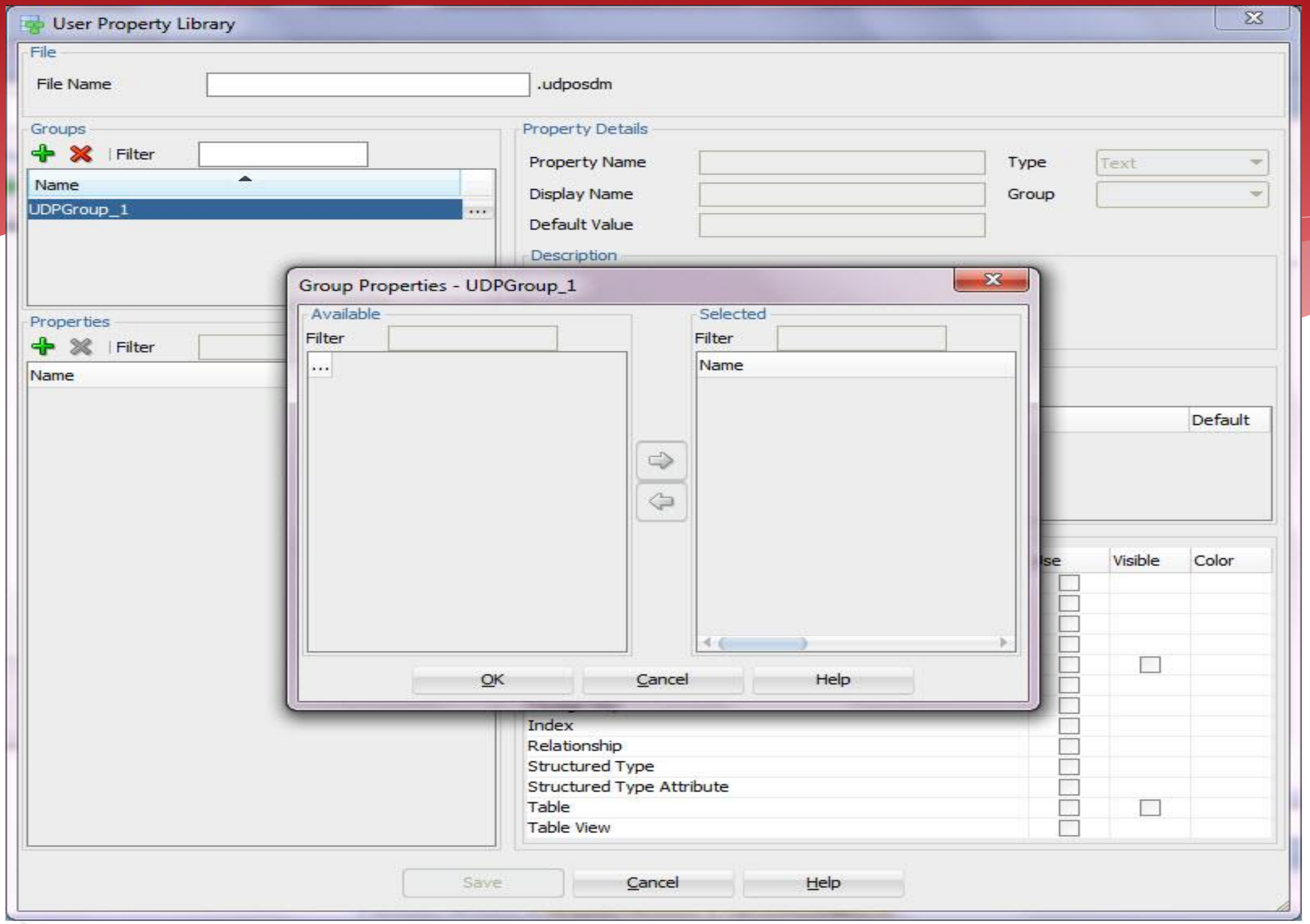

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User Property Library

File

File Name: HelisUDP .udposdm

Groups

Filter

Name
UDPGroup_1

Properties

Filter

Name
UDP_1

Property Details

Property Name: Attr_And_Col_Property

Type: Number

Display Name: Ready

Group: UDPGroup_1

Default Value: 0

Description

Is the attribute or column ready.

List Of Values

Value	Default

Objects

Type	Use	Visible	Color
Attribute	☑		
Collection Type	☐		
Column	☑		
Distinct Type	☐		
Entity	☐	☐	
Entity View	☐		
Foreign Key	☐		
Index	☐		
Relationship	☐		
Structured Type	☐		
Structured Type Attribute	☐		
Table	☐	☐	
Table View	☐		

Save Cancel Help

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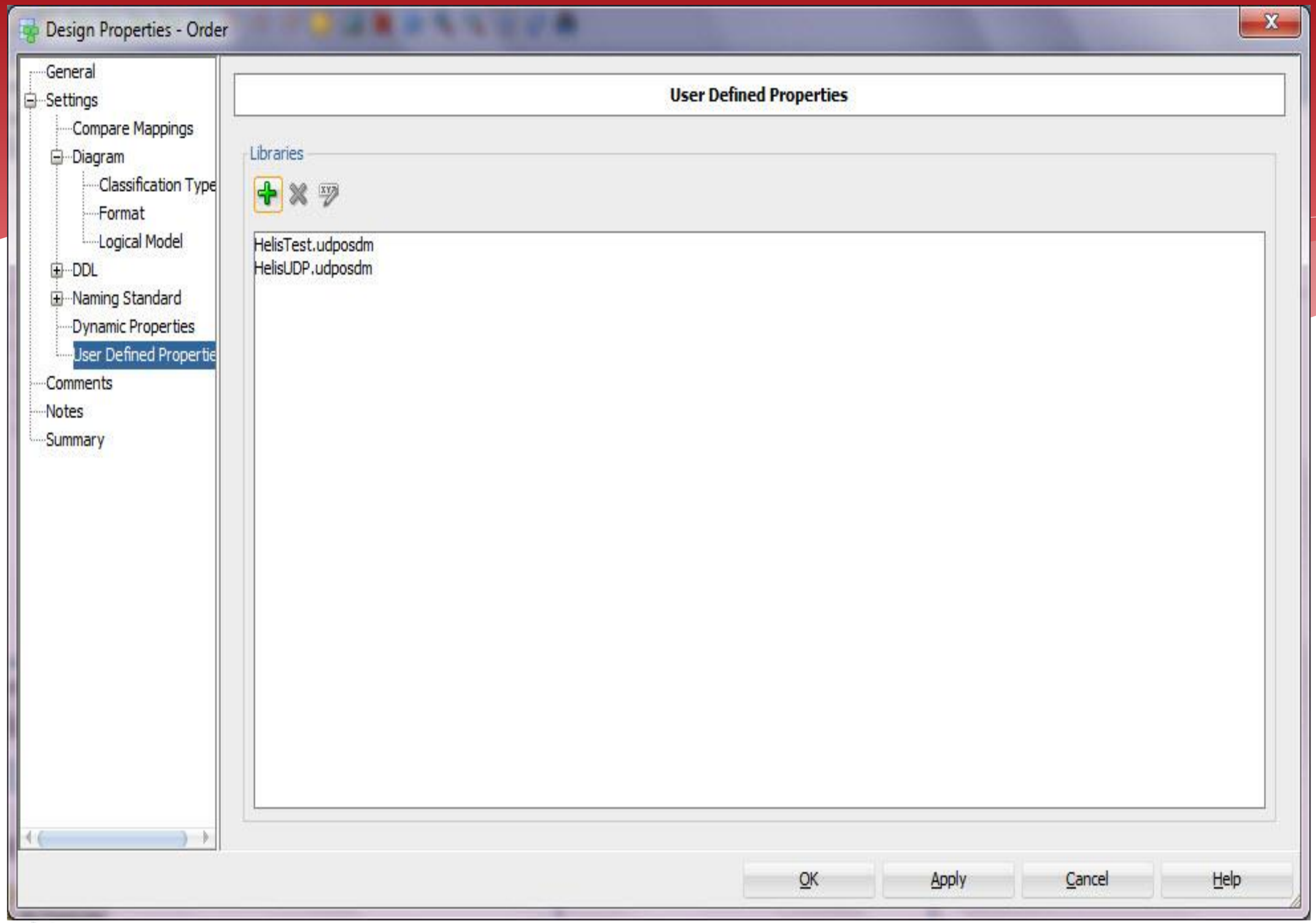

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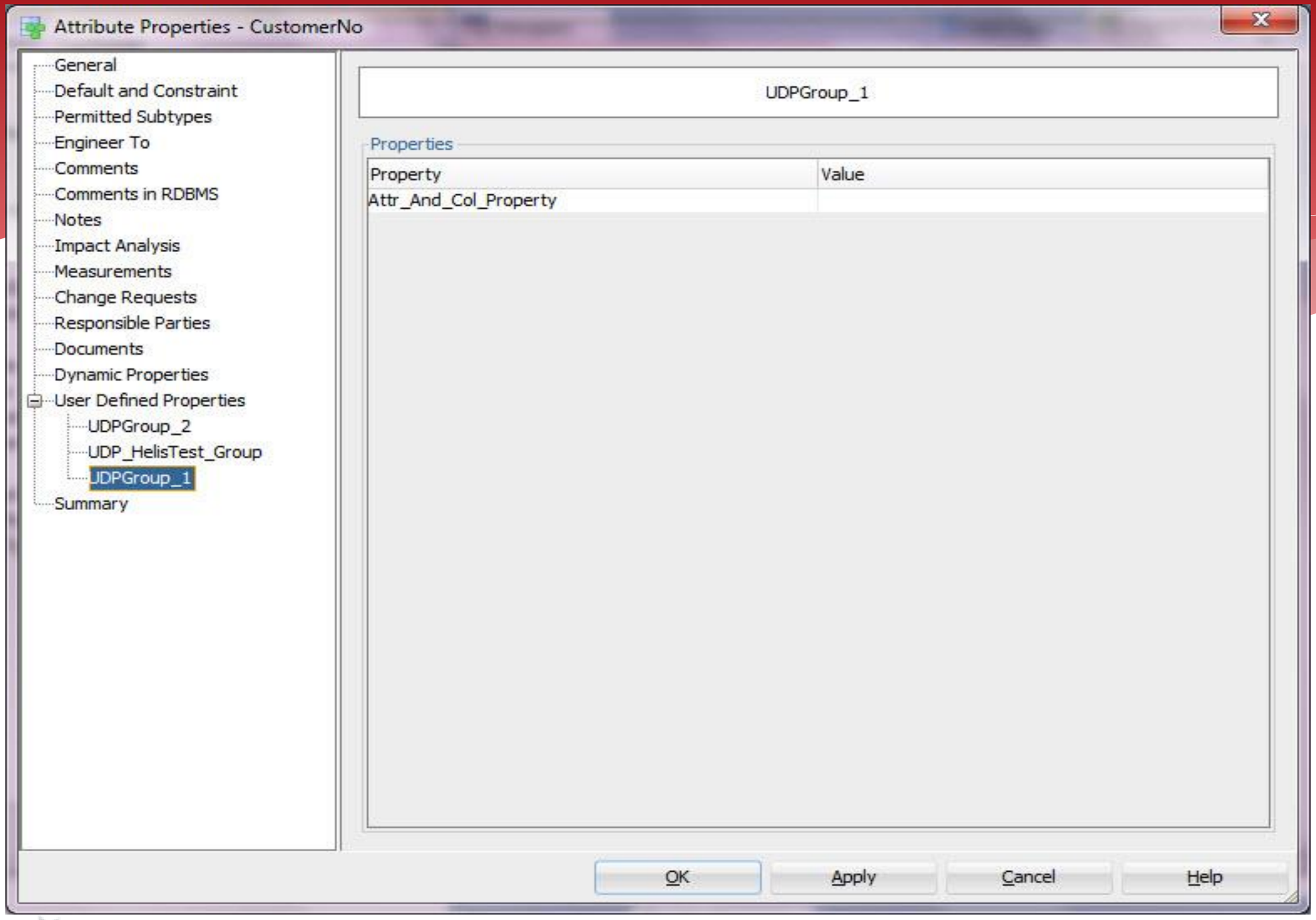

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Why would I like to use UDPs?

* For instance any UDP can be used in search as any ”normal” property…

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Search

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Search, v 4.1

* Search inside an active model
  * View | Model Search
    * Search icon on tool bar
* Search the active pane (incl Message – Log)
  * Edit | Find
* Search globally on open designs
  * View | Global Search
* Search the Help
  * Help | Search

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Search for Reporting

* Search inside an active model
  * View | Model Search
    * Search icon on tool bar
* Search globally on open designs
  * View | Global Search

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Preferences

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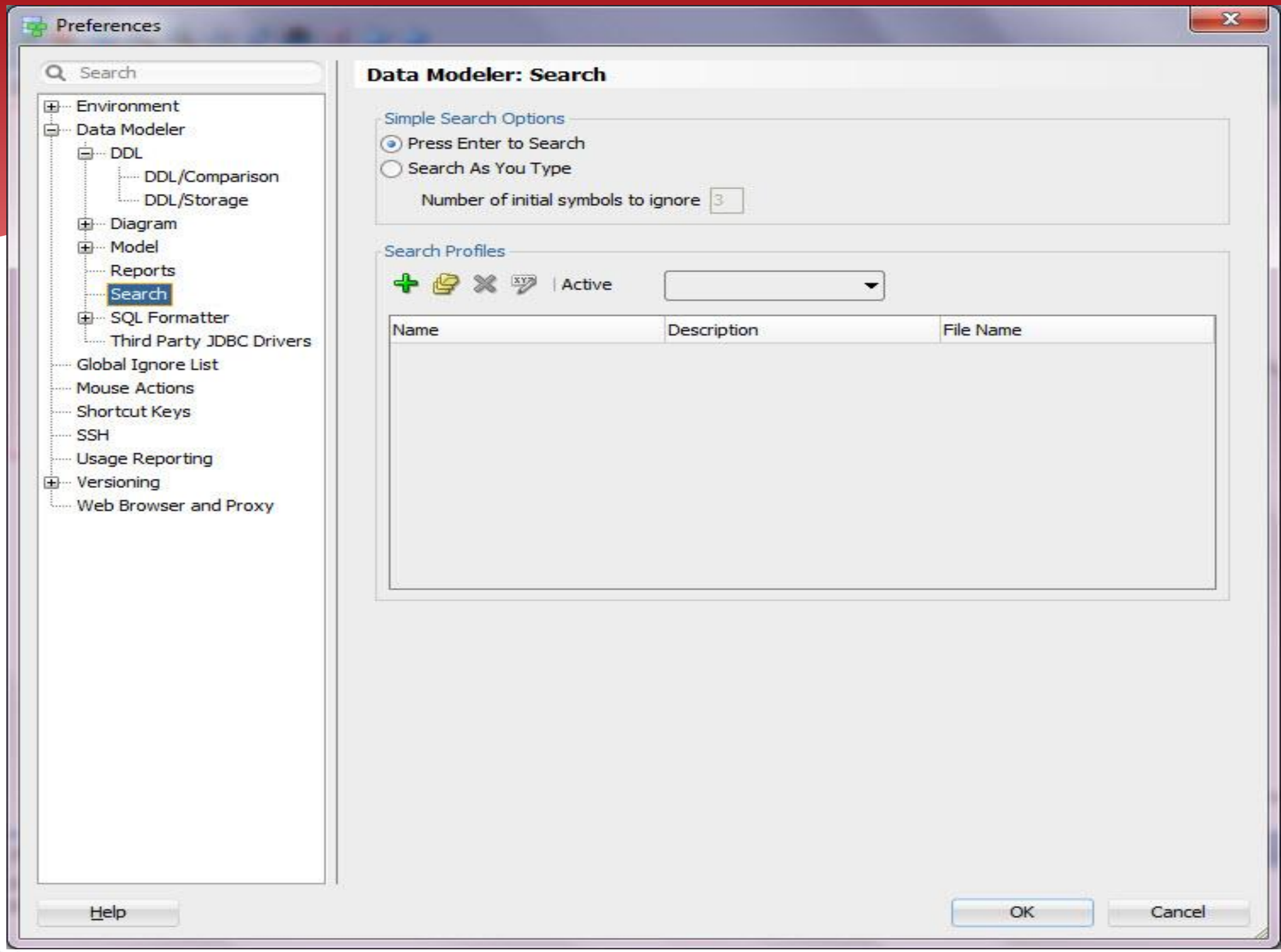

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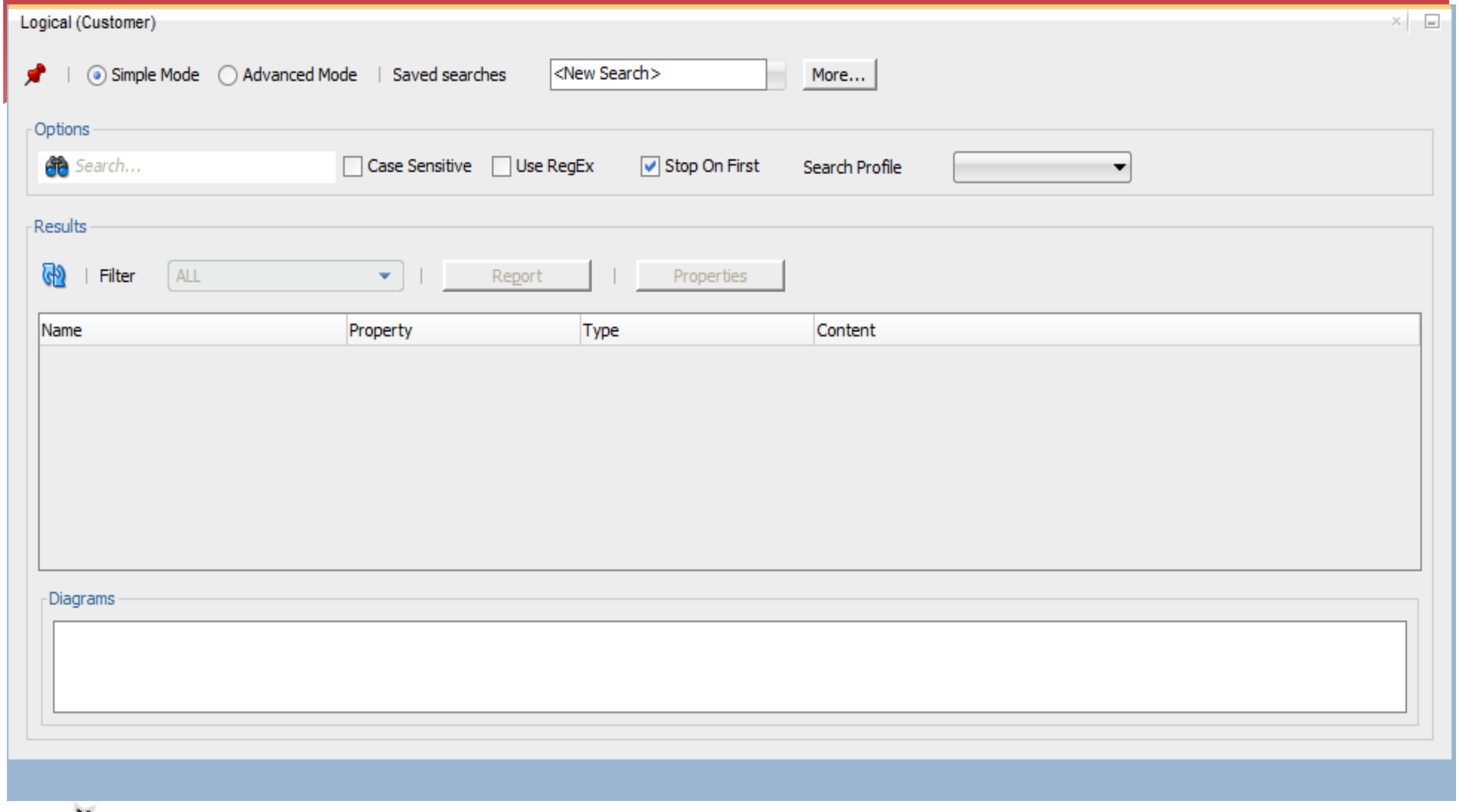
Model Search



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Search, Simple Mode

Logical (Customer)

Simple Mode | Advanced Mode | Saved searches | <New Search> | More...

Options

cust | Case Sensitive | Use RegEx | Stop On First | Search Profile

Results

Filter: ALL | Report | Properties

Name	Property	Type	Content
Company.Company PK	Attributes and relationships i...	Key	CPY **CUST**OMERS FK (Customer - 0..1:1..1 - Company)
Company.CUSTOMERS cno	Delegate element	Attribute	**Cust**No
CPY CUSTOMERS FK	Name	Relationship	CPY **CUST**OMERS FK
Customer	Comment	Entity	This is a **Cust**omer who makes orders and pays bills.
Customer	Name	Entity View	**Cust**omer
Customer.CommonProperty	Entity	Attribute	**Cust**omer
Customer.CustNo	Entity	Attribute	**Cust**omer
Customer.CUSTOMERS_PK	Attributes and relationships i...	Key	**Cust**No
Person.CUSTOMERS cno	Delegate element	Attribute	**Cust**No
Person.Person PK	Attributes and relationships i...	Key	person **CUST**OMERS FK (Customer - 0..1:1..1 - Person)
person CUSTOMERS FK	Name	Relationship	person **CUST**OMERS FK

Diagrams

Logical
Logical - SubView_3
Logical - SubView_10
Display_1
Logical - SubView_7
Display_2

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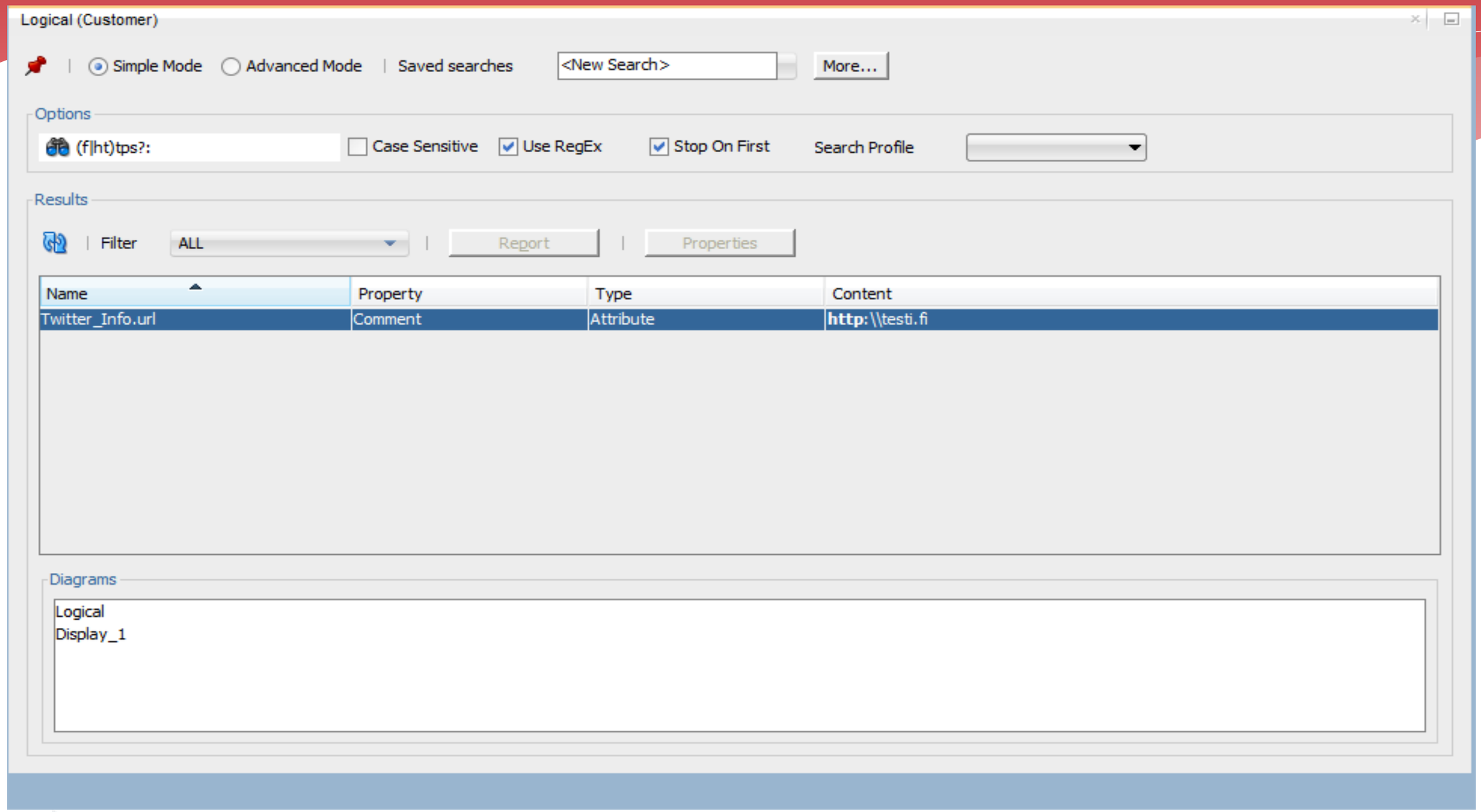
Regular Expression



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Logical (Customer)

Simple Mode | Advanced Mode | Saved searches | <New Search> | More...

