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Arun Chembra

August 2, 2013 | 4 minute read

Gateway Service using the OData Channel Approach (ABAP Coding) for Media Links(Photo,Document)

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Introduction

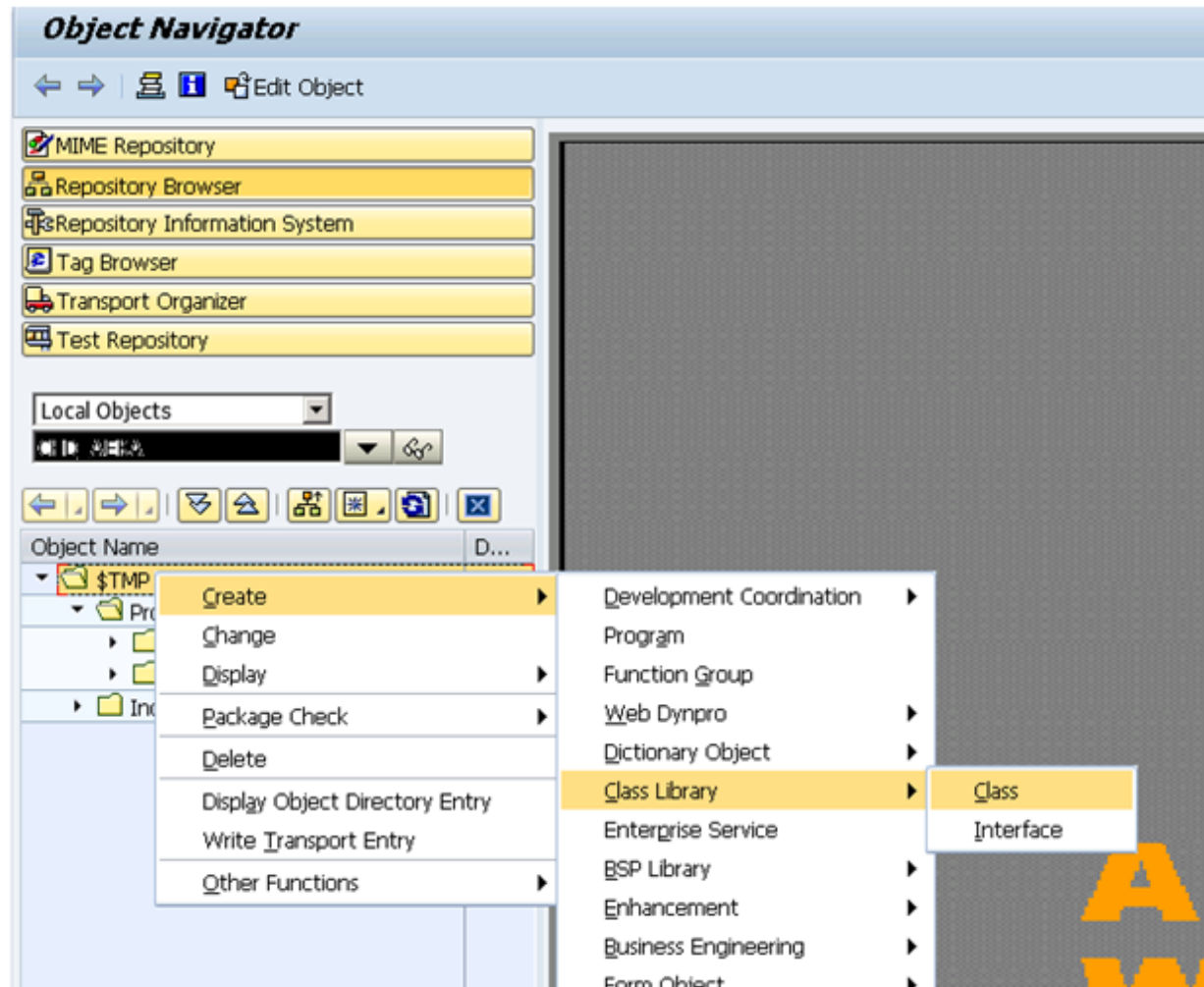
This document will help you to Implement a Gateway Service using the OData Channel approach (ABAP Coding) for Media Links. Gateway Service is implemented by creating two ABAP classes – Model Provider class and Runtime Data Provider class. In this document, i will cover the creation of the Model Provider class and a Runtime Data Provider class.

