sap idt

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About the Tutorial

Information Design Tool (IDT) is a SAP BusinessObjects metadata design environment that extracts, defines, and manipulates metadata from relational and OLAP sources to create and deploy SAP BusinessObjects universes. This tutorial explains the key concepts of SAP Information Design Tool (SAP IDT).

Audience

This tutorial is designed for all those who want to learn the basics of SAP Information Design Tool and implement it to create and deploy SAP BusinessObjects universes.

Prerequisites

You need to have a working knowledge of SQL and relational databases, and familiarity with OLAP database management concepts is preferred.

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Table of Contents

1. IDT – Overview & User Interface

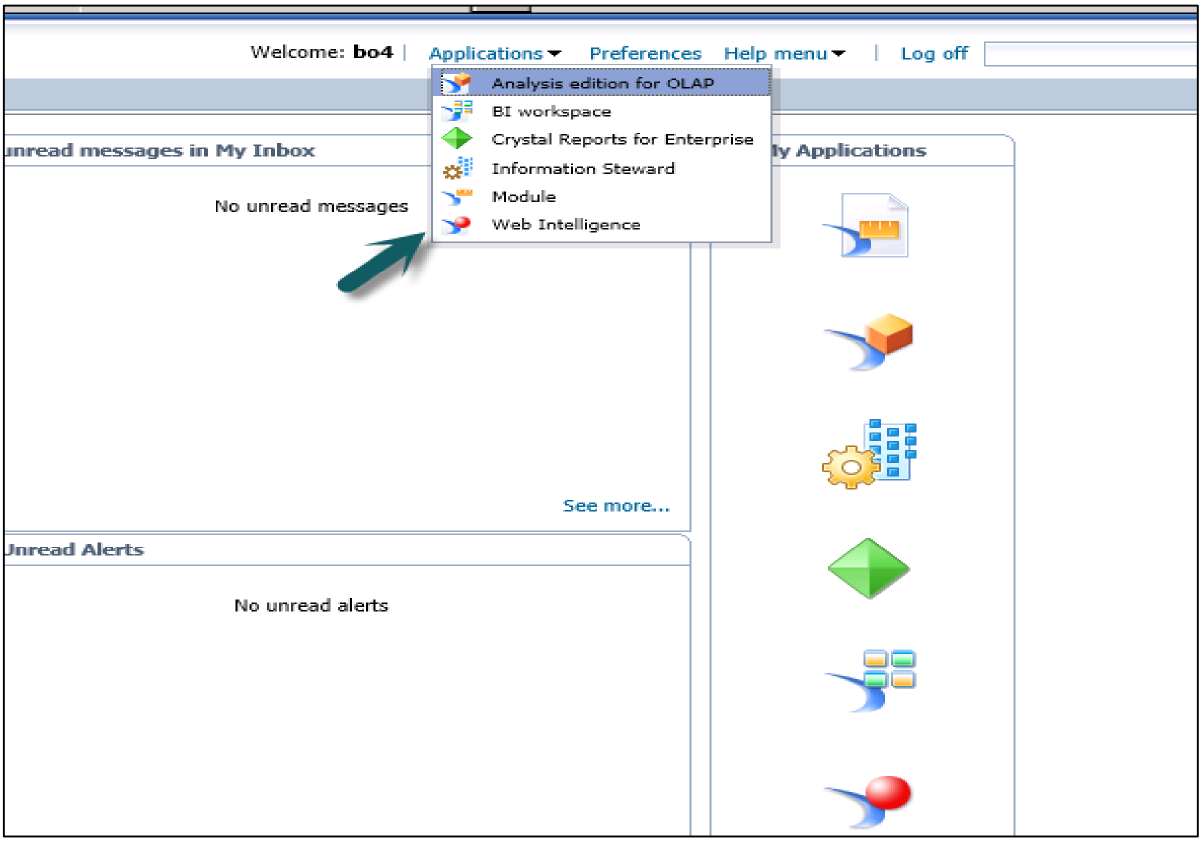
Information Design Tool (IDT) is a Business Objects design tool that extracts the data from different data sources using an OLAP and Relational connection to create Universes. There are different Universe parameters that can be passed at time of Universe creation.

A Universe is called as logical collection of dimensions and objects that allow business users to analyze the business data. Objects and dimension represent different hierarchies, measures, custom calculations, and attributes.

Universe can be created on the top of relational databases like SQL Server, Oracle or also on top of an InfoCube in SAP Business Warehouse (BW) system. Different types of connections can be created to these data sources like personal connection, shared connection and a public connection. A SQL or MDX statement is generated according to data source respectively - Relational and an OLAP.

A Universe created using an IDT can be used with different reporting tools in Business Objects. When a Universe is published to a central repository, it can be used in the following reporting and dashboard tools -

- SAP Business Objects Web Intelligence (WebI)
- SAP Business Objects Dashboard Designer (Earlier known as Xcelsius)
- SAP Business Objects Crystal Reports
- SAP Business Objects Explorer



Different Components in IDT while Designing a Universe

An OLAP or a Relational connection to data source

- Extracting the tables and joins from Relational database or an OLAP cube.

- Building a data foundation from extracted tables and joins.

- Creating metadata objects from data foundation layer and these objects are managed in Business layer.

- Using Universe parameters and to share the resources in Universe.

- Publishing a Universe which includes Business layer, Data Foundation and a Universe connection to database

Universe can be published to the central repository to be used by other SAP Business Objects reporting applications.

Security profiles are used to provide access on Universe data and metadata objects.

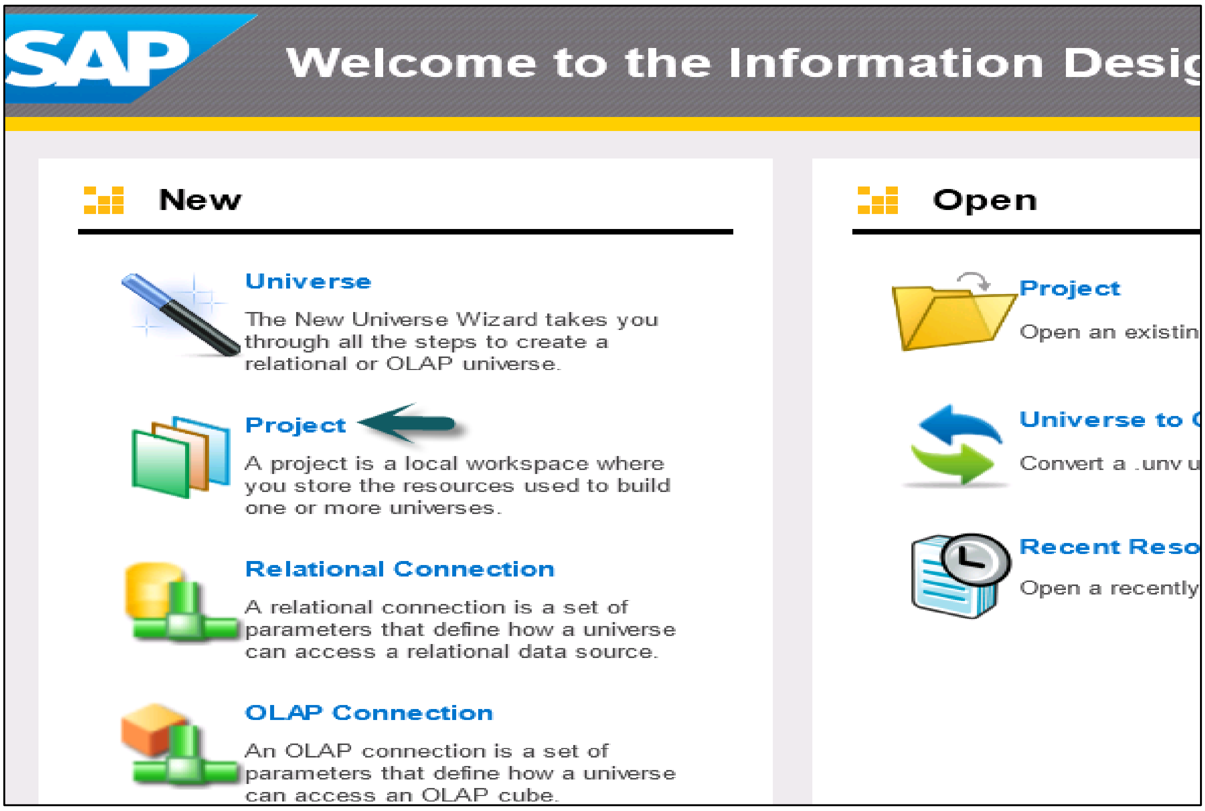
IDT is primary used by application managers and report developers who wants to create analytical reports on the top of data stored in the different data sources. To create reports on top of Universes, a person needs technical understanding of IDT tool and functional knowledge of Data Warehouse.

2. IDT – Resources

There are various resources in Information Design Tool that can be used to extract the data from data sources and to create a Universe:

Project

A Project is a local workspace where you store the resources used to build one or more Universes. This is used to manage the local objects, which are used for Universe creation. A single project can contain objects for one or multiple Universe. A local project can contain multiple number of objects like data foundation layer, business foundation, and data source connection, etc.



New

Universe
The New Universe Wizard takes you through all the steps to create a relational or OLAP universe.

Project
A project is a local workspace where you store the resources used to build one or more universes.

Relational Connection
A relational connection is a set of parameters that define how a universe can access a relational data source.

OLAP Connection
An OLAP connection is a set of parameters that define how a universe can access an OLAP cube.

Open

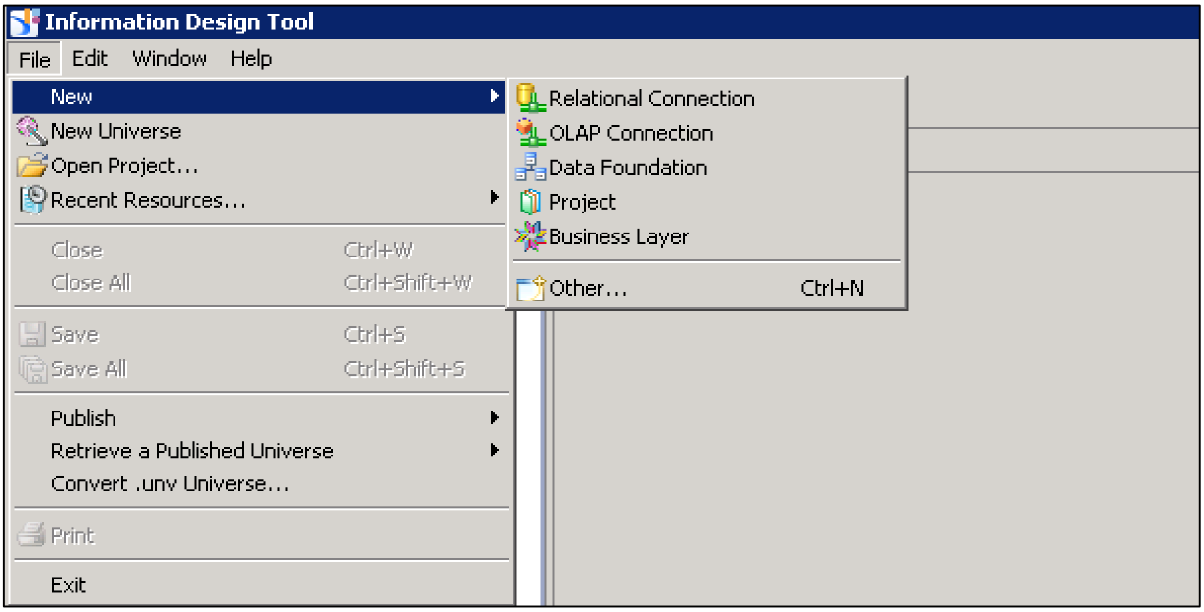
Project
Open an existin

Universe to (
Convert a .unv u

Recent Reso
Open a recently

Data Foundation

Data Foundation layer allows you to import tables and joins from different relational databases. All the joins are imported and you can also define derived tables, custom calculations, additional joins, contexts and prompts.



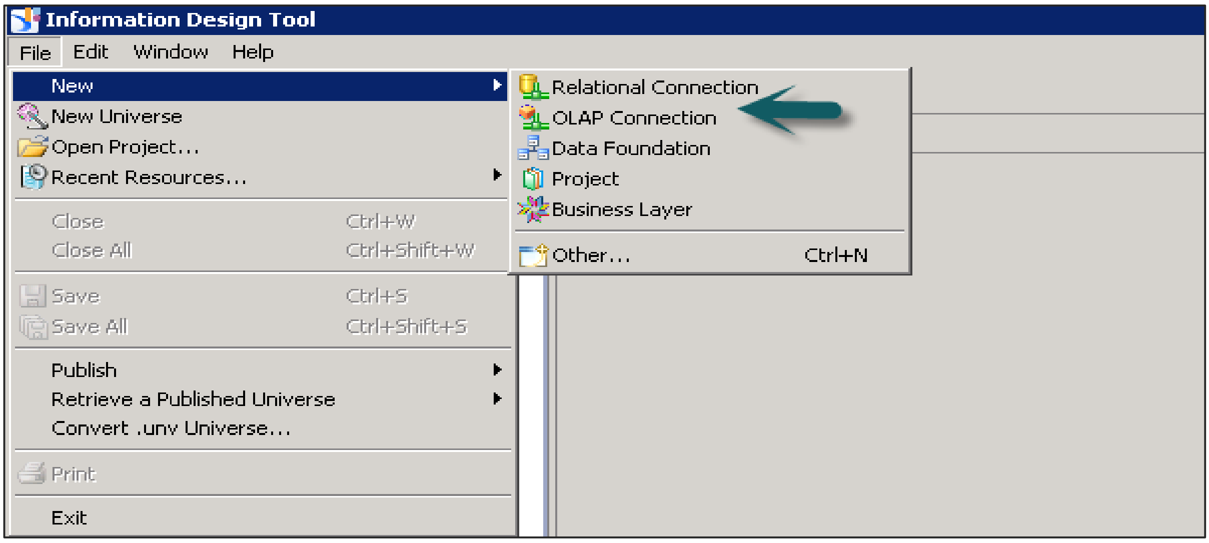
Relational and OLAP Connection

A connection is used to define how data is extracted from a relational or an OLAP data source. A Universe always uses at least one connection to extract the data. You can also build a multisource that extracts data from one or more data sources using multiple connections.

A connection can be saved locally with .cnx file and all Universes created on the top of local connections can't be published to BO repository. To publish a Universe to repository, you should use a secured central connection with .cns file.

.cns- secured Repository connection

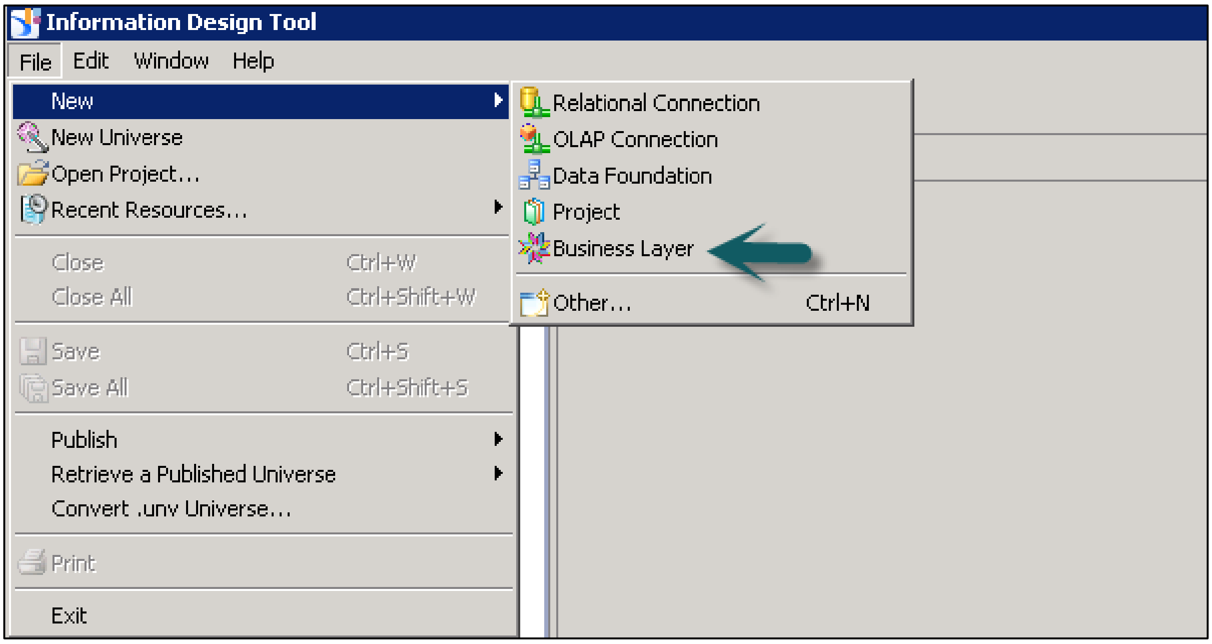
.cnx-local unsecured connection. If you use this connection, it will not allow you to publish anything to repository.



Business Layer

In Business layer, you define measures and dimensions. You can also apply Aggregations like Sum, Count, Avg, Min, Max.

To complete the Universe creation, you need to save the project and then publish the business layer to the repository.



UDT vs IDT

In UDT, a Universe is created with file extension as .unv. In IDT, a Universe file extension is changed to .unx file.

To open unv file in IDT, it can't be directly opened but you can convert unv file to unx file to open in Information Design tool. You can't open an IDT .unx file in Universe Design tool nor you can convert it to unv file.

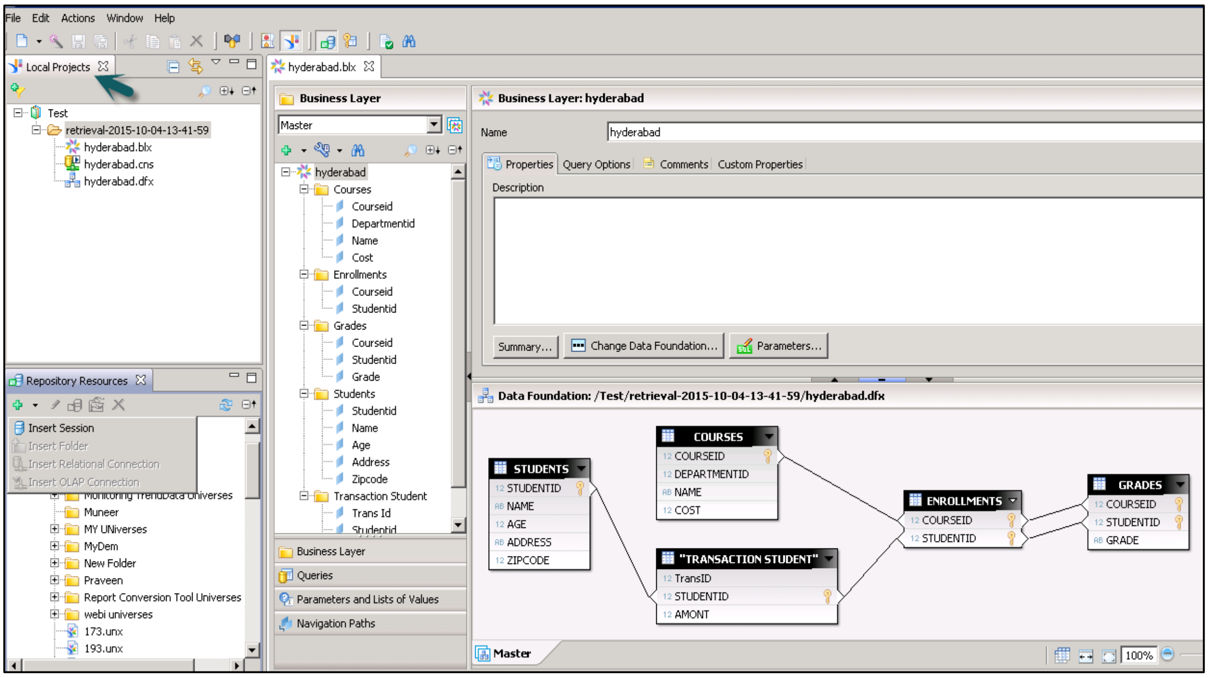
Universe Design Tool is a single-source enabled tool. However, IDT is a multi-source enabled tool meaning you can extract the data from different data sources while creating a Universe.

Universe Design Tool (UDT)	Information Design Tool (IDT)
Universe file extension- .unv	Universe file extension - .unx
You can't open .unx file and also it can't be converted to unv to open in UDT	You can open unv file by converting unv file to unx file extension
It is single-source enabled	It is multi-source enabled

It can’t be directly connected to Dashboard designer and Crystal Reports latest version	It can be directly connected to Dashboard designer and Crystal Reports latest version

User Interface in IDT

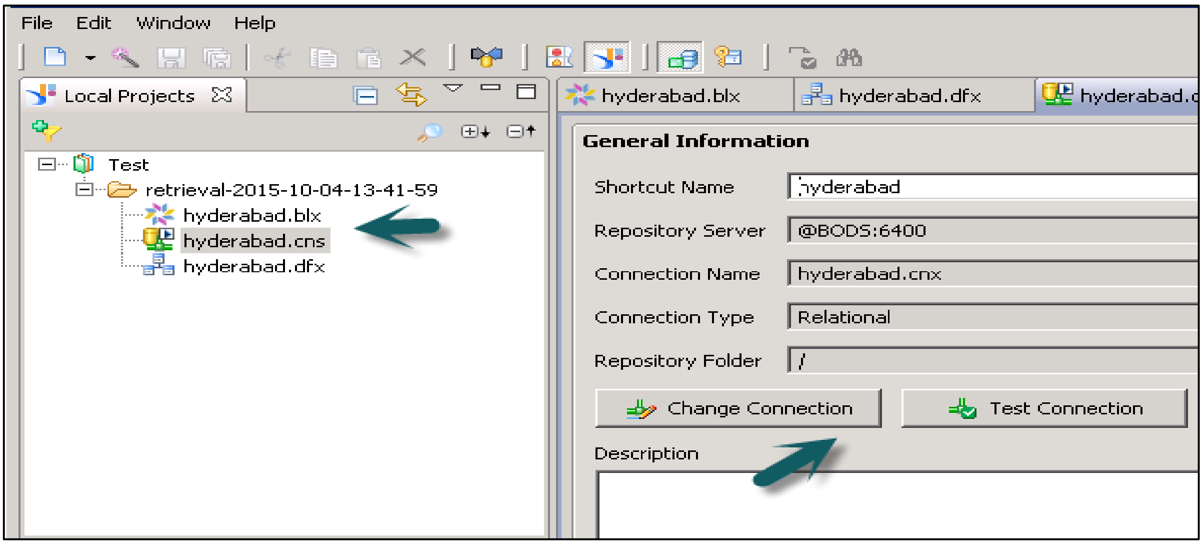
When you retrieve an existing Universe in IDT by connecting to the repository, following are the available interfaces. These are the same when you design a new Universe in Information Design Tool.



Local Projects

It defines the existing connection in use (.cnx or.cns), Data foundation layer (.dfx) and Business Layer that are local in Universe as shown above.

You can click on each object under Local Projects to see the details and to make any changes. Click on the connection .cns file to see the connection details. Similarly, you can open .dfx or .blx object.

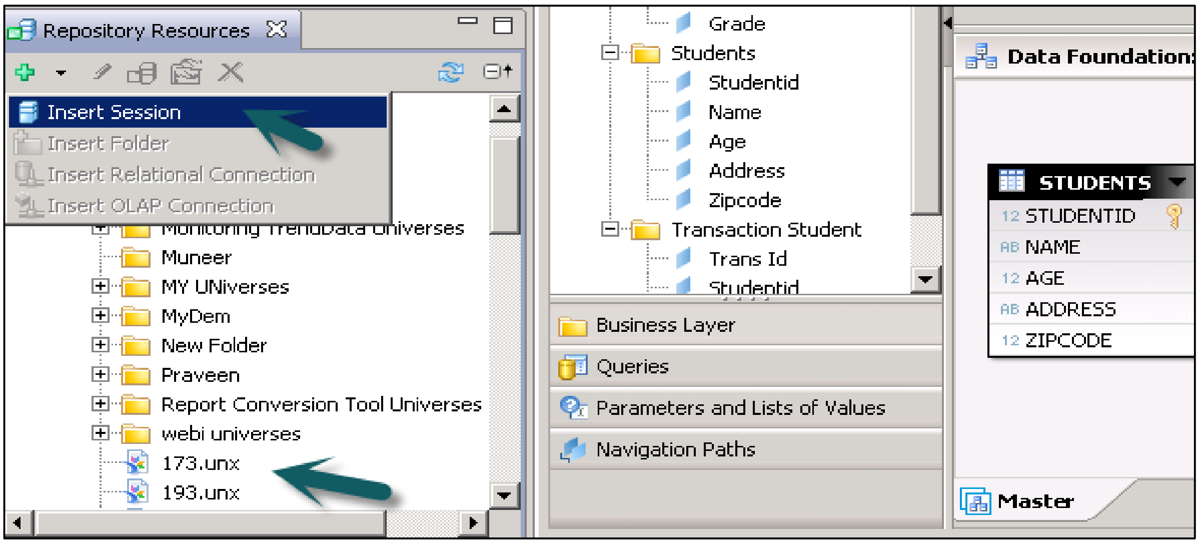


Shortcut Name: hyderabad
Repository Server: @BODS:6400
Connection Name: hyderabad.cnx
Connection Type: Relational
Repository Folder: /

Repository Resources

Once you connect to the Repository, you can retrieve all the objects that are designed and published to that repository.

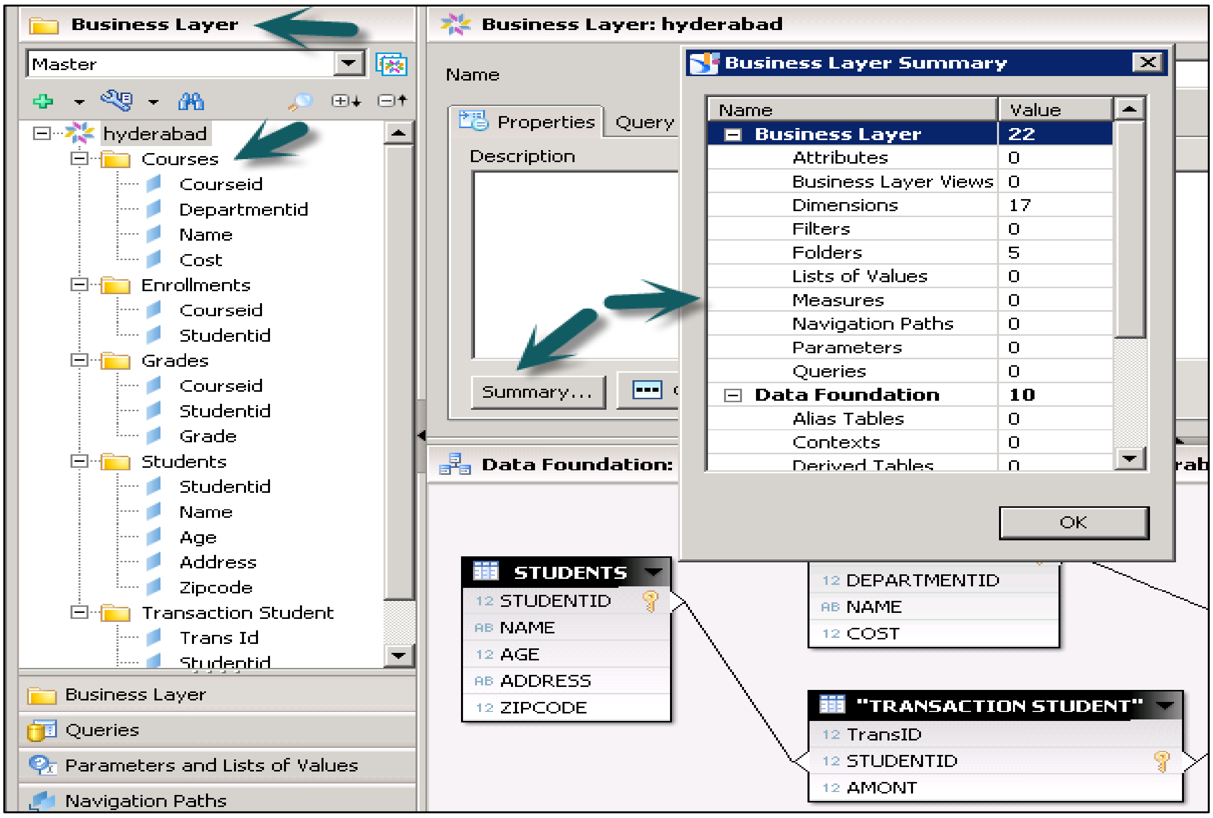
To insert objects from the Repository, click on **+** sign and select Insert Session. Enter the system details, the username and password, and you can see all the objects in the Repository.



Business Layer

This layer contains all the classes and objects, you can check dimensions and measures that are defined in a Universe. When you publish the business layer in the repository, this shows the completion of Universe creation.

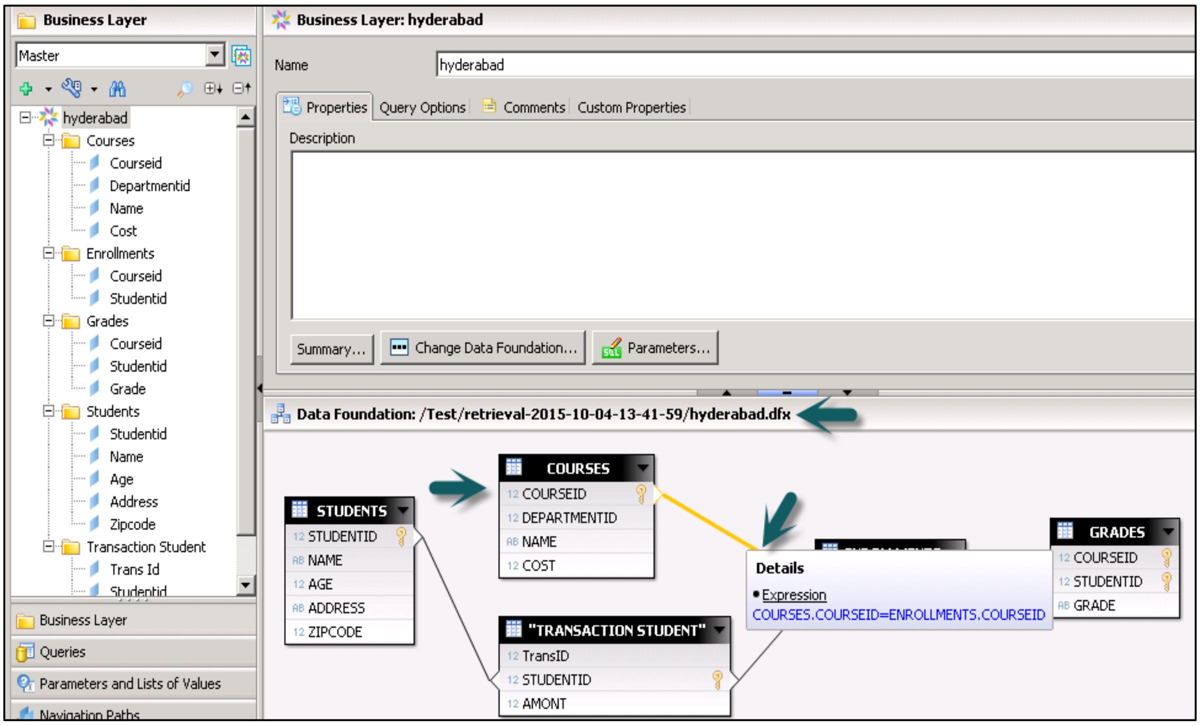
You can check the summary of Business La0yer to see the number of attributes, dimensions, measures, classes, LOVs, etc.



Name	Value
⊟ Business Layer	22
Attributes	0
Business Layer Views	0
Dimensions	17
Filters	0
Folders	5
Lists of Values	0
Measures	0
Navigation Paths	0
Parameters	0
Queries	0
⊟ Data Foundation	10
Alias Tables	0
Contexts	0
Derived Tables	0

Data Foundation Layer

This layer is used to define data foundation that includes tables from data source, joins, etc.



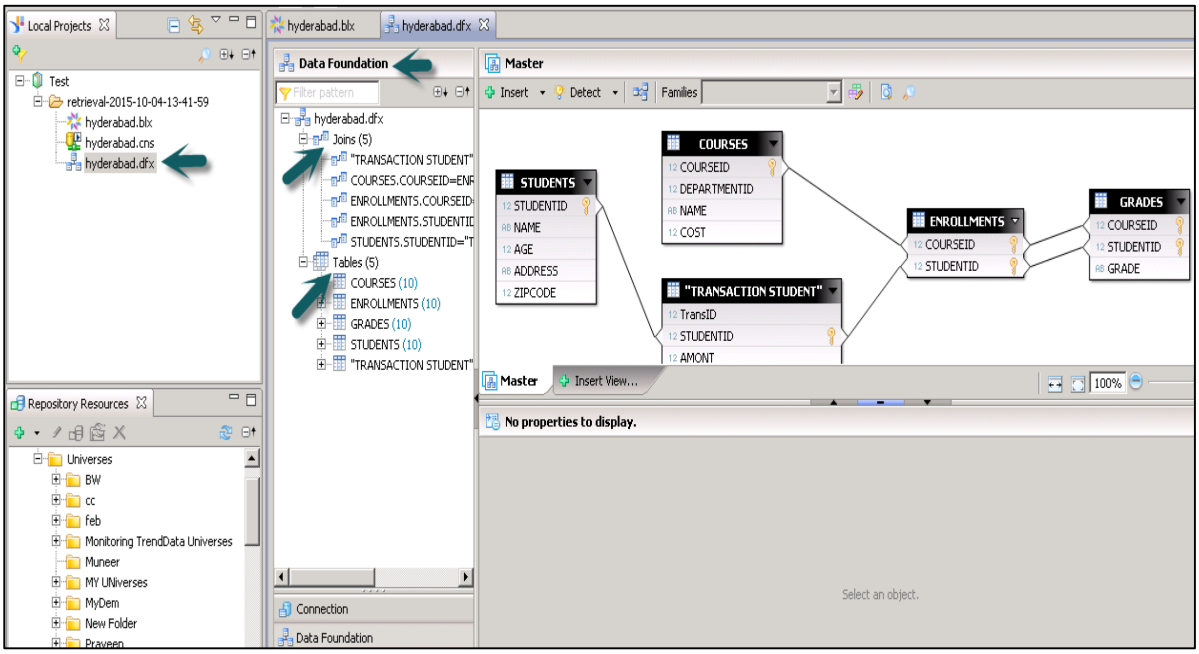
Name: hyderabad

Data Foundation: /Test/retrieval-2015-10-04-13-41-59/hyderabad.dfx

Details
- Expression

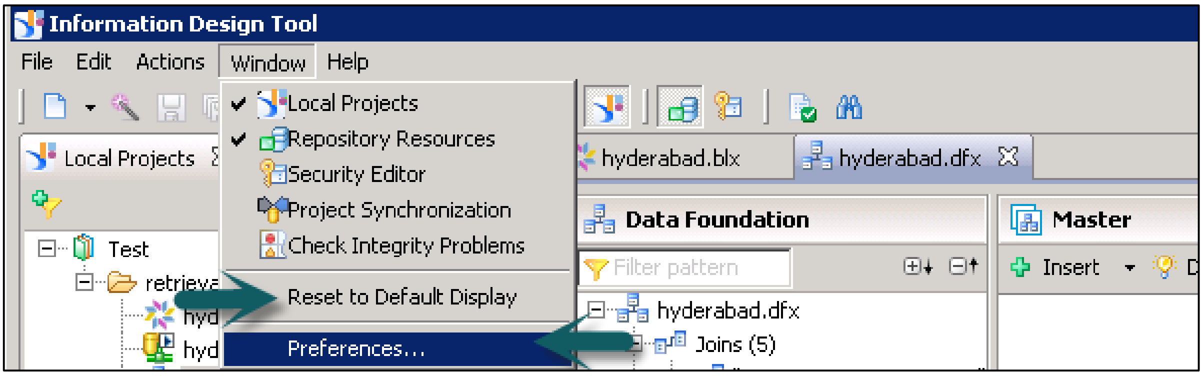
COURSES.COURSEID=ENROLLMENTS.COURSEID

To check the structure of data foundation, you can click on .dfx under local projects and it will take you to Data Foundation layer and its components.

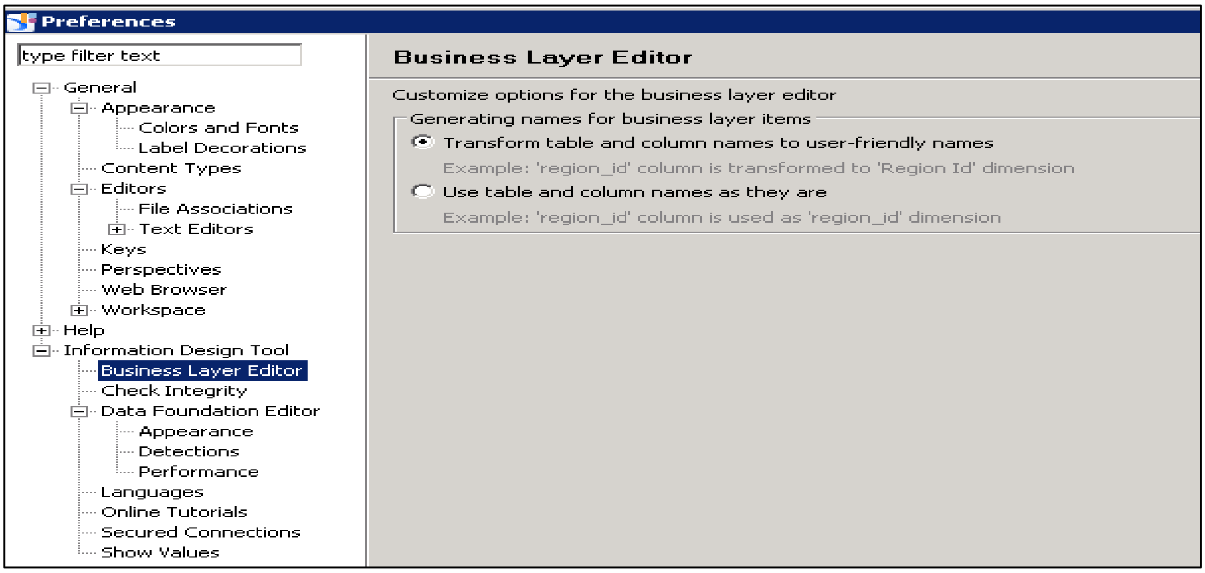


Setting and Resetting Preferences in IDT

You can customize Information Design tool user interface by setting preferences. This can be reset to default using Reset to default display option. To set the preferences in IDT, go to Windows -> Preferences.



Once you click on Preferences, a new window will open. You can define preferences under General, Help and Information Design Tool preferences.



Business Layer Editor

Customize options for the business layer editor

Generating names for business layer items

● Transform table and column names to user-friendly names

Example: 'region_id' column is transformed to 'Region Id' dimension

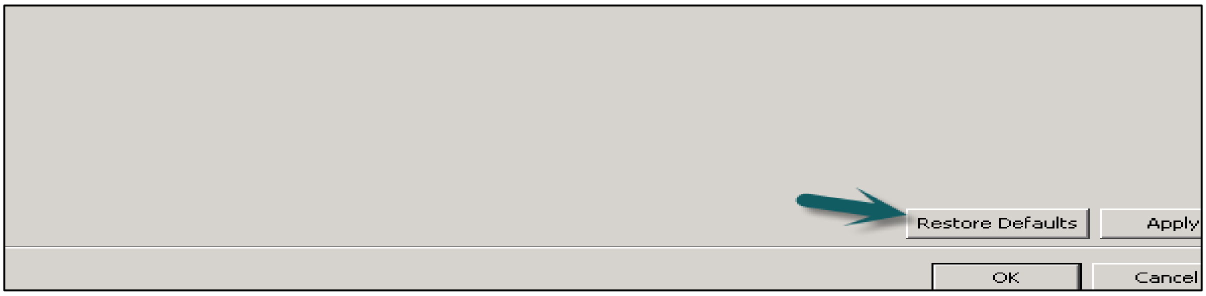
○ Use table and column names as they are

Example: 'region_id' column is used as 'region_id' dimension

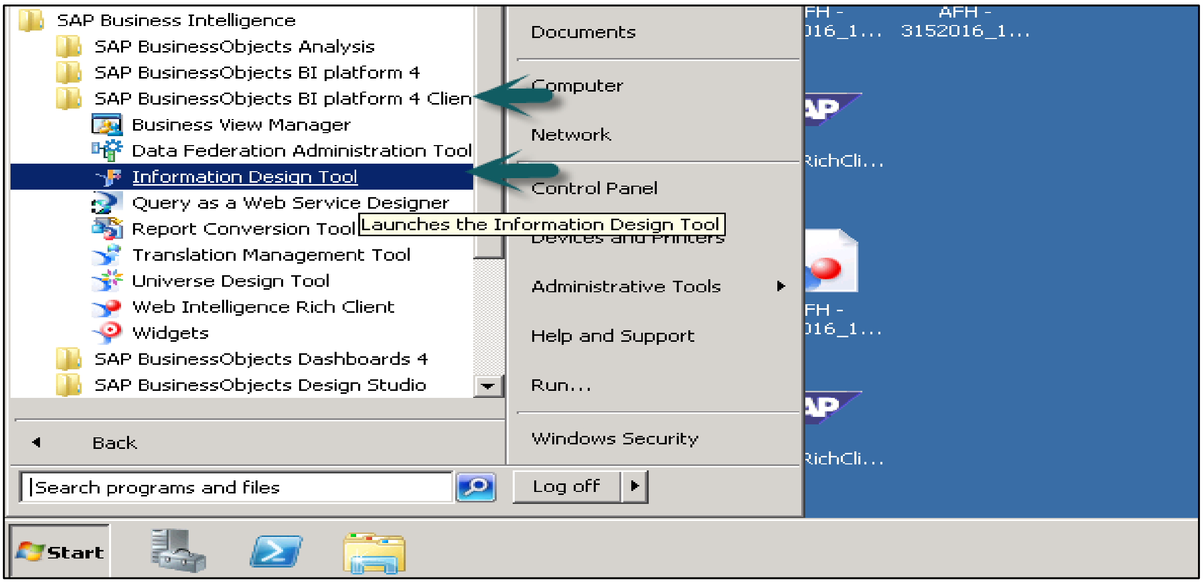
Information Design Tool Preferences

- Business Layer Editor
- Check Integrity
- Data Foundation Editor
- Languages, etc.

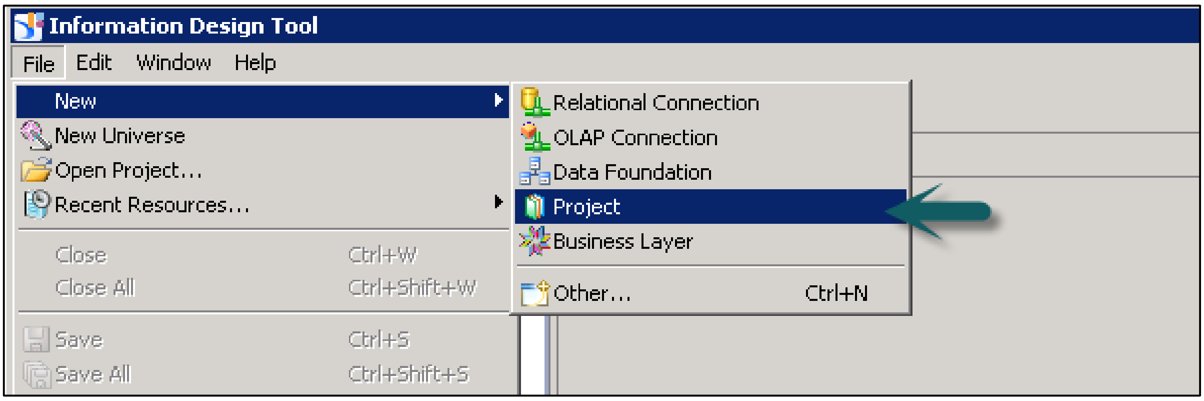
Using Reset to Default display option under Window tab allows you to reset all the values to default or you can also use Restore Default option on Preferences window.

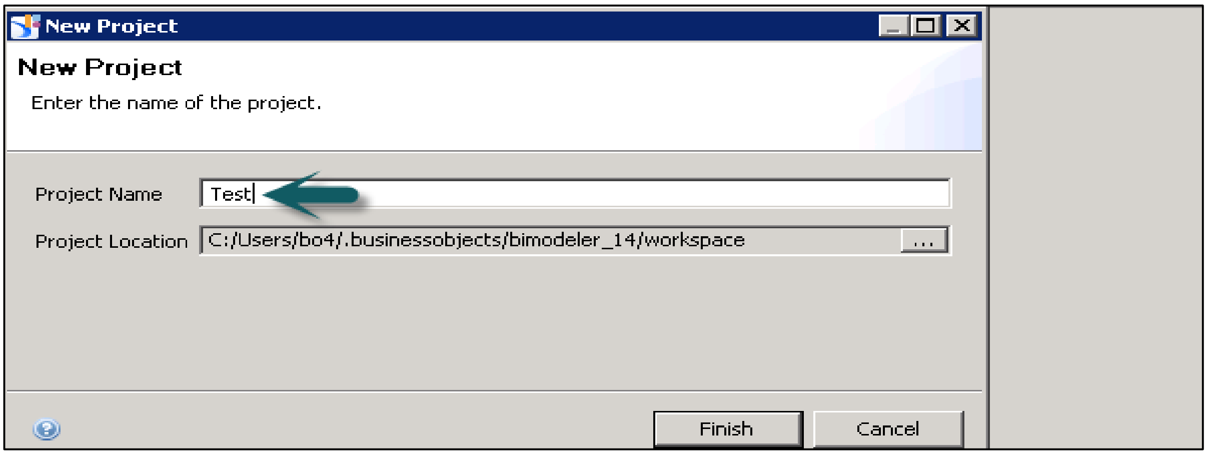


To create a Universe in IDT, go to Start -> All Programs -> SAP Business Intelligence -> SAP Business Objects BI Platform 4 Client Tool.


SAP Business Intelligence
SAP BusinessObjects Analysis
SAP BusinessObjects BI platform 4
SAP BusinessObjects BI platform 4 Clien
Business View Manager
Data Federation Administration Tool
Information Design Tool
Query as a Web Service Designer
Report Conversion Tool
Launches the Information Design Tool
Translation Management Tool
Universe Design Tool
Web Intelligence Rich Client
Widgets
SAP BusinessObjects Dashboards 4
SAP BusinessObjects Design Studio
Back
Search programs and files
Documents
Computer
Network
Control Panel
Devices and Printers
Administrative Tools
Help and Support
Run...
Windows Security
Log off
Start

In Information Design Tool, you have to create a New Project. Go to File -> New -> Project. Enter the Project Name and Click on Finish.





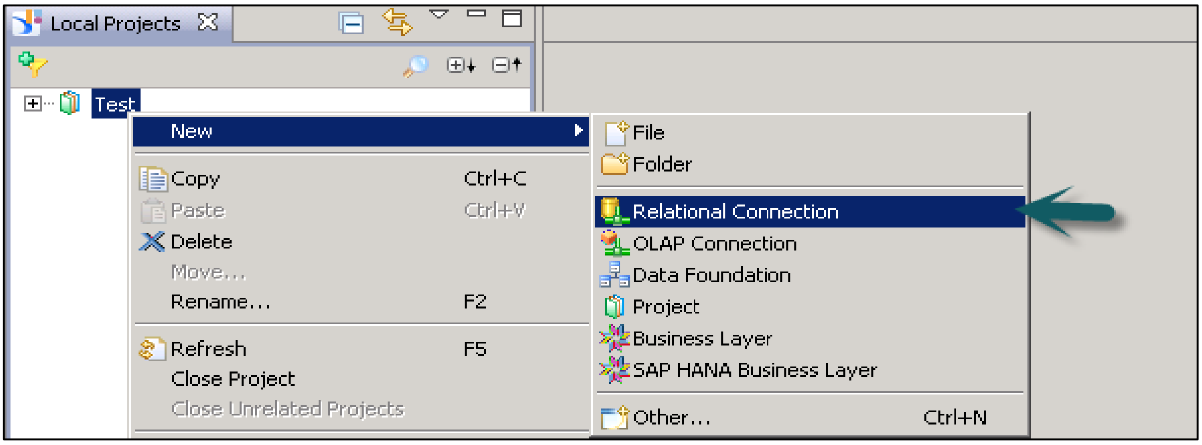
New Project

Enter the name of the project.

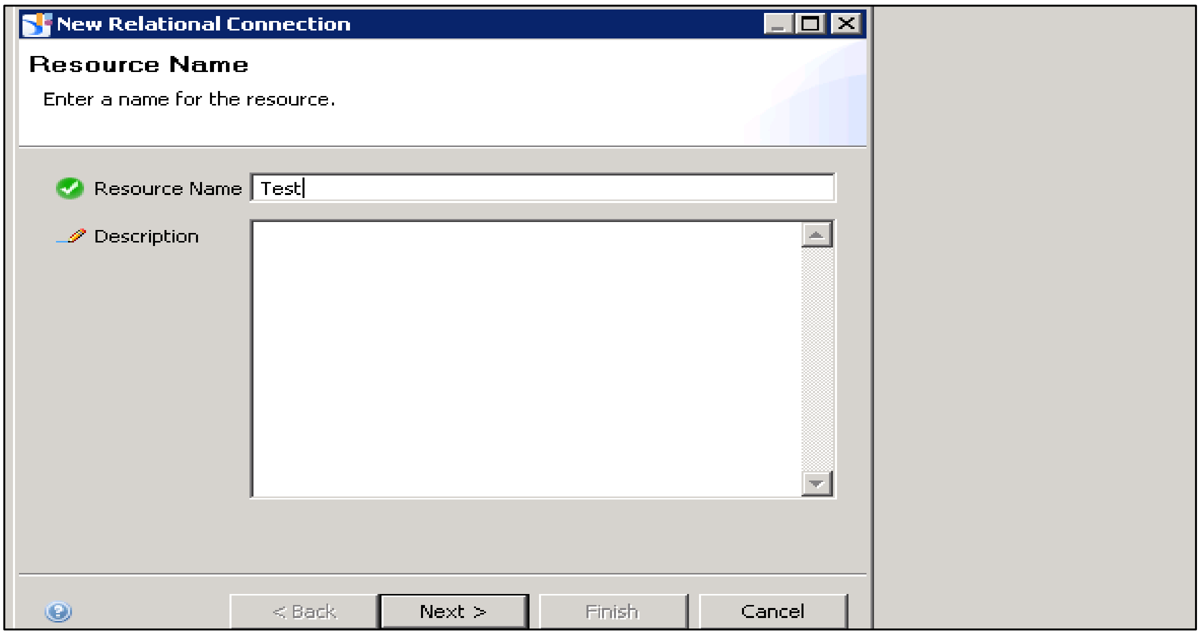
Project Name: Test

Project Location: C:/Users/bo4/.businessobjects/bimodeler_14/workspace

Once the project is created, next is to create an OLAP or Relational connection to connect to a data source. A **Relational connection** is used to connect to the Database layer to import tables and Joins. An OLAP connection is used to connect to the multidimensional model like an Information View in SAP HANA.



Right-click on Project name -> New -> Select Relational Connection -> Enter connection/resource name -> Next.


New Relational Connection

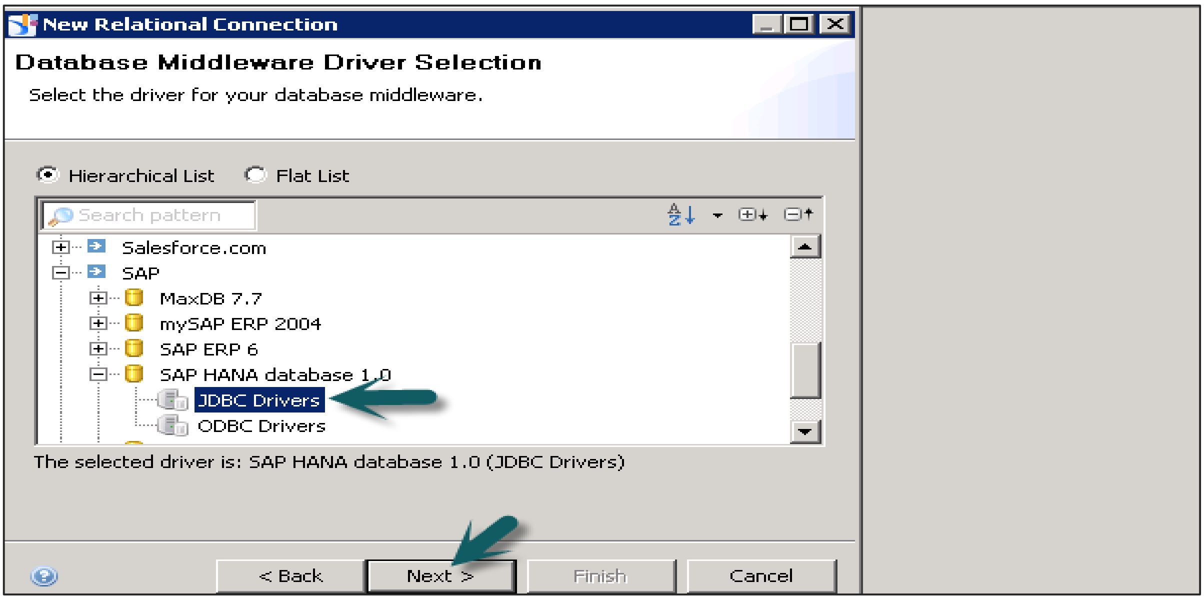
Resource Name

Enter a name for the resource.

Resource Name: Test

Description:

Choose SAP from the list -> SAP HANA -> Select Drivers JDBC -> Next -> Enter details.



