

Design Your Databases Using Oracle SQL Developer Data Modeler

Heli Helskyaho
BIWA Summit 2017

Introduction, Heli

- * Graduated from University of Helsinki (Master of Science, computer science), currently a doctoral student, researcher and lecturer (Big Data, Multi-model Databases) 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)



ORACLE

Oracle SQL Developer Data Modeler for Database Design Mastery

Design, Deploy, and Maintain World-Class Databases
on Any Platform

Heli Helskyaho
Oracle ACE Director

Forewords by C.J. Date and Tom Kyte



Oracle
Press



ORACLE

Real World SQL & PL/SQL

Advice from the Experts

Arup Nanda
Brendan Tierney
Heli Helskyaho
Martin Widlake
Alex Nuijten



Oracle
Press

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*

What is database design?

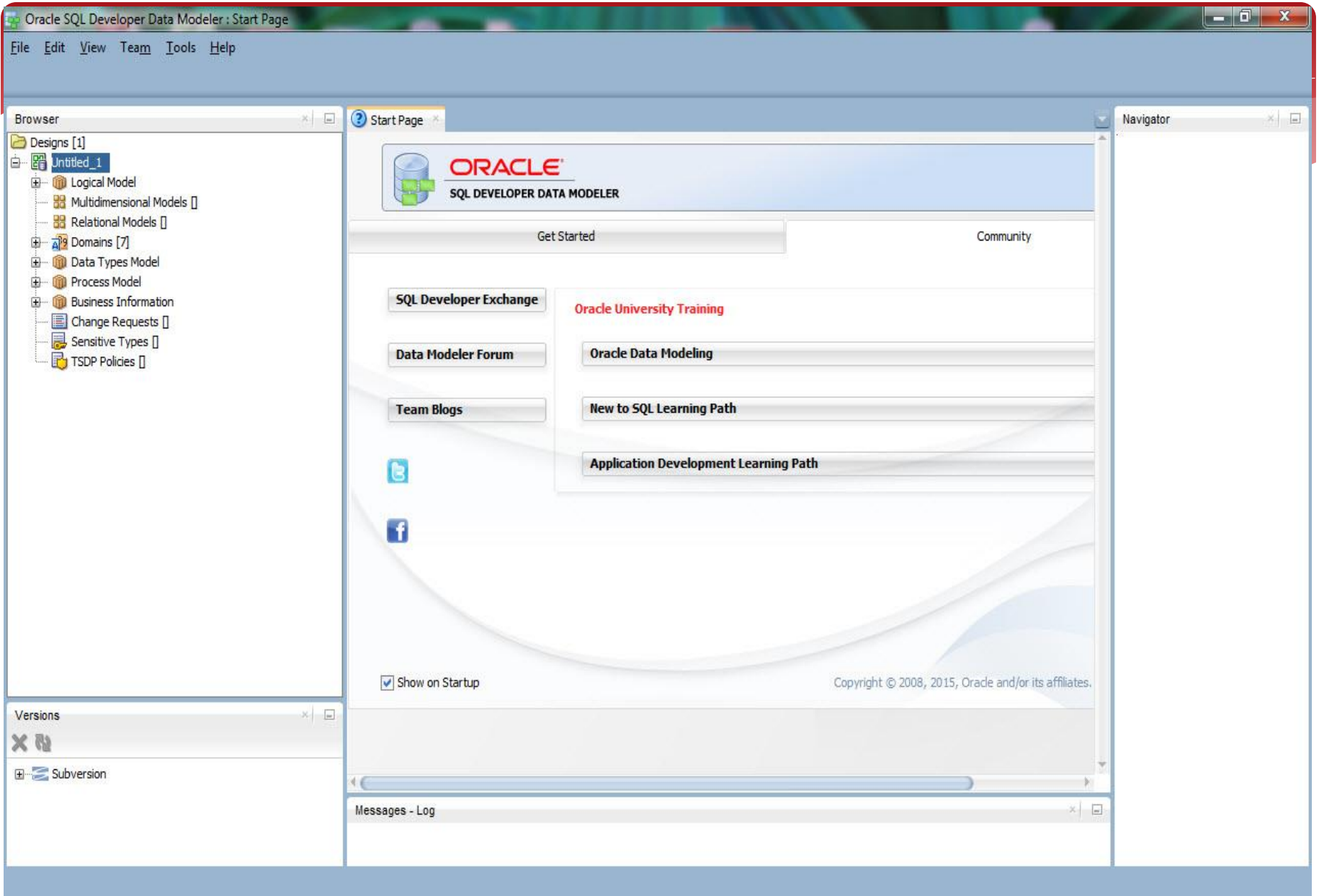
- * 4 (5) phases, over and over again
 - * Requirement analysis (DM: logical)
 - * Conceptual design (DM: logical)
 - * Logical design (DM: relational)
 - * Physical design (DM: physical)
 - * (Transaction design) (DM: process)

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

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



Logical model

Oracle SQL Developer Data Modeler

File Edit View Versioning Tools Help

New Entity

Start Page x Logical (Orderdb) x

Designs [1]
 Orderdb
 Logical Model
 Multidimensional Models []
 Relational Models [1]
 Domains [1]
 Data Types Model
 Process Model
 Business Information
 Change Requests []

Versioning Navigator x
 Subversion

Navigator

```

    erDiagram
      ORDER ||--o{ CUSTOMER : "has"
      ORDER ||--o{ ORDERLINE : "has"
      ORDERLINE ||--o{ PRODUCT : "has"
  
```

ORDER
 # * OrderNo
 o OrderDate

CUSTOMER
 # * CustomerNo
 o Name
 o DeliveryAddress
 o MailAddress

ORDERLINE
 # * OrderlineNo
 o Pcs
 o Price

PRODUCT
 # * ProductNo
 * ProductName

Logical

SVN Console - Log x Pending Changes x

```

propset svn:ignore "*.localz" " C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/logical/relation
propset svn:ignore "*.localz +.local" " C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/logical/relation
propset svn:ignore "*.localz" " C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/logical/relation/seg_0
propset svn:ignore "*.localz +.local" " C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/logical/relation/seg_0
  
```

Messages SVN Console x

Subversion Editing

Entity

Entity Properties - Order [X]

General

Attributes

Unique Identifiers

Relationships

Volume Properties

Engineer To

Comments

Comments in RDBMS

Notes

Impact Analysis

Measurements

Change Requests

Responsible Parties

Documents

Dynamic Properties

Summary

General

Name: Order

Short Name: Order

Synonyms: Order

Synonym to display: Order

Preferred Abbreviation: Order

Long Name: Order

Forward Engineer Strategy: Single Table

Based on Structured Type:

Super Type:

Source:

Classification Type:

Scope:

Allow Type Substitution:

OK Apply Naming Rules Cancel Help

- General
- Attributes**
- Unique Identifiers
- Relationships
- Volume Properties
- Engineer To
- Comments
- Comments in RDBMS
- Overlapping Attributes
- Notes
- Impact Analysis
- Measurements
- Change Requests
- Responsible Parties
- Documents
- Dynamic Properties
- Summary

Attributes

Details Overview

Attributes:



	Name	Data type
1	OrderNo	NUMERIC
2	OrderDate	Date

Attribute Properties

Name: OrderDate

Datatype: Domain Logical Distinct
 Structured Collection

Type: Date Preferred

Primary UID Relation UID Mandatory

Comments Comments in RDBMS Notes

Empty text area for comments.



Entity Properties - Order

- General
- Attributes
- Unique Identifiers
- Relationships
- Volume Properties
- Engineer To
- Comments
- Comments in RDBMS
- Notes
- Impact Analysis
- Measurements
- Change Requests
- Responsible Parties
- Documents
- Dynamic Properties
- Summary

Unique Identifiers

XY? | + X



Name	PUID
Order PK	<input checked="" type="checkbox"/>

OK Apply Naming Rules Cancel Help

Entity Properties - Order [X]

General
Attributes
Unique Identifiers
Relationships
Volume Properties
Engineer To
Comments
Comments in RDBMS
Notes
Impact Analysis
Measurements
Change Requests
Responsible Parties
Documents
Dynamic Properties
Summary

Relationships

Name
Relation_1
Relation_7

OK Apply Naming Rules Cancel Help

Relationship

Relation Properties - Relation_4 [X]

General

Name:

Long Name:

Source Cardinality		Target Cardinality	
Source:	<input type="text" value="Order"/>	Target:	<input type="text" value="OrderLine"/>
Name on Source:	<input type="text"/>	Name on Target:	<input type="text"/>
Source Entity Synonym:	<input type="text" value="Order"/>	Target Entity Synonym:	<input type="text" value="OrderLine"/>
Source to Target Cardinality:	<input type="text" value="*"/>	Target to Source Cardinality:	<input type="text" value="1"/>
Source Optional:	<input checked="" type="checkbox"/>	Target Optional:	<input type="checkbox"/>

Dominant Role:

Identifying:

Delete Rule:

OK Apply Cancel Help

Relation Properties - Relation_4

Summary

Object ID:	335E66D1-384E-C159-7406-4B1707E91E7F
Creator:	helskyaho_h
Creation Time:	2012-09-17 10:04:52 EEST
Last Changed By:	helskyaho_h
Last Changed Time:	2012-09-17 10:05:11 EEST
Generator Name:	NONE
Design:	Orderdb
Repository OID:	NONE

OK Apply Cancel Help

From logical to relational

Oracle SQL Developer Data Modeler

File Edit View Versioning Tools Help

Browser x Engineer to Relational Model ge x Logical (Orderdb) x

Logical Model

- Entities [4]
 - Customer
 - Order
 - OrderLine
 - Product
- Relations [3]
 - Relation_2 (Customer - 0..*:1..1 - Order)
 - Relation_4 (Order - 0..*:1..1 - OrderLine)
 - Relation_6 (Product - 0..*:1..1 - OrderLine)
- Inheritances []
- Views []
- SubViews []
- Displays []
- Multidimensional Models []
- Relational Models [1]
 - Relational_1
 - Tables []
 - Views []
 - Foreign Keys []
 - Schemas []
 - SubViews []
 - Physical Models []
 - Displays []
- Domains [1]

Versioning Navigator x

Subversion

```

    erDiagram
        ORDER ||--o{ CUSTOMER : ""
        ORDER ||--o{ ORDERLINE : ""
        ORDERLINE ||--o{ PRODUCT : ""
        ORDER {
            string OrderNo PK
            string OrderDate
        }
        ORDERLINE {
            string OrderlineNo PK
            int Pcs
            float Price
        }
        CUSTOMER {
            string CustomerNo PK
            string Name
            string DeliveryAddress
            string MailAddress
        }
        PRODUCT {
            string ProductNo PK
            string ProductName
        }
  
```

Logical

SVN Console - Log x Pending Changes x

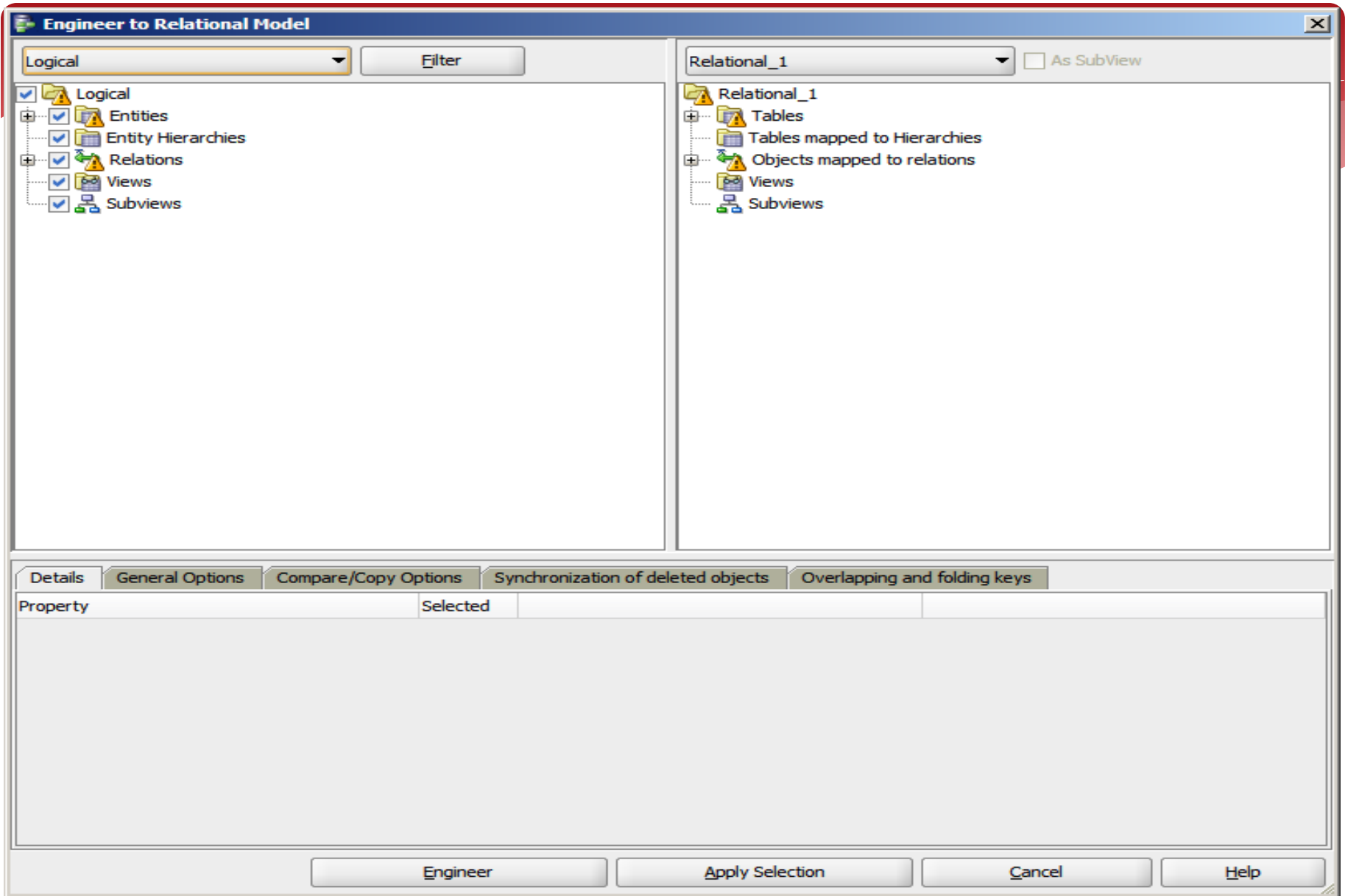
```

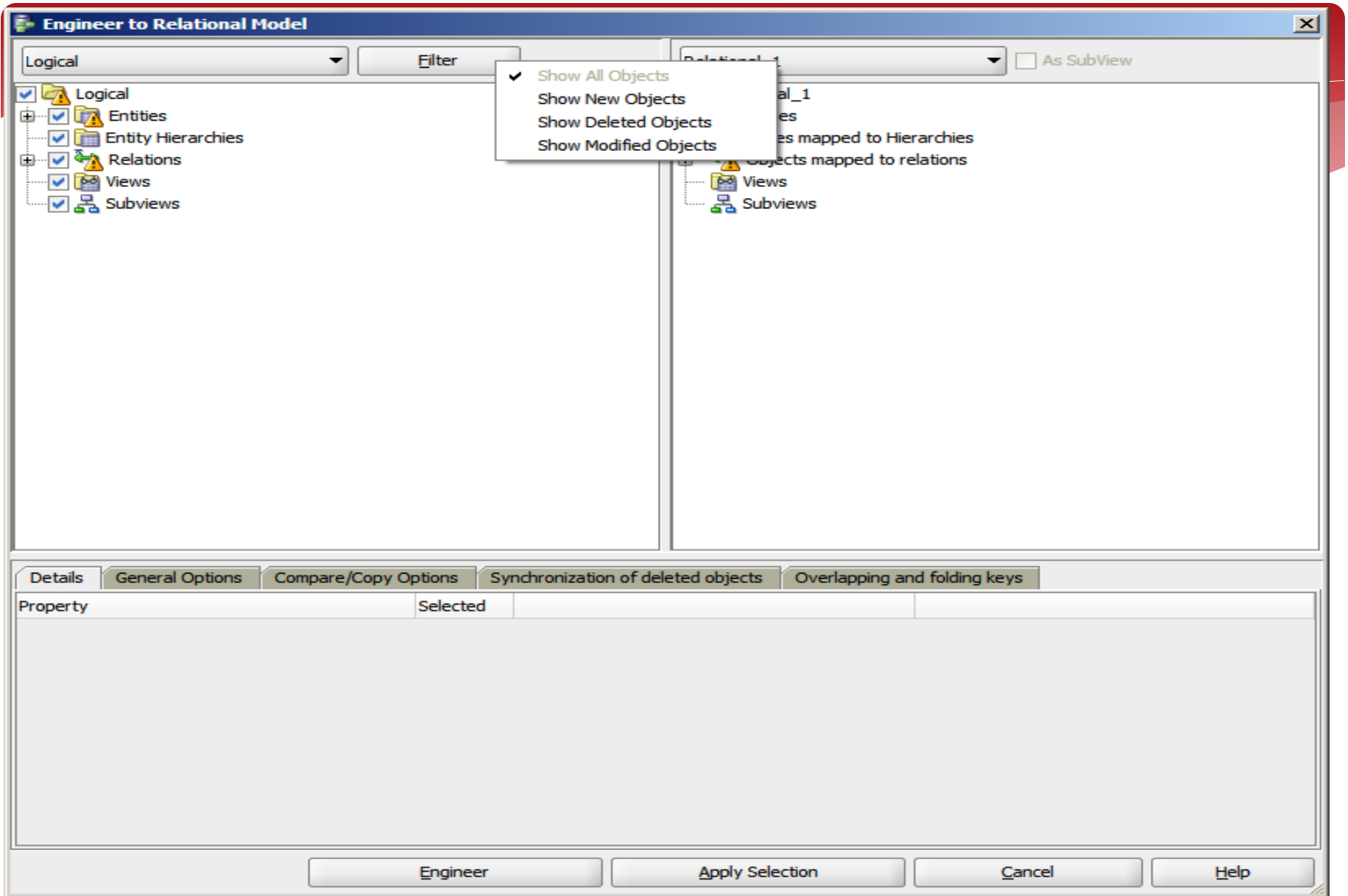
propset svn:ignore "*.localz" "C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/logical/relation
propset svn:ignore "*.localz *.local" "C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/logical/relation
propset svn:ignore "*.localz" "C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/logical/relation/seg_0
propset svn:ignore "*.localz *.local" "C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/logical/relation/seg_0
  
```

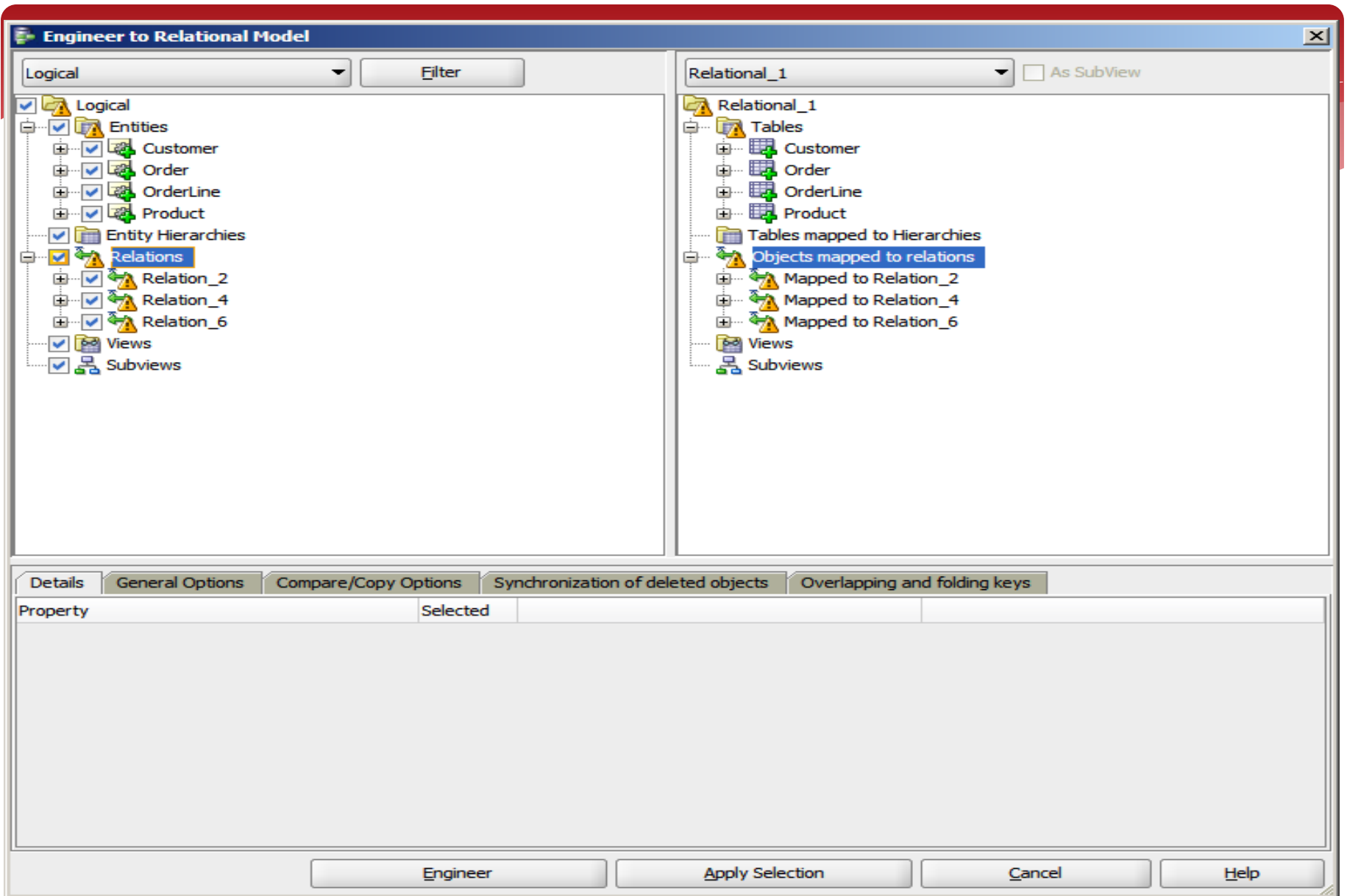
Messages SVN Console x

Subversion

Editing







Engineer to Relational Model

Logical Filter Relational_1 As SubView

Logical

- [-] Logical
 - [-] Entities
 - [-] Customer
 - [-] Attributes
 - CustomerNo
 - Name
 - DeliveryAddress
 - MailAddress
 - ContactPerson**
 - Candidate Keys
 - Order
 - OrderLine
 - Product
 - Entity Hierarchies
 - Relations
 - Views
 - Subviews

Relational_1

- [-] Relational_1
 - [-] Tables
 - [-] Customer
 - [-] Columns
 - CustomerNo
 - Name
 - DeliveryAddress
 - MailAddress
 - ContactPerson**
 - PK and UK Constraints
 - Order
 - OrderLine
 - Product
 - Tables mapped to Hierarchies
 - Objects mapped to relations
 - Views
 - Subviews

Details | General Options | Compare/Copy Options | Synchronization of deleted objects | Overlapping and folding keys

Property	Selected	Customer.ContactPerson	Customer.ContactPerson
Name	<input type="checkbox"/>	ContactPerson	ContactPerson
Data Type	<input type="checkbox"/>	VARCHAR2 (100)	VARCHAR2 (100)
Data Type Kind	<input type="checkbox"/>	Logical Type(VARCHAR)	Logical Type(VARCHAR)
Mandatory	<input type="checkbox"/>	false	false
Default Value	<input type="checkbox"/>		
Check Constraint Name	<input type="checkbox"/>		
Use Domain Constraint	<input type="checkbox"/>	false	false
Check Constraint	<input type="checkbox"/>		
Range Constraint	<input type="checkbox"/>		
LOV Constraint	<input type="checkbox"/>		
Comment	<input checked="" type="checkbox"/>	Testing	
Comment in RDBMS	<input type="checkbox"/>		
Notes	<input type="checkbox"/>		
Source Type	<input type="checkbox"/>		
Formula Description	<input type="checkbox"/>		
Type Substitution	<input type="checkbox"/>	true	true
Scope	<input type="checkbox"/>		

