

Extend SAP BW/4HANA with SAP Data Warehouse Cloud

Session ID: ANA262

SAP TechED 2021

Exercises / Solutions

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TABLE OF CONTENTS

1	REQUIRED RESOURCES FOR EXERCISES	3
1.1	Download Required Resources.....	3
2	SAP DATA WAREHOUSE – BUSINESS SCENARIO	4
3	SAP DATA WAREHOUSE CLOUD - EXERCISES.....	8
3.1	SAP Data Warehouse Cloud – Exercise 01: Release BW Query	8
3.2	SAP Data Warehouse Cloud – Exercise 02: SAP BW4HANA Model Transfer	10
3.3	SAP Data Warehouse Cloud – Exercise 03: Details on Data Warehouse Cloud Assets.....	13
3.4	SAP Data Warehouse Cloud – Exercise 04: Data Lineage	23
3.5	SAP Data Warehouse Cloud – Exercise 05: Accessing Plan Data in SAP HANA Cloud	26
3.6	SAP Data Warehouse Cloud – Exercise 06: Combining Data Sources	30
3.7	SAP Data Warehouse Cloud – Exercise 07: Adding Dimension Associations	38
3.8	SAP Data Warehouse Cloud – Exercise 08: Replicating Plan Data	48
3.9	SAP Data Warehouse Cloud – Exercise 09: View Persistency	50
3.10	SAP Analytics Cloud – Exercises 10: Actual and Plan Comparison	52

1 Required Resources for Exercises

1.1 Download Required Resources

As part of the following set of exercises in SAP Data Warehouse Cloud as well as SAP Analytics Cloud, you will need a set of files. All relevant files can be downloaded from the GitHub site:

<https://github.com/SAP-samples/teched2021-ANA262>

2 SAP Data Warehouse – Business Scenario

In our scenario we have our current and historic sales revenue information available in SAP BW4/HANA and we have our plan data available in a table in SAP HANA Cloud.

We will first leverage the existing BW4/HANA Query and generate the model in SAP Data Warehouse Cloud and then create a new remote table based on the connection to SAP HANA Cloud.

In the last step we will then combine these two data source in a model in SAP Data Warehouse Cloud and leverage the data visualization options in SAP Analytics Cloud based on the model we created.

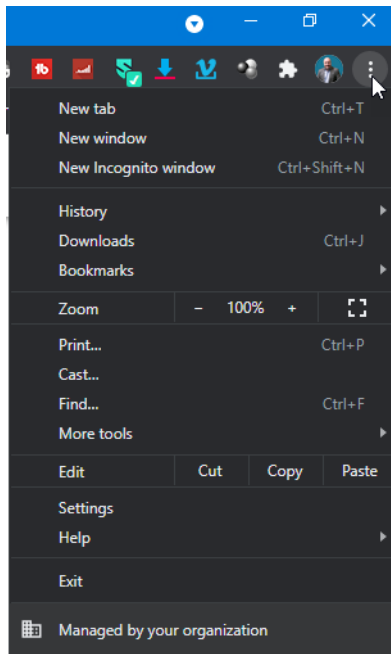
BEFORE YOU START YOUR EXERCISES

Please configure your browser language for Chrome to be English.

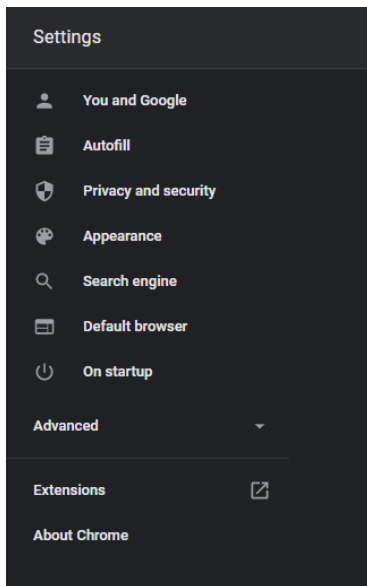
All exercises and all information have been configured and tested for English and are designed to have the best experience with English as language

To configure the browser language:

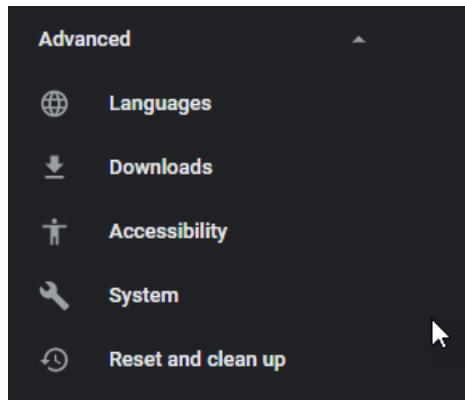
1. Open Google Chrome on your local system.



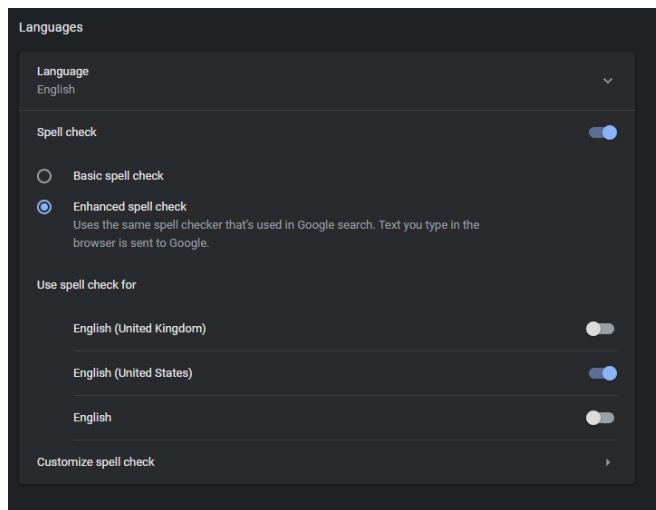
2. In the top right click More (the icon with three dots).
3. Select the menu option Settings.



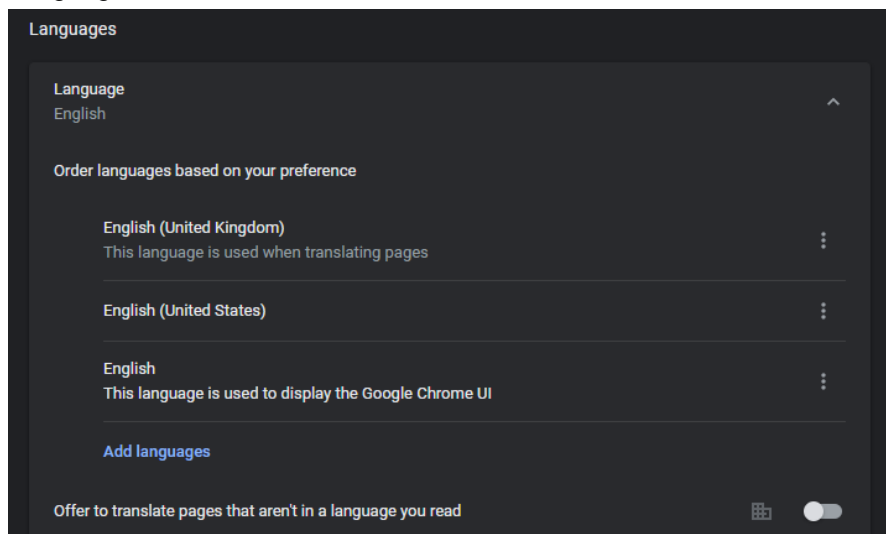
4. In the menu bar on the left-hand side, select the option Advanced.



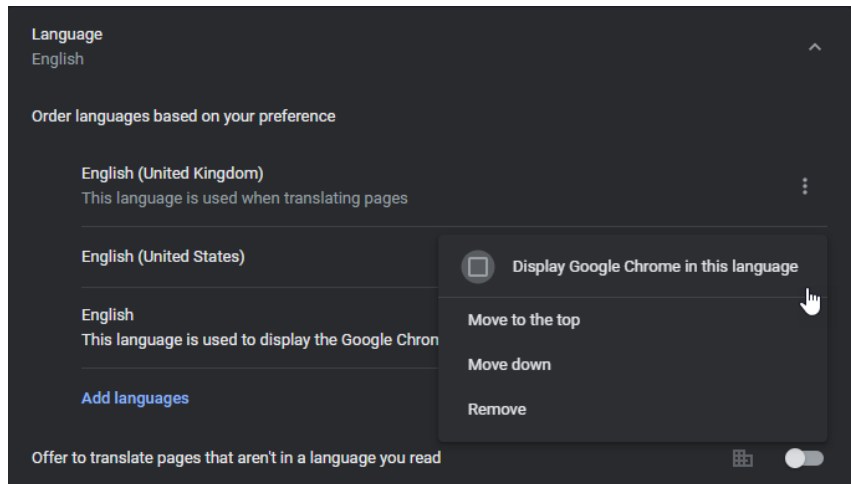
5. Under Advanced click the menu option Languages.



6. Navigate to the entry Language.
7. Ensure the language is set to English. In case English has not been added, you can use the option Add Languages.

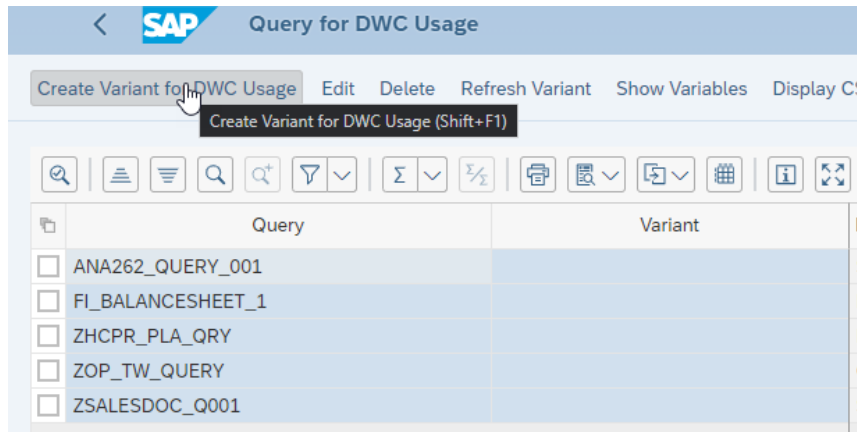


8. Next to the language open the More menu (Icon with three dots).



9. Select the option Display Google Chrome in this language.
10. You will have to restart Google Chrome to ensure the changes are taking effect.

15. Select the option **Create Variant for DWC Usage** in the menu bar.



16. In the upcoming screen enter the BW/4HANA Query name: **ANA262_QUERY_XXX** and replace the XXX with your assigned number (3 digit number).

Query for DWC Usage

Query

Select Query: ANA262_QUERY_XXX

Variable

DWC Variant Name:

Set Variable Values

17. Press **ENTER** on the keyboard.

18. Click **Release** (bottom right).

Query for DWC Usage

Query

Select Query: ANA262_QUERY_001

Variable

DWC Variant Name:

Set Variable Values

Message Text

INFOPRGV is not a supported dimension in DWC

Release

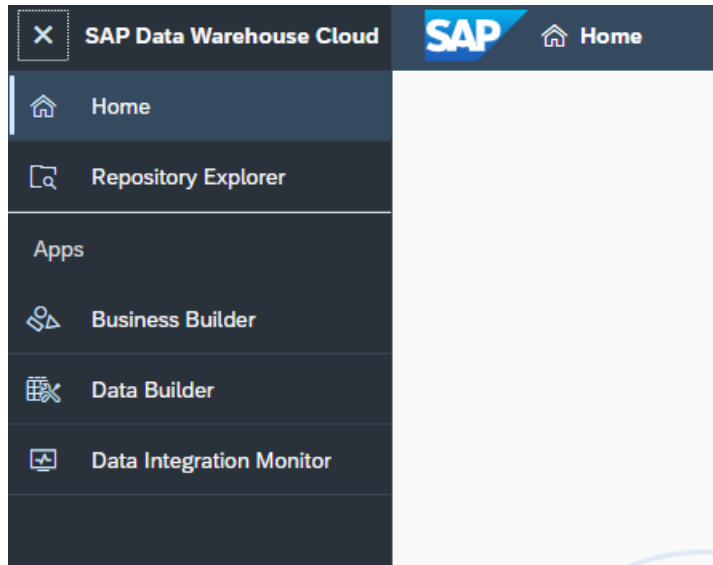
19. The BW/4HANA Query will then be listed in the list of released BW/4HANA Queries.

20. Close the transaction screen in the browser.

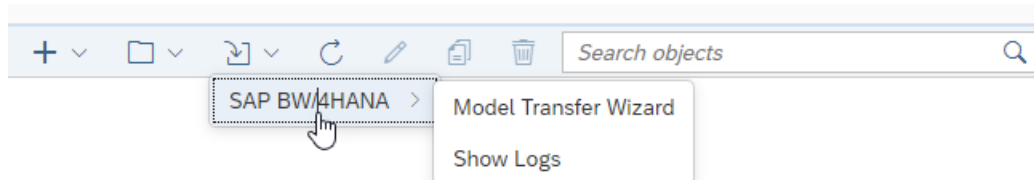
The BW/4HANA Query has been released and can now be used as part of the SAP BW/4HANA Model transfer in SAP Data Warehouse Cloud.

3.2 SAP Data Warehouse Cloud – Exercise 02: SAP BW4HANA Model Transfer

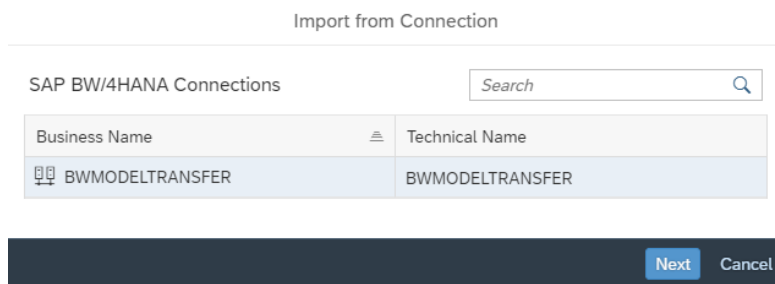
1. Open Google Chrome and log on to your SAP Data Warehouse Cloud system.
2. In the top left of the start screen you will find the menu options.



3. Select the menu **Business Builder**.
4. In case you are being asked to select a SPACE, please select the Space that matches your User Name and Number - **AC3864U<XX>**. **Replace <XX> with your assigned number.**
5. In the start screen of the Business Builder, open the **Import menu**.



6. Select the option **SAP BW/4HANA**.
7. Select the option **Model Transfer Wizard**.



8. Select the entry for the **BWMODELTRANSFER** connection.

9. Click **Next**.

SAP BW/4HANA / BWMODELTRANSFER

Analytical Queries (5) ⓘ

Search



ZSALESDOC_Q001

FI_BALANCESHEET_1

ZOP_TW_QUERY

ZHCPR_PLA_QRY

ANA262_QUERY_001

10. Select the BW/4HANA Query – **ANA262_QUERY_XXX** (XXX being replaced with your user number) from the list.
11. Ensure the BW Query matching your user number – **ANA262_QUERY_XXX** (XXX being replaced with your user number)- is selected in the list of Analytical Queries.

⚠ 21 objects contain the same technical name or business name as existing objects in your space. We will overwrite these objects.



Business Builder (7)

Data Builder (21)

Objects (7)

Search



Business Name	Import Status
SAP TechED ANA262 - Query 001	Will be imported
Chart of Accounts	Will be imported
G/L Account	Will be imported
Product ID	Will be imported
REGION	Will be imported
Version	Will be imported
Planning HCPR	Will be imported

12. You are presented with the list of assets that will be generated as part of the Business Builder as well as part of the Data Builder.

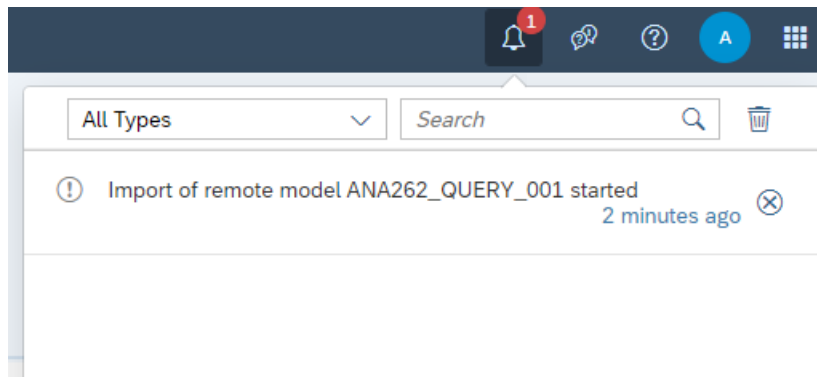
Business Builder (7) **Data Builder (21)**

Objects (21) Search

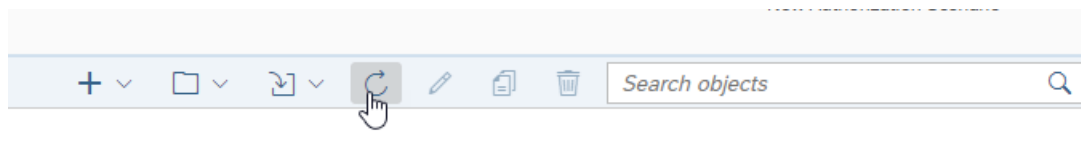
Business Name	Technical Name	Import Status
/BIO/MCHRT_ACCTS	Remote.BWMODELTRANSFER.BIOMCHRT_ACCTS	Will be imported
/BIO/MGL_ACCOUNT	Remote.BWMODELTRANSFER.BIOMGL_ACCOUNT	Will be imported
/BIO/TCHRT_ACCTS	Remote.BWMODELTRANSFER.BIOTCHRT_ACCTS	Will be imported
/BIC/MZPRDCT	Remote.BWMODELTRANSFER.BICMZPRDCT	Will be imported
/BIC/MZREGN	Remote.BWMODELTRANSFER.BICMZREGN	Will be imported
/BIC/TZPRDCT	Remote.BWMODELTRANSFER.BICTZPRDCT	Will be imported
/BIC/TZREGN	Remote.BWMODELTRANSFER.BICTZREGN	Will be imported
/BIC/TZVERSION	Remote.BWMODELTRANSFER.BICTZVERSION	Will be imported
Planning HCPR	Remote.BWMODELTRANSFER.BICVZHCPR_PLA8	Will be imported
Chart of Accounts	Remote.BWMODELTRANSFER.0CHRT_ACCTS__T	Will be imported
Product ID	Remote.BWMODELTRANSFER.ZPRDCT__T	Will be imported
REGION	Remote.BWMODELTRANSFER.ZREGN__T	Will be imported
Planning HCPR	Remote.BWMODELTRANSFER.DLZHCPR_PLA	Will be imported
Chart of Accounts	Remote.BWMODELTRANSFER.DLOCHRT_ACCTS	Will be imported
Chart of Accounts	Remote.BWMODELTRANSFER.TAOCHRT_ACCTS	Will be imported
G/L Account	Remote.BWMODELTRANSFER.DLOGL_ACCOUNT	Will be imported
Product ID	Remote.BWMODELTRANSFER.DLZPRDCT	Will be imported
Product ID	Remote.BWMODELTRANSFER.TAZPRDCT	Will be imported
REGION	Remote.BWMODELTRANSFER.DLZREGN	Will be imported
REGION	Remote.BWMODELTRANSFER.TAZREGN	Will be imported

13. Click **Import**.

14. The import of the required elements for the Data Layer as well as the Business Layer will start and you will receive a notification when the import has finished. Notifications are listed in the top right corner (Alarm bell icon).



