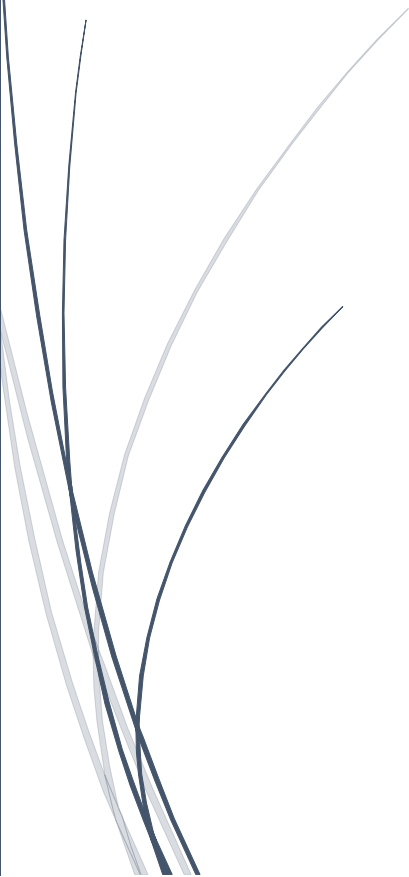




## Assignment 3

# A to Z of SAP OData Services

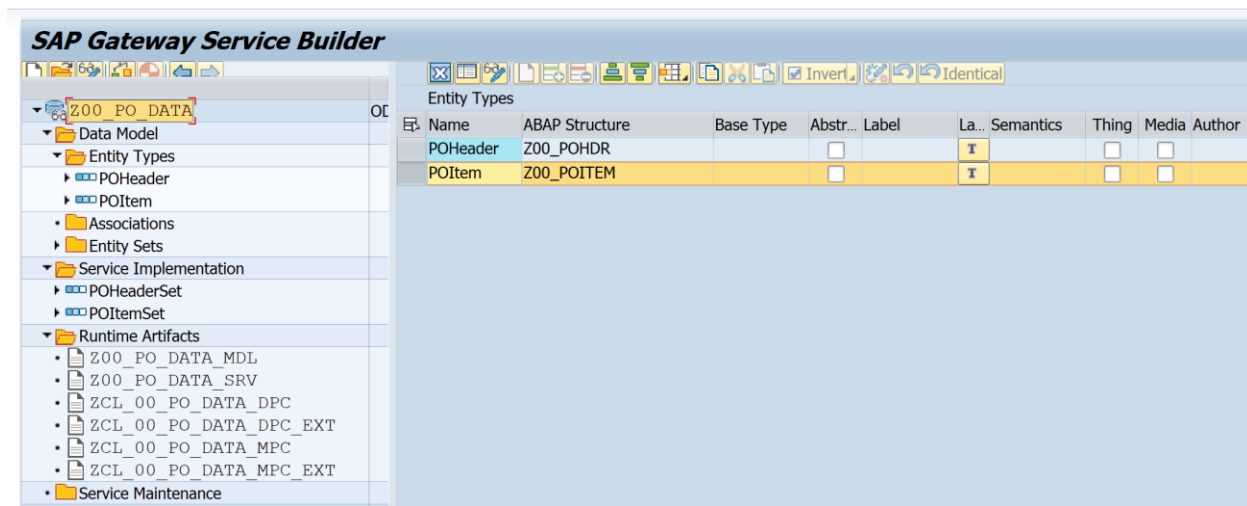
ZAPYARD's  
Training *Academy*



# Instructions:

This assignment uses the service created in assignment 2. [Z00\_PO\_DATA].

This is the SEGW project built in Assignment 2.



**Disclaimer:** This assignment is part of the A to Z of SAP OData Services Training scheduled for 3<sup>rd</sup> September 2022 at 7:30 AM IST.

Whether you want to start your SAP OData learning or you want to dive deep into complex SAP OData Development, this specially curated course will be your one stop. **Enroll Today** to learn how to build optimized SAP OData Service from the Industry Expert.

Course Curriculum - <https://tinyurl.com/au47uvzn>

Day wise break up - <https://tinyurl.com/5h6uzfnf>

Enrollment Fee 124 USD - <https://www.zapcademy.com/s/store/courses/description/A-to-Z-of-SAP-OData-Services>

Course Days – 3, 4, 10, 11, 17, 18, 24 Sept, 1, 2 & 8 Oct 2022 IST Dates

Time: 7:30 AM - 10:00 AM IST

Server Access till Oct 31 2022

Recordings will be provided after every live class. Participants will have life time access to these recordings.

**WhatsApp +1-251-727-9273 – for quick response**

## Assignment:

1. Implement Read Operation for PO Header and PO Item Entity Types
2. Implement Query Operation for PO Header and PO Item Entity Types
3. Construct URIs to test implemented operations and capture result screenshots

Entity Type	Operation
PO Header	Read
PO Header	Query
PO Item	Read
PO Item	Query

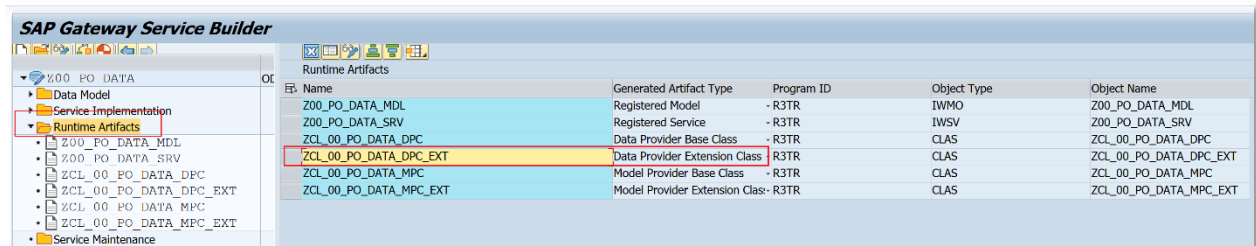
4. Debug any one of the implemented methods.

