



## Industry Models - Physical Model Guidelines

# Industry Models Physical Model Guidelines



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### Introduction

This document describes the Logical to Physical Transformation of Industry Models and generation of DDL script for deployment of the physical model objects in a relational database. The document covers the key aspects of this transformation and the generation of DDL scripts which include:

- Logical to Physical Transformation
  - Models suitable for the deployment in a relational database
  - Logical to Physical transformation options
  - Database type specific customization of database object in the physical model
- Generation of DDL file used to create the database objects and set their attributes
- Customization and Execution of DDL
- Importing of released “ready-to-use” physical models into existing Industry Models IDA project

This document covers only the transformation from logical to physical model with the use of IBM InfoSphere Data Architect (IDA) tool. The transformation of logical model to physical models with use of any other modeling tools (e.g. Erwin) is not in scope of this document.

# 1. Logical to physical model transformation

Logical to physical model transformation is expected to produce a model which can be used to deploy the model objects (tables, columns, relationships) in a particular database system. The Industry Models usually consist of three models

- Business Data Model (BDM)
- Atomic Data Model (AWM)
- Dimensional Data Mode (DWM)

Only the AWM and DWM are designed for the purpose of deployment in a database system.

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## 1.1 Transformation scope and naming standard

The transformation of logical model to physical model can be based on one of the following options:

- Full logical model transformation
- Transformation of all model elements from a particular logical model package
- Transformation using a model scope defined by a logical model diagram
- Transformation using a selection of model elements in the Data Project Explorer

### Glossary Model as Naming Standard file

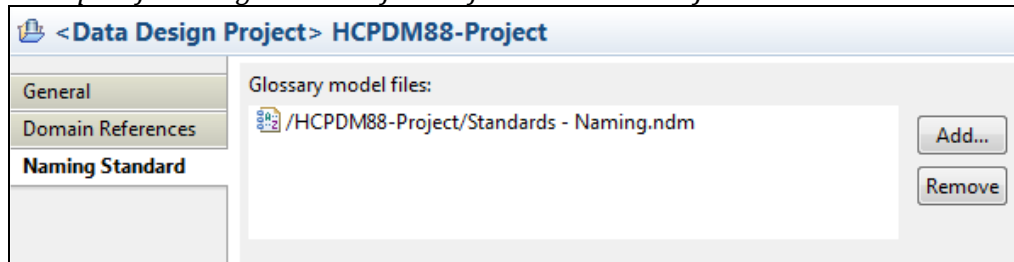
Glossary Model set as the Naming Standard of the project is used for the transformation. Glossary model provides pre-defined support to transform entity and attribute names from logical (business friendly) names, that could be up to 80 characters, to abbreviated physical names. This includes removal of punctuation. These changes are necessary to create a DDL file for use by a database.

Verify that a Glossary Model is defined in the project and is set as the Naming Standard file associated with the project.

1. In the Data Project Explorer view, click on the main project title, e.g. HCPDM88-Project

- In the Properties View click on the Naming Standard tab

*Example of Naming Standard file set for HCPDM88-Project*



**Note:** All Industry Model IDA projects are released with a Glossary Model named “Logical to Physical Glossary Model” or “Standards – Naming” and set as Naming Standard for the project.

As an alternative a new Glossary Model can be created and populated with translation of business terms into abbreviated physical names. Such file can be used instead or in addition to the existing Glossary Model file assigned to the project.