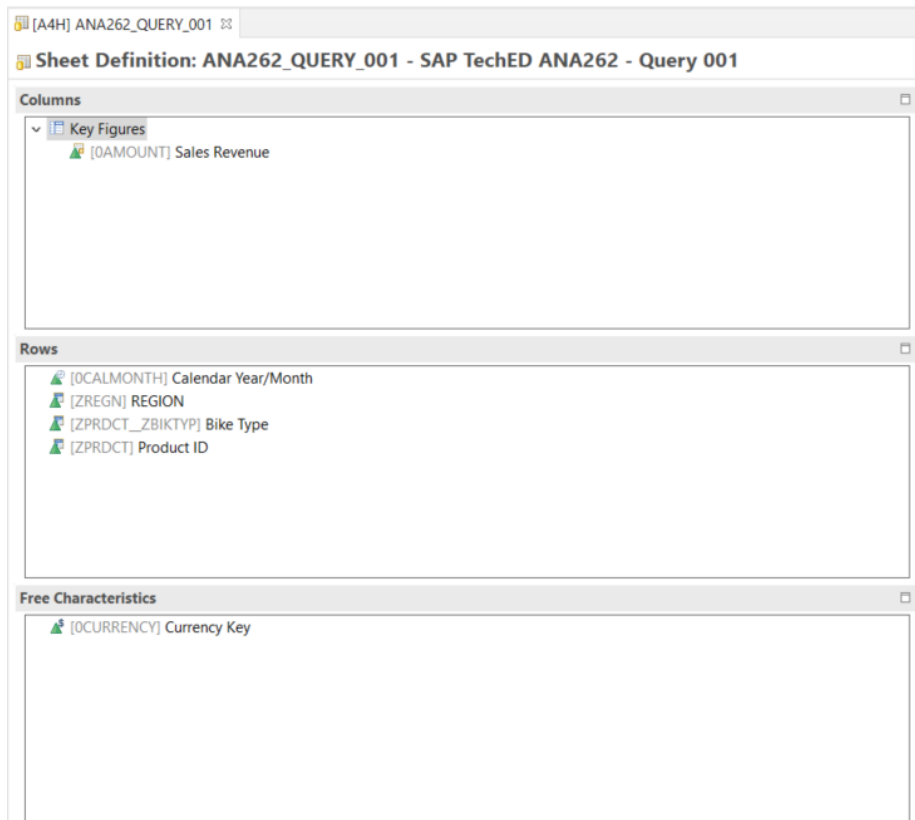
After you received the succesful deployment message, please click the Refresh icon to refresh the list of assets.



3.3 SAP Data Warehouse Cloud – Exercise 03: Details on Data Warehouse Cloud Assets

In the following steps we will review the generated assets in the Data Layer and Business Layer and how they related back to our source BW Query.

The BW Query we used has the following elements:



Key Figures

- Sales Revenue (0AMOUNT)

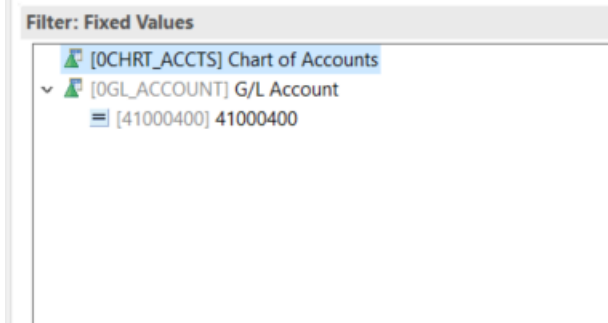
Characteristics in the Rows

- Calendar Year / Month (0CALMONTH)
- Region (ZREGION)
- Bike Type (ZPRDCT_ZBIKTYP)
- Product ID (ZPRDCT)

Free Characteristics

- Currency Key (0CURRENCY)

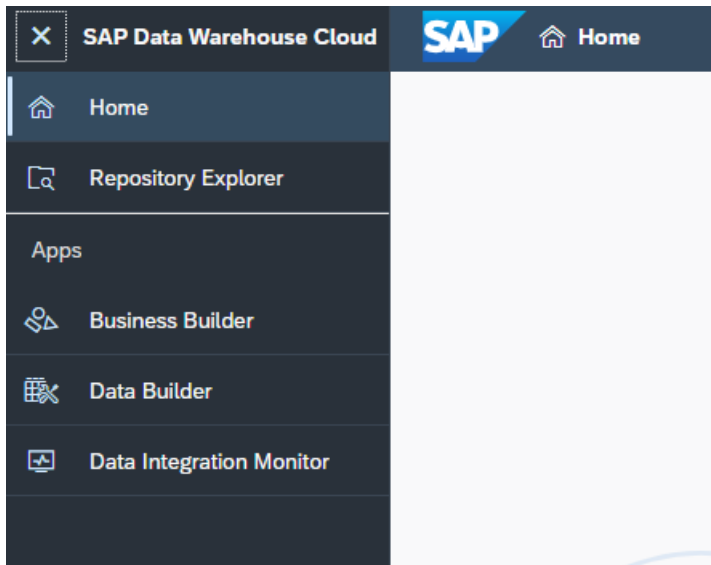
As part of the Filter Area we have the following definitions



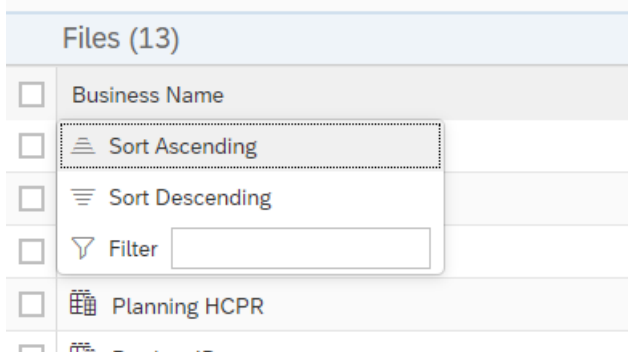
Filter Area

- Chart of Accounts (0CHRT_ACCTS)
- G/L Account (0GL_ACCOUNT)














1. Open Google Chrome and log on to your SAP Data Warehouse Cloud system.
2. In the top left of the start screen you will find the menu options.



3. Select the menu **Data Builder**.
4. Select the option **Views**.
5. On the Start screen of the Data Builder click on the column header for the **Business Name**.





6. Select the option **Sort Ascending**.

Files (13)			
<input type="checkbox"/>	Business Name	Technical Name	Type
<input type="checkbox"/>	 Chart of Accounts	Remote.BWMODELTRANSFER.0CHRT_ACCTS__T	View (Relational Dataset)
<input type="checkbox"/>	 Chart of Accounts	Remote.BWMODELTRANSFER.DL0CHRT_ACCTS	View (Dimension)
<input type="checkbox"/>	 G/L Account	Remote.BWMODELTRANSFER.DL0GL_ACCOUNT	View (Dimension)
<input type="checkbox"/>	 Planning HCPR	Remote.BWMODELTRANSFER.DLZHCPR_PLA	View (Analytical Dataset)
<input type="checkbox"/>	 Product ID	Remote.BWMODELTRANSFER.ZPRDCT__T	View (Relational Dataset)
<input type="checkbox"/>	 Product ID	Remote.BWMODELTRANSFER.DLZPRDCT	View (Dimension)
<input type="checkbox"/>	 REGION	Remote.BWMODELTRANSFER.DLZREGN	View (Dimension)
<input type="checkbox"/>	 REGION	Remote.BWMODELTRANSFER.ZREGN__T	View (Relational Dataset)
<input type="checkbox"/>	 Time Dimension - Day	SAP.TIME.VIEW_DIMENSION_DAY	View (Dimension)
<input type="checkbox"/>	 Time Dimension - Month	SAP.TIME.VIEW_DIMENSION_MONTH	View (Dimension)
<input type="checkbox"/>	 Time Dimension - Quarter	SAP.TIME.VIEW_DIMENSION_QUARTER	View (Dimension)
<input type="checkbox"/>	 Time Dimension - Year	SAP.TIME.VIEW_DIMENSION_YEAR	View (Dimension)
<input type="checkbox"/>	 Version	Remote.BWMODELTRANSFER.DLZVERSION	View (Dimension)

You can see now, that for each characteristic that is part of the BW Query, we did receive a View (Dimension) and a View (Relational Dataset).

Here the two views for the characteristic Product ID:

	Product ID	Remote.BWMODELTRANSFER.ZPRDCT__T	View (Relational Dataset)
	Product ID	Remote.BWMODELTRANSFER.DLZPRDCT	View (Dimension)

7. Click on the entry **View (Relational Dataset) for Product ID**. The Technical Name ends with “__T”.

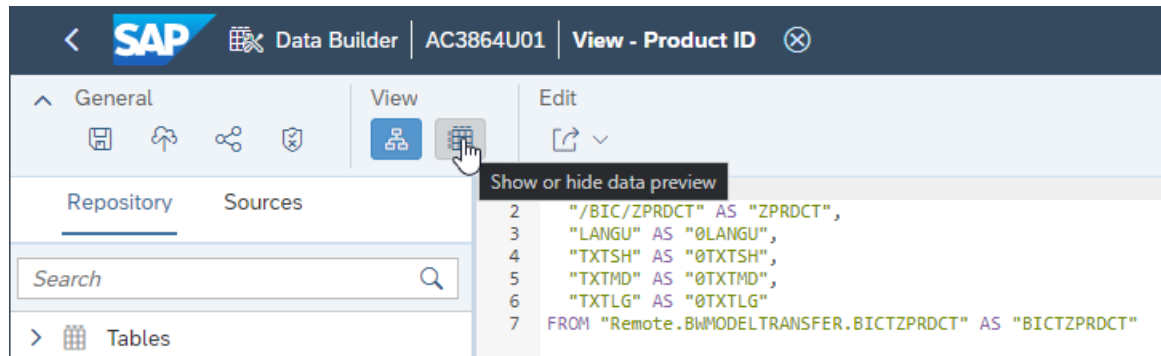
```

1 SELECT
2   "/BIC/ZPRDCT" AS "ZPRDCT",
3   "LANGU" AS "0LANGU",
4   "TXTSH" AS "0TXTSH",
5   "TXTMD" AS "0TXTMD",
6   "TXTLG" AS "0TXTLG"
7 FROM "Remote.BWMODELTRANSFER.BICTZPRDCT" AS "BICTZPRDCT"



```

8. You can see based on the SQL that this is the View which brings in the short, medium, and long description values for the characteristic.

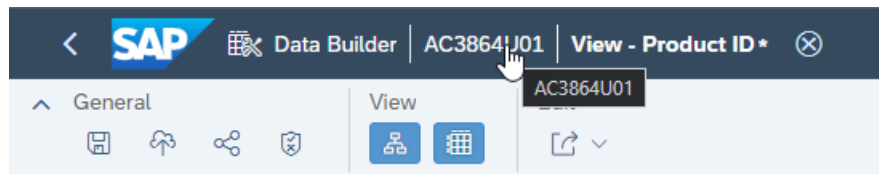
9. In the Toolbar click on the **Preview** option.



10. You are presented with the **Data Preview** for the descriptions.

Data Preview: Remote.BWMODELTRANSFER.ZPRODT__T (23)					Errors					
Product ID	Language key	Short description	Medium description	Long description						
0000000000000000000000000000000000000000...	E	-	-	Cross Bikes						
MZ-FG-C900	E	-	-	C900 Bike						
MZ-FG-C950	E	-	-	C950 Bike						
MZ-FG-C990	E	-	-	C990 Bike						
MZ-FG-E101	E	-	-	eBike E101						
MZ-FG-E102	E	-	-	eBike E102						
MZ-FG-E103	E	-	-	eBike E103						
MZ-FG-M500	E	-	-	M500 Bike						
MZ-FG-M525	E	-	-	M525 Bike						

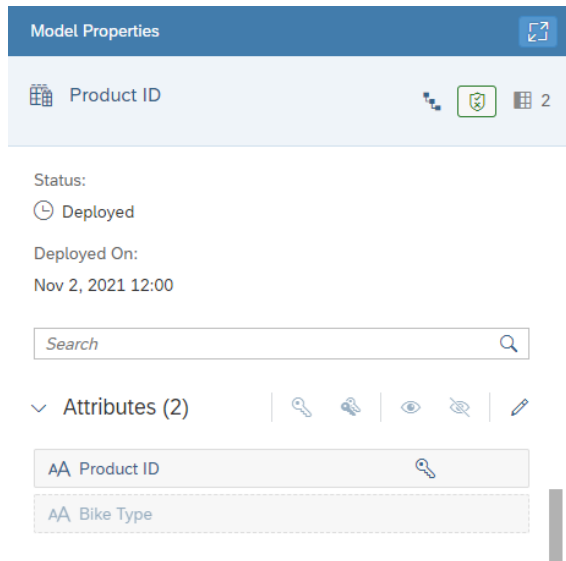
11. Now click on your SPACE Name in the top navigation bar.



12. In case you are being asked, Discard any changes.
13. Now click on the **View (Dimension)** entry for characteristic **Product ID**.

```
1 SELECT
2     "/BIC/ZPRDCT" AS "ZPRDCT",
3     "/BIC/ZBIKTYP" AS "ZBIKTYP"
4 FROM Remote.BwMODELTRANSFER.BICMZPRDCT AS "BICMZPRDCT"
5 WHERE "BICMZPRDCT"."OBJVERS" = 'A'
```


14. As you can see in the SQL As well as in the Properties on the right hand side...



15. ... we have Product ID as well as Bike Type. Bike Type is an Attribute for characteristic Product ID.

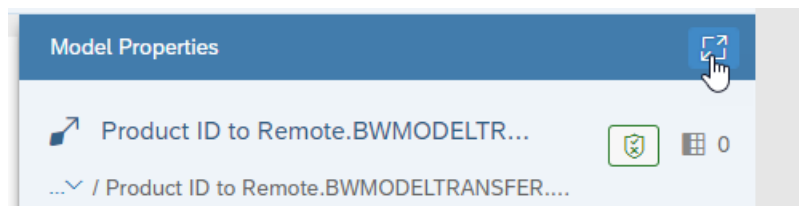
16. In the **Properties panel** on the right hand side, scroll down to the area **Associations**.



17. Navigate to the far right and select the option to **Edit the Association**.



18. In the top right of the **Properties** panel, select the option to enter full screen.



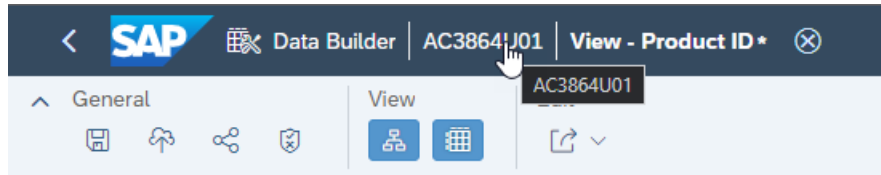
19. Now you can see the Details of the Association.



20. You can see that the View (Dimension) for Product ID is joined with the View (Relational Dataset) in form of an Association, so that you have access to the different description values.

21. Click on the icon for the Full Screen option in the top right to minimize the Properties panel.

22. Now click on your SPACE Name in the top navigation bar.



23. In case you are being asked, **Discard** any changes.

24. In the list of Data Builder Assets – in addition to the views for the characteristics, we also see the **Analytical Dataset – Planning HCPR**.


