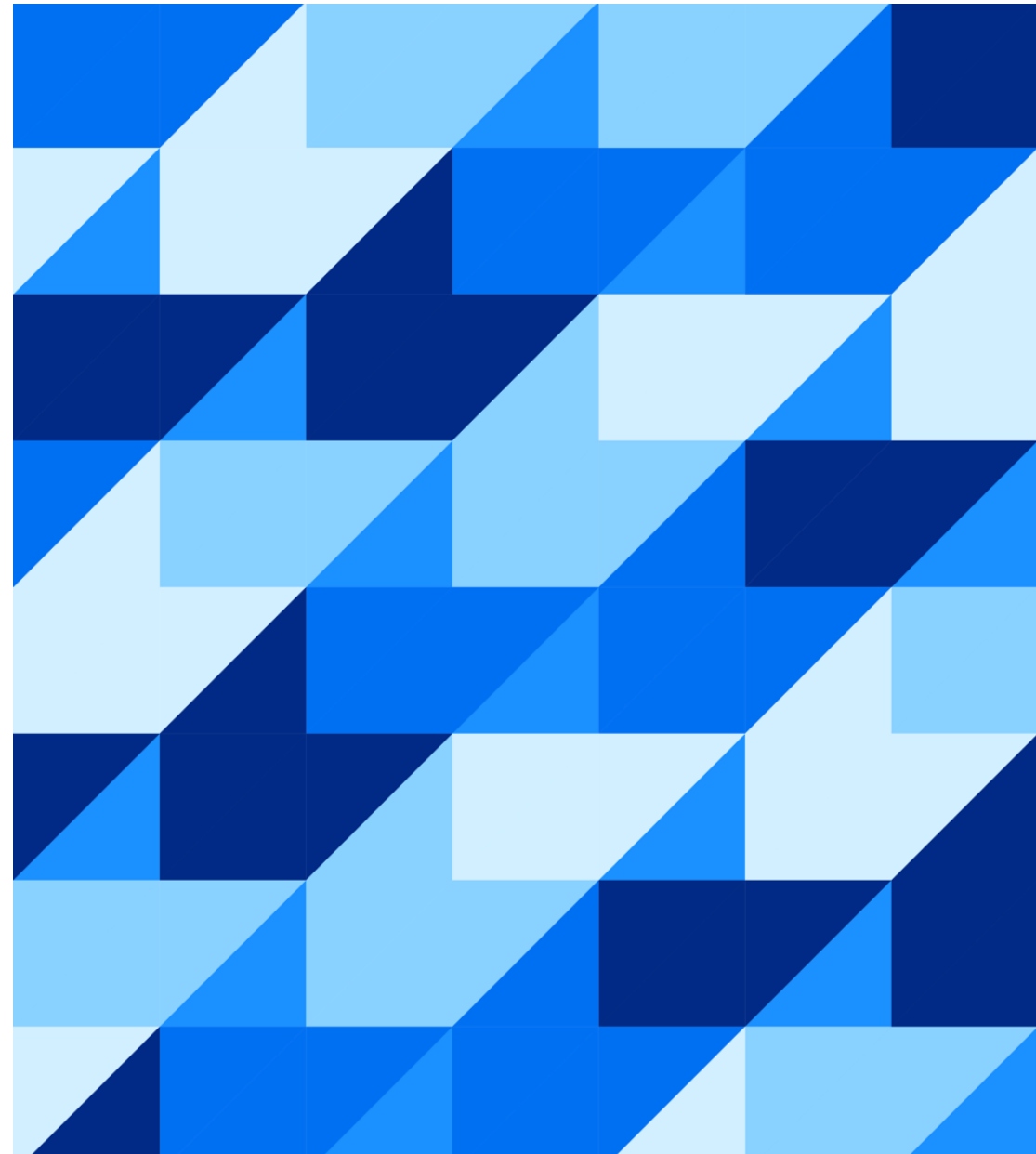




PowerDesigner Extended Generation for HANA Cloud

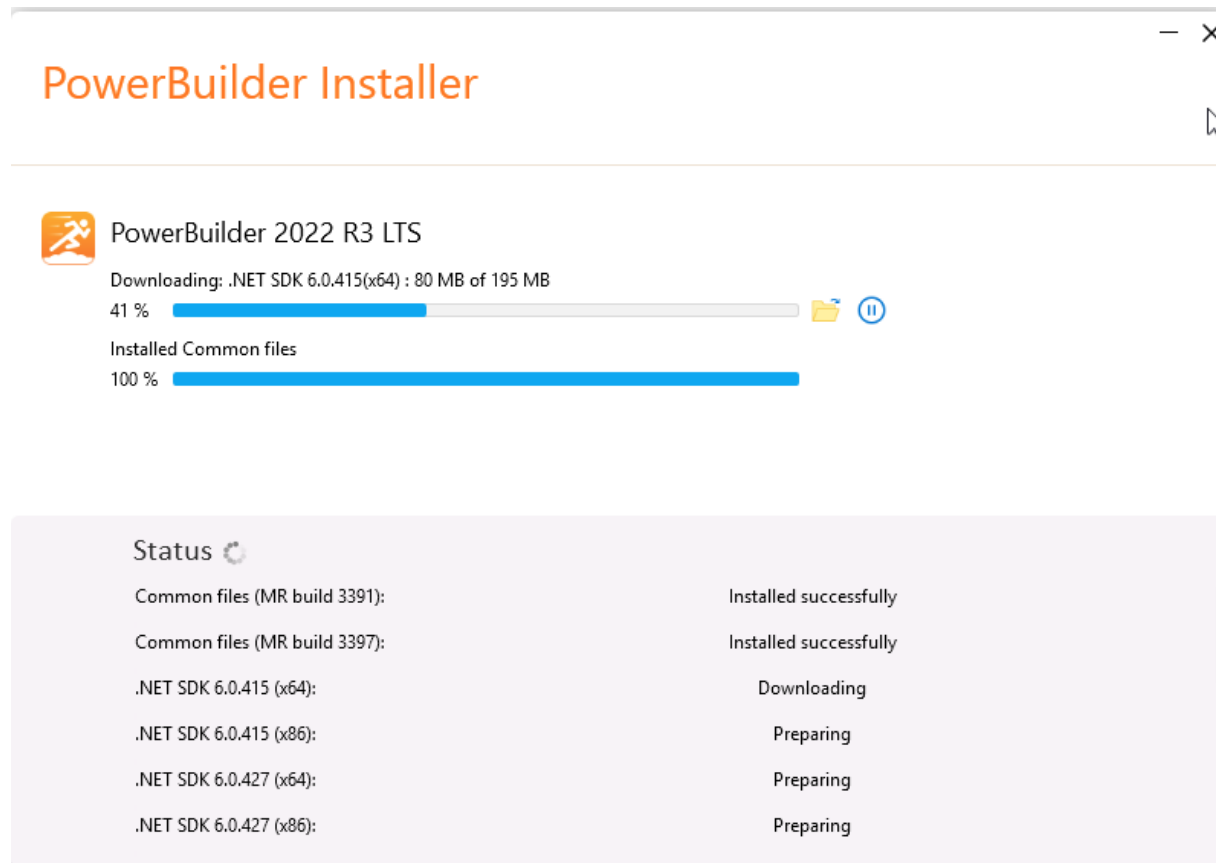
Volker Saggau, SAP (retired)
April 28, 2025