Prerequisites:

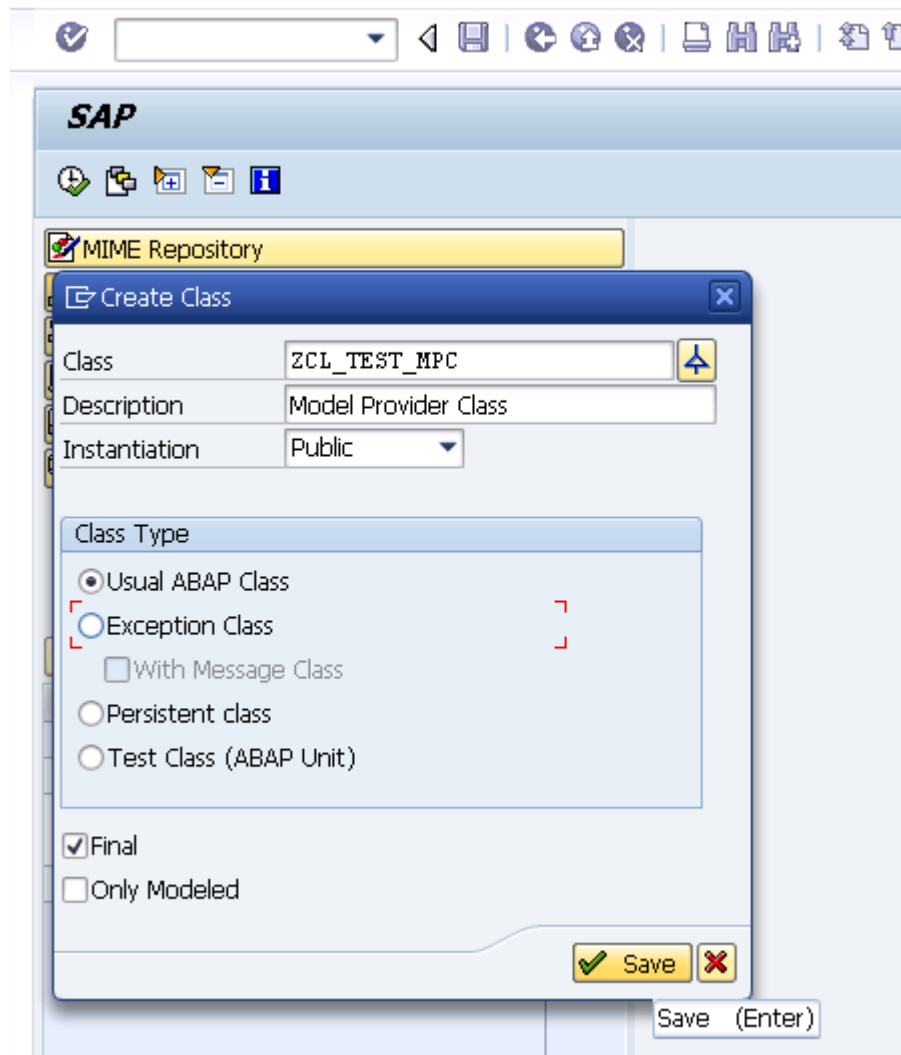
1. Gateway IWBEP system: IW_BEP 200 SP5 and above

2. Gateway IWFND system: IW_FND 250(Gateway HUB) SP3

Step 1 : Goto Transaction SE80



Step 2 : Create Model Provider Class ZCL_TEST_MPC



Step 3 : Save Model Provider Class in local object

Create Object Directory Entry

Object: R3TR CLAS ZCL_TEST_MPC

Attributes:

Package: \$TMP

Person Responsible:

Original System: CHD

Original language: EN English

Local Object Lock Overview

Step4 : Goto Model Provider Class click on Properties Tab and assign superclass /IWBEF/CL_MGW_PUSH_ABS_MODEL as shown below.

Class Interface: ZCL_TEST_MPC Implemented / Inactive (revised)

Properties Interfaces Friends Attributes Methods Events Types Aliases

Superclass: /IWBEF/CL_MGW_PUSH_ABS_MODEL

Undo inheritance Change Inherit.

Superclass: /IWBEF/CL_MGW_PUSH_ABS_MODEL Modeled only

Description: Model Provider Class

Instantiation: Public

Final: ☒

General Data:

Released internally: ☐

Fixed point arithmetic: ☒

Unicode checks active: ☒

Shared Memory-Enabled: ☐

Message Class:

Program status:

Category: General Object Type

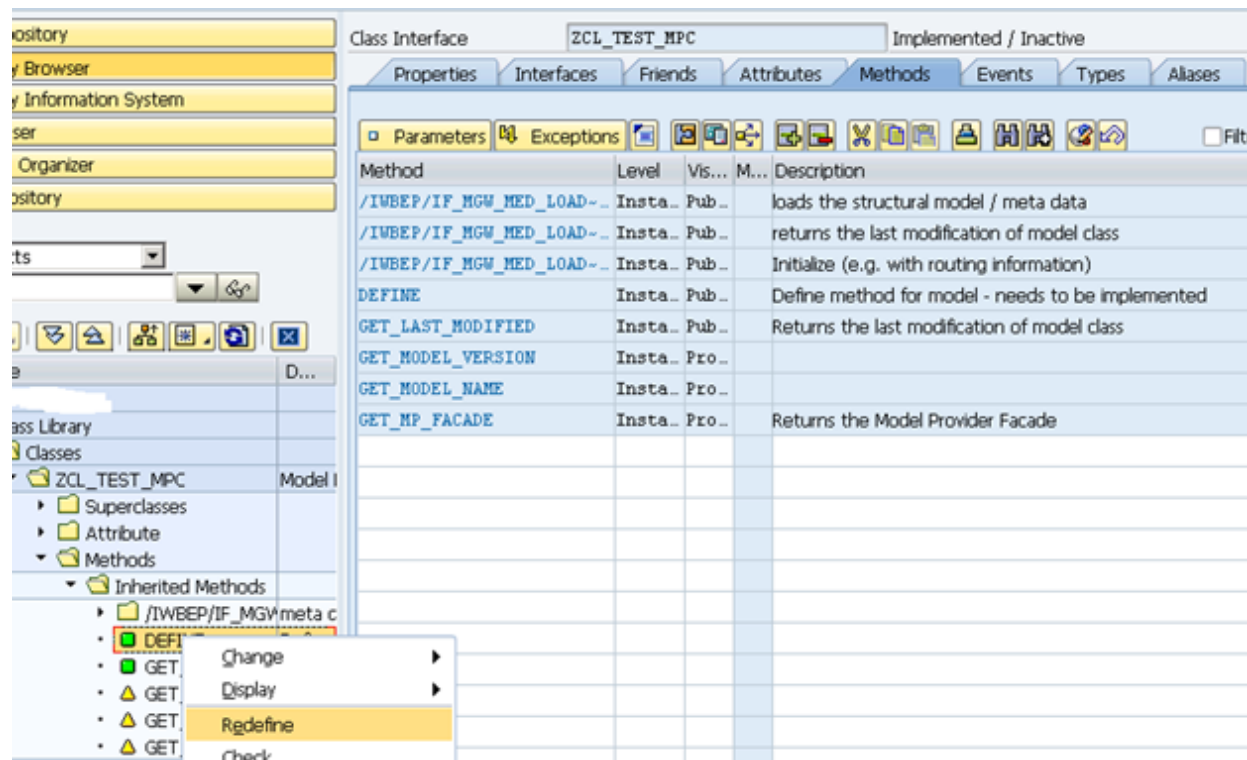
Package: \$TMP

Original Language: E

Forward declarations:

Type group/Object type

Step 5 : Go to methods and redefine the method called DEFINE.



method DEFINE.

data:

```

lo_annotation      type ref to /iwbsp/if_mgw_odata_annotation,
lo_data_object      type ref to /iwbsp/if_mgw_odata_entity_tpy,
lo_model_object     type ref to /iwbsp/if_mgw_odata_entity_tpy,
lo_model_entity_type type ref to /iwbsp/if_mgw_odata_entity_tpy,
lo_entity_set       type ref to /iwbsp/if_mgw_odata_entity_set,
lo_complex_type     type ref to /iwbsp/if_mgw_odata_cmplx_type,
lo_association      type ref to /iwbsp/if_mgw_odata_assoc,
lo_complex_type2    type ref to /iwbsp/if_mgw_odata_cmplx_type,
lo_association2     type ref to /iwbsp/if_mgw_odata_assoc,
lo_nav_property     type ref to /iwbsp/if_mgw_odata_nav_prop,
lo_property         type ref to /iwbsp/if_mgw_odata_property,

```

```
lo_action      type ref to /iwbep/if_mgw_odata_action,  
lo_parameter   type ref to /iwbep/if_mgw_odata_parameter,  
lo_ref_constraint type ref to /iwbep/if_mgw_odata_ref_constr.
```

```
super->define( ).
```

```
* carrier object gets defined
```

```
lo_data_object = model->create_entity_type( 'IMAGE' ).  
lo_property = lo_data_object->create_property( 'EMPLOYEE_ID' ).  
lo_property->set_is_key( ).  
lo_property->set_filterable( abap_true ).  
lo_data_object->create_property( 'MIME_CODE' ).  
lo_property = lo_data_object->create_property( 'CONTENT' ).  
lo_property = lo_data_object->create_property( 'URL' ).
```

