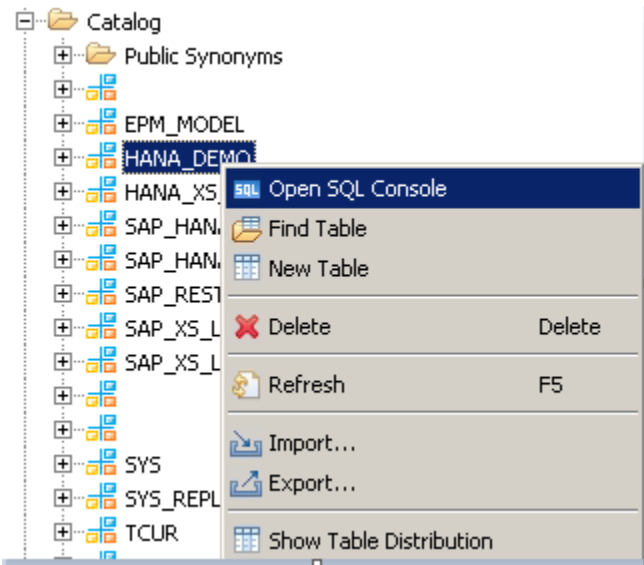
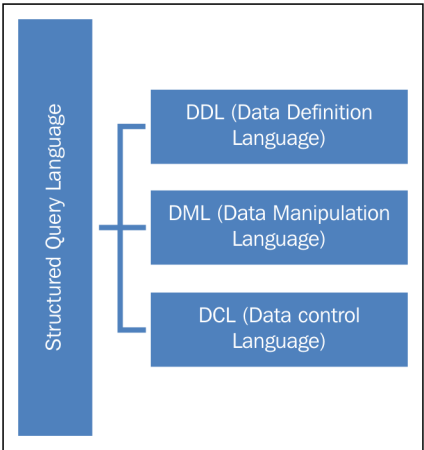
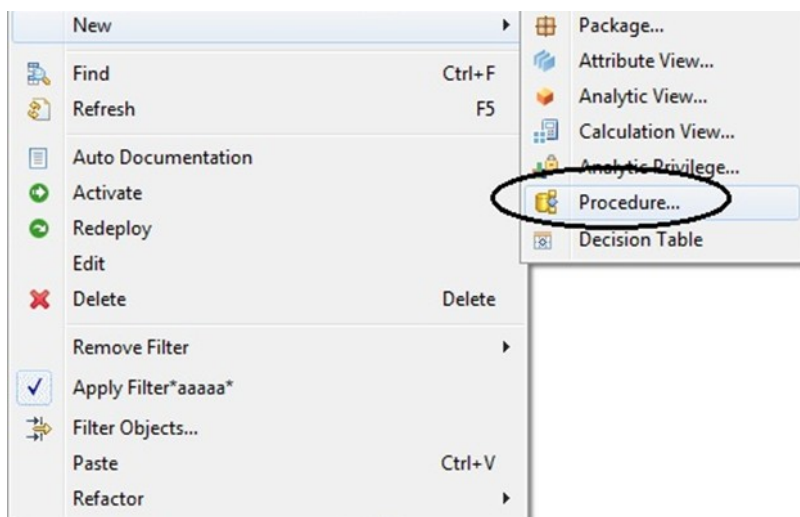
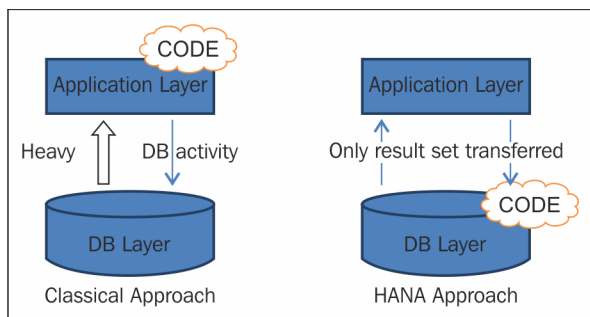
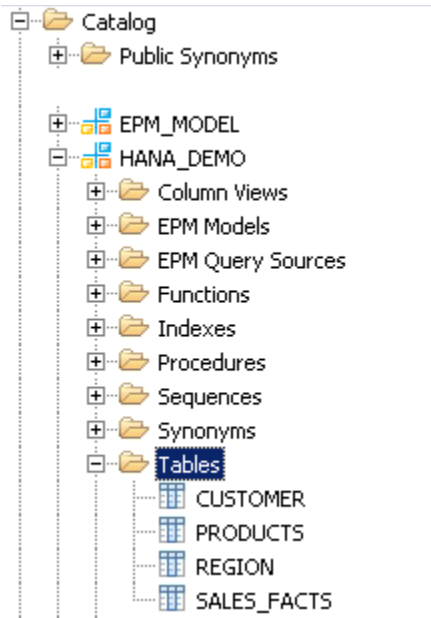
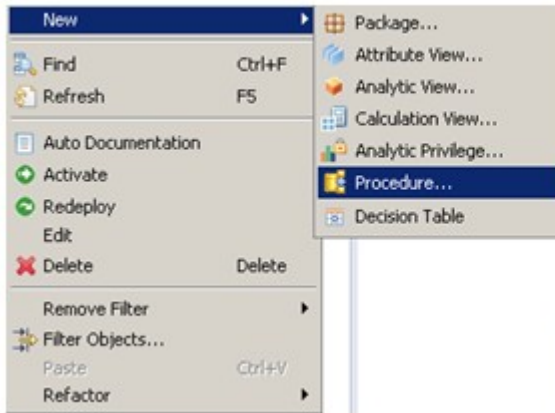


# Chapter 1: Kickoff – Before We Start







```

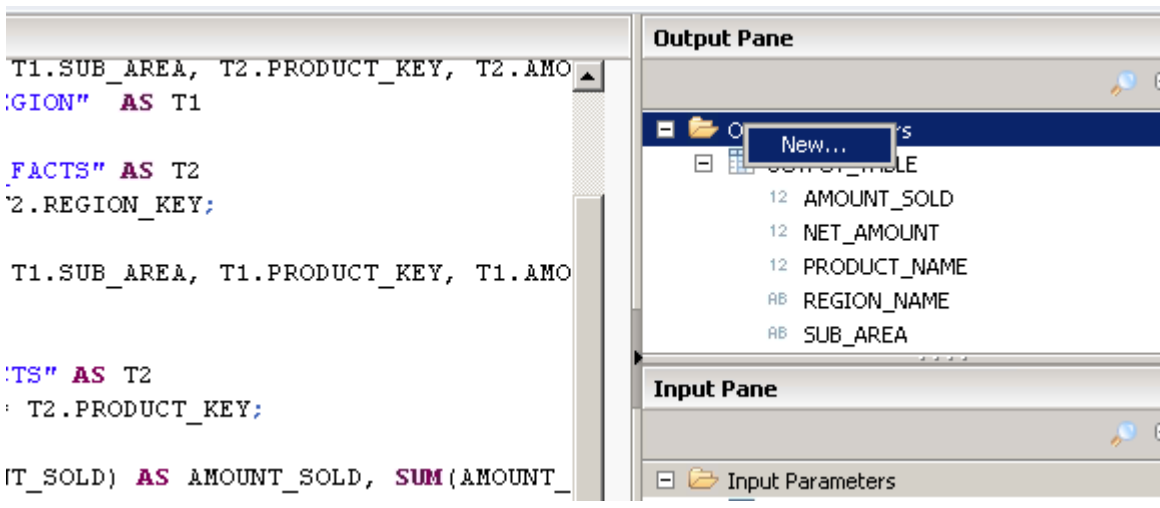
/*****BEGIN PROCEDURE SCRIPT *****/
BEGIN
Pvar1 = SELECT T1.REGION_NAME, T1.SUB_AREA, T2.PRODUCT_KEY, T2.AMOUNT_SOLD
        FROM AS "HANA_DEMO"."REGION" T1
        INNER JOIN
        "HANA_DEMO"."SALES_FACTS" AS T2
        ON T1.REGION_KEY = T2.REGION_KEY;

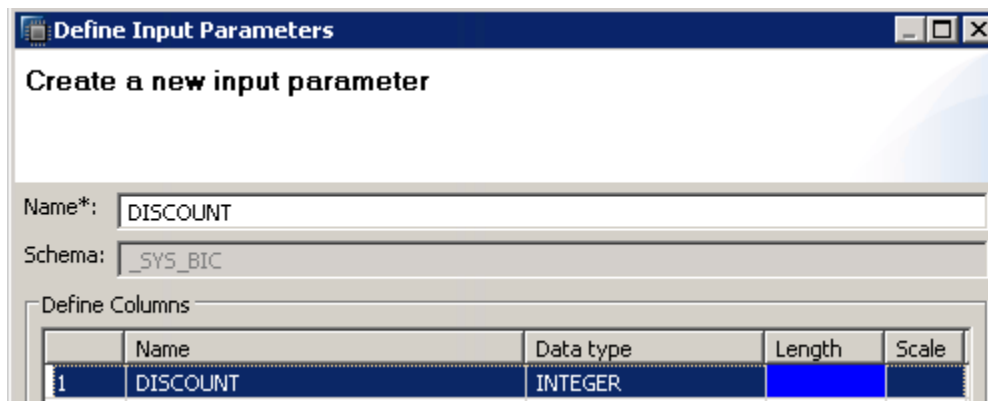
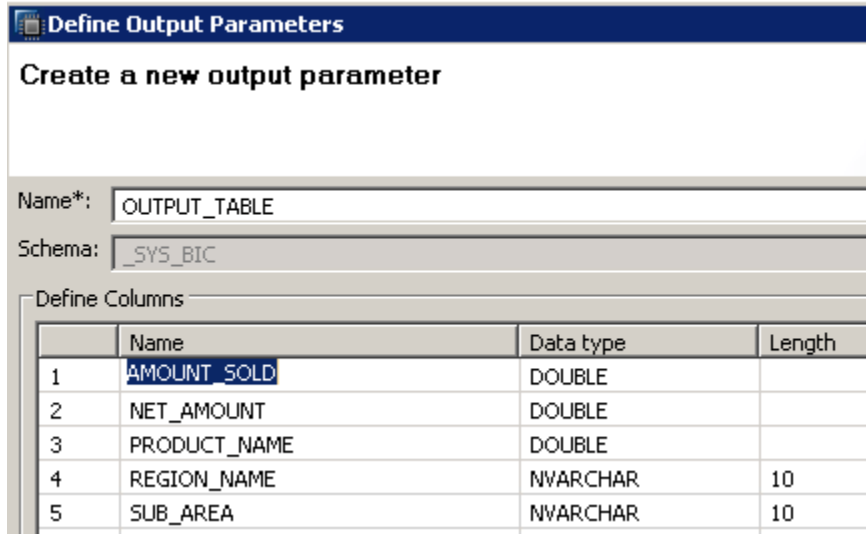
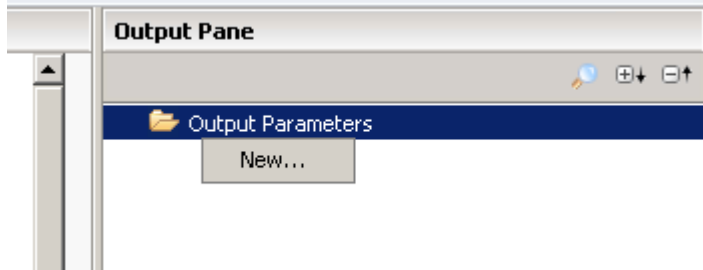
Pvar2 = SELECT T1.REGION_NAME, T1.SUB_AREA, T1.PRODUCT_KEY, T1.AMOUNT_SOLD, T2.PRODUCT_NAME
        FROM :Pvar1 AS T1
        INNER JOIN
        "HANA_DEMO"."PRODUCTS" AS T2
        ON T1.PRODUCT_KEY = T2.PRODUCT_KEY;

OUTPUT_TABLE = SELECT SUM(AMOUNT_SOLD) AS AMOUNT_SOLD, SUM(AMOUNT_SOLD - (AMOUNT_SOLD * :DISCOUNT/ 100)) AS NET_AMOUNT,
        PRODUCT_NAME, REGION_NAME, SUB_AREA
        FROM :Pvar2
        GROUP BY PRODUCT_NAME, REGION_NAME, SUB_AREA;

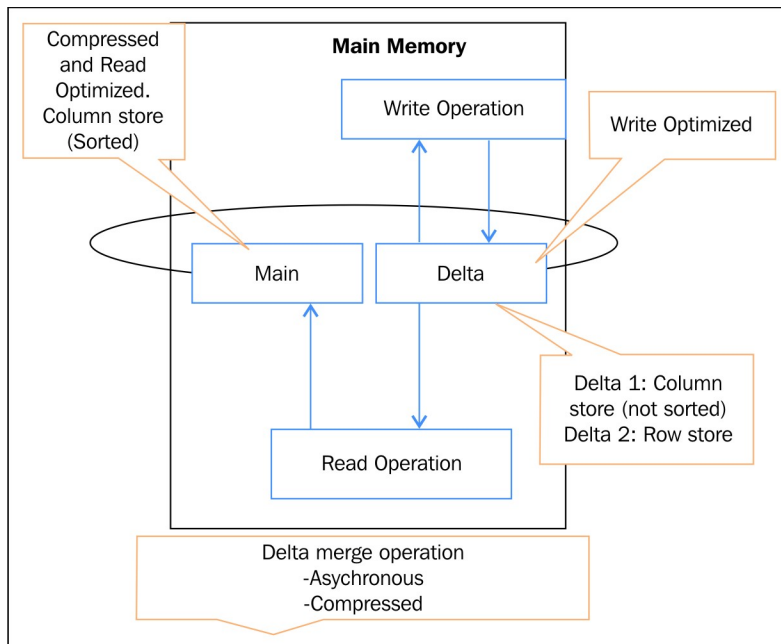
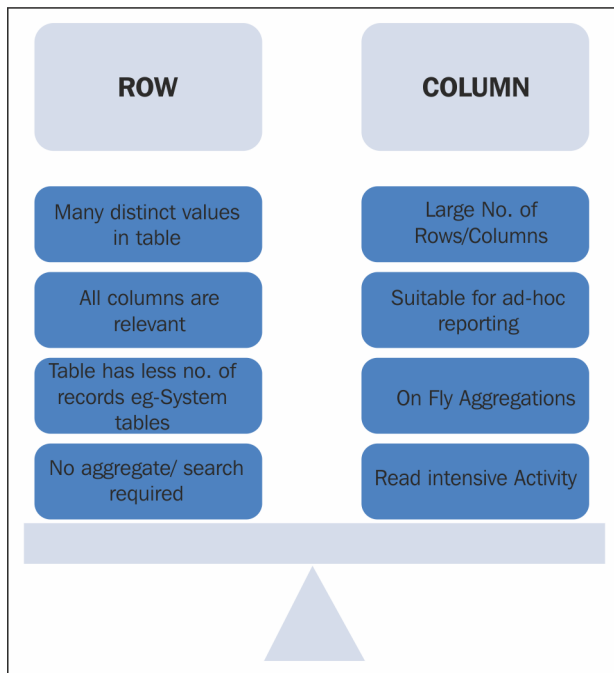
END;
/*****END PROCEDURE SCRIPT *****/

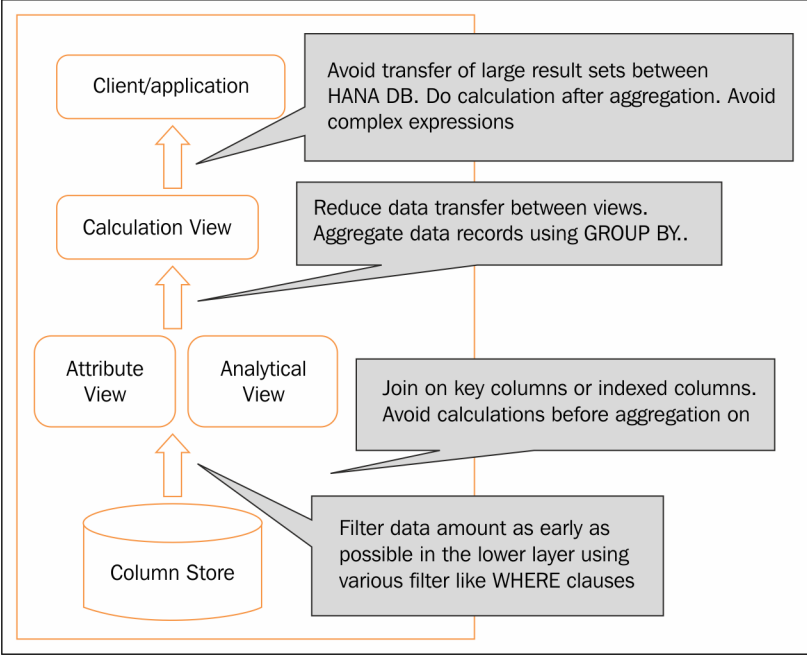
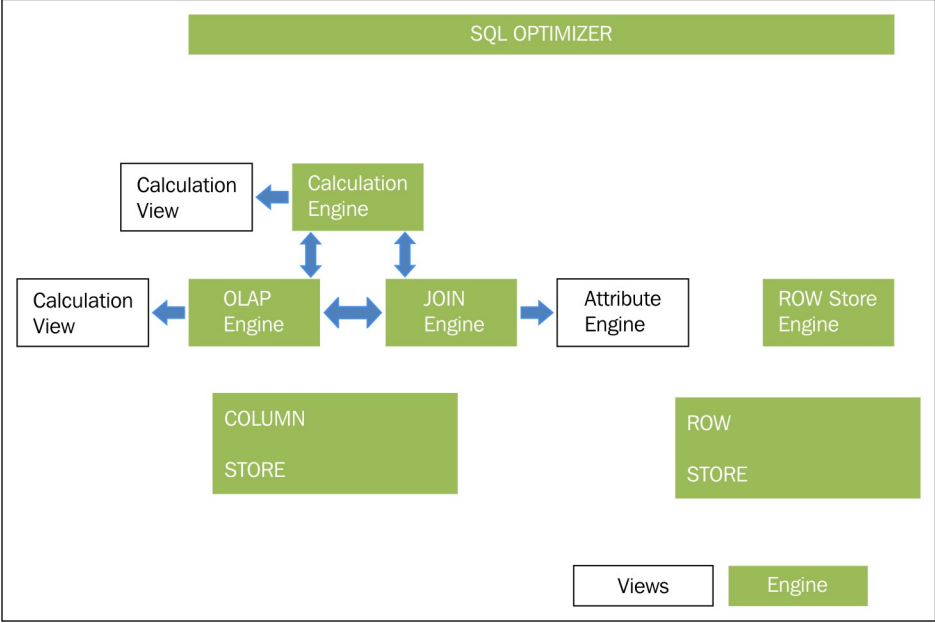
```

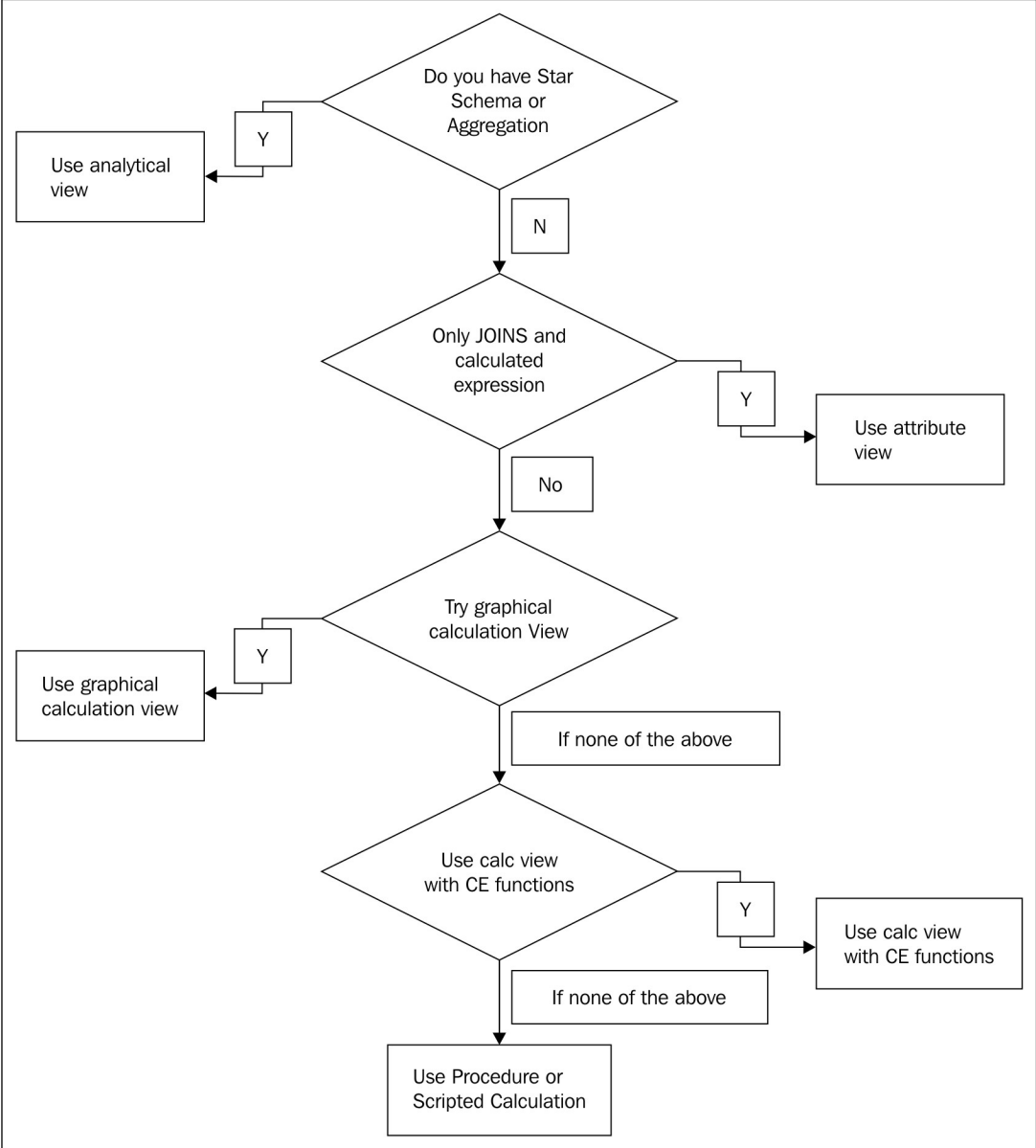




## Chapter 2: SAP HANA Data Modeling Approach







Administration Console - SAP HANA Studio


File Edit Navigate Project Run Window Help


Welcome


Workbench


# Overview


SAP HANA Studio

 **Open Administration Console**  
to manage the SAP HANA database and to create and manage user authorizations

 **Open Modeler**  
to create new or modify existing models of data


 **Open Development**  
to code and debug SAP HANA applications

 **Open Lifecycle Management**  
to update SAP HANA appliance software

 **Documentation for SAP HANA Appliance Software**

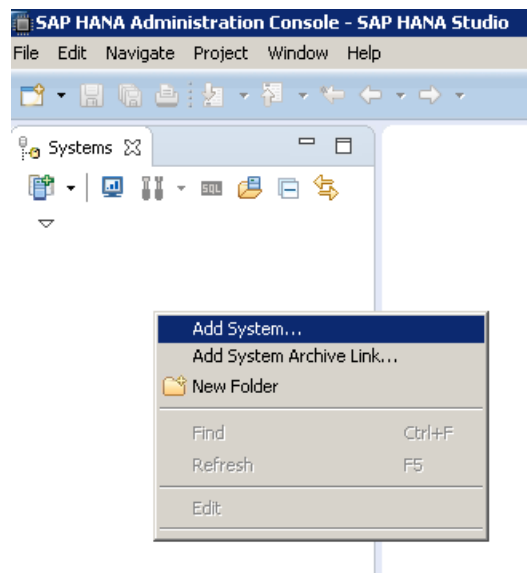
- What's New
- Administration Guide, Developer Guide and SQLScript Reference
- Complete set of SAP HANA documentation

**Getting Support for SAP Customers**

 **Providing Information for SAP Support**

Get familiar with activities when providing information for the troubleshooting process.





System

### Specify System

Specify the host name and instance number of the system.

Host Name:

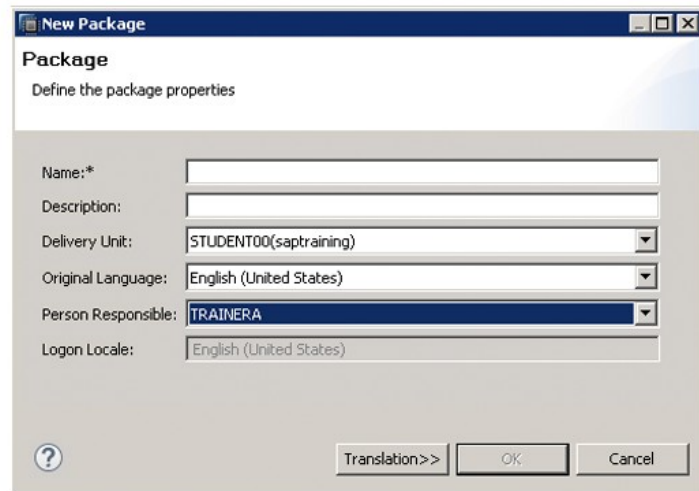
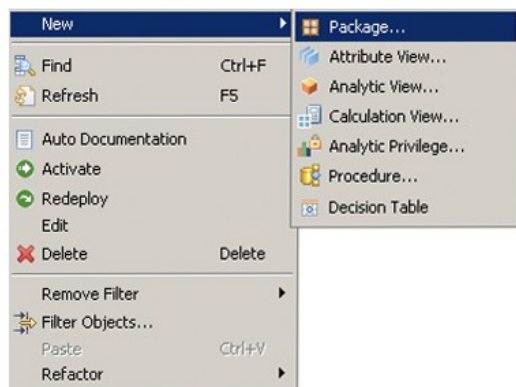
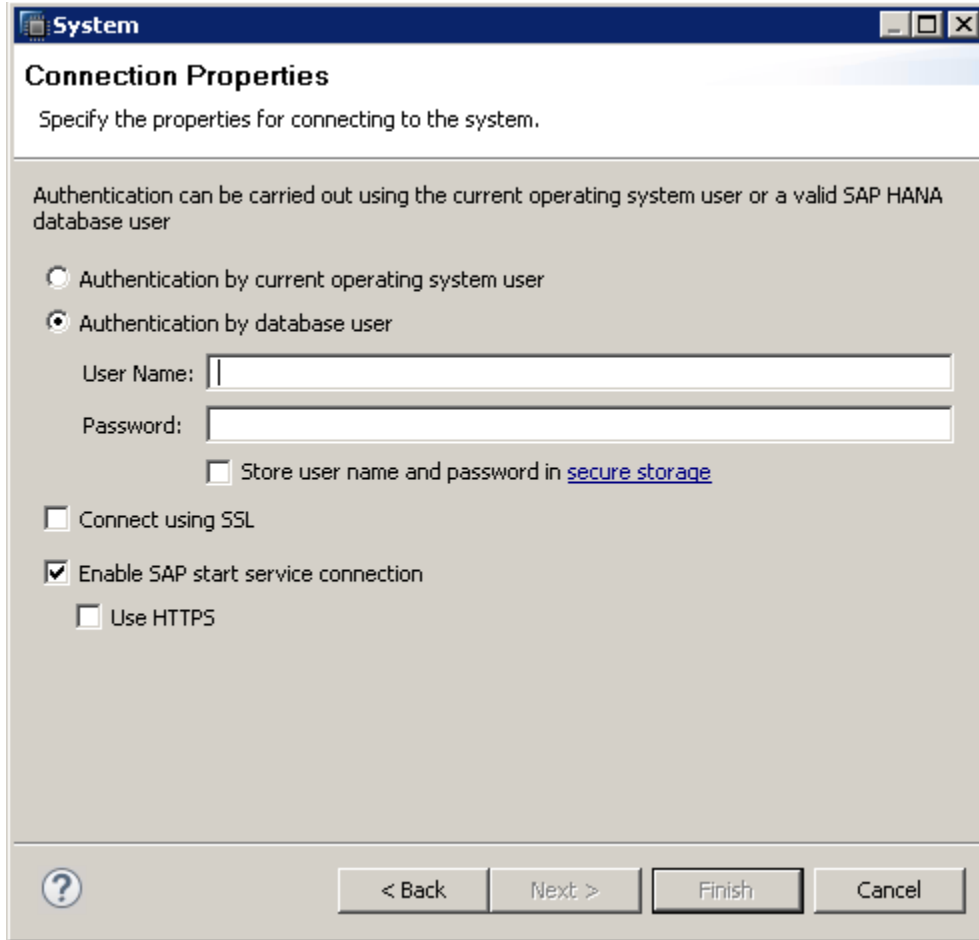
Instance Number:

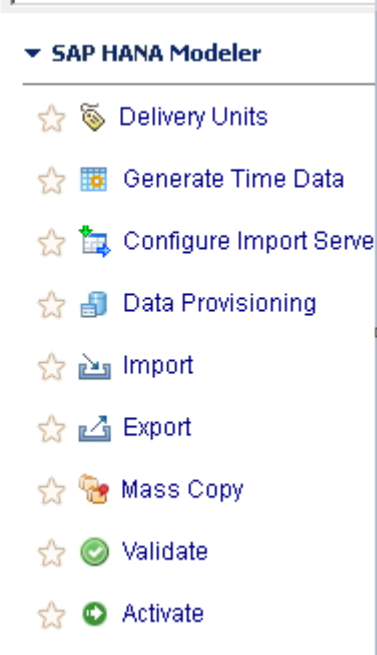
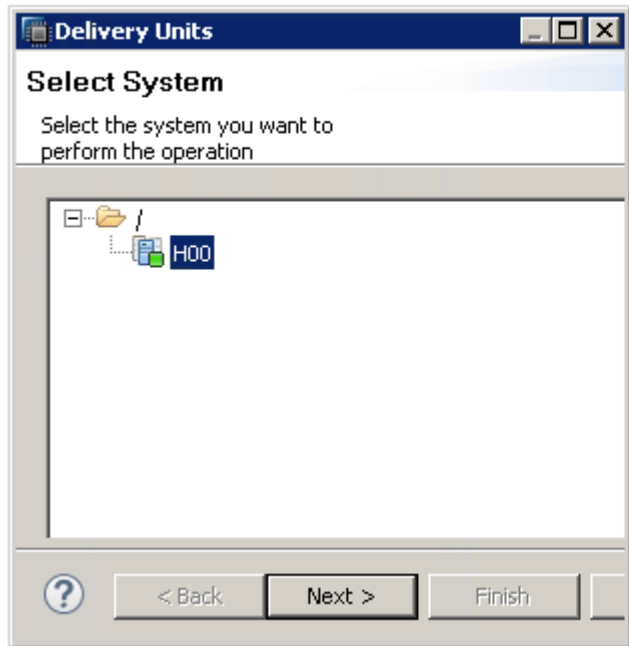
Mode:

- Single container
- Multiple containers
  - Tenant database container
    - Name:
  - System database container

Description:

Folder:  ws





### Delivery Units

Manage delivery units to transport packages.

