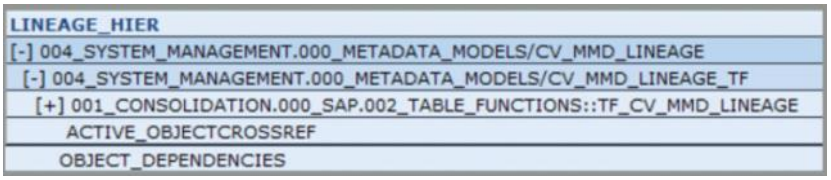
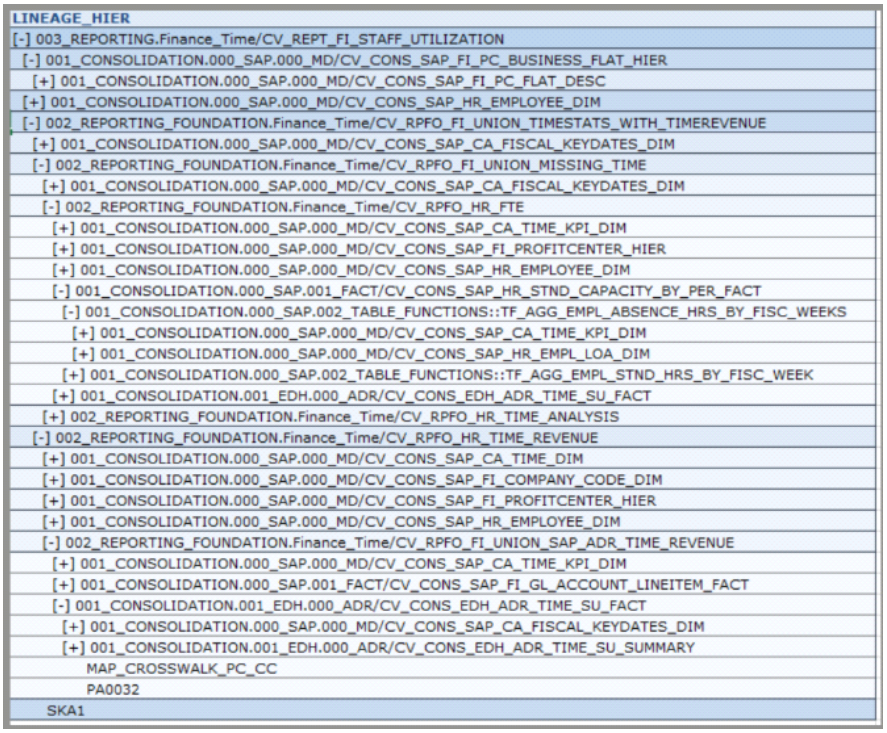
S04 - Native HANA Modeling - Part 3

SAP Native HANA Modeling Fundamentals	1. SDA Remote Source & HANA Virtual Tables - Done
	2. HANA Calculation Views
	    1. Create Material Dim CV
	    2. Create Plant Dim CV
	    3. Create table function based Plant Dim CV
	    4. Renaming the Plant CV to Plant CV_DIM
	    5. Copy a CV from one Pkg to another
	    6. Move a CV from one Pkg to another
	    7. Create Sales Fact CV (Cube)
	    8. Create Cube with Star Join
	3. HANA DB Procedures
	4. HANA XS Job scheduler Config
	5. HANA Node types and purpose
		9th Aug: 8:30 AM - 10:30 AM

Q & A Session

Vijay	Non-cummulative keyfigure/Models how are we going to work from conversion point from bwon hana to bw4hana
	Is there is a possibility to check lineage in multiple calc. views for finding the table using the specific field/formula/calculation
	How can we leverage the abilities of SAP HANA while we are working with virutal table using SDI/SDA

Lineage

Approach 1	Regular Expression on 'Active_Object' XML. Substring_regexp (fIELD NAME, inPUT_PARAMETER) Build a CV on this.
Approach 2	 
Approach 3	Table as input All the artifacts where table is being used as Output