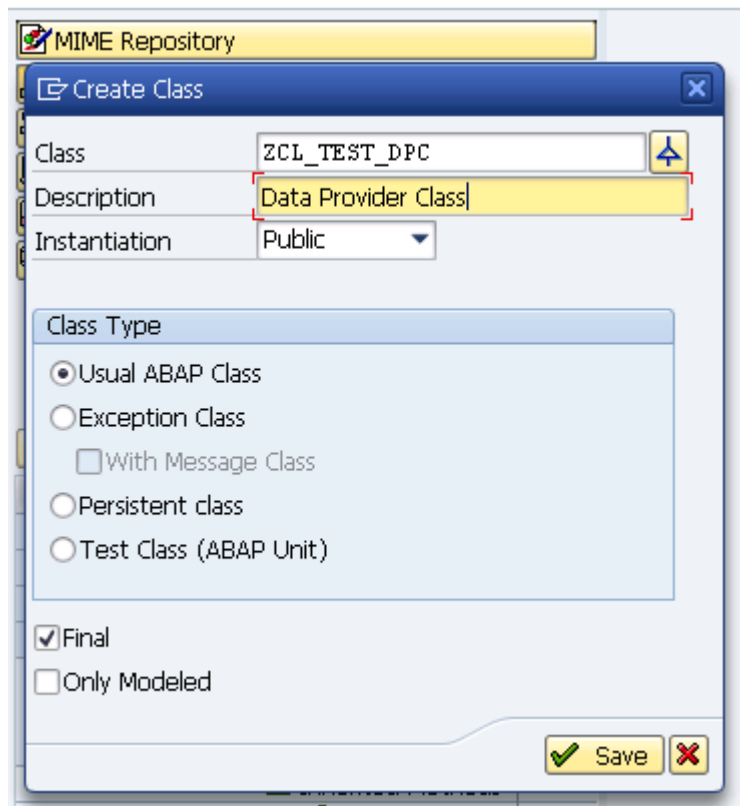
```
lo_data_object->bind_structure( 'ZEMP_DOCUMENT' ).
```

```
* setting a data object as media type means that it gets a special semantic by having a url and allows streaming etc.
```

```
lo_data_object->set_is_media( ).
```

```
endmethod.
```

Step 6 : Create Model Provider Class ZCL_TEST_DPC



Step 7 : Goto Model Provider Class click on Properties Tab and assign superclass /IWBEP/CL_MGW_PUSH_ABS_DATA as shown below.

Class Interface **ZCL_TEST_DPC** Implemented / Inactive (revised)

Properties Interfaces Friends Attributes Methods Events Types Aliases

Superclass ☐ Modeled only

Superclass /IWBEP/CL_MGW_PUSH_ABS_DATA

Description Data Provider Class

Instantiation Public

☒ Final

General Data

☐ Released internally

☒ Fixed point arithmetic ☒ Unicode checks active

☐ Shared Memory-Enabled

Message Class

Program status

Category General Object Type

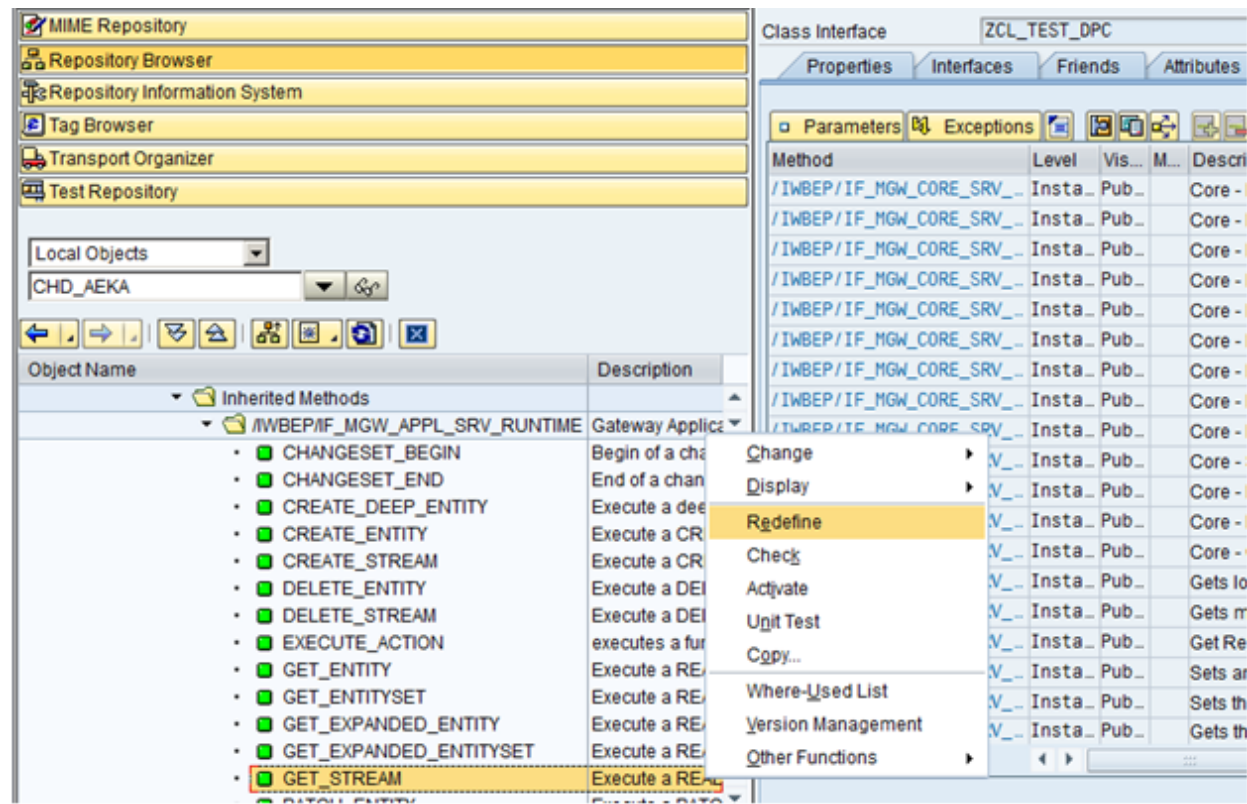
Package \$TMP

Original Language E

Forward declarations

Type group/Object type

Step 8 : Redefine method GET_STREAM and paste the below code and replace the function module 'ZHR_DOCUMENT' with your function module which will give binary data. Or directly pass binary data to Is_stream-value without function module.