Options

cust | Case Sensitive | Use RegEx | Stop On First | Search Profile

Results

Filter | ALL | Report | Properties

ALL
Attribute *Logical*
Entity *Logical*
Entity View *Logical*
Key *Logical*
Relationship *Logical*

Name		Type	Content
Company.Compar	s and relationships i...	Key	CPY **CUST**OMERS FK (Customer - 0..1:1..1 - Company)
Company.CUSTO	element	Attribute	**Cust**No
CPY CUSTOMERS		Relationship	CPY **CUST**OMERS FK
Customer	Comment	Entity	This is a **Cust**omer who makes orders and pays bills.
Customer	Name	Entity View	**Cust**omer
Customer.CommonProperty	Entity	Attribute	**Cust**omer
Customer.CustNo	Entity	Attribute	**Cust**omer
Customer.CUSTOMERS_PK	Attributes and relationships i...	Key	**Cust**No
Person.CUSTOMERS cno	Delegate element	Attribute	**Cust**No
Person.Person PK	Attributes and relationships i...	Key	person **CUST**OMERS FK (Customer - 0..1:1..1 - Person)
person CUSTOMERS FK	Name	Relationship	person **CUST**OMERS FK

Diagrams

Logical
Logical - SubView_3
Logical - SubView_10
Display_1
Logical - SubView_7
Display_2

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Logical (Customer)

Simple Mode | Advanced Mode | Saved searches | <New Search> | More...

Options

cust | Case Sensitive | Use RegEx | Stop On First | Search Profile

Results

Filter | **Entity** *Logical* | Report | Properties

Name	Property	Type	Content
Customer	Comment	Entity	This is a **Cust**omer who makes orders and pays bills.

Diagrams

Logical
Logical - SubView_3
Logical - SubView_10
Display_1
Logical - SubView_7
Display_2

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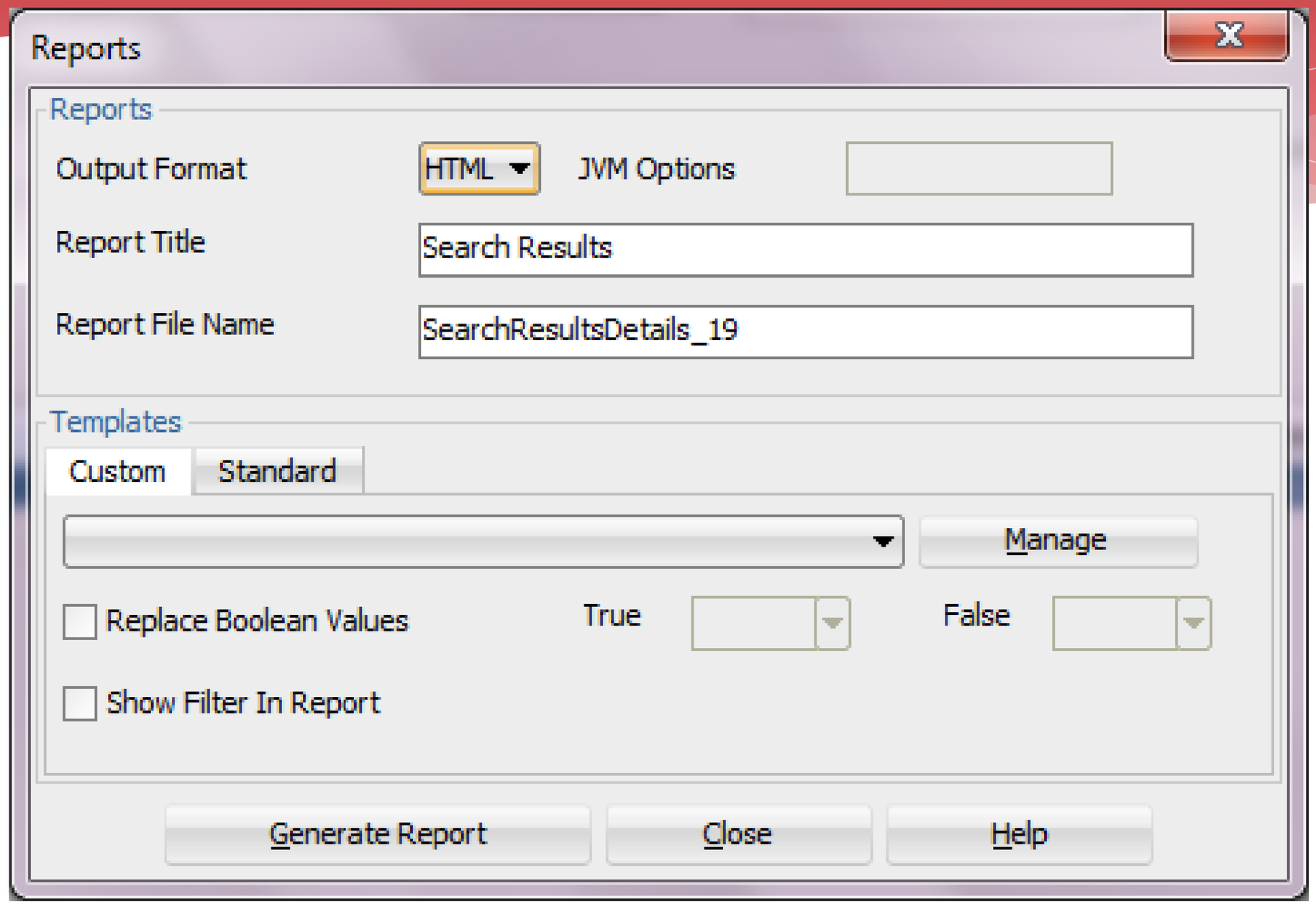

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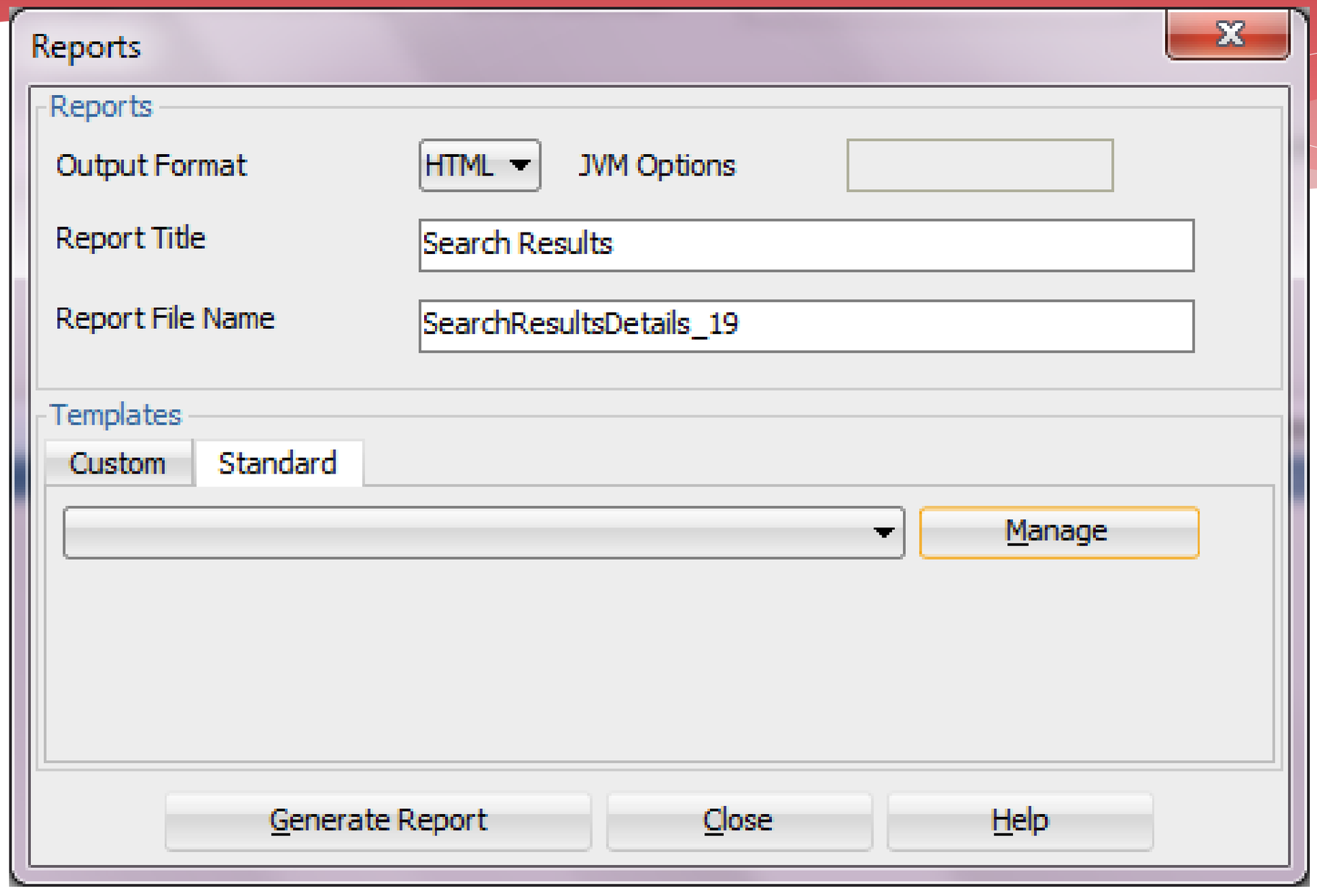

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Standard Templates

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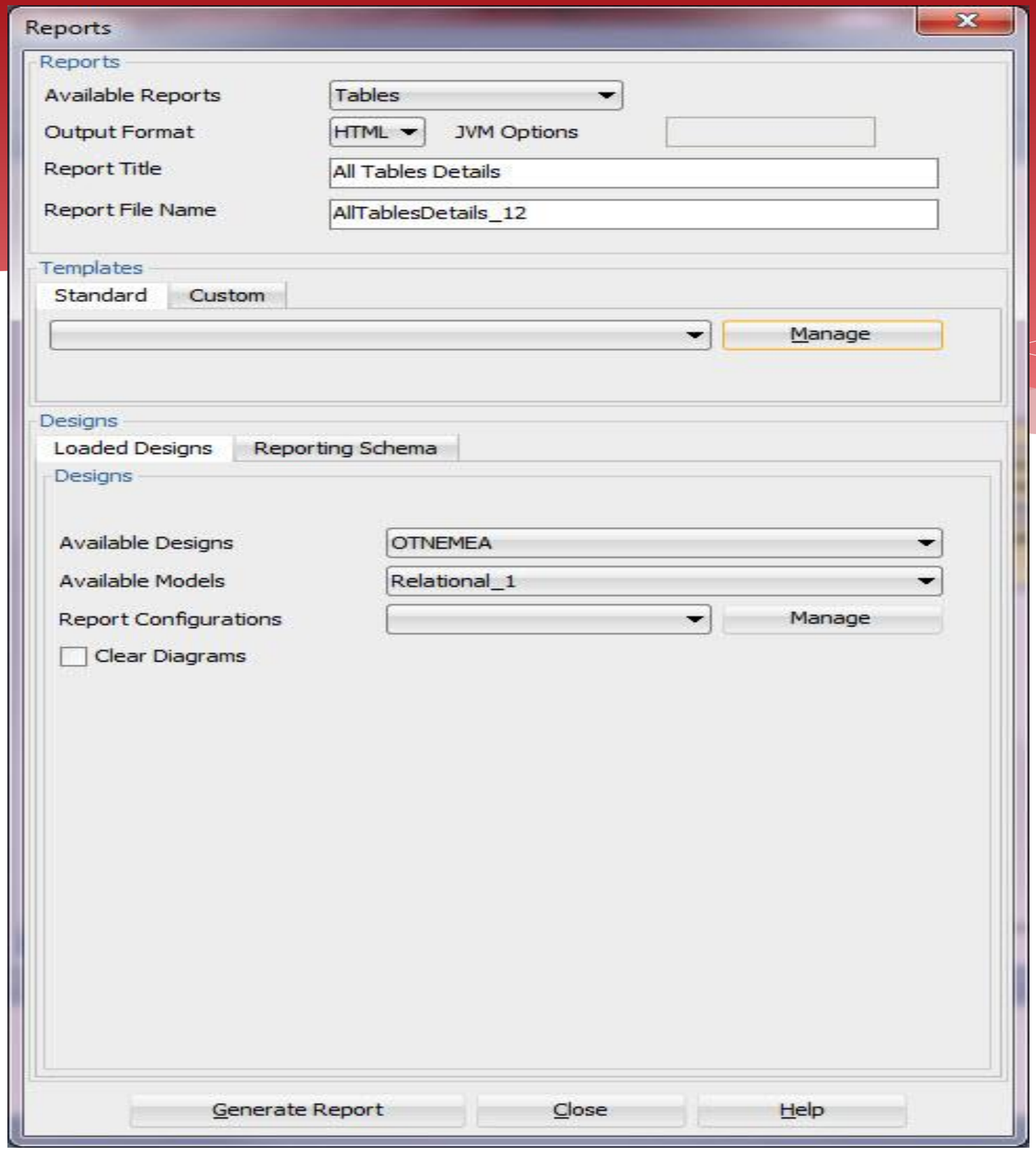

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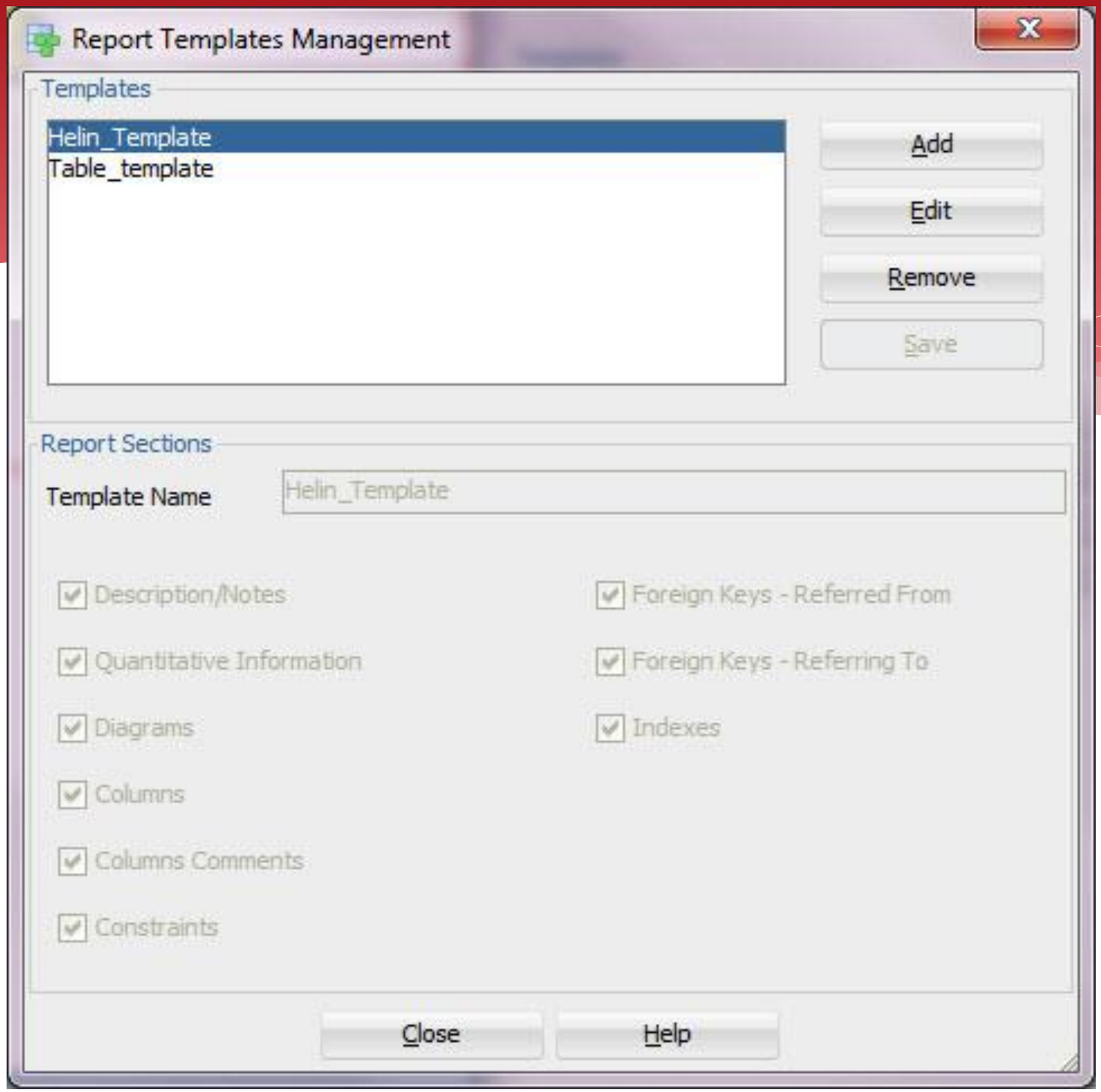

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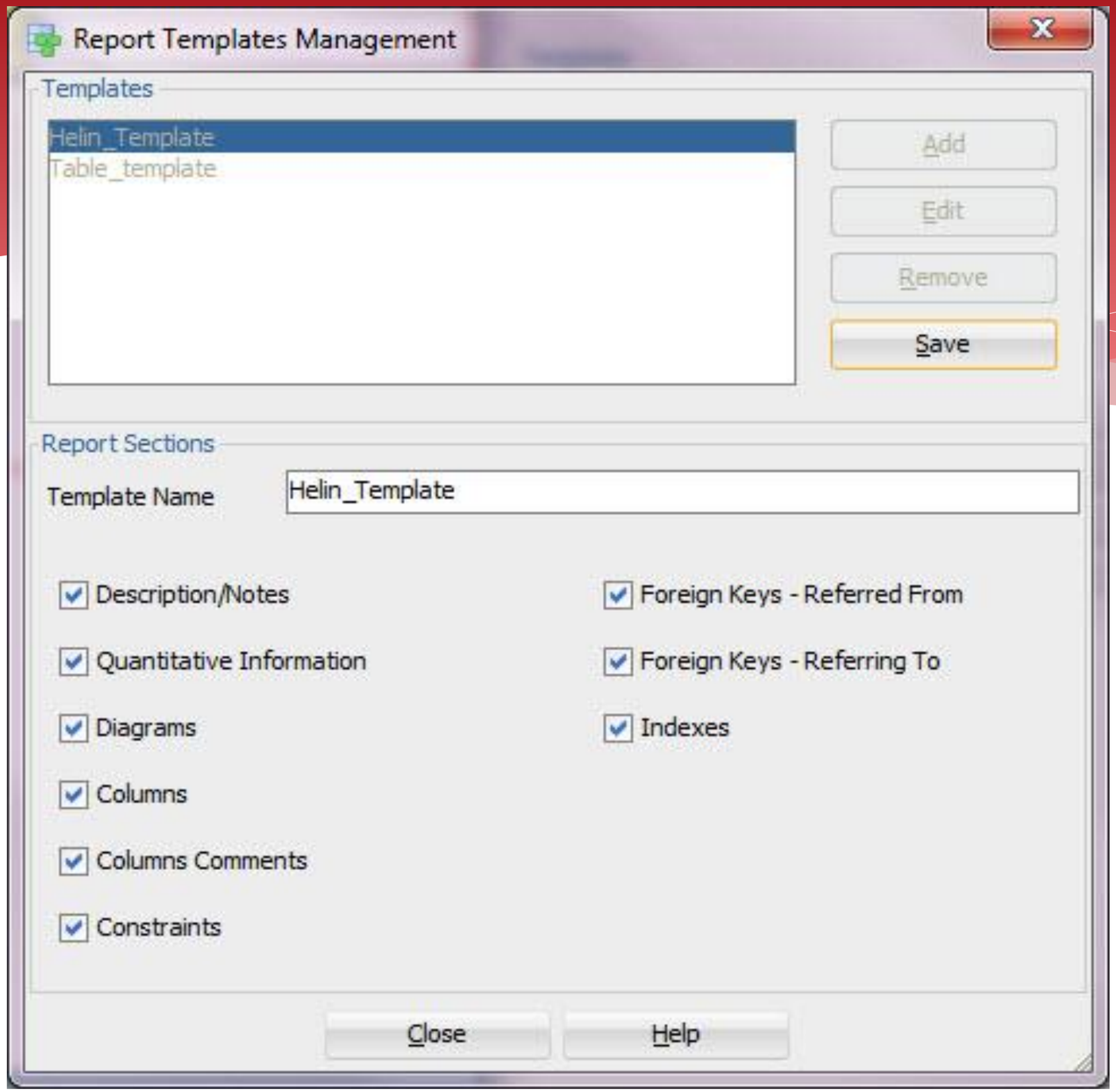

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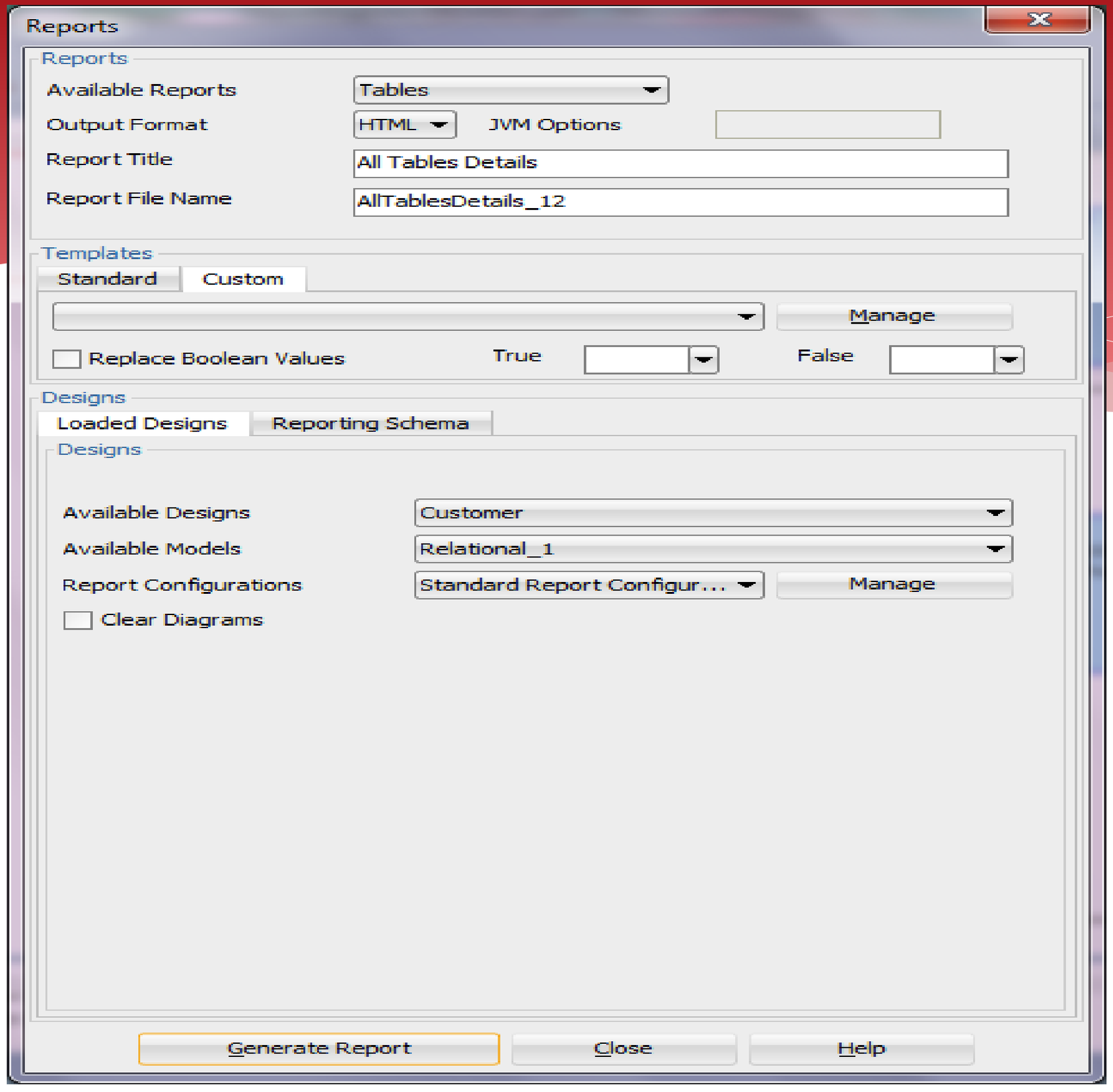