Engineer Apply Selection Cancel Help

Engineer to Relational Model

Logical

Relational_1 As SubView

Logical

- Logical
 - Entities
 - Customer
 - Attributes
 - CustomerNo
 - Name
 - DeliveryAddress
 - MailAddress
 - ContactPerson
 - Candidate Keys
 - Order
 - OrderLine
 - Product
 - Entity Hierarchies
 - Relations
 - Views
 - Subviews

Relational_1

- Relational_1
 - Tables
 - Customer
 - Columns
 - CustomerNo
 - Name
 - DeliveryAddress
 - MailAddress
 - ContactPerson
 - PK and UK Constraints
 - Order
 - OrderLine
 - Product
 - Tables mapped to Hierarchies
 - Objects mapped to relations
 - Views
 - Subviews

Details General Options Compare/Copy Options Synchronization of deleted objects Overlapping and folding keys

Entity - Table	Selected	Property	
Attribute - Column	<input checked="" type="checkbox"/>	Name	<input checked="" type="checkbox"/>
Unique Identifier - Index	<input checked="" type="checkbox"/>	Data Type	<input checked="" type="checkbox"/>
Relation - Foreign key	<input checked="" type="checkbox"/>	Data Type Kind	<input checked="" type="checkbox"/>
Entity View - View	<input checked="" type="checkbox"/>	Mandatory	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	Default Value	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	Check Constraint Name	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	Use Domain Constraint	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	Check Constraint	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	Range Constraint	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	LOV Constraint	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	Comment	<input type="checkbox"/>

Show Selected Properties Only

Don't apply for new objects

Exclude unchecked objects from tree

Engineer to Relational Model

Logical Relational_1 As SubView

Logical

- [-] Logical
 - [-] Entities
 - [-] Customer
 - [-] Order
 - [-] OrderLine
 - [-] Product
 - [-] test
 - [-] Entity Hierarchies
 - [-] Relations
 - [-] Views
 - [-] Subviews

Relational_1

- [-] Relational_1
 - [-] Tables
 - [-] Customer
 - [-] Order
 - [-] OrderLine
 - [-] Product
 - [-] test
 - [-] Tables mapped to Hierarchies
 - [-] Objects mapped to relations
 - [-] Views
 - [-] Subviews

Select	Deleted	To be deleted
<input type="checkbox"/>	test	test

Oracle SQL Developer Data Modeler : Relational_1 (Orderdb)

File Edit View Versioning Tools Help

Engineer to Logical Model x Logical (Orderdb) x Relational_1 (Orderdb) x

Designs [1]
Orderdb
Logical Model
Entities [4]
Customer
Order
OrderLine
Product
Relations [3]
Inheritances []
Views []
SubViews []
Displays []
Multidimensional Models []
Relational Models [1]
Domains [3]
Data Types Model
Process Model
Business Information
Change Requests []

```

    erDiagram
        Order ||--o{ Customer : "has"
        Order ||--o{ OrderLine : "has"
        OrderLine ||--o{ Product : "has"
        Order {
            NUMBER OrderNo PK
            DATE OrderDate
            NUMBER CustomerNo FK
        }
        Customer {
            NUMBER CustomerNo PK
            VARCHAR Name
            VARCHAR DeliveryAddress
            VARCHAR MailAddress
            VARCHAR ContactPerson
        }
        OrderLine {
            NUMBER OrderLineNo PK
            NUMBER Pos
            NUMBER Price
            NUMBER OrderNo FK
            NUMBER ProductNo FK
        }
        Product {
            NUMBER ProductNo PK
            VARCHAR2 ProductName
        }
  
```

Order

P *	OrderNo	NUMBER
	OrderDate	DATE
F *	CustomerNo	NUMBER
	Order_PK (OrderNo)	

Customer

P *	CustomerNo	NUMBER
	Name	VARCHAR
	DeliveryAddress	VARCHAR
	MailAddress	VARCHAR
	ContactPerson	VARCHAR
	Customer_PK (CustomerNo)	

OrderLine

P *	OrderLineNo	NUMBER (10)
	Pos	NUMBER
	Price	NUMBER (15..)
PF *	OrderNo	NUMBER
F *	ProductNo	NUMBER (10)

Product

P *	ProductNo	NUMBER (10)
	ProductName	VARCHAR2
	Product_PK (ProductNo)	

Versioning Navigator x

Subversion

Messages - Log x Pending Changes x

```

2012-09-27 13:46:09 - Open Design: 'Orderdb'
2012-09-27 13:46:10 - Open Design: 'OK'
2012-09-27 13:49:16 - Forward Engineering
2012-09-27 13:55:02 - Create Entity
2012-09-27 13:55:10 - Forward Engineering
2012-09-27 13:55:16 - Delete Entity: test
2012-09-27 13:59:24 - Forward Engineering
  
```

Editing

Relational model

Oracle SQL Developer Data Modeler

File Edit View Versioning Tools Help

Start Page x Logical (Orderdb) x Relational_1 (Orderdb) x

Browser

- Designs [1]
 - Orderdb
 - Logical Model
 - Entities [4]
 - Customer
 - Order
 - OrderLine
 - Product
 - Relations [3]
 - Relation_2 (Customer - 0..*:1..1 - Order)
 - Relation_4 (Order - 0..*:1..1 - OrderLine)
 - Relation_6 (Product - 0..*:1..1 - OrderLine)
 - Inheritances []
 - Views []
 - SubViews []
 - Displays []
 - Multidimensional Models []
 - Relational Models [1]
 - Relational_1
 - Tables [4]
 - Customer
 - Order
 - OrderLine
 - Product
 - Views []
 - Foreign Keys [3]
 - Schemas []
 - SubViews []
 - Physical Models []
 - Displays []
 - Domains [1]
 - Data Types Model
 - Process Model
 - Business Information
 - Change Requests []

Versioning Navigator x

Subversion

SVN Console - Log x Pending Changes x

```

2012-09-17 10:05:55 - Save Design: 'Orderdb'
2012-09-17 10:05:55 - Design Orderdb saved.
2012-09-17 10:22:34 - Forward Engineering
  
```

Messages SVN Console x

Editing

```

erDiagram
    Order ||--o{ Customer : "has"
    Order ||--o{ OrderLine : "has"
    OrderLine ||--o{ Product : "has"
    Order {
        NUMBER OrderNo PK
        DATE OrderDate
        NUMBER CustomerNo FK
    }
    Customer {
        NUMBER CustomerNo PK
        VARCHAR Name
        VARCHAR DeliveryAddress
        VARCHAR MailAddress
    }
    OrderLine {
        NUMBER OrderlineNo PK
        NUMBER Pcs
        NUMBER Price
        NUMBER OrderNo FK
        NUMBER ProductNo FK
    }
    Product {
        NUMBER ProductNo PK
        VARCHAR2 ProductName
    }
  
```

Table

Table Properties - Customer

General

Columns

Primary Key

Unique Constraints

Indexes

Table Level Constraints

Foreign Keys

Nested Columns

Volume Properties

Spatial Properties

Column Groups

Comments

Comments in RDBMS

Notes

Impact Analysis

Measurements

Change Requests

Responsible Parties

Documents

Scripts

Dynamic Properties

Summary

General

Name: Customer

Long Name: Customer

Abbreviation:

Engineer:

PK Name: Customer PK

Classification Type:

Temp Table Scope:

Based on Structured Type:

Schema:

Register as Spatial Table:

Object Identifier is PK:

Allow Type Substitution:

Generate in DDL:

OK Apply Naming Rules Cancel Help

Table Properties - Customer

Columns

General
Columns
 Primary Key
 Unique Constraints
 Indexes
 Table Level Constraints
 Foreign Keys
 Nested Columns
 Volume Properties
 Spatial Properties
 Column Groups
 Comments
 Comments in RDBMS
 Notes
 Impact Analysis
 Measurements
 Change Requests
 Responsible Parties
 Documents
 Scripts
 Dynamic Properties
 Summary

Details Overview Security

Columns:

	Name	Data type
1	CustomerNo	NUMERIC
2	name	VARCHAR (50)
3	DeliveryAddress	VARCHAR (200)
4	MailAddress	VARCHAR (50)

Column Properties

Name: CustomerNo

Datatype: Domain Logical Distinct
 Structured Collection

Type: NUMERIC Preferred

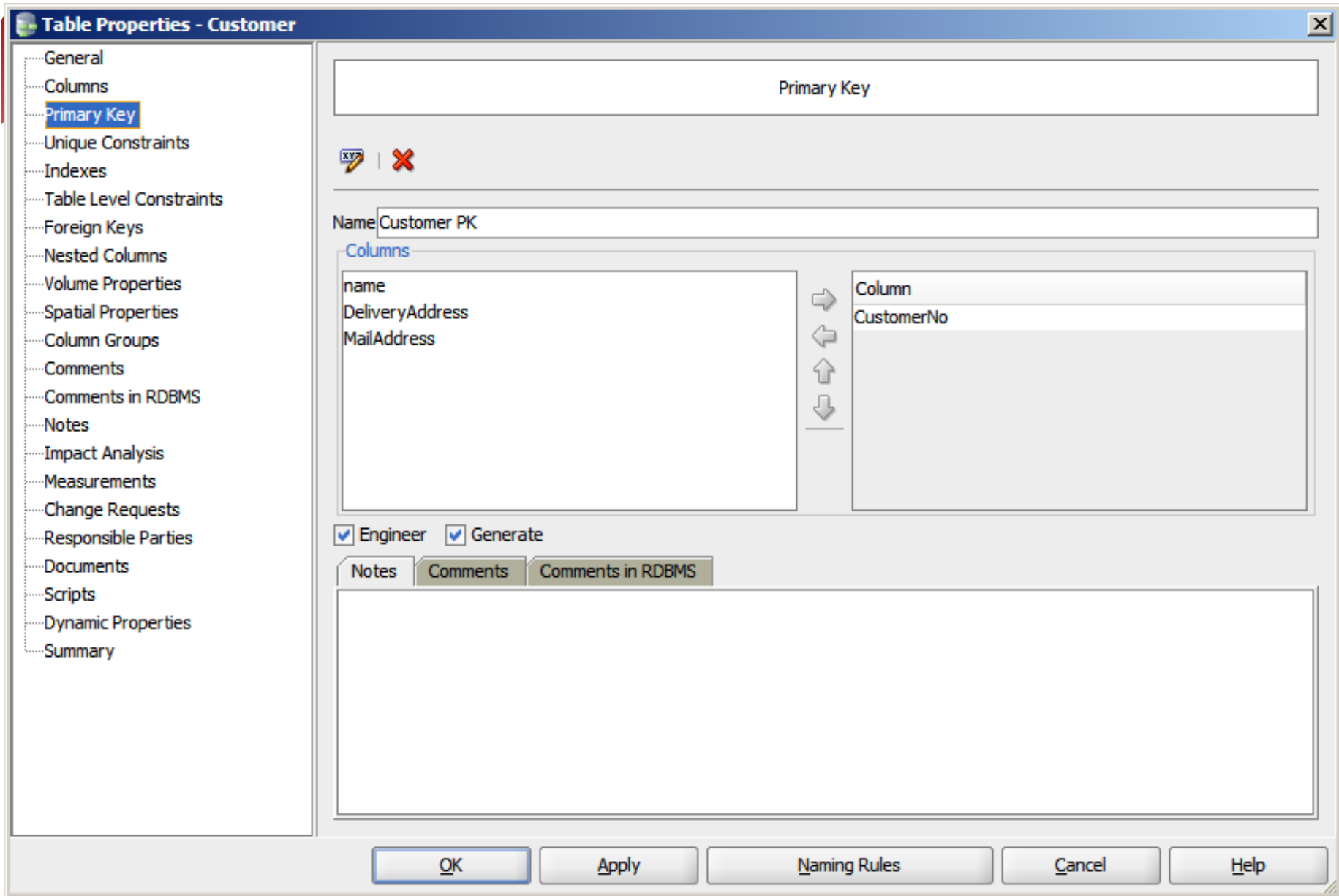
Precision:

Scale:

PK FK Mandatory

Comments Comments in RDBMS Notes

OK Apply Naming Rules Cancel Help



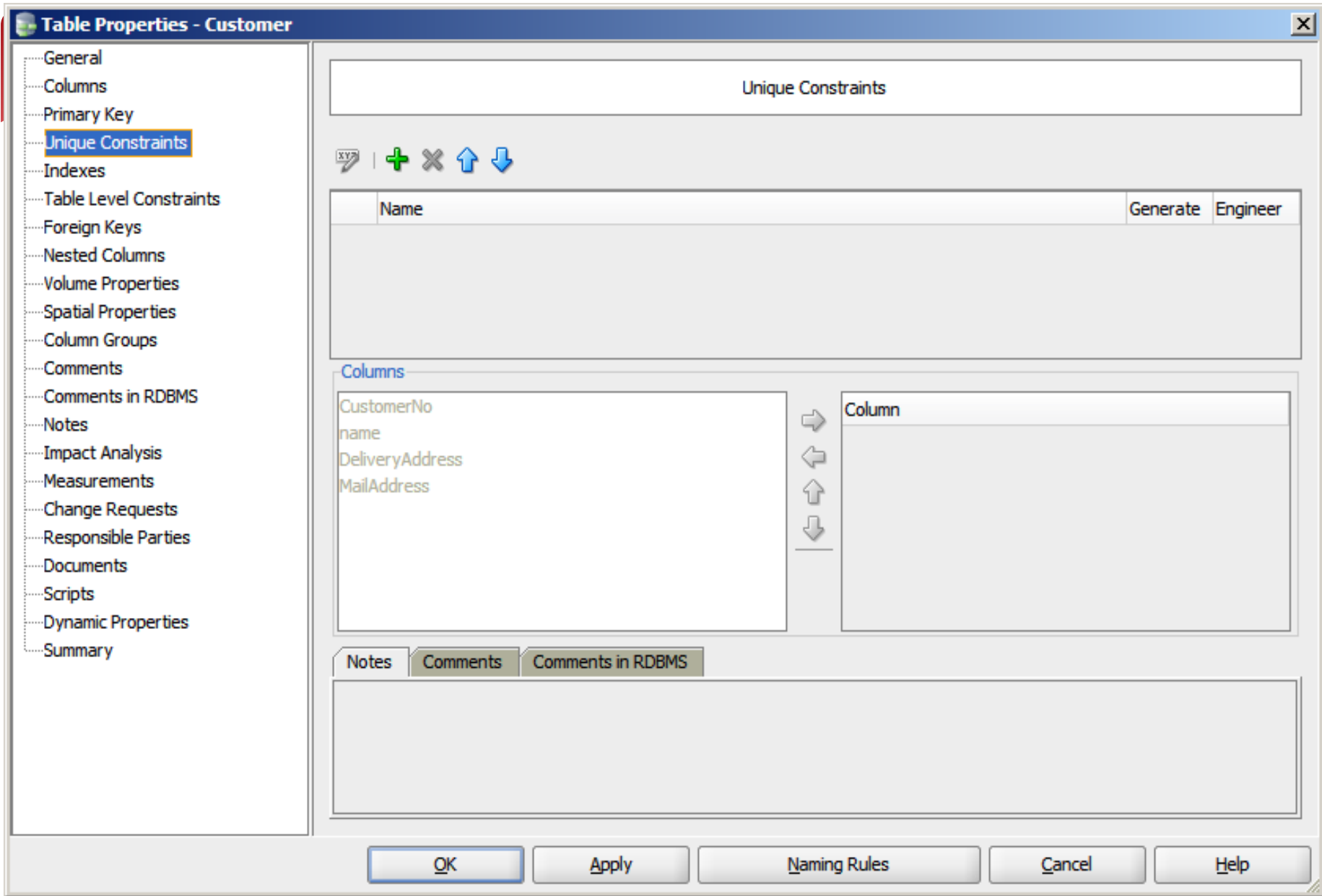







Table Properties - Customer

- General
- Columns
- Primary Key
- Unique Constraints
- Indexes**
- Table Level Constraints
- Foreign Keys
- Nested Columns
- Volume Properties
- Spatial Properties
- Column Groups
- Comments
- Comments in RDBMS
- Notes
- Impact Analysis
- Measurements
- Change Requests
- Responsible Parties
- Documents
- Scripts
- Dynamic Properties
- Summary

Indexes

Name	Unique	Generate	Engineer	Spatial

Index Expression:

Columns

Column	Desc
CustomerNo	
name	
DeliveryAddress	
MailAddress	

Table Properties - Customer [X]

- General
- Columns
- Primary Key
- Unique Constraints
- Indexes
- Table Level Constraints
- Foreign Keys
- Nested Columns
- Volume Properties
- Spatial Properties
- Column Groups
- Comments
- Comments in RDBMS
- Notes
- Impact Analysis
- Measurements
- Change Requests
- Responsible Parties
- Documents
- Scripts
- Dynamic Properties
- Summary**

Summary

Object ID: 3D8F3AA6-04B6-2FB7-A73D-CE677D82F540

Creator: helskyaho_h

Creation Time: 2011-12-13 11:35:20 EET

Last Changed By: helskyaho_h

Last Changed Time: 2012-01-19 13:17:27 EET

Generator Name: Customer

Design: OrderDB

Repository OID: NONE

OK Apply Naming Rules Cancel Help

Column

Column Properties - CustomerNo [X]

General

- Default and Constraint
- Auto Increment
- Security
- UI Defaults
- Permitted Subtypes
- Comments
- Comments in RDBMS
- Notes
- Impact Analysis
- Measurements
- Change Requests
- Responsible Parties
- Documents
- Dynamic Properties
- Summary

General

Name:

Table:

Abbreviation:

Engineer:

Allow Nulls:

Datatype: ...

Type:

Computed:

Column Expression:

Auto Increment Identity Column

Scope:

Type Substitution:

Column Properties - CustomerNo [X]

- General
- Default and Constraint**
- Auto Increment
- Security
- UI Defaults
- Permitted Subtypes
- Comments
- Comments in RDBMS
- Notes
- Impact Analysis
- Measurements
- Change Requests
- Responsible Parties
- Documents
- Dynamic Properties
- Summary

Default and Constraint

Constraint Name:

Not Null Constraint Name:

Uses Default:

Default Value:

Use Domain Constraints:

Constraint:

List Of Ranges:

List Of Values:

Primary Key

Primary Key Properties - Customer PK

- General
- Comments
- Comments in RDBMS
- Notes
- Impact Analysis
- Measurements
- Change Requests
- Responsible Parties
- Documents
- Dynamic Properties
- Summary

General

Name:

Long Name:

Engineer:

Table:

State:

Schema:

Generate in DDL:

Columns

name	→	Column
DeliveryAddress	←	CustomerNo
MailAddress	↑	
	↓	

OK Apply Cancel Help

Foreign Key

Foreign Key Properties - Relation_1 [X]

General

Associated Columns

Comments

Notes

Impact Analysis

Dynamic Properties

Summary

General

Name:

Table:

PK / UK Index:

Delete Rule:

Source Table Synonym:

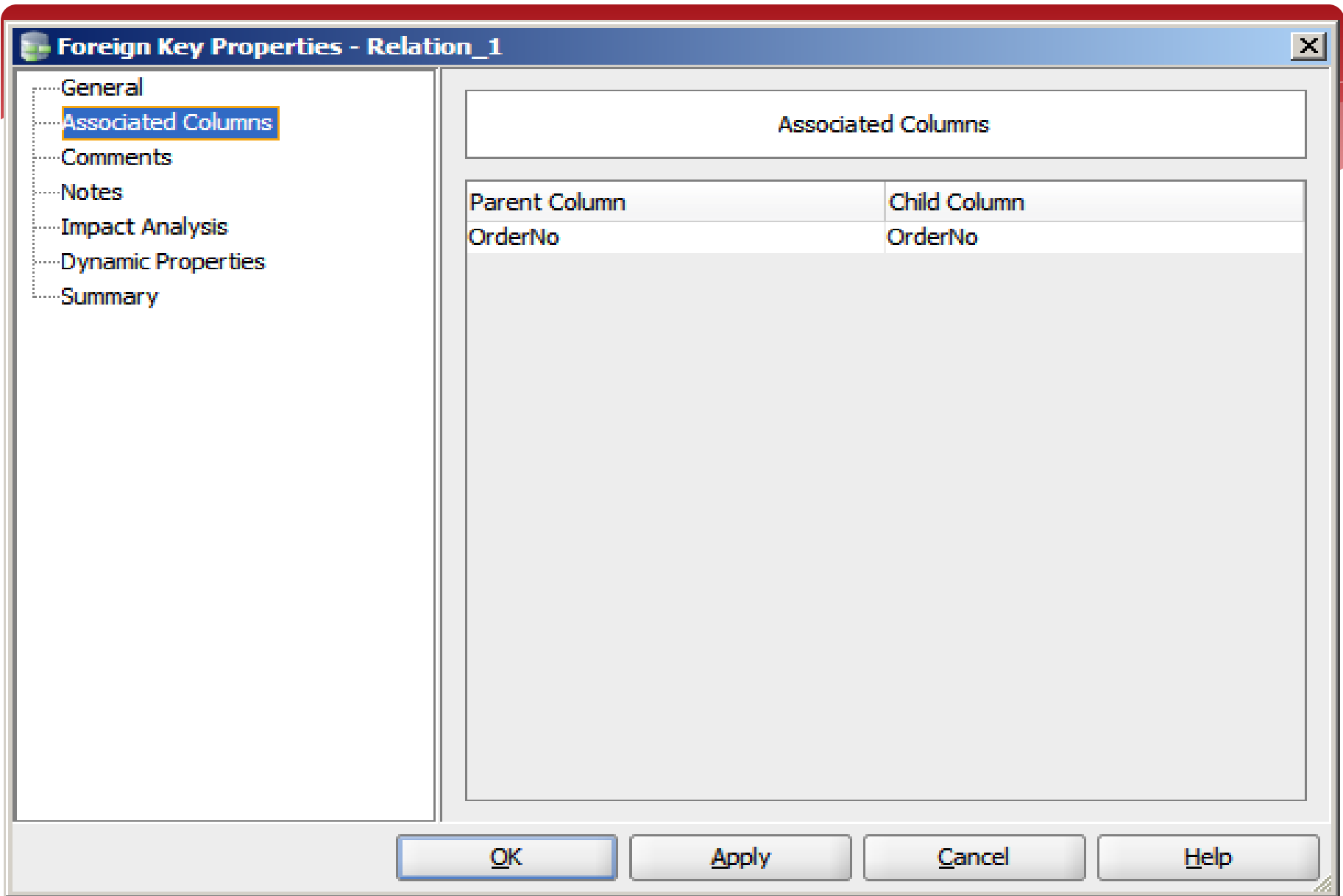
Target Table Synonym:

Mandatory:

Transferable (Updatable):

Generate in DDL:

In Arc:



From relational to physical

Oracle SQL Developer Data Modeler

File Edit View Versioning Tools Help

Start Page x Logical (Orderdb) x Relational_1 (Orderdb) x

Browser

- Designs [1]
 - Orderdb
 - Logical Model
 - Entities [4]
 - Customer
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 - OrderLine
 - Product
 - Relations [3]
 - Relation_2 (Customer - 0..*:1..1 - Order)
 - Relation_4 (Order - 0..*:1..1 - OrderLine)
 - Relation_6 (Product - 0..*:1..1 - OrderLine)
 - Inheritances []
 - Views []
 - SubViews []
 - Displays []
 - Multidimensional Models []
 - Relational Models [1]
 - Relational_1
 - Tables [4]
 - Order
 - OrderLine
 - Customer
 - Product
 - Views []
 - Foreign Keys [3]
 - Order_PK (OrderNo)
 - Customer_PK (CustomerNo)
 - Product_PK (ProductNo)
 - Schemas []
 - SubViews []
 - Physical Models []
 - Physical Model [1]
 - New
 - Save All
 - Close All
 - Displays []
 - Domains [1]
 - Data Types Model
 - Process Model
 - Business Information
 - Change Requests []

Versioning Navigator

Subversion

Relational_1

SVN Console - Log x Pending Changes x

```

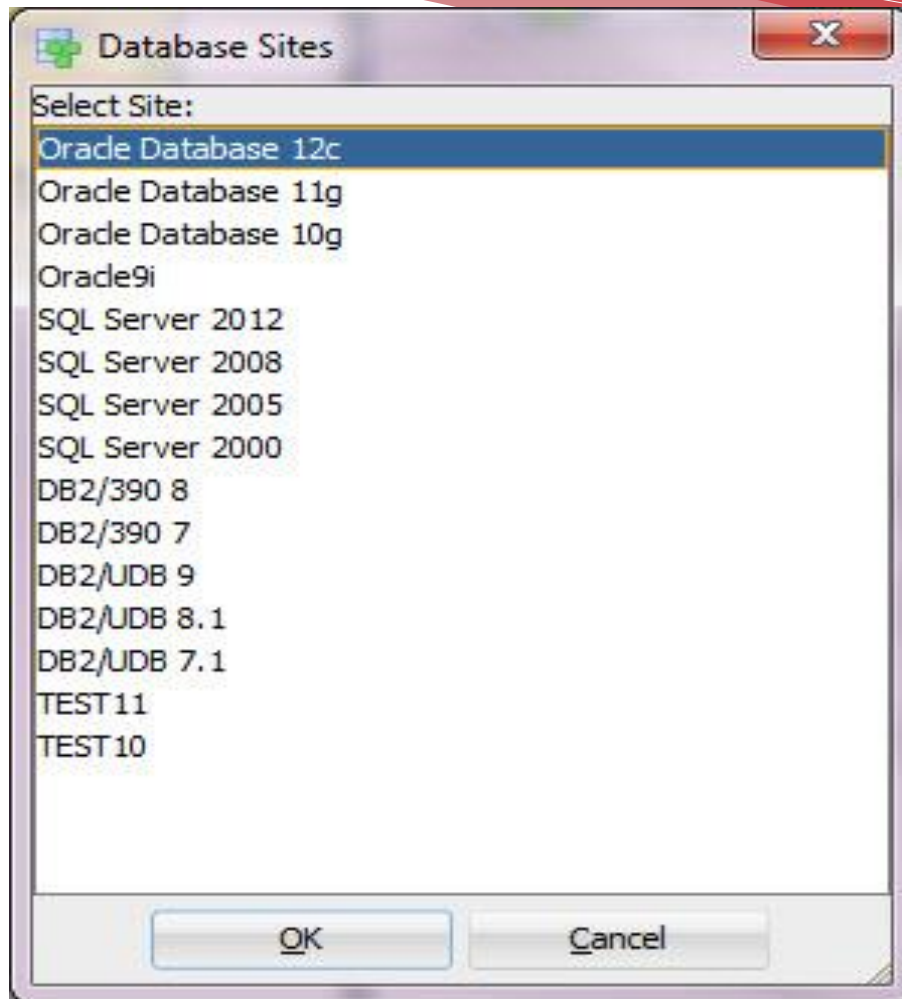
propset svn:ignore "*" .localiz " C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/rel/34ff578a-ee8fbf20/1
propset svn:ignore "*" .localiz *.local " C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/rel/34ff578a-ee8fbf20/1
2012-09-17 10:28:15 - Design Orderdb saved.
  