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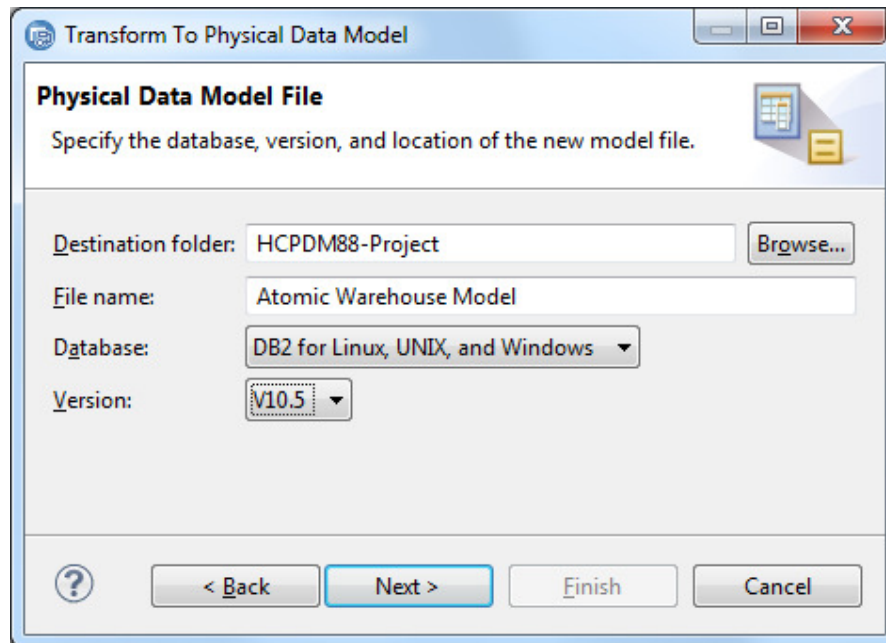
### 1.2 Logical to Physical transformation options

In the Data Project Explorer view, based on the desired scope, select the model, a package or a diagram which will be transformed into a physical model. The steps below describe transformation of the full AWM or DWM into a physical model.

- Click on the root model package in the Data project explorer to select it. The name of the root package normally matches the name of the model.
- In the menu, select Data > Transform > Physical Data Model.
- On the “Target Physical Data Model” screen of the transformation wizard choose Create New Model and click Next.

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- On the “Physical Data Model File” screen of the transformation wizard specify the file name, the database in which the physical model will be deployed and the version of the database Model and click Next.



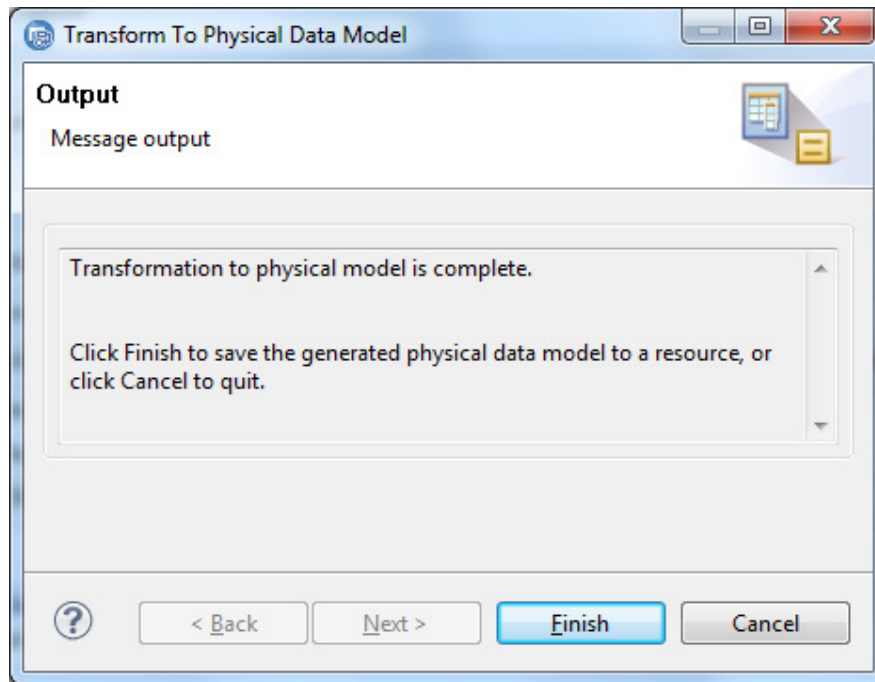
The HCPDM 8.8 physical models were created for the following database types and versions:

