



# Leveraging HANA Graphical Modeling for Analytic Reports

EXTERNAL

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# Agenda

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Why graphical view modelling

Features of graphical view modeling

New modeling environment

How to get there

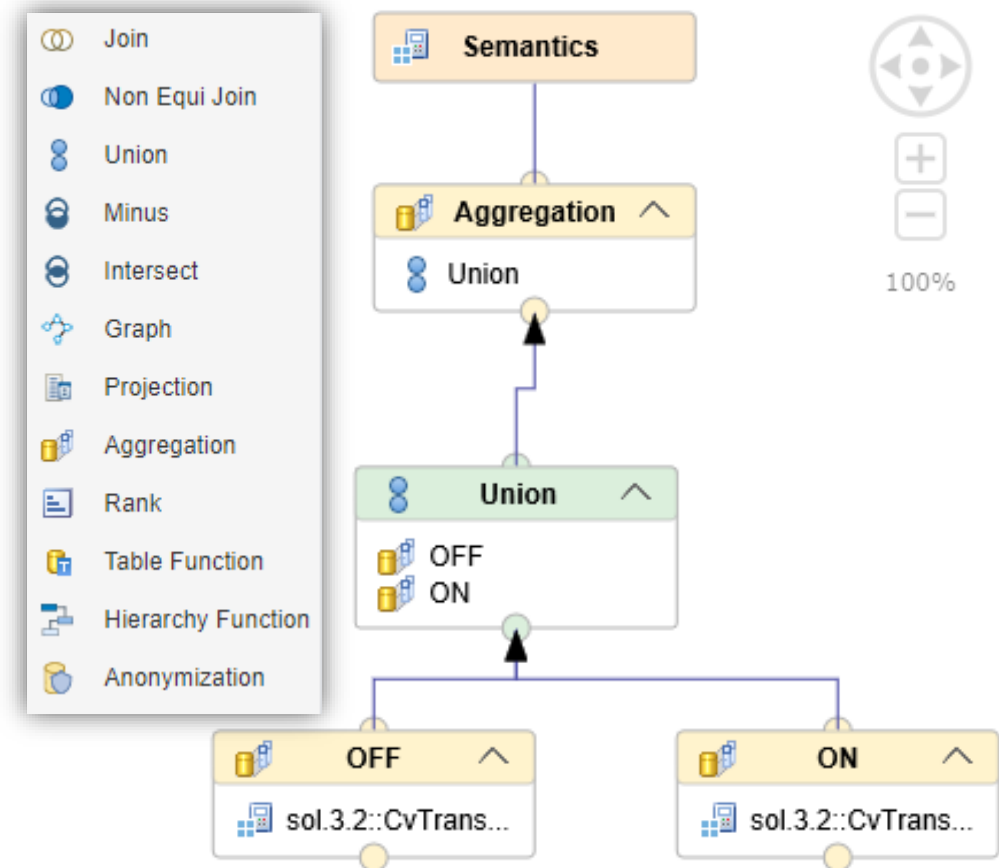
Demo: Simple modeling example

# Why graphical view modeling



# SAP HANA View Modeling with SAP Web IDE for SAP HANA – Graphical Modeling

Use **graphical modeling** to  
**structure** large development projects  
**foster communication** about development objects  
achieve **good performance**  
automatically **benefit** from future **improvements**





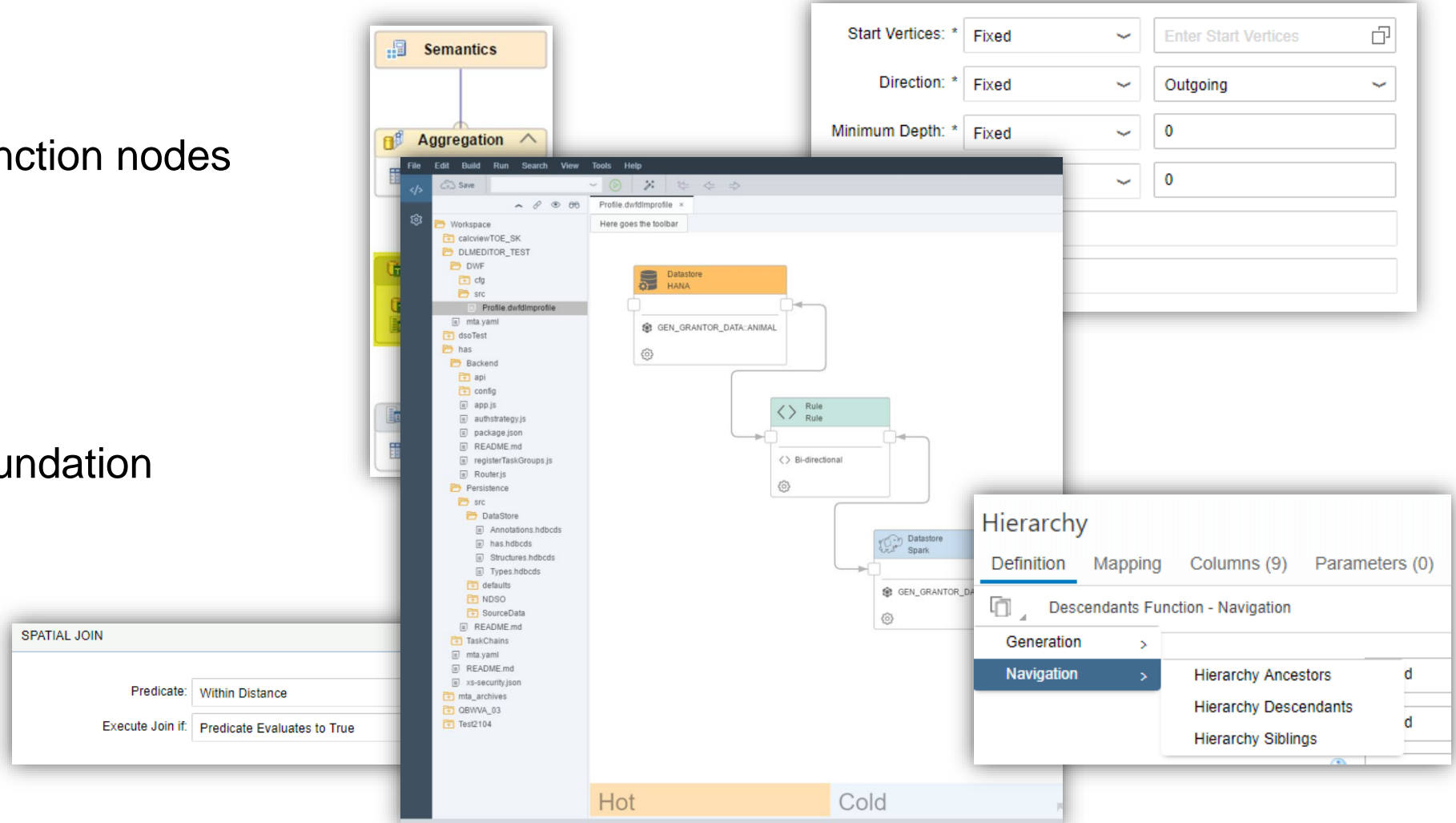
# Features of graphical view modelling



# SAP HANA View Modeling with SAP Web IDE for SAP HANA – Integration with other components

## Close integration with

- SQLScript via table function nodes
- Graph scenarios
- Spatial scenarios
- Data Warehousing Foundation
- SQL hierarchies













## Calculation Views offer close coupling to internal optimizations

- push-down of filters
- join-pruning
- union-pruning
- column pruning

☒ Allow Filter Push Down

i Cardinality:

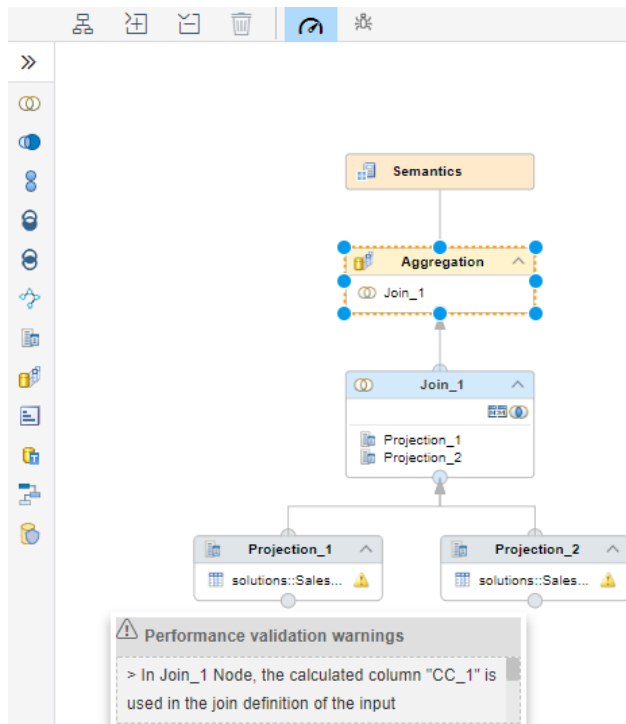
Pruning Config Table:

<input type="checkbox"/> Notes	Type	Name	Label
<input type="checkbox"/>	 ~	BillingStatus	BillingStatus
<input type="checkbox"/>	 ~	ChangedAt	ChangedAt
<input type="checkbox"/>	 ~	ChangedBy	ChangedBy
<input type="checkbox"/>	 ~	CreatedAt	CreatedAt
<input type="checkbox"/>	 ~	CreatedBy	CreatedBy
<input type="checkbox"/>	 ~	Currency	Currency
<input type="checkbox"/>	 ~	DeliveryStatus	DeliveryStatus
<input type="checkbox"/>	 ~	GrossAmount	GrossAmount
<input type="checkbox"/>	 ~	LifecycleStatus	LifecycleStatus
<input type="checkbox"/>	 ~	NetAmount	NetAmount