```

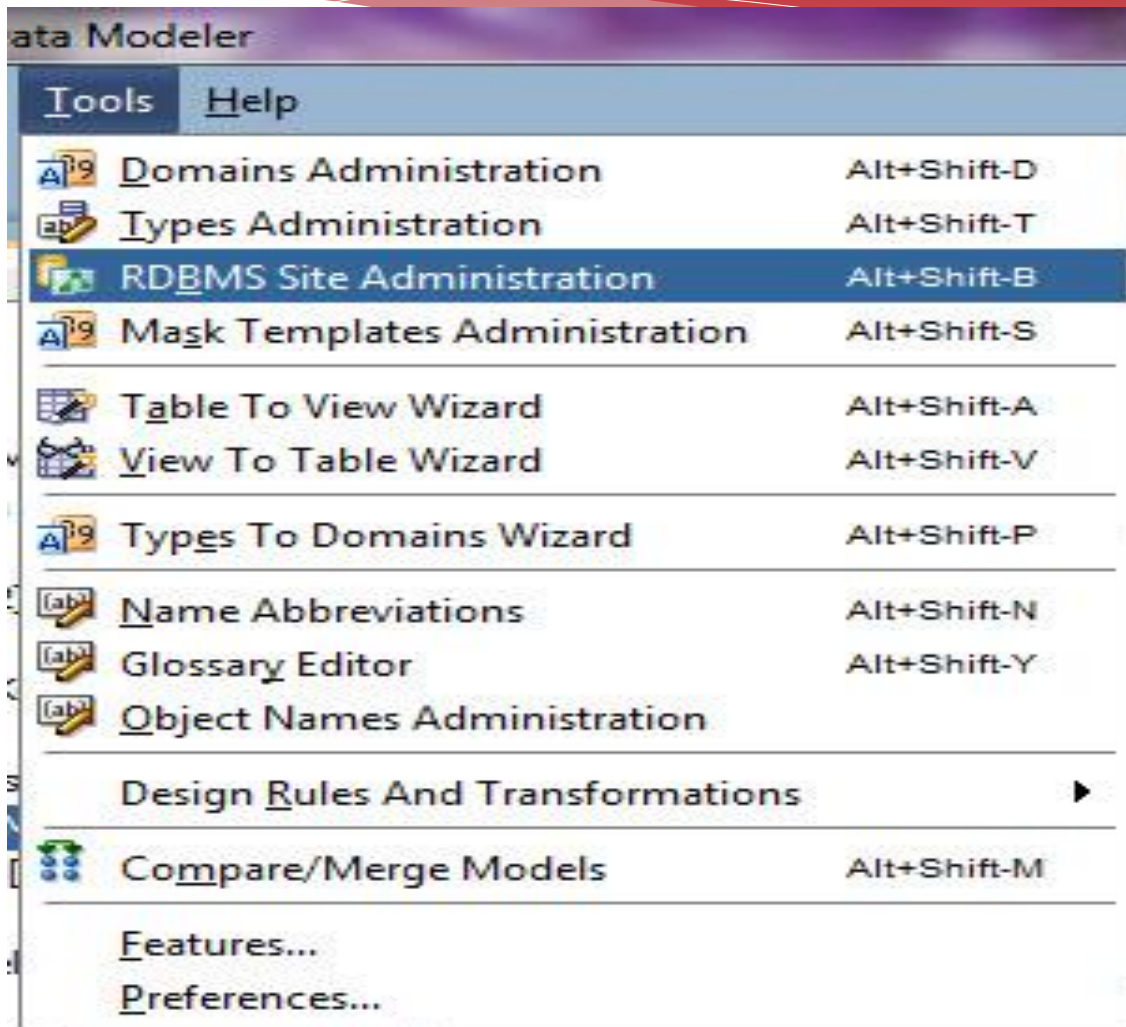
Messages SVN Console x

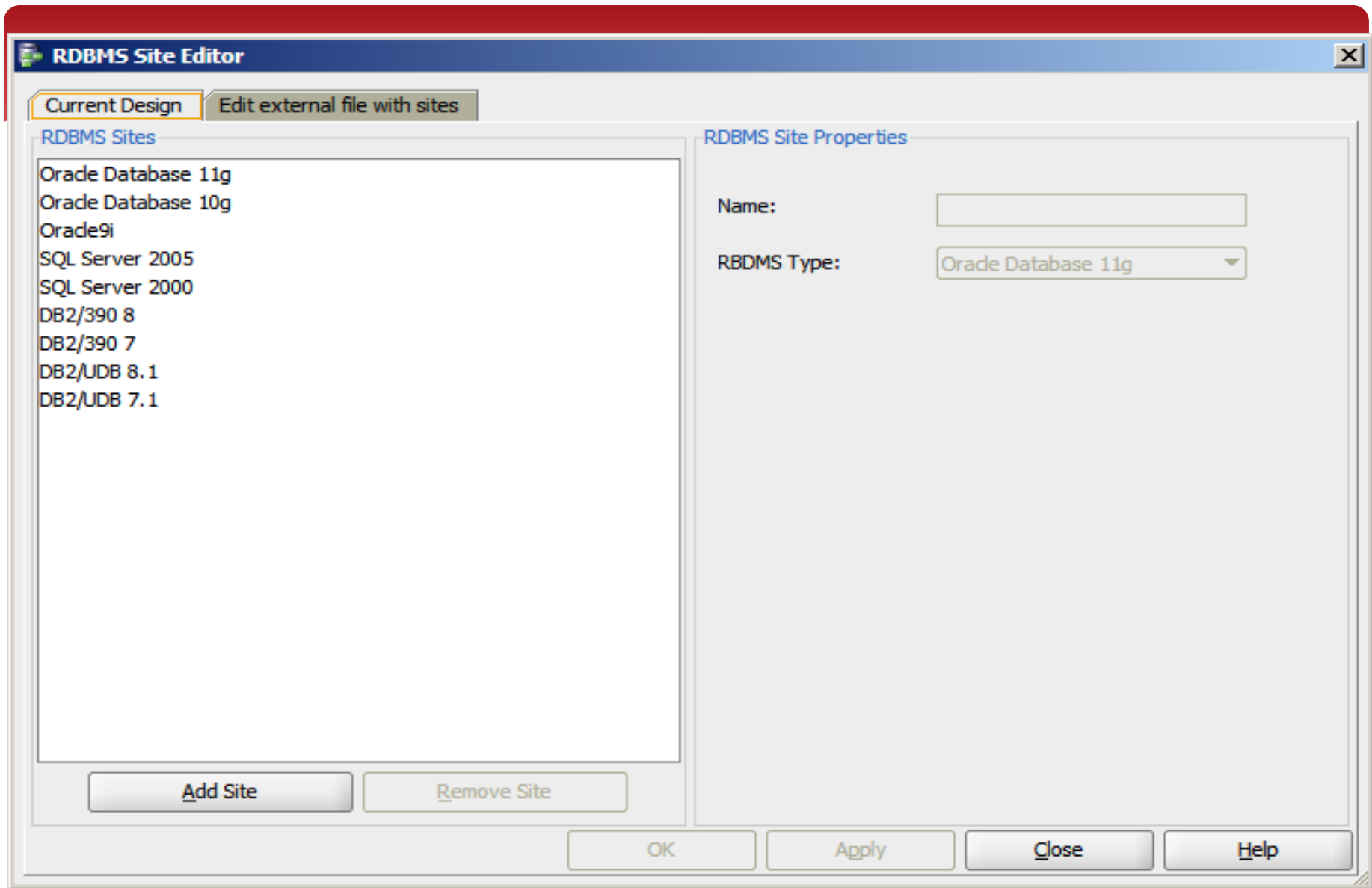
Editing

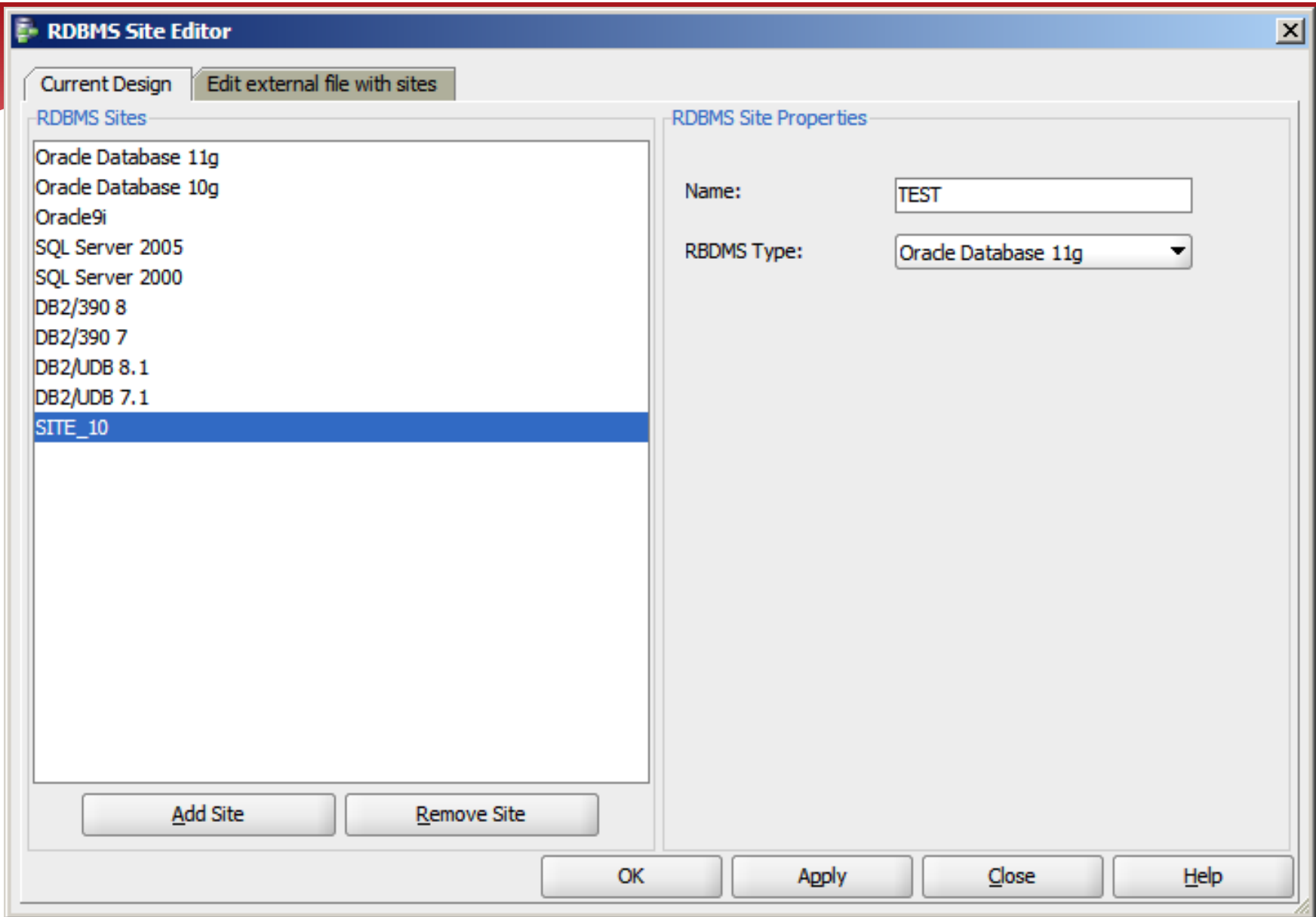
```

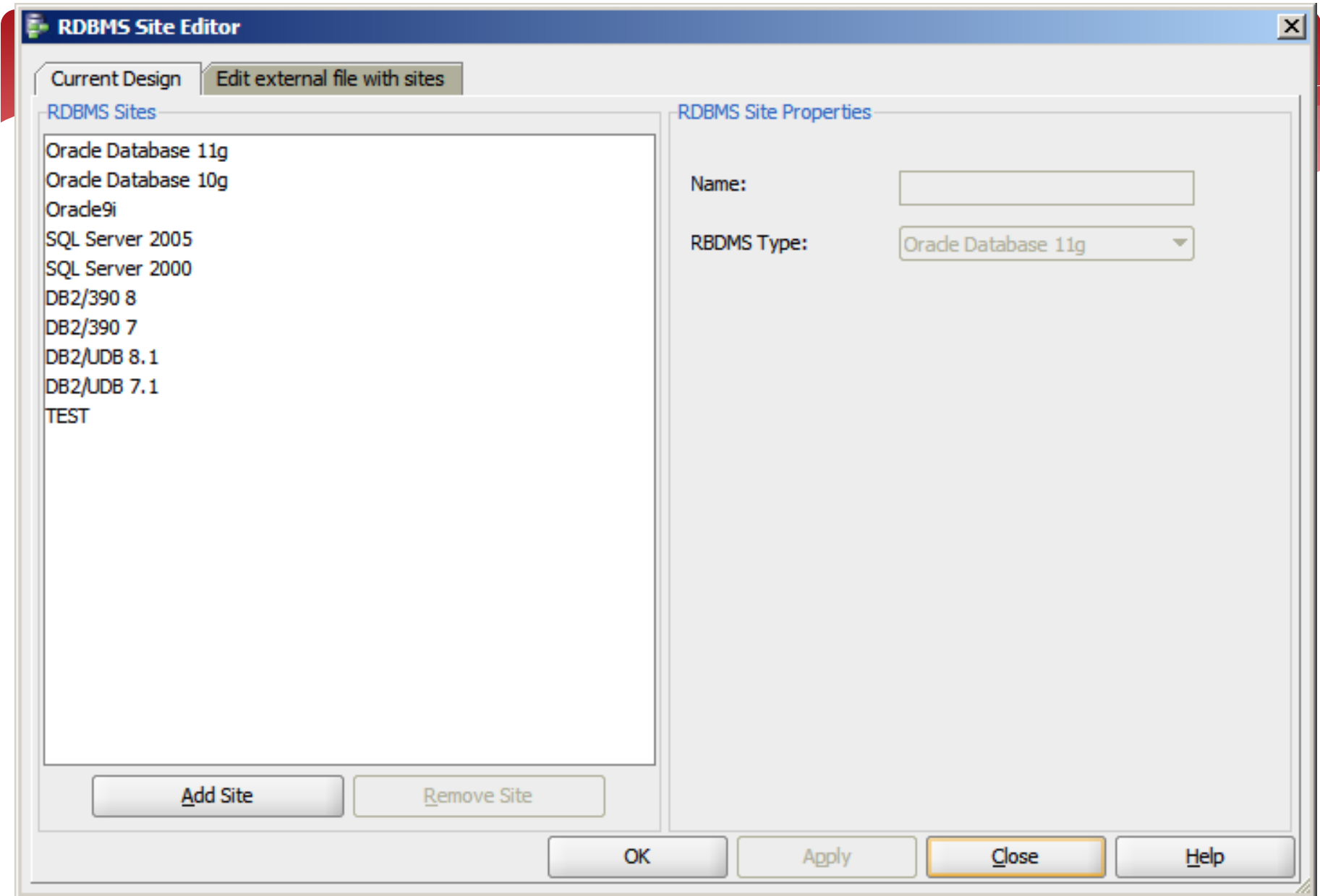
erDiagram
    Order ||--o{ OrderLine : "has"
    Order ||--o{ Customer : "has"
    OrderLine ||--o{ Product : "has"
    Order PK OrderNo
    Order FK CustomerNo
    OrderLine PK OrderlineNo
    OrderLine FK OrderNo
    OrderLine FK ProductNo
    Customer PK CustomerNo
    Product PK ProductNo
  
```

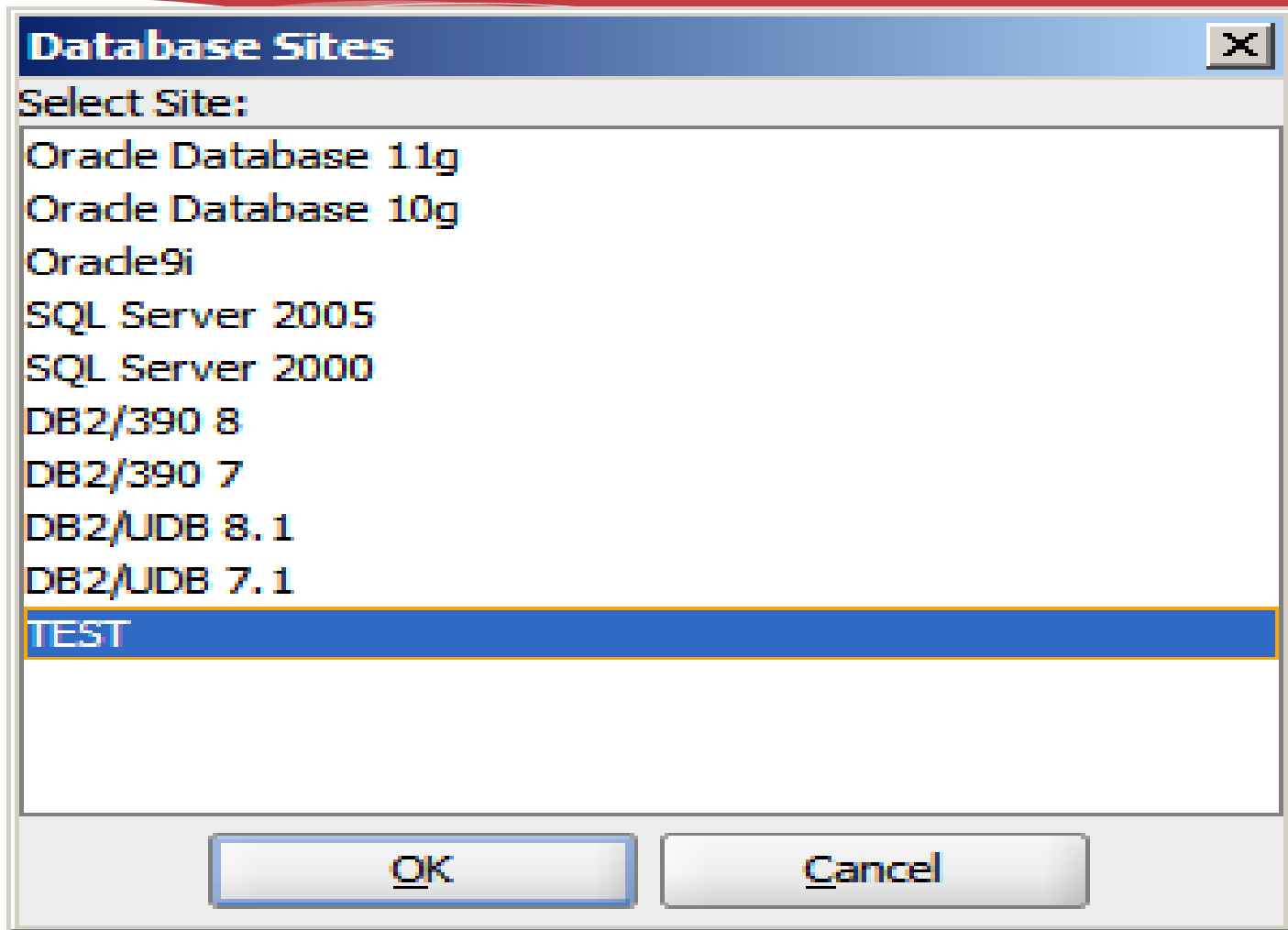












Physical model

Oracle SQL Developer Data Modeler

File Edit View Versioning Tools Help

Browser

- Inheritances []
- Views []
- SubViews []
- Displays []
- Multidimensional Models []
- Relational Models [1]
 - Relational_1
 - Tables [4]
 - Order
 - OrderLine
 - Customer
 - Product
 - Views []
 - Foreign Keys [3]
 - OrderLine to Order
 - Order to Customer
 - Product to OrderLine
 - Schemas []
 - SubViews []
 - Physical Models [1]
 - TEST
 - Clusters []
 - Contexts []
 - Databases []
 - Dimensions []
 - Directories []
 - Disk Groups []
 - External Tables []
 - Materialized Views []
 - Roles []
 - Rollback Segments []
 - Storage Templates []
 - Sequences []
 - Stored Procedures []
 - Functions []
 - Packages []
 - Collection Types []
 - Structured Types [2]
 - Synonyms []
 - Tables [4]
 - Order
 - OrderLine
 - Customer
 - Product
 - Tablespaces []
 - Temp Tablespaces []
 - Undo Tablespaces []
 - Users [2]
 - Views []
- Domains [1]
- Data Types Model
- Process Model
- Business Information

Versioning Navigator

- Subversion

Relational_1

```

SVN Console - Log x Pending Changes x
propset svn:ignore "*" .localiz " C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/rel/34FF578A-EE8FB82071
propset svn:ignore "*" .localiz *.local " C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/rel/34FF578A-EE8FB82071
2012-09-17 10:28:15 - Design Orderdb saved.
  