Public

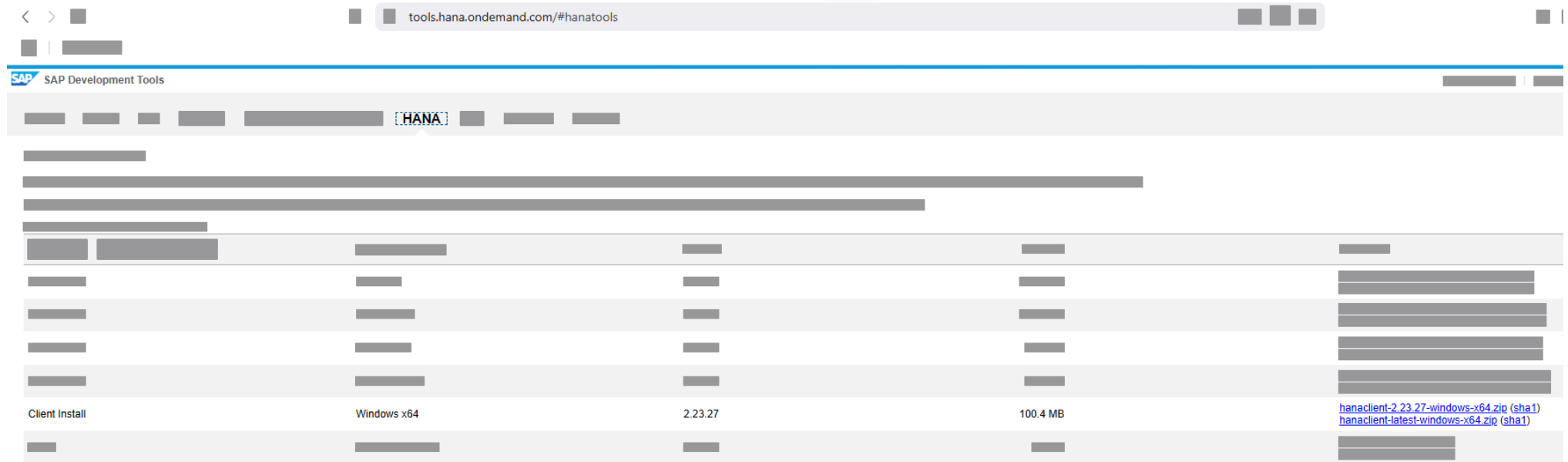


Installation

PowerBuilder Installation



Get HANA Cloud driver (64 bit):
<https://tools.hana.ondemand.com/>



HANA Client (32 bit) for PowerBuilder

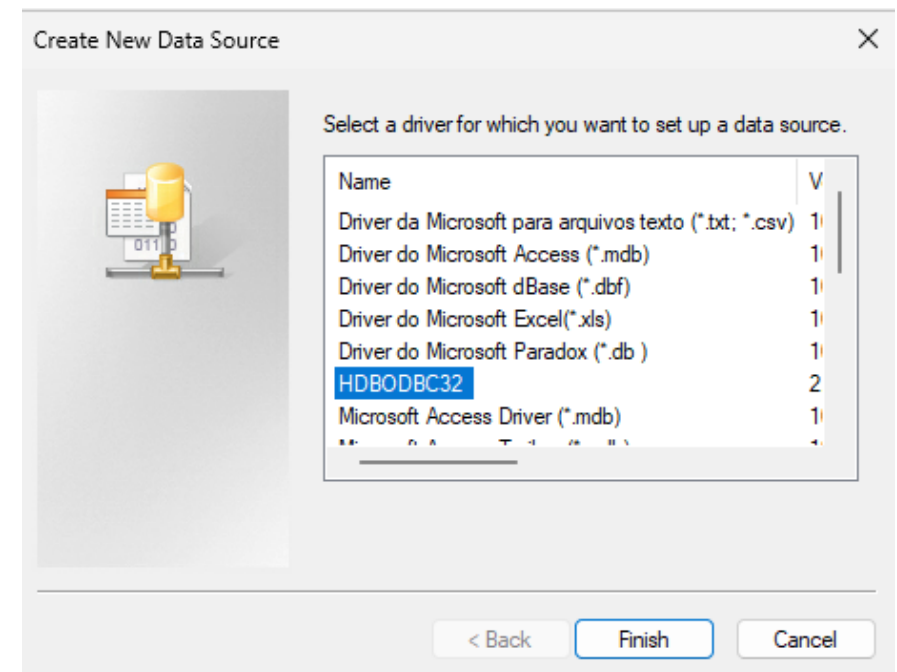
`SAPCAR_1300-70007719.EXE -xvf IMDB_CLIENT20_024_21-80002084.SAR`

IMDB_CLIENT20_024_21-80002084.SAR = the WINDOW 32 bit driver

- You get this form the SAP HANA Platform on SUPPORT.SAP.COM

SAPCAR is an extraction tool (very similar to gzip)

<https://me.sap.com/notes/2632047/E>



PowerDesigner

64 bit Windows Installation

- PD EXE
- Proxy (Interface for larger customers to the database), Performance is the main reason
- SYSAM (Windows, but also other platforms, compatible with other license management from macrovision)

PowerDesigner Portal (Nodes, JAVA) with its own generators + CSN!

