



PUBLIC

# How to Configure Change Analytics for Master Data in Change Requests

Applicable Releases:

SAP Master Data Governance (MDG) on SAP S/4HANA 2021 onwards. For more information, visit the SAP Master Data Management homepage (<http://scn.sap.com/community/mdm/master-data-governance>).

This document is designed for SAP MDG consultants, partners, and key users of SAP MDG solutions.

Version 1.1

September 2024

Document History

Document Version	Description
1.0	First official release of this guide
1.1	Format updates

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# 1. Summary

In SAP MDG on SAP S/4HANA 2021, a new analytics function is available: change analytics for master data attributes. With it, you can provide analytics capability to your users, answering questions like:

- How many open change requests are changing bank accounts for business partners?
- How often were the critical attributes, for example, Product Description, changed in the past?
- How many change requests are in approval for payment data changes for which company codes on customer master?

This document guides you through configuring and using this function by using MDG material as an example. This guide contains two parts:

- Backend: Configure and Generate CDS views
- User Interface: Configure Smart Business Apps or SAP Analytics Cloud Story

## 2. Implementation

This chapter explains all necessary technical steps to implement the solution.

### 2.1. Backend: Configure and Generate CDS Views

We use Core Data Services (CDS) views as the main technology to provide data sources for the UI layer. We need to configure and generate the CDS views first, which will read the data from your MDG database and the active area database tables.

Before we create analytics CDS views, we need to generate basic CDS views for the data model.

#### 2.1.1. Generate Basic CDS Views

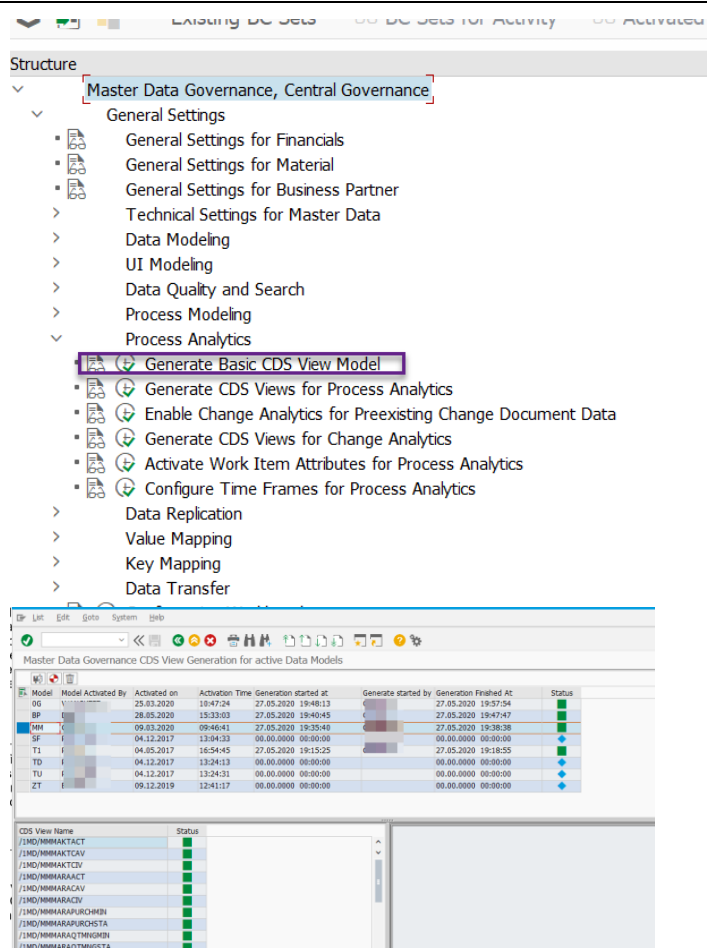
Go to transaction MDGIMG, *Process Analytics* → *Generate Basic CDS Views for Process Analytics*.

Select the data model which you need to provide the analytics and choose the **Generate** button.

This may take several minutes. You can see the details by choosing the **Details** button.

*Regardless of whether you're using a Development, Test or Production system, the MDG data model must be activated individually. Therefore, your configured CDS view also needs to be individually generated in each system.*

**!!! If you have added new attributes to the data model after basic CDS views generation, you need to regenerate the Basic CDS view again !!!**



## 2.1.2. Generate Analytics CDS Views

Go to transaction MDGIMG, *Process Analytics* → *Generate CDS Views for Change Analytics*

Choose a name, a data model, and main entity type for your data analytics query.

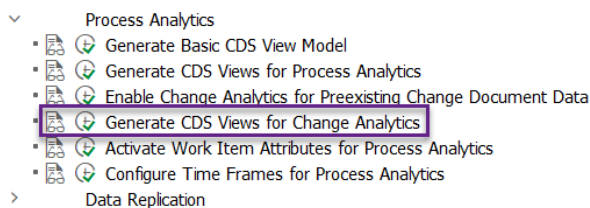
Choose Analysis Target

Enter a local package to store the generated CDS views.

In case attributes you have selected are relevant for read access logging, you can define a read access logging domain.

Choose Attribute for Change Analysis.

Select the entity type and attributes using the value help



which you want to analyze the changes.

You can choose from any type 1 or type 4 entities belonging to the main entity type.

In this example, we choose all plant MRP data and several important attributes in product basic data.

Additionally, you can select more attributes to drill down the report (For example, material type).

Choose Additional Attributes for Report Drilldown, which can be used to drill down the master data to further analyze the change request.

You can choose from any type 1 or type 4 entities belonging to the main entity type.

Change View "Configuration": Overview

Configuration

Analytical CDS View Name	Data Model	Main Entity Type	Description	Analysis Target
ZMM_CA_HOWTO	NM	MATERIAL	Demo for Change Analysis in MDG	F Finalized Change Requests

Change View "Attributes for Change Analysis": Overview

CDS View Name

ZMM\_CA\_HOWTO

Data Model

NM

Main Entity Type

MATERIAL

Attributes for Change Analysis

Entity Type	Beschreibung	Attribut	Beschreibung
MARCMRPMI	Plant Data MRP Msc (View Manufacturing)	ANDIS	MRP dep.requirements
MARCMRPMI	Plant Data MRP Msc (View Manufacturing)	KSBED	Requirements group
MARCMRPPP	Plant Data MRP Production Planning (View Material)	DGRMRPPP	MRP Group
MARCMRPPP	Plant Data MRP Production Planning (View Material)	DISNM	MRP Type
MARCMRPPP	Plant Data MRP Production Planning (View Material)	DISMRPPP	MRP Controller
MARCMRPPP	Plant Data MRP Production Planning (View Material)	DISPR	MRP profile
MARCMRPPP	Plant Data MRP Stock Planning (View Procurement)	BESK2	Procurement Type
MARCMRPPP	Plant Data MRP Stock Planning (View Procurement)	EPRMRPPP	Stock determ. group
MARCMRPPCH	Plant Data Purchasing	EGGRP	Purchasing Group
MARCMRPPCH	Plant Data Purchasing	INSMK	Post to Insp. Stock
MATERIAL	Basic Data	LABOR	Lab/Office
MATERIAL	Basic Data	MATKL	Material Group
MATERIAL	Basic Data	MBSH	Industry Sector
MATERIAL	Basic Data	MTART	Material Type
MATERIAL	Basic Data	TXMTI	Description (medium text)

Additional Attributes for Report Drilldown

Entity Type	Beschreibung	Attribut	Beschreibung	Log Domain
MATERIAL	Basic Data	MBSH	Industry Sector	
MATERIAL	Basic Data	MBSH	Base Unit of Measure	
MATERIAL	Basic Data	MSTAE	X-Plant Mat.Status	
MATERIAL	Basic Data	MTART	Material Type	

Save your configuration first, then select the transport request which you need to transport the Customizing into the downstream system (s).