New Relational Connection

Database Middleware Driver Selection

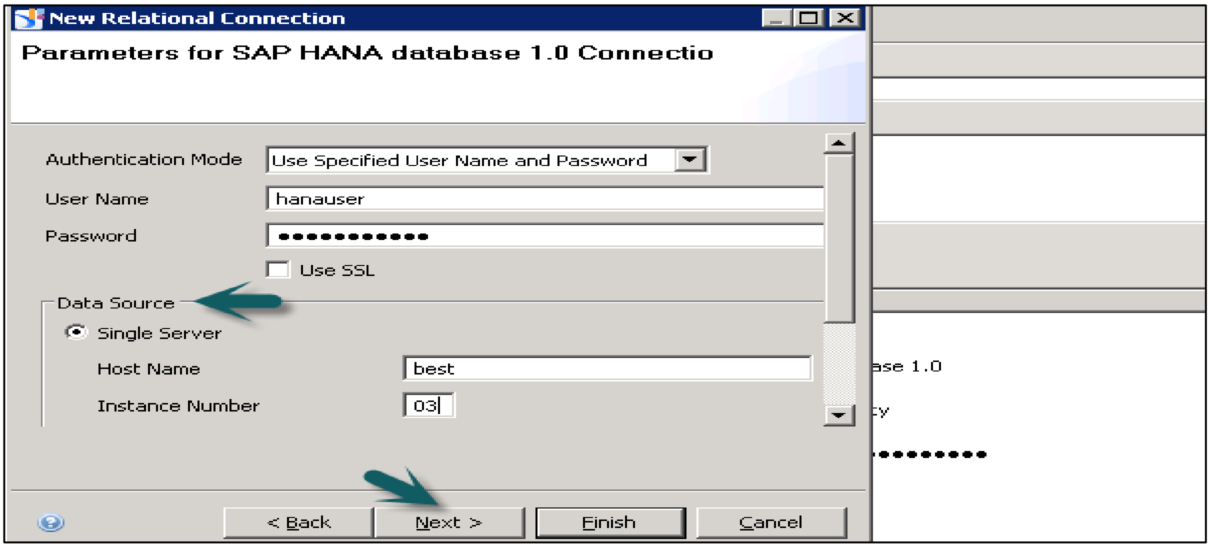
Select the driver for your database middleware.

● Hierarchical List ○ Flat List

- Salesforce.com
- SAP
  - MaxDB 7.7
  - mySAP ERP 2004
  - SAP ERP 6
  - SAP HANA database 1.0
    - JDBC Drivers
    - ODBC Drivers

The selected driver is: SAP HANA database 1.0 (JDBC Drivers)

Enter the system details, username, password, and click Next.



New Relational Connection

Parameters for SAP HANA database 1.0 Connectio

Authentication Mode	Use Specified User Name and Password
User Name	hanauser
Password	●●●●●●●●●●●●

□ Use SSL

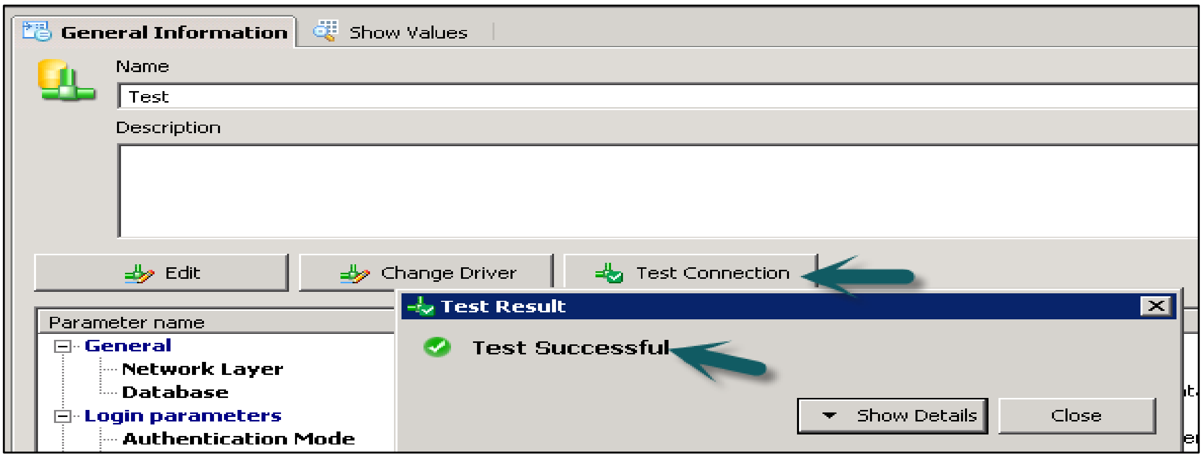
Data Source

● Single Server

Host Name	best
Instance Number	03

Click Finish.

Under General Information -> Click on Test Connection -> Successful.



General Information | Show Values

Name: Test

Description:

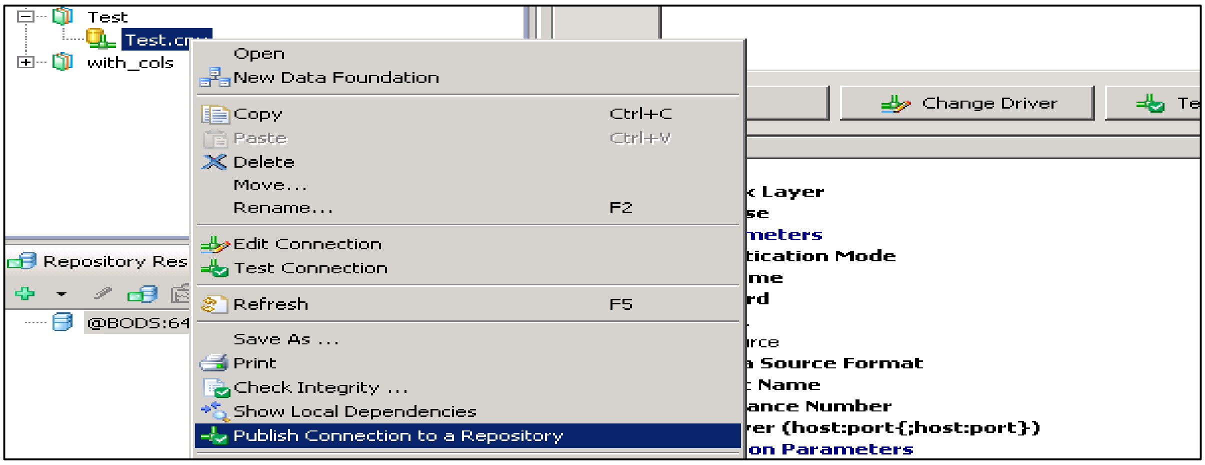
Parameter name
- General
  - Network Layer
  - Database
- Login parameters
  - Authentication Mode

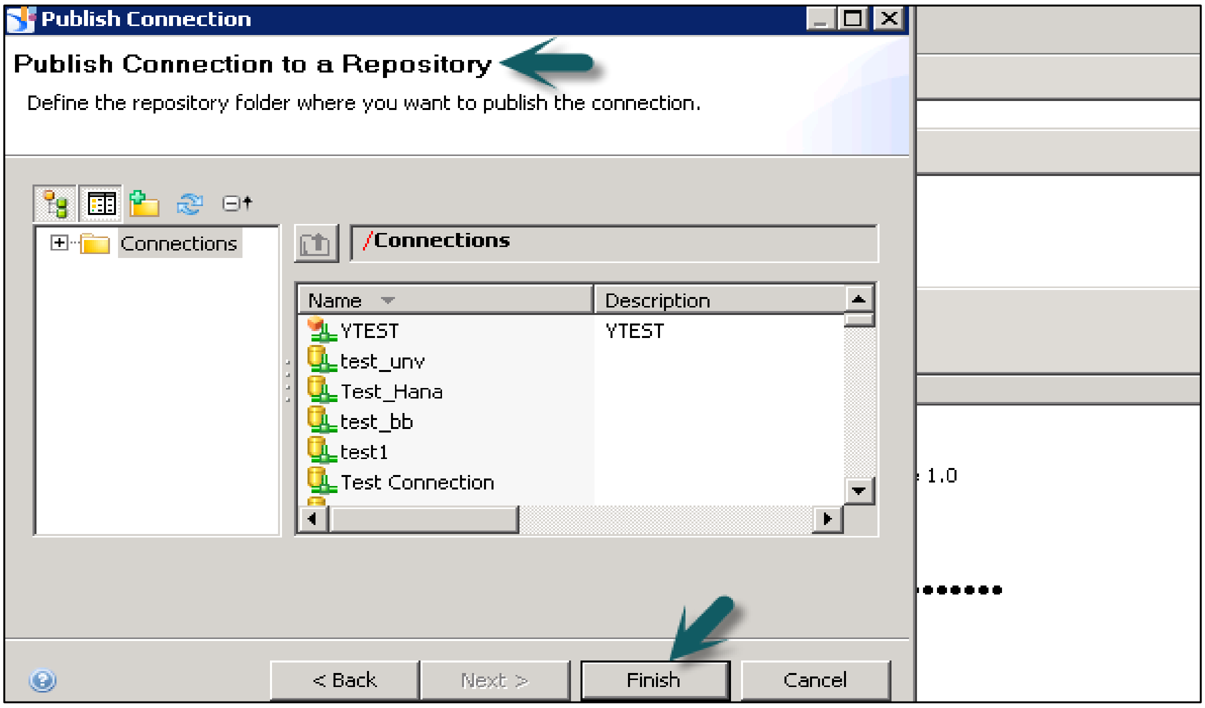
Test Result

Test Successful

We have to publish this connection to the Repository to make it available for use.

Right-click on the connection name -> Publish the connection to the Repository -> Enter BO repository password -> Click on Connect -> Finish -> Yes.



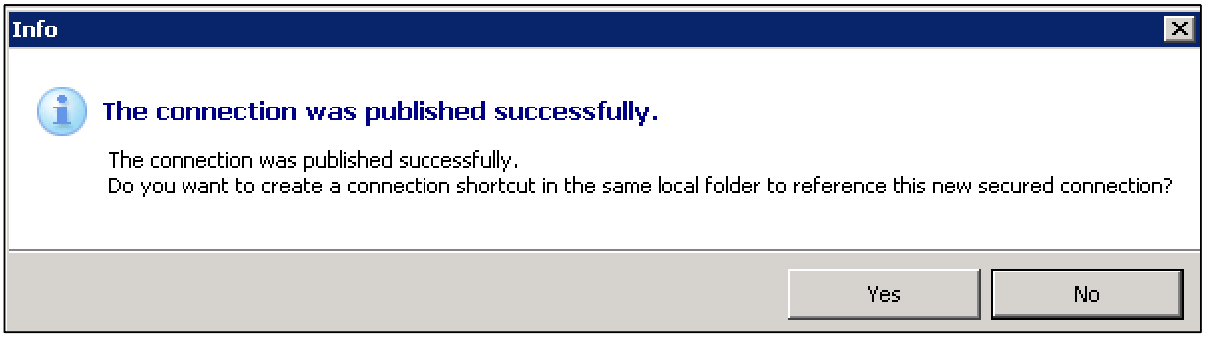


Publish Connection to a Repository

Define the repository folder where you want to publish the connection.

Name	Description
YTEST	YTEST
test_unv	
Test_Hana	
test_bb	
test1	
Test Connection	

Once you click on finish, it will create a secure Repository connection.

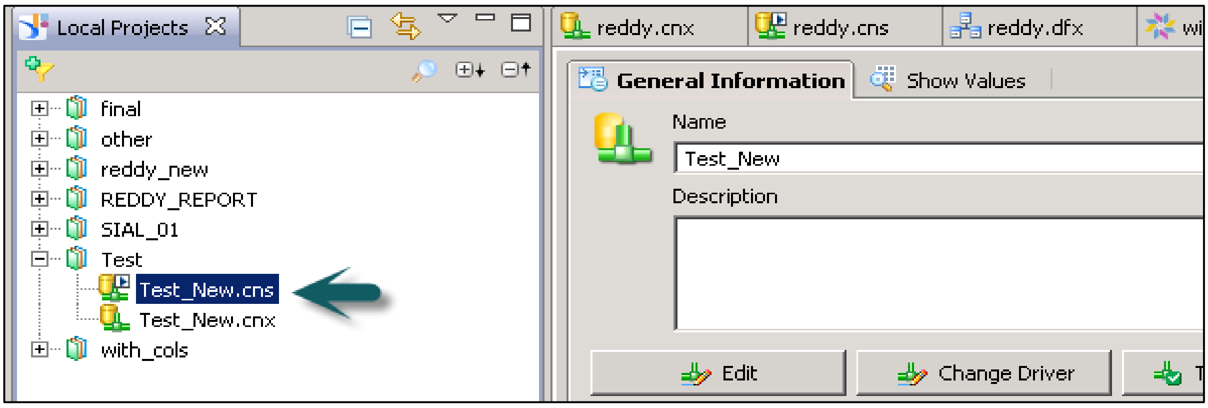


The connection was published successfully.

The connection was published successfully.
Do you want to create a connection shortcut in the same local folder to reference this new secured connection?

.cns – secured Repository connection

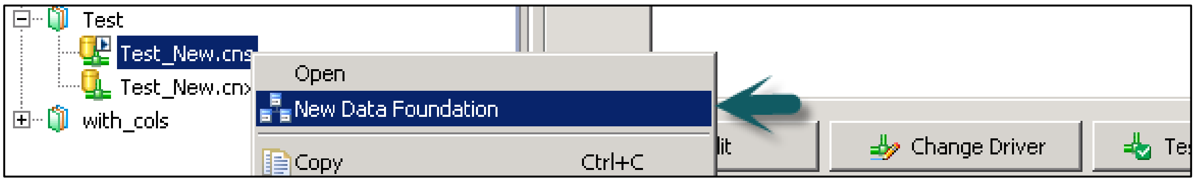
.cnx – local unsecured if you use this connection it will not allow you to publish anything to repository.



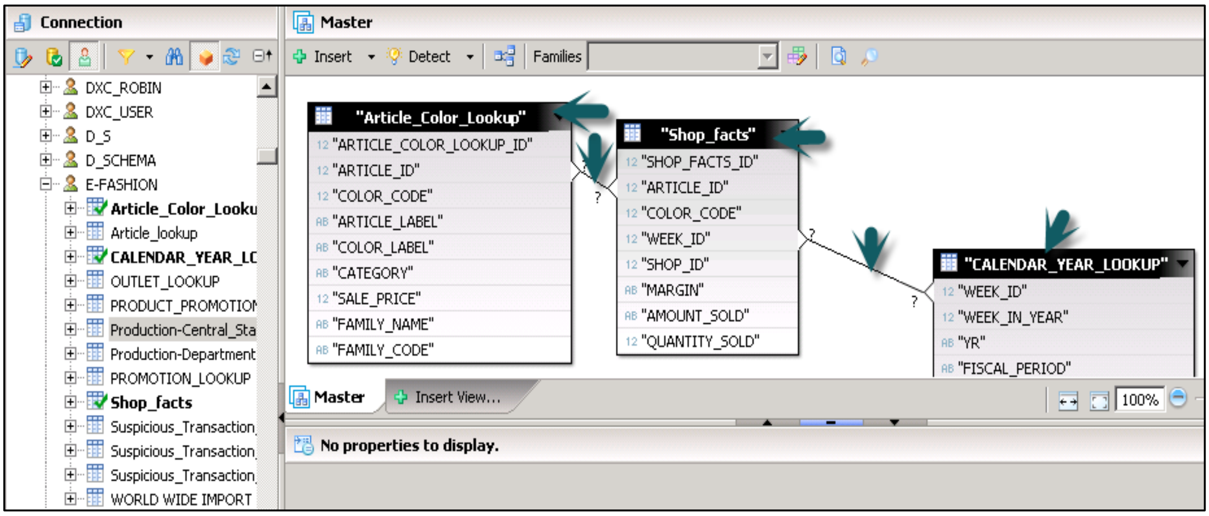
Name
Test_New
Description

The next step is to create a Data Foundation Layer on this secure connection.

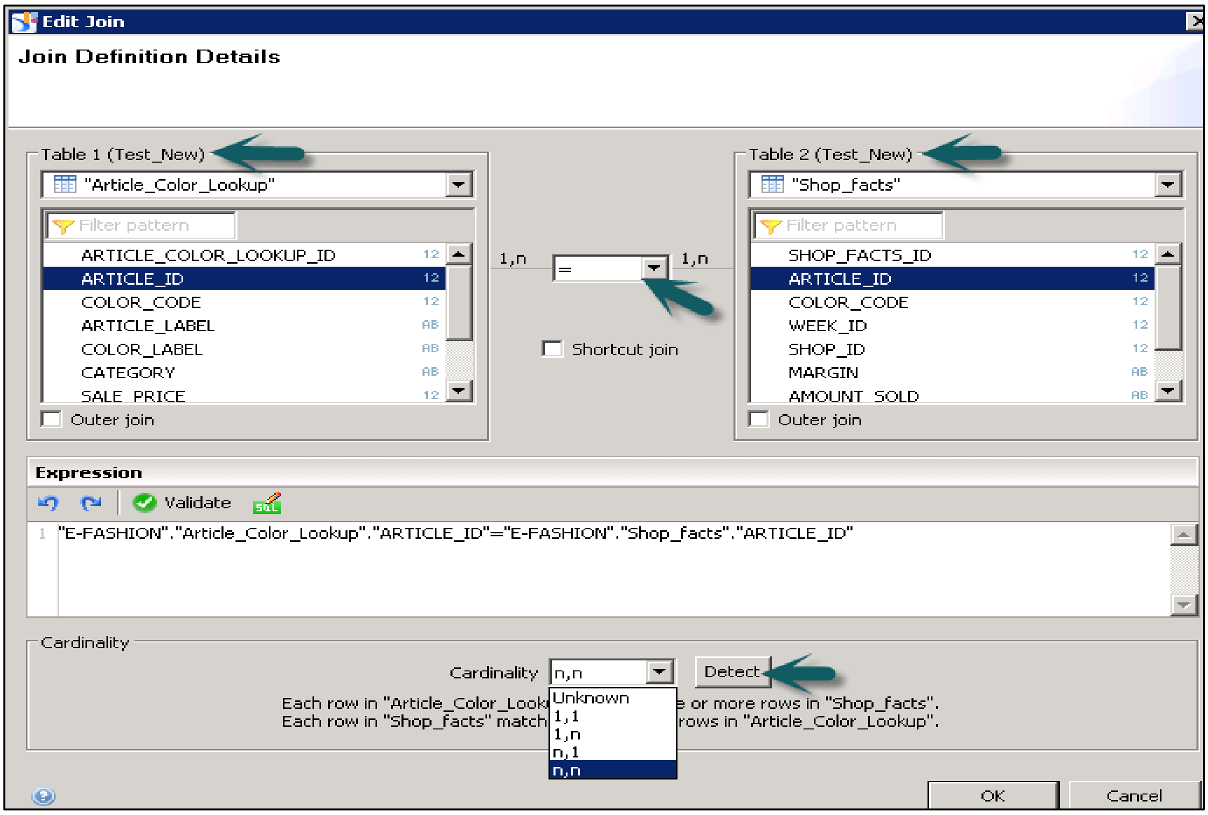
Right-click on **.cns** Repository connection -> New Data Foundation.



Enter Resource Name and click on Finish. It will show you a list of all available schemas in the database. You can add Tables and Joins from Schema to Data Foundation layer. This can be done by dragging the table or by a double-click. Apply the joins on Dimension and Fact tables to create a logical schema.



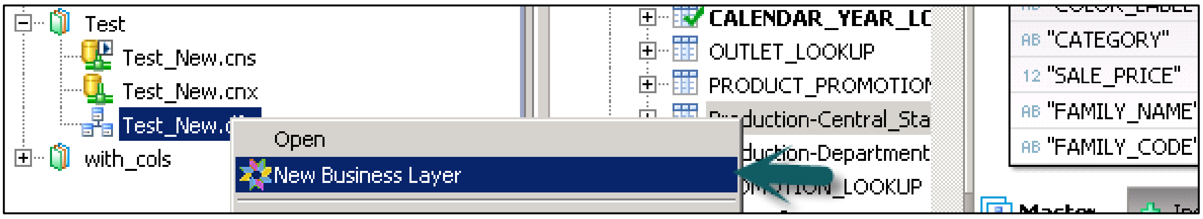
To define a Join, double-click on Join between tables. It will show you both the tables. You can select from different Joins as per data requirement and click on detect Cardinality to define cardinality - 1:1, 1:n, n:n.



"E-FASHION"."Article_Color_Lookup"."ARTICLE_ID"="E-FASHION"."Shop_facts"."ARTICLE_ID"

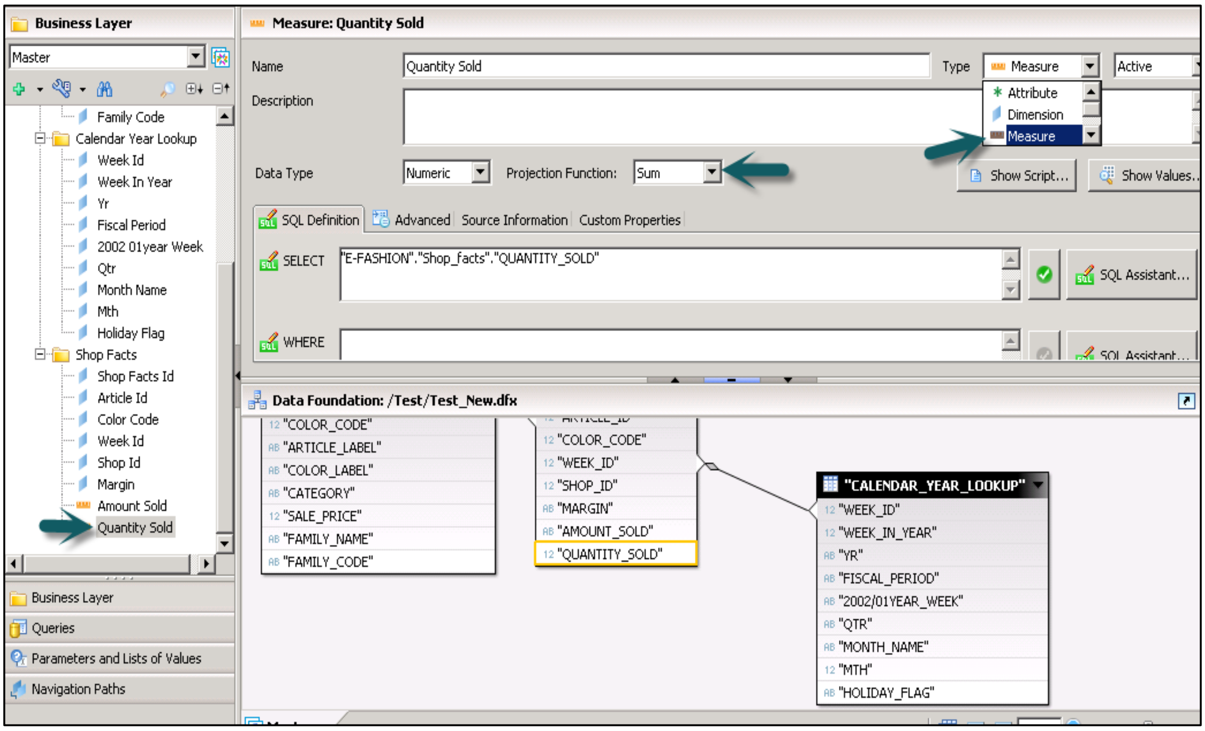
Each row in "Article_Color_Look… …e or more rows in "Shop_facts".
Each row in "Shop_facts" match… …rows in "Article_Color_Lookup".

Next is to create a Business Layer on the Data Foundation. Click the Save All icon at the top of the screen. Then, right-click on Data foundation .dfx -> New Business Layer.



Enter Resource Name -> (Generating Business Layer for Data Foundation) Finish. It will add Business Layer .blx under the Local Project.

It will show a list of all dimensions and measures under Data Foundation. You can define dimensions, measures, aggregation, etc.



Measure: Quantity Sold

Name: Quantity Sold

Type: Measure

Active

Description:

Data Type: Numeric

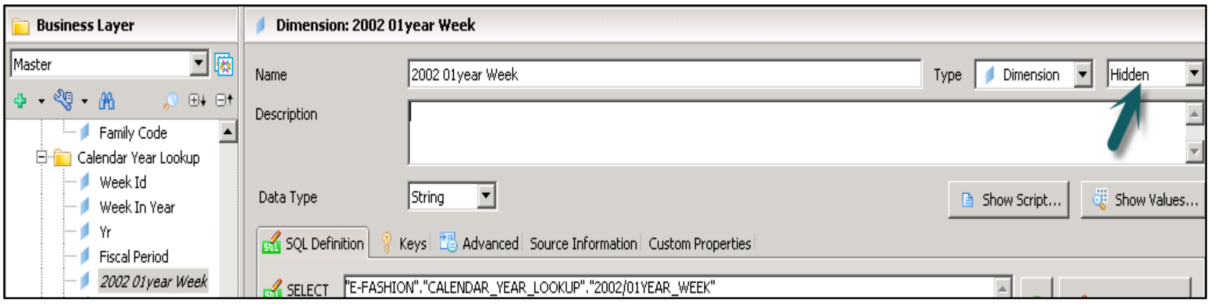
Projection Function: Sum

SELECT "E-FASHION"."Shop_facts"."QUANTITY_SOLD"

WHERE

Data Foundation: /Test/Test_New.dfx

To define an Aggregation, you can select from Projection Function. You can also hide few objects in the report if you want by using the dropdown next to measures and dimension. You can select Hidden for a particular object.



Dimension: 2002 01year Week

Name: 2002 01year Week

Type: Dimension

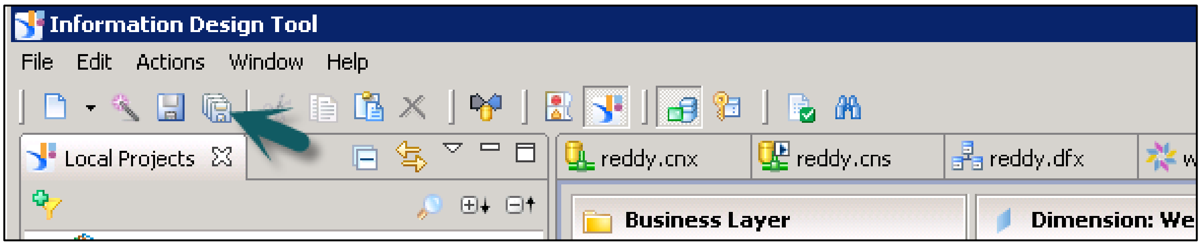
Hidden

Description:

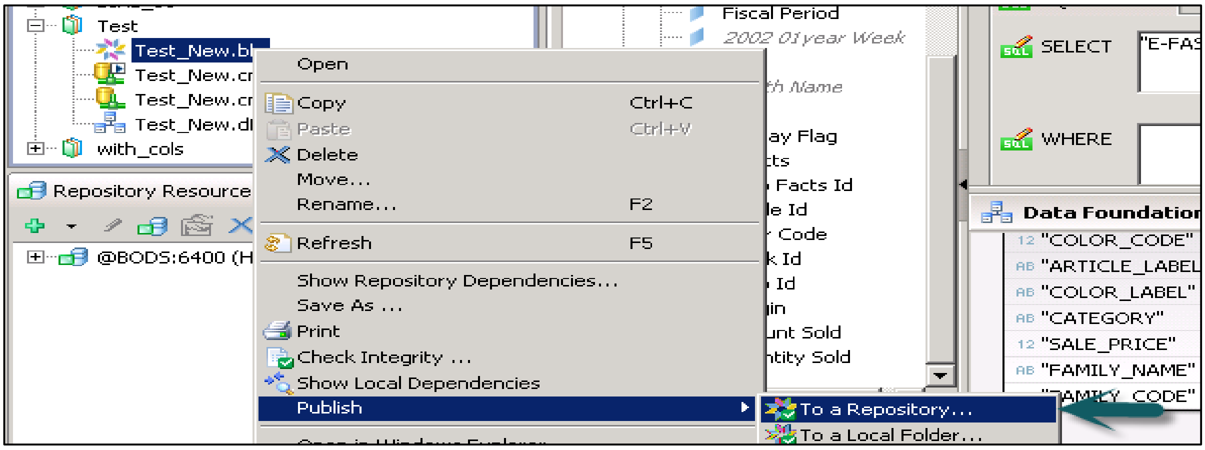
Data Type: String

SELECT "E-FASHION"."CALENDAR_YEAR_LOOKUP"."2002/01YEAR_WEEK"

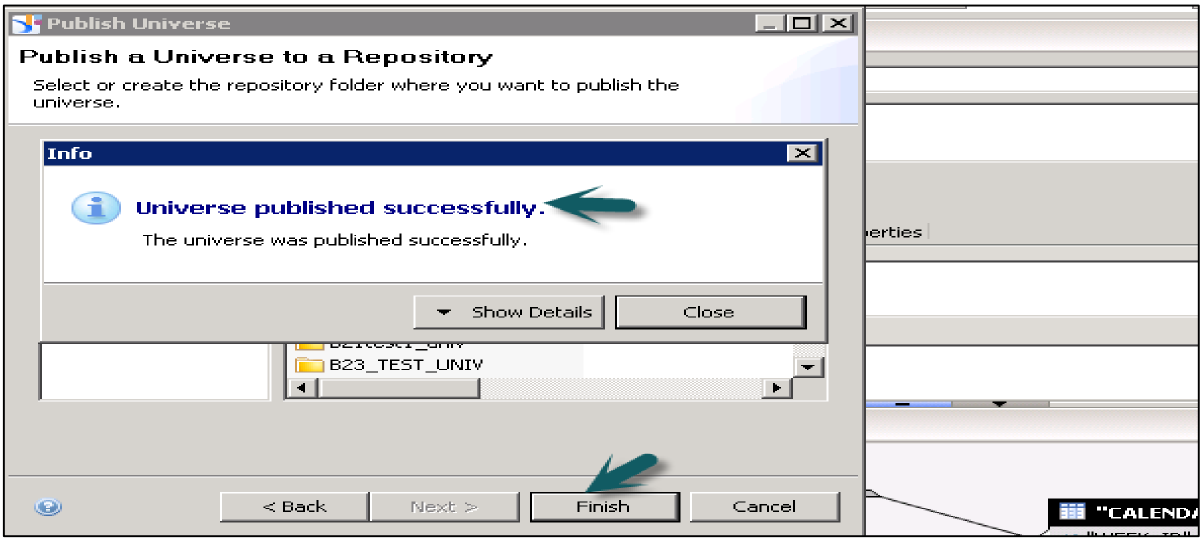
Once you define Business Layer, click Save All icon at the top of the screen as shown in the following screenshot.



To publish a Universe to the Repository, right-click on .blx -> Publish -> To a Repository.



Select Resources -> Next -> In Publish Universe window, select Next -> Select the Repository folder where you want to publish Universe and click Finish.



Publish a Universe to a Repository

Select or create the repository folder where you want to publish the universe.

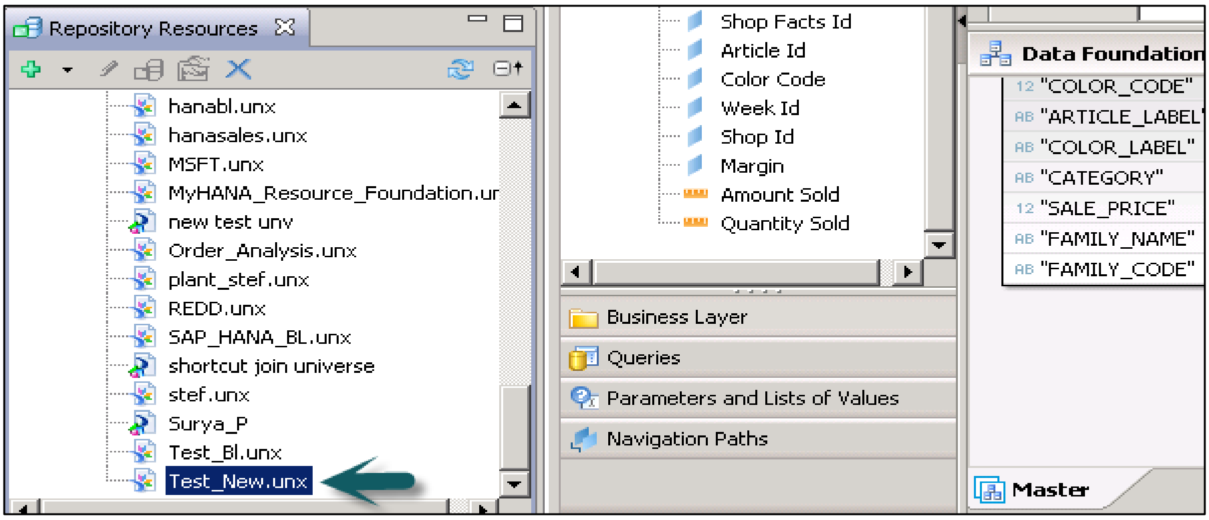
Info

Universe published successfully.

The universe was published successfully.

You will get a confirmation that Universe published successfully.

To check the Universe under Repository, go to Repository resources and check for the Universe that has been created.

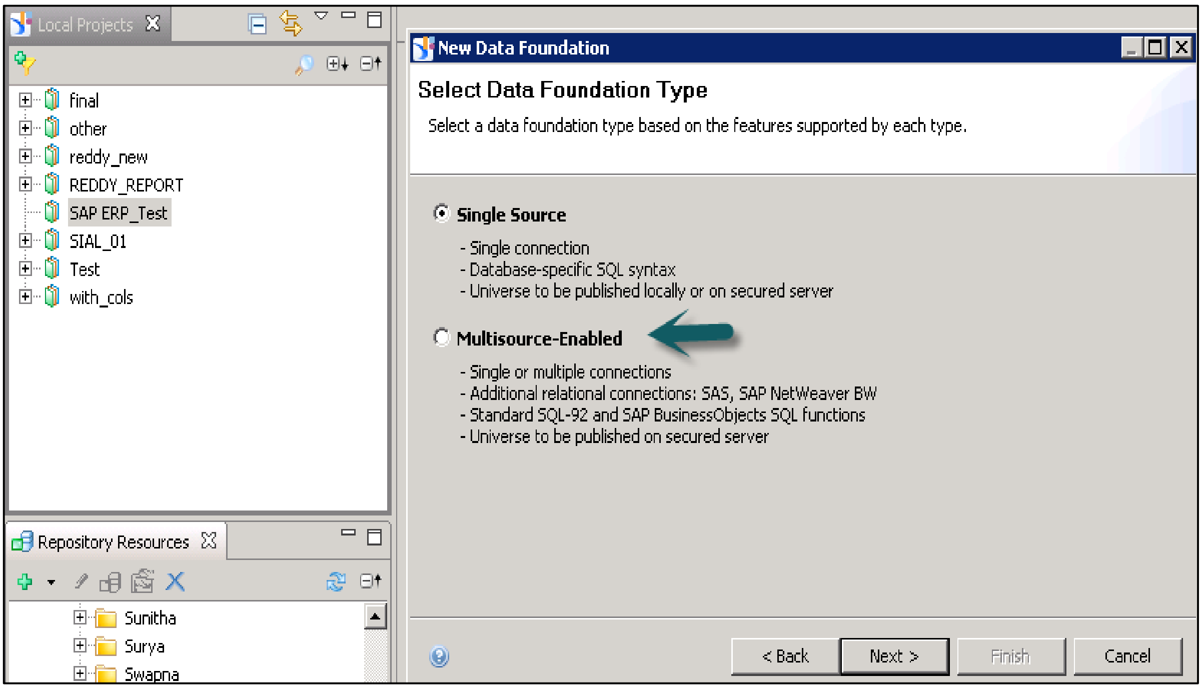


Creating a Universe on SAP ERP

You can build a universe on SAP ERP by using Data Foundation in IDT. You have to create a relational connection to ERP data source, info sets, SAP queries, and ABAP functions that are treated as tables in the connection.

You can create a single source Data Foundation to support local connections but it doesn’t support Joins and calculated columns between the tables inserted from an ERP connection.

To use a calculated column, joins, you need to create a Data foundation that is multi-source-enabled on a secured connection.



Select Data Foundation Type

Select a data foundation type based on the features supported by each type.

● Single Source

- Single connection
- Database-specific SQL syntax
- Universe to be published locally or on secured server

○ Multisource-Enabled

- Single or multiple connections
- Additional relational connections: SAS, SAP NetWeaver BW
- Standard SQL-92 and SAP BusinessObjects SQL functions
- Universe to be published on secured server

When a table is added in Data Foundation layer, the table type of info set, SAP query, or ABAP function is saved as a table property in the data foundation. To add an ABAP Function table, there is one data foundation table created to map the main function.

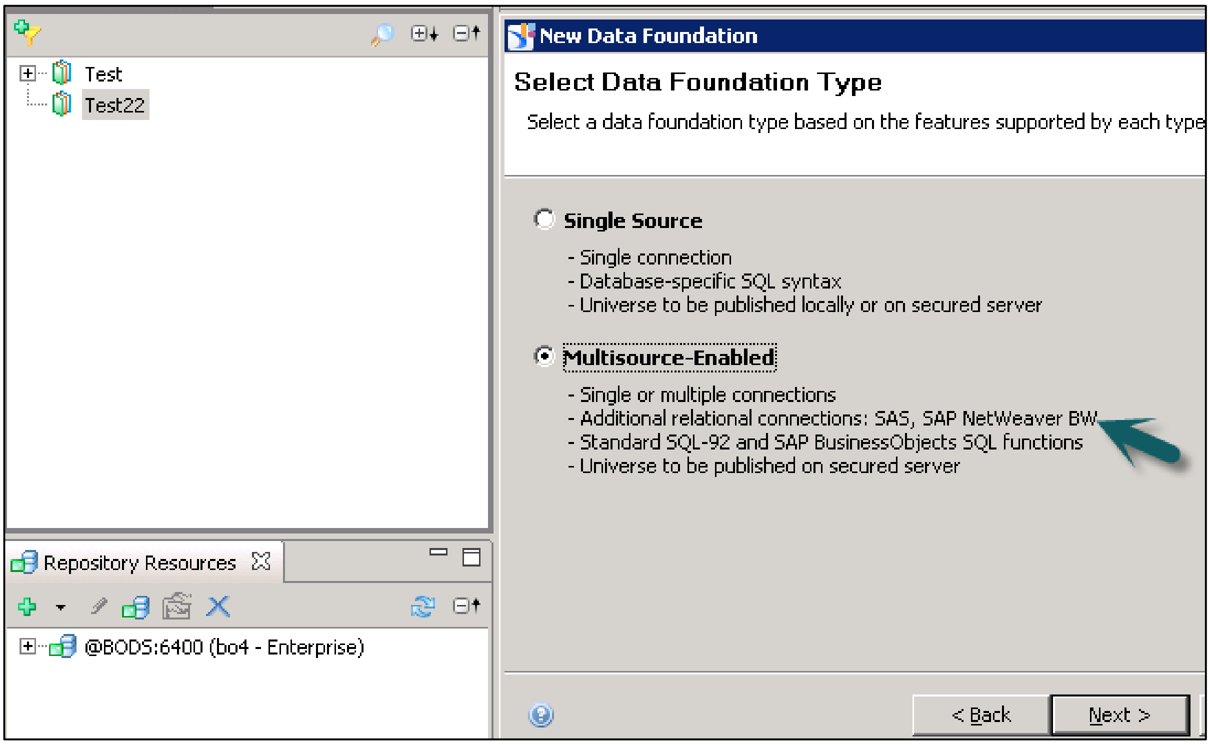
The table contains input columns for the input parameters of the function. These parameters can be mandatory or optional. To assign a value to mandatory parameters, you need to edit the input columns.

Limitations of Using SAP ERP

When you use measures that contain aggregate functions it can't be used as filters in the Query Panel as the output SQL expression consists of HAVING clause, and it is not supported by the SAP ERP connection. Hence, if a measure is added that contains Aggregation function as filter, it throws an error while refreshing the query.

Creating a Universe on SAP BW

If you want to use SAP BW to design a Universe, you should use a data foundation based on multi-source enabled structure. All the tables and joins in SAP BW are automatically imported to Data Foundation. When a Business Layer is created on Data Foundation, all objects are automatically moved to the Business Layer.



New Data Foundation

Select Data Foundation Type

Select a data foundation type based on the features supported by each type

○ Single Source
- Single connection
- Database-specific SQL syntax
- Universe to be published locally or on secured server

● Multisource-Enabled
- Single or multiple connections
- Additional relational connections: SAS, SAP NetWeaver BW
- Standard SQL-92 and SAP BusinessObjects SQL functions
- Universe to be published on secured server

If you don't want to insert tables and joins automatically, you can unselect the Detect tables by going to advance properties while adding connection to Data Foundation.

You can also turn off insertion of Business Layer objects by unchecking the option to automatically create classes and objects when selecting data foundation in New Business Layer.

Creating a Universe on Microsoft Analysis Services

You have to create Business Layer on Microsoft Analysis Services (MAS) and business layer objects are created by default. Following is the mapping of objects in Business Layer:

- **Dimension**: Analysis dimensions are created in the business layer for each dimension in the cube.
- **Display Folder**: Folders are created in the analysis dimension to contain the hierarchies in the display folder.
- **Hierarchy**: For value-based (parent-child) hierarchies, a value-based hierarchy is created in the analysis dimension. The attributes are created in the Attributes folder in the hierarchy.
- **Attribute Hierarchy**: Attribute hierarchies in the cube are created as level-based hierarchies in the analysis dimension.
- **Named Set**: Named sets are created in the related analysis dimension, in the folder Named sets.
- **Measures and Calculated Measures**: Measures and calculated measures are created as measures in the appropriate measure group folder. A measure attribute is created for the formatted value.

Creating a Universe on SAS

You can build a Universe on SAS by using multi-source enabled data foundation and using a secure connection.

Connection to SAS data source are managed by data federation service.

Multilingual Universes

You can also create multilingual Universe in Information Design tool. This allows you to use multilingual solution by using single Universe metadata model.

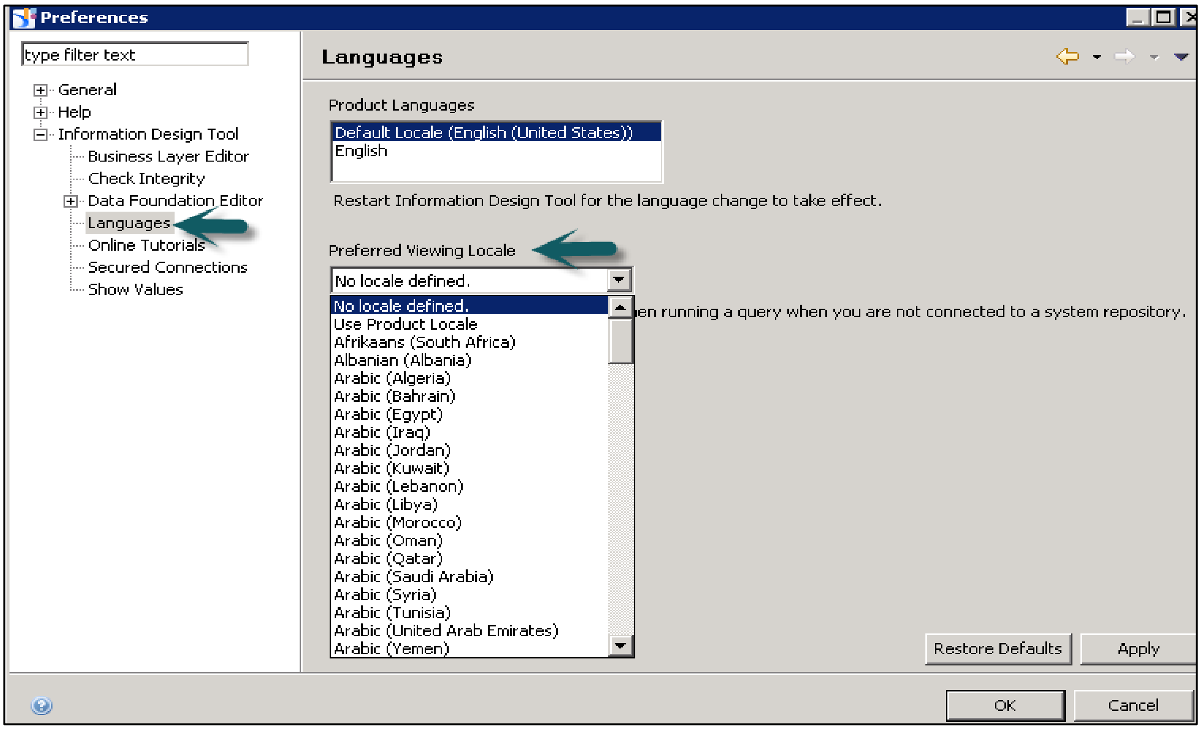
Following are the steps to use multilingual Universe for report creation:

Step 1: Use Universe designer to design Universe in source language in IDT.

Step 2: Use translation management tool to translate the metadata in the data foundation and business layer.

Step 3: Use report designers to build the reports on the same Universe, which can be displayed in different languages as per user preferences.

Step 4: Go to Information Design Tool -> Preferences -> Preferred Viewing Locale determines the language of the metadata and data in the Query Panel.



Languages

Product Languages

Default Locale (English (United States))
English

Restart Information Design Tool for the language change to take effect.

Preferred Viewing Locale

No locale defined.

No locale defined.
Use Product Locale
Afrikaans (South Africa)
Albanian (Albania)
Arabic (Algeria)
Arabic (Bahrain)
Arabic (Egypt)
Arabic (Iraq)
Arabic (Jordan)
Arabic (Kuwait)
Arabic (Lebanon)
Arabic (Libya)
Arabic (Morocco)
Arabic (Oman)
Arabic (Qatar)
Arabic (Saudi Arabia)
Arabic (Syria)
Arabic (Tunisia)
Arabic (United Arab Emirates)
Arabic (Yemen)

en running a query when you are not connected to a system repository.

This can be used if you have support for the following:

- Translations are available in the language (metadata).
- The connection supports the language parameter (data).

4. .unv Universe – Introduction

A **.unv Universe** is created in Universe Designer in SAP Business Objects XI 3 or Universe created using Universe Design tool. It can be converted to unx file in Information Design tool.

Following SAP Business Objects version can create unv files -

- Universe Design Tool (UDT)
- Universe Design Tool Desktop Edition
- Universe created using UDT is stored with a file name .unv in the local folder or in the central repository

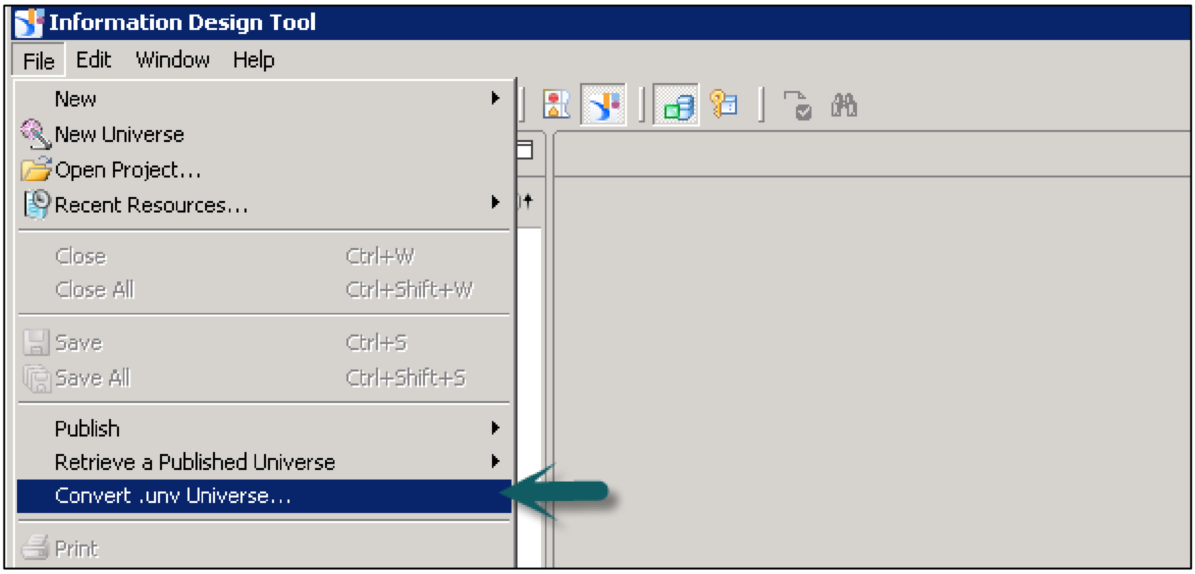
To use .unv Universes in IDT, you first need to convert them. You can convert the following unv Universes in Information Design Tool:

- Relational Universes created using SAP BusinessObjects 4 UDT tool or Desktop edition
- Relational Universes designed in SAP BusinessObjects Enterprise XI3 design tool

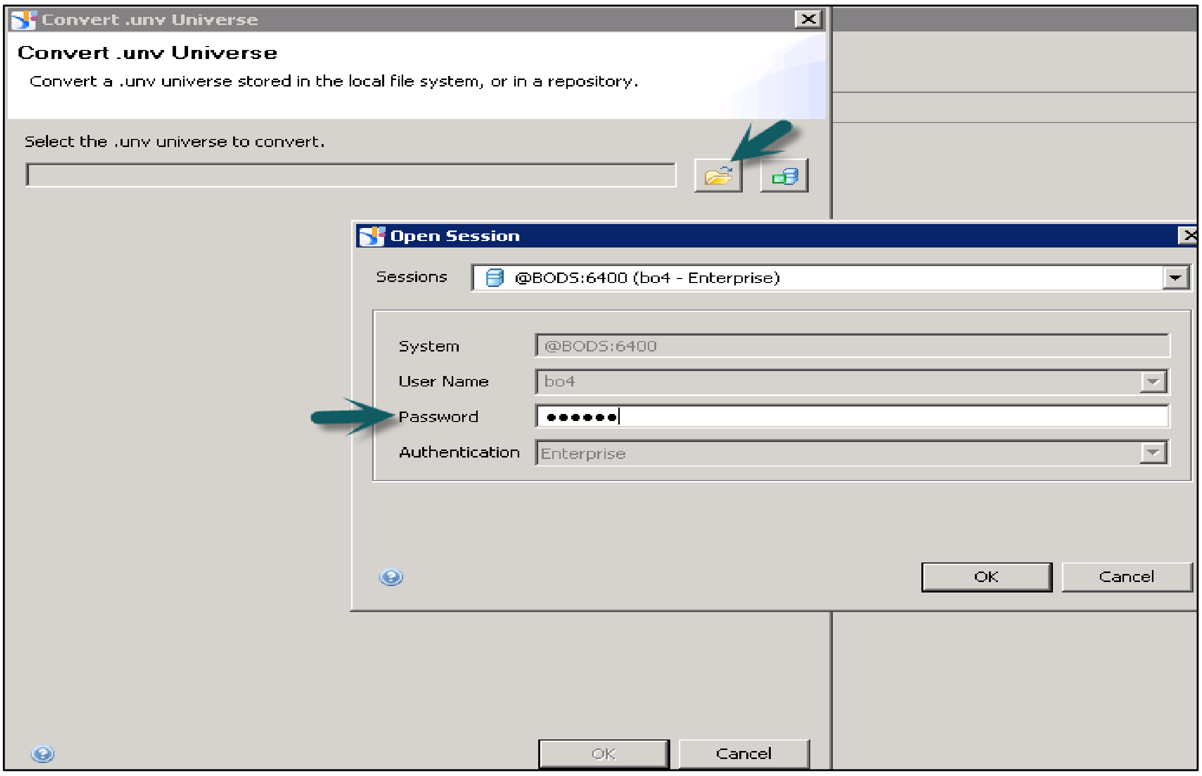
Converting .unv Universe in a Repository

Universe file .unv to be converted should be stored in the repository. If the Universe is created with a Design tool earlier than SAP BusinessObjects 4.0, then you should upgrade the Universe using Upgrade management tool.

To convert a Universe in IDT, go to File -> Convert.



In the next window, you have to select unv file from the repository to convert to unx file. Enter the Repository username and password to connect.



Convert .unv Universe

Convert a .unv universe stored in the local file system, or in a repository.

Select the .unv universe to convert.

Open Session

Sessions: @BODS:6400 (bo4 - Enterprise)

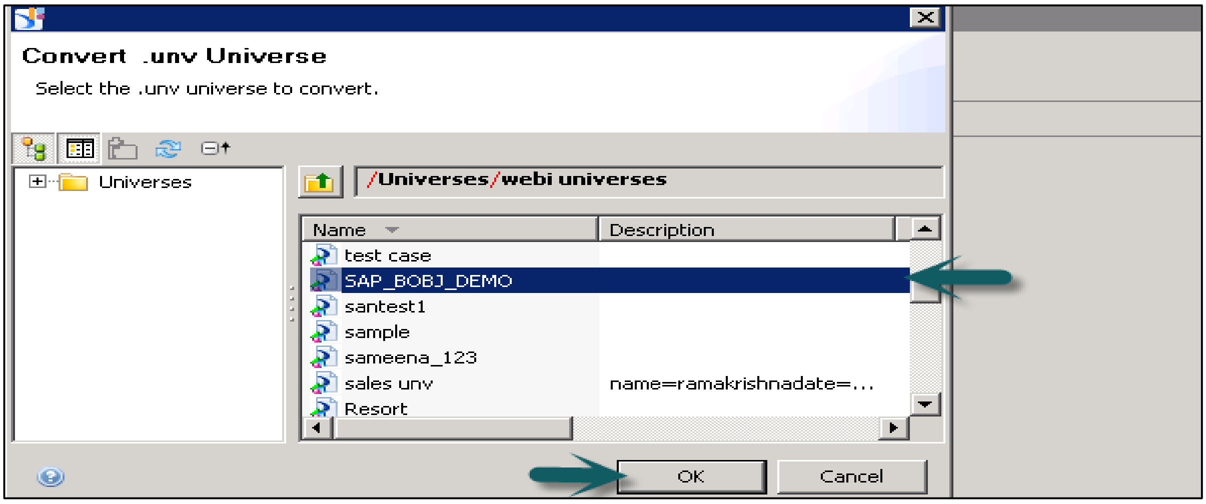
System: @BODS:6400

User Name: bo4

Password: ●●●●●●

Authentication: Enterprise

Select Universe from the repository that you want to convert. Click OK.