<input type="checkbox"/>	Business Name	Technical Name	Type
<input type="checkbox"/>	Chart of Accounts	Remote.BWMODELTRANSFER.0CHRT_ACCTS__T	View (Relational Dataset)
<input type="checkbox"/>	Chart of Accounts	Remote.BWMODELTRANSFER.DL0CHRT_ACCTS	View (Dimension)
<input type="checkbox"/>	G/L Account	Remote.BWMODELTRANSFER.DL0GL_ACCOUNT	View (Dimension)
<input type="checkbox"/>	Planning HCPR	Remote.BWMODELTRANSFER.DLZHCPR_PLA	View (Analytical Dataset)



25. Click on the entry.






1	SELECT
2	"BICVZHCPR_PLA8_0"."0AMOUNT" AS "0AMOUNT",
3	"BICVZHCPR_PLA8_0"."0CALMONTH" AS "0CALMONTH",
4	"BICVZHCPR_PLA8_0"."0CHRT_ACCTS" AS "0CHRT_ACCTS",
5	"BICVZHCPR_PLA8_0"."0CURRENCY" AS "0CURRENCY",
6	"BICVZHCPR_PLA8_0"."0GL_ACCOUNT" AS "0GL_ACCOUNT",
7	"BICVZHCPR_PLA8_0"."0INFOPROV" AS "0INFOPROV",
8	"BICVZHCPR_PLA8_0"."0REQTSN" AS "0REQTSN",
9	"BICVZHCPR_PLA8_0"."1ROWCOUNT" AS "1ROWCOUNT",
10	"BICVZHCPR_PLA8_0"."ZPRDCT" AS "ZPRDCT",
11	"_ZPRDCT_1"."ZBIKTYP" AS "ZPRDCT_ZBIKTYP",
12	"BICVZHCPR_PLA8_0"."ZREGN" AS "ZREGN",
13	"BICVZHCPR_PLA8_0"."ZVERSION" AS "ZVERSION"
14	FROM ("Remote.BWMODELTRANSFER.BICVZHCPR_PLA8" AS "BICVZHCPR_PLA8_0" LEFT JOIN "Remote.BWMODELTRANSFER.DLZPRDCT" AS "_ZPRDCT_1" ON "BICVZHCPR_PLA8_0"."ZPRDCT" = "_ZPRDCT_1"."ZPRDCT")











This Analytical Dataset basically represents the Resultset from your BW/4HANA Query.

26. In the Properties panel, navigate to the **Measures** and **Attributes** area.

Measures (2) 




 Amount	SUM
 Number of Records	SUM






Attributes (10)     

 AA Calendar Year/Month
 AA Chart of Accounts
 AA Currency
 AA G/L Account
 AA InfoProvider
 AA Request TSN
 AA Product ID
 AA Bike Type
 AA REGION
 AA Version

27. Here you can see all the elements from the BW Query in combination with a few mandatory elements, such as the characteristic for InfoProvider.

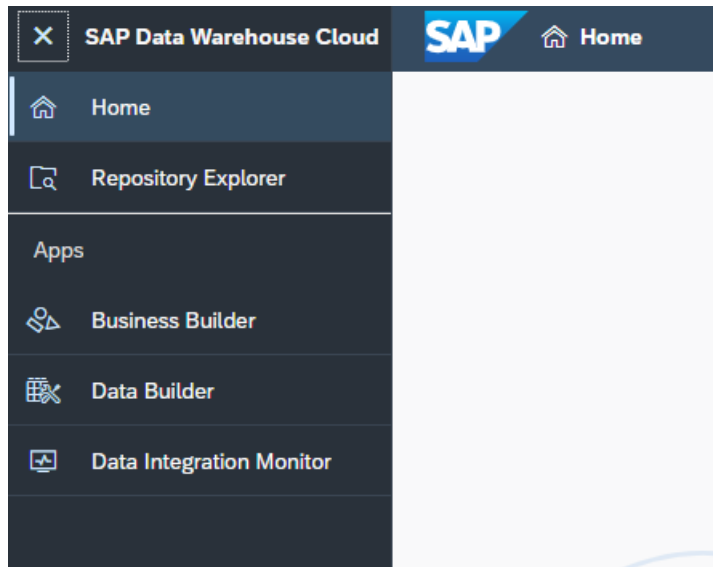
28. Scroll down to the area **Associations**

Associations (5)   

 _0CHRT_ACCTS
 _0GL_ACCOUNT
 _ZPRDCT
 _ZREGN
 _ZVERSION




















29. You can see that all the characteristics are being joined to the resultset in form of **Associations**.

30. In the top left of the start screen you will find the menu options.



31. Select the menu Data Builder.

32. Select the option Tables.

Files (19)			
<input type="checkbox"/>	Business Name	Technical Name	Type
<input type="checkbox"/>	 DataSetBikesCSV	DataSetBikesCSV	Local Table (Relational Dataset)
<input type="checkbox"/>	 DataSetBikes_Predictions	DataSetBikes_Predictions	Local Table (Relational Dataset)
<input type="checkbox"/>	 ProductTexts	ProductTexts	Local Table (Relational Dataset)
<input type="checkbox"/>	 /BIO/MCHRT_ACCTS	Remote.BWMODELTRANSFER.BIOMCHRT_ACCTS	Remote Table (Relational Dataset)
<input type="checkbox"/>	 /BIO/MGL_ACCOUNT	Remote.BWMODELTRANSFER.BIOMGL_ACCOUNT	Remote Table (Relational Dataset)
<input type="checkbox"/>	 /BIO/TCHRT_ACCTS	Remote.BWMODELTRANSFER.BIOTCHRT_ACCTS	Remote Table (Relational Dataset)
<input type="checkbox"/>	 /BIC/MZPRDCT	Remote.BWMODELTRANSFER.BICMZPRDCT	Remote Table (Relational Dataset)
<input type="checkbox"/>	 /BIC/MZREGN	Remote.BWMODELTRANSFER.BICMZREGN	Remote Table (Relational Dataset)
<input type="checkbox"/>	 /BIC/TZPRDCT	Remote.BWMODELTRANSFER.BICTZPRDCT	Remote Table (Relational Dataset)
<input type="checkbox"/>	 /BIC/TZREGN	Remote.BWMODELTRANSFER.BICTZREGN	Remote Table (Relational Dataset)
<input type="checkbox"/>	 /BIC/TZVERSION	Remote.BWMODELTRANSFER.BICTZVERSION	Remote Table (Relational Dataset)
<input type="checkbox"/>	 Planning HCPR	Remote.BWMODELTRANSFER.BICVZHCPR_PLA8	Remote Table (Relational Dataset)
<input type="checkbox"/>	 Chart of Accounts	Remote.BWMODELTRANSFER.TAOCHRT_ACCTS	Remote Table (Dimension)
<input type="checkbox"/>	 Product ID	Remote.BWMODELTRANSFER.TAZPRDCT	Remote Table (Dimension)
<input type="checkbox"/>	 REGION	Remote.BWMODELTRANSFER.TAZREGN	Remote Table (Dimension)
<input type="checkbox"/>	 Time Table	SAPTIME.M_TIME_DIMENSION	Local Table (Relational Dataset)
<input type="checkbox"/>	 Translation Table - Day	SAPTIME.M_TIME_DIMENSION_TDAY	Local Table (Text)
<input type="checkbox"/>	 Translation Table - Month	SAPTIME.M_TIME_DIMENSION_TMONTH	Local Table (Text)
<input type="checkbox"/>	 Translation Table - Quarter	SAPTIME.M_TIME_DIMENSION_TQUARTER	Local Table (Text)





33. Here you get to see the underlying tables that were generated based on our BW/4HANA Query.

34. We will take the Product ID characteristic as an example to outline the tables.

35. Click on the header **Technical Name**.

36. Enter **PRDCT** as Filter.

37. You should now see three entries.

Files (3)		
<input type="checkbox"/>	Business Name	Technical Name 
<input type="checkbox"/>	 /BIC/MZPRDCT	Remote.BWMODELTRANSFER.BICMZPRDCT
<input type="checkbox"/>	 /BIC/TZPRDCT	Remote.BWMODELTRANSFER.BICTZPRDCT
<input type="checkbox"/>	 Product ID	Remote.BWMODELTRANSFER.TAZPRDCT

You have the following tables:

BICMZPRDCT The table represents the Master Data for the characteristic Product ID

BICTZPRDCT The table represents the Text / Descriptions for the characteristic Product ID



TAZPRDCT The table represents the Text / Descriptions for the Attributes from the characteristic.

38. Click on the header **Technical Name** again.

39. Remove the value for the Filter.

40. Press **ENTER** on the keyboard.

41. In the list of Tables you will also see the table **Planning HCPR**, which is the representation of your BW Query (The technical name of the table contains the name of the InfoProvider)

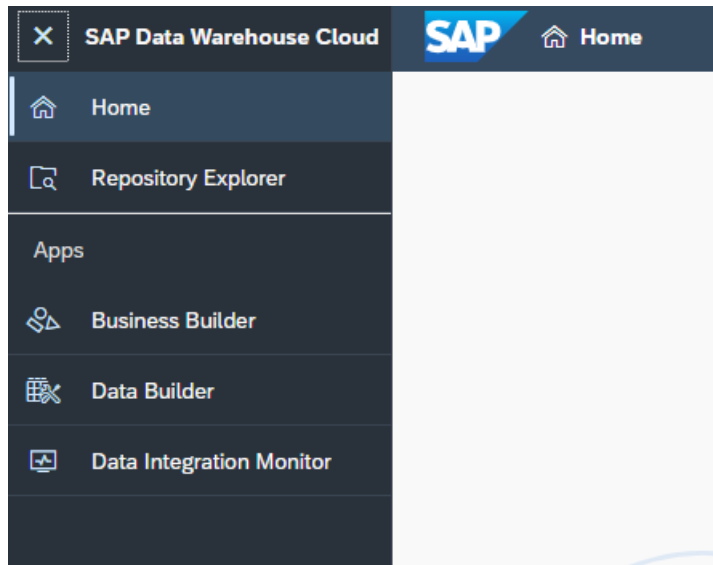
<input type="checkbox"/>	 Planning HCPR	Remote.BWMODELTRANSFER.BICVZHCPR_PLA8	Remote Table (Relational Dataset)	 Deployed
--------------------------	---------------------------------------------------------------------------------------------------	---------------------------------------	-----------------------------------	------------------------------------------------------------------------------------------------

42. Click on the entry for the Table **Planning HCPR**.

Columns (11)		
<input type="checkbox"/>	 Business Name	Technical Name
<input type="checkbox"/>	<input type="checkbox"/> Amount	OAMOUNT
<input type="checkbox"/>	<input type="checkbox"/> Calendar Year/Month	OCALMONTH
<input type="checkbox"/>	<input type="checkbox"/> Chart of Accounts	OCHRT_ACCTS
<input type="checkbox"/>	<input type="checkbox"/> Currency	OCURRENCY
<input type="checkbox"/>	<input type="checkbox"/> G/L Account	OGL_ACCOUNT
<input type="checkbox"/>	<input type="checkbox"/> InfoProvider	OINFOPROV
<input type="checkbox"/>	<input type="checkbox"/> Request TSN	OREQTSN
<input type="checkbox"/>	<input type="checkbox"/> Number of Records	1ROWCOUNT
<input type="checkbox"/>	<input type="checkbox"/> Product ID	ZPRDCT
<input type="checkbox"/>	<input type="checkbox"/> REGION	ZREGN

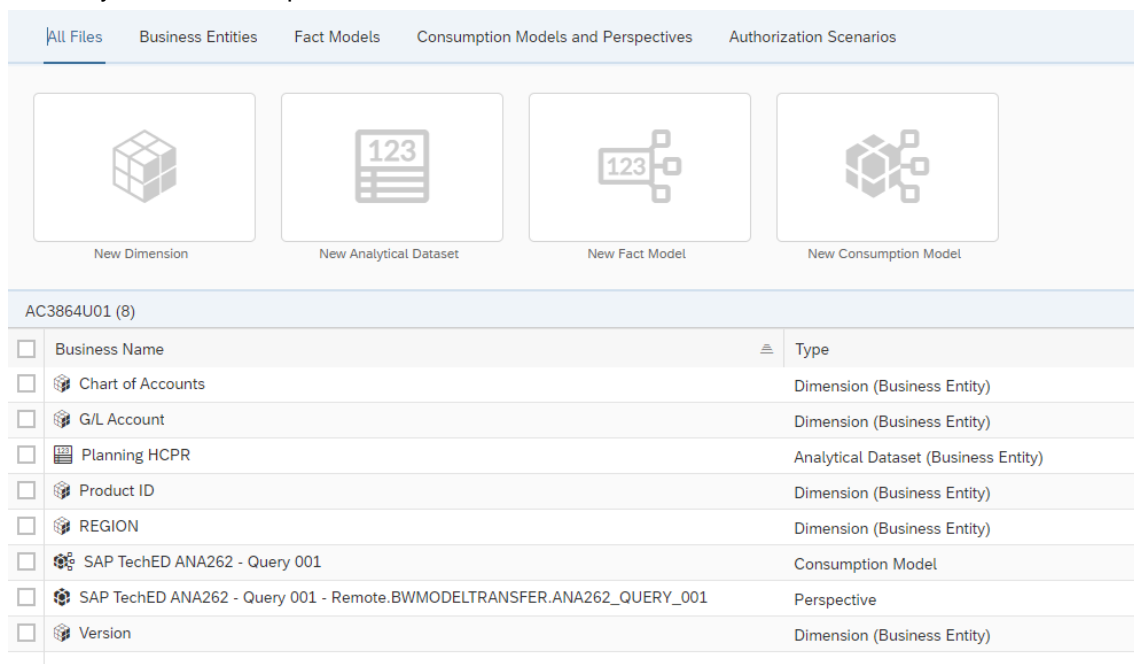
43. In the Columns section you can see all the elements generated based on the details from the BW Query.

44. In the top left of the start screen you will find the menu options.



45. Select the menu Business Builder.

46. Ensure you select the option All Files.



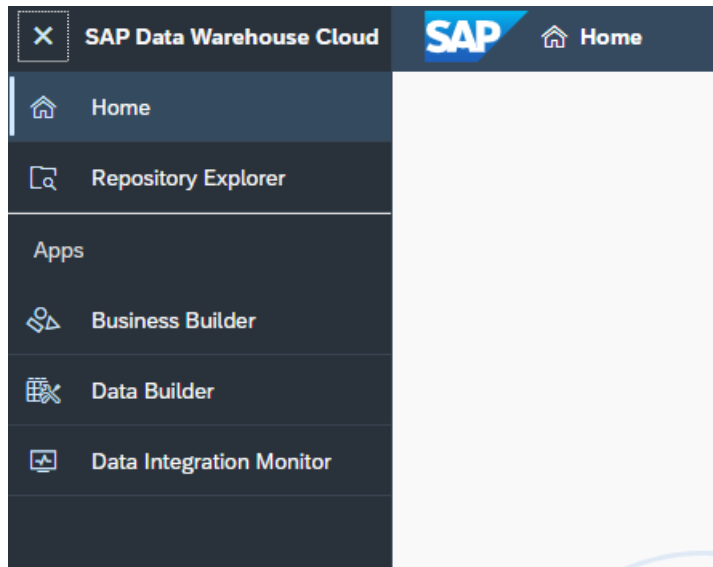
47. You can see now, that the following elements have been generated:

- For each characteristic from the BW Query we received a Dimension
- For the overall resultset we received the Analytical Dataset
- We also have the Consumption Model and the Perspective based on the BW Query

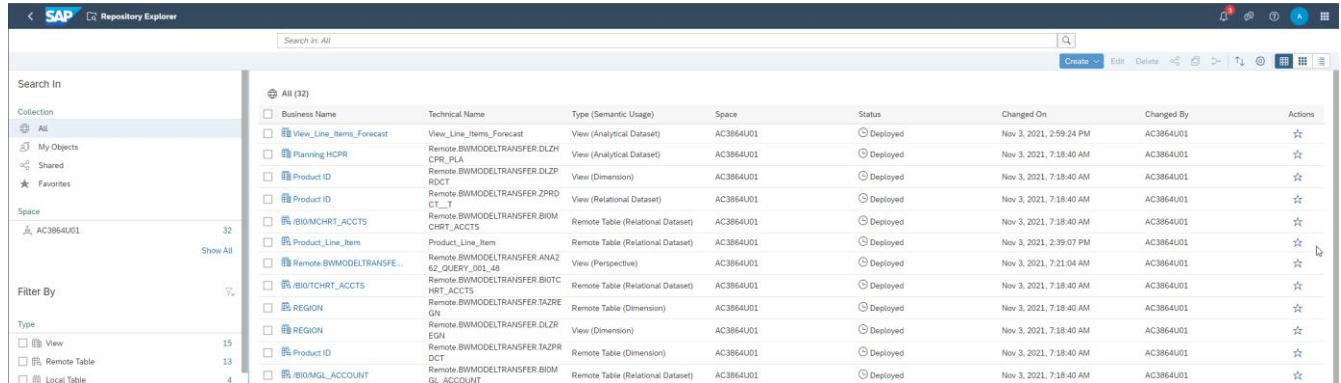
3.4 SAP Data Warehouse Cloud – Exercise 04: Data Lineage

We can also use the Data Lineage option in SAP Data Warehouse Cloud to see how certain elements are being defined and where certain elements are being used.

1. Open Google Chrome and log on to your SAP Data Warehouse Cloud system.
2. In the top left of the start screen you will find the menu options.

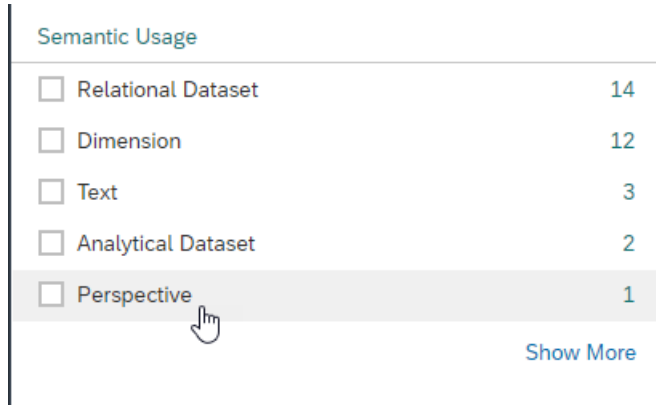


3. Select the menu **Repository Explorer**.



4. You are shown the complete list of assets in SAP Data Warehouse Cloud for your SPACE and you can search and filter based on a variety of criteria.
5. We are interested in the Lineage option, so let's filter the list down to the Perspective from the Business Layer – our top entry.