Delivery Units

Support	Package Version	Patch Version	PPMS ID	Caption	Last Update	SP-PPMS ID	
0		1			2014-06-03 11:36:46...		
009		0	678378001...		2014-12-02 17:45:01...	735550001...	
0		2		SAP HANA ...	2014-11-27 09:46:20...		
0		2		SAP HANA ...	2014-11-27 09:46:21...		
0		2		Help for XS ...	2014-11-27 09:46:22...		
0		2		SAP HANA ...	2014-11-27 09:46:23...		
24		3			2014-11-27 09:46:32...		
2		4			2014-11-27 09:48:17...		
7		0			2014-06-03 18:24:40...		
9		0			2014-12-17 02:22:45...		
9		0			2014-12-17 03:07:34...		
9		0			2015-01-12 16:08:10...		
SP54					2014-06-03 18:25:02...		

Create...  
Delete

**New Delivery Unit**

### Delivery Unit

Create a delivery unit to transport packages.

Name\* :

Vendor :

Responsible :

Version :

Support Package Version :


Patch Version :

PPMS ID :

Caption :

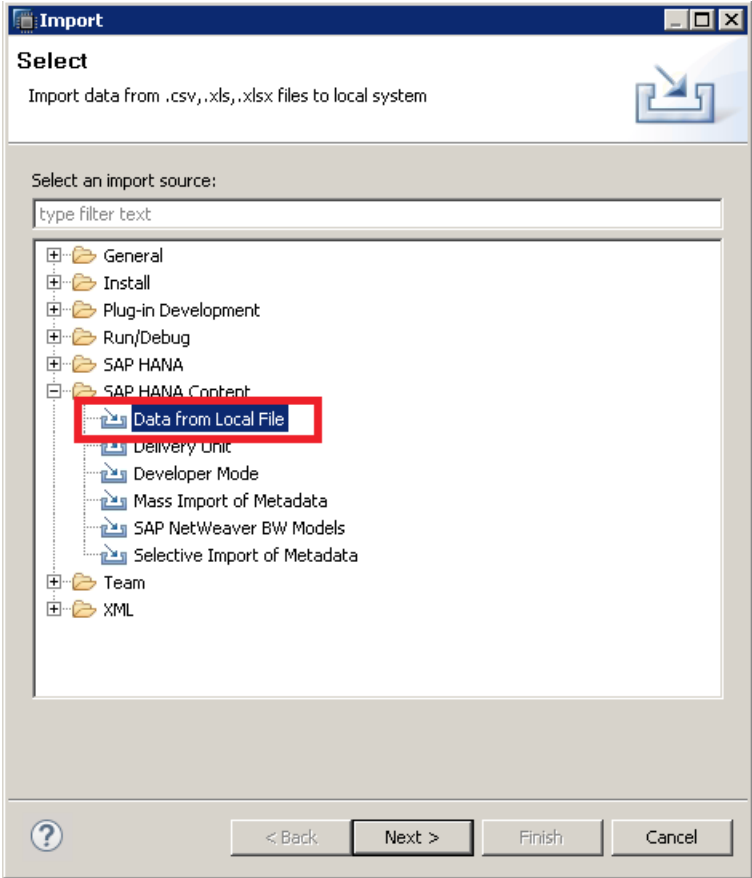
SP PPMS ID :

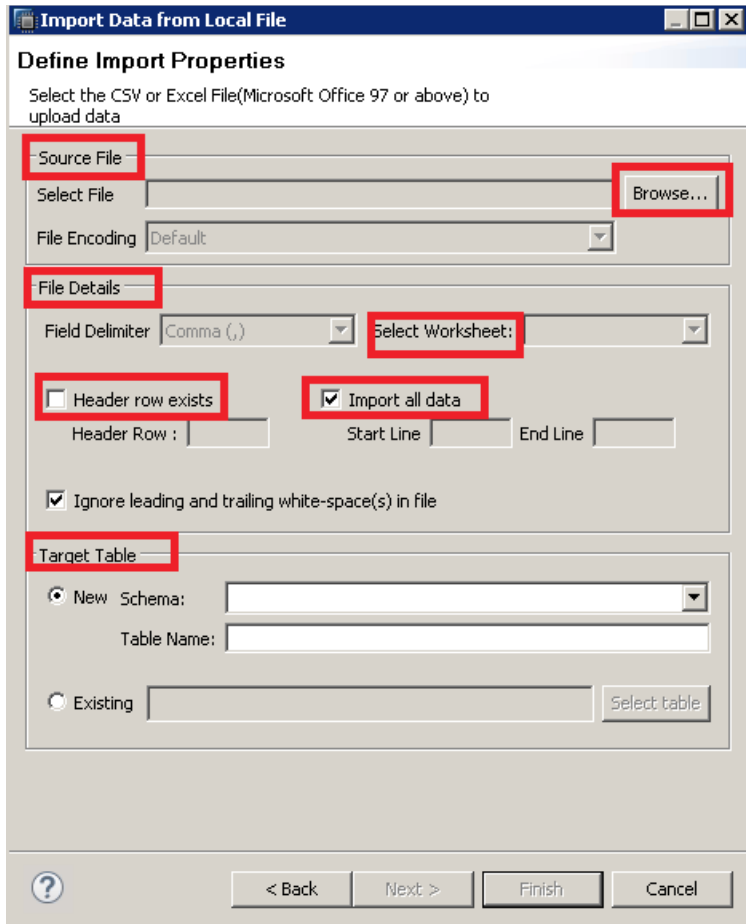
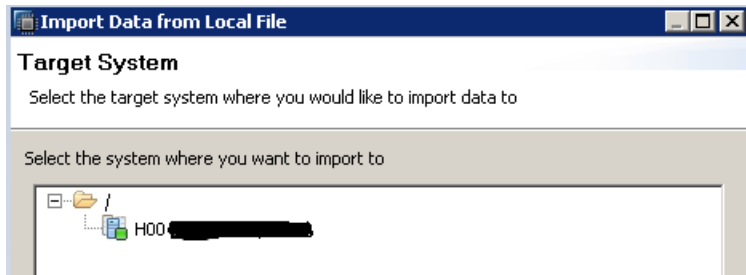
ACH :



- [-] Catalog
- [-] Content
- [-] Provisioning
  - Smart Data Access
- [-] Remote Sources
- [-] Security
  - Security
  - Users
  - Roles

# Chapter 3: Different Ways of SAP HANA Data Load





	A	B	C	D	E
1	<b>Country</b>	<b>Currency</b>	<b>Sales</b>		
2	DE	\$	600		
3	UK	\$	100		
4	US	\$	400		
5	NL	\$	200		
6					

**Import Data from Local File**

### Define Import Properties

Select the CSV or Excel File(Microsoft Office 97 or above) to upload data

**Source File**

Select File: C:\Users\...desktop\Sales.csv Browse...

File Encoding: Default

**File Details**

Field Delimiter: Comma (,) Select Worksheet:

Header row exists       Import all data

Header Row : 1      Start Line 2      End Line

Ignore leading and trailing white-space(s) in file

**Target Table**

New Schema: Table Name: SALES

Existing Select table

? < Back Next > Finish Cancel



**Import Data from Local File**

**Manage Table Definition and Data Mappings**  
 Manage table definition for new tables and source target column mappings

Source File(Sales.csv)

Proposed Table Structure

Name
Country
Currency
Sales

Target Table: SALES)

Store Type: Column store

Name	DataType	L.	S.	Key	N...	D...	Mapp...	D...
Country	NVARCHAR	2		<input type="checkbox"/>	<input type="checkbox"/>		Count...	
Currency	NVARCHAR	1		<input type="checkbox"/>	<input type="checkbox"/>		Curre...	
Sales	SMALLINT			<input type="checkbox"/>	<input type="checkbox"/>		Sales...	

File Data : Sales.csv

Country	Currency	Sales
DE	\$	600
UK	\$	100
US	\$	400
NL	\$	200

< Back    Next >    Finish    Cancel

Store Type: Column store

Name	DataType	L.	S.	Key	N...	D...	Map...	D...
Country	NVARC...	2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Coun...	
Currency	NVARC...	1		<input type="checkbox"/>	<input type="checkbox"/>		Curr...	
Sales	SMALLINT			<input type="checkbox"/>	<input type="checkbox"/>		Sales...	

## Import Data from Local File

### Summary

Click Finish to confirm

#### Details

Source file name: C:\Users\████████\Desktop\Sales.csv

Target Table Name: SALES

Target Table Schema: ██████████

#### Data from File

Country	Currency	Sales
DE	\$	600
UK	\$	100
US	\$	400
NL	\$	200

- Column Views
- EPM Models
- EPM Query Sources
- Functions
- Indexes
- Procedures
- Sequences
- Synonyms
- Tables
  - SALES

- Tables
  - New Index
  - New Synonym
  - New View
  - Open Definition
  - Open Content
  - Open Data Preview

Table Name: SALES Schema: ██████████ Type: Column Store

Columns | Indexes | Further Properties | Runtime Information

	Name	SQL Data Type	Di...	Column Store Data Type	Key	Not Null	Defau
1	Country	NVARCHAR	2	STRING	X(1)	X	
2	Currency	NVARCHAR	1	STRING			
3	Sales	SMALLINT		INT			

- SAP BusinessObjects Data Services 4.1 SP1
  - Data Services Designer
  - Data Services Locale Selector
  - Data Services Management Console
  - Data Services Repository Manager
  - Data Services Server Manager
  - Data Services Workbench
  - SAP BusinessObjects License Manager
  - Data Services Documentation

**SAP BusinessObjects**  
DATA SERVICES WORKBENCH

**Enter your CMS credentials**

System - Host[:port]:

User name:

Password:

Authentication:

**SAP Data Services**  
Workbench

Enter your CMS credentials

System:

User name:

Password:

Authentication:

Version: 4.2 SP1 (build 568)

**Data Services Workbench [connected to wdfibmt5074.wdf.sap.corp:6400]**

File Edit Tools Window Help

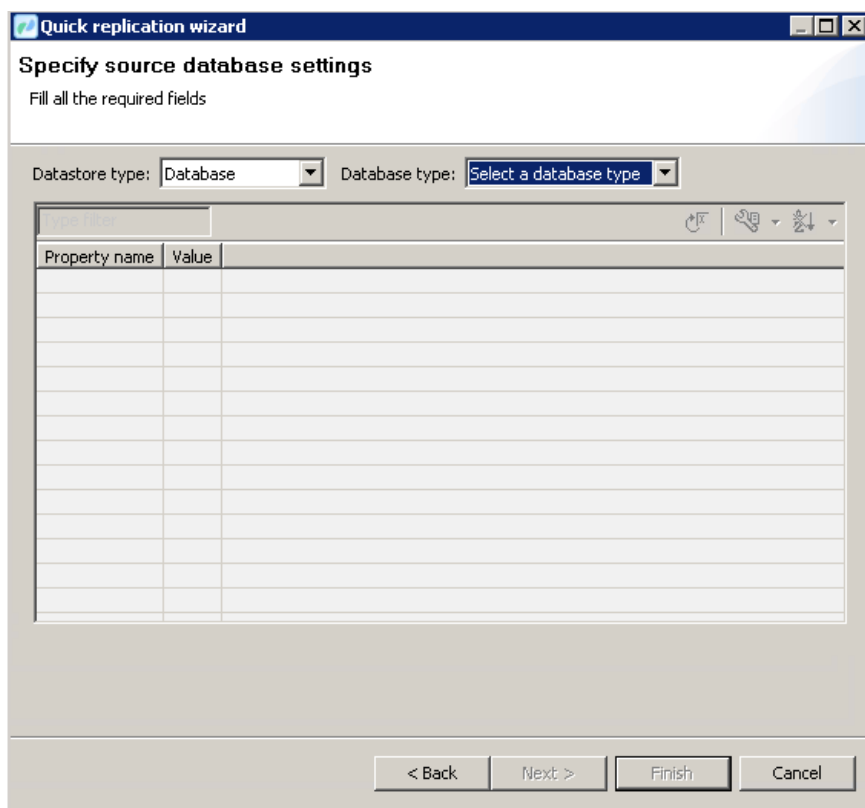
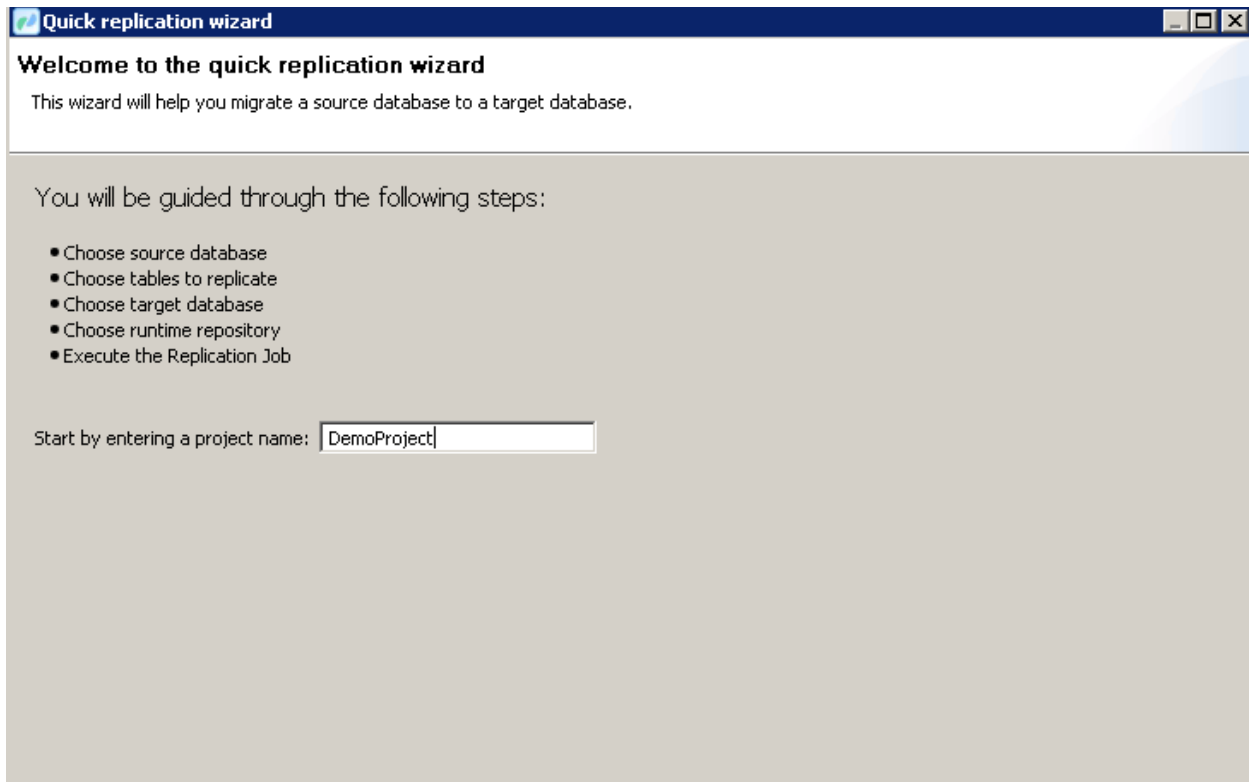
Welcome

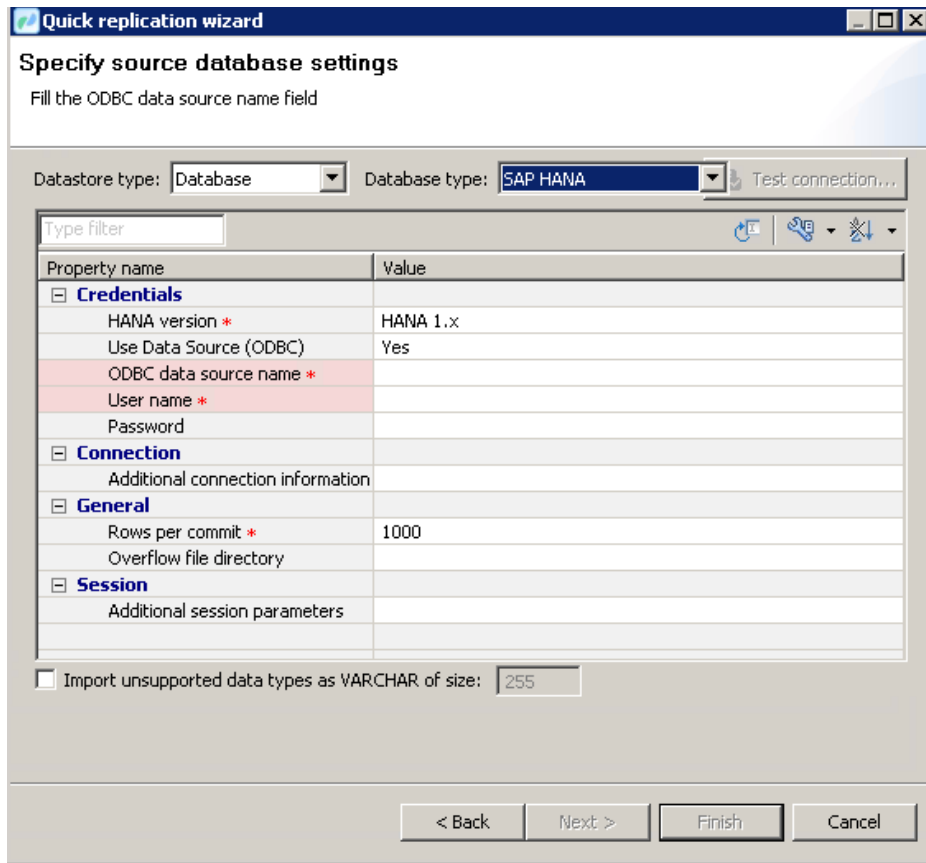
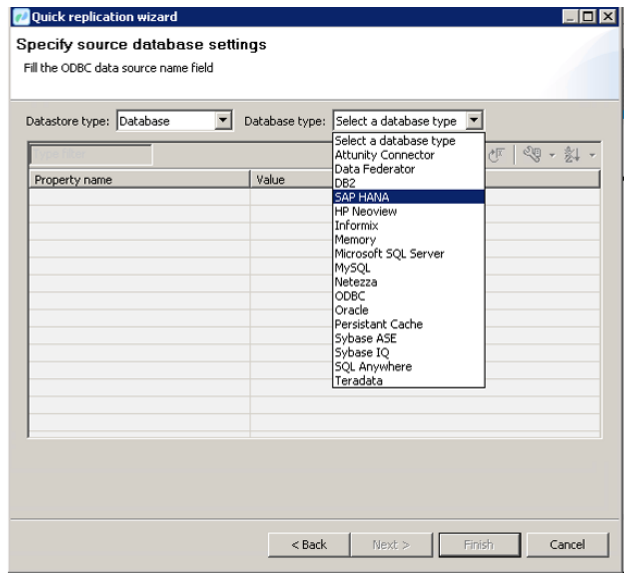
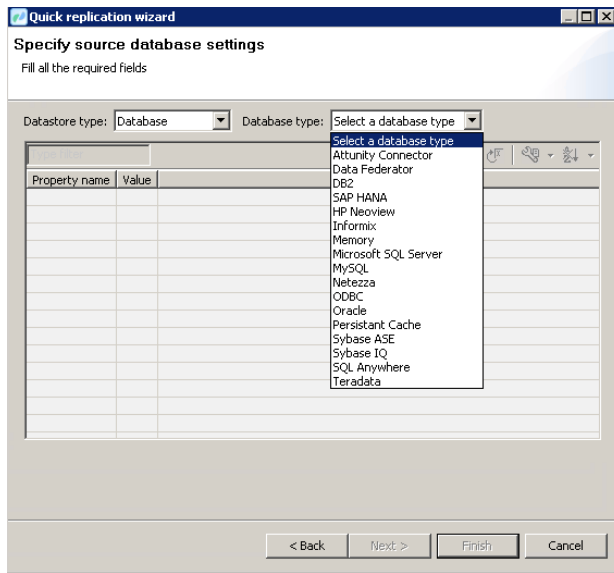
**SAP Data Services Workbench**

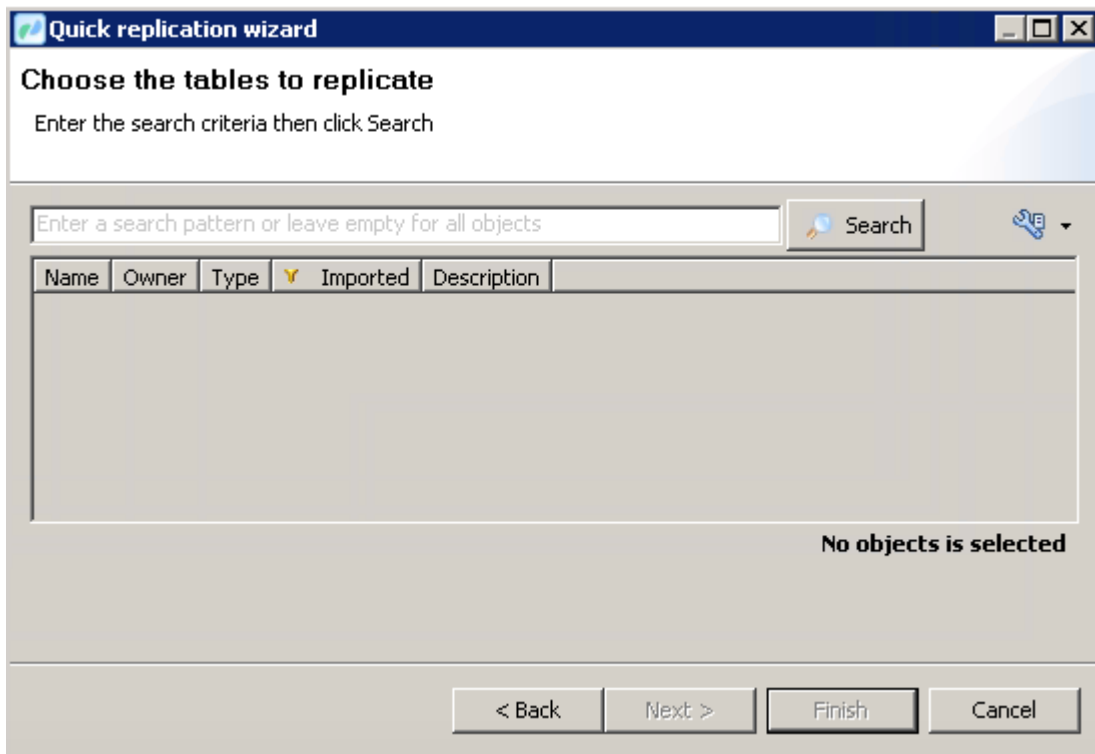
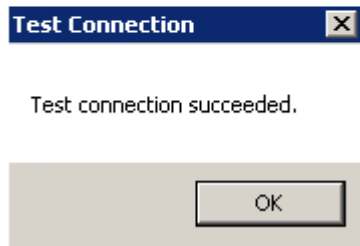
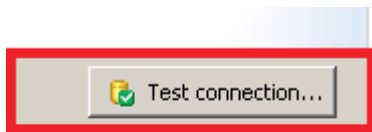
**New**

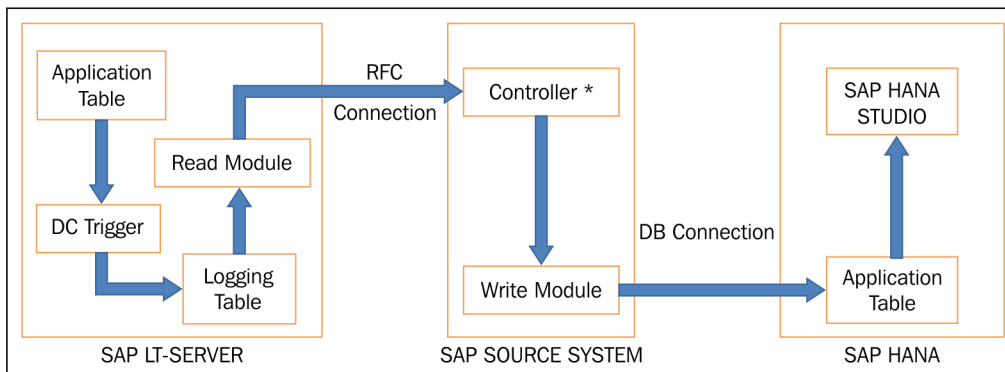
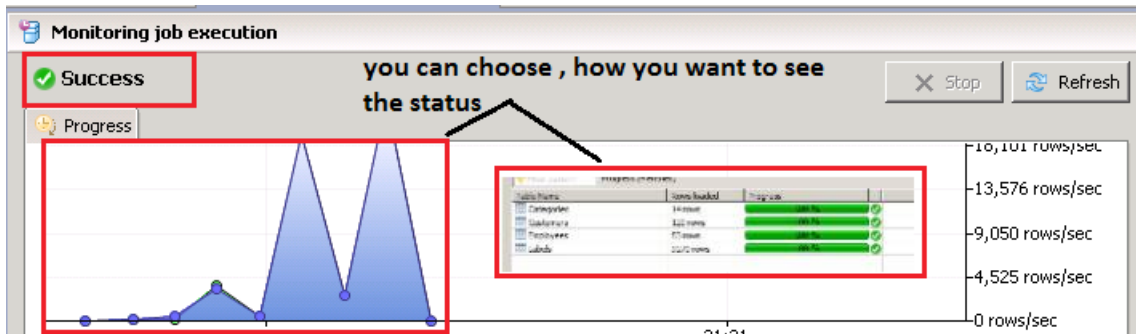
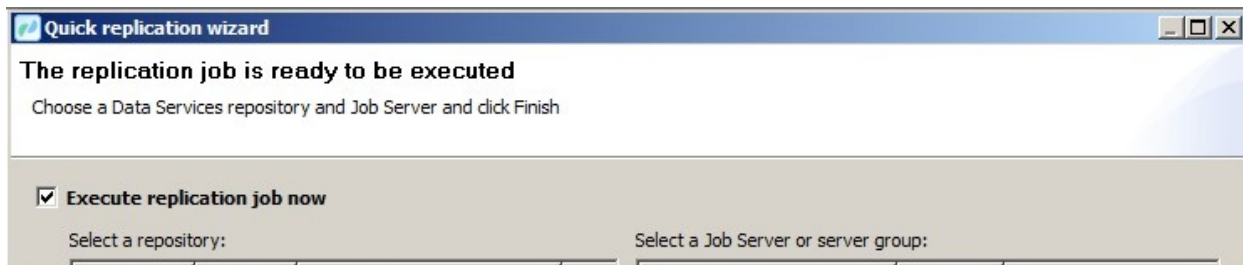
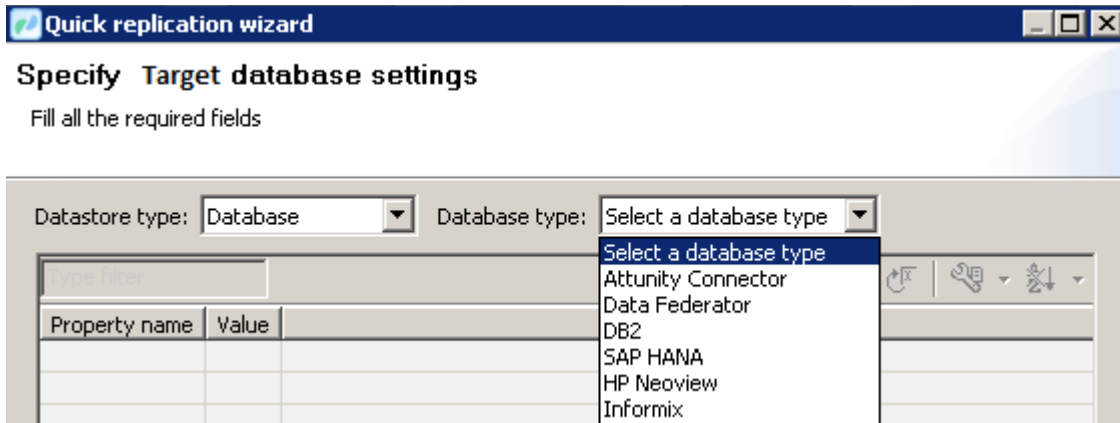
- Quick Replication Wizard**  
This wizard helps you easily replicate data from files or databases to a target database.
- Project**  
A project is a local workspace where you store the resources used to build one or more data provisioning jobs.
- Datastore**  
A Datastore is a representation of a source database.
- Flat File Format**  
A Flat File Format is the metadata that describes how to parse/generate a delimited text file as a source or target.
- Excel File Format**  
An Excel File Format is the metadata that describes how to parse an Excel file as a source.
- Data Flow**  
A Data Flow extracts, transforms, and loads data.
- Replication Job**  
A Replication job allows you to replicate data from multiple sources (files and database tables) to a target database within your project.