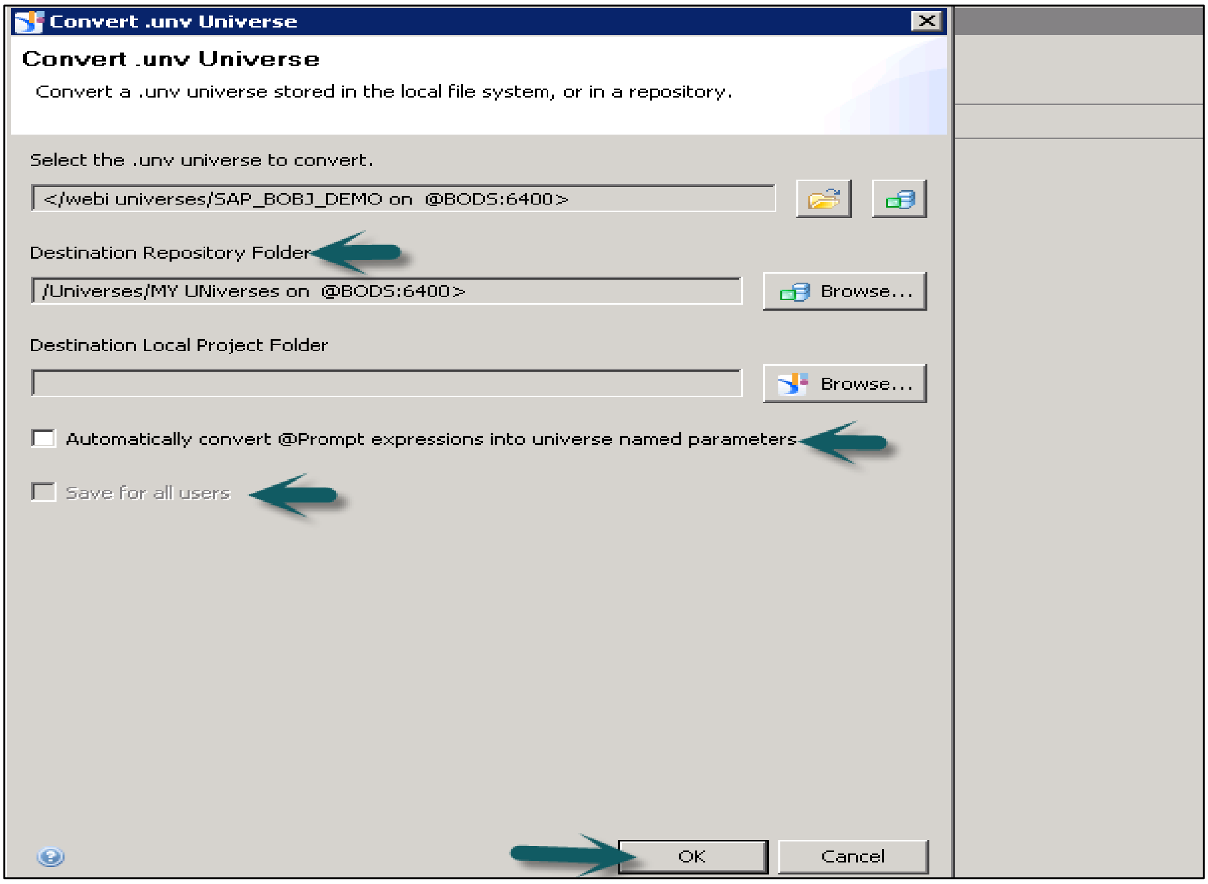
Convert .unv Universe

Select the .unv universe to convert.

/Universes/webi universes

Name	Description
test case	
SAP_BOBJ_DEMO	
santest1	
sample	
sameena_123	
sales unv	name=ramakrishnadate=...
Resort	

Select the Destination Repository folder -> Browse to select a folder in the repository where you want to save .unx Universe. To create named parameters for prompt, select the checkbox as shown in the following screenshot.



Convert .unv Universe

Convert a .unv universe stored in the local file system, or in a repository.

Select the .unv universe to convert.

</webi universes/SAP_BOBJ_DEMO on @BODS:6400>

Destination Repository Folder

/Universes/MY UNiverses on @BODS:6400>

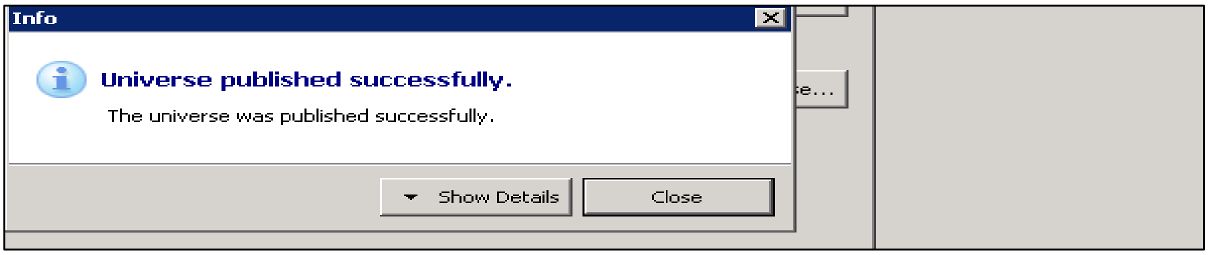
Destination Local Project Folder

☐ Automatically convert @Prompt expressions into universe named parameters

☐ Save for all users

Save for all users' option allow all users to open the Universe without entering the Repository password. Click OK to start conversion.

Once you click OK, conversion starts, and you get the following confirmation message.



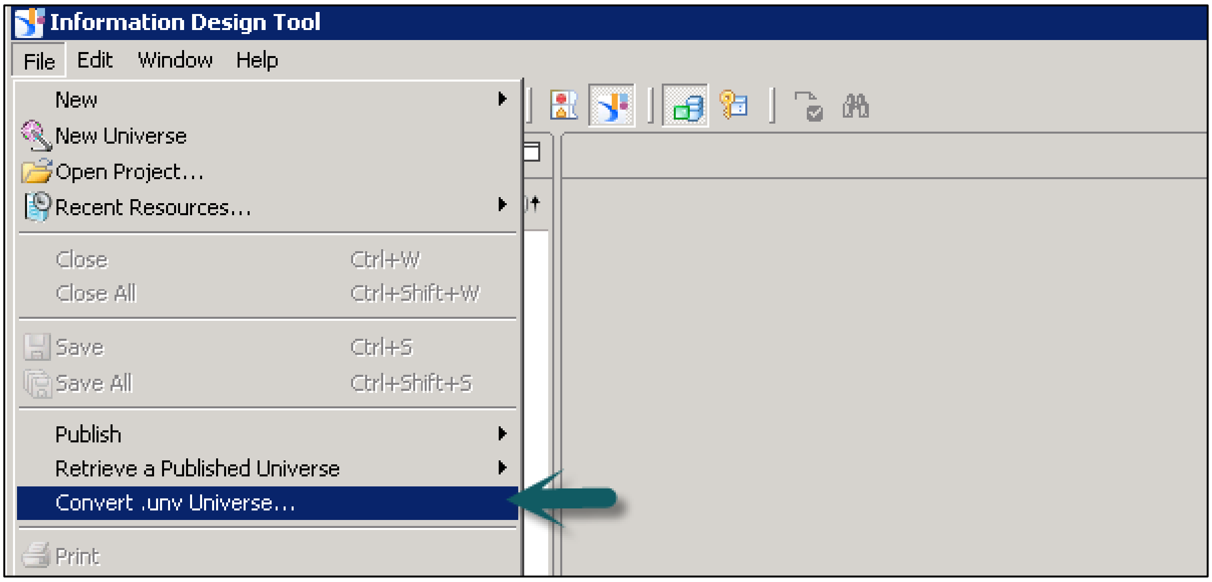
Info

Universe published successfully.

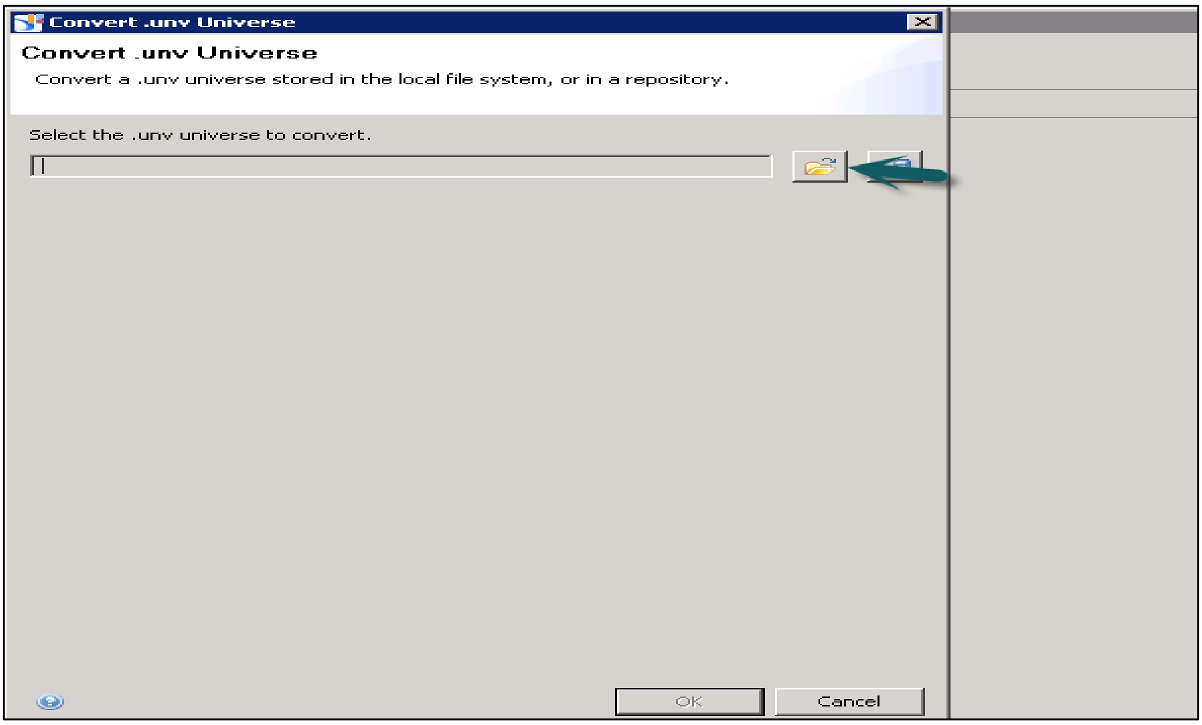
The universe was published successfully.

Converting .unv Universe Locally

To convert a Universe in IDT, go to File -> Convert.



In the next window, you have to select .unv file from the local folder.



Convert .unv Universe

Convert a .unv universe stored in the local file system, or in a repository.

Select the .unv universe to convert.

Select the Destination Repository folder -> Browse to select a folder where you want to save .unx Universe. To create named parameters for prompt, select the checkbox.

You can now publish the business layer to create the .unx universe file. This creates a local universe.

To publish the universe to the repository, continue with the next step. Publish the local connection to a repository.

Edit the data foundation and change the connection to use the secured connection published in the last step. Next is to publish the business layer to the repository.

Integrity Check while Conversion

When you convert .unv Universe, it is recommended to perform an integrity check in IDT. Following error types can be corrected:

Errors on column data types - It includes refreshing the structure in Data Foundation that allows you to fix the data type errors in integrity check.

Errors on Self Joins with Prompts - To use a Join expression with prompts and LOVs, you need to work on Joins in converted Universe.

Features Supported by .unv

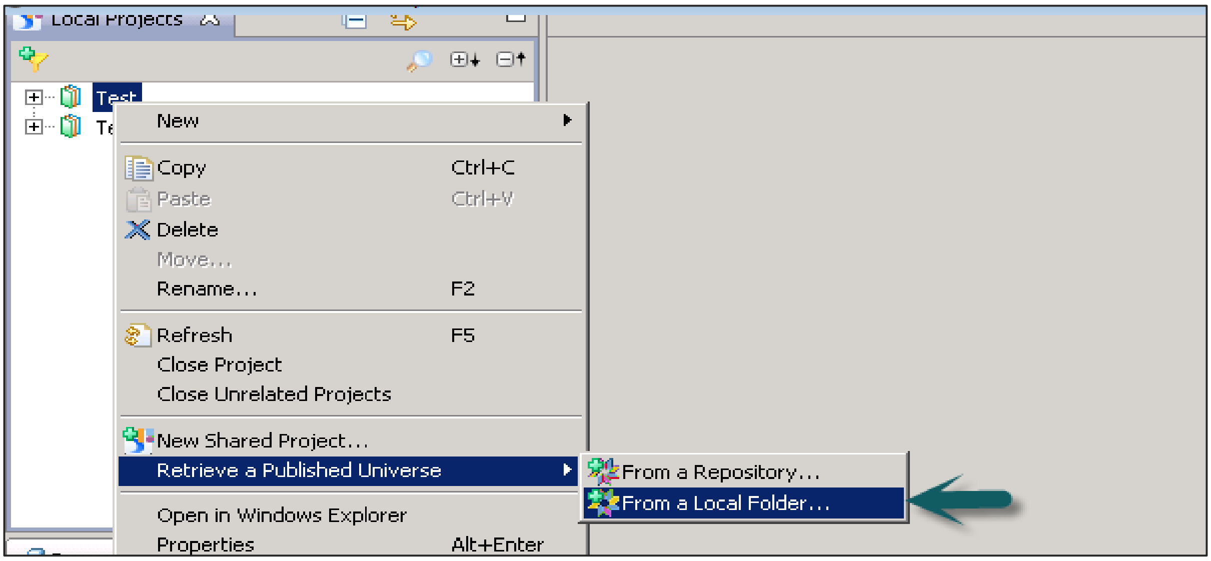
When you convert .unv Universe in IDT, the conversion process creates same features in resulted Universe. Following is the list of features that are supported:

Features in .unv Universe	Features in .unx Universe
Universe Schema	These objects are created in Data Foundation: • Tables • Alias Tables • Derived Tables • Joins For Prompts, you need to check integrity in Self Join Context – You need to manually restrict the Context definition
Multilingual Universes	Language settings, locale settings are converted
Outline	All classes and subclasses converted to Folders • Dimensions • Measures • Details converted to attributes • Conditions converted to filters
Query Limits	Query limits are converted and edited in business layer
SQL Parameters	Query, SQL statement and Cartesian product are converted
Strategies	Custom strategies are not supported in IDT
Connections	Same secured relational connection is used by .unv and .unx Universes. Relational connection can be created in both UDT and IDT and published in the repository. Personal and shared connections are converted to local connections.

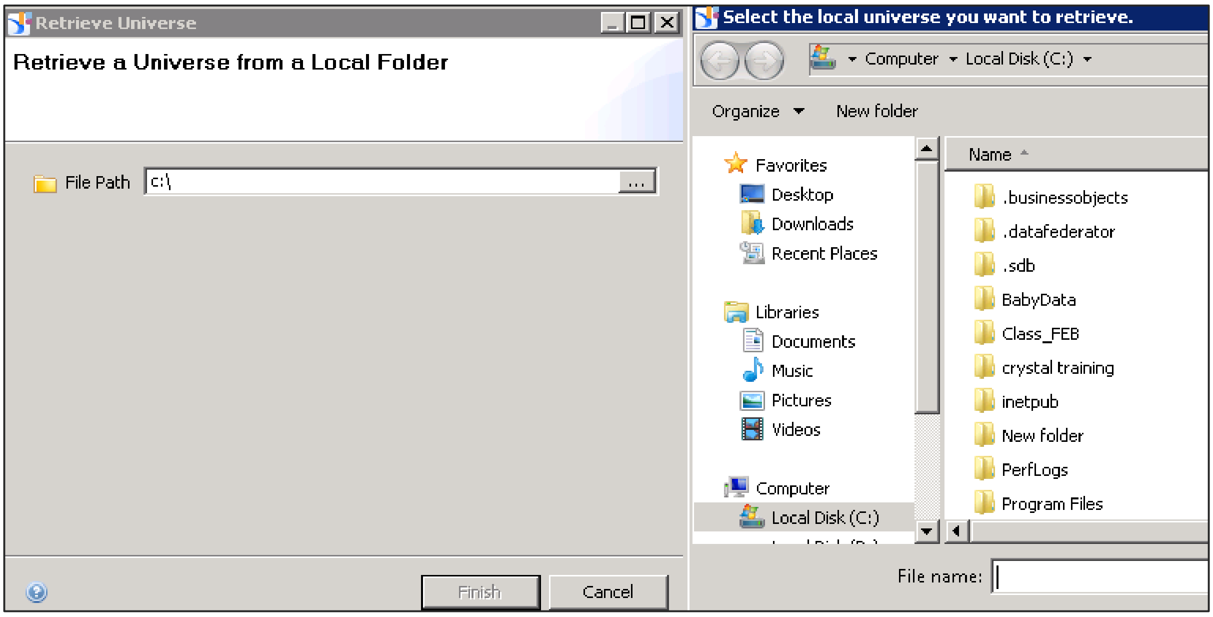
Functions	Following functions can be converted: • @Aggregate_Aware • @Prompt • @Derived Table • @Select • @Variable All these functions are supported
List of Values LOVs	Named list of values are created in business layer in IDT for dimensions and measures that show LOVs

5. IDT – Dealing with Published Universes

You can retrieve a published Universe from the local file system or from the Repository. To retrieve a Universe from the local file system, you need a local projects view where business layers and referenced resources are saved. In local projects view, right-click project folder, go to Retrieve Universe -> from a Local Folder.



Select the Universe you want to retrieve and click Finish.

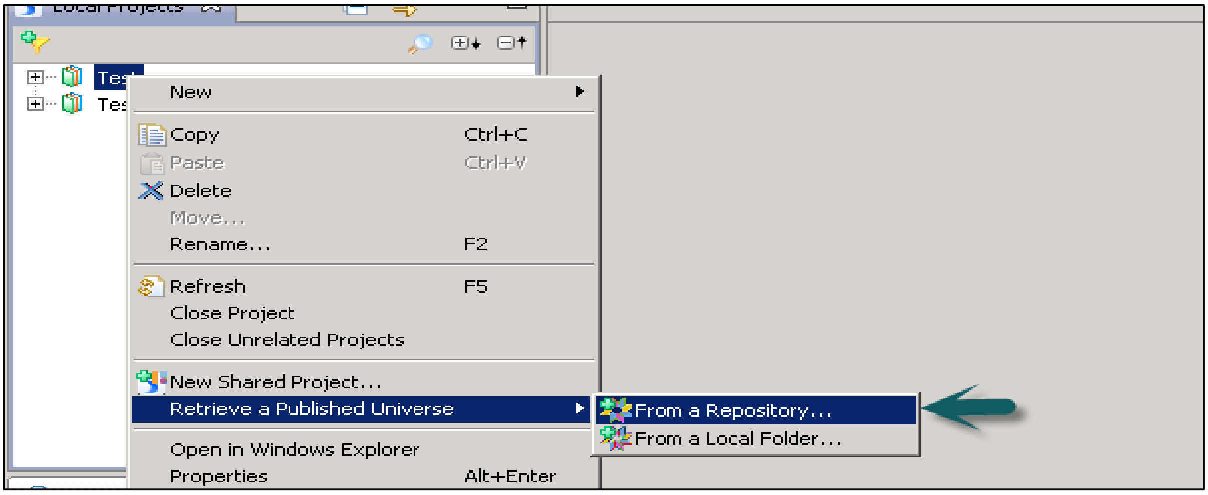


Retrieving a Universe from a Repository

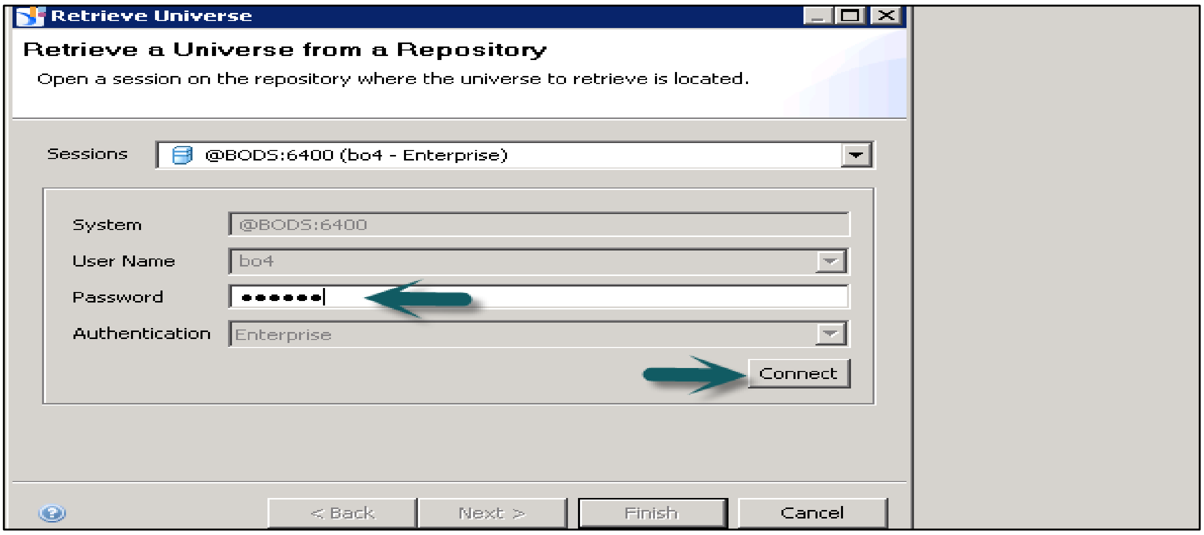
To retrieve a Universe from the local file system, you need a local projects view where business layers and referenced resources are saved. You can retrieve a Universe from a Repository in two ways -

Method 1

Right-click Local Project folder -> Retrieve Universe -> From a Repository.



Enter Repository password and click Connect.



Open a session on the repository where the universe to retrieve is located.

Sessions: @BODS:6400 (bo4 - Enterprise)

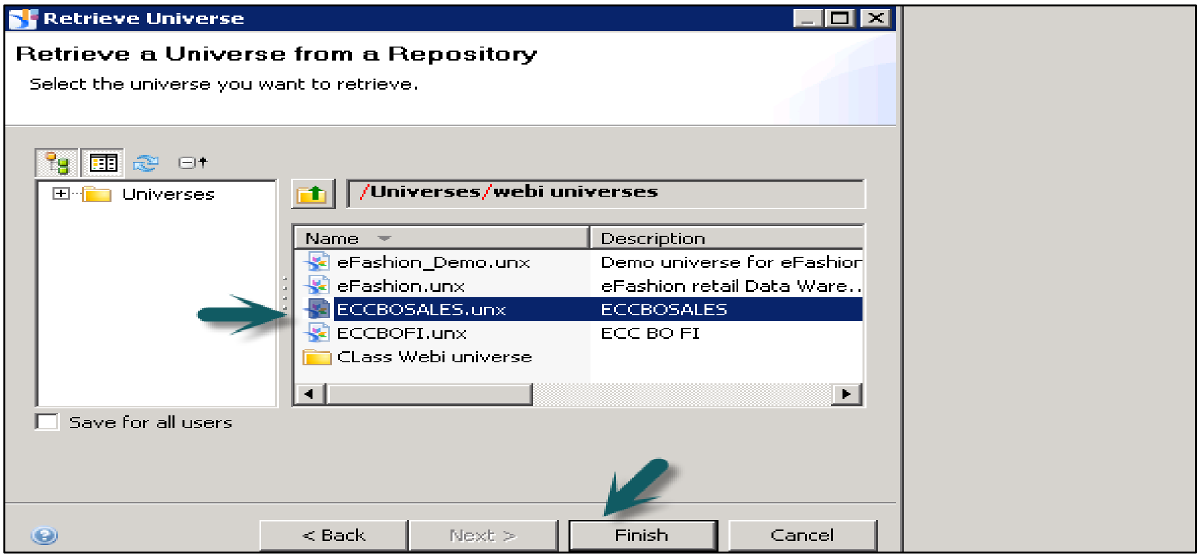
System: @BODS:6400

User Name: bo4

Password: •••••••

Authentication: Enterprise

Select the Universe from available folders in Repository and click Finish.



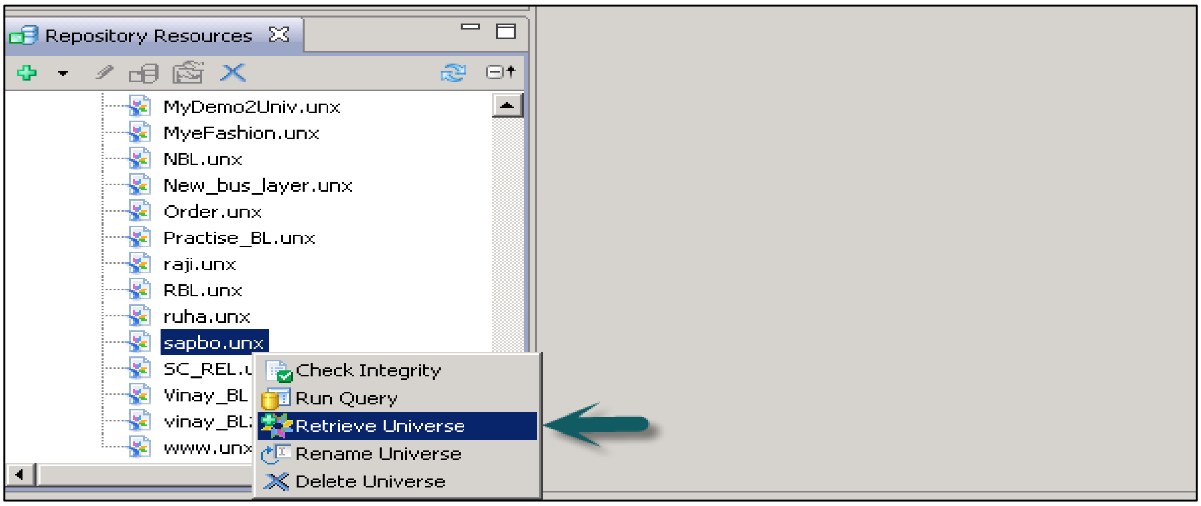
Retrieve Universe
Retrieve a Universe from a Repository
Select the universe you want to retrieve.
Universes
/Universes/webi universes

Name	Description
eFashion_Demo.unx	Demo universe for eFashior
eFashion.unx	eFashion retail Data Ware..
ECCBOSALES.unx	ECCBOSALES
ECCBOFI.unx	ECC BO FI
CLass Webi universe	

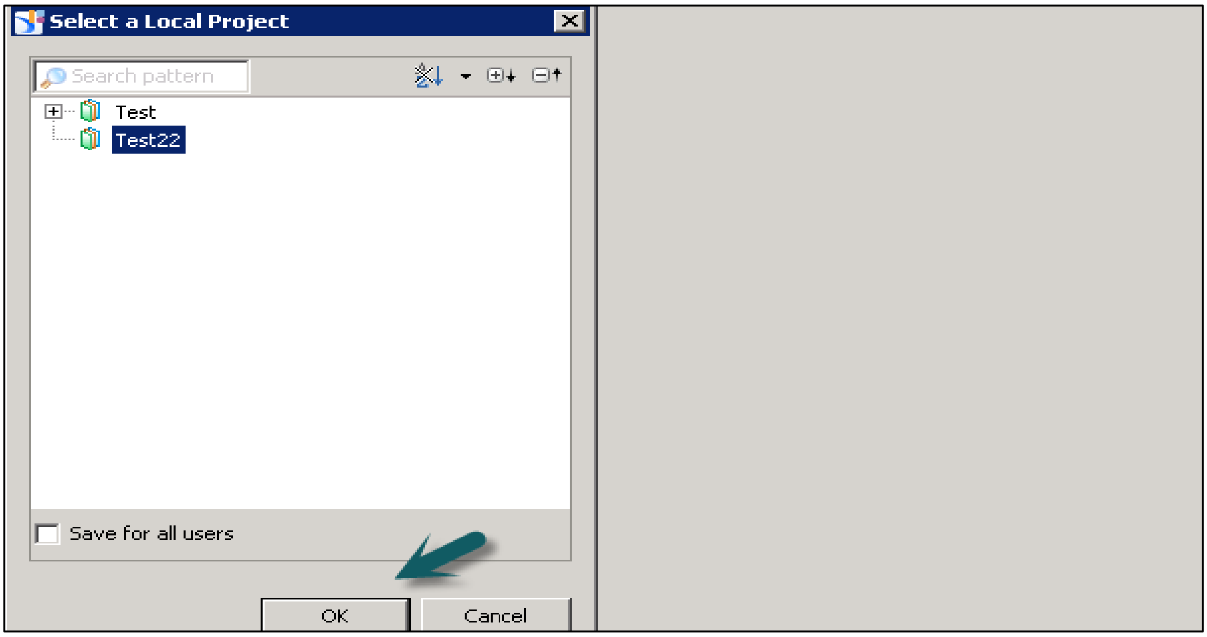
□ Save for all users
< Back
Next >
Finish
Cancel

Method 2

Another way is by going to the Repository Resources section and select the Universe you want to retrieve.



Select a Local Project for retrieval and click OK.



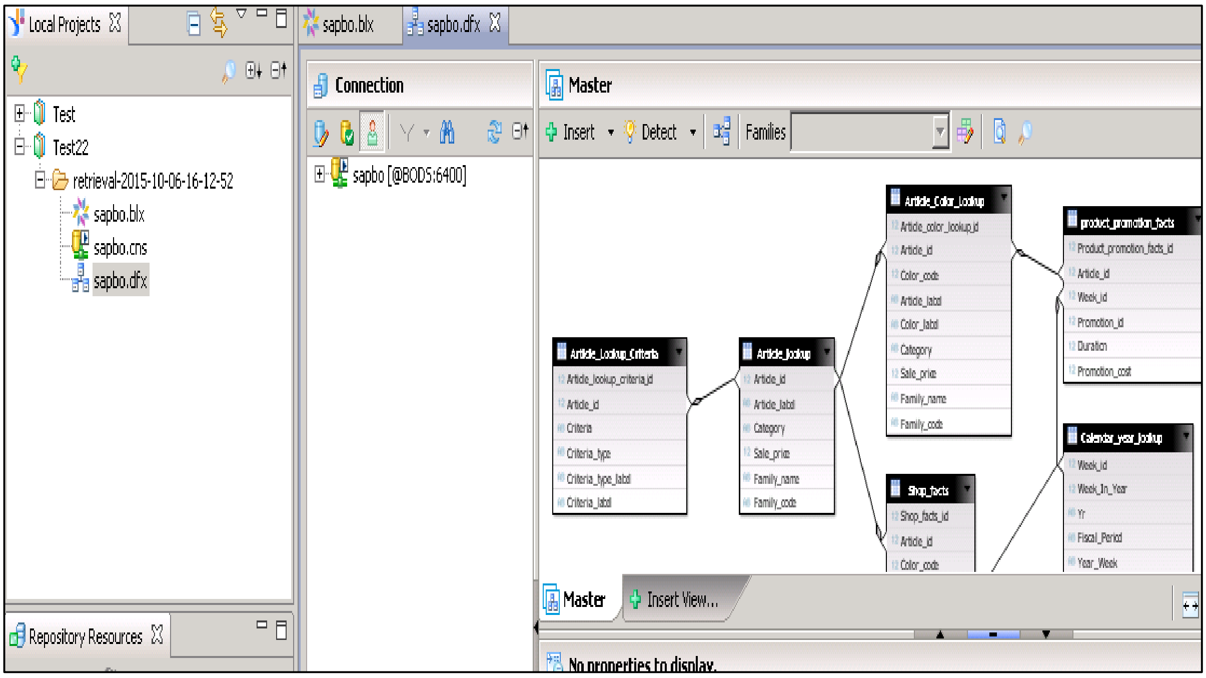
To remove the local security requirement, select the “Save for all users” option when selecting the Universe in the repository.

6. IDT – Projects

To design a Universe in IDT, the first step is to create a project in Local Project views. All the resources like Data Foundation and Business layers are managed in a project. You can navigate to local projects and access the resources in the local project using Information Design Tool (IDT).

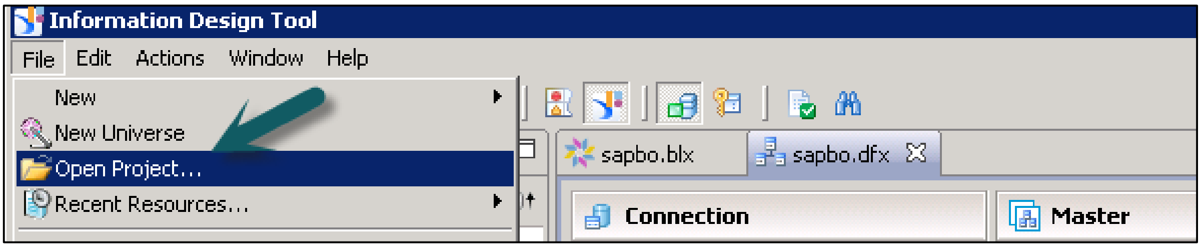
Once you create a Local Project, resources can be populated under it in different ways:

- You can create new resources using "New" option.
- Convert .unv Universe created from Universe Design Tool.
- Retrieve a published Universe.
- To edit a resource, you can double-click on a resource under Local Project.



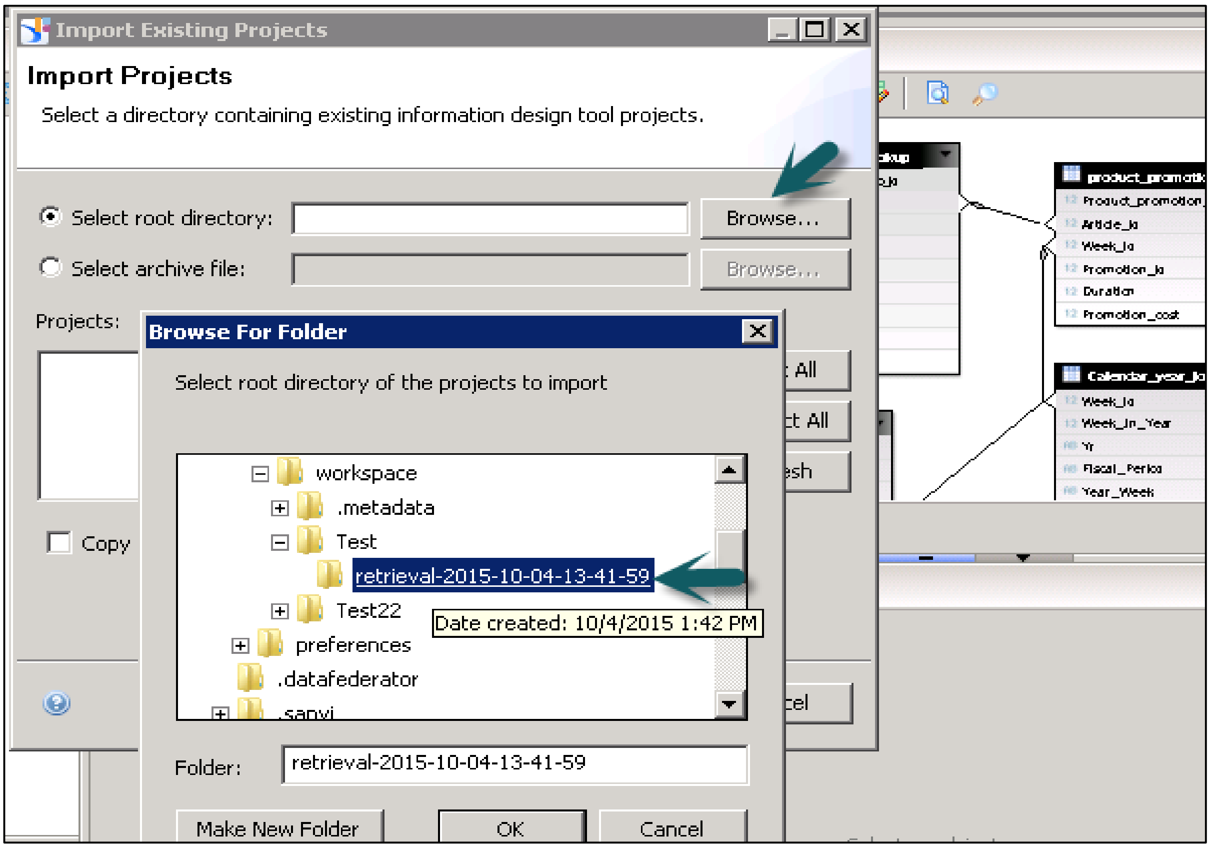
Checking Existing Projects in IDT

You can open an existing project in IDT. Go to File -> Open Project.



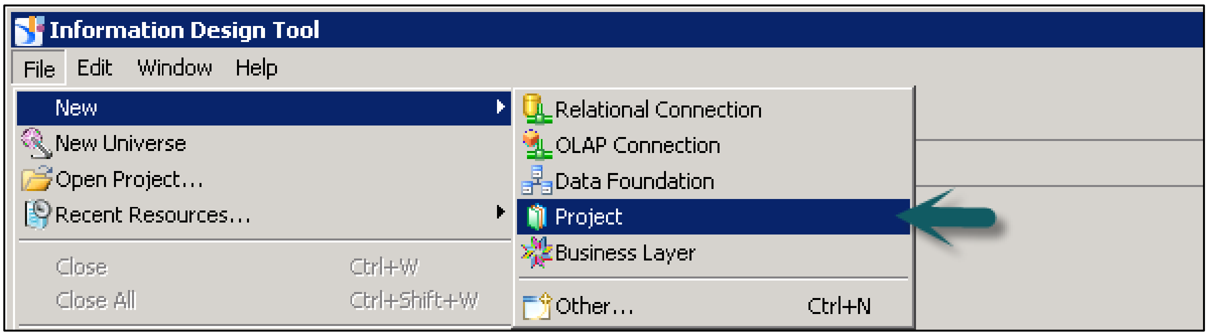
A new window will open. You can select from the root directory or from archive file to import an existing project.

To import from the root directory, click on Browse, select the Project you want to import and click OK.

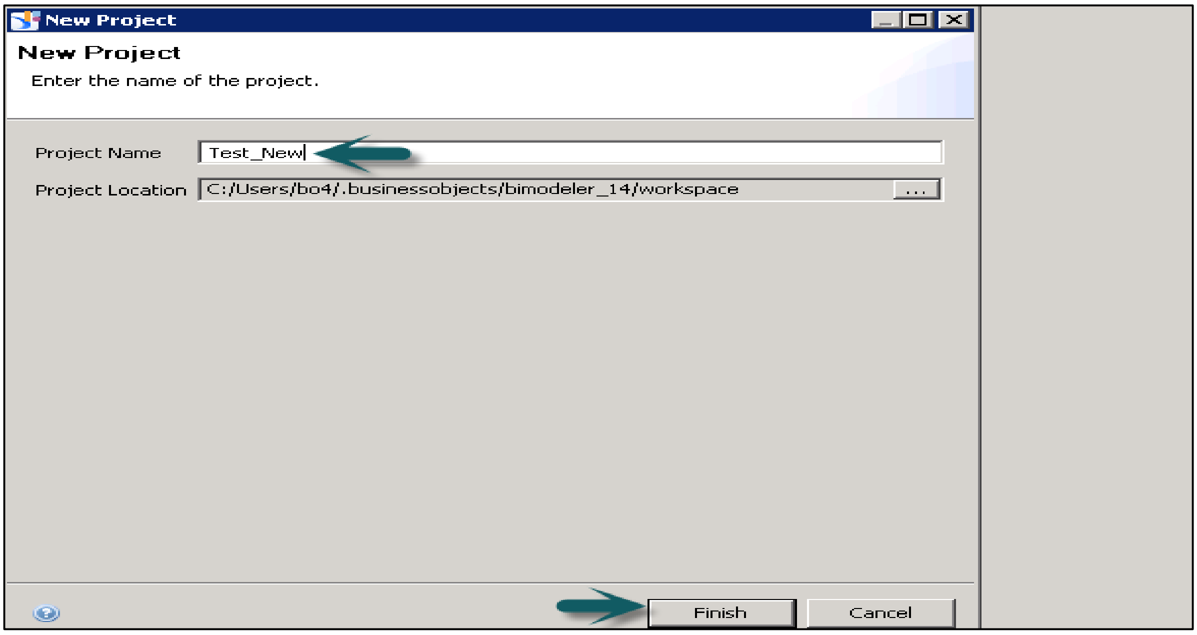


Creating a New Local Project in IDT

To create a new project in IDT, go to File -> New -> Project.



Enter Project Name, location and click Finish.



Project Name: Test_New

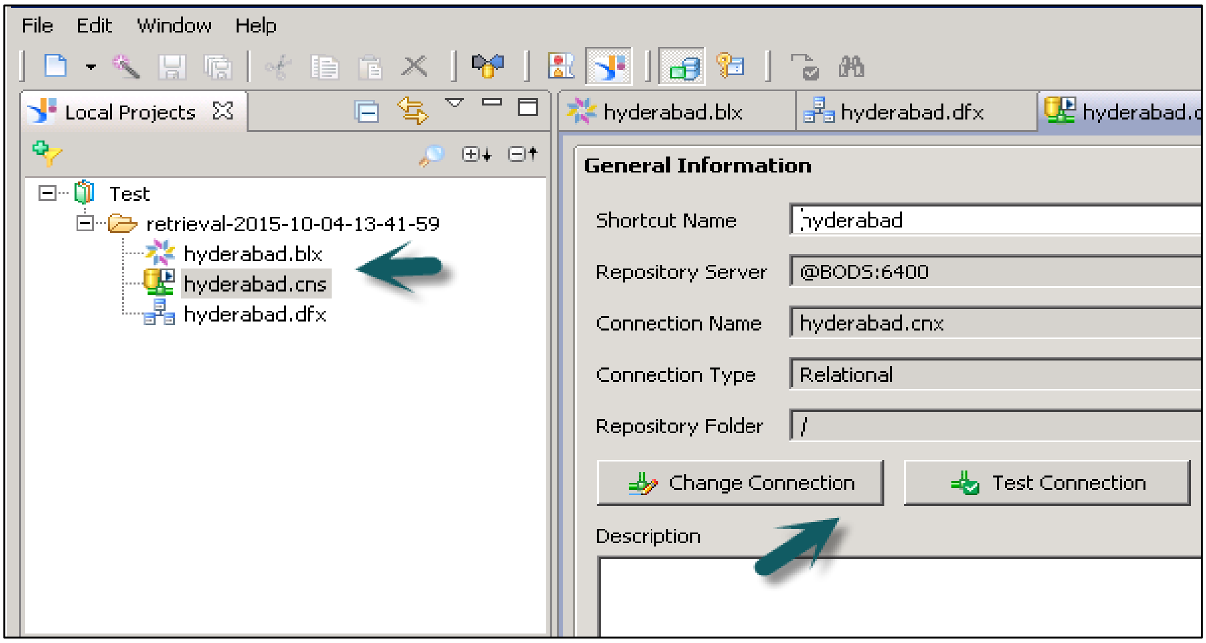
Project Location: C:/Users/bo4/.businessobjects/bimodeler_14/workspace

The project is created under Local Projects views.

Editing an Existing Project

You can also edit an existing project. Open an existing project by going to File -> Open Project. You can also open an existing Universe under any Local Project area.

Once you open an existing project, you can go to each object by double clicking the object name under Local Project folder.



General Information

Shortcut Name: hyderabad

Repository Server: @BODS:6400

Connection Name: hyderabad.cnx

Connection Type: Relational

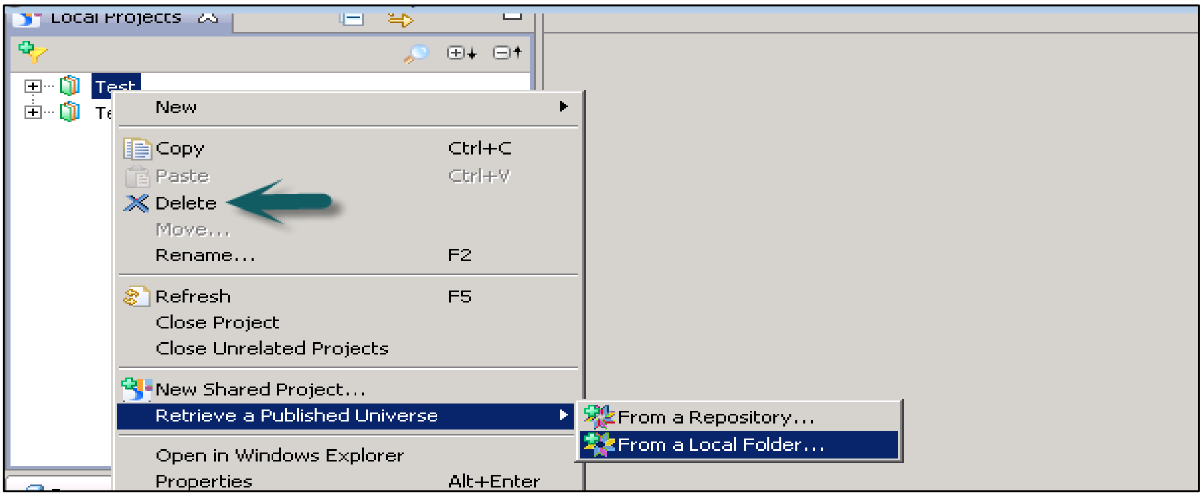
Repository Folder: /

Description

Make changes as required and click the **Save** button.

Deleting a Project in IDT

To delete an existing project, right-click on the project under Local Project area.



To delete a project permanently, you can select "Delete project contents on disk option" in the "Confirm Project Delete" dialog box.

If you select this option, the deletion is permanent and cannot be undone. Click on "Yes" to confirm the deletion.

If you did not delete the project contents permanently, you can open the project to make it available.

Project Synchronization

Project synchronization deals with comparing resources in local project views with an associated shared project in the repository. Using project synchronization, you can detect add/delete resources, difference between resources. Based on differences, the local project view and shared resources can be updated.

Under Project synchronization, there are two different panes:

Shared Project Pane

It lists the resources in shared project on the server. If there is a lock icon in the form of resource, it means the resource is locked. Synchronization status lists the status of each resource by comparing resources in shared and local project views.

Different Synchronization Status

Added Locally: A resource is added in the local project but not in the shared project.

Changed Locally: A resource was changed in the local project but not in the shared project.

Deleted Locally: A resource was deleted in the local project but still exists in the shared project.

Added on server: A resource is not in the local project but exists in the shared project.

Changed on server: A resource was changed in the shared project but not in the local project.

Deleted on server: A resource exists in the local project but was deleted in the shared project.

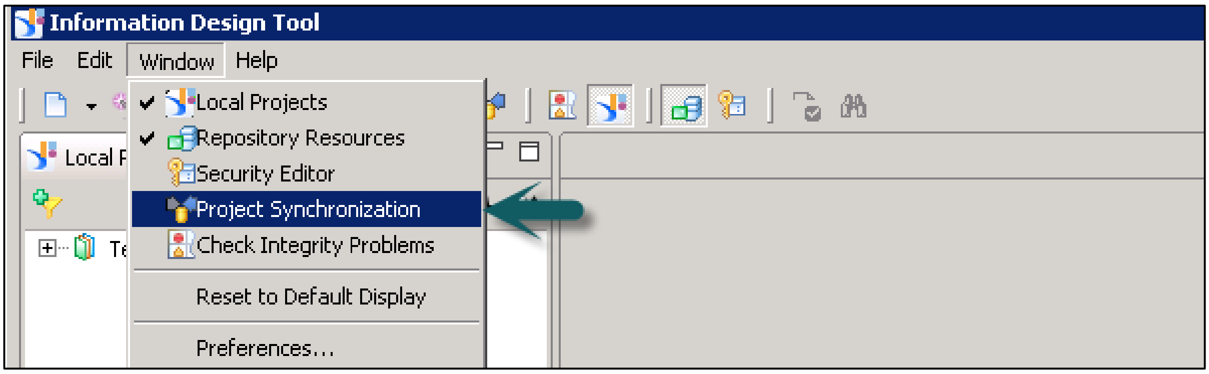
Synchronize: Both resources are identical.

List of Resources in Synchronization Status Pane

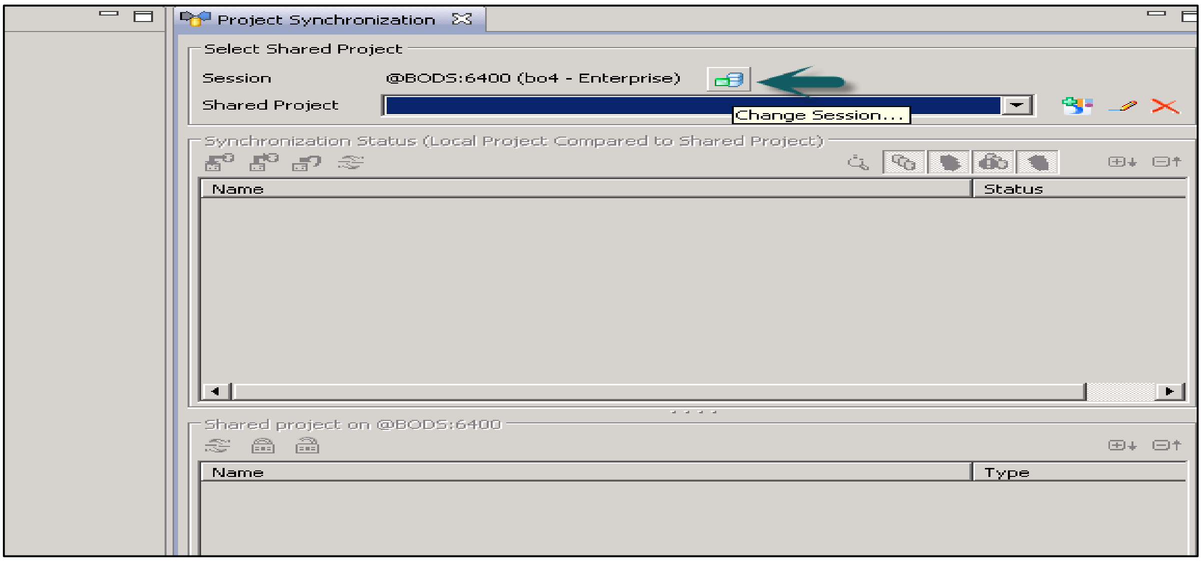
	Shows all resources. This clears the filters and lists all resources regardless of their status.
	Shows/Hides the resources with a status of **Synchronized**.
	Shows/Hides the resources in the local project that have changed with respect to the server.
	Shows/Hides the resources with a status of **Conflicting**.
	Shows/Hides the resources on the server that have changed with respect to the local project.

How to Perform Project Synchronization?

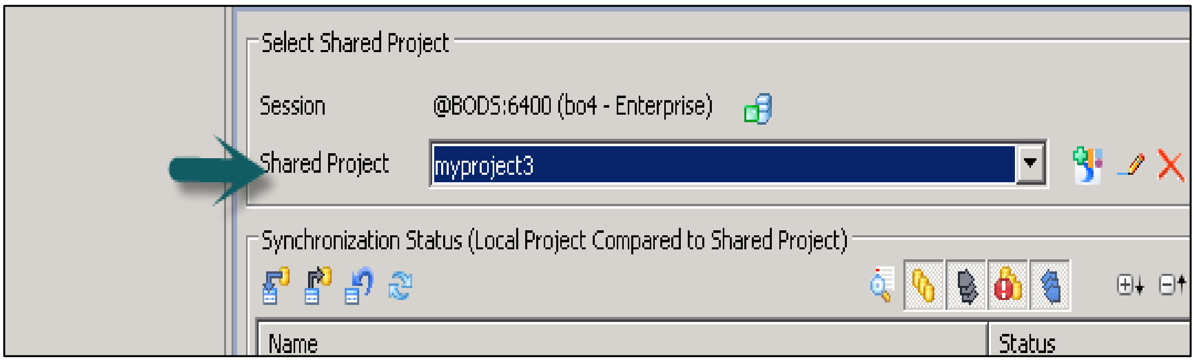
To perform Project Synchronization, go to Windows -> Project Synchronization.



Click 'Change session' to open a session on the repository system where the shared projects are saved.


Project Synchronization
Select Shared Project
Session
@BODS:6400 (bo4 - Enterprise)
Shared Project
Change Session...
Synchronization Status (Local Project Compared to Shared Project)
Name
Status
Shared project on @BODS:6400
Name
Type

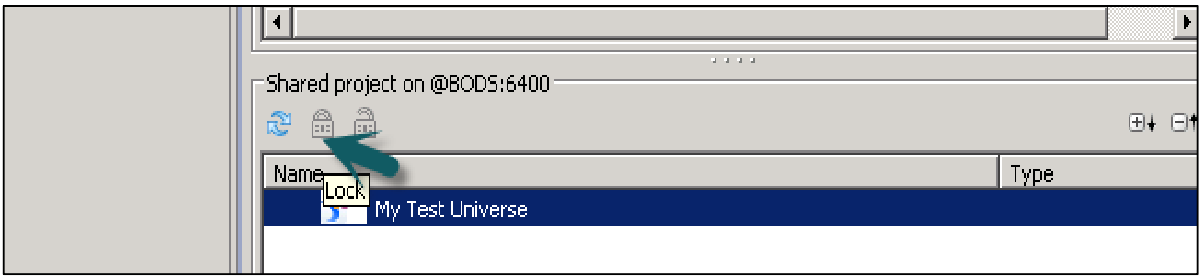
Select a project to synchronize in the shared project list.


Select Shared Project
Session
@BODS:6400 (bo4 - Enterprise)
Shared Project
myproject3
Synchronization Status (Local Project Compared to Shared Project)
Name
Status

Locking a Resource

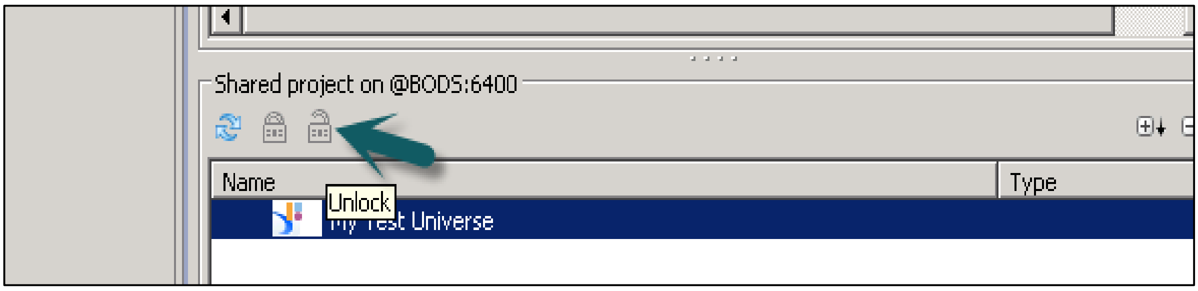
To lock a resource in Project Synchronization, it should be under shared project. Lock informs other developers that you are working on the resource.