6. In the panel on the left hand side, select the entry Perspective from the Semantic Usage category.



7. This filters the list down to 1 element.

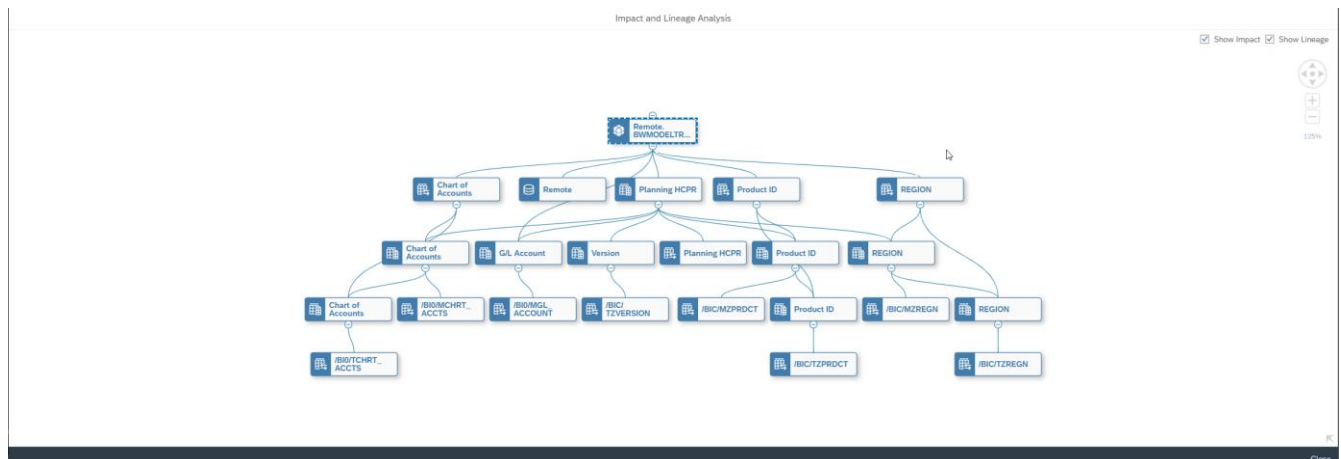
🌐 All (1)

<input type="checkbox"/>	Business Name	Technical Name	Type (Semantic Usage)	Space
<input type="checkbox"/>	Remote.BWMODELTRANSFE...	Remote.BWMODELTRANSFER.ANA262_QUERY_001_48	View (Perspective)	AC3864U01

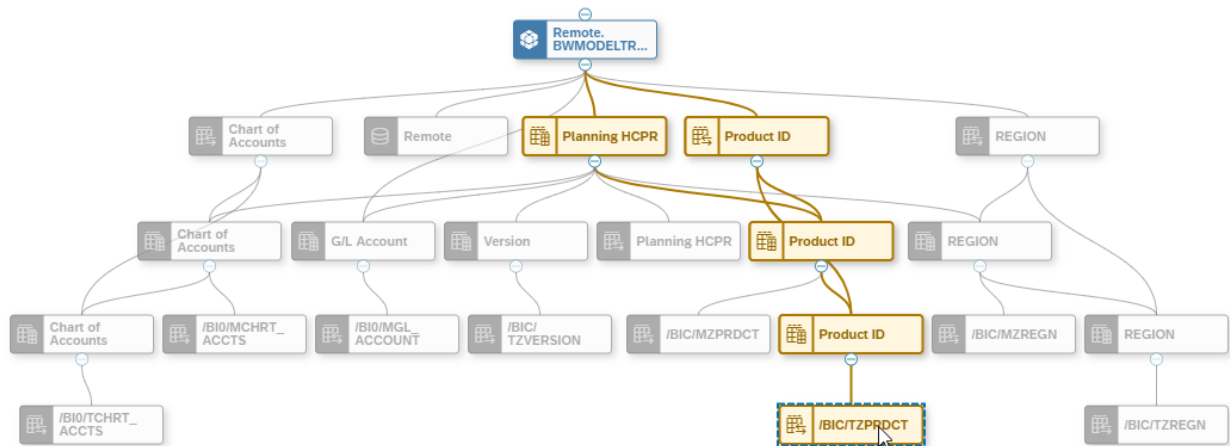
8. Enable the checkbox for the one element.
9. In the top-right click on the Lineage and Impact Analysis option.



10. You are now presented with the impact and lineage for the Business Layer perspective and you can see all elements down to the Remote Table being brought in from SAP BW/4HANA.



11. Select the lowest level for the Product text - /BIC/TZPRDCT.

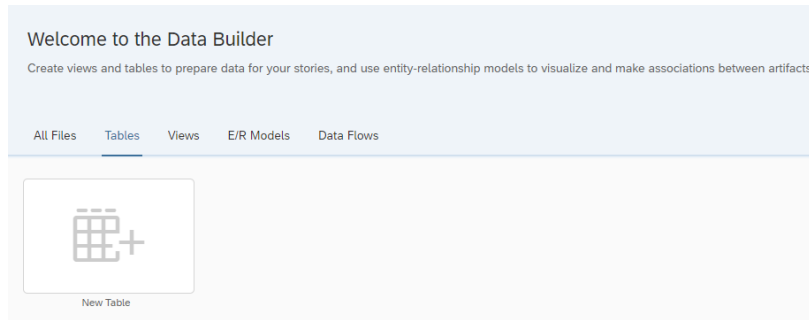


12. After you selected the table, the Impact / Lineage upwards is shown.

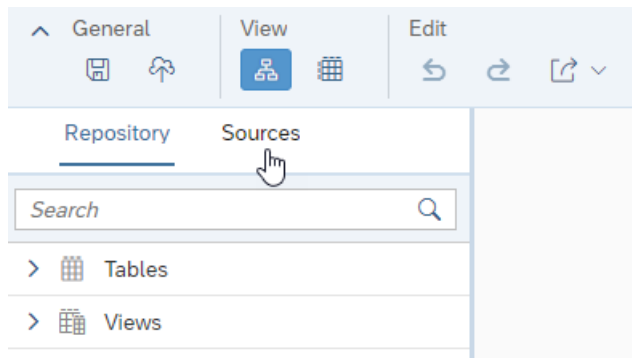
13. Close the screen.

3.5 SAP Data Warehouse Cloud – Exercise 05: Accessing Plan Data in SAP HANA Cloud

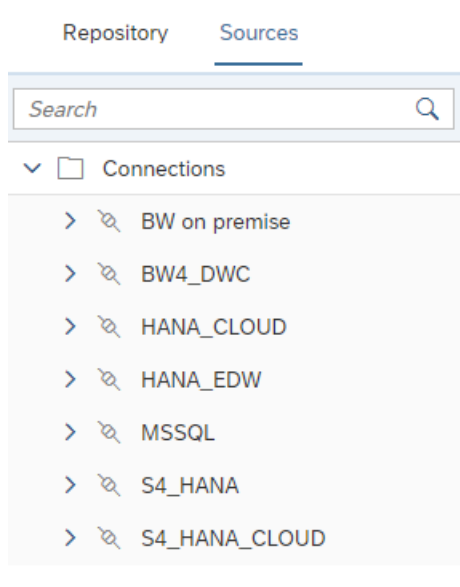
1. Open Google Chrome and log on to your SAP Data Warehouse Cloud system.
2. In the top left of the start screen you will find the menu options.
3. By clicking on the menu in the top left (the icon with the three stripes), you can expand the menu to also show the menu text.
4. Select the menu entry Data Builder.



5. Click on the tab Views.
6. Select the option New Graphical View.

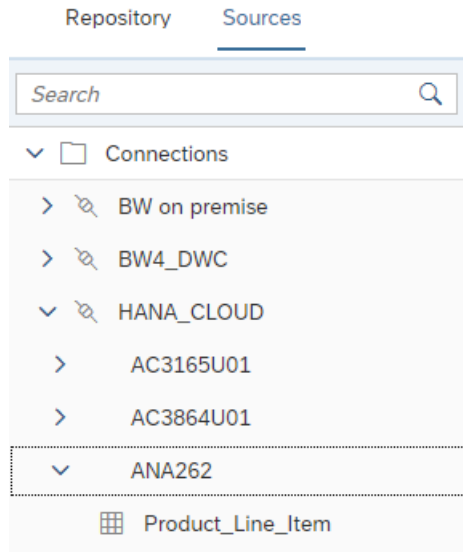


7. On the top left, select the option Sources to receive the list of Connections.
8. Open the list of Connections.

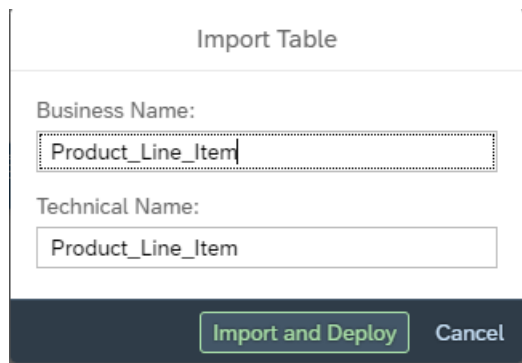


9. Expand the connection HANA_CLOUD.

10. Expand the schema ANA262.



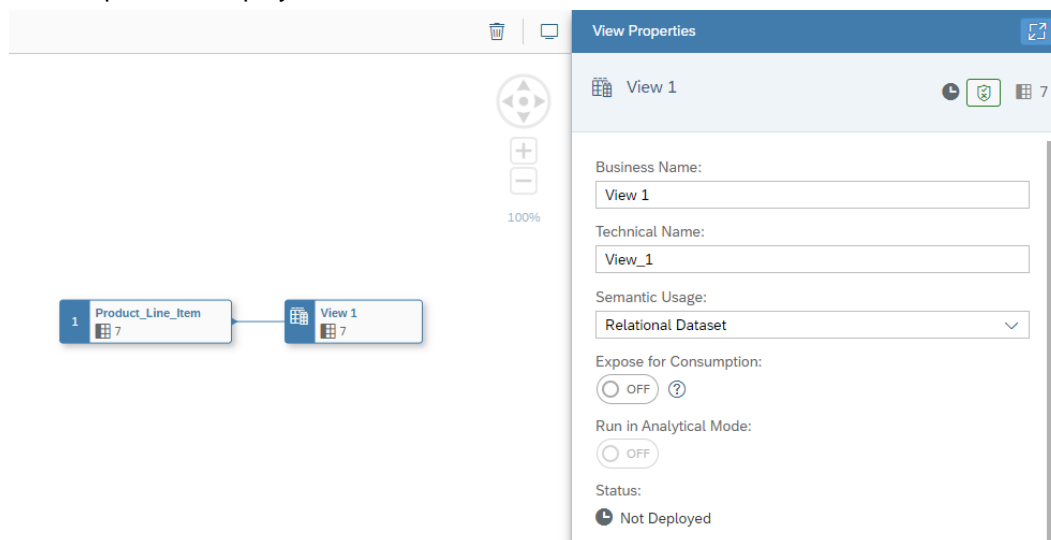
11. Drag and Drop the table Product_Line_Item to your canvas.



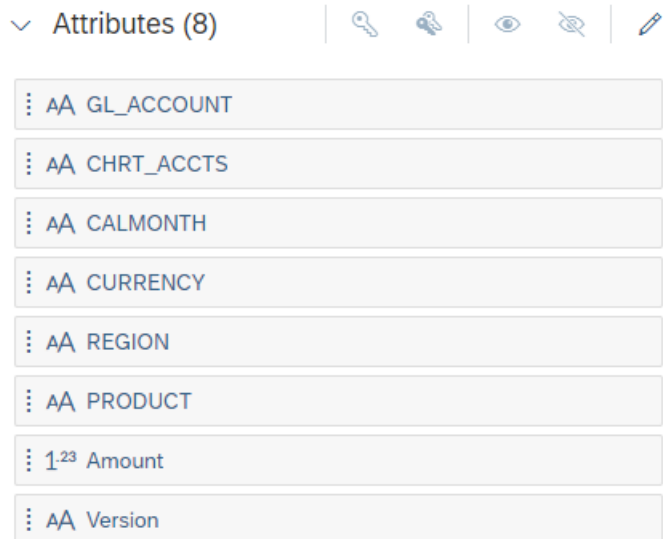
12. You are being asked for the Business Name and the Technical Name.

13. Ensure both names are configured as Product_Line_Item.

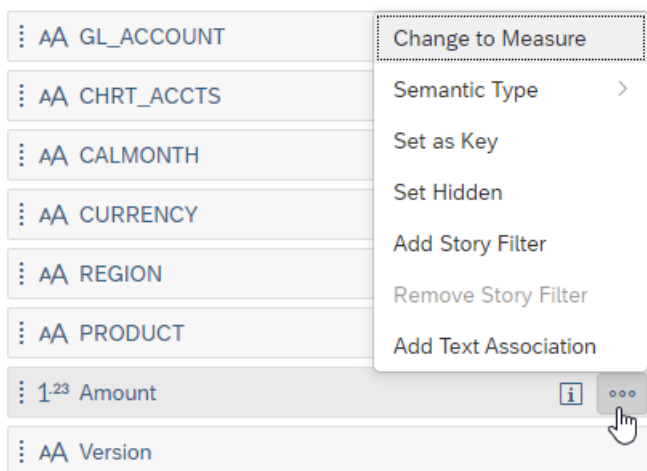
14. Click Import and Deploy.



15. Select the node View 1 on the canvas.
16. Enter the following details:
 - Business Name View_Line_Items_Forecast
 - Technical Name View_Line_Items_Forecast
 - Semantic Usage Analytical Dataset
17. Enable the option Expose for Consumption.
18. In the Properties panel, scroll down to the Attributes section.



19. Select the entry for Amount.
20. Open the More menu for Amount.



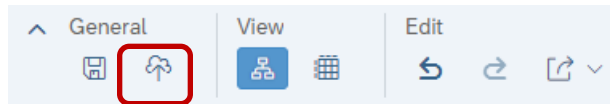
21. Select the menu Change to Measure.
22. In the menu bar now select the option to save your changes.



23. You will be asked to confirm the configured Business Name and Technical Name.

24. Click Save.

25. After you saved the changes use the Deploy option.

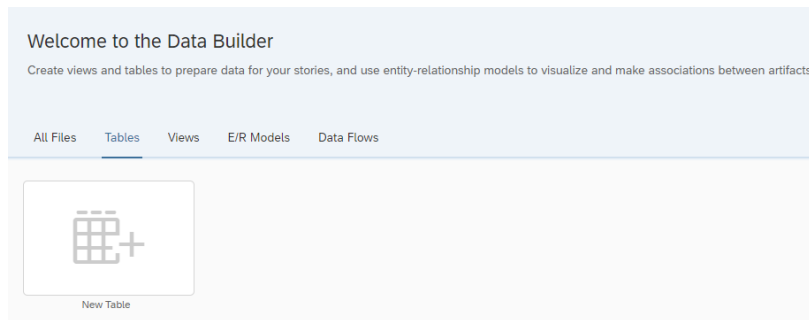


We brought in the table from the HANA Cloud System and created a Data Builder View. In the next step we can now combine this View with the View from our BW4/HANA System and in the way combine the Actual data with our plan data.

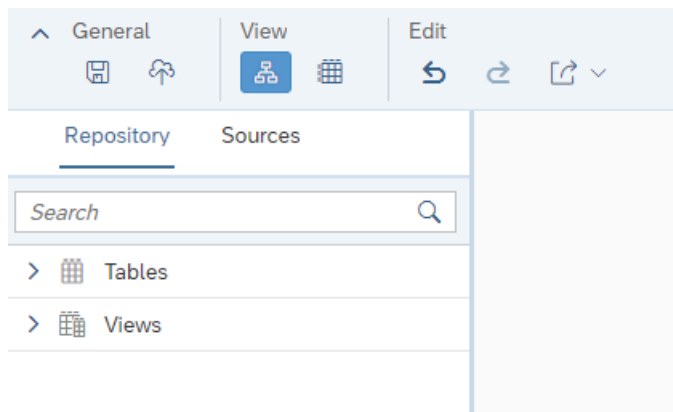
3.6 SAP Data Warehouse Cloud – Exercise 06: Combining Data Sources

In our scenario we have the actual data coming from SAP BW/4HANA and the Plan data is coming from the HANA Cloud system. The data structure is nearly identical, with some additional default columns as part of the BW/4HANA Data source. In the next steps we will first create a Projection for the BW/4HANA Data source and remove those additional columns, and then we will create a UNION as part of the data model to combine the Actual and Plan Data into a single view.

1. Open Google Chrome and log on to your SAP Data Warehouse Cloud system.
2. In the top left of the start screen you will find the menu options.
3. By clicking on the menu in the top left (the icon with the three stripes), you can expand the menu to also show the menu text.
4. Select the menu entry Data Builder.



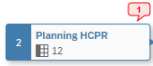
5. Click on the tab Views.
6. Select the option New Graphical View.
7. On the panel on the left hand side, ensure the option Repository is selected.



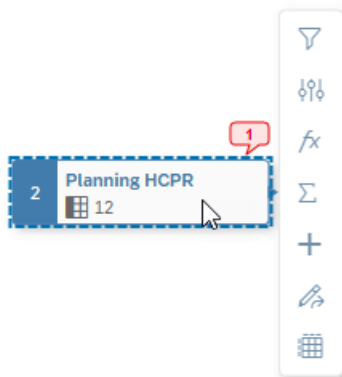
8. Expand the option Views.
9. Now drag and drop the View View_Line_Items_Forecast to the canvas.



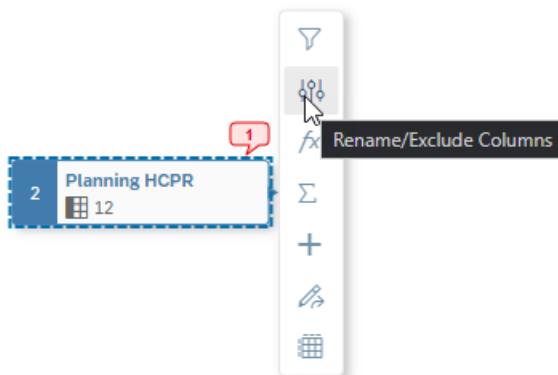
10. You will automatically receive the final output node View 1 as well.
11. Now select the entry Planning HCPR – which is the View for our BW/4HANA Query – in the panel on the left hand side.
12. Drag and Drop the Planning HCPR View also to the canvas – but away from the existing Views, so that it doesn't connect automatically.



