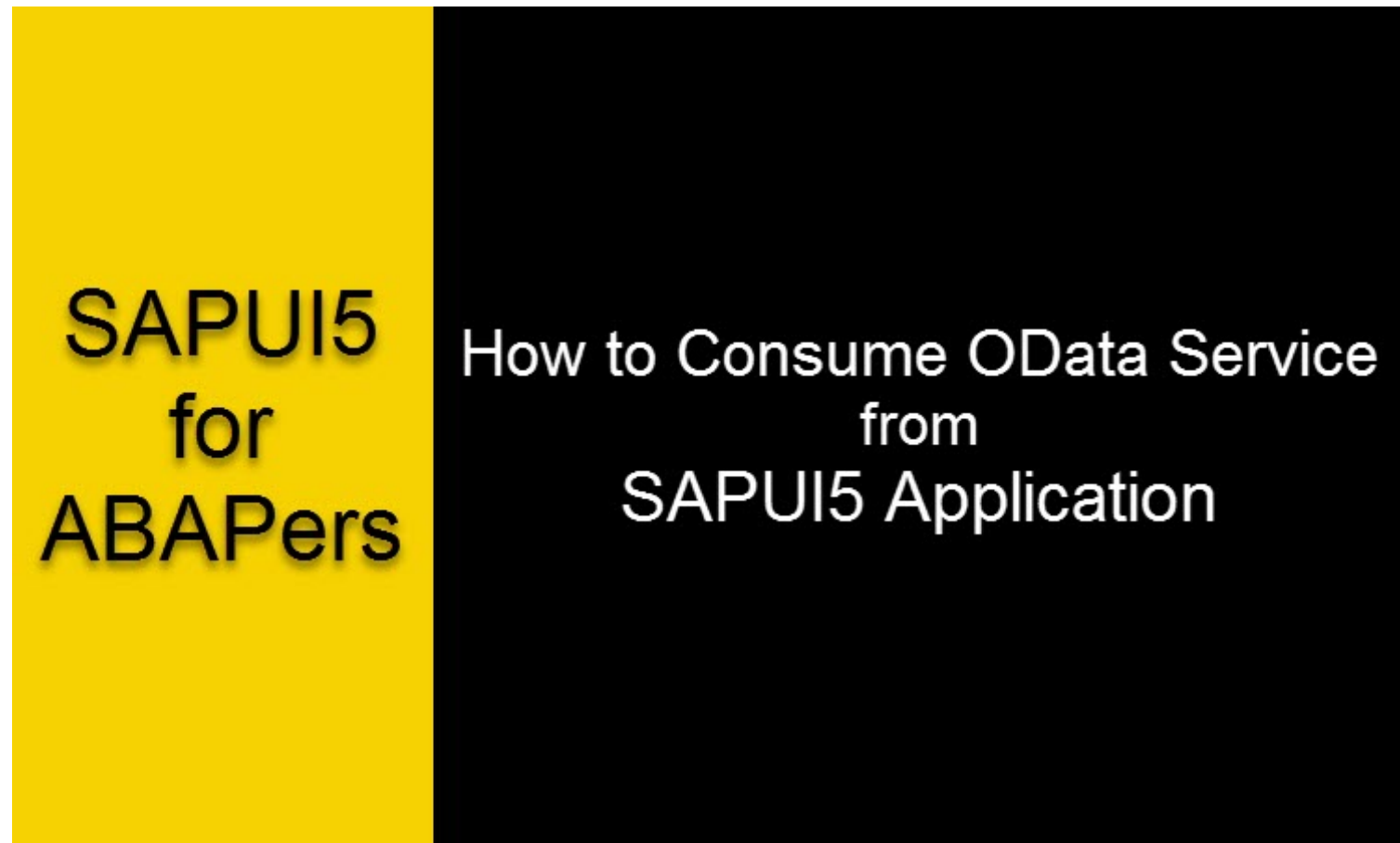


SAPUI5 for ABAPers – Consuming OData Service from SAPUI5 Application – CRUD Operations

By **Bohra Mohammed** - December 2, 2018



The ultimate fate of an OData Service is to get consumed by the front-end applications. SAPUI5 Applications follow **Model View Controller (MVC)** Architecture. In MVC, from UI5 perspective, View and Controller are the Views (XML, HTML, JavaScript and JSON Views) and Controllers (JavaScript Controllers) respectively of the UI5 Application. The role of Model is played by OData, JSON, Resource or XML Model in the UI5 Application.