To lock a resource: Select the shared project from shared project list. Expand the project. Select the resource -> Right click -> Click Lock.



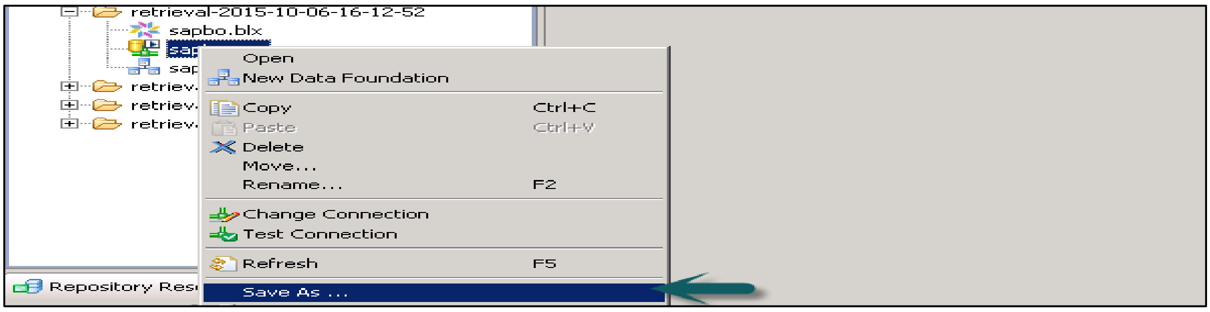
Unlocking a Resource

To unlock a resource, select the resource under Project Synchronization. Right click -> Unlock.

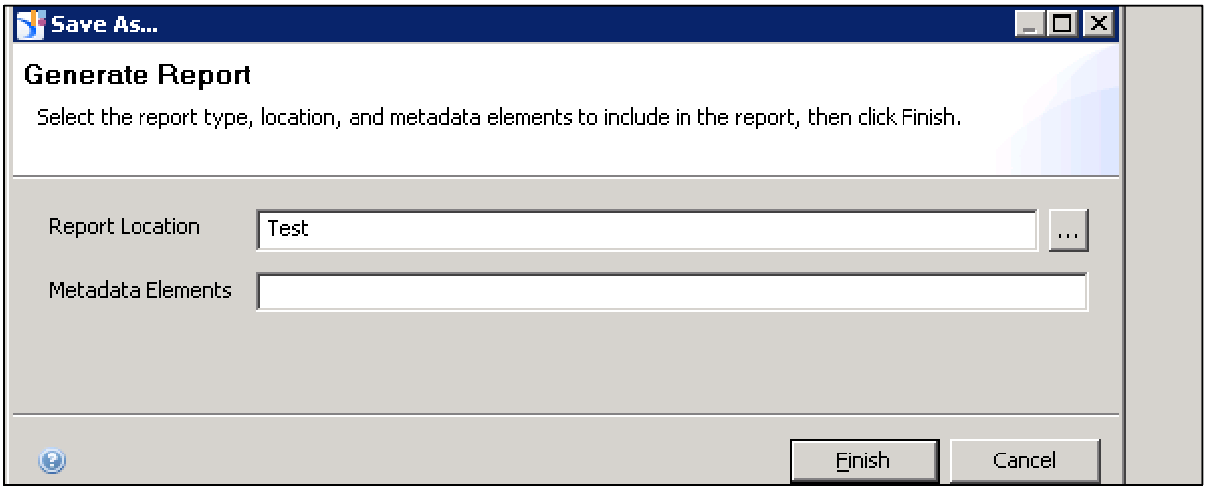


Saving Resources in IDT

It is also possible to save any resource in a local project as a report in the local file. To save a resource, right-click on any resource, Save As.



In the Report Location box, enter a file path, file name, and file type for the report. The file type can be .pdf, .html, or .txt.



Generate Report

Select the report type, location, and metadata elements to include in the report, then click Finish.

Report Location: Test

Metadata Elements:

To browse the local file system to find a file path, click the browse button.

For larger resources (data foundations and business layers), you can select which metadata elements to include in the report in the Metadata Elements box.

Click Generate to create the report.

7. IDT – Managing Connections

A connection in IDT is used to connect to a relational or an OLAP data source using SAP BusinessObjects reporting tool. It can be a local connection or a connection published in a central repository.

Different Types of Connections Supported in IDT

Following are the types of connections that are supported in IDT:

Relational Connection

This is used to design Data Foundation layer in Information Design tool. You can import tables and joins from data source.

OLAP Connection

Using an OLAP connection, you can design a business layer while creating a Universe. It allows you to connect to multidimensional schema directly and to import them for Universe design. Later, they can be used with SAP Business Objects reporting tool.

BICS Client

To connect to SAP NetWeaver BW, you can use SAP BICS client middleware to provide access to BEx query. Connections in IDT can be locally saved or they can be secured and published in a central repository.

Local connections are saved as .cnx files and they can be accessed by any user who is running IDT. Once you publish the connection to the repository, they are changed to a secured connection.

A secured connection is published into the repository and saved in Connection folder. You can also create secured connections by using Insert Relational and Insert OLAP connection commands from the repository resource view.

Following are the key properties of a secured connection:

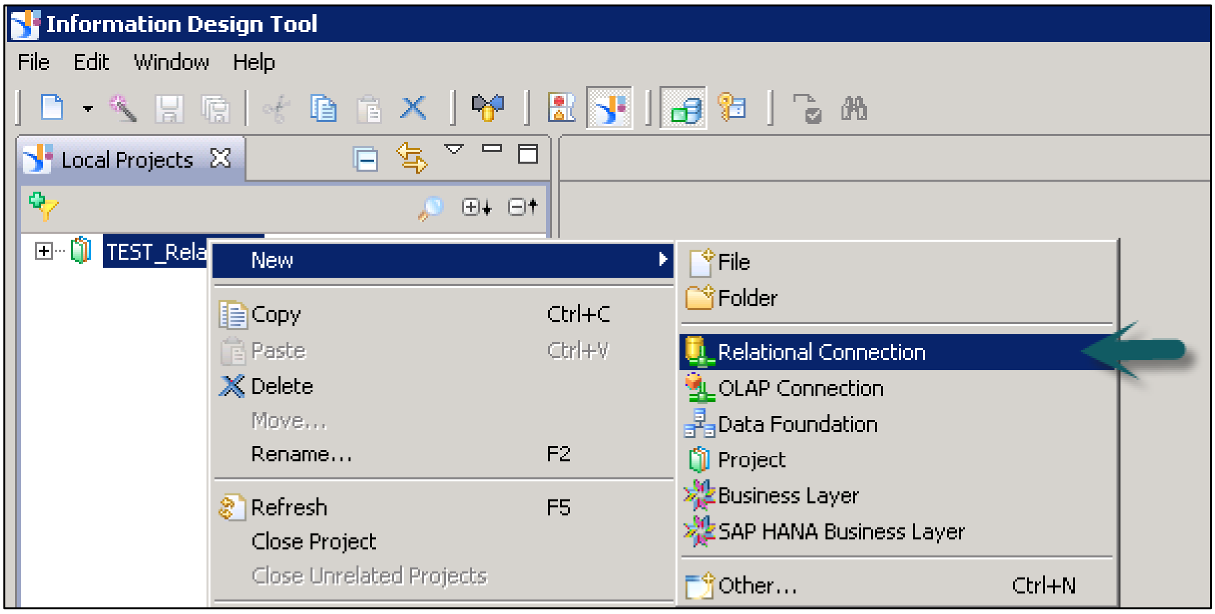
- Users must be authenticated.
- User rights can be defined at the user level to grant or deny access to connections or connection properties.
- Secured connections can be used or shared by authenticated users.

Creating a New Connection in IDT – Relational

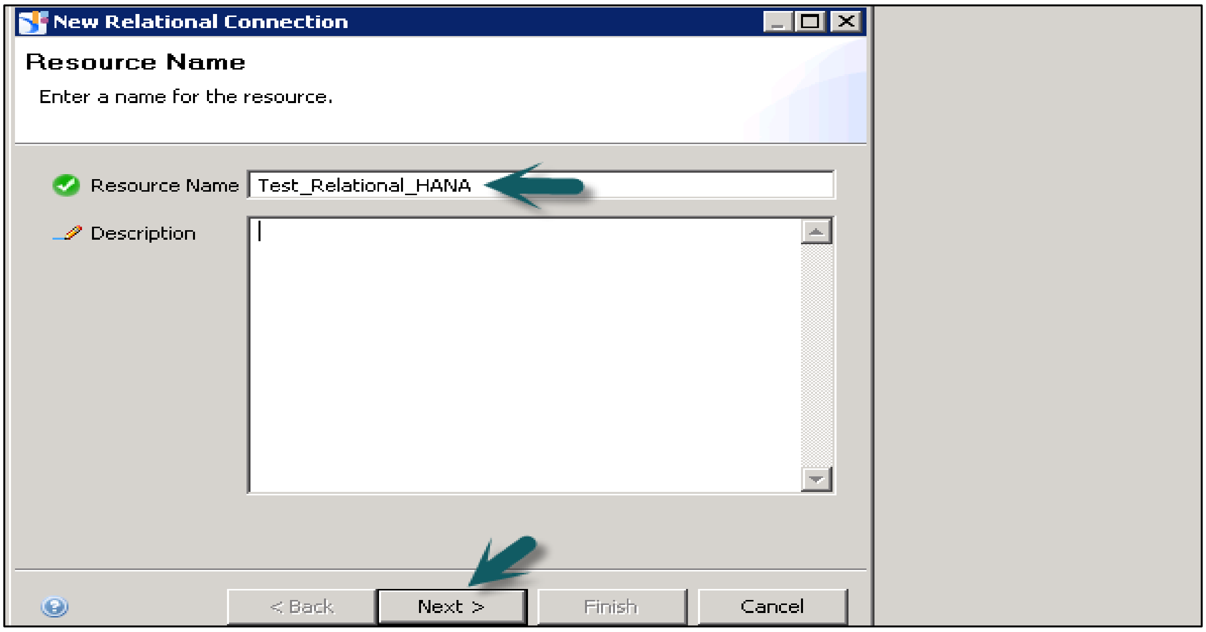
Go to Information Design tool under BI client. To create a new Relational connection, first start with a new project under Local Project view.

Click New -> Project -> Enter the Project Name -> Finish.

Right-click on Project name -> New -> Relational Connection.



Enter the connection/resource name -> click Next.


New Relational Connection

Resource Name

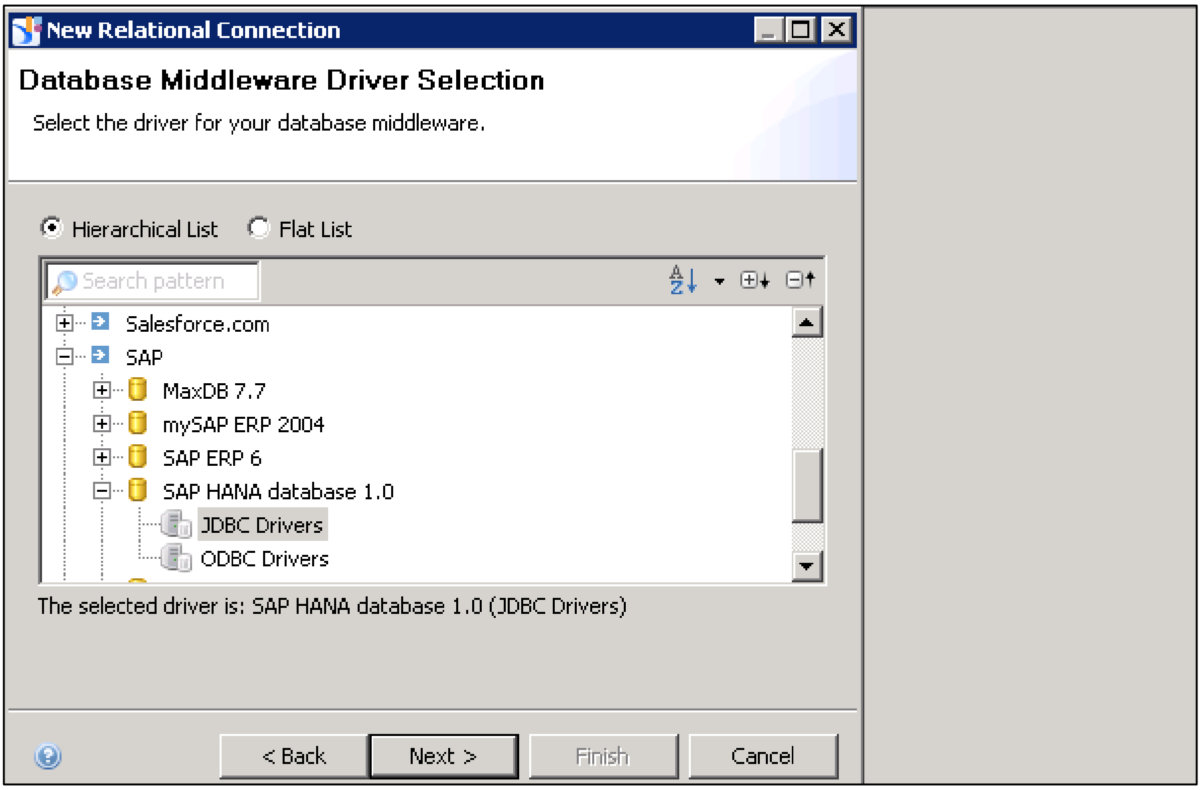
Enter a name for the resource.

Resource Name: Test_Relational_HANA

Description:

Select the middleware as per data source. You can select SAP or non-SAP as data source and set up a relational connection to the database.

We have selected SAP from the list -> SAP HANA -> JDBC -> click Next.



New Relational Connection

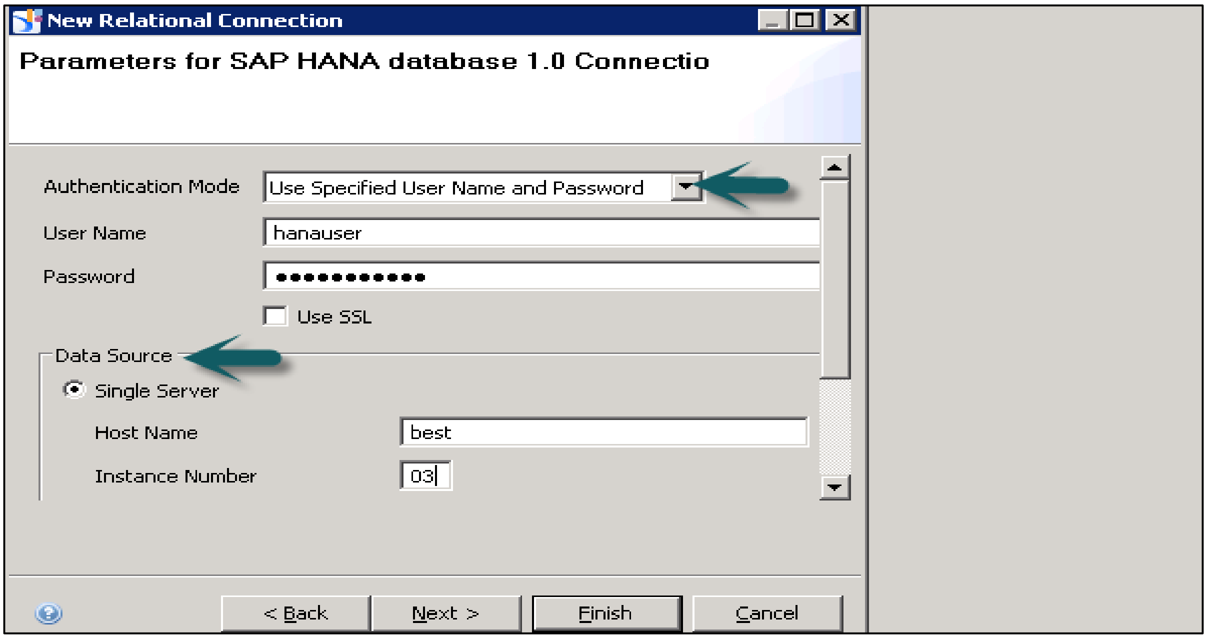
Database Middleware Driver Selection

Select the driver for your database middleware.

● Hierarchical List ○ Flat List

The selected driver is: SAP HANA database 1.0 (JDBC Drivers)

Enter the Authentication mode, user name and password. Enter the host name and the Instance number and click Next.



New Relational Connection

Parameters for SAP HANA database 1.0 Connectio

Authentication Mode: Use Specified User Name and Password

User Name: hanauser

Password: ●●●●●●●●●●●●

□ Use SSL

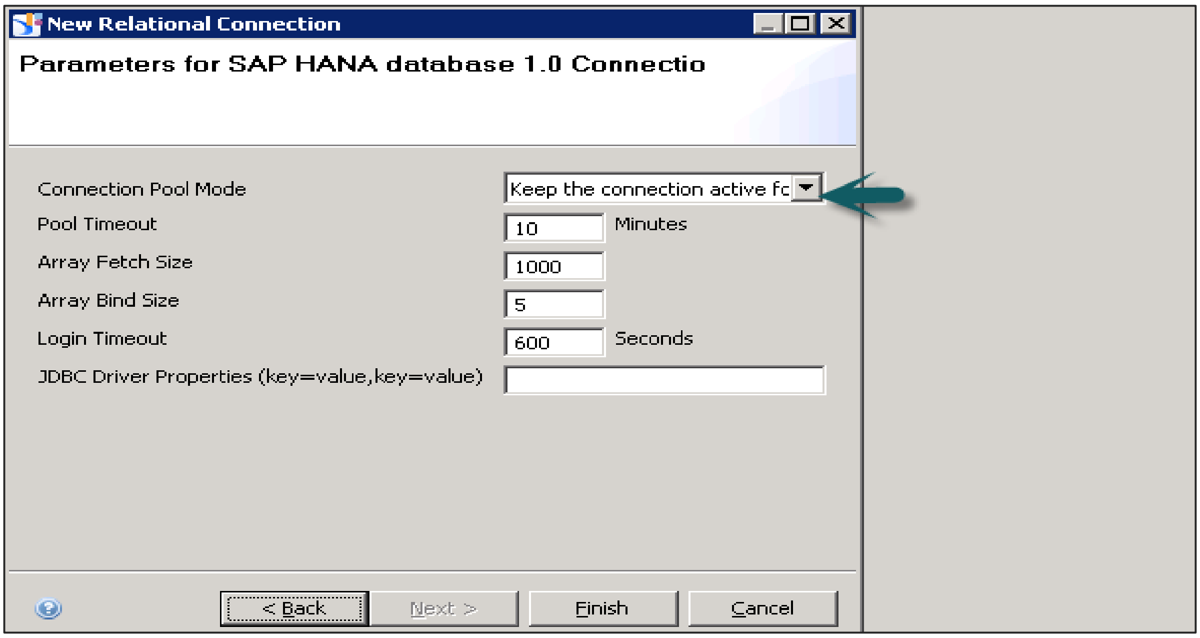
Data Source

● Single Server

Host Name: best

Instance Number: 03

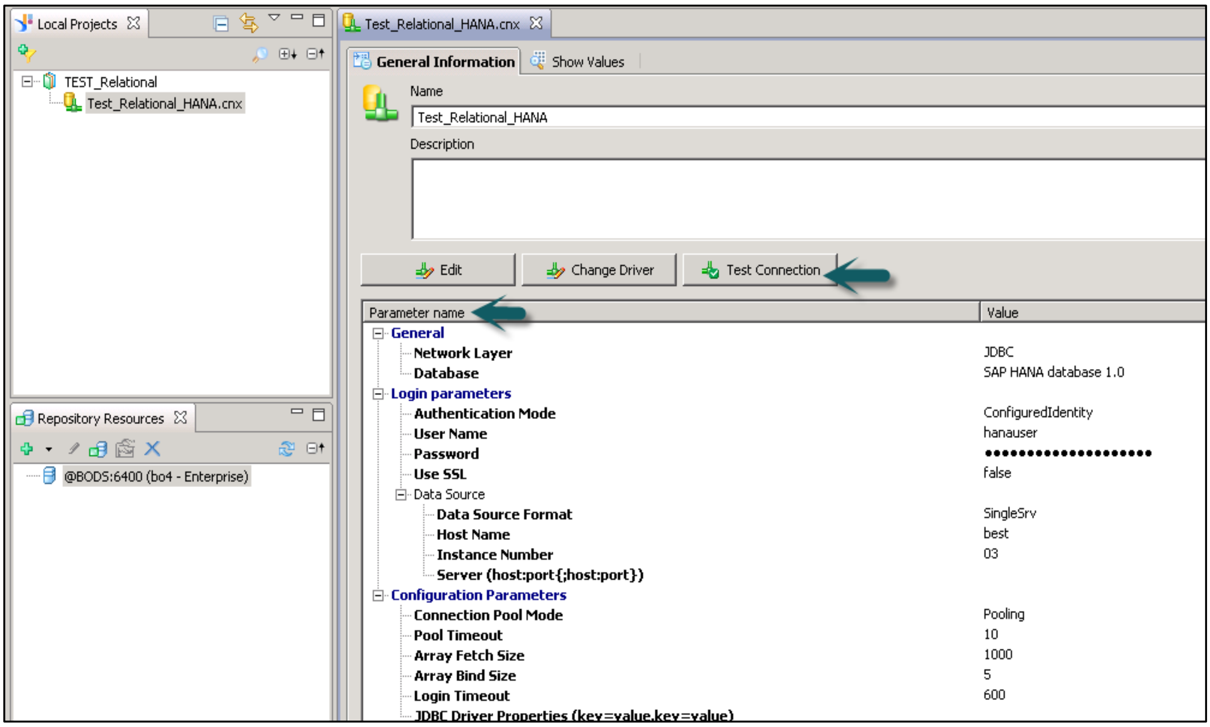
In the next window, you can define connection parameters like - Time out, Array fetch size, Array Bind size, etc. Click Finish.



Parameters for SAP HANA database 1.0 Connectio

Connection Pool Mode	Keep the connection active fc	
Pool Timeout	10	Minutes
Array Fetch Size	1000	
Array Bind Size	5	
Login Timeout	600	Seconds
JDBC Driver Properties (key=value,key=value)		

A Relational connection to source database is created with .cnx file extension. You can click Test Connection.



Name: Test_Relational_HANA

Description:

Parameter name	Value
General	
Network Layer	JDBC
Database	SAP HANA database 1.0
Login parameters	
Authentication Mode	ConfiguredIdentity
User Name	hanauser
Password	•••••••••••••••••••
Use SSL	false
Data Source	
Data Source Format	SingleSrv
Host Name	best
Instance Number	03
Server (host:port{;host:port})	
Configuration Parameters	
Connection Pool Mode	Pooling
Pool Timeout	10
Array Fetch Size	1000
Array Bind Size	5
Login Timeout	600
JDBC Driver Properties (key=value,key=value)	

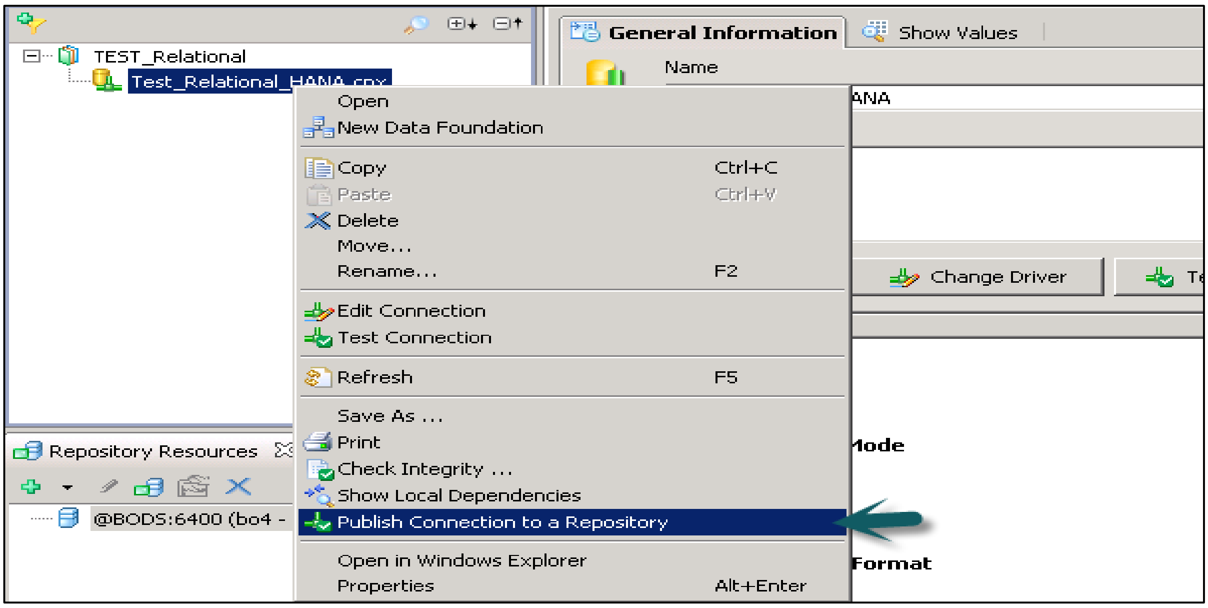
Lower part of Window tells you about connection parameters - Login parameters, configuration parameters, etc.

-> Test Connection -> Successful

Similarly, you can create a Relational connection for other data sources.

We have to publish this connection to the Repository to make it available for use.

Right Click on connection name -> Publish connection to Repository -> Enter BO repository password -> Connect -> Finish -> Yes.



.cns- secured Repository connection

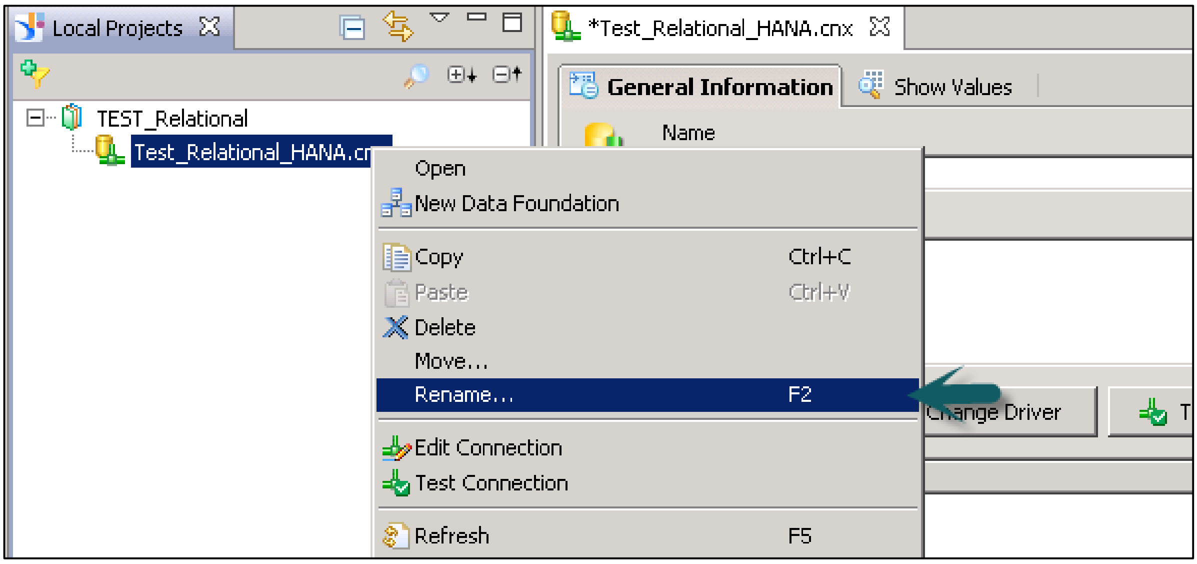
.cnx-local unsecured - If you use this connection it will not allow you to publish anything to the repository.

This shows how a relational connection can be created in the Information Design Tool. To summarize the steps that are involved in creating a connection -

- Enter the name of the connection
- Select the middleware for the target database
- Enter the login parameters to connect to the relational data source
- Configure and customize parameters to optimize the connection and Finish
- To change it to secure, publish the connection to the Repository

Renaming or Deleting a Connection

To rename or delete a connection, right-click on connection name under Local Projects area.

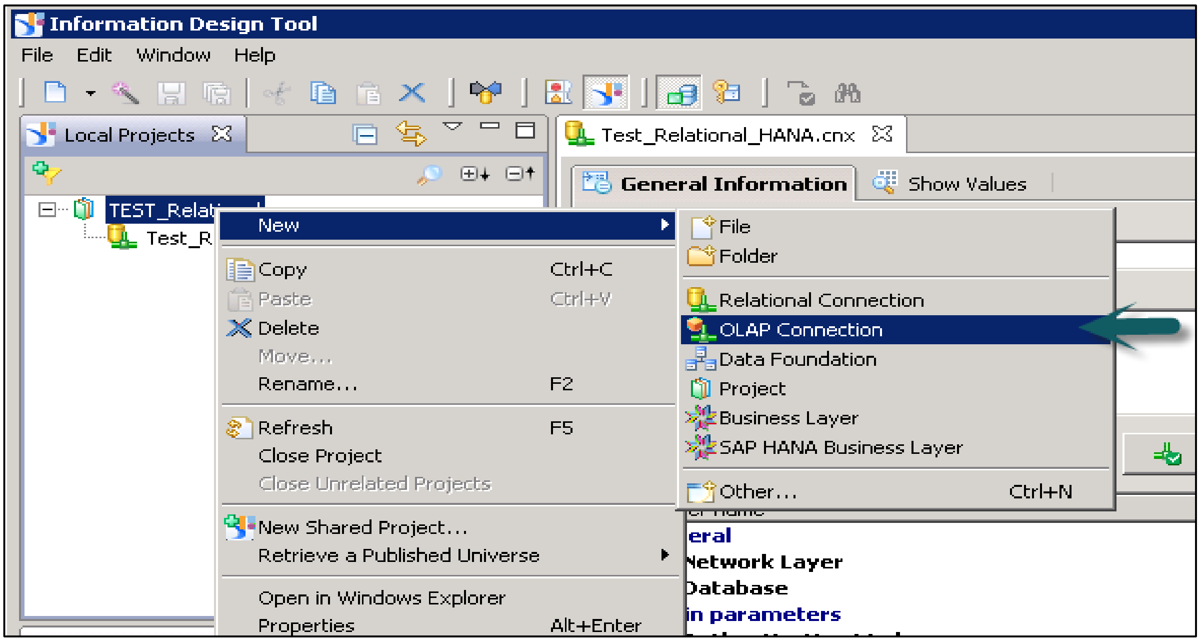


You can also delete or edit a Relational connection like this.

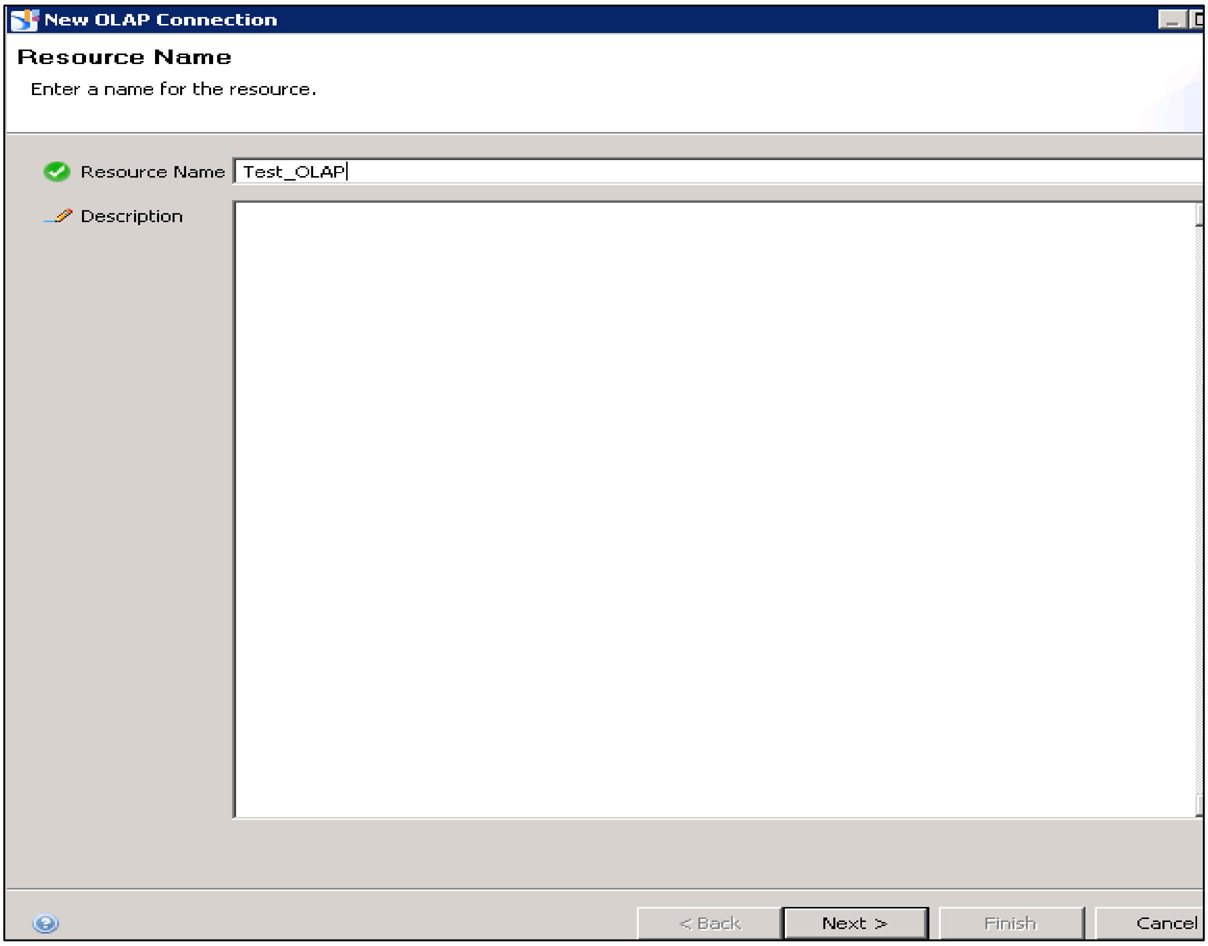
Creating a New Connection in IDT – OLAP

An OLAP connection is used to connect to multidimensional view or a data model to design Business Layer in Information Design tool.

To create a new OLAP connection, right-click on Project name -> New -> OLAP Connection.



Enter the connection name, description and click Next.



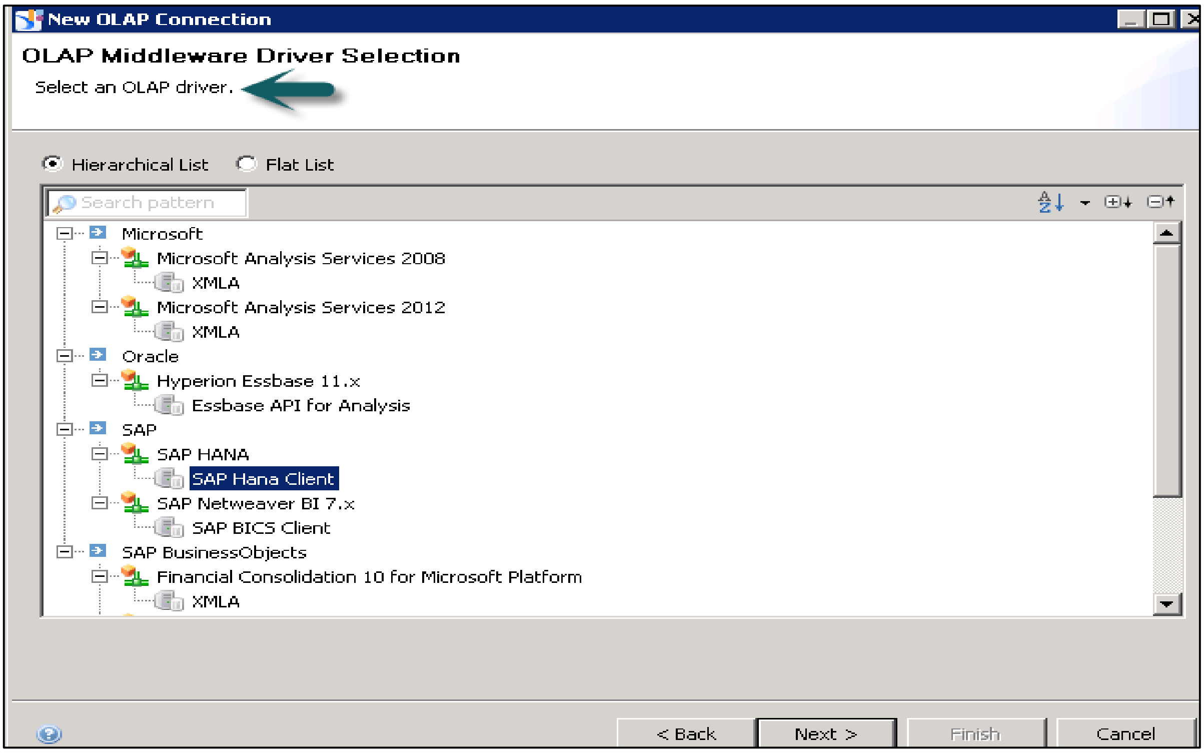
Resource Name: Test_OLAP

Description:

Next, select an OLAP middleware driver. It shows a list of all available OLAP data sources. You can select any of OLAP data source as per requirement.

Note that you don’t need to create a Data Foundation, as an OLAP directly hits the Business Layer. You can define dimensions and measures and other properties at Business Layer.

Select the suitable middleware driver to connect to OLAP data source and click Next.



New OLAP Connection

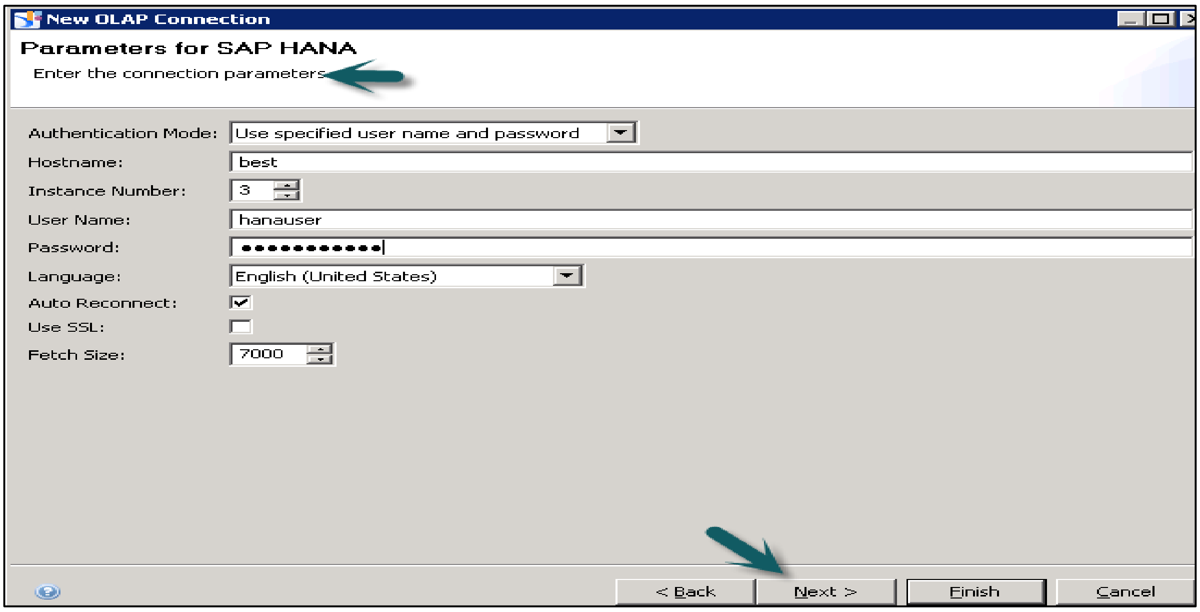
OLAP Middleware Driver Selection

Select an OLAP driver.

● Hierarchical List ○ Flat List

- Microsoft
  - Microsoft Analysis Services 2008
    - XMLA
  - Microsoft Analysis Services 2012
    - XMLA
- Oracle
  - Hyperion Essbase 11.x
    - Essbase API for Analysis
- SAP
  - SAP HANA
    - SAP Hana Client
  - SAP Netweaver BI 7.x
    - SAP BICS Client
- SAP BusinessObjects
  - Financial Consolidation 10 for Microsoft Platform
    - XMLA

Enter the connection parameters, authentication details, system name, instance number, etc. and click Next.



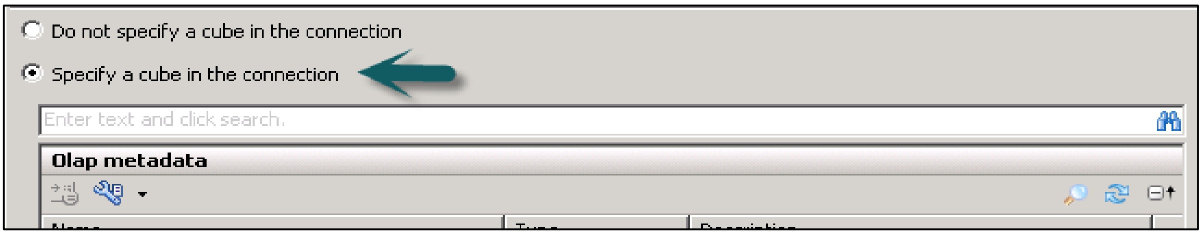
New OLAP Connection

Parameters for SAP HANA

Enter the connection parameters

Authentication Mode:	Use specified user name and password
Hostname:	best
Instance Number:	3
User Name:	hanauser
Password:	●●●●●●●●●●●●
Language:	English (United States)
Auto Reconnect:	☑
Use SSL:	□
Fetch Size:	7000

You can also select a specific cube to connect or all the cubes in the design time repository. If you select a particular cube, then using this OLAP connection you can design Business Layer only on the objects available in that cube.

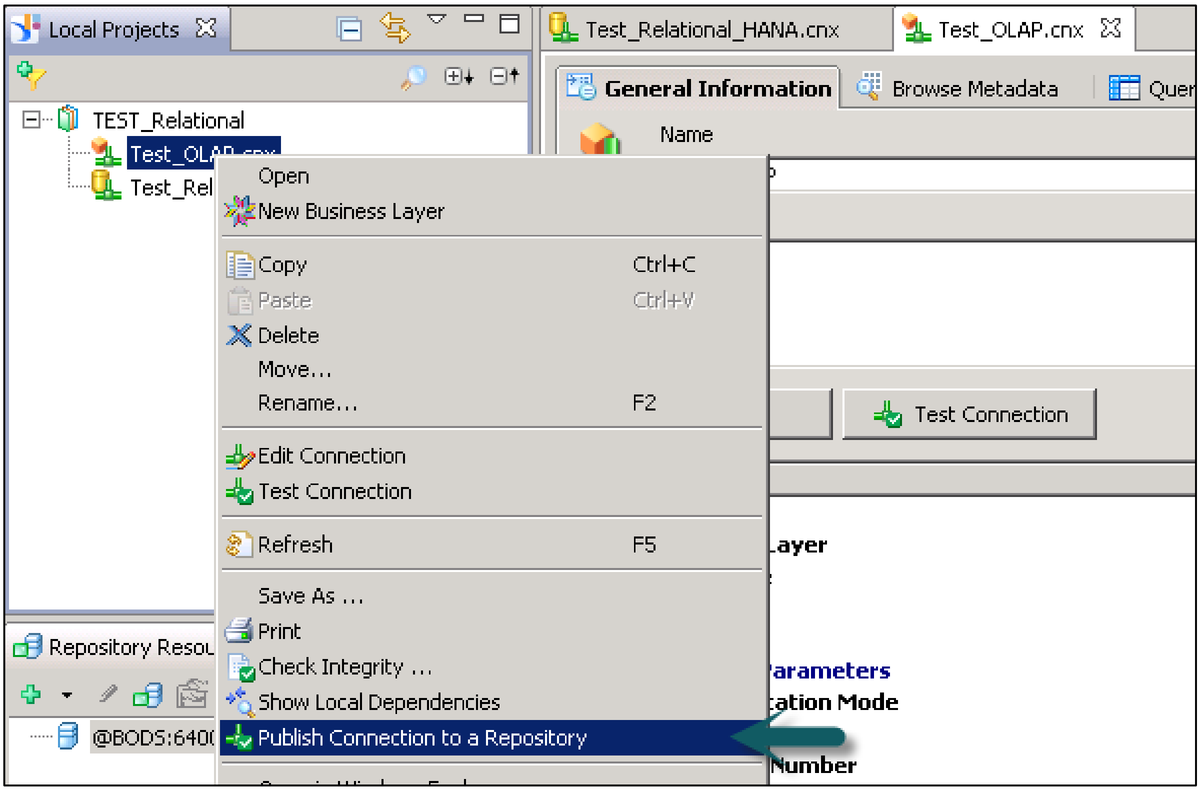


○ Do not specify a cube in the connection

● Specify a cube in the connection

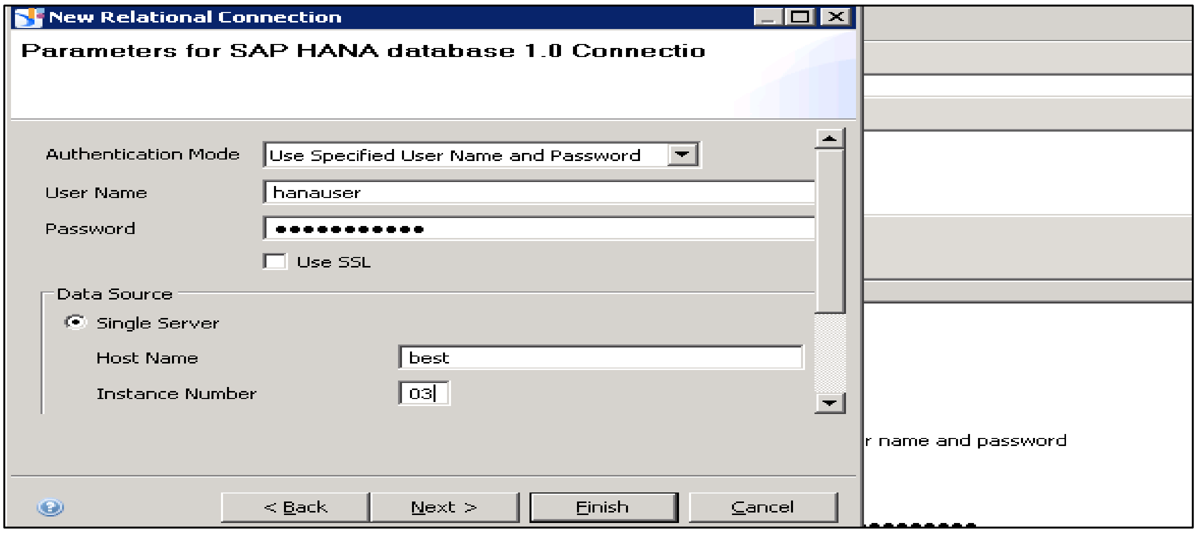
Click Finish.

Now, you need to publish the connection to the Repository. Right-click on connection -> Publish the Connection to the Repository.



Login Parameters for Connection

When you create a relational or an OLAP connection in IDT to connect to any data source, you have to provide login parameters of source database such as Host Name and Instance Number.



Parameters for SAP HANA database 1.0 Connectio

Authentication Mode: Use Specified User Name and Password

User Name: hanauser

Password: ●●●●●●●●●●●●

☐ Use SSL

Data Source

● Single Server

Host Name: best

Instance Number: 03

r name and password

Connection Parameters

While creating a connection, you can configure various connection parameters:

Connection Pool Mode: This is used to keep the connection active.

Pool Timeout: When you set the connection pool mode to keep connection active for, length of time in minutes to keep connection open.

Array Fetch Size: This tells the maximum number of rows that can be fetched from the database.

Example: Suppose you enter a value of 25 and you query returns 150 rows so it will be fetched with 6 fetches of 25 rows each.

Array Bind Size: This field is not required for designing Universe in IDT.

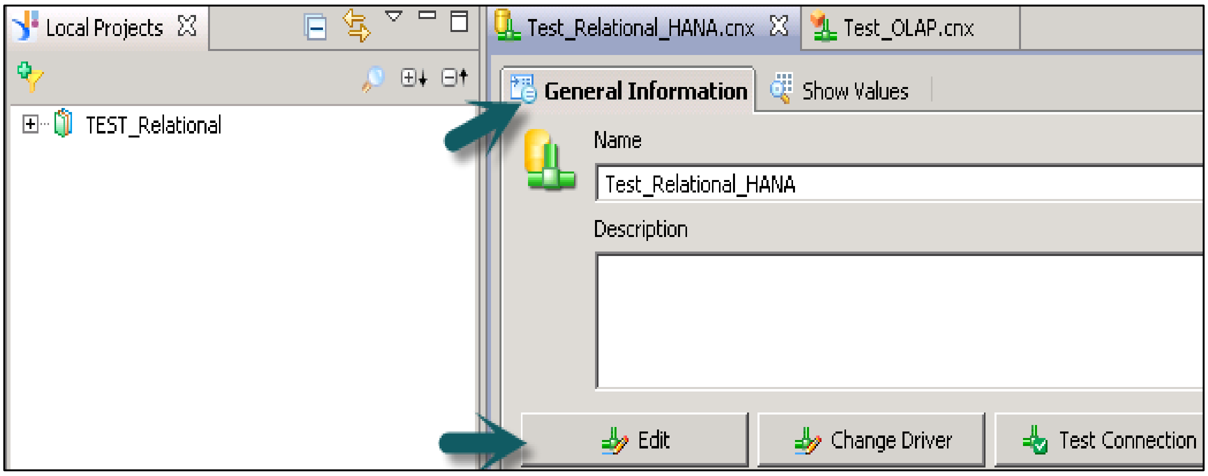
Login Timeout: It determines the minutes a connection attempts timeout and an error message is displayed.

There are various custom parameters that can also be defined like ConnectInit, Hint.

Editing a Connection

To edit a connection, double-click on the connection name in Local Project View.

Go to General Information tab -> Edit.



To edit the connection parameters, click Edit button. You can edit the authentication details and connection parameters.

To change the middleware driver, click Change Driver. Select the Driver from the dropdown list.

You can also test the availability of the database server, click Test Connection.

The "Connection Definition" pane shows the information stored about the connection – Login parameters, Configuration parameters, etc.

8. IDT – Managing Resources in Repository

The resources in repository includes Universe and connections published in the repository. Universe folder contains all Universes that are published using Information Design Tool or UDT. The connection folder contains all the connections that are created using IDT or using UDT.

You can perform the following tasks while managing the repository resources:

Managing Secure Connections

- You can edit an existing connection.
- You can publish a new relational or an OLAP connection in the repository.
- You can create a shortcut in the local project from an existing secured connection.
- You can delete a secured connection from the repository.

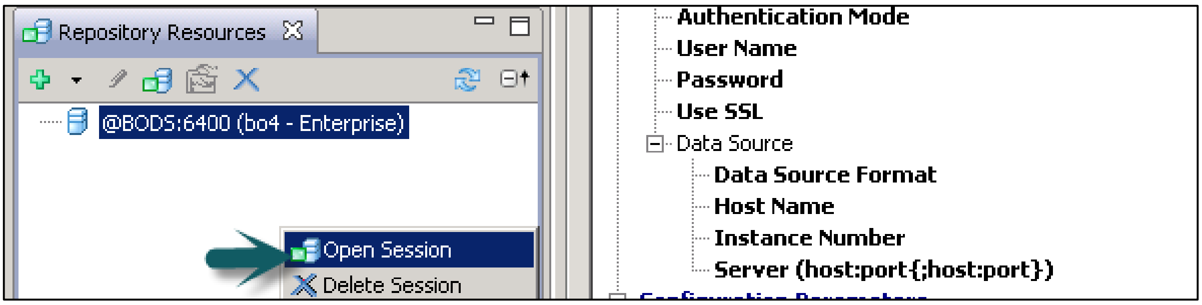
Managing Universe

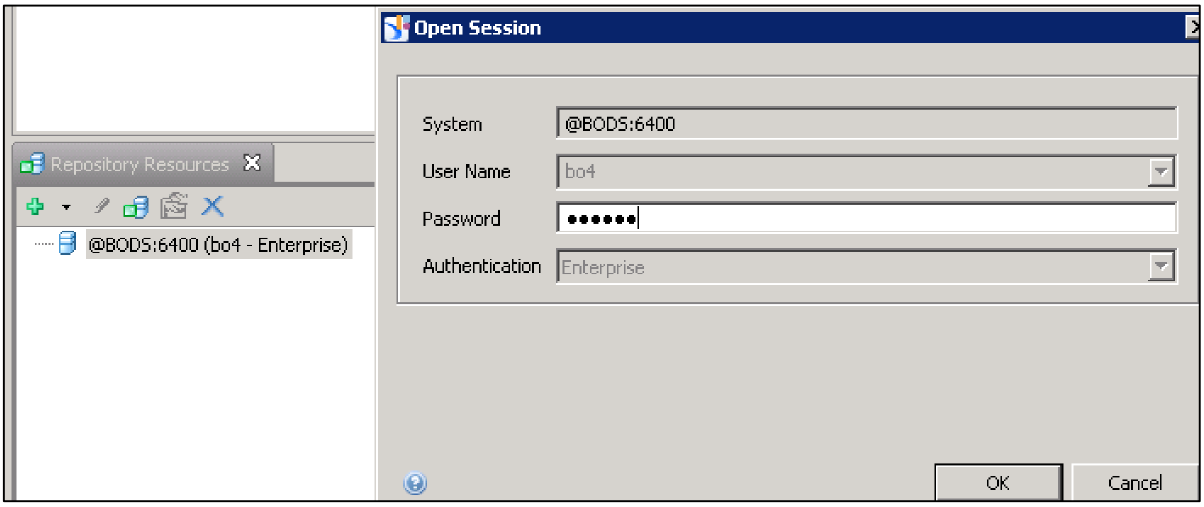
- You can perform integrity check.
- You can double click on Universe under local project view to run the query in the query panel.
- You can retrieve a Universe under the repository to Local Project View.
- You can rename or delete a Universe from the repository.
- You can also convert .unv Universe to .unx Universe and save it under Local project or can also publish them to the repository.