method /IWBEP/IF_MGW_APPL_SRV_RUNTIME~GET_STREAM.

```
data: ls_stream type ty_s_media_resource,
lo_api type ref to if_mr_api,
er_entity type ref to data,
lr_entity type ref to data,
l_photo type xstring,
i_pernr type persno.
```

```
READ TABLE it_key_tab WITH KEY name = 'EMPLOYEE_ID' INTO ls_key_tab.
```

```
IF sy-subrc = 0.
```

```
MOVE ls_key_tab-value TO i_pernr.
```

ENDIF.

call function 'ZHR_DOCUMENT'

exporting

i_pernr = i_pernr

importing

pdf_doc = l_photo.

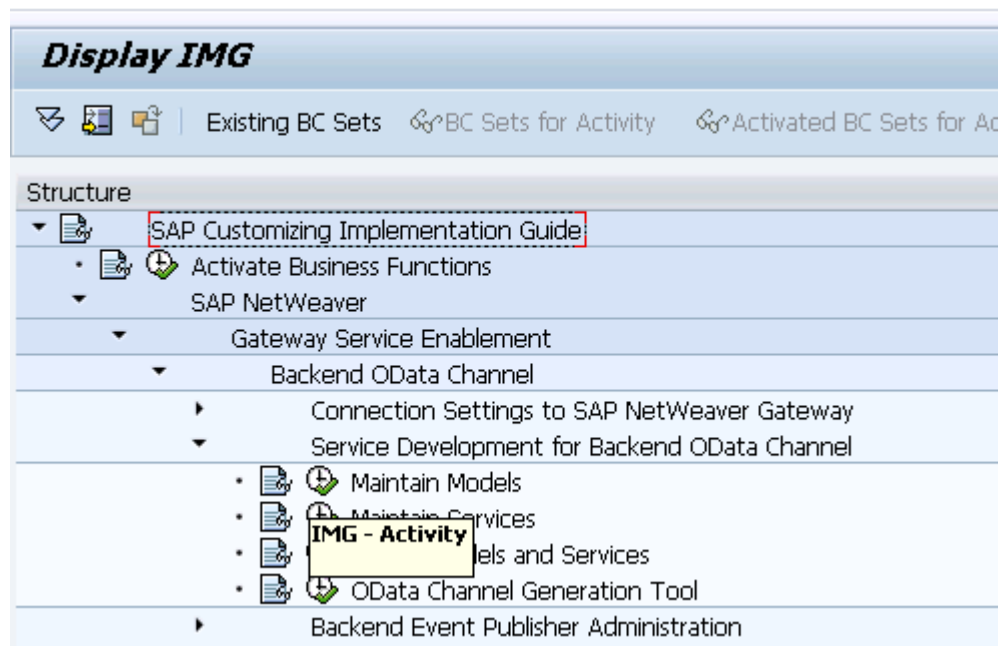
ls_stream-value = l_photo.

copy_data_to_ref(exporting is_data = ls_stream

changing cr_data = er_stream).

endmethod.