Repository based on Sybase Anywhere or HANA or some others

PowerDesigner Background

PowerDesigner extensibility

XDB Database Extensions

- Allow to support many databases (physical datamodel)

XEM Model Extensions

- Intended to support the modelling in general and works in all model environments

Other meta models are for example XOM for languages like PowerBuilder(using ORCA interface)

Two concepts that work interwoven:

- GTL (Generation Template Language)
- VBS (Visual Basic Script)

Both work with the internal METAMODEL of PowerDesigern

- Fully documented
- Fully object oriented
- Allows to extend the the metamodel

PowerDesigner Metamodel

As a sample we take TABLE in the PDM

It is a deep OO Hierarchies embedded

Most important for this session:

- “NamedObject”
- “BaseTable”
- “Table

ver 16.7.8 OLE Help

Table: Table Quick links: [Library Pd](#)

- BaseObject
 - IdentifiedObject
 - ExtensibleObject
 - NamedObject
 - AbstractData
 - NamedClassifier
 - BaseTable
 - Table

Description:

Specific Members:

Properties:	Collections:	Methods:
PrimaryKey	Keys	UpdateS
CheckExpressionPreview	InReferences	Estimate
AbstractDataType	OutReferences	SetEstin
RowGrowthRateForLifeCycle	Procedures	GetEstin

SAP Business Technology Platform (BTP)

Understanding SAP Business Transaction Platform (BTP)

BTP offers today different runtime environments

- Open platform and supported on all major providers as Azure, AWS and GDP
- 1. Cloud Foundry (CF)
 - a) Service oriented (Everything is a service that can be started, stopped)
 - b) Business oriented
 - c) Enterprise grade
 - d) Supports all SAP functionality
 - e) Security
- 2. KYMA /Kubernetes with SAP Gardener (maybe a candidates for PowerBuilder Servers)

HANA Cloud is a set of service that is accessible via CF. Itself it is Kubernetes/Gardener service. For the customer it offers SQL port, OpenAPI interfaces for various management functions

HANA Cloud in BTP

HANA Cloud is a service in BTP

HANA Cloud HDI and schema are a subset of a full HANA Cloud for application building purpose

- **Schema** has a dedicated service with its own BTP(!) generated user/password
 - Intended for database operations in BTP with an application (SaaS)
 - All database objects operations are in the hand of the application
 - One the schema users
 - All rights management is manual
- **HANA Deployment Infrastructure (HDI)**
 - A glorified Schema with some very smart options (Very close in its functions to the ABAP base data dictionary (DDIC))
 - Handles all supported dataobject changes in a data preserving manner.
 - Also gives a very deep rights management for SaaS
 - Intended to build microservices. One app can have many HDI containers.
 - Part of the “HANA TENANT” concept

Create a new service

New Instance or Subscription

1

Parameters

3

Basic Info

Enter basic info for your instance or subscription.

Service: * ⓘ

Can't find what you're looking for?

hana-cloud | hana-cloud-tools

SAP HANA Cloud

hana-cloud | hana-cloud-tools

SAP HANA Schemas & HDI Containers

hana

Next >

Create

Cancel

Name the service (PBUGG)

New Instance or Subscription

1

2

3

Basic InfoParametersReview

Enter basic info for your instance or subscription.

Service: * ⓘ [Can't find what you're looking for?](#)

SAP HANA Schemas & HDI Containers ▾

Plan: *

hdi-shared ▾

Runtime Environment: *

Cloud Foundry ▾

Space: *

dev ▾

Instance Name: * ⓘ

PBUGG

[Next >](#) [Create](#) [Cancel](#)

Topic of the Day:

HANA Cloud is not supported by PowerDesigner.