```

Messages SVN Console x

Editing

```

erDiagram
    Order ||--o{ OrderLine : "has"
    Order ||--o{ Customer : "has"
    Product ||--o{ OrderLine : "has"
  
```

Order

- P * OrderNo NUMBER
- OrderDate DATE
- F * CustomerNo NUMBER
- Order_PK (OrderNo)

OrderLine

- P * OrderlineNo NUMBER (10)
- Pos NUMBER
- Price NUMBER (17,2)
- PF * OrderNo NUMBER
- F * ProductNo NUMBER (10)
- OrderLine_PK (OrderlineNo, OrderNo)

Customer

- P * CustomerNo NUMBER
- Name VARCHAR
- DeliveryAddress VARCHAR
- MailAddress VARCHAR
- Customer_PK (CustomerNo)

Product

- P * ProductNo NUMBER (10)
- ProductName VARCHAR2
- Product_PK (ProductNo)

Properties

Oracle SQL Developer Data Modeler

File Edit View Versioning Tools Help

Browser

- Inheritances []
- Views []
- SubViews []
- Displays []
- Multidimensional Models []
- Relational Models [1]
 - Relational_1
 - Tables [4]
 - Customer
 - Order
 - OrderLine
 - Product
 - Views []
 - Foreign Keys [3]
 - Order_PK (OrderNo)
 - OrderLine_PK (OrderlineNo, Ord
 - Customer_PK (CustomerNo)
 - Schemas []
 - SubViews []
 - Physical Models [1]
 - TEST
 - Clusters []
 - Contexts []
 - Databases []
 - Dimensions []
 - Directories []
 - Disk Groups []
 - External Tables []
 - Materialized Views []
 - Roles []
 - Rollback Segments []
 - Storage Templates []
 - Sequences []
 - Stored Procedures []
 - Functions []
 - Packages []
 - Collection Types []
 - Structured Types [2]
 - Synonyms []
 - Tables [4]
 - Customer
 - Order
 - OrderLine
 - Product
 - Tablespaces []
 - Temp Tablespaces []
 - Undo Tablespaces []
 - Users [2]
 - Views []

Start Page x Logical (Orderdb) x Relational_1 (Orderdb) x

```

    erDiagram
        Order ||--o{ Customer : "Order PK"
        Order ||--o{ OrderLine : "Order PK"
        OrderLine ||--o{ Product : "Product PK"
    
```

Order

P *	OrderNo	NUMBER
	OrderDate	DATE
F *	CustomerNo	NUMBER
PK	Order_PK (OrderNo)	

Customer

P *	CustomerNo	NUMBER
	Name	VARCHAR
	DeliveryAddress	VARCHAR
	MailAddress	VARCHAR
PK	Customer_PK (CustomerNo)	

OrderLine

P *	OrderlineNo	NUMBER (10)
	Pos	NUMBER
	Price	NUMBER (17)
PF *	OrderNo	NUMBER
F *	ProductNo	NUMBER (10)
PK	OrderLine_PK (OrderlineNo, Ord	

Product

P *	ProductNo	NUMBER (10)
	ProductName	VARCHAR2
PK	Product_PK (ProductNo)	

Versioning Navigator

Subversion

SVN Console - Log x Pending Changes x

```

propset svn:ignore "*" .localiz " C:/ohjelmat/datamodeler mallit/DesignsDirectory/Orderdb/Orderdb/re1/34FF578A-E28F82071
propset svn:ignore "*" .localiz " C:/ohjelmat/DataModeler mallit/DesignsDirectory/Orderdb/Orderdb/re1/34FF578A-E28F82071
2012-09-17 10:28:15 - Design Orderdb saved.
    
```

Messages SVN Console x

Subversion

Editing

Table Properties - Customer

Supplemental Log **OID Properties** XMLType Properties Comments

General **Cluster Columns** Partitioning IOT Properties

Name:

User:

Temporary:

TableSpace:

Organization:

Cluster:

Logging:

Storage:

Cache:

Parallel:

Degree:

Row Dependency:

Partitioned:

Row Movement:

Data Compression:

Structured Type:

Implement as Materialized View:

Propagate Properties Permissions...

Properties Propagation [X]

Properties

Selected	Name	Value
<input checked="" type="checkbox"/>	User	
<input checked="" type="checkbox"/>	Temporary	NO
<input checked="" type="checkbox"/>	Preserve Rows	YES
<input checked="" type="checkbox"/>	TableSpace	
<input checked="" type="checkbox"/>	Organization	HEAP
<input checked="" type="checkbox"/>	Cluster	
<input checked="" type="checkbox"/>	Logging	YES
<input checked="" type="checkbox"/>	Storage	
<input checked="" type="checkbox"/>	Cache	NO
<input checked="" type="checkbox"/>	Parallel	NO
<input checked="" type="checkbox"/>	Degree	
<input checked="" type="checkbox"/>	Row Dependency	NO
<input checked="" type="checkbox"/>	Partitioned	NO
<input checked="" type="checkbox"/>	Row Movement	ENABLE
<input checked="" type="checkbox"/>	Data Compression	NO

Select All Deselect All

Objects

Selected	Name
<input type="checkbox"/>	Order
<input type="checkbox"/>	OrderLine
<input type="checkbox"/>	Product

Select All Deselect All

OK Cancel

TableSpace Properties - TableSpace1

Indexes | Storage | Materialized Views | Comments

General | **Default Storage** | Clusters | Tables

Name:

Datafiles:

File Type:

Min. Ext Len:

Block size:

Logging:

Force Logging:

Status:

Contents:

Default Compression:

Ext. Management:

EM Local SubType:

EM Uniform Size:

Seg. Management:

Flashback Mode:

Role Properties - Role1 [X]

General Roles SystemPrivileges Comments

Name:


Identified:

Identification Type:

Password:

Schema:

Package:

 Permissions...

User Properties - User3 [X]

Sequences Synonyms Procedures Comments
Materialized Views Triggers Views Dimensions
General Roles System Privileges Clusters Tables Indexes

Name:

Authentication:

Identifier:

TableSpace:

Temp TableSpace:

Temp TS Group:


Profile:

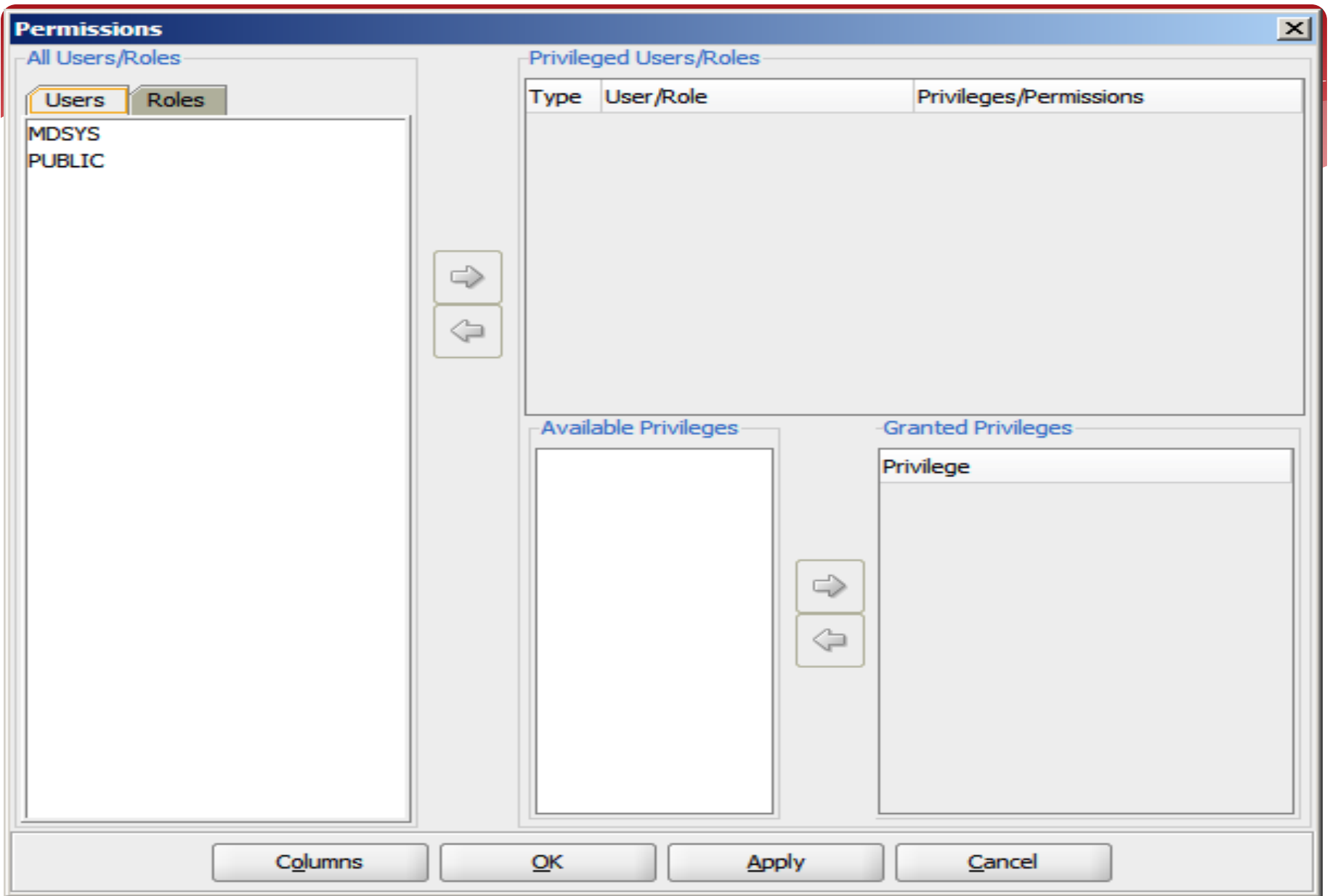
Password Expire:

Account Lock:

External Name:

Implements Schema:

 Permissions...



Physical to DDLs

Oracle SQL Developer Data Modeler

File Edit View Versigning Tools Help

Start Page x Logical (Orderdb) x Relational_1 (Orderdb) x

Export To Data Modeler Design

DDL File

Cube Views Metadata

To Microsoft XMLA

To Oracle AW

To CSV

To Reporting Schema

Contexts []

Databases []

Dimensions []

Directories []

Disk Groups []

External Tables []

Materialized Views []

Roles []

Rollback Segments []

Storage Templates []

Sequences []

Stored Procedures []

Functions []

Packages []

Collection Types []

Structured Types [2]

Synonyms []

Tables [4]

Customer

Order

OrderLine

Product

Tablespaces []

Temp Tablespaces []

Undo Tablespaces []

Users [2]

Views []

Displays []

Domains [1]

Versioning Navigator x

Subversion

Relational_1

Messages - Log x Pending Changes x

Orderdb (C:\ohjelmat\DataModeler mallit\DesignsDirectory)\...

Incoming Changes: 0 Outgoing Changes: 0 Unversioned Files: 0

Editing

```

    erDiagram
        Order ||--o{ Customer : "has"
        Order ||--o{ OrderLine : "has"
        OrderLine ||--o{ Product : "has"
    
```

Order

P *	OrderNo	NUMBER
	OrderDate	DATE
F *	CustomerNo	NUMBER
	Order_PK (OrderNo)	

Customer

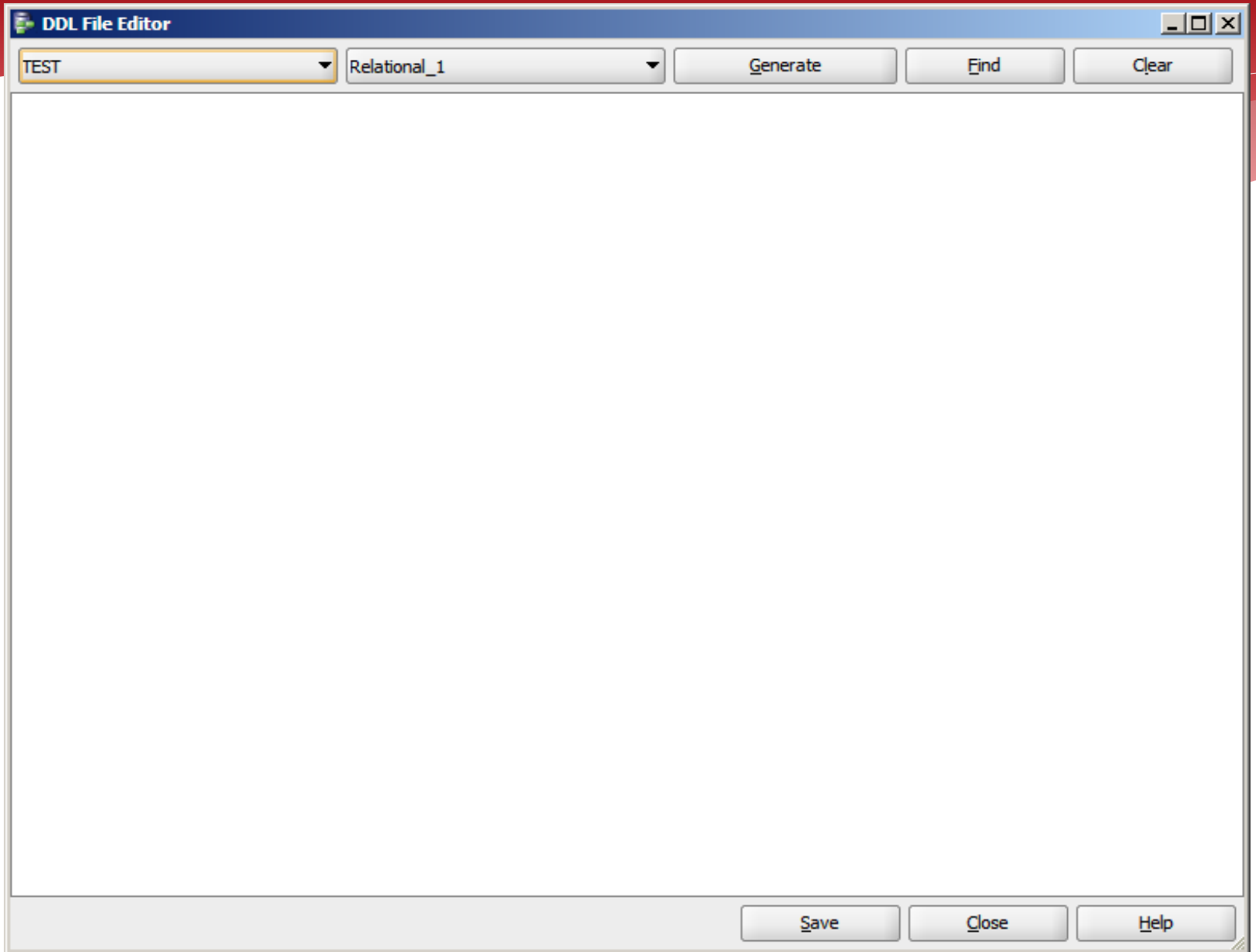
P *	CustomerNo	NUMBER
	Name	VARCHAR
	DeliveryAddress	VARCHAR
	MailAddress	VARCHAR
	Customer_PK (CustomerNo)	

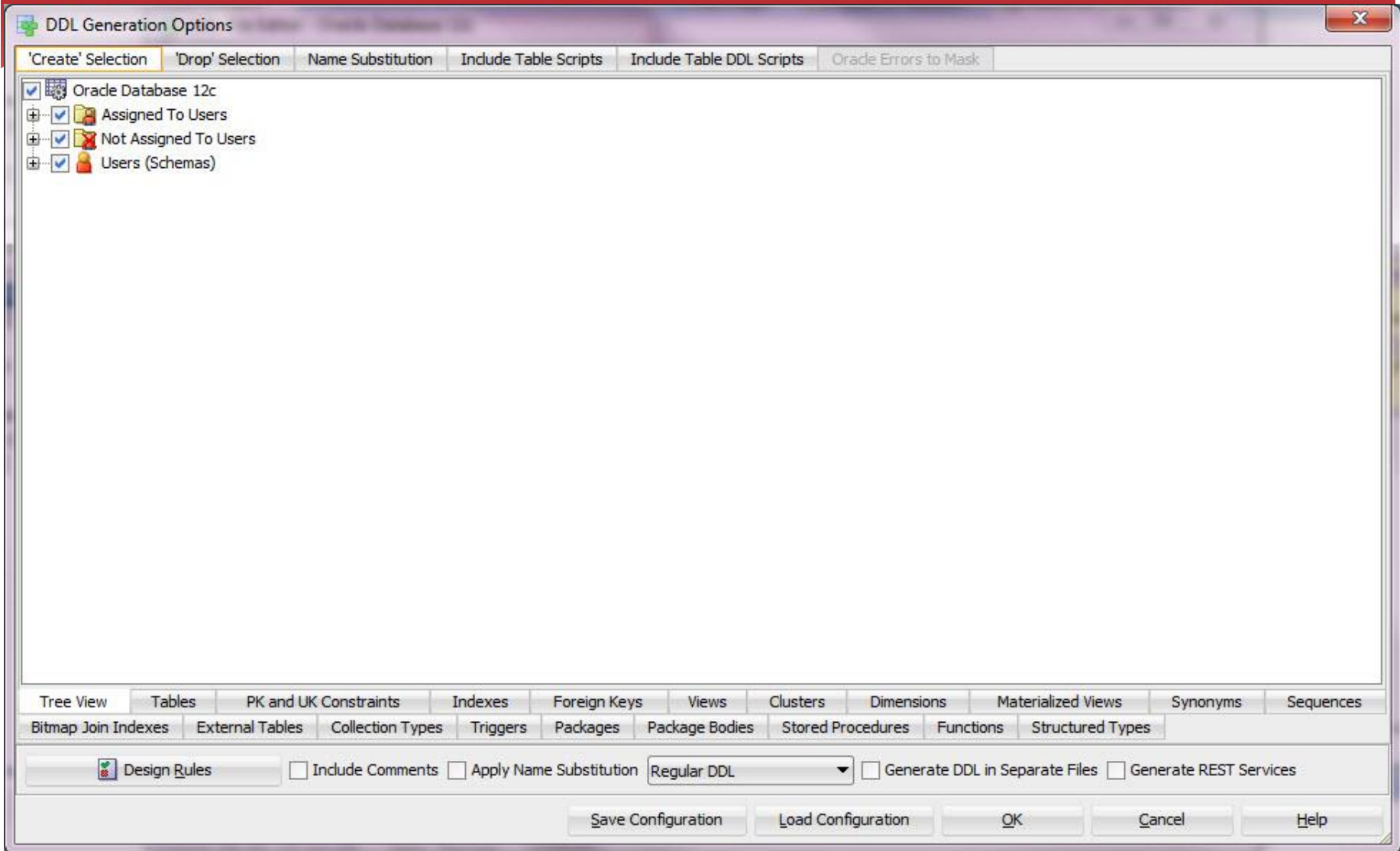
OrderLine

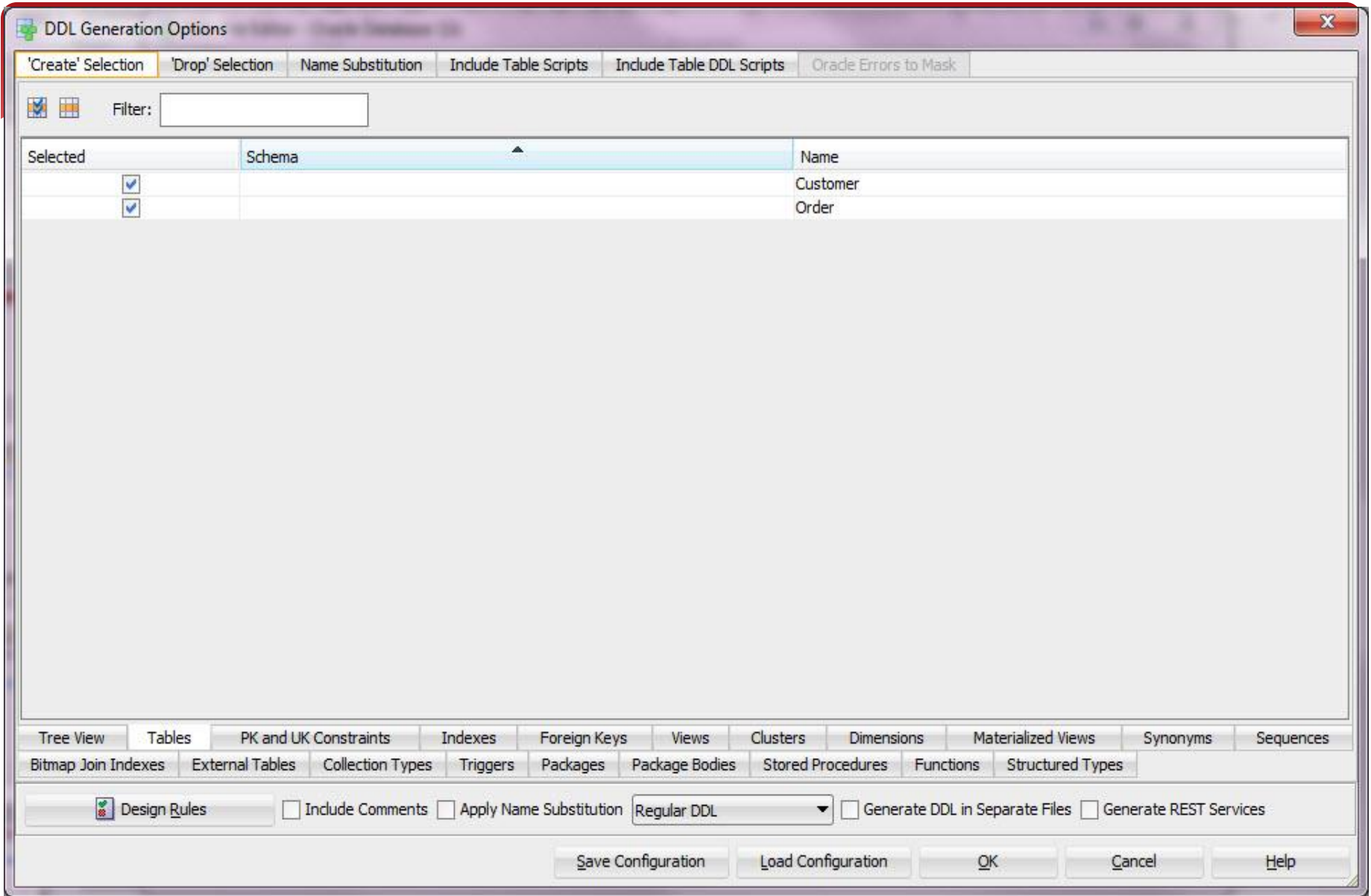
P *	OrderlineNo	NUMBER (10)
	Pcs	NUMBER
	Price	NUMBER (17,2)
PF *	OrderNo	NUMBER
F *	ProductNo	NUMBER (10)
	OrderLine_PK (OrderlineNo, OrderNo)	

Product

P *	ProductNo	NUMBER (10)
	ProductName	VARCHAR2
	Product_PK (ProductNo)	







DDL Generation Options

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

Name Substitution | Object Types

+ X | [icon] [icon]

Selected	Case Sensitive	Old	New	Comments
<input checked="" type="checkbox"/>	<input type="checkbox"/>	USER	TEST	Use this when generating the DDLs for testing environment.