How to activate the BW/4HANA Cockpit

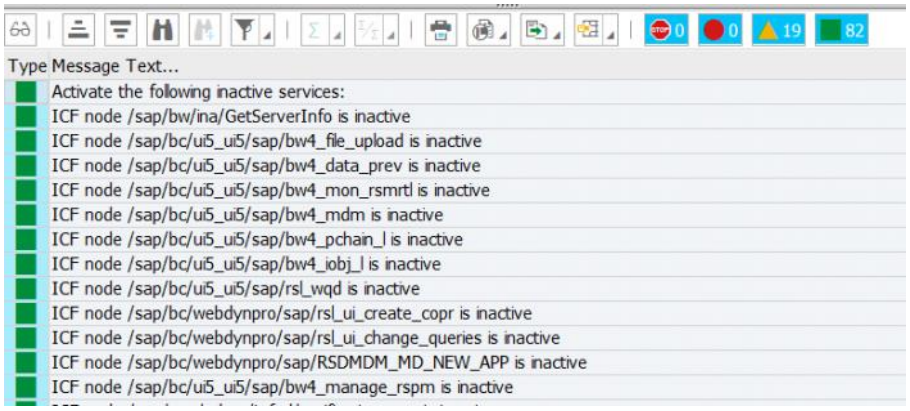
2 Methods to activate BW/4 Cockpit
Needs
SICF Services (HTTP)
Odata Services
Profile Parameters

1	Tasklists	SAP_BW4_LAUNCHPAD_SETUP	Tcode: STC01
2	Pgm	BW4_UI5_IFC_CONSISTENCY	

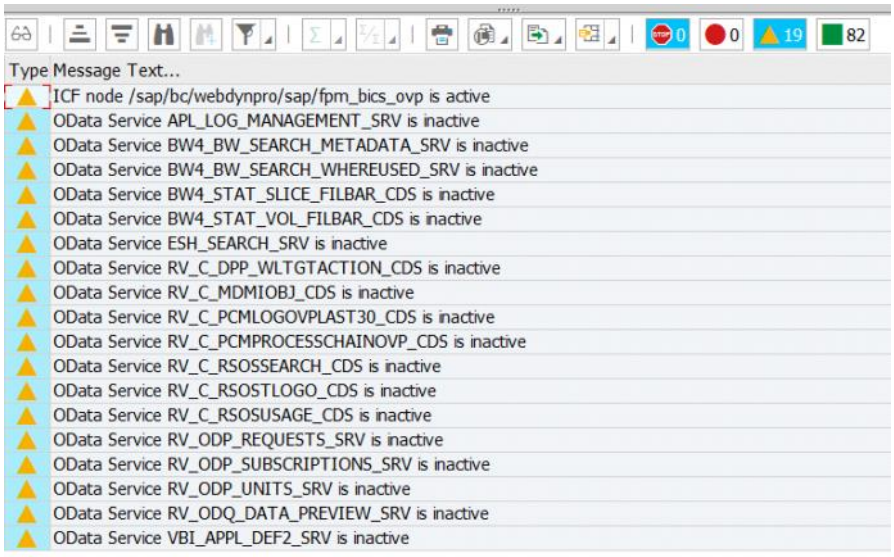
We have to first run a program to check which services are inactive:

PGM	BW4_UI5_IFC_CONSISTENCY

Results example:

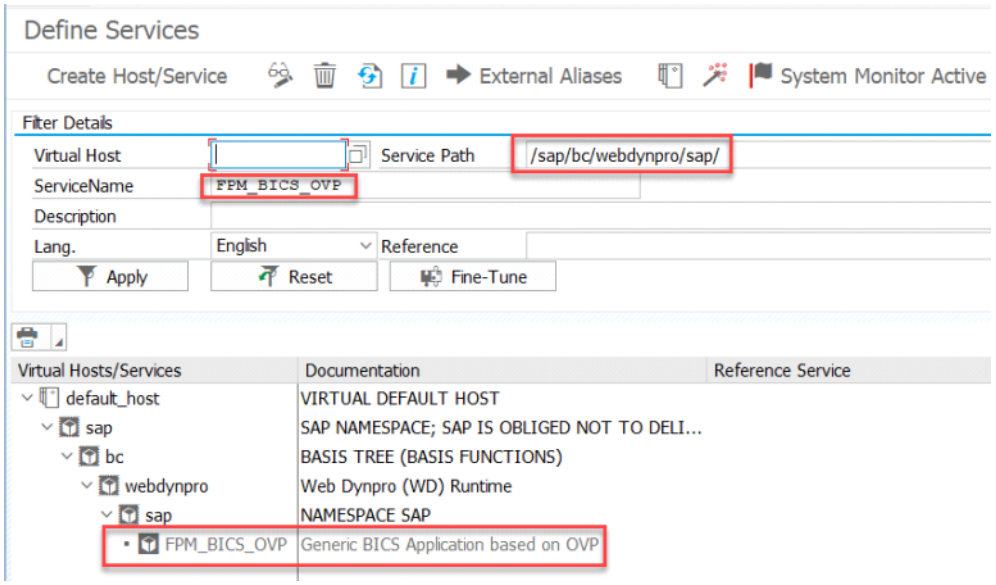


Check the warnings (Yellow): These services are inactive in your system.
We need to activate them via SICF tcode.