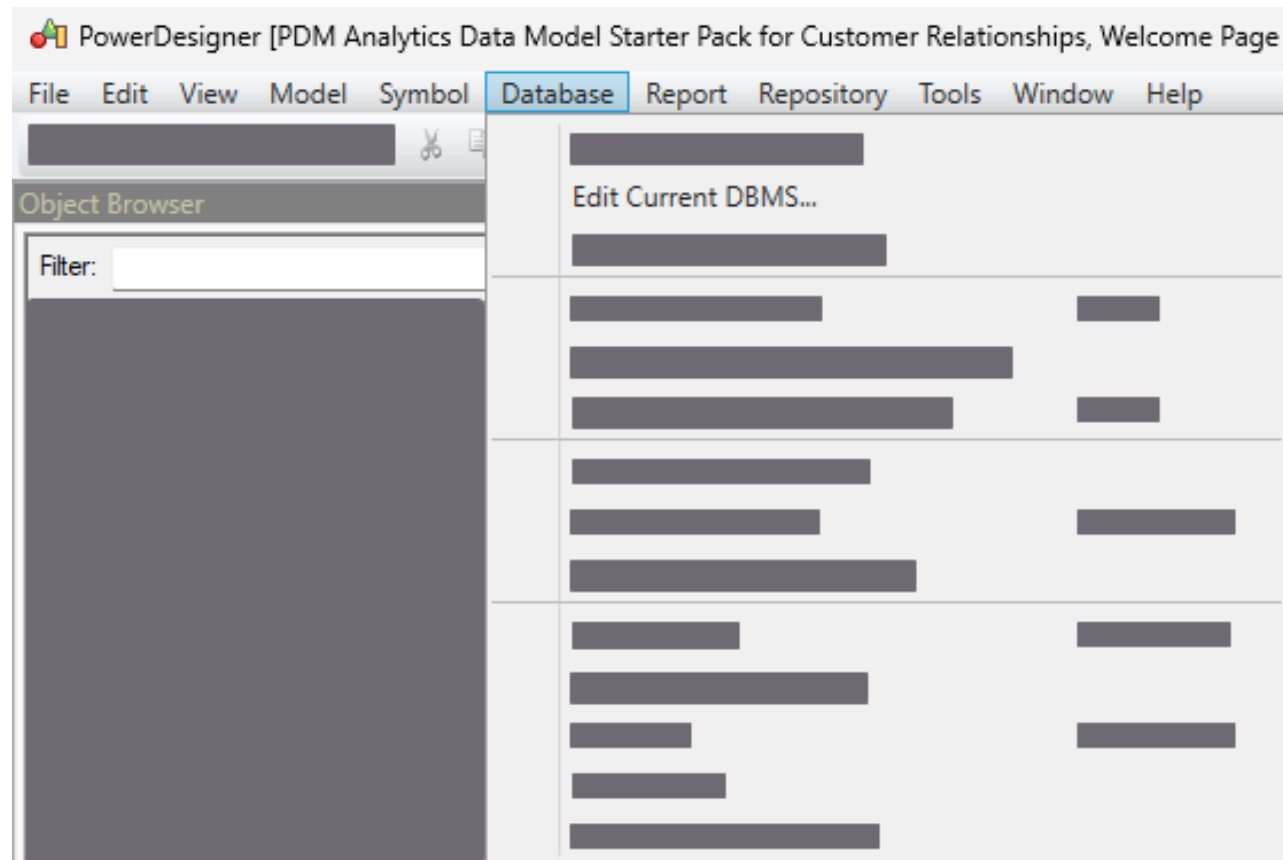
How can we make PowerDesigner working with HANA Cloud

Creating a new XDB

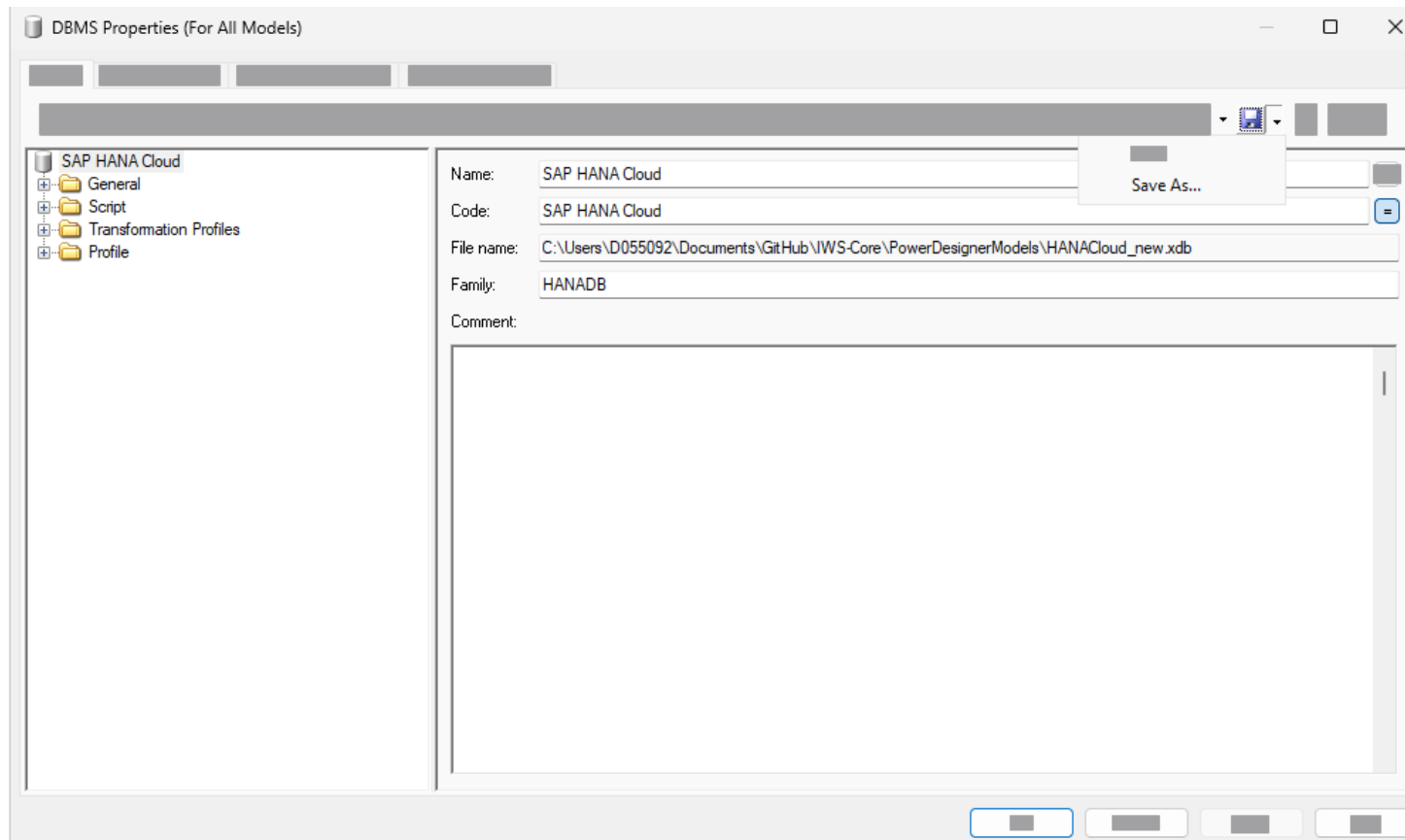
Motivation:

- A new version of the database that PD does not support yet
- You do not want to overwrite the existing XDB with you personal customization
- Most likely an existing XDB is close to an existing database we have in PowerDesigner
 - We “copy” a given definition as a template

PowerDesigner : Edit a current XDB



Save an existing XDB with a NEW NAME



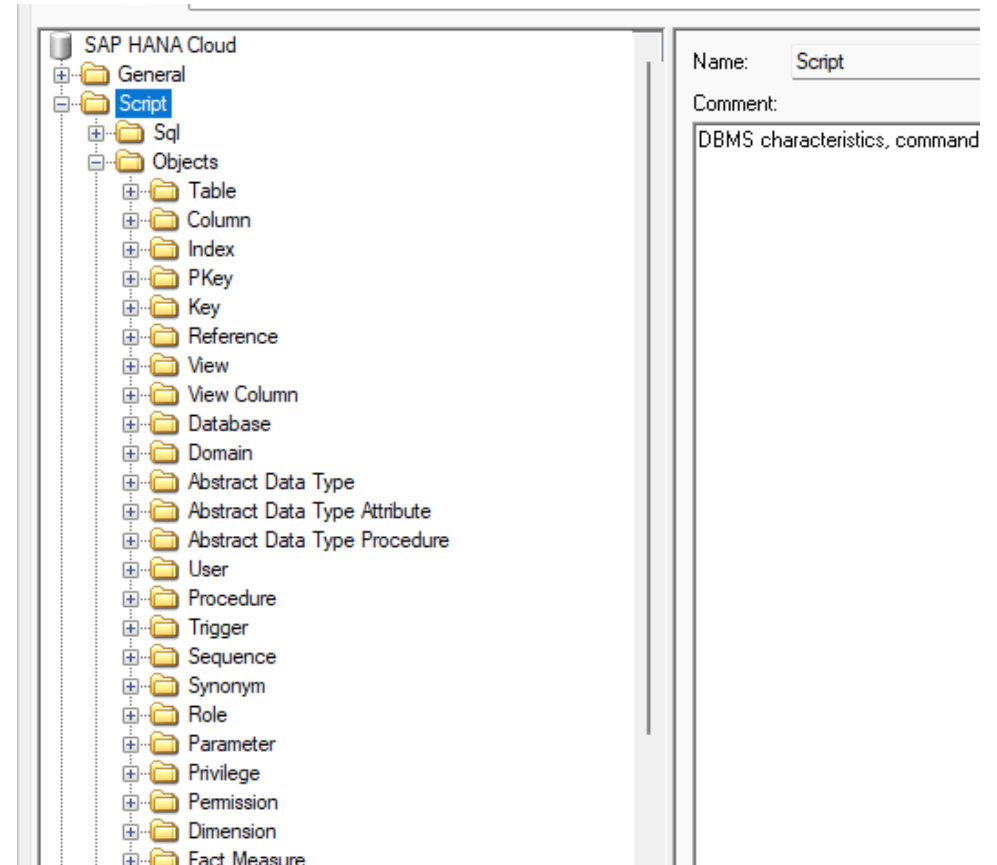
Looking into SCRIPT / OBJECTS

Typical objects are

- Table
- Column
- Index
- Key

But HANA Cloud also has types that are not in the general list as:

- Remote Source
- Extended Storage

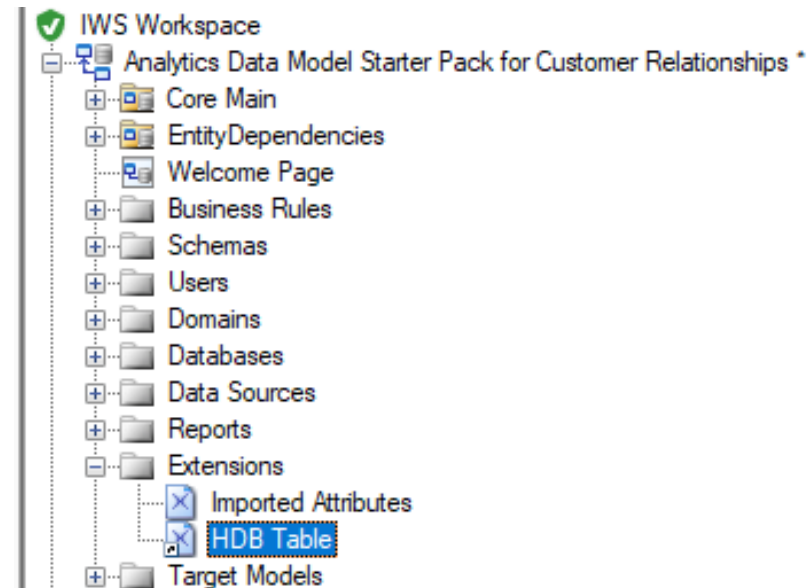


HDB-TABLE Extension (XEM) – Model extension!

XEM Extensions can be added to an existing model

Many XEM Extensions can be added

An Extension can be managed by the repository and be used by reference (Changes on the XDB will have immediate effect) for all