In this tutorial, we will talk about **OData model** and hand hold you to create a front-end application and call the OData Model to perform the CRUD Operations.

Using OData Model, you can consume the OData Service. For this we need to create an OData Service and implement **CREATE**, **READ**, **UPDATE** and **DELETE** methods of the service. Then we need to create an **OData Model Instance** in the UI5 application and call these methods using **read()**, **create()**, **update()** and **remove()** functions respectively of the OData model.

So let's start...

Business scenario: Customer wants to display records from a custom table onto the UI5 application and provide functions of Read, Create, Update and Delete to the end users.

Step 1: Get a Custom Table ready for us to play

Creating a custom table by the name 'zuserdata' with id, name, email and mobile fields.

Field	Key	Ini...	Data element	Data Type	Length	Deci...	Short Description
ID	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CHAR10	CHAR	10		0 Character Field Length = 10
NAME	<input type="checkbox"/>	<input type="checkbox"/>	CHAR50	CHAR	50		0 Comment
EMAIL	<input type="checkbox"/>	<input type="checkbox"/>	CHAR30	CHAR	30		0 30 Characters
MOBILE	<input type="checkbox"/>	<input type="checkbox"/>	CHAR10	CHAR	10		0 Character Field Length = 10

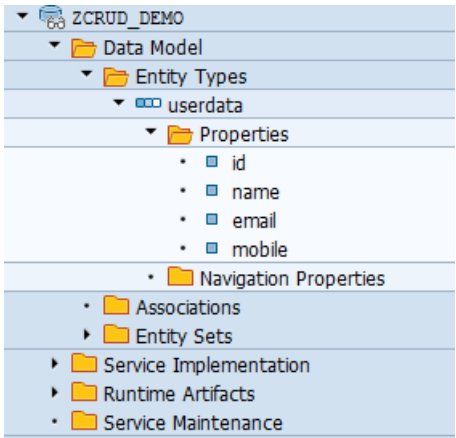
Step 2: Creating an OData service

1. Go to transaction SEGW and create a new OData Service, name it zcrud_demo.

Please note : If you are completely new to OData Service, then we would suggest you to take the tutorial where we have [created our first OData Service](#).

Also Note : You can also take this [Free Video Course on OData Service and Netweaver Gateway](#).

- 1. Create an entity 'userdata' and create associated entityset as well 'userdataSet'.
- 2. Create 4 properties in 'userdata' entity namely id, name, email and mobile.

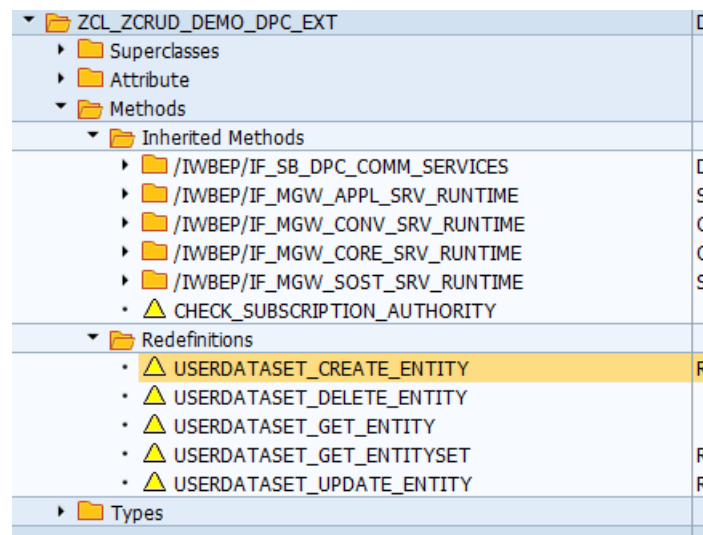
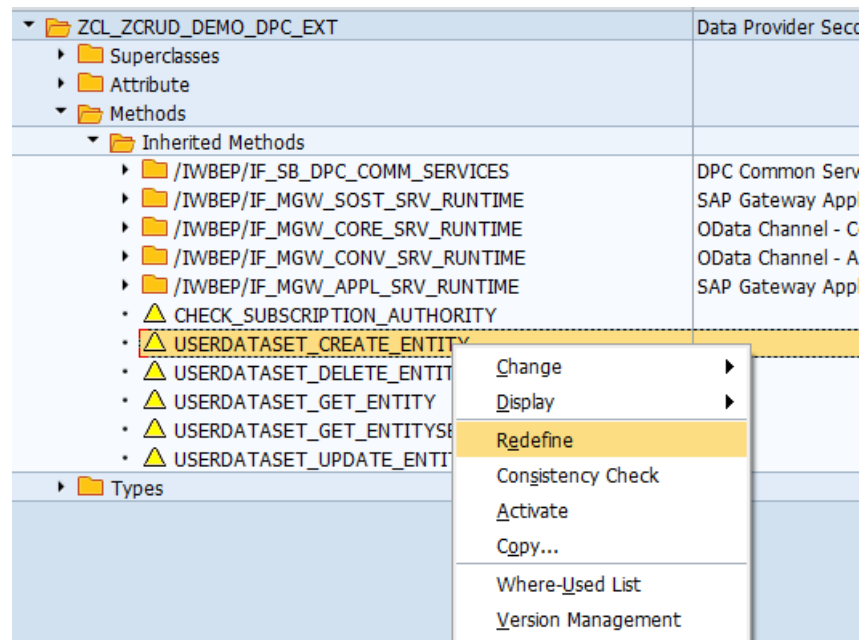