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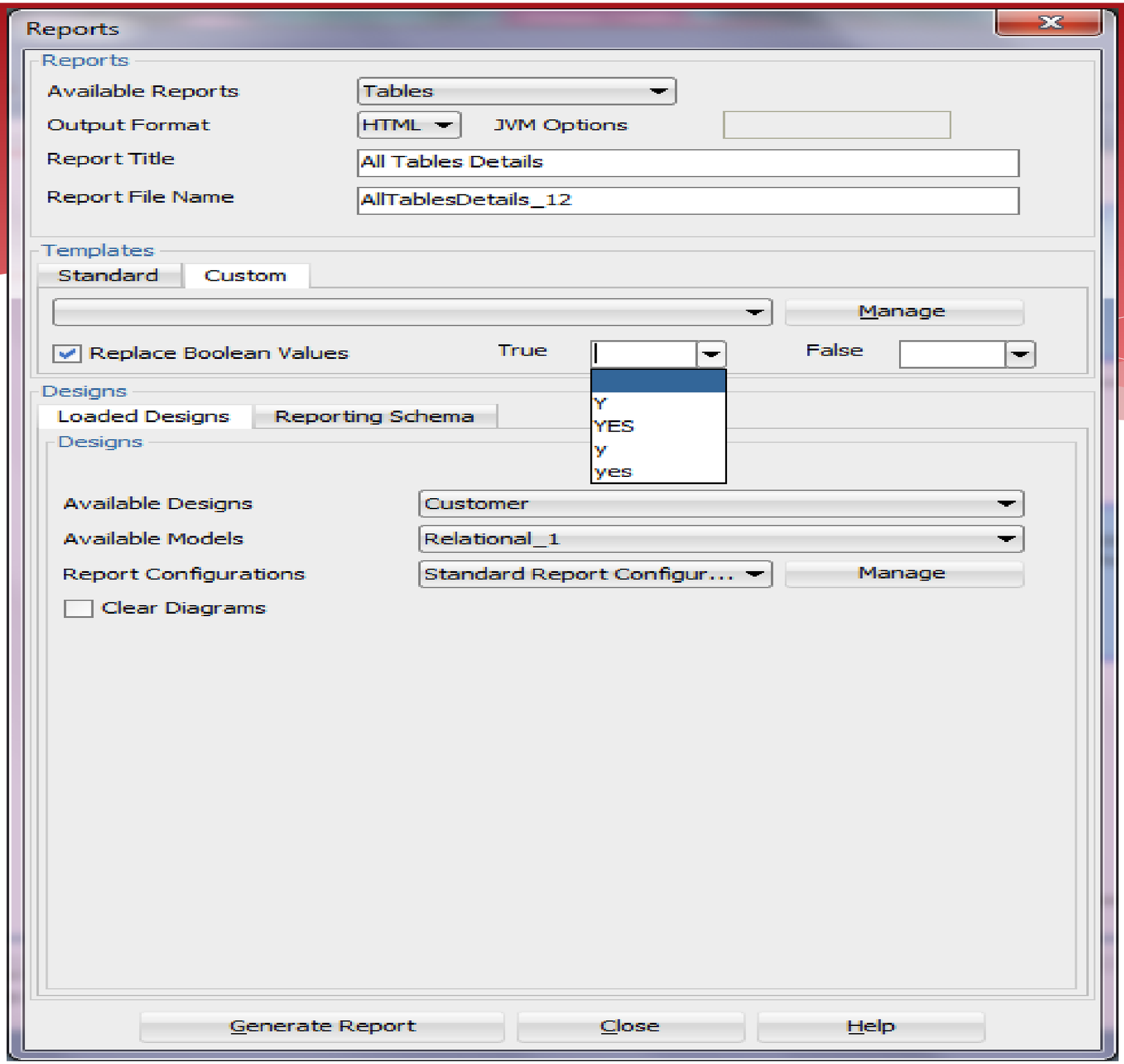

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Custom reports template

Templates

CRTemplate_1

Template

Name: HelisTemplate_1

Description: Heli's custom reports template

Available Collections

All inds_PK _uk_no FK keys
Columns
FK associations list
nestedColumns
Table check constraints

Report Layout (1 of maximum 30 selected)

Section	Custom Name
Table	Taulu

Available Properties

hiveName
Additional_classification_types
After create
All classification types
All inds_PK _uk_no FK keys
Allow column reorder
Based on structured type
Before create
Before drop
Classification type
Created time
End of script
Exist dependency constraint name
Exist dependency generate in DDL
Exist dependency generation level
FK associations list
hiveSchema
Is engineer to relation
Marked generate
Name

Report Columns (4 of maximum 30 selected)

Column Number	Property Name	Column Name	Column Width (0.0% used)	Data Sort Order
1	Abbreviation	Abbreviation	0.0	
2	Comment	Comment	0.0	
3	Comment in RDBMS	Comment in RDBMS	0.0	
4	Deprecated	Deprecated	0.0	

Close Help

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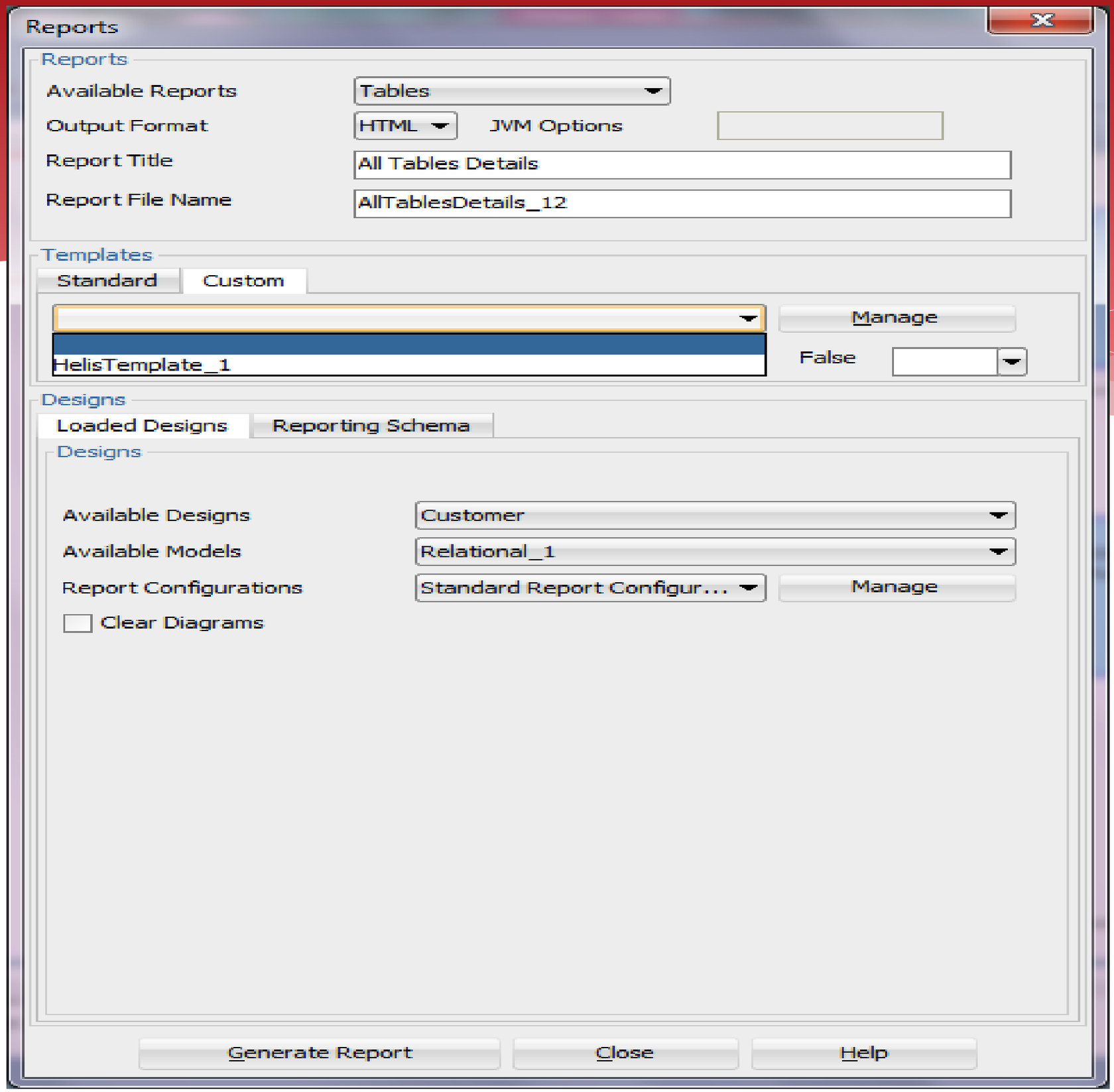

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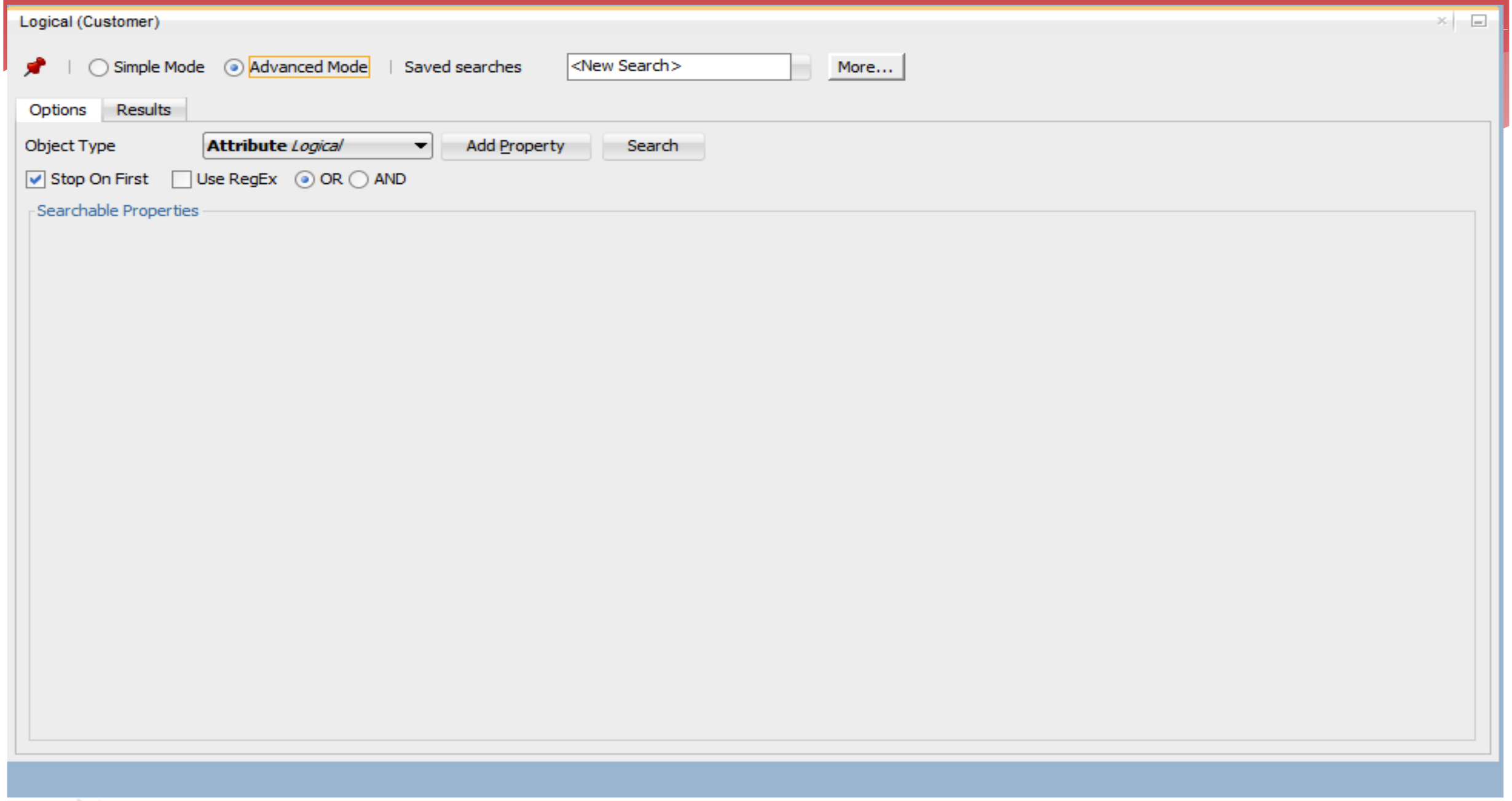
Search, Advanced Mode



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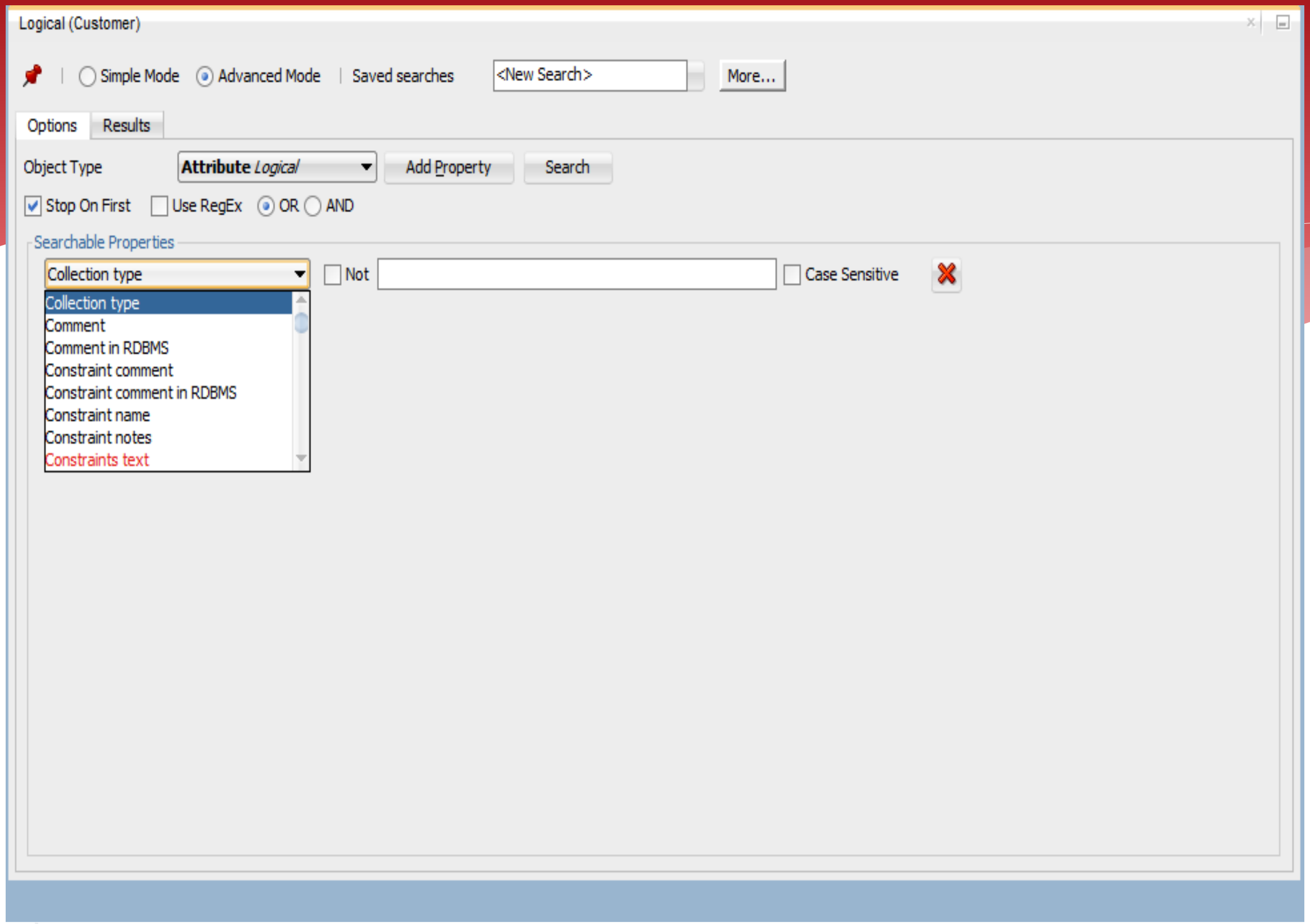

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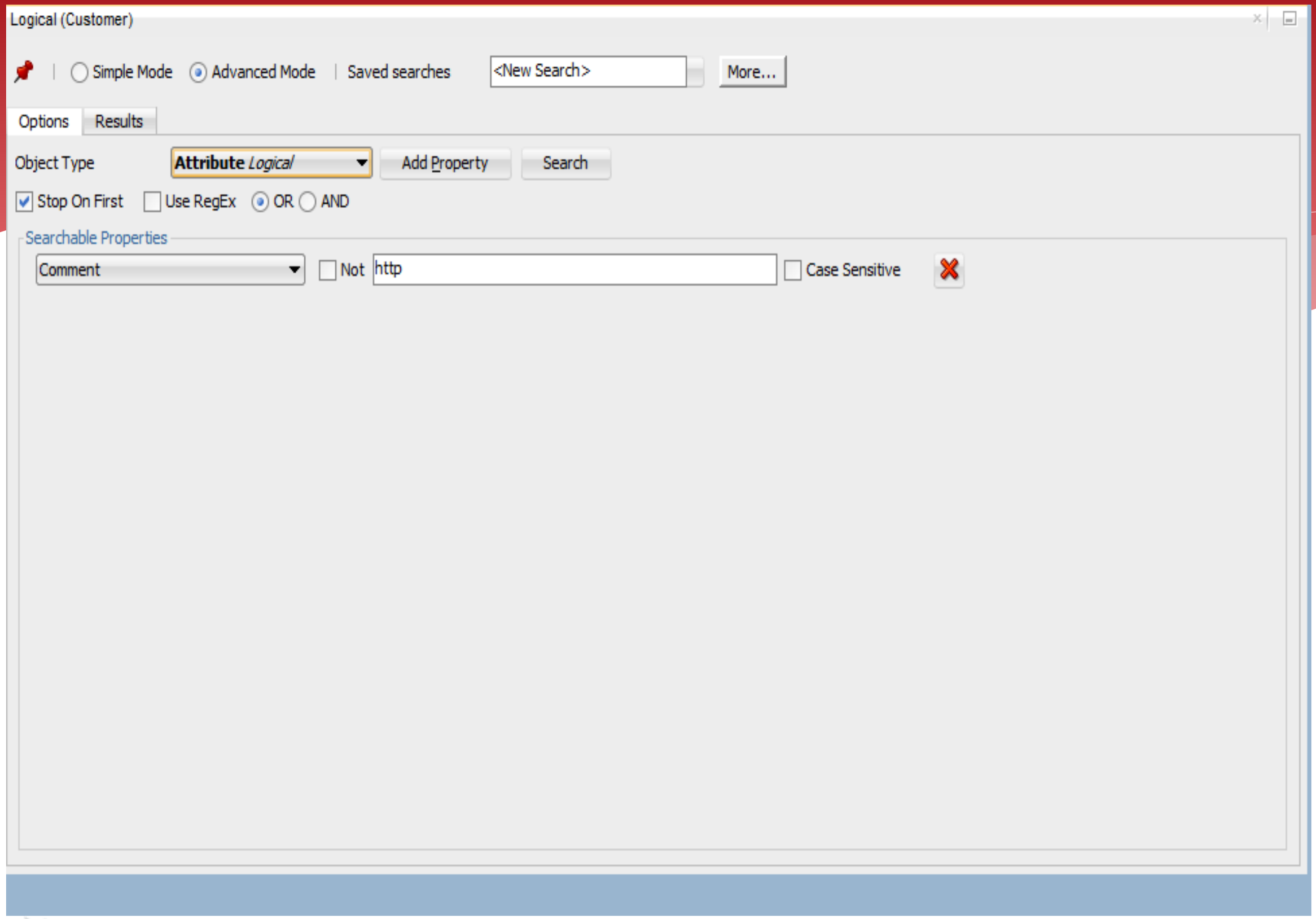

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Logical (Customer)

Simple Mode | Advanced Mode | Saved searches | <New Search> | More...

Options | Results

Report | Properties

Name	Property	Type	Content
Twitter_Info.url	Comment	Attribute	**http:**\\testi.fi

Diagrams

Logical
Display_1

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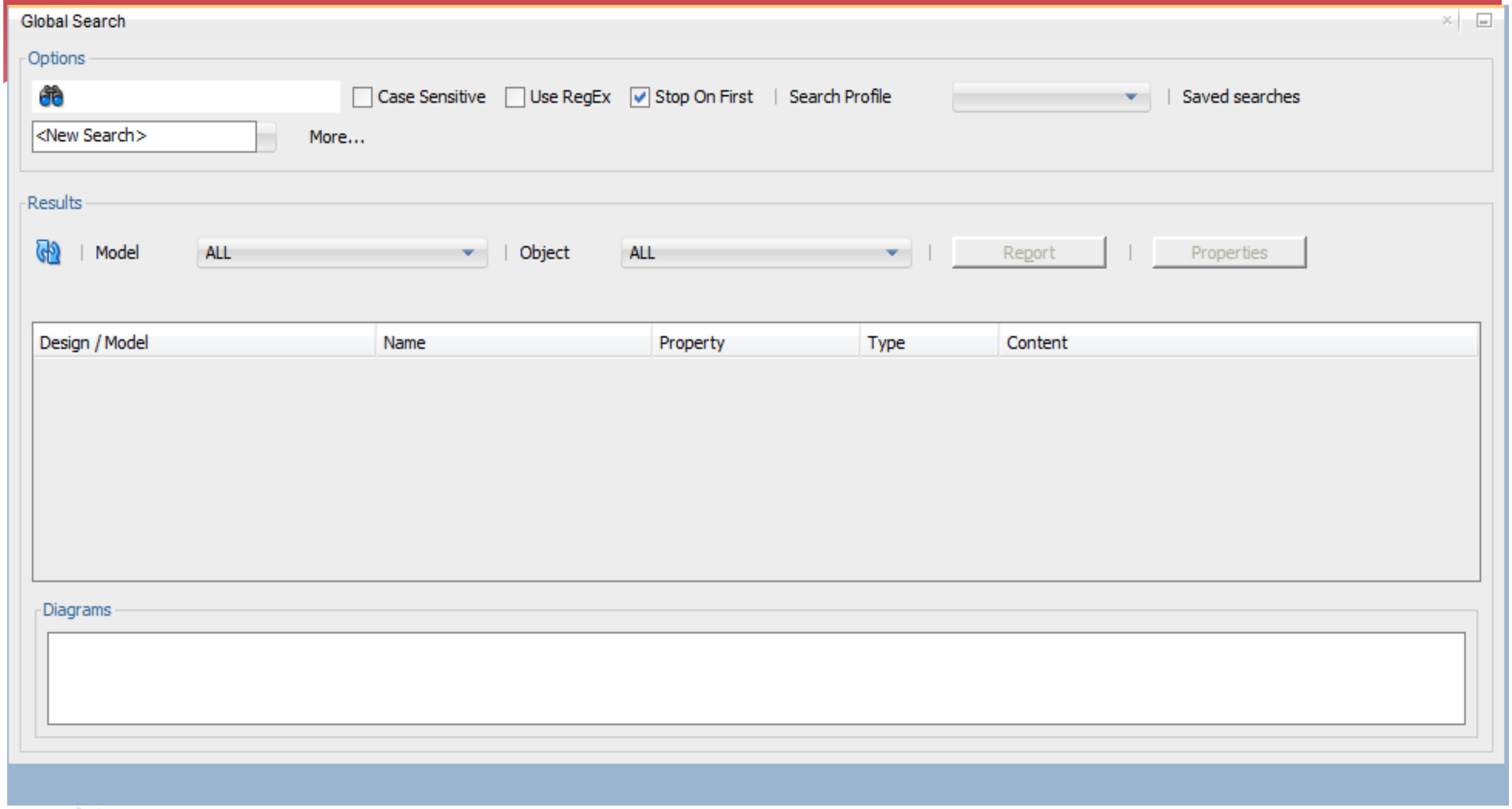
Global Search



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Bonus 1: Search, Setting Common Properties

* Search, Properties

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Logical (Customer)

Simple Mode | Advanced Mode | Saved searches | <New Search> | More...

