



PUBLIC

How-To Create HANA-based Analytics for SAP Data Replication

Applicable releases:
MDG 7.0 SP02 and higher

Version: 1.2
Date: 08/2025
Owner: PCP Master Data Governance

Document History

Document Version	Description
1.0	First official release of this guide (2015)
1.1	Change template (August 2022)
1.2	Minor changes (layout and template)

Table of Contents

1. Introduction	4
2. Prerequisites	4
3. Generally Required Configuration Steps	6
3.1. Create the Related Calculation Views	6
3.2. CalculationView DataReplicationQuery.....	16
3.3. Create xsodata service	16
4. Additional Information.....	18
4.1. Further Reading	18
4.2. SAP Notes	18

1. Introduction

Starting with SAP Master Data Governance 7.0 SP02 ("Feature Pack") SAP HANA-Based analytical functions have been delivered to monitor and analyze processes using agreed Key Performance Indicators (KPIs). These KPIs are calculated based on information in change requests and information regarding the replication of data. This document explains how to build HANA-based calculation views that can be used to analyze whether data replication occurs in accordance with agreed KPIs.

2. Prerequisites

Technical Prerequisites

You have enabled the HANA-based analytics for SAP Master Data Governance process for your deployment scenario (Replication Scenario or Integrated Scenario).

Content-Related Prerequisites/Background Information

Data replication from source systems (for example the MDG HUB) to target systems can be triggered using the following techniques:

- Transaction DRFOUT

This transaction calls an outbound implementation which must be configured in Customizing. An outbound implementation has to be implemented in the particular master data applications. Replication can be triggered as initialization or for collected change pointers.

- Membership API

The Membership API is called mostly from the MDG applications (for example, Business Partner, Customer, or Material) when a change request is submitted.

Tables Relevant for Building Related HANA Views

The following tables are the necessary ones for creating the related HANA-based views:

Table	Data Elements	Description
DRFD_OBJ_REP_STA	<ul style="list-style-type: none"> • MANDT • ORF- GUID- 16 • MDG- BUSINESS- SYSTEM-ID • MDG- OBJECT- TYPE CODE BS • ORF- OBJECT- ID • ORF- MESSAGE- LINK • MDG_CREQUEST • ORF- OUTB- IMPL • MDG- COMM- CHANNEL • TIMESTAMP • ORF REPSTAT • ORF RUN ID • BALLOGHNDL • ORF REP BLOCKED • ORF- MSG- GUID 	<ul style="list-style-type: none"> • Client • ID for ORF in the form of GUID Raw 16 • Internal ID of business system • Business Object Type • Object ID • Message Number • Change Request • Outbound Implementation • Communication Channel • UTC Time Stamp (YYYYMMDDhhmmss) • Replication Status • RunID • Application Log: Log Handle • Replication Blocked • Message Guid
MDG_BUS_SYS_TECH	<ul style="list-style-type: none"> • MANDT • BUSINESS SYSTEM • BUS SYS ID • LOGSYS • RFCDEST • FILE PATH • DEF- STORAGE- SERV • UNICODE SYSTEM • UNICODE- CODE- PAG • DISABLED 	<ul style="list-style-type: none"> • Client • Business System • Internal ID of Business System • Logical System • Logical Destination (Specified in Function Call) • Logical File Path • Download to Presentation Server • System Supports Unicode • Unicode Code Page • Bus. System Temporarily Disabled for Replication
MDGI_OTC_BS	<ul style="list-style-type: none"> • OBJECT- TYPE- CODE • CONSTANT NAME • IS PROJECTION • MAIN OBJECT • OITC FOR REPL 	<ul style="list-style-type: none"> • Business Object Type • Constant Name of Object Type • Object is a Projection of Another Object • Main Object Type for a Projection Object Type • Object ID Type for Key Structure Access

Table	Data Elements	Description
MDG_BUS_SCYS_ATTR	<ul style="list-style-type: none"> • MANDT • BUSINESS SYSTEM • BUSINESS OBJECT • COMM CHANNEL • OBJ CORRELATION • UPD KM • PERSISTENCE • TIME DEPENDENCY 	<ul style="list-style-type: none"> • Client • Business System • Business Object Type • Communication Channel • Key Harmonization • Update Key Map. within ALE Audit Inbound Proc. • Storage Location for Data Replication • Target System Supports Time Dependency