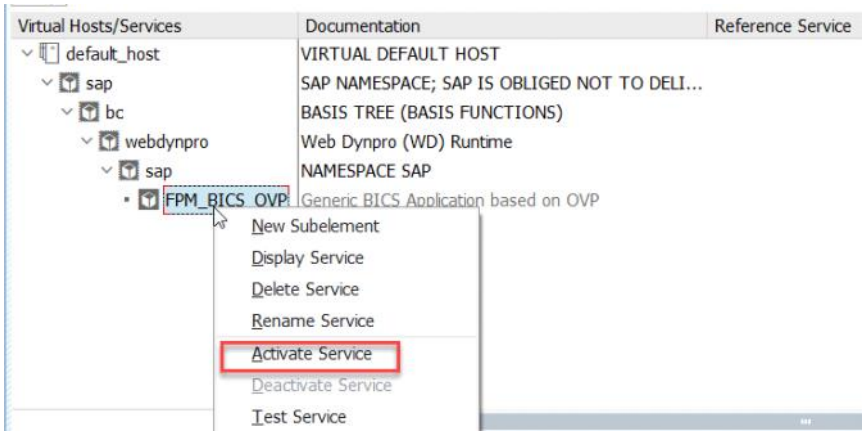


Example of activating service via SICF:

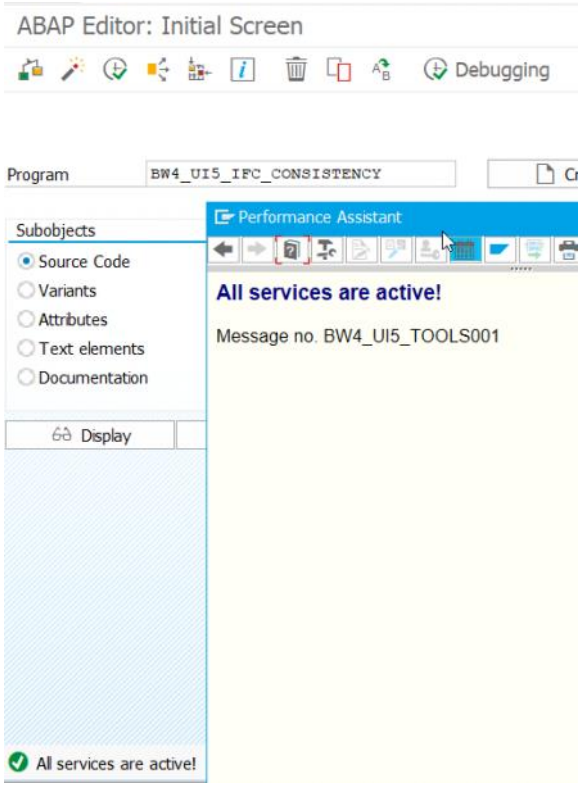
Provide the path and service name: the service will be greyed out since it's inactive



From the context menu (right click), select 'Activate service:



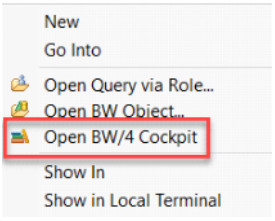
Once all services are activated, run the consistency check again and this time it should provide a message - 'All services are active' :



Now you need to log off (Close Project) and log back in (Open project and double click to login), for the change to take effect.

Now, we have 2 ways to verify:

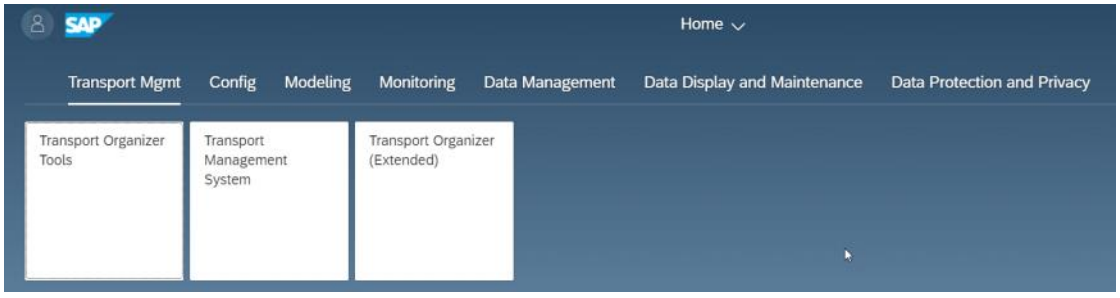
1. From the context menu of the project, you should get an option to open the 'BW/4HANA Cockpit':



2. You can also click on the option on the top menu bar:

This option will ask you choose the project and it'll list only those projects (connections) which has all services activated.