- DB2 for Linux, UNIX, and Windows, V10.5
- Netezza, 7.x
- Oracle, 11

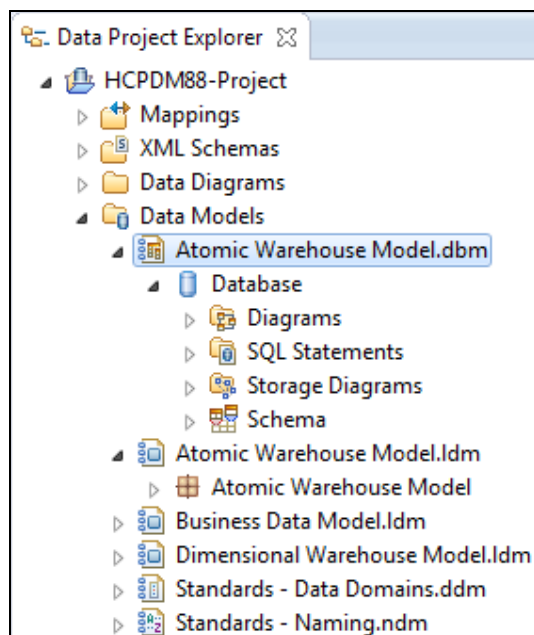
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5. On the “Options” screen of the transformation wizard configure the details of the model transformation and click Next.
  - “Name Case” option set to “Use upper case”
  - “Label Source” option set to “Use name”  
*This can provide additional traceability to the original model elements. Untransformed attribute names will be placed in the label of physical model columns.*
  - “Transform diagrams” option enabled
  - “Generate Traceability” option enabled  
*Refer to Chapter 4 which describes the model import steps to make sure the dependencies created by enabling this option are preserved when importing the physical model with dependencies to a project with the logical model.*

- When the transformation completes the “Output” screen appears in the wizard with the result of the transformation. Click Finish to save the generated model and close the wizard.



- You should now see a new physical model under the Data Models folder in the Project Explorer view.







### 1.3 Database type specific customization of physical model

The technical attributes of the Physical Model objects are usually updated with the specifics of a particular database type before there is a DDL file generated from the Physical Model.

This might include definition of the following objects:

- Table spaces
- Indexes
- Partitioning/Distribution keys
- Materialized query tables (MQTs)
- Temporal tables

When deploying the DB2 physical data model on DB2 BLU the “table organization” property of the database in physical model needs to be set to “COLUMN” before the DDL is generated. Refer to HCPDM documentation for detailed instructions:

- HCPDM User Guide > Appendixes > Transforming the Logical Data Models to Physical Data Models

Additionally the used data type can be refined based on the target database.

Refer to the best practices document for a particular database type to learn more about the design of the physical model in relation to Industry Models:

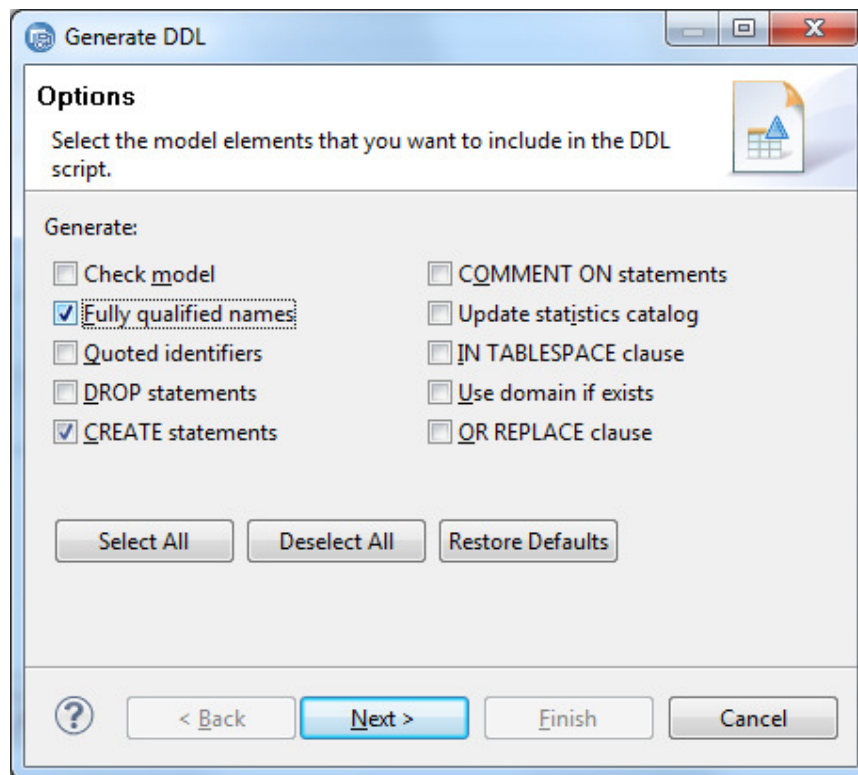
- **DB2 Best Practices - Transforming IBM Industry Models**  
[https://www.ibm.com/developerworks/mydeveloperworks/wikis/form/anonymous/api/library/0fc2f498-7b3e-4285-8881-2b6c0490ceb9/document/91a0986b-0de4-4181-aec5-d672f229c1ce/attachment/b2d409c1-396d-4d83-a9e2-0d4a561c3477/media/DB2BP\\_Transforming\\_IBM\\_Industry\\_Models\\_1012.pdf](https://www.ibm.com/developerworks/mydeveloperworks/wikis/form/anonymous/api/library/0fc2f498-7b3e-4285-8881-2b6c0490ceb9/document/91a0986b-0de4-4181-aec5-d672f229c1ce/attachment/b2d409c1-396d-4d83-a9e2-0d4a561c3477/media/DB2BP_Transforming_IBM_Industry_Models_1012.pdf)
- **Deploying an IBM Industry Data Model on an IBM Netezza DW appliance**  
<http://www-01.ibm.com/support/docview.wss?uid=swg27020938&aid=1>