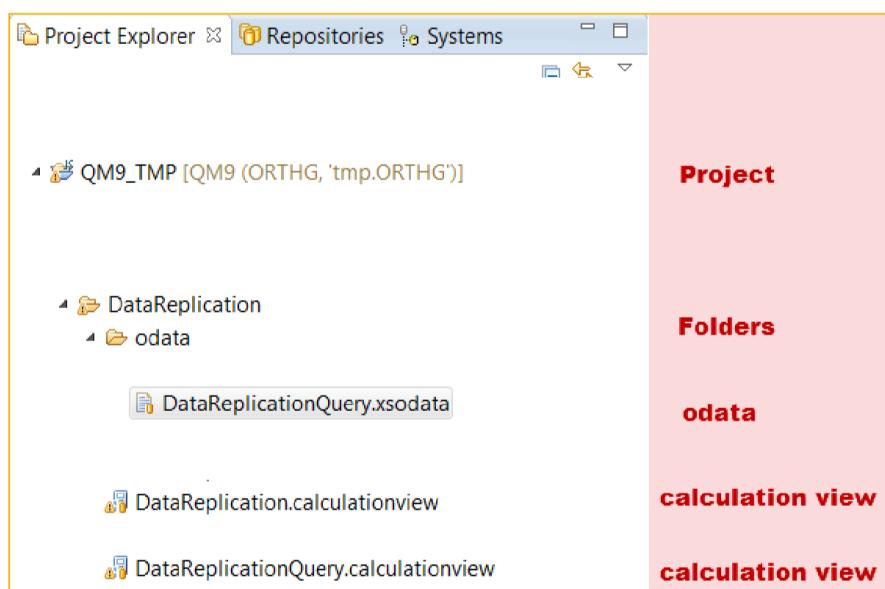
3. Generally Required Configuration Steps

Before executing the mentioned steps below, adhere to the technical as well as content-related prerequisites described in the previous chapter.

To create the HANA-Based query views according to the described scenario, the following steps are required:

3.1. Create the Related Calculation Views

1. Logon to SAP HANA Studio
2. Open the HANA Development Perspective and go to the Project Explorer
3. Create a project and assign folders for DataReplication views and a subfolder odata to be used for the odata service



Summary:

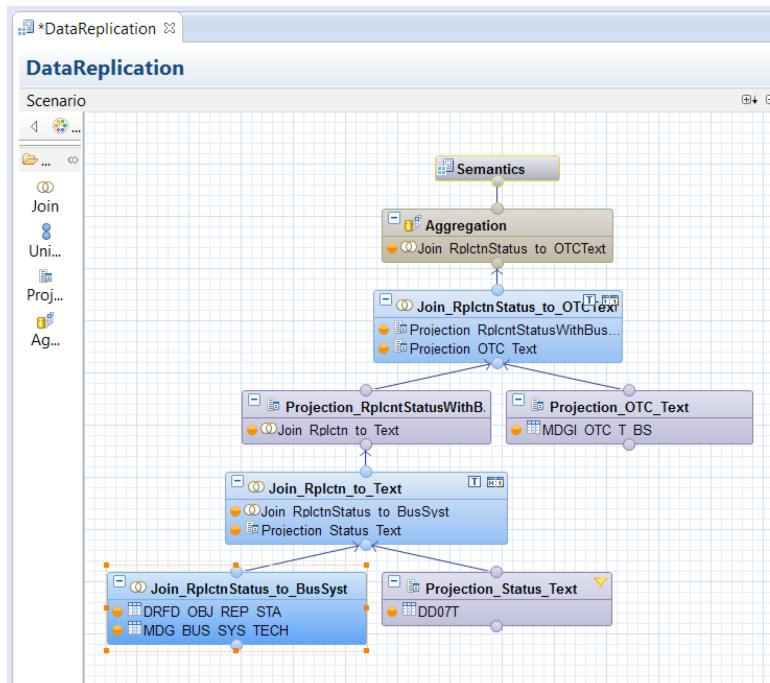
1. Create the calculation view DataReplication.
2. Create the calculation view DataReplicationQuery.
3. Create the odata service.

Select the Cross Client as default client and select the default schema from which you want to use the tables.

3.1.1. CalculationView DataReplication Overview

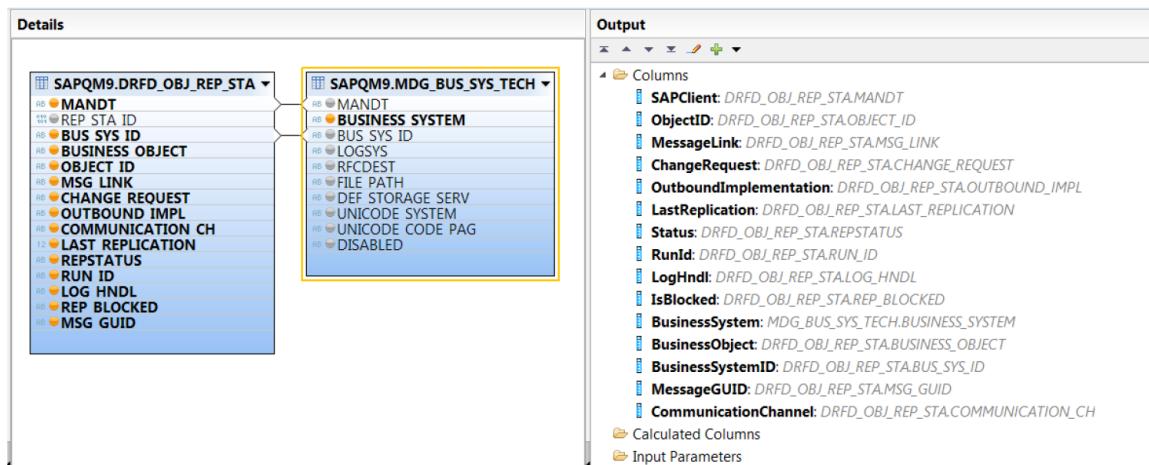
This picture shows the Joins and Projections of the calculation view DataReplication. The creation of this view is described below. This calculation view does not have a Data Category and has no privileges.