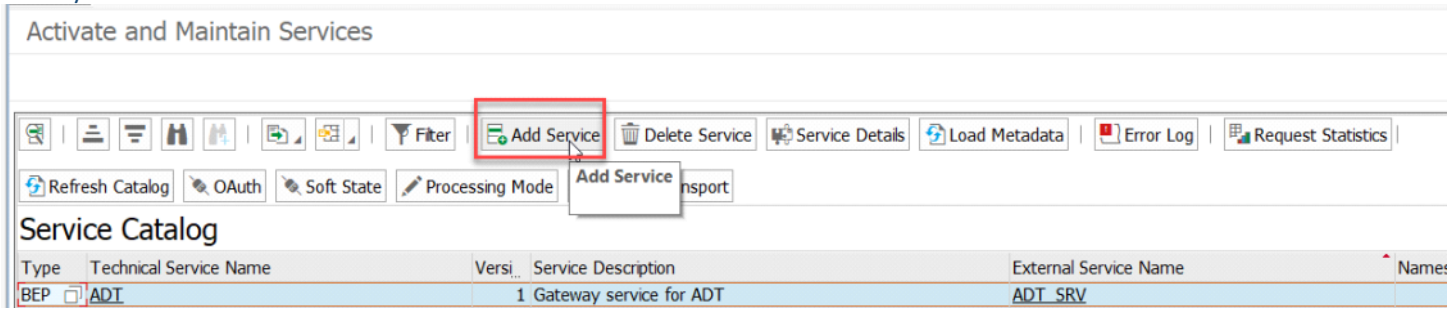
Both option should now be successfully launching the BW/4HANA Cockpit.

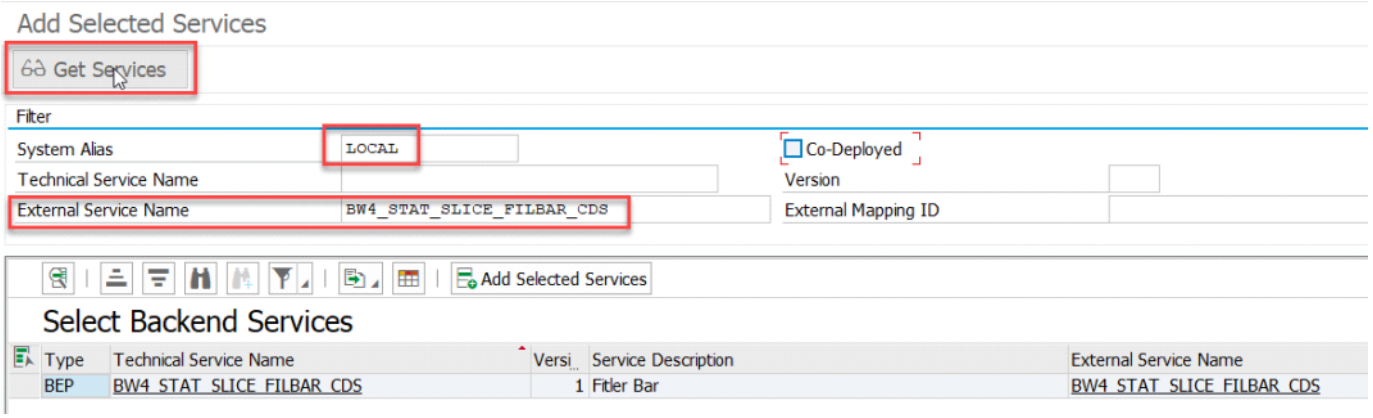


If you have any Odata service missing then you need to add that service via a different path:

SPRO->SAP Gateway->Odata Channel->Administration->General Settings->Activate and Maintain Services