## 2. Generation of DDL file

The Physical Model will be used to generate the Data Definition Language (DDL) file to create the objects in the database. The steps below describe generation of DDL file for all objects included in a schema. It is also possible to generate DDL for individual database or schema elements (e.g. table, view and sequence).

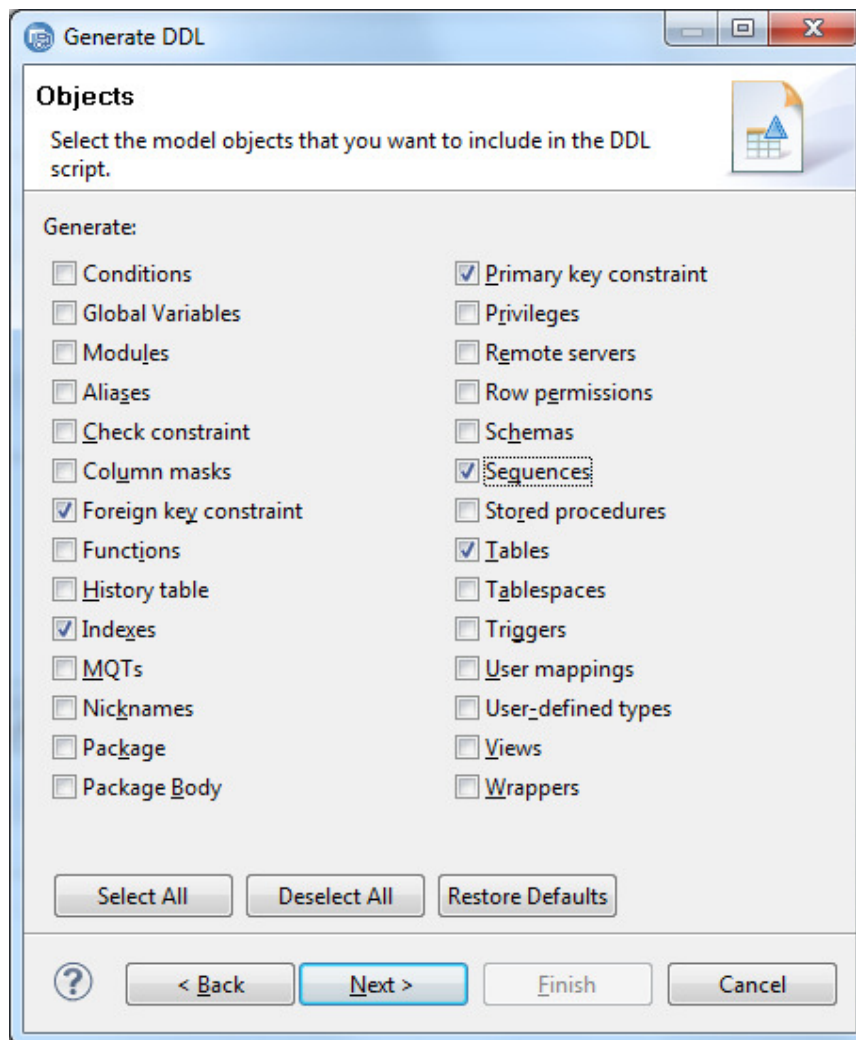
To generate the DDL file for a Physical Model:

1. In the Data Project Explorer view expand the contents of the Physical Model by clicking on the twistie.
2. Right-click on the Schema and from the context menu and choose Generate DDL.
3. On the “Options” screen of the transformation wizard enable the “CREATE statements” option and configure other options as required.
  - CREATE statement
  - Fully qualified names



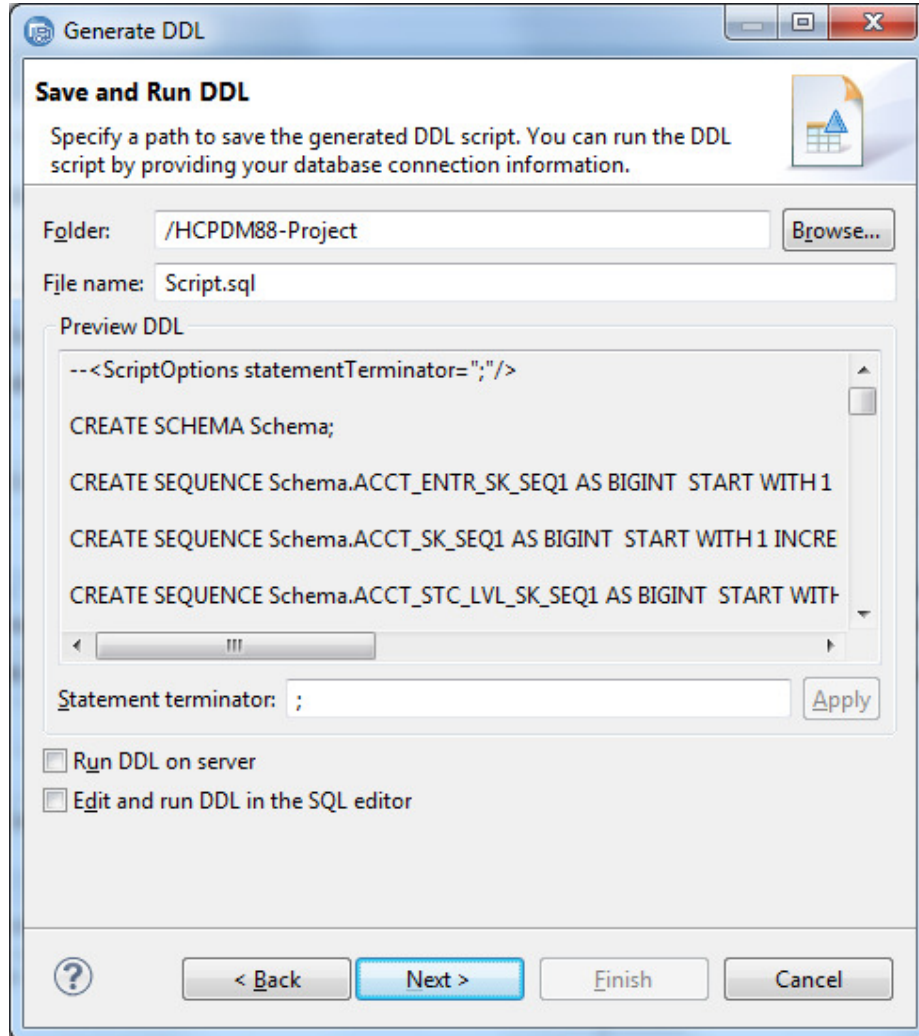
**Note:** The options displayed in this screen of the DDL generation wizard depend on the Physical Model database type.