Profile contains the extension of the meta objects

XEM work on any model

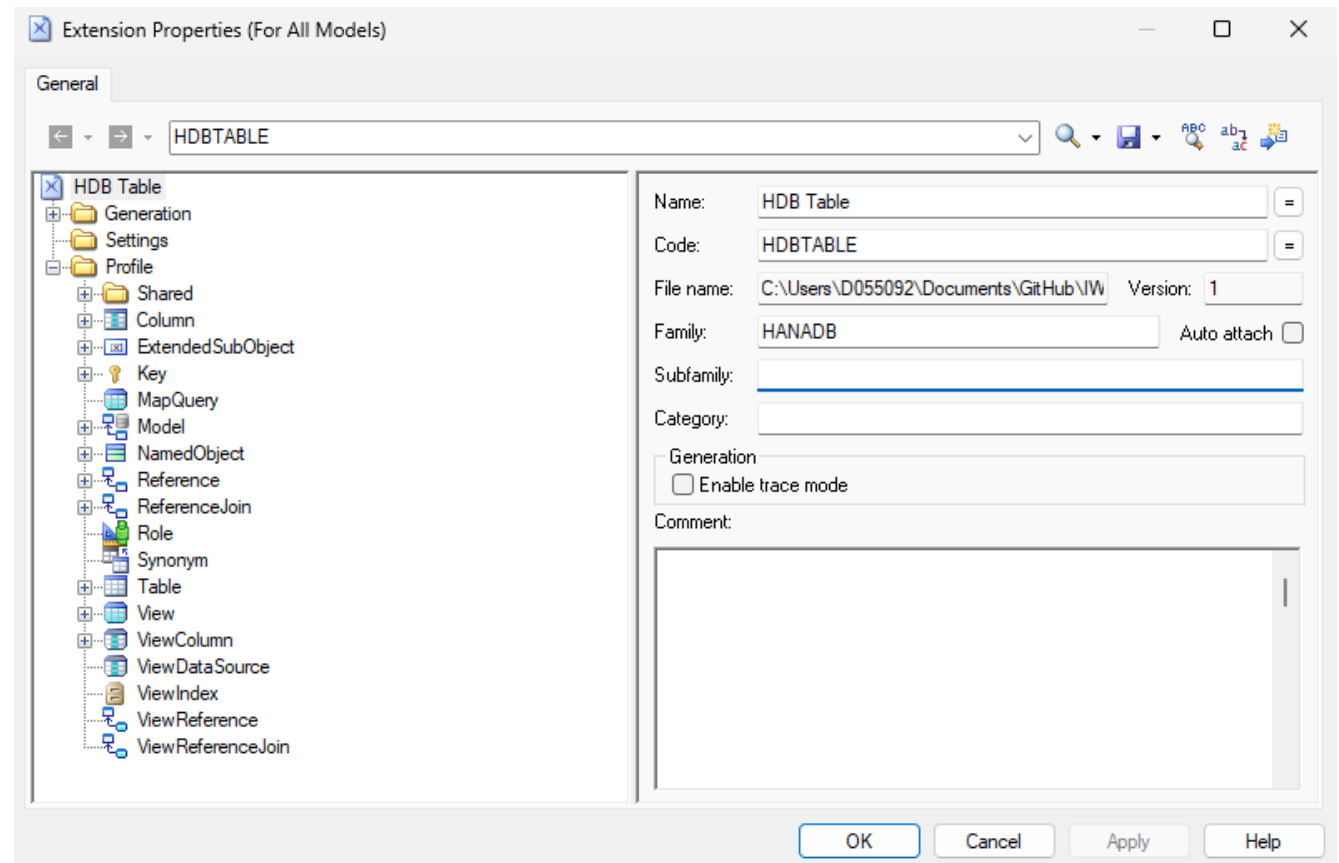
Typical are “specializations” on

- PDM
- LDM
- CDM
- OOM
- EAM

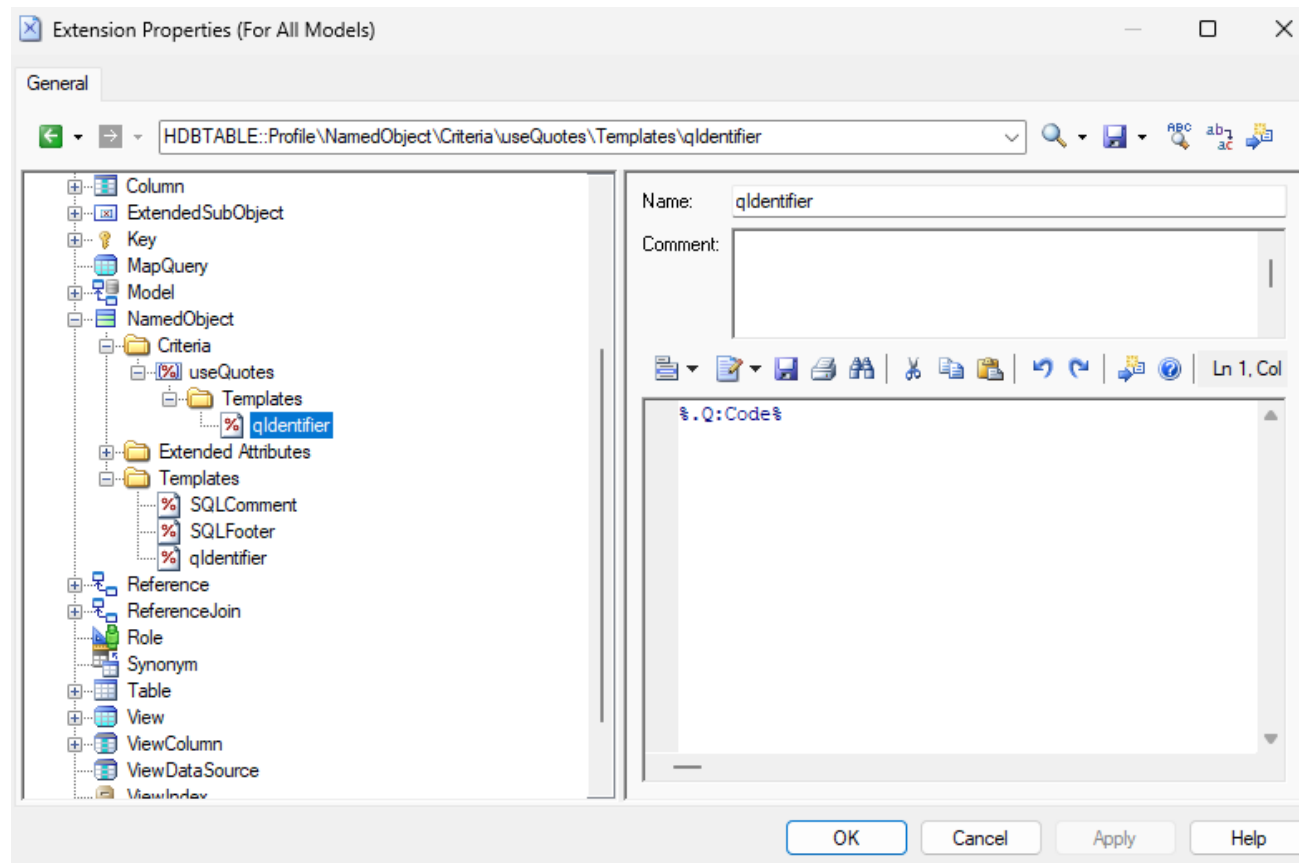
Be aware that only very limited objects are available in all models such as