Request

QM7K906320

Workbench request

Short Description

Test

Own Requests

Select your created CDS view configuration and generate.

Change View "Configuration": Overview

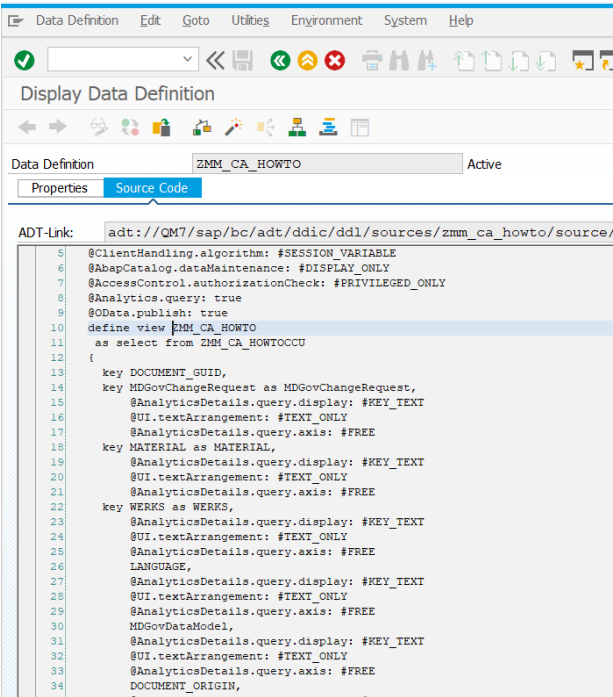
Configuration

Analytical CDS View Name	Data Mo
ZMM_CA_HOWTO	NM

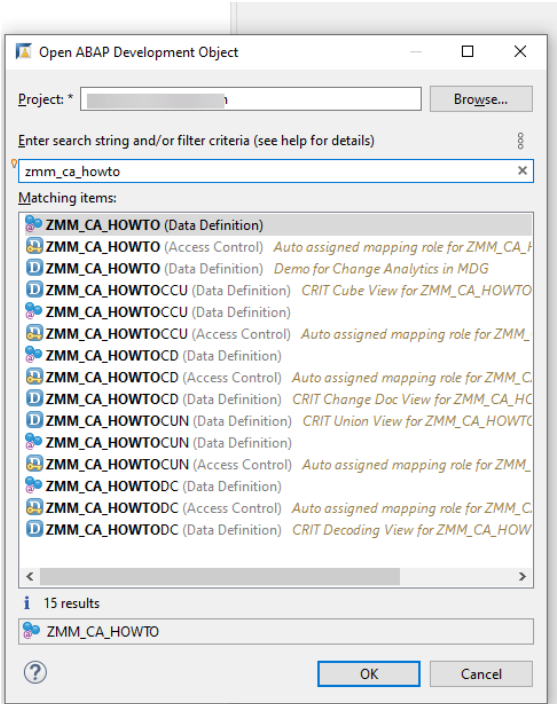
Regardless of whether you're using a Development, Test or Production system, the MDG data model must be activated individually. Therefore, your configured CDS view also needs to be individually generated in each system.

Once you get the success message, you should be able to check the CDS view in ABAP Development Tool or SE11.

Here you can also see the Access Control DCL is generated, which will allow only the authorized user to access the data used in an analytics report.



```
ADT-Link: adt://QM7/sap/bc/adt/ddic/ddl/sources/zmm_ca_howto/source/
5  @ClientHandling.algorithm: #SESSION_VARIABLE
6  @AbapCatalog.dataMaintenance: #DISPLAY_ONLY
7  @AccessControl.authorizationCheck: #PRIVILEGED_ONLY
8  @Analytics.query: true
9  @Data.publish: true
10 define view ZMM_CA_HOWTO
11   as select from ZMM_CA_HOWTOCCU
12   {
13     key DOCUMENT_GUID,
14     key MDGovChangeRequest as MDGovChangeRequest,
15     @AnalyticsDetails.query.display: #KEY_TEXT
16     @UI.textArrangement: #TEXT_ONLY
17     @AnalyticsDetails.query.axis: #FREE
18     key MATERIAL as MATERIAL,
19     @AnalyticsDetails.query.display: #KEY_TEXT
20     @UI.textArrangement: #TEXT_ONLY
21     @AnalyticsDetails.query.axis: #FREE
22     key WERKS as WERKS,
23     @AnalyticsDetails.query.display: #KEY_TEXT
24     @UI.textArrangement: #TEXT_ONLY
25     @AnalyticsDetails.query.axis: #FREE
26     LANGUAGE,
27     @AnalyticsDetails.query.display: #KEY_TEXT
28     @UI.textArrangement: #TEXT_ONLY
29     @AnalyticsDetails.query.axis: #FREE
30     MDGovDataModel,
31     @AnalyticsDetails.query.display: #KEY_TEXT
32     @UI.textArrangement: #TEXT_ONLY
33     @AnalyticsDetails.query.axis: #FREE
34     DOCUMENT_ORIGIN,
```



```

18 EndUserText.label: 'Auto assigned mapping role for ZMM_CA_HOWTOCCU'
19 @MappingRole: true
20 define role ZMM_CA_HOWTOCCU {
21   grant select on ZMM_CA_HOWTOCCU
22   where
23     ( ( ) = aspect pfcg_auth( M_MATE_MAN, ACTVT = '03' ))
24   and
25     ( ( _MARA2T134_BEGRU.BEGRU ) ?= aspect pfcg_auth( M_MATE_MAN, BEGRU, ACTVT = '03' ))
26   and
27     ( ( BEGRU ) ?= aspect pfcg_auth( M_MATE_MAT, BEGRU, ACTVT = '03' ))
28   and
29     ( ( _MARA2T023_BEGRU.BEGRU ) ?= aspect pfcg_auth( M_MATE_WGR, BEGRU, ACTVT = '03' ))
30   and
31     ( ( ) = aspect pfcg_auth( USMD_PRANA, USMD_MODEL = 'MM' ))
32   and
33     ( ( MDGovChgReqType ) ?= aspect pfcg_auth( USMD_CREQ, CREQ_TYPE, ACTVT = '03' ));
34 }

```



# 2.2. Frontend Option 1: Configure Embedded Analytics SAP Fiori Apps in SAP S/4HANA

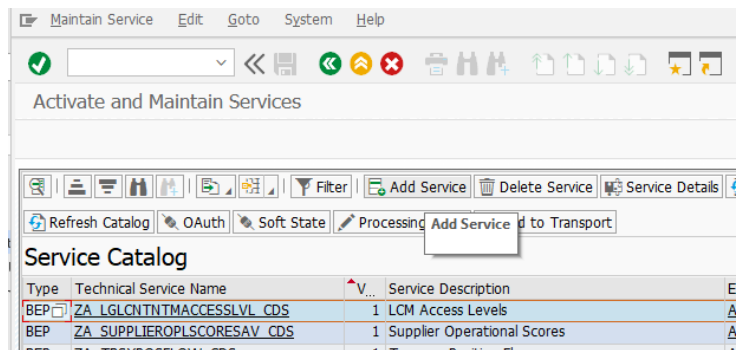
In your SAP S/4HANA system, you can create an analytics app for your end user with the analytics tool **Manage KPIs and Reports** (you need to assign the business **role** SAP\_BR\_ANALYTICS\_SPECIALIST to use this).