Opening and Closing a Session

To open a session that is already defined in the repository, you can use the Repository resources view.

Go to the Repository Resources and right-click -> Open Session.





Open Session

System: @BODS:6400

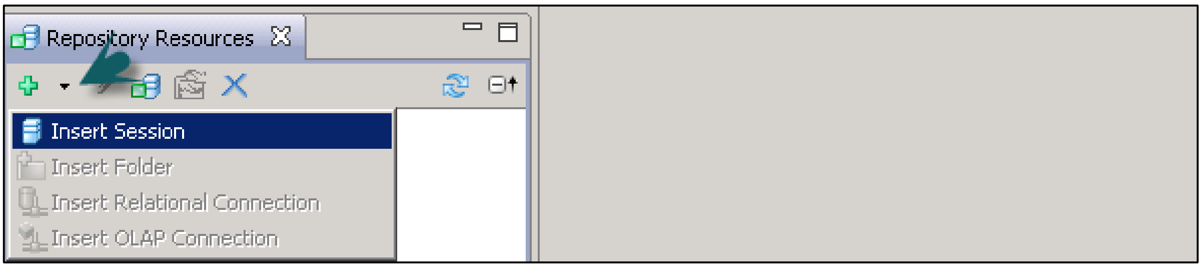
User Name: bo4

Password: ●●●●●●

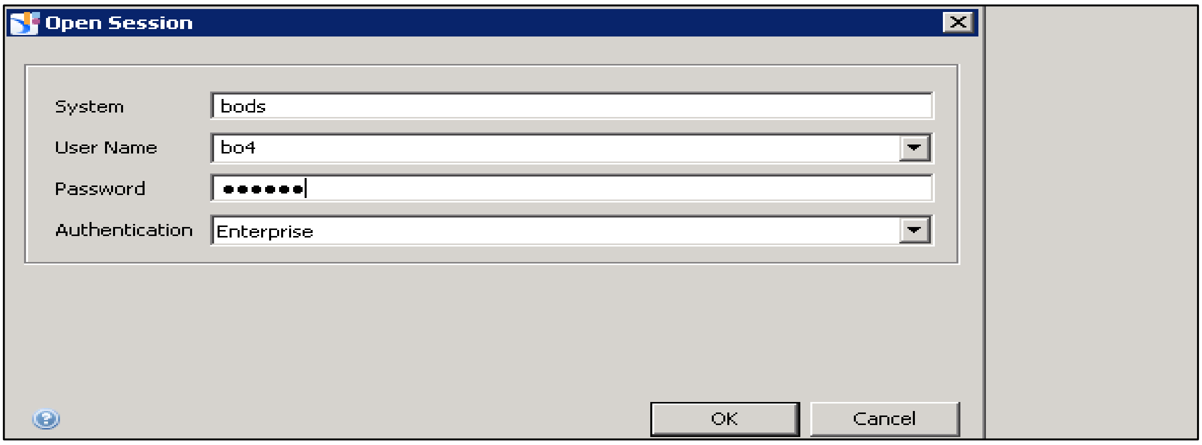
Authentication: Enterprise

Click OK and the session will be opened under the Repository resources section.

You can also insert a new session, which is not already defined in the Repository resources view. To insert a session, click on **+** sign.



Enter the session details, system, username, password, and authentication. Type -> OK



Open Session

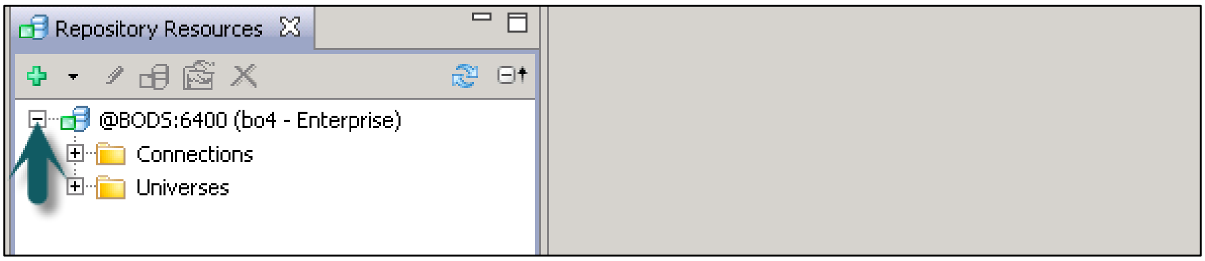
System: bods

User Name: bo4

Password: ●●●●●●

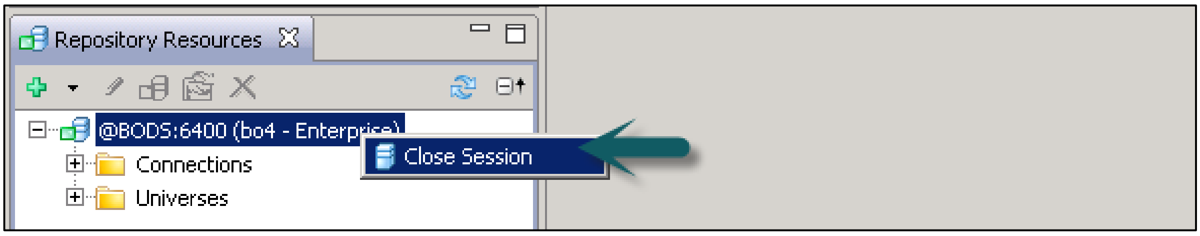
Authentication: Enterprise

To see list of available objects, click Expand and you can see a list of Universes and Connections inside it.



Closing a Session

When you close Information Design tool, all the active sessions are automatically closed. To close a session individually, right-click on the session name and click Close.



9. IDT – Data Foundation Layer

A **Data Foundation** contains one or more tables and joins from one or more relational databases that forms the design of Business Layer. A relational connection is used to design Data Foundation layer. You can add various other objects at Data Foundation that enhances the capabilities like - Derived tables, custom calculations, context, LOVs, etc.

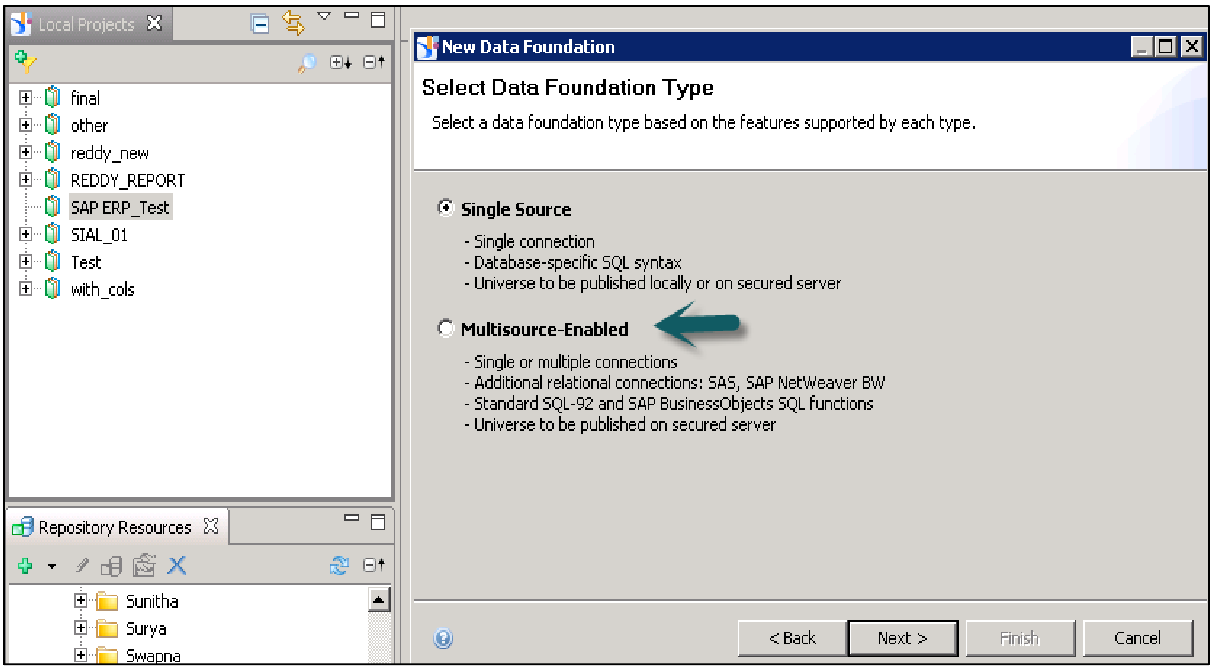
It is also possible to design multiple Business Layers on a single Data Foundation thus allowing you to build multiple Universes on single Data Foundation Layer.

Types of Data Foundation

In Information Design Tool, you can build Data Foundation that is – Single-source enabled or multi-source enabled.

Single-source Data Foundation supports a single Relational connection. Single Source Data Foundation supports a local or a secured connection so the Universe designed on this can be maintained locally or can be published to the Repository.

Multi-source enabled Data Foundation supports one or more relational connections. Connections can be added when you design the Data Foundation or can be added later. Multi-source enabled Data Foundation is designed on secured connections published in a Repository.



New Data Foundation

Select Data Foundation Type

Select a data foundation type based on the features supported by each type.

● Single Source

- Single connection
- Database-specific SQL syntax
- Universe to be published locally or on secured server

○ Multisource-Enabled

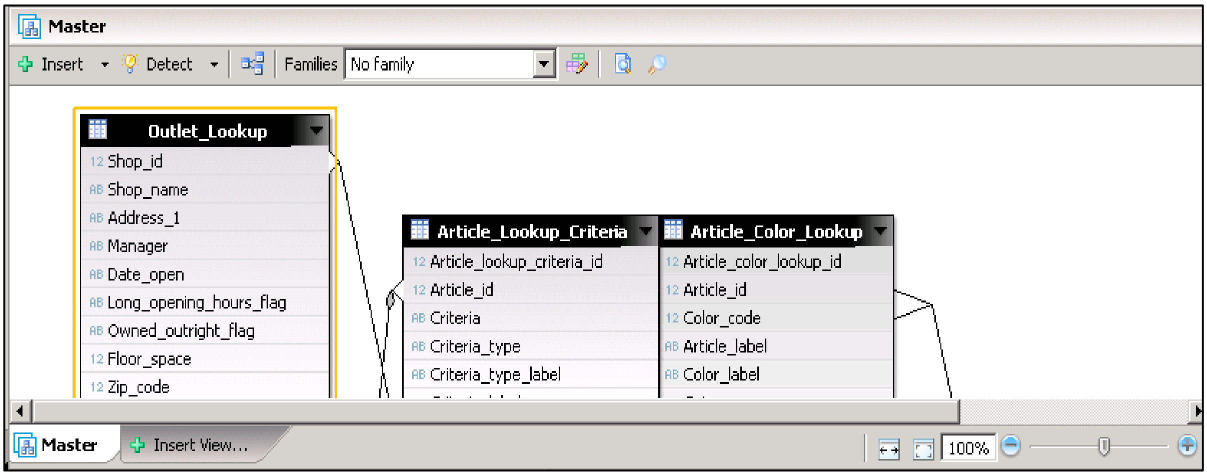
- Single or multiple connections
- Additional relational connections: SAS, SAP NetWeaver BW
- Standard SQL-92 and SAP BusinessObjects SQL functions
- Universe to be published on secured server

Data Foundation Editor

A Data Foundation editor is divided into multiple panes:

- View Pane
- Properties Pane
- Browsing pane

The Data Foundation view pane contains tables and joins. Master contains tables and joins that are connected with each other in a logical manner.



Properties pane defines properties of each object. To check the properties, you have to select any object in the Master tab.

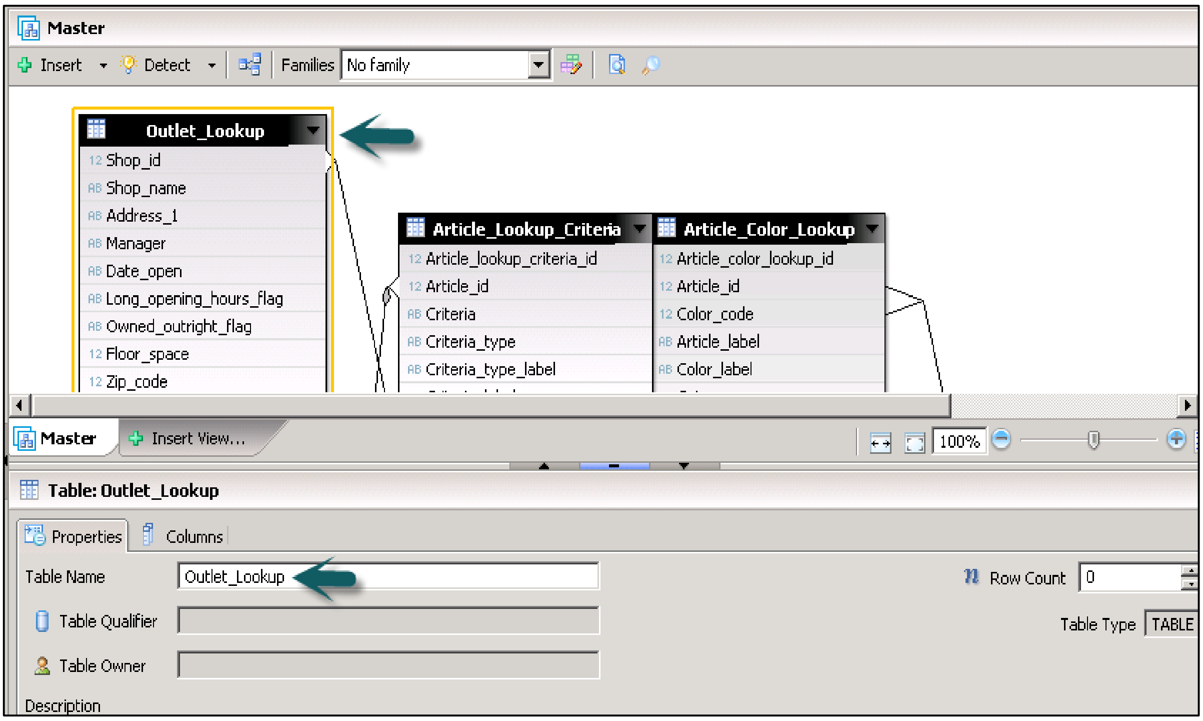


Table: Outlet_Lookup

Table Name: Outlet_Lookup

Table Qualifier:

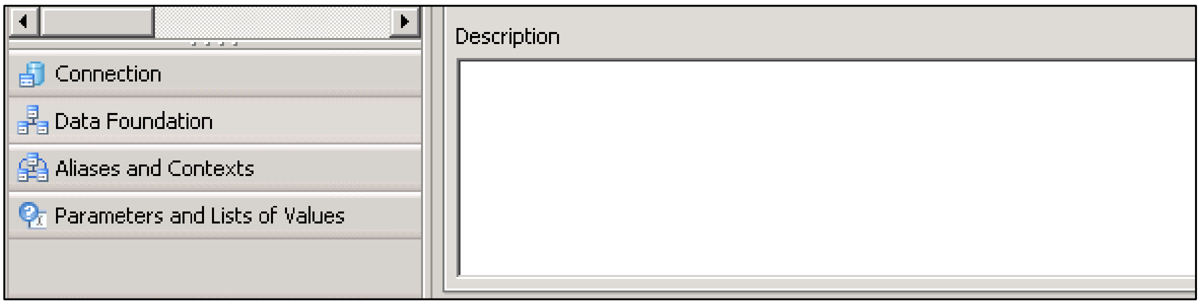
Table Owner:

Description

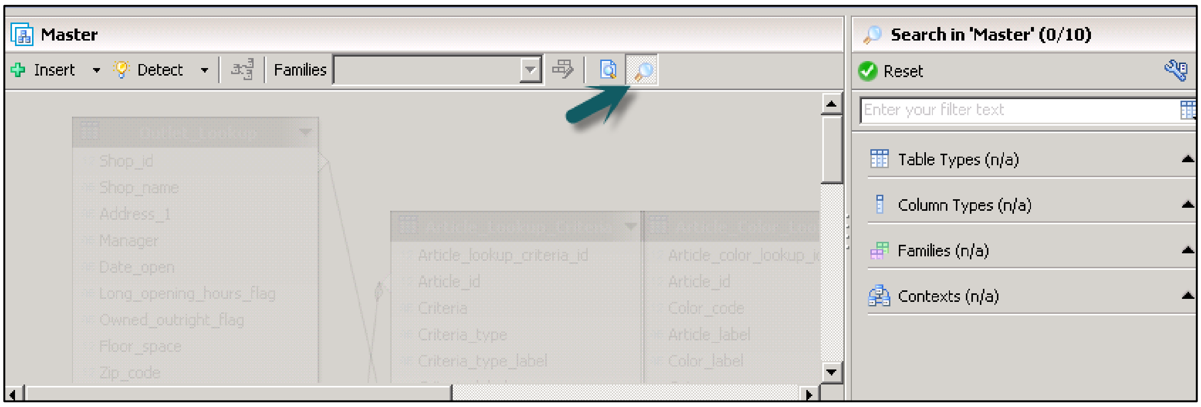
Row Count: 0

Table Type: TABLE

Using the browsing pane, you can work on different elements in data foundation like connections, Data Foundation, Aliases and Contexts, LOVs and parameters.

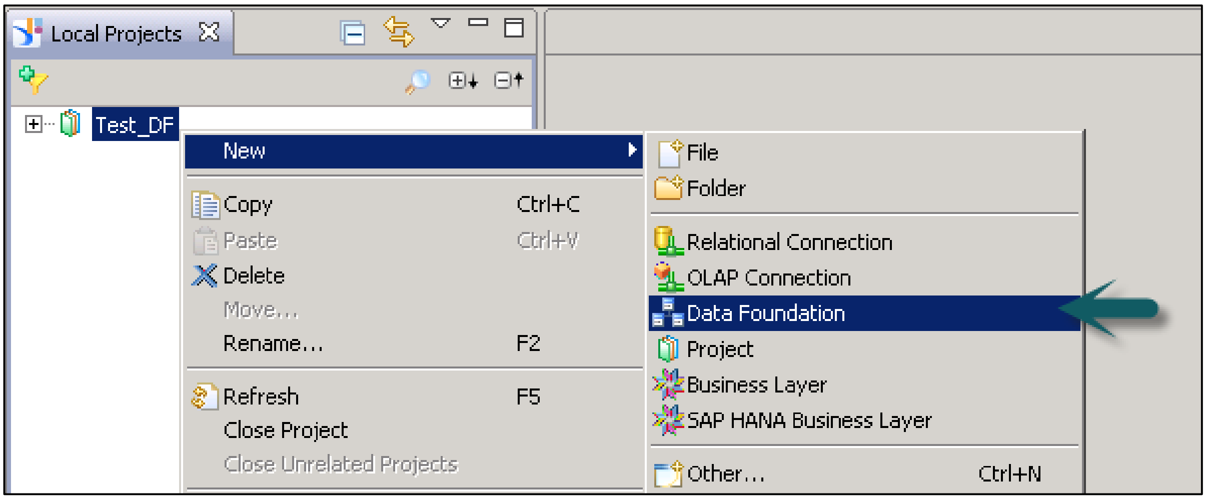


You can also perform a search in Data Foundation. To perform a search, click the icon.



10. IDT – Building Data Foundation

To build a Data Foundation, it can be created on a Local Project view. Right-click under Local Project -> New -> Data Foundation.



You can select a Single-source enabled or Multi-source enabled. Follow the wizard and select the connections.

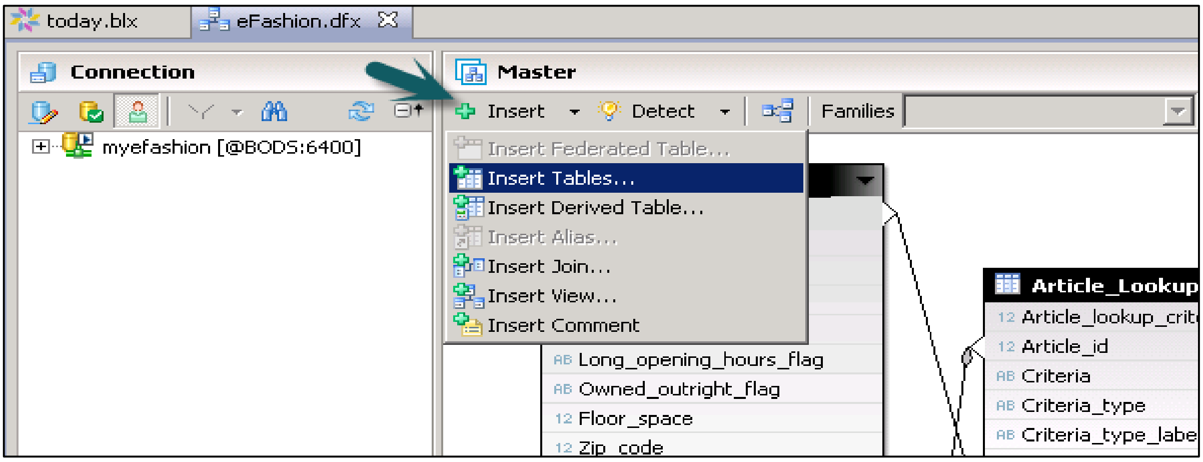
Data Foundation is created as .dfx file and it starts the Data Foundation editor. Insert the tables and joins in Data Foundation editor.

Insert Tables from the Connection

In connection pane, open and browse the tables in connection. You can also search the tables in the connection pane. Drag and drop the tables you want to add to Data Foundation master view.

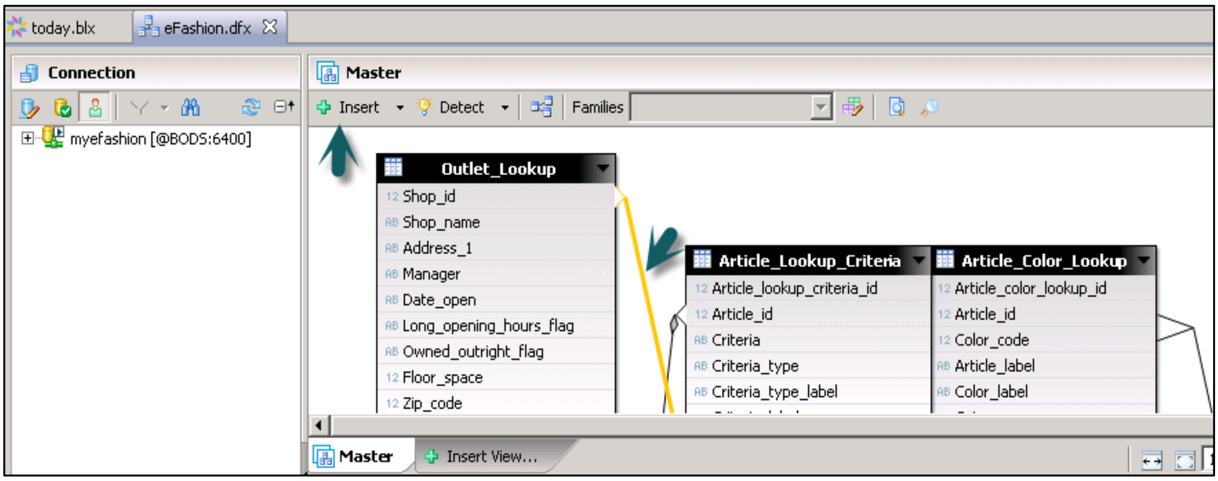
Insert Tables Using Wizard

You can also insert tables using Insert + option in Data Foundation tool bar. You can insert tables, joins, keys, derived tables, etc.

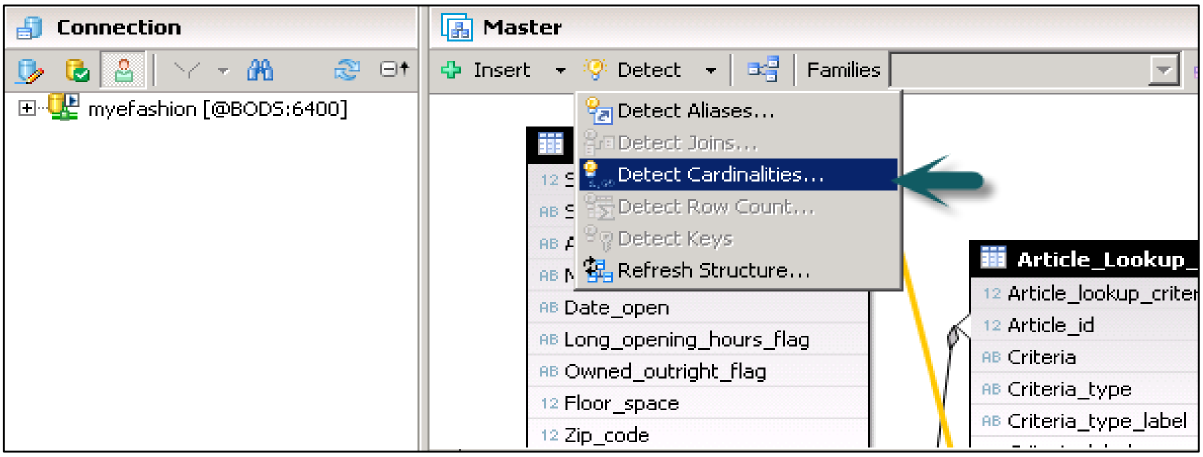


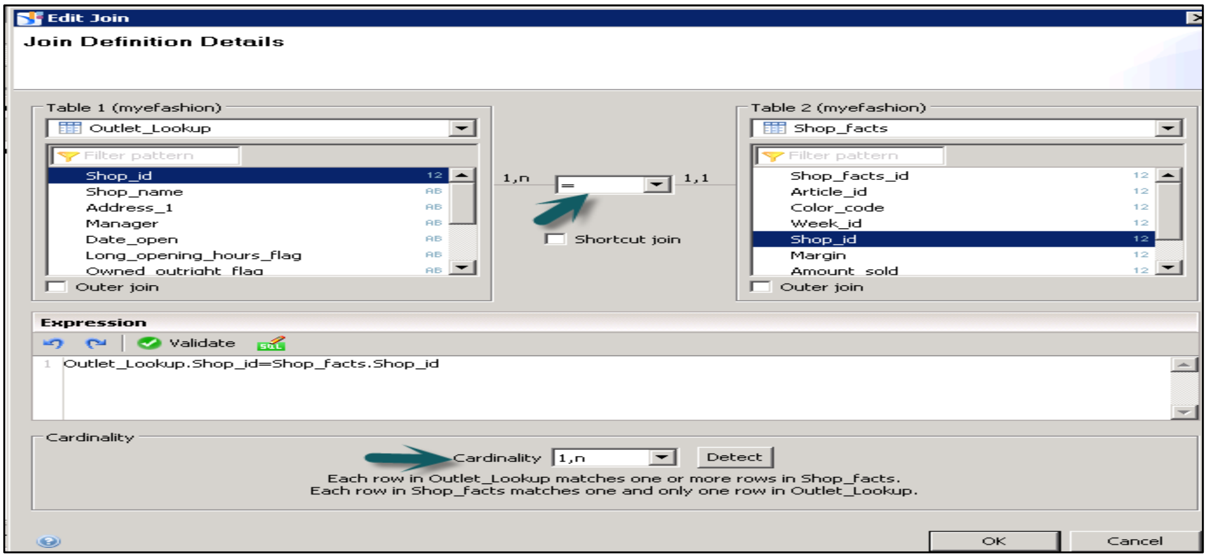
To insert joins in Data Foundation, you can use Insert option in toolbar or you can click on Edit Join to open the dialog box.

Double-click on Join to open edit Join dialog box. Detect option can be used to detect Join between columns.



To define Cardinality, you can use Detect option in the toolbar or you can open Edit Join dialog box.




Edit Join

Join Definition Details

Table 1 (myefashion): Outlet_Lookup

Table 2 (myefashion): Shop_facts

1,n = 1,1

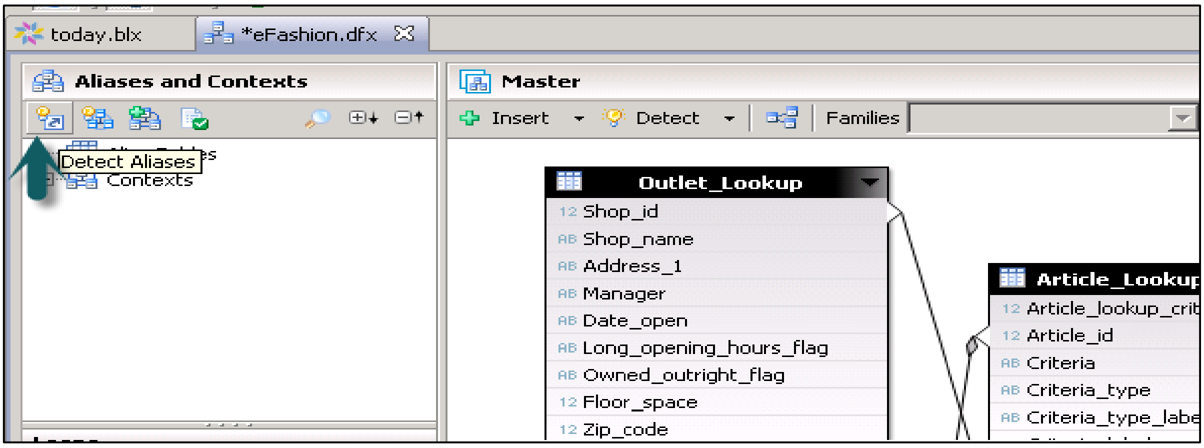
Expression

Outlet_Lookup.Shop_id=Shop_facts.Shop_id

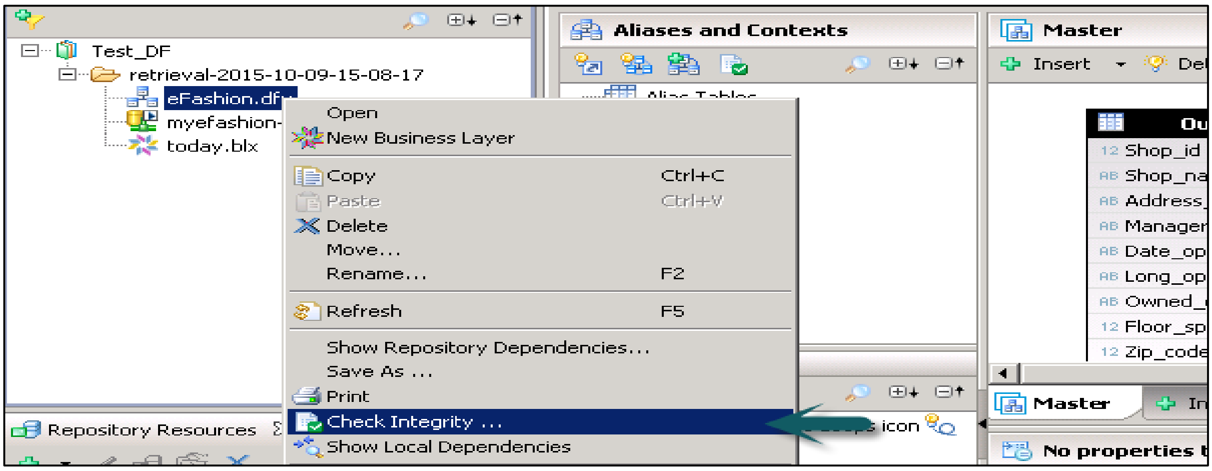
Cardinality: 1,n

Each row in Outlet_Lookup matches one or more rows in Shop_facts.
Each row in Shop_facts matches one and only one row in Outlet_Lookup.

You can add derived tables, alias tables, parameters and prompts, LOVs to be associated with prompts. Under aliases and contexts tab, you can click **detect aliases and contexts** to detect aliases and contexts automatically.



Right-click on .dfx file and select Check Integrity to run an integrity check.



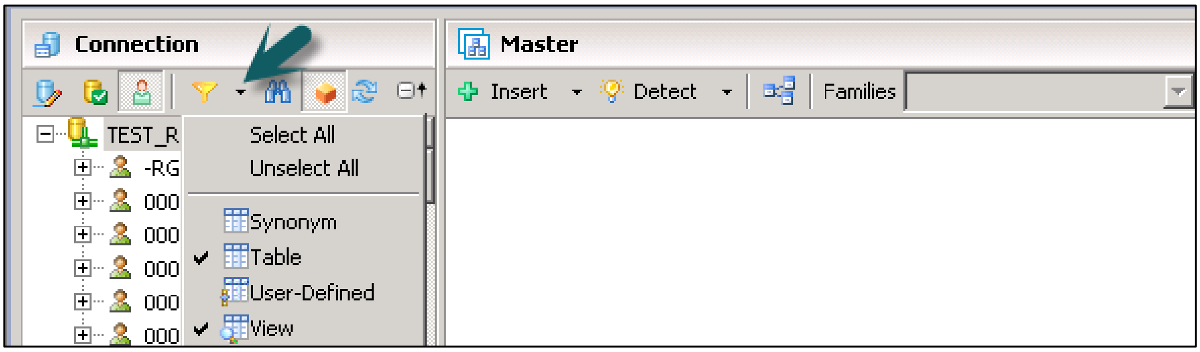
Save the Data Foundation by clicking the Save icon at the top.

Filter and Insert Tables

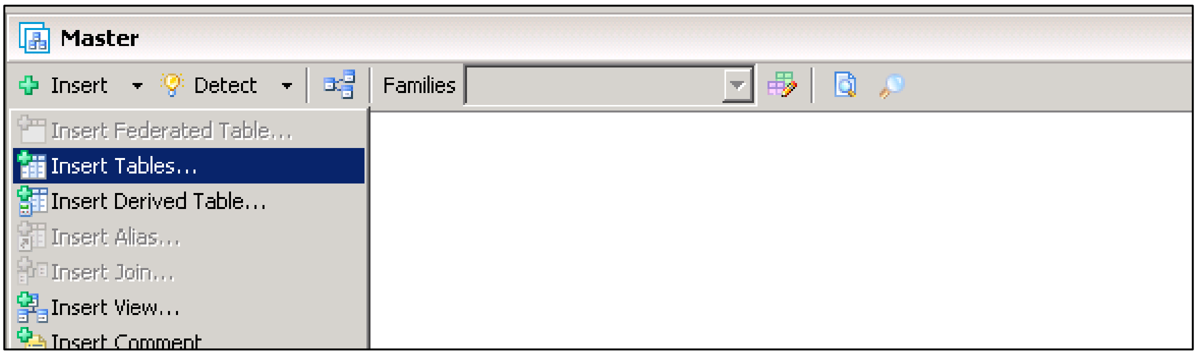
To filter a table in the connection, select the connection for which you want to filter and insert the tables.

Click on the down arrow mark to select a table type. You can select a particular table type by checking the option.

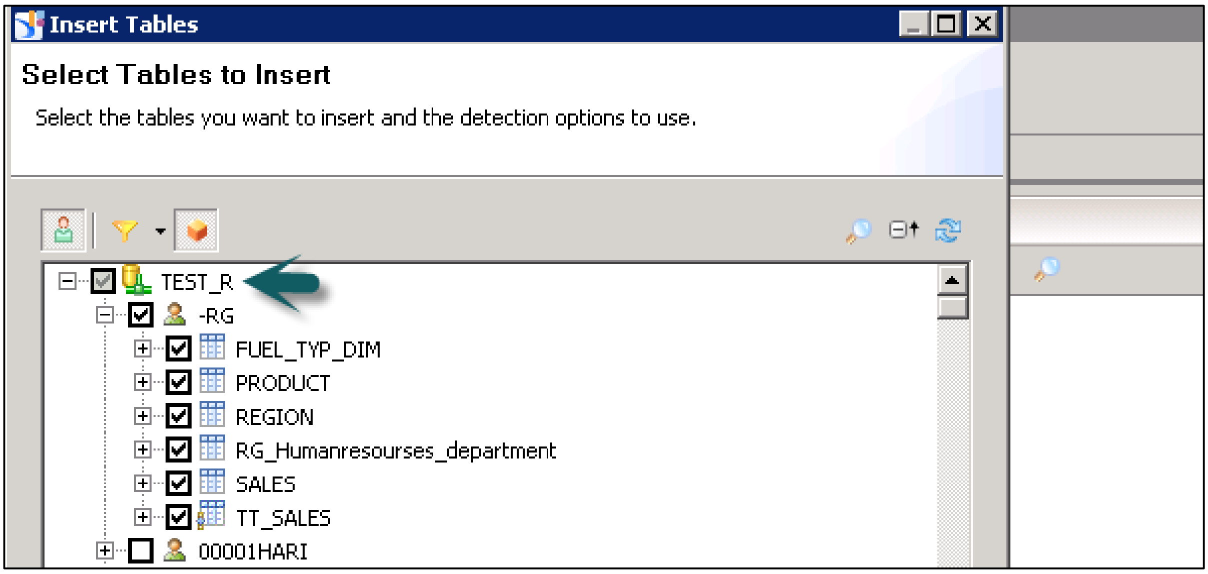
Select All/Unselect All option is used to select or unselect all the options in the dropdown.



To insert the tables: Select Insert Tables from the Insert menu in the data foundation view. The "Insert Tables" dialog box lists the connections defined in the data foundation.



Expand the connection to see the database tables referenced in the connection.



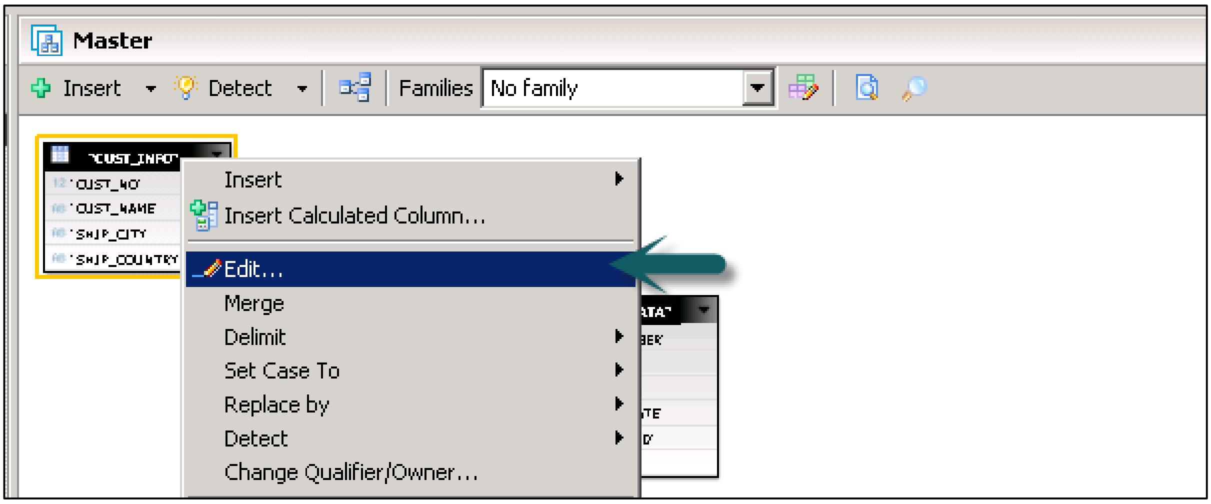
Select Tables to Insert

Select the tables you want to insert and the detection options to use.

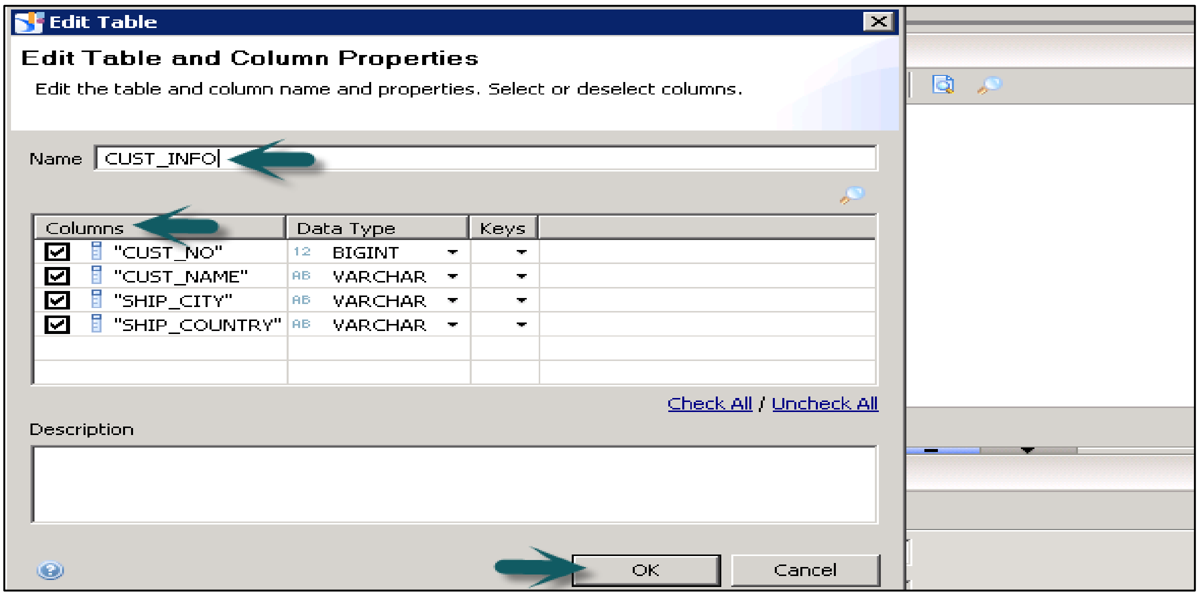
Editing Table Properties

You can edit the name and description of a table. It is also possible to remove columns from the table display, edit column data types, and change primary keys.

Select the table you want to edit and right-click on the table header -> Edit.



In the next dialog box, you can edit table name, description and properties of column.


Edit Table
Edit Table and Column Properties
Edit the table and column name and properties. Select or deselect columns.
Name
Check All / Uncheck All
Description
OK
Cancel

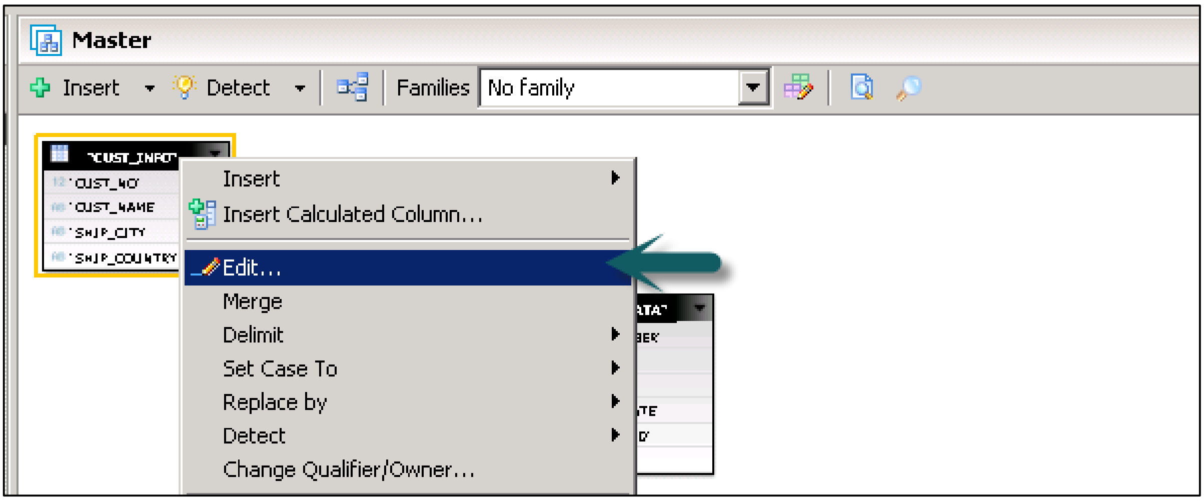
Name: CUST_INFO

	Columns	Data Type	Keys
☑	"CUST_NO"	BIGINT	
☑	"CUST_NAME"	VARCHAR	
☑	"SHIP_CITY"	VARCHAR	
☑	"SHIP_COUNTRY"	VARCHAR	

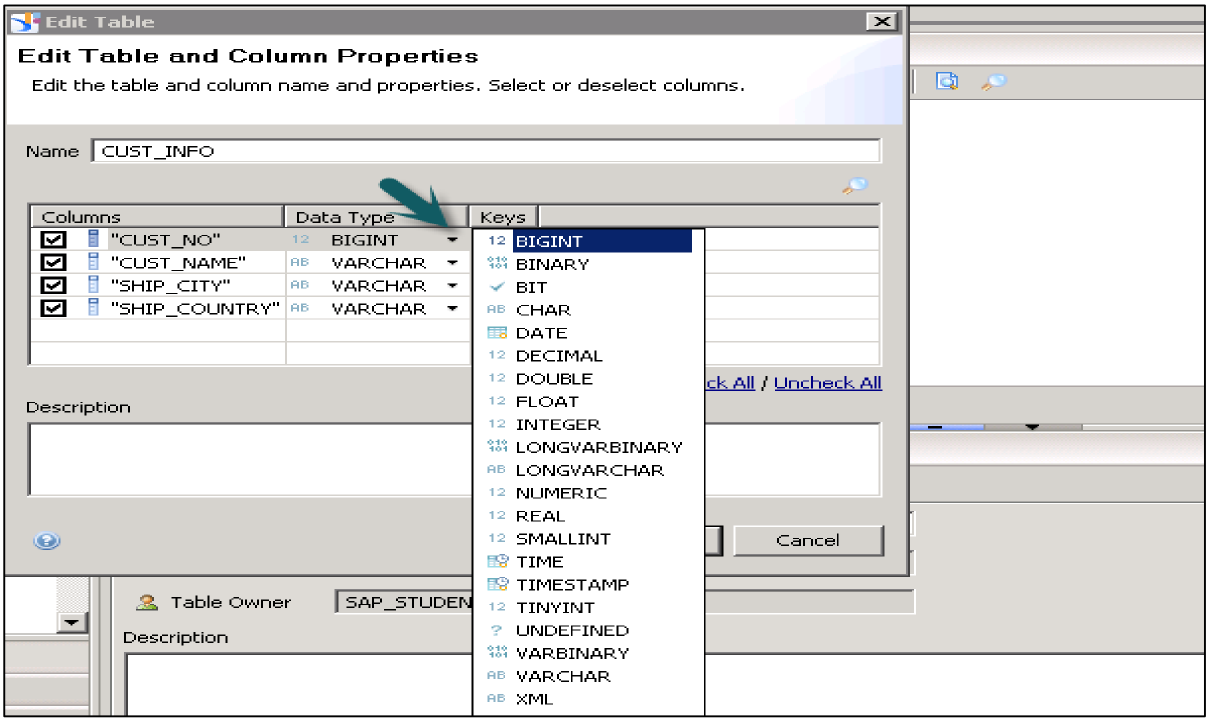
Click OK and the table and column properties will be updated.

Changing Data Types of a Column

To change the datatype of columns in a table, select the table you want to edit and right-click on the table header -> Edit.



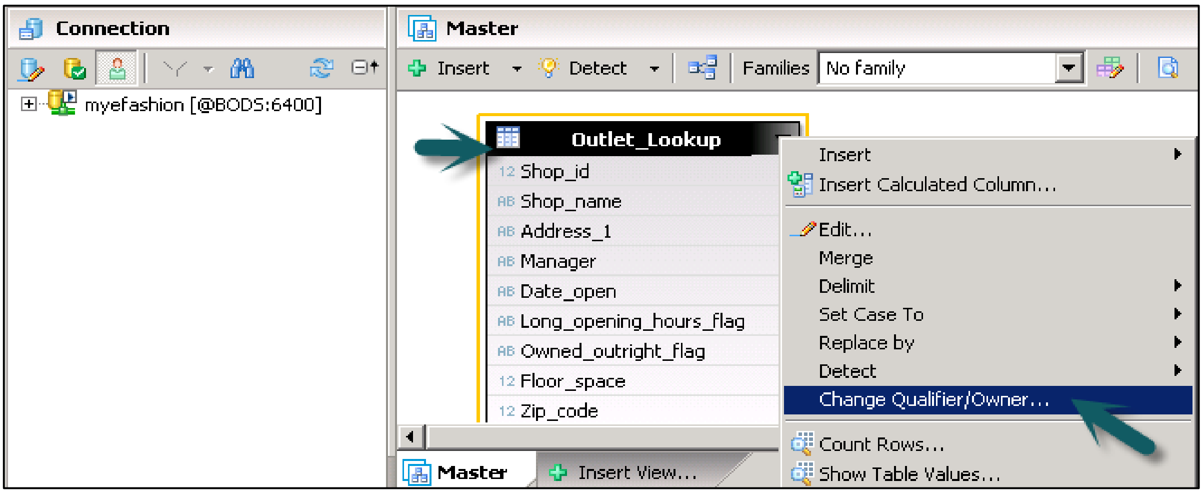
To edit the data type of a column, click on the arrow mark in front of data type.



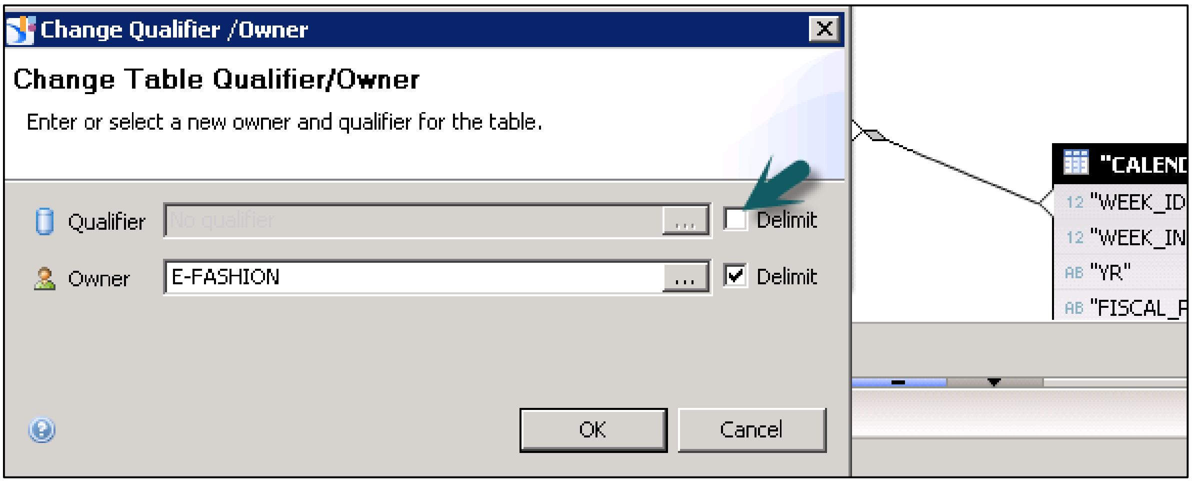
Select the data type for each column as per requirement and click OK.

In Data Foundation, you can also change qualifiers and owners name of standard tables. To change the name, go to Data Foundation editor by clicking on .dfx file in Local Project View.

Right-click on the table header in Data Foundation editor -> Change Qualifier and Owners.



In the "Change Qualifier/Owner" dialog box, click the browse button in the Qualifier field and select a new qualifier. If the qualifier name is delimited by default, the Delimit option is selected. To override the default delimitation, select or unselect Delimit.


Change Qualifier /Owner

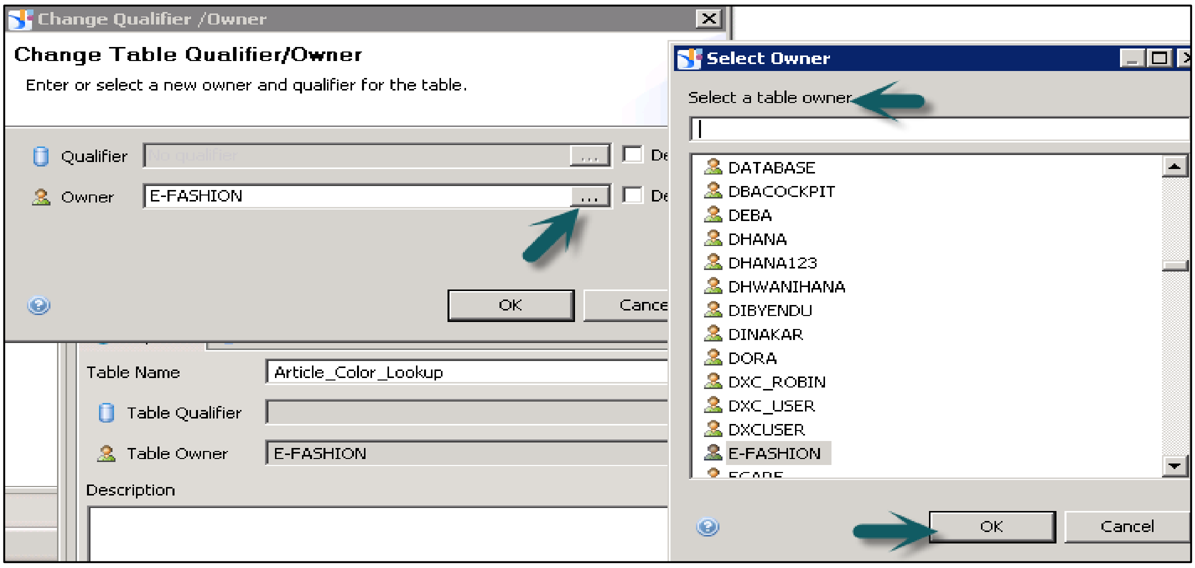
Change Table Qualifier/Owner

Enter or select a new owner and qualifier for the table.

Qualifier: No qualifier ... □ Delimit

Owner: E-FASHION ... ☑ Delimit

To change the owner, click the browse button in the Owner field and select a new owner. If the owner name is delimited by default, the Delimit option is selected. To override the default delimitation, select or unselect Delimit.



Change Qualifier /Owner

Change Table Qualifier/Owner

Enter or select a new owner and qualifier for the table.