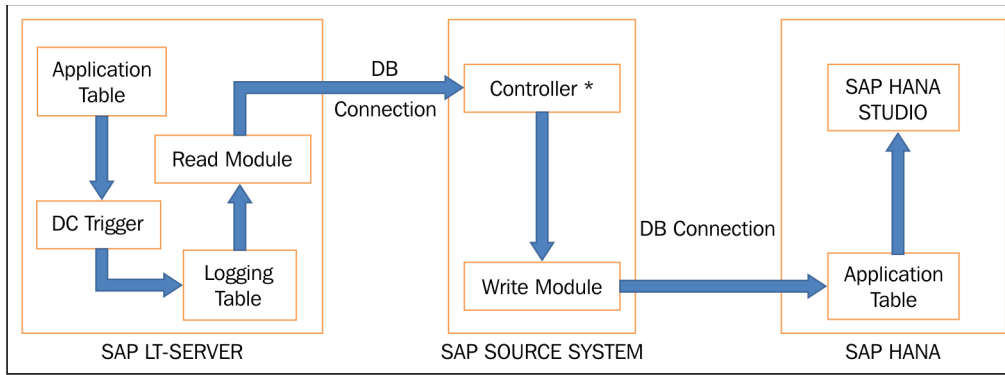
**Open**











Setup	Data	Help
<ul style="list-style-type: none"> <li>Manage Preferences...</li> <li>Configure Import Server...</li> <li>Delivery Units...</li> <li>Schema Mapping...</li> </ul>	<ul style="list-style-type: none"> <li>Generate Time Data...</li> <li><b>Data Provisioning...</b></li> <li>SQL Console</li> </ul>	<ul style="list-style-type: none"> <li>Documentation</li> </ul>

**SAP Source System and HANA Target Schema Selection**

Select Source System:

Target Schema:

Source Details

Source System ID:  Host Name of Source System:

SLT Replication Server System ID:  Host Name of SLT Replication Server System:

- Load...
- Replicate...
- Stop Replication...
- Suspend...
- Resume...
- Jobs...

**Load** – One time event, its starts initial load of replication. Neither database trigger nor logging tables are created. Further changes in source DB after load are not replicated.

**Replicate** – It takes into consideration both –initial load and subsequent replication process. And DB trigger and relevant logging table are created before the initial load.

**Stop Replication** – It stops any replication activity running for a table at that given time. It deleted the related DB trigger and logging table.

**Suspend** - pause a running replication of a table. recording of changes continues and logging happens in related logging table. DB trigger is also not deleted.

**Resume** - A suspended replication is restarted with this choice. Its does not require new load.



Language: English (United States) ⓘ

Load from CSV file

Source tables

Object Name	Description
Tables	
SKWF_CHPRS	Cache Param...
SKWF_EPROP	KW Framewo...
SKWF_ISEL	KW Framewo...
SKWF_PIO	KW Framewo...
SKWF_QUAL	KW Framewo...
SKWF_ROOT	KW Framewo...
SKWF_TRANS	Shadow Tabl...
SKWS_AEVT	Status Mana...
SKWS_DEVT	Status Mana...
SMAILIOT	Descriptions ...
SMAIPHIO	Tnstances of ...
SMASCONT1	SDOK: Table ...
SMASLOIOT	Descriptions ...
SMASPHF	SDOK: Files ...
SMASPHR	SDOK: Outg...
SMASPHRPR	SDOK: Attrib...
SMASPHNM	SDOK: Use o...
SMASPHR	SDOK: Attrib...
SMASPHR	SDOK: Attrib...

Add

Remove

Selected tables

Object Name	Description
Tables	

Export tables

Export selected tables

Target client location  Browse...

?

Finish Cancel

Export tables

Export selected tables

Target client location  Browse...

**LT Replication Server - Cockpit - SLT\_TAS\_CLNT200 (007)**

Refresh | Data Provisioning |

Administration Data | Processing Steps | **Table Overview** | Data Transfer Monitor

No. Tables	Failed	In Process	Initial Load	Replication	LogTab	No LogTab
3				3	3	

**Data Provisioning**

Table Name in Database

Create Table / DB View  
 Start Load  
 Start Replication  
 Stop Load / Replication  
 Suspend Replication  
 Resume Replication

Cancel

Table Name  
 DD02L  
 DD02T  
 DD08L

**New**

- Package**
- Attribute View
- Analytic View
- Calculation View
- Analytic Privilege
- Procedure
- Decision Table

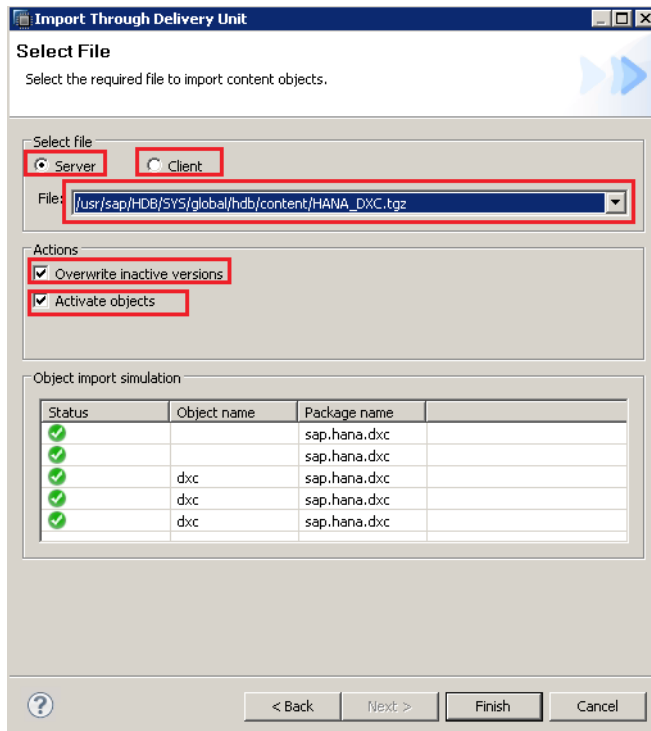
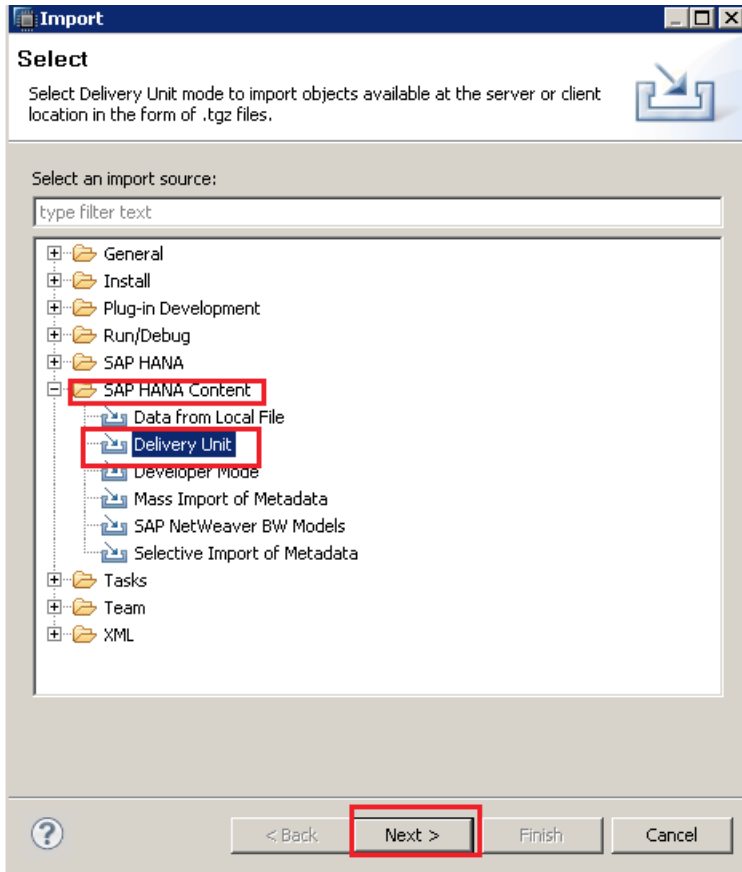
**Package**

Packages are used to group together related information objects for structuring purposes.

[Read More...](#) Create...

**Content**

- Validate...
- Activate...
- Redeploy...
- Mass Copy...
- Import...**
- Export...
- Migrate...
- Auto Documentation...
- Switch Ownership...
- Change Authoring Schema



Filter:  ✕

Name ^	Default	System	Host - wdfibmt7211
+ [ ] attributes.ini			—
+ [ ] compileserver.ini			—
+ [ ] daemon.ini			◆
+ [ ] executor.ini			—
+ [ ] extensions.ini			—
+ [ ] filter.ini			—
+ [ ] global.ini		◆	—
+ [ ] indexserver.ini		◆	—
+ [ ] localclient.ini			—
+ [ ] nameserver.ini		◆	—
+ [ ] preprocessor.ini			—
+ [ ] property_db2.ini		—	—
+ [ ] property_esp.ini		—	—
+ [ ] property_mss.ini		—	—
+ [ ] property_ntz.ini		—	—
+ [ ] property_orcl.ini		—	—
+ [ ] scriptserver.ini			—
+ [ ] statisticsserver.ini		◆	—
+ [ ] xsengine.ini			—
+ [ ] application_container			—
+ [ ] communication			—
+ [ ] httpserver			—

[-] xsengine.ini	
[-] [ ] application_container	
[-] [ ] application_list	InformationAccess, libtrustm...
+ [ ] communication	

Change...

Delete...

Collapse All

Configure Table...

**Change Configuration Value**

**application\_list**  
xsengine.ini [application\_container]

Default Value: InformationAccess, libtrustmanager, libxsauthenticator, libxssaml, libxsbase

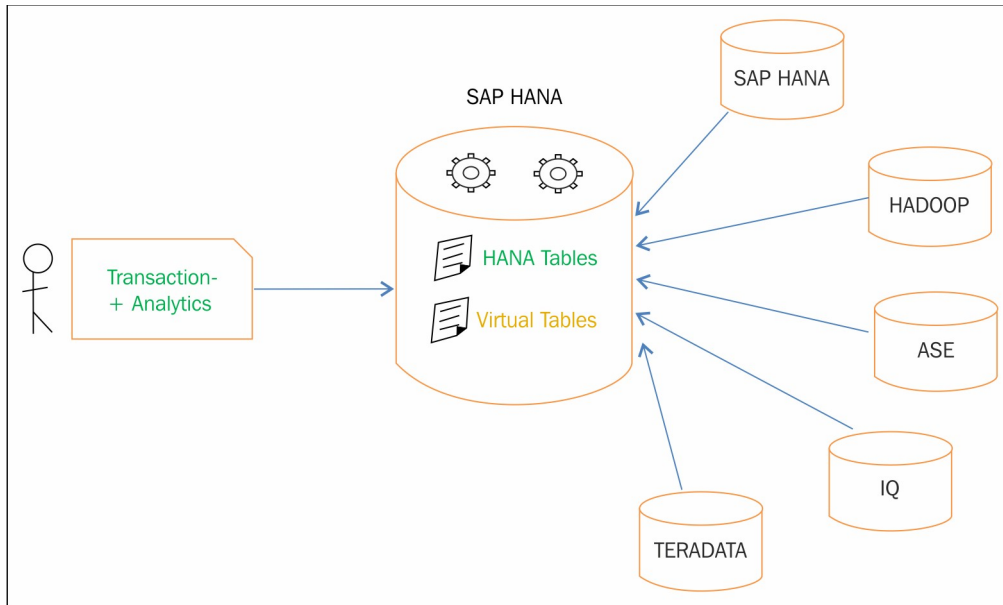
System

Active Value:

New Value: libxsdxc

xsengine.ini			
application_container			
application_list	InformationAccess, libtrustm...	libxsdxc	

```
SQL SQL
/**** create schema <schemaname> owned by <dxccusername> ***/
create schema DXCSHEMA ownedby DXCADMIN;
```



- Provisioning
- Smart Data Access
- Remote Sources

Query Monitoring | Connection Monitoring | System Parameters

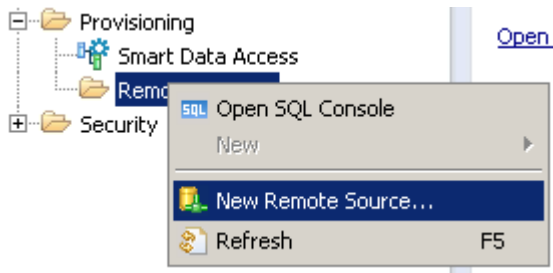
You can view and update Smart Data Access parameters in the Configuration editor (search for smart\_data\_access)

[Open Configuration](#)

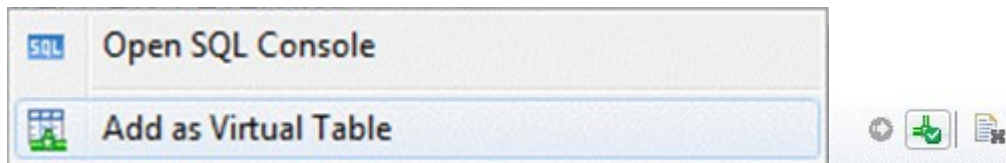
Overview | Landscape | Alerts | Performance | Volumes | Configuration | System Information | Diagnosis Files | Trace Configuration

Filter:  ✕

Name	Default	System	Host - wdfibmt7215
indexserver.ini		◆	==
[ ] smart_data_access			==
enable_remote_cache	false		==
enable_remote_source_capa	true		==
remote_cache_validity	3600		==
semi_join_execution_strateg	IT		==
semi_join_max_in_elements	1024		==
semi_join_max_temp_table_c	16384		==
virtual_table_default_cardine	1000000		==
virtual_table_format	auto		==
virtual_table_threshold	100000		==



Source Name:	DEMO	Adapter Name:	ORACLE (GENERIC ODBC)
Type filter			
Property name		Value	
Connection Properties			
Adapter Version	12c		
Connection Mode *	Data source name		
Configuration file *	property_orcl.ini		
Data source name *	DEMO		
Credentials			
Credentials Mode *	Technical User		
User Name *	[REDACTED]		
Password *	[REDACTED]		



Create Virtual Table

**Create Virtual Table**

Enter table name and select target schema

Table Name: [REDACTED]

Schema: [REDACTED]

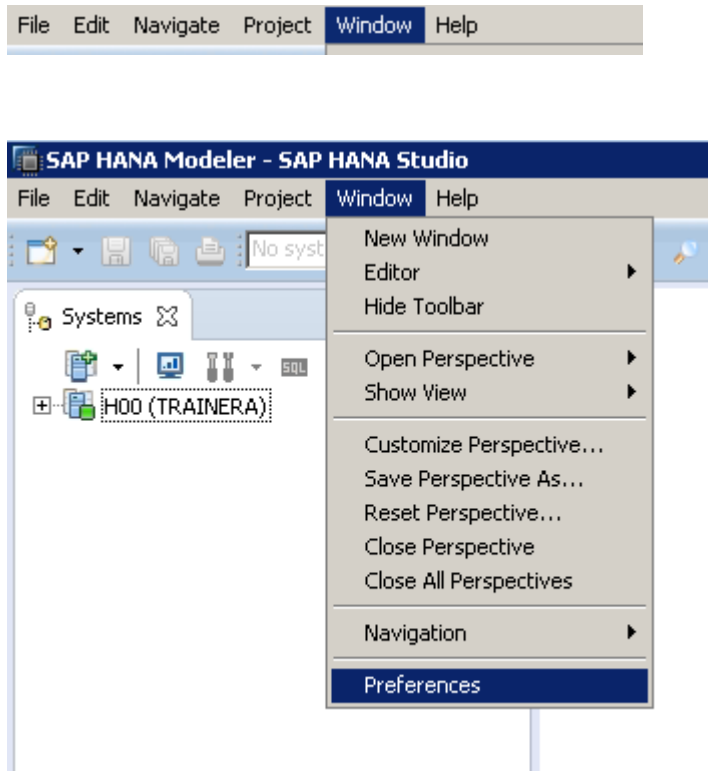
?

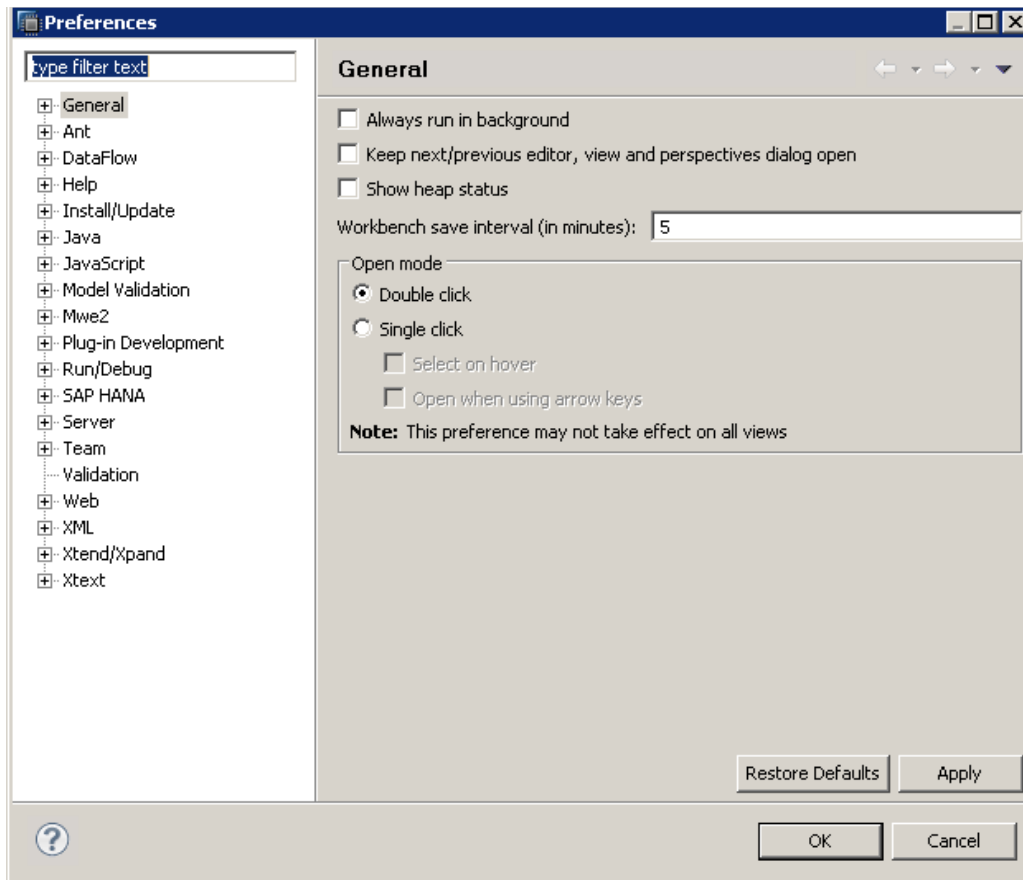
Create Cancel

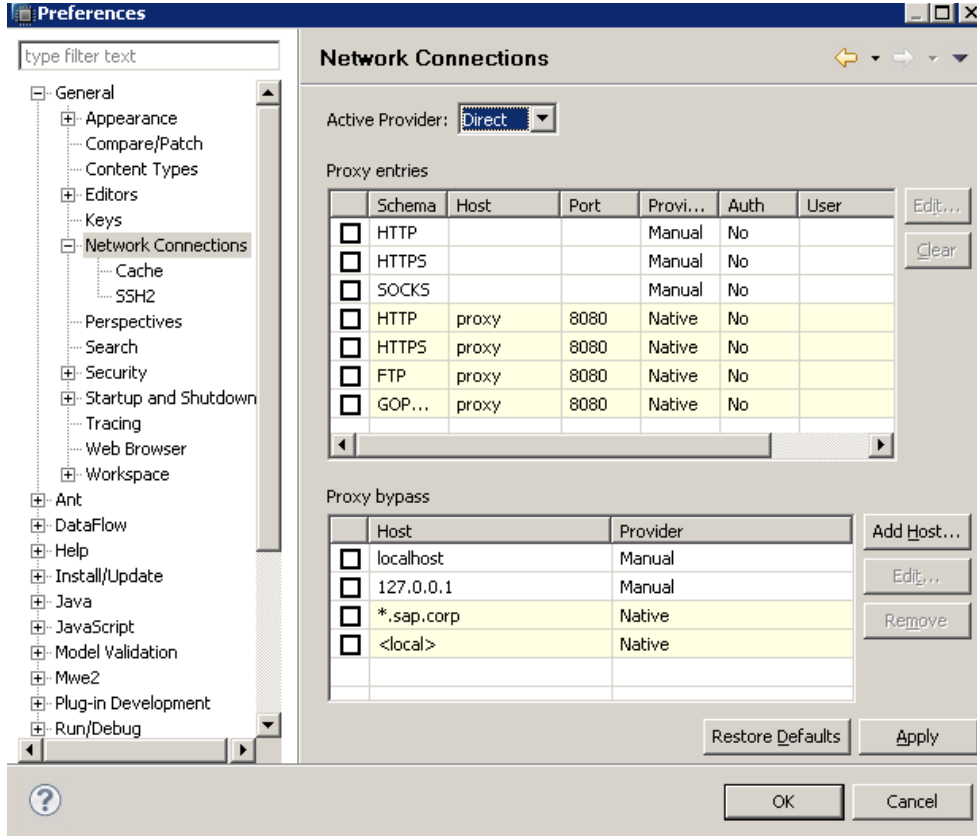
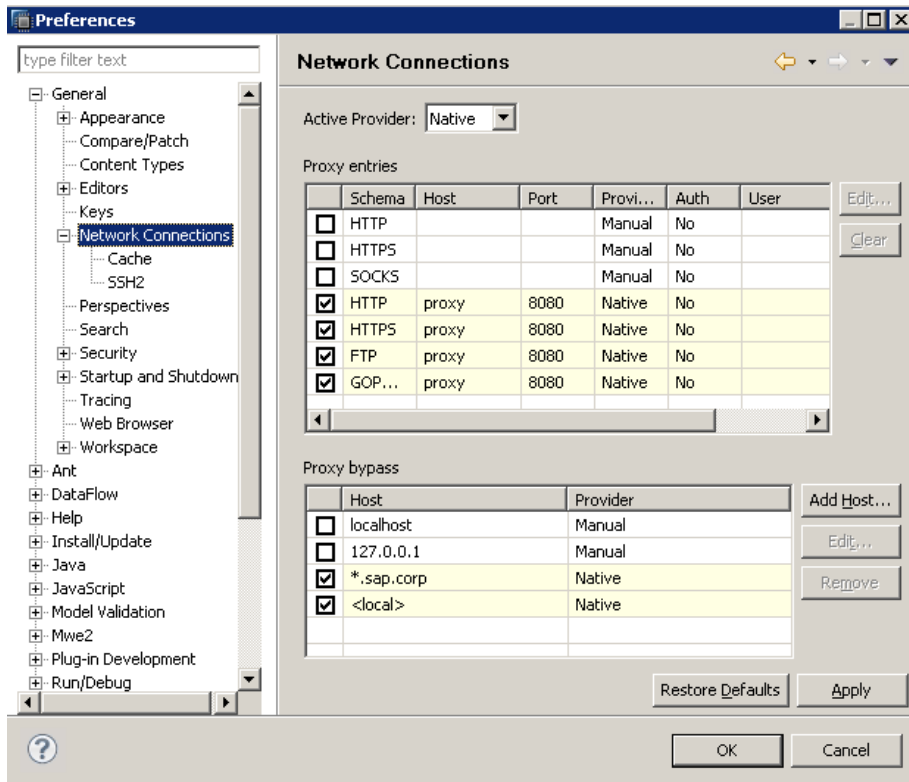


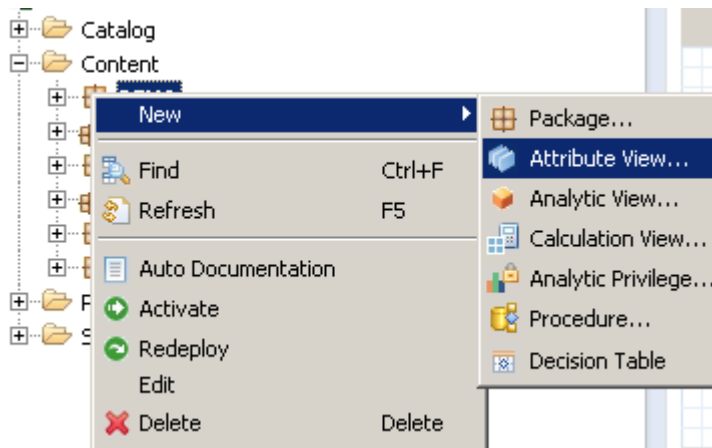
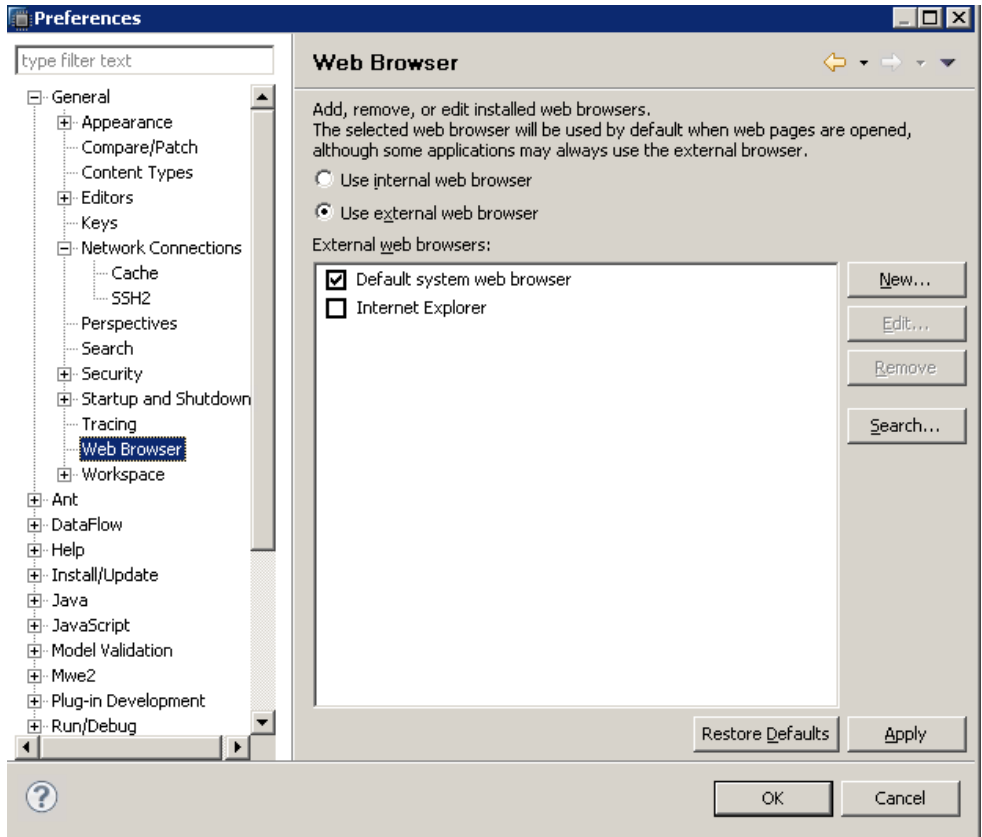


## Chapter 4: Creating SAP HANA Artifacts Attribute Views and Analytical Views









**New Information View**

### Create an Information View

Select the required view type and enter the details

Name:\*

Label:

Package:\*

View Type:

Copy From:

Subtype:

Scenario

The diagram shows a 'Semantics' node (highlighted with a red box) connected to a 'Data Foundation' node. The 'Data Foundation' node contains a 'Drop Elements Here' button.