4. On the “Objects” screen of the transformation wizard choose the object to be generated.
  - Foreign key constraint
  - Indexes
  - Primary key constraint
  - Sequences
  - Tables

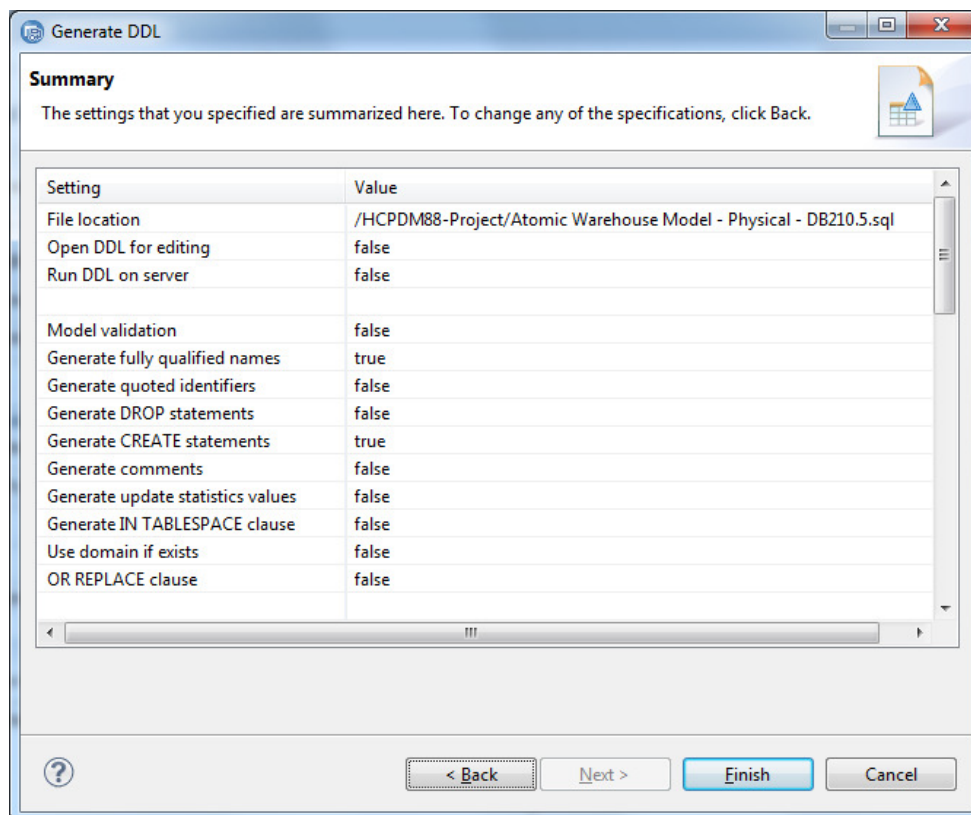


**Note:** The options displayed in this screen of the DDL generation wizard depend on the Physical Model database type.

- On the "Save and Run DDL" screen of the transformation wizard set the name of the DDL file such as "AWM DDL.sql" and adjust the folder into which the DDL file is saved if necessary and click Next. Other configurable options on this screen allow setting of the DDL statement terminator, direct execution of the DDL script on a database server and option to open the generated DDL file in SQL editor after it is saved. This screen also includes the preview of the DDL file.



6. On the “Summary” screen of the transformation wizard review all configured DDL generation properties and click Finish to save the DDL file.



You will find the generated DDL file, in the SQL Scripts folder in Data Project Explorer view.



