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April 6, 2016 6 minute read

Expose CDS Views as OData Service

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In continuation to previous blog [Core Data Services in ABAP](#) in this blog I will show how to create CDS Views and step by step procedure to generate OData service using CDS Views.

There are 3 different ways you can expose CDS views as OData service:

1. Import DDIC structure using SEGW Netweaver Gateway service builder transaction.
2. Reference Data Source using SEGW Netweaver Gateway service builder transaction.
3. Using Generic Annotations. (@Odata.publish:true)

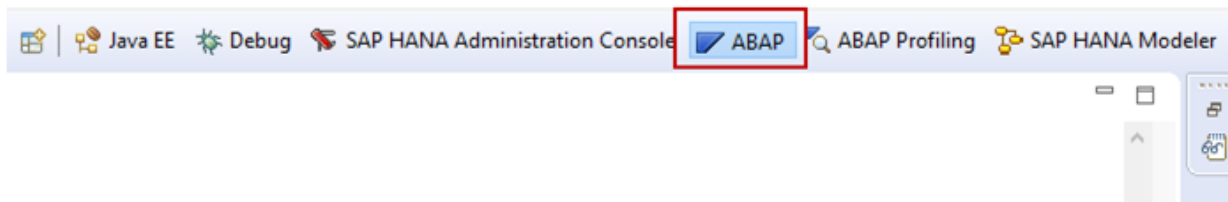
First way is supported from SAP ABAP NW 7.40 SP5. Second and third ways are supported from SAP ABAP NW 7.50 and above. For first two ways use of SAP NW Gateway odata services can be created using annotations. Gateway is used only to add the service created using annotations.

In this blog I am going to show type one i.e how to generate OData service using import DDIC structure using SEGW service builder transaction.

How to Create CDS View:

Firstly as a prerequisite ABAP Development tools(ADT) needs to be installed in Eclipse to create CDS Views.

On installation of ADT in eclipse open ABAP perspective as shown below:



After opening ABAP perspective, In project explorer right click in the context menu select New->ABAP Project. A popup appears asks for ABAP system details which you need to add to create CDS views. Details like System-ID, Username, Password has to be given and click on OK to add the

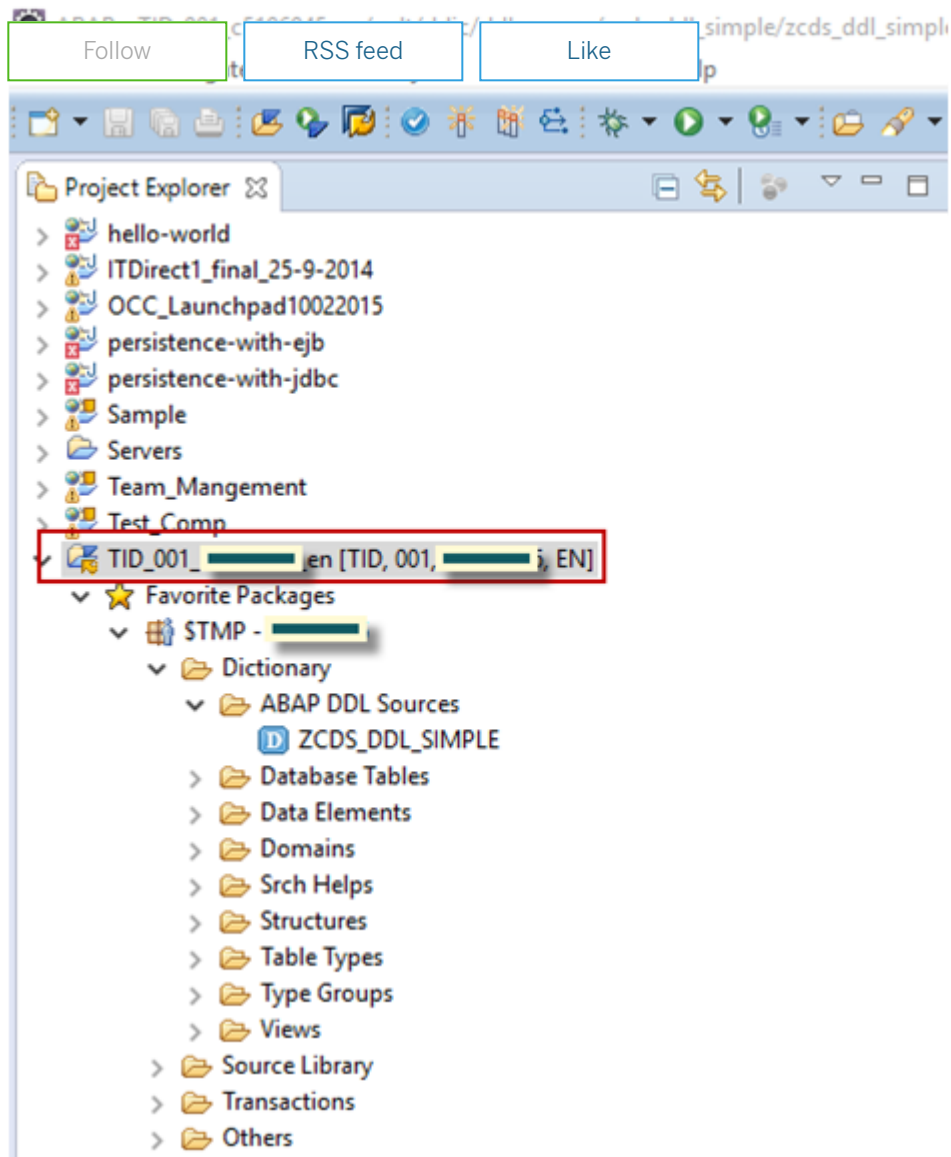
system to eclipse. Note that ABAP system which you add should support SAP ABAP NW 7.40 package. find the attachment for how to add ABAP