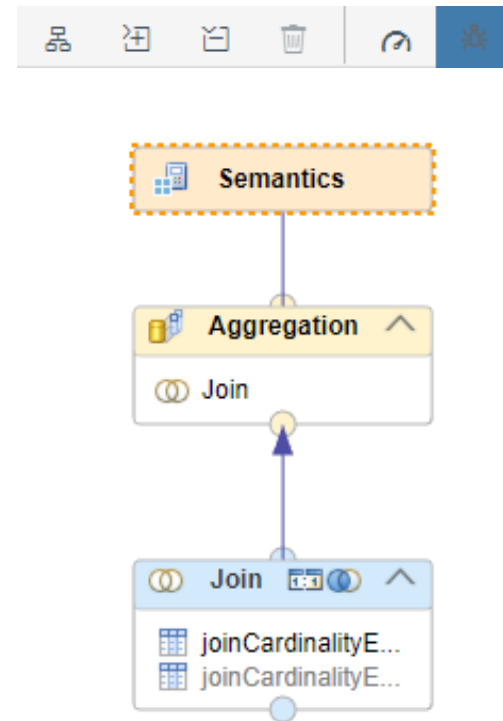


## Improve performance using

### Performance Analysis Mode



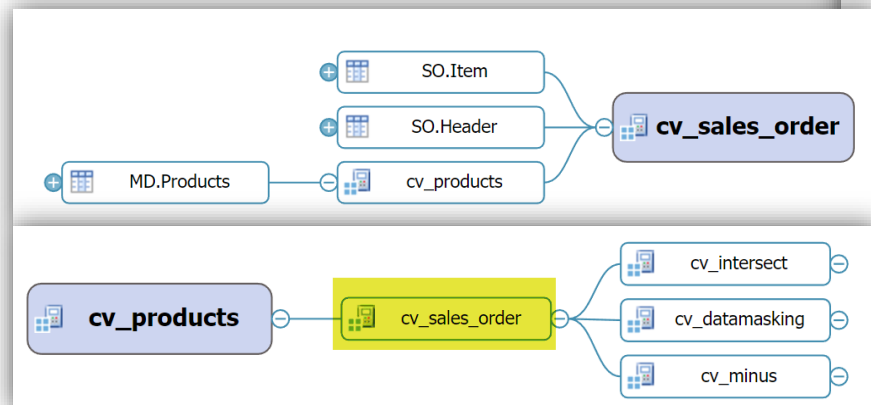
### Debug View Mode



# SAP HANA View Modeling with SAP Web IDE for SAP HANA – Insight into Data and Models

## Get detailed insight into your models by

- model outline
- auto documentation
- lineage analysis
- various data preview options



The screenshot displays the SAP Web IDE interface with several overlapping windows:

- General**: A table with columns Name and Value. It shows 'sol::DemoOutline' and 'Section 2, History Input'.
- Columns**: A list of columns including Name, Value, ProductId, NetAmount, OrgUnitName, SALESCHANNEL, ProductCategory, YEARMONTH, and NetAmountPLAN.
- Semantics**: A tree view showing the hierarchy of the model, including Aggregation, Union\_1, and Proj\_Sales.
- Data Preview**: A table showing data for columns like Name, PartnerId, PartnerRole, AddressId, FIRST\_NAME, LAST\_NAME, PHONE\_NUMBER, GENDER, TITLE, BillingStatus, CreatedAt, CreatedBy, Currency, and DeliveryStatus.
- Lineage Analysis**: A graph showing the relationships between data sources and views.
- Aggregation**: A window showing the aggregation function 'Neighborhood' and its parameters.

# SAP HANA View Modeling with SAP Web IDE for SAP HANA – OLAP Features

## Make use of various OLAP features

- Restricted columns
- Calculated columns
- Currency conversion
- Temporal joins
- Ranking
- Star joins
- Anonymization

The screenshot displays the SAP Web IDE interface for SAP HANA, illustrating several OLAP features:

- Restricted Columns:** A dialog box shows the configuration for a restricted column named "restrictedColumn". It includes fields for Name, Label, Notes, and Base Measure (transactionValue). A "Hidden" checkbox is also present.
- Restrictions:** A table lists restrictions with columns for Column, Operator, and Value. The first row shows "transactionDate" with the operator "GreaterThan" and the value "Date".
- Temporal Properties:** A dialog box shows the configuration for temporal properties, including Temporal Column (transactionDate) and Temporal Condition (Exclude Both).
- Anonymization:** A dialog box shows the configuration for anonymization, including Details, Mapping, Columns (5), and Parameters (0). It includes a "K-ANONYMITY" section with a "k" value of 3 and a "Quasi Columns" section.
- Star Join:** A diagram shows a "Star Join" operation connecting a fact table to dimension tables.
- Aggregation:** A dialog box shows the configuration for an aggregation, including Sort Direction (Descending(Top N)), Threshold (Input Parameter), Order By (NetAmount), and Dynamic Partition Elements.
- Partition By:** A dialog box shows the configuration for partitioning, including Partition By Column and Partition By (YEAR).
- Elements:** A list of elements is shown, including Calculation Views, Columns, Calculated Columns, Restricted Columns, and Parameters.

# SAP HANA View Modeling with SAP Web IDE for SAP HANA – OLAP Features

## Make use of various OLAP features

- Input parameters



- Hierarchies

Child	Parent
EmployeeId	ManagerId

- History tables

☒ Enable History

History Input Parameter: transactionDate

- Client handling

Client Column: MANDT

- Analytic Privileges

country + Restriction

Fixed Value	=	Equal	Germany
-------------	---	-------	---------

- Masking

CUSTOMER	FIRSTNAME	LASTNAME	ACCOUNTNUMBER
001	Franz	Kafka	XXXXXXXXXX
002	Ernest	Hemingway	XXXXXXXXXX
003	Thomas	Mann	XXXXXXXXXX
004	Stanislaw	Lem	XXXXXXXXXX

## New Features in Web IDE (Selection)

## Table function nodes that can be integrated into data flow

## Masking of sensitive columns

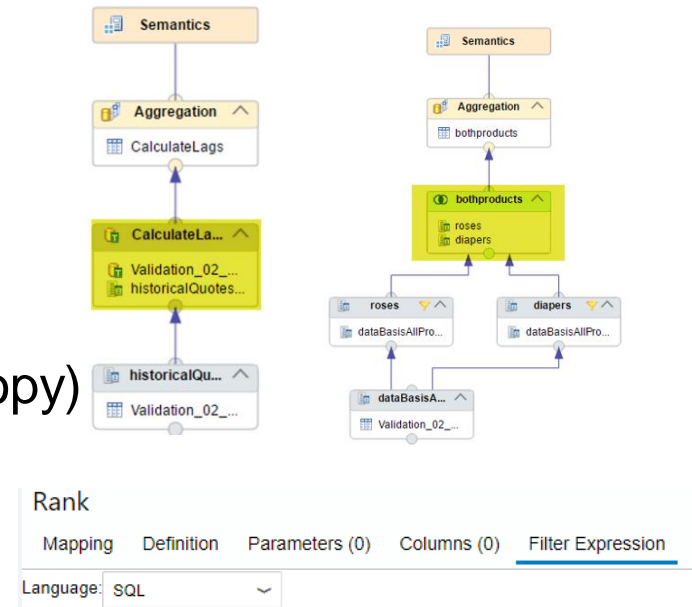
# Set operations

## Reuse of defined currency conversion settings (reference / copy)

## Different accuracy settings for currency conversion

## More flexible filters and setting of keep flag

## Improved data insight tools



For more details see: [Live Expert Series: What's New in SAP HANA 2.0 SPS 02](#)

Accuracy

Intermediate rounding

Semantic Type

Amount with Currency Code

Upon Failure

Intermediate rounding

Retain all possible digits

Reuse Semantics

Reference Copy

ID	CUSTOMER	FIRSTNAME	LASTNAME	ACCOUNTNUMBER
001	Franz	Kafka	XXXXXXXXXX	
002	Ernest	Hemingway	XXXXXXXXXX	
003	Thomas	Mann	XXXXXXXXXX	
004	Stanislaw	Lem	XXXXXXXXXX	

- ▼ Semantics
  - ▼ Parameters
    - [▲] IP
    - VAR
- ▼ Aggregation
  - ▼ Columns
    - ProductId
    - NetAmount
    - OrgUnitName
    - SALESCHANNEL
    - ProductCategory
    - YEARMONTH
    - NetAmountPLAN
  - ▼ Union\_1
    - ▼ Columns
      - ProductId
      - NetAmount
      - OrgUnitName
      - SALESCHANNEL
      - ProductCategory
      - YEARMONTH
      - NetAmountPLAN
  - ▼ Proj\_Sales
    - ▼ Columns
      - ProductId
      - NetAmount
      - OrgUnitName
      - SALESCHANNEL
      - ProductCategory
      - YEARMONTH
    - ▼ Calculated Columns
      - weightedNetAmount
  - ▼ Proj\_Plan
    - ▼ Columns
      - OrgUnitName
      - SALESCHANNEL
      - ProductCategory
      - YEARMONTH
      - NetAmount
      - OrgUnitId



# New Features in Web IDE (SPS03)

Anonymizing data (k-anonymity,differential privacy)

