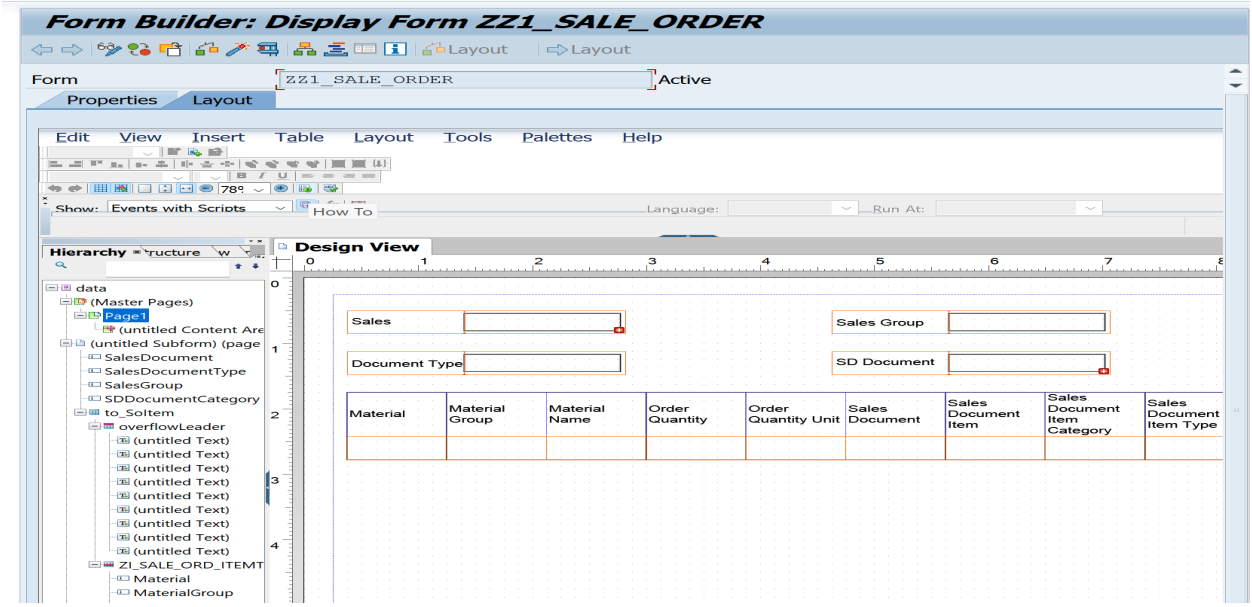
Steps to be followed.

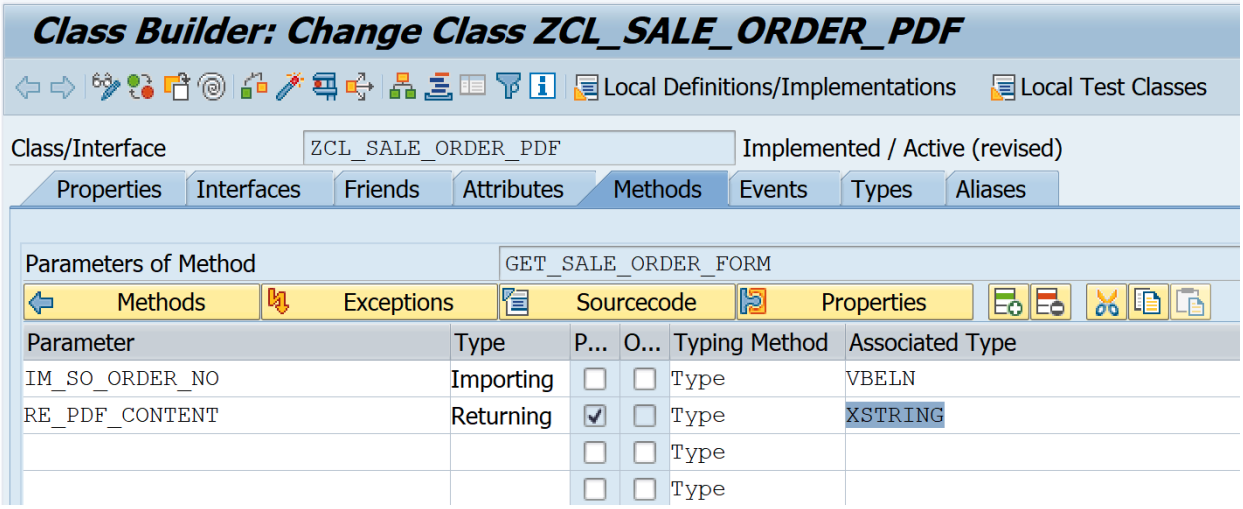
1.Develop an Adobe form and common method to give the form content output as Base64