Qualifier: No qualifier

Owner: E-FASHION

Table Name: Article_Color_Lookup

Table Qualifier:

Table Owner: E-FASHION

Description

Select Owner

Select a table owner

DATABASE
DBACOCKPIT
DEBA
DHANA
DHANA123
DHWANIHANA
DIBYENDU
DINAKAR
DORA
DXC_ROBIN
DXC_USER
DXCUSER
E-FASHION

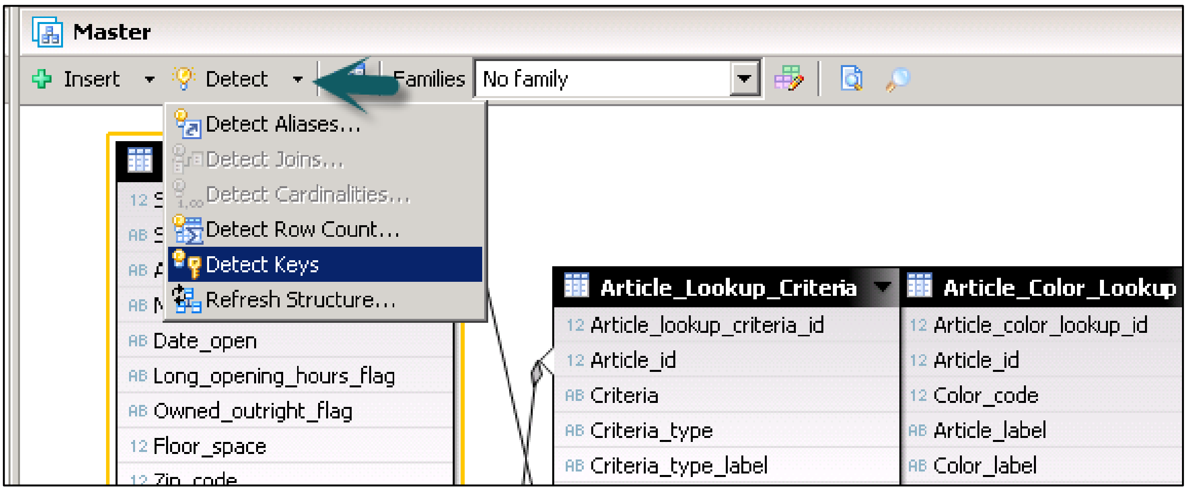
Defining Table Keys

There are two types of keys in a table in Data Foundation layer:

Primary Key - Unique and only one primary key in a table.

Foreign Key - It is used to match a unique value in other table.

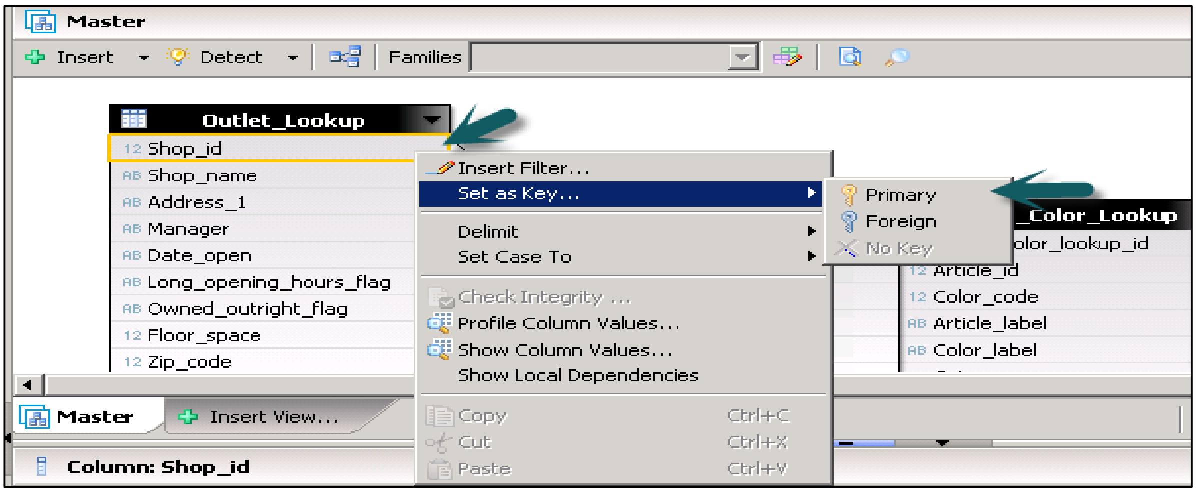
To define a key, go to Data Foundation Editor. Select Table -> Click Detect -> Detect Key.



Article_Lookup_Criteria
Article_lookup_criteria_id
Article_id
Criteria
Criteria_type
Criteria_type_label

Article_Color_Lookup
Article_color_lookup_id
Article_id
Color_code
Article_label
Color_label

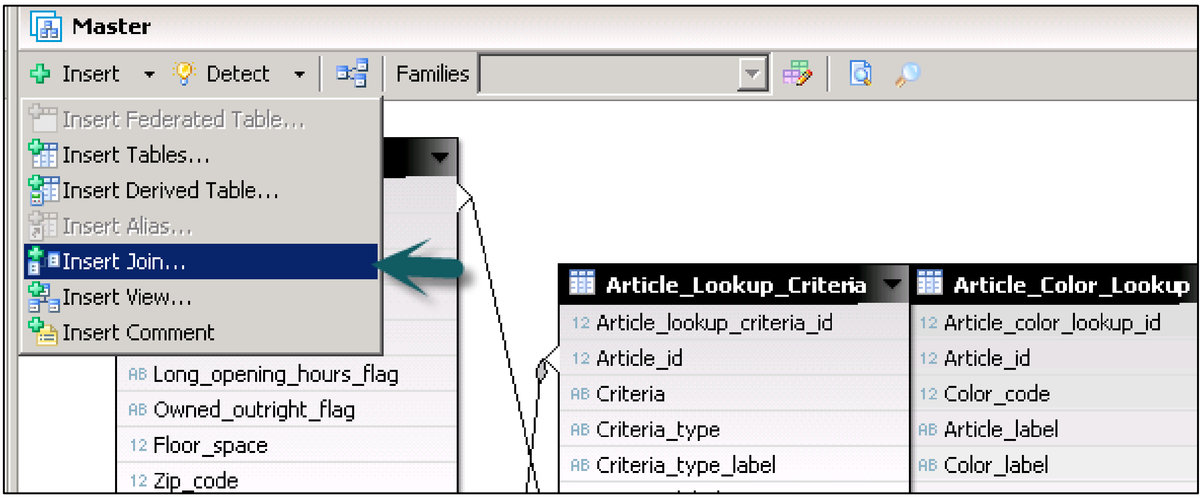
You can also define a column as primary key or foreign key by selecting the particular column in a table -> Right-click -> Set as Key -> Primary/Foreign Key.



12. IDT – Joins in Data Foundation

Joins are used to combine tables in Data Foundation. It defines how data is queried in the tables. Joins are defined when you link one column of a table to other column. It is possible to insert Joins manually or to insert automatically by clicking on Detect Join option.

To insert a new Join, go to Insert -> Insert Join.



Select Table 1 from the dropdown, Table 2 from the dropdown from all the tables in Data Foundation. Select columns from Table 1 and Table 2 to join. Select the type of Join you want to insert -> OK.

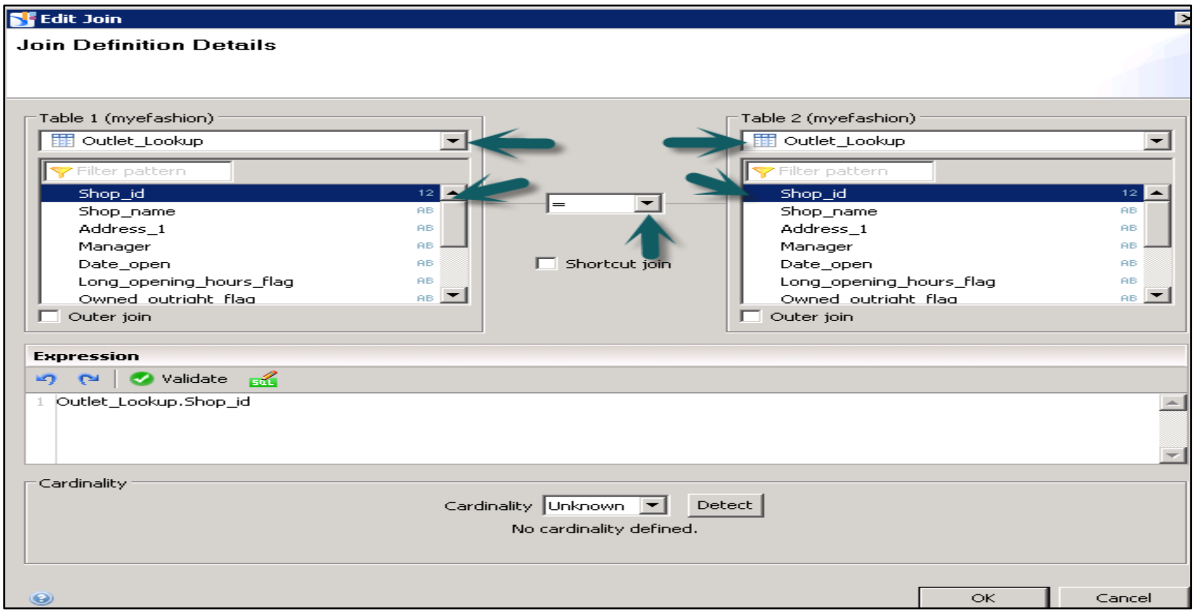


Table 1 (myefashion): Outlet_Lookup

Table 2 (myefashion): Outlet_Lookup

=

□ Shortcut join

□ Outer join

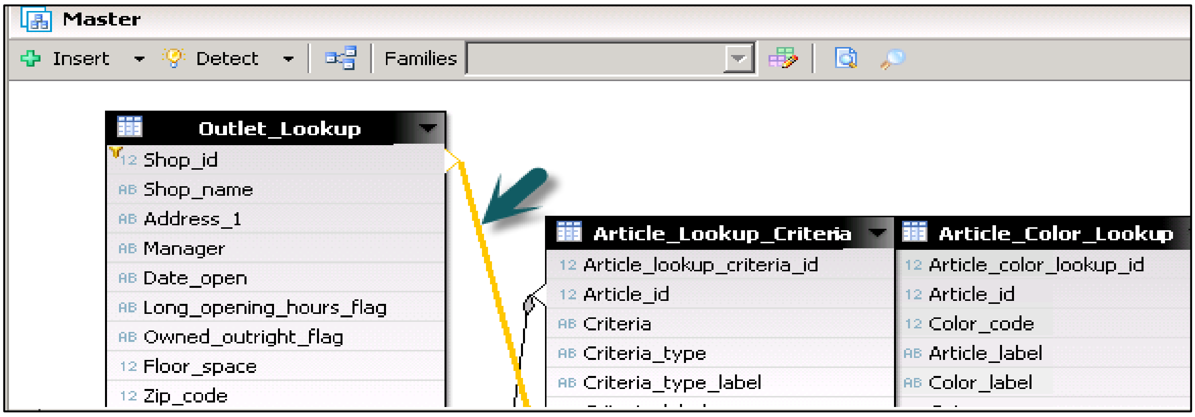
□ Outer join

Outlet_Lookup.Shop_id

Cardinality: Unknown

Editing an Existing Join

To edit an existing Join, double-click on Join and it will open Edit Join editor as above.

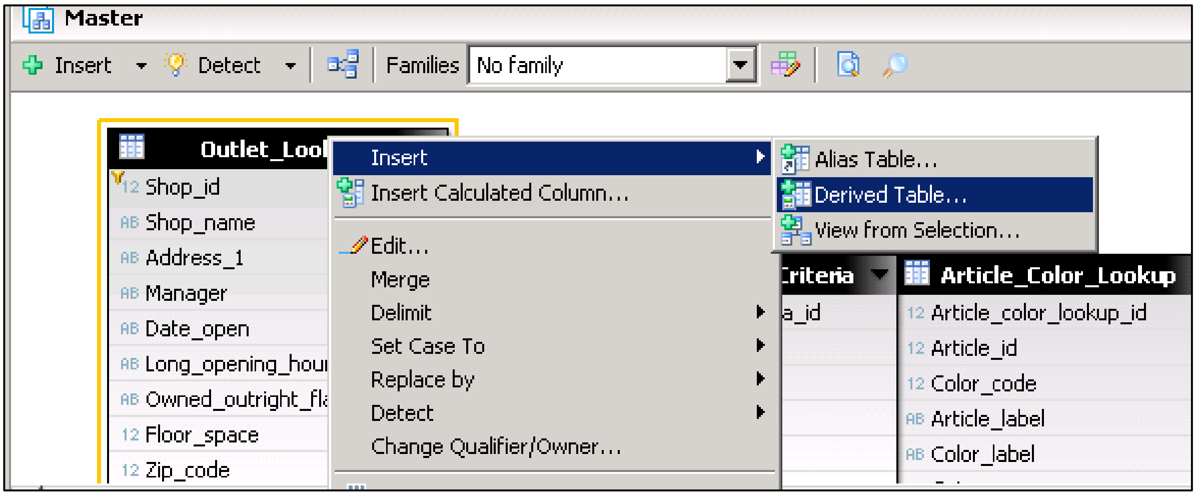


Derived Tables

A derived table is a virtual table in the data foundation that combines other tables using calculations and functions.

You can use derived tables for the following purposes:

- To create a table with columns from other tables. The column definitions can include complex calculations and functions.
- To create a single table that combines two or more tables.
- To create a table that contains a selection of columns from different tables.
- To Insert Derived table, select table header -> right click -> insert -> derived table.



Enter the Unique name and click OK.

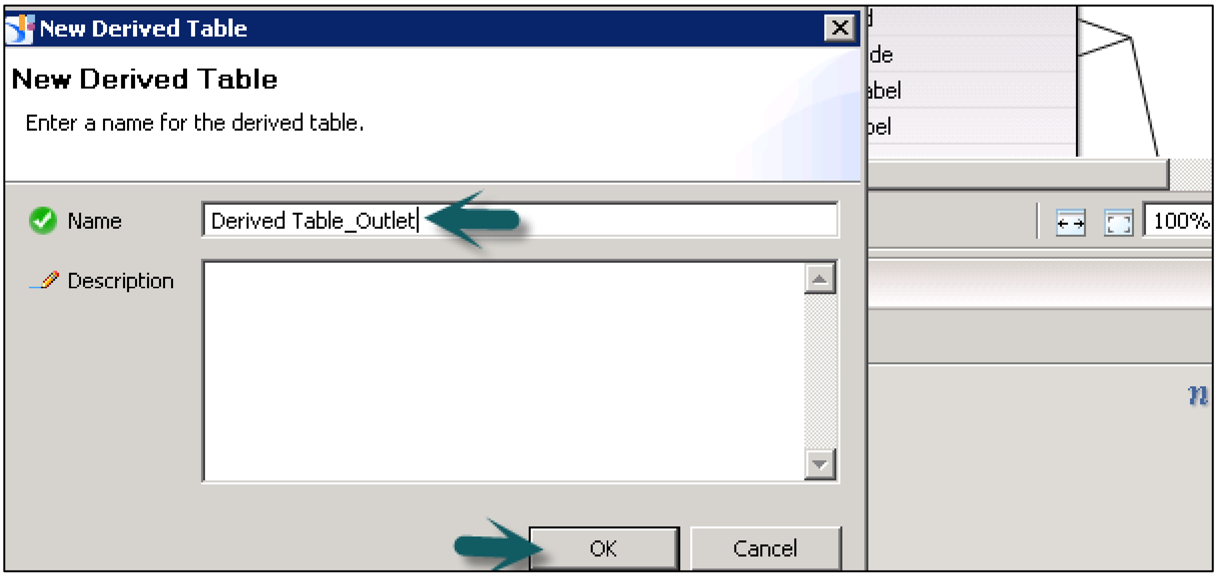


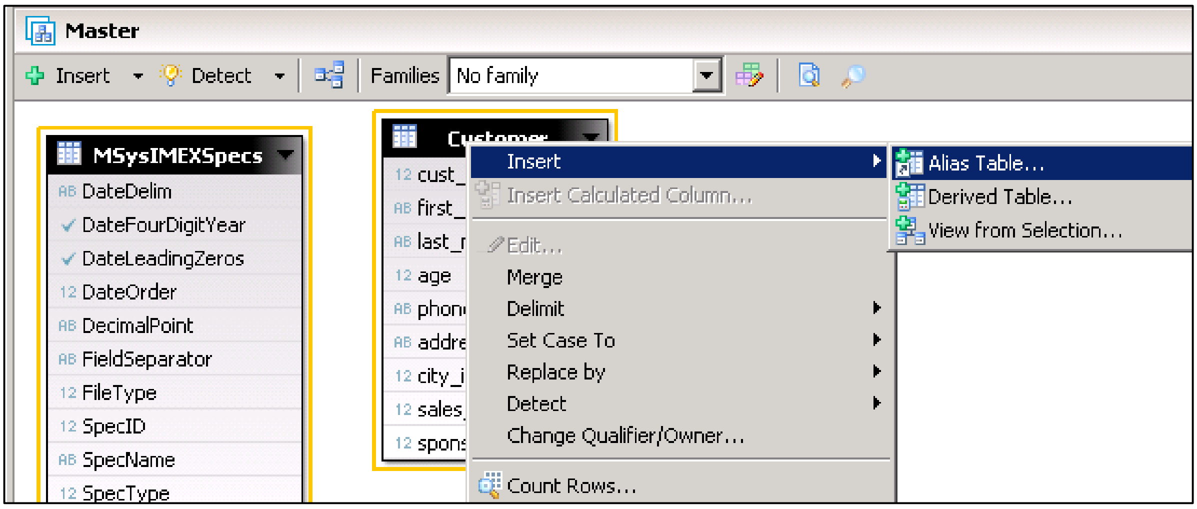
Table Alias

An Alias table is known as reference to a standard table in Data Foundation. The data in Alias table is completely same as the original table.

Alias tables are used to break loops in Join path in Data Foundation layer. An Alias table can also be used to rename a table.

Insert an Alias

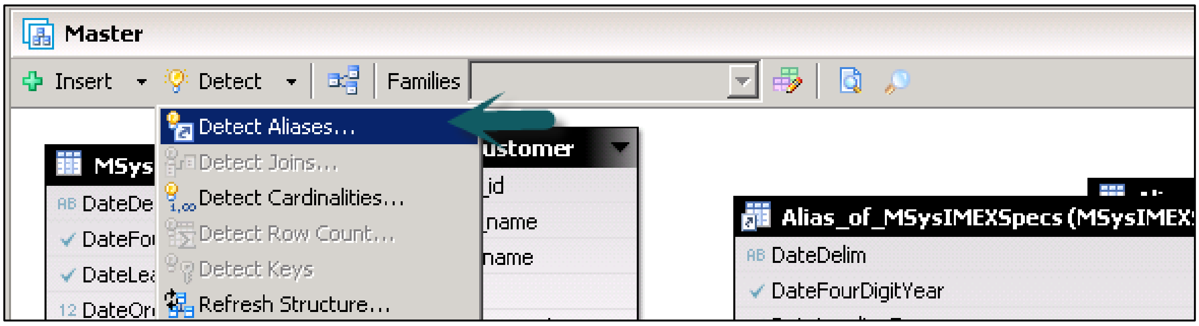
To create an Alias table, select the table on which Alias has to be created. Right-click the table header -> Insert -> Alias table. To create an Alias table on more than one table, use CTRL key to select multiple tables.



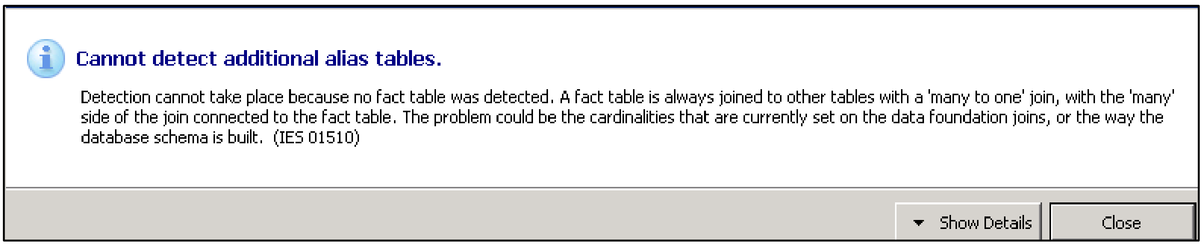
Alias is used to break any loop and to handle Fan trap and Chasm trap issues.

Detect an Alias

To detect an Alias, go to Detect under Data Foundation layer.



To detect a table alias, the following condition should be met.



Cannot detect additional alias tables.

Detection cannot take place because no fact table was detected. A fact table is always joined to other tables with a 'many to one' join, with the 'many' side of the join connected to the fact table. The problem could be the cardinalities that are currently set on the data foundation joins, or the way the database schema is built. (IES 01510)

Contexts

Contexts are also used to break the loops in Data Foundation when you are not able to break the loop using an Alias table.

When you have multiple fact tables that are connected to a single dimension table, you create a Context for each fact table in this case.

In a context, there are three states defined for a Join:

Included Joins: In a part of the schema that is ambiguous, the context solves the loop by defining a path with the included joins.

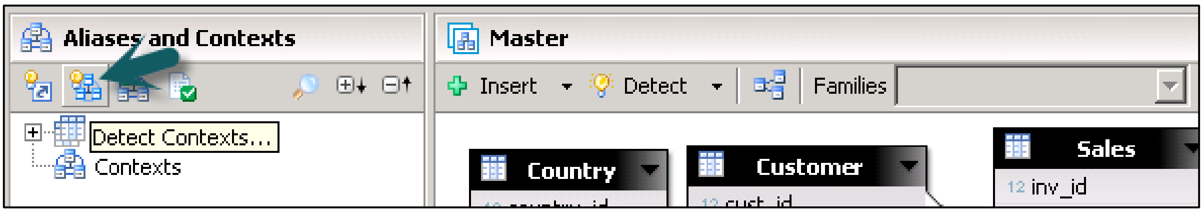
Excluded Joins: In a part of the schema that is ambiguous, the excluded joins define the path that context will never take.

Neutral Joins: They are in a part of the schema that is not ambiguous, and are always included in the query path of the context. Any join that is not explicitly included or excluded is neutral.

A Context can be defined manually or by clicking detect Context option.

To detect Context -> Open the data foundation editor by double-clicking the data foundation name in the Local Projects View.

From the Aliases and Contexts pane, select the Detect Contexts icon.



The command analyzes the join paths and proposes contexts to resolve any loops that cannot be resolved by alias tables.

Next, open Detect Contexts dialog box, select the contexts you want to insert.

To see the context highlighted in the data foundation view, click the proposed context name. A join that is included in the context is shown by an included icon⊕.

A join that is excluded is shown by the excluded icon⊖. Click OK to insert the selected contexts into the data foundation.

13. IDT – Business Layer

Business Layer in IDT consists of metadata objects like dimensions, measures, attributes, and filter conditions. Business layer can be designed on the top of Data Foundation layer or can be created directly on an Info cube or on a Modeling view in HANA.

When you design a Business Layer, it can be published to the repository or to a local folder. Business layer is used to manage metadata objects before it is published to BI repository.

An Object in Business Layer can have the following three states:

- **Active**: This is default state of an object and objects are available in the query panel.
- **Hidden**: These objects are valid but are hidden in the query panel.
- **Deprecated**: These objects are not valid and hidden.

You can create different type of objects in Business Layer:

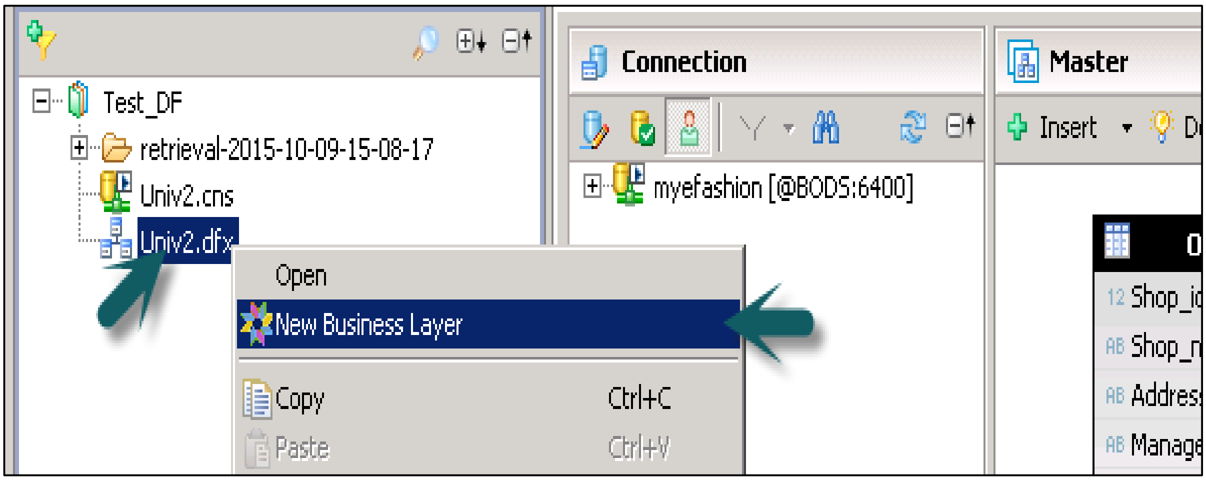
- **Dimension**: Dimension represents contextual information in Business layer.
- **Measure**: Measure represents the factual data on which we perform the analysis. These are numerical values where you perform aggregations and calculations.
- **Attribute**: Attribute is defined as an object which is associated with another object to provide more information about the object.
- **Filter**: Filters are used to limit the data that are returned in the query. You can define business filters on dimensions and measures by creating and combining conditions.

While using an OLAP data source, you can find the following objects:

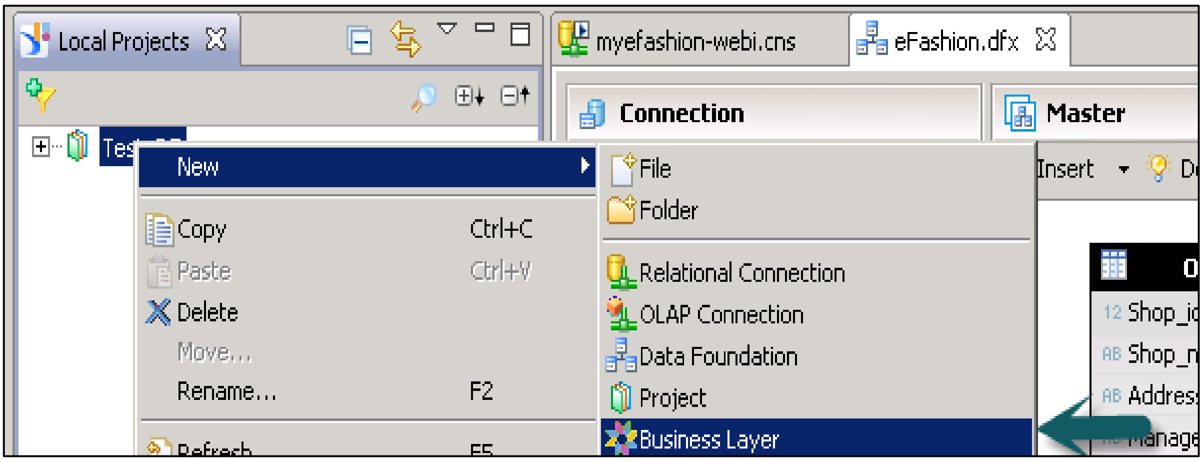
- Hierarchy
- Level
- Named Set
- Calculated member

Building a Relational Business Layer

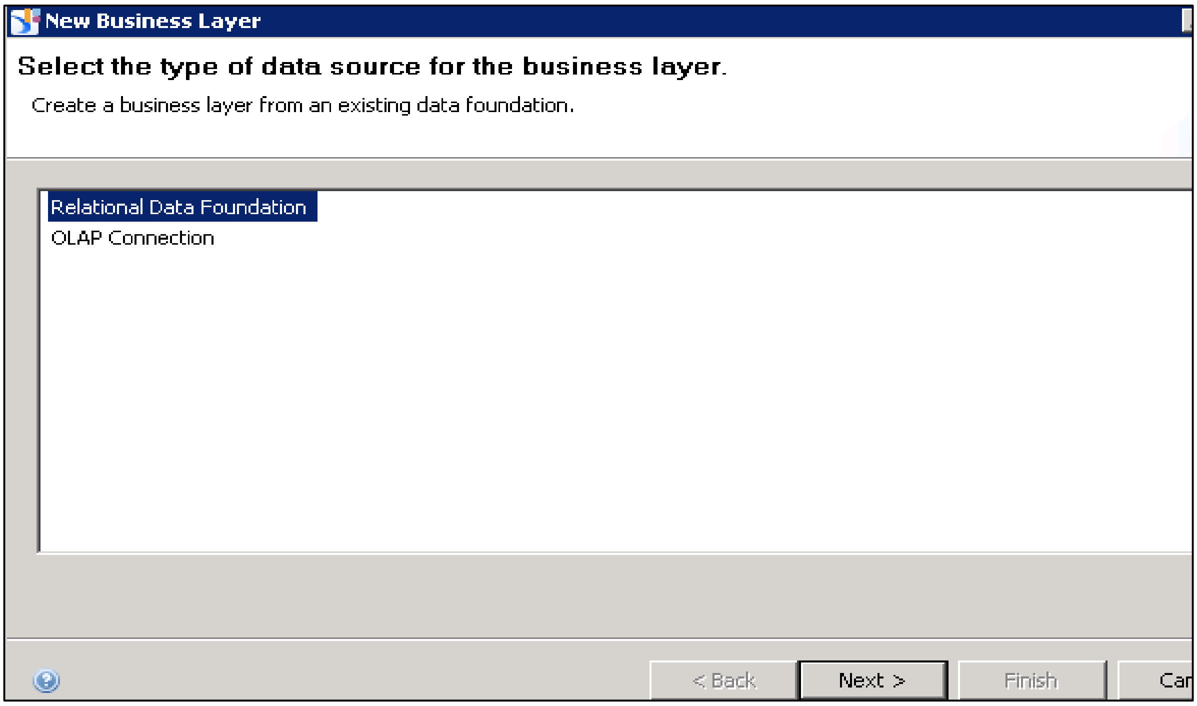
You can create a Business layer on the top of Data Foundation that already exists under Local Project view.



You can also create a new Business Layer in a Local Project view. Right-click on Project name -> New -> Business Layer.



Follow the wizard -> Select the type of Data Foundation -> Enter Business Layer name and Description -> Select Data Foundation (.dfx) -> Finish.



New Business Layer

Select the type of data source for the business layer.

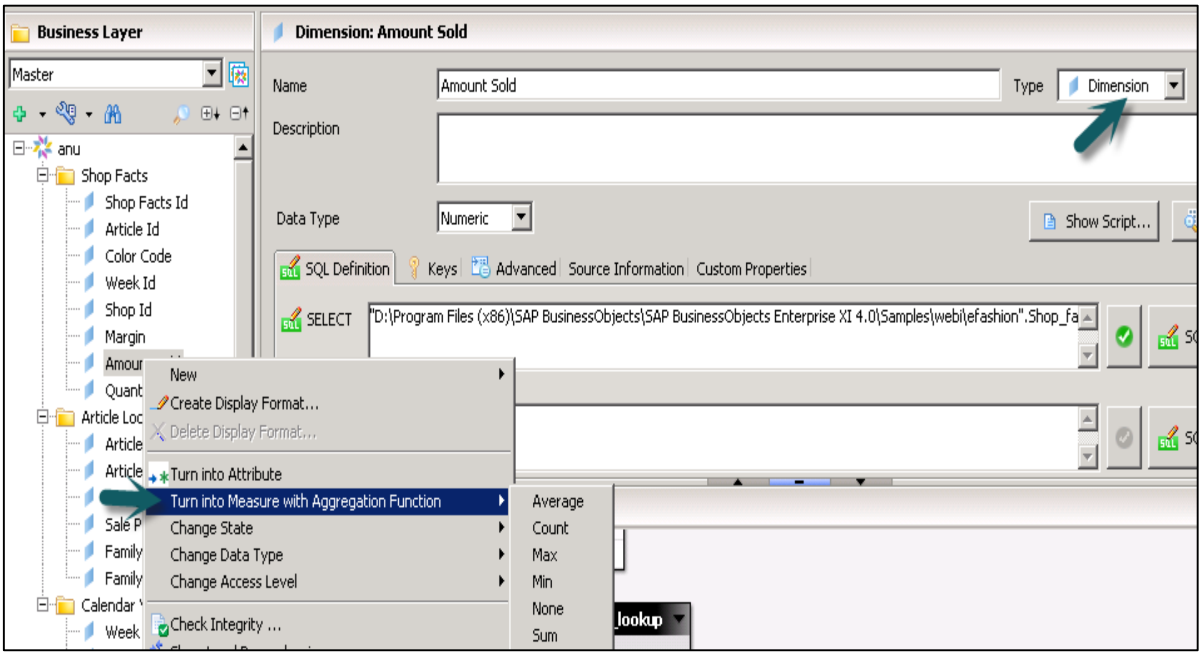
Create a business layer from an existing data foundation.

Relational Data Foundation

OLAP Connection

It creates .blx file under local project view and automatically opens under Business Layer Editor.

By default, it takes all the objects as dimensions in the business layer. You can define measures manually using Turn into Measures option or using Type option at the top and projection function to define Aggregation.



Business Layer

Master

Dimension: Amount Sold

Name: Amount Sold

Type: Dimension

Description:

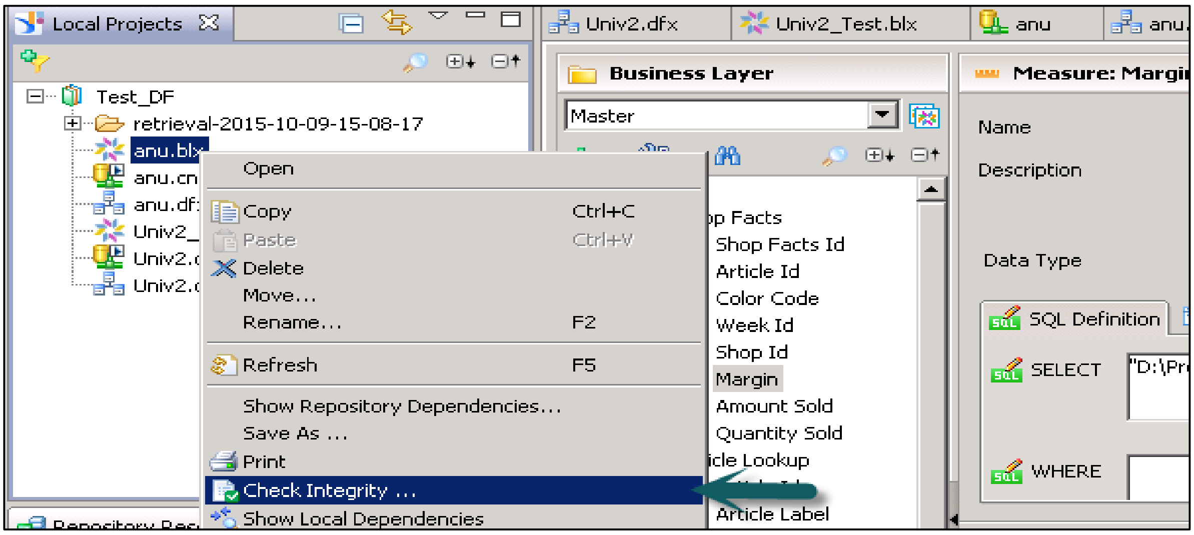
Data Type: Numeric

SELECT "D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\Samples\webi\efashion".Shop_fa

You can perform various functions in Business layer to improve the functionality of Business layer:

- Attributes to provide descriptive information for dimensions
- Additional measures
- Pre-defined filters (mandatory or optional) that can limit data returned in queries
- Parameters with optional prompts
- Set SQL options and SQL generation parameters in the business layer properties
- Set up aggregate awareness to improve query performance

You can perform an integrity check on Business Layer. Right-click on Business Layer -> Check integrity.



You can select the objects you want to perform integrity check. Click on check integrity. To save the Business layer click the Save icon at the top.

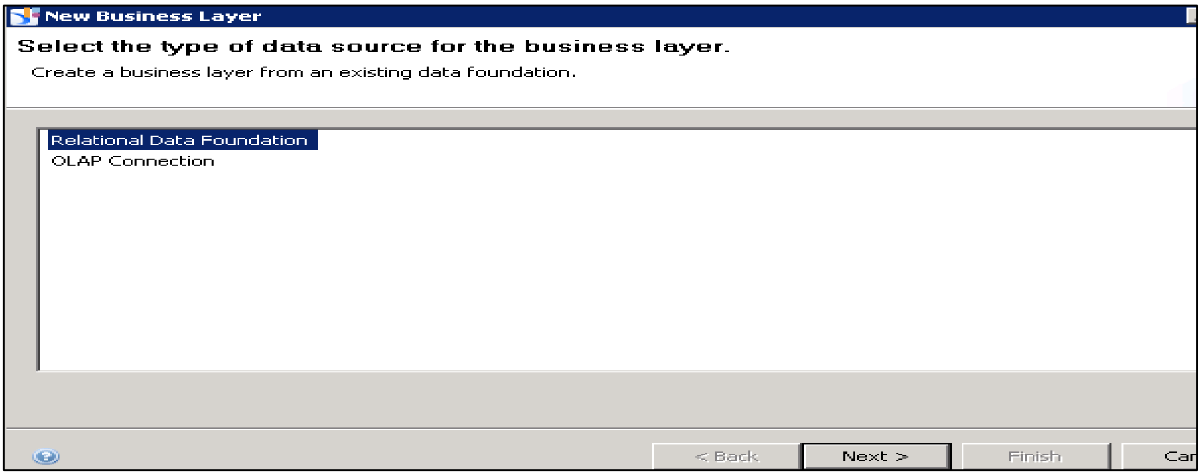
Naming and Data Source for a Business Layer

When you enter a name of a business layer and its description, it defines the name of Universe that is published from Business layer.

To create a Business Layer, you can select two types of data sources: Relational and an OLAP data source.

Relational: The Business Layer is based on a Data Foundation when you use a Relational data source.

OLAP: The Business layer is based on an OLAP cube.



New Business Layer

Select the type of data source for the business layer.

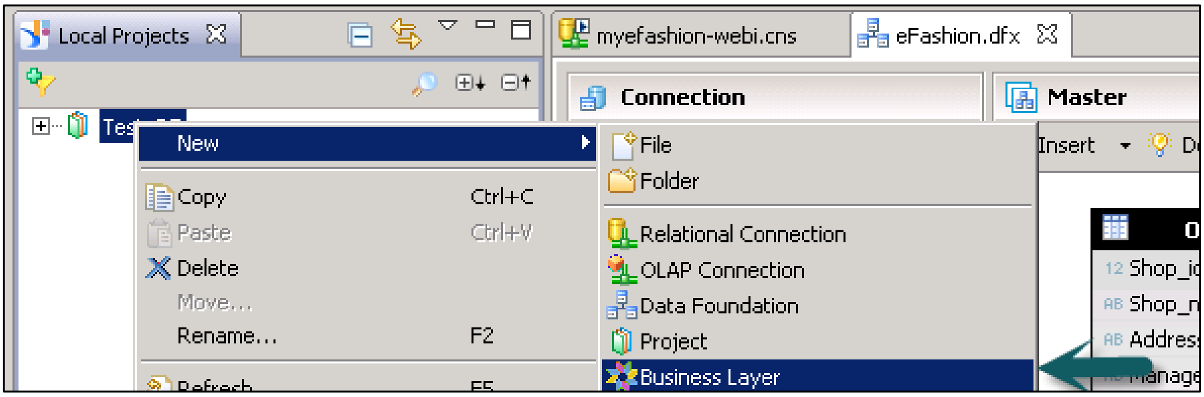
Create a business layer from an existing data foundation.

Relational Data Foundation

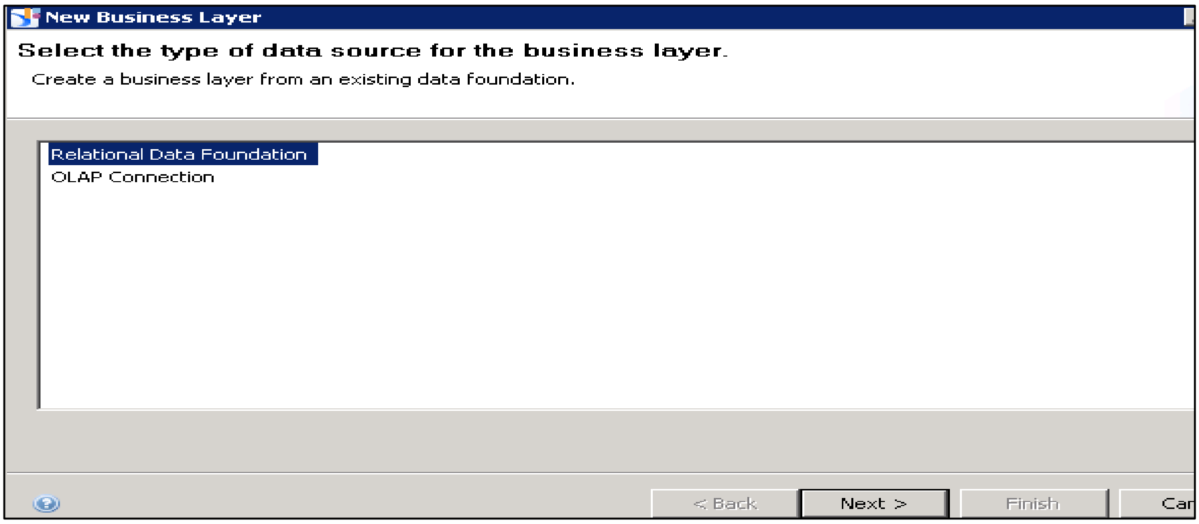
OLAP Connection

Building an OLAP Business Layer

You can create an OLAP Business Layer in a Local Project view. Right-click on Project name -> New -> Business Layer.



Follow the wizard -> Select the type of Data Foundation OLAP -> Enter Business Layer name and Description -> click Next.



New Business Layer

Select the type of data source for the business layer.

Create a business layer from an existing data foundation.

Relational Data Foundation

OLAP Connection

Objects in the business layer are inserted automatically based on the cube. You can add the following functions to enhance the features in Business Layer:

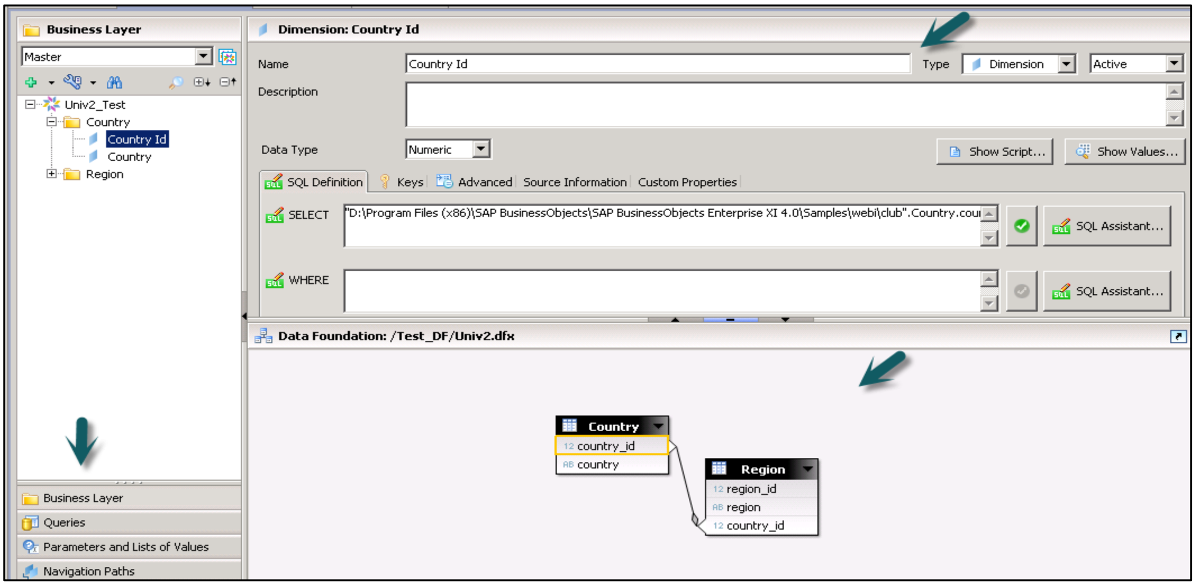
- Using analytical dimensions, hierarchies, and attributes
- Named sets
- Calculated members
- Insert measures
- Pre-defined filters (mandatory or optional) to limit data returned in queries
- Parameters with optional prompts
- Lists of values to be associated with a prompt
- Business layer views to restrict the objects seen in the Query Panel

You can perform an integrity check and save the business layer by clicking the Save icon at the top.

Business Layer Editor

Business layer editor is used to manage Business layer objects and its properties efficiently. Business Layer editor is divided into three panes:

- Browsing Pane
- Editing Pane
- Data Source Pane



Dimension: Country Id

Name: Country Id

Type: Dimension

Active

Data Type: Numeric

SELECT: "D:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\Samples\webi\club".Country.cou

Data Foundation: /Test_DF/Univ2.dfx

Business Layer browsing pane consists of different elements of Business Layer:

- Business layer
- Queries
- Parameters and LOVs
- Navigation paths

Business layer editing pane allows you to edit the properties of objects that you select in the browsing pane.

You can define Name of object, description, type and Projection function. You can also check SQL definition, source information, custom properties and advance properties.

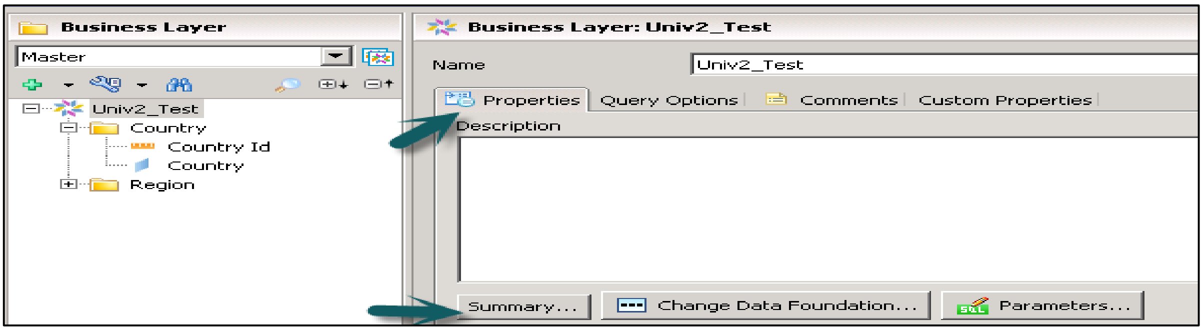
The data source pane contains information about Data Foundation or an OALP data source.

14. IDT – Business Layer Properties

There are different tabs that come under Business Layer Properties.

Properties

It consists of the name of Business layer, description, summary, change data foundation and parameters subtabs.

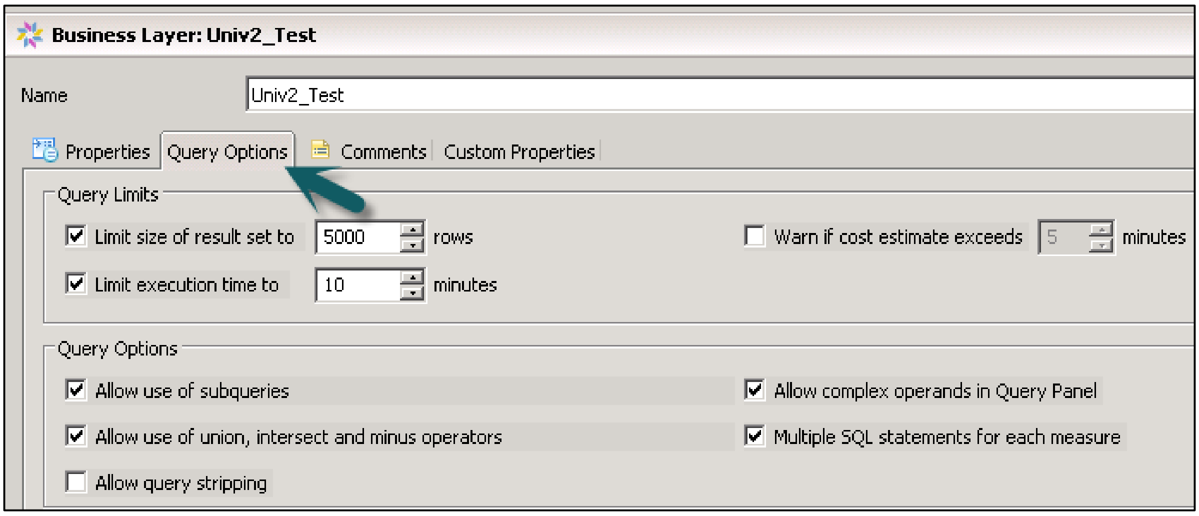


Name: Univ2_Test

- Summary tab gives you summary of all the objects in Business Layer.
- Change Data Foundation is used to change the data foundation.
- Parameters is used to change the value of query script parameters.

Query Options

This defines query execution properties - limit number of rows, number of minutes to limit the time passed for query execution, etc.



Name: Univ2_Test

Query Limits

☑ Limit size of result set to 5000 rows

☐ Warn if cost estimate exceeds 5 minutes

☑ Limit execution time to 10 minutes

Query Options

☑ Allow use of subqueries

☑ Allow complex operands in Query Panel

☑ Allow use of union, intersect and minus operators

☑ Multiple SQL statements for each measure

☐ Allow query stripping

Comments

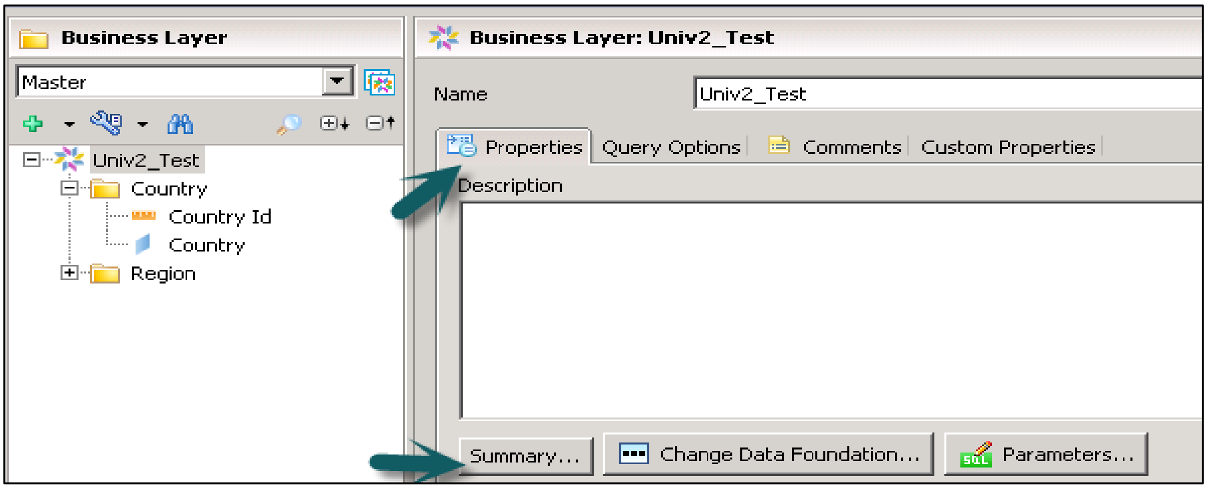
You can add comments about Business Layer in this tab.

Custom Properties

This is used to add custom property for Business Layer.

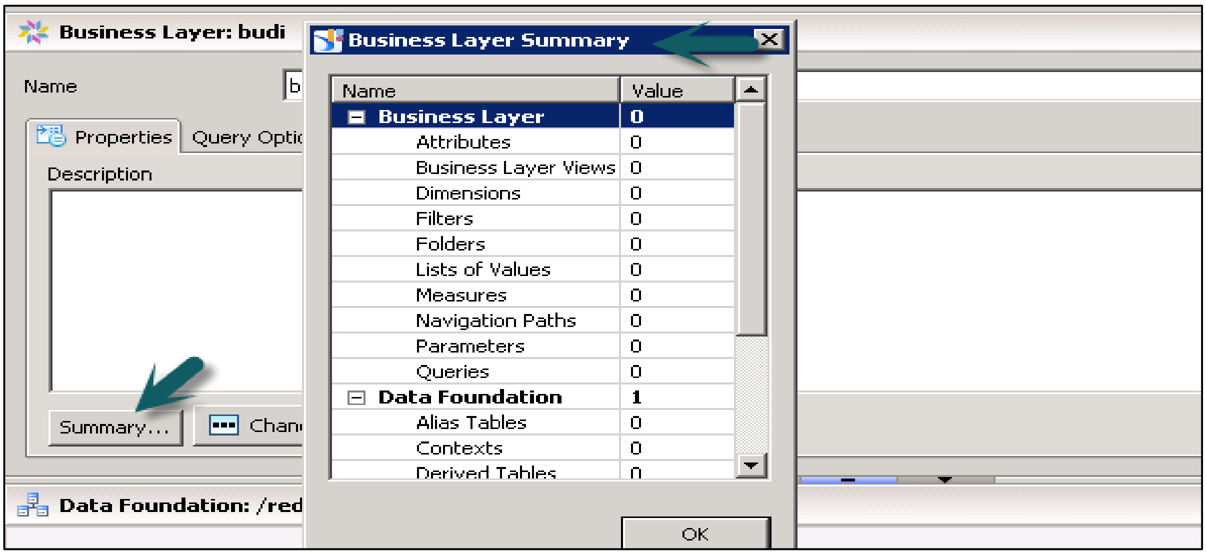
Business Layer – Objects and Summary

Properties: It consists of name of Business layer, description, summary, change data foundation and parameters subtabs.



Name: Univ2_Test

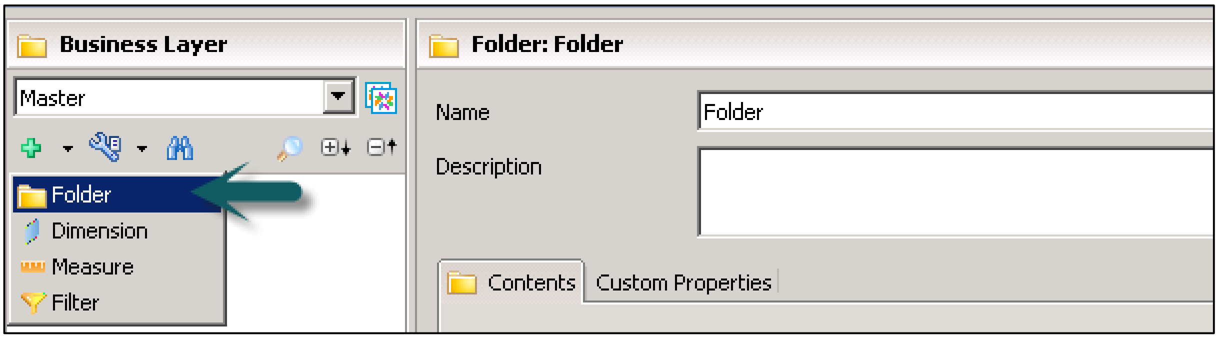
You will get Business Layer summary in a new window.