Details

**Properties**

**AT\_DEMO**  
H00.DEMO

**Column**

Attributes

Show:

Type	Name

Scenario

**Find** search the table

to add

Type the object name to search for

SN

Matching items:

- SNWD\_AD (EPM\_MODEL)
- SNWD\_BP (EPM\_MODEL)
- SNWD\_BP\_EM (EPM\_MODEL)
- SNWD\_BP\_PH (EPM\_MODEL)
- SNWD\_BP\_RR (EPM\_MODEL)
- SNWD\_BP\_WA (EPM\_MODEL)
- SNWD\_BPA (EPM\_MODEL)
- SNWD\_BPA\_CONTACT (EPM\_MODEL)
- SNWD\_COMPANY (EPM\_MODEL)
- SNWD\_CONTACT (EPM\_MODEL)
- SNWD\_DG\_RESULTS (EPM\_MODEL)
- SNWD\_EMPLOYEES (EPM\_MODEL)
- SNWD\_EPM\_INDX (EPM\_MODEL)
- SNWD\_GR (EPM\_MODEL)

click to add

Semantics

Data Foundation

SNWD\_AD

SNWD\_BPA

Drop Elements Here

"EPM\_MODEL".SNWD\_BPA

- CLIENT
- NODE\_KEY
- BP\_ROLE
- EMAIL\_ADDRESS
- PHONE\_NUMBER
- FAX\_NUMBER
- WEB\_ADDRESS
- ADDRESS\_GUID
- BP\_ID
- COMPANY\_NAME
- LEGAL\_FORM
- CREATED\_BY
- CREATED\_AT
- CHANGED
- CHANGED
- CURRENCY

"EPM\_MODEL".SNWD\_AD

- CLIENT
- NODE\_KEY
- CITY
- POSTAL\_CODE
- STREET
- BUILDING
- COUNTRY
- ADDRESS\_TYPE
- VAL\_START\_DATE
- VAL\_END\_DATE

Add To Output

Apply Filter

Create Join

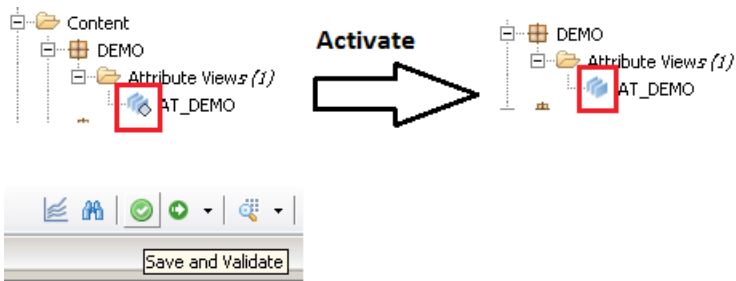
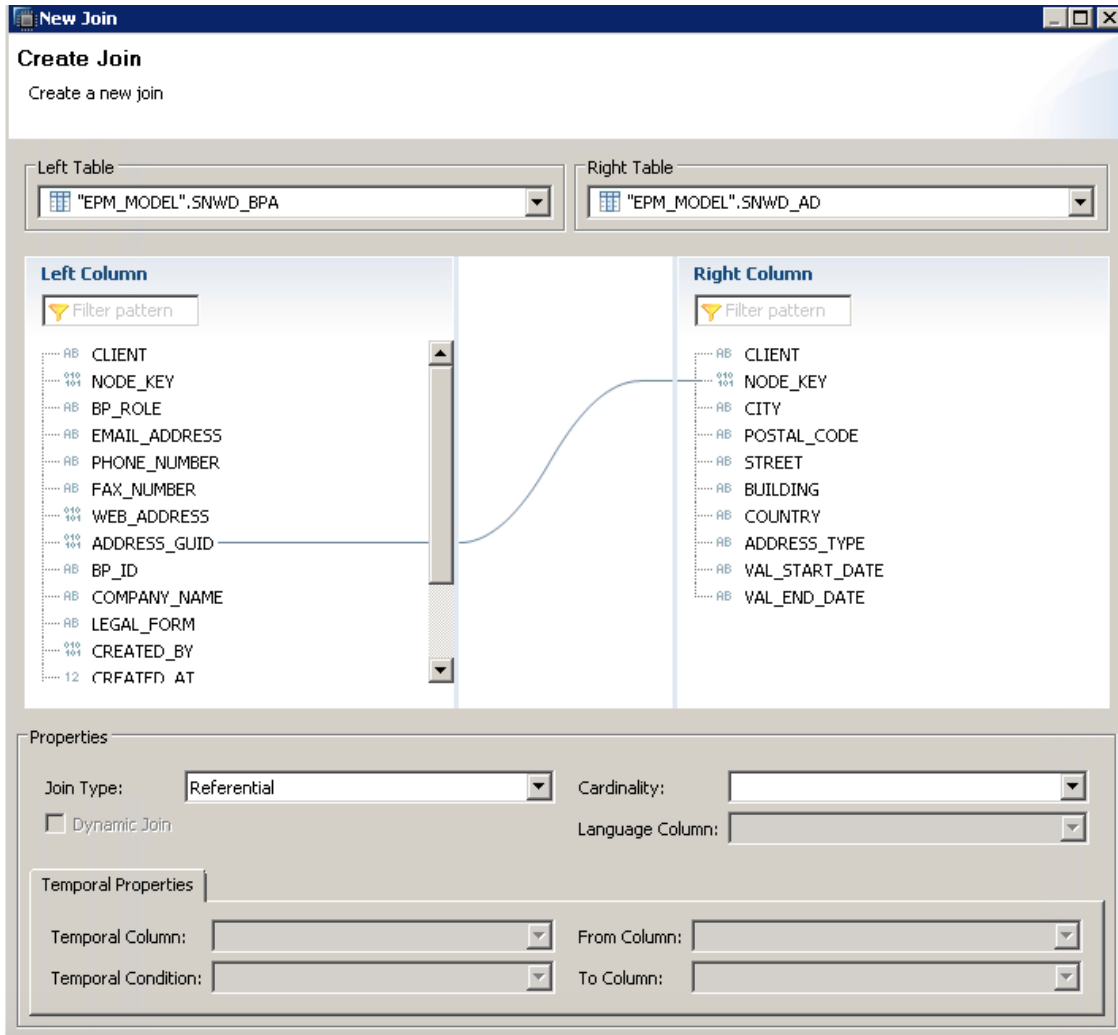
Propagate to Semantics

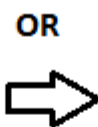
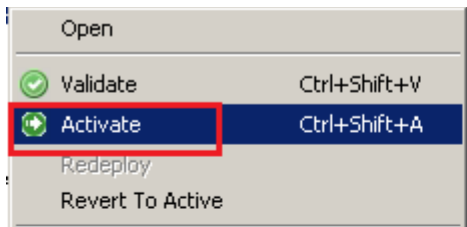
Select All Tables

Select All Joins

Deselect All

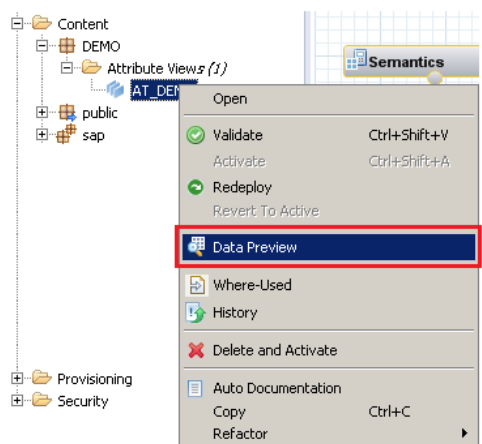
Properties





**Log for validation and Activation:-**

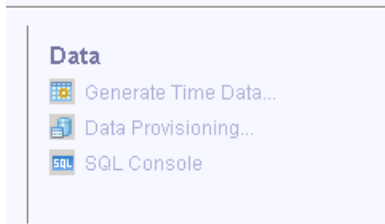
Job Type	System	User	Submitted At	Status
Activation	H00		Tue Oct 20 22:18:53 CEST 2015	Completed successfully
Model Validation	H00		Tue Oct 20 22:18:41 CEST 2015	Completed with warnings



Analysis | Distinct values | **Raw Data**

Filter pattern 45 rows retrieved - 37 ms

EMAIL_ADDRESS	BP_ID	COMPANY_NAME	CITY	COUNTRY
karl.mueller@sap.com	0100000000	SAP	Walldorf	DE
dagmar.schulze@becke...	0100000001	Becker Berlin	Berlin	DE
maria.brown@delbont....	0100000002	DelBont Industries	Wilmington...	US
saskia.sommer@talpa-h...	0100000003	Talpa	Hannover	DE
bob.buyer@panorama-...	0100000004	Panorama Studios	Hollywood...	US
bart.koenig@tecum-ag.de	0100000005	TECUM	Muenster	DE
yoko.nakamura@asia-h...	0100000006	Asia High tech	Tokyo	JP
sophie.ribery@laurent-...	0100000007	Laurent	Paris	FR
victor.sanchez@avante...	0100000008	AVANTEL	Mexiko City	MX
jorge.velez@telecomun...	0100000009	Telecomunicaciones Star	Buenos Aires	AR
franklin.jones@pear-co...	0100000010	Pear Computing Services	Atlanta, G...	US
joseph_gschwandtner...	0100000011	Alpine Systems	Salzburg	AT
george_d_grant@newli...	0100000012	New Line Design	Manchester	GB
sarah.schwind@hepa-t...	0100000013	HEPA Tec	Bremen	DE
theodor.monathy@ana...	0100000014	Anav Ideon	Bismarck, ...	US
robert_brown@rb-ente...	0100000015	Robert Brown Entertai...	Quebec	CA
jorgemontalban@motc.mx	0100000016	Mexican Oil Trading Co...	Puebla	MX
johanna.esther@meliva...	0100000017	Meliva	Köln	DE
miguel.luengo@compos...	0100000018	Compostela	Mendoza	AR
isabel.nemours@pateu.fr	0100000019	Pateu	Lyon	FR
igor.tarassow@retc.ru	0100000020	Russian Electronic Trad...	Moskau	RU
alexis.harper@flor-hc.c...	0100000021	Florida Holiday Company	Jacksonvill...	US
c.alfaro@quimica-madril...	0100000022	Quimica Madrilenos	Madrid	ES
sven.j@getraenke-jans...	0100000023	Getränkegroßhandel J...	München	DE
yoshiko.kakuji@jateco.jp	0100000024	JaTeCo	Sapporo	JP





**Generate Time Data**

Load time data into time attribute view table

Calendar Type:

From Year:\*

To Year:\*

Variant Schema:

Granularity:

First day of the week:

Raw Data | Distinct values | Analysis

Filter pattern  200 rows retrieved - 85 ms

DATETIME	DATE_SQL	DATETIME_SAP	DATE_SAP	YEAR	QUARTER	MONTH	WEEK
Jan 1, 0001 12:00:00 A...	Jan 1, 0001	00010101000000	00010101	0001	01	01	01
Dec 31, 9999 12:00:00 ...	Dec 31, 9999	99991231000000	99991231	9999	04	12	52
Jan 1, 1900 12:00:00 A...	Jan 1, 1900	19000101000000	19000101	1900	01	01	01
Jan 1, 2014 12:00:00 A...	Jan 1, 2014	20140101000000	20140101	2014	01	01	01
Jan 2, 2014 12:00:00 A...	Jan 2, 2014	20140102000000	20140102	2014	01	01	01
Jan 3, 2014 12:00:00 A...	Jan 3, 2014	20140103000000	20140103	2014	01	01	01
Jan 4, 2014 12:00:00 A...	Jan 4, 2014	20140104000000	20140104	2014	01	01	01
Jan 5, 2014 12:00:00 A...	Jan 5, 2014	20140105000000	20140105	2014	01	01	02
Jan 6, 2014 12:00:00 A...	Jan 6, 2014	20140106000000	20140106	2014	01	01	02
Jan 7, 2014 12:00:00 A...	Jan 7, 2014	20140107000000	20140107	2014	01	01	02
Jan 8, 2014 12:00:00 A...	Jan 8, 2014	20140108000000	20140108	2014	01	01	02
Jan 9, 2014 12:00:00 A...	Jan 9, 2014	20140109000000	20140109	2014	01	01	02
Jan 10, 2014 12:00:00 ...	Jan 10, 2014	20140110000000	20140110	2014	01	01	02
Jan 11, 2014 12:00:00 ...	Jan 11, 2014	20140111000000	20140111	2014	01	01	02
Jan 12, 2014 12:00:00 ...	Jan 12, 2014	20140112000000	20140112	2014	01	01	03
Jan 13, 2014 12:00:00 ...	Jan 13, 2014	20140113000000	20140113	2014	01	01	03
Jan 14, 2014 12:00:00 ...	Jan 14, 2014	20140114000000	20140114	2014	01	01	03
Jan 15, 2014 12:00:00 ...	Jan 15, 2014	20140115000000	20140115	2014	01	01	03
Jan 16, 2014 12:00:00 AM.000	16, 2014	20140116000000	20140116	2014	01	01	03

**New Information View**

**Create an Information View**  
Select the required view type and enter the details

Name:\* AT\_TIME\_DAY

Label: AT\_TIME\_DAY

Package:\* XXXXXXXXXX

View Type: Attribute View

Copy From:

Subtype: Time

Attribute View

Calendar Type: Gregorian

Granularity: Date

Auto Create

**Semantics**

- Data Foundation
- M\_TIME\_DIMENSION

Drop Elements Here

**Properties**

**AT\_TIME\_DAY**  
H00.training.ha300

AT\_TIME\_DAY

Default Client: Session Client

Data Category: DIMENSION

Apply Privileges: Analytic Privileges

**Column**

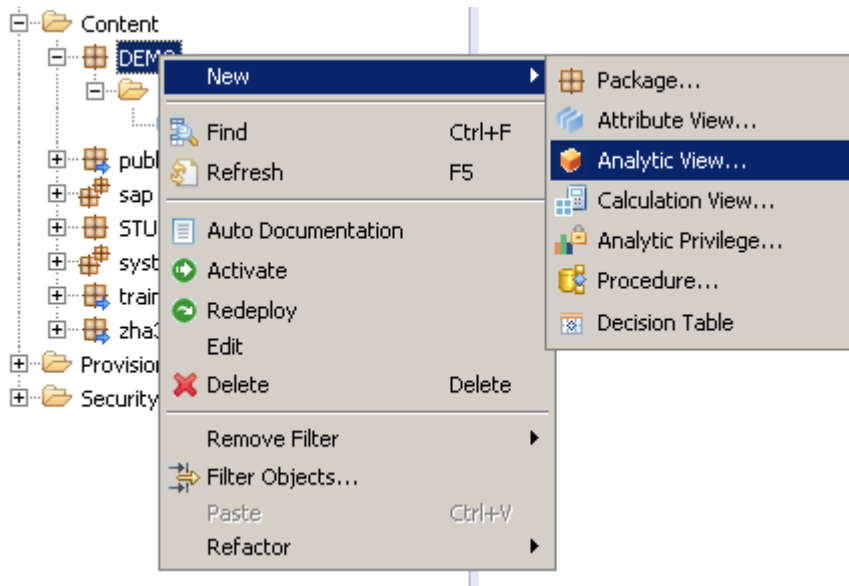
Attributes

Show: All

Type	Name	Label	Label Column	Hidden
RB	DATETIMES...	DATETIME		<input type="checkbox"/>
RB	DATE_SQL	DATE_SQL		<input type="checkbox"/>
RB	DATETIME_...	DATETIME_SAP		<input type="checkbox"/>
RB	DATE_SAP	DATE_SAP		<input type="checkbox"/>
RB	YEAR	YEAR		<input type="checkbox"/>
RB	QUARTER	QUARTER		<input type="checkbox"/>
RB	MONTH	MONTH		<input type="checkbox"/>
RB	WEEK	WEEK		<input type="checkbox"/>
RB	WEEK_YEAR	WEEK_YEAR		<input type="checkbox"/>
RB	DAY_OF_W...	DAY_OF_WEEK		<input type="checkbox"/>
RB	DAY	DAY		<input type="checkbox"/>
RB	CALQUARTER	CALQUARTER		<input type="checkbox"/>
RB	CALMONTH	CALMONTH		<input type="checkbox"/>
RB	CALWEEK	CALWEEK		<input type="checkbox"/>
12	YEAR_INT	YEAR_INT		<input type="checkbox"/>
12	QUARTER_I...	QUARTER_INT		<input type="checkbox"/>
12	MONTH_INT	MONTH_INT		<input type="checkbox"/>
12	WEEK_INT	WEEK_INT		<input type="checkbox"/>
12	WEEK_YEA...	WEEK_YEAR_INT		<input type="checkbox"/>

**Hierarchies**

Name	Label
Gregorian_Hierar...	Gregorian_Hierarchy



**New Information View**

Create an Information View  
Select the required view type and enter the details

Name:\* AN\_DEMO

Label: AN\_DEMO

Package:\* DEMO Browse...

View Type: Analytic View

Copy From: Browse...

Subtype: Browse...

Scenario

**Details**

**Properties**

Default Client: Session Client  Allow Relational Optimization

Default Schema: ... Apply Privileges: Analytic Privileges

Data Category: CUBE

**Column**

Local Shared

Show: All

Type	Name	Label	Aggregation	Variab

**Hierarchies**

Name	Label

**Properties**

General

Property

Name

Label (English)

Package

Activated By

Activated At

Default Schema

Changed By

Column Engine

Changed At

Version

Default Client

Apply Privileges

Data Category

Allow Relational O...

Scenario

**Details**

**Properties**

Default Client:  
Default Schema:  
Data Category:

**Column**

Local | Shared  
Show: All  
Type | Name

**Find**

Type the object name to search for

SNWD\_PO

Matching items:

- SNWD\_PO (EPM\_MODEL)
- SNWD\_PO\_COPY (EPM\_MODEL)
- SNWD\_PO\_I (EPM\_MODEL)
- SNWD\_PO\_INV\_HEAD (EPM\_MODEL)
- SNWD\_PO\_INV\_ITEM (EPM\_MODEL)
- SNWD\_PO\_SL (EPM\_MODEL)

**Data Foundation**

RB	CLIENT_BP	CLIENT
RB	PO_ID	PO_ID
919	PARTNER_GUID	PARTNER_GUID
919	CLIENT_PD	CLIENT_I
RB	PO_ITEM_POS	PO_ITEM_POS
919	PRODUCT_GUID	PRODUCT_GUID
12	GROSS_AMOUNT	GROSS_AMOUNT
12	NET_AMOUNT	NET_AMOUNT

**Output**

Attribute Views | Columns

Rename

**Rename**

Rename Columns

Show: All

	Current Name	New Name	Label
	CLIENT	CLIENT_BP	CLIENT
	PO_ID		PO_ID
	PARTNER_GUID		PARTNER_GUID
	CLIENT_I	CLIENT_PD	CLIENT_I
	PO_ITEM_POS		PO_ITEM_POS

**Details**

**EPM\_MODEL.SNWD\_PO**

- RB CLIENT
- 1010 NODE\_KEY
- RB PO\_ID
- 1010 CREATED\_BY
- 12 CREATED\_AT
- 1010 CHANGED\_BY
- 12 CHANGED\_AT
- 1010 NOTE\_GUID
- 1010 PARTNER\_GUID
- RB CURRENCY\_CODE
- 12 GROSS\_AMOUNT
- 12 NET\_AMOUNT
- 12 TAX\_AMOUNT
- RB LIFECYCLE\_STATUS
- RB APPROVAL\_STATUS
- RB CONFIRM\_STATUS
- RB ORDERING\_STATUS
- RB INVOICING\_STATUS

**EPM\_MODEL.SNWD\_PO\_I**

- RB CLIENT
- 1010 NODE\_KEY
- 1010 PARENT\_KEY
- RB PO\_ITEM\_POS
- 1010 PRODUCT\_GUID
- 1010 NOTE\_GUID
- RB CURRENCY\_CODE
- 12 GROSS\_AMOUNT
- 12 NET\_AMOUNT
- 12 TAX\_AMOUNT

**Output**

Columns

- CLIENT: SNWD\_PO.CLIENT
- PO\_ID: SNWD\_PO.PO\_ID
- PARTNER\_GUID: SNWD\_PO.PARTNER\_GUID
- CLIENT\_I: SNWD\_PO\_I.CLIENT
- PO\_ITEM\_POS: SNWD\_PO\_I.PO\_ITEM\_POS
- PRODUCT\_GUID: SNWD\_PO\_I.PRODUCT\_GUID
- GROSS\_AMOUNT: SNWD\_PO\_I.GROSS\_AMOUNT
- NET\_AMOUNT: SNWD\_PO\_I.NET\_AMOUNT

Input Parameters

**Properties**

General	
Property	Value
Name	NET_AMOUNT
Data Type	DECIMAL
Filter	
Length	15
Scale	2

**EPM\_MODEL.SNWD\_PO**

- RB CLIENT
- 1010 NODE\_KEY
- RB PO\_ID
- 1010 CREATED\_BY
- 12 CREATED\_AT
- 1010 CHANGED\_BY
- 12 CHANGED\_AT
- 1010 NOTE\_GUID
- 1010 PARTNER\_GUID
- RB CURRENCY\_CODE
- 12 GROSS\_AMOUNT
- 12 NET\_AMOUNT
- 12 TAX\_AMOUNT
- RB LIFECYCLE\_STATUS
- RB APPROVAL\_STATUS
- RB CONFIRM\_STATUS
- RB ORDERING\_STATUS
- RB INVOICING\_STATUS

**EPM\_MODEL.SNWD\_PO\_I**

- RB CLIENT
- 1010 NODE\_KEY
- 1010 PARENT\_KEY
- RB PO\_ITEM\_POS
- 1010 PRODUCT\_GUID
- 1010 NOTE\_GUID
- RB CURRENCY\_CODE
- 12 GROSS\_AMOUNT
- 12 NET\_AMOUNT
- 12 TAX\_AMOUNT

**Columns**

- CLIENT\_BP: SNWD\_PO.CLIENT
- PO\_ID: SNWD\_PO.PO\_ID
- PARTNER\_GUID: SNWD\_PO.PARTNER\_GUID
- CLIENT\_PD: SNWD\_PO\_I.CLIENT
- PO\_ITEM\_POS: SNWD\_PO\_I.PO\_ITEM\_POS
- PRODUCT\_GUID: SNWD\_PO\_I.PRODUCT\_GUID
- GROSS\_AMOUNT: SNWD\_PO\_I.GROSS\_AMOUNT
- NET\_AMOUNT: SNWD\_PO\_I.NET\_AMOUNT

Input Parameters

**Properties**

General	
Property	Value
Left Element	EPM_MODEL.SNWD_PO.CLI...
Right Element	EPM_MODEL.SNWD_PO_I.C...
Join Type	Referential
Language Column	
Cardinality	1..n

**Data Foundation**

RB	CLIENT_BP	CLIENT
RB	PO_ID	PO_ID
101	PARTNER_GUID	PARTNER_GUID
RB	CLIENT_PO	CLIENT_1
RB	PO_ITEM_POS	PO_ITEM_POS
101	PRODUCT_GUID	PRODUCT_GUID
12	GROSS_AMOUNT	GROSS_AMOUNT
12	NET_AMOUNT	NET_AMOUNT

**DEMO::AT\_DEMO2**

RB	BP_ID	BP_ID
RB	CLIENT	CLIENT
101	NODE_KEY	NODE_KEY
RB	FIRST_NAME	FIRST_NAME
RB	LAST_NAME	LAST_NAME
RB	LANGUAGE	LANGUAGE
RB	PHONE_NUMBER	PHONE_NUMBER
RB	PHONE_EXTENSION	PHONE_EXTENSION
RB	EMAIL_ADDRESS	EMAIL_ADDRESS
101	PHONE_NUMBER_EXTENSION	PHONE_NUMBER_EX...

**DEMO::AT\_DEMO2\_PRODUCT\_MASTER**

RB	PRODUCT_ID	PRODUCT_ID
RB	CLIENT	CLIENT
101	NODE_KEY	NODE_KEY
RB	TYPE_CODE	TYPE_CODE
RB	CATEGORY	CATEGORY
101	SUPPLIER_GUID	SUPPLIER_GUID

**Properties**

AN\_DEMO

Default Client: Session Client

Default Schema: ...

Data Category: CUBE

Apply Privileges: Analytic Privileges

**Column**

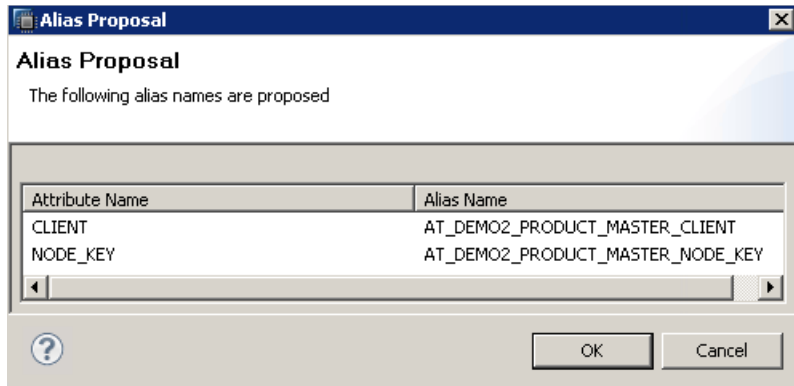
Type	Name	Label	Aggregation	Variable	Label Column
RB	PO_ID	PO_ID			
RB	PO_ITEM_POS	PO_ITEM_POS			
12	GROSS_AMOUNT	GROSS_AMOUNT	SUM		
12	NET_AMOUNT	NET_AMOUNT	SUM		

**Column**

Local Shared

Show: All

Type	Name	Label	Aggregation	Variable
RB	PO_ID	PO_ID		
RB	PO_ITEM_POS	PO_ITEM_POS		
12	GROSS_AMOUNT	GROSS_AMOUNT	SUM	
12	NET_AMOUNT	NET_AMOUNT	SUM	



Analysis | Distinct values | Raw Data

Filter pattern  200 rows retrieved - 84 ms

RB	BP_ID	RB	CLIENT	RB	NODE_KEY	RB	FIRST_NAME	RB	LAST_NAME	RB	LANGUAGE	RB	PHONE_NUMBER
	0100000025	800		001A48BE56B61...	Alessio	Galasso	E	4580963184					
	0100000017	800		001A48BE56B61...	Johanna	Esther	E	2208791738					
	0100000033	800		001A48BE56B61...	Pete	Waltham	E	4136278910					
	0100000024	800		001A48BE56B61...	Yoshiko	Kakuji	E	3206580974					
	0100000011	800		001A48BE56B61...	Joseph	Gschwandtner	E	6623612804					
	0100000013	800		001A48BE56B61...	Sarah	Schwind	E	4507867136					
	0100000038	800		001A48BE56B61...	Tamara	Flaig	E	6843585642					
	0100000041	800		001A48BE56B61...	Laura	Campillo	E	1438907230					
	0100000026	800		001A48BE56B61...	Romain	Le Mason	E	1012697341					
	0100000022	800		001A48BE56B61...	Cristal	Alfaro	E	7980023486					
	0100000028	800		001A48BE56B61...	Beatriz	da Silva	E	469614115					
	0100000042	800		001A48BE56B61...	Jian	Si	E	7412697340					
	0100000030	800		001A48BE56B61...	Lisa	Felske	E	6714954542					
	0100000025	800		001A48BE56B61...	Alessio	Galasso	E	4580963184					

**Calculated Attribute**

Create a new Calculated Attribute

Name:\* Day\_count

Label: Day\_count

Key | Description

Data Type: VARCHAR Length: Scale:

**Expression Editor**

Validate

1

**Elements**

- GBUS\_AREA
- COMPANY\_CODE\_1
- BILL\_NUM
- GICLDOC
- DOC\_NUM
- REF\_DOC\_NUM
- CALMONTH

**Operators**

- +
- 
- \*
- \*\*
- /
- %
- (

**Functions**

- Conversion Functions
- String Functions
- Mathematical Functions
- Date Functions
- Misc Functions

Validate syntax

1 weekday("CALDAY")

**Valid expression**

Valid expression

OK



**Calculated Measures** [X]

### Calculated Measure

Create a new Calculated Measure

Name\*:

Description:

Aggregation Type:

Hidden

Expression | Currency/Unit of Measure

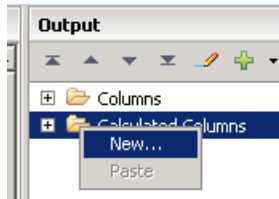
Data Type:  Length:  Scale:

#### Expression Editor

Validate

```
1
```

Elements	Operators	Functions
<ul style="list-style-type: none"><li>Attribute Views</li><li>Private Attributes</li><li>Calculated Attributes</li><li>Measures</li><li>Calculated Measures</li><li>Restricted Measures</li><li>Input Parameters</li></ul>	<ul style="list-style-type: none"><li>+</li><li>-</li><li>*</li><li>**</li><li>/</li><li>%</li><li>(</li><li>)</li></ul>	<ul style="list-style-type: none"><li>Conversion Functions</li><li>String Functions</li><li>Mathematical Functions</li><li>Date Functions</li><li>Misc Functions</li></ul>



### Calculated Column

#### Edit Calculated Column

Calculated columns are used to derive some meaningful information in the form of columns, from existing columns.