Non-equi joins

More referential join options

SQL hierarchy functions

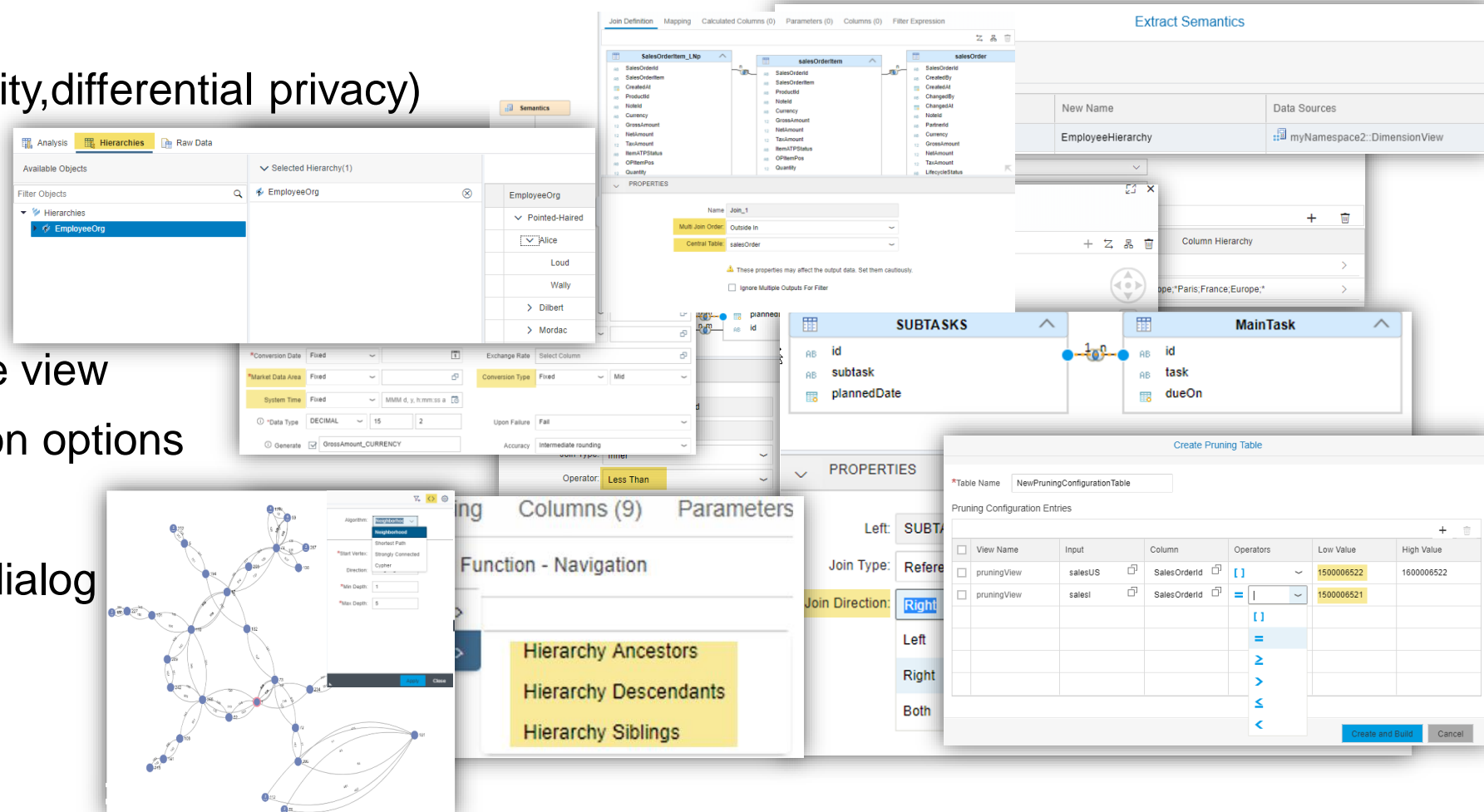
Extract parameters from base view

Additional currency conversion options

Multi-join

Union pruning configuration dialog

Graph and hierarchy preview



For more details see: [Live Expert Series: What's New in SAP HANA 2.0 SPS 03](#)

# New Features in Web IDE (SPS04)

- Model-based parallelization
- Flexible ranking
- Influence processing flow by session variables
- Fuzzy search
- K-anonymity enhancements

The screenshot displays the SAP Web IDE interface with several configuration panels overlaid on a central workspace. The workspace shows a semantic model diagram with nodes like 'Semantics', 'Aggregation', 'stopParallelization', 'toBeParallelized', and 'startParallelization'. The panels include:

- Aggregation Functionality Panel:** Contains settings for 'Aggregation Function' (Sum), 'Result Set Direction' (Top), 'Result Set Type' (Percentage), 'Target Value' (Fixed, 0.25), and 'Offset' (Fixed, 0.5).
- Semantics Panel:** Shows tabs for 'View Properties', 'Columns (10)', 'Hierarchies (0)', and 'Parameters (0)'. It includes an 'Input parameter' button.
- k-Anonymity Panel:** Contains settings for 'Sequence Column' (ID), 'K' (3), 'Loss' (0.1), and 'Quasi Columns'. It also features a table for defining quasi-identifiers.
- Fuzzy Search Panel:** Contains settings for 'Name' (stringToBeSearched), 'Label' (user enters string that should be se), 'Default Search String' (frog), and 'Fuzzy Score' (IP\_fuzziness).

Column Name	Generalization Hierarchy	Column Hierarchy	Weight	Min Level	Max Le...
SITE	Embedded	Glasgow;North;*Edinburgh;North;*Cambridge...	0	0	1
GENDER	Embedded	Male;*Female;*	1	1	1

# New Features in Web IDE (SPS04)

- SQL hierarchy enhancements
- Schema based synonym creation
- Tailored mapping display
- Improved search functionality
- Convert column name to uppercase

Rename & Adjust References

<input type="checkbox"/>	Type	Current Name	New Name
<input checked="" type="checkbox"/>		IAmCamelCase	IAMCAMELCASE
<input checked="" type="checkbox"/>		iamlowercase	IAMLOWERCASE
<input checked="" type="checkbox"/>		IAMUPPERCASE	IAMUPPERCASE
<input type="checkbox"/>		ChangedBy	

mass.hdbsynonym x

Definition Mapping Columns (10) Parameters (2)

Temporal Function - Generation

Enable Multidefinition ☐

\*Parent: PARENT

\*Child: CHILD

Start:

Depth: Fixed Enter Depth

from

to

Star Join

Join Definition Mapping Calculated Columns (3) Restricted Columns (1) Parameters 1

BL.Certification::ATV\_DIM\_ORGANIZATION

Employeeyield

Managerid

LastName

OrgUnitId

OrgUnitName

FullName

BL.Certification::ATV\_DIM\_TIME

DATE\_SQL

YEAR

QUARTER

MONTH

WEEK

DAY

WEEK\_YEAR

DAY\_OF\_WEEK

YEARMONTH

YEAR\_1

BL.Certification::ATV\_DIM\_GEO

Contactid

Continent

Country

State

Region

Province

County

Projection

SalesOrderItem

OrderQuantityUnit

Currency

DeliveryDate

Productid

GrossAmount

NetAmount

TaxAmount

OrderQuantity

GrossAmountEUR

SalesOrder

BillingStatus

DeliveryStatus

CreatedBy

CreatedAt

Partnerid

BL.Certification::A

Productid

Nameid

Productname

Descid

ProductDescription

Price

QuantityUnit

WeightMeasure

DimensionUnit

Width

Depth

Height

BL.Certification::A

Customerid

CustomerName

FIRST\_NAME

LAST\_NAME

GENDER

LANGUAGE

PHONE\_NUMBER

EMAIL\_ADDRESS

PROPERTIES

Name: SalesOrderItem

Data Type: NVARCHAR(10)

Mapping Calculated Columns (0) Restricted Columns (0)