Start with the Join `Join_RplctnStatus_to_BusSyst`.



3.1.2. Node Join Join_RplctnStatus_to_BusSyst

This node joins the logfile for data replication with the related business system (tables DRFD_OBJ REP STA with MDG_BUS_SYS_TECH).



3.1.3. Node Projection Projection_Status_Text

Create a projection with table D07T, set filter on DOMANE = 'DRF_REPSTAT'.



Details

SAPQM9.DD07T

- AB DOMNAME
- AB DDLANGUAGE
- AB AS4LOCAL
- AB VALPOS
- AB AS4VERS
- AB DDTTEXT
- AB DOMVAL LD
- AB DOMVAL HD
- AB DOMVALUE L

Filter

(`"DOMNAME" = 'DRF_REPSTAT'`)

Output

Columns

- DOMNAME: DD07T.DOMNAME
- DDLLANGUAGE: DD07T.DDLANGUAGE
- StatusName: DD07T.DDTEXT
- DOMVALUE_L: DD07T.DOMVALUE_L

Calculated Columns

Input Parameters

Filters

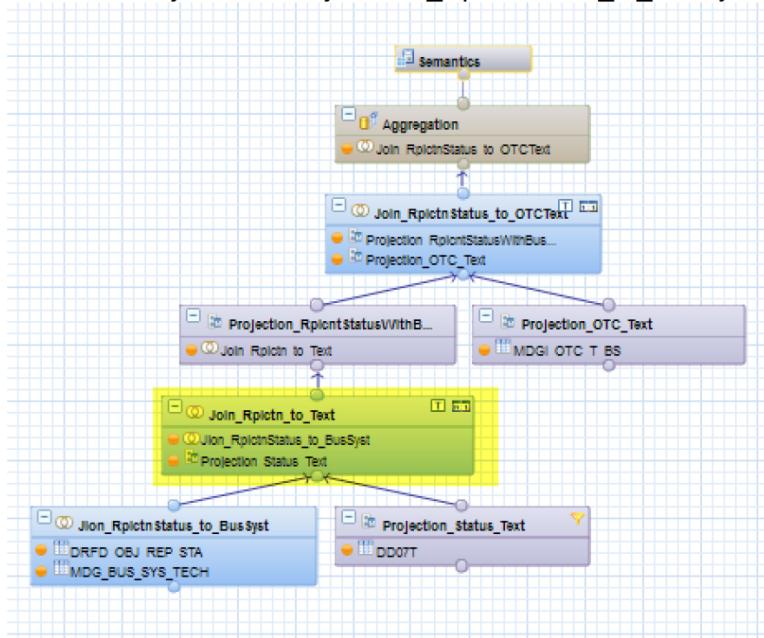
Expression

Properties

General	
Property	Value
Name	Projection_Status_Text
Label	
Type	Projection
Inputs[1]	SAPQM9.DD07T [Table]

3.1.4. Node Join Join_RplctnStatus_to_Text

Create a text join with the join Join_RplctnStatus_to_BusSyst and Projection_Status_Text.



Details

Jion_RplctnStatus_to_BusSyst	Projection_Status_Text
SAPClient ObjectID MessageLink ChangeRequest OutboundImplementation LastReplication Status Runid LogHndl IsBlocked BusinessSystem BusinessObject BusinessSystemID MessageGUID CommunicationChannel	DOMNAME DDLLANGUAGE StatusName DOMVALUE_L