Design Rules
 Include Comments
 Apply Name Substitution
 Regular DDL

OK Cancel Help

DDL Generation Options

'Create' Selection 'Drop' Selection Name Substitution Include Table Scripts Grade Errors to Mask

Name Substitution Object Types

Selected	Type
<input type="checkbox"/>	Index
<input checked="" type="checkbox"/>	Table
<input type="checkbox"/>	Tablespace
<input type="checkbox"/>	User

Design Rules Include Comments Apply Name Substitution Regular DDL

OK Cancel Help

DDL File Editor - Oracle Database 11g

Oracle Database 11g Generate Clear Find

```
-- Generated by Oracle SQL Developer Data Modeler 3.1.0.683
-- at:          2011-12-13 13:11:12 EET
-- site:       Oracle Database 11g
-- type:       Oracle Database 11g

CREATE TABLE Customer
(
  CustomerNo NUMBER NOT NULL ,
  name VARCHAR2 (50) NOT NULL ,
  DeliveryAddress VARCHAR2 (200) ,
  MailAddress VARCHAR2 (50)
) LOGGING
;

ALTER TABLE Customer
  ADD CONSTRAINT "Customer PK" PRIMARY KEY ( CustomerNo ) ;

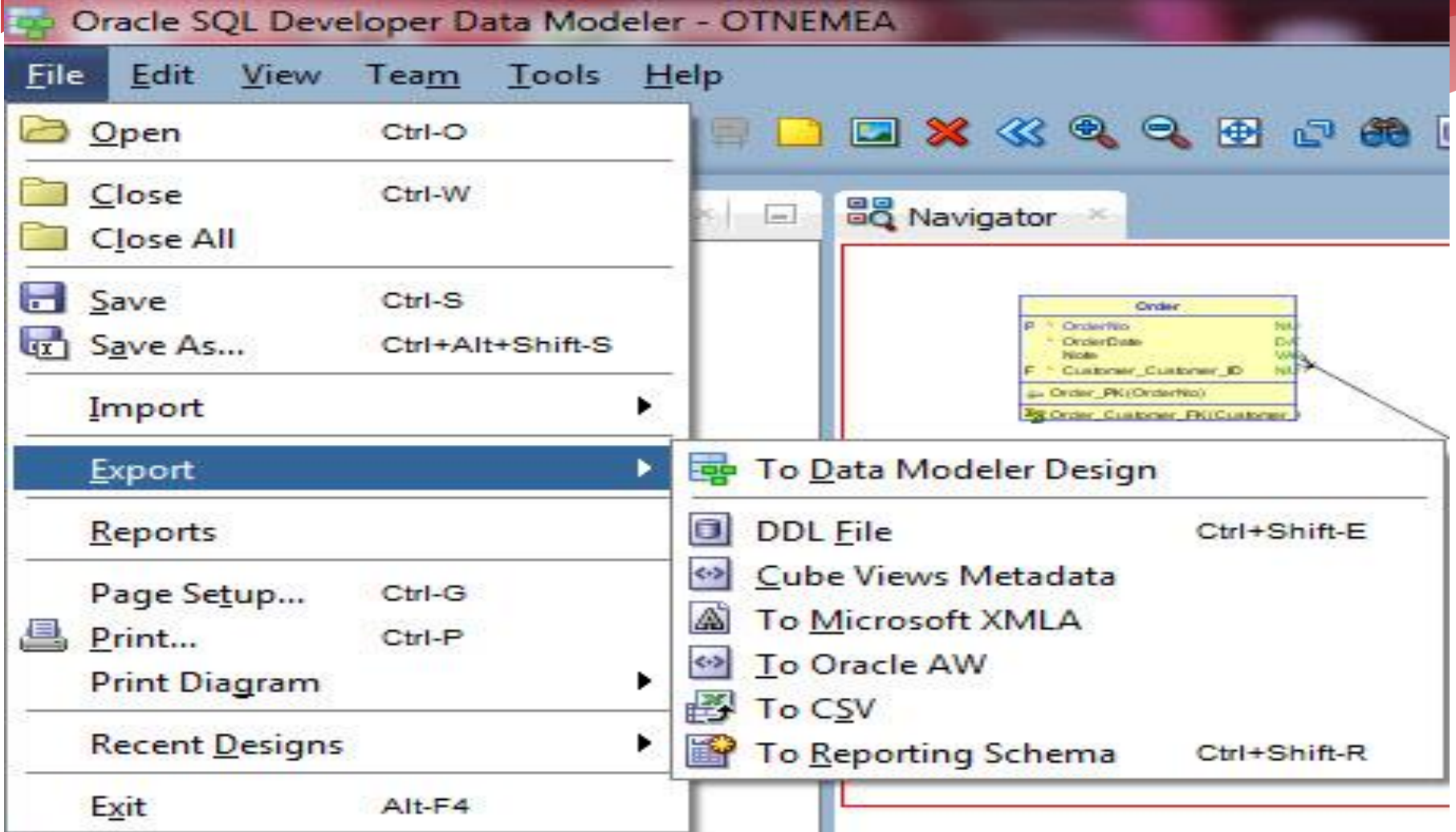
CREATE TABLE "Order"
(
  OrderNo NUMBER NOT NULL ,
  OrderDate DATE NOT NULL ,
  CustomerNo NUMBER
) LOGGING
;

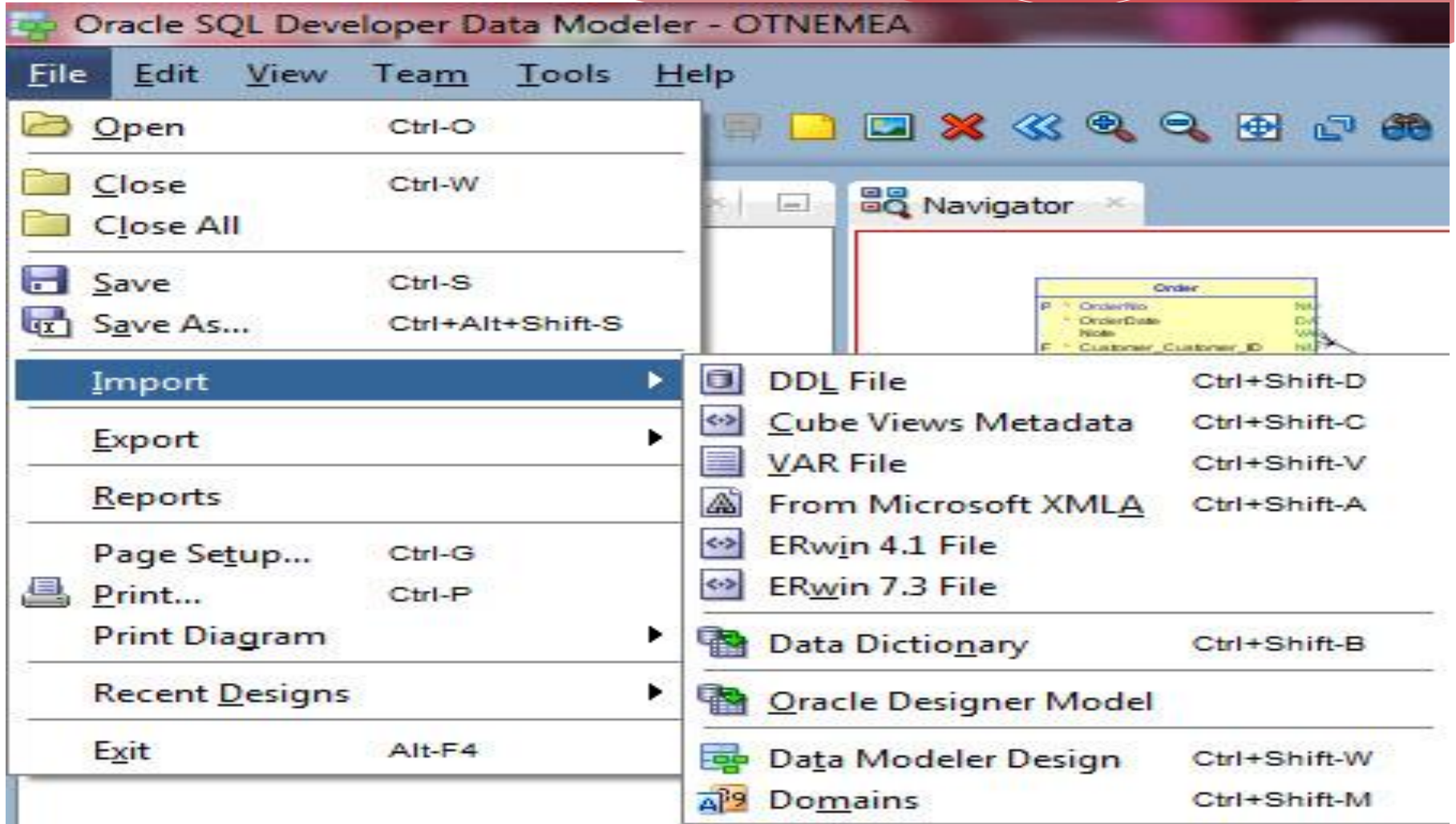
ALTER TABLE "Order"
  ADD CONSTRAINT "Order PK" PRIMARY KEY ( OrderNo ) ;
```

Save Close Help

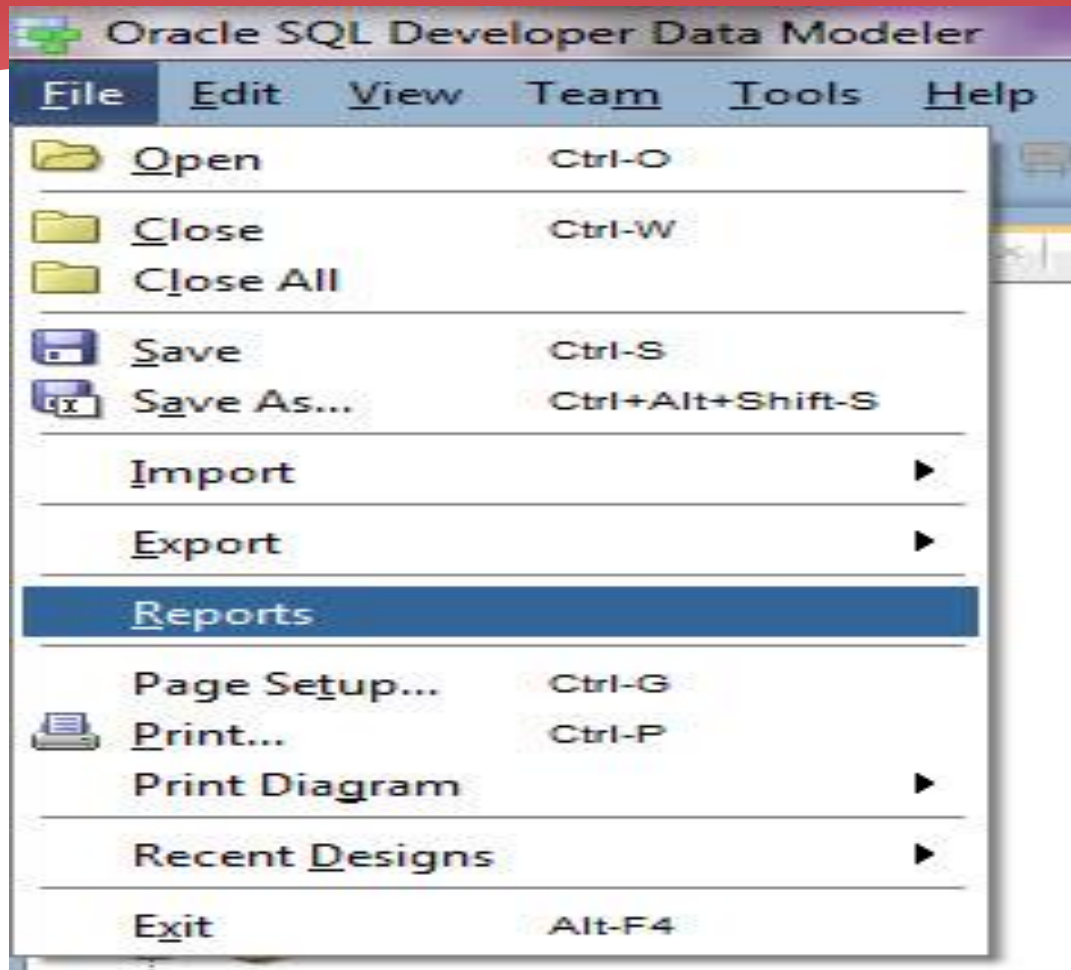
Other functionalities

Export/Import





Reporting



Reports

Available Reports: Tables

Output Format: HTML JVM Options

Report Title: All Tables Details

Report File Name: AllTablesDetails_1

Templates: Standard Custom

Designs: Loaded Designs Reporting Schema

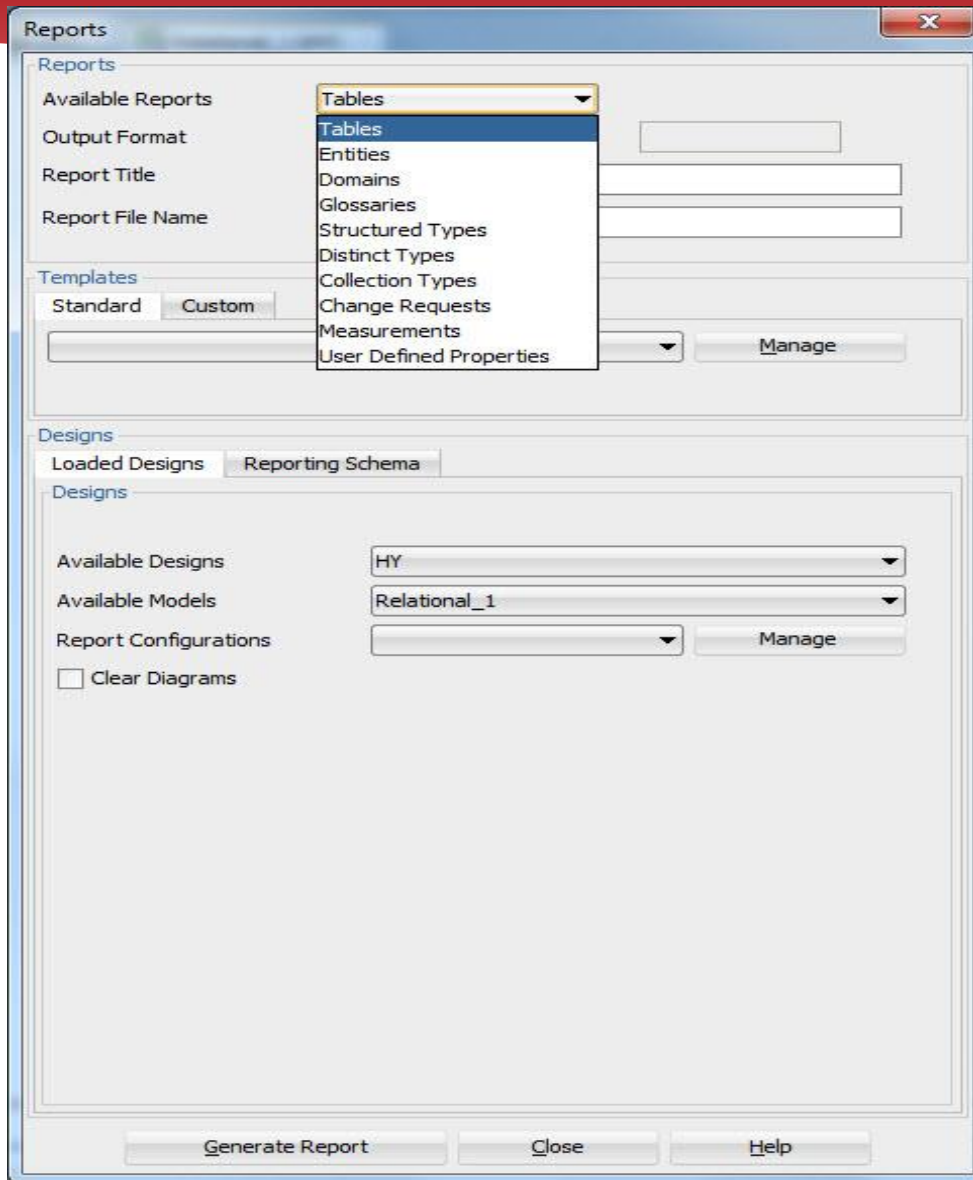
Available Designs: HY

Available Models: Relational_1

Report Configurations: Manage

Clear Diagrams

Generate Report Close Help



Reports

Reports

Available Reports: Tables

Output Format: HTML (dropdown menu open showing HTML, PDF, RTF) JVM Options: []

Report Title: Details

Report File Name: Details_1

Templates

Standard Custom

[] Manage

Designs

Loaded Designs Reporting Schema

Designs

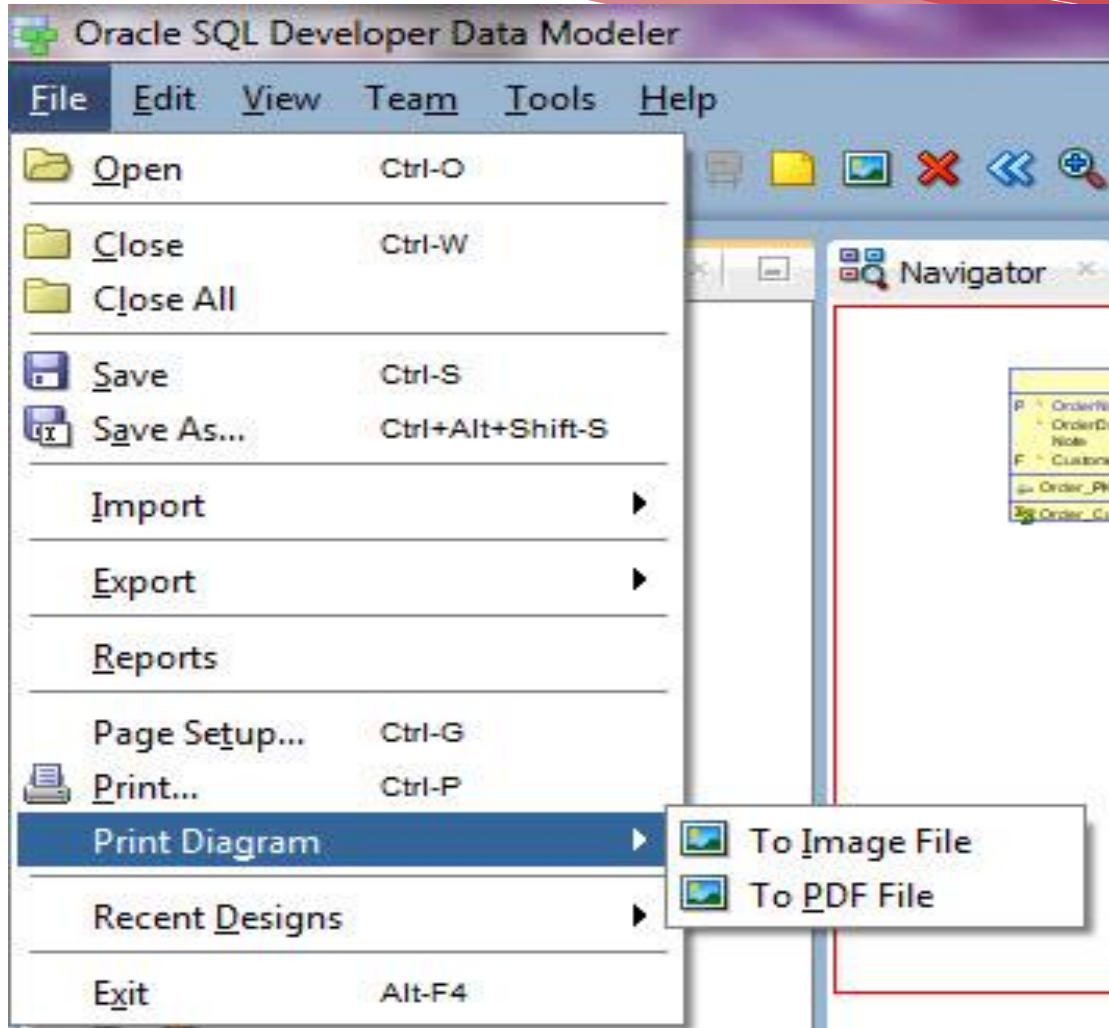
Available Designs: HY

Available Models: Relational_1

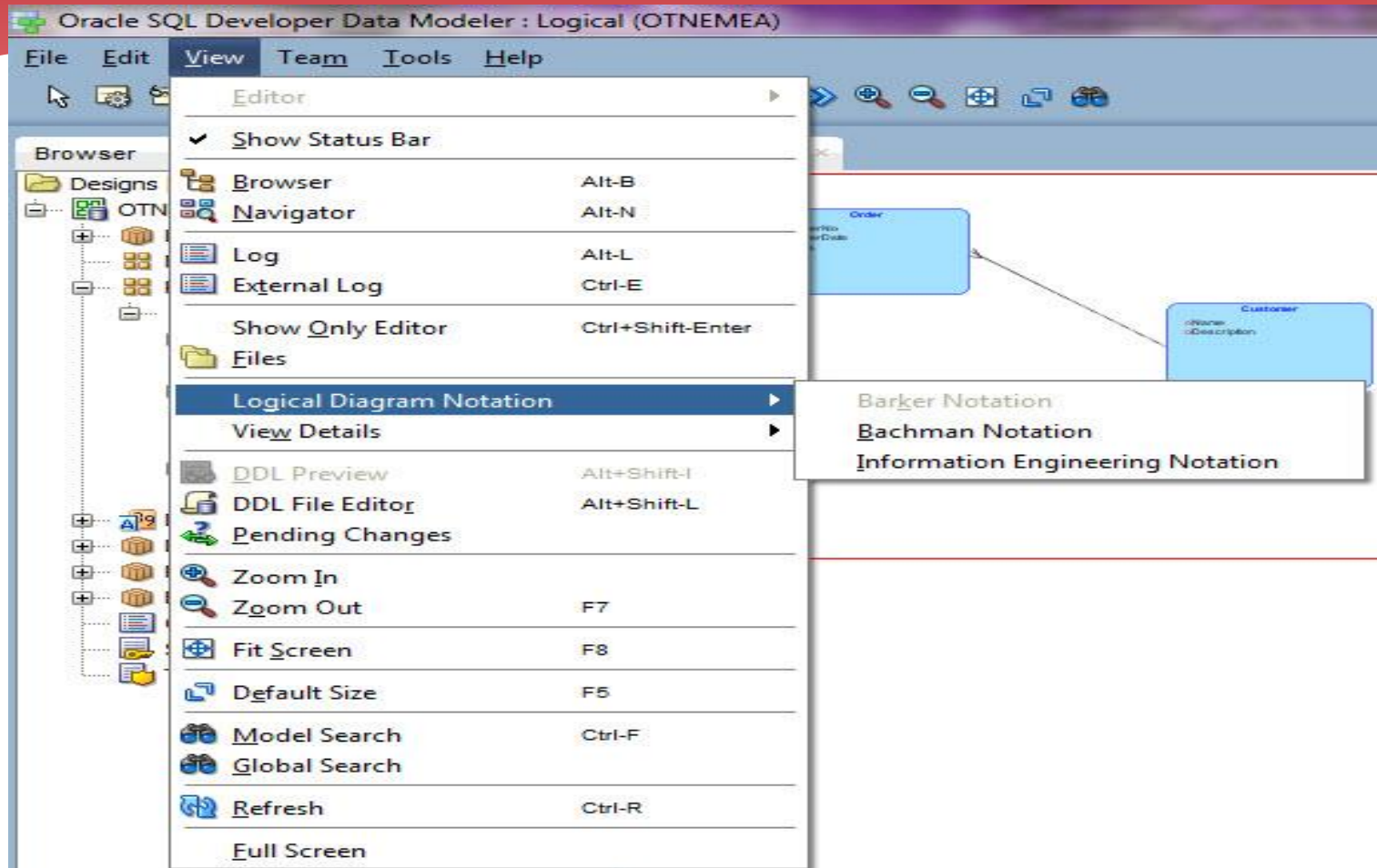
Report Configurations: [] Manage

Clear Diagrams

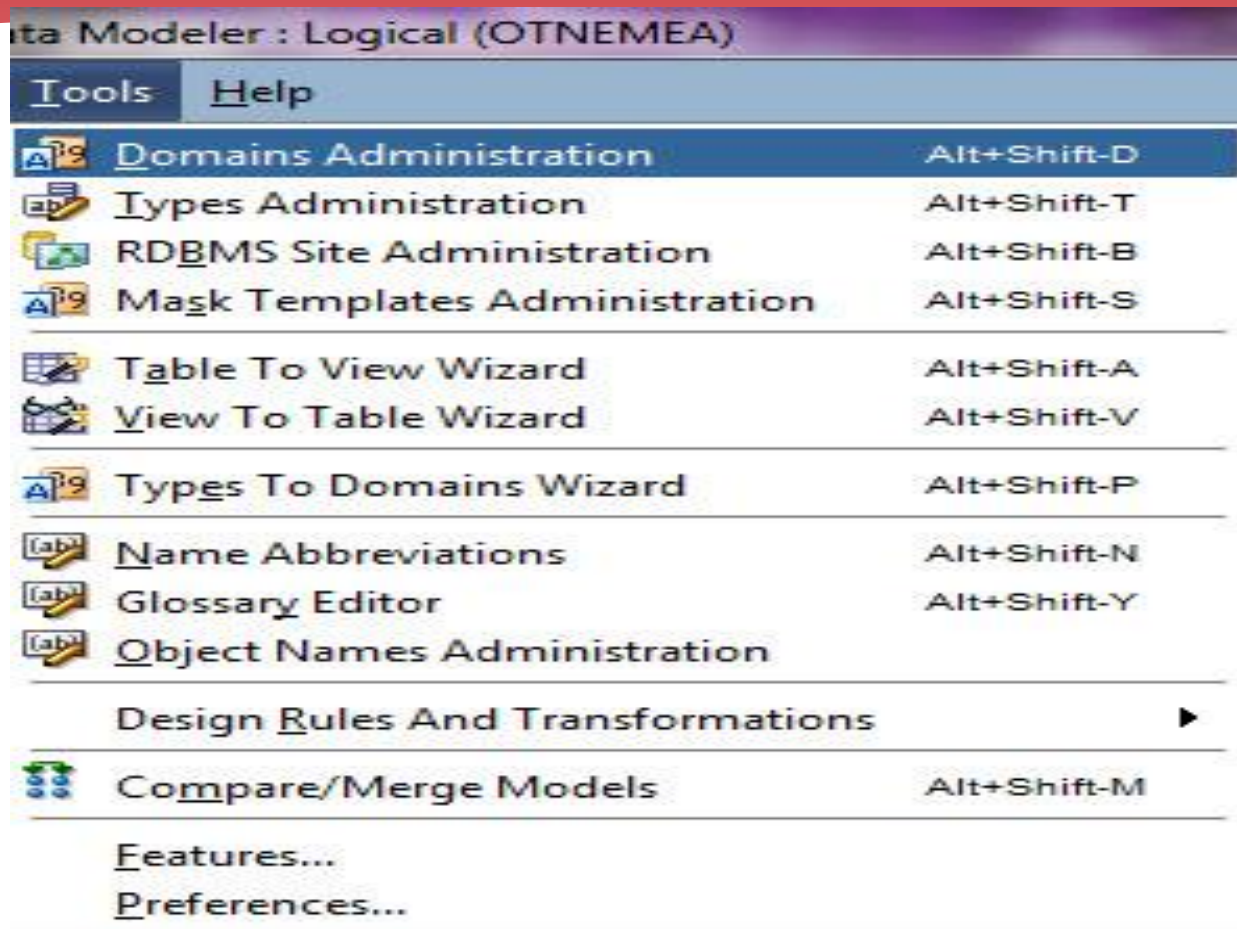
Generate Report Close Help



Notation



Domains administration




Domains Administration [X]