If you have separated the Fiori Gateway system, you need to configure the following steps in your Fiori Gateway system.

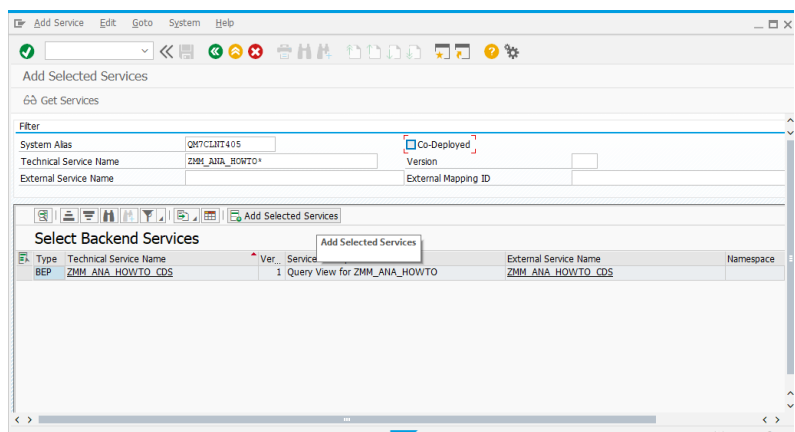
## 2.2.1. Preparation: Activate the CDS View oData Service

For Smart Business configuration, you first need to activate the oData service in the transaction /n/IWFND/MAINT\_SERVICE.

Select Add Service.



Enter your system alias and your CDS view name (with the suffix \*) to search your CDS view oData service.



Add the service into your desired package.

Add Service

Service

Technical Service Name

ZHM\_ANA\_ROWTO\_CDS

Service Version

1

Description

Query View for ZHM\_ANA\_ROWTO

External Service Name

ZHM\_ANA\_ROWTO\_CDS

Namespace

External Mapping ID

External Data Source Type

C

Model

Technical Model Name

ZHM\_ANA\_ROWTO\_CDS

Model Version

1

Creation Information

Package Assignment

zTMP

Local Object

ICF Node

Standard Mode

None

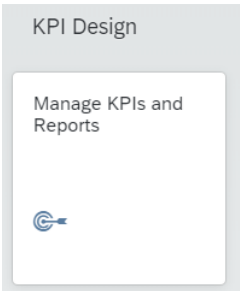
Set Current Client as Default Client in ICF Node

OAuth enablement

Enable OAuth for Service

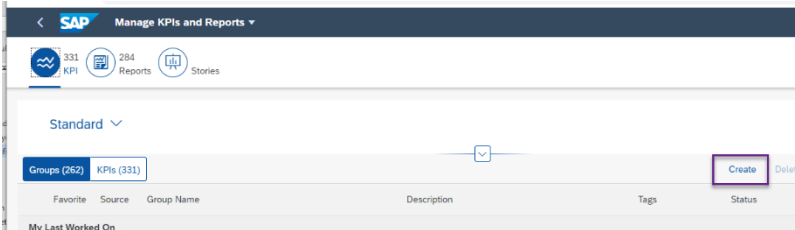
2.2.2. Step 1: Create KPI

To get the KPI Design app in your Fiori launchpad, ensure you have assigned the PFCG role SAP\_BR\_ANALYTICS\_SPEC in your SAP Fiori system.



Create a new group or use an existing group if you have one already.

Note: you can put different KPIs into one group.



Enter a name, then choose Save and Activate.

SAP Edit Group

HowTo-Change Analytics in MDG

Header

Business Information

Associated Groups

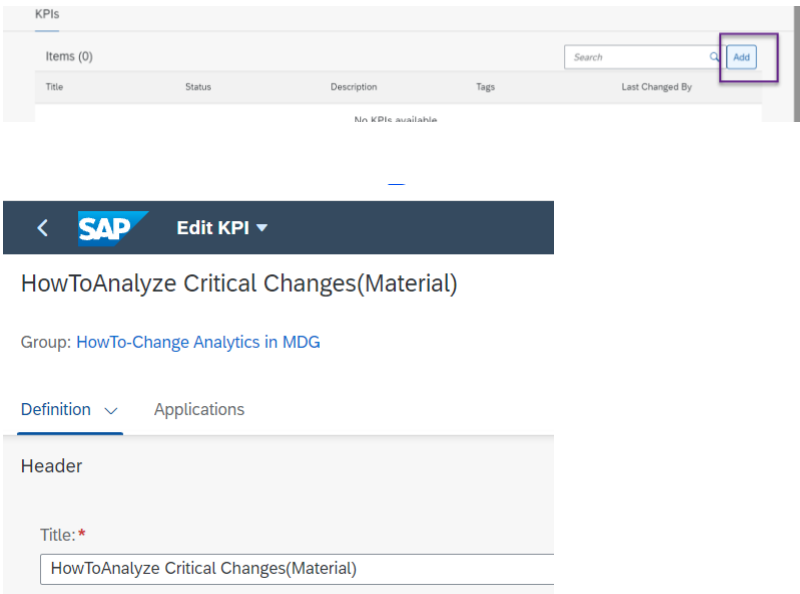
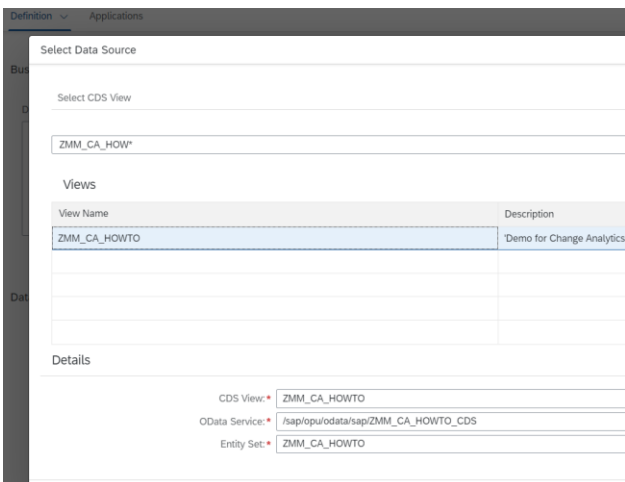
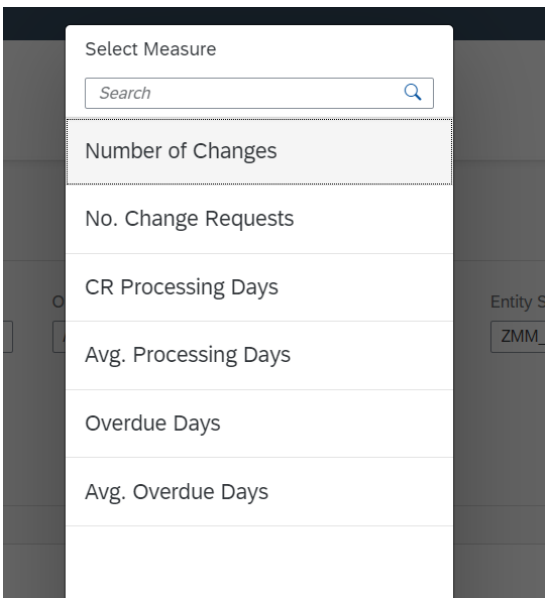
KPIs