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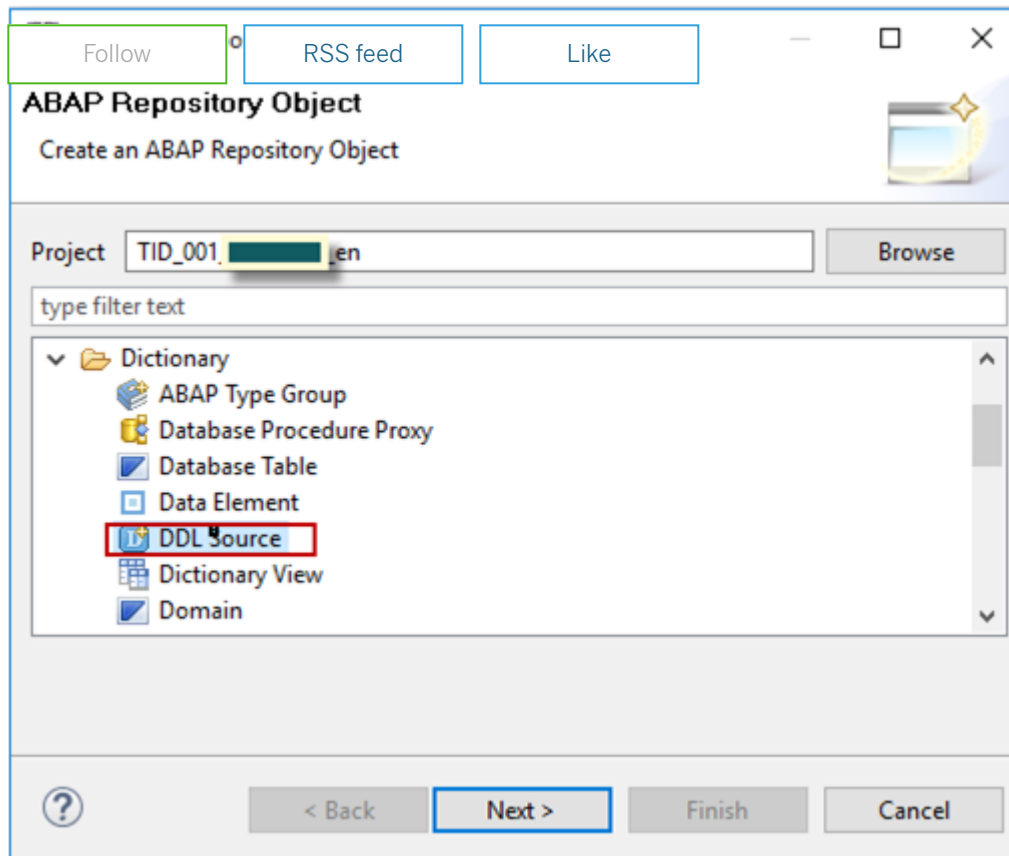
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Once after adding the ABAP system project explorer looks like below:



Expand \$TMP package, Select and right click on Dictionary folder in the context menu to create DDL source ABAP Repository Object



Select DDL source, click on next and give below details to create sample CDS view:


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DDL Source

Create a DDL source



Project *

TID_001_ en

Browse...

Package: *

STMP

Browse...

☐ Add to favorite packages

Name: *


ZCDS_SAMPLE1

Description: *

Simple CDS View

Original Language:

EN



< Back

Next >

Finish

Cancel

Without clicking on finish, on click on next CDS view ask for transport:

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Selection of Transport Request

No change recording enabled for package STMP

☐ Choose from requests in which I am involved

Transport Request	User	Target	Text
-------------------	------	--------	------

☐ Create a new request

Request description:

☐ Enter a request number

Request number:

Browse...

?

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Finish

Cancel

since CDS view is create in local object no transport is required, click on next then sample templates are populated to select:


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Templates

Select one of the available templates



☒ Use the selected template

Define View

Define View with Join

Define View with Association

Define View with Parameters

Extend View

Define Table Function with Parameters

Defines a simple projection view with one data source.

```
@AbapCatalog.sqlViewName: '${sql_view_name}'
@AbapCatalog.compiler.compareFilter: true
@AccessControl.authorizationCheck: #CHECK
@EndUserText.label: '${ddl_source_description}'
define view ${ddl_source_name_editable} as select from ${data_source_name} {
  ${cursor}
}
```

?

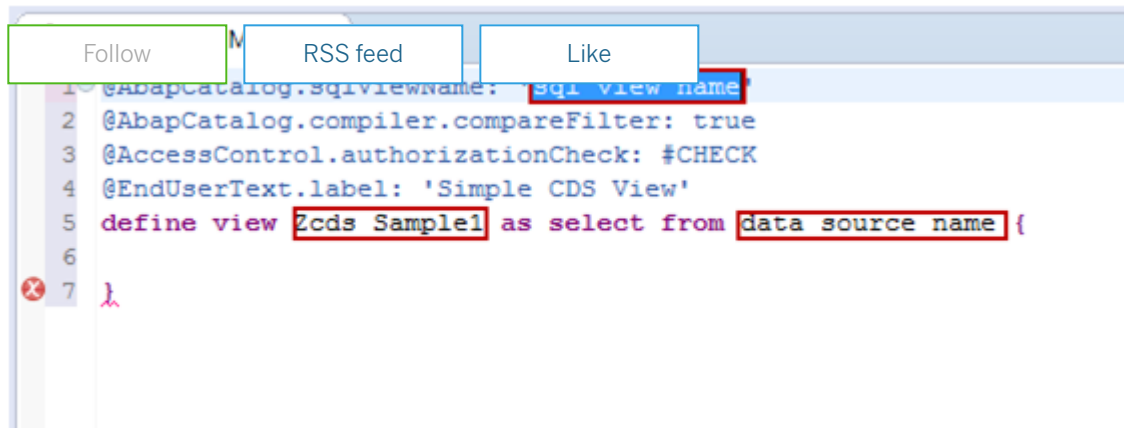
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Next >