Name:\*

Label:

Data Type:  Length:  Scale:

Hidden

Expression Semantics

#### Expression Editor

Validate Syntax

```
1 if(isnull("PHONE_EXTENSION"),"PHONE_NUMBER","PHONE_NUMBER"+"PHONE_EXTENSION")
```

Elements	Operators	Functions
<input type="text" value="Columns"/>	<input type="text" value="... +"/>	<input type="text" value="Conversion Funct"/>

? OK Cancel



**New Information View**

Create an Information View  
Select the required view type and enter the details

Name\*: AN\_RM\_RC

Label: Analytical view for learning how to creating Restricted Measures and Calculated Measures

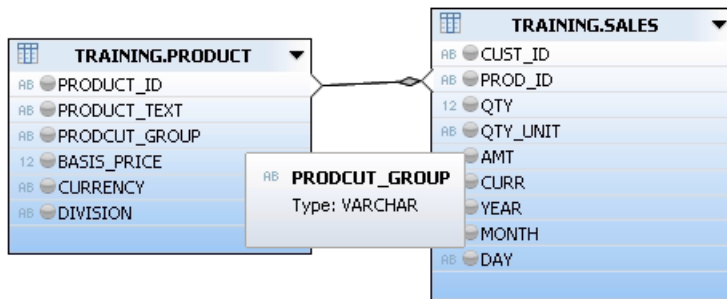
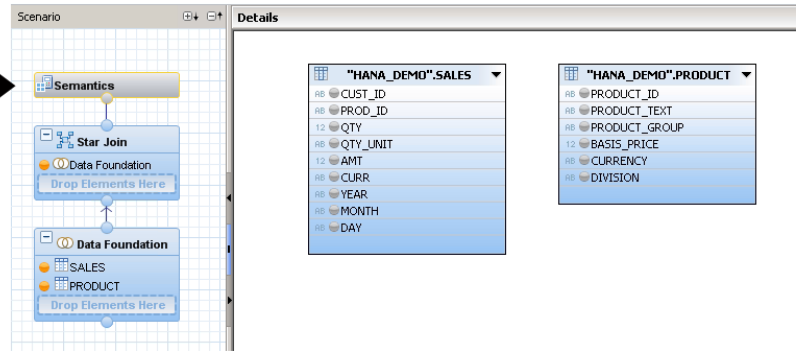
Package\*: DEMO

View Type: Analytic View

Copy From:

Subtype:

Finish Cancel



Columns

Input Parameters

**Properties**

Property	Value
Name	Data Foundation
Label	
Type	Join
Central Entity	
Inputs[1]	TRAINING.SALES [Table]
Inputs[2]	TRAINING.PRODUCT [Table]

**Output**

Columns

- CURR: SALES.CURR
- PRODUCT\_TEXT: PRODUCT.PRODUCT\_TEXT

Input Parameters

**Semantics**

- Logical Join
  - Data Foundation
    - Drop Elements Here
- Data Foundation
  - SALES
  - PRODUCT
  - Drop Elements Here

**Properties**

**AN\_RM\_RC**  
H00.DEMO

Analytical view for learning Creating Restricted Measure and calculated Measure

Default Client: Session Client  
Default Schema:  
Data Category: CUBE

**Column**

Local | Shared |  
Show: All

Type	Name	Label	Aggregation	Variable	Label Column	Hidden
RB	CURR	CURR				<input type="checkbox"/>
RB	PRODUCT_...	PRODUCT_TEXT				<input checked="" type="checkbox"/>

**Semantics**

- Logical Join
  - Data Foundation
    - Drop Elements Here
- Data Foundation
  - SALES
  - PRODUCT
  - Drop Elements Here

**AN\_RM\_RC**  
H00.DEMO

Analytical view for learning Creating Restricted Measure and calculated Measure

**Column**

Local | Shared |  
Show: All

Type	Name	Label	Aggregation	Variable	Label Column	Hidden
RB	CURR	CURR				<input type="checkbox"/>
RB	PRODUCT_...	PRODUCT_TEXT				<input checked="" type="checkbox"/>
12	AMT	AMT				<input type="checkbox"/>

Attribute  
Measure

**Data Foundation**

RB	CURR	CURR
RB	PRODUCT_TEXT	PRODUCT_TEXT
12	AMT	AMT

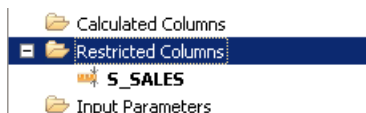
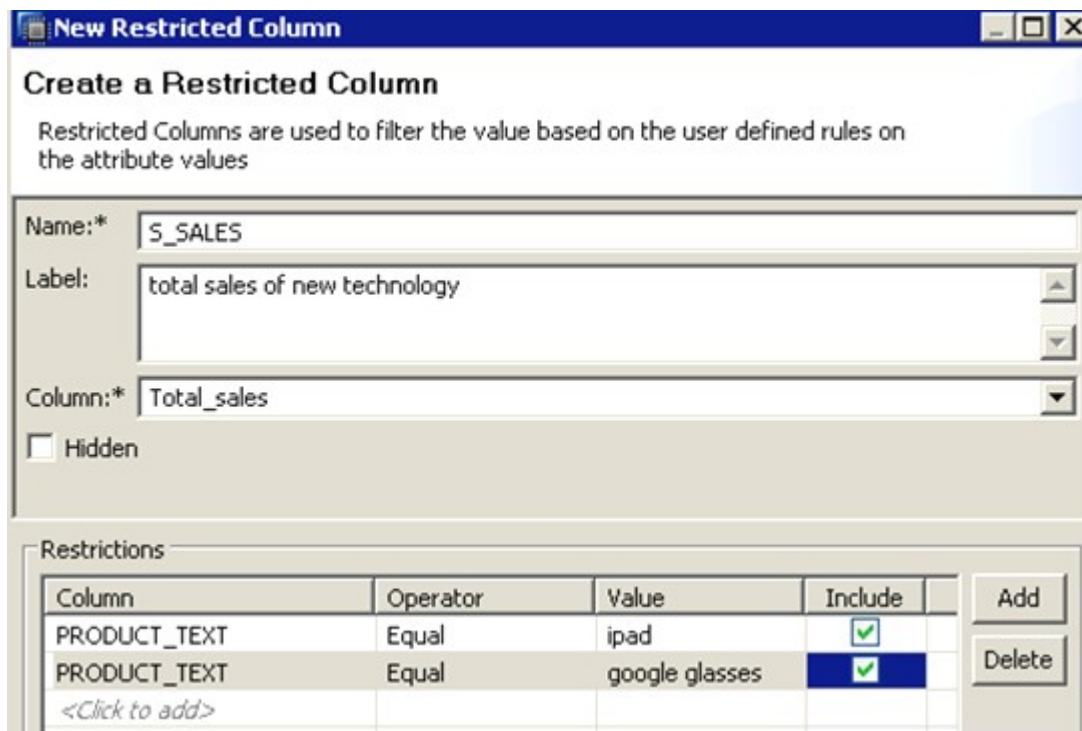
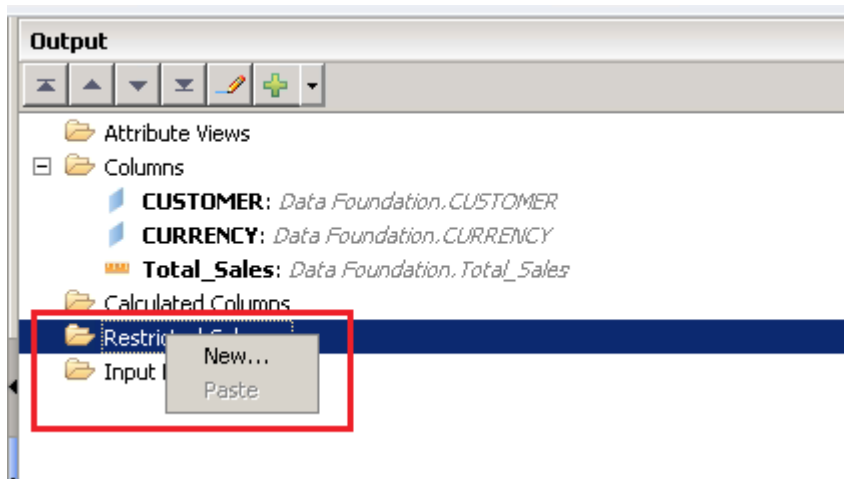
**Attribute Views**

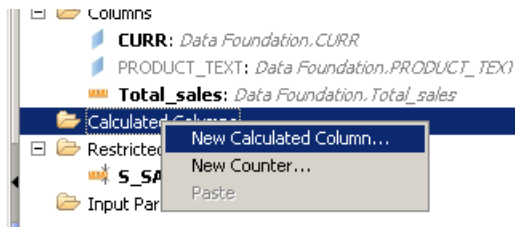
- Columns
  - CURR:** Data Foundation.CURR
  - PRODUCT\_TEXT: Data Foundation.PRODUCT\_TEXT
  - AMT:** Data Foundation.AMT
- Calculated Columns
- Restricted Columns
- Input Parameters

**Properties**

General

Property	Value
Name	Total_sales
Label	AMT
Mapping	Data Foundation.AMT
Length	15
Scale	2





### Calculated Column

#### Create a Calculated Column

Calculated columns are used to derive some meaningful information in the form of columns, from existing columns.

Name:\*

Label:

Data Type:  Length:

Column Type:

Aggregation Type:

Hidden  Calculate Before Aggregation

Expression Semantics

#### Expression Editor

Validate Syntax

```
1 "S_SALES" / "Total_sales"
```

Elements	Operators	Functions
<ul style="list-style-type: none"><li>CURR: Data Foundation</li><li>PRODUCT_TEXT: Data F</li><li>Total_sales: Data Fou</li><li>Calculated Columns</li></ul>	<ul style="list-style-type: none"><li>+</li><li>-</li><li>*</li><li>**</li><li>/</li><li>%</li></ul>	<ul style="list-style-type: none"><li>Conv</li><li>String</li><li>Math</li><li>Date</li><li>Misc I</li></ul>

OK Cancel





Attributes

Show: All

Type	Name	Label	Label Column	Hidden
12	REGION_ID	REGION_ID		<input type="checkbox"/>
RB	REGION_NAME	REGION_NAME		<input type="checkbox"/>
RB	SUB_AREA	SUB_AREA		<input checked="" type="checkbox"/>
	Attribute	DET		<input type="checkbox"/>

Context menu for SUB\_AREA:

- Attribute
- Key Attribute

**AT\_REGION\_FILTER**  
H00.DEMO

AT\_REGION\_FILTER

Default Client: Session Client  
Data Category: DIMENSION  
Apply Privileges: Analytic Privileges

TRAINING.REGION

- 12 REGION\_ID
- RB REGION\_NAME
- RB SUB\_AREA
- RB MANDET

Context menu:

- Add To Output
- Apply Filter
- Create Join
- Propagate to Semantics
- Select All Tables
- Select All Joins
- Deselect All
- Properties

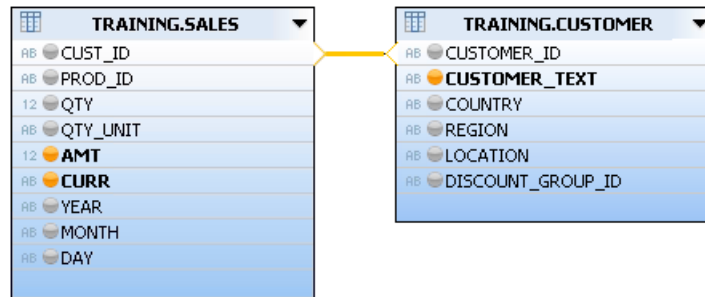
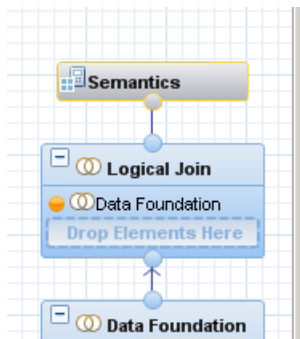
Apply Filter dialog:

Operator: Equal  
Value: Y

OK Cancel

Select the required view type and enter the details

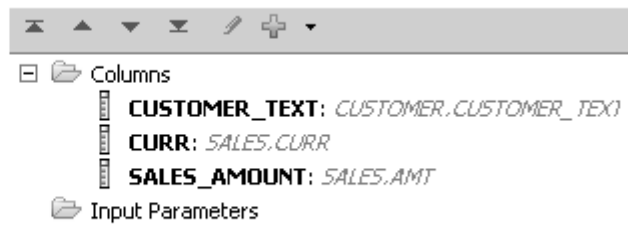
Name:\* AN\_CREATE\_INPUT  
Label: for input parameters and variables |  
Package:\* STUDENT00 Browse...  
View Type: Analytic View  
 Copy From: Browse...  
Subtype:



**Properties**

General

Property	Value
Left Element	TRAINING.SALES.CUST_ID
Right Element	TRAINING.CUSTOMER.C...
Join Type	Referential
Language Column	
Cardinality	1..n



**Column**

Local | Shared

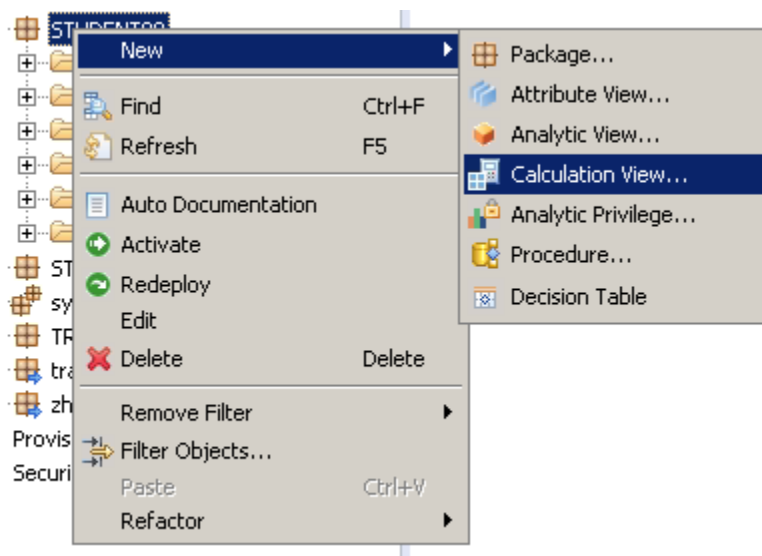
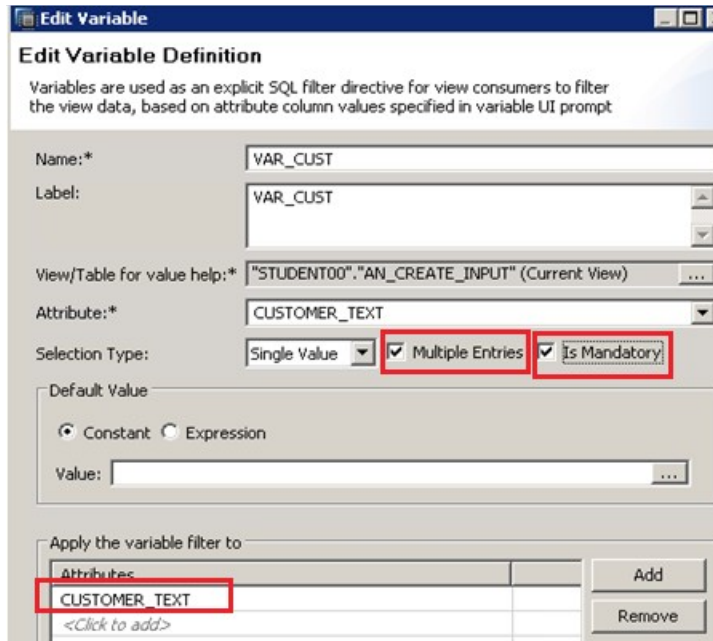
Show: All

Type	Name	Label	Aggregation	Variable	Label Column	Hidden
RB	CUSTOMER...	CUSTOMER		VAR_CUST		<input type="checkbox"/>
RB	CURR	CURR				<input type="checkbox"/>
12	SALES_AM...	SALES_AMOUNT	SUM			<input checked="" type="checkbox"/>

**Variables/Input Parameters**

Name | Create Variable/Input Parameter

Name	Create Variable/Input Parameter



**New Information View**

### Create an Information View

Select the required view type and enter the details

Name:\*

Label:

Package:\*

View Type:

Copy From:

Subtype:

Calculation View

Type:

Data Category:   With Star Join

**Note:** If you set the Data Category as Cube, the default node is Aggregation. You can change the default node to Star Join by selecting the checkbox.

Calculation View

Type:

Data Category:   With Star Join

**Note:** If you set the Data Category as Cube, the default node is Aggregation. You can change the default node to Star Join by selecting the checkbox.

Calculation View

Type:

Data Category:   With Star Join

**Note:** If you set the Data Category as Dimension, the default node is Projection.

Scenario

CV\_SALES\_2\_SOURCE

H00.DEMO

CV\_SALES\_2\_SOURCE

Default Client: Session Client

Default Schema:

Column

Type	Name	Label	Aggregation	Variable	Label Column	Hidden

Scenario

Semantics

Aggregation

Drop Elements Here

Aggregation\_1

Drop Elements Here

Aggregation

Aggregation\_1

- Add Objects
- Data Preview
- Select All
- Deselect All
- Auto-Layout
- Rename**
- Switch to Projection
- Remove
- Export Diagram... Ctrl+O

Scenario

Details

Join  
Union  
Proj...  
Aggr...

Semantics

Aggregation  
Drop Elements Here

SAP\_ERP  
SNWD\_SO

**EPM\_MODEL.SNWD\_SO**

RB	CLIENT
010 101	NODE_KEY
RB	SO_ID
010 101	CREATED_BY
12	CREATED_AT
010 101	CHANGED_BY
12	CHANGED_AT
RB	CREATED_BY_BP
RB	CHANGED_BY_BP
010 101	NOTE_GUID
010 101	BUYER_GUID
RB	CURRENCY_CODE
12	GROSS_AMOUNT
12	NET_AMOUNT
12	TAX_AMOUNT
RB	LIFECYCLE_STATUS
RB	BILLING_STATUS
RB	DELIVERY_STATUS

**EPM\_MODEL.SNWD\_SO**

RB	CLIENT
010 101	NODE_KEY
RB	SO_ID
010 101	CREATED_BY
12	CREATED_AT
010 101	CHANGED_BY
12	CHANGED_AT
RB	CREATED_BY_BP
RB	CHANGED_BY_BP
010 101	NOTE_GUID
010 101	BUYER_GUID
RB	<b>CURRENCY_CODE</b>
12	GROSS_AMOUNT
12	NET_AMOUNT
12	TAX_AMOUNT

Columns

- CLIENT: SNWD\_SO.CLIENT
- CURRENCY\_CODE: SNWD\_SO.CUR

Calculated Columns

Input Parameters

Filters

- Expression

**Details**

"EPM\_MODEL".SNWD\_SO

- RB CLIENT
- 101 NODE\_KEY
- RB SO\_ID
- 101 CREATED\_BY
- 12 CREATED\_AT
- 101 CHANGED\_BY
- 12 CHANGED\_AT
- RB CREATED\_BY\_BP
- RB CHANGED\_BY\_BP
- 101 NOTE\_GUID
- 101 BUYER\_GUID
- RB CURRENCY\_CODE
- 12 GROSS\_AMOUNT
- 12 NET\_AMOUNT
- 12 TAX\_AMOUNT
- RB LIFECYCLE
- RB BILLING\_STATUS
- RB DELIVERY\_STATUS

**Output**

- Columns
  - CLIENT: SNWD\_SO.CLIENT
  - CURRENCY\_CODE: SNWD\_SO.CURRENCY\_CODE
  - GROSS\_AMOUNT: SNWD\_SO.GROSS\_AMOUNT
  - NET\_AMOUNT: SNWD\_SO.NET\_AMOUNT
- Calculated Columns
- Input Parameters
- Filters
  - Expression

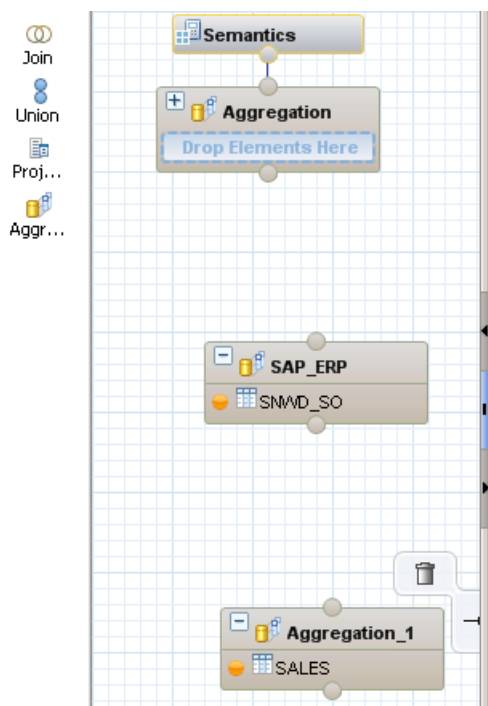
**Properties**

General

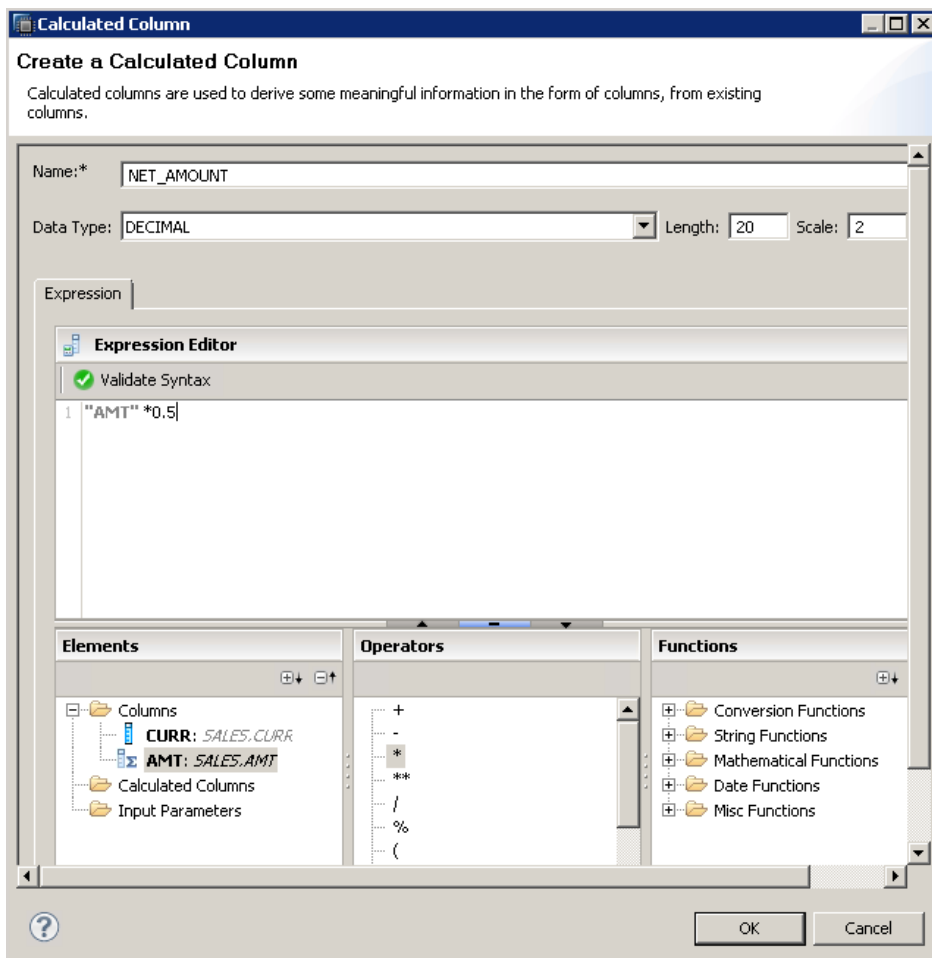
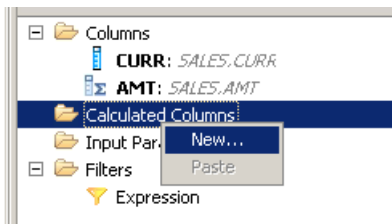
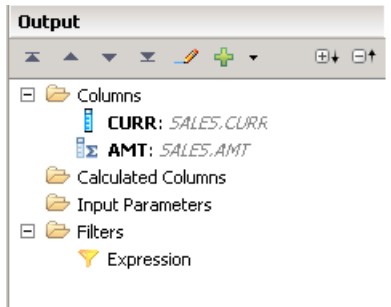
Property	Value
Name	SAP_ERP_Data
Label	
Type	Aggregation
Inputs[1]	"EPM_MODEL".SNWD_S...

**Context Menu:**

- Add As Aggregated Column
- Add To Output
- Apply Filter
- Propagate to Semantics
- Select All Tables
- Select All Joins
- Deselect All
- Properties



RB	CUST_ID
RB	PROD_ID
12	QTY
RB	QTY_UNIT
12	AMT
RB	CURR
RB	YEAR
RB	MONTH
RB	DAY





Calculated Column

### Create a Calculated Column

Calculated columns are used to derive some meaningful information in the form of columns, from existing columns.

Name:\*

Data Type:  Length:  Scale:

Expression

**Expression Editor**

✓ Validate Syntax

```
1 "AMT"
```

**Elements**

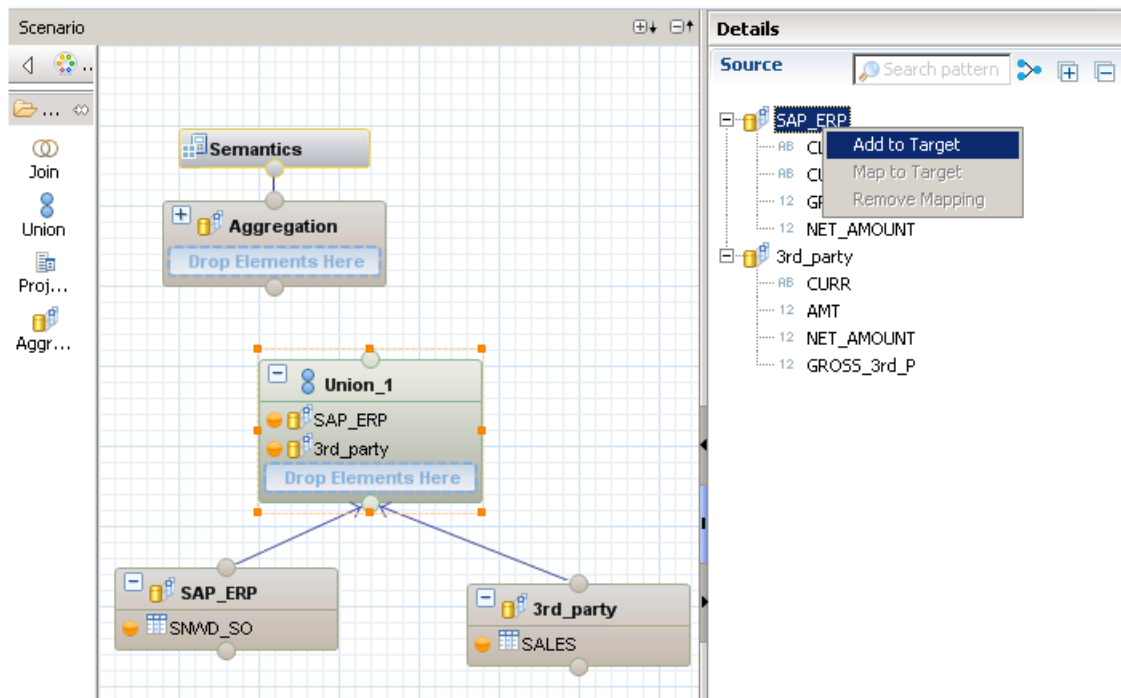
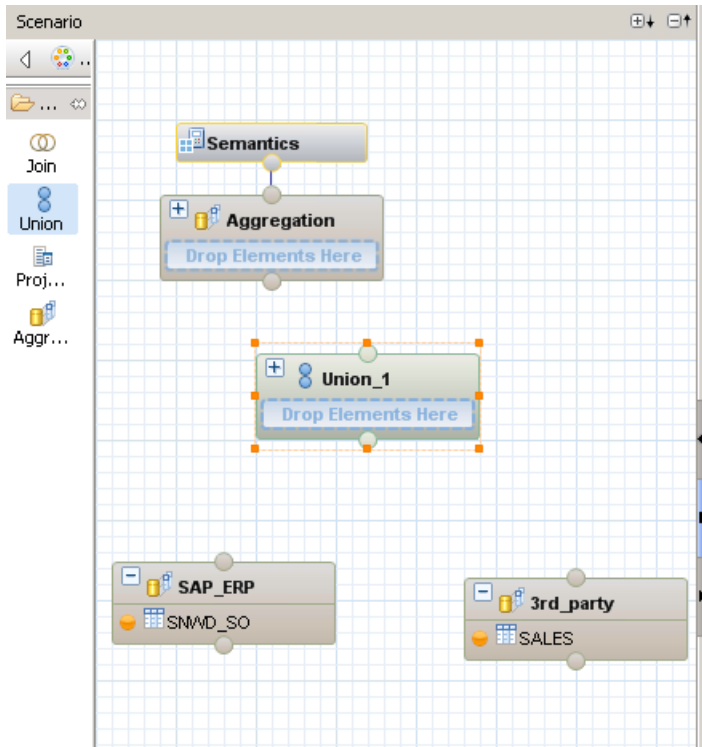
- Columns
  - CURR: SALES.CURR
  - AMT: SALES.AMT**
- Calculated Columns
- Input Parameters

**Operators**

- +
- 
- \*
- \*\*
- /
- %
- (
- )
- =

**Functions**

- Conversion Functions
- String Functions
- Mathematical Functions
- Date Functions
- Misc Functions



The screenshot shows the SAP Data Services mapping interface. On the left, the 'Source' pane contains two models: 'SAP\_ERP' and '3rd\_party'. The 'SAP\_ERP' model has columns: CLIENT (RB), CURRENCY\_CODE (RB), GROSS\_AMOUNT (12), and NET\_AMOUNT (12). The '3rd\_party' model has columns: CURR (RB), AMT (12), NET\_AMOUNT (12), and GROSS\_3rd\_P (12). On the right, the 'Target' pane has columns: CLIENT (RB), CURRENCY\_CODE (RB), GROSS\_AMOUNT (12), and NET\_AMOUNT (12). Lines connect source columns to target columns: SAP\_ERP.CLIENT to Target.CLIENT, SAP\_ERP.CURRENCY\_CODE to Target.CURRENCY\_CODE, SAP\_ERP.GROSS\_AMOUNT to Target.GROSS\_AMOUNT, SAP\_ERP.NET\_AMOUNT to Target.NET\_AMOUNT, 3rd\_party.CURR to Target.CURRENCY\_CODE, 3rd\_party.AMT to Target.GROSS\_AMOUNT, 3rd\_party.NET\_AMOUNT to Target.NET\_AMOUNT, and 3rd\_party.GROSS\_3rd\_P to Target.GROSS\_AMOUNT.