**ZAPYARD's**  
**Training Academy**

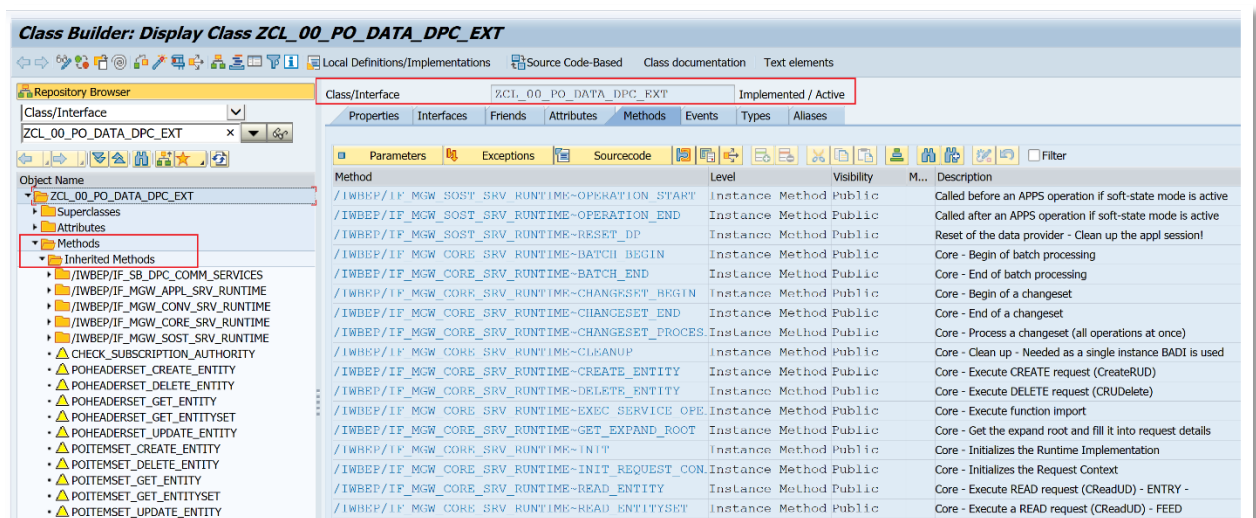
# Solution:

## Step 1. Implement Read Operation for POHeader and POItem Sets.

Double click on node Runtime Artifacts. Then double click on class ZCL\_00\_PO\_DATA\_DPC\_EXT.



The class will open in SE80 like editor. Expand the node *Method* → *Inherited Methods*



Observe the methods starting with POHEADERSET\_ and POITEMSET\_

- ⚠ POHEADERSET\_CREATE\_ENTITY
- ⚠ POHEADERSET\_DELETE\_ENTITY
- ⚠ POHEADERSET\_GET\_ENTITY
- ⚠ POHEADERSET\_GET\_ENTITYSET
- ⚠ POHEADERSET\_UPDATE\_ENTITY
- ⚠ POITEMSET\_CREATE\_ENTITY
- ⚠ POITEMSET\_DELETE\_ENTITY
- ⚠ POITEMSET\_GET\_ENTITY
- ⚠ POITEMSET\_GET\_ENTITYSET
- ⚠ POITEMSET\_UPDATE\_ENTITY

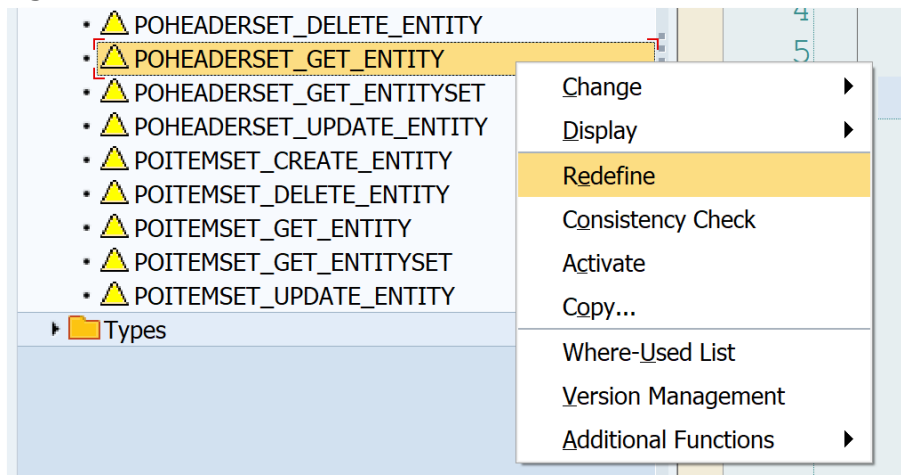
For Read Operation – below methods should be implemented.