Options | Results

Report | Properties

Name	Property	Type	Content
Company.CUSTOMERS cno	Name	Attribute	**CUST**OMERS cno
Customer.CustNo	Name	Attribute	**Cust**No
Person.CUSTOMERS cno	Name	Attribute	**CUST**OMERS cno

Diagrams

Logical
Logical - SubView_3
Logical - SubView_10
Display_1
Logical - SubView_7
Display_2
Display_1

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Set Common Properties

Property Name	Old Value	New Value		Type
Collection type			...	CollectionType
Constraint comment			⇐	String
Constraint comment in RDBMS			⇐	String
Constraint notes			⇐	String
Data type precision	16		⇐	String
Data type scale			⇐	String
Data type size			⇐	String
Default value			⇐	String
Deprecated	false		⇐	boolean
Distinct type			...	DistinctType
Domain	Unknown		...	Domain
Formula desc			⇐	String
Logical datatype	NUMERIC		...	LogicalDatatype
Name fixed	false		⇐	boolean
Name has quotes	false		⇐	boolean
Nulls allowed	false		⇐	boolean
Sensitive type description			⇐	String
Source type			⇐	String
Structured type			...	StructuredType
Used as remote object	false		⇐	boolean
Use DDL transformation script	false		⇐	boolean
Use domain constraints	false		⇐	boolean
Uses default value	false		⇐	boolean

Apply Close Help

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Bonus 2: Using Excel report for updating the design

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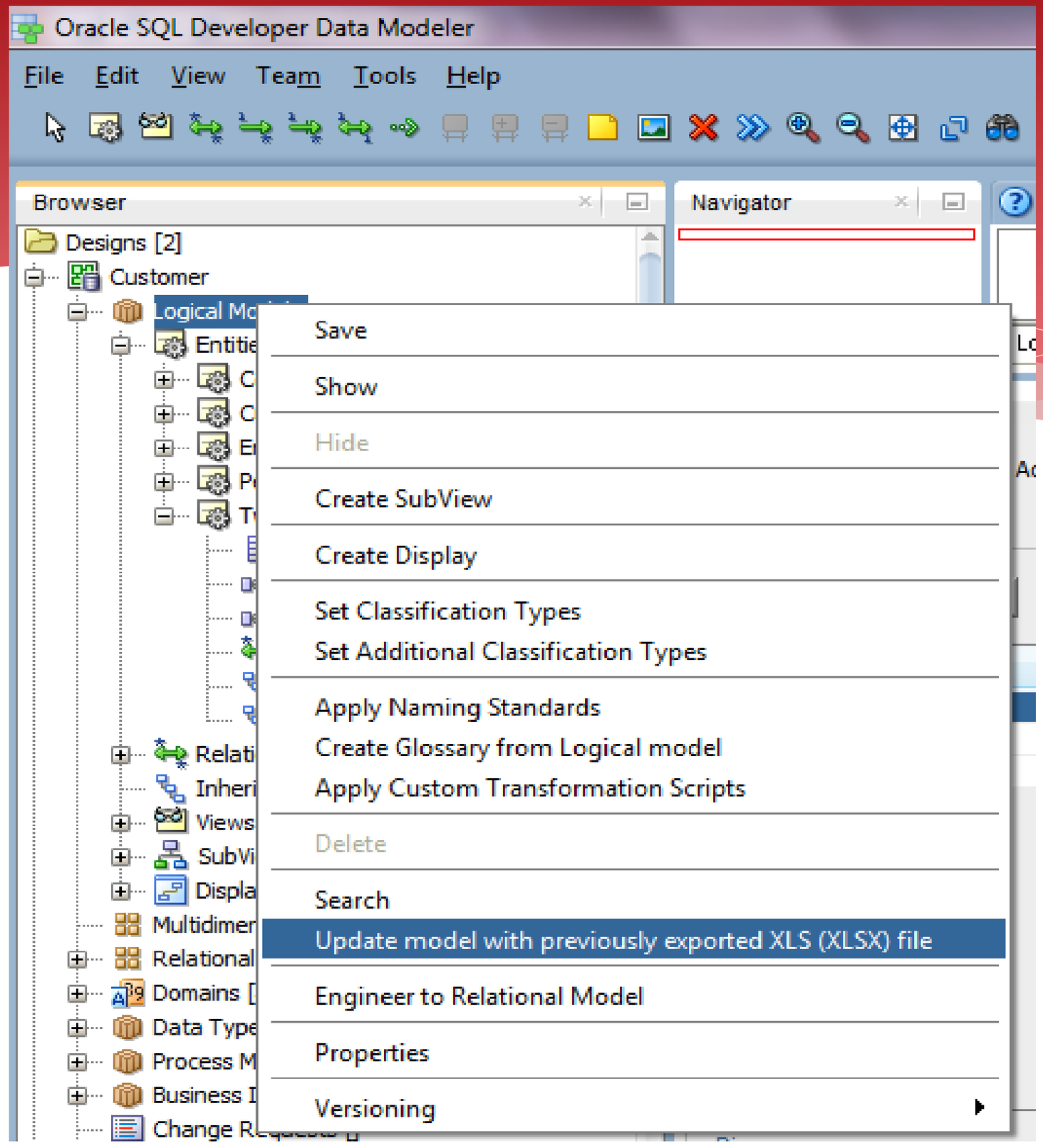

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Compare

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Why is compare functionality important?

* Better understanding of what you have
* Better quality
* Alter DDLs
* …

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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 and Properties

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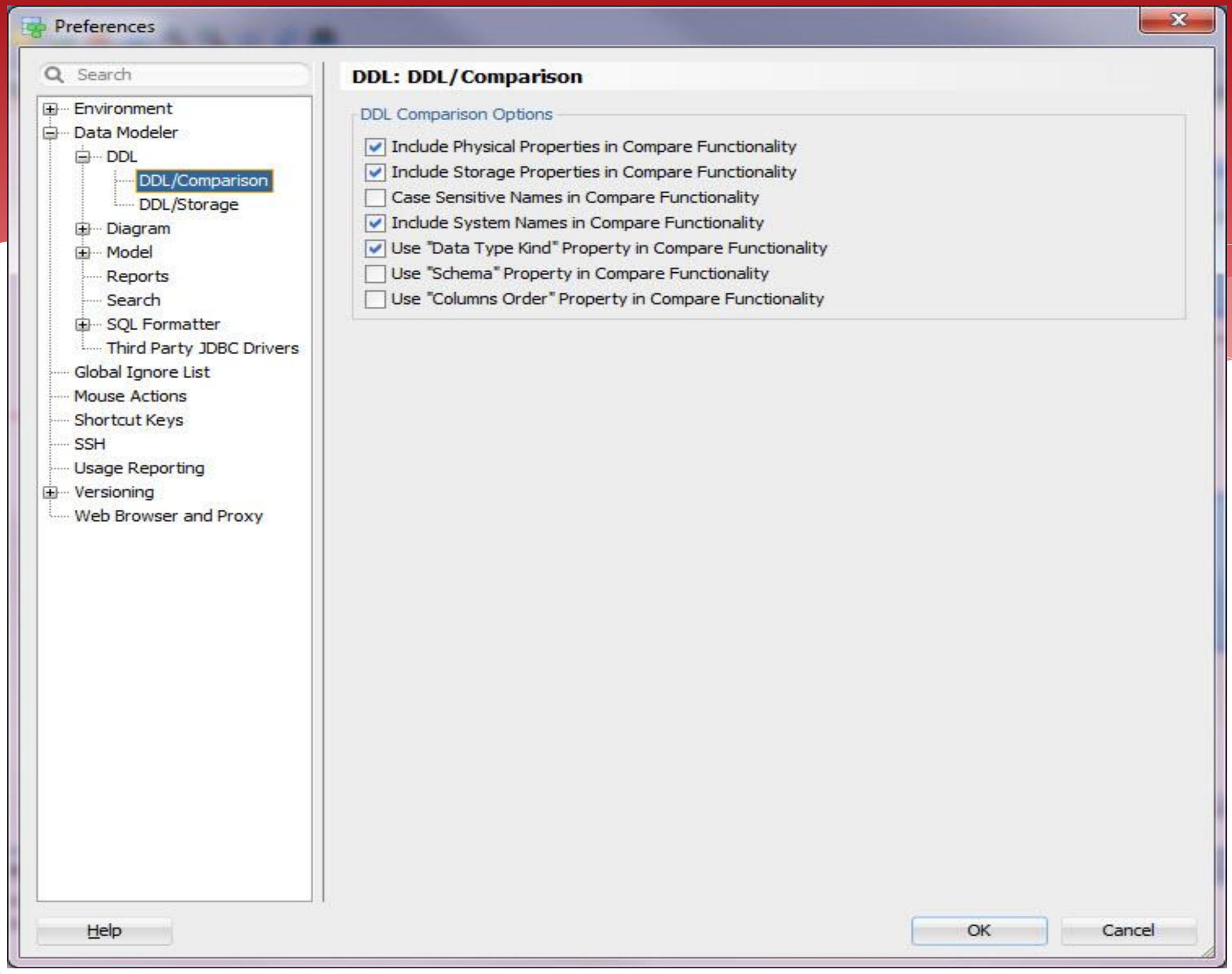

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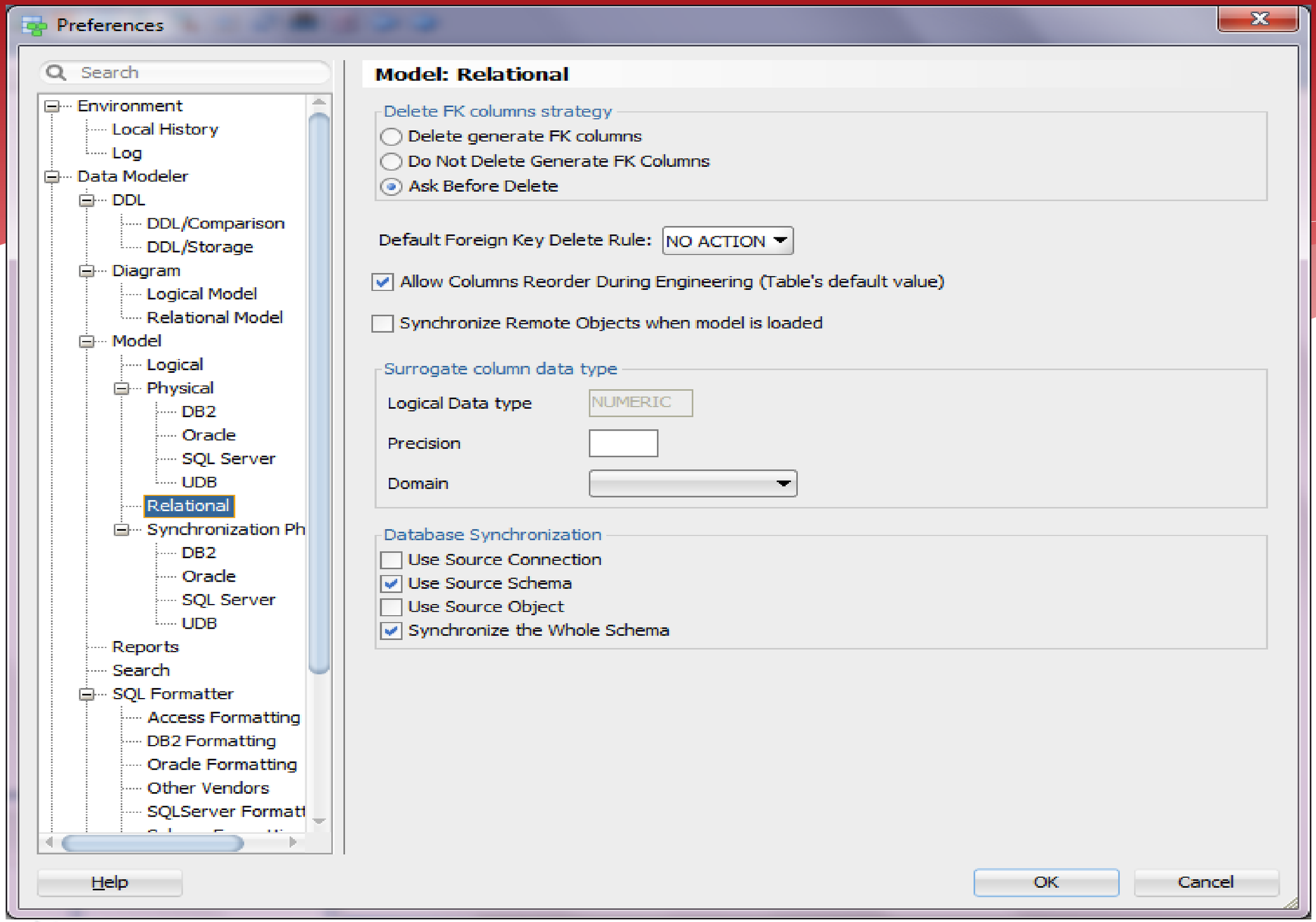

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Comparing Designs, Import

* File | Import | Data Modeler Design

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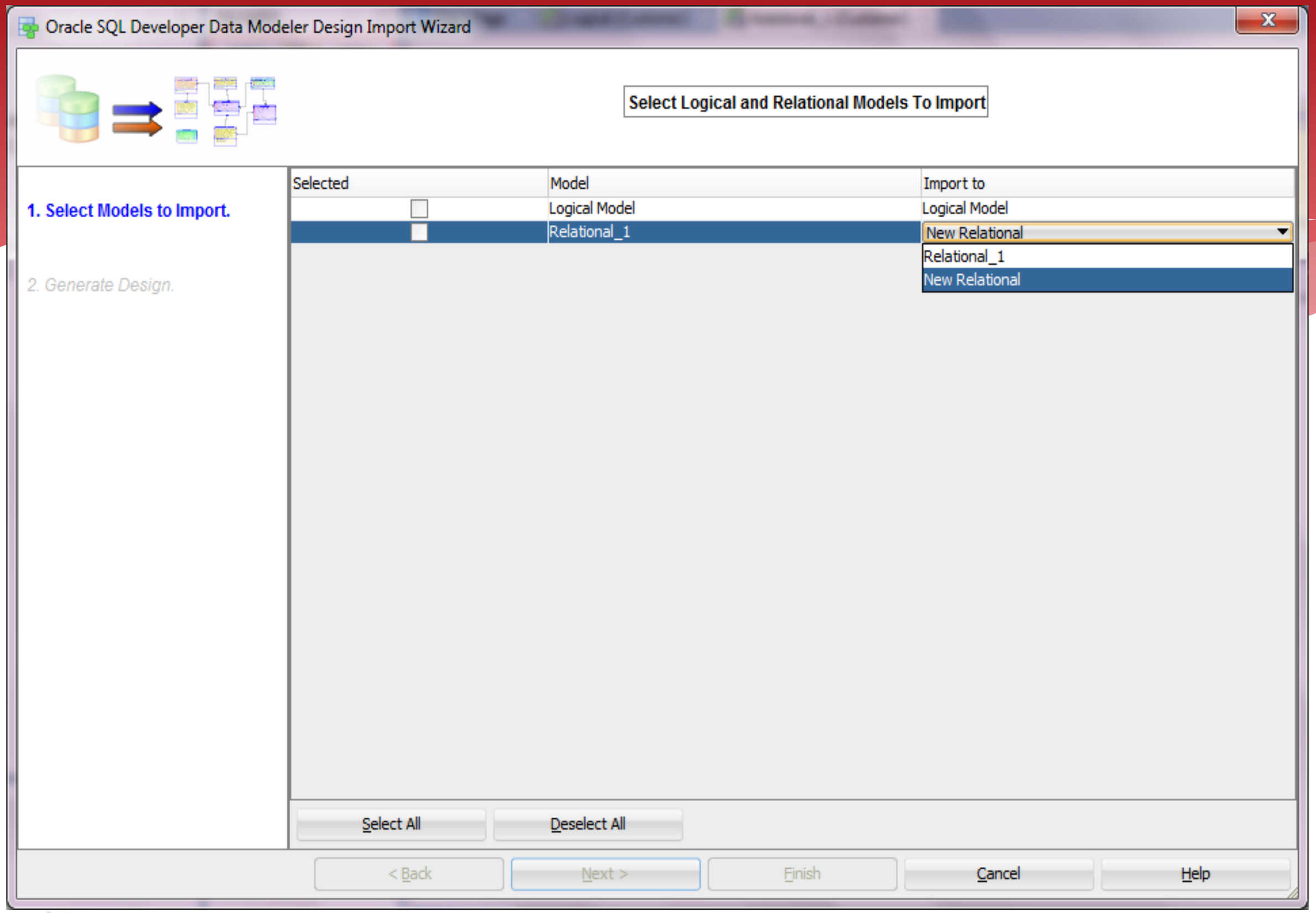

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Compare Oracle SQL Developer Data Modeler Designs

Tree View | Tabular View

Filter

- Customer
  - DataTypes
  - Logical
    - Entities
      - NewinOriginal
      - Person
      - Company
      - Employee
      - Order
      - Customer
    - Relations
    - Inheritances
    - Views
    - Notes
    - Subviews
  - Relational Models
    - Relational_1
      - Tables
        - CUSTOMERS
        - EMPLOYEES
        - NewinOriginal
        - person

- Customer
  - Data Types Model
  - Logical Model
    - Entities
      - New Entity
      - Person
      - Company
      - Employee
      - New Entity
      - Customer
    - Relations
    - Inheritances
    - Views
    - Notes
    - Subviews
  - Relational Models
    - Relational_1(2)
      - Tables
        - New Table
        - New Table
        - New Table
        - New Table

Details

Property	Selected		

Apply | Cancel | Help

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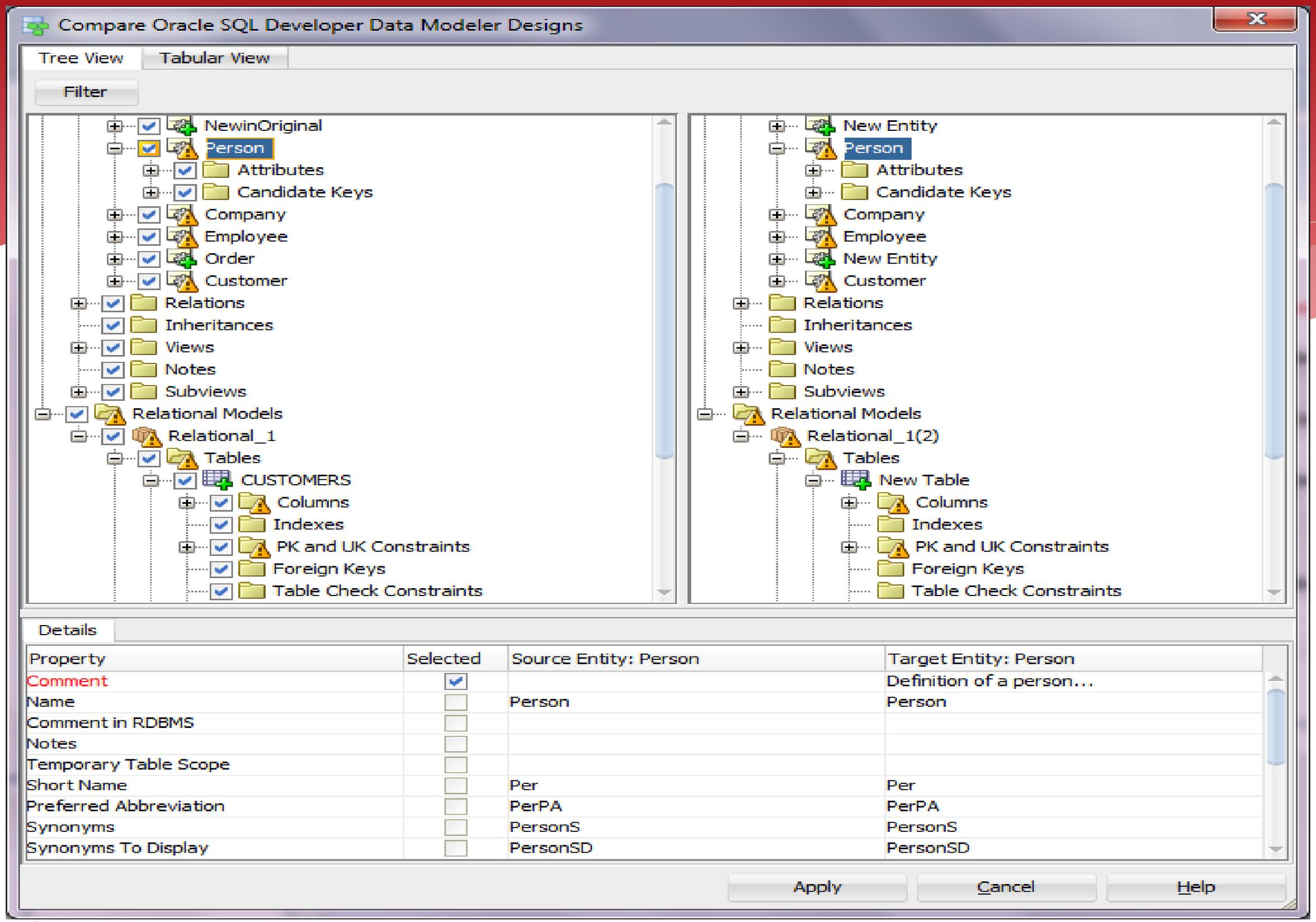

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Compare Oracle SQL Developer Data Modeler Designs

Tree View | Tabular View

Filter: | Model: ALL | Status: All | Type: ALL | Generate Report

Selected	Source	Target	Type:
☐	XMLTYPE	XMLTYPE	Structured Type
☑	NewinOriginal		Entity
☑	Person	Person	Entity
☐	Person.SSN	Person.SSN	Attribute
☐	Person.PersonInfo	Person.PersonInfo	Attribute
☐	Person.CUSTOMERS cno	Person.CUSTOMERS cno	Attribute
☐	Person.Person PK	Person.Person PK	Key
☑	Company	Company	Entity
☐	Company.CompanyID	Company.CompanyID	Attribute
☐	Company.CompanyInfo	Company.CompanyInfo	Attribute
☐	Company.CUSTOMERS cno	Company.CUSTOMERS cno	Attribute
☐	Company.Company PK	Company.Company PK	Key
☑	Employee	Employee	Entity
☐	Employee.EmpNo	Employee.EmpNo	Attribute
☐	Employee.Firstname	Employee.Firstname	Attribute
☐	Employee.Lastname	Employee.Lastname	Attribute
☐	Employee.Description	Employee.Description	Attribute
☐	Employee.EmpNo1	Employee.EmpNo1	Attribute
☐	Employee.Employee PK	Employee.Employee PK	Key
☑	Order		Entity
☑	Customer	Customer	Entity
☐	Customer.CustNo	Customer.CustNo	Attribute

Details

Property	Selected	Source Entity: Person	Target Entity: Person
Comment	☑		Definition of a person...
Name	☐	Person	Person
Comment in RDBMS	☐		
Notes	☐		
Temporary Table Scope	☐		
Short Name	☐	Per	Per
Preferred Abbreviation	☐	PerPA	PerPA
Synonyms	☐	PersonS	PersonS
Synonyms To Display	☐	PersonSD	PersonSD

Apply | Cancel | Help

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Comparing Designs, Compare/Merge Models