Step 9 : Goto Transaction SPRO Maintain Models and Click Create button

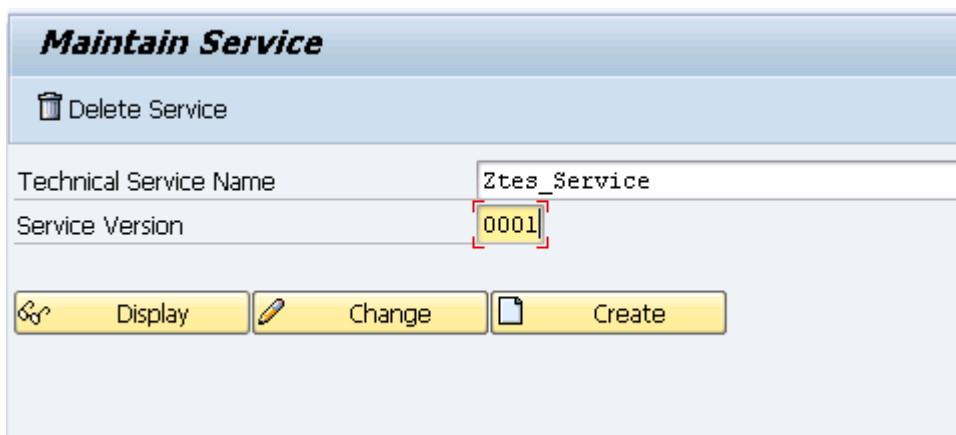
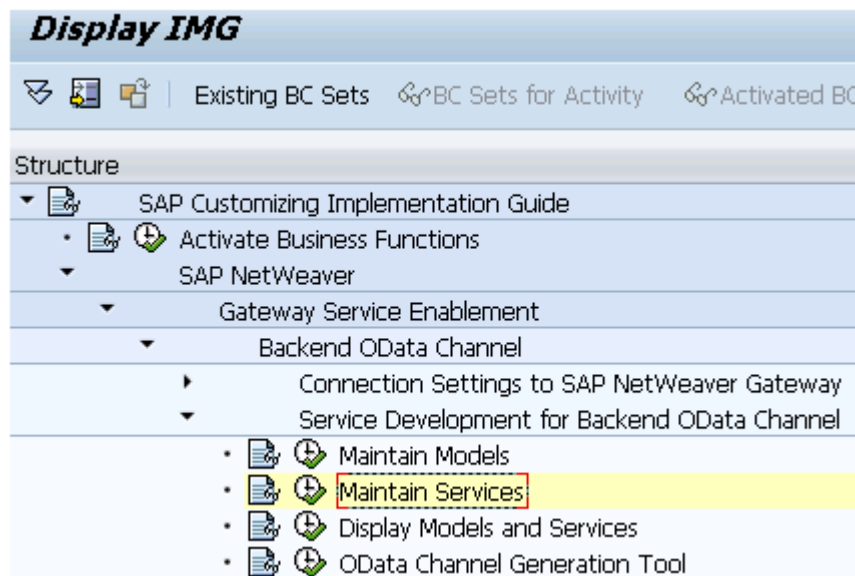


The screenshot shows the 'Maintain Model' transaction in SAP. The menu bar includes 'Program', 'Edit', 'Goto', 'System', and 'Help'. The toolbar contains various icons for navigation and actions. The main area has a title bar 'Maintain Model' and two sub-headers: 'Model' with a lock icon and 'Model' with a trash icon. Below these are two input fields: 'Technical Model Name' with the value 'ZTES_MODEL' and 'Model Version' with the value '0001'. At the bottom, there are three buttons: 'Display' (with a magnifying glass icon), 'Change' (with a pencil icon), and 'Create' (with a document icon). Below the 'Create' button is a smaller button labeled 'Create a new model'.

Step 10 : Enter the Model Provider Class name as shown below

The screenshot shows the 'Create Model' transaction in SAP. The menu bar includes 'Program', 'System', and 'Help'. The toolbar contains various icons for navigation and actions. The main area has a title bar 'Create Model' and a sub-header 'Model' with a lock icon. Below this is a section titled 'Model Information' containing four input fields: 'Technical Model Name' with the value 'ZTES_MODEL', 'Model Version' with the value '1', 'Model Provider Class' with the value 'ZCL_TEST_MPC', and 'Description' with the value 'Technical Model'. The 'Description' field is highlighted with a yellow background.

Step 11 : Goto Transaction SPRO Maintain Services and Click Create button



Step 12 : Enter the Model Provider Class name as shown below, Assign Model and save.

Create Service

Service Information	
Technical Service Name	ZTES_SERVICE
Service Version	1
Description	Service
External Service Name	ZTES_SERVICE
Namespace	
Data Provider Class	ZCL_TEST_DPC
Created By	
Changed By	

Step 13 : Activate the Service in Gateway System

Filter

System Alias			
Technical Service Name	ZTES_SERVICE	Version	1
External Service Name	ZTES_SERVICE	External Mapping ID	

Add

Type
BEP

Add Service

Service	
Technical Service Name	ZTES_SERVICE
Service Version	1
Description	Service
External Service Name	ZTES_SERVICE
Namespace	
External Mapping ID	
External Data Source Type	C
Model	
Technical Model Name	ZTES_MODEL
Model Version	1
Creation Information	
Package	ⓂTMP
	Local Object

/IWFND/SG_TEST_APPLICATION	1	TeaProcessing
/IWFND/SG_TEST_APPLICATION_STC	1	TeaStcProcessing
/IWFND/SG_USER_SERVICE	1 Information Worker - User Service	USERSERVICE
/IWCNT/SG_WF_ACTIVITY_TASK	1 Workflow dialog activity processing	WFACTIVITYTASKPROCESSING
/IWCNT/SG_WF_DECISION_TASK	1 User Decision Workflow task processing	WFDECISIONTASKPROCESSING
/IWCNT/SG_WF_GEN_TASK	1 Workflow generic task processing	WFGENTASKPROCESSING
/IWCNT/SG_ODC_RMT_WORKFLOW	1 Workflow für minimale Gateway-Servicegruppe	WFODCPROCESSING
SP		
SP ZTES_SERVICE	1 Service	ZTES_SERVICE