### 1. POHEADERSET\_GET\_ENTITY

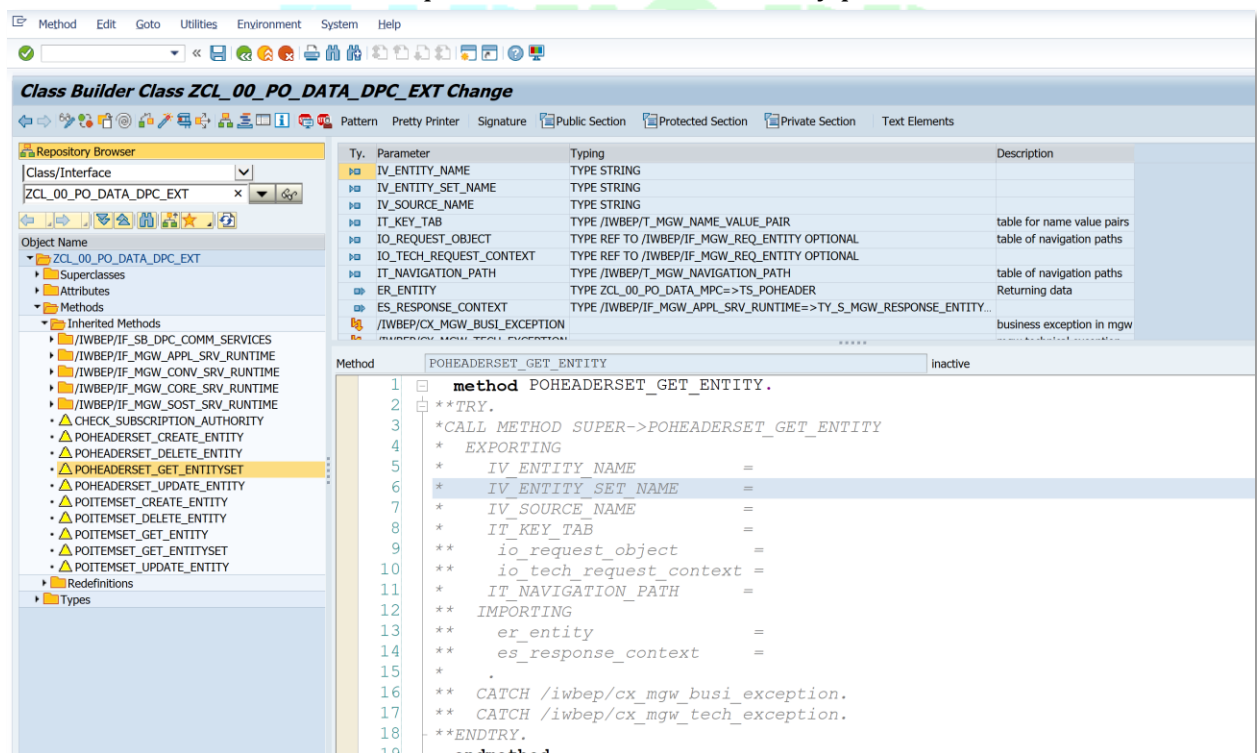
## 2. POITEMSET\_GET\_ENTITY

### POHEADERSET\_GET\_ENTITY

Right click on POHEADERSET\_GET\_ENTITY method and chose Redefine.



A call for same method from superclass \*\_DPC will be already placed as commented code.



Remove the commented code.

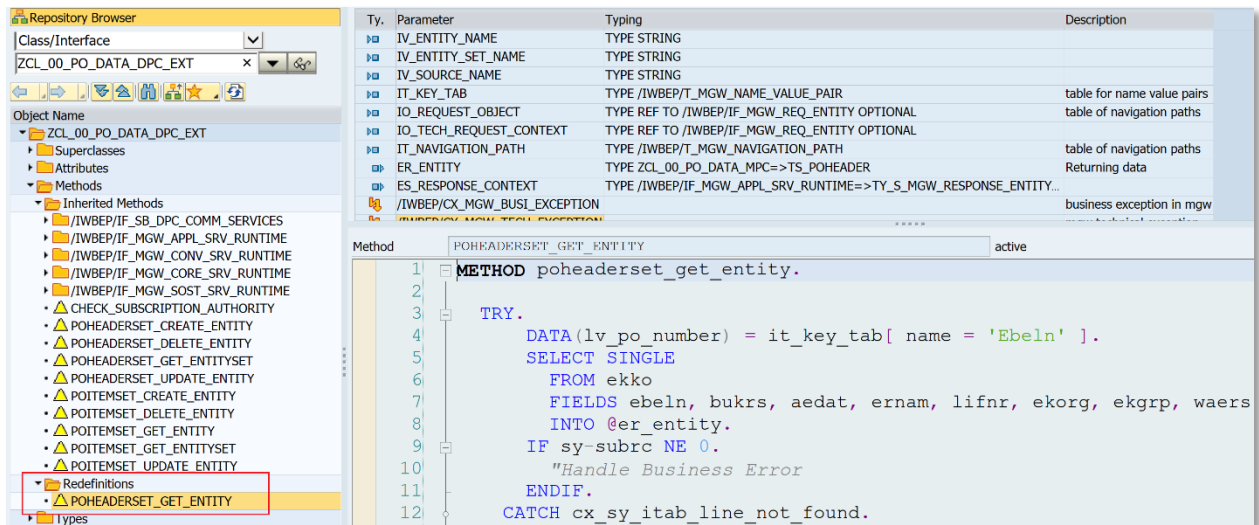
Complete the implementation as below.

```

Method POHEADERSSET_GET_ENTITY active
1 METHOD poheadersset_get_entity.
2
3 TRY.
4     SELECT SINGLE
5     FROM ekko
6     FIELDS ebeln, bukrs, aedat, ernam, lifnr, ekorg, ekgrp, waers
7     WHERE ebeln = @( it_key_tab[ name = 'Ebeln' ]-value )
8     INTO @er_entity.
9
10    IF sy-subrc NE 0.
11        "Handle Business Error
12    ENDIF.
13    CATCH cx_sy_itab_line_not_found.
14        "Handle Technical Error
15    ENDTRY.
16
17 ENDMETHOD.

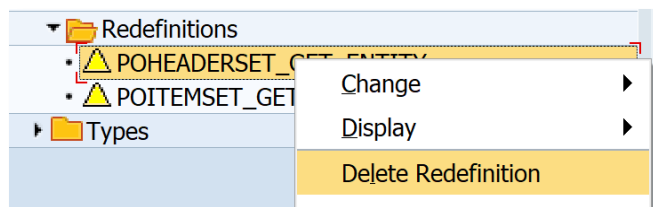
```

Once redefined the method can be found in Redefinitions node.



The screenshot shows the SAP Repository Browser interface. On the left, the 'Object Name' pane shows the hierarchy: ZCL\_00\_PO\_DATA\_DPC\_EXT > Methods > Inherited Methods > POHEADERSSET\_GET\_ENTITY. The 'Redefinitions' node is highlighted, showing the redefined method POHEADERSSET\_GET\_ENTITY. On the right, the 'Method' pane shows the implementation code for the redefined method, which is identical to the one shown in the previous code block. The 'Parameter' pane shows the parameters of the method: IV\_ENTITY\_NAME (TYPE STRING), IV\_ENTITY\_SET\_NAME (TYPE STRING), IV\_SOURCE\_NAME (TYPE STRING), IT\_KEY\_TAB (TYPE /WBEP/T\_MGW\_NAME\_VALUE\_PAIR), IO\_REQUEST\_OBJECT (TYPE REF TO /WBEP/IF\_MGW\_REQ\_ENTITY OPTIONAL), IO\_TECH\_REQUEST\_CONTEXT (TYPE REF TO /WBEP/IF\_MGW\_REQ\_ENTITY OPTIONAL), IT\_NAVIGATION\_PATH (TYPE /WBEP/T\_MGW\_NAVIGATION\_PATH), ER\_ENTITY (TYPE ZCL\_00\_PO\_DATA\_MPC=>TS\_POHEADER), ES\_RESPONSE\_CONTEXT (TYPE /WBEP/IF\_MGW\_APPL\_SRV\_RUNTIME=>TY\_S\_MGW\_RESPONSE\_ENTITY...), and /WBEP/CX\_MGW\_BUSI\_EXCEPTION (business exception in mgw).