A 'Map To Target' dialog box is open in the foreground. It contains the following fields:

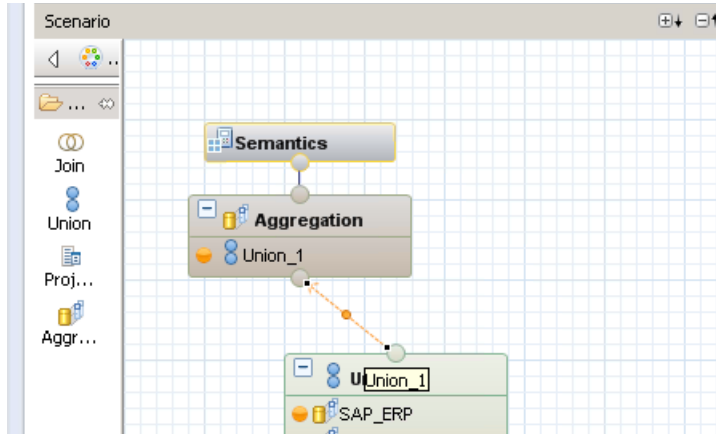
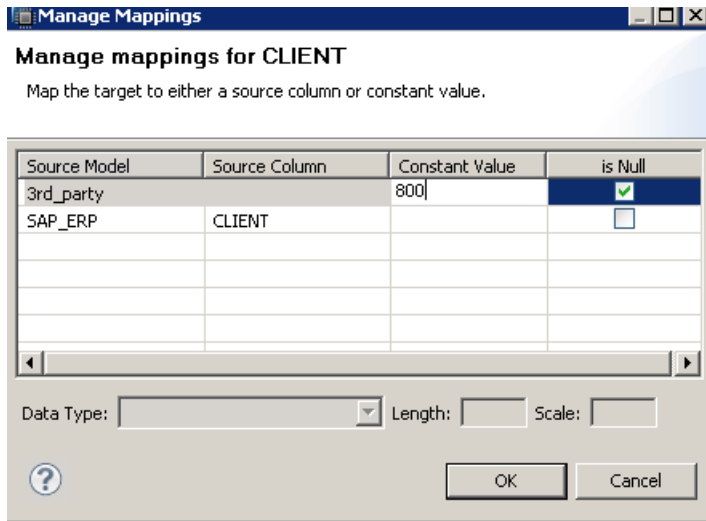
- Source Model: 3rd\_party
- Source Column: GROSS\_3rd\_P
- Target Column: GROSS\_AMOUNT

Buttons at the bottom of the dialog include a help icon (?), 'Create', and 'Cancel'.

This screenshot shows the same mapping interface as above, but with a context menu open over the 'CLIENT' target column. The menu options are:

- Manage Mappings
- Remove Mapping
- Remove All Mappings
- Remove Target Column
- Remove All Target Columns
- Propagate to Semantics

The 'CLIENT' target column is highlighted with a blue selection box, and an orange line connects it to the 'CLIENT' source column in the 'SAP\_ERP' model.



**Details**

Union_1	
RB	CLIENT CLIENT
RB	CURRENCY_CODE CURRENCY_CODE
12	GROSS_AMOUNT GROSS_AMOUNT
12	NET_AMOUNT NET_AMOUNT

**Output**

- Columns
  - CLIENT: Union\_1.CLIENT
  - CURRENCY\_CODE: Union\_1.CURRENCY\_CODE
- Calculated Columns
- Restricted Columns
- Input Parameters

**Union\_1**

RB	CLIENT	CLIENT
RB	CURRENCY_CODE	CURRENCY_CODE
12	GROSS_AMOUNT	GROSS_AMOUNT
12	NET_AMOUNT	NET_AMOUNT

Add As Aggregated Column  
 Add To Output  
 Propagate to Semantics

Columns

- CLIENT: Union\_1.CLIENT
- CURRENCY\_CODE: Union\_1.CURRENCY\_CODE
- GROSS\_AMOUNT: Union\_1.GROSS\_AMOUNT
- Calculated Columns
- Restricted Columns
- Input Parameters

Analysis | Distinct values | Raw Data

Filter pattern  1 rows retrieved - 47 ms

RB	CLIENT	RB	CURRENCY_CODE	12	GROSS_AMOUNT	12	NET_AMOUNT
	800		EUR		509,932,068.28		504,832,837.18

Catalog  
 Content

New  
 Find Ctrl+F  
 Refresh F5  
 Auto Documentation  
 Activate  
 Redeploy  
 Edit

Package...  
 Attribute View...  
 Analytic View...  
 Calculation View...  
 Analytic Privilege...  
 Procedure...  
 Decision Table

**New Analytic Privilege**

Create an Analytic Privilege

Enter the required details.

Name:\* AP\_CREATE\_AP

Label: AP\_CREATE\_AP

Package:\* DEMO

Create new  
 Copy from

Select Information Models

- Content
  - DEMO
    - Attribute Views (1)
    - Calculation Views (1)
      - CV\_SALES\_2\_SOURCE
  - sap

- Content

**General**  
Describes general information about the Analytic Privilege

Name:   Applicable to all information models

Label:

**Privilege Validity**  
Defines the Privilege Validity

Operator	Inclusion	From	To	

**Reference Models**  
Restrictions apply to all the models shown in the list below.

- Content
  - CV\_SALES\_2\_SOURCE (DEMO)

**Associated Attributes Restrictions**  
Select attributes to assign analytic privileges.

Model Name	Attributes	Description	Count	

**Assign Restrictions**  
Restrictions for the selected attribute

Type	Operator	Value	


**Select Object**

Select attributes to define filters

- CV\_SALES\_2\_SOURCE
  - CLIENT
  - CURRENCY\_CODE

### Associated Attributes Restrictions

Select attributes to assign analytic privileges.

Model Name	Attributes	Description	Count	
 CV_SALES_2_SOURCE (DEMO)	CLIENT		1	

Add...

Remove

### Assign Restrictions

Assign the restrictions for CLIENT

Type	Operator	Value	
Fixed	Equal	800	

Add

Remove

### Authentication

Password

Password\*:

Confirm\*:

SAML

SAP Logon Ticket

[Configure](#)

Kerberos

External ID\*:

X509

SAP Assertion Ticket

[Configure](#)

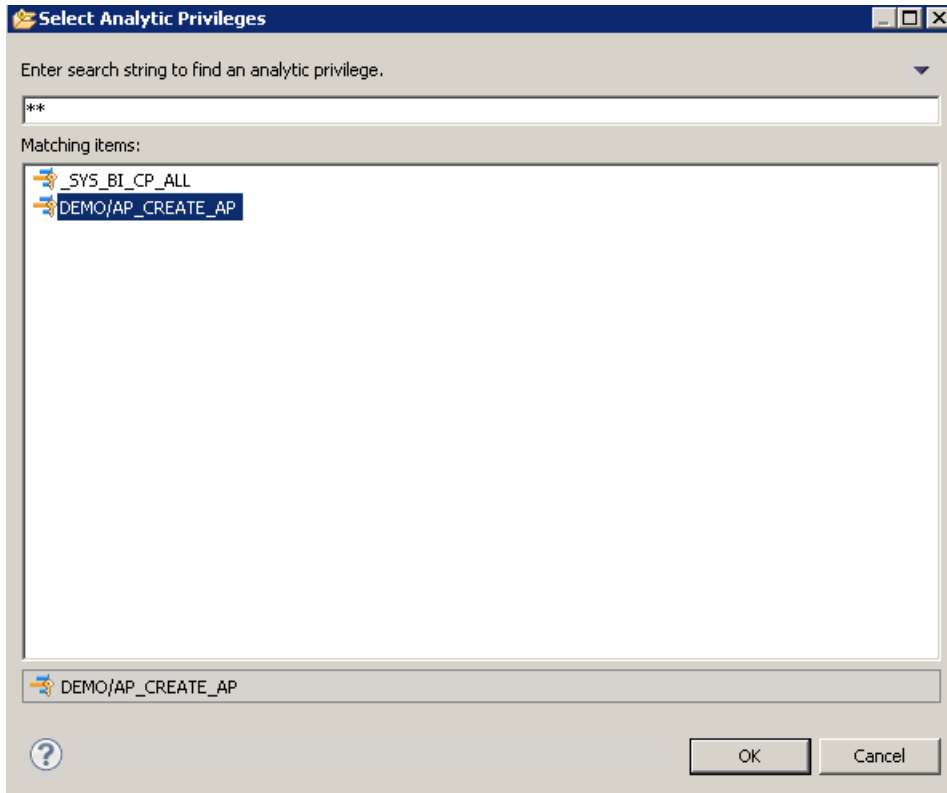
Valid From:

Valid Until:

Session Client:

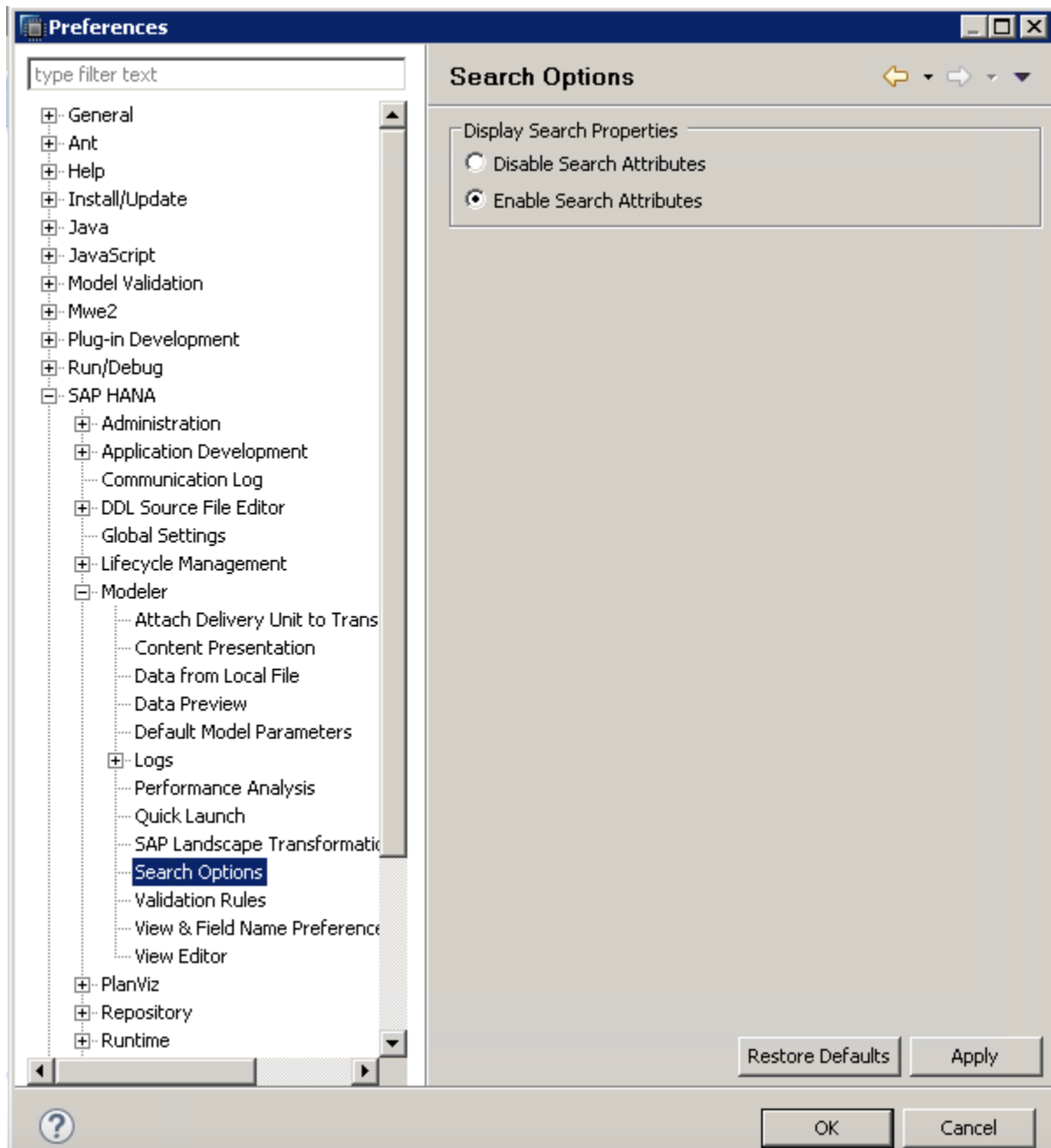
Granted Roles | System Privileges | Object Privileges | **Analytic Privileges** | Package Privileges | Application Privileges | Privileges on Users

Analytic Privilege	Grantor	





## Chapter 6: Understanding Text Search and Hierarchies in SAP HANA



**New Information View**

**Create an Information View**  
Select the required view type and enter the details

Name:\* AT\_LEVEL\_HIERARCHY\_DEMO

Label: Product level Hierarchy

Package:\*

View Type: Attribute View

Columns

- PRODUCT\_ID: SNWD\_PD.PRODUCT\_ID
- TYPE\_CODE: SNWD\_PD.TYPE\_CODE
- CATEGORY: SNWD\_PD.CATEGORY

Calculated Columns

**Hierarchy**

**Create new Hierarchy**  
Create a new hierarchy and define its properties

Name:\* HIE\_LEVEL\_HIER

Label: Demo level hierarchy

Hierarchy Type: Level Hierarchy

Node | Advanced

Node Style:\* Level Name

Level	Element	Level Type	
1			

Columns

- PRODUCT\_ID: SNWD\_PD.
- TYPE\_CODE: SNWD\_PD.T
- CATEGORY: SNWD\_PD.CA

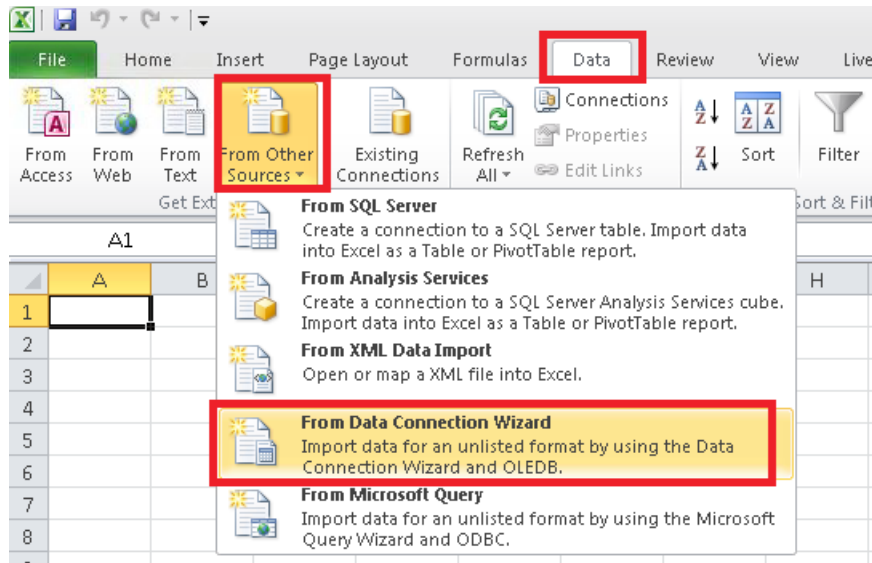
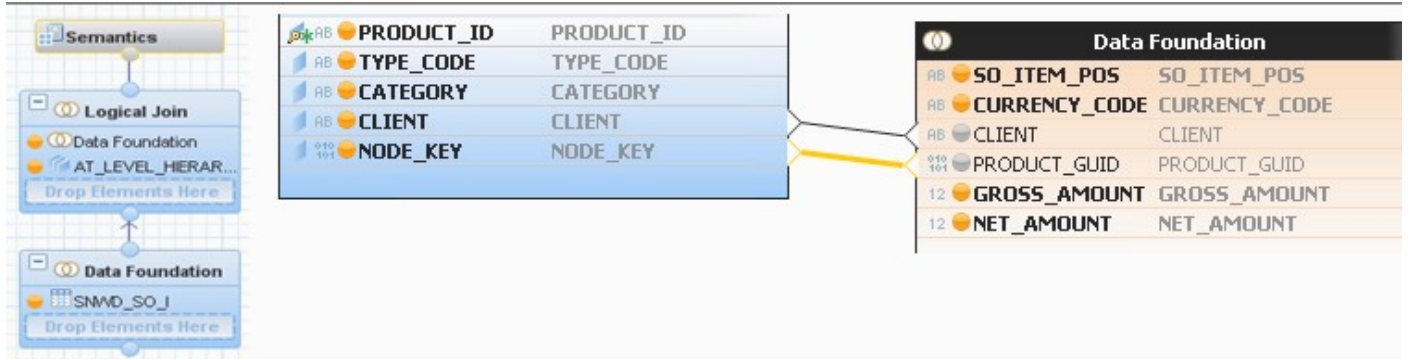
Calculated Columns

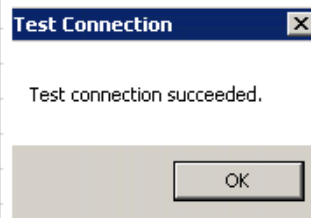
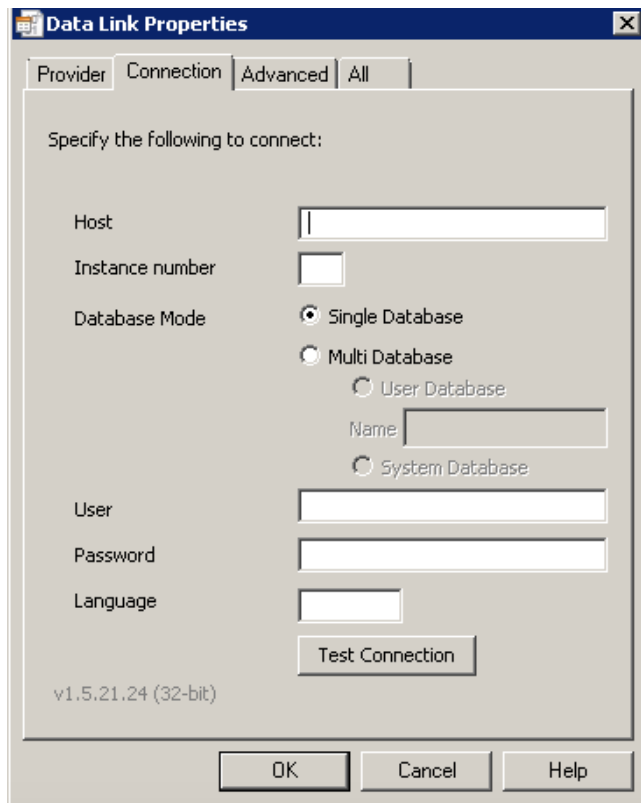
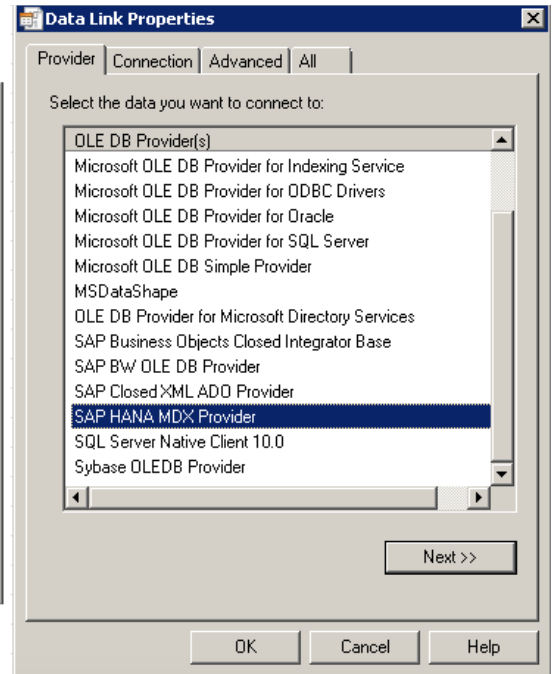
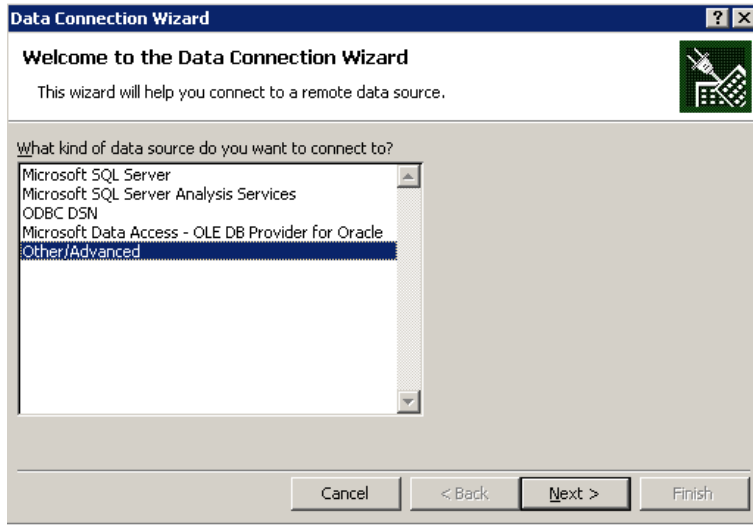
**New Information View**

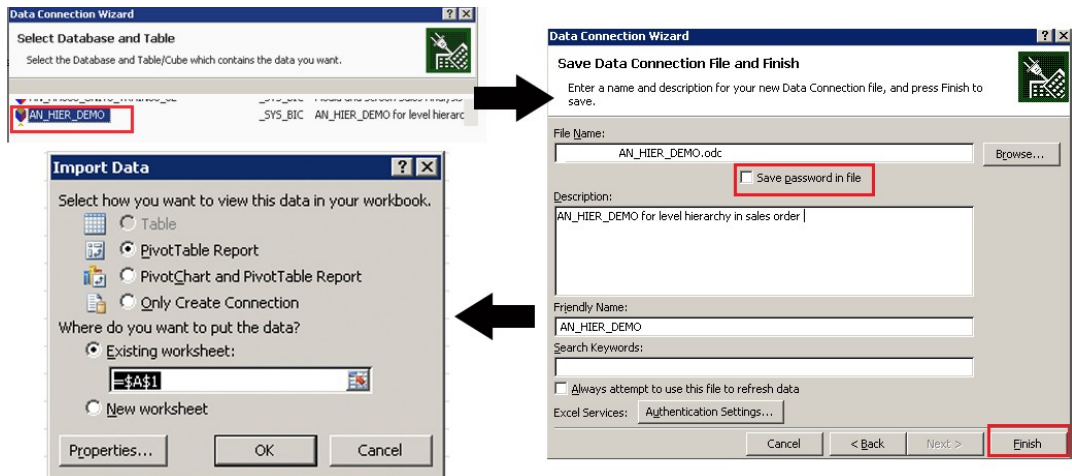
**Create an Information View**  
Select the required view type and enter the details

Name:\* AN\_HIER\_DEMO

Label: AN\_HIER\_DEMO for level hierachy in pales order







A	B
<b>Row Labels</b>	<b>GROSS_AMOUNT</b>
<b>PR</b>	<b>509881178.4</b>
Flat screens	391464303.6
Graphic cards	885420
Handhelds	61734510.4
Hardware	5988.4
High Tech	1323.6
Ink jet printers	635726
Input device	64640
Keyboards	33666.4
Laser printers	6225386
Mice	107484.4
Multi function printers	45622
Notebooks	3022008.8
Others	15236592.8
PC	298213.6
Scanner	1610265.6
Scanner and Printer	242238.4
Software	16023232.8
Speakers	14482.8
Workstation ensemble	12230072.8
<b>Grand Total</b>	<b>509881178.4</b>

### PivotTable Field List

Choose fields to add to report:

- Σ Values**
  - GROSS\_AMOUNT**
  - NET\_AMOUNT
- CURRENCY\_CODE
  - CURRENCY\_CODE
- Products Level Hierarchy**
  - Products Level Hierarchy**
- SO\_ITEM\_POS
  - SO\_ITEM\_POS

Drag fields between areas below:

Report Filter

Row Labels Σ

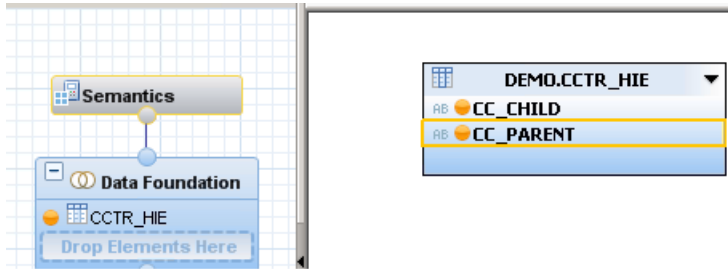
**New Information View**

**Create an Information View**

Select the required view type and enter the details

Name:\* AT\_PARENT\_CHILD\_HIERARCHY\_DEMO

Label: AT\_PARENT\_CHILD\_HIERARCHY\_DEMO for cost center



Type	Name	Label	Label Column	Hidden
RB	CC_CHILD	CC_CHILD		<input type="checkbox"/>
	Attribute			<input type="checkbox"/>
	Key Attribute			<input type="checkbox"/>

**Hierarchy**

**Create new Hierarchy**

Create a new hierarchy and define its properties

Name:\* HIE\_PARENT\_CHILD\_DEMO

Label: HIE\_PARENT\_CHILD\_DEMO for cost center

Hierarchy Type:\* Parent-Child Hierarchy

Node | Advanced

Child	Parent	Stepparent	Root Node	Add
CC_CHILD	CC_PARENT			

## Chapter 7: Using Decision Tables and Transporting SAP HANA Content

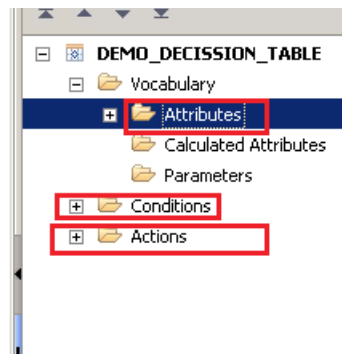
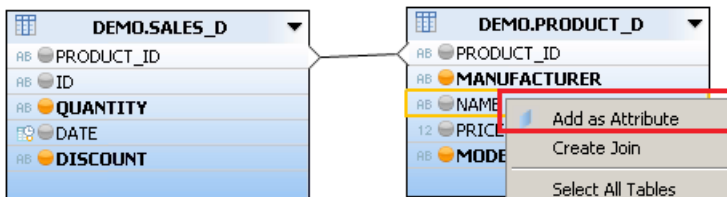
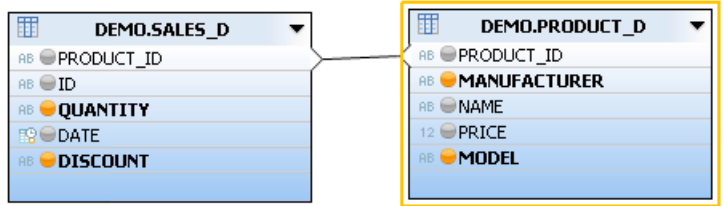
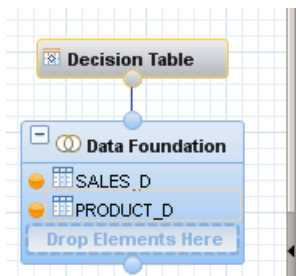
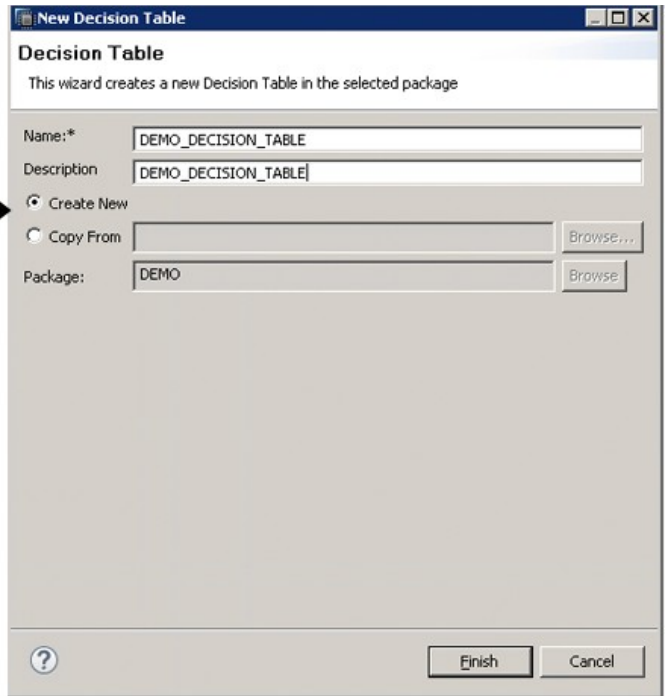
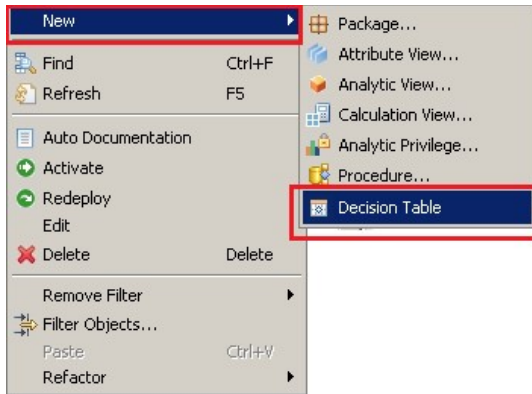
Condition Studs	Conditions/ Course of Action	Rules					
		1	2	3	4	5	6
Condition Studs	Employee type	S	S	S	S	S	S
	Hours worked	<40	<40	<40	<40	>40	>40
	Pay bases salary						
Action Studs	Calculate housing usage		X		X		X
	Calculate overtime						X
	Produce Absence Report		X				

Decision table

The screenshot shows the SAP HANA Studio interface with the following structure for the decision table 'DEMO DECISION TABLE':