Data Sources

Showing 2 of 14

SalesOrder

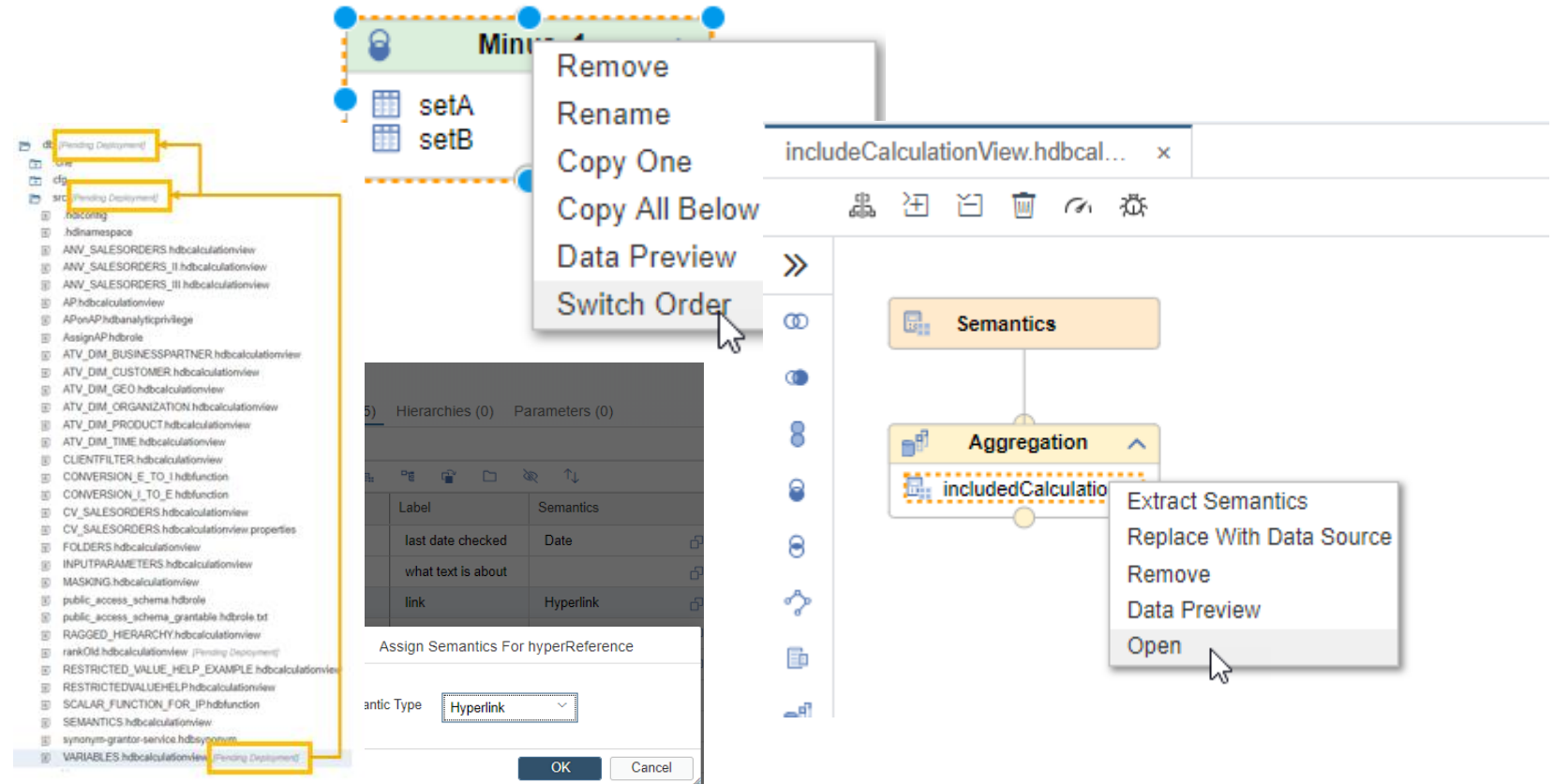
Show All

Show only Mapped

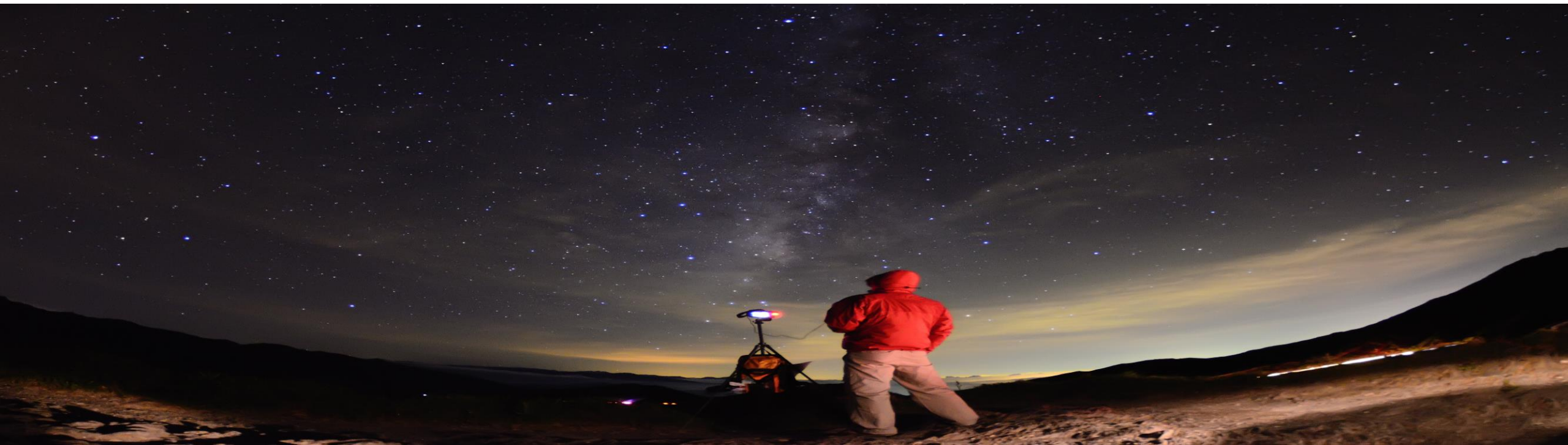
✓ Show only Unmapped

# New Features in Web IDE (SPS04)

- Swapping order in minus nodes
- Navigate to included view
- Hyperlink metadata
- Pending deployment indication



# New modelling environment





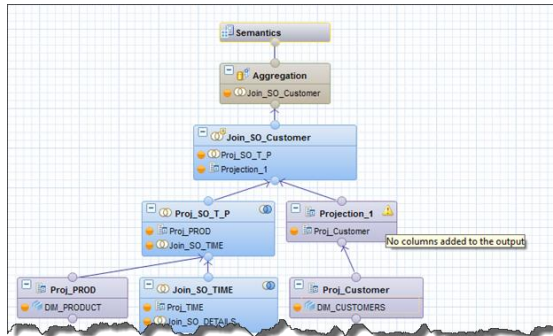
# Unified Development Environment

## SAP HANA Studio – Modeler Eclipse-perspective

- focus is on HANA View modeling

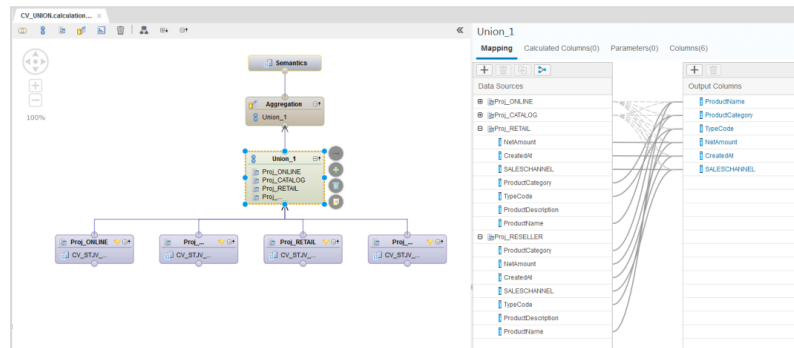
## SAP HANA Studio – Development Eclipse-perspective

- supports application and database design-time artifacts and offers repository functionality



## SAP HANA Web-based Development Workbench

- supports application and database design-time artifacts



## SAP Web IDE for SAP HANA

- new Development tooling platform for SAP HANA
- modeling
  - uses interface framework of SAP Web IDE
  - runs in browser (no separate installation of client tool needed)
  - deploys via new HANA deployment infrastructure
- examples of other artifacts with graphical editors in Web IDE: CDS, NDSO

[2714742](#) - SAP Web IDE for SAP HANA 2.0 SPS 04 - Central Release Note

[2396214](#) - Transition to SAP HANA Extended Services Advanced and SAP HANA Cockpit - Fading out XS Classic and HANA Studio

[2465027](#) - Deprecation of SAP HANA extended application services, classic model and SAP HANA Repository

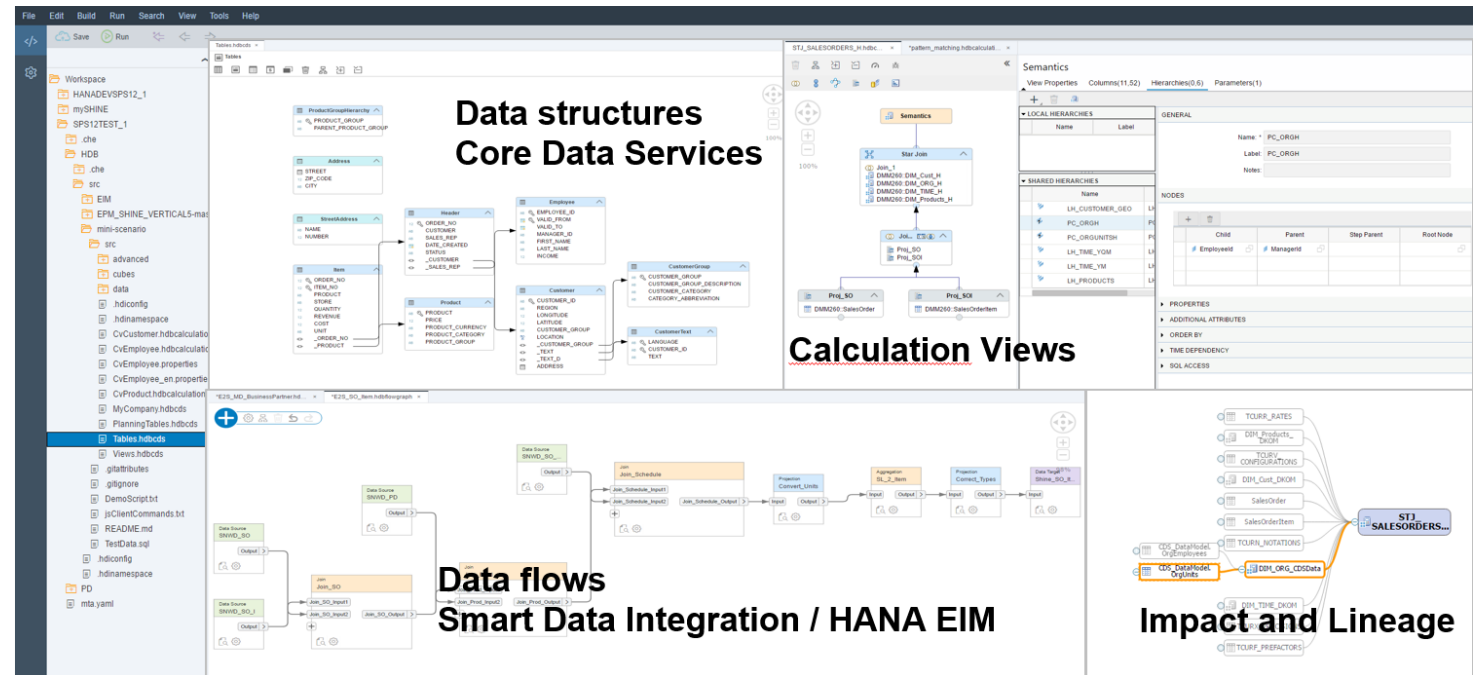
# Web IDE: Unified development environment

Development/modeling in one unified environment

Graphical interface for CDS entities, Calculation Views, Data Warehouse Foundation artefacts\*

Version management via well established GIT approach

- ➔ With this infrastructure complex modeling projects can easily be implemented with a detailed insight into development artefacts and lifecycle management
- ➔ Native data warehouses provide speed and agility of HANA and structured approaches to modeling and loading



\*This feature is made available and activated with **SAP HANA Data Warehousing Foundation** release supporting **SAP HANA 2.0**.