* Tools | Compare/Merge Models

* Compares the design that is open and a design you select to be compared
* Compares only relational and physical models

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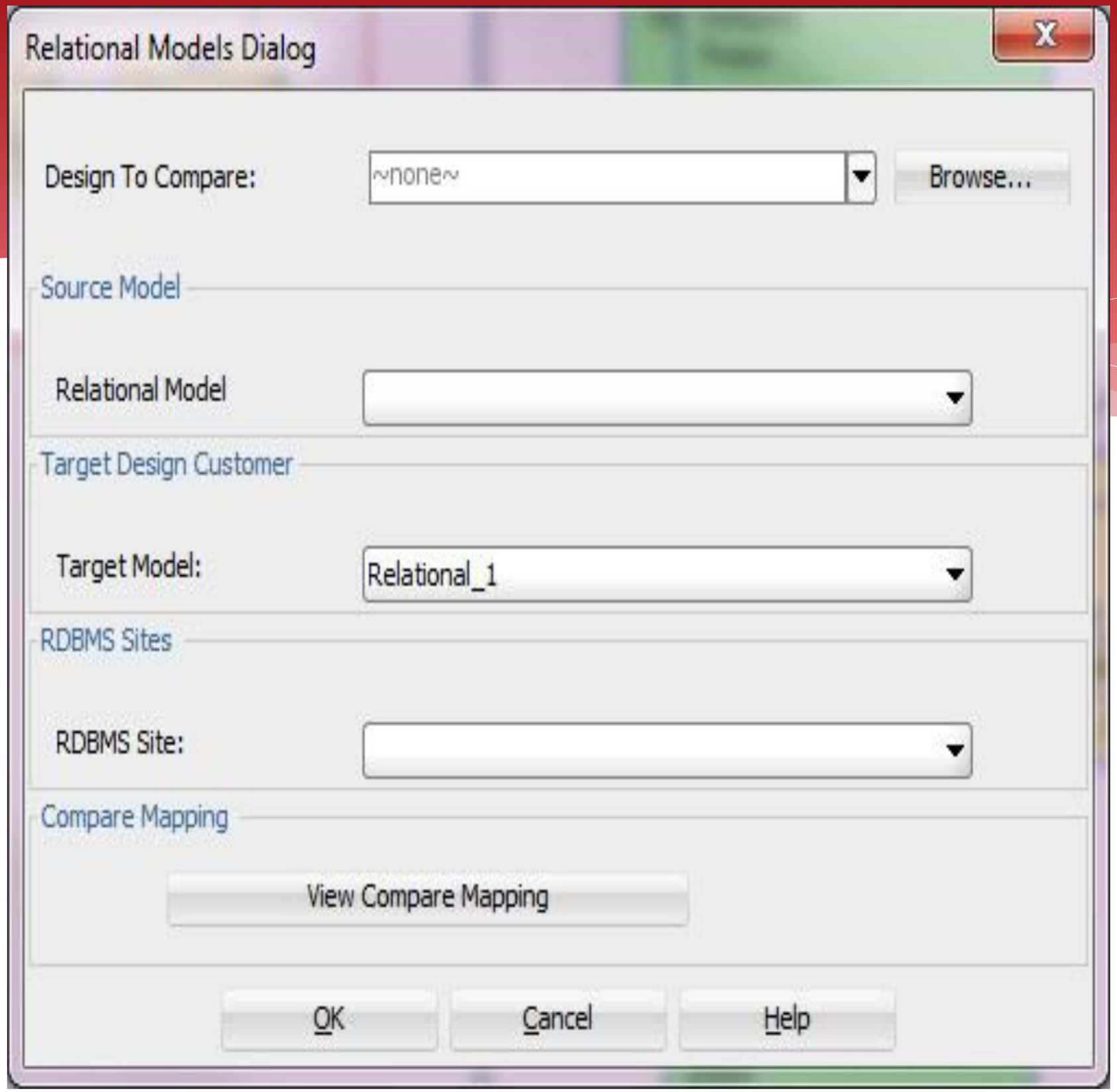

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Compare Models

Tree View | Tabular View

Filter

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - Company
    - Twitter_Info
    - person
    - To Drop
  - Views

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - CPY
    - New Table
    - person
    - EMPLOYEES
  - Views

Options | Tables that will be recreated | Data type conversion | Oracle Errors to Mask

Details | Dynamic/UD properties | Physical Details | Storage Details

Property	Selected	Source Table: Company	Target Table: CPY
Name	☑	Company	CPY
Schema	☐		MN
Comment	☐	Heli's comments in Excel	Heli's comments in Excel
Comment in RDBMS	☐		
Notes	☐		
Abbreviation	☐	Comp	Comp
Temporary Table Scope	☐		
Table Type	☐		
Structured Type	☐		
Allow Type Substitution	☐	true	true
Spatial Table	☐	false	false
Min Volumes	☐	0	0
Expected Volumes	☐	0	0
Max Volumes	☐	9999999	9999999

Merge | DDL Preview | Close | Help

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Compare Models

Tree View | Tabular View

Filter

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - Company
    - Twitter_Info
    - person
    - To Drop
  - Views

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - CPY
    - New Table
    - person
    - EMPLOYEES
  - Views

Options | Tables that will be recreated | Data type conversion | Oracle Errors to Mask

Details | Dynamic/UD properties | Physical Details | Storage Details

Property	Selected	Source Table: Company	Target Table: CPY
hiveName	☑	HiveCPY	
hiveSchema	☑	Hive	
UDP_table	☑		UDP_value

Merge | DDL Preview | Close | Help

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Compare Models

Tree View | Tabular View

Filter

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - Company
    - Twitter_Info
    - person
    - To Drop
  - Views

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - CPY
    - New Table
    - person
    - EMPLOYEES
  - Views

Options | Tables that will be recreated | Data type conversion | Oracle Errors to Mask

Details | Dynamic/UD properties | Physical Details | Storage Details

Property	Selected	Source Table: Company	Target Table: CPY
User	☑		MN
Row Dependency	☑	YES	NO
Name	☐	Company	CPY
Comment	☐		
Comment in RDBMS	☐		
Temporary	☐	NO	NO
Preserve Rows	☐	YES	YES
Temporary Tablespace	☐		
Organization	☐	HEAP	HEAP
Logging	☐	YES	YES
Cache	☐	NO	NO
Parallel	☐	NO	NO
Degree	☐		
Partitioned	☐	NO	NO

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Compare Models

Tree View | Tabular View

Filter

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - Company
    - Twitter_Info
    - person
    - To Drop
  - Views

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - CPY
    - New Table
    - person
    - EMPLOYEES
  - Views

Options | Tables that will be recreated | Data type conversion | Oracle Errors to Mask

Details | Dynamic/UD properties | Physical Details | Storage Details

Property	Selected	Source Table: Company	Target Table: CPY
Tablespace	☑		MNTablespace
PCT Free	☐		
PCT Used	☐		
INITRANS	☐		
SC Initial Extent	☐		
SC Next Extent	☐		
SC Min Extents	☐		
SC Max Extents	☐		
SC PCT Increase	☐		
SC Buffer Pool	☐		
SC Free Lists	☐		
SC Free List Groups	☐		

Merge | DDL Preview | Close | Help

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Compare Models

Tree View | Tabular View

Filter

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - Company
    - Twitter_Info
    - person
    - To Drop
  - Views

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - CPY
    - New Table
    - person
    - EMPLOYEES
  - Views

Options | Tables that will be recreated | Data type conversion | Oracle Errors to Mask

Details | Dynamic/UD properties | Physical Details | Storage Details

Table	Backup Strategy	Data Restore	Script Execution	Unload Directory
CUSTOMERS	Rename	Restore	Continue	
CPY	Rename	Restore	Continue	
person	Rename	Restore	Continue	

Merge | DDL Preview | Close | Help

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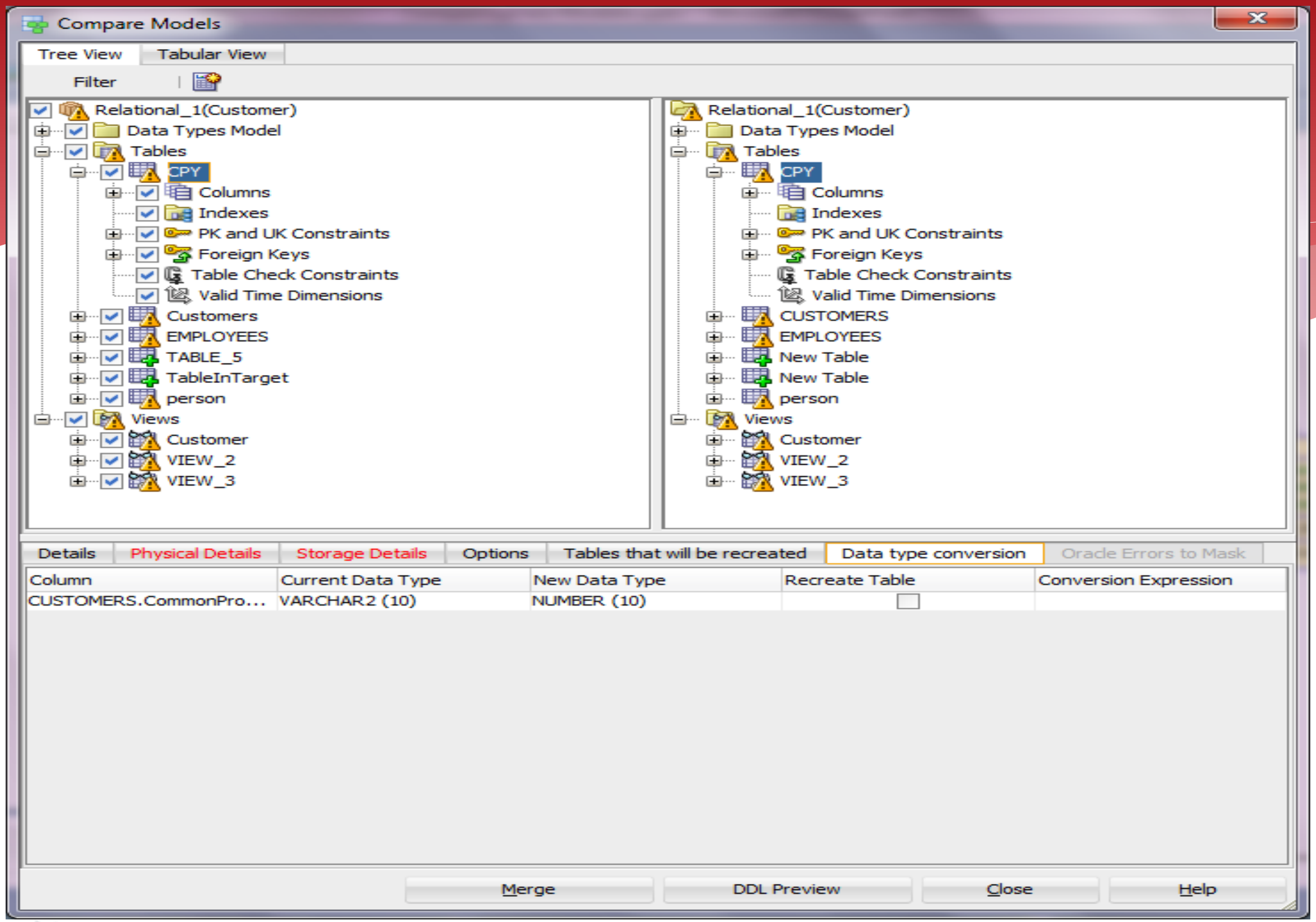

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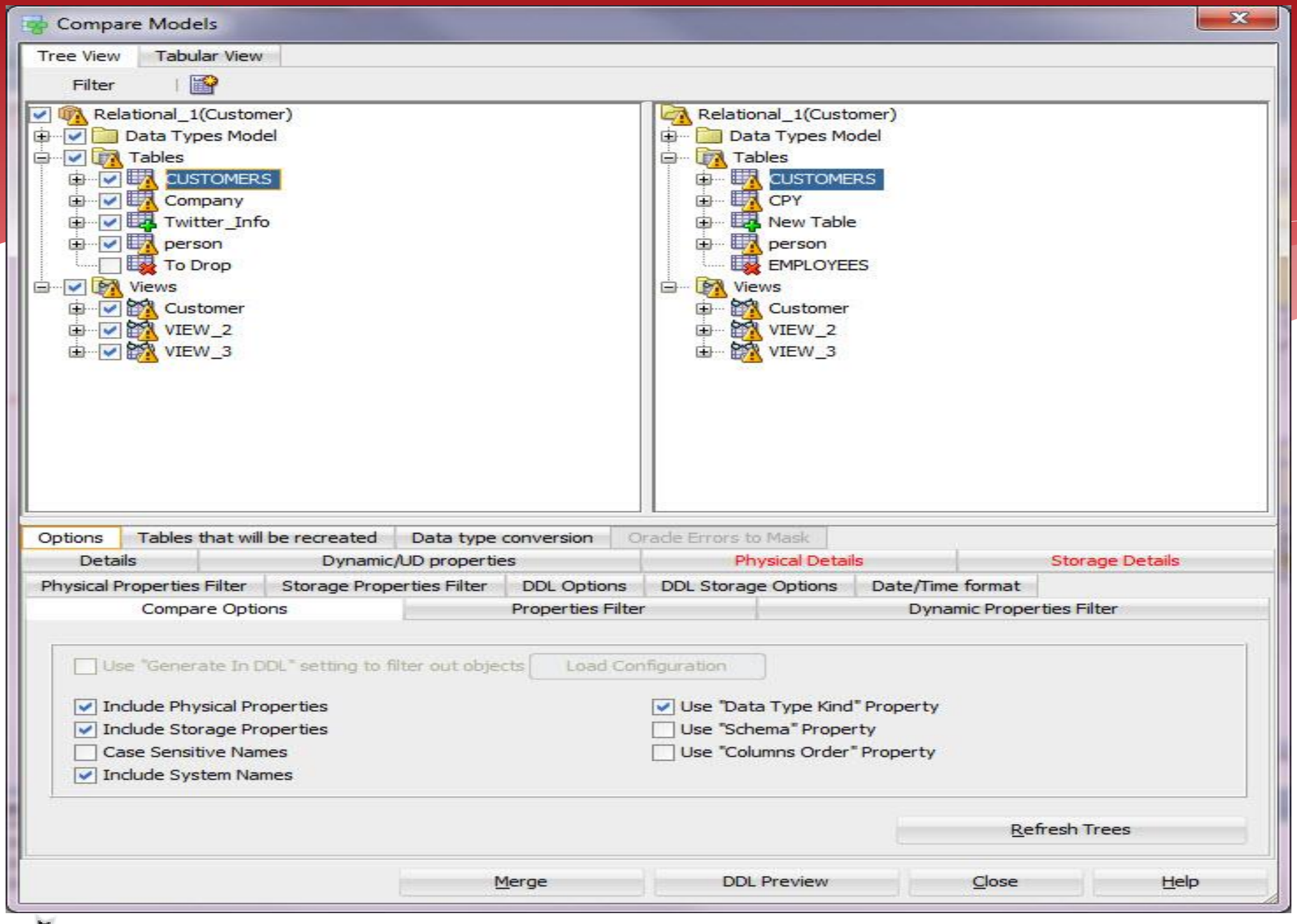

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Compare Models

Tree View | Tabular View

Filter

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - Company
    - Twitter_Info
    - person
    - To Drop
  - Views

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CUSTOMERS
    - CPY
    - New Table
    - person
    - EMPLOYEES
  - Views

Options | Tables that will be recreated | Data type conversion | Oracle Errors to Mask

Details | Dynamic/UD properties | Physical Details | Storage Details

Physical Properties Filter | Storage Properties Filter | DDL Options | DDL Storage Options | Date/Time format

Compare Options | Properties Filter | Dynamic Properties Filter

Physical Properties to be Included or Excluded in Compare Model

Columns
Foreign Keys
PK and UK Constraints
Structured Types
Tables
Views

Property	Included
Name	☑
Comment	☑
Comment in RDBMS	☑
Default Value	☑
ColumnExpression	☑
Auto Increment User	☑

Refresh Trees

Merge | DDL Preview | Close | Help

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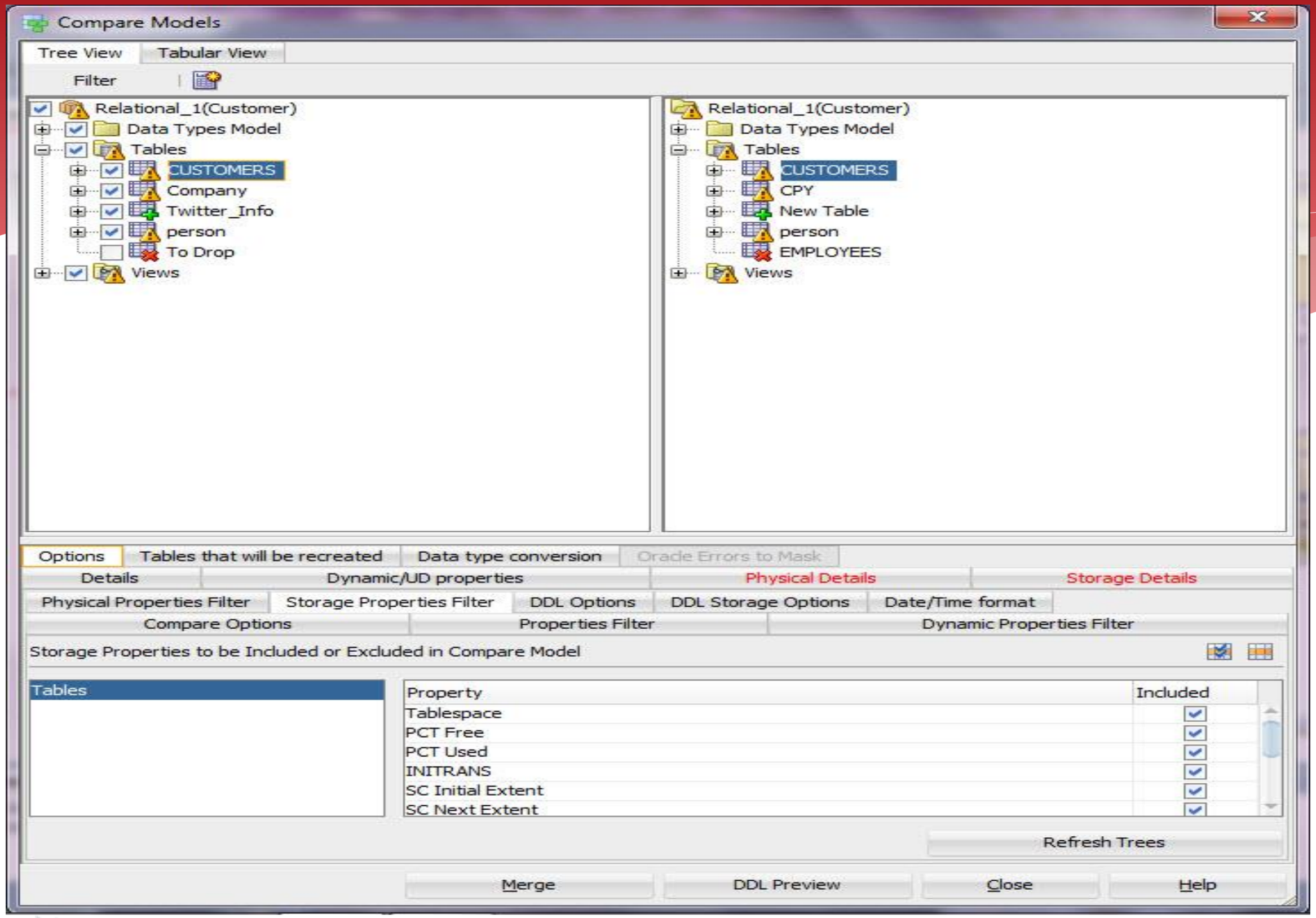

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Compare Models

Tree View | Tabular View

Filter

Relational_1(Customer)
- Data Types Model
- Tables
  - CUSTOMERS
  - Company
  - Twitter_Info
  - person
  - To Drop
- Views

Relational_1(Customer)
- Data Types Model
- Tables
  - CUSTOMERS
  - CPY
  - New Table
  - person
  - EMPLOYEES
- Views

Options | Tables that will be recreated | Data type conversion | Oracle Errors to Mask

Details | Dynamic/UD properties | Physical Details | Storage Details

Physical Properties Filter | Storage Properties Filter | DDL Options | DDL Storage Options | Date/Time format

Compare Options | Properties Filter | Dynamic Properties Filter

- [ ] Include Comments
- [x] Include Default Settings
- [ ] Include Logging
- [x] Include Schema
- [x] Include Storage
- [x] Include Tablespace

Regular DDL

- [ ] Replace existing files

Unload Directory:

Merge | DDL Preview | Close | Help

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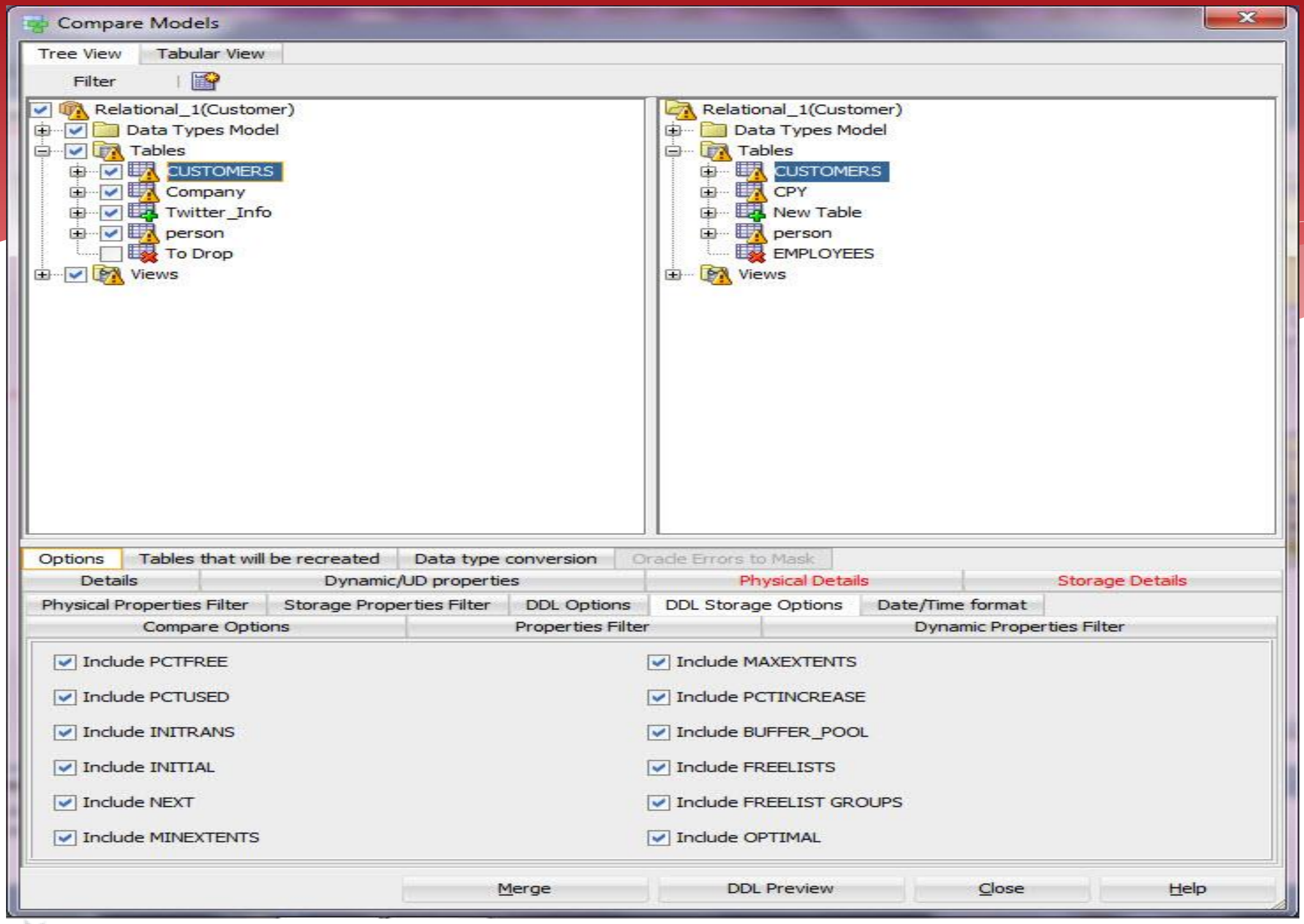