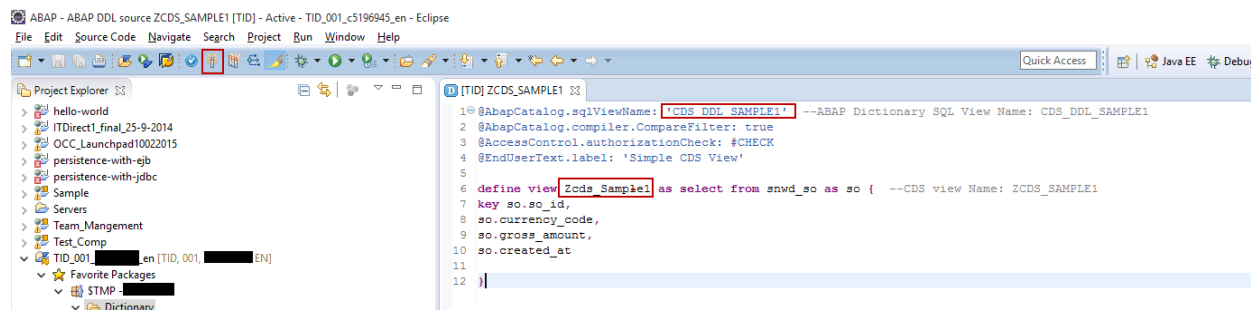
Finish

Cancel

You can use any of the template as shown above to create CDS view. Template helps you to create different types of CDS views with syntax auto populated on selecting the type of view. Here I am creating simple CDS view so I select define view template and click on finish.



In the define view template core annotations are populated with basic syntax to create view, define the view as below:



1. CDS Database View (CDS_DDL_SAMPLE1)
2. CDS entity. (ZCDS_SAMPLE1)

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CDS Database view can be accessed using SE11 ABAP Dictionary as shown below:

The screenshot shows the 'ABAP Dictionary: Initial Screen' in SAP SE11. The interface includes a menu bar (Dictionary Object, Edit, Goto, Utilities, Environment, System) and a toolbar with various icons. The main area contains several radio buttons for object types: Database table, View, Data type, Type Group, Domain, Search help, and Lock object. The 'View' radio button is selected, and the text 'CDS_DDL_SAMPLE1' is entered in the adjacent text field. Below these options are three buttons: 'Display' (highlighted with a red box), 'Change', and 'Create'.

Give CDS Database View name as shown above and click on display.

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Dictionary: Display View

Dictionary: Display View

DDL SQL View CDS_DDL_SAMPLE1 Active

Short Description Simple CDS View

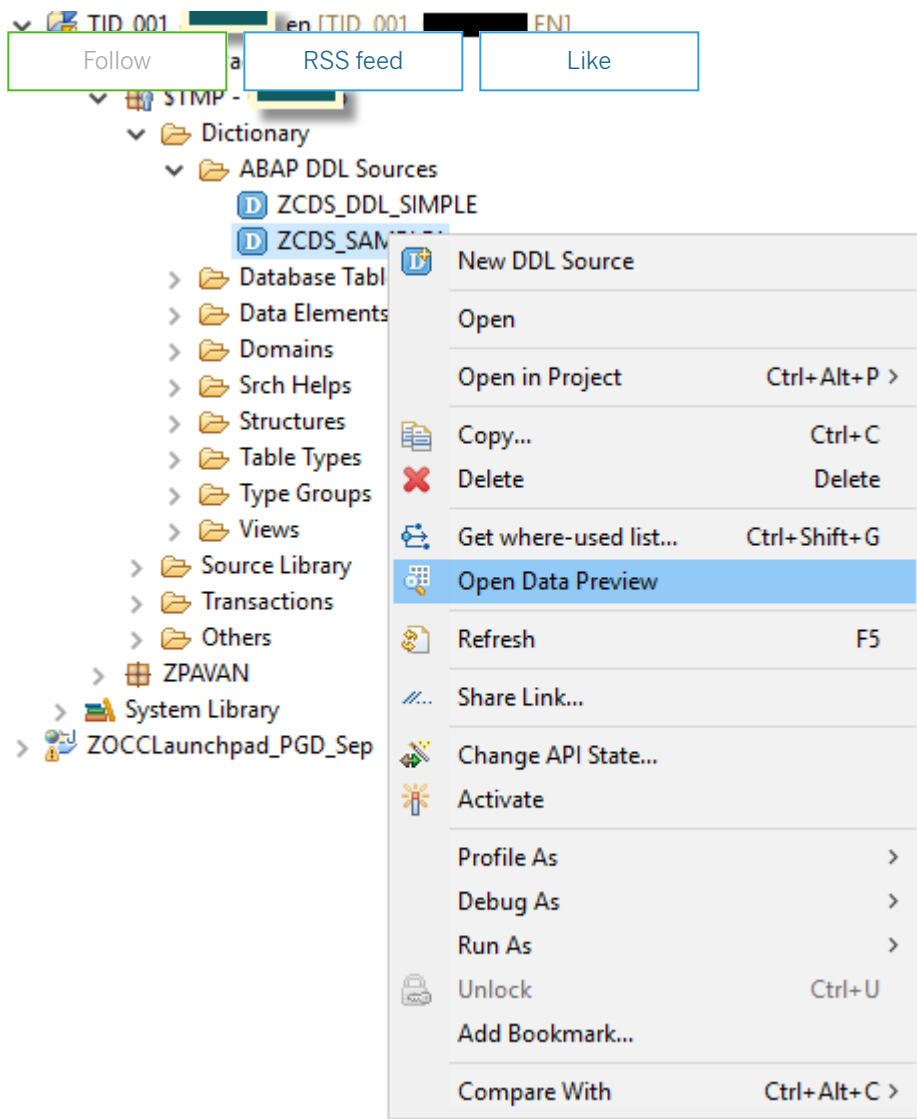
Attributes Table/Join Conditions View Flds Selection Conditions Maint.Status