Choose domain

Domains File

Available Domains

 Unknown

Domain Properties

Name	<input type="text"/>	Synonym	<input type="text"/>
Logical type	<input type="text" value="unknown"/>	Comments	<input type="text"/>
Size	<input type="text"/>	Unit of Measure	<input type="text"/>
Units	<input type="text"/>	Default Value	<input type="text"/>
Precision	<input type="text"/>	<input type="button" value="Check Constraint"/>	
Scale	<input type="text"/>	<input type="button" value="Ranges"/>	
Domains File	<input type="text"/>	<input type="button" value="Value List"/>	

Domains Administration

Choose domain

Domains File

Available Domains

- Money
- Unknown

Domain Properties

Name	<input type="text" value="Money"/>	Synonym	<input type="text"/>
Logical type	<input type="text" value="NUMERIC"/>	Comments	<input type="text"/>
Size	<input type="text" value="15"/>	Unit of Measure	<input type="text"/>
Units	<input type="text" value="CHAR"/>	Default Value	<input type="text"/>
Precision	<input type="text" value="15"/>	<input type="button" value="Check Constraint"/>	
Scale	<input type="text" value="2"/>	<input type="button" value="Ranges"/>	
Domains File	<input type="text" value="defaultdomains"/>	<input type="button" value="Value List"/>	

Entity Properties - OrderLine

Attributes

General
Attributes
 Unique Identifiers
 Relationships
 Volume Properties
 Engineer To
 Comments
 Comments in RDBMS
 Overlapping Attributes
 Notes
 Impact Analysis
 Measurements
 Change Requests
 Responsible Parties
 Documents
 Dynamic Properties
 Summary

Details Overview

Attributes:

Name	Data type
1 OrderlineNo	NUMERIC (10)
2 Pcs	NUMERIC
3 Price	Money
4 OrderNo	NUMERIC
5 ProductNo	NUMERIC (10)

Attribute Properties

Name: Price

Datatype: Domain Logical Distinct
 Structured Collection

Type: Money Preferred

Primary UID Relation UID Mandatory

Comments Comments in RDBMS Notes

OK Apply Naming Rules Cancel Help

Column Properties - Price [X]

General

- Default and Constraint
- Auto Increment
- Security
- UI Defaults
- Permitted Subtypes
- Comments
- Comments in RDBMS
- Notes
- Impact Analysis
- Measurements
- Change Requests
- Responsible Parties
- Documents
- Dynamic Properties
- Summary

General

Name:

Table:

Abbreviation:

Engineer:

Allow Nulls:

Datatype: ...

Type:

Computed:

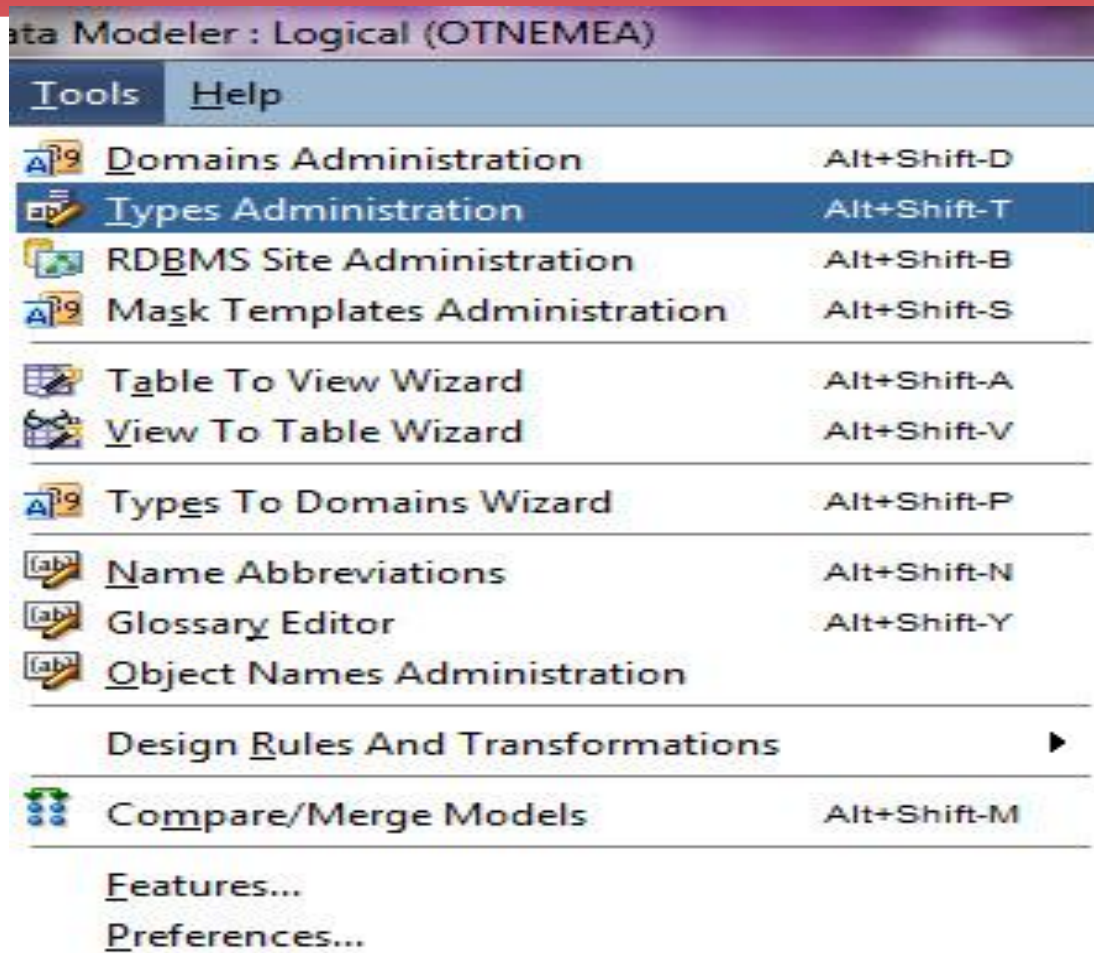
Column Expression:

Auto Increment Identity Column

Scope:

Type Substitution:

Types Administration



Types Administration

Logical types to native types | Native types to Logical types | User defined native types

Logical Types

- unknown
- Audio
- BFile
- BIGINT
- BINARY
- BINARY DOUBLE
- BINARY FLOAT
- BIT
- BLOB
- Boolean
- CHAR
- CLOB
- DATALINK
- DBURIType
- DECIMAL
- DOUBLE
- Date
- Datetime
- FLOAT
- GRAPHIC
- HTTPURIType
- INTERVAL DAY TO SECOND
- INTERVAL YEAR TO MONTH
- Image
- Integer
- Long Char

Logical Type mappings

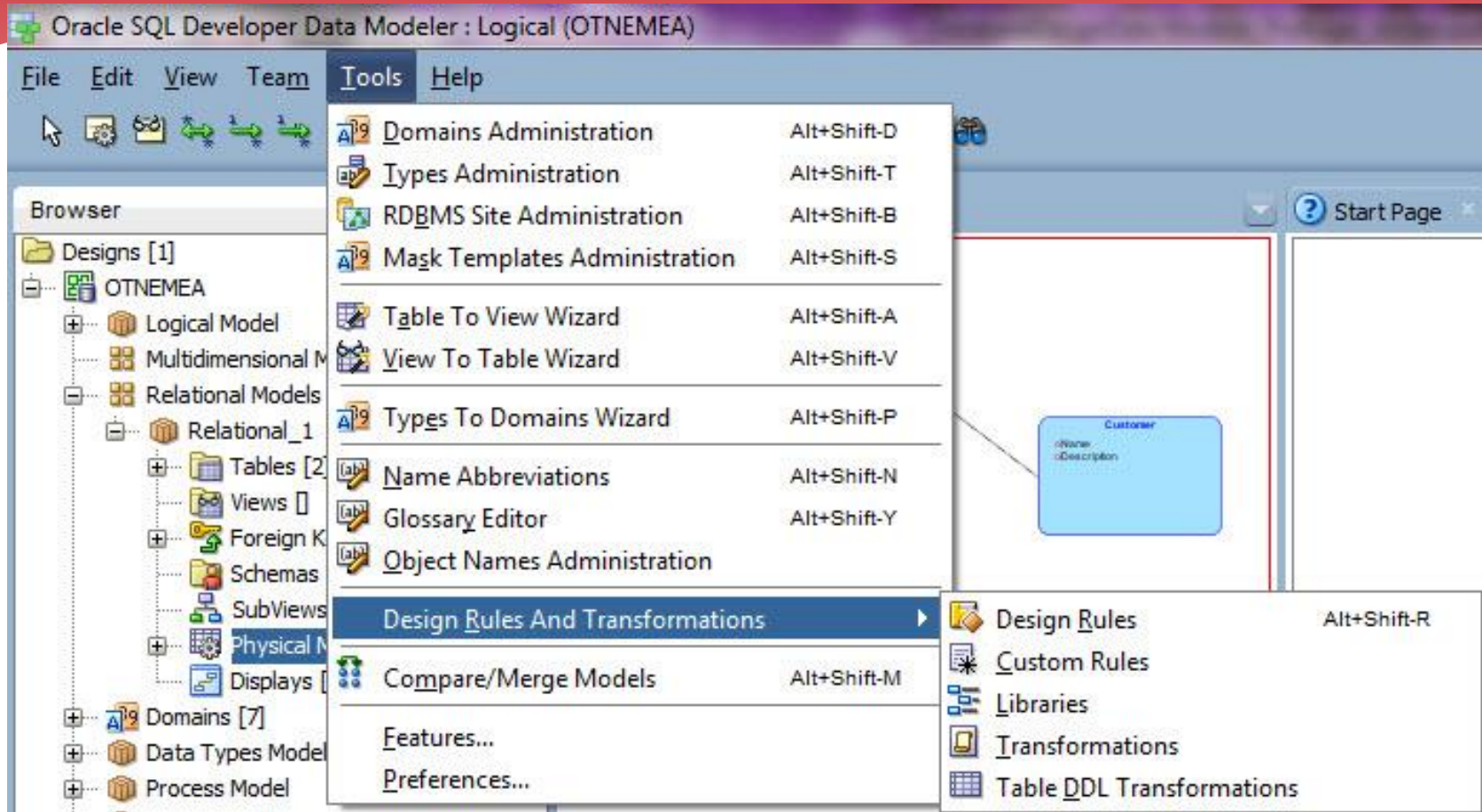
Name

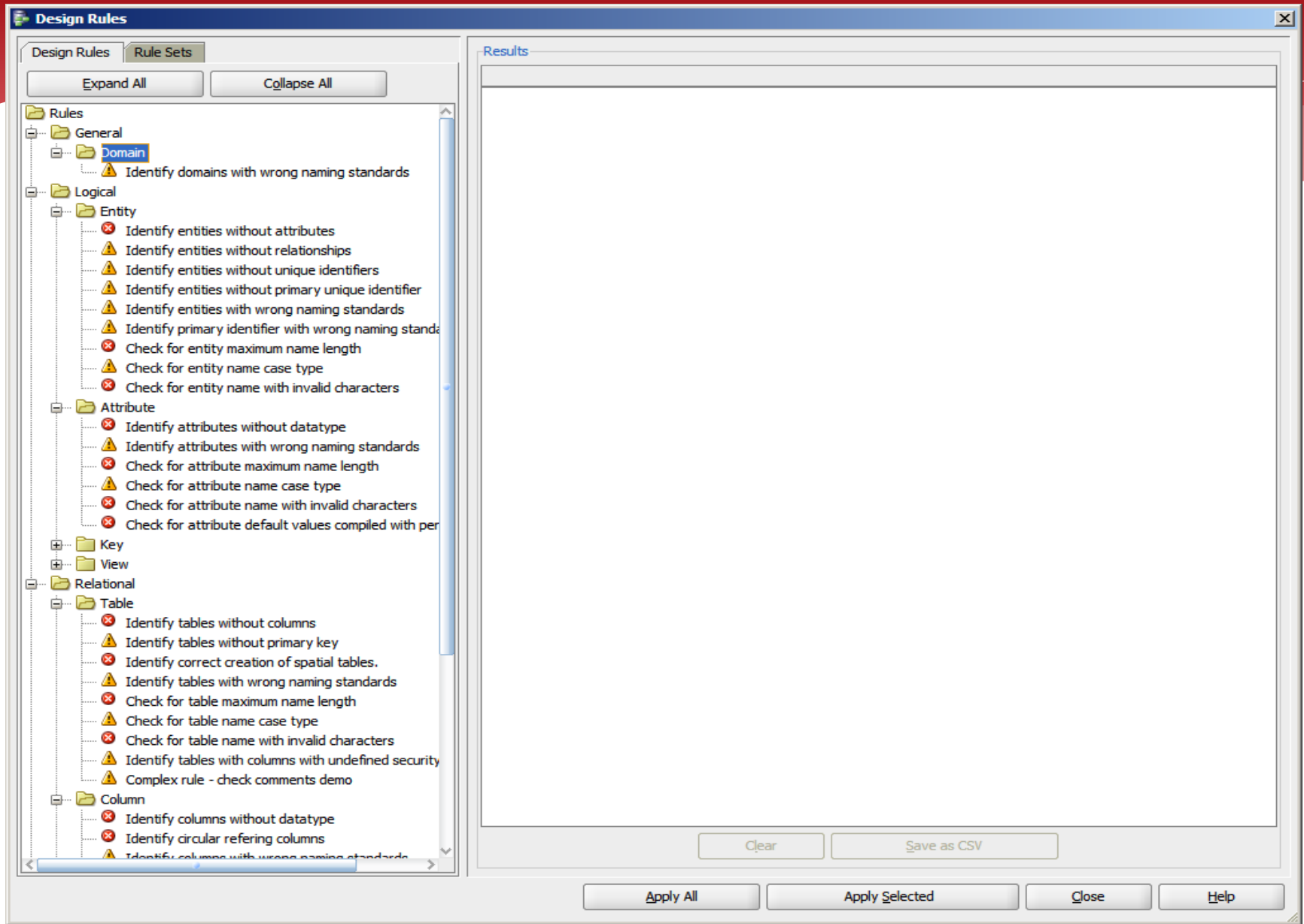
Oracle Database 11g	BFILE	<input type="checkbox"/> Precision	<input type="checkbox"/> Scale	<input type="checkbox"/> Size
Oracle Database 10g	BFILE	<input type="checkbox"/> Precision	<input type="checkbox"/> Scale	<input type="checkbox"/> Size
Oracle9i	BFILE	<input type="checkbox"/> Precision	<input type="checkbox"/> Scale	<input type="checkbox"/> Size
SQL Server 2005	BIGINT	<input type="checkbox"/> Precision	<input type="checkbox"/> Scale	<input type="checkbox"/> Size
SQL Server 2000	BIGINT	<input type="checkbox"/> Precision	<input type="checkbox"/> Scale	<input type="checkbox"/> Size
DB2/390 8	BINARY LARGE OBJECT	<input type="checkbox"/> Precision	<input type="checkbox"/> Scale	<input type="checkbox"/> Size
DB2/390 7	BINARY LARGE OBJECT	<input type="checkbox"/> Precision	<input type="checkbox"/> Scale	<input type="checkbox"/> Size
DB2/UDB 8.1	BIGINT	<input type="checkbox"/> Precision	<input type="checkbox"/> Scale	<input type="checkbox"/> Size
DB2/UDB 7.1	BIGINT	<input type="checkbox"/> Precision	<input type="checkbox"/> Scale	<input type="checkbox"/> Size

Add Remove Modify

Save Close Help

Design Rules





Design Rules [X]

Design Rules | Rule Sets

Expand All | Collapse All

- Rules
 - General
 - Logical
 - Relational
 - Process Model
 - Physical

Results

ERRORS:4WARNINGS:13

- Warning: Customer: Table has columns with undefined security properties
- Error: Customer: no comments in RDBMS defined , no comments defined
- Warning: Order: Table has columns with undefined security properties
- Error: Order: no comments in RDBMS defined , no comments defined
- Warning: OrderLine: Table has columns with undefined security properties
- Error: OrderLine: no comments in RDBMS defined , no comments defined
- Warning: Product: Table has columns with undefined security properties
- Error: Product: no comments in RDBMS defined , no comments defined
- Warning: Customer.Customer_PK: Primary key with wrong naming standards is not recommended.
- Warning: Order.Order_PK: Primary key with wrong naming standards is not recommended.
- Warning: Order.Relation_2: Foreign keys with wrong naming standards are not recommended.
- Warning: OrderLine.OrderLine_PK: Primary key with wrong naming standards is not recommended.
- Warning: OrderLine.Relation_4: Foreign keys with wrong naming standards are not recommended.
- Warning: OrderLine.Relation_6: Foreign keys with wrong naming standards are not recommended.
- Warning: Product.Product_PK: Primary key with wrong naming standards is not recommended.
- Warning: Order: The name is a reserved word: Order
- Warning: Order: The name is a reserved word: Order