ICF Node
Call Browser
Gateway Client

CF Nodes

Status	ICF Node	Description
OOO	SDATA	Compatibility Mode for SP 02
OOO	ODATA	Standard Mode

[http://XXXXXXXXXXXXXXXXXXXXXXXXX:9000/sap/opu/odata/sap/ZTES_SERVICE/\\$metadata](http://XXXXXXXXXXXXXXXXXXXXXXXXX:9000/sap/opu/odata/sap/ZTES_SERVICE/$metadata)

```

- <EntityType Name="IMAGE" m:HasStream="true" sap:content-version="1">
  - <Key>
    <PropertyRef Name="EMPLOYEE_ID" />
  </Key>
  <Property Name="EMPLOYEE_ID" Type="Edm.String" Nullable="false" MaxLength="8" sap:label="Personnel No." />
  <Property Name="MIME_CODE" Type="Edm.String" MaxLength="128" sap:label="MIME type" />
  <Property Name="CONTENT" Type="Edm.String" MaxLength="1024" />
  <Property Name="URL" Type="Edm.String" MaxLength="255" sap:label="URL" />
  <Property Name="mimeType" Type="Edm.String" MaxLength="128" sap:label="MIME Type" sap:filterable="false" />
</EntityType>
- <EntityContainer Name="ZTES_SERVICE" m:IsDefaultEntityContainer="true">
  <EntitySet Name="SubscriptionCollection" EntityType="ZTES_SERVICE.Subscription" sap:content-version="1" />
  <EntitySet Name="NotificationCollection" EntityType="ZTES_SERVICE.Notification" sap:creatable="false" sap:updatable="false" sap:deletable="false" sap:addressable="false" sap:content-version="1" />
  <EntitySet Name="IMAGECollection" EntityType="ZTES_SERVICE.IMAGE" sap:creatable="false" sap:deletable="false" sap:content-version="1" />
</EntityContainer>
<atom:link rel="self" href="http:// /sap/opu/odata/sap/ZTES_SERVICE/$metadata" />
<atom:link rel="latest-version" href="http:// /sap/opu/odata/sap/ZTES_SERVICE/$metadata" />
</Schema>
</edmx:DataServices>
</edmx>

```

To read the Media Link(Photo,Document) we need to add suffix **/\$value** to the GetEntity(Read) URL as shown below.

`http://XXXXXXXXXXXXXXXXX:9000/sap/opu/odata/sap/ZTES_SERVICE/IMAGECollection('12345678')/$value`

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Assigned Tags

SAP Gateway

gateway

json

medialink

mobility

netweaver

netweaver gateway

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Arnab Das

August 8, 2013 at 4:44 am

thanks Arun

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Former Member

August 8, 2013 at 4:49 am

Nice document....

Like 0 | Share

**Syam Babu**

August 16, 2013 at 11:02 am

Excellent Blog Arun.

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**Arun Chembra | Blog Post Author**

August 18, 2013 at 6:01 pm

Thanks Syam....

Like 0 | Share

**Former Member**

August 16, 2013 at 1:01 pm

good one...

Like 0 | Share

**Arun Chembra | Blog Post Author**

August 18, 2013 at 6:01 pm

Thanks...

Like 0 | Share

**Former Member**

August 19, 2013 at 7:58 am

Thanks Arun - your blog helped me develop my upload/download service. I did it using SEGW instead of ABAP coding - it might help others wanting to use that approach [How To Upload and Download Files Using SAP NW Gateway SP06](#)

Like 0 | Share



Former Member

August 20, 2013 at 10:43 am

thanks a lot. very very helpful.

Like 0 | Share



Arun Chembra | Blog Post Author

August 20, 2013 at 10:45 am

Thanks pinaki...

Like 0 | Share



Former Member

September 17, 2013 at 6:54 am

Hi Arun,

In the simialr way, i created zfunction module with

input

employee number, sequence number

output

payslip in xstring format

pdf_fsize as i.

now i need to show this xstring output in odata services.

step1:

i created project in segw transaction .

can you help me how to incorporate after that..

Like 0 | Share



Arun Chembra | Blog Post Author

September 17, 2013 at 9:50 am

Hi Vijay,

You have to redefine the GET_STREAM class and you have to call your function module inside this method as shown below.
Please let me know if you face any issue.

method /IWBEP/IF_MGW_APPL_SRV_RUNTIME~GET_STREAM.

```
data: ls_stream type ty_s_media_resource,  
      lo_api type ref to if_mr_api,  
      er_entity type ref to data,  
      lr_entity type ref to data,  
      l_photo type xstring,  
      i_pernr type persno.
```

```
READ TABLE it_key_tab WITH KEY name = 'EMPLOYEE_ID' INTO ls_key_tab.
```

```
IF sy-subrc = 0.
```

```
MOVE ls_key_tab-value TO i_pernr.
```

```
ENDIF.
```

```
call function 'ZHR_DOCUMENT'
```

```
exporting
```

```
i_pernr = i_pernr
```

```
importing
```

```
pdf_doc = l_photo.
```

```
ls_stream-value = l_photo.
```

```
copy_data_to_ref( exporting is_data = ls_stream  
changing cr_data = er_stream ).
```

```
endmethod.
```