Name	Value
Business Layer	0
Attributes	0
Business Layer Views	0
Dimensions	0
Filters	0
Folders	0
Lists of Values	0
Measures	0
Navigation Paths	0
Parameters	0
Queries	0
Data Foundation	1
Alias Tables	0
Contexts	0
Derived Tables	0

15. IDT – Folders in Business Layer

To add a folder in Business Layer, click insert + option and select a folder to insert a folder in Business player.



Name: Folder

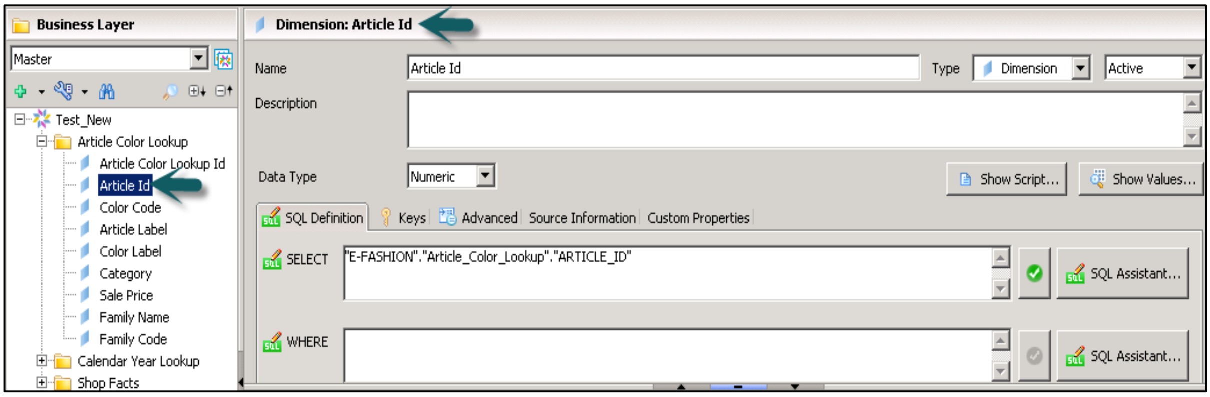
The following properties can be set for this folder as it appears in the query panel.

- Name and Description
- Active State - Active, hidden, Deprecated
- Contents

A list of objects in the folder that lets you define properties that describe what the object is used for in the query (for result, for filter, for sort). You can change the order of the objects in the folder using the up and down arrow keys to the right of the list.

Custom Properties: Optional field

Inserting and Editing Dimensions: You can edit an existing dimension and can also insert a new dimension. To edit an existing dimension, select the dimension in Business Layer.



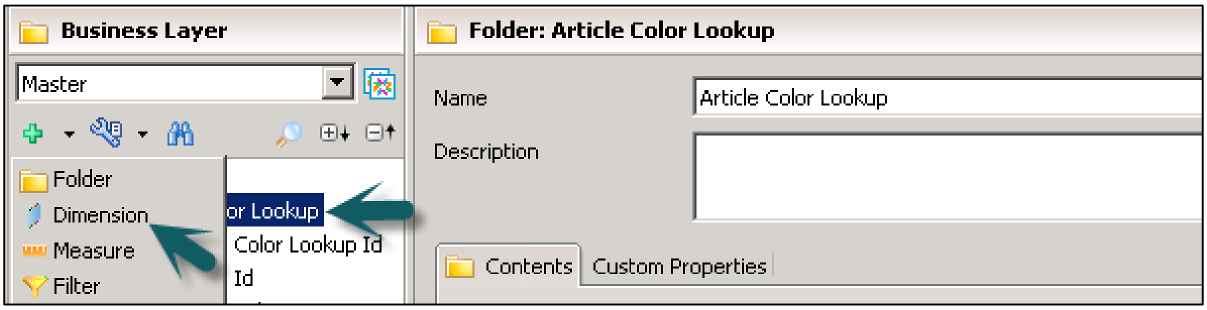
Name: Article Id Type: Dimension Active

Data Type: Numeric

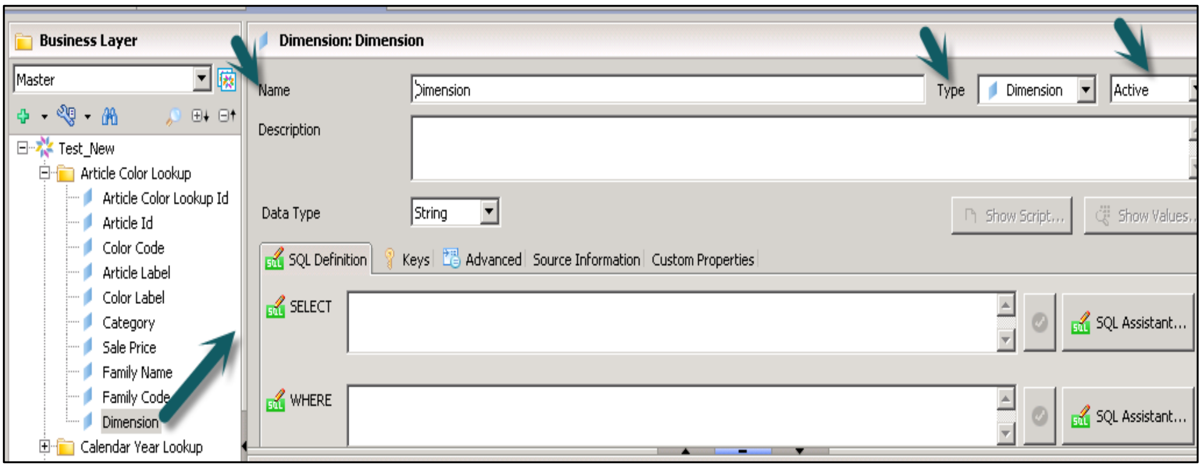
SELECT "E-FASHION"."Article_Color_Lookup"."ARTICLE_ID"

WHERE

To insert a new dimension, select the folder in which you want to insert a dimension -> click on insert option at the top -> Dimension.



It will add a new dimension in the target folder. You can define the properties of an added dimension in Properties pane.

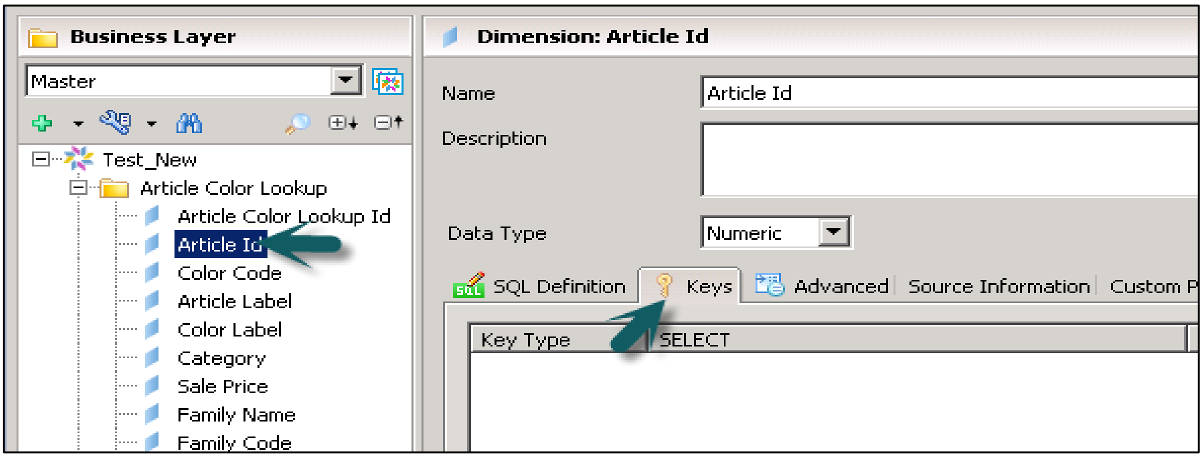


Following are the tabs in the above screenshot:

- Name
- Description
- Data Type
- State
- SQL of OLAP definition
- Keys tab
- Advanced tab
- Source information, etc.

Defining the Keys

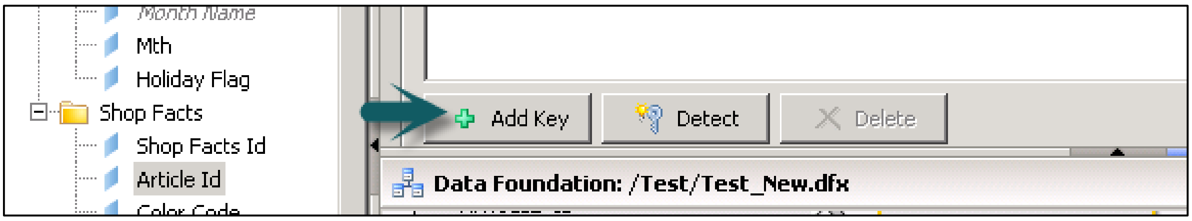
This option is available for dimensions that are built on data foundation. To define keys in Business layer, select the dimension in Business layer pane. Under Dimension properties -> Keys tab.



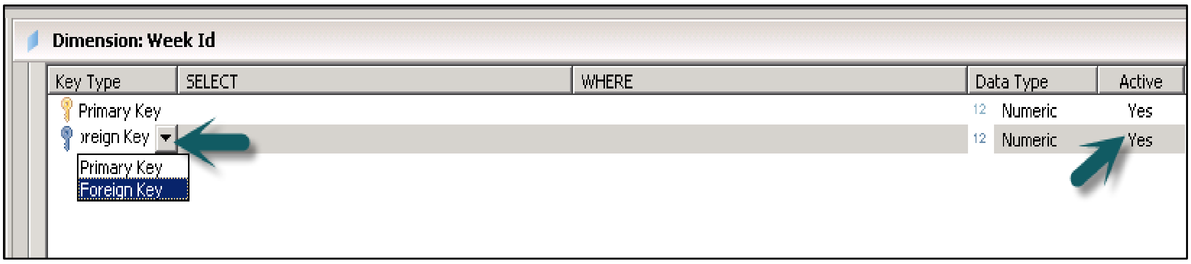
Name: Article Id

Data Type: Numeric

To add a key, scroll down in Keys tab and click on Add key button. You can define one primary key and multiple foreign keys.



To detect existing keys in the database, you can click on detect tab. To change the key type, you can click on the dropdown. To change a key to active, click on active column.

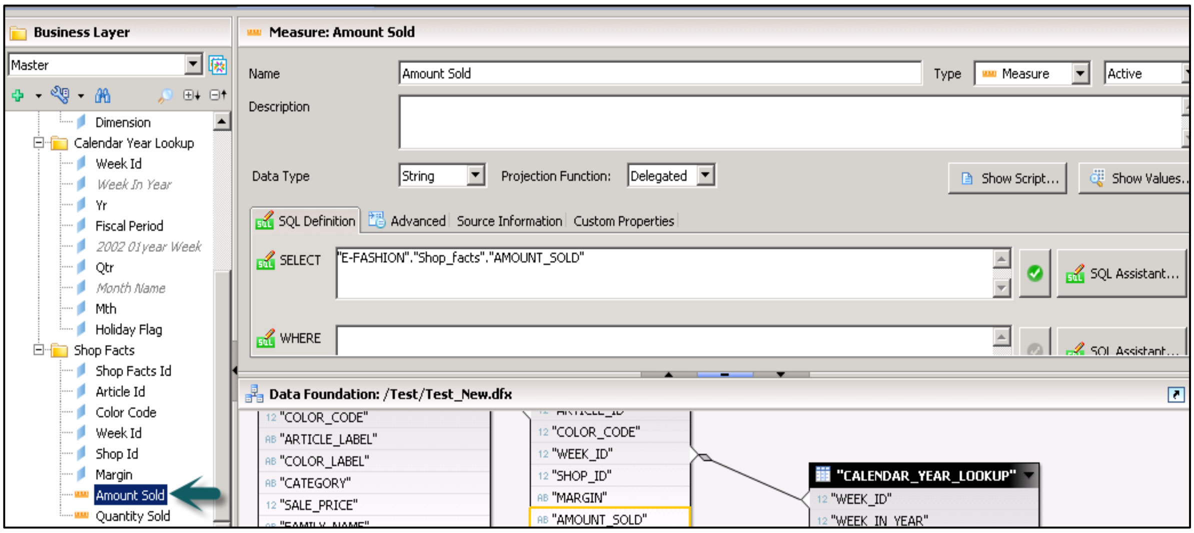


Key Type	SELECT	WHERE	Data Type	Active
Primary Key			Numeric	Yes
›reign Key			Numeric	Yes

To save the changes, click the Save icon at the top.

Defining the Measures

You can edit an existing measure and can also insert a new measure. To edit an existing measure, select the measure in Business Layer.



Measure: Amount Sold

Name: Amount Sold

Type: Measure

Active

Description:

Data Type: String

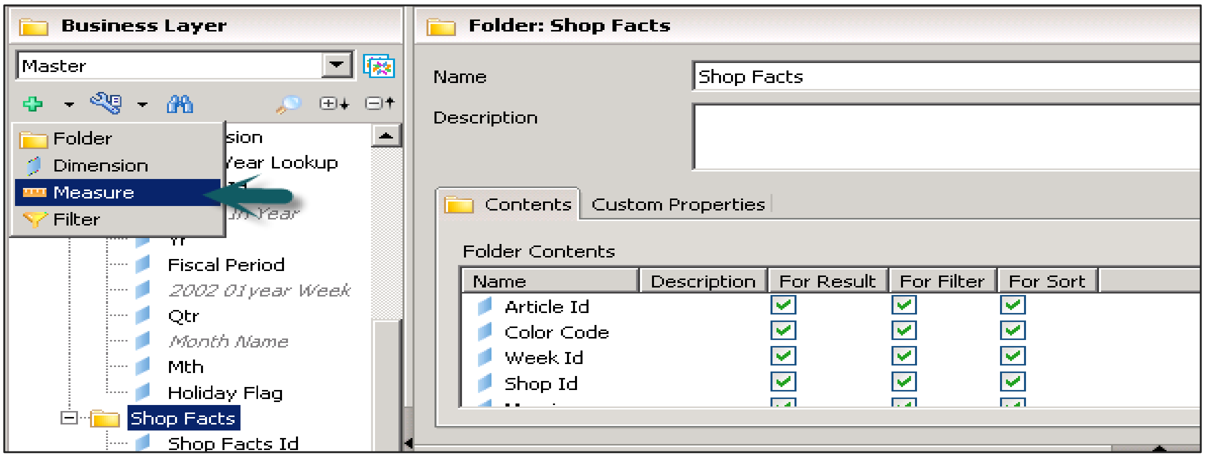
Projection Function: Delegated

SELECT: "E-FASHION"."Shop_facts"."AMOUNT_SOLD"

WHERE:

Data Foundation: /Test/Test_New.dfx

To insert a new measure, select the folder in which you want to insert a measure -> click the insert option at the top -> measure.



Folder: Shop Facts

Name: Shop Facts

Description:

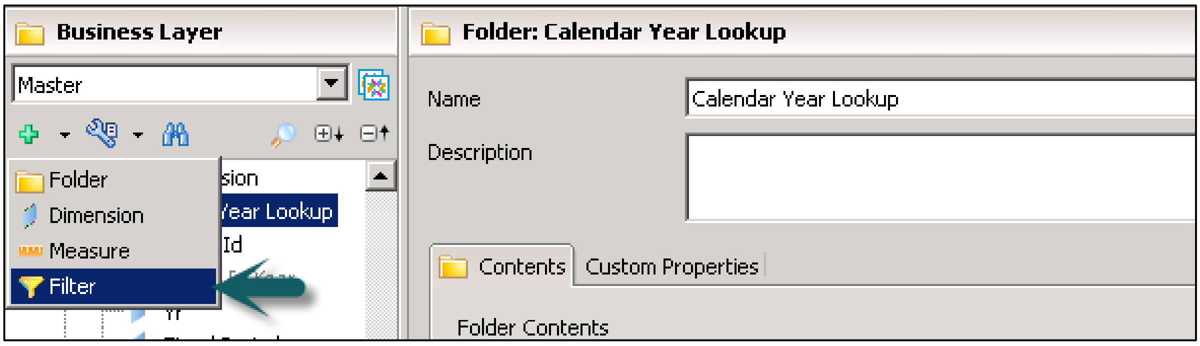
Folder Contents

Name	Description	For Result	For Filter	For Sort
Article Id		☑	☑	☑
Color Code		☑	☑	☑
Week Id		☑	☑	☑
Shop Id		☑	☑	☑

It will add a new measure in the target folder. You can define the properties of an added measure in Properties pane. You can define Projection function for the measures. Similarly, you can define attributes in a Business Layer.

Adding Filters

You can edit an existing filter or add a new filter. To insert a new filter, select the folder and click on insert.



Folder: Calendar Year Lookup

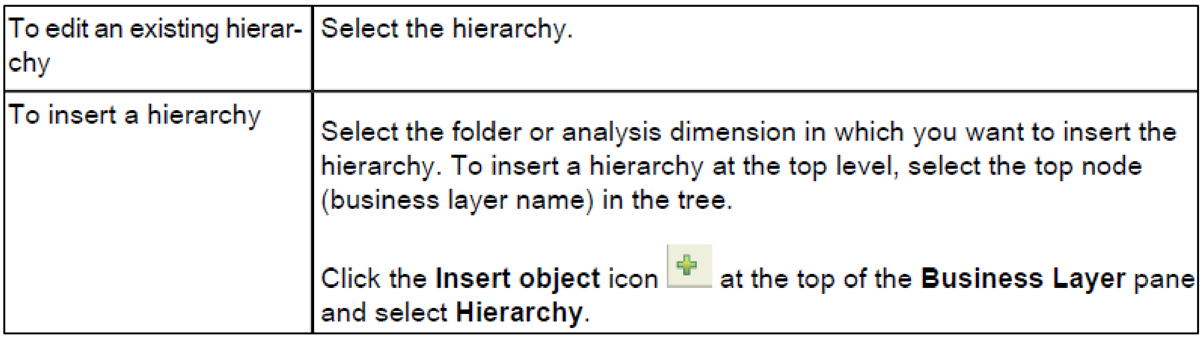
Name: Calendar Year Lookup

Description:

Folder Contents

Adding Hierarchies

You can insert hierarchies only in OLAP Business Layer. You can edit an existing hierarchy or add a new hierarchy.



To edit an existing hierarchy	Select the hierarchy.
To insert a hierarchy	Select the folder or analysis dimension in which you want to insert the hierarchy. To insert a hierarchy at the top level, select the top node (business layer name) in the tree. Click the **Insert object** icon + at the top of the **Business Layer** pane and select **Hierarchy**.

You can define the following properties of a Hierarchy:

- Name and Description
- State - Active, hidden or deprecated
- MDX definition
- Advance tab
- Custom properties
- Source Information

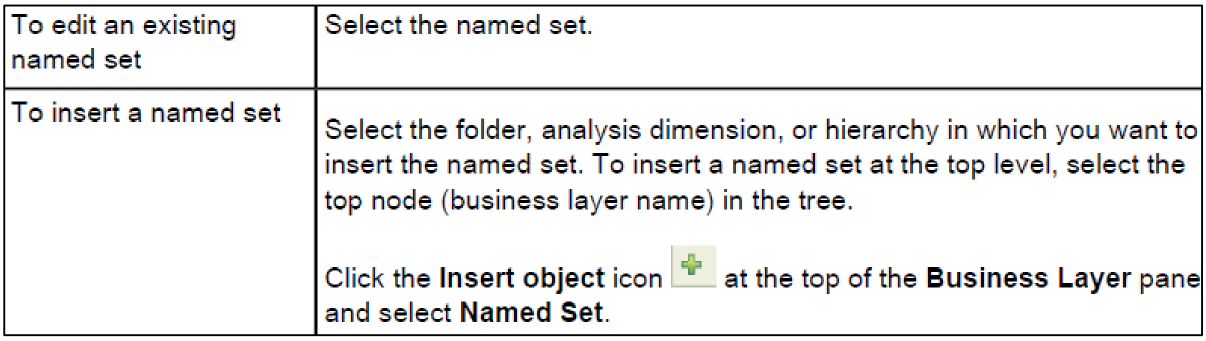
You can define the following objects in a hierarchy in Business Layer:

- Levels
- Attributes
- Named sets
- Calculated members

Defining Named Sets

You can insert Named set only to OLAP Business layer. You can edit an existing named set or add a new named set.

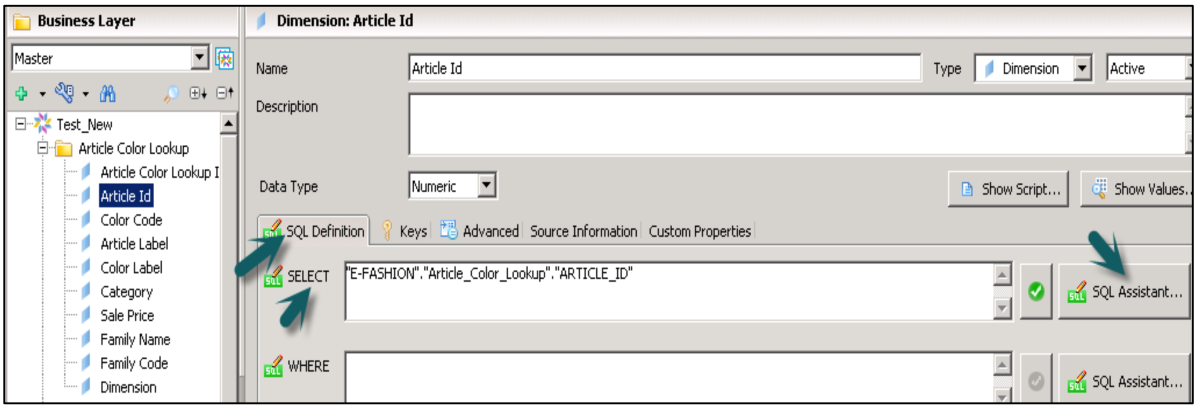
Once a named set is defined, you can define various properties of Named set:



To edit an existing named set	Select the named set.
To insert a named set	Select the folder, analysis dimension, or hierarchy in which you want to insert the named set. To insert a named set at the top level, select the top node (business layer name) in the tree. Click the **Insert object** icon + at the top of the **Business Layer** pane and select **Named Set**.

Defining SQL and MDX for an Object

To define SQL/MDX expression of an object in Business layer, select the object. In Object properties pane, select SQL definition tab.



Name: Article Id

Type: Dimension

Active

Data Type: Numeric

SELECT: "E-FASHION"."Article_Color_Lookup"."ARTICLE_ID"

You can enter Select statement directly or click on SQL assistant button to define SQL expression. You can define aggregation for measures like Sum (efashion."Shop_facts"."Amount_sold").

Enter the WHERE statement directly, or click the SQL Assistant button to use the SQL editor to build the statement.

Save the business layer by clicking the Save icon in the main toolbar.

You can edit the MDX expression for objects inserted into the business layer. If you want to edit the definition of a native object (an object generated automatically from the cube when the business layer was created), copy the native object and edit the copy.

Open the business layer in the editor by double-clicking the business layer name in the Local Projects View.

In the Business Layer pane, select the object.

In the object properties pane, select the MDX Definition tab.

Enter the Expression directly, or click the MDX Assistant button to use the MDX editor to build the statement.

Setting Access Levels

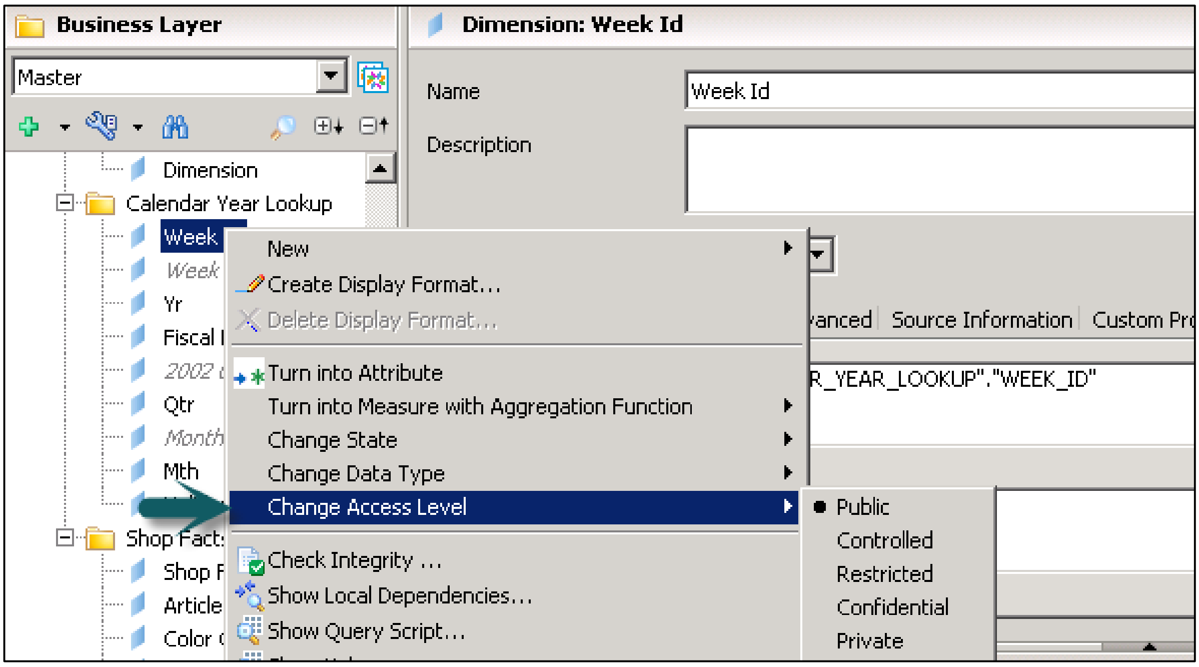
You can define various access levels of an object:

- Private
- Public
- Controlled
- Restricted
- Confidential

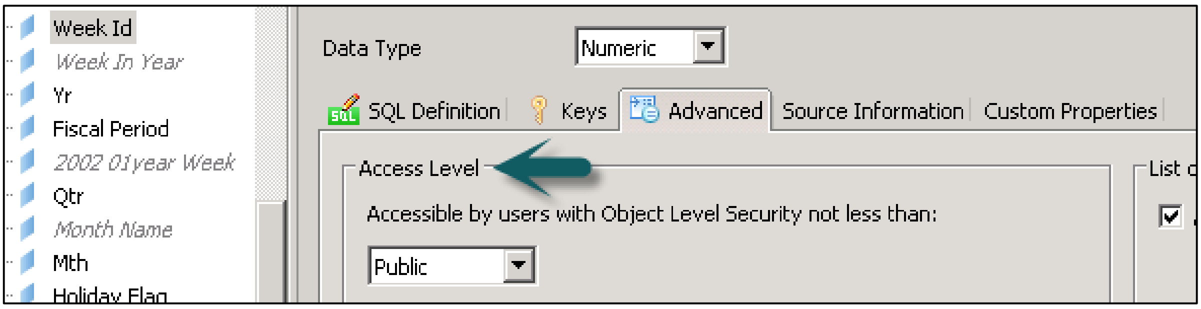
When you define an object as public, all users can access the object. If an object is defined as restricted, only those users that are granted access level of restricted or higher can gain access.

To Define Access Level of Objects

Select the object in Business layer for which you want to define the access level. You can use CTRL key to select multiple objects. Right-click on object -> Change Access Level.



Access level for an object can also be defined in "Advanced" tab.



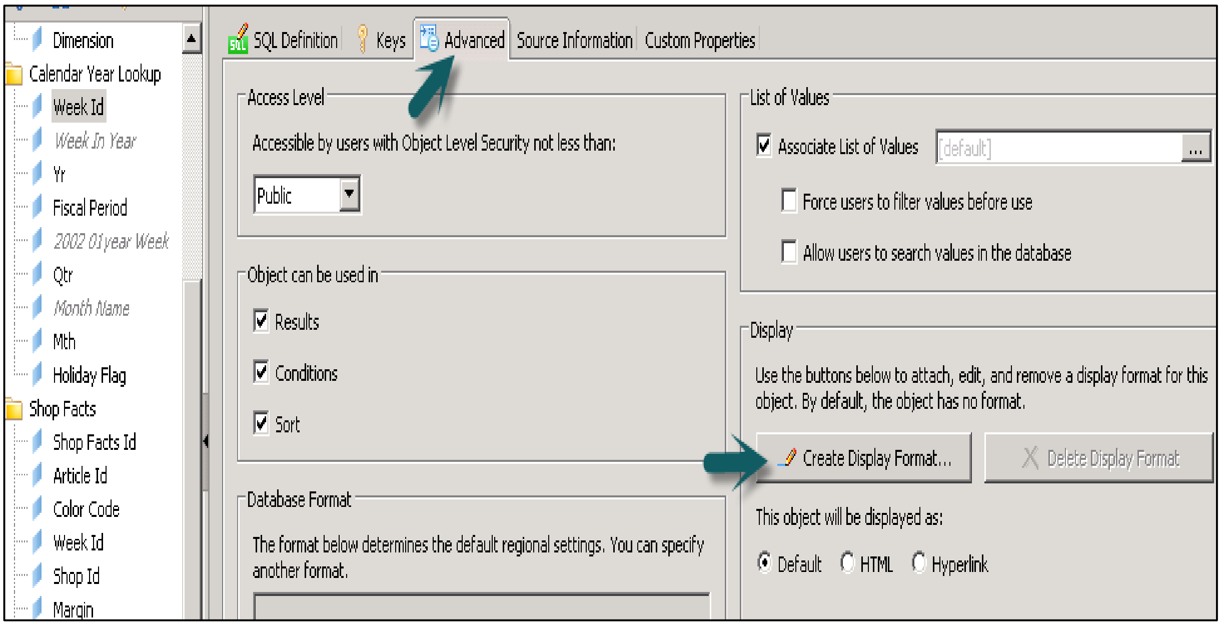
Data Type: Numeric

Accessible by users with Object Level Security not less than: Public

Defining Display Formats for Objects

Display option can be used to create, edit, or remove a display format for an object. By default, the object has no format.

Go to Advanced tab of an object as shown in the following screenshot.



Access Level

Accessible by users with Object Level Security not less than: Public

Object can be used in

☑ Results

☑ Conditions

☑ Sort

Database Format

The format below determines the default regional settings. You can specify another format.

List of Values

☑ Associate List of Values [default]

□ Force users to filter values before use

□ Allow users to search values in the database

Display

Use the buttons below to attach, edit, and remove a display format for this object. By default, the object has no format.

This object will be displayed as:

● Default ○ HTML ○ Hyperlink

16. IDT - Business Layer View

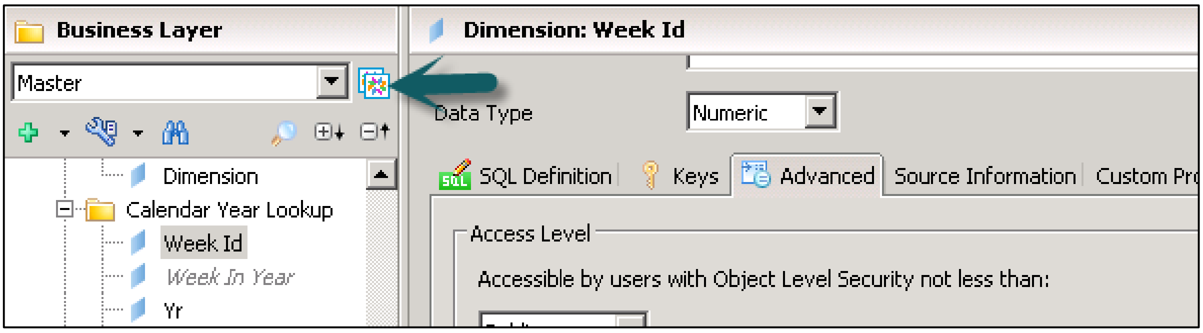
It is possible to modify the display of Business layer objects by using Business layer views to restrict the number of objects displayed in the Business Layer pane. Use business layer views to group objects that share a business relationship.

Business layer views can be selected in the Query Panel. You can use business layer views to define security to grant or deny the use of business layer objects to certain users or groups.

Creating Business Layer View

To create or edit Business Layer view, open Business Layer editor by clicking on Business layer in the local project.

Click Manage Business Layer view option in the Business layer view pane.

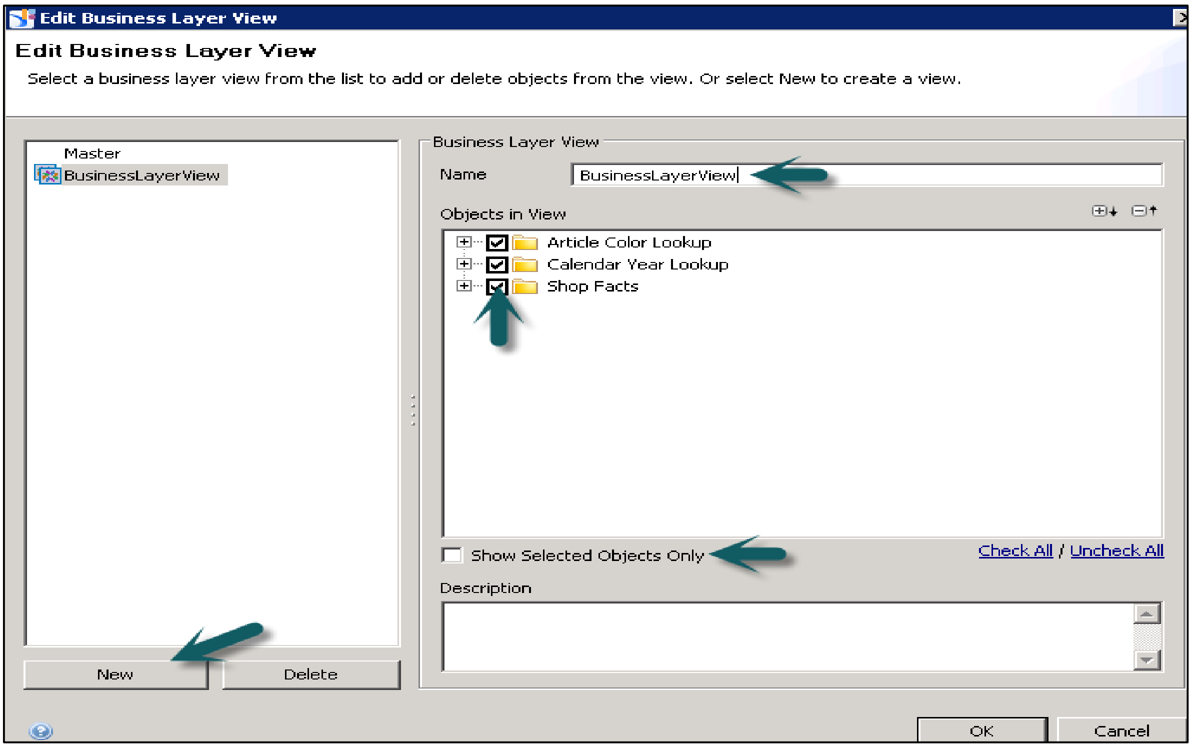


When the 'Edit Business Layer' view dialog box opens, to add a new view, click on "New" button. Edit the view name in the Name textbox.

In the Objects in view box, select or clear the checkboxes next to objects in the business layer to include or exclude them from the view.

To work with only the objects already included in the view, select Show selected objects only as shown in the following screenshot.

Enter or edit a description for the view in the Description textbox.



Edit Business Layer View

Select a business layer view from the list to add or delete objects from the view. Or select New to create a view.

Business Layer View

Name: BusinessLayerView

Objects in View:
- ☑ Article Color Lookup
- ☑ Calendar Year Lookup
- ☑ Shop Facts

□ Show Selected Objects Only

Click OK to save the changes.

Note: You can’t change Master view.

Parameters

You can create a parameter in Business Layer or Data Foundation that requires a user input or predefined input value.

A Parameter can have the following input types:

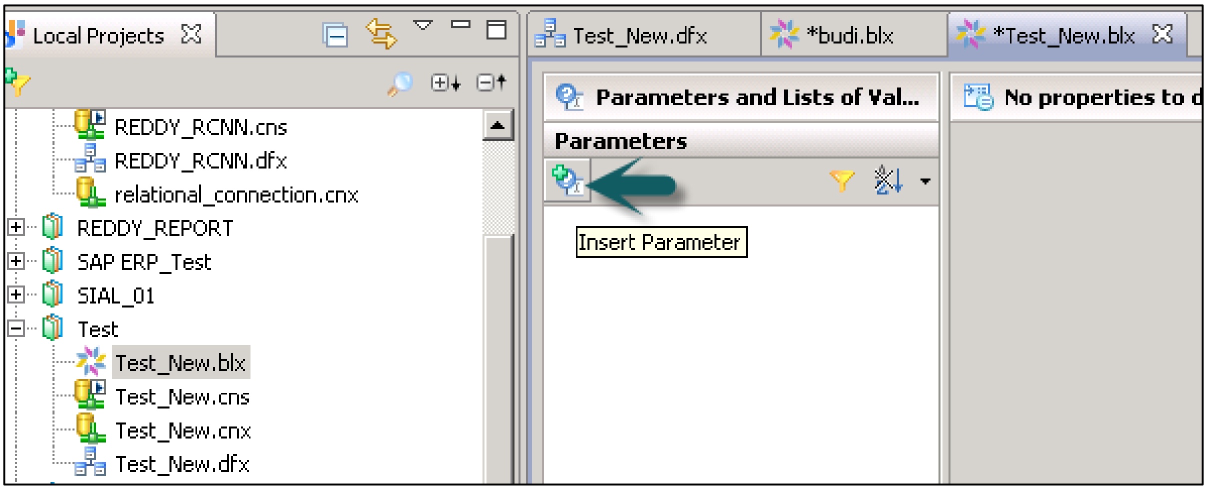
- User input as a response to prompt.
- A predefined fixed value.

Prompt to users	If selected, the user is prompted to enter a value at run time. If cleared, a pre-defined value is entered at runtime for the parameter.
Prompt Text	The text for the prompt question or directive if **Prompt to users** is selected.
Set values	Available when the **Prompt to users** option is unselected. Lets you enter one or more values to be used for the parameter at the run time.
Data Type	The data type required for the answer to the prompt.
Allow multiple values	If selected, lets the user select multiple values from the list of values.
Keep last values	If selected, the last value chosen by the user is kept when the prompt is re-run.
Index aware prompt	If selected, the key column is included in the prompt to restrict the values in a list. The key column is not visible to the user.
Associated list of values	A list of values to provide values for the prompt.
Select only from list	If selected, the user is forced to select a member in the list.
Set default value	Lets you select values to be used as default.

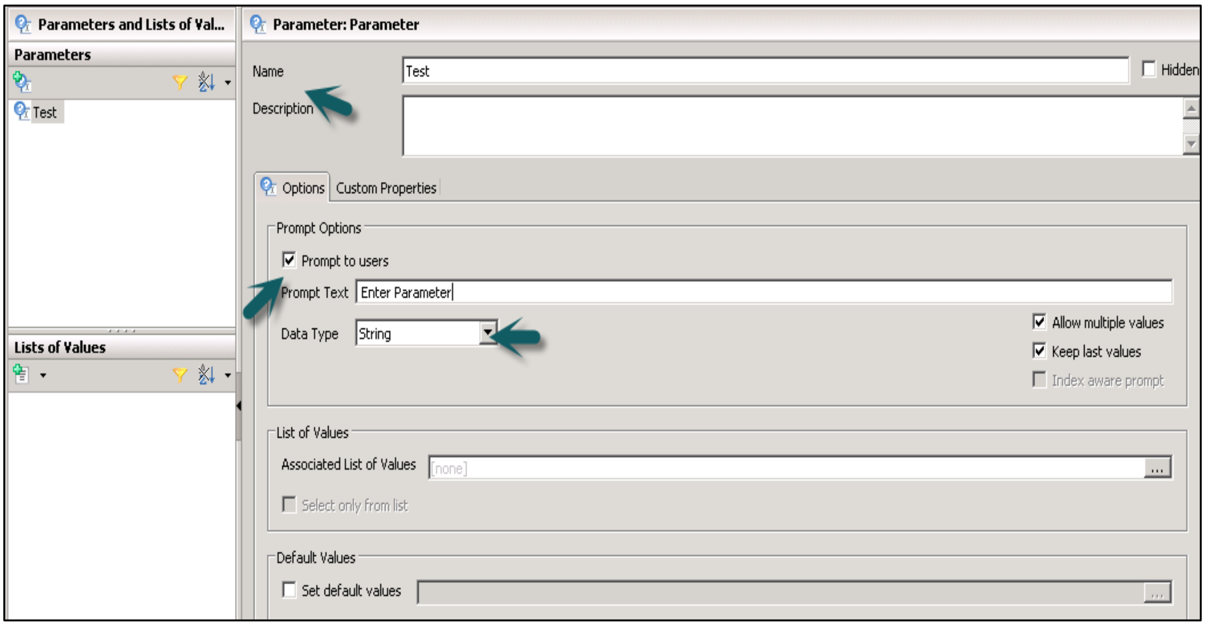
Inserting and Editing Parameters

When you define a parameter in Data Foundation, they are directly inherited to business Layer on top of Data foundation. These parameters can't be edited in Business Layer and you have to edit them in Data Foundation.

To insert a parameter, click on parameters and LOVs tab in the browsing pane -> Click on Insert Parameter icon.



Parameters properties are shown in the right pane. You can use various properties as defined in the previous topic.



Name: Test

□ Hidden

Description:

☑ Prompt to users

Prompt Text: Enter Parameter

Data Type: String

☑ Allow multiple values

☑ Keep last values

□ Index aware prompt

Associated List of Values: [none]

□ Select only from list

□ Set default values

To edit an existing parameter, select the parameter from the list and edit it.

LOVs and Properties

Using LOVs, you can select the value of a prompt from the list of values associated with an object. It allows a data set to be restricted to the selected values.

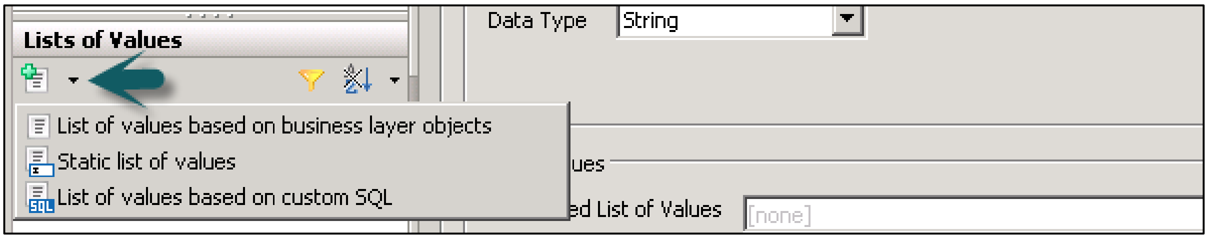
You can use LOVs for an object in Data Foundation or Business Layer. Different types of LOVs can be used.

LOVs based on Business Layer Objects: In this case, LOV is based on other query or on a hierarchy that includes

- **Static LOVs:** It includes List of specified values manually or imported from file.
- **LOVs based on SQL**: It is value return by specific SQL expression.

Inserting and Editing LOVs

To insert or edit an existing LOV, go to Parameters and LOVs tab in the editor. Click on Insert + sign in the LOV pane:

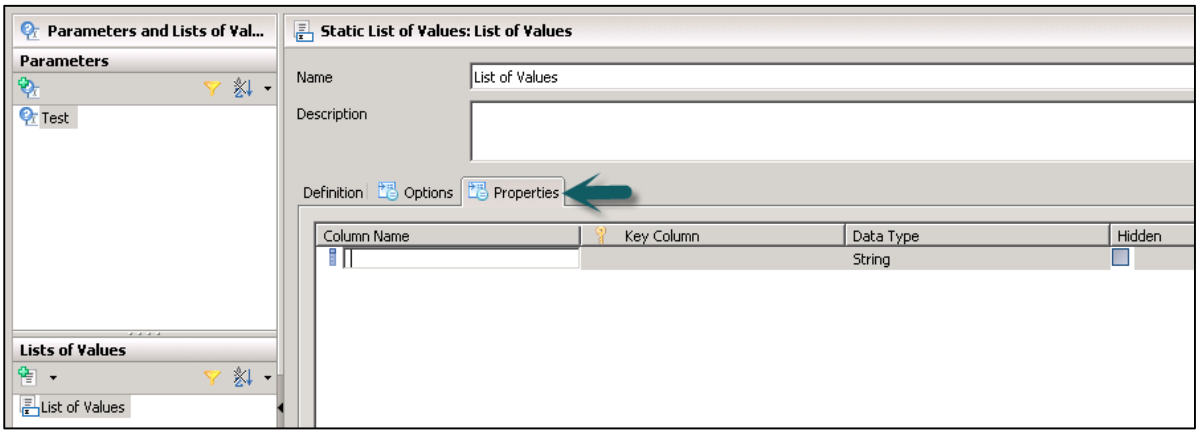

Lists of Values
List of values based on business layer objects
Static list of values
List of values based on custom SQL
ues
ed List of Values

Data Type: String

[none]

The properties of LOVs appear in the right pane. To edit an existing LOV, click List of Value in the list.

The Properties tab in LOVs properties lets you edit the column properties on LOVs. You can edit the following properties by clicking the property column in the table of properties:



Column Name: You can edit the name of the column.

Key Column: You can select a column to be index aware key.

Data Type: You can select the data type for the column.

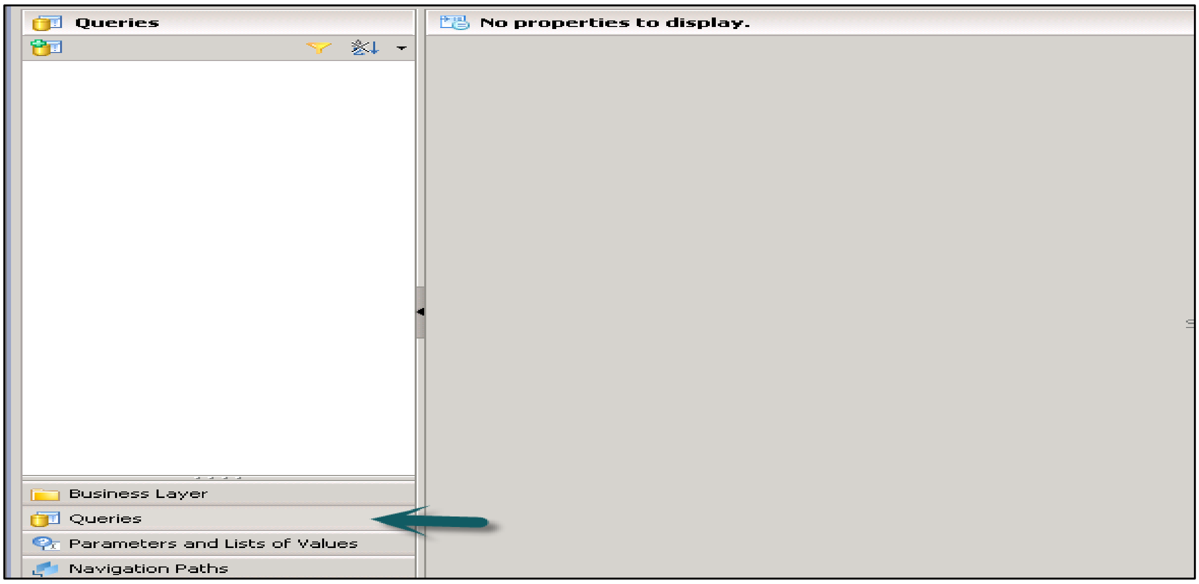
Hidden: If you select this option, the column will not be displayed.

Queries in Business Layer

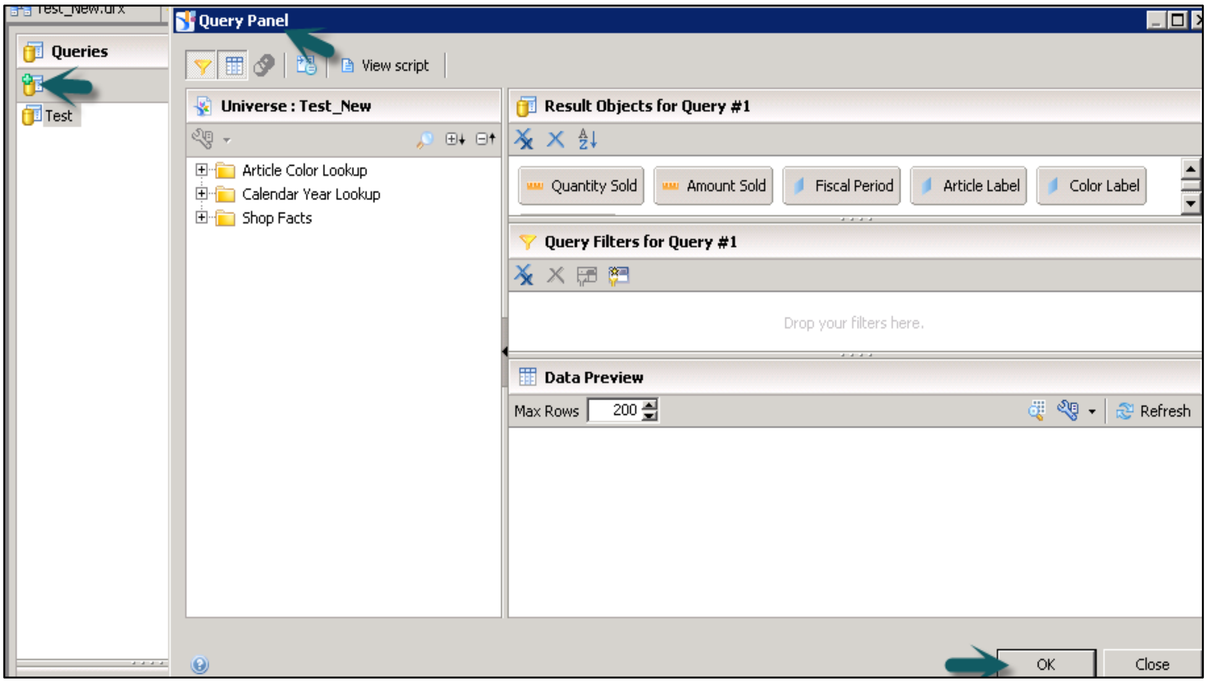
A Query panel is used to create queries and query objects are associated with the Business Layer. These are normally used in IDT to validate the Business layer.

Inserting and Editing a Query

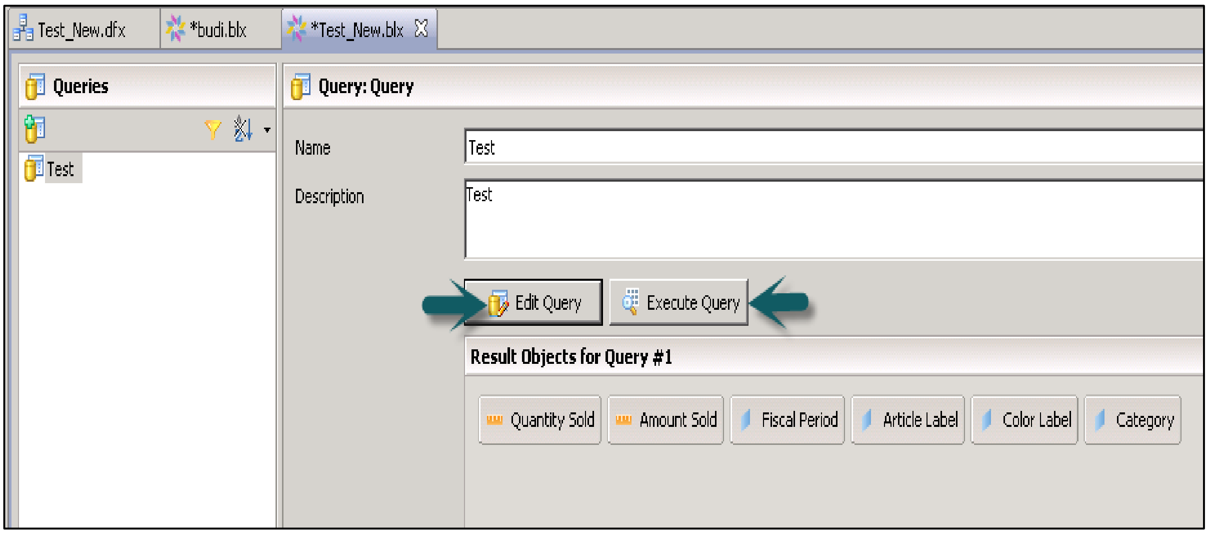
To insert a new query or edit an existing query, click the Query pane in the Business Layer pane.



Click Insert Query to add a new query. This will open the Query panel. You can create a new query or edit an existing query and click OK. Select the objects in Query panel -> OK.



Enter the name and description of Query. You can edit the objects in query by clicking Edit query option. To execute the query -> Execute Query.



Name: Test

Description: Test

Aggregate Awareness

Using aggregate awareness, you can use pre-aggregated data in tables in the database. It is used to improve query performance by processing less number of rows.

When you add an aggregate aware object in query, the query generator retrieves the data from the table with the highest aggregation level.

For example: Consider a Sales Fact table where sales is aggregated by per month. If your query asks for sales per month, the query generator will retrieve the data from aggregated table.

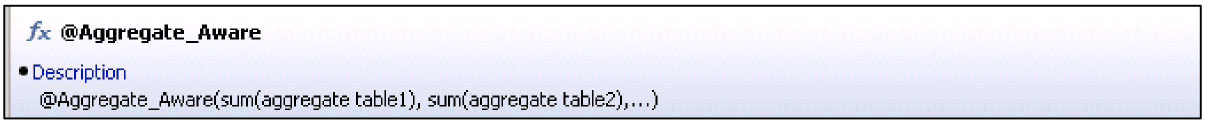
Setting Up Aggregate Awareness

To use aggregate awareness, first the aggregated table has to be loaded to database and then add the table to Data Foundation.