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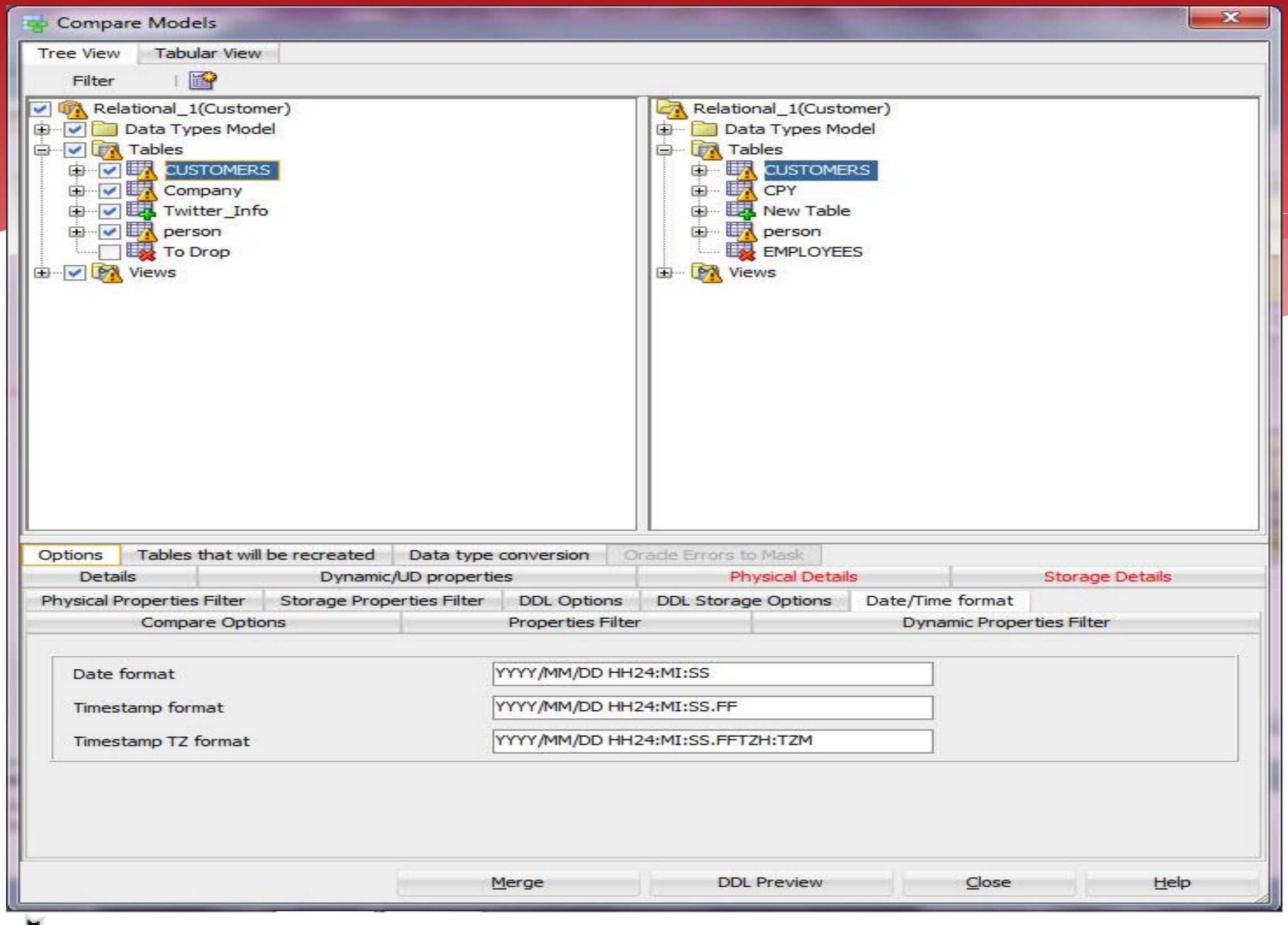

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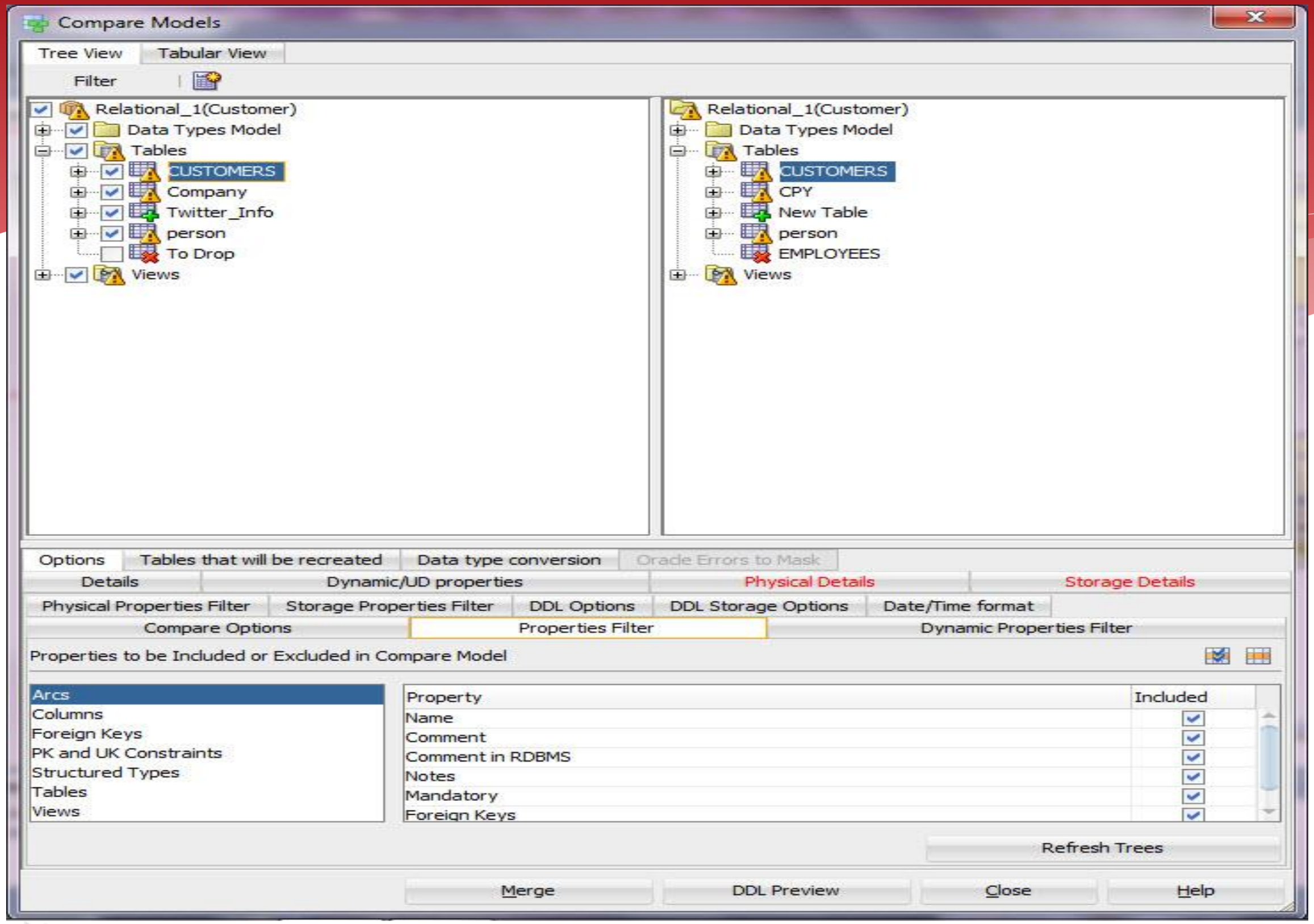

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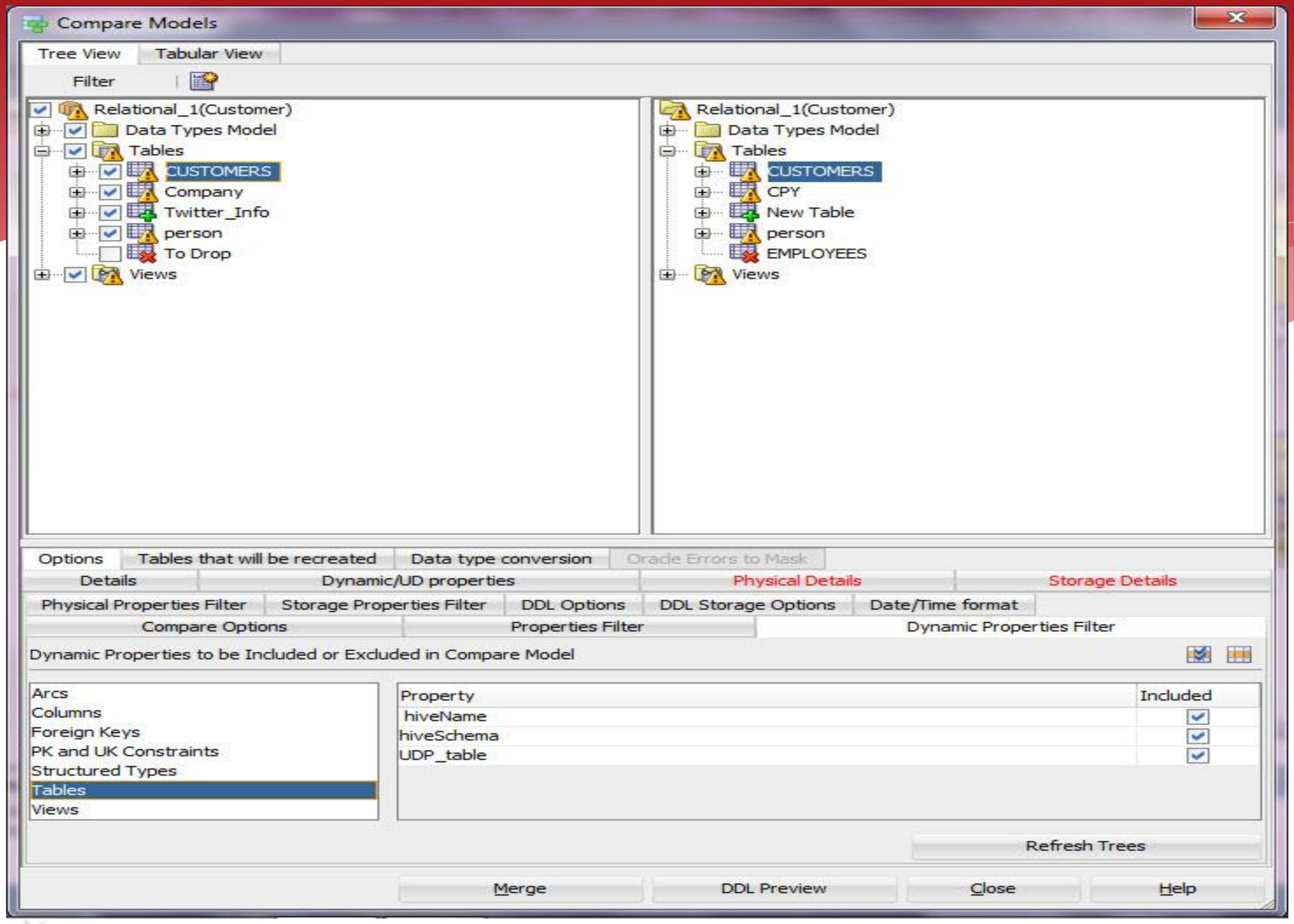

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DDL File Editor - Oracle Database 11g

```
1  -- Generated by Oracle SQL Developer Data Modeler 4.1.0.881
2  --   at:        2015-06-12 23:47:39 EEST
3  --   site:      Oracle Database 11g
4  --   type:      Oracle Database 11g
5
6
7
8
9
10 ALTER TABLE MN.person DROP CONSTRAINT person_CUSTOMERS_FK CASCADE ;
11
12 ALTER TABLE MN.CPY DROP CONSTRAINT CPY_CUSTOMERS_FK CASCADE ;
13
14 ALTER TABLE MN.CUSTOMERS DROP CONSTRAINT CUSTOMERS_PK CASCADE ;
15
16 ALTER TABLE MN.CUSTOMERS RENAME TO bcp_CUSTOMERS
17 ;
18 CREATE TABLE MN.CUSTOMERS
19     (
20      CNo NUMBER (16)  NOT NULL ,
21      CommonProperty VARCHAR2 (10)
22     )
23     ORGANIZATION HEAP
24     NOCOMPRESS
25     NOCACHE
26     NOPARALLEL
27     ROWDEPENDENCIES
28     DISABLE ROW MOVEMENT
29 ;
30
31
```

Save | Find | Close | Help

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NO?...

* If you merge and then realize something was not correct, you can always close the design without saving it.

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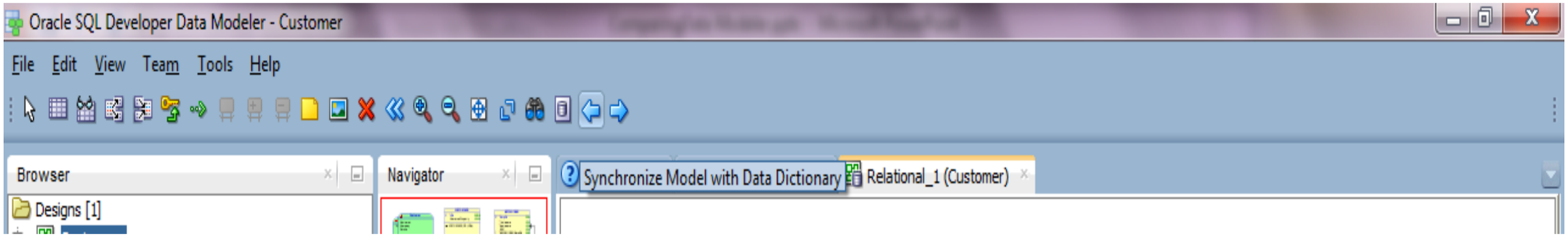
Comparing Database

* Synchronize Model With Data Dictionary



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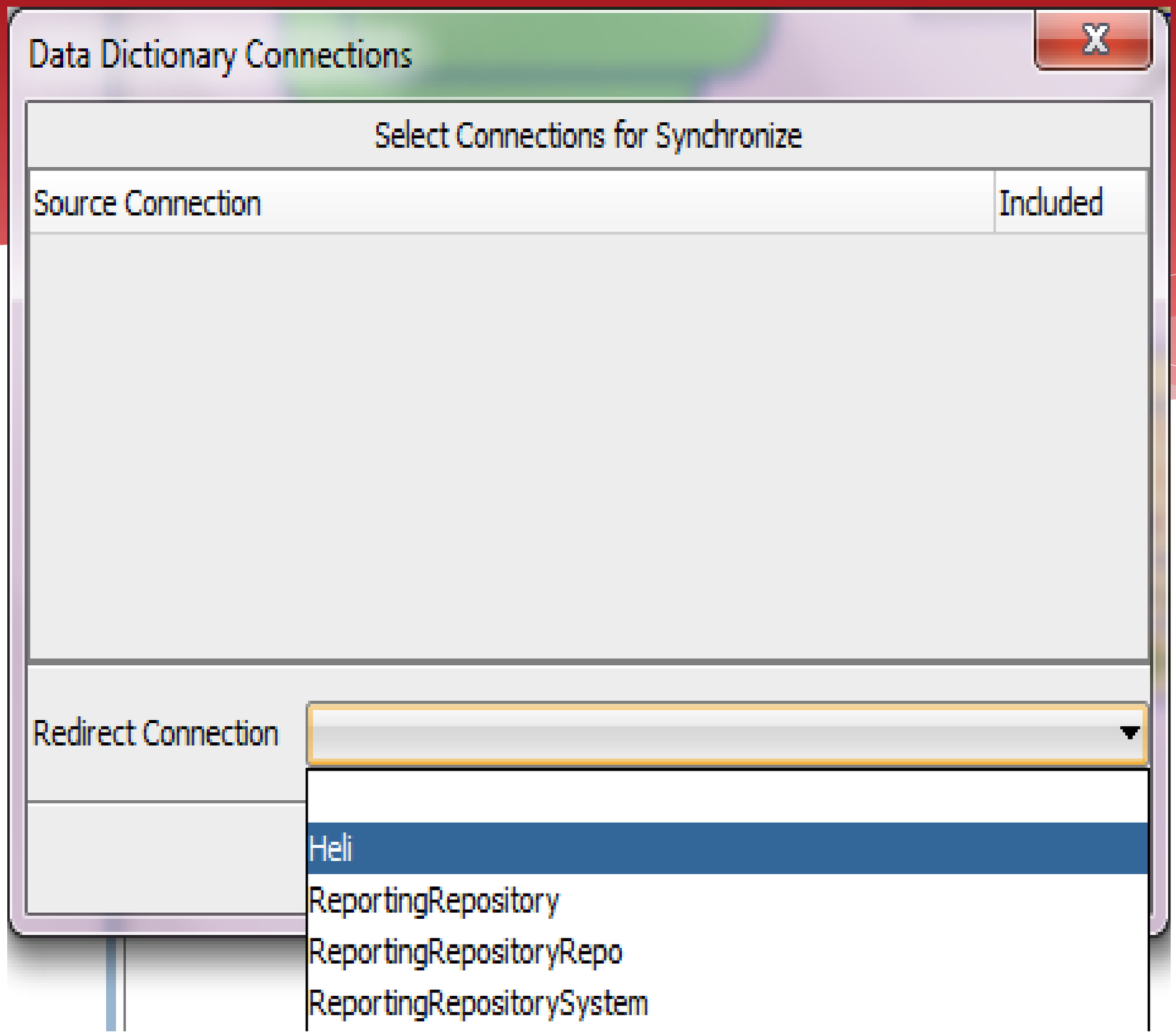

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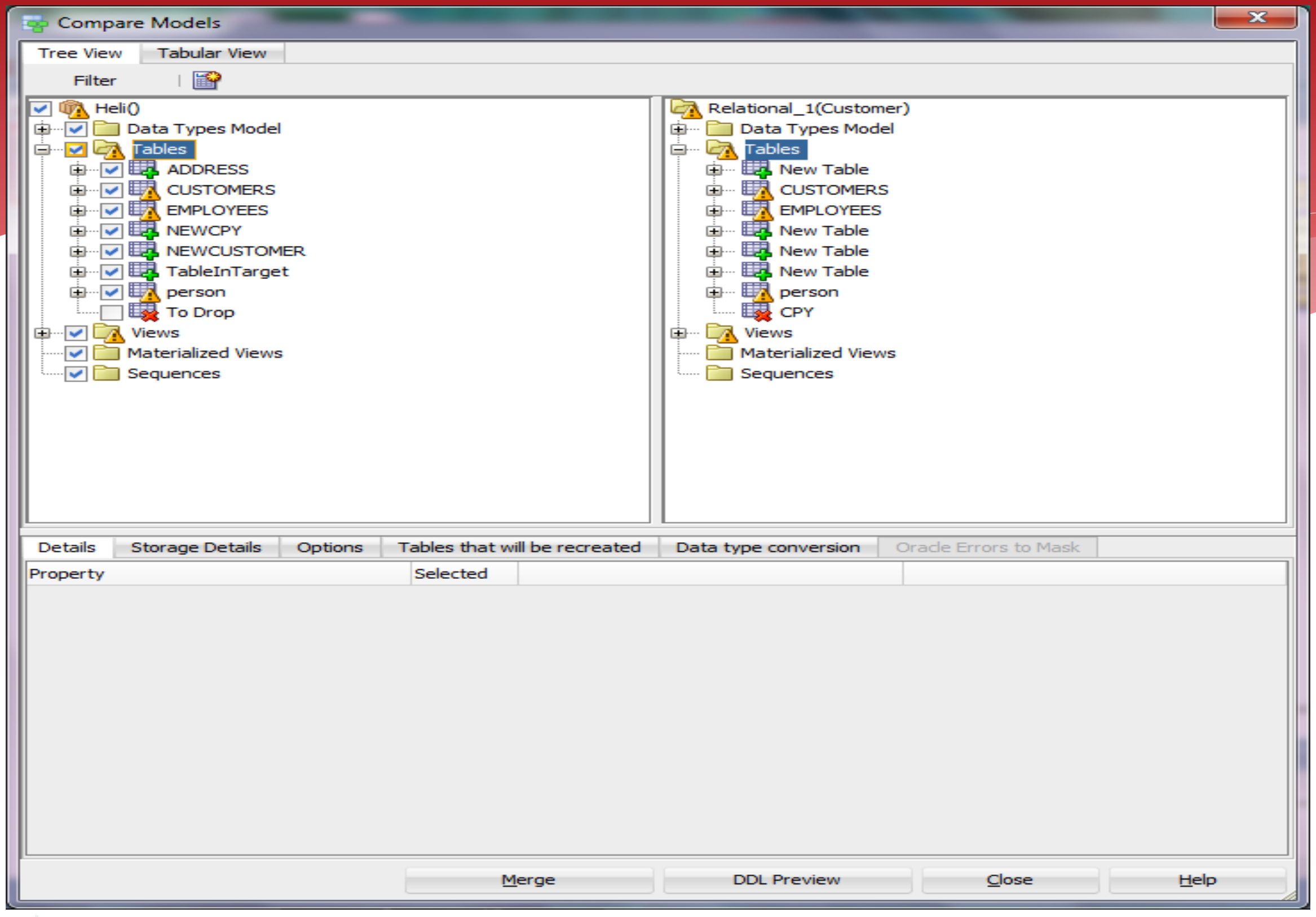

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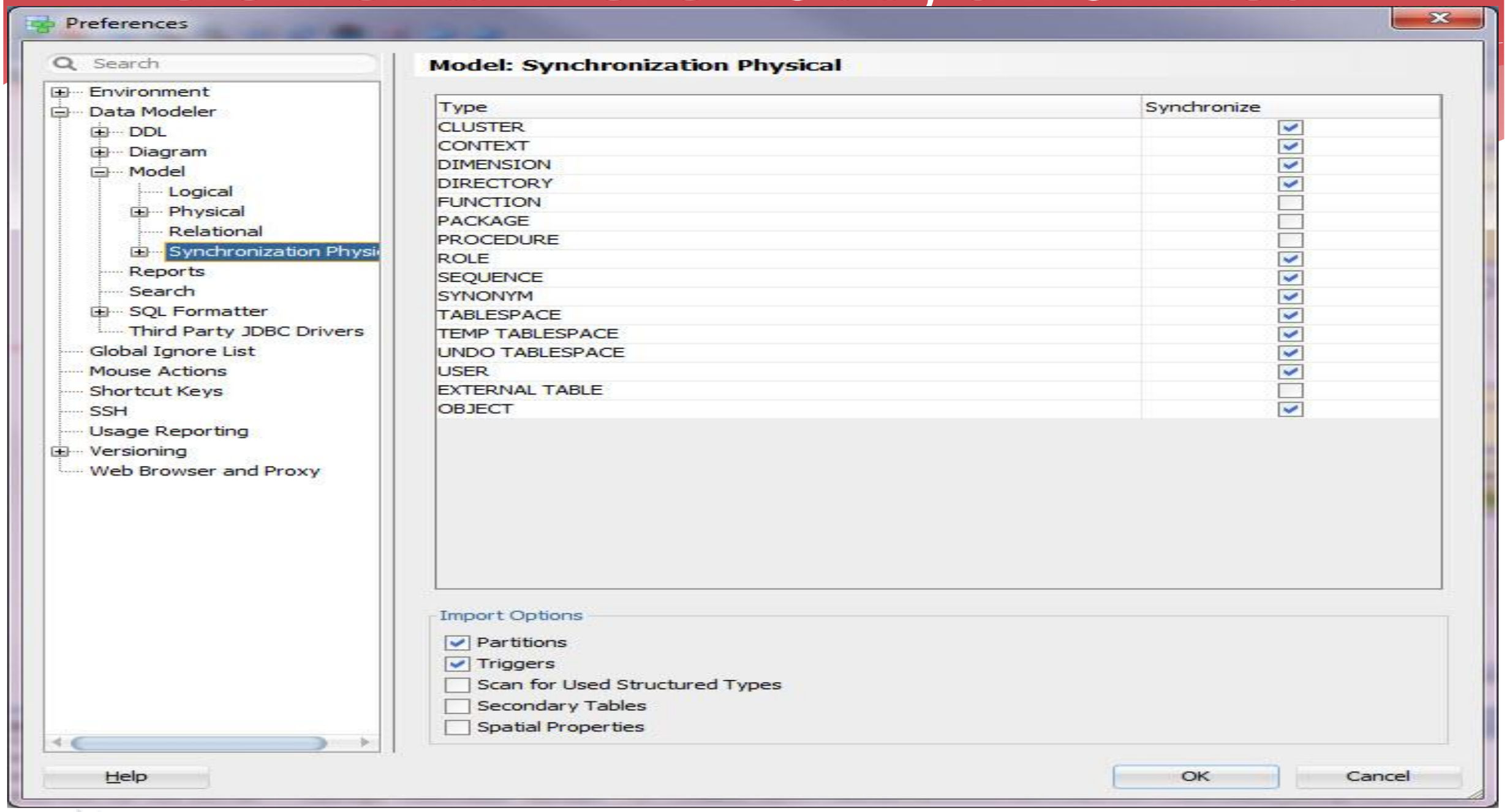
Why some of the elements were not sychronized?