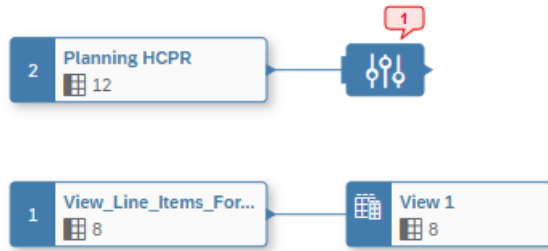
13. We don't want the View to connect automatically as we first want to setup a Projection and remove the additional columns from the list.
14. Now select the View Planning HCPR on the canvas.



15. Select the second icon from the top, which is the Projection.



16. You are now receiving an additional node connected to the Planning HCPR View and you can now configure, which columns are relevant for the output.



17. Select the new Projection Node.
18. Navigate to the Properties panel on the right hand side.

RenameElements Properties

Projection 1

Name *

Projection 1

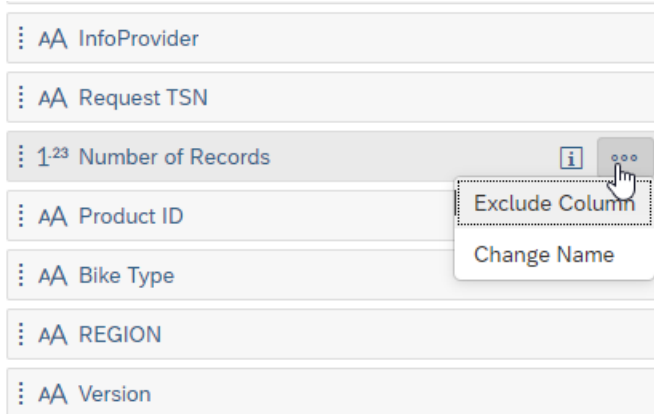
Columns (12)

Search Columns

- 1²³ Amount
- AA Calendar Year/Month
- AA Chart of Accounts
- AA Currency
- AA G/L Account
- AA InfoProvider
- AA Request TSN
- 1²³ Number of Records
- AA Product ID
- AA Bike Type
- AA REGION
- AA Version

19. Change the Name for the projection to Actual_Data_BW4.
20. Now select the column Number of Records.

21. Open the More menu.



22. Select the option Exclude Column.

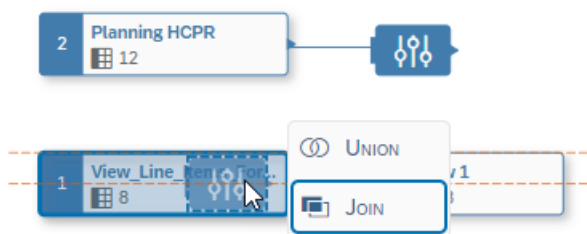
23. Repeat the step for the following columns

- InfoProvider
- Request TSN
- Bike Type

24. We now have the Projection for our Actual Data coming from BW/4HANA and we have the View based on the data in HANA Cloud representing the Plan data.

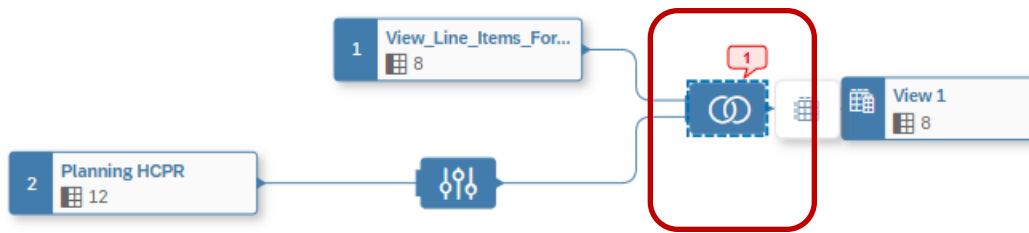
25. Now select the Projection Node on the canvas.

26. Drag the Projection Node on top of the View for the Forecast data from HANA Cloud (keep the mouse clicked)



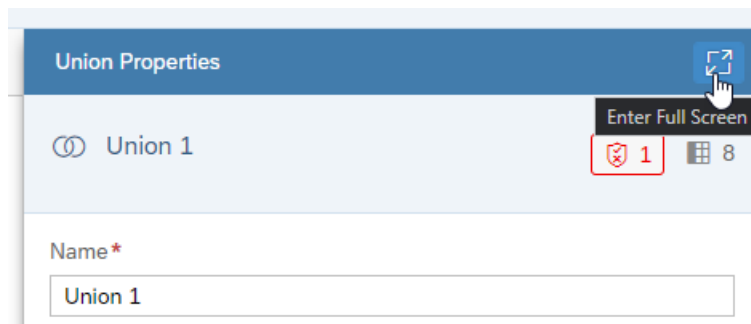
27. You will then be asked if you would like to configure a JOIN or a UNION.

28. Select the option UNION.



29. Select the UNION node on the canvas.

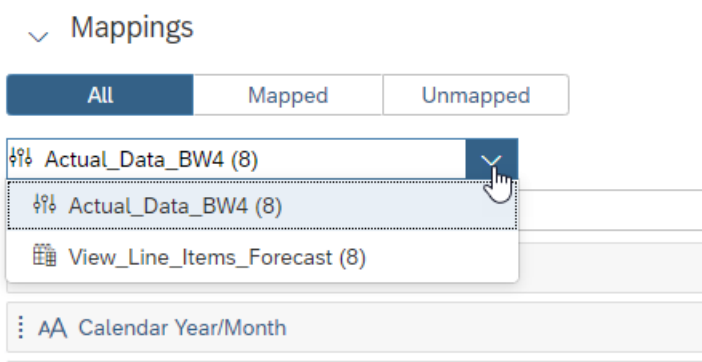
30. On the right-hand side select the option to maximize the Properties panel.



31. You are being presented with the Union on the right hand side and the data sources on the left hand side.



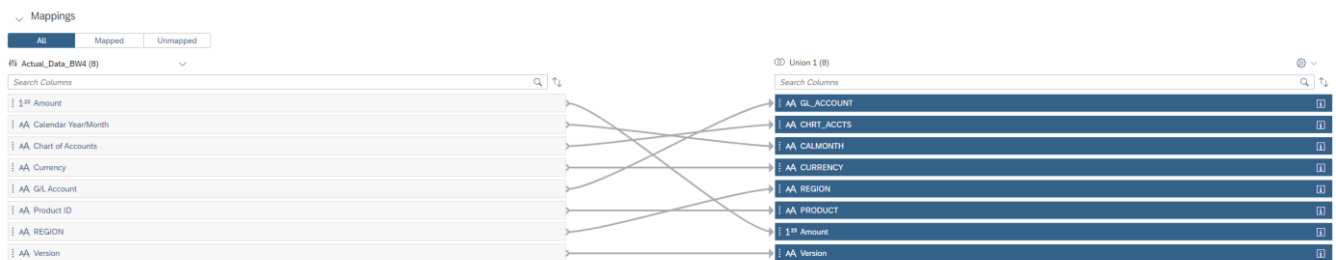
32. On the left-hand side, ensure the Actual_Data_BW4 is selected.



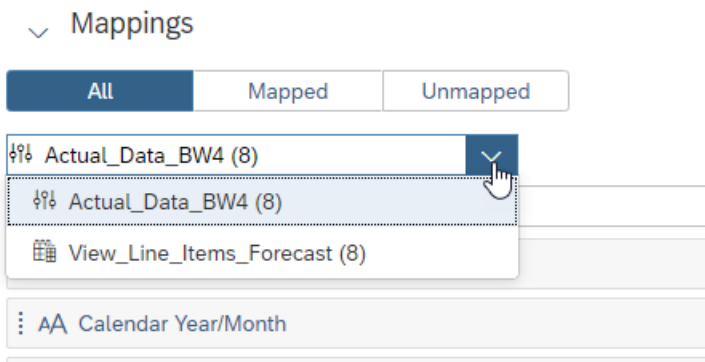
33. Now create the following Mappings:

Actual_Data_BW4	Union 1
Amount	Amount
Calendar Year / Month	CALMONTH
Chart of Accounts	CHRT_ACCTS
Currency	CURRENCY
G/L Account	GL_ACCOUNT
Product ID	PRODUCT
REGION	REGION
Version	Version

34. You can create the mapping by selecting the element on the left-hand side and simply drag and drop it to the corresponding element on the right-hand side.



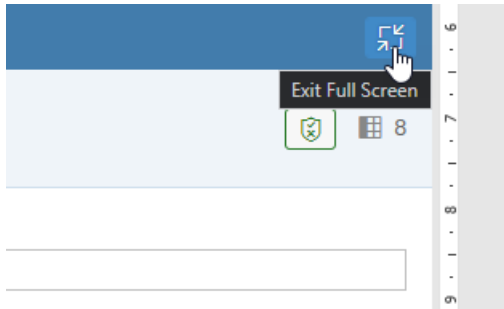
35. On the left-hand side, now select the entry View_Line_Items_Forecast..



36. All items should be already mapped, but lets double-check.

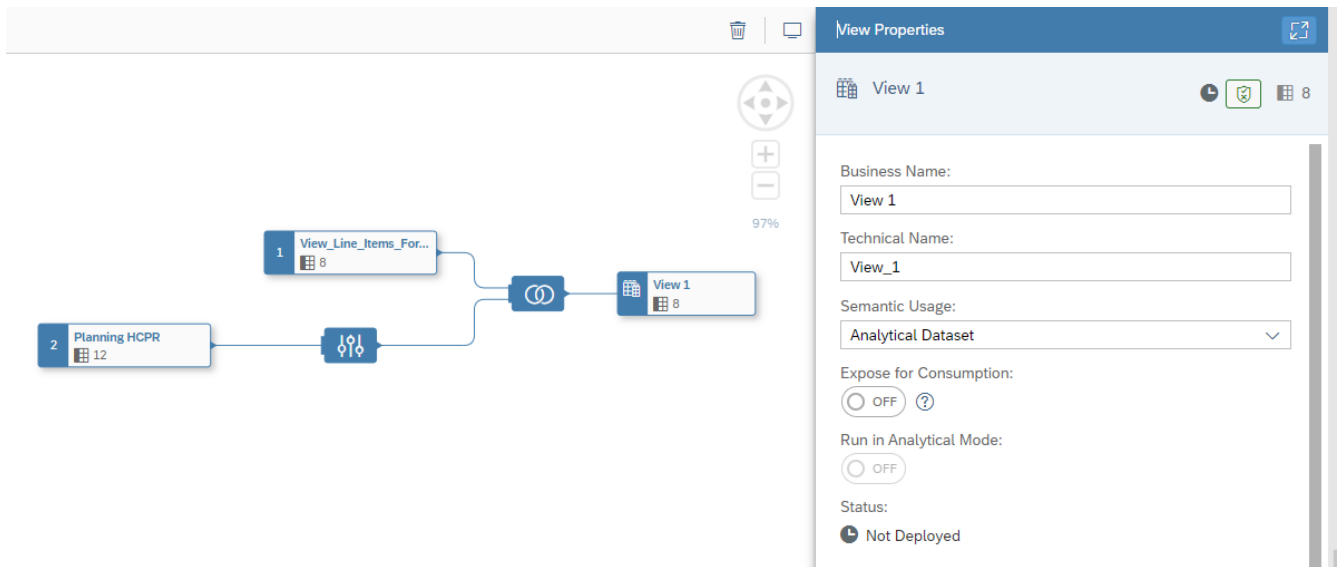


37. Now use the option in the top-right corner to Exit the Full screen mode for the Properties panel.



38. Now select the final output node View 1 on the canvas.

39. Navigate to the Properties panel.

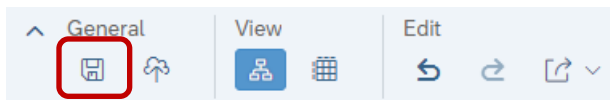


40. Enter the following Details:

- Business Name View_CombinedData
- Technical Name View_CombinedData

41. Enable the option Expose for Consumption.

42. In the menu bar now select the option to save your changes.



43. You will be asked to confirm the configured Business Name and Technical Name.

44. Click Save.

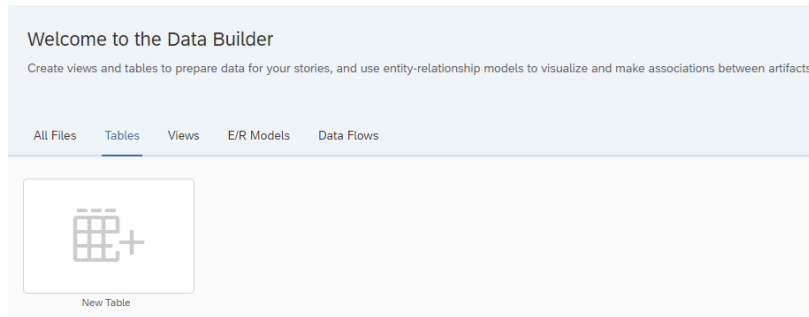
45. After you saved the changes use the Deploy option.



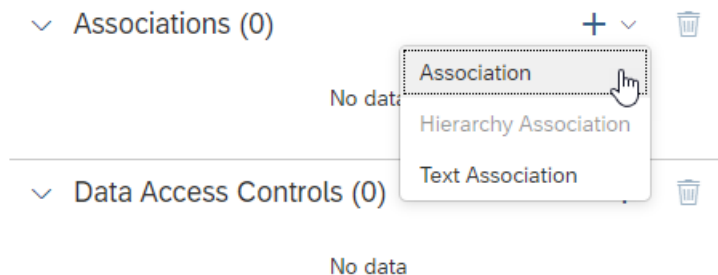
3.7 SAP Data Warehouse Cloud – Exercise 07: Adding Dimension Associations

Our combined dataset only has the Key Columns for the Dimensions, so we going to add the Associations to the Dimension Views and in that way, we can also use the Description values later as part of our visualization.

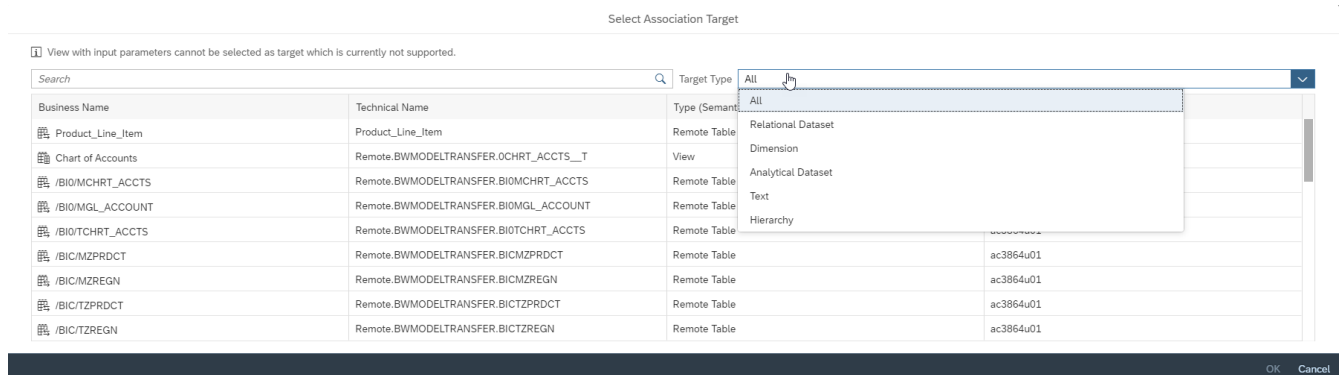
1. Open Google Chrome and log on to your SAP Data Warehouse Cloud system.
2. In the top left of the start screen you will find the menu options.
3. By clicking on the menu in the top left (the icon with the three stripes), you can expand the menu to also show the menu text.
4. Select the menu entry Data Builder.



5. Click on the tab Views.
6. Click on the View from the previous steps – View_CombinedData.
7. Select the final output node – View_CombinedData.
8. Navigate to the Properties panel.
9. Scroll down to the area Associations.



10. Use the plus sign and select the option to add a new Association.
11. You are being presented with the list of available assets.



12. Open the list of Target Type(s) and select the entry Dimension.

Select Association Target

View with input parameters cannot be selected as target which is currently not supported.

Business Name	Technical Name	Type (Semantic Usage)	Created By
Chart of Accounts	Remote.BWMODELTRANSFER.DL0CHRT_ACCTS	View (Dimension)	ac3864u01
GL Account	Remote.BWMODELTRANSFER.DL0GL_ACCOUNT	View (Dimension)	ac3864u01
Product ID	Remote.BWMODELTRANSFER.DLZPRDCT	View (Dimension)	ac3864u01
REGION	Remote.BWMODELTRANSFER.DLZREGN	View (Dimension)	ac3864u01
Version	Remote.BWMODELTRANSFER.DLZVERSION	View (Dimension)	ac3864u01
Chart of Accounts	Remote.BWMODELTRANSFER.TA0CHRT_ACCTS	Remote Table (Dimension)	ac3864u01
Product ID	Remote.BWMODELTRANSFER.TAZPRDCT	Remote Table (Dimension)	ac3864u01
REGION	Remote.BWMODELTRANSFER.TAZREGN	Remote Table (Dimension)	ac3864u01
Time Dimension - Day	SAPTIMEVIEW_DIMENSION_DAY	View (Dimension)	XA_MASTER_EU10

OK Cancel

13. Select the entry Chart of Accounts (View (Dimension)).

14. Click OK.

15. In the Properties panel on the right hand side you can now define the join between the output and the Dimension View.