Table fields

View field	Table	Field	Key	Data elem.	M...	DTyp	Length	Short description
MANDT	SNWD_SO	CLIENT	<input checked="" type="checkbox"/>	MANDT	<input type="checkbox"/>	CLNT	3	Client
SO_ID	SNWD_SO	SO_ID	<input checked="" type="checkbox"/>	SNWD_SO_ID	<input type="checkbox"/>	CHAR	10	EPM: Sales Order Number
CURRENCY_CODE	SNWD_SO	CURRENCY_CODE	<input checked="" type="checkbox"/>	SNWD_CURR_CODE	<input type="checkbox"/>	CUKY	5	EPM: Currency Code
GROSS_AMOUNT	SNWD_SO	GROSS_AMOUNT	<input checked="" type="checkbox"/>	SNWD_TTL_GROSS_AMOUNT	<input type="checkbox"/>	CURR	15	EPM: Total Gross Amount
CREATED_AT	SNWD_SO	CREATED_AT	<input checked="" type="checkbox"/>	TIMESTAMP	<input type="checkbox"/>	DEC	21	UTC Time Stamp in Long Form (YYYYMMDDhhmmssmmuuun)

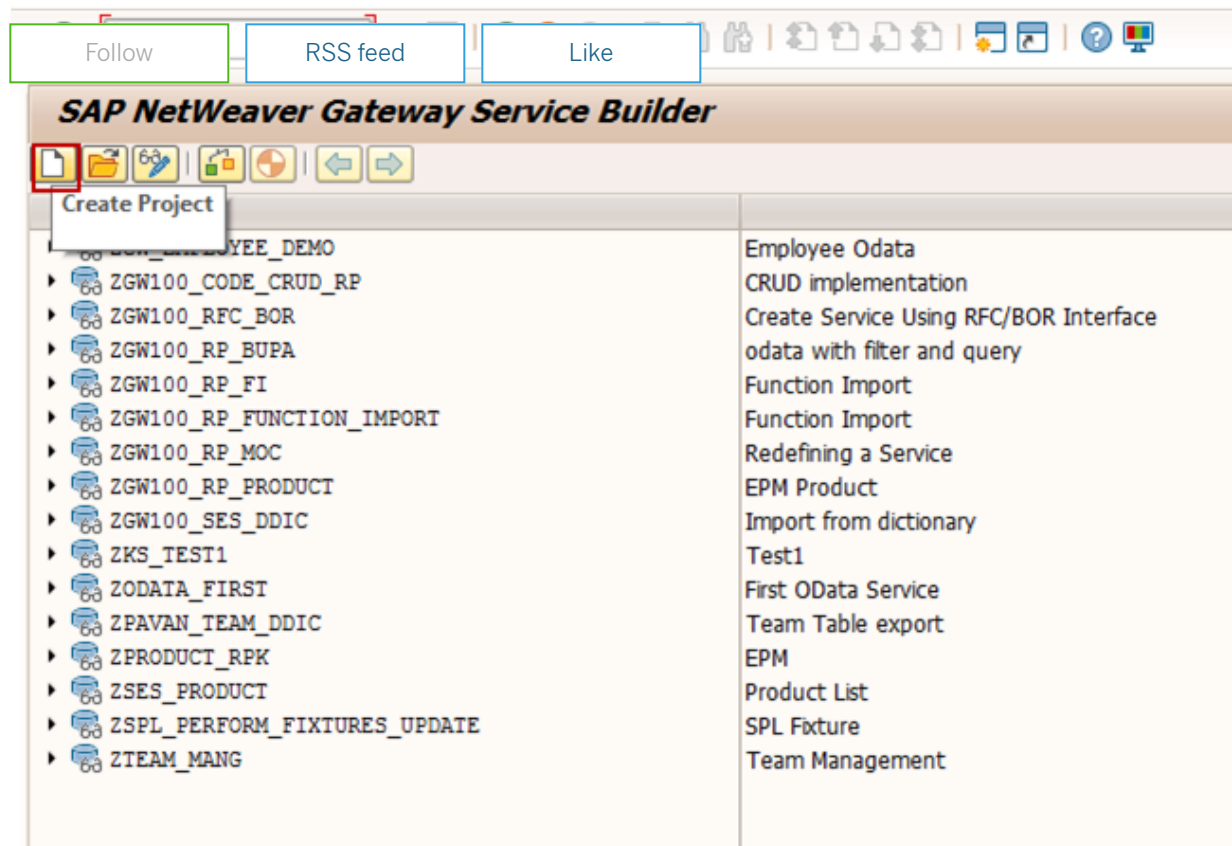
DDL SQL view is created in ABAP Dictionary. Here you can identify MANDT field in the view definition though we didnt mention it explicitly while defining the view. CDS views are default client dependent no need to mention client field while defining the view.