**Comprehensive graphical modeling tools for streamlined development**

# Benefits of New Development Environment

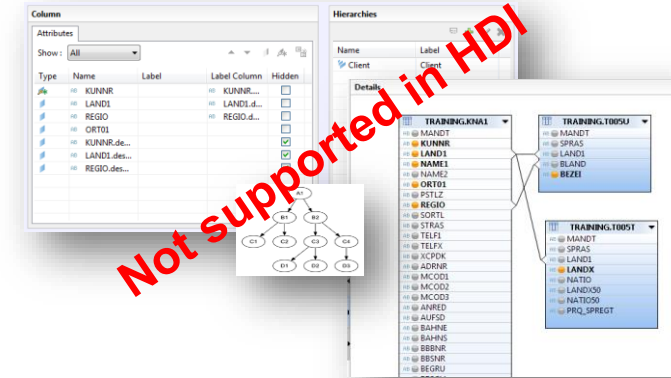
- Strategy
  - Proposed new environment for modeling and developing (SAP Note 2465027 )
  - Supports move into cloud environment
- Power
  - New development features only made available in new development environment
  - Industry-standard versioning tool (Git)
- TCO
  - Common development environment for various development artifacts
  - No local development tool installations needed anymore (also no additional open ports needed)
  - Good integration with automation tools (e.g., Gerrit, SAP Note [2287418](#))
  - Better activation performance and better parallel development
- Security
  - High-isolation of development and developed artifacts: more control about data visibility (“open” vs. “restricted” container in same system) and less interference between developers



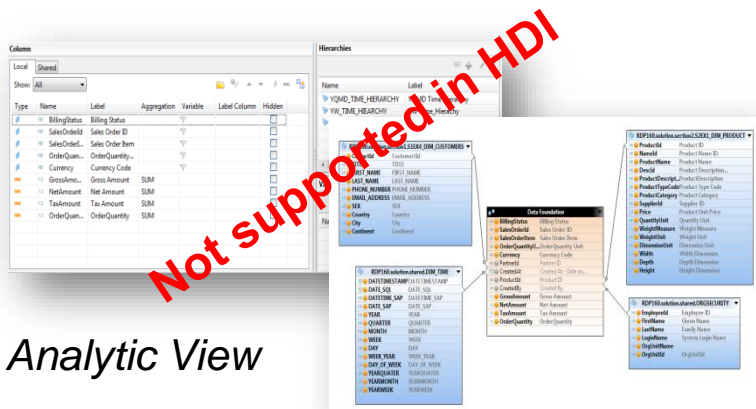
# HANA Deployment Infrastructure (HDI)

Graphically modeled artefacts that are **not** supported in HDI

- Attribute View
- Analytic View
- Script-based Calculation View
- XML-based classical analytic privileges

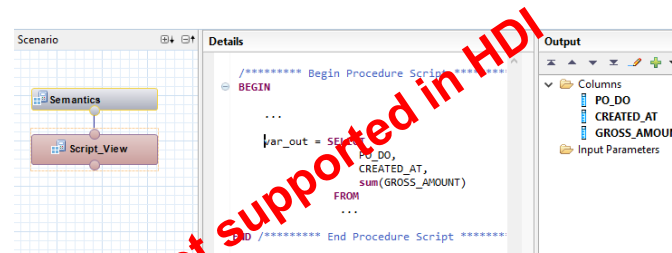


Attribute View

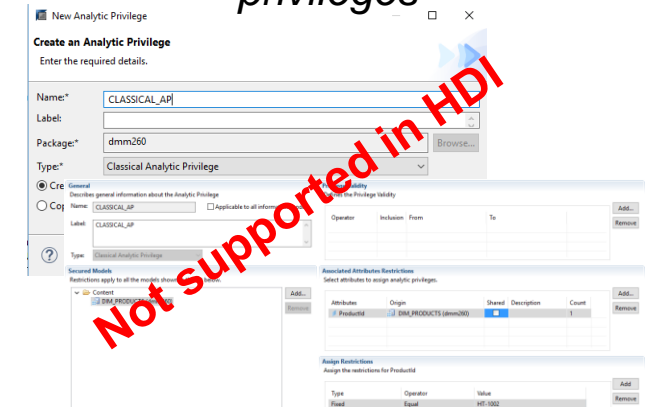


Analytic View

Script-based Calculation Views



XML-based classical analytic privileges



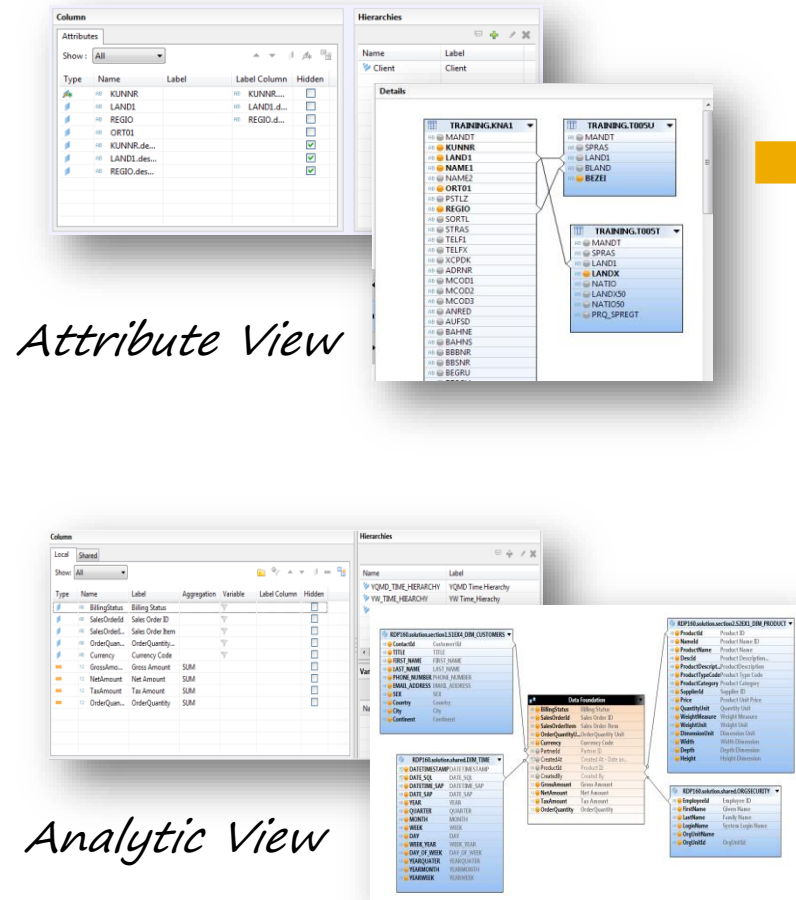


# How to get there

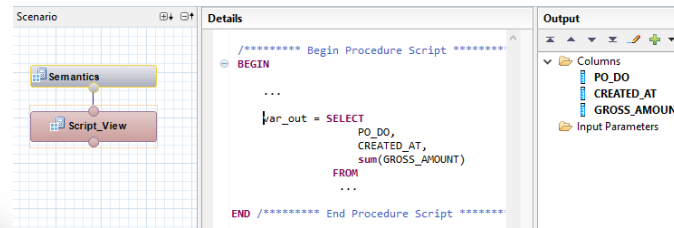




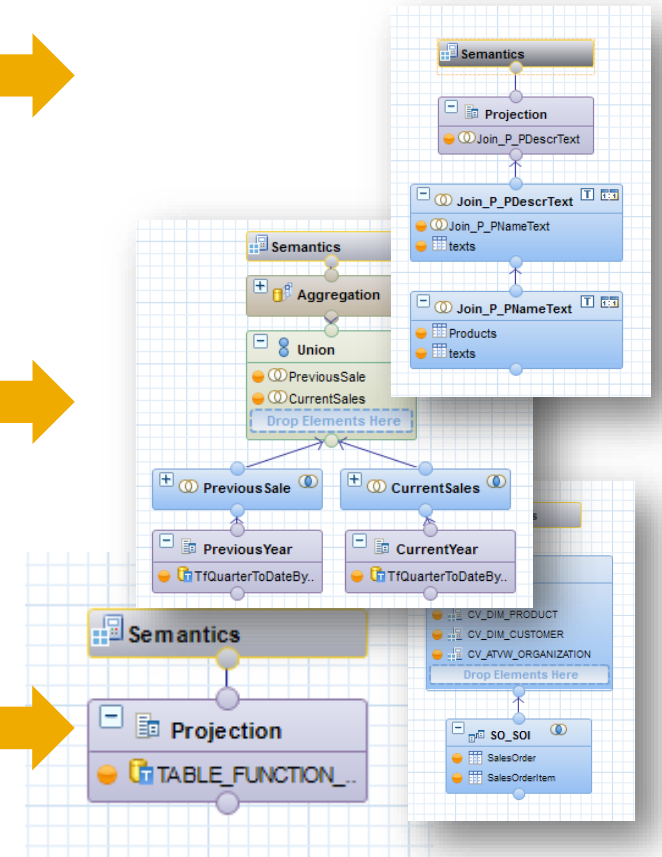
# Calculation View: Unified Artifact



## Script-based Calculation Views



## Graphical Calculation Views



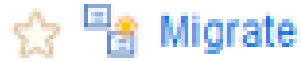
# Steps into the New Environment

## Before HANA 2.0 SPS02

## HANA 2.0 SPS03

Attribute Views, Analytic Views, Script-based Calculation Views, Classical Analytic Privileges

SAP HANA Studio



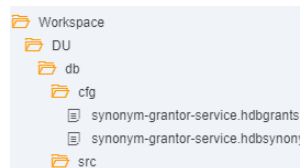
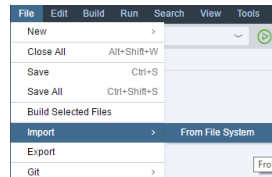
Graphical Calculation Views, SQL Analytic Privileges