Output

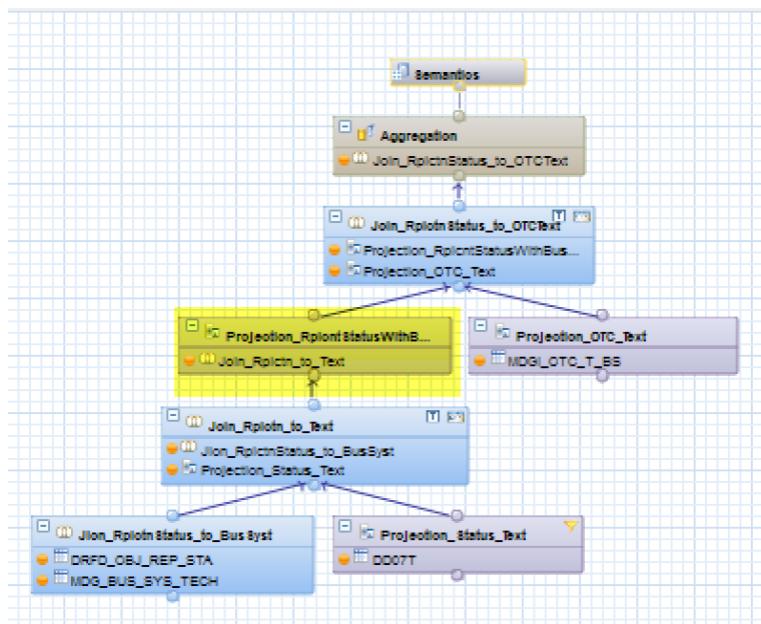
- Columns
 - SAPClient: Jion_RplctnStatus_to_BusSyst.SAPClient
 - ObjectID: Jion_RplctnStatus_to_BusSyst.ObjectID
 - MessageLink: Jion_RplctnStatus_to_BusSyst.MessageLink
 - ChangeRequest: Jion_RplctnStatus_to_BusSyst.ChangeRequest
 - OutboundImplementation: Jion_RplctnStatus_to_BusSyst.Outb
 - LastReplication: Jion_RplctnStatus_to_BusSyst.LastReplication
 - Status: Jion_RplctnStatus_to_BusSyst.Status
 - Runid: Jion_RplctnStatus_to_BusSyst.Runid
 - LogHndl: Jion_RplctnStatus_to_BusSyst.LogHndl
 - IsBlocked: Jion_RplctnStatus_to_BusSyst.IsBlocked
 - BusinessSystem: Jion_RplctnStatus_to_BusSyst.BusinessSystem
 - BusinessObject: Jion_RplctnStatus_to_BusSyst.BusinessObject
 - BusinessSystemID: Jion_RplctnStatus_to_BusSyst.BusinessSyste
 - MessageGUID: Jion_RplctnStatus_to_BusSyst.MessageGUID
 - CommunicationChannel: Jion_RplctnStatus_to_BusSyst.Comm
 - StatusName: Projection_Status_Text.StatusName
- Calculated Columns

Properties

General	
Property	Value
Left Element	Jion_RplctnStatus_to_BusSyst.Status
Right Element	Projection_Status_Text.DOMVALUE_L
Join Type	Text Join
Language Column	DDLLANGUAGE
Cardinality	n..1
Dynamic Join	False
Optimize Join Columns	False

3.1.5. Node Projection ProjRplcntStatusWithBusSyst

Create a projection on the join Join_Rplctn_to_Text.



Details

Join_Rplctn_to_Text	
AB	SAPClient
AB	ObjectID
AB	MessageLink
AB	ChangeRequest
12	OutboundImplementation
12	LastReplication
AB	Status
AB	RunId
AB	LogHndl
AB	IsBlocked
AB	BusinessSystem
AB	BusinessObject
AB	BusinessSystemID
AB	MessageGUID
AB	CommunicationChannel
AB	StatusName

Output

Columns

- SAPClient: Join_Rplctn_to_Text.SAPClient
- ObjectID: Join_Rplctn_to_Text.ObjectID
- MessageLink: Join_Rplctn_to_Text.MessageLink
- ChangeRequest: Join_Rplctn_to_Text.ChangeRequest
- OutboundImplementation: Join_Rplctn_to_Text.OutboundImplementation
- LastReplication: Join_Rplctn_to_Text.LastReplication
- Status: Join_Rplctn_to_Text.Status
- RunId: Join_Rplctn_to_Text.RunId
- LogHndl: Join_Rplctn_to_Text.LogHndl
- IsBlocked: Join_Rplctn_to_Text.IsBlocked
- BusinessSystem: Join_Rplctn_to_Text.BusinessSystem
- BusinessObject: Join_Rplctn_to_Text.BusinessObject
- BusinessSystemID: Join_Rplctn_to_Text.BusinessSystemID
- MessageGUID: Join_Rplctn_to_Text.MessageGUID
- CommunicationChannel: Join_Rplctn_to_Text.CommunicationChannel
- StatusName: Join_Rplctn_to_Text.StatusName