Right click on CDS View created to preview the data as shown below:



Generate OData service using CDS View:

Go to SEGW transaction. Create project as shown below:



Give project details as below:

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Project

ZCDS_ODATA_TYPE1

Description

CDS OData Type1

Attributes

Project Type

1 Service with SAP Annotations

Generation Strategy

1 Standard

Object Directory Entry

Package

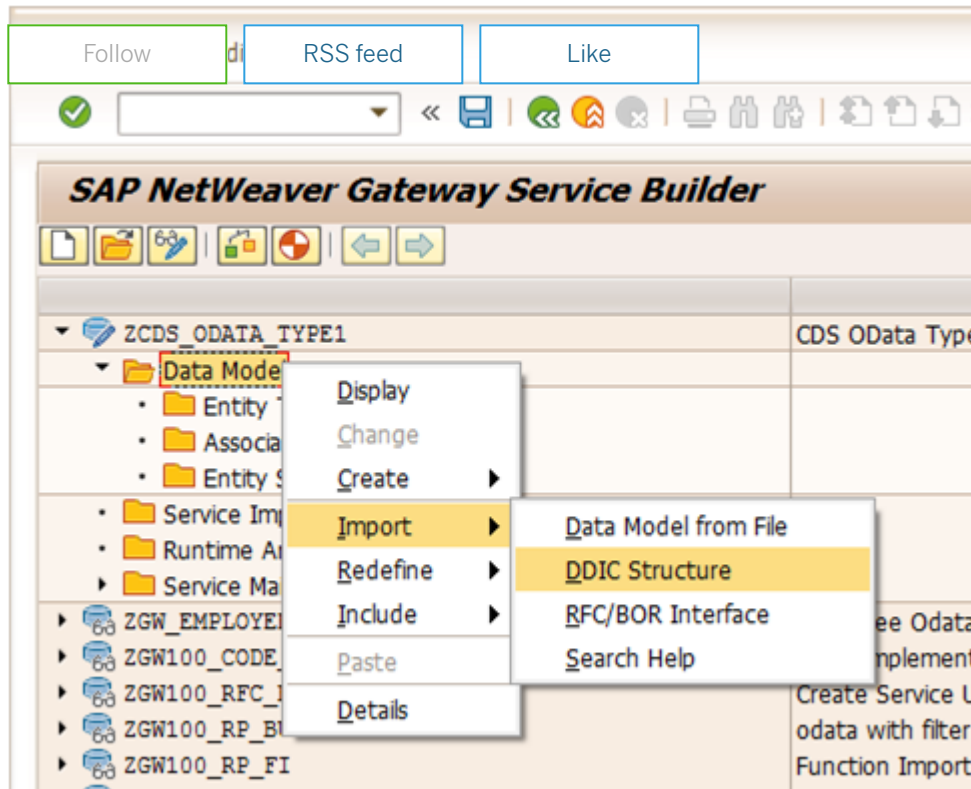
Person Responsible

✓

Local Object

✗

Save project in local object. Expand project node, right click on data model->import->DDIC structure:



Create entity type by importing ABAP structure. Here give CDS Database view 'CDS_DDL_SAMPLE1', select create default entity set flag and click on next:

Wizard Step 1 of 3: Import from DDIC Structure

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Name SalesOrder

☒ Entity Type ☐ Complex Type

Import from ABAP Structure

ABAP Structure CDS_DDL_SAMPLE1

☒ Create Default Entity Set

Next Cancel

follow the wizard where you select parameters and key fields respectively:

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Data Source Parameter	Assign Structure	Description	Type	Length	Decimals	Import Search Help	Search Help
<div><div></div><div><div><div></div><div></div></div><div>CDS_DDL_SAMPLE1</div></div></div>	<input type="checkbox"/>		CDS_DDL_SAMPLE1			<input type="checkbox"/>	
<div><div></div><div><div><div></div><div></div></div><div>MANDT</div></div></div>	<input type="checkbox"/>	Client	CLNT	3		<input type="checkbox"/>	H_T000
<div><div></div><div><div><div></div><div></div></div><div>SO_ID</div></div></div>	<input type="checkbox"/>	Sa. Ord. ID	CHAR	10		<input type="checkbox"/>	
<div><div></div><div><div><div></div><div></div></div><div>CURRENCY_CODE</div></div></div>	<input type="checkbox"/>	Currency	CUKY	5		<input type="checkbox"/>	H_TCURC
<div><div></div><div><div><div></div><div></div></div><div>GROSS_AMOUNT</div></div></div>	<input type="checkbox"/>	Gross Amt.	CURR	15	2	<input type="checkbox"/>	
<div><div></div><div><div><div></div><div></div></div><div>CREATED_AT</div></div></div>	<input type="checkbox"/>	Time Stamp	DEC	21	7	<input type="checkbox"/>	

Back

Next

Cancel

Here you map your CDS Database view(CDS_DDL_SAMPLE1) and CDS entity(ZCDS_SAMPLE1). on click on map to data source popup populates to

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Map to Data Source

Target System

☒ Local

☐ Remote



RFC Destination

Data Source Attributes

Type

4 Business Entity

Name



select type as business entity and give CDS entity ZCDS_SAMPLE1 as Name:



Select Business Entity

Business Entity Source

CDS Core Data Services

Business Entity

Zcds_Sample1



click on OK

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Map to Data Source

Target System

☒ Local

☐ Remote

RFC Destination

Data Source Attributes

Type

4 Business Entity

Name

CDS~Zcde_Sample1

☒

☐

click on OK. Drag and drop properties to map fields or click on generate mapping to automatically map the fields.