Operating System



```
xs-migration --target-dir /root/tmp/test_migration/result DU1,sap.com
```

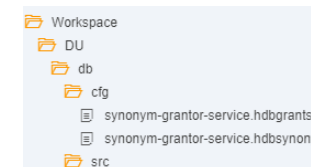
ZIP-File



for details see [blog](#)

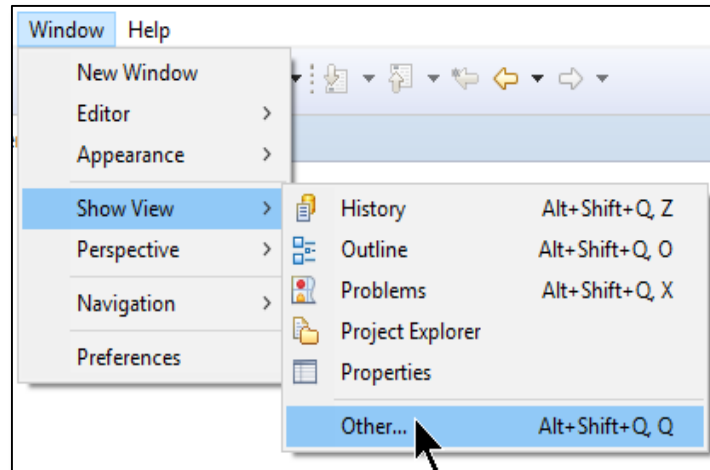


ZIP-File

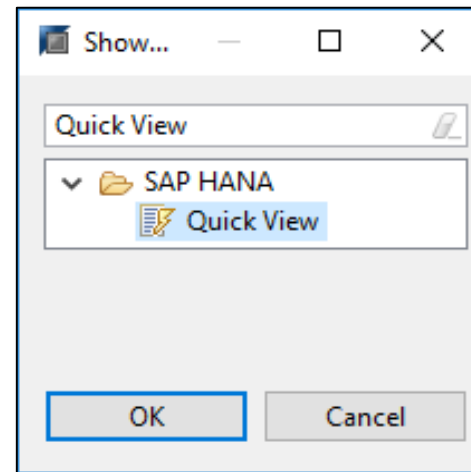


for details see  
[documentation](#)

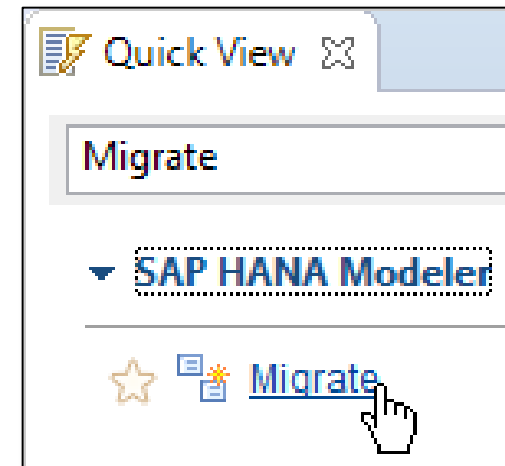
# SAP HANA Studio Migration



*open "Quick View"*



*choose source  
objects for migration*



*select "Migrate"*

 Migrate

## Migrate Objects

Select a migration type and a folder to save the migration job log.

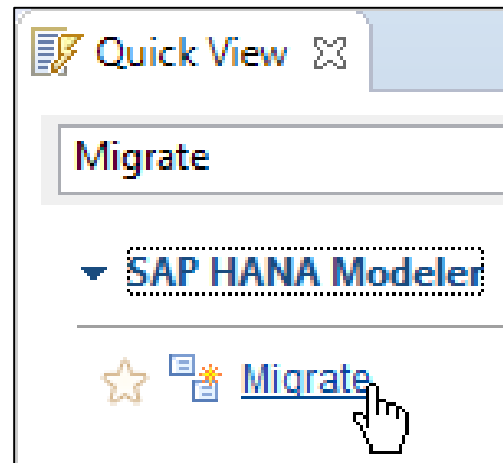
- ☒ ▶ Attribute views and analytic views to calculation views.
- ☐ ▶ Script-based calculation views to graphical calculation views and table functions.
- ☐ ▶ Classical XML-based analytic privileges to SQL analytic privileges.

# SAP HANA Studio Migration Example (1)

## Source artefacts

- ▼ foundation
  - ▼ China
    - > Attribute Views (3)
    - > Analytic Views (2)
    - > Calculation Views (1)
  - > EU
  - ▼ GB
    - > Attribute Views (3)
  - ▼ India
    - > Attribute Views (2)
    - > Analytic Views (4)
  - ▼ US
    - > Attribute Views (3)
    - > Analytic Views (4)

## Start migration



## Select type of artefacts

### Migrate

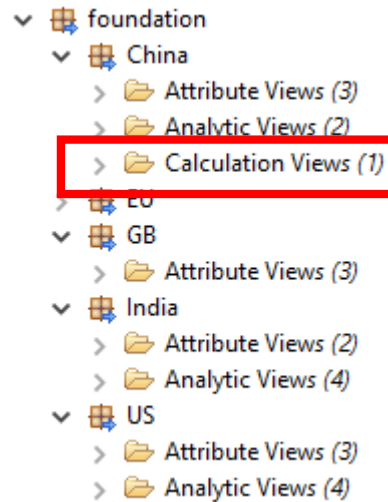
#### Migrate Objects

Select a migration type and a folder to save the migration job log.

- ☒ ▼ Attribute views and analytic views to calculation views.  
Select if you want to migrate existing attribute views or analytic views in a package to standard graphical calculation views.
- ☐ ▶ Script-based calculation views to graphical calculation views and table functions.
- ☐ ▶ Classical XML-based analytic privileges to SQL analytic privileges.

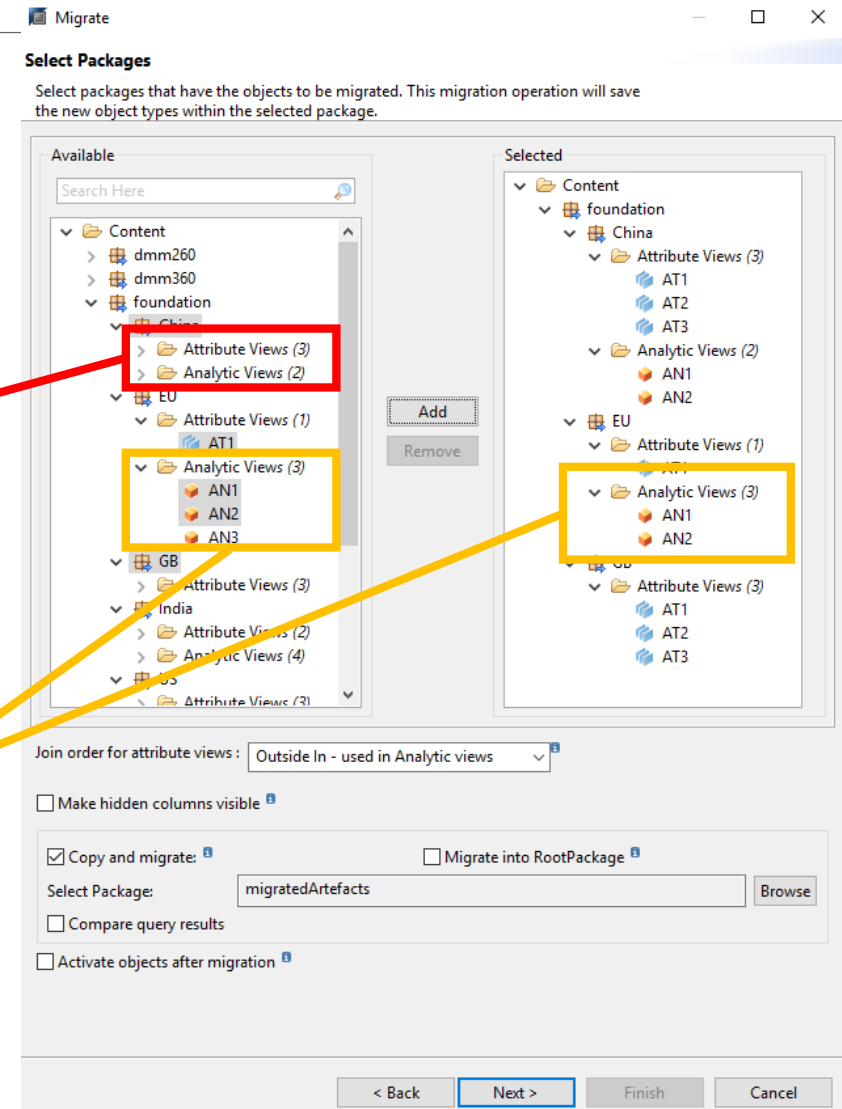
# SAP HANA Studio Migration Example (2)

## Source artefacts



Calculation Views are not listed because they are irrelevant for migration

individual views can be selected





# SAP HANA Studio Migration Example (3)

## Job status

Current   History					
Job Type	System	User	Submitted At	Status	
AttributeView a...	LD2	SYSTEM	Fri Jul 21 15:00:35 CEST 2017	Running...	28%

## Migrated artefacts

- ▼ migratedArtefacts
  - ▼ foundation
    - ▼ China
      - > Calculation Views (5)
    - ▼ EU
      - > Calculation Views (3)
    - ▼ GB
      - > Calculation Views (3)

## Migration log

### Migration Summary:

Migration	Total Objects Selected	Success	Failures	Need actions
Attribute views and analytic views to calculation views.	11	11	0	0