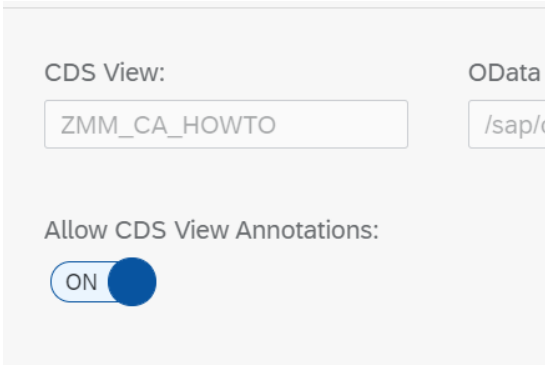
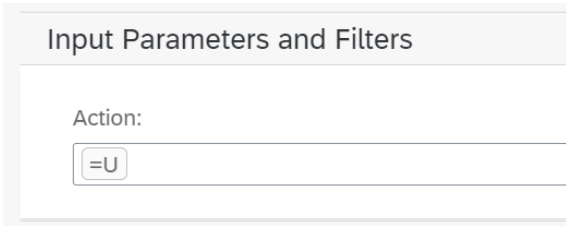
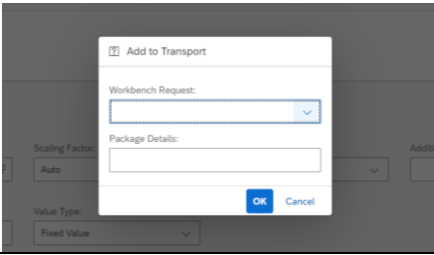
Title: \*

HowTo-Change Analytics in MDG

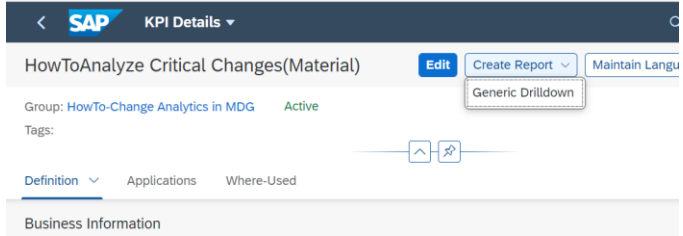
Application Area:

Business Information

<p>Add a new KPI.</p> <p>Provide a name, for example <i>Analyze Open CR by Mat. Attr.</i></p>	
<p>Define Data Source:</p> <p>Search for your CDS view and select it. The three mandatory fields are filled automatically.</p>	
<p>Select the default Measure: Number of Changes. The following three measures are provided:</p> <ul style="list-style-type: none"> <li>• Number of Changes</li> <li>• Number of Change Requests</li> <li>• Total Change Request Processing Days</li> <li>• Change Request Average Processing Days</li> <li>• Change Request Total Overdue Days</li> <li>• Change Request Average Overdue Days</li> </ul> <p>You need to select one for now, but you can use all three measures in your report (see Step 2).</p>	

<p>Set the Allow CDS View Annotation flag to on.</p>	
<p>You can define the default filter for the app, so that only certain data will be displayed.</p> <p>For example, if your report is used for analyzing changes only, the Action filter can be used with default value 'U(Update)'.</p> <p>Note: it is not only possible to analyze changes, but as well to new or deleted data entries</p>	
<p>Save the KPI.</p> <p>Select the transport and package which you want to use to transport to downstream systems.</p>	

## 2.2.3. Step 2: Create Report

<p>On the KPI, Select Create Report -&gt; Generic Drilldown.</p>	
--	--

Enter a Title.

<

SAP

Edit Report ▾

HowTo-Change Analytics in MDG

KPI: [HowToAnalyze Critical Changes\(Material\)](#) Type: Generic Drilldown

Definition ▾

Configuration ▾

Applications

Header

Title: \*

HowTo-Change Analytics in MDG

Tags:

Subtitle:

Analyze Critical Changes for Products

Select Configuration.

Select additional default filters for the app, such as Fieldname, Change Request Status and Change Request Type.

Input Parameters and Filters

Action:

=U

ite X

Change Request Status Code X

Change Request Type Code X

Field Name X

Pagination Limit for Facet Filter:

100

Add a view:

For example, Change Requests for Product drill-down by Product Type

Charts and Tables

Add View

Navigation Intents

General Information

Options

Column Properties

View Title: \*

Critical Changes drill-down by Product Type

Maintain Languages (2)

View Type:

Chart

Table

150

200

250

300

350

Number of Change Requests

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Configure the chart, for example, by selecting attributes and sorting.

VIEW SETTINGS

Chart

Sort

Column Chart

Search

Show Selected

☐ Select All (2/46)

Type

Role

☒ Material Type

Dimension

Category

☒ Number of Changes

Measure

Axis 1

☐ Action

Dimension

Category

View Settings

Chart

Sort

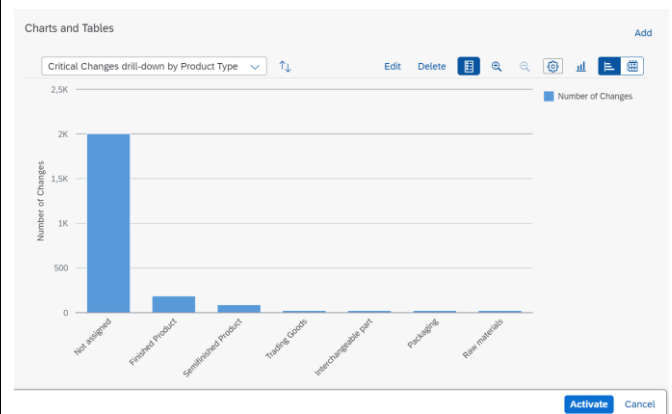
Number of Changes

Descending

(none)

Ascending

Activate the report.



Add another view to list the selected change request, in this case View Type: Table.

Configure the fields you want to display in the list

View Title: \*

Changes Details

Maintain Languages (2)

View Type:

Chart

Table

View Settings

Columns

Sort

Search

Columns (7/46)

Change Request

Material

Field Name

Action

Change Date

New Value

Old Value

Avg. Overdue Days

Charts and Tables

Add

Changes Details

↑↓

Edit

Delete

Change Request

Material

Field Name

Action

Change Date

New Value: [MBRSH]

Old Value:

1 [MBRSH]

New Value: [MTART]

Old Value:

FERT [MTART]

New Value: [TXTMI]

Old Value:

Test [TXTMI]

002 [LABOR]

Activate

Cancel

Add Navigation:

Sematic Object: ChangeRequest

Action: <your custom action>

Note: the navigation needs to be created as target mapping in your catalog (see Step 3).

Navigation Intents

Add

Semantic Object

Action

Delete

No Navigation Intents were added.