Mappings

All Mapped Unmapped

View_CombinedData (8)

Search C... Q ↑↓

- AA GL_ACCOUNT
- AA CHRT_ACCTS
- AA CALMONTH
- AA CURRENCY
- AA REGION
- AA PRODUCT
- 1.23 Amount
- AA Version

Chart of Accounts (2)

Search C... Q ↑↓

- AA Chart of Acco...
- AA Source System

16. Drag and Drop the element CHRT_ACCTS to the column Chart of Accounts on the right hand side.

Mappings

All Mapped Unmapped

View_CombinedData (8)

Search C... Q ↑↓

- AA GL_ACCOUNT
- AA CHRT_ACCTS
- AA CALMONTH
- AA CURRENCY
- AA REGION
- AA PRODUCT
- 1.23 Amount
- AA Version

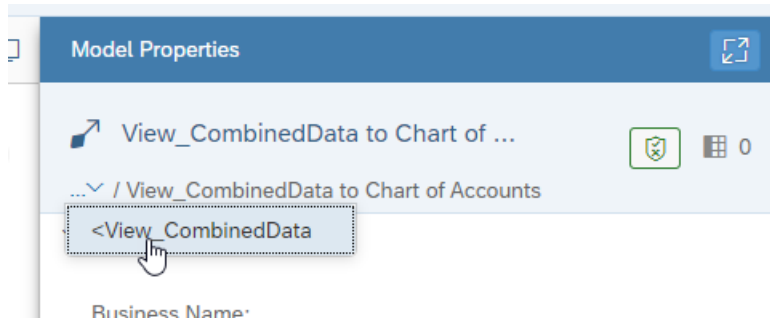
Chart of Accounts (2)

Search C... Q ↑↓

- AA Chart of Acco...
- AA Source System

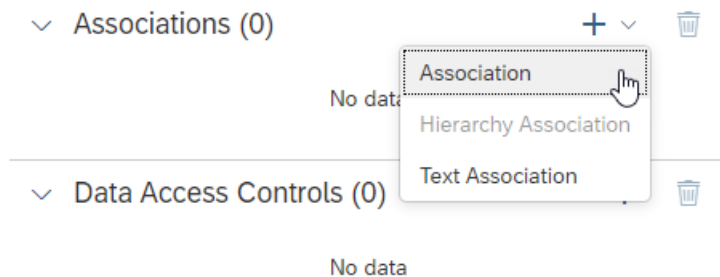
A curved arrow indicates the mapping from 'AA CHRT_ACCTS' in the left column to 'AA Chart of Acco...' in the right column.

17. In the top of the Properties Panel click on the More option.



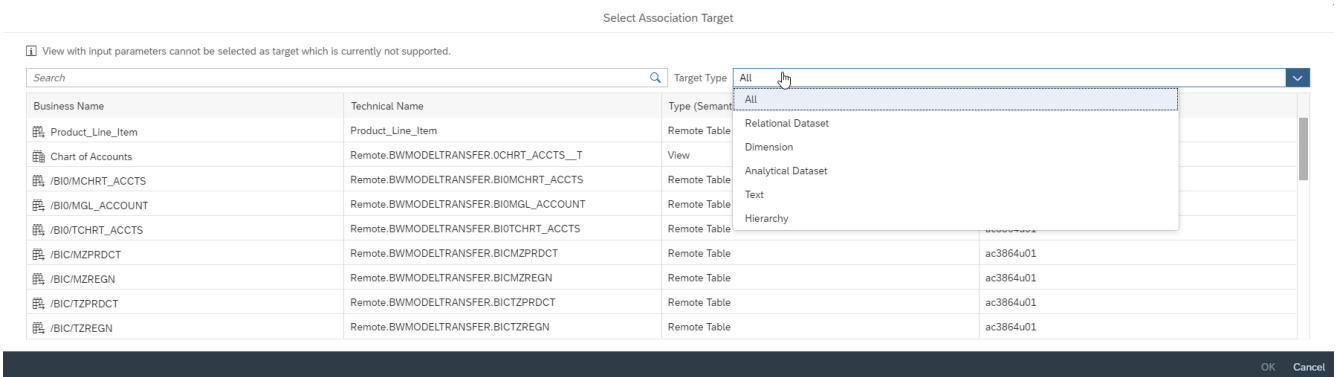
18. Select the entry View_CombinedData to go back to the list of Associations.

19. Scroll down to the area Associations.

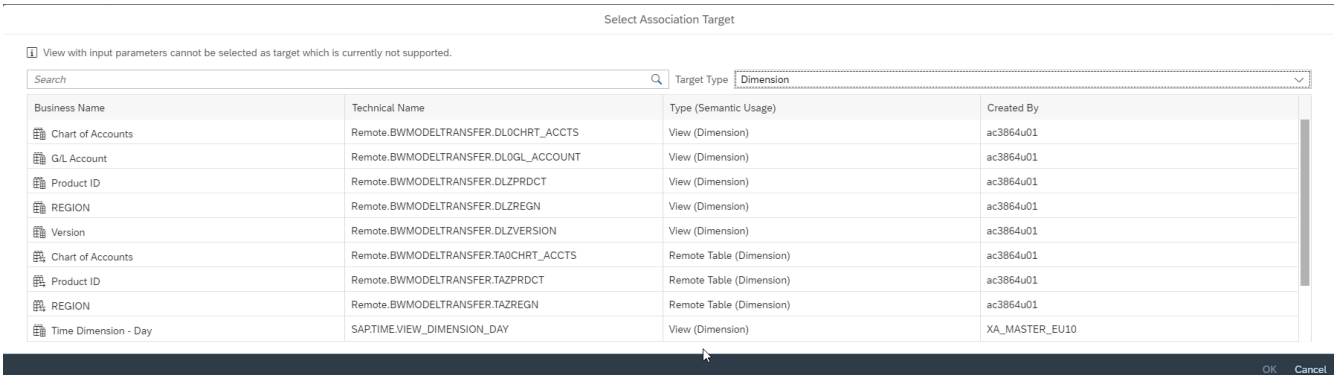


20. Use the plus sign and select the option to add a new Association.

21. You are being presented with the list of available assets.



22. Open the list of Target Type(s) and select the entry Dimension.



23. Select the entry G/L Account (View (Dimension)).

24. Click OK.

25. In the Properties panel on the right hand side you can now define the join between the output and the Dimension View.

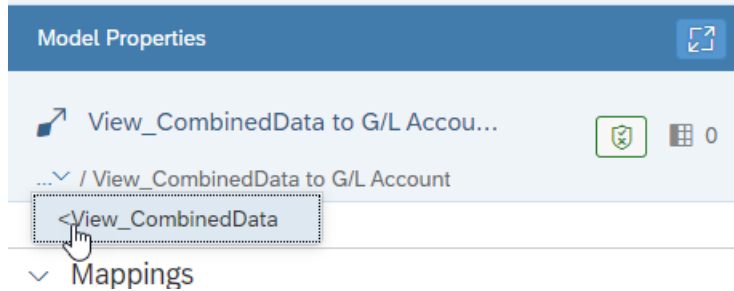
▼ Mappings

All	Mapped	Unmapped
View_CombinedData (8)		G/L Account (8)
Search C... 🔍 ⬆⬆		Search C... 🔍 ⬆⬆
AA GL_ACCOUNT		AA Chart of Acco... 🔑
AA CHRT_ACCTS		AA G/L Account 🔑
AA CALMONTH		AA Balance Sheet Acct
AA CURRENCY		AA Fin. Statement Item
AA REGION		AA Ind.: P&L Account
AA PRODUCT		AA Source System
1. ²³ Amount		AA Planning Item
AA Version		AA Source system ID

26. Drag and Drop the element GL_ACCOUNT to the column G/L Account on the right hand side.

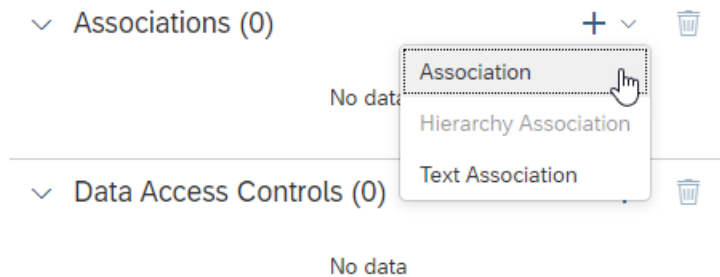
All	Mapped	Unmapped
View_CombinedData (8)		G/L Account (8)
Search C... 🔍 ⬆⬆		Search C... 🔍 ⬆⬆
AA GL_ACCOUNT		AA Chart of Acco... 🔑
AA CHRT_ACCTS		AA G/L Account 🔑
AA CALMONTH		AA Balance Sheet Acct
AA CURRENCY		AA Fin. Statement Item
AA REGION		AA Ind.: P&L Account
AA PRODUCT		AA Source System
1. ²³ Amount		AA Planning Item
AA Version		AA Source system ID

27. In the top of the Properties Panel click on the More option.



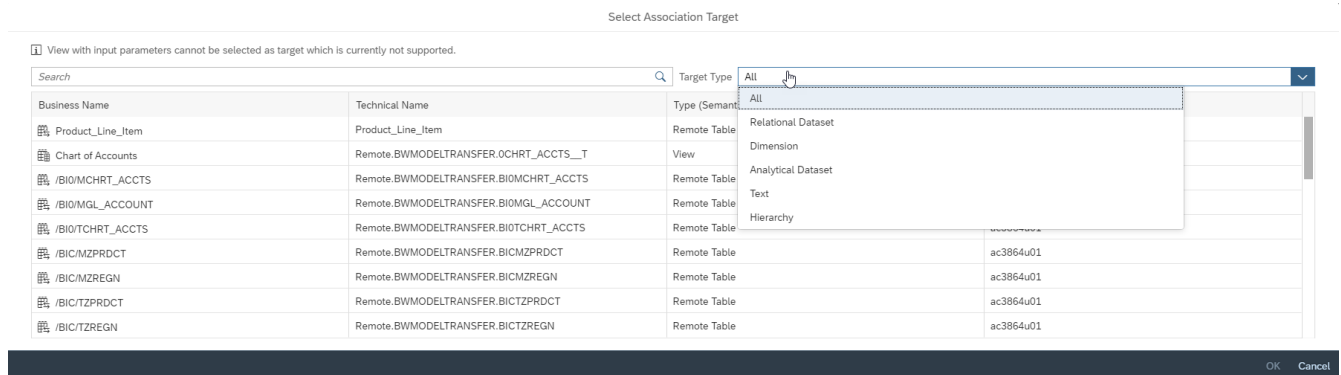
28. Select the entry View_CombinedData to go back to the list of Associations.

29. Scroll down to the area Associations.

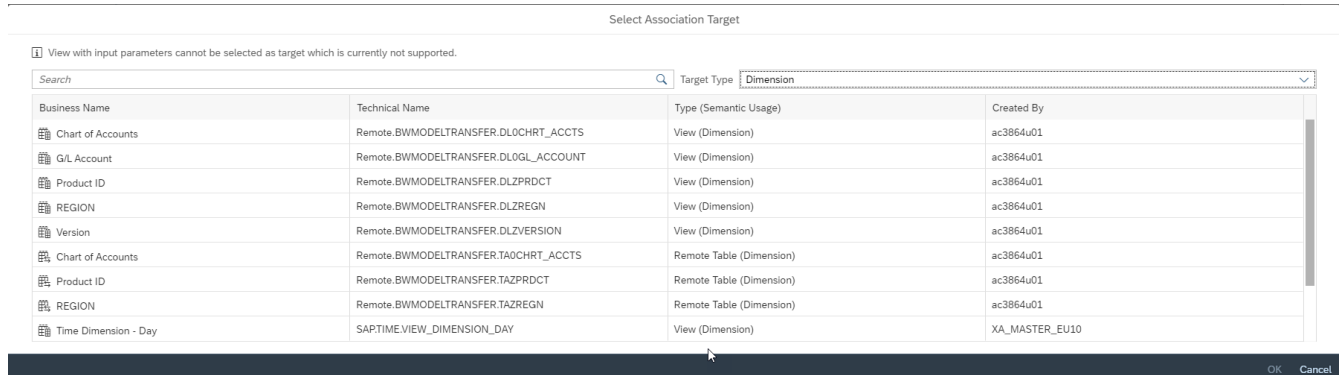


30. Use the plus sign and select the option to add a new Association.

31. You are being presented with the list of available assets.



32. Open the list of Target Type(s) and select the entry Dimension.



33. Select the entry Product ID (View (Dimension)).

34. Click OK.

35. In the Properties panel on the right hand side you can now define the join between the output and the Dimension View.

✓ Mappings

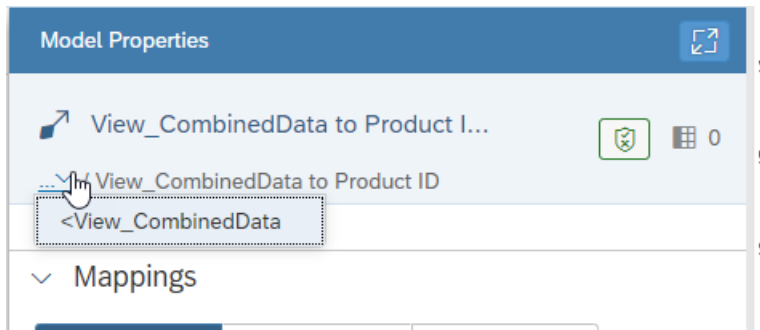
The screenshot shows the 'Mappings' panel with two columns: 'View_CombinedData (8)' and 'Product ID (2)'. The 'View_CombinedData (8)' column contains the following fields: AA_GL_ACCOUNT, AA_CHRT_ACCTS, AA_CALMONTH, AA_CURRENCY, AA_REGION, AA_PRODUCT, 1.23 Amount, and AA_Version. The 'Product ID (2)' column contains the following fields: AA_Product ID and AA_Bike Type. A search bar and a sort icon are visible above each column.

36. Drag and Drop the element PRODUCT to the column Product ID on the right hand side.

✓ Mappings

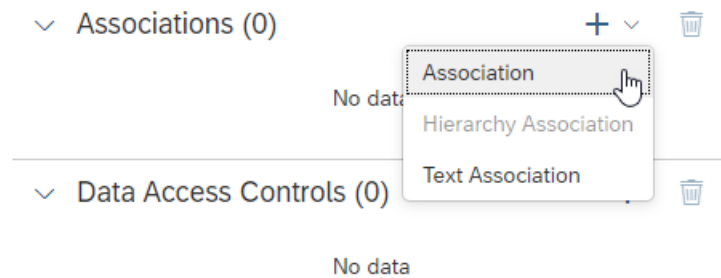
The screenshot shows the 'Mappings' panel with the same two columns as before. A curved arrow indicates that the 'AA_PRODUCT' field from the 'View_CombinedData (8)' column has been dragged and dropped onto the 'AA_Product ID' field in the 'Product ID (2)' column.

37. In the top of the Properties Panel click on the More option.



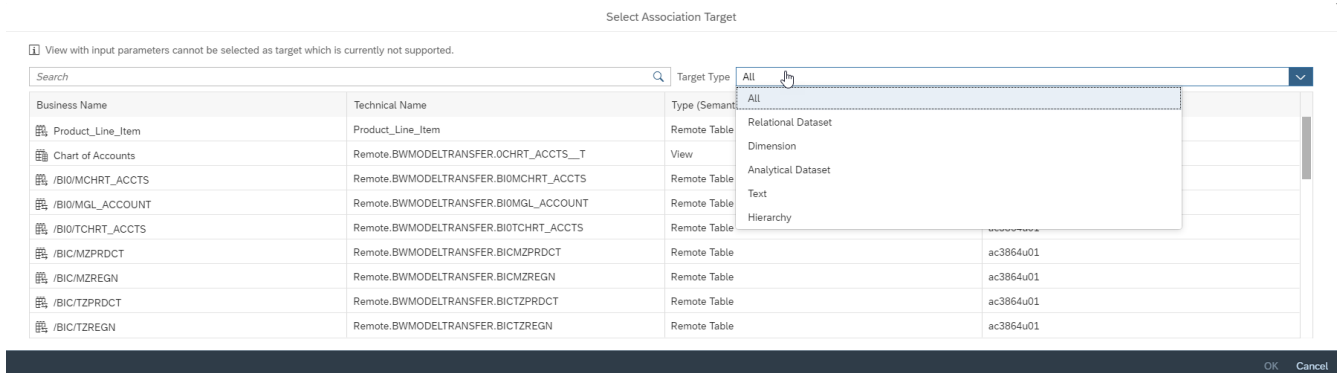
38. Select the entry View_CombinedData to go back to the list of Associations.

39. Scroll down to the area Associations.

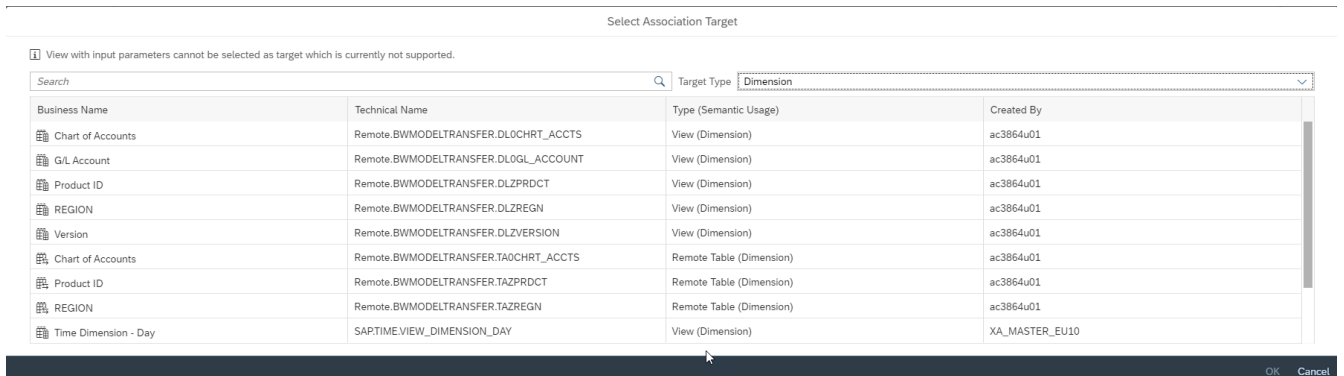


40. Use the plus sign and select the option to add a new Association.

41. You are being presented with the list of available assets.



42. Open the list of Target Type(s) and select the entry Dimension.



43. Select the entry REGION (View (Dimension)).

44. Click OK.

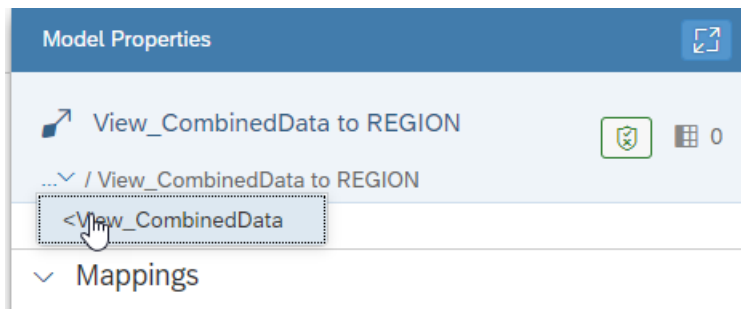
45. In the Properties panel on the right hand side you can now define the join between the output and the Dimension View.