If the redefinition needs to be removed, then right click on the method and chose Delete Redefinition.



Now, redefine **POITEMSET\_GET\_ENTITY** in similar way.

```

Method      POITEMSET_GET_ENTITY      active
1  METHOD poitemset_get_entity.
2
3  TRY.
4      SELECT SINGLE
5          FROM ekpo
6          FIELDS ebeln, ebelp, loekz, txz01, matnr,
7                  werks, lgort, menge, meins, brtwr
8          WHERE ebeln = @( it_key_tab[ name = 'Ebeln' ]-value )
9          AND   ebelp = @( it_key_tab[ name = 'Ebelp' ]-value )
10         INTO @er_entity.
11
12     IF sy-subrc NE 0.
13         "Handle Business Error
14     ENDIF.
15     CATCH cx_sy_itab_line_not_found.
16         "Handle Technical Error
17     ENDTRY.
18
19 ENDMETHOD.

```

## Step 2. Implement Query Operation for POHeader and POItem Sets.

Methods to implement for Query Operation are

1. POHEADERSET\_GET\_ENTITYSET
2. POITEMSET\_GET\_ENTITYSET

The steps to redefine the methods remain the same. Here all POs are fetched. To keep the data limited, you can use only certain number of rows.

## POHEADERSET\_GET\_ENTITYSET

```

Method      POHEADERSET_GET_ENTITYSET      active
1  METHOD poheaderset_get_entityset.
2
3      SELECT
4          FROM ekko
5          FIELDS ebeln, bukrs, aedat, ernam, lifnr, ekorg, ekgrp, waers
6          INTO TABLE @et_entityset
7          UP TO 100 ROWS.
8  IF sy-subrc NE 0.
9      "Handle Business Error
10  ENDIF.
11
12 ENDMETHOD.

```

**Note:** The data is selected into table unlike for READ operation.

**POITEMSET\_GET\_ENTITYSET**

Method	POITEMSET_GET_ENTITYSET	active
1	<b>METHOD</b> poitemset_get_entityset.	
2		
3	<b>SELECT</b>	
4	<b>FROM</b> ekpo	
5	<b>FIELDS</b> ebeln, ebelp, loekz, txz01, matnr,	
6	werks, lgort, menge, meins, brtwr	
7	<b>INTO TABLE</b> @et_entityset	
8	<b>UP TO 100 ROWS.</b>	
9		
10	<b>IF</b> sy-subrc <b>NE</b> 0.	
11	"Handle Business Error	
12	<b>ENDIF.</b>	
13		
14	<b>ENDMETHOD.</b>	

**Step 3. Test Read Operation for POHeader and POItem Sets.**

[/n/IWFND/MAINT\_SERVICE] Filer on your service. Use SAP Gateway Client button to launch the Gateway client to test the service.

**Activate and Maintain Services**

Service Catalog

Type	Technical Service Name	Versi..	Service Description	External Service Name	Namespace	OAuth	Soft State	Status	Processing Mode
BEP	Z00_PO_DATA_SRV		1 OData Service for Purchase Order Data	Z00_PO_DATA_SRV			Not Supported		Routing-based

ICF Nodes

Status	ICF Node	Session Time-out	Soft State	Description
OK	ODATA	00:00:00		Standard Mode

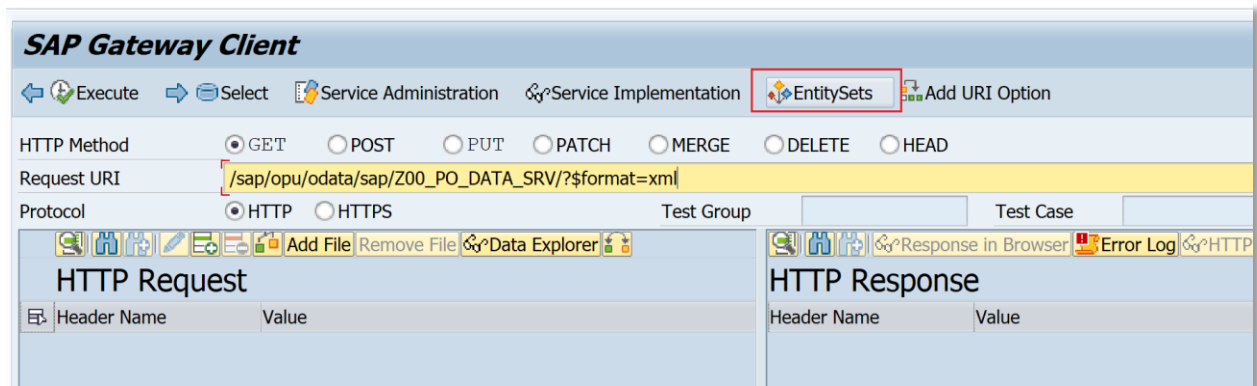
System Aliases

SAP System Alias	Description	Default System	Metadata
LOCAL	Local System Alias	<input checked="" type="checkbox"/>	<input type="checkbox"/>

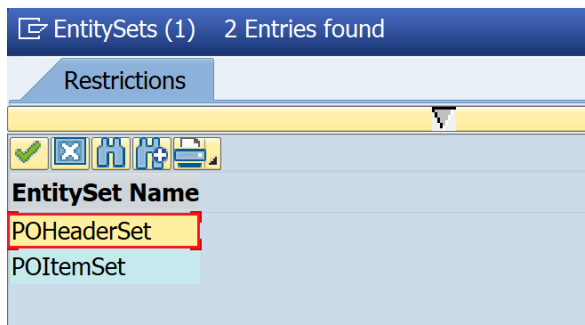
Tip: It can be launched directly from transaction **/n/IWFND/GW\_CLIENT**. However, when you launch from Service Maintenance transaction, the service URI is entered automatically.