Navigation Intents

Semantic Object

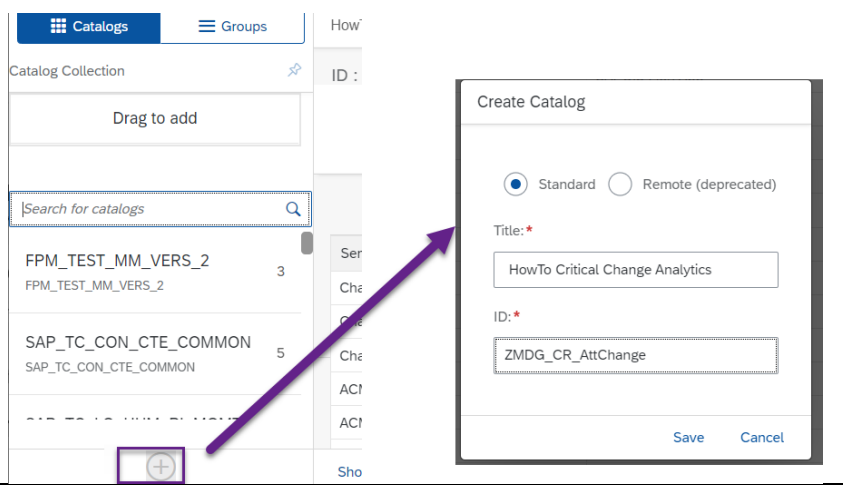
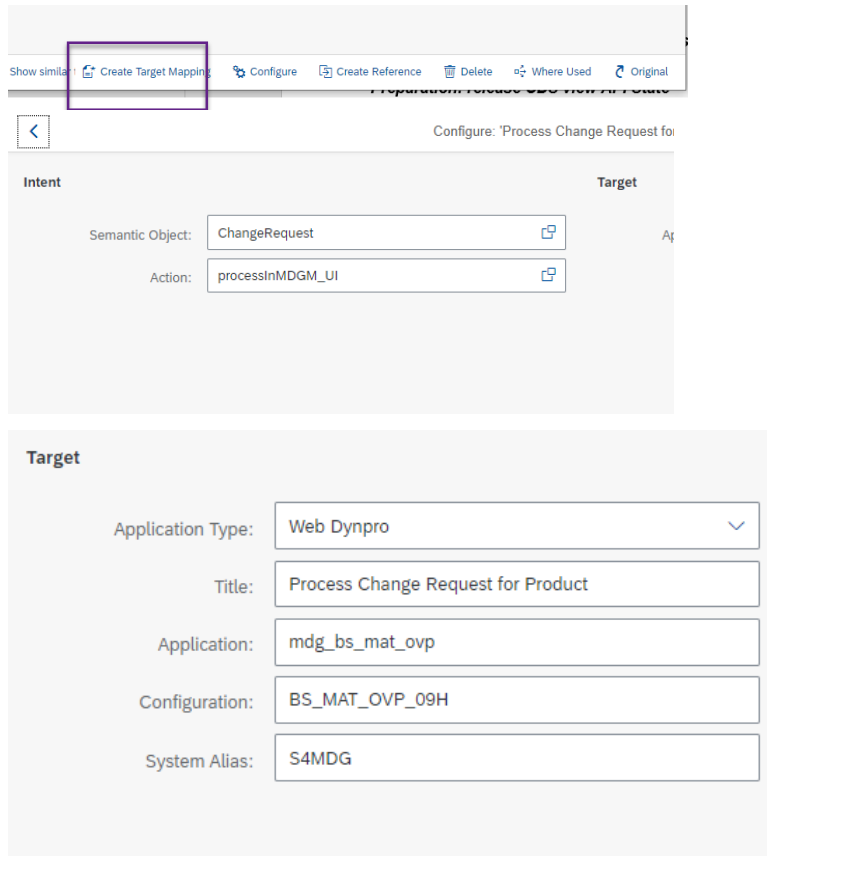
Action

ChangeRequest

processInMDGM\_UI

## 2.2.4. Step 3: Create Fiori Catalog

To be able to provide your apps to your end user, a catalog needs to be created if you don't have one yet.  
In your SAP Fiori system, open transaction /n/UI2/FLPD\_CUST

<p>Create a new catalog. If you have one already, you can skip this step.</p>	
<p>Create Target Mapping:</p> <p>Sematic Object: ChangeRequest</p> <p>Action: &lt;your custom action&gt;</p> <p>(This should be the same one you defined in Report Navigation Intent in Step 2).</p> <p>Application Type: Webdynpro</p> <p>System Alias: S4MDG</p> <p>Application and Configuration: As MDG apps for different domains could be different, check your MDG UI configuration to get the right one.</p>	



Add the navigation parameter:

MDGovChangeRequest  
(mandatory)

Target name: CREQUEST

## 2.2.5. Step 4: Create App and Assign it to the Catalog

You can use the report you created in Step 2 to create an application.

Open your report.

Select Add Tile.

Select a tile format and choose OK.

Select the catalog you created in Step 3.

Tile Configuration



Embedded

Tile Format: Blank Tile

Title: \* How To Change Analytics in MDG

Subtitle: Analyze Critical Changes for Products

Catalog: \* X-SAP-UI2-CATALOGPAGE:ZMDG\_CR\_AttChange

Data

KPI Name: HowToAnalyze Critical Changes(Material)

Navigation

Select Drill-Down: Generic

Report Name: \* HowTo-Change Analytics in MDG

Choose semantic object: Change Request  
Action: <define your own one>

Target Mapping

Semantic Object: \* changeRequest

Action: \* analyzeCriticalAttrChanges

Default Values:

Application Parameters: Name Value +

Save the application.

a tile on SAP Fiori Launchpad. M

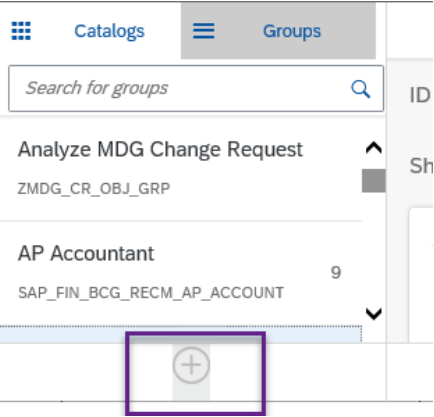
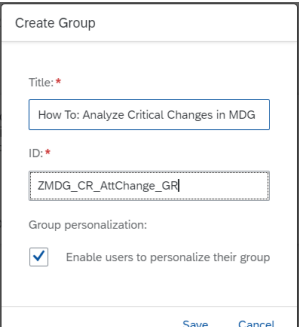
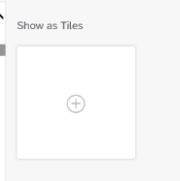
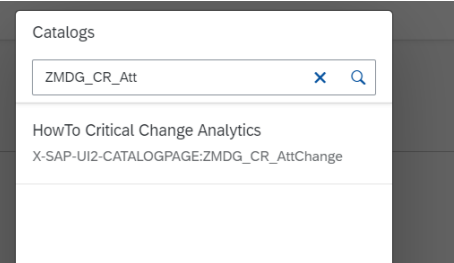