Clear | Save as CSV

Apply All | Apply Selected | Close | Help

Different Compares

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

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

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

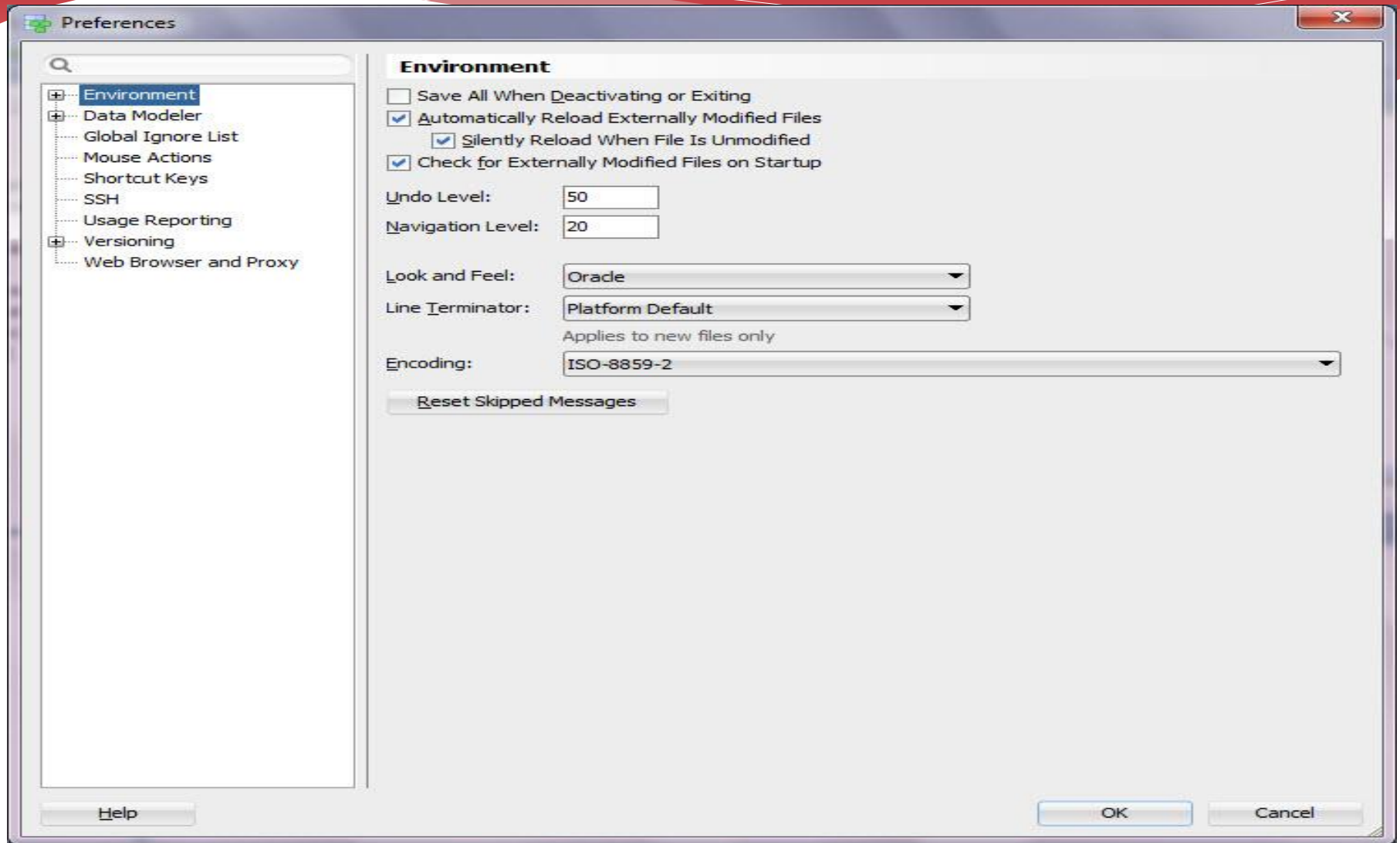
Preferences

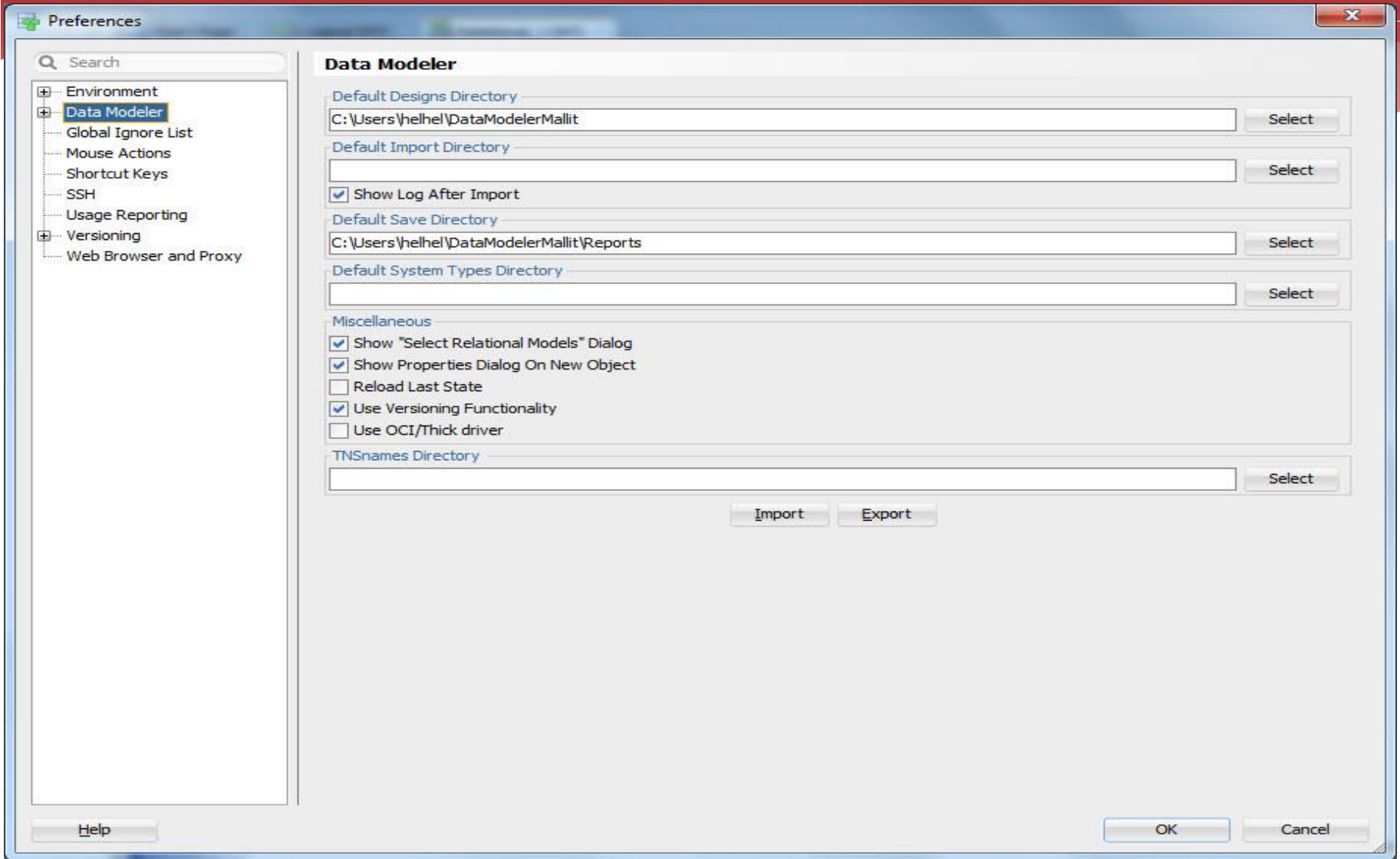
The screenshot displays the Oracle SQL Developer Data Modeler interface. The main workspace shows a logical model with four tables: Order, Customer, OrderLine, and Product. The Order table has columns OrderNo (NUMBER), OrderDate (DATE), and CustomerNo (NUMBER). The Customer table has columns CustomerNo (NUMBER), Name (VARCHAR), DeliveryAddress (VARCHAR), and MailAddress (VARCHAR). The OrderLine table has columns OrderlineNo (NUMBER (10)), Pcs (NUMBER), OrderNo (NUMBER), and ProductNo (NUMBER (10)). The Product table has columns ProductNo (NUMBER (10)) and ProductName (VARCHAR2). Relationships are shown: Order PK to Customer FK (CustomerNo), OrderLine PK to Order FK (OrderNo), and OrderLine PK to Product FK (ProductNo).

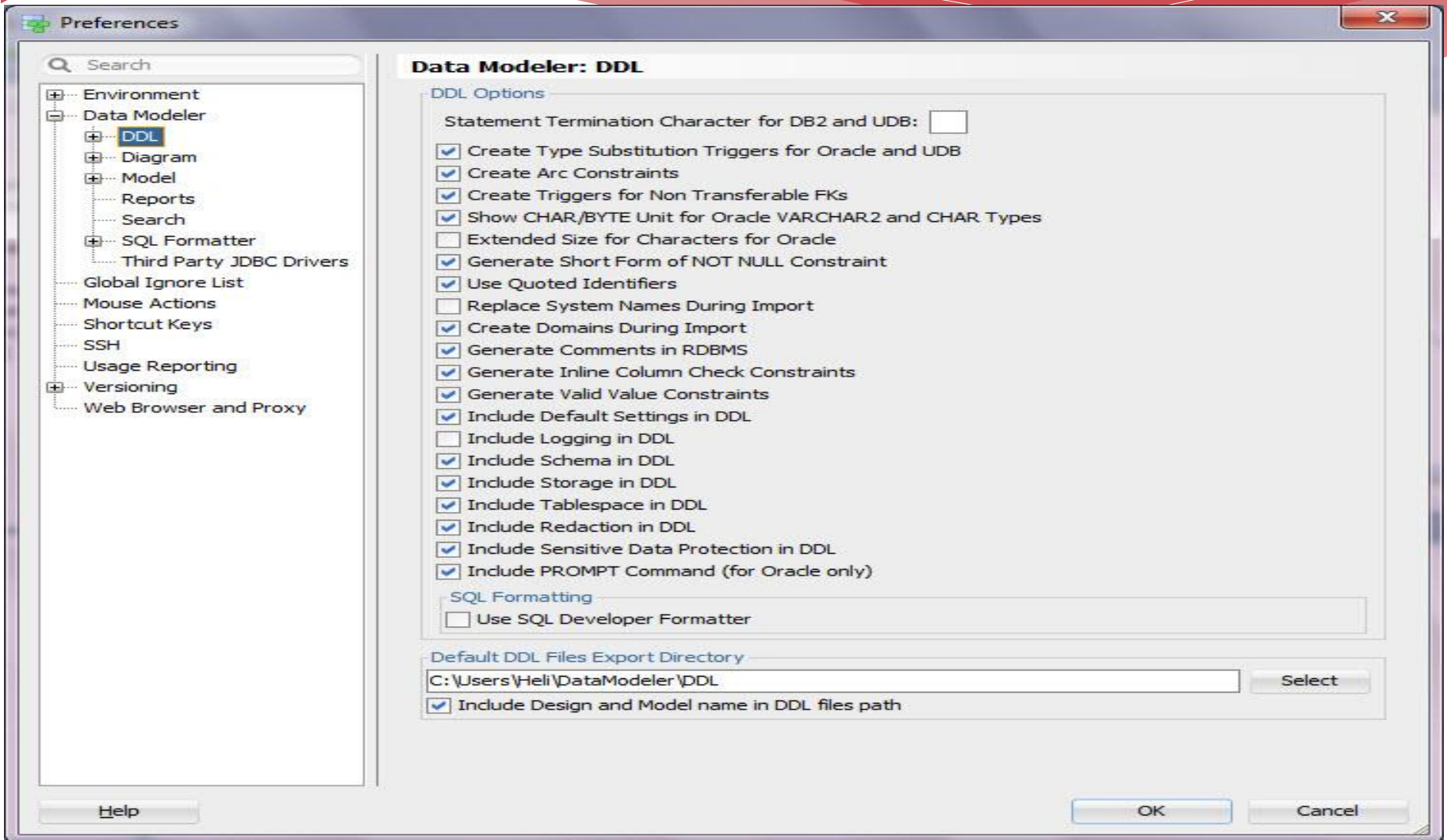
The Tools menu is open, showing the following options:

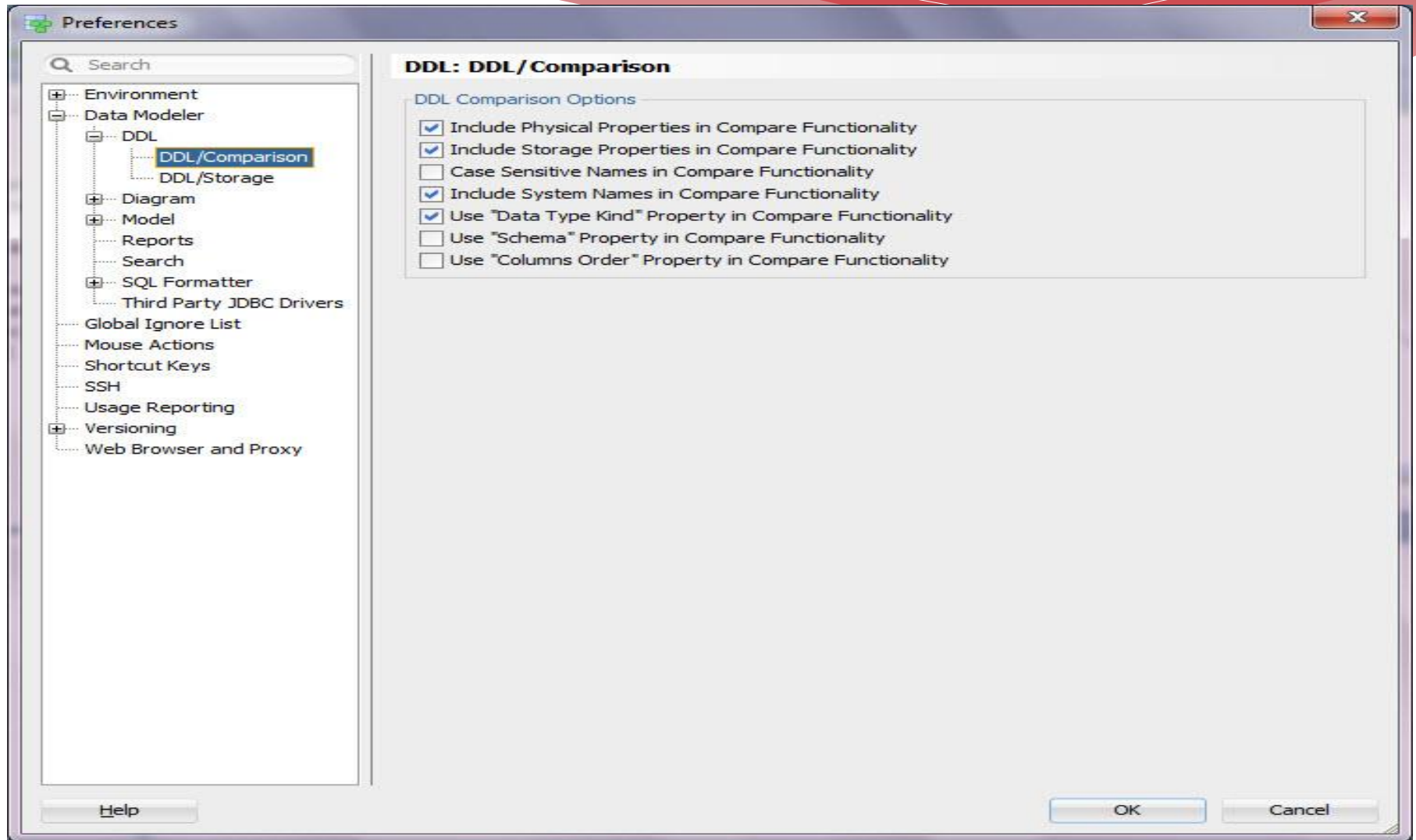
- Domains Administration (Alt+Shift-D)
- Types Administration (Alt+Shift-T)
- RDBMS Site Administration (Alt+Shift-B)
- Table To View Wizard (Alt+Shift-A)
- View To Table Wizard (Alt+Shift-V)
- Types To Domains Wizard (Alt+Shift-P)
- Name Abbreviations (Alt+Shift-N)
- Glossary Editor (Alt+Shift-Y)
- Design Rules
- Compare/Merge Models (Alt+Shift-M)
- Preferences...

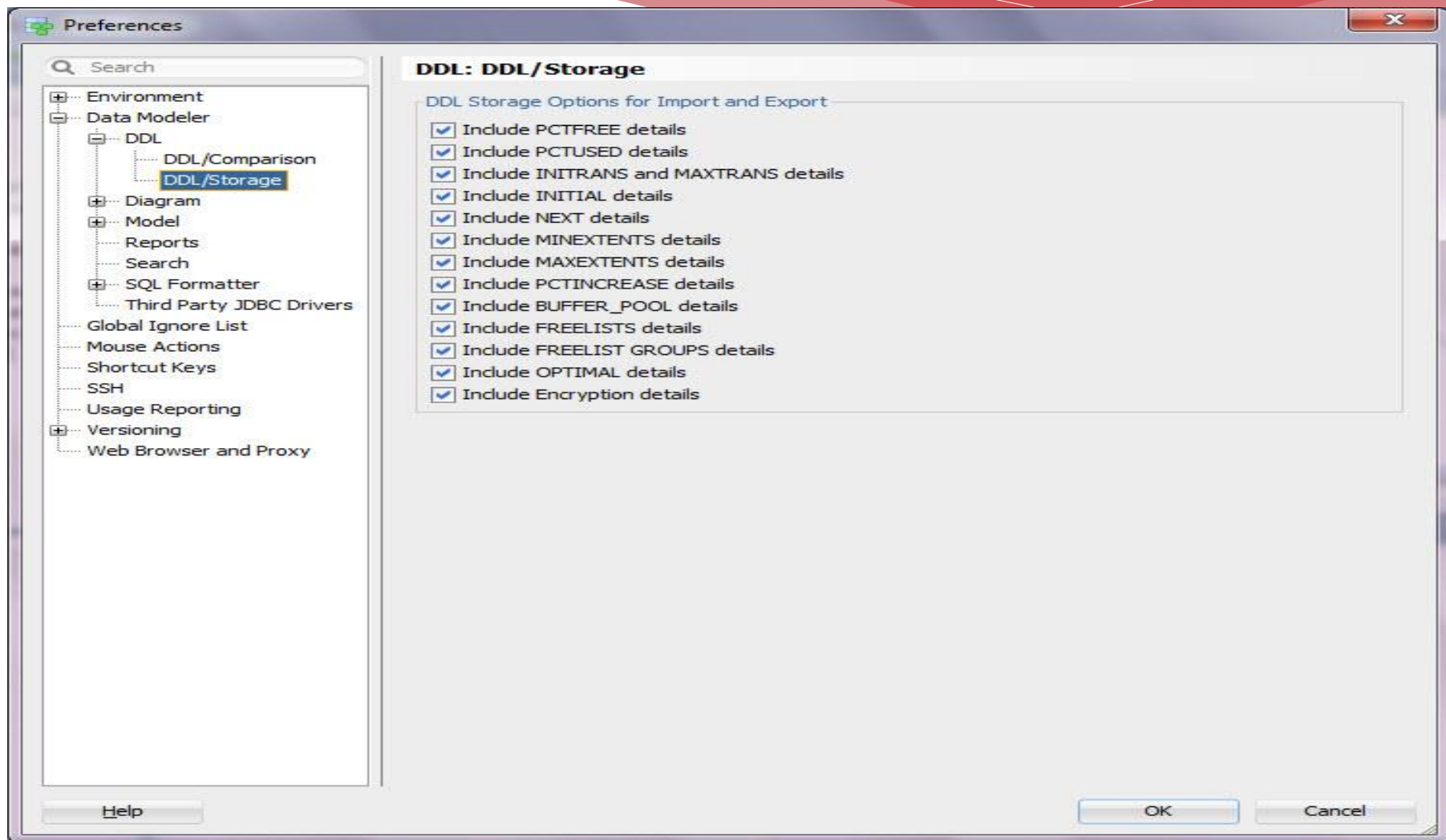
The Versing Navigator shows a Subversion workspace with a DesignsDirectory containing branches, Tags, and Trunk. The Messages - Log and Pending Changes panes are empty. The status bar at the bottom indicates 0 Incoming Changes, 0 Outgoing Changes, and 0 Unversioned Files.