The screenshot shows two panels side-by-side. The left panel is titled 'View_CombinedData (8)' and has three tabs: 'All' (selected), 'Mapped', and 'Unmapped'. Below the tabs is a search bar 'Search C...' and a list of fields: 'AA GL_ACCOUNT', 'AA CHRT_ACCTS', 'AA CALMONTH', 'AA CURRENCY', 'AA REGION', 'AA PRODUCT', '1.23 Amount', and 'AA Version'. The right panel is titled 'REGION (2)' and also has a search bar 'Search C...' and a list of fields: 'AA REGION' and 'AA Company Name'. A vertical line is at the bottom of the left panel.

46. Drag and Drop the element REGION to the column REGION on the right hand side.

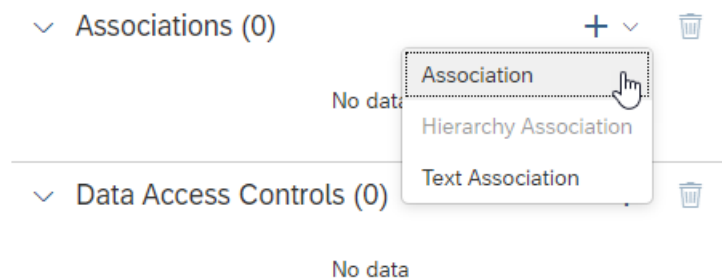
The screenshot shows the same two panels as before. A curved arrow indicates a drag-and-drop action from the 'REGION' field in the 'View_CombinedData (8)' panel to the 'REGION' field in the 'REGION (2)' panel. A hand cursor is over the 'REGION' field in the left panel.

47. In the top of the Properties Panel click on the More option.



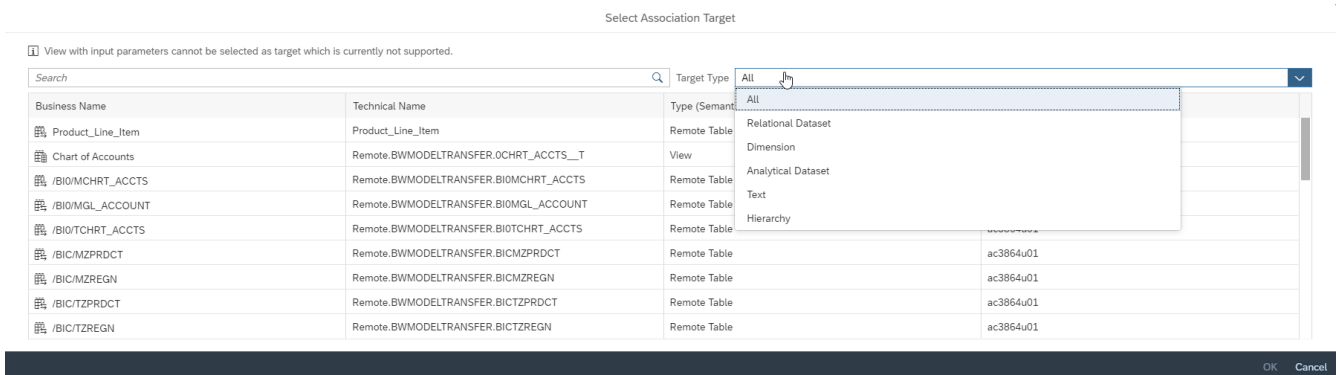
48. Select the entry View_CombinedData to go back to the list of Associations.

49. Scroll down to the area Associations.

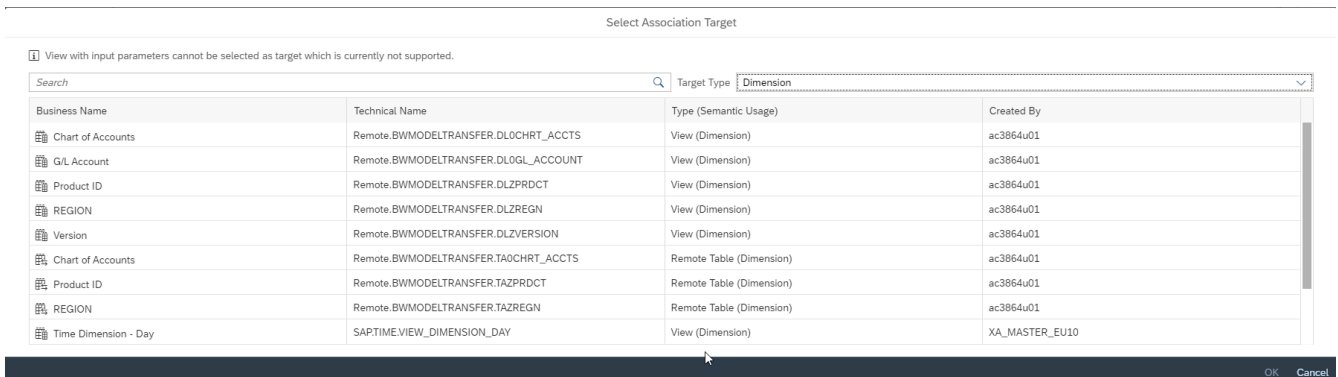


50. Use the plus sign and select the option to add a new Association.

51. You are being presented with the list of available assets.



52. Open the list of Target Type(s) and select the entry Dimension.

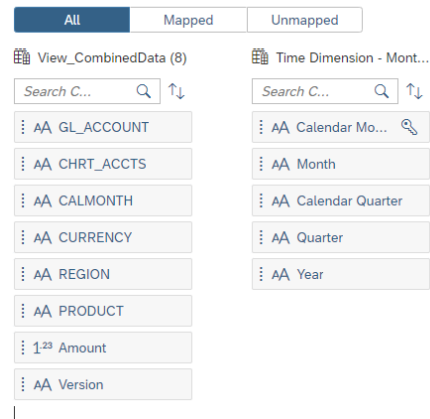


53. Select the entry Time Dimension – Month (View (Dimension)).

54. Click OK.

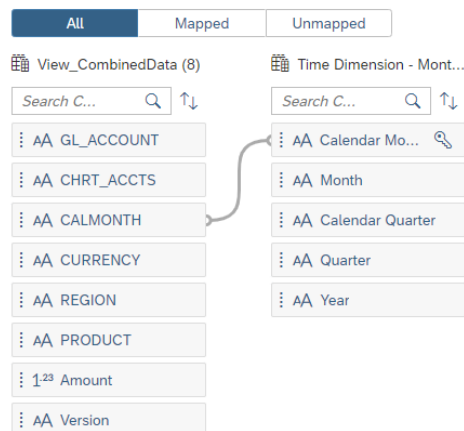
55. In the Properties panel on the right hand side you can now define the join between the output and the Dimension View.

▼ Mappings

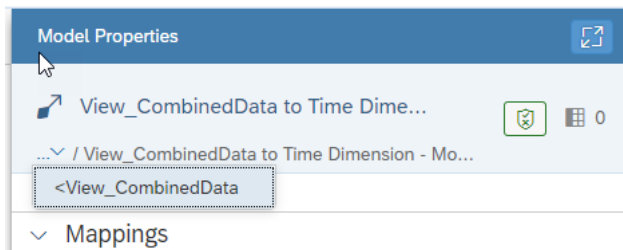


56. Drag and Drop the element CALMONTH to the column Calendar Month on the right hand side.

▼ Mappings



57. In the top of the Properties Panel click on the More option.



58. Select the entry View_CombinedData to go back to the list of Associations.

59. In the menu bar now select the option to save your changes.



60. Click Save.

61. After you saved the changes use the Deploy option.



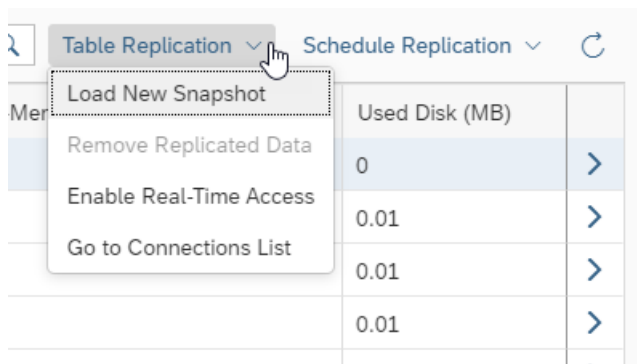
3.8 SAP Data Warehouse Cloud – Exercise 08: Replicating Plan Data

In our example, the Plan Data is based on a Table in HANA Cloud and in the next steps we will configure a Real-Time replication for the table, so that the data is replicated into SAP Data Warehouse Cloud.

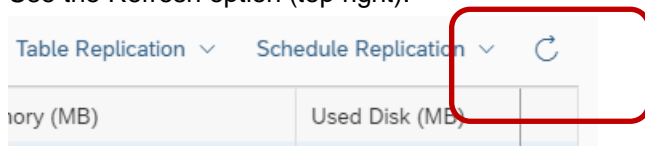
1. Open Google Chrome and log on to your SAP Data Warehouse Cloud system.
2. In the top left of the start screen you will find the menu options.
3. By clicking on the menu in the top left (the icon with the three stripes), you can expand the menu to also show the menu text.
4. Select the menu entry Data Integration Monitor.

Connection	Table	Data Access	Refresh Frequency	Status	Latest Update	Next Run	Used In-Memory (MB)	Used Disk (MB)
HANA_CLOUD	Product_Line_Item	Remote	---	---			0	0
BWMODELTRANSFER	Remote.BWMODELTRANSFER.BIOMCHRT_ACCTS	Remote	---	---			0	0.01
BWMODELTRANSFER	Remote.BWMODELTRANSFER.BIOMGL_ACCOUNT	Remote	---	---			0	0.01
BWMODELTRANSFER	Remote.BWMODELTRANSFER.BIOTCHRT_ACCTS	Remote	---	---			0	0.01
BWMODELTRANSFER	Remote.BWMODELTRANSFER.BICM2PRDCT	Remote	---	---			0	0.01
BWMODELTRANSFER	Remote.BWMODELTRANSFER.BICM2REGN	Remote	---	---			0	0.01
BWMODELTRANSFER	Remote.BWMODELTRANSFER.BICTZPRDCT	Remote	---	---			0	0.01
BWMODELTRANSFER	Remote.BWMODELTRANSFER.BICTZREGN	Remote	---	---			0	0.01
BWMODELTRANSFER	Remote.BWMODELTRANSFER.BICTZVERSION	Remote	---	---			0	0.01
BWMODELTRANSFER	Remote.BWMODELTRANSFER.BICVZHCPR_PLAB	Remote	---	---			0	0.01

5. Here we can see all the Remote Tables in our system and we have the option to configure a Replication of the data.
6. Select the entry for the table Product_Line_Item based on the connection HANA_Cloud.
7. In the top right open the menu Table Replication.



8. You have the option to create a new snapshot – which is a one time replication and you can configure the Real-Time Access.
9. Select the option Enable Real-Time Access.
10. After a short while you will get a Notification that it has been configure.
11. Use the Refresh option (top right).



12. The Status of the table should be changed to Replicated (Real Time).

Remote Tables (10)				
Connection	Table	Data Access	Refresh Frequency	Status
HANA_CLOUD	Product_Line_Item	Replicated (Real-Time)	Real-Time	Active
BWMODELTRANSFER	Remote.BWMODELTRANSFER.BIOMCHRT_ACCTS	Remote	---	---
BWMODELTRANSFER	Remote.BWMODELTRANSFER.BIOMGL_ACCOUNT	Remote	---	---

13. Select the table Product_Line_Item on the list.

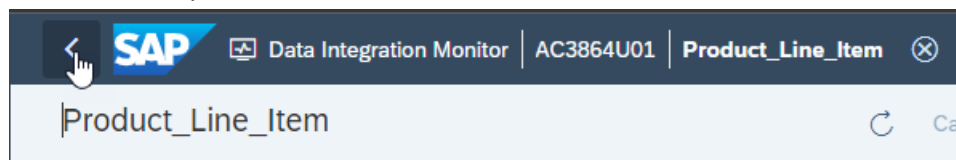
14. Use the option (>) on the far right to open more details.

e Replication ▾ Schedule Replication ▾ ↻		
MB)	Used Disk (MB)	
	0.3	>
	0.01	Remote Table Logs
	0.01	>
	0.01	>

15. You can see the details of the Real-Time Replication.

Run Details				Open in Editor
Activity: Replicate Status: Completed Start: Nov 4, 2021 8:37 End: Nov 4, 2021 8:37 Triggered by: ac3864u01 Execution Type: Direct				
Messages (6)				
Timestamp	Category	Message		
Nov 4, 2021 8:37	Information	The task 402 has started. View Details		
Nov 4, 2021 8:37	Information	Replicating (real-time) data for remote table 'Product_Line_Item'...		
Nov 4, 2021 8:37	Information	'9639' records replicated for table 'Product_Line_Item'.		
Nov 4, 2021 8:37	Information	Successful initial data transfer for real-time replication of remote table 'Product_Line_Item'. Now real-time replication will automatically add delta data to remote table 'Product_Line_Item'.		
Nov 4, 2021 8:37	Information	Data replicated (real-time) successfully for remote table 'Product_Line_Item'.		
Nov 4, 2021 8:37	Information	The task 402 ended with status COMPLETED.		

16. Use the Back option in the menu bar.



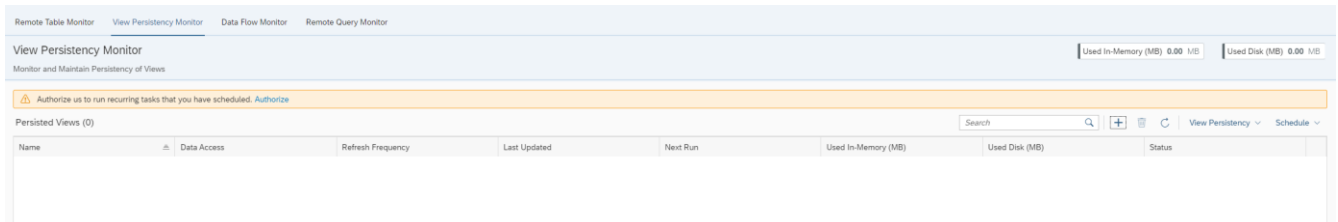
17. You can also see the allocated space for the replicated data.

Table Replication ▾ Schedule Replication ▾ ↻			
Used In-Memory (MB)	Used Disk (MB)		
0	0.3	>	
0	0.01	>	

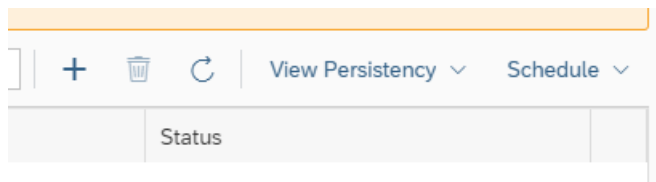
3.9 SAP Data Warehouse Cloud – Exercise 09: View Persistency

In the previous steps we configured the real-time replication of the data from HANA Cloud into SAP Data Warehouse Cloud. Another option to persist a specific view is also the View Persistency.

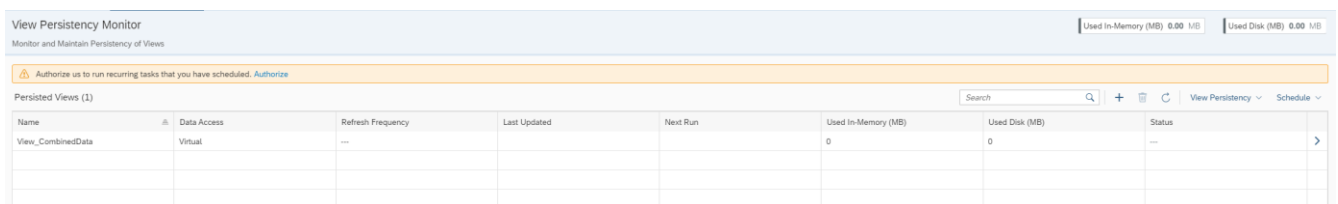
1. Open Google Chrome and log on to your SAP Data Warehouse Cloud system.
2. In the top left of the start screen you will find the menu options.
3. By clicking on the menu in the top left (the icon with the three stripes), you can expand the menu to also show the menu text.
4. Select the menu entry Data Integration Monitor.
5. Select the tab View Persistency Monitor.



6. Here we can see all the scheduled persistencies for the Views in our system and we have the option to configure a new persistency.
7. In the toolbar click the “+” sign to create a new Persistency.