### Migration Details:

Selected Object	Resulted Objects	Migration Status	Comments	Impacted Objects
foundation.EU::AN2	Calculation View migratedArtefacts.foundation.China::AT1 Calculation View migratedArtefacts.foundation.China::AT2 Calculation View migratedArtefacts.foundation.China::AT3 Calculation View migratedArtefacts.foundation.EU::AT1 Calculation View migratedArtefacts.foundation.GB::AT1 Calculation View migratedArtefacts.foundation.GB::AT2 Calculation View migratedArtefacts.foundation.GB::AT3 Calculation View migratedArtefacts.foundation.China::AN1 Calculation View migratedArtefacts.foundation.China::AN2 Calculation View migratedArtefacts.foundation.EU::AN1 Calculation View migratedArtefacts.foundation.EU::AN2	Success	<ul style="list-style-type: none"><li>Object migrated successfully</li><li>No filters defined on columns in this calculation view.</li></ul>	
foundation.EU::AN1	Calculation View migratedArtefacts.foundation.China::AT1 Calculation View migratedArtefacts.foundation.China::AT2 Calculation View migratedArtefacts.foundation.China::AT3 Calculation View migratedArtefacts.foundation.EU::AT1	Success	<ul style="list-style-type: none"><li>Object migrated successfully</li><li>No filters defined on columns in this calculation view.</li></ul>	

# Migration into XSA (Example continued)

## Migration is running

### Invoke XSA Migration Assistant

```
./xs-migration --zip --target-dir Target DU,org
```

### Migration Report

XS Migration Report DU

Summary

File statistics

File List

Steps Detail

Project Information

Project:

DU - 0.0.0

Content:

1 DU, DU (pm) -0.0.0, including 5 packages and 11 objects

System:

undefined://ld9537:30015, SID:SP2, version 2.00.020.00.1499763572

HALM version:

migration tool:

1.0.4

Migration Steps

The objects from the provided delivery units have been exported from the system, analyzed, migrated, and have been written into an XS Advanced folder structure. Follow the steps shown below in order to complete the migration.

Step 1 - Migration of Security Concept Required

The security concept has changed with XS Advanced and is incompatible with XS Classic. Manual migration steps are required in order to complete the migration of this application to XS Advanced.

For information about the XS Advanced security concept read the XS Advanced Migration Guide.

1 warning [Detail List](#)

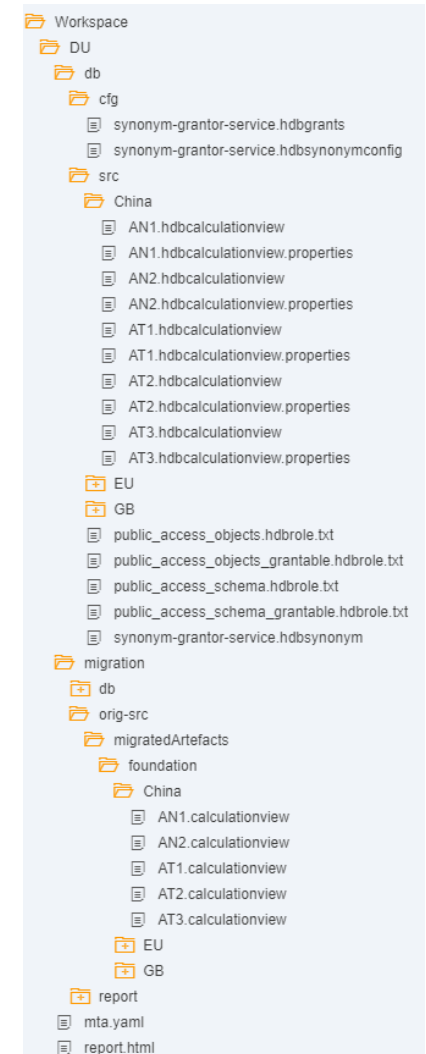
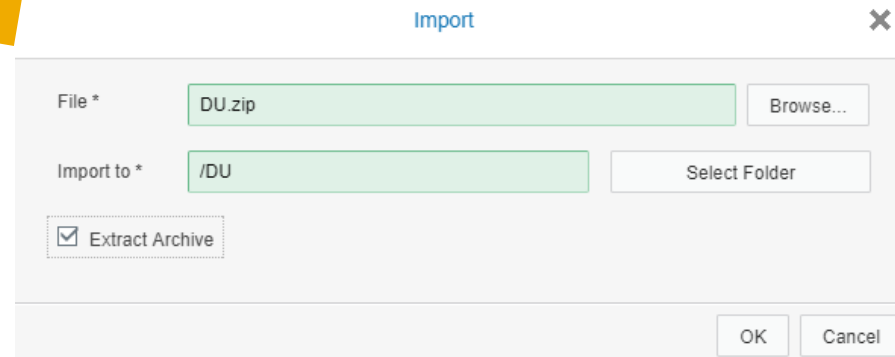
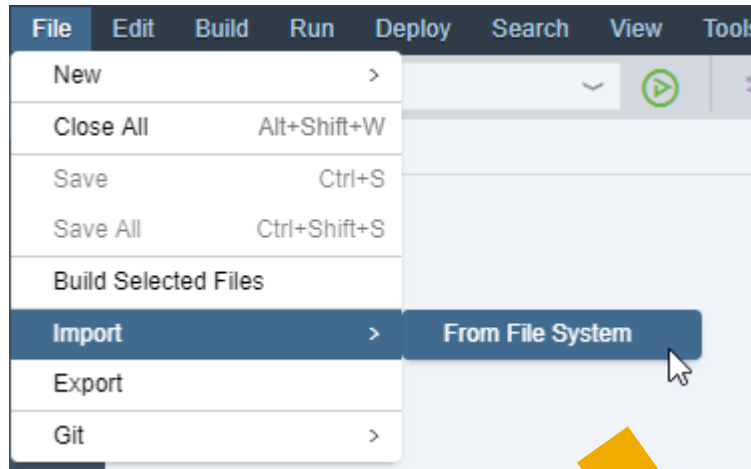
```
sp2adm@ld9537:/usr/sap/SP2/HDB00/work/migration/xs-migration> ./xs-migration --zip --target-dir TARGET DU,pm
initializing...
Reading input
Using target directory: TARGET
Initializing database connection to source database...
Database connection successful
Preparing SQL parser...
SQL parser prepared
Verifying specified Delivery Units...
Delivery Units verified
Exporting and migrating delivery units:
DU (pm)
from system: ld9537:30015

Retrieving Public Synonyms...
Checking target directory...
Target directory ok, generating project structure...
Collecting files of Delivery Units...
Collecting packages...
Collecting all objects...
11 Files collected.
Writing original application source to TARGET/migration/orig-src
11 Files written
Starting preprocessing
Root HDI namespace is migratedArtefacts.foundation
Start processing...
Handling file: /migratedArtefacts/foundation/China/AN1.calculationview
Handling file: /migratedArtefacts/foundation/China/AN2.calculationview
Handling file: /migratedArtefacts/foundation/China/AT1.calculationview
Handling file: /migratedArtefacts/foundation/China/AT2.calculationview
Handling file: /migratedArtefacts/foundation/China/AT3.calculationview
Handling file: /migratedArtefacts/foundation/EU/AN1.calculationview
Handling file: /migratedArtefacts/foundation/EU/AN2.calculationview
Handling file: /migratedArtefacts/foundation/EU/AT1.calculationview
Handling file: /migratedArtefacts/foundation/GB/AT1.calculationview
Handling file: /migratedArtefacts/foundation/GB/AT2.calculationview
Handling file: /migratedArtefacts/foundation/GB/AT3.calculationview
Processing finished
Starting Post-Processing...
Generating security files
Starting migration of Calcviews...
Total calculation view and analytic privilege files: 11 successful: 11 failure: 0
Migration of Calviews finished with success
Generating Synonyms for database artifacts
Writing TARGET/db/srcsynonym-grantor-service.hdbsynonym
Writing TARGET/db/cfgsynonym-grantor-service.hdbsynonymconfig
Writing TARGET/db/cfgsynonym-grantor-service.hdbgrants
Generating descriptors
Post-Processing finished
Writing report data
Report url: TARGET/report.html
Generating zip file
Migration finished.
```

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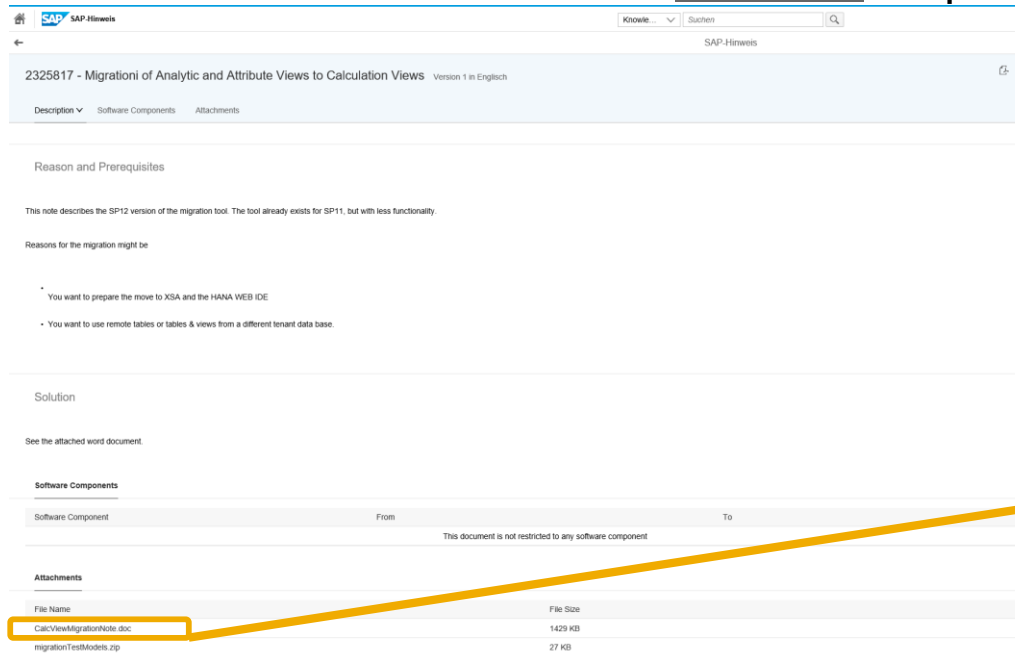
# Import migrated views into workspace (Example finished)



# Migrating to Calculation Views

## Further information

- general migration steps are discussed in this [blog](#) and [here](#)
- see attachment of SAP Note [2325817](#) for potential issues

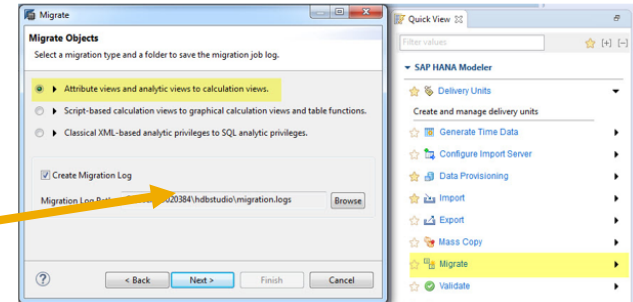


### Analytic & Attribute View migration

This document describes the various aspects of the migration of analytic / attribute views to calculation views. It describes the SP12 version of the migration tool. The tool already exists for SP11, but with less functionality.