- DEMO DECISION TABLE**
  - Vocabulary
    - Attributes
    - Calculated Attributes
    - Parameters
  - Conditions
    - QUANTITY :SALES\_D.QUANTITY
    - MODEL :PRODUCT\_D.MODEL
    - MANUFACTURER :PRODUCT\_D.MANUFACTURER
  - Actions
    - DISCOUNT :SALES\_D.DISCOUNT

```
SQL SQL
call "_SYS_BIC"."DEMO/DEMO_DECISION_TABLE"('100A','XYZ','20');
```





**Output**

- DISCOUNT :SALES\_D.DISCOUNT
- MANUFACTURER :PRODUCT\_D.MANUFACTURER**
- MODEL :PRODUCT\_D.MODEL
  - Add As Conditions
  - Add As Actions
  - Remove
- QUANTITY :SALES\_D.QUANTITY
- Calculated Attributes
- Parameters
- Conditions
  - QUANTITY :SALES\_D.QUANTITY
  - MODEL :PRODUCT\_D.MODEL

Scenario

**Decision Table**

**Data Foundation**

- SALES\_D
- PRODUCT\_D

Drop Elements Here

QUANTITY	MODEL	MANUFACTURER	DISCOUNT
Default Value	Default Value	Default Value	-

**Add Condition Values**

Add New Condition Values in Selected Condition: 'QUANTITY' (Return Type - 'NVARCHAR')


Press 'Space' key to edit the selected cell

**Value Help for Column : QUANTITY**

1  
2  
3  
5  
7  
6  
8  
9

these are the values which is in your tables

Value:

OK Cancel

**Add Condition Values**

Add New Condition Values in Selected Condition: 'QUANTITY' (Return Type - 'NVARCHAR')

>5
<=5
>10
>6

Press 'Space' key to edit the selected cell

OK Cancel

QUANTITY	MODEL
Default Value	Default Value
> 5	Default Value
<= 5	Default Value
> 10	Default Value
> 6	Default Value

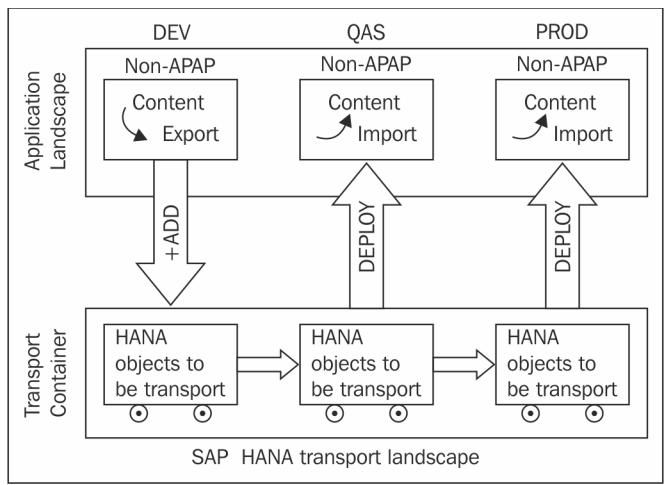
**Value Help for Column : MODEL**

Find

X1  
Y1  
Z1  
S  
SS  
TR

Value: X1

QUANTITY	MODEL	MANUFACTURER	DISCOUNT
Default Value	X1	XYZ	10
> 5	SS	ABC	6
<= 5	TR	ABC	11
> 10	Y1	XYZ	18
> 6	Z1	XYZ	15



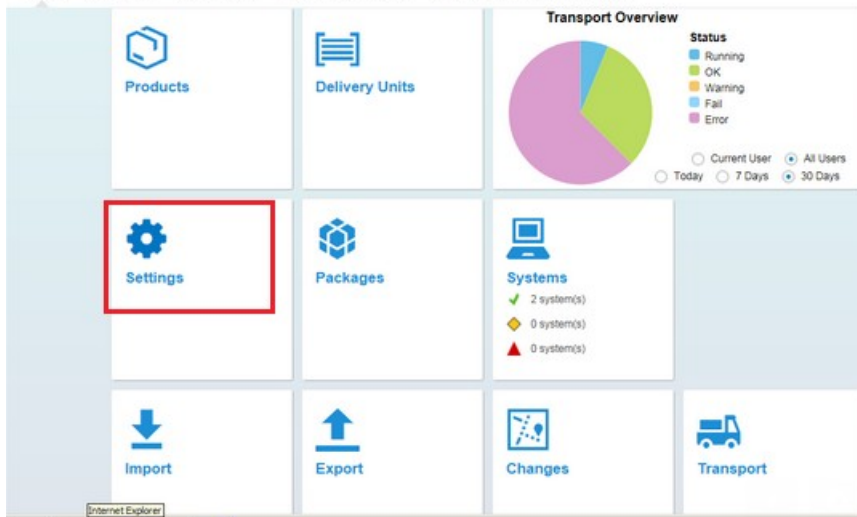
# SAP HANA

Logon

Enter Username

Enter Password

Log On



The dashboard displays a grid of tiles for system management. The 'Settings' tile is highlighted with a red border. The 'Transport Overview' tile includes a pie chart and a legend for system status.

Category	Item	Status/Count
Products	Products	Icon: Gear
Delivery Units	Delivery Units	Icon: Document
Settings	Settings	Icon: Gear (highlighted)
Packages	Packages	Icon: Package
Systems	Systems	2 system(s) (OK), 0 system(s) (Warning), 0 system(s) (Error)
Import	Import	Icon: Download arrow
Export	Export	Icon: Upload arrow
Changes	Changes	Icon: Document with checkmark
Transport	Transport	Icon: Truck

**Transport Overview Legend:**

- Running (Blue)
- OK (Green)
- Warning (Yellow)
- Fail (Light Blue)
- Error (Pink)

**Filters:**

- Current User (Selected)
- All Users
- Today
- 7 Days
- 30 Days (Selected)

### General

Vendor

Enable Change Recording

### General

Vendor

Enable Change Recording

### Transport

- Enable Native SAP HANA Transport
- Enable CTS Transport

CTS Upload System SID:

CTS Communication System:

Host

HTTP(S) Port

Comment

### General

Vendor:

Enable Change Recording

### Transport

Enable Native SAP HANA Transport  
 Enable CTS Transport

CTS Upload System SID:

CTS Communication System:

Host:   
HTTP(S) Port:   
Comment:

### Register CTS System

System Details  
Enter system details for registering the system and press the "Next" button.

\*Host:

\*HTTP(S) Port:

\*Upload System SID:

Comment:

### Register CTS System

#### Configure Destination

Click on the "Maintain Destination" button below in order to be forwarded to the HTTP Destination UI. The HTTP Destination UI can be used to maintain credentials, proxies and certificates of the system. Return back to this page and press the "Finish" button to complete the system registration.

click finish once you have maintained it.



### Register CTS System

General Information | Proxy Details | Authentication Details | OAuth Details

Extends: Not Applicable

Description:

Host:

Port:

Path Prefix:

Timeout:

HTTP Destination Details

SSL Host Check:

Authentication Type:  None

Basic

User:

Password:

SAP Assertion Ticket

SAP SID:

SAP Client:

SAML

Authentication Type:  None

Basic

User:

Password:

SAP Assertion Ticket

SAP SID:

## Transport

Enable Native SAP HANA Transport

Enable CTS Transport

Configure CTS System

Test CTS Connection

Delete CTS Configuration

CTS Communication System:

Host [REDACTED]

HTTP(S) Port 50100

CTS Upload System:

SID [REDACTED]

Comment

Export Format 15

SAP HANA Application Lifecycle Management

HOME PRODUCTS CHANGES **CTS EXPORT** SETTINGS MANAGE SYSTEM

**Delivery Units** Released Change lists Logs

↑ Attach to transport request

Assign Delivery Units

Open Transport Organizer

Name	Vendor	Version
DEMO	[REDACTED]	1.0.0

### Assign Delivery Units

Delivery Units Assigned to CTS Export

Name	Vendor	Version	Description	Assigned to CTS
DEMO.	[REDACTED]	1.0		<input checked="" type="checkbox"/>
DEMO_	[REDACTED]	1.0		<input type="checkbox"/>
[REDACTED]_TEST	[REDACTED]	1.0.0		<input checked="" type="checkbox"/>

Save Close

HOME PRODUCTS CHANGES **CTS EXPORT** SETTINGS MANAGE SYSTEM

Delivery Units Released Change lists Logs

Name	Vendor	Version
[REDACTED]	[REDACTED]	1.0.0

### Start CTS Export

Transport Request Details

Transport Request ID:

Description: Generated for HALM

Owner: ADMIN

[Go To Transport Organizer UI](#)

Delivery Units



HOME PRODUCTS CHANGES **CTS EXPORT** UPLOAD/DOWNLOAD SETTINGS MAI

Delivery Units Released Changes **Logs**

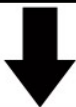
Show Filters

Stat...	Transport Action ID	RC	User	Operati...	Exported From	Imported T
<span style="color: green;">■</span>	[REDACTED]	0	[REDACTED]	Export t...	[REDACTED]	[REDACTED]

HOME PRODUCTS CHANGES **CTS EXPORT** SETTINGS MANAGE SYSTEM

Delivery Units Released Change lists Logs

Name	Vendor	Version
[REDACTED]	[REDACTED]	1.0.0

 mark the transport request and click release

**Transport Organizer** Log off [REDACTED] Help

Transport Requests of System [REDACTED] Client 001

- Display Message Log Display Search Criteria

Overview: Transport Request

Transport Request Status -> Owner -> Transport Request	Presele...	Status	Owner	Description
<ul style="list-style-type: none"> <li>Modifiable           <ul style="list-style-type: none"> <li>Owner ADMIN               <ul style="list-style-type: none"> <li>Transport Request [REDACTED] <input type="button" value="☆"/> <input type="button" value="✎"/></li> </ul> </li> </ul> </li> </ul>			[REDACTED]	Generated for HALM

### General

Vendor sap.com

Enable Change Recording



HOME PRODUCTS **CHANGES** CTS EXPORT SETTINGS MANAGE SYSTEM

Set Filter Status: Open,

#### Details

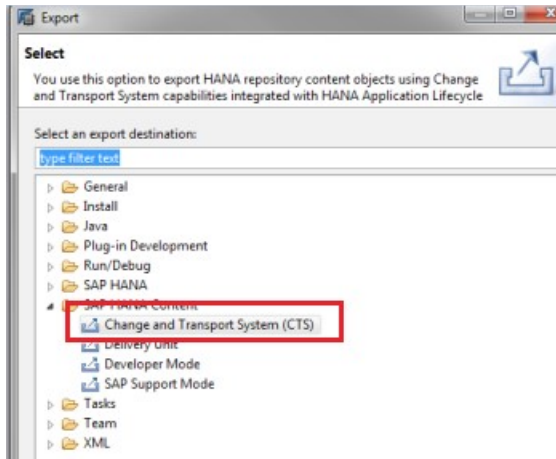
Change List ID [REDACTED]  
Status Open  
Change List Description Demo  
Created by ADMIN  
Created at [REDACTED] UTC

#### Contributions

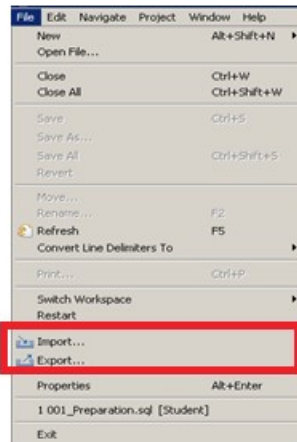
Contributor Name	Status
ADMIN	open

HOME PRODUCTS CHANGES **CTS EXPORT** SETTINGS MANAGE SYSTEM

Delivery Units **Released changelists** Logs



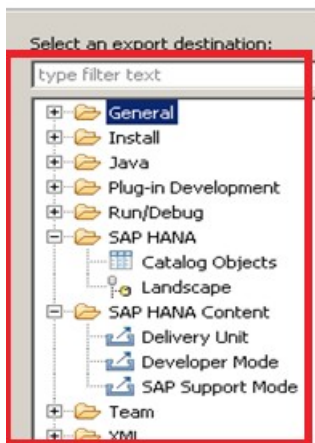
OR

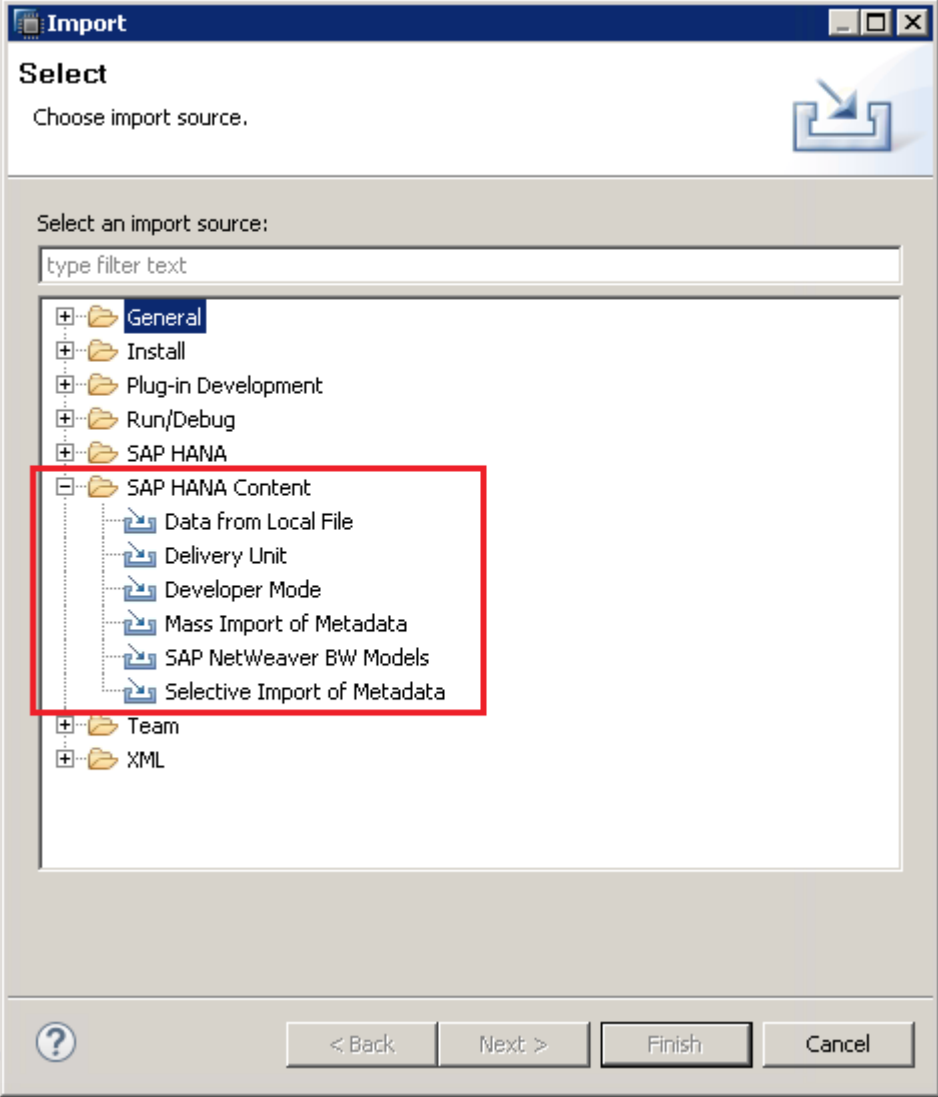


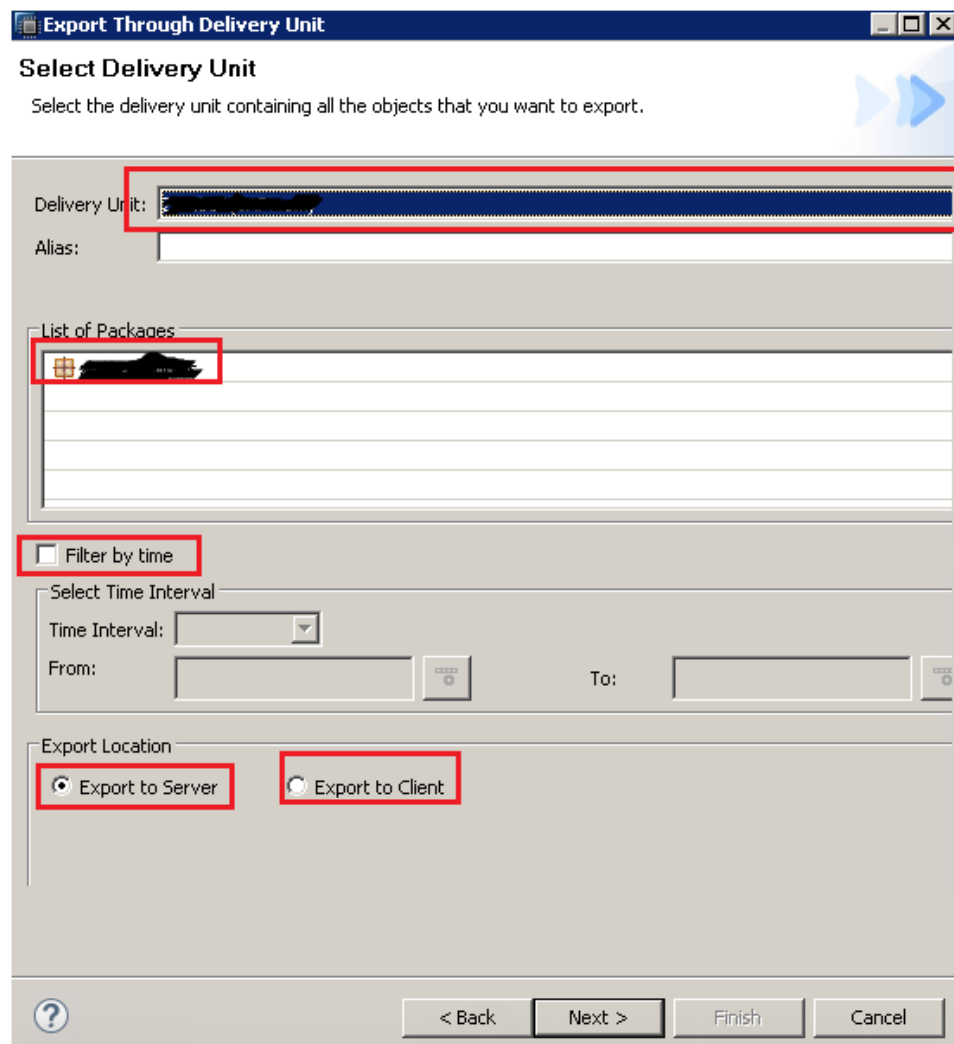
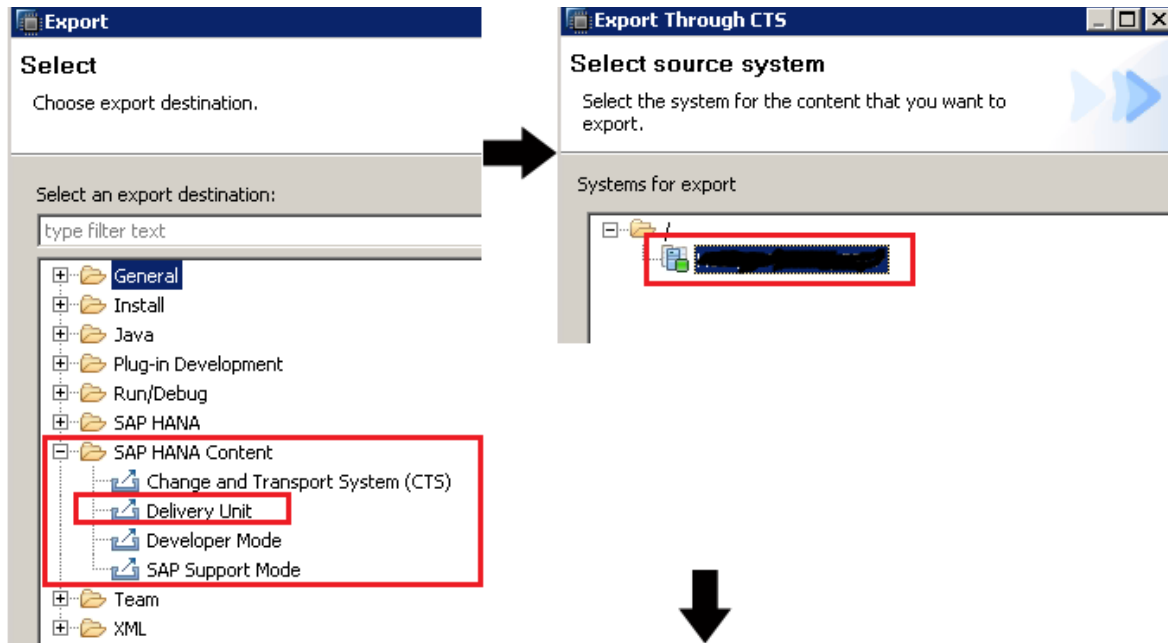
## Export

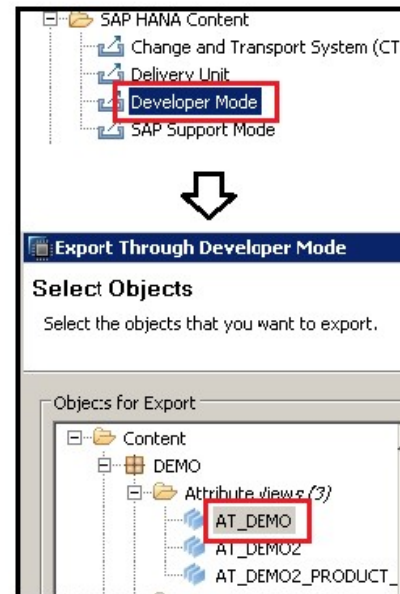
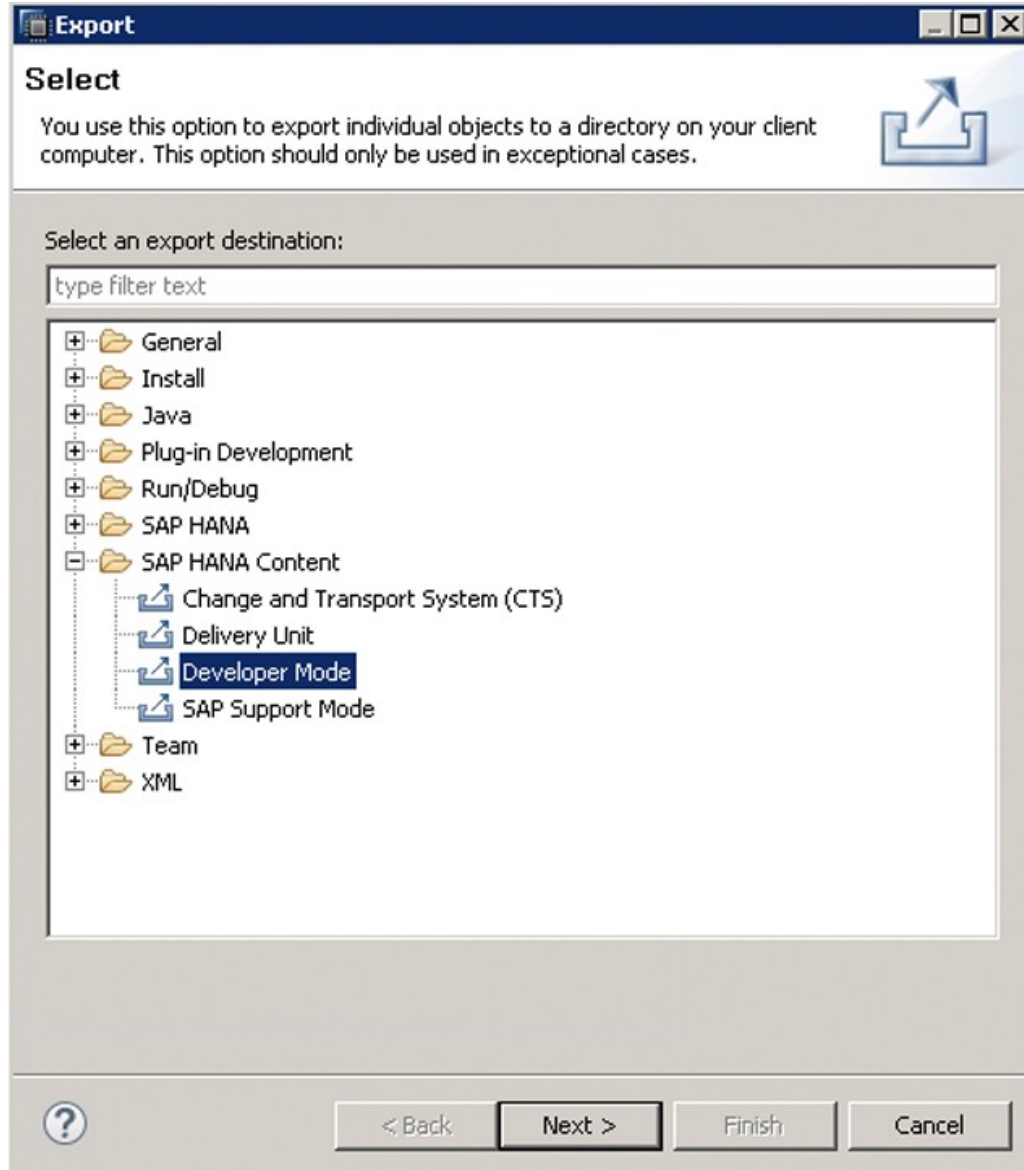
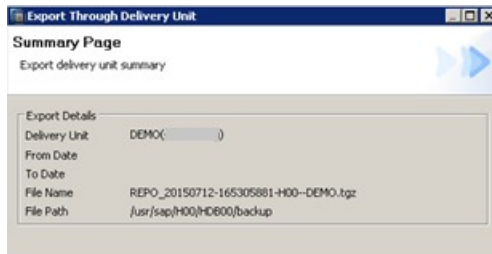
### Select

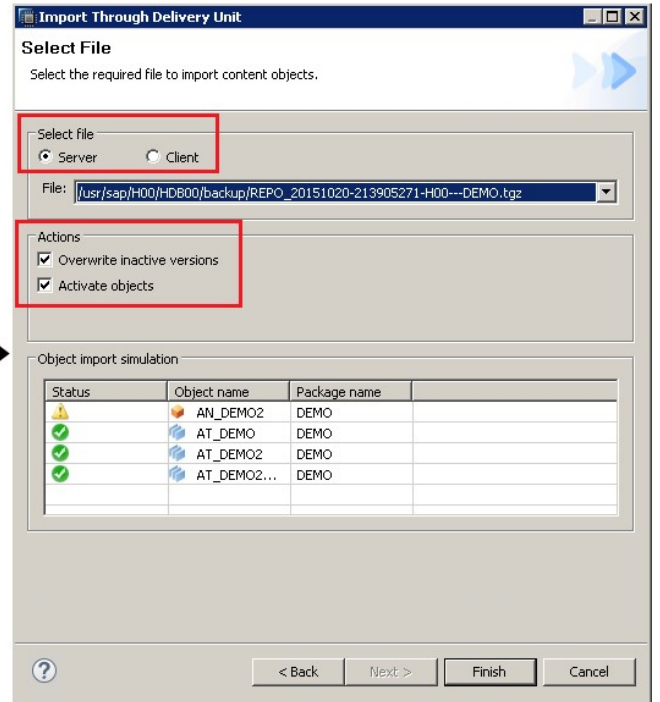
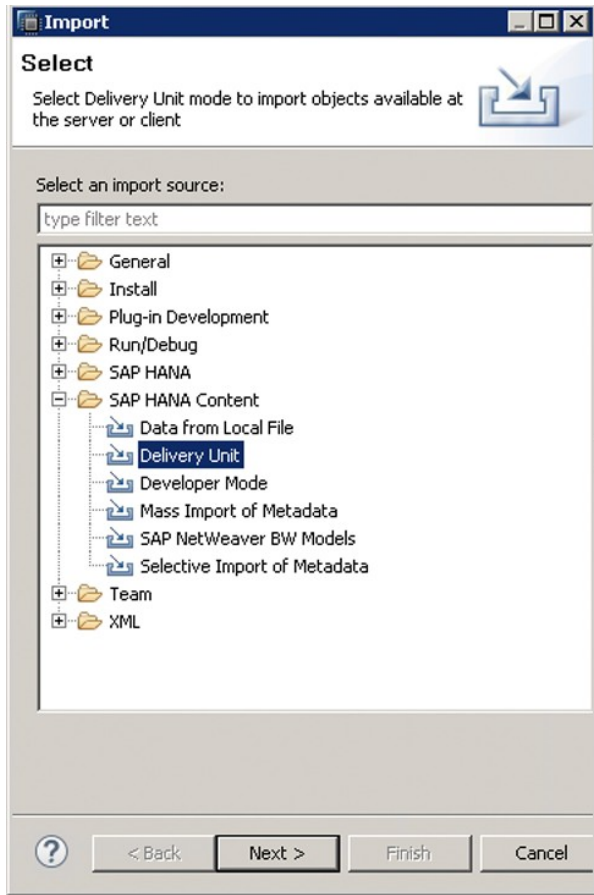
Choose export destination.