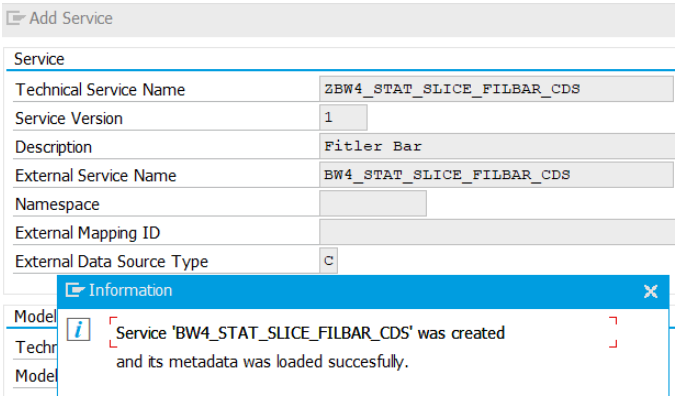
There you need to add the service:



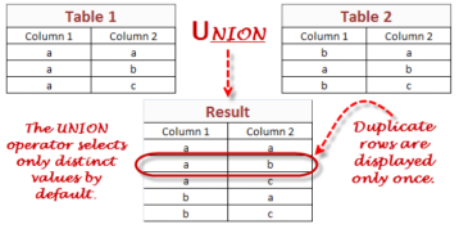
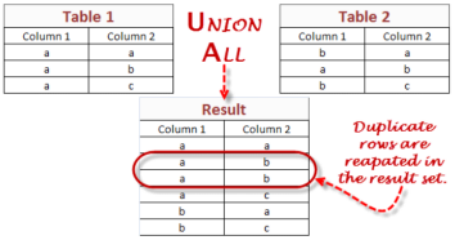
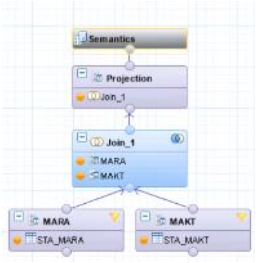
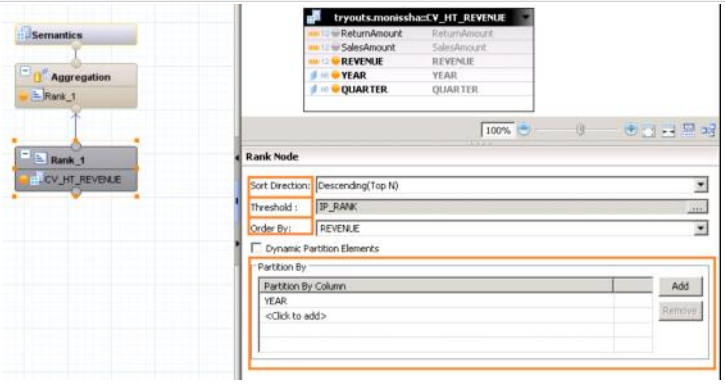


Once you click on the service name listed, you need to assign package and then click ok...the message that service is successfully added, will be displayed.

Voila!...this is how you activate the Odata services and make that beautiful BW/4H Cockpit work!



HANA Nodes and Purpose

Projection	Selecting subset of column for the list of columns	
Union	Combining 2 tables with similar structure. E.g. Actuals + Plan	  Assignment: HANA UNION Node is a UNION or UNION_ALL?
Join	Combining 2 tables with different structure but one Or more common column E.g. We have ID in one column and we need text from another column.	
Rank	Top N records based on a condition. E.g. Need top 10 customer for each Year based on Sales Qty	

Aggregation	Sum the measures (Sum, Min, Max)	 Assignment: WHAT HAPPENS IF I Use aggregation node in dimension CV?

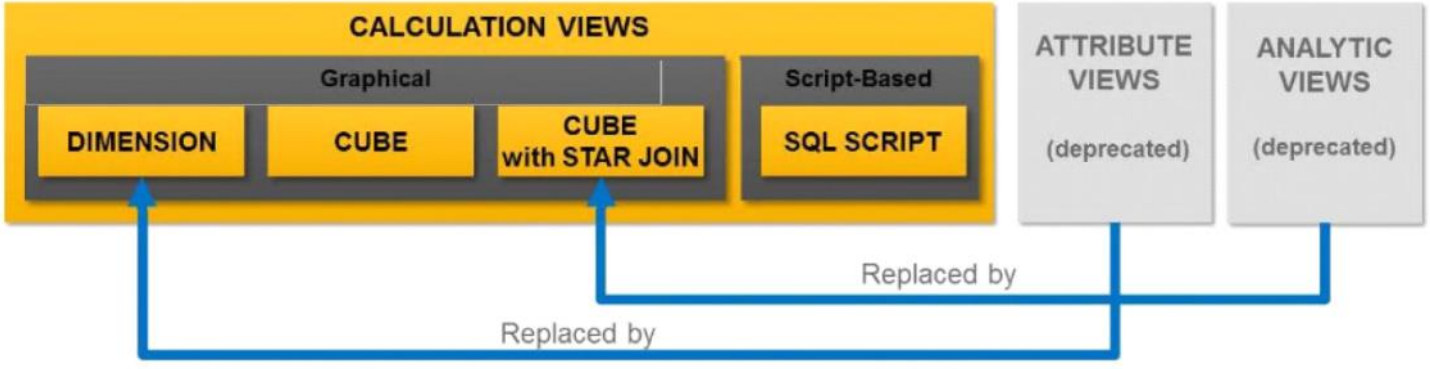
In a Nutshell:

Node Type	Use Case
Projection	To filter data or obtain a subset of required columns from a data source
Aggregation	To summarize measures by grouping them together by attribute columns values
Join	To query data from two or more data sources
Union	To combine the data from two or more data sources
Star Join	To join attributes to the very last step of a *CUBE With Star Join* Calculation view
Rank	To order the data for a set of partition columns and select only the top 3/4/…/n elements

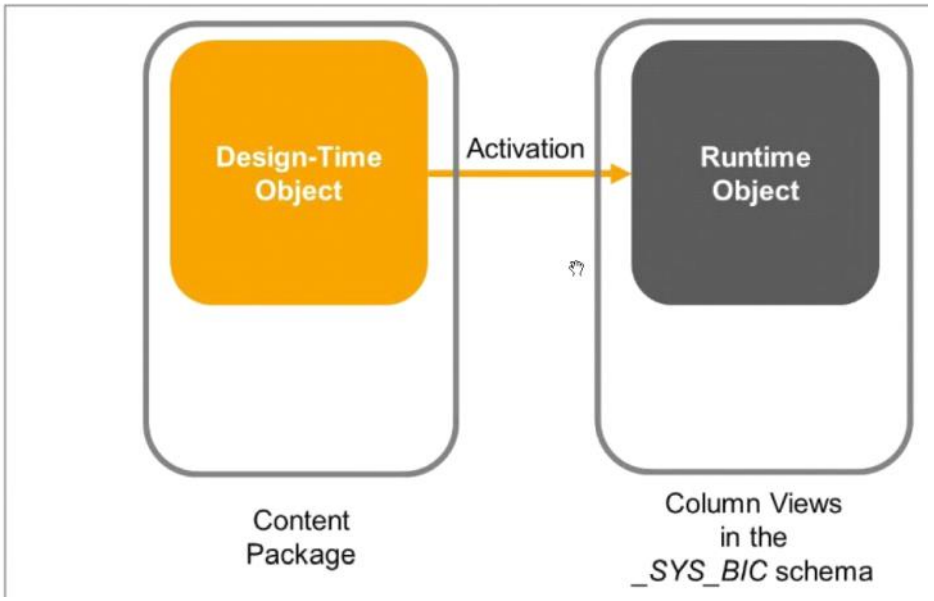
HANA CV Types - Refresher

Calculation View Type	Properties	Default Upper Node
[Blank]	No multidimensional support. Never exposed to any client tool.	Projection
DIMENSION	No multidimensional support. Equivalent to an attribute view *	Projection
CUBE	Designed for data analysis with multidimensional reporting	Aggregation
CUBE With Star Join	Similar to a *CUBE* Calculation view, but the upper node is a Star Join where you join all the attributes (calculation views of type *DIMENSION* *)	Star Join

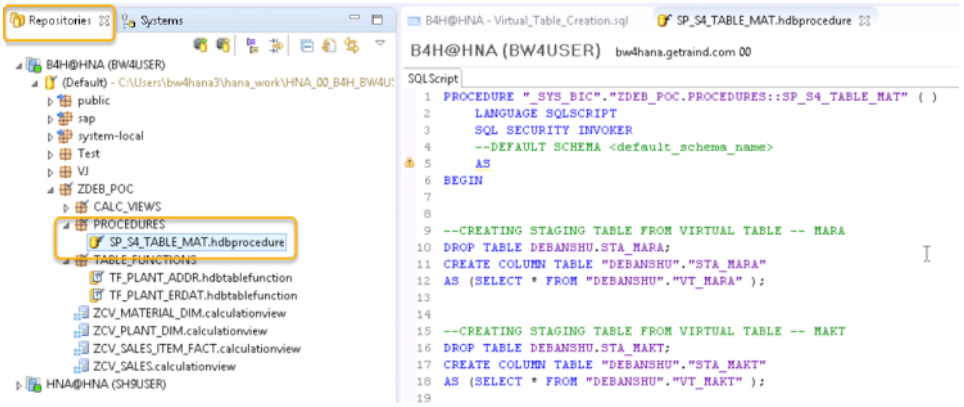
* Only *DIMENSION* Calculation View can be used as a data source in the Star Join node of a *CUBE With Star Join* Calculation View.