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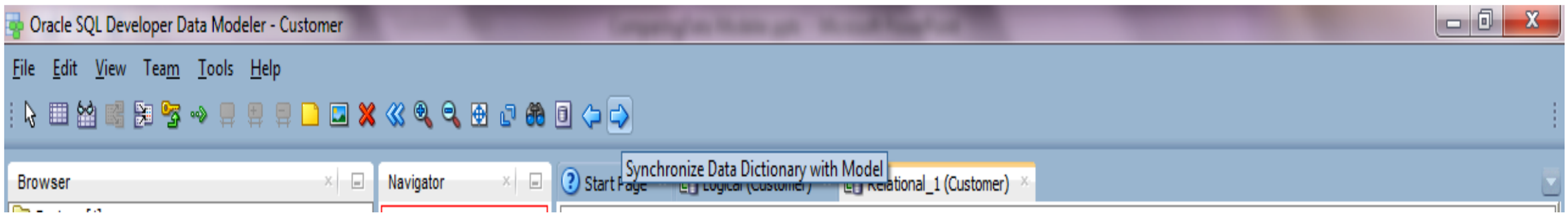
Comparing Database

* Synchronize Data Dictionary With Model



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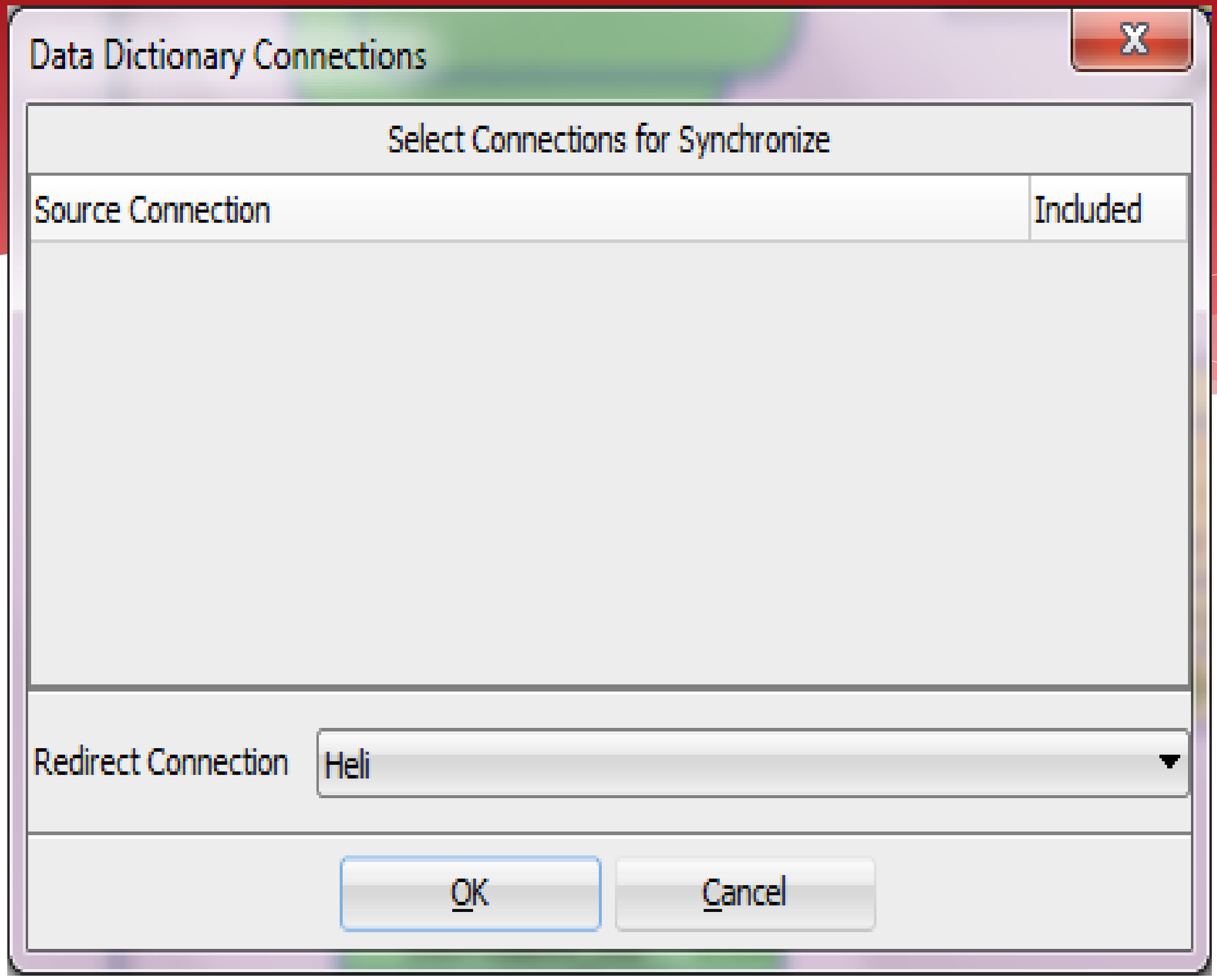

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Compare Models

Tree View | Tabular View

Filter

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CPY
    - CUSTOMERS
    - EMPLOYEES
    - person
      - To Drop
      - To Drop
      - To Drop
      - To Drop
  - Views
    - Customer
    - VIEW_2
    - VIEW_3
  - Materialized Views
  - Sequences

- Heli()
  - Data Types Model
  - Tables
    - New Table
    - CUSTOMERS
    - EMPLOYEES
    - person
      - ADDRESS
      - NEWCPY
      - NEWCUSTOMER
      - TableInTarget
  - Views
    - New View
    - New View
    - New View
  - Materialized Views
  - Sequences

Details | Storage Details | Options | Tables that will be recreated | Data type conversion | Oracle Errors to Mask

Property	Selected	Source Table: person	Target Table: person
Schema	☐	MN	HELI
Name	☐	person	person
Comment in RDBMS	☐		
Structured Type	☐		
Allow Type Substitution	☐	true	true
Spatial Table	☐	false	false
Columns Order	☐	sn; pi; CUSTOMERS_CNo	sn; pi; CUSTOMERS_CNo

Sync New Objects | Merge | DDL Preview | Close | Help

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DDL File Editor - Oracle Database 11g

```
1  -- Generated by Oracle SQL Developer Data Modeler 4.1.0.866
2  --   at:        2015-03-10 14:22:30 EET
3  --   site:      Oracle Database 11g
4  --   type:      Oracle Database 11g
5
6
7
8
9  CREATE TABLE "MN"."CPY"
10     (
11      "CompanyID"     VARCHAR2 (10 CHAR)  NOT NULL ,
12      "CompanyInfo"   VARCHAR2 (50 CHAR)  NULL ,
13      "CUSTOMERS_CNo" NUMBER (16)  NOT NULL
14     )
15     ORGANIZATION HEAP
16     TABLESPACE "MNTablespace"
17     NOCOMPRESS
18     NOCACHE
19     NOPARALLEL
20     NOROWDEPENDENCIES
21     DISABLE ROW MOVEMENT
22 ;
23
24
25 ALTER TABLE "MN"."CPY"
26     ADD CONSTRAINT "CPY_PK" PRIMARY KEY ( "CUSTOMERS_CNo"  ) NOT DEFERRABLE ENABLE VALIDATE ;
27
28
29
30
31 CREATE TABLE "MN"."CUSTOMERS"
```

Save | Find | Close | Help

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I have renamed a column in design..

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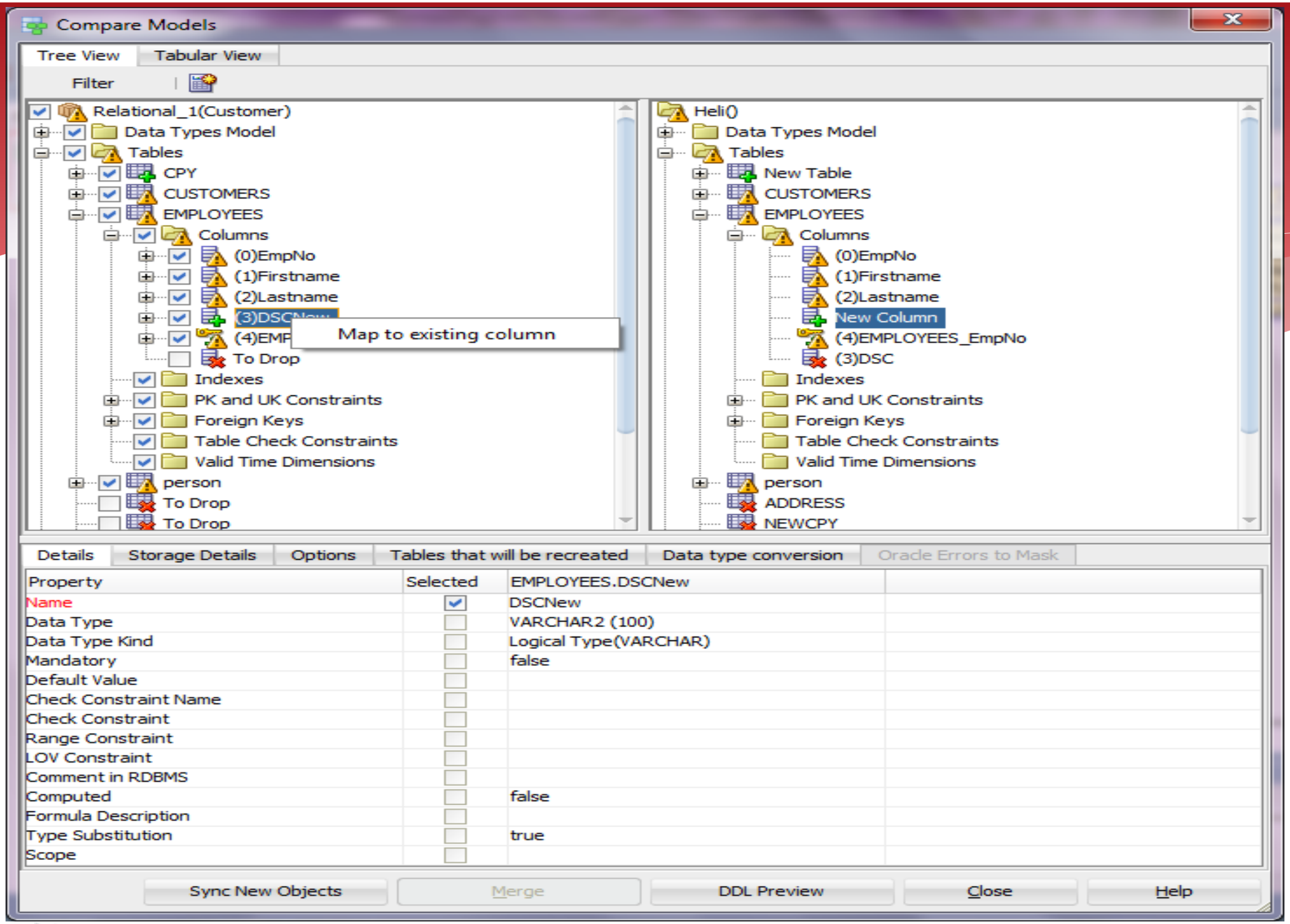

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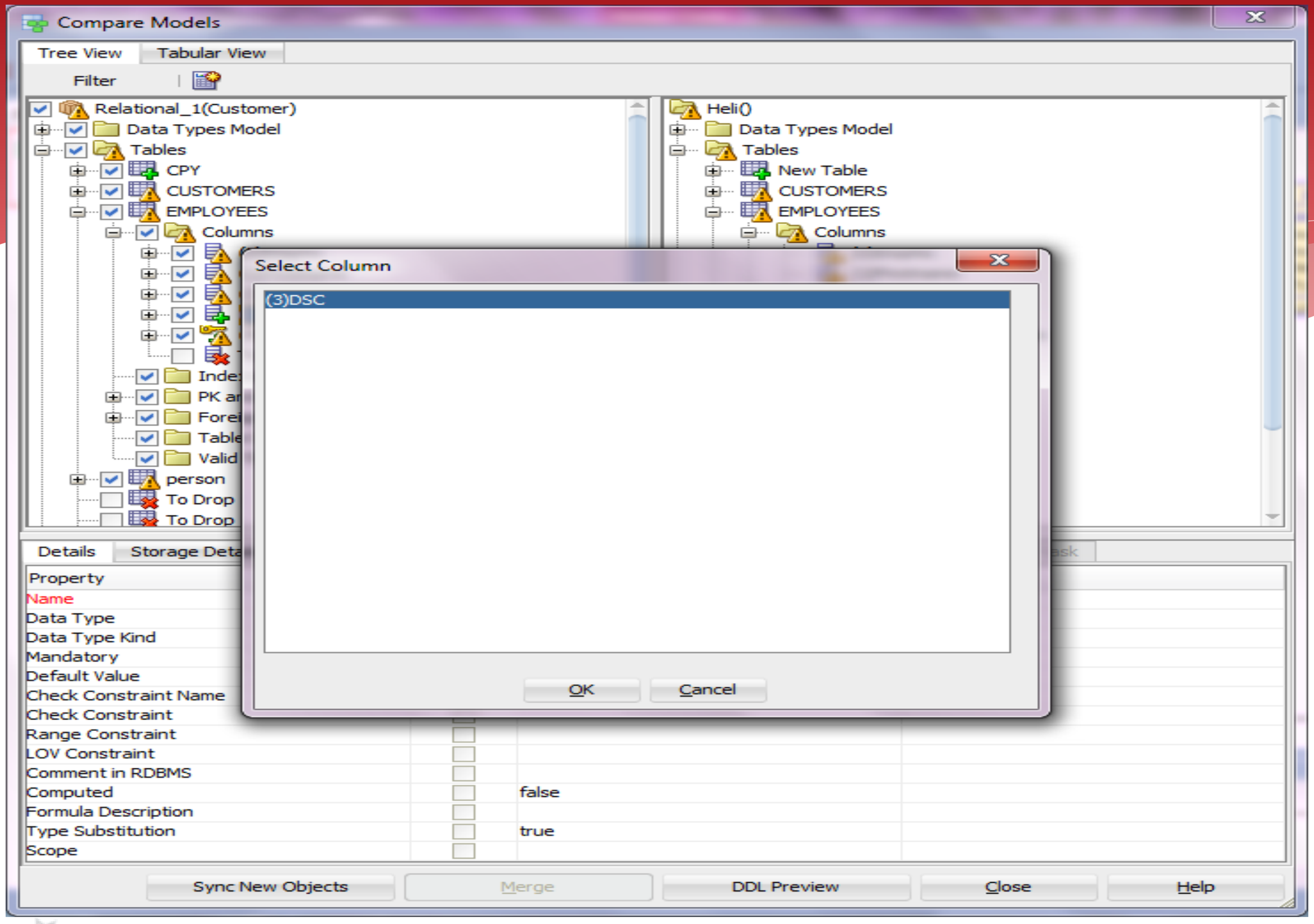

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Compare Models

Tree View | Tabular View

Filter

- Relational_1(Customer)
  - Data Types Model
  - Tables
    - CPY
    - CUSTOMERS
    - EMPLOYEES
      - Columns
        - (0)EmpNo
        - (1)Firstname
        - (2)Lastname
        - (3)DSCNew
        - (4)EMPLOYEES_EmpNo
      - Indexes
      - PK and UK Constraints
      - Foreign Keys
      - Table Check Constraints
      - Valid Time Dimensions
    - person
    - To Drop
    - To Drop
    - To Drop

- Heli()
  - Data Types Model
  - Tables
    - New Table
    - CUSTOMERS
    - EMPLOYEES
      - Columns
        - (0)EmpNo
        - (1)Firstname
        - (2)Lastname
        - (3)DSC
        - (4)EMPLOYEES_EmpNo
      - Indexes
      - PK and UK Constraints
      - Foreign Keys
      - Table Check Constraints
      - Valid Time Dimensions
    - person
    - ADDRESS
    - NEWCPY
    - NEWCUSTOMER

Details | Storage Details | Options | Tables that will be recreated | Data type conversion | Oracle Errors to Mask

Property	Selected	EMPLOYEES.DSCNew	EMPLOYEES.DSC
Name	☑	DSCNew	DSC
Data Type	☐	VARCHAR2 (100)	VARCHAR2 (100 BYTE)
Data Type Kind	☐	Logical Type(VARCHAR)	Logical Type(VARCHAR)
Mandatory	☐	false	false
Not Null Constraint Name	☐		
Default Value	☐		
Check Constraint Name	☐		
Use Domain Constraint	☐	false	false
Check Constraint	☐		
Range Constraint	☐		
LOV Constraint	☐		
Generate Check Constraint In DDL	☐	YES	YES
Comment	☐		
Comment in RDBMS	☐		

Sync New Objects | Merge | DDL Preview | Close | Help

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It's called a Compare Mapping

* And Data Modeler will remember it for this design...

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Design Properties - Customer

- General
- Settings
  - Compare Mappings
  - Diagram
  - DDL
  - Naming Standard
  - Dynamic Properties
- Comments
- Notes
- Summary

Compare Mappings

Compare Mappings

Selected	Source Object	Target Object
☑	EMPLOYEES.DSC	EMPLOYEES.DSCNew
☑	EMPLOYEES.DSCNew	EMPLOYEES.DSC

OK | Apply | Cancel | Help

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Comparing DDL File

* File | Import | DDL File

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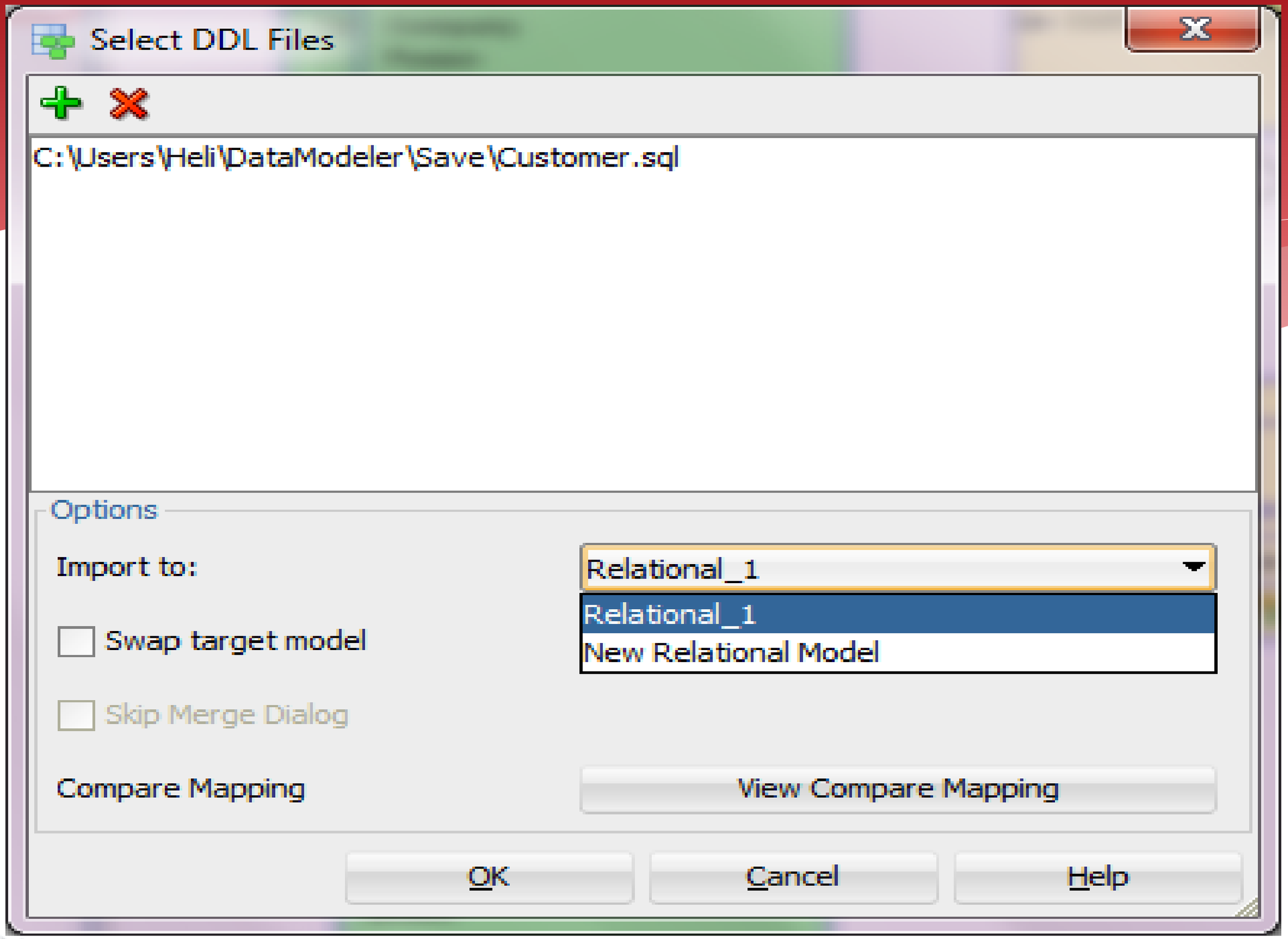

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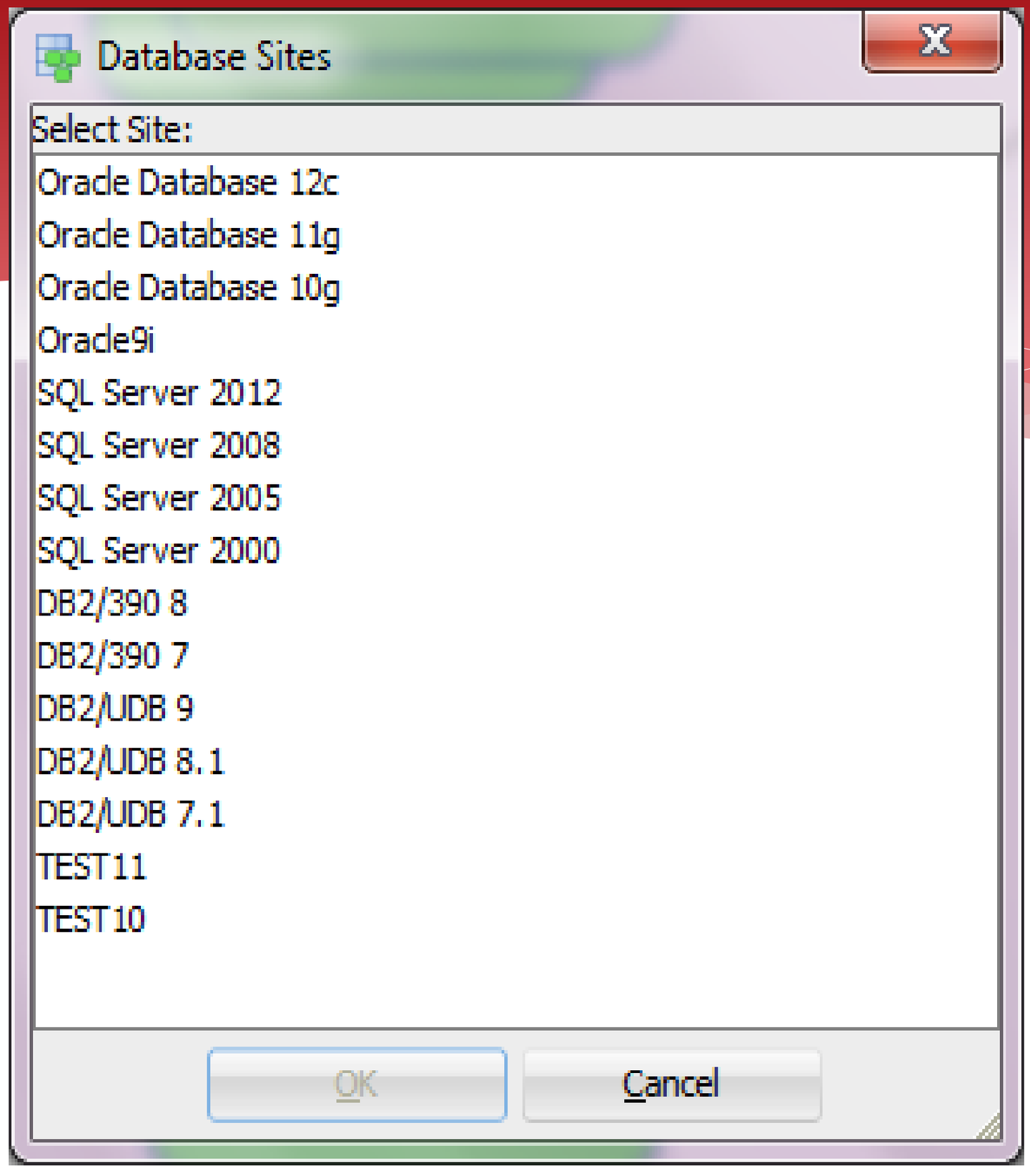