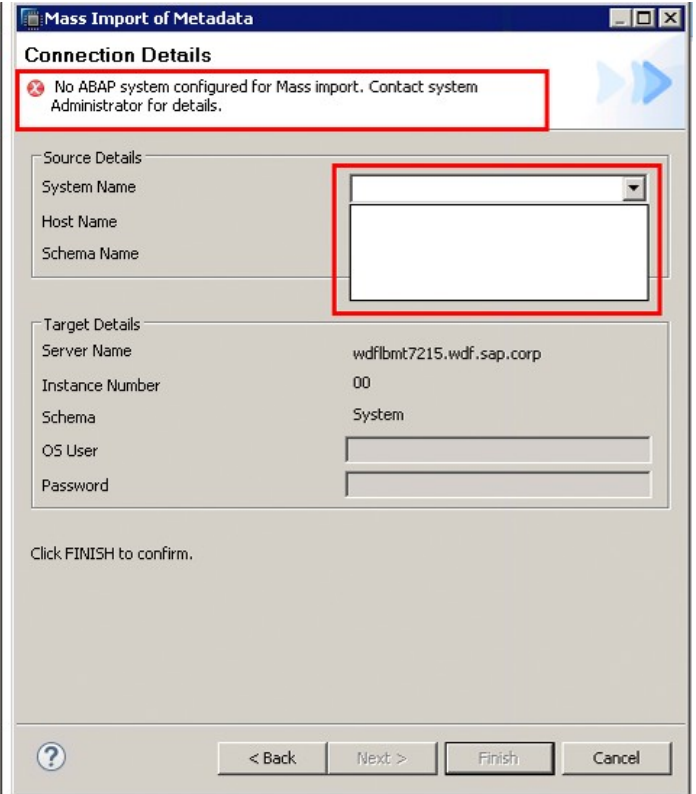
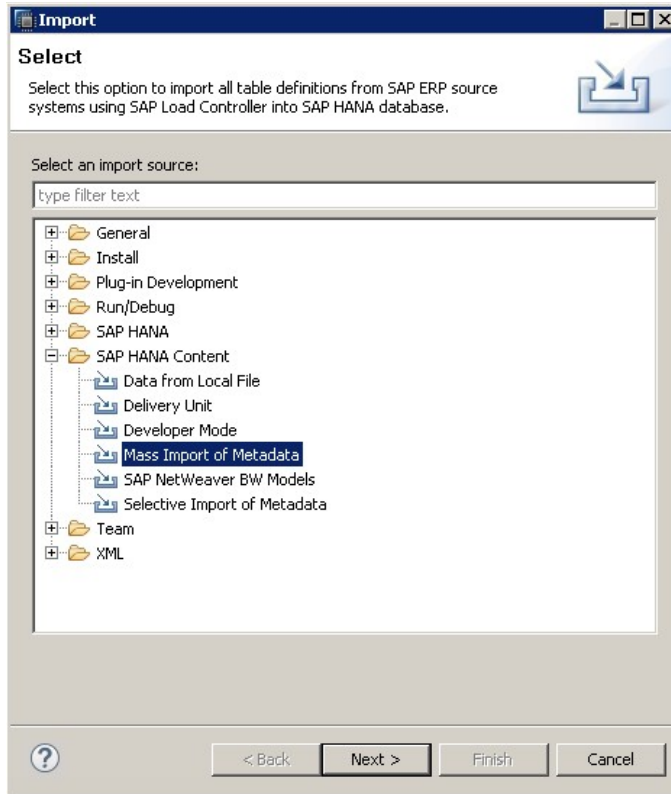








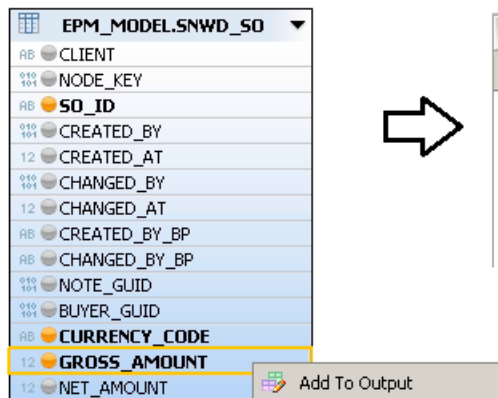




Default Client: Session Client

Default Schema: TCUR

Data Category: CUBE





**Column**

Local | Shared

Show: All

Type	Name	Label	Aggregation	Variable	Label Column	Hidden
RB	SO_ID	SO_ID		▼		<input type="checkbox"/>
RB	CURRENCY...	CURRENCY_CODE		▼		<input type="checkbox"/>
12	GROSS_AM...	GROSS_AMOUNT	SUM			<input type="checkbox"/>
12	GROSS_AM...	GROSS_AMOU...	SUM			<input type="checkbox"/>

12	GROSS_AMOUNT_EURO	GROSS_AMOUNT	SUM
----	-------------------	--------------	-----

Local | Shared

Show: All

**Assign Semantics**

Type	Name	Label	Aggregation	Variable	Label Column	Hidden
RB	SO_ID	SO_ID		▼		<input type="checkbox"/>
RB	CURRENCY_CODE	CURRENCY_CODE		▼		<input type="checkbox"/>
12	GROSS_AMOUNT_EURO	GROSS_AMOUNT	SUM			<input type="checkbox"/>
12	GROSS_AMOUNT_1	GROSS_AMOU...	SUM			<input type="checkbox"/>

**Semantics for GROSS\_AMOUNT\_EURO**

**Assign Semantics**

Assign a suitable semantic type and maintain additional properties depending on the chosen semantic type

Semantic Type: Amount with Currency Code

Currency: EURO

Enable for conversion  Enable for decimal shifts  With rounding

Conversion

Source Currency: ...

Target Currency: ...

Exchange Type: ...

Conversion Date: ...

Schema for currency conversion: TCUR

Client for currency conversion: Session Client

Data Type: DECIMAL Length: 15

OK Cancel

**Semantics for GROSS\_AMOUNT\_USD**

### Assign Semantics

Assign a suitable semantic type and maintain additional properties depending on the chosen semantic type

Semantic Type: Amount with Currency Code

Currency: USD

Enable for conversion  Enable for decimal shifts  With rounding

Conversion

Source Currency: EUR

Target Currency: USD

Exchange Type: EZB Rates EUR

Conversion Date: 20150601

Schema for currency conversion: TCUR

Client for currency conversion: Session Client

Data Type: DECIMAL Length: 15 Sc

Generate result currency column: GROSS\_AMOUNT\_USD.CURRENCY

Upon Conversion Failure: Fail

OK Cancel

**Value Help - Currency conversion Client**

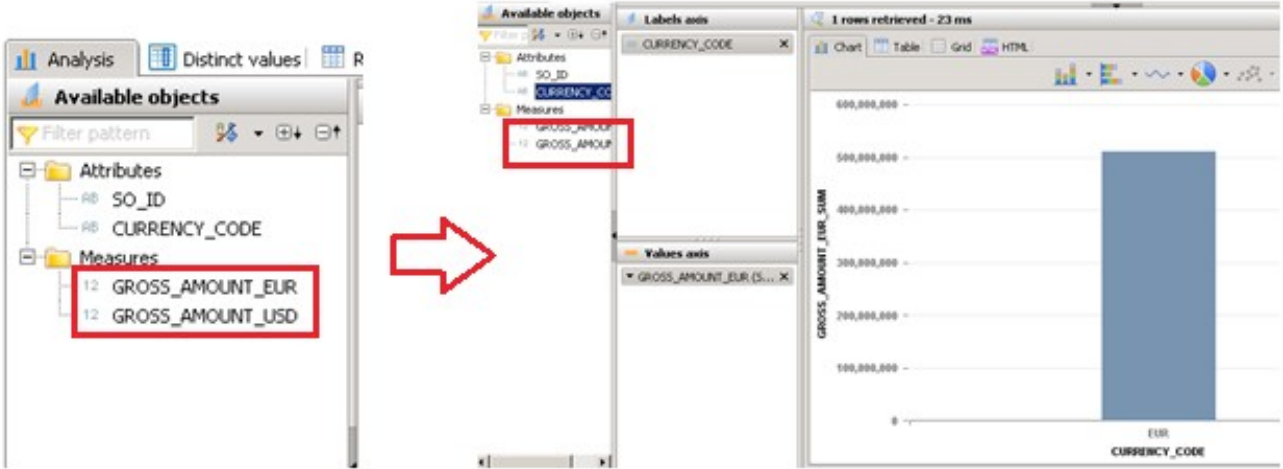
### Currency conversion Client

Select the fixed/session client for currency conversion

Type: Fixed/Session Client

Fixed Client: 800

Session Client



**Output**

Columns

- SO\_ID: SNWD\_SO.SO\_ID
- CURRENCY\_CODE: SNWD\_SO.CURRENCY\_CODE
- GROSS\_AMOUNT\_EURO: SNWD\_SO.GROSS\_AMOUNT\_EUR
- GROSS\_AMOUNT\_USD: SNWD\_SO.GROSS\_AMOUNT\_USD

Input Parameters

- New...
- Manage Mappings
- Paste

**New Input Parameter**

### Create an Input Parameter

Input parameters are used to parameterize the view execution such as, to parameterize currency conversion,

Name:\*

Label:

Parameter Type:   Is Mandatory

Default Value

Constant  Expression

Value:

Direct

Semantic Type:

Data Type:\*  Length:  Scale:

### New Input Parameter

Create an Input Parameter

Input parameters are used to parameterize the view execution such as, to parameterize currency conversion, calculated columns or inner

Name:\*

Label:

Parameter Type: **Direct**  Is Mandatory

Default Value

Constant  Expression

Value:

Direct

Semantic Type: **Date**

Data Type:\*  Length:  Scale:

### Calculated Column

Create a Calculated Column

Calculated columns are used to derive some meaningful information in the form of columns, from existing columns.

Name:\*

Label:

Data Type:  Length:  Scale:

Column Type:

Aggregation Type:

Hidden  Calculate Before Aggregation

Expression **Semantics**

Semantic Type:

Currency:

Enable for conversion  Enable for decimal shifts  With rounding

Conversion

Source Currency:

Target Currency:

Exchange Type:

Conversion Date:

Schema for currency conversion:

Client for currency conversion:

Generate result currency column:

### Value Help - Currency

Select the fixed value that specifies the required currency

Type:

Currency	Description
ADP	Andoran peseta
AED	United Arab Emirates Dirham
AFA	Afghani (Old)
AFN	Afghani
ALL	Albanian Lek
AMD	Armenian Dram
ANG	West Indian Guilder
AOA	Angolanische Kwanza
AOK	Angolan Kwanza
ACN	Angolan New Kwanza (Old)
AOR	Angolan Kwanza Reajustado
ARA	Argentinian Austral
ARS	Argentine Peso

**Value Help - Currency**

**Currency**  
Select the required input parameter that specifies the currency

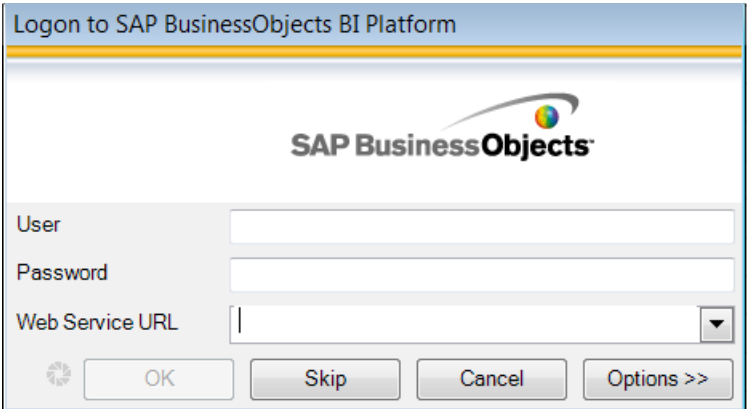
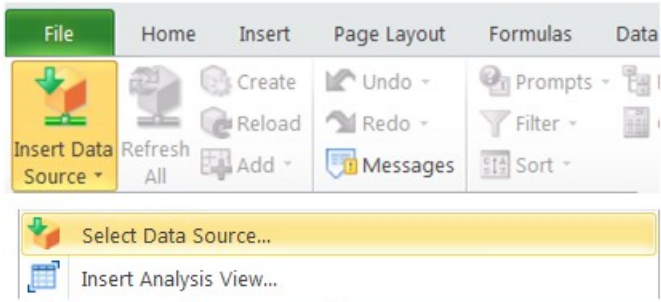
Type:

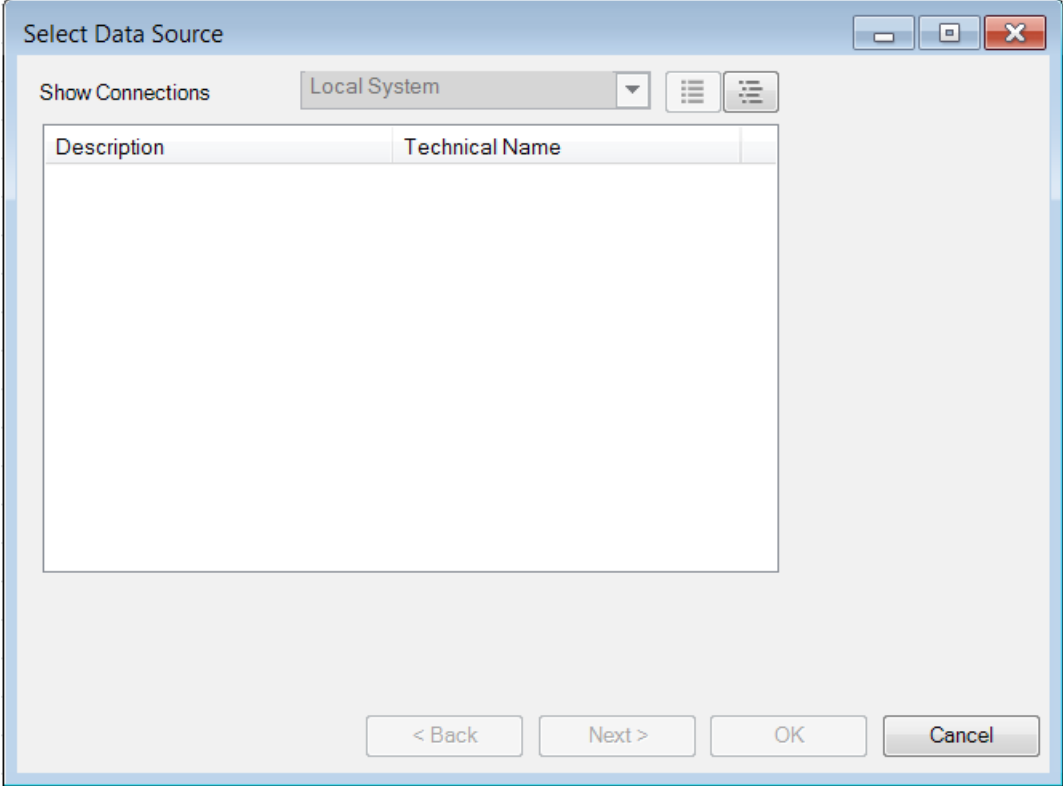
- Input Parameters
  - VA\_TRG\_CURR
  - VA\_CONV\_DATE

- Package...
- Attribute View...
- Analytic View...
- Calculation View...
- Analytic Privilege...
- Procedure...
- Decision Table...



# Chapter 8: Consuming SAP HANA Data Models







## Central Management Console

OLAP Connections ▾

---

▲ Name:


▲ Description (optional):

Provider:

Server Information: Server:   
Instance Number:   
Connect to server to choose a cube:

Authentication:

Associated Universe: No Universe is associated with this connection



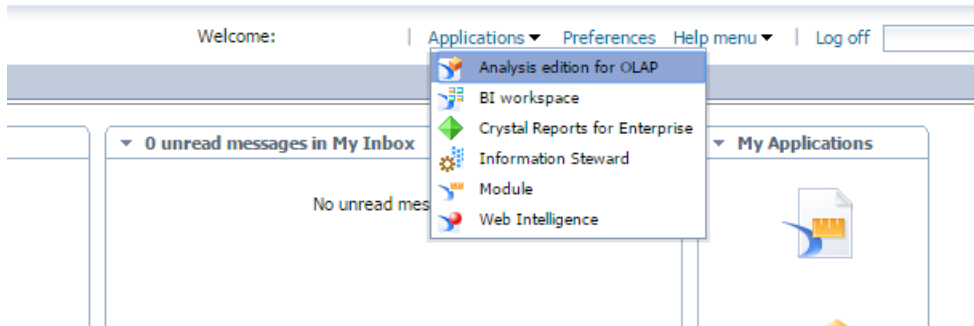
Welcome: | Applications ▾ | Preferences | Help menu ▾ | Log off

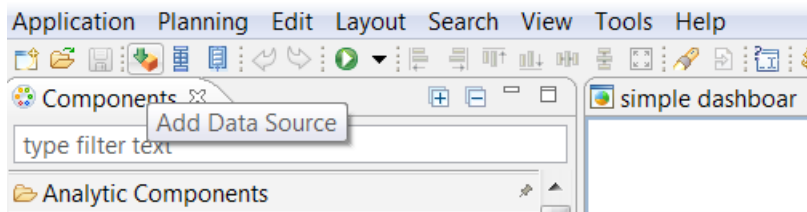
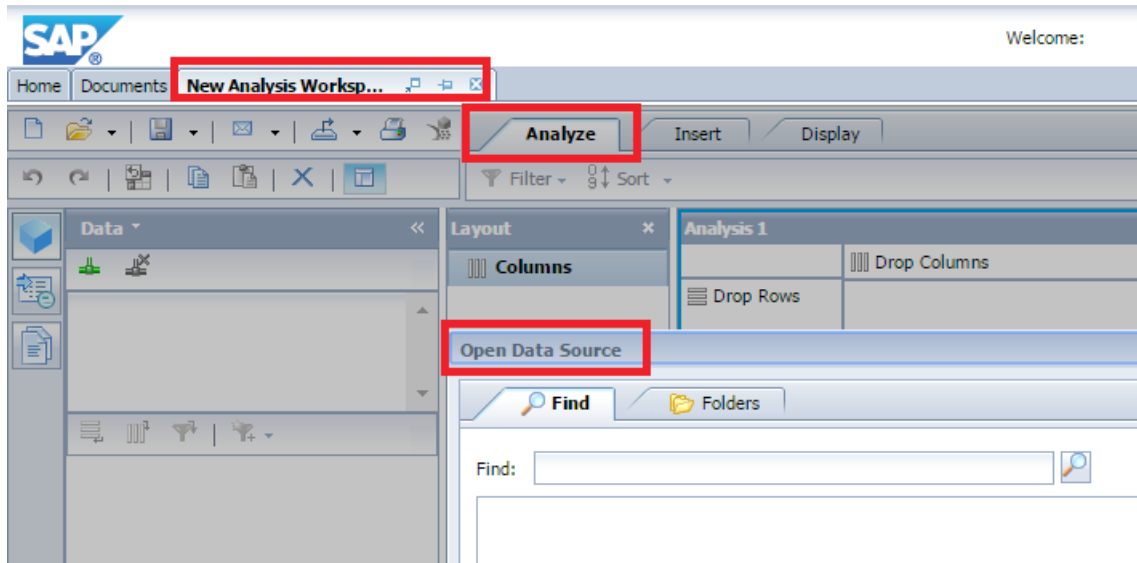
- Analysis edition for OLAP
- BI workspace
- Crystal Reports for Enterprise
- Information Steward
- Module
- Web Intelligence

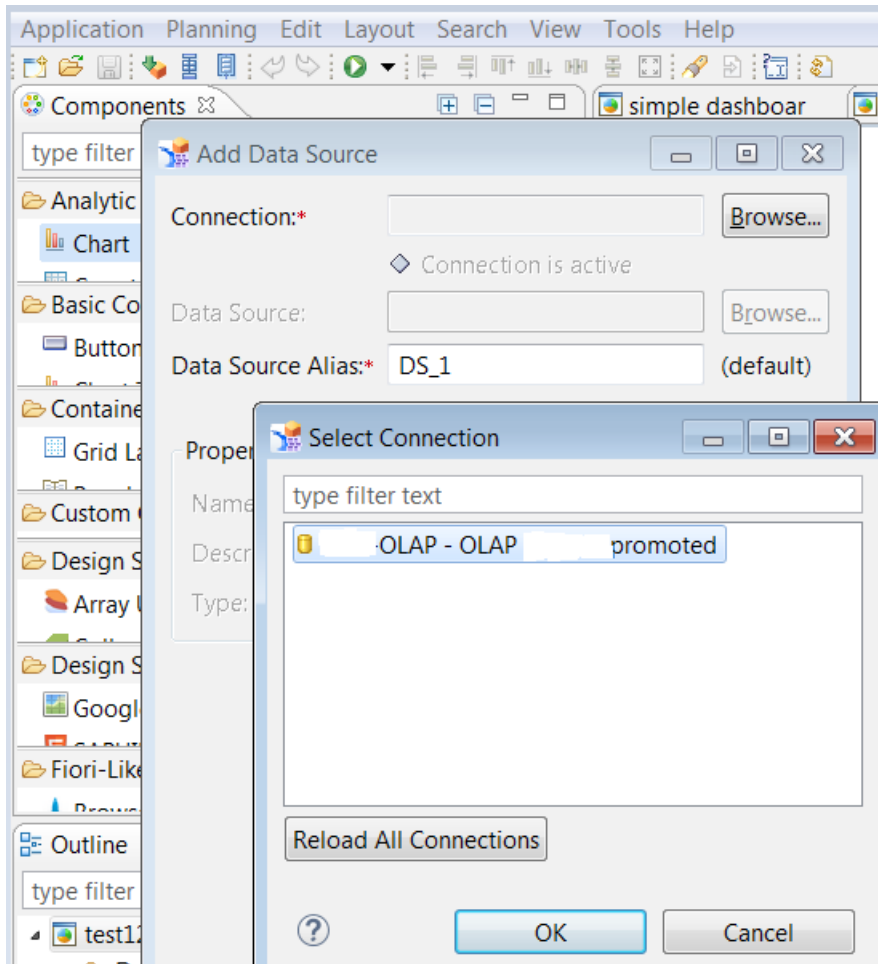
0 unread messages in My Inbox

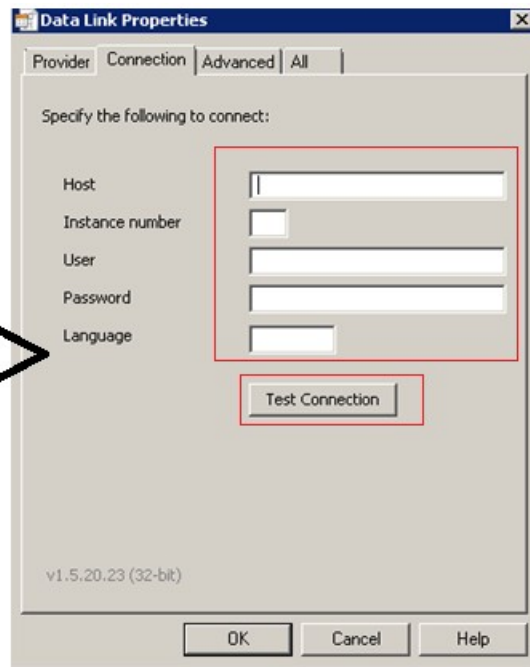
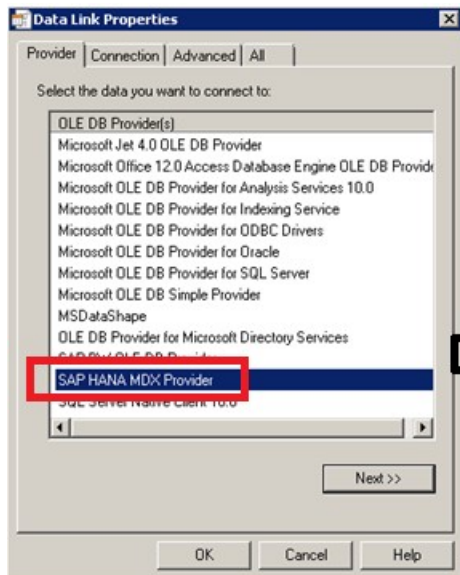
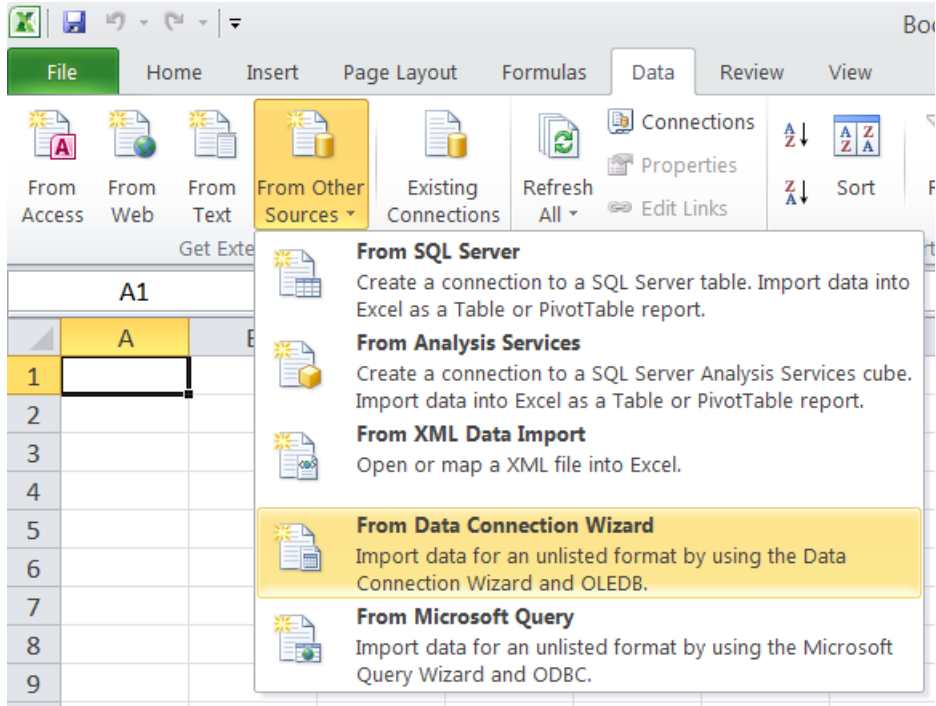
No unread messages

My Applications









**Data Connection Wizard** ? X

### Select Database and Table

Select the Database and Table/Cube which contains the data you want.

Select the database that contains the data you want:

Connect to a specific cube:

Name	Schema	Description	Mod
CA_CUST_TO_REMIND	_SYS_BIC	CA_CUST_TO_REMIND	
CA_CUST_TO_REMIND_PARAMS	_SYS_BIC	CA_CUST_TO_REMIND_PARAMS	
CA_CUST_WITH_AVG_DAYS_AHEAD	_SYS_BIC	CA_CUST_WITH_AVG_DAYS_AHEAD	
CA_FLIGHT_OCCUPANCY	_SYS_BIC	CA_FLIGHT_OCCUPANCY	

Cancel < Back Next > Finish

**Data Connection Wizard** ? X

### Save Data Connection File and Finish

Enter a name and description for your new Data Connection file, and press Finish to save.

File Name:  Browse...

Save password in file

Description:

Friendly Name:

Search Keywords:

Always attempt to use this file to refresh data

Excel Services:

Cancel < Back Next > Finish

Import Data

Select how you want to view this data in your workbook.

- Table
- PivotTable Report
- PivotChart and PivotTable Report
- Only Create Connection

Where do you want to put the data?

- Existing worksheet:
- New worksheet

Buttons: Properties..., OK, Cancel



SAP HANA logon - v1.5.20.23

Please enter the logon credentials

Host:

Instance number:

User:

Password:

Language:

Buttons: OK, Cancel

AVG\_DAYS\_OPEN

AVG_DAYS_OPEN	SUM_GROSS_AMOUNT
8352	80000

PivotTable Field List

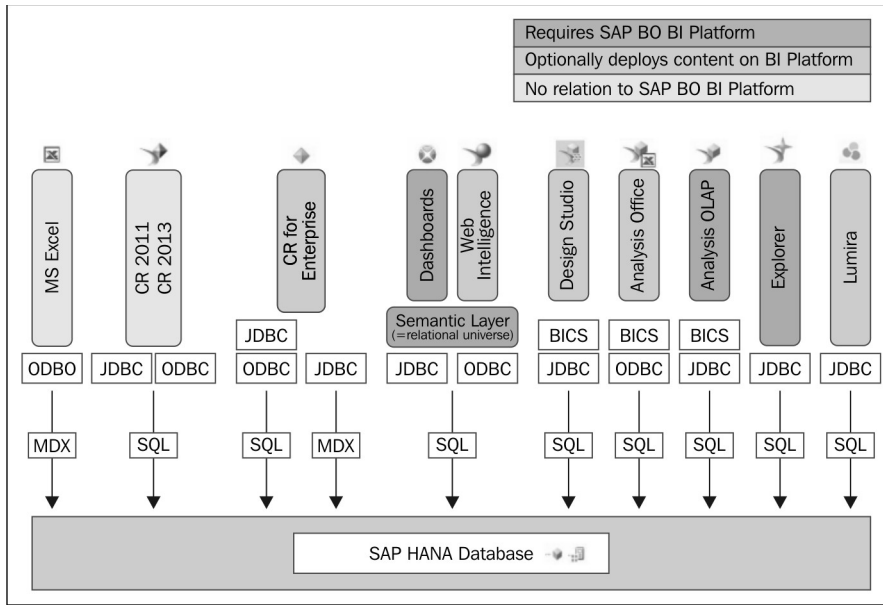
Choose fields to add to report:

- Values
  - AVG\_DAYS\_OPEN
  - SUM\_GROSS\_AMOUNT

Drag fields between areas below:

- Report Filter:
- Column Labels:
- Row Labels:

Buttons: Update



### Data Connection Wizard

#### Welcome to the Data Connection Wizard

This wizard will help you connect to a remote data source.

What kind of data source do you want to connect to?

- Microsoft SQL Server
- Microsoft SQL Server Analysis Services
- ODBC DSN
- Microsoft Data Access - OLE DB Provider for Oracle
- Other/Advanced**

Cancel < Back **Next >**