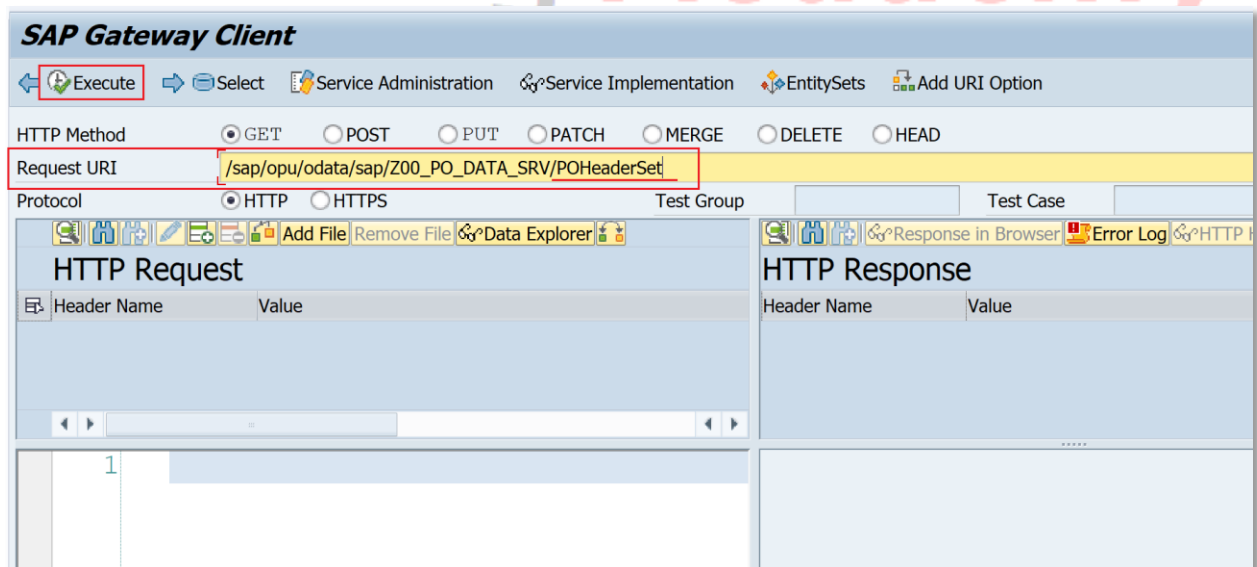
Click on EntitySets button.

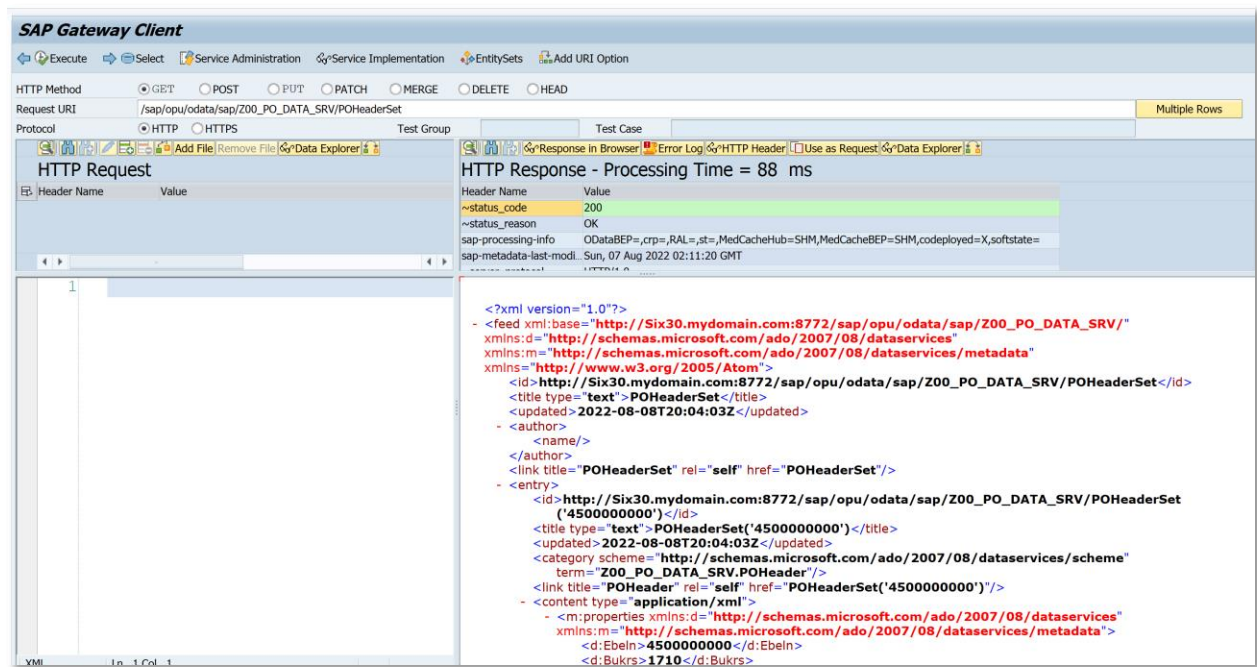


Chose POHeaderSet. URI is formed automatically.



URI: `/sap/opu/odata/sap/Z00_PO_DATA_SRV/POHeaderSet`  
Execute.





**SAP Gateway Client**

HTTP Method: GET POST PUT PATCH MERGE DELETE HEAD

Request URI: /sap/opu/odata/sap/Z00\_PO\_DATA\_SRV/POHeaderSet

Protocol: HTTP HTTPS

HTTP Request

Header Name	Value
~status_code	200
~status_reason	OK
sap-processing-info	ODatabEP=,crp=,RAL=,st=,MedCacheHub=SHM,MedCacheBEP=SHM,codeployed=X,softstate=
sap-metadata-last-modi	Sun, 07 Aug 2022 02:11:20 GMT