Map Business Entity Elements to Properties

Property	ABAP Field Name	Key	Element
Sold	SO_ID	<input checked="" type="checkbox"/>	SO_ID
CurrencyCode	CURRENCY_CODE	<input type="checkbox"/>	CURRENCY_CODE
GrossAmount	GROSS_AMOUNT	<input type="checkbox"/>	GROSS_AMOUNT
CreatedAt	CREATED_AT	<input type="checkbox"/>	

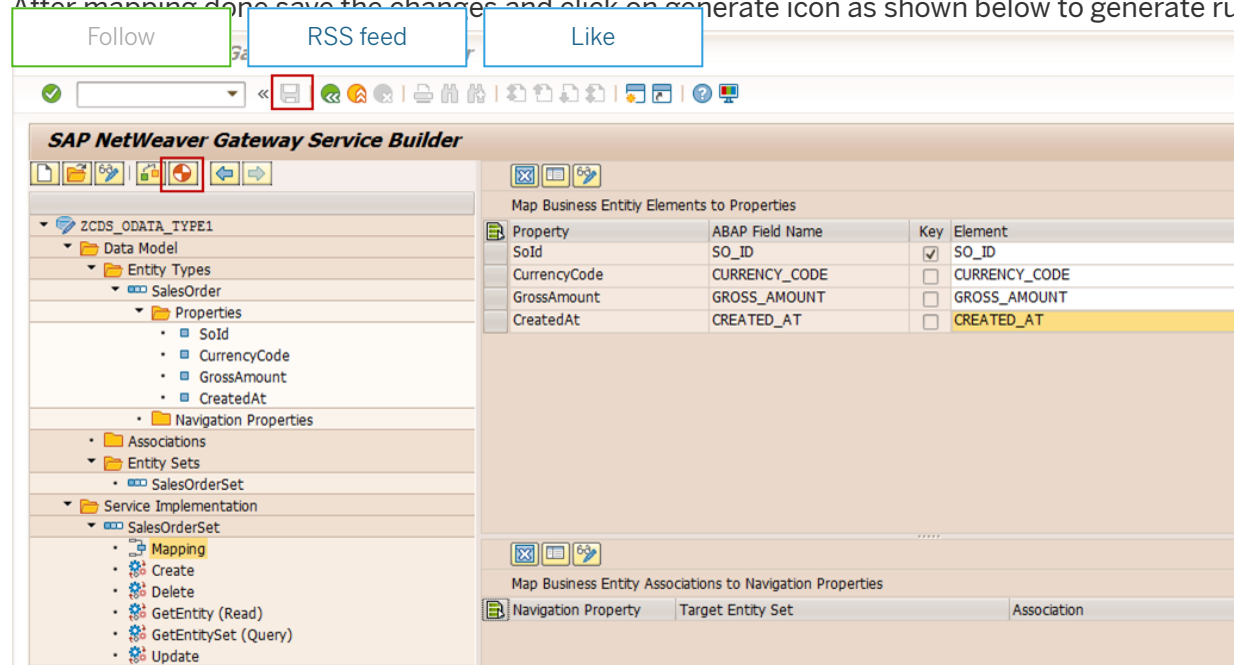
Drag and Drop to Properties and Navigation Properties

Business Entity	Description	Consumable
ZCDS_SAMPLE1	Simple CDS View	<input checked="" type="checkbox"/>
SO_ID	EPM: Sales Order Number	<input checked="" type="checkbox"/>
CURRENCY_CODE	EPM: Currency Code	<input checked="" type="checkbox"/>
GROSS_AMOUNT	EPM: Total Gross Amount	<input checked="" type="checkbox"/>
CREATED_AT	UTC Time Stamp in Long Form (YYYYMMDDhhmmssmmuuuu)	<input checked="" type="checkbox"/>
Primary Key		<input checked="" type="checkbox"/>

Map Business Entity Associations to Navigation Properties

Navigation Property	Target Entity Set	Association
---------------------	-------------------	-------------

After mapping done save the changes and click on generate icon as shown below to generate run time artifacts.



In model and service definition you can find DPC, MPC classes and technical service name of odata service:

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Model Provider Class

Class Name ZCL_ZCDS_ODATA_TYPE1_MPC_EXT

Base Class Name ZCL_ZCDS_ODATA_TYPE1_MPC

Data Provider Class

☒ Generate Classes

Class Name ZCL_ZCDS_ODATA_TYPE1_DPC_EXT

Base Class Name ZCL_ZCDS_ODATA_TYPE1_DPC

Service Registration

Technical Model Name ZCDS_ODATA_TYPE1_MDL

Model Version 1

Technical Service Name ZCDS_ODATA_TYPE1_SRV

Service Version 1

✓ ✗

click on ok and save the objects in local object;

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Technical Service Name ZCDS_ODATA_TYPE1_SRV

Service Version 1

Description CDS OData Type1

External Service Name ZCDS_ODATA_TYPE1_SRV

Namespace

External Mapping ID

External Data Source Type C

Model

Technical Model Name ZCDS_ODATA_TYPE1_MDL

Model Version 1

Creation Information

Package Assignment

Local Object

ICF Node

☒ Standard Mode ☐ None

☐ Compatibility Mode for SP 02

☒ Set Current Client as Default Client in ICF Node

OAuth enablement

☐ Enable OAuth for Service

OK Cancel

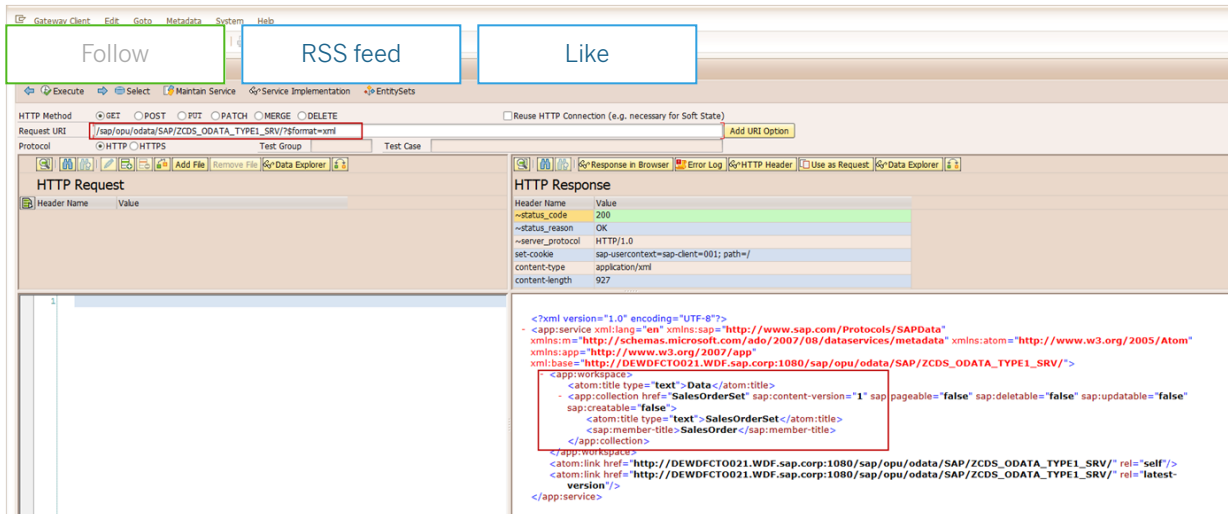
click on OK. Now service is registered you can find status as green as shown below and click on Gateway client button to access the service:

Register Maintain Error Log Gateway Client

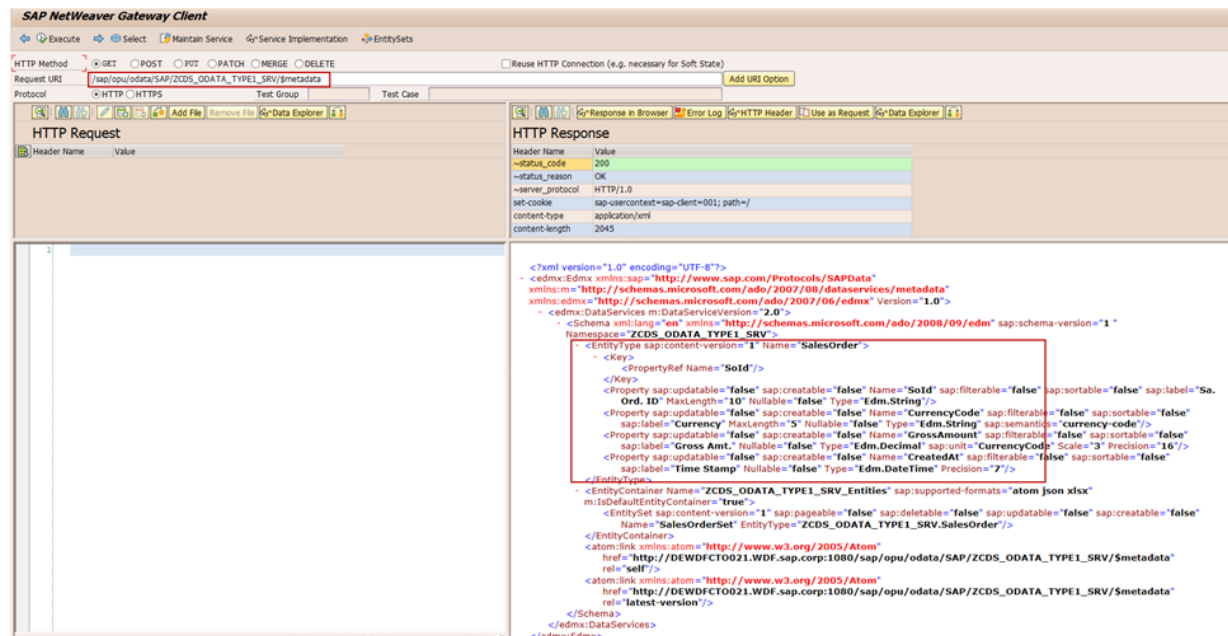
Service Registration in SAP NetWeaver Gateway Hub System(s)

System	Client	RFC Destination	Registration Status
GATEWAY	001	NONE	○○●

Odata service in gateway client:



Use OData parameter \$metadata to view the metadata of service:



on using odata parameter \$metadata you can find the properties and entities of CDS view exposed as odata service.

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This is how you create CDS view and expose the same as odata service using import DDIC structure by mapping CDS Database View and CDS entity using SEGW service builder transaction.

Hope you find this blog helpful.

In my next blogs I will try to touch other ways to expose cds view as odata service.

Your suggestions, feedback, comments on this blog are most welcome.

Few Useful links:

[Step by Step Hierarchies in S/4 HANA Analytics](#)

[Define the Analytical Query CDS View](#)

<http://scn.sap.com/community/gateway/blog/2016/06/01/odata-service-development-with-sap-gateway-using-cds-via-referenced-data-sources>

<http://scn.sap.com/community/abap/blog/2016/03/10/my-cds-view-self-study-tutorial-part-1-how-to-test-odata-service-generated-by-cds-view>

Note: This is my previous SCN for the new and latest blogs please follow my new SCN blog [Pavan Kumar Reddy](#)

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Kiran Padarthi

April 6, 2016 at 8:13 am

Good one 😊

Like (0)



Former Member

April 6, 2016 at 9:25 am

Good Info ...

Like (0)



Former Member

April 6, 2016 at 9:48 am

Previously i was saw some partial information , here i got what i am expected.

Like (0)



Former Member

April 6, 2016 at 11:46 am

Ohh really great forum Pavan. Great to know CDS view and to learn it easily . Thanks for sharing precious knowledge. 😊

Like (0)

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Former Member

April 6, 2016 at 11:51 am

Good one.. helpful 😊

Like (0)



Former Member

April 6, 2016 at 1:28 pm

Nice blog... very informative

Like (0)



Ravindra kalyan Vallabhuni

April 7, 2016 at 4:36 am

Good one. Keep Posting.

Like (0)



Ramesh Kothapally

April 13, 2016 at 10:11 am

Nice Blog 😊

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Thomas Fiedler

April 13, 2016 at 10:28 am

Hi,

in NW 7.50 you can remove 80% of your blog 😊

You just use the CDS annotation: **@OData.publish: true** and the oData Service will be generated automatically by the ABAP infrastructure. There is no need to use SEGW to expose CDS views as services anymore.