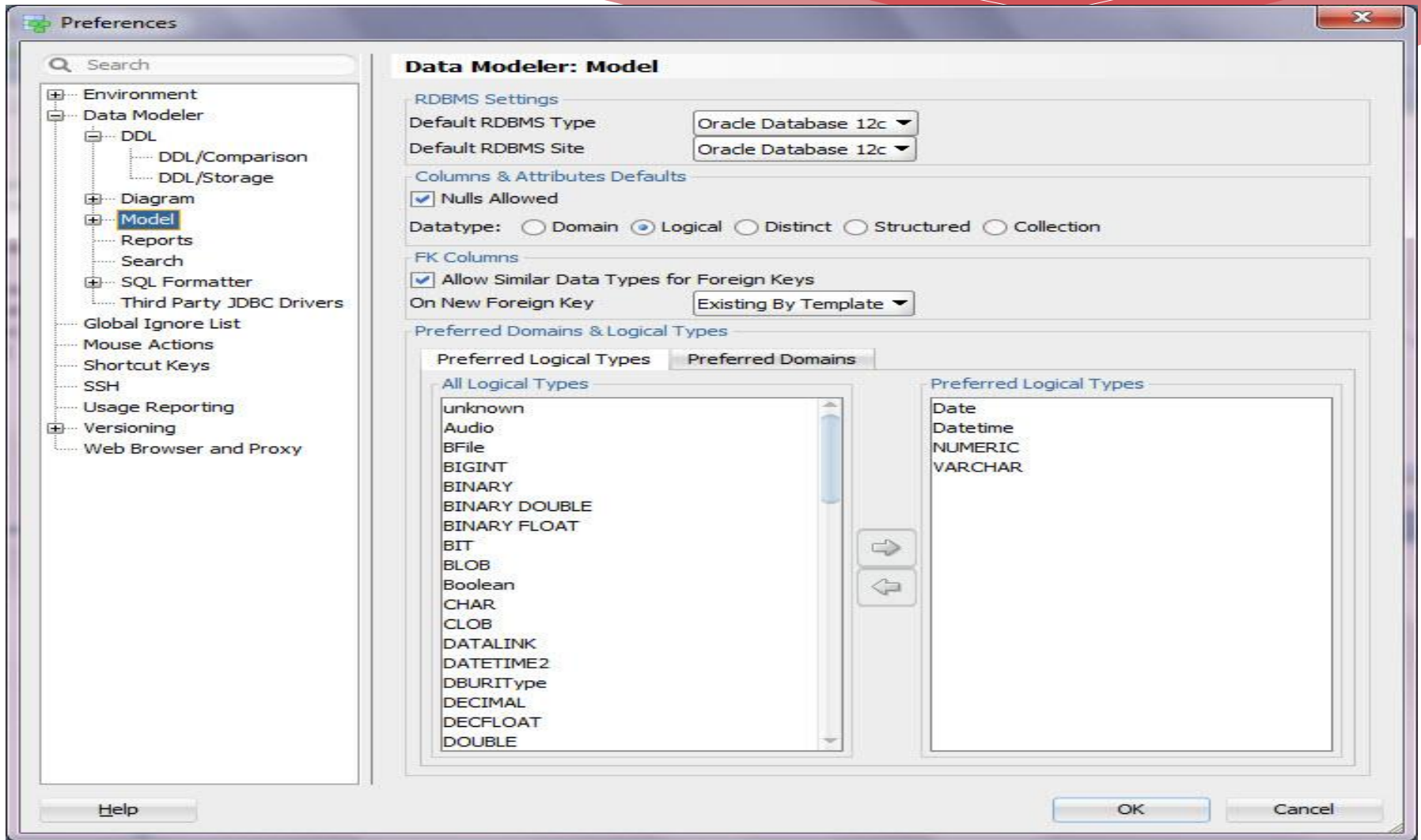


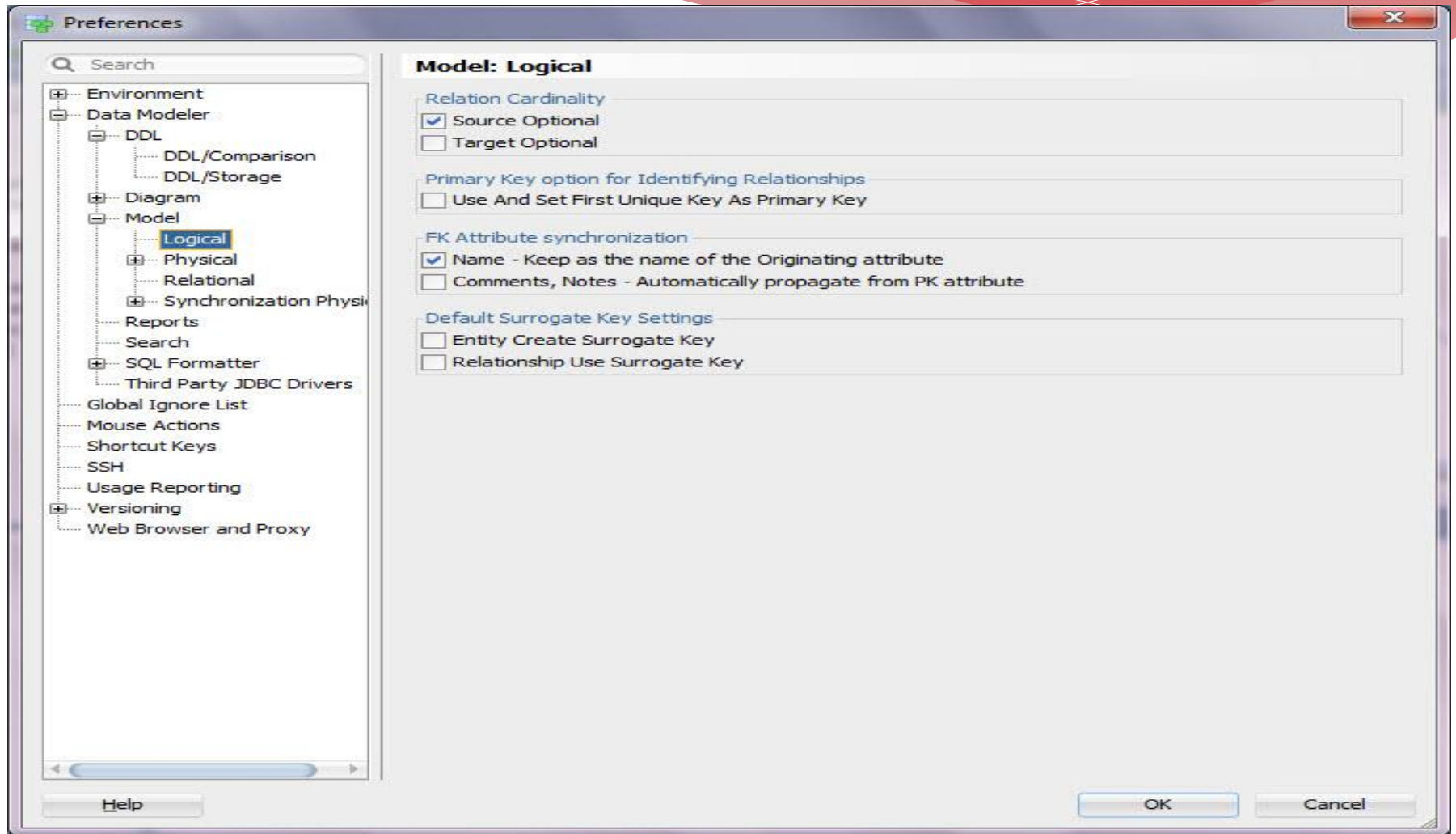


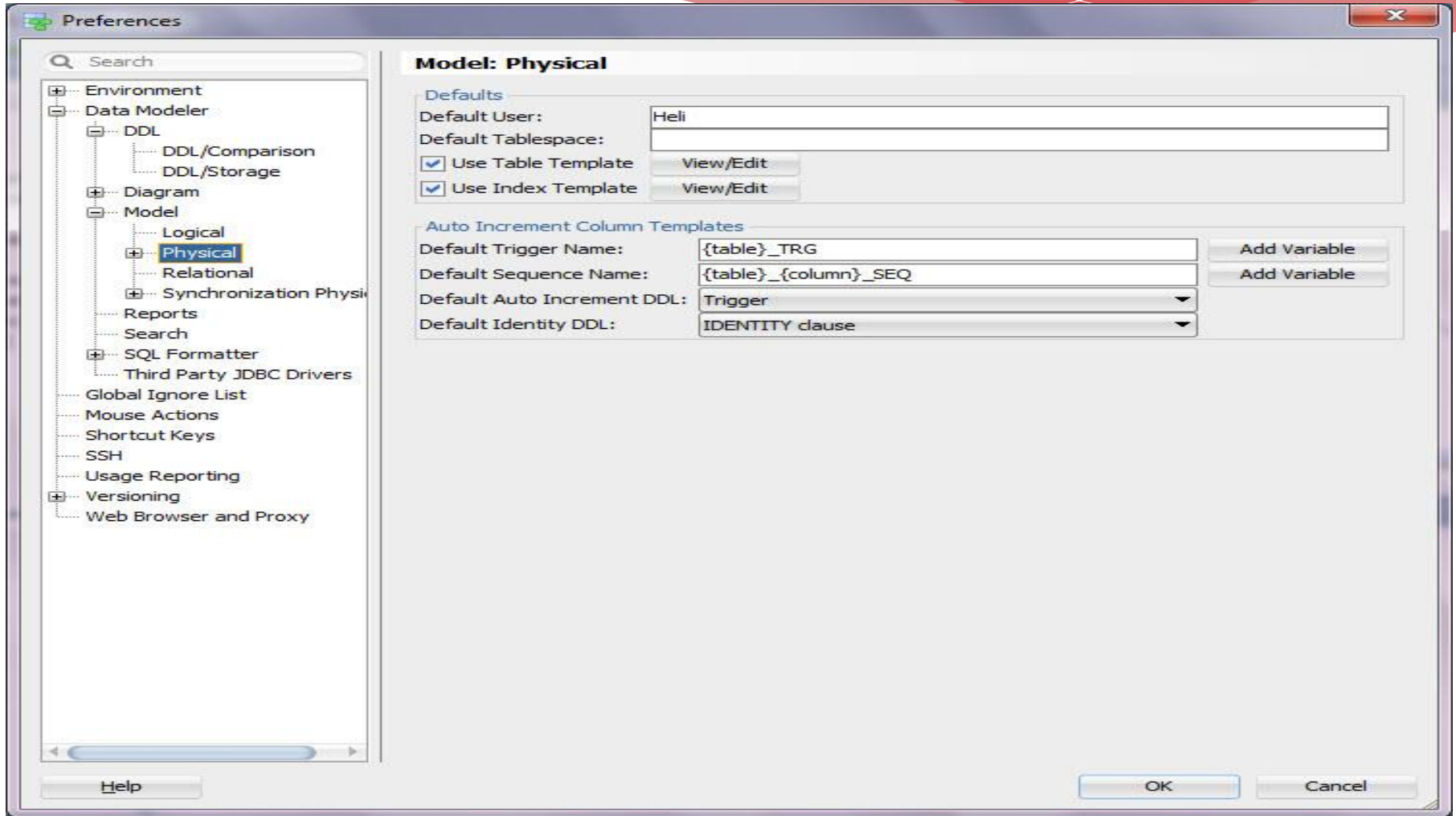




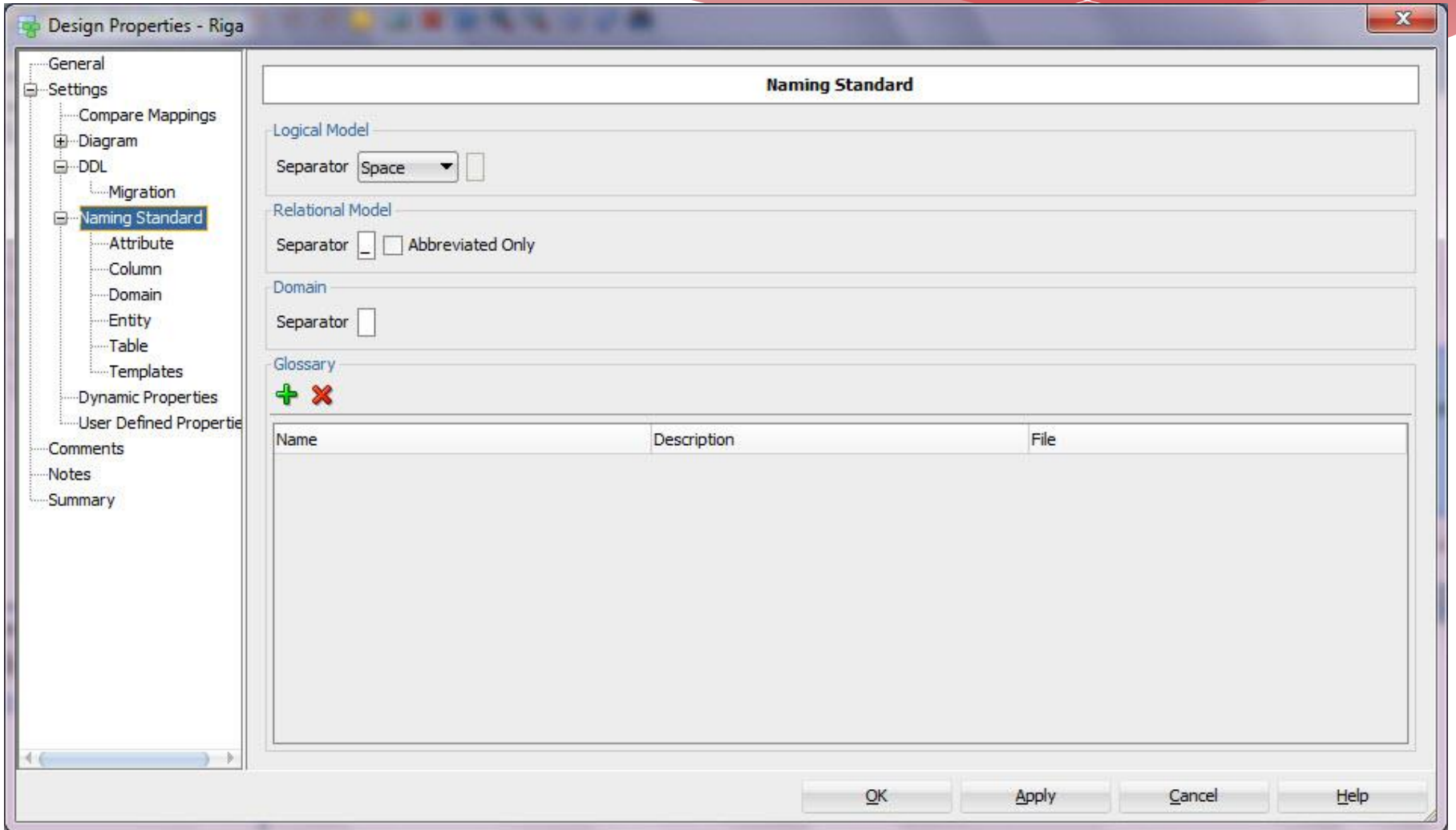


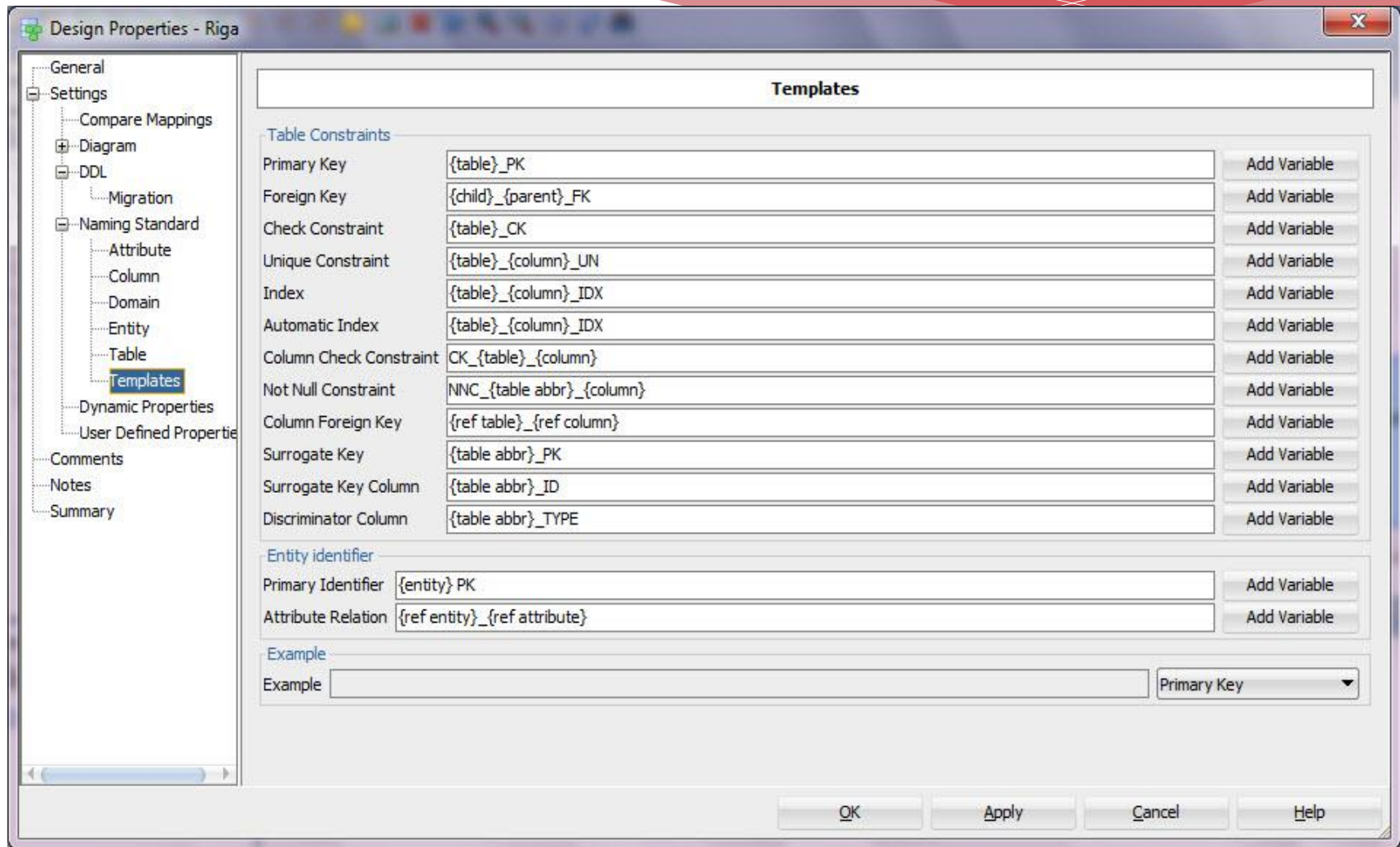




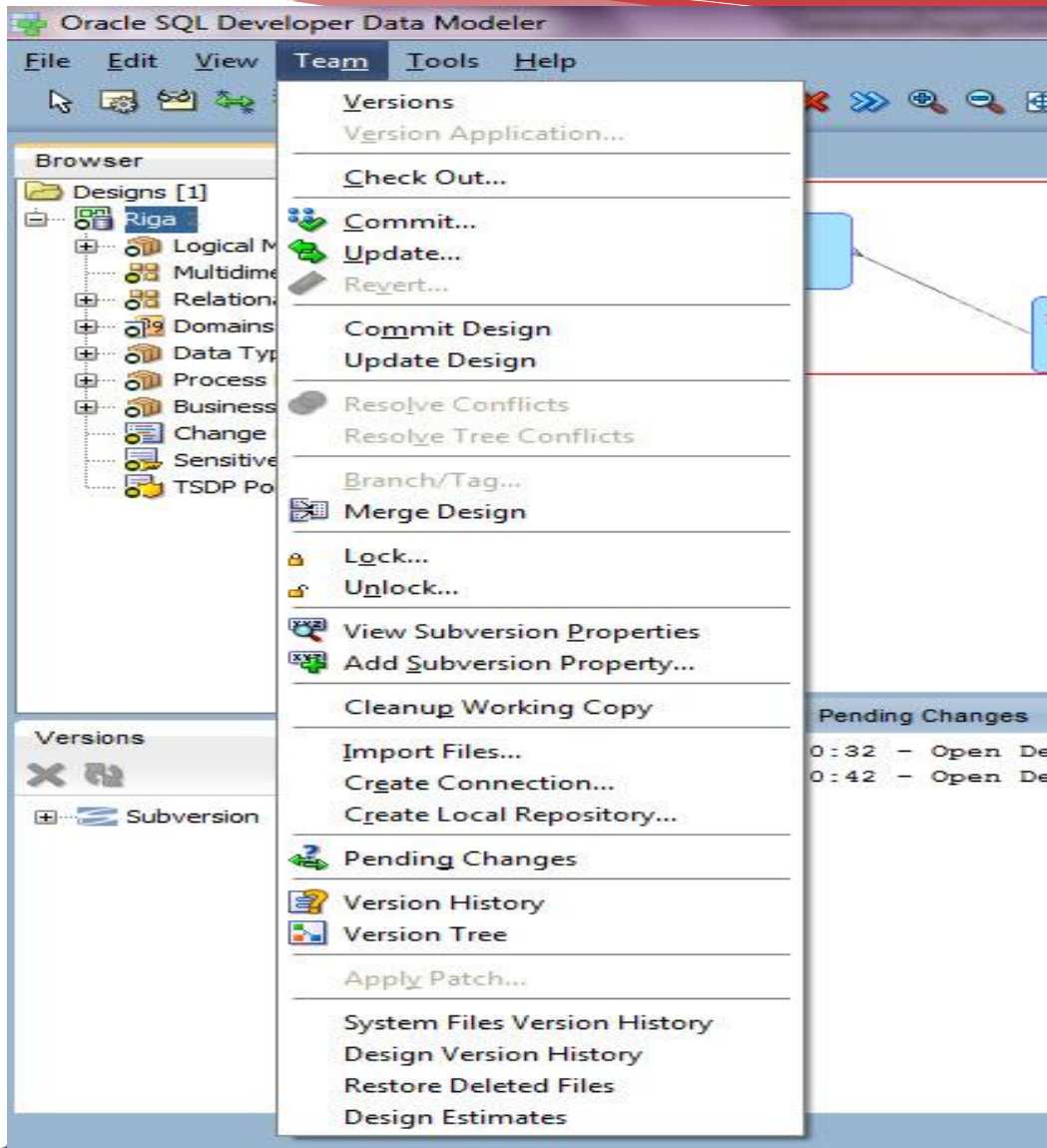


Design Properties





Version control (Subversion)



Oracle SQL Developer Data Modeler

File Edit View Versioning Tools Help

Browser x

Start Page x Logical (Orderdb) x Relational_1 (Orderdb) x

Designs [1]
Orderdb
Logical Model
Entities [4]
Customer
Order
OrderLine
Product
ProductNo
ProductName
Description
Primary Keys [1]
Alternate Keys []
Relations [1]
Inheritance From Supertype []
Inheritations To Subtypes []
Relations [3]
Inheritations []
Views []
SubViews []
Displays []
Multidimensional Models []
Relational Models [1]
Domains [3]
Data Types Model
Process Model
Business Information
Change Requests []

Relational_1

Order

P *	OrderNo	NUMBER
	OrderDate	DATE
F *	CustomerNo	NUMBER
Order_PK (OrderNo)		

Customer

P *	CustomerNo	NUMBER
	Name	VARCHAR
	DeliveryAddress	VARCHAR
	MailAddress	VARCHAR
	ContactPerson	VARCHAR
Customer_PK (CustomerNo)		

OrderLine

P *	OrderlineNo	NUMBER (10)
	Pos	NUMBER
	Price	NUMBER (15,2)
PF *	OrderNo	NUMBER
F *	ProductNo	NUMBER (10)

Product

P *	ProductNo	NUMBER (10)
	Product Name	VARCHAR2
	Description	VARCHAR2
Product_PK (ProductNo)		

Versioning Navigator x

Subversion

Messages - Log x Pending Changes x

Orderdb (C:\ohjelmat\DataModeler\mallit\DesignsDirectory\...)

Orderdb
Logical
Entities
Product [113]
Customer [113]
Relational Models
mapping

Incoming Changes: 0 Outgoing Changes: 5 Unversioned Files: 0

Editing

XML Metadata Comparator

Filter

Product (Last Synchronized (Local))

- Complex Properties
 - attributes
 - (0) ProductNo
 - Complex Properties
 - (1) ProductName
 - TO DELETE**
- identifiers
- fonts

Product (Local Saved)

- Complex Properties
 - attributes
 - (0) ProductNo
 - Complex Properties
 - (1) ProductName
 - Description**
- identifiers
- fonts

Details

Property	Selected		
name	<input checked="" type="checkbox"/>		Description
id	<input checked="" type="checkbox"/>		B23C918F-BAE4-590E-3A31-BB36CAA16...
ownerDesignName	<input checked="" type="checkbox"/>		Orderdb
nullsAllowed	<input checked="" type="checkbox"/>	false	true
useDomainConstraints	<input checked="" type="checkbox"/>	true	false
Data Type Kind	<input checked="" type="checkbox"/>		Logical Type
logicalDatatype	<input checked="" type="checkbox"/>	LOGDT017	VARCHAR / LOGDT024
dataTypeSize	<input checked="" type="checkbox"/>		200
createdBy	<input checked="" type="checkbox"/>		helskyaho_h
createdTime	<input checked="" type="checkbox"/>		2012-09-27 11:14:08 UTC

Merge Close Help

Oracle SQL Developer Data Modeler

File Edit View Versioning Tools Help

Start Page x Logical (Orderdb) x Relational_1 (Orderdb) x

Browser x

- Designs [1]
 - Orderdb
 - Logical Model
 - Entities [4]
 - Customer
 - Order
 - OrderLine
 - Product
 - ProductNo
 - ProductName
 - Description
 - Primary Keys [1]
 - Alternate Keys []
 - Relations [1]
 - Inheritance From Supertype []
 - Inheritances To Subtypes []
 - Relations [3]
 - Inheritances []
 - Views []
 - SubViews []
 - Displays []
 - Multidimensional Models []
 - Relational Models [1]
 - Domains [3]
 - Data Types Model
 - Process Model
 - Business Information
 - Change Requests []

Order

P *	OrderNo	NUMBER
	OrderDate	DATE
F *	CustomerNo	NUMBER
Order_PK (OrderNo)		

Customer

P *	CustomerNo	NUMBER
	Name	VARCHAR
	DeliveryAddress	VARCHAR
	MailAddress	VARCHAR
	ContactPerson	VARCHAR
Customer_PK (CustomerNo)		

OrderLine

P *	OrderlineNo	NUMBER (10)
	Pcs	NUMBER
	Price	NUMBER (15)
PF *	OrderNo	NUMBER
F *	ProductNo	NUMBER (10)
OrderLine_PK (OrderlineNo, Or		

Product

P *	ProductNo	NUMBER (10)
	ProductName	VARCHAR2
	Description	VARCHAR2
Product_PK (ProductNo)		

Versioning Navigator x

SVN Console - Log x Pending Changes x


Orderdb (C:\ohjelmat\DataModeler mallit\DesignsDirectory\...)

Orderdb Commit...

Incoming Changes: 0 Outgoing Changes: 1 Unversioned Files: 0

Editing

Commit Resources

Name ▲	Location	Status	Select
 Customer	Logical \ Entities	M	<input checked="" type="checkbox"/>

Keep Locks

Comments:

Template or Previous Comments:

<Select>

This list is configured with [comment templates](#)

Data Modeler and agile

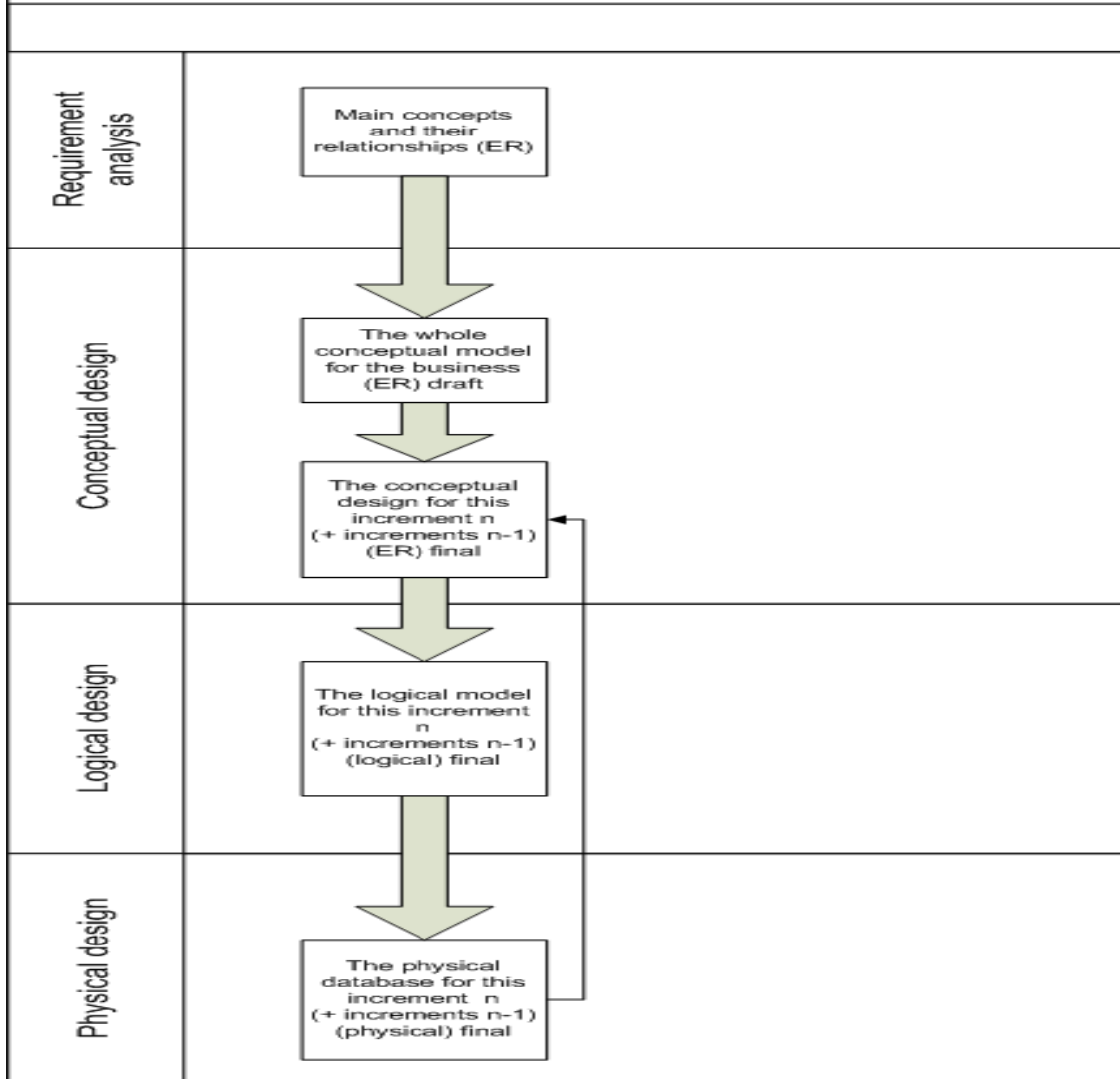
Requirement analysis (Logical, ER: main concepts)

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)

Data Modeling Process, "agile"



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**

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!

THANK YOU!

QUESTIONS?

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