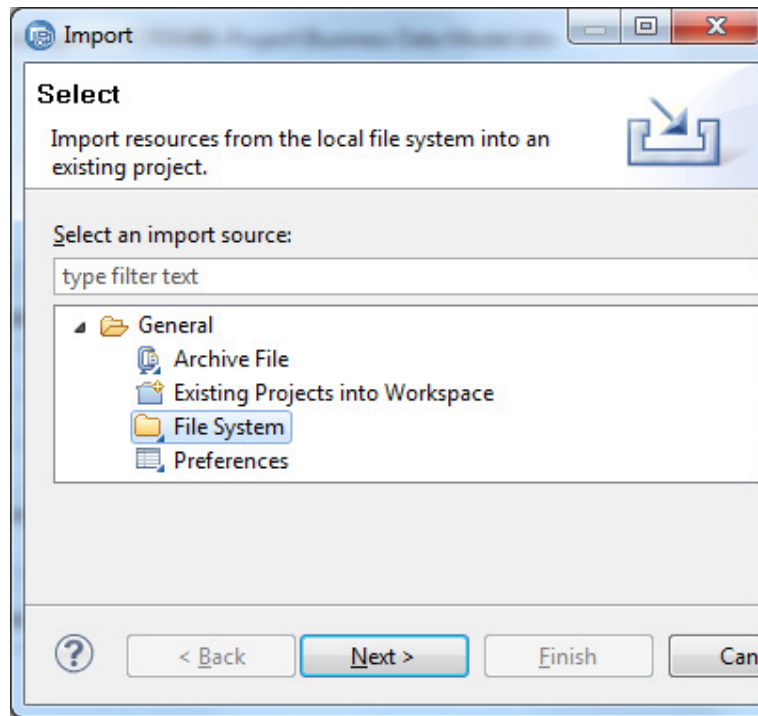
### **3. Customization and Execution of DDL**

The statements in the generated DDL file can be updated in a text editor if needed for example to replace the default DB schema name by the name of an existing DB schema in which the object will be created. This can be done by a global search and replace to set the schema name in the DDL statements before deploying of the DDL in the database.

## 4. Importing of physical models into IDA project

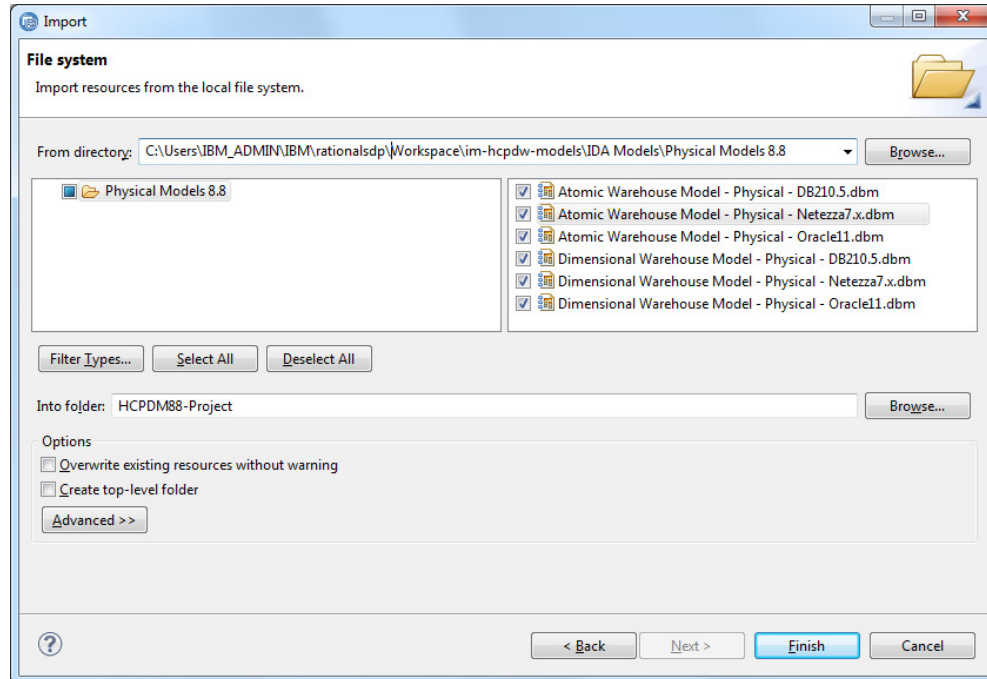
If there are Physical Models provided for an industry (e.g. HCPDM 8.8) these can be loaded to the existing IDA project. The following steps describe the import of the physical models:

1. In the Data Project Explorer view click on the project (e.g. HCPDM88-Project) with right mouse button and select Import from the context menu.
2. Expand General item, Choose “File System” and click on Next button.



3. Use the “From Directory” field to point the import wizard to a location into which you saved DBM. The selected directory should include all files without any subfolders. This is to make sure that the transformation traceability dependencies link correctly to the logical model.

- Select the files which you want to import and click on Next button.



- You should now see all loaded physical models under the Data Models folder in the Project Explorer view.