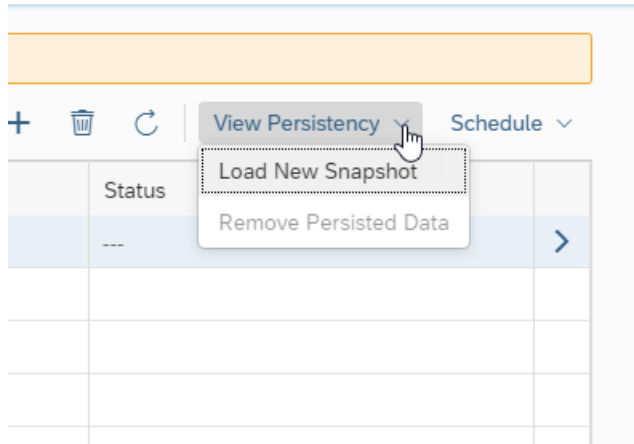


8. You are presented with the list of views in your system.
9. Scroll down to the end of the list.
10. Select the entry for our combined data set – View_CombinedData.
11. Click OK.



12. Select the entry View_CombinedData in the list.

13. Now open the menu View Persistency.



14. Select the option Load New Snapshot.

15. You will receive a notification that it has been configured and shortly after that you receive a notification that it has been completed.

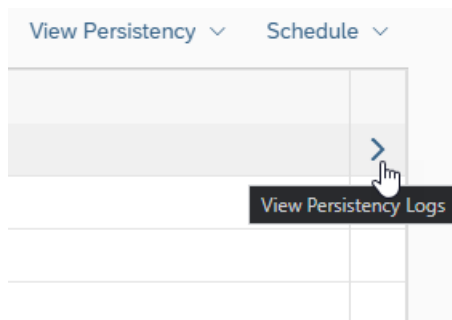
16. Use the Refresh option in the toolbar to refresh the table.

Authorize us to run recurring tasks that you have scheduled. [Authorize](#)

Persisted Views (1)

Name	Data Access	Refresh Frequency	Last Updated	Next Run	Used In-Memory (MB)	Used Disk (MB)	Status
View_CombinedData	Persisted	None	Nov 4, 2021 8:55		0.28	0.25	Available

17. Now use the option to see further details on the right-hand side.



18. Like with the Replication, you can see the complete details.

Activity: Persist Status: Completed Start: Nov 4, 2021 8:54 End: Nov 4, 2021 8:55 Triggered by: ac3864u01 Execution Type: Direct

Messages (5)

Timestamp	Category	Message
Nov 4, 2021 8:54	Information	The task 403 has started. View Details
Nov 4, 2021 8:54	Information	Persisting data for view 'View_CombinedData'...
Nov 4, 2021 8:55	Information	'19278' records persisted for view 'View_CombinedData'.
Nov 4, 2021 8:55	Information	Data successfully persisted for view 'View_CombinedData'.
Nov 4, 2021 8:55	Information	The task 403 ended with status COMPLETED.

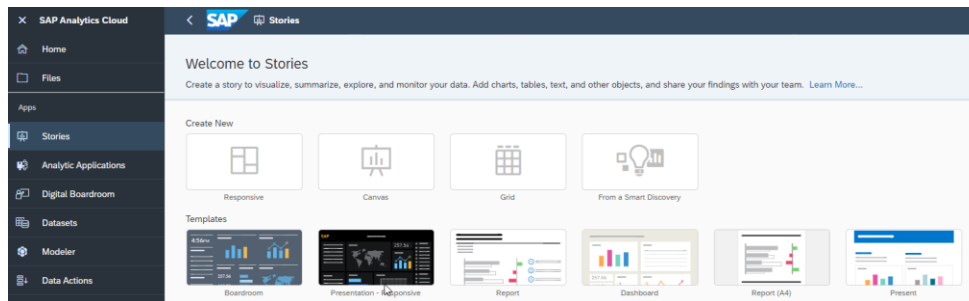
19. You also have the ability to create a recurring schedule for the persistency. The system itself will always keep the latest persistency and when you access the View via SAP Analytics Cloud, the user will receive the persisted data set.

3.10 SAP Analytics Cloud – Exercises 10: Actual and Plan Comparison

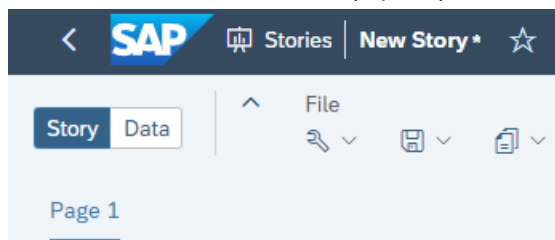
In this exercise we will setup a story in SAP Analytics Cloud and leverage our combined dataset and create a comparison of the Actual and Plan information.

Please make sure that you select the SAP Analytics Cloud tenant in the region that matches the region of your SAP Data Warehouse Cloud tenant.

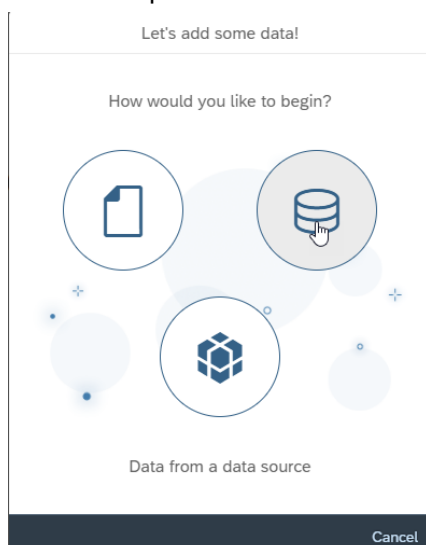
1. Log On to your SAP Analytics Cloud tenant.
2. Select the menu Stories in the left-hand panel.



3. Select the option Canvas to create a new Story.
4. In the toolbar click on “Data” (top left) to add data from SAP Data Warehouse Cloud to your Story.

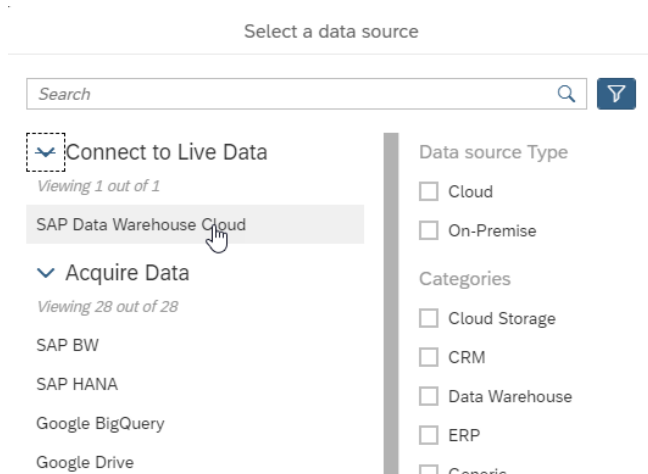


5. Select the option Data From Data Source.

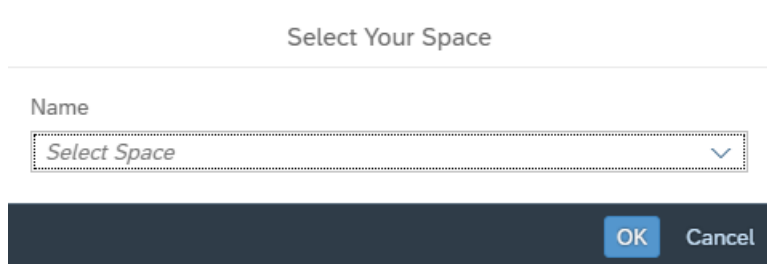


6. Open the list Connect to Live Data.

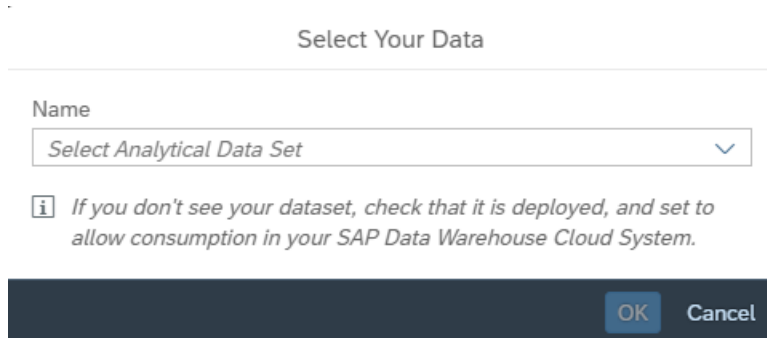
7. Select the entry SAP Data Warehouse Cloud.



8. When being asked to select a SPACE, select the Space assigned to your user number – AC3864U<XX> (replace XX with your user number)..

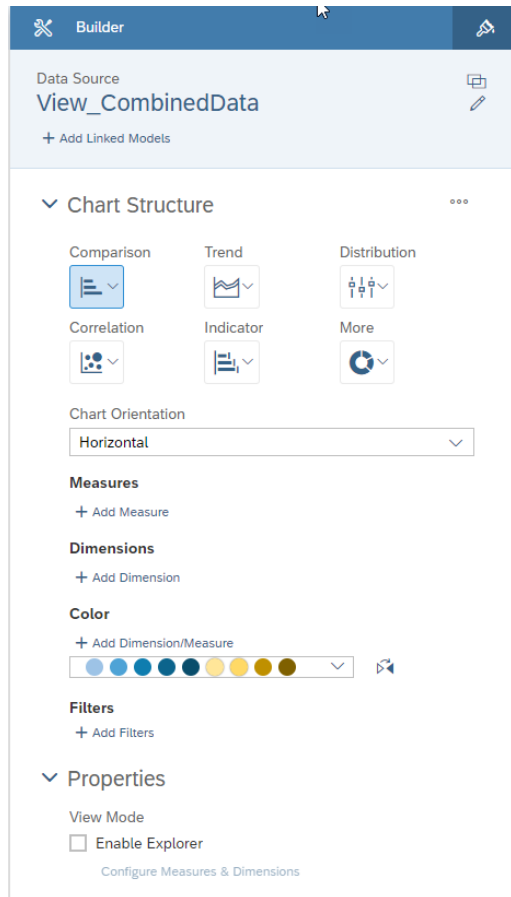


9. Click OK.

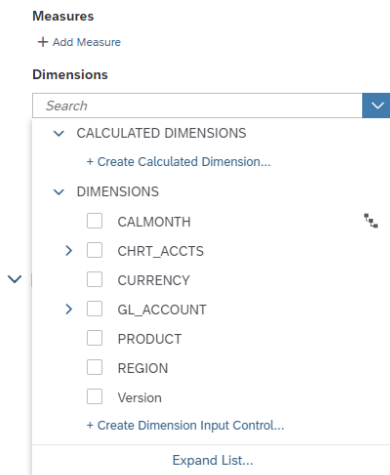


10. Afterwards you will be asked to select the Analytical Data Set.
11. For our example, select the Analytical Dataset View_CombinedData.
12. Click OK.
13. Select the option to add a Chart.
14. Now select the newly created empty chart on the canvas.

15. Navigate to the Builder Panel on the right hand side.



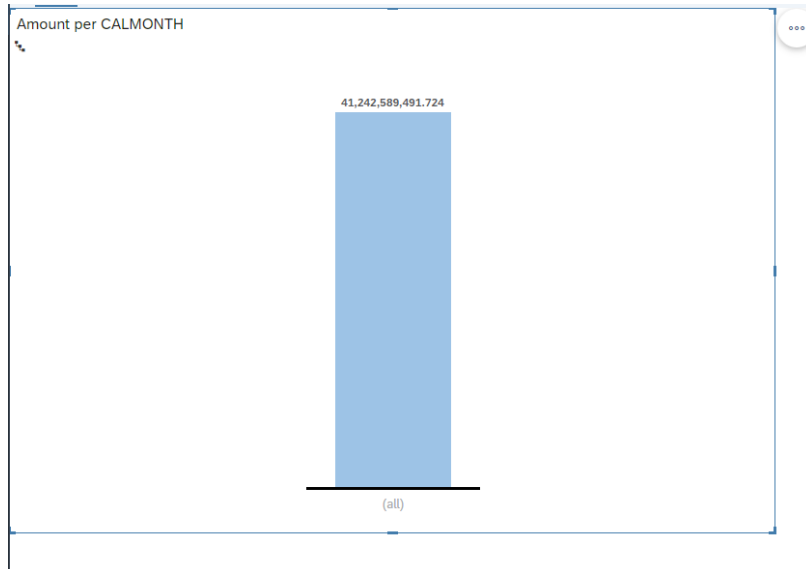
16. Click Add Dimension as part of the Dimensions section.



17. Select CALMONTH.

18. Click Add Measure as part of the Measures section.

19. Select the measure Amount.

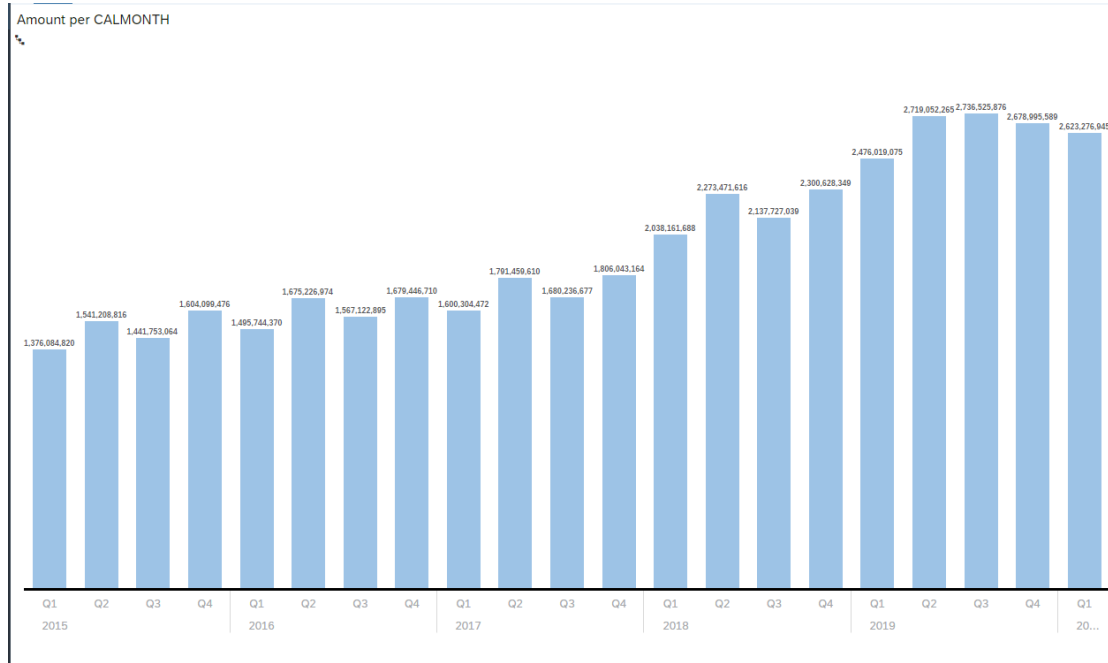


20. Navigate to the Dimensions area in the Builder panel.

21. Select the hierarchy menu for dimension CALMONTH.



22. Select the option Level 3 – which represents the Quarter.

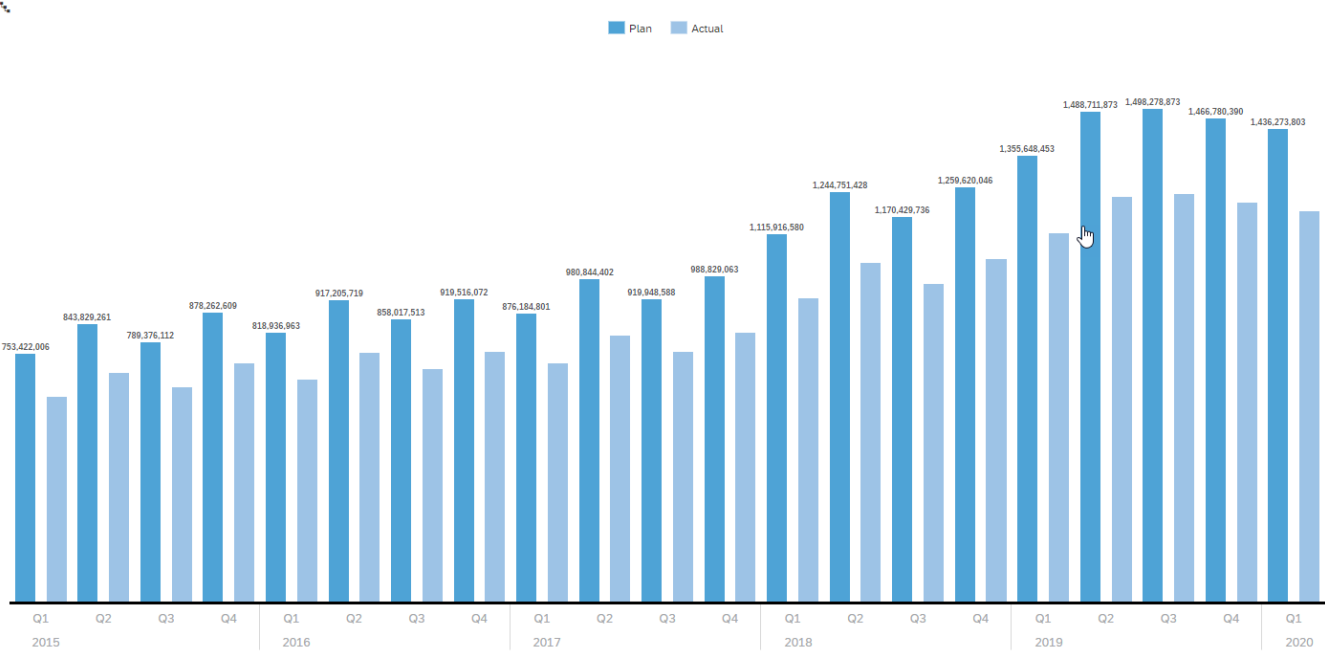


23. Navigate to the area Color in the Builder Panel.

24. Click on Add Dimension / Measure.

25. Select Dimension Version.

Amount per CALMONTH, Version



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