HTTP Response - Processing Time = 88 ms

```
<?xml version="1.0"?>
- <feed xml:base="http://Six30.mydomain.com:8772/sap/opu/odata/sap/Z00_PO_DATA_SRV/"
  xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
  xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata"
  xmlns="http://www.w3.org/2005/Atom">
  <id>http://Six30.mydomain.com:8772/sap/opu/odata/sap/Z00_PO_DATA_SRV/POHeaderSet</id>
  <title type="text">POHeaderSet</title>
  <updated>2022-08-08T20:04:03Z</updated>
  <author>
    <name/>
    <author>
      <link title="POHeaderSet" rel="self" href="POHeaderSet"/>
    </author>
  </author>
  <entry>
    <id>http://Six30.mydomain.com:8772/sap/opu/odata/sap/Z00_PO_DATA_SRV/POHeaderSet('4500000000')</id>
    <title type="text">POHeaderSet('4500000000')</title>
    <updated>2022-08-08T20:04:03Z</updated>
    <category scheme="http://schemas.microsoft.com/ado/2007/08/dataservices/scheme"
      term="Z00_PO_DATA_SRV.POHeader"/>
    <link title="POHeader" rel="self" href="POHeaderSet('4500000000')"/>
    <content type="application/xml">
      <m:properties xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
        xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata">
        <d:Ebeln>4500000000</d:Ebeln>
        <d:Bukrs>1710</d:Bukrs>
```

Change the URI to show data in json format.

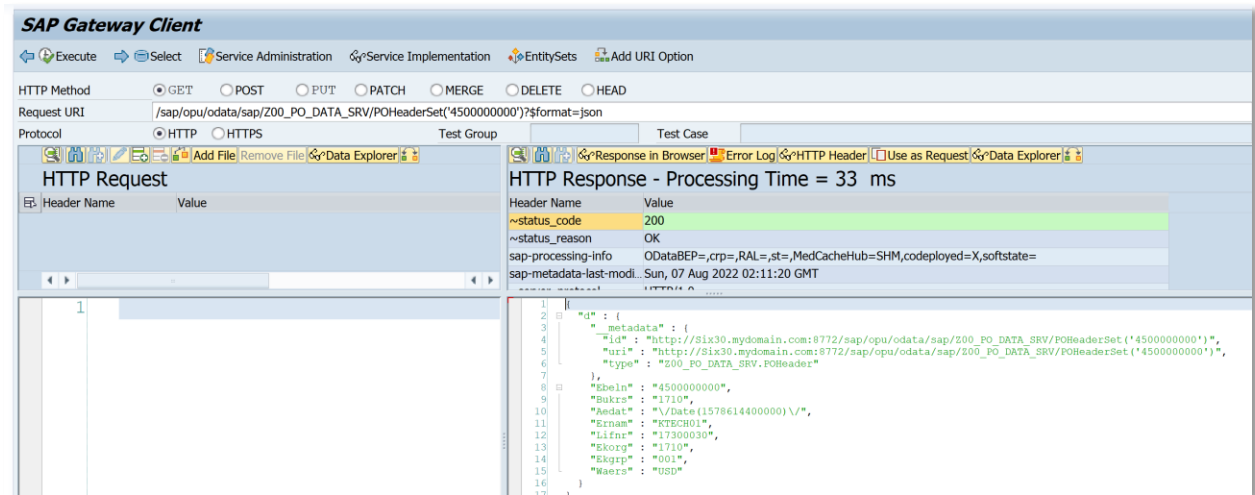
/sap/opu/odata/sap/Z00\_PO\_DATA\_SRV/POHeaderSet?\$format=json



```
{
  "d": {
    "results": [
      {
        "_metadata": {
          "id": "http://Six30.mydomain.com:8772/sap/opu/odata/sap/Z00_PO_DATA_SRV/POHeaderSet('4500000000')",
          "uri": "http://Six30.mydomain.com:8772/sap/opu/odata/sap/Z00_PO_DATA_SRV/POHeaderSet('4500000000')",
          "type": "Z00_PO_DATA_SRV.POHeader"
        },
        "Ebeln": "4500000000",
        "Bukrs": "1710",
        "Aedat": "\Date(1578614400000)\",
        "Ernam": "KTECH01",
        "Lifnr": "17300030",
        "Ekorg": "1710",
        "Ekgrp": "001",
        "Waers": "USD"
      },
      {
        "_metadata": {
          "id": "http://Six30.mydomain.com:8772/sap/opu/odata/sap/Z00_PO_DATA_SRV/POHeaderSet('4500000009')",
          "uri": "http://Six30.mydomain.com:8772/sap/opu/odata/sap/Z00_PO_DATA_SRV/POHeaderSet('4500000009')",
          "type": "Z00_PO_DATA_SRV.POHeader"
        },
        "Ebeln": "4500000009",
        "Bukrs": "1710",
        "Aedat": "\Date(1579046400000)\",
        "Ernam": "KTECH01",
        "Lifnr": "17300030",
        "Ekorg": "1710",
        "Ekgrp": "001",
        "Waers": "USD"
      }
    ]
  }
}
```

Now, pick any PO number and add it to URI.

URI: /sap/opu/odata/sap/Z00\_PO\_DATA\_SRV/POHeaderSet('4500000000')?\$format=json