Like 0 | Share



Arun Chembra | Blog Post Author

September 17, 2013 at 9:57 am

Hi Vijay,

Check this blog also : <http://scn.sap.com/community/netweaver-gateway/blog/2013/08/14/how-to-upload-and-download-files-using-sap-nw-gateway>

Thanks,

Arun Chembra

Like 0 | Share



Former Member

September 17, 2013 at 10:29 am

Thanks Arun.. that is done..

i don't have any problem with get_stream method as of now, but when i am trying to generate runtime artifacts of get_entity it is saying like zcl_zxx_dpc was generated with syntax error.

i just created one custom RFC similar to bapi_get_payslip_pdf and imported to get_entity and there after i am getting this error.

Thanks,

Vijay

Like 0 | Share



Former Member

December 4, 2013 at 9:02 am

Nice Blog Arun.

Like 0 | Share



Former Member

December 4, 2013 at 11:05 am

Pramila, this article is somewhat out-of-date if you are above SP3 (who wouldn't be? 😊). While it is useful to know how to do this, Service Builder does the work of building the MPC and DPC in a few seconds instead of minutes (perhaps hours if you mess up the MPC define).

Like 0 | Share



Former Member

February 5, 2014 at 11:06 am

Hi Chembra,

Thanks for your document...

Like 0 | Share



Former Member

March 12, 2014 at 8:40 am

Hi,

How can we upload those file in MIME repository ?

My requirement is ==>

I have upload file in SAP-UI5, those file should upload in MIME repository (SAP-ECC)back end.

How can i do this?

I have referred below link (which is shown Gateway connection details).

<http://scn.sap.com/community/netweaver-gateway/blog/2013/08/14/how-to-upload-and-download-files-using-sap-nw-gateway#comment-470346>

Kindly help me on this...

Like 0 | Share



Arun Chembra | Blog Post Author

March 15, 2014 at 1:17 pm

Hi ,

You can pass data as binary format along with the MIME code , Once you received the same in SAP you have to call the corresponding function module or you have to write the logic to insert binary data to the MIME repository.

Thanks,

Arun

Like 0 | Share



Former Member

March 16, 2014 at 6:00 pm

Hi Arun,

I have created below screen for PDF! upload in SAP-UI5.

Below code I have written in SAP gateway system.

* Get MIME repository information

```
lr_mime_rep = cl_mime_repository_api=>if_mr_api~get_api( ).
```

* Upload FILE into MIME repository.

```
lr_mime_rep->put(
```

```
EXPORTING
```

```
  i_url          = p_path
```

```
  i_content      = lv_content
```

```
EXCEPTIONS
```

```
  parameter_missing    = 1
```

```
  error_occured        = 2
```

```
  cancelled            = 3
```

```
  permission_failure   = 4
```

```
  data_inconsistency   = 5
```


new_loio_already_exists = 6

is_folder = 7

OTHERS = 8).

Back end system required file name with extension and XSTRING(Converted PDF data).

How to convert PDF file into XSTRING or BINARY in SAP-UI5?

Like 0 | Share



Syam Babu

March 17, 2014 at 6:12 am

Hi Akshath,

SAP UI5 is not released any Lib files for XSTRING to PDF.

Please check below link for your clarification.

<http://scn.sap.com/community/developer-center/front-end/blog/2014/02/03/display-smartform-pdf-in-sapui5>

Thanks,

Syam

Like 0 | Share

**rajeesh o**

October 10, 2014 at 6:10 am

plz check below link it is awesome

[File Upload/Download through NetWeaver Gateway](#)

Like 0 | Share

**Pavan Golesar**

April 6, 2017 at 8:41 am

Classic post, Thank you, Indeed helpful.

-Pavan Golesar

Like 1 | Share

**Deepak Tewari**

June 26, 2017 at 11:36 am

Hi Arun,

Thanks for such a useful post.

It served two of my purposes: Defining Dynamic Entities and Uploading media files in OData.

I have a doubt in a statement

```
lo_data_object->bind_structure( 'ZEMP_DOCUMENT' ).
```

What is the need of this statement?

I found that if I don't use it, my service's metadata is not loaded and I am unable to use that.

Please help me out 😊

Like 1 | Share



Arun Chembra | Blog Post Author

July 11, 2017 at 5:49 am

Hi Deepak,

This is used to bind your final structure.

Its very old method, now the binding and will take care by the SEGW gateway service builder.

Thanks & regards,

Arun

Like 0 | Share



Deepak Tewari

July 26, 2017 at 11:51 am

Hi Arun,

Thanks a lot for your reply.

But what if I have a requirement in which I dont know about the structure which my entity is going to have.

In simpler words: I want to have a dynamic entity in which the fields should change at runtime.

Is there any work around for this ?

Regards

Deepak

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