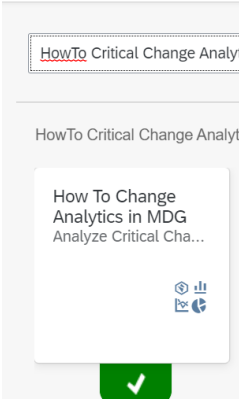
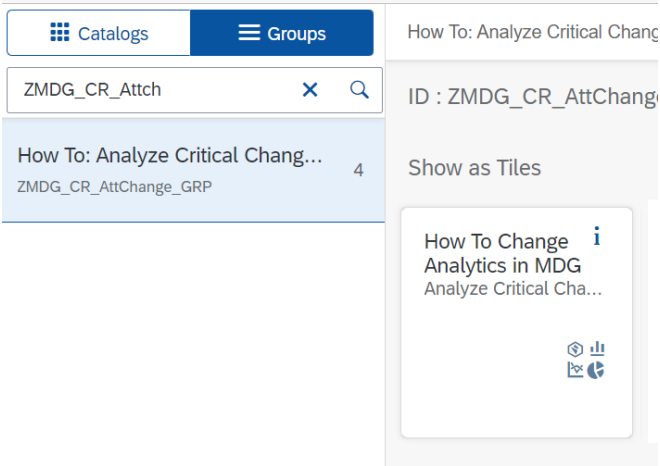
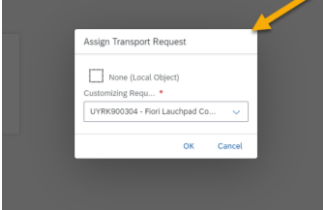
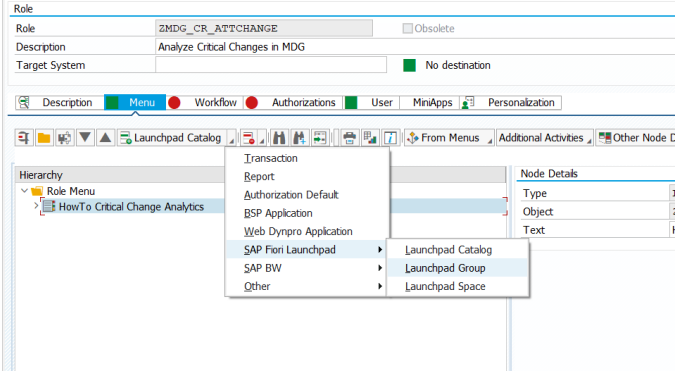
## 2.2.6. Step 5: Create Fiori Group, PFCG Role, and Assign it to End User

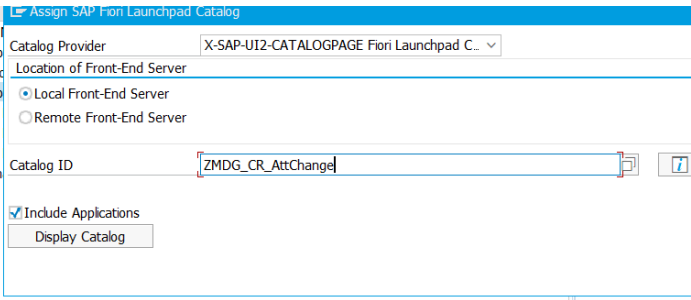
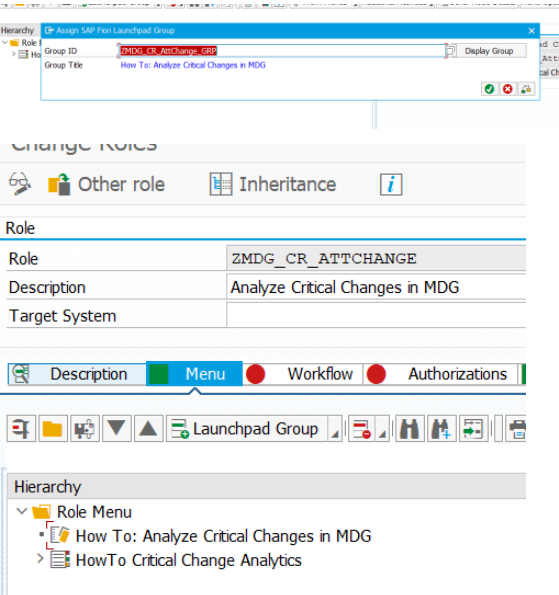
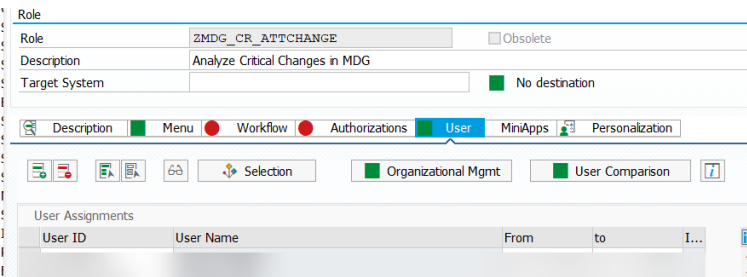
To be able to provide your apps to the end user, you must assign a catalog to a group and assign the catalog and group into a PFCG role.

The PFCG role can then be assigned to your end user, so that your end user will get the app in her/his Fiori launchpad.

In your SAP Fiori system, open transaction `/n/UI2/FLPD_CUST`.

<p>Create a group.</p> <p>Enter a title and ID, enable or disable group personalization, and save.</p>	 
<p>Add a new tile from the catalog.</p>	 

	 
<p>You may need to enter the transport request in the SAP Fiori Launchpad designer, so that your catalog content can be transported to downstream systems.</p>	
<p>In your SAP Fiori system, go to the transaction's PFCG role or create a new PFCG role if you don't have one yet.</p> <p>Add your catalog into the menu.</p>	

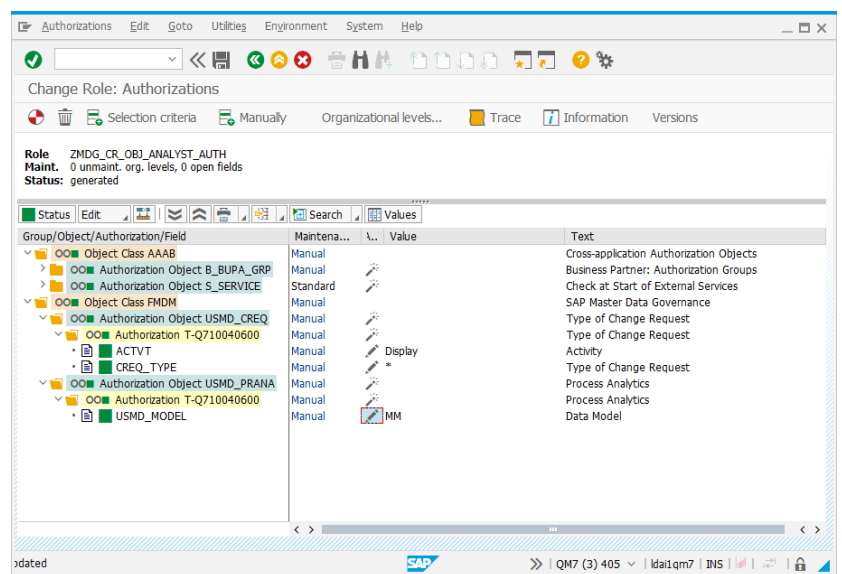
	
Add the group into the menu.	
Assign users to the PFCG role.	

2.2.7. Step 6: Assign Authorization

To allow you to see your data in SAP Smart Business, a new authorization object called USMD\_PRANA has been created.