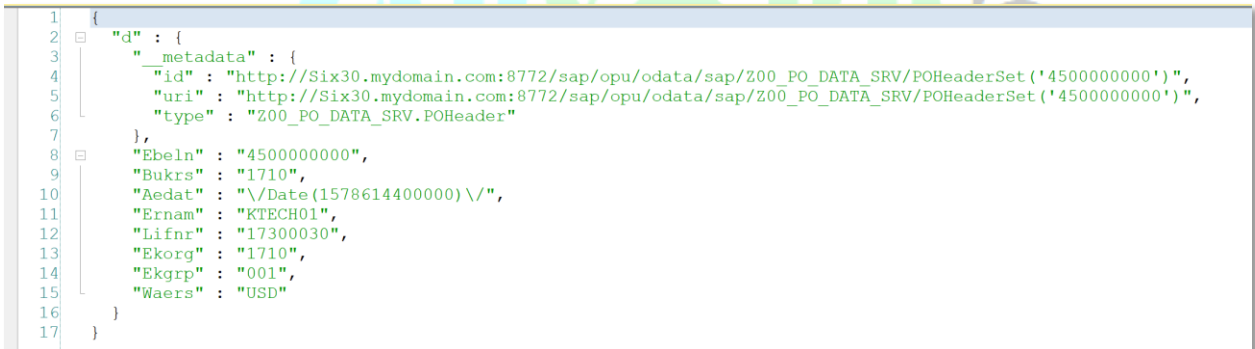


The screenshot shows the SAP Gateway Client interface. The HTTP Method is set to GET, and the Request URI is /sap/opu/odata/sap/Z00\_PO\_DATA\_SRV/POHeaderSet('4500000000')?\$format=json. The HTTP Response shows a status code of 200 (OK) and a processing time of 33 ms. The response body is a JSON object representing a PO header set.

```

{
  "d": {
    "metadata": {
      "id": "http://Six30.mydomain.com:8772/sap/opu/odata/sap/Z00_PO_DATA_SRV/POHeaderSet('4500000000')",
      "uri": "http://Six30.mydomain.com:8772/sap/opu/odata/sap/Z00_PO_DATA_SRV/POHeaderSet('4500000000')",
      "type": "Z00_PO_DATA_SRV.POHeader"
    },
    "Ebeln": "4500000000",
    "Bukrs": "1710",
    "Aedat": "\Date(1578614400000)\",
    "Ernam": "KTECH01",
    "Lifnr": "17300030",
    "Ekorg": "1710",
    "Ekgrp": "001",
    "Waers": "USD"
  }
}
    
```

The result will look like below.

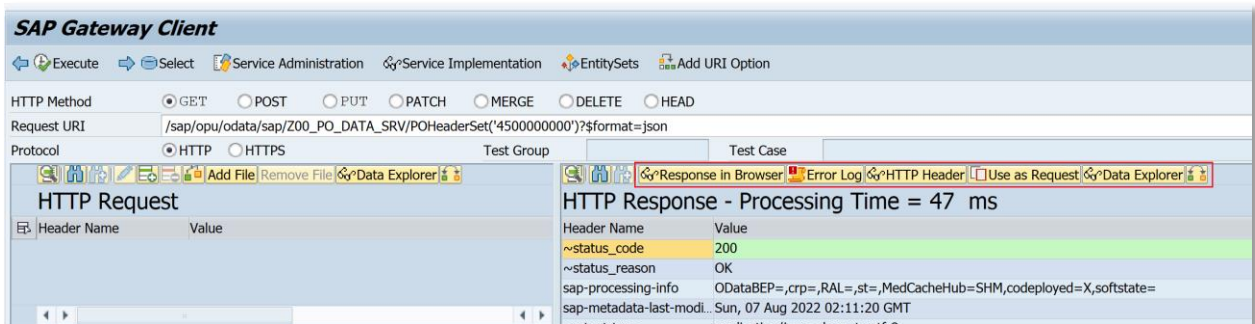


The screenshot shows the JSON response body from the SAP Gateway Client. The response is a JSON object representing a PO header set.

```

{
  "d": {
    "metadata": {
      "id": "http://Six30.mydomain.com:8772/sap/opu/odata/sap/Z00_PO_DATA_SRV/POHeaderSet('4500000000')",
      "uri": "http://Six30.mydomain.com:8772/sap/opu/odata/sap/Z00_PO_DATA_SRV/POHeaderSet('4500000000')",
      "type": "Z00_PO_DATA_SRV.POHeader"
    },
    "Ebeln": "4500000000",
    "Bukrs": "1710",
    "Aedat": "\Date(1578614400000)\",
    "Ernam": "KTECH01",
    "Lifnr": "17300030",
    "Ekorg": "1710",
    "Ekgrp": "001",
    "Waers": "USD"
  }
}
    
```

Tip: Explore all buttons highlighted below.



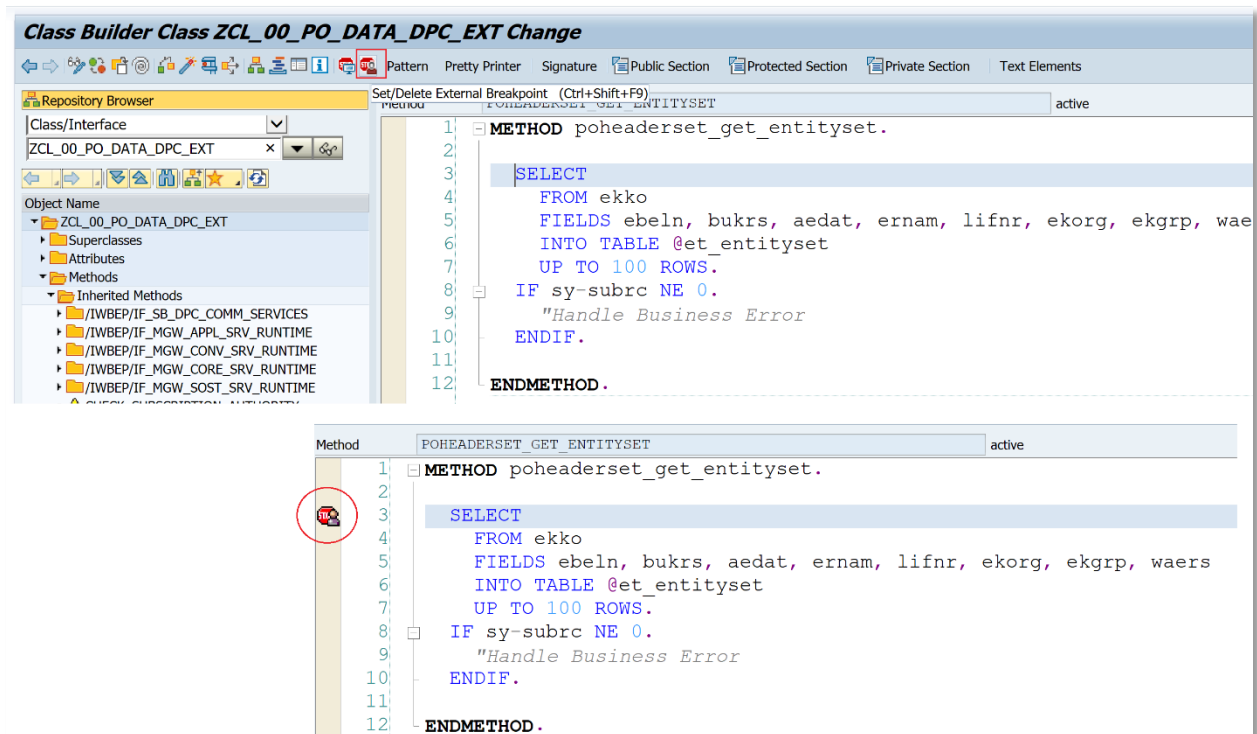
The screenshot shows the SAP Gateway Client interface with several buttons highlighted in red. These buttons are: 'Add File', 'Remove File', 'Data Explorer', 'Response in Browser', 'Error Log', 'HTTP Header', 'Use as Request', and 'Data Explorer'.