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View Log

```
Oracle SQL Developer Data Modeler 4.1.0.866
Oracle SQL Developer Data Modeler Import Log
Date and Time: 2015-03-10 20:53:37 EET
Design Name: Customer
RDBMS : Oracle Database 12c

                    All Statements:                 26
                    Imported Statements:            13
                    Failed Statements:              0
                    Not Recognized Statements:      13

<<<<< Not Recognized >>>>>
PROMPT CREATING TABLESPACE 'MNTablespace'

PROMPT CREATING USER 'MN'

PROMPT CREATING TABLE 'CPY'

PROMPT CREATING PRIMARY KEY ON 'CPY'

PROMPT CREATING TABLE 'CUSTOMERS'

PROMPT CREATING PRIMARY KEY ON 'CUSTOMERS'

PROMPT CREATING TABLE 'EMPLOYEES'

PROMPT CREATING PRIMARY KEY ON 'EMPLOYEES'

PROMPT CREATING TABLE 'person'

PROMPT CREATING PRIMARY KEY ON 'person'

PROMPT CREATING FOREIGN KEY ON 'CPY'
```

Save Close

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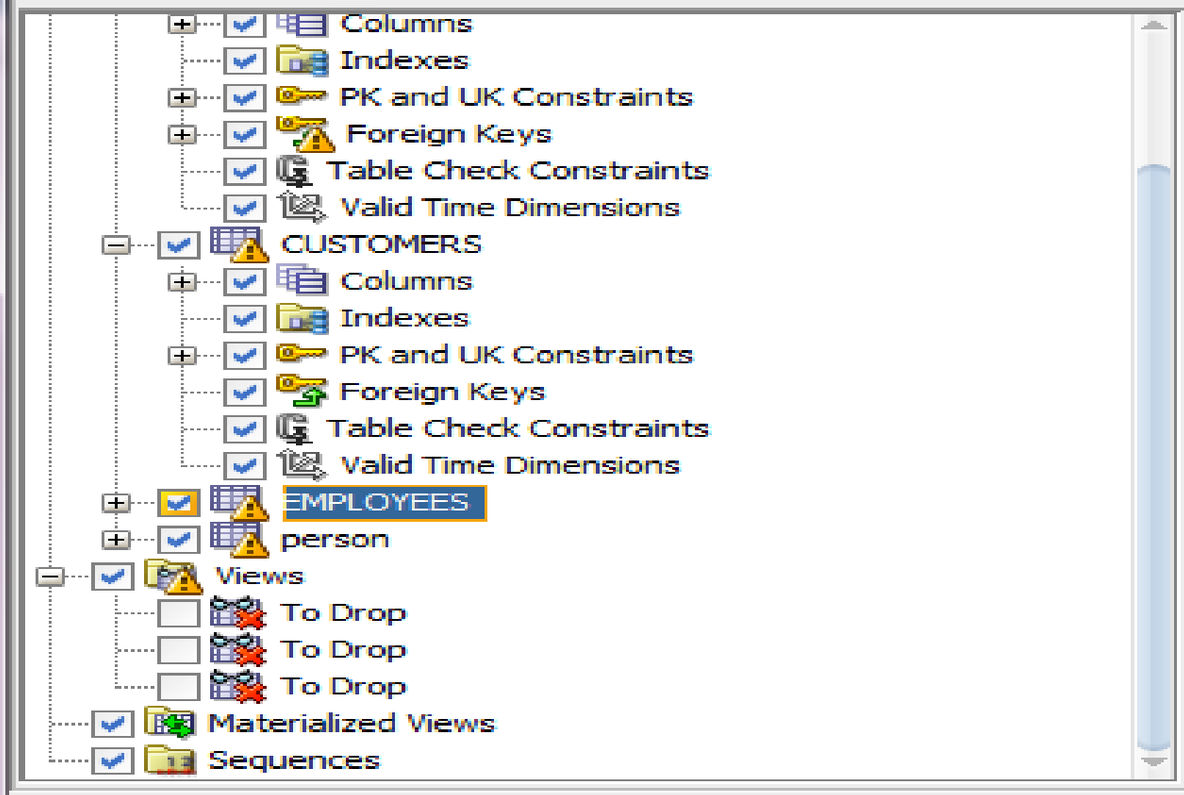
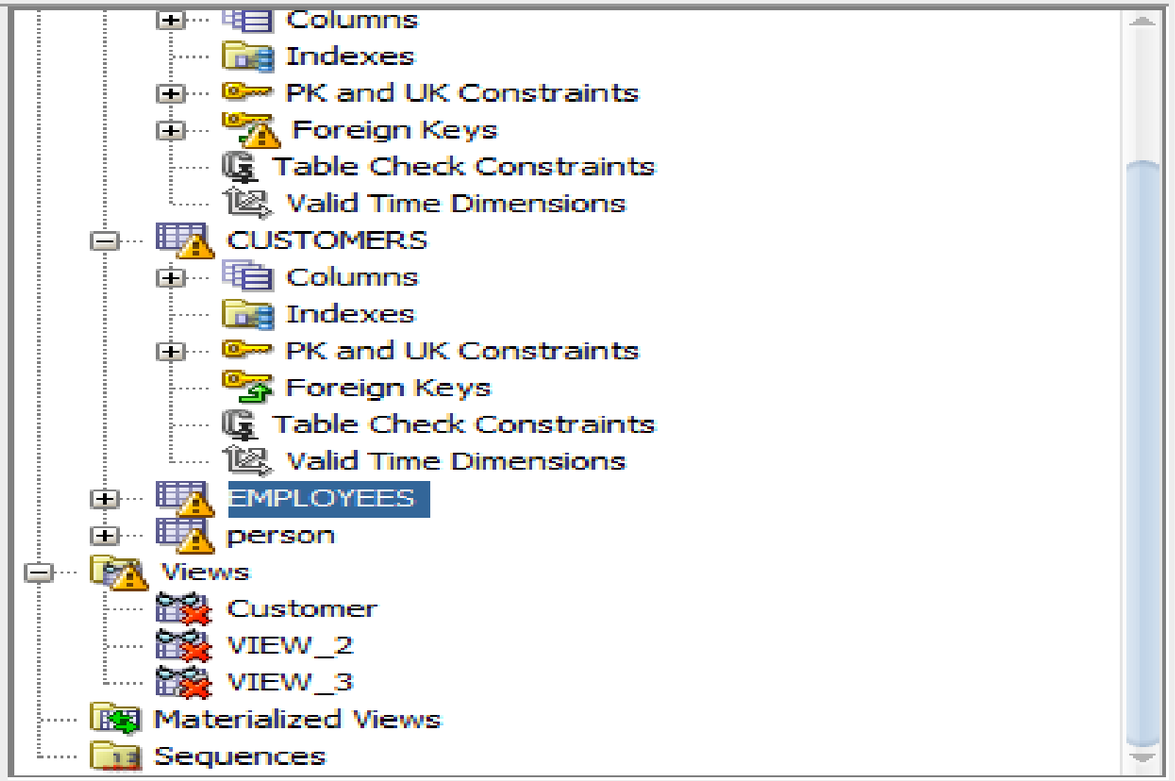
Compare Models

Tree View | Tabular View

Filter





Details | Physical Details | Storage Details | Options | Tables that will be recreated | Data type conversion | Oracle Errors to Mask

Property	Selected	Source Table: EMPLOYEES	Target Table: EMPLOYEES
Schema	☐	MN	
Name	☐	EMPLOYEES	EMPLOYEES
Comment in RDBMS	☐		
Structured Type	☐		
Allow Type Substitution	☐	true	true
Spatial Table	☐	false	false
Columns Order	☐	EmpNo; Firstname; Lastname; DSC; EMPL...	EmpNo; Firstname; Lastname; DSC; EMPL...

Merge | DDL Preview | Close | Help

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DDL File Editor - Oracle Database 11g

```
1  -- Generated by Oracle SQL Developer Data Modeler 4.1.0.881
2  --   at:        2015-06-12 23:47:39 EEST
3  --   site:      Oracle Database 11g
4  --   type:      Oracle Database 11g
5
6
7
8
9
10 ALTER TABLE MN.person DROP CONSTRAINT person_CUSTOMERS_FK CASCADE ;
11
12 ALTER TABLE MN.CPY DROP CONSTRAINT CPY_CUSTOMERS_FK CASCADE ;
13
14 ALTER TABLE MN.CUSTOMERS DROP CONSTRAINT CUSTOMERS_PK CASCADE ;
15
16 ALTER TABLE MN.CUSTOMERS RENAME TO bcp_CUSTOMERS
17 ;
18 CREATE TABLE MN.CUSTOMERS
19     (
20      CNo NUMBER (16)  NOT NULL ,
21      CommonProperty VARCHAR2 (10)
22     )
23     ORGANIZATION HEAP
24     NOCOMPRESS
25     NOCACHE
26     NOPARALLEL
27     ROWDEPENDENCIES
28     DISABLE ROW MOVEMENT
29 ;
30
31
```

Save | Find | Close | Help

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Comparing Data Dictionary

* File | Import | Data Dictionary

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Data Dictionary Import Wizard

Select database connection to connect to desired database.
If the list is empty use the "Add" button to create one.

1. Connect to Database.

2. Select Schema/Database.

3. Select Objects to Import.

4. Generate Design.

Connection Name	Connection Details
Heli	Heli@//localhost:15210/orcl
ReportingRepository	DM_REPORT_REPOS@//localhost:15210/orcl
ReportingRepositoryRepo	repo@//localhost:15210/orcl
ReportingRepositorySystem	system@//localhost:15210/orcl
Testi	Testi@//localhost:15210/orcl

Add | Remove | Import | Export | Properties | Test Connection

< Back | Next > | Finish | Cancel | Help

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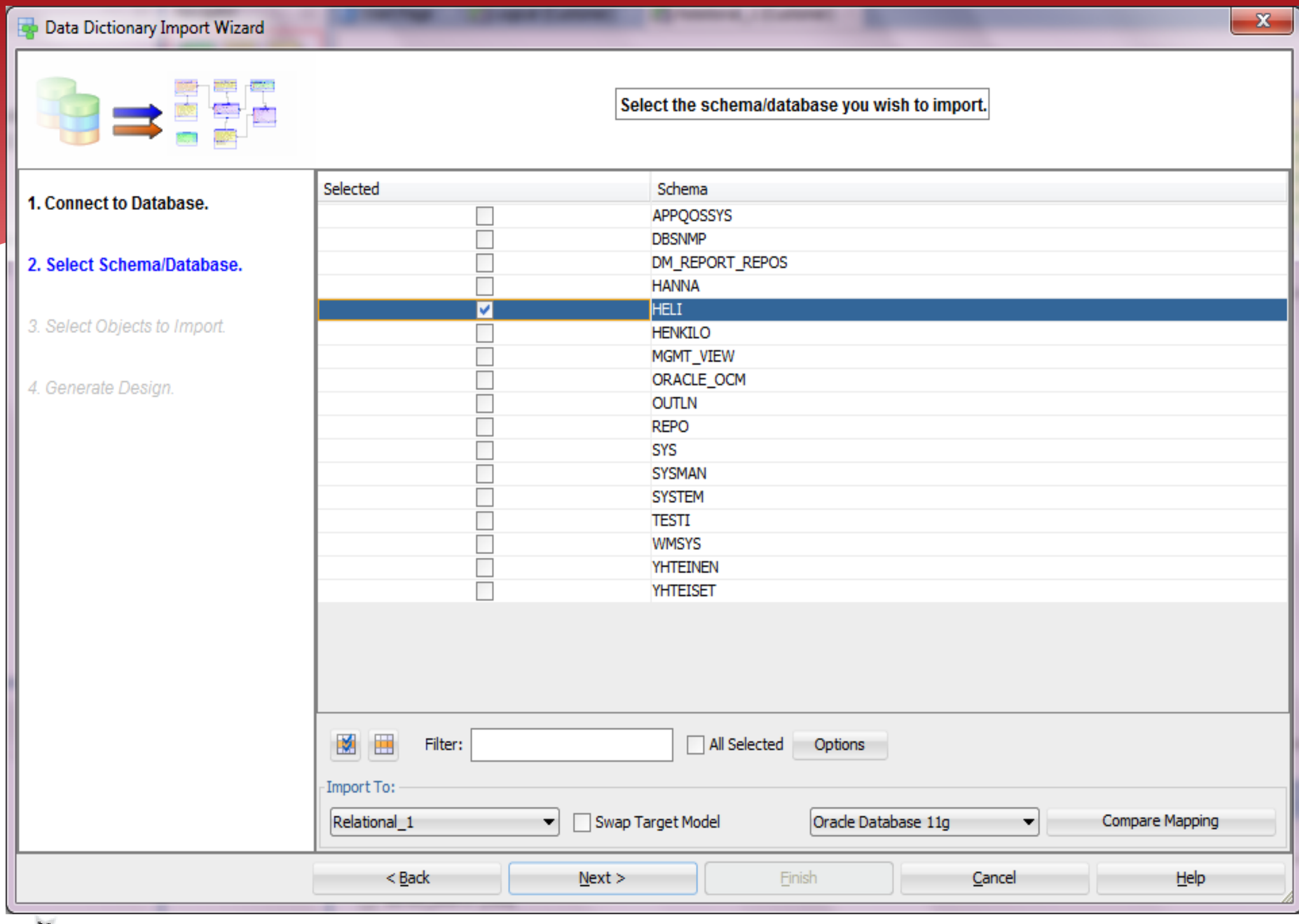

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Data Dictionary Import Wizard

Select the objects you wish to import.

1. Connect to Database.

2. Select Schema/Database.

3. Select Objects to Import.

4. Generate Design.

Selected	Schema	Object Name
☑	HELI	ADDRESS
☑	HELI	CUSTOMERS
☑	HELI	EMPLOYEES
☑	HELI	NEWCPY
☑	HELI	NEWCUSTOMER
☑	HELI	TableInTarget
☑	HELI	person

Tables | Views | Users | Roles | Directories | External Tables | Contexts | Clusters | Sequences | Synonyms

Tablespaces | Temp Tablespaces | Dimensions | Types | Packages | Stored Procedures | Functions | Undo Tablespaces

Filter:

< Back | Next > | Finish | Cancel | Help

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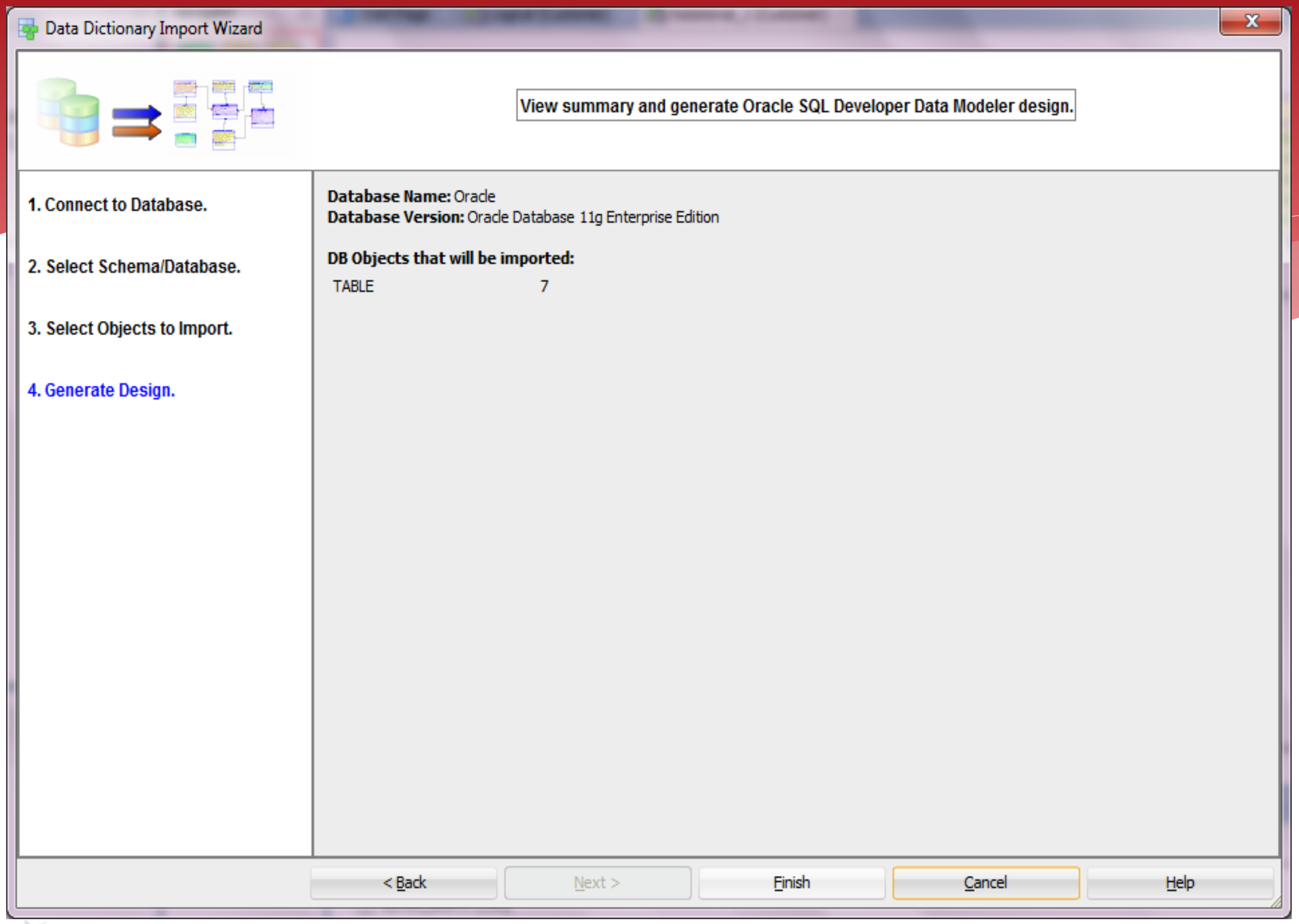

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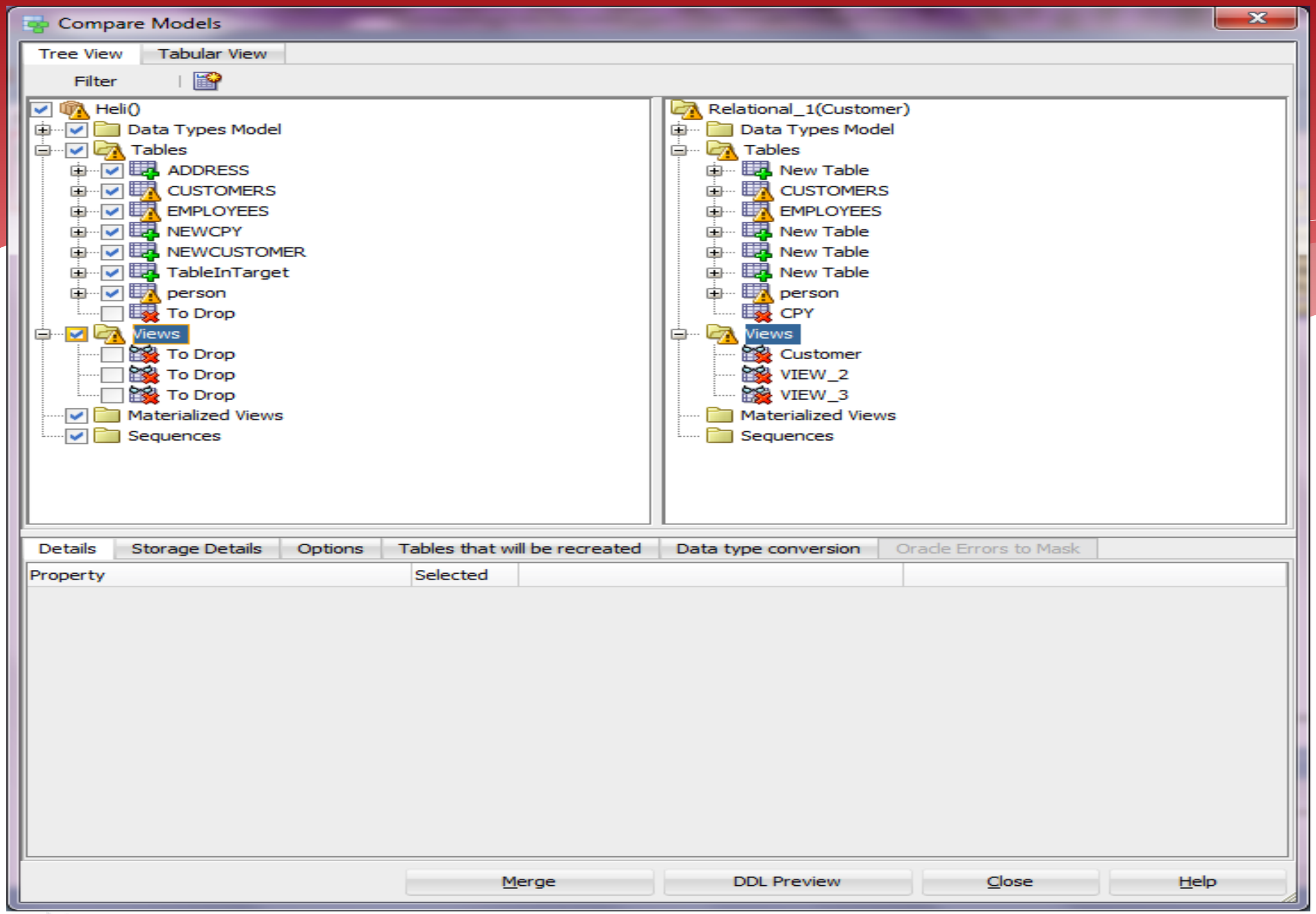

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Reverse Engineering

* Use the ”compare” we just learned BUT always import to an existing model

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Summary

* **Table DDL Transformation Scripts** can be used for Journaling Tables and many other purposed
* **User Defined Properties** (UDPs) are easy to define and can be used for instance on Search and reporting
* **Search** can be used for reporting, setting common properties and for updating your models based on an Excel sheet

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Summary cont.

* There are different **compares**
  * Design vs Design
  * Design vs Database
  * Database vs Design

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Summary cont.

* File | Import | Data Modeler Design
* Tools | Compare/Merge Models
* Synchronize Model With Data Dictionary
* Synchronize Data Dictionary With Model
* File | Import | DDL File
* File | Import | Data Dictionary

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Summary cont.

* When you import to an exiting model -> compare
* When you import to a new model -> Reverse Engineer
* Remember the preferences make a difference

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THANK YOU!

QUESTIONS?

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