In the SAP S/4HANA backend system, beside the master data authority object, this new authority object also needs to be included in the authorization profile.

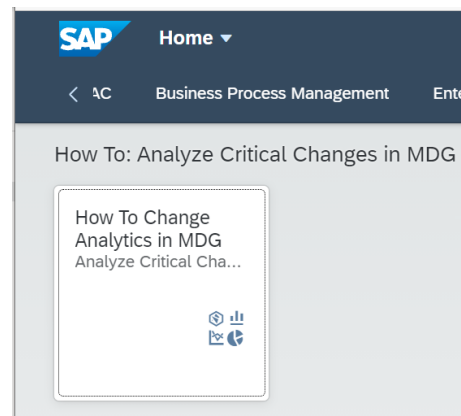
If a new role authorization profile is created, you can also enhance your existing authorization role to include USMD\_PRANA with the right data models as parameters. Then, assign it to the end user.



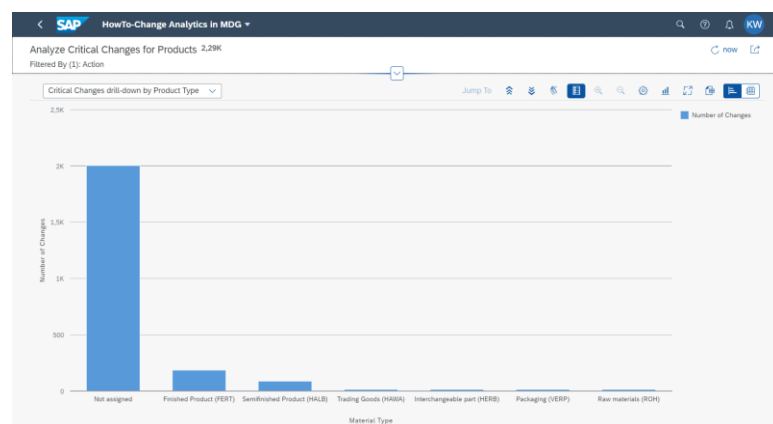
## 2.2.8. Step 7: Test the App

Log in with the user who has been assigned to your PFCG role, then open your SAP Fiori launchpad.

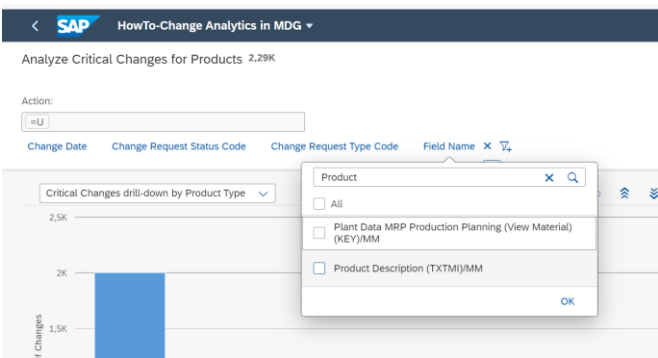
The Open Change Request Analytics app should appear.



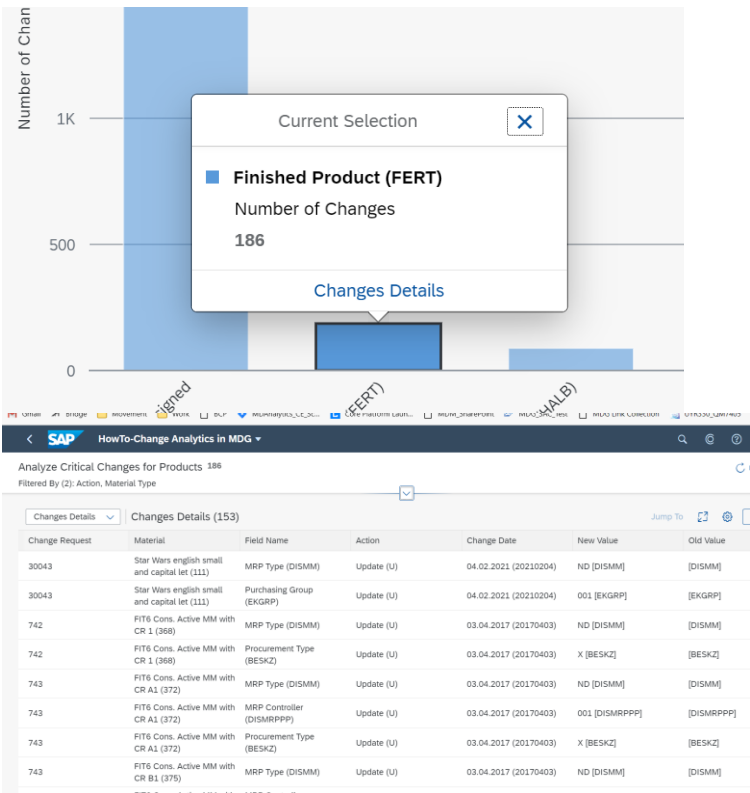
Test the app. For example, try using different object attributes from your configuration for drill down.



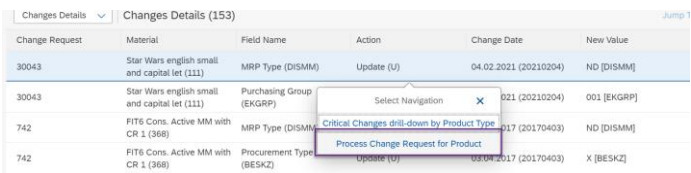
You can filter the changes using fieldname in the filter



Try switching from chart view to list view.



Try navigating to change the request UI.



<

SAP

Material: 111

Expand allCollapse allRefreshValidation LogChange DocumentsWorkflow Log

Change Request

General

Notes

Attachments

General Data

Process D

Change Request: 30043

Description: Process Material 111 by 4.02.2021

Priority: Very High

Due Date: 05.05.2021

Reason: wrong location

Change Management

EditCREATE\_REV\_LEVELMDGM\_OPEN\_MATCHGMNG\_HISTORY

Change Number:

Basic Data

DetailsReplication Status

General Data

Grouping

### 2.2.9. Important Note

When you add or change the CDS and regenerated the CDS view, your app in SAP Fiori homepage might show up the error: tile can't be loaded...

You need to open your created KPI, Report and Application, click **Save** or **Activate** button to reactivate all of them, then your Tile will be loaded again.