- NamedObject
- ExtendedObject

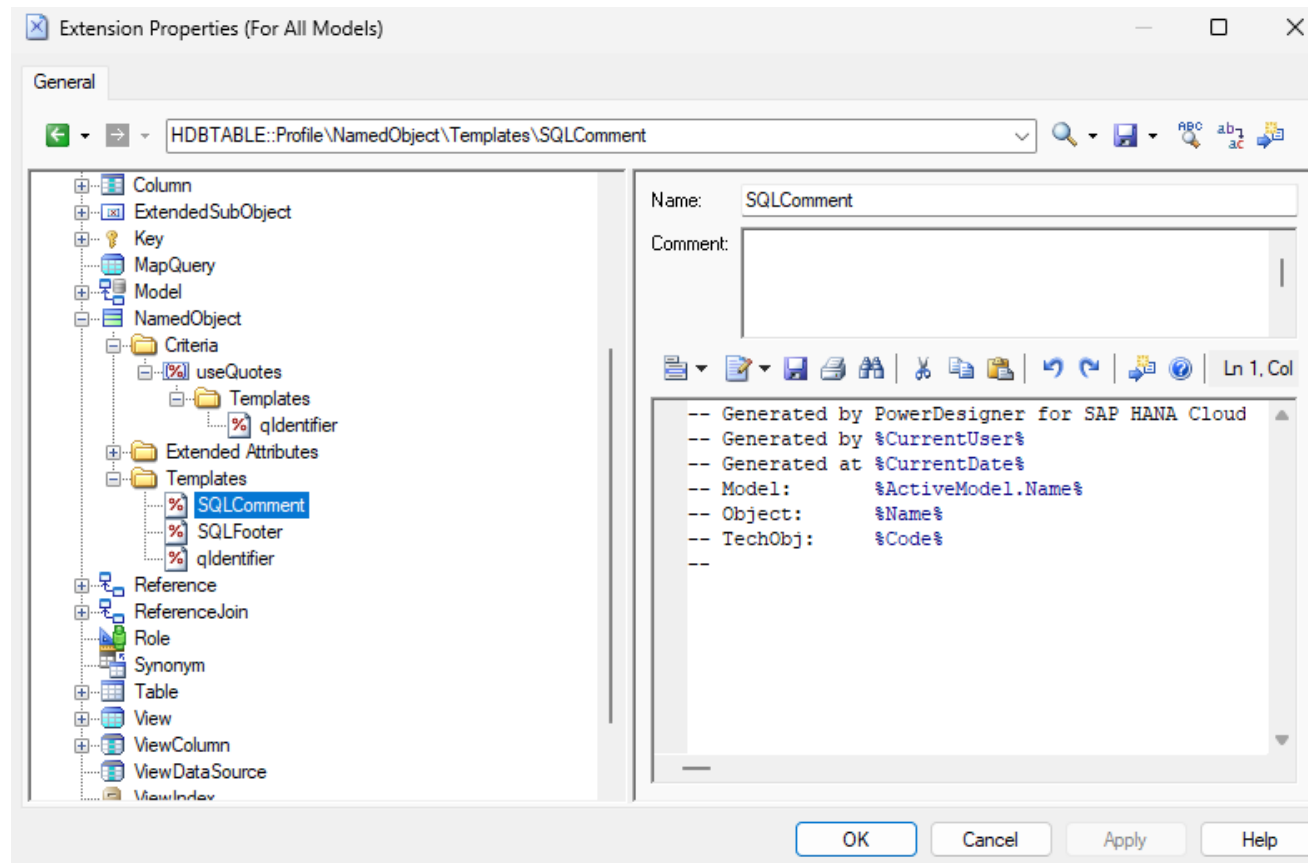
This objects are very powerful to control the model