Calculated Columns

Input Parameters

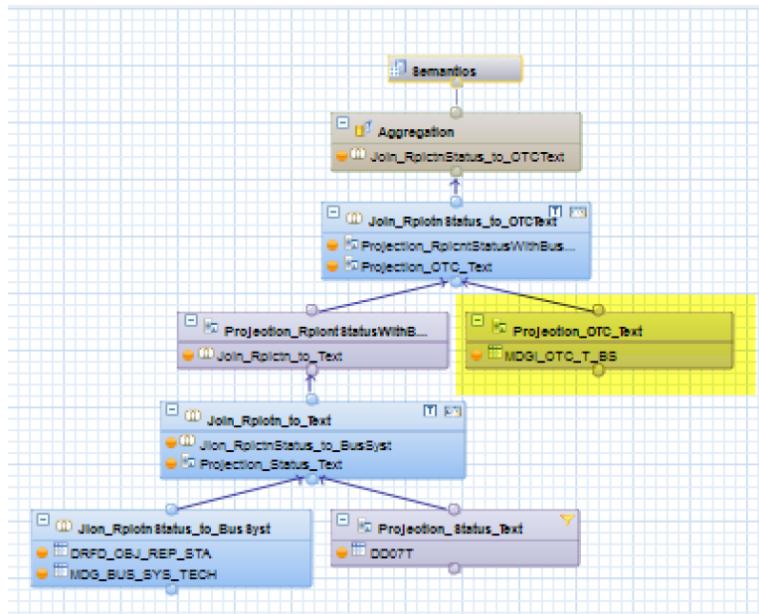
Filters

Properties

General	
Property	Value
Name	Projection_RplctnStatusWithBusSyst
Label	
Type	Projection
Inputs[1]	Join_Rplctn_to_Text [Node]

3.1.6. Node Projection Projection_OTC_Text

Create a projection on table MDGI_OTC_T_BS.



Details		Output													
SAPQM9.MDGI_OTC_T_BS <ul style="list-style-type: none"> AB LANGU AB OBJECT TYPE CODE AB DESCRIPTION 		Columns <ul style="list-style-type: none"> Lang: MDGI_OTC_T_BS.LANGU BusinessObjectName: MDGI_OTC_T_BS.DESCRIPTION ObjectTypeCode: MDGI_OTC_T_BS.OBJECT_TYPE_CODE Calculated Columns Input Parameters Filters													
		Properties <table border="1"> <thead> <tr> <th colspan="2">General</th> </tr> <tr> <th>Property</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Name</td> <td>Projection_OTC_Text</td> </tr> <tr> <td>Label</td> <td></td> </tr> <tr> <td>Type</td> <td>Projection</td> </tr> <tr> <td>Inputs[1]</td> <td>SAPQM9.MDGI_OTC_T_BS [Table]</td> </tr> </tbody> </table>		General		Property	Value	Name	Projection_OTC_Text	Label		Type	Projection	Inputs[1]	SAPQM9.MDGI_OTC_T_BS [Table]
General															
Property	Value														
Name	Projection_OTC_Text														
Label															
Type	Projection														
Inputs[1]	SAPQM9.MDGI_OTC_T_BS [Table]														

3.1.7. Node Join Join_RplctnStatus_to_OTC_Text

Create a text join with ProjRplcntStatusWithBusSyst and Projection_OTC_Text.



Details

Projection_RplctnStatusWithBusSyst	
SAPClient	
ObjectID	
MessageLink	
ChangeRequest	
OutboundImplementation	
LastReplication	
Status	
Rund	
LogHndl	
IsBlocked	
BusinessSystem	
BusinessObject	
BusinessSystemID	
MessageGUID	
CommunicationChannel	
StatusName	

Projection_OTC_Text	
Land	
BusinessObjectName	
ObjectTypeCode	

Output

Columns

- SAPClient: Projection_RplctnStatusWithBusSyst.SAPClient
- ObjectID: Projection_RplctnStatusWithBusSyst.ObjectID
- MessageLink: Projection_RplctnStatusWithBusSyst.MessageLink
- ChangeRequest: Projection_RplctnStatusWithBusSyst.ChangeRequest
- OutboundImplementation: Projection_RplctnStatusWithBusSyst.OutboundImplementation
- LastReplication: Projection_RplctnStatusWithBusSyst.LastReplication
- Status: Projection_RplctnStatusWithBusSyst.Status
- Rund: Projection_RplctnStatusWithBusSyst.Rund
- LogHndl: Projection_RplctnStatusWithBusSyst.LogHndl
- IsBlocked: Projection_RplctnStatusWithBusSyst.IsBlocked
- BusinessSystem: Projection_RplctnStatusWithBusSyst.BusinessSystem
- BusinessObject: Projection_RplctnStatusWithBusSyst.BusinessObject
- BusinessSystemID: Projection_RplctnStatusWithBusSyst.BusinessSystemID
- MessageGUID: Projection_RplctnStatusWithBusSyst.MessageGUID
- CommunicationChannel: Projection_RplctnStatusWithBusSyst.CommunicationChannel
- StatusName: Projection_RplctnStatusWithBusSyst.StatusName
- BusinessObjectName: Projection_OTC_Text.BusinessObjectName