## 2.3. Frontend Option 2: Configure SAP Analytics Cloud

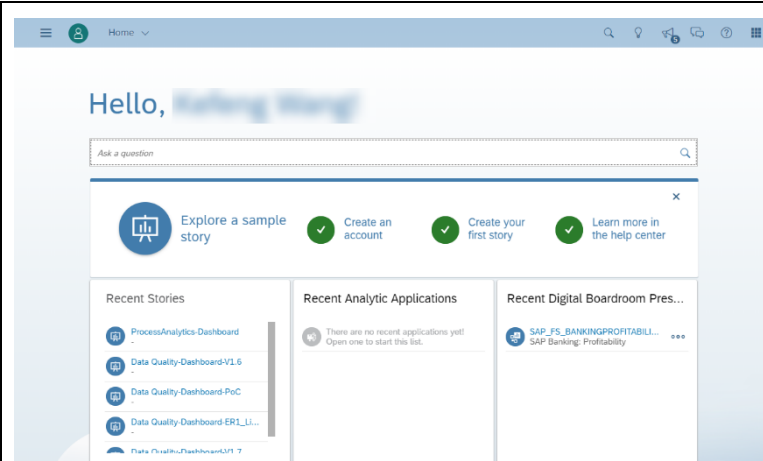
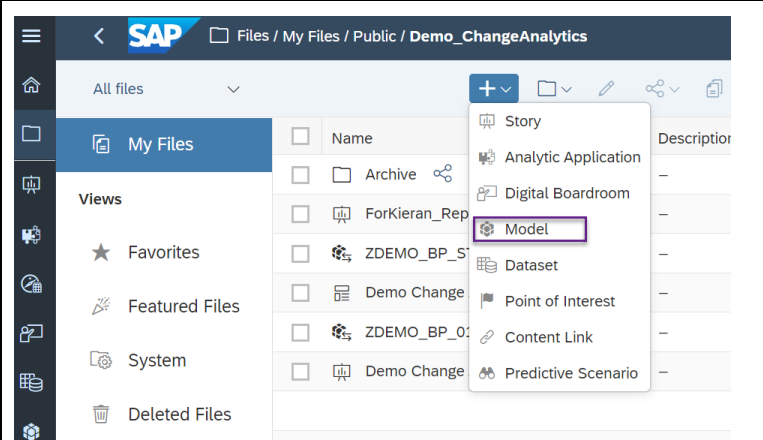
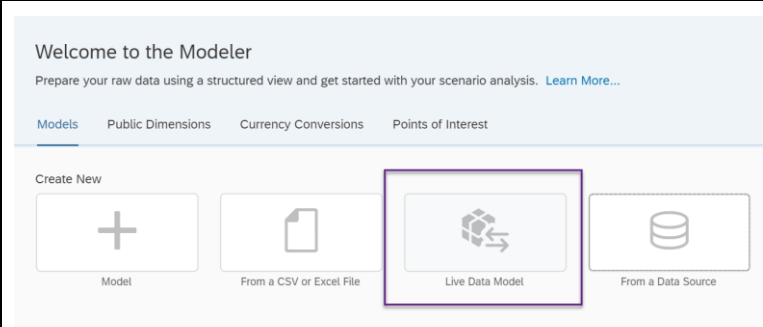
As an alternative to SAP Smart Business, you can use SAP Analytics Cloud (SAC) to configure the analytics app.

You can also create a report in your SAC tenant using the generated CDS view.

To use this guide, you must have SAC modelling knowledge and modelling authorization in the tenant. If you are new to SAC, you can find introductory materials on these topics at <https://www.sapanalytics.cloud/>

### 2.3.1. Log On to SAC Tenant and Create Model

To connect your SAP S/4HANA system to your SAC tenant, you need to set up the Live Connection. To do this please refer to the SAP Help Portal article "[Live Data Connections to SAP S/4HANA](#)".

Log in as a user which has BI Modelling authorization.	
Open the file folder where you want to store the SAC report.	
Create a Live Data connection Model with the sqlname from your generated CDS view.	

[QM7] ZMM\_CA\_HOWTOCCU [QM7] ZMM\_CA\_HOWTOCCU [QM7] ZMM\_CA\_HOWTO

```
1 @EndUserText.label: 'Demo for Change Analytics in MDG'  
2 @AbapCatalog.sqlViewName: 'ZMM34EF843BQ'  
3 @AbapCatalog.compiler.compareFilter: true  
4 @AbapCatalog.preserveKey: true  
5 @ClientHandling.algorithm: #SESSION_VARIABLE  
6 @AbapCatalog.dataMaintenance: #DISPLAY_ONLY  
7 @AccessControl.authorizationCheck: #PRIVILEGED_ONLY  
8 @Analytics.query: true  
9 @OData.publish: true  
10 define view ZMM_CA_HOWTO  
11 as select from ZMM_CA_HOWTOCCU  
12 {  
13   key DOCUMENT_GUID,  
14   key MDGovChangeRequest as MDGovChangeRequest,  
15   @AnalyticsDetails.query.display: #KEY_TEXT  
16   @UI.textArrangement: #TEXT_ONLY  
17   @AnalyticsDetails.query.axis: #FREE
```

Create Model From Live Data Connection

Select Live Data Connection and Data Source

\*System Type:  
SAP BW

\*Connection:  
QM7CLNT405

\*Data Source:  
2CZMM34EF843BQ

OK Cancel

Model for sample Kefeng Wang Dec 6, 2019 12:42:3

Check all dimensions and measures, and then save the model.

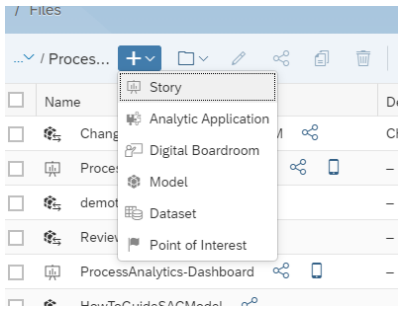
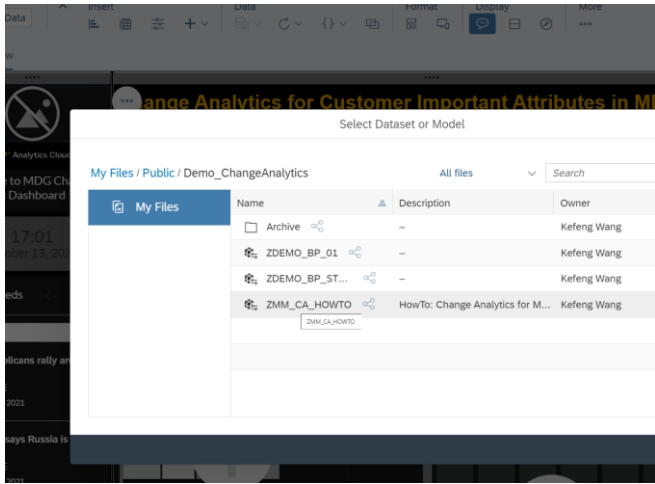

< SAP Modeler My Files New Model \*

Data sources All Dimensions Measures

ID	Description	Scale	Decimal PL...	Formula
1 ELTUIDCMP1	Number of Changes		0	
2 ELTUIDCMP2	No. Change Requests		0	
3 ELTUIDCMP3	CR Processing Days		3	
4 ELTUIDCMP4	Avg. Processing Days		3	
5 ELTUIDCMP5	Overdue Days		3	
6 ELTUIDCMP6	Avg. Overdue Days		3	

2.3.2. Build the SAC Story

Using the SAC Story app, we will build a chart to show the content that was provided from our CDS view.

<p>Create a new story or use an existing story.</p> <p>In this guide, we have used a story template, so we will add a new chart to show the analytics which were created during backend implementation.</p>	
<p>Add a new chart.</p> <p>In the Designer panel, select your created model in Data Source.</p> <p>Select any of the following measures:</p> <ul style="list-style-type: none"> <li>Number of Changes</li> <li>Number of Change Requests</li> <li>Total Change Request Processing Days</li> <li>Change Request Average Processing Days</li> </ul>	
<p>Add the Dimensions you want to show.</p> <p>Add a filter to the content which you want to show in the chart. In this case, we show only the open Change Requests.</p>	

After adding several charts, and we could go to the View mode.

You can then test the chart by adding different filters, comparing it to other charts, exporting it, and so on.