- 3. Ensure Properties datatype and length matches with that of the fields created in table in step1.

Properties															
Name	Key	Edm Core Type	Prec.	Scale	Max.	Unit	Property Name	Crea.	Upd.	Sort.	Nul.	Flt.	Label	L.	Comp. Type
id	<input checked="" type="checkbox"/>	Edm.String	0	0	10			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	ID
name	<input type="checkbox"/>	Edm.String	0	0	50			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	NAME
email	<input type="checkbox"/>	Edm.String	0	0	30			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	EMAIL
mobile	<input type="checkbox"/>	Edm.String	0	0	10			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	MOBILE

- 4. Activate the OData service which will generate its runtime artifacts.

5. Redefine Create, Read, Update and Delete methods of ...DPC_EXT Class of the oData service.



7. Write your logic (code) in each of the redefined methods (Redefinition code is given in below part of the tutorial)

8. Go to t-code /n/iwfnd/maint_service and Add the Service.

Activate and Maintain Services

✓

Filter Add Service Delete Service Service Details

Service Catalog

Type	Technical Service Name	V...	Service Description
<input checked="" type="checkbox"/>	/IWFND/SG_MED_CATALOG	1	Catalog Service

Add Selected Services

Get Services

Filter

System Alias LOCAL

Technical Service Name

Version

External Service Name ZCRUD* External Mapping ID

Add Selected Services

Select Backend Services

✓

Type	Technical Service Name	Ver...	Service Description	Extern...
<input checked="" type="checkbox"/>	BEP ZCRUD_DEMO_SRV	1	CRUD Demo	ZCRUD

9. Perform ICF settings for the generated OData service to enable Create operations using OData model. Go to SICF transaction, open OData service's ICF node and double click on it, Click on GUI Configuration button

Create/Change a Service

Path

Service Name ☒ Service (Active) Altern. Name: zcr

Lang. [Other Languages](#)

Description

Description 1

Description 2

Description 3

Service Data Logon Data Handler List Error Pages Administration

Service Options

☐ Web Service

☐ Do Not Include Inherited Settings

Load Balancing

SAP Authoriz.

Session Timeout (HH:MM:SS)

Compression

Interactive Options

GUI Link

Support Accessibility

[GUI Configuration](#)

Set **~CHECK_CSRF_TOKEN** value to **0**. This will bypass CSRF protection on the service. This is required for CREATE, UPDATE and DELETE operations to work. If you don't want this protection to be turned off (from a security perspective), you need to fetch **X-CSRF-TOKEN** using READ operation every time you want to perform CREATE, UPDATE or DELETE operations from UI5 application. In this tutorial, for the sake of simplicity, we have chosen to turn off X-CSRF-TOKEN security feature.

Maintain Service Parameters	
Parameter Name	Value
~CHECK_CSRF_TOKEN	0

OData ABAP code for Create – **CREATE_ENTITY** Method

```
method USERDATASET_CREATE_ENTITY.  
    data : wa_userdata type zcl_zcrud_demo_mpc=>ts_userdata.  
    *    read data recieved from ui5  
    io_data_provider->read_entry_data(  
        IMPORTING  
            es_data = wa_userdata  
    ).  
    MODIFY zuserdata from wa_userdata.  
    if sy-subrc eq 0.  
        move 'success' to er_entity-name.  
    else.  
        move 'error' to er_entity-name.  
    endif.  
endmethod.
```