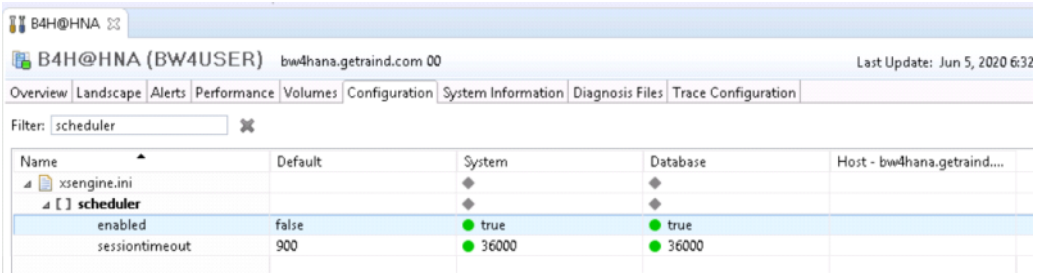
Design-Time vs. Runtime Information Views



HANA DB Stored Procedures

What is a HANA Stored Procedure	▪ Used to combine multiple SQL statements which needs to be run regularly. ▪ Is a repository object - meaning will be accessible via 'Development Perspective' only. ▪ Can be used in SQL console. ▪ Allows for complex coding and statements like INSERT, UPDATE, TRUNCATE etc. ▪ File gets created with extension - '.hdbprocedure'. ▪ Used in XS Job to scheduling. 
Purpose 1	Automating the SQL Statements. FULL Load (Truncate and Reload) Delta Load (Column identify the delta - Date/Timestamp)
Purpose 2	To populate the Input Parameters of a CV
Types	1. Catalog 2. Repository Read-Only Read-Write
Method to automate the DB procedure	XSC Jobs Description: Name of your Job Action: Name of your DB Procedure Schedule: Frequency of runs (Daily/hourly/Mon-Wed/Monthly) Desc XSCRON - 7* (* * * * * * *) = (Y M D DayofWeek Hour Min Sec) Parameters

XS Job

URL	Now we need to access to XS Engine with the URL http://<XSengine-host><XS-port>/sap/hana/xs/admin/
Activate XS Job Scheduler	It is required to enable the XS engine scheduler for scheduled backups configured on SAP HANA Cockpit . ▪ Logon on SAP Hana Studio. ▪ Browse to the configuration tab. ▪ Open the xsengine.ini and add or configure the value for scheduler as shown below.  ▪ Scheduler parameter might not be visible in many cases. For that case kindly add the parameter manually, either directly from HANA Studio or by the following SQL command: ALTER SYSTEM ALTER configuration ('xsengine.ini','SYSTEM') SET ('scheduler','enabled')= 'true' WITH reconfigure;
XS Job Tables	Schema: _SYS_XS Tables: _SYS_XS.JOBS; _SYS_XS.JOB_SCHEDULES; _SYS_XS.JOB_LOG;
Reference Notes	https://help.sap.com/viewer/a8c7476dbef64e14b42939606e1d0c2e/1.0.14/en-US/c37aec5f3ae84887a91c587545ca15e2.html https://launchpad.support.sap.com/#/notes/2465026 https://help.sap.com/viewer/6b94445c94ae495c83a19646e7c3fd56/2.0.04/en-US/5ca042ca971f4fddbc1d4a961f7c22ed.html
Roles	sap.hana.xs.admin.roles::JobAdministrator sap.hana.xs.admin.roles::HTTPDestAdministrator
XS Cron Format	“xscron”: “2016 * * mon,tues,wed,thu 6 0 0” . "xscron":"* * * * * */30 *" Format: { "description" : "abc", "action" : "Procedure or XSJS function",

xscron Field (* from left to right)	Meaning and Permitted Value
Year	4-digit, for example, 2013
Month	1 to 12
Day	-31 to 31
DayofWeek	mon,tue,wed,thu,fri,sat,sun
Hour	0 to 23
Minute	0 to 59
Second	0 to 59

```
    "schedules" :
        [
            { "description" : "xyz",
              "xscron" : " * * * * * * * "
            }
            ,
            ( "description" : "xyzz",
              "xscron" : " * * * * * * * "
            )
            ,
            ( "description" : "xyzzz",
              "xscron" : " * * * * * * * "
            )


        ]


}
```

Examples

- `2013 * * fri 12 0 0`

  Every Friday of 2013 at 12:00 hours

- `* * 3:-2 * 12:14 0 0`

  Every hour between 12:00 and 14:00 hours on every day of the month between the third day of the month and the second-last day.