Calculated Columns

Input Parameters

Properties

Property	Value
Left Element	Projection_RplctnStatusWithBusSyst.BusinessObject
Right Ele...	Projection_OTC_Text.ObjectTypeCode
Join Type	Text Join
Language C...	Lang
Cardinality	1..1
Dynamic Jo...	False
Optimize J...	False

3.1.8. Node Aggregation



Details

Join_RplctnStatus_to_OTCText
SAPClient
ObjectID
MessageLink
ChangeRequest
OutboundImplementation
LastReplication
Status
RunId
LogHndl
IsBlocked
BusinessSystem
BusinessObject
BusinessSystemID
MessageGUID
CommunicationChannel
StatusName
BusinessObjectName

Output

- Columns
 - SAPClient: Join_RplctnStatus_to_OTCText.SAPClient
 - RunId: Join_RplctnStatus_to_OTCText.RunId
 - ObjectID: Join_RplctnStatus_to_OTCText.ObjectID
 - MessageLink: Join_RplctnStatus_to_OTCText.MessageLink
 - ChangeRequest: Join_RplctnStatus_to_OTCText.ChangeRequest
 - OutboundImplementation: Join_RplctnStatus_to_OTCText.OutboundImplementation
 - LastReplication: Join_RplctnStatus_to_OTCText.LastReplication
 - Status: Join_RplctnStatus_to_OTCText.Status
 - StatusName: Join_RplctnStatus_to_OTCText.StatusName
 - LogHndl: Join_RplctnStatus_to_OTCText.LogHndl
 - IsBlocked: Join_RplctnStatus_to_OTCText.IsBlocked
 - BusinessSystem: Join_RplctnStatus_to_OTCText.BusinessSystem
 - BusinessSystemID: Join_RplctnStatus_to_OTCText.BusinessSystemID
 - BusinessObject: Join_RplctnStatus_to_OTCText.BusinessObject
 - BusinessObjectName: Join_RplctnStatus_to_OTCText.BusinessObjectName
 - MessageGUID: Join_RplctnStatus_to_OTCText.MessageGUID
 - CommunicationChannel: Join_RplctnStatus_to_OTCText.CommunicationChannel
- Calculated Columns
- Restricted Columns

Properties

Name	Aggregation
Label	Aggregation
Type	Aggregation
Inputs[1]	Join_RplctnStatus_to_OTCText [Node]

3.1.9. Node Semantics

This calculation view does not have a data category and has no privileges.



Details

Properties

DataReplication
QM9lbbqm9.wdf.sap.corp:02/tmp.ORTHG.DataReplication

Default Client: Cross Client Data Category:

Default Schema: SAP_MDG Apply Privileges:

Column

Type	Name	Label	Aggregation	Variable	Label Column	Hidden
AB	SAPClient	SAPClient	▼			<input type="checkbox"/>
AB	RunId	RunId	▼			<input type="checkbox"/>
AB	ObjectID	ObjectID	▼			<input type="checkbox"/>
AB	MessageLink	MessageLink	▼			<input type="checkbox"/>
AB	ChangeRequest	ChangeRequest	▼			<input type="checkbox"/>
AB	OutboundImplementation	OutboundImple...	▼			<input type="checkbox"/>
I2	LastReplication	LastReplication	▼			<input type="checkbox"/>
AB	Status	Status	▼	↳ StatusNa...		<input type="checkbox"/>
AB	StatusName	StatusName	▼			<input type="checkbox"/>
AB	LogHndl	LogHndl	▼			<input type="checkbox"/>
AB	IsBlocked	IsBlocked	▼			<input type="checkbox"/>
AB	BusinessSystem	BusinessSystem	▼			<input type="checkbox"/>
AB	BusinessSystemID	BusinessSystem...	▼			<input type="checkbox"/>
AB	BusinessObject	BusinessObject	▼	↳ Business...		<input type="checkbox"/>
AB	BusinessObjectName	BusinessObject...	▼			<input type="checkbox"/>
AB	MessageGUID	MessageGUID	▼			<input type="checkbox"/>
AB	CommunicationChannel	Communication...	▼			<input type="checkbox"/>