### Migration tool

The migration tool can be invoked from the Quick View (Note: You should start with a clean workspace before the migration i.e. there must not be any inactive objects in your workspace):



In the next wizard step you choose the views to be migrated either individual or by selecting complete packages:

- BW contexts:
  - generate only Calculation Views as external views: [2236064](#)
  - integration with HDI: [2463312](#)
  - access to BW objects: [2723506](#)



# Migration into XSA

## migration documentation

- [SAP HANA XS Advanced Migration Guide](#)
- [SAP HANA XS Migration Assistant 1 SAP Note 2493252](#)

2493252 - SAP HANA XS Advanced Migration Assistant 1

Version 1 in English

Component: BC-XS-TLS-MIG

Category: Upgrade information

Corrections: 0

SAP Note/KBA Number

68

Priority: Correction with medium priority

Release Status: In Process

Manual Activities: 0

Prerequisites: 0

Description

Software Components

Support Package Patches

This document refers to

Attributes

Symptom

This is the release note for SAP HANA XS Advanced Migration Assistant 1

You want to install SAP HANA XS Advanced Migration Assistant 1 or upgrade from a previous version.

Other Terms

HANA 2.0, XSA, XSC, HDI, Migration, XS Advanced, XS Classic

Reason and Prerequisites

SAP HANA extended application services, advanced model, (XS advanced) provides a comprehensive platform for the development and execution of native data-intensive applications that run efficiently in SAP HANA. It thus succeeds XS classic as the default application programming model for SAP HANA. XS advanced is a polyglot application platform that supports several programming languages and execution environments, for example, Java and Node.js. The classic XS JavaScript (XSJS) is supported by a framework running in the Node.js run time.

Run the SAP HANA XS Advanced Migration Assistant on Windows clients with direct access to the source SAP HANA system's SQL port, or directly on the SAP HANA appliance.

Solution

SAP HANA XS Advanced Migration Assistant 1 for SAP HANA 2.0 SPS02 is a stateless client component. Either for new installations or for upgrades, just unzip the corresponding SCV "XSAC Migration 1" from Software Download Center at <https://support.sap.com/swdc>

Following features have been changed or added since SPS01:

- Staged migration (changed)  
Migrate an XS classic application to XS advanced in semantic units using the XS Advanced Migration Assistant.
- HTA mode (changed)  
A new option (`-hta`) for the XS Advanced Migration Assistant, which produces output that does not include information about permissions defined in .hdbgrants artifacts or role artifacts that are used to enable public access to synonym targets
- Migrating flowgraphs (new) and timeseries (new)  
Flowgraphs and timeseries are part of the completely automated migration strategy using the XS Advanced Migration Assistant.

See SAP HANA XS Advanced Migration Guide on SAP Help Portal [http://help.sap.com/hana\\_platform](http://help.sap.com/hana_platform) for complete product documentation.

```
usr/sap/SP2/HDB00/work/migration/xs-migration> ./xs-migration
initializing...
Reading input
Usage: xs-migration [OPTION]... DU_Name[,DU_Vendor]
Migrate a XSC Delivery Unit identified by its Name (and Vendor) to a XSA-compatible MTA-project.

Options:

--name                project name (default: name of first DU or package)

--version             project version (default: version of first DU)

--description         project description (default: description of first DU)

--target-dir <directory>  directory where project is created - directory must not exist

--packages <pkg[,...]>    packages to include in migration
                           [pkg] = package-name[:include-subpackages]
                           include-subpackages = true | false (default=true)
                           example: com.sap.db:true

--exclude-packages <pkg[,...]>  packages to exclude from migration
                           [pkg] = package-name[:exclude-subpackages]
                           exclude-subpackages = true | false (default=false)
                           example: com.sap.db:true

--generate-manifests    generate a manifest.yml and manifest-op.yml file

--zip                 add the migration result to a zip folder for import into SAP Web IDE

--synonym-target-provider  location of synonym-target-provider file
                           needs target-release to be >= 2.0SP01

--activate-public-access <type> specify what public-access-role should be active, valid values for
                           <type> are 'objects' and 'schema'

--generate-providers    generate a synonym-target-provider configuration for every found schema
                           (see staged migration documentation for details)
                           needs target-release to be >= 2.0SP01

--hta                 enable hta-mode
                           this mode produces a hta-compatible output without hdbgrants files and public-access roles

--target-release <release> specify the version of the target hana system
                           valid entries are 2.0SP00 and 2.0SP01 - default is 2.0SP01

The database connection needs to be specified with the following environment variables

HANA_HOST            Hana server host name
HANA_SQL_PORT        SQL Port
HANA_USER            User name
HANA_PASSWD          Password
HANA_CERTIFICATE     certificate file when using ssl encryption (X509 PEM)

If the source database does not support the procedure SYS.GET_OBJECTS_IN_DDL_STATEMENT,
an external parse system can be specified with the following environment variables

HANAEXT_HOST         Hana server host name
HANAEXT_SQL_PORT     SQL Port
HANAEXT_USER         User name
HANAEXT_PASSWD       Password
HANAEXT_CERTIFICATE  certificate file when using ssl encryption (X509 PEM)
```

# <https://influence.sap.com/SAPHANAPlatform>

## Your channel for submitting ideas to improve the SAP HANA Platform



Submit your  
Improvement Requests



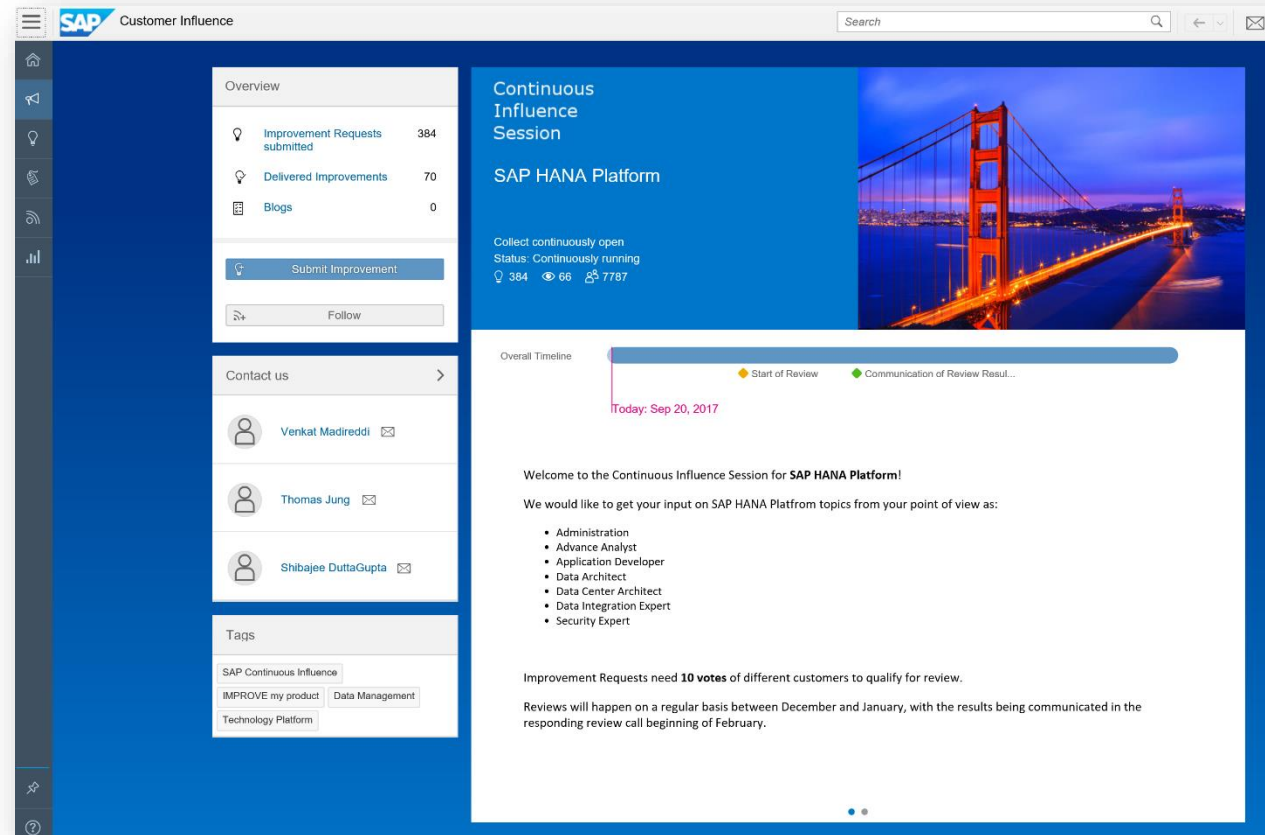
Vote for other valuable  
Improvement requests



Development will review all  
Improvement Request that  
have more than **10** votes



Suitable requests are  
built into a future release





# Thank you!

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