  > → Tip
  > In the day field, third from the left, you can use a negative value to count days backwards from the end of the month. For example, `* * -3 * 9 0 0` means: three days from the end of every month at 09:00.

- `* * * * * */5 *`

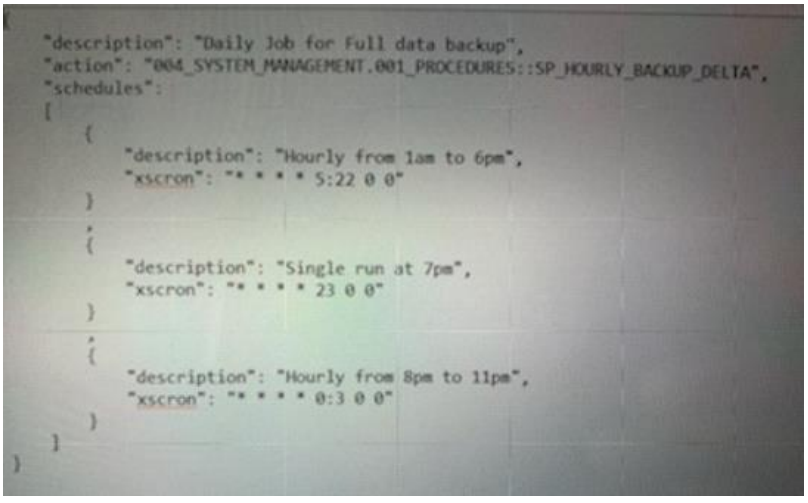
  Every five minutes (`*/5`) and at any point (*) within the specified minute.

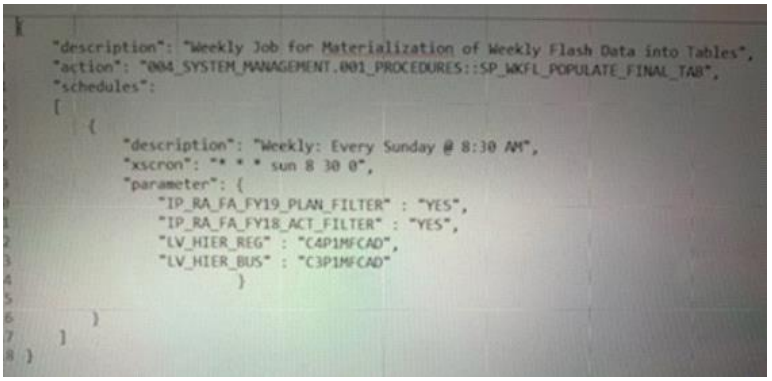
  > i Note
  > Using the asterisk (*) as a wild card in the seconds field can lead to some unexpected consequences, if the scheduled job takes less than 59 seconds to complete; namely, the scheduled job restarts on completion. If the scheduled job is very short (for example, 10 seconds long), it restarts repeatedly until the specified minute ends.

  To prevent short-running jobs from restarting on completion, schedule the job to start at a specific second in the minute. For example, `* * * * * */5 20` indicates that the scheduled job should run every five minutes and, in addition, at the 20th second in the specified minute.

- `* * * -1.sun 9 0 0`

  Every last Sunday of a month at 09:00 hours





```
{
    "description": "Weekly Job for Materialization of Weekly Flash Data into Tables",
    "action": "004_SYSTEM_MANAGEMENT.001_PROCEDURES::SP_WKFL_POPULATE_FINAL_TAB",
    "schedules":
    [
        {
            "description": "Weekly: Every Sunday @ 8:30 AM",
            "xscron": "* * * sun 8 30 0",
            "parameter": {
                "IP_RA_FA_FY19_PLAN_FILTER" : "YES",
                "IP_RA_FA_FY18_ACT_FILTER" : "YES",
                "LV_HIER_REG" : "C4P1MFCAD",
                "LV_HIER_BUS" : "C3P1MFCAD"
                    }
        }
    ]
}
```