Define aggregate aware objects. These are the objects in the business layer for which you want queries to use the aggregate tables when possible, instead of performing aggregation using non-aggregate tables.

In the SQL expression for the object, define the SELECT statement to use the @Aggregate_Aware function:

@Aggregate_Aware(sum(aggr_table_1), …, sum(aggr_table_n))

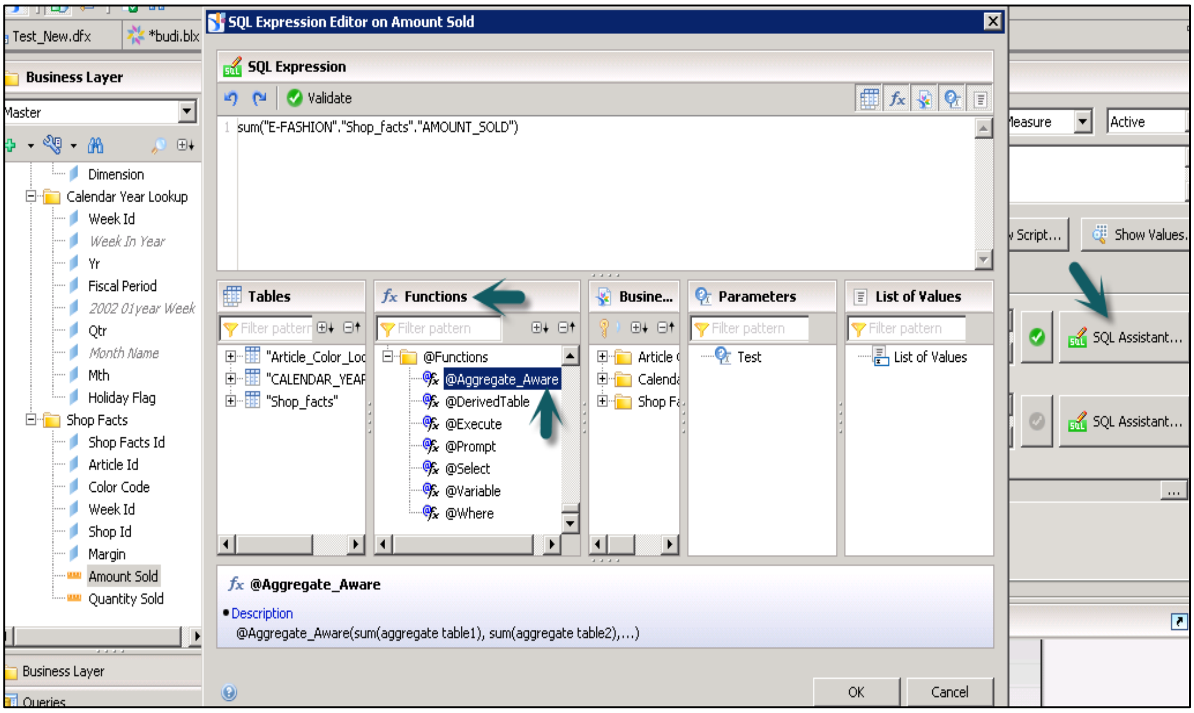


@Aggregate_Aware

- Description

@Aggregate_Aware(sum(aggregate table1), sum(aggregate table2),...)

Select the object in Business Layer -> go to SQL Assistant -> under Functions -> Aggregate Awareness.



SQL Expression Editor on Amount Sold

```
sum("E-FASHION"."Shop_facts"."AMOUNT_SOLD")
```

@Aggregate_Aware

- Description

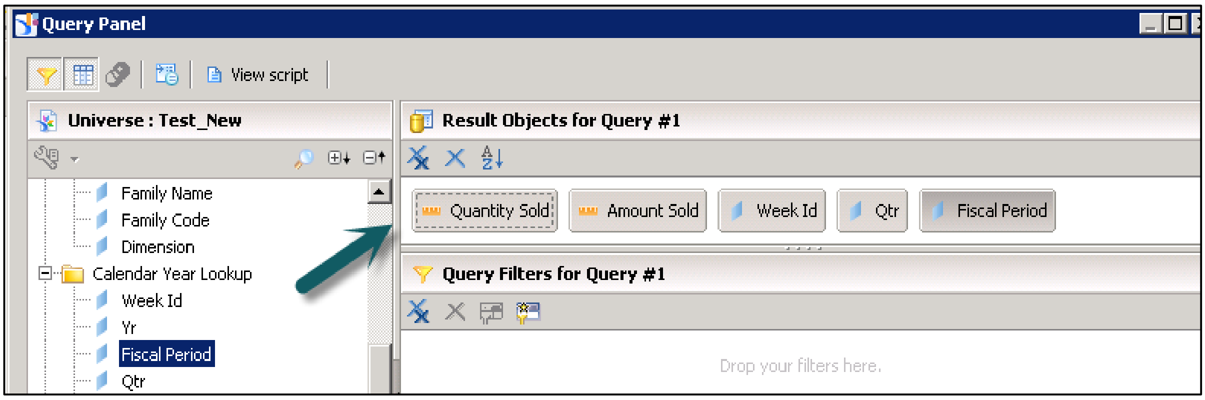
@Aggregate_Aware(sum(aggregate table1), sum(aggregate table2),...)

17. IDT – Building Query in Query Panel

You can use the query panel to create or preview queries on a Business Layer or on top of Universe published in the repository. The query panel allows you to add objects in the query and to preview the query results. A query panel can be opened using the following methods:

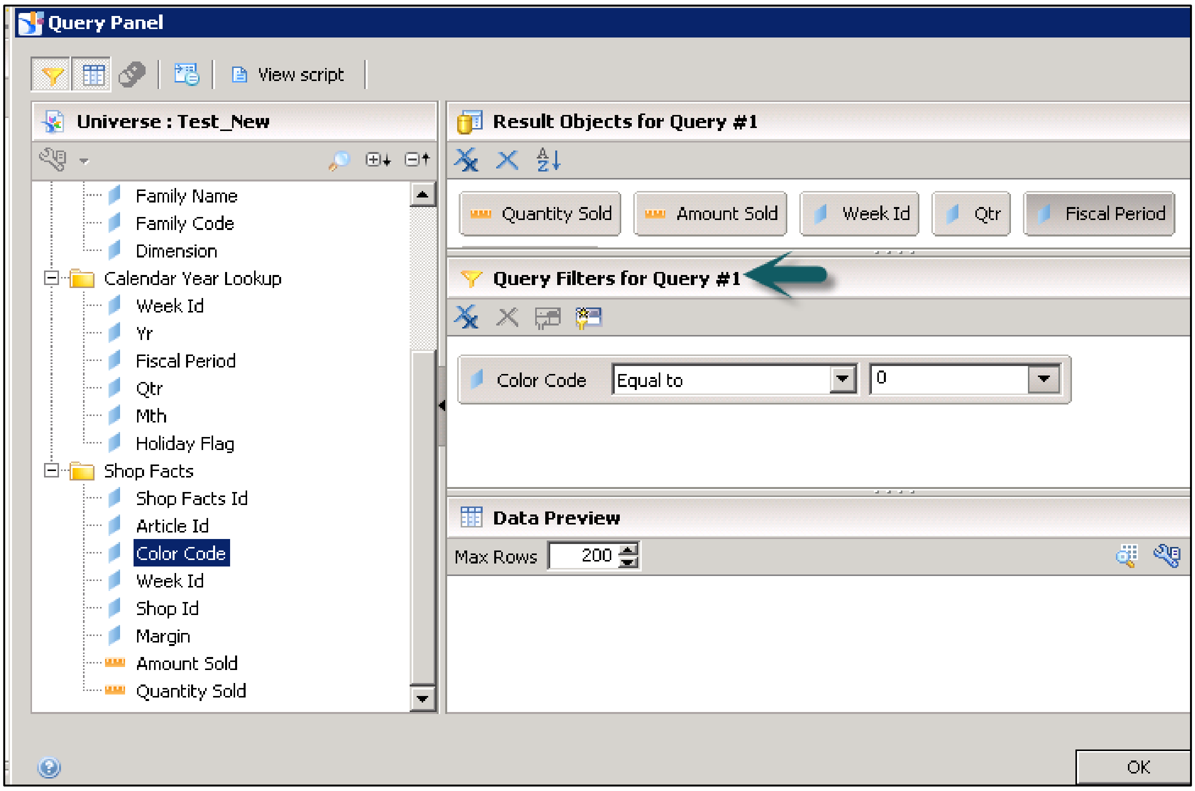
Go to Queries -> Insert Query.

To select the objects that you want to include in the query, drag objects from the business layer on the right into the Result Objects pane.



For hierarchy result objects, select members to include or exclude in the results. To open the MemberSelector, click the arrow to the right of the hierarchy object name

To filter the results of the query, drag objects from the business layer into the Filter Objects pane.



Color Code Equal to 0

Max Rows 200

Selecting Named Sets

Named set are defined in Business layer while creating Universe. To select members by named set, your hierarchy should define minimum one named set.

Named sets are displayed when you click on metadata under the member selector. If you can't find a named set folder under metadata, it means the hierarchy has no named set.

Selecting Calculated Measures

You can also use calculated measures with hierarchy but hierarchy should have minimum one metadata defined. They are defined in Business layer.

Like named sets, calculated measures are also displayed when you click on metadata under member selectors.

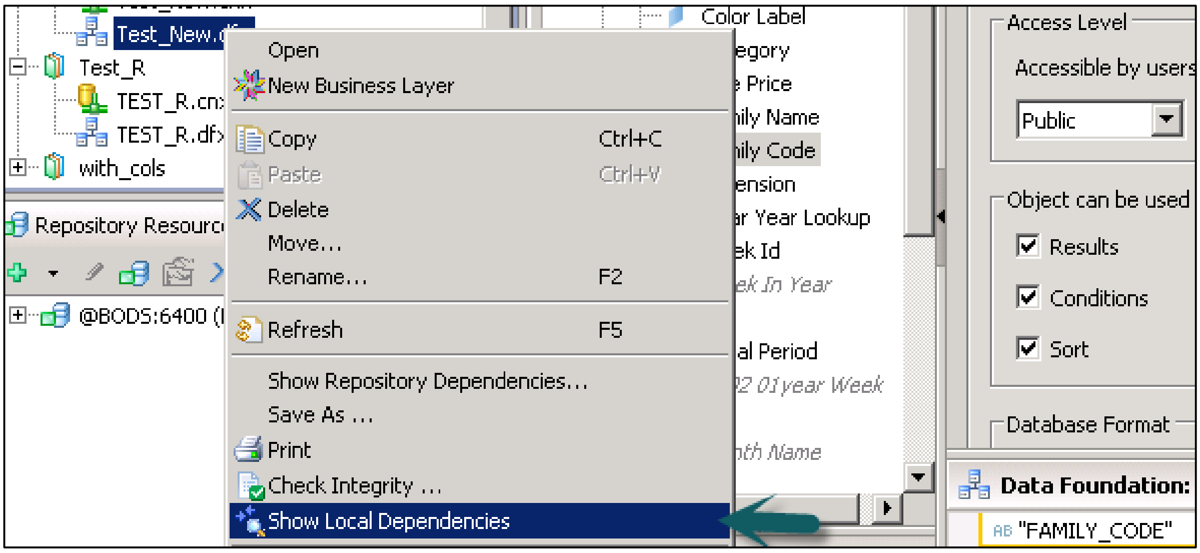
18. IDT – Dependency among Resources

In a Universe there can be many objects which are dependent on each other and moving, deleting a resource can impact other resources that depends on that resource.

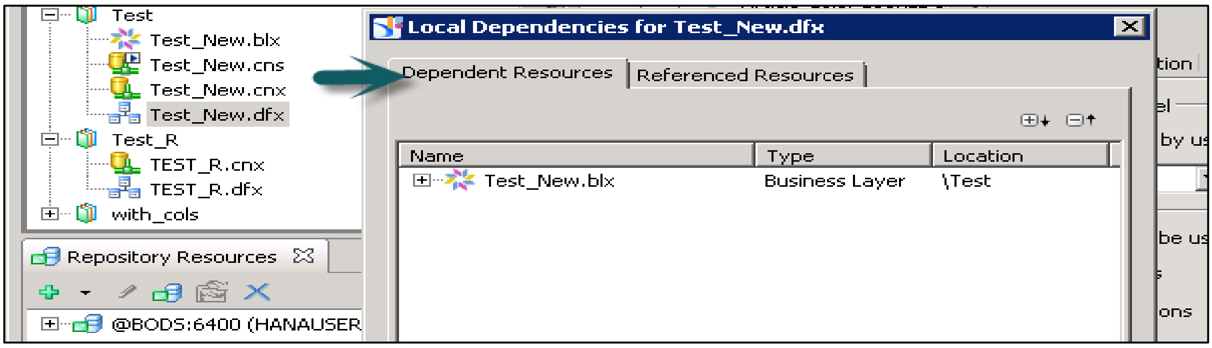
To check the dependency between different resources, you can select show local dependency. When you select a resource, it displays two tabs - dependent and referenced resources.

The **Dependent Resources** tab lists resources in the same local project that depend on the selected resource. The **Referenced Resources** tab lists the resources in the same local project that are referenced by the selected resource.

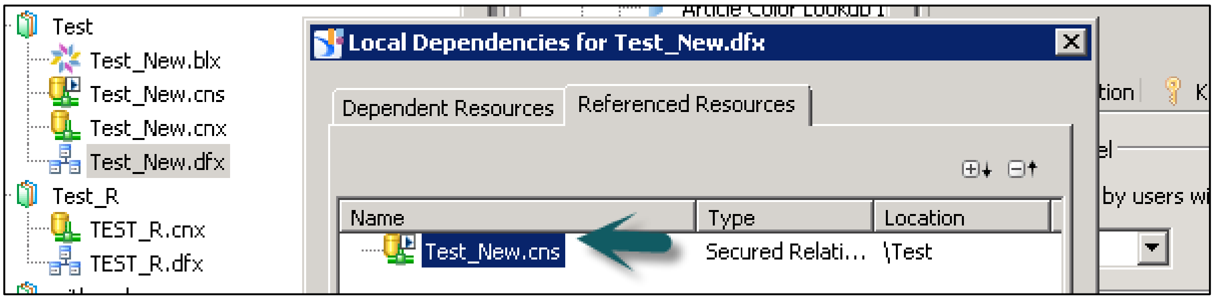
If you want to check the resources that will be impacted when you change the Data Foundation, you can right-click -> Show Local Dependency.



Under Dependent Resource, it will show Business Layer and Referenced resources will show Relational connection.



Name	Type	Location
Test_New.blx	Business Layer	\Test

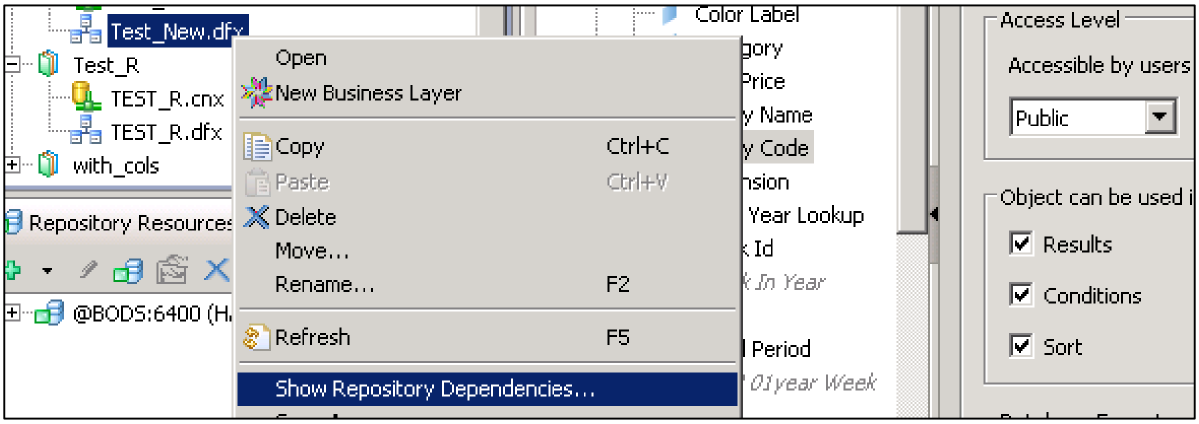


Local Dependencies for Test_New.dfx

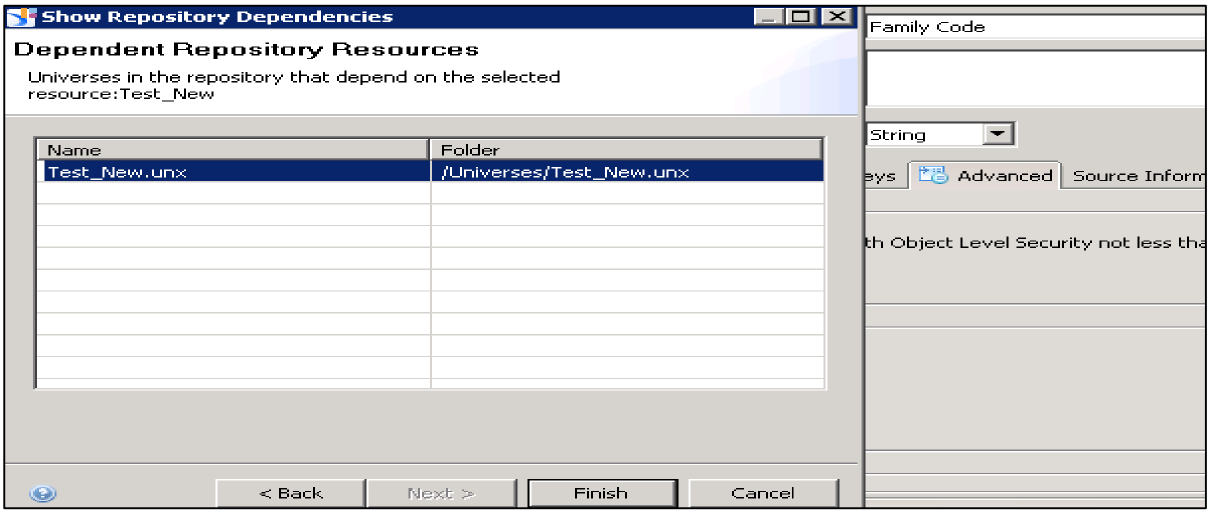
Name	Type	Location
Test_New.cns	Secured Relati...	\Test

Repository Dependency

If you want to see dependent resources in the Repository for a particular resource under the local project, right-click and click on show Repository Dependency.



Enter the session details where resources are published and click on log in. It will show you a list of published Universes in the repository that are based on selected resource under the local Project.



Show Repository Dependencies

Dependent Repository Resources

Universes in the repository that depend on the selected resource:Test_New

Name	Folder
Test_New.unx	/Universes/Test_New.unx

19. IDT – Publishing

When you design a Universe, this is the last step where you can publish your Business Layer to the local file system or the Repository. When you publish a Universe, the publish wizard exports the Business layer, data foundation and connection shortcut, and allows reporting tools and available users to access this Universe.

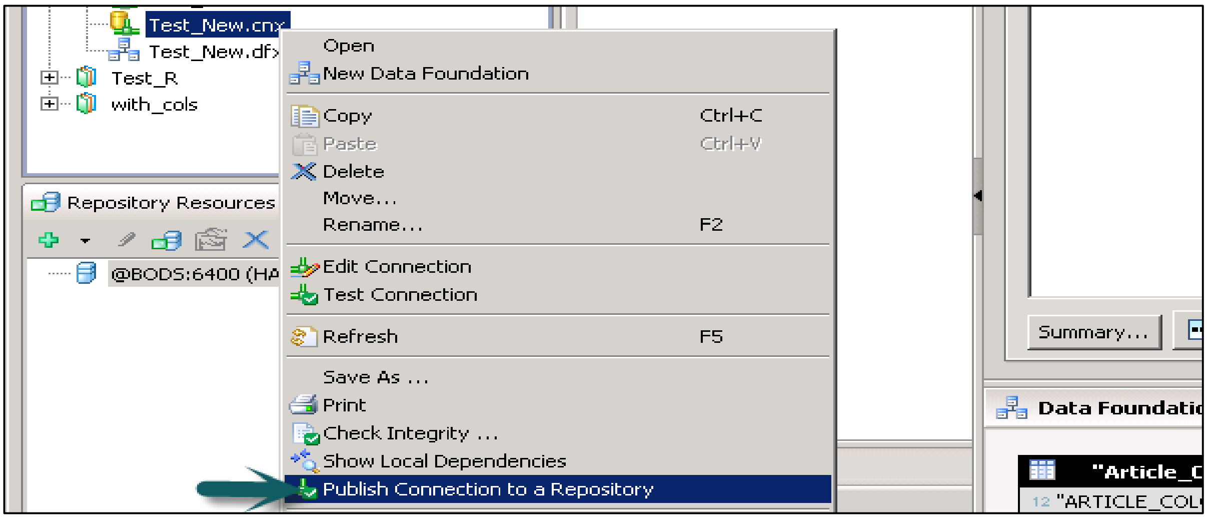
You can publish a Universe to the local file system. This can include a Business layer based on an OLAP connection or a Business Layer based on Data Foundation with a local connection.

When you publish a Universe to the repository, you implement a security mechanism by publishing on the Central Management Server (CMS). All objects of Universe inherit object level and other security policies defined for CMS.

Publishing a Local Connection

You can publish a local connection to the Repository that is available under the local Project view. When you publish a connection, it changes from local unsecure .cnx connection to .cns secured connection under the repository.

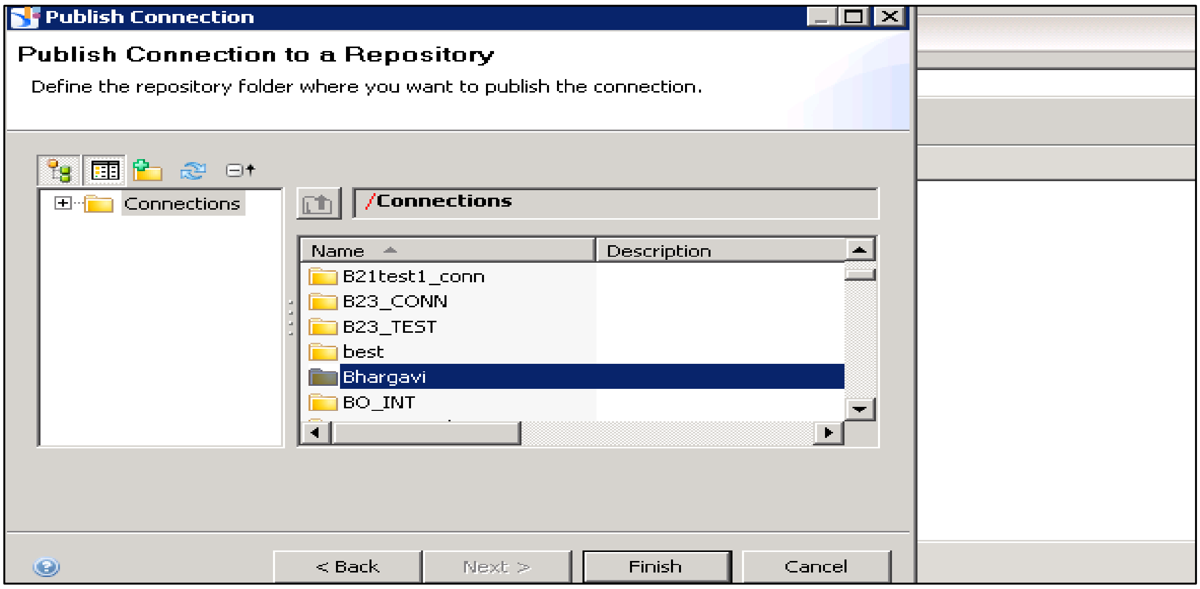
To publish the connection, right-click on .cnx under local project -> Publish Connection to a Repository.



When you publish a connection, it is changed to .cns.

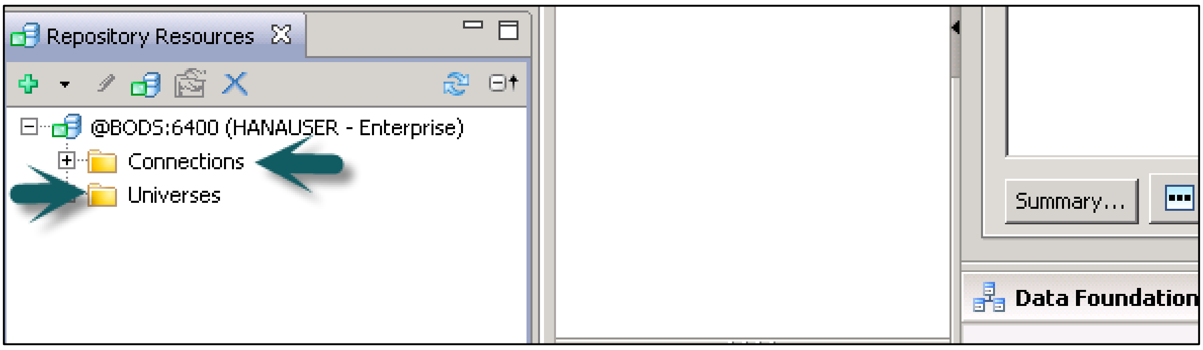
Selecting a Folder

When you publish or retrieve a connection, you can select a folder where you want to publish connection.



20. IDT – Security

Security of a Universe is defined when it is published into the repository. All published universes are available under the Universe folder and all connections are available in the Connection folder. To access a Universe or a connection in the repository, you can use Repository resources.



Security policy on Universe, connections is applied on users and groups created in CMC. In Information Design tool, you can define security policy using Security editor. You can create security profiles in IDT and these profiles are assigned to users and groups.

You can define two types of security profiles in IDT:

- **Data Security Profile:** In data security profile, the security policy is applied on Data Foundation objects and connections.

- **Business Security Profile**: This include objects in Business layer on which the security profile is applied.

Security Editor in IDT

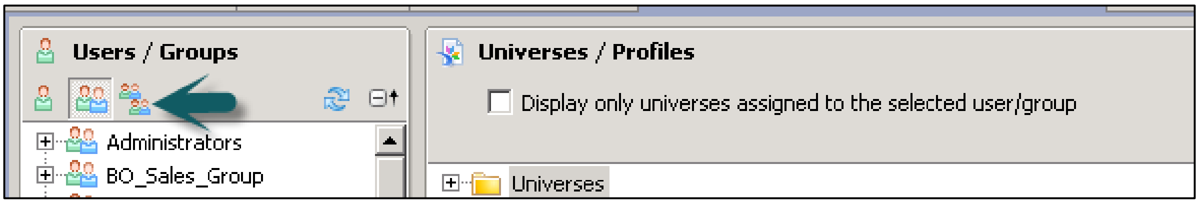
The Security Editor can be viewed in two ways: Using Universe or using users/groups. Select the tab in the Security Editor pane to display the view you want to work with.

The Universes/Profiles tab lets you to do tasks by first selecting a universe in the repository.

The Users/Groups tab lets you to do tasks by first selecting a user or group.

There are three icons in the Users/Groups panel that allows you to display users and groups in different ways:

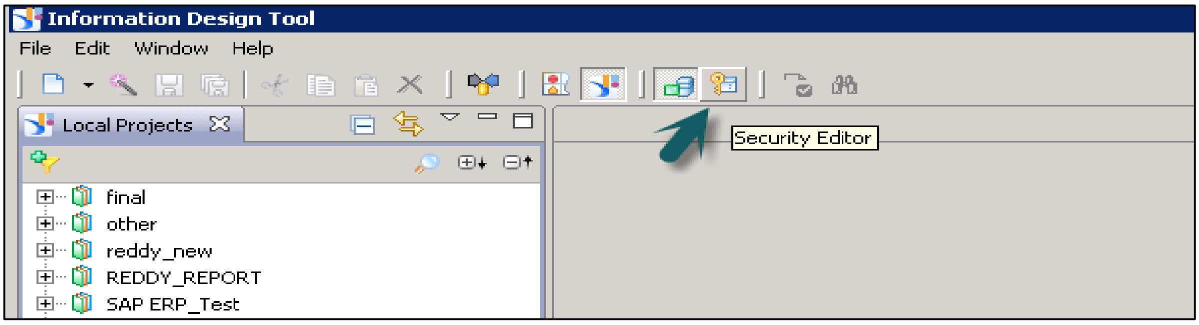
- Show Users
- Show Groups
- Show Hierarchies



☐ Display only universes assigned to the selected user/group

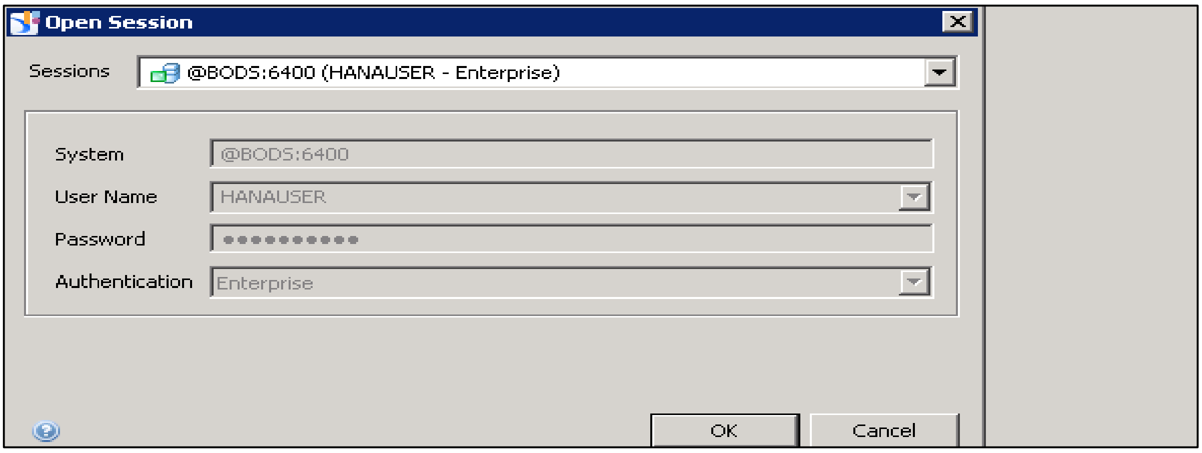
How to Open Security Editor in IDT?

In information design tool toolbar, click the Security Editor icon.



Enter the session details to open in the security editor. If you are not already logged into the selected session, enter the required information.

The Security Editor opens in a new tab.



Sessions @BODS:6400 (HANAUSER - Enterprise)

System @BODS:6400

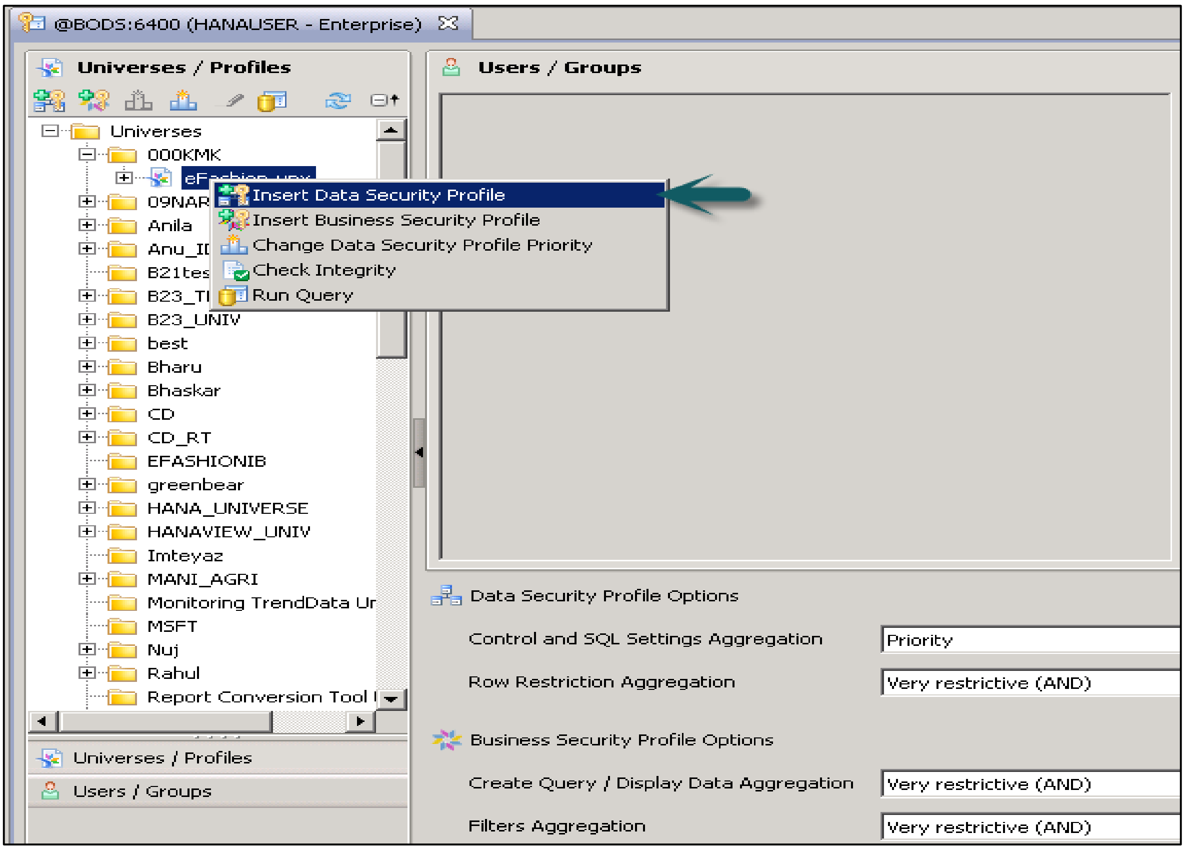
User Name HANAUSER

Password ●●●●●●●●●●●

Authentication Enterprise

Inserting and Editing Data Security Profiles

Go to Universes/Profiles pane in the Security editor. To insert a new profile, right-click on Universe -> Insert Data Security profile.



Data Security Profile Options

Control and SQL Settings Aggregation: Priority

Row Restriction Aggregation: Very restrictive (AND)

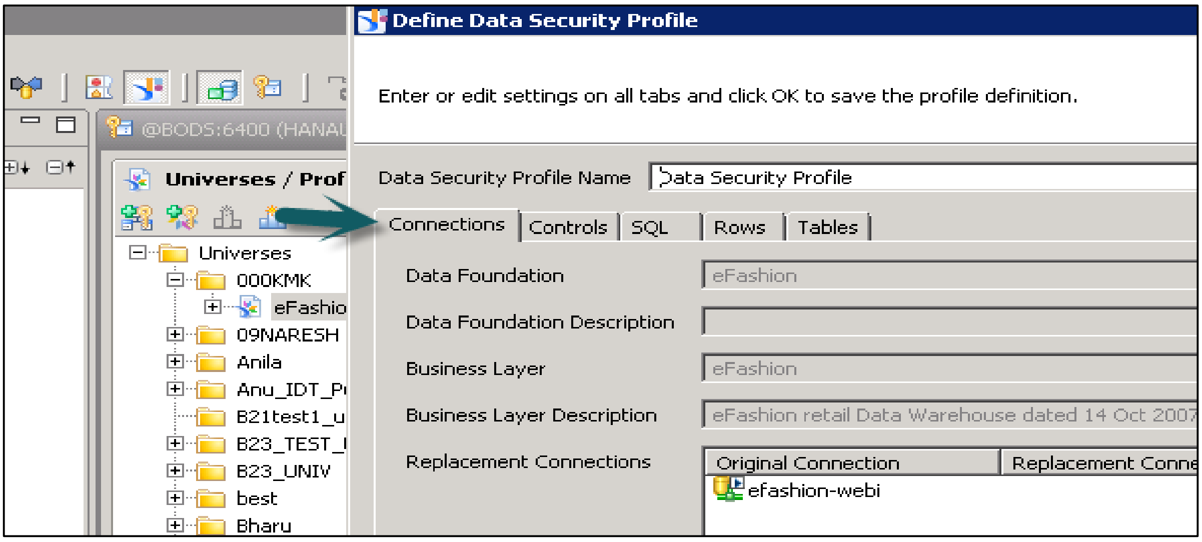
Business Security Profile Options

Create Query / Display Data Aggregation: Very restrictive (AND)

Filters Aggregation: Very restrictive (AND)

This will open a new window, you can define data security profile setting in different tabs. When you have defined all of the settings, click OK.

To save the changes to the security settings in the repository, click the save icon in the main toolbar.



Define Data Security Profile

Enter or edit settings on all tabs and click OK to save the profile definition.

Data Security Profile Name: Data Security Profile

Data Foundation: eFashion

Data Foundation Description:

Business Layer: eFashion

Business Layer Description: eFashion retail Data Warehouse dated 14 Oct 2007

Replacement Connections

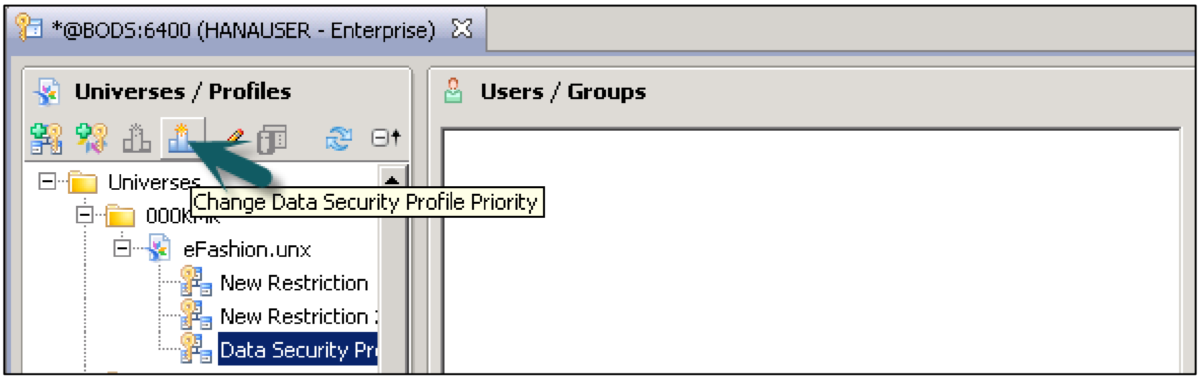
Original Connection	Replacement Conne
efashion-webi	

When you have defined all of the settings, click OK.

To save the changes to the security settings in the repository, click the save icon in the main toolbar. All Data Security profile settings are applied to Universes created on Data Foundation using Relation connection.

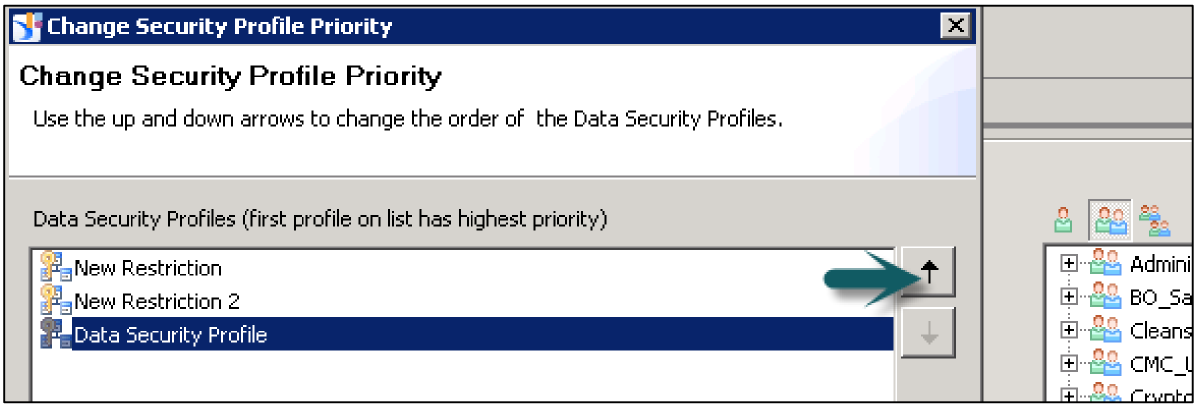
Connections	Defines replacement connections
Controls	Defines replacement query timeout and size limits
SQL	Defines replacement query options
Rows	Defines an SQL WHERE clause to restrict rows returned in the query
Tables	Defines replacement tables

When you define more than one Data Security profile on one Universe, it is also possible to change the Data Security Profile Priority.



This will open a new window -> Change Security profile priority. You can use up/down arrow to change the priority of security profiles.

To save the changes in the repository, click the save icon in the main toolbar.


Change Security Profile Priority

Change Security Profile Priority

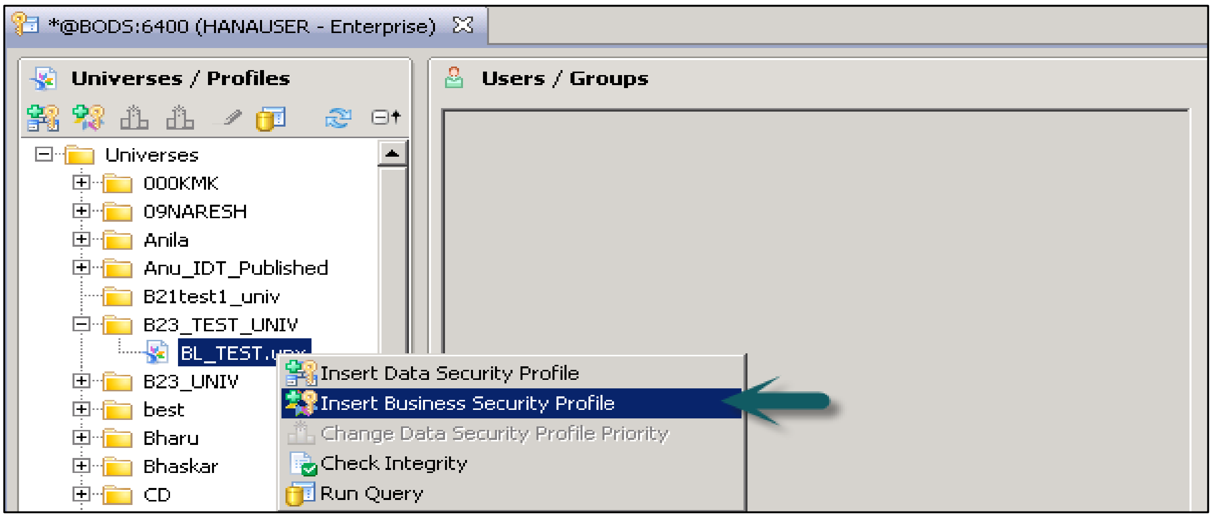
Use the up and down arrows to change the order of the Data Security Profiles.

Data Security Profiles (first profile on list has highest priority)

- New Restriction
- New Restriction 2
- Data Security Profile

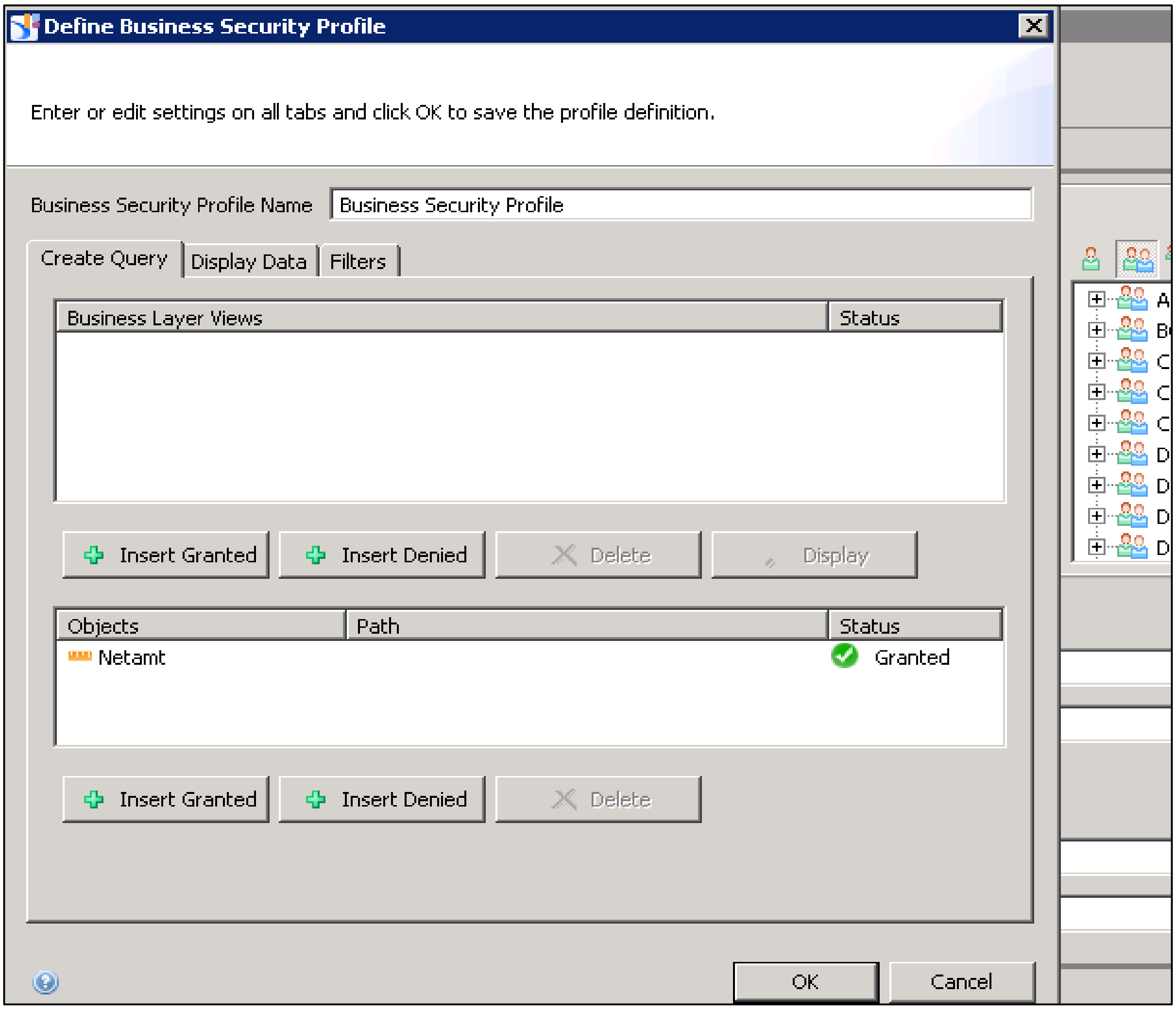
Inserting and Editing a Business Security Profile

Select a Universe in Universe/Profile pane under the Security Editor. To insert a new Business Security Profile -> Right-click -> Insert Business Security profile.



You can define security in each tab of Business Security profile. Reset option is used to reset the setting to default. Once the setting is defined, click OK to close the window and Save icon at the top to save the profile.

Create Query	Defines the universe views and business layer objects available to the user in the query panel. **Note:** Create Query settings secure metadata only.
Display Data	Grants or denies access to the data retrieved by objects in the business layer when the user runs a query.
Filters	Defines filters using objects in the business layer.



Define Business Security Profile

Enter or edit settings on all tabs and click OK to save the profile definition.

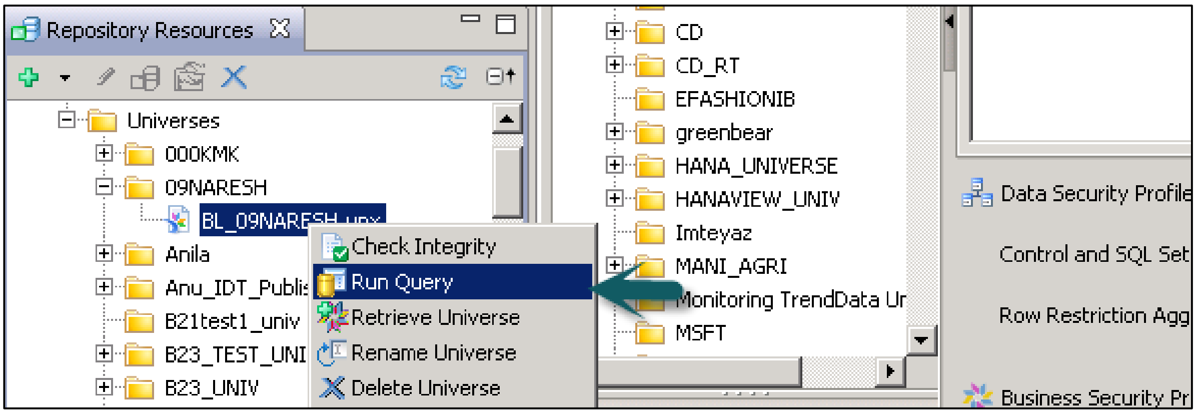
Business Security Profile Name: Business Security Profile

Objects	Path	Status
Netamt		Granted

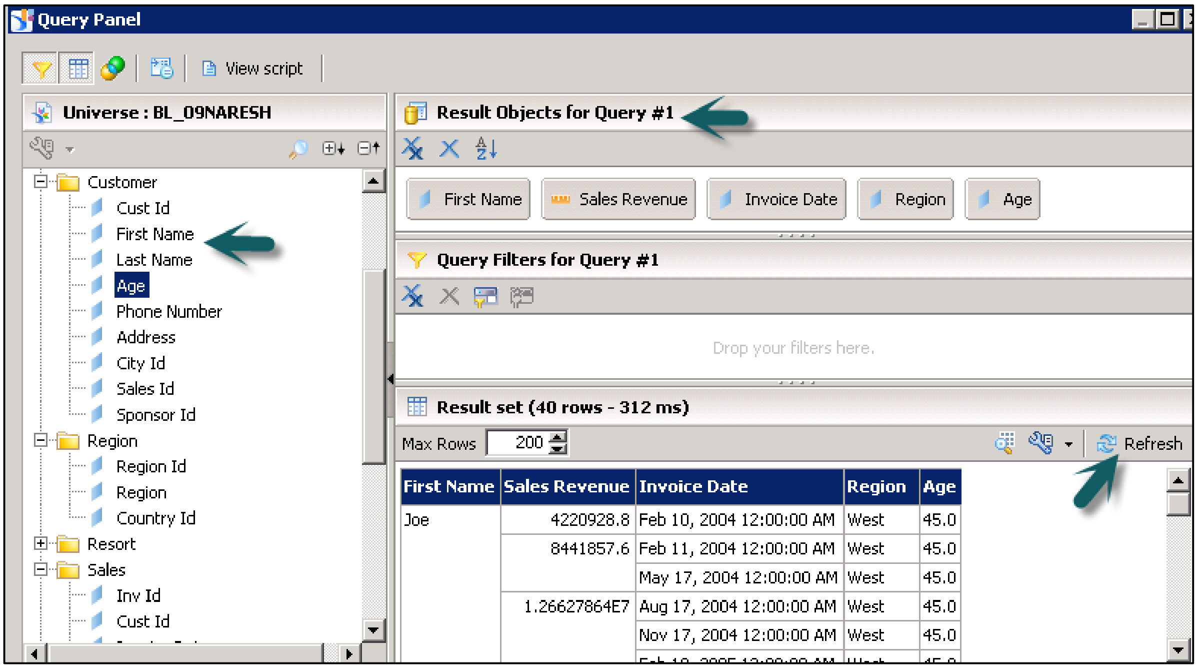
21. IDT – Running a Query on a Published Universe

You can also run a query on Universe published in the repository. When you run a query on published Universe, security profile defined for Universe will be applied on the query panel.

To run a query on published Universe, go to Repository resources view -> Select Universe -> right-click and Run query.



It opens the Query panel, you can add available objects to Result Objects and run query. Data Preview can be used to see the preview of resulted objects -> Refresh button.



First Name	Sales Revenue	Invoice Date	Region	Age
Joe	4220928.8	Feb 10, 2004 12:00:00 AM	West	45.0
	8441857.6	Feb 11, 2004 12:00:00 AM	West	45.0
		May 17, 2004 12:00:00 AM	West	45.0
	1.26627864E7	Aug 17, 2004 12:00:00 AM	West	45.0
		Nov 17, 2004 12:00:00 AM	West	45.0

22. IDT – Format Editor Overview

Format editor allows you to define display format for date, time, and numeric values. You can create custom formats or can also use default formats for the objects. Custom formats are used when default format doesn't meet the requirement.

Default formats are based on common locale data repository CLDR. You can select from 15 default formats for Date and time, and 4 formats for numeric values.

Custom formats can be created using the format editor. Custom format contains text and tokens. A **token** is defined as predefined part of date or numeric value.

Date & Time Format Tokens

There are 15 date and time format tokens that are defined using the format editor. Consider the following date and time tokens for category - Day.

Category	**Token**	**Description**
	Day 01-31	Day is represented by 2 digits 01-31
	Day 1-31	Day is represented by 1 or 2 digits from 1-31
	Day Name	Day Name like Monday, Tuesday
	Short Day Name	Day Name like Mon, Tue
	Day of year	Day is represented by 3 digits - 001-366
	Day of year 01-366	Day is represented by 2 or 3 digits - 01-366
	Day of year 1-366	Day is represented by 1, 2, or 3 digits
	Day of week in a month	Day of the week in month like 2 for 2nd Tuesday of July
	Uppercase Day Name	Day name in uppercase - Tuesday
	Lowercase Day Name	Day name in lowercase - Tuesday
	Capitalized Day Name	Day name starts with capital - Tuesday
	Uppercase short day name	Day name is represented in short format in uppercase - Mon
	Lowercase short day name	Day name is represented in short format in lowercase - Mon
	Capitalized short day name	Starts with capital in short format like- Mon

Similarly, there can be time tokens for minutes, hour, week, month, quarter, and year format.

Number Format Sections

A number format section can be defined as consists of:

- The sign
- The integer value
- Grouping separator
- Decimal separator
- Decimal separator
- Exponential symbol

Consider the following example, which shows how a number can be displayed using different format defined in the editor.

Example: How number -1,234 will be displayed using number tokens?

Format Defined with Tokens	Preview Display
[Sign][#]	-1234
[Neg.start][0][0][0][0][0][Neg.end]	(001234)
[sign always][#][dec.sep][0][0]	-1234.00
[sign][#][decimal separator][0][0][E+][0][0][0]	-1.23E+003
Revenue: [Sign always][#][Decimal separator][0][0]	Revenue: 1234.00
[Boolean]	True

You can use different list of number format tokens like sign, digit, separators, exponents, percent, and Boolean.