OData ABAP code for Get (Single record) – **GET_ENTITY** method

```
method USERDATASET_GET_ENTITY.  
    data : wa_userdata TYPE ZCL_ZCRUD_DEMO_MPC=>TS_USERDATA.  
    SELECT SINGLE * from zuserdata into CORRESPONDING FIELDS OF wa_userdata.  
    MOVE-CORRESPONDING wa_userdata to er_entity.  
endmethod.
```

OData ABAP Code for Get (multiple records) – **GET_ENTITYSET** Method

```
method USERDATASET_GET_ENTITYSET.  
    data : it_userdata TYPE ZCL_ZCRUD_DEMO_MPC=>TT_USERDATA.  
    SELECT * from zuserdata into table et_entityset.  
endmethod.
```

OData ABAP code for Update – **UPDATE_ENTITY** Method

```
method USERDATASET_UPDATE_ENTITY.  
    data : wa_userdata type zcl_zcrud_demo_mpc=>ts_userdata.
```

```

*   read data recieved from ui5
    io_data_provider->read_entry_data(
      IMPORTING
        es_data  = wa_userdata
      ).
*   move 'success' to er_entity.
    UPDATE zuserdata set email = wa_userdata-email where id = wa_userdata-id.

endmethod.

```

OData ABAP code for Delete – DELETE_ENTITY Method

```

method USERDATASET_DELETE_ENTITY.
  data : wa_keytab LIKE LINE OF it_key_tab.
  READ TABLE it_key_tab into wa_keytab WITH KEY name = 'id'.
  if sy-subrc eq 0.
    DELETE from zuserdata where id eq wa_keytab-value.
  ENDIF.
endmethod.

```

Step 3: Create SAPUI5 Application

Create SAPUI5 application to Consume OData Service created in Step 2 and Call CREATE, READ, UPDATE and REMOVE functions of the OData model.

Also Check : [An ABAPer's First SAPUI5 App in SAP WebIDE](#)

1. Create a new SAPUI5 application by the name crud_demo.

2. Create a XML view 'crud_demo.view'. Write below code in it.

```
<core:View xmlns:core="sap.ui.core" xmlns:mvc="sap.ui.core.mvc" xmlns="sap.m"
    controllerName="crud_demo.crud_demo" xmlns:html="http://www.w3.org/1999/xhtml" xmlns:l="sap.ui
<Page title="CRUD Operations">
    <content>
<l:AbsoluteLayout width="10rem" height="10rem"></l:AbsoluteLayout>
<VBox xmlns="sap.m" id="vboxid">
    <items>
    <HBox xmlns="sap.m">
    <items>
    <l:AbsoluteLayout width="20px" height="20px"></l:AbsoluteLayout>
    <Button xmlns="sap.m" id="cbtn" press="oDataCall" text="Create"></Button>
    <l:AbsoluteLayout width="20px" height="20px"></l:AbsoluteLayout>
    <Button xmlns="sap.m" id="rbtn" press="oDataCall" text="Read"></Button>
    <l:AbsoluteLayout width="20px" height="20px"></l:AbsoluteLayout>
    <Button xmlns="sap.m" id="ubtn" press="oDataCall" text="Update"></Button>
    <l:AbsoluteLayout width="20px" height="20px"></l:AbsoluteLayout>
    <Button xmlns="sap.m" id="dbtn" press="oDataCall" text="Delete"></Button>
    </items>
    </HBox>

    <HBox xmlns="sap.m">
    <items>
    <l:AbsoluteLayout width="20px" height="20px"></l:AbsoluteLayout>
    <Input xmlns="sap.m" id="uniqueid" placeholder="ID" value="1"></Input>
    <l:AbsoluteLayout width="20px" height="20px"></l:AbsoluteLayout>
    <Input xmlns="sap.m" id="nameid" placeholder="Name" value="test"></Input>
    <l:AbsoluteLayout width="20px" height="20px"></l:AbsoluteLayout>
    <Input xmlns="sap.m" id="emailid" placeholder="Email" value="test@gmail.com"></Input>
    <l:AbsoluteLayout width="20px" height="20px"></l:AbsoluteLayout>
    <Input xmlns="sap.m" id="mobid" placeholder="Mobile" value="8888888888"></Input>
    </items>
    </HBox>
```

```

        <HBox xmlns="sap.m">
        <items>
        <l:AbsoluteLayout width="20px" height="20px"></l:AbsoluteLayout>
        <Table xmlns="sap.m"
        id="userdatatable" headerText="User Data">
        <items>
            <ListItemBase xmlns="sap.m" id="id1"></ListItemBase>
        </items>
        <columns> <!-- sap.m.Column -->
            <Column xmlns="sap.m"> <header> <Text xmlns="sap.m" text="Id" ></Text></header></Column>
            <Column xmlns="sap.m"> <header> <Text xmlns="sap.m" text="Name" ></Text></header></Column>
            <Column xmlns="sap.m"> <header> <Text xmlns="sap.m" text="Email" ></Text></header></Column>
            <Column xmlns="sap.m"> <header> <Text xmlns="sap.m" text="Mobile" ></Text></header></Column>
        </columns>
        </Table>
        </items>
        </HBox>
    </items> <!-- sap.ui.core.Control -->
</VBox>

    </content>

</Page>
</core:View>