Hierarchies

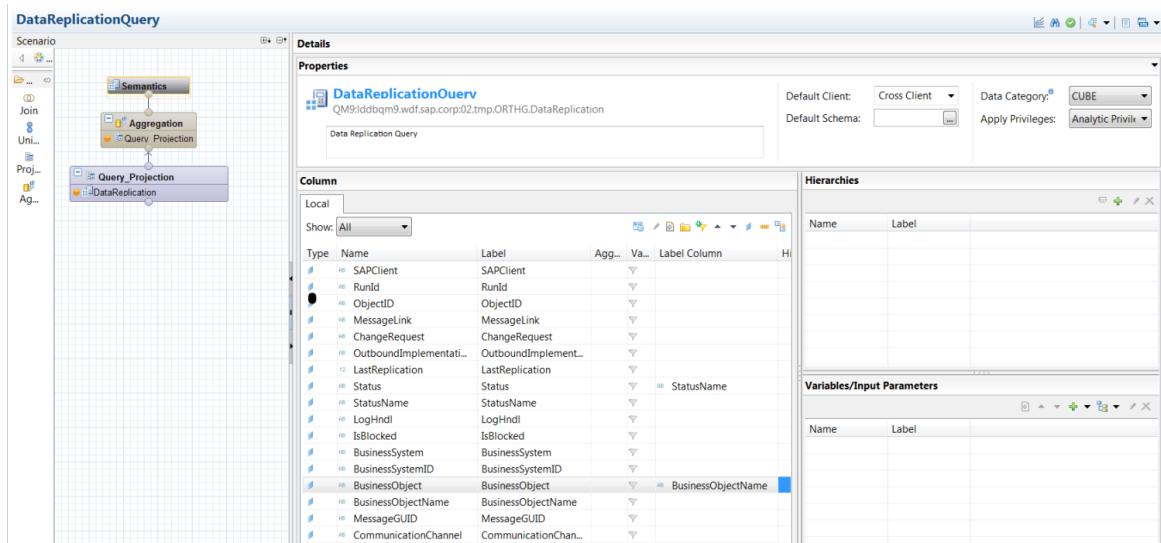
Name	Label

Variables/Input Parameters

Name	Label

3.2. CalculationView DataReplicationQuery

You use a query view as a basis for creating KPIs. The data category is CUBE and the privilege is Analytic Privileges, default client is Cross Client. In this view, measures are calculated.



3.2.1. Add Calculated Columns

By selecting the aggregation node, you will see the calculated columns on the right hand side which show the available counters and measures.

Name	Data Type	Exception Aggregation	Columns
TotalReplication	Integer	COUNT_DISTINCT	RunId
IsFailed	VARCHAR (1)	Formula if("StatusName"='SE' OR "StatusName"='PE','X','')	

3.3. Create xsodata service

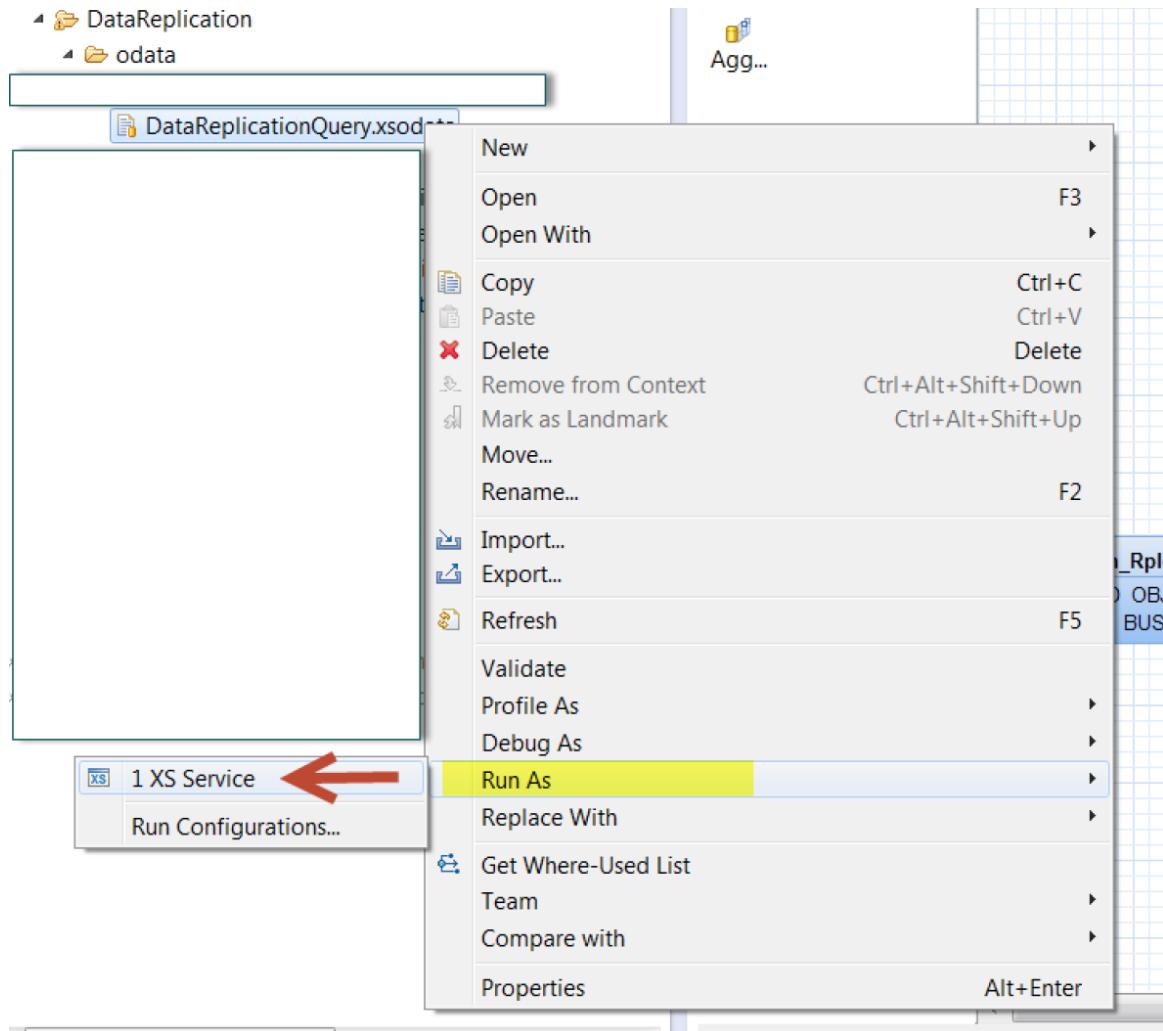
In the HANA DB studio, create a project (for example, tmp.ORTHG) with a folder for the calculation view for example DataReplicationQuery and a subfolder odata for the xsodata file.