Some samples of GTL in NamedObject (1) - Quotes



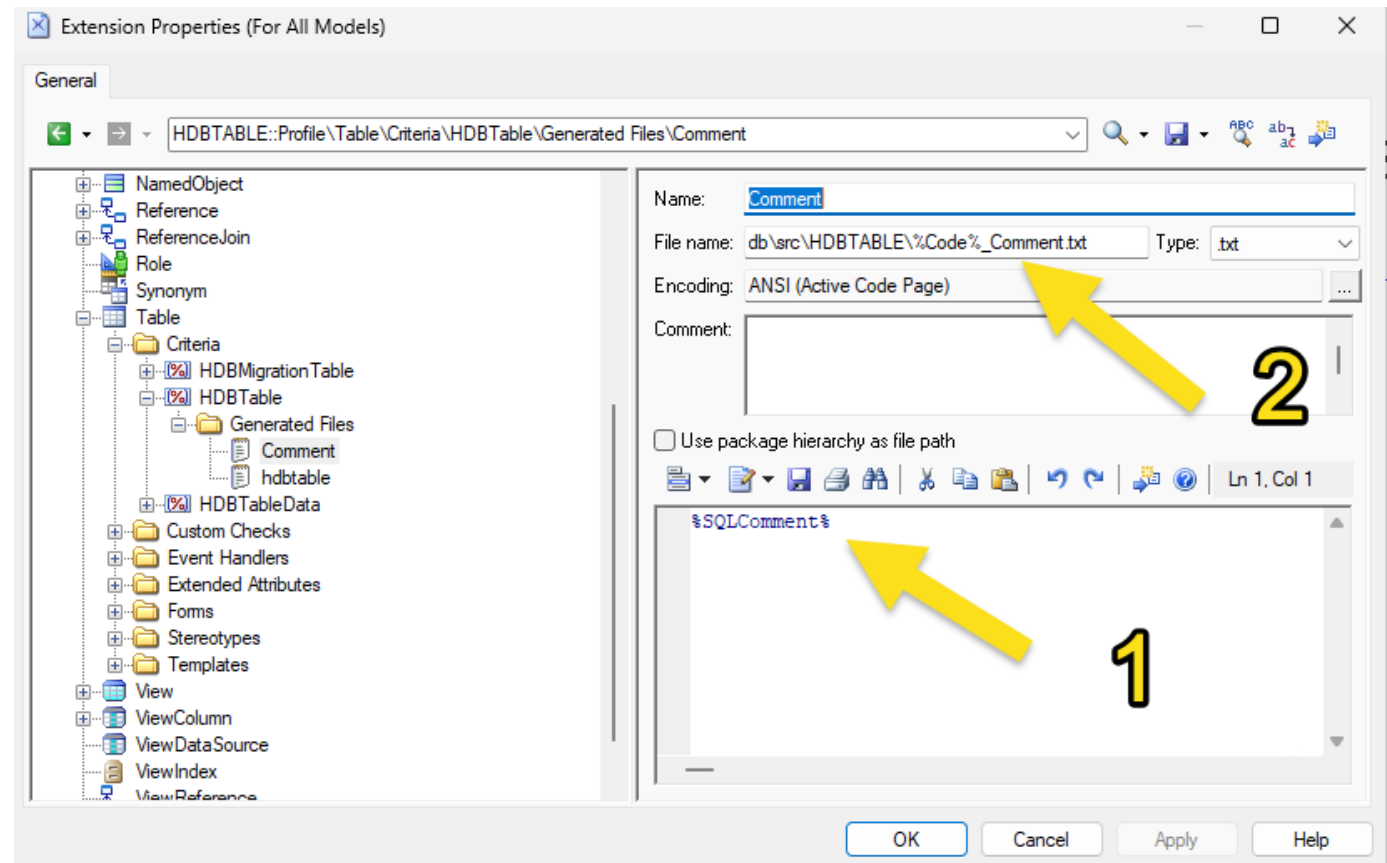
Some samples of GTL in NamedObject (2) – Comments in SQL files



Using GTL in file generation

Generation of 2 files as

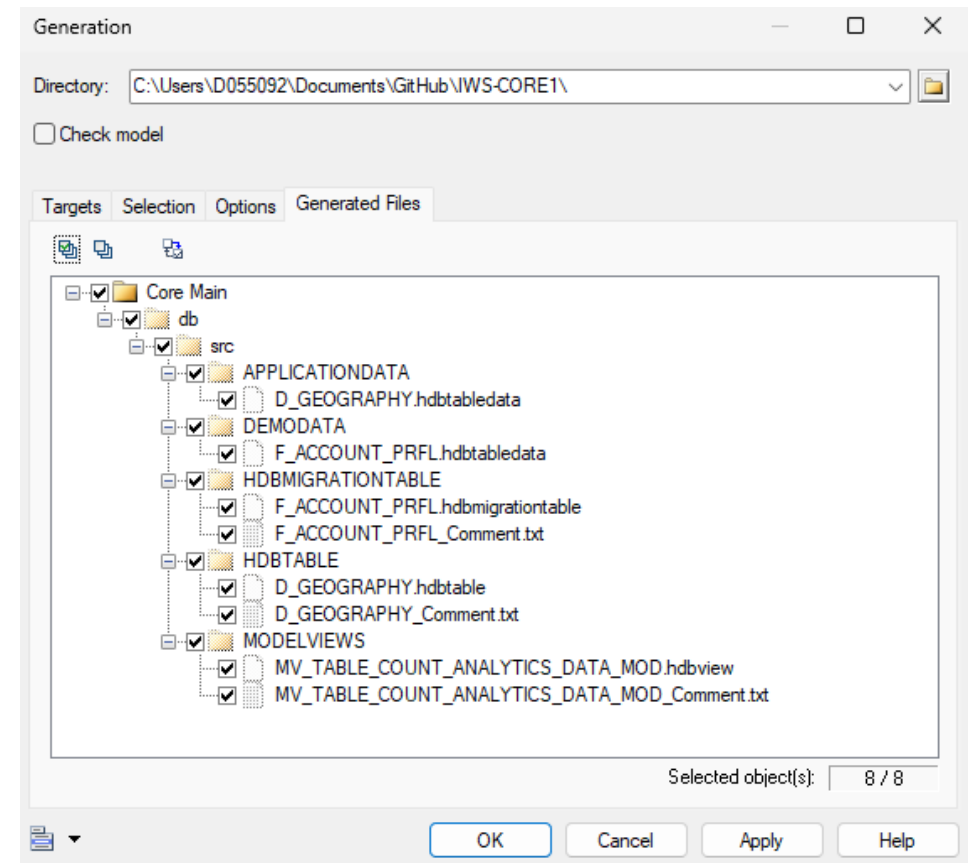
- Comment
- hdbtable



Sample of generated files

Generation of selected files as

- Comment
- HDBtable
- HDBMigrationtable
- View
- Application data
- Demo data



LINKS

[SDK, Clients : https://tools.hana.ondemand.com/#hanatools](https://tools.hana.ondemand.com/#hanatools)

<https://api.sap.com/>

Trial HANA / TRIAL BTP

Tutorials: <https://developers.sap.com/tutorial-navigator..html>

Learning Vector

Discovery center mission: [Harnessing Gen AI capabilities with SAP HANA Cloud Vector Engine](#) oder alternativ unser Content package auf GitHub zum Nachbauen der Movie Demo App: [Github Repo](#).

Thank you.

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