Regards,

Thomas.

Like (2)



Pavankumar Reddy | Post author

April 14, 2016 at 6:46 am

Hi Thomas,

Yes your true. This blog will help to one's who are still using NW 7.40 😊

Regards,

Pavan

Like (0)

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June 6, 2016 at 5:56 am

hi Pavankumar

My situation is Front end server NW750,back -end server NW740.

How should i do?

thanks.

York Liu

Like (0)



Former Member

June 22, 2016 at 8:44 am

Hi Thomas,

I am using NW 7.50 and i created the OData Service by using the CDS annotation: `@@OData.publish: true`. The service was successfully created and after that i activated the OData Service in SAP GATEWAY HUB using Transaction- `/IWFND/MAINT_SERVICE`.

When i test the service its working fine. But when i tried to check service implementation of the EntitySet i mapped to by going to SEGW Tcode i dont find my service there.??

Could you please help me on this?

Thanks,

Rahul.

Like (0)

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Rahul Datta

February 7, 2020 at 4:28 pm

Jus to add, you still need SEGW in NW7.5 if you want to create one OData service for multiple CDS's.

Like (0)



Former Member

June 6, 2016 at 5:42 am

"after saving run time artifacts are generated. Expand node Service maintenance select gateway"

but,there is no gateway in node Service maintenance.

why?

thanks.

York Liu

Like (0)



Pavankumar Reddy | Post author

June 6, 2016 at 7:22 am

You have to configure gateway client as prerequisite

<http://scn.sap.com/docs/DOC-41416>

Refer above link It would solve your problem

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Regards,

Pavan

Like (0)



Former Member

June 7, 2016 at 2:14 am

hi Pavankumar

This issue is solved.thank you very much.

and then How to Expose CDS Views as OData Service in Front-end server is NW750,back-end server is NW740.

York Liu

Like (0)



Andre Fischer

June 14, 2016 at 10:55 am

Hi York,

since service development takes place in the backend you have to use the approach

Pavankumar has described.

Regards,

Andre

Like (0)

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Andre Fischer

June 14, 2016 at 10:52 am

you don't have to work in SAPGUI in a separate windows but you can also use SEGW from within ABAP in Eclipse.

Using SEGW and ABAP in Eclipse

Like (0)



Former Member

July 15, 2016 at 9:45 am

Hi,

I created OData service by mapping to a CDS view as data source, my question is if I make any changes in the CDS view, like if add or remove any field, would the changes be reflected in the data model as well??

Like (0)



Pavankumar Reddy | Post author

July 15, 2016 at 3:08 pm

Yes changes will be reflected. To reflect changes you need to activate CDS entity, Generate run time artifacts again.

Like (0)



Andre Fischer

July 15, 2016 at 10:03 pm

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sorry, but this is not correct.

If a service has been built using the mapped data source approach, you have started with importing a DDIC structure.

If additional fields are added this is NOT reflected in the service structure and implementation.

If you want to have this behaviour you have to use the referenced data source approach instead.

Best Regards,

Andre

Like (0)



Michal Szerbowski

September 27, 2016 at 8:50 am

Ok, but as mentioned above 'reference' approach is available only in 7.50.

So in 7.40 you need to expose the CDS to a new odata?

Like (0)



Andre Fischer

September 27, 2016 at 9:37 pm

not a "new" odata. But you have to use the option 1 as described above and map the CDS View to the entity set created via DDIC import

"Import DDIC structure using SEGW Netweaver Gateway service builder transaction"

Best Regards

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Former Member

November 17, 2016 at 2:17 am

Hi Pavan ,

we are running our system on NetWeaver 7.4 with S4 hana version 1503 . our requirement to show the standard reports from fiori with backend as s4 hana system . so I collected the list of the standard app developed for the 1503 version from fiori library and I could find the names of the Odataservices also .

when I am trying to find the source of these Odataservices I couldnt trace with SEGW , I also try to search with eclipse which didnt help me more . Can you help me in providing some clue to more forward...?

Do I need to to install any package to see the list of the CDS views in the ABAP repository using eclipse..?

Regards,
Madhu

Like (0)



Former Member

January 12, 2017 at 6:43 am

Very useful tutorial, was reading and following another tutorial and wondered why ABAP Developer Tools in Eclipse didn't create oData service in SAP... Was working on NW7.40 SP10 😊 Great help, thanks!

Like (0)

Follow

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Like

April 27, 2017 at 9:05 am

Really helpful. Especially when Annotations '@Odata.publish:true' doesn't work... for NW7.40.

Thank you so much!

Like (0)



VIJAYA SIMHA CHINTARLAPALLI REDDY

June 30, 2017 at 9:59 am

Really Very useful one I have been searching and trying to do this for the work but was stuck in how to call the CDS view but this tutorial clearly focused on the required part for the SAP HANA and UI5 developer.

Like (0)



Ashish Trivedi

July 22, 2017 at 11:12 am

Very nice info. 😊

Like (0)



Thirumoorthy Rajaram

December 18, 2017 at 11:51 am

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Hi Pavan,

Very nice blog and thanks for sharing the knowledge. Could you please brief on this point as well – Reference Data Source using SEGW Netweaver Gateway service builder transaction.

Best Regards,

Thiru

Like (0)



Andreas Michaelbach

April 30, 2018 at 11:19 am

Thank you very much. I hope 7.50 will be available on Solution Manager 7.2 soon...

Like (0)



Marcelo Rodrigues

July 11, 2019 at 5:16 pm

Hello, the service maintenance option is not available for registration according to figure 26.

Like (0)



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Like

July 11, 2019 at 7:50 pm

I found the solution: <https://blogs.sap.com/2013/05/30/system-alias-and-routing-of-request-in-sap-netweaver-gateway/>

Like (0)

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