3.3.1. Syntax:

```
service {"tmp.ORTHG.DataReplication::DataReplicationQuery" as
"DataReplicationQuery"
    keys generate local "GenID"
    aggregates always;
}
annotations
{
    enable OData4SAP;
}
```

Test the xsodata service:

Right-click on the .xsodata file → runs as XS Service.



Result:

Browser starts with a valid XML document.

```
<?xml version="1.0" encoding="utf-8" standalone="yes" ?>
<service xmlns:atom="http://www.w3.org/2005/Atom" xmlns:app="http://www.w3.org/2007/app" xmlns="http://www.w3.org/2007/app"
  xml:base="http://1dbqm9.wdf.sap.corp:8002/tmp/ORTHG/DataReplication/odata/DataReplicationQuery.xsodata/">
- <workspace>
  - <atom:title>Default</atom:title>
  - <collection href="DataReplicationQuery">
    <atom:title>DataReplicationQuery</atom:title>
  </collection>
</workspace>
</service>
```

4. Additional Information

4.1. Further Reading

Information on SAP MDG on SAP S/4HANA

- Exchange knowledge: [SAP Community](#) | [Q&A](#) | [Blog](#)
- Try SAP Master Data Governance on S/4HANA for free: [Trial Version](#)
- Learn more: [Latest Release](#) | [Webinars](#) | [Help Portal](#) | [How-to Information](#) | [Key Presentations](#)

SAP Roadmap Explorer

- Please see the [roadmap for SAP Master Data Governance](#)

Related Information

- Learn more: [Floorplan Manager for Web Dynpro ABAP](#) | [How to Adapt FPM](#) | [FPM Blog](#) | [How-to Information](#) | [Service Mapping Tool](#) | [SAP S/4HANA Cookbook CVI](#)

4.2. SAP Notes

In addition to the detailed explanations written in this document, please see the following SAP Notes for further important information.

Note Number	Note Description
2313368	Functional restrictions in MDG for Business Partner / Customer / Supplier with SAP Master Data Governance 9.0
2472845	Functional restrictions in MDG for Business Partner / Customer / Supplier with SAP Master Data Governance 9.1
2656712	Functional restrictions in MDG for Business Partner / Customer / Supplier in SAP Master Data Governance 9.2 and on SAP S/4HANA 1809
2816557	Functional restrictions in MDG for Business Partner / Customer / Supplier on SAP S/4HANA 1909
2925030	Functional restrictions in MDG for Business Partner / Customer / Supplier on SAP S/4HANA 2020
3070003	Functional restrictions in MDG for Business Partner / Customer / Supplier on SAP S/4HANA 2021
3194967	MDG Customer Connection 2021 for S/4HANA 2022
3043582	MDG Customer Connection 2020
1806108	Functional restrictions in MDG-M in MDG7 (incl. SP02)
2129261	Functional restrictions in MDG-M in MDG8
2284745	Functional Restrictions in MDG for Material with SAP Master Data Governance 9.0
2461516	Functional Restrictions in MDG for Material with SAP Master Data Governance 9.1
2656693	Functional Restrictions in MDG for Material in SAP Master Data Governance 9.2 and on SAP S/4HANA 1809
2816571	Functional Restrictions in MDG for Material on SAP S/4HANA 1909
2948873	Functional Restrictions in MDG for Material on SAP S/4HANA 2020
2479869	Usage of Lean Classification with SAP Master Data Governance

Note Number	Note Description
3070012	Functional Restrictions in MDG for Material on SAP S/4HANA 2021
3219945	Functional Restrictions in MDG for Material on SAP S/4HANA 2022