Similarly test PO Item with below URIs

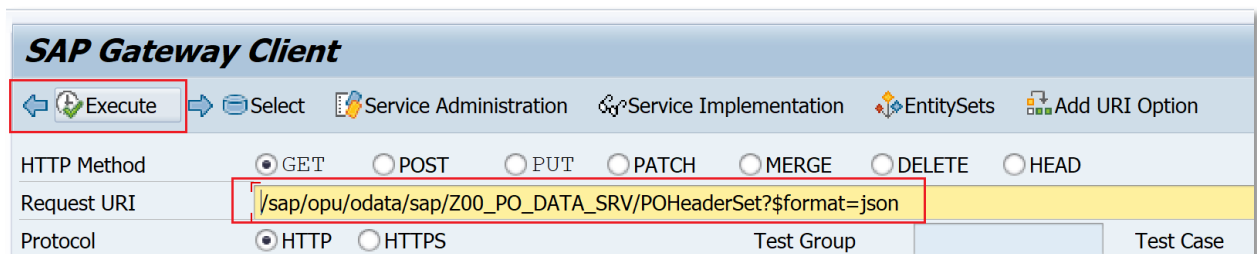
Operation	URI
PO Item Query	/sap/opu/odata/sap/Z00_PO_DATA_SRV/POItemSet?\$format=json
PO Item Read	/sap/opu/odata/sap/Z00_PO_DATA_SRV/POItemSet(Ebeln='4500000',Ebelp='00010')?\$format=json

#### Step 4: Debug the Service.

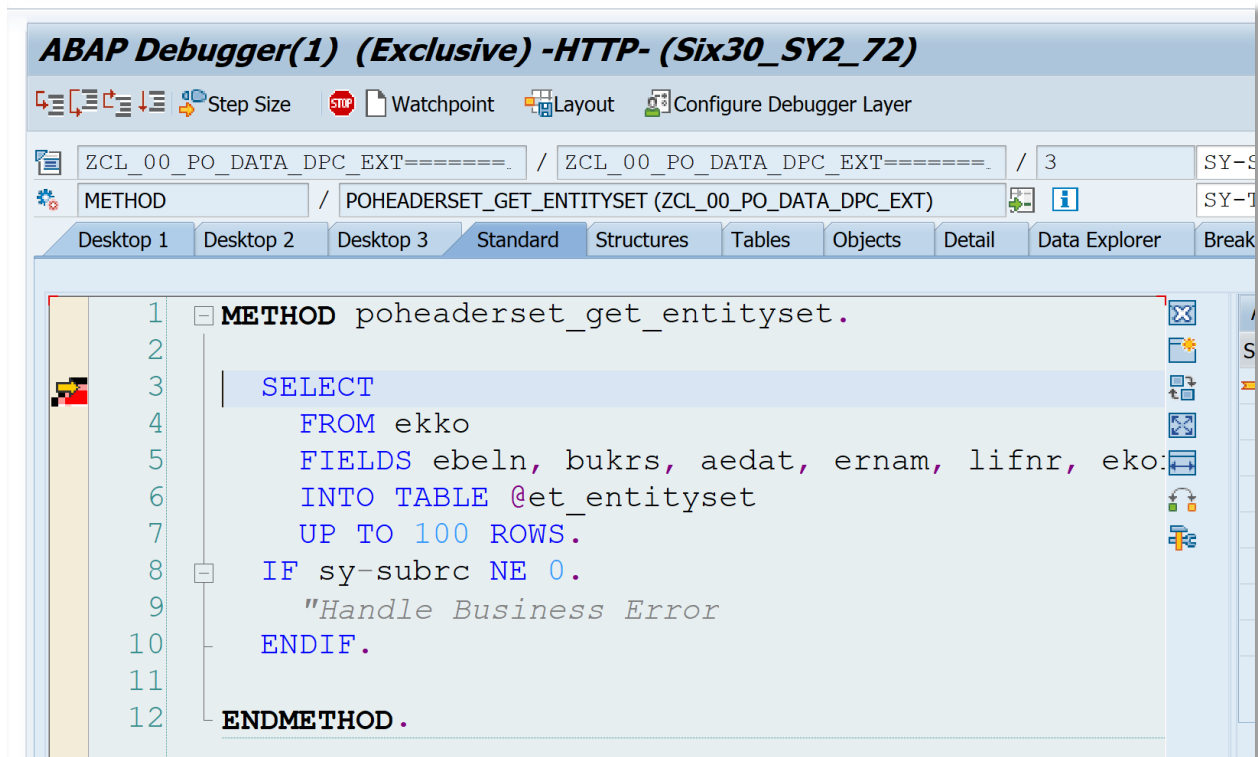
Put External break point in method POHEADERSSET\_GET\_ENTITYSET.



Test URI: /sap/opu/odata/sap/Z00\_PO\_DATA\_SRV/POHeaderSet?\$format=json



This triggers the external break-point set earlier.



If you want to Master SAP OData Services Building, then **ENROLL Today**.

Course Curriculum - <https://tinyurl.com/au47uvzn>

Day wise break up - <https://tinyurl.com/5h6uzfnf>

Enrollment Fee 124 USD - <https://www.zapcademy.com/s/store/courses/description/A-to-Z-of-SAP-OData-Services>

Course Days – 3, 4, 10, 11, 17, 18, 24 Sept, 1, 2 & 8 Oct 2022 IST Dates

Time: 7:30 AM - 10:00 AM IST

Server Access till Oct 31 2022

**WhatsApp +1-251-727-9273 – for quick response**

**email: [mail@zapyard.com](mailto:mail@zapyard.com)**