```

3. Create crud_demo.controller.js. Write below code in it.

```

onInit: function() {
    that = this;
    // Create Model Instance of the oData service
    var oModel = new sap.ui.model.odata.v2.ODataModel("/sap/opu/odata/sap/ZCRUD_DEMO_SRV");
    sap.ui.getCore().setModel(oModel, "myModel");
},

oDataCall:function(oEvent)
{
    // call oData service's function based on which button is clicked.

```

```

debugger;
var myModel = sap.ui.getCore().getModel("myModel");
myModel.setHeaders({
    "X-Requested-With" : "X"
});
// CREATE*****
if ('Create' == oEvent.oSource.mProperties.text) {
    var obj = {};
    obj.id = that.getView().byId("uniqueid").getValue();
    obj.name = that.getView().byId("nameid").getValue();
    obj.email = that.getView().byId("emailid").getValue();
    obj.mobile = that.getView().byId("mobid").getValue();
    myModel.create('/userdataSet', obj, {
        success : function(oData, oResponse) {
            debugger;
            alert('Record Created Successfully...');
        },
        error : function(err, oResponse) {
            debugger;
            alert('Error while creating record - '
                .concat(err.response.statusText));
        }
    });
}
// READ*****
else if ('Read' == oEvent.oSource.mProperties.text) {
    var readurl = "/userdataSet?$filter=(id eq '')";
    myModel.read(readurl, {
        success : function(oData, oResponse) {
            debugger;
            var userdata = new sap.ui.model.json.JSONModel({
                "Result" : oData.results
            });
            var tab = that.getView().byId("userdatatable");
            tab.setModel(userdata);
            var i = 0;
            tab.bindAggregation("items", {

```

```

        path : "/Result",
        template : new sap.m.ColumnListItem({
            cells : [ new sap.ui.commons.TextView({
                text : "{id}",
                design : "H5",
                semanticColor : "Default"
            }), new sap.ui.commons.TextView({
                text : "{name}",
                design : "H5",
                semanticColor : "Positive"
            }), new sap.ui.commons.TextView({
                text : "{email}",
                design : "H5",
                semanticColor : "Positive"
            }), new sap.ui.commons.TextView({
                text : "{mobile}",
                design : "H5",
                semanticColor : "Positive"
            }) ],
        })
    });

    },
    error : function(err) {
        debugger;
    }
});

}

// UPDATE*****
if ('Update' == oEvent.oSource.mProperties.text) {
    var obj = {};
    obj.id = that.getView().byId("uniqueid").getValue();
    obj.email = that.getView().byId("emailid").getValue();
    var updateurl = "/userdataSet(id='"
        + that.getView().byId("uniqueid").getValue() + "')";

    myModel.update(updateurl, obj, {
        success : function(oData, oResponse) {

```

```

        debugger;
        alert('Record Updated Successfully...');
    },
    error : function(err, oResponse) {
        debugger;
        alert('Error while updating record - '
            .concat(err.response.statusText));
    }
});
}
// DELETE*****
if ('Delete' == oEvent.oSource.mProperties.text) {
    var delurl = "/userdataSet(id='"
        + that.getView().byId("uniqueid").getValue() + "')";
    myModel.remove(delurl, {
        success : function(oData, oResponse) {
            debugger;
            alert('Record Removed Successfully...');
        },
        error : function(err, oResponse) {
            debugger;
            alert('Error while removing record - '
                .concat(err.response.statusText));
        }
    });
}
}
}

```

4. Save, Deploy and Run the application. You should be able to run the application using below URL

http://hostname:8000/sap/bc/ui5_ui5/sap/zcrud_demo/index.html

Output

You should be able to create the above simple application. All the buttons should work as expected. If you face any issue, please do not hesitate to write your questions in the comments section below. You can also email us at mail@sapyard.com.

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