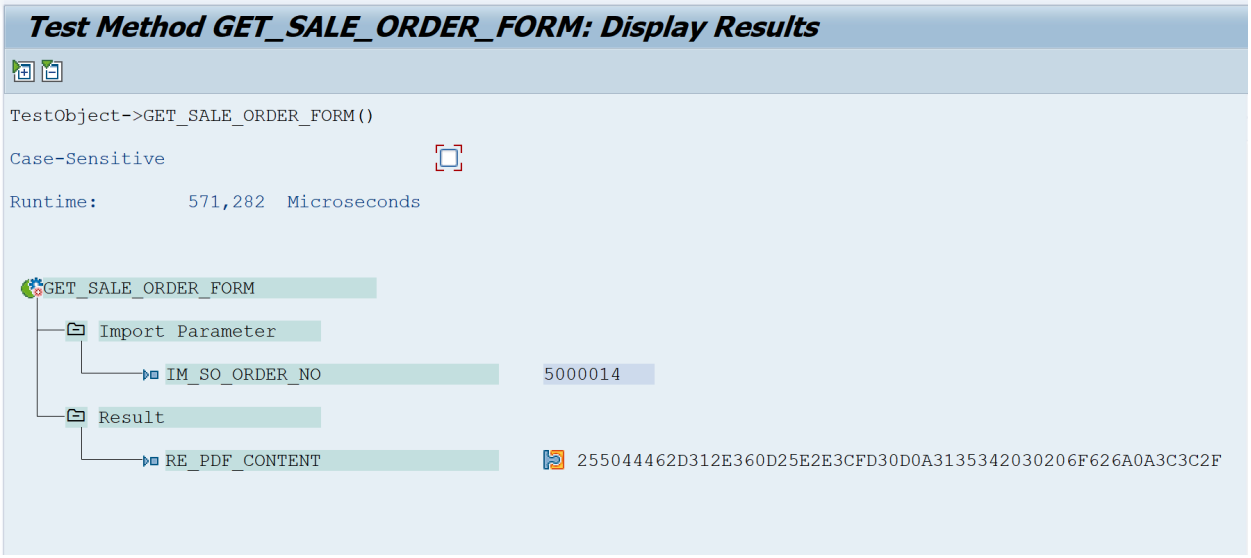
In this example I am using XML Based form interface but it is possible to use the ABAP Dictionary based interface as well.

Form Name: ZZ1_SALE_ORDER



Here I am creating a new class and build the driver Method to call the form using and return back the output form content





2.Now Let us build a RAP Application using Web UI -> Since we do not have Create, update and other functionalities, I am not creating behavior definitions.

Create a new base View entity: ZI_RAP_SALE_ORD

```
@AbapCatalog.viewEnhancementCategory: [#NONE]
@AccessControl.authorizationCheck: #NOT_REQUIRED
@EndUserText.label: 'Interface View for Sales Order'
@Metadata.ignorePropagatedAnnotations: true
@ObjectModel.usageType:{
   serviceQuality: #X,
   sizeCategory: #S,
   dataClass: #MIXED
}
define root view entity ZI_RAP_SALE_ORD
 as select from I_SalesDocumentBasic
{
  key SalesDocument,
     SDDocumentCategory,
     SalesDocumentType,
     CreatedByUser,
     CreationDate
 }
```

Create a Consumption View for the Above View Entity: ZC_RAP_SALE_ORD

```
@AccessControl.authorizationCheck: #NOT_REQUIRED
@EndUserText.label: 'Consumption View for Sales Order'
@Metadata.allowExtensions: true
define root view entity ZC_RAP_SALE_ORD
provider contract transactional_query
as projection on ZI_RAP_SALE_ORD
{
   key SalesDocument,
   SDDocumentCategory,
   SalesDocumentType,
   CreatedByUser,
```

```
    CreationDate
}
```

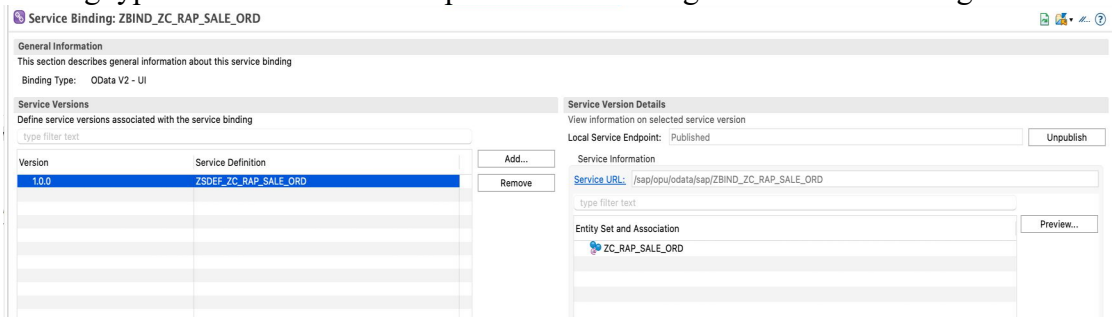
Create a Metadata Extension file for the Consumption view: ZMDE_RAP_SALE_ORD
We can also directly give annotations in consumption view itself, but as best practice I am creating a new file to have these Annotation properties.

```
@Metadata.layer: #CORE
@Search.searchable: true
@UI.headerInfo:{
  typeName: 'Sales Order',
  typeNamePlural: 'Sale Orders',
  title:{ type:#STANDARD,
    label:'Document' ,
    value:'SalesDocument'}

}
annotate view ZC_RAP_SALE_ORD with
{
  @UI:{ lineItem: [{ position : 10}] }
  @Search:{ defaultSearchElement: true,
            fuzzinessThreshold: 0.7 }
  SalesDocument;

  @UI:{ lineItem: [{ position : 20}],
       selectionField: [{ position : 20 }] }
  @Search:{ defaultSearchElement: true,
            fuzzinessThreshold: 0.7 }
  SDDocumentCategory;

  @UI:{ lineItem: [{ position : 30}] }
  @Search:{ defaultSearchElement: true,
            fuzzinessThreshold: 0.7 }
  SalesDocumentType;

  @UI:{ lineItem: [{ position : 40}],
    selectionField: [{ position : 40 }] }
  CreatedByUser;

  @UI:{ lineItem: [{ position : 50}],
    selectionField: [{ position : 50 }] }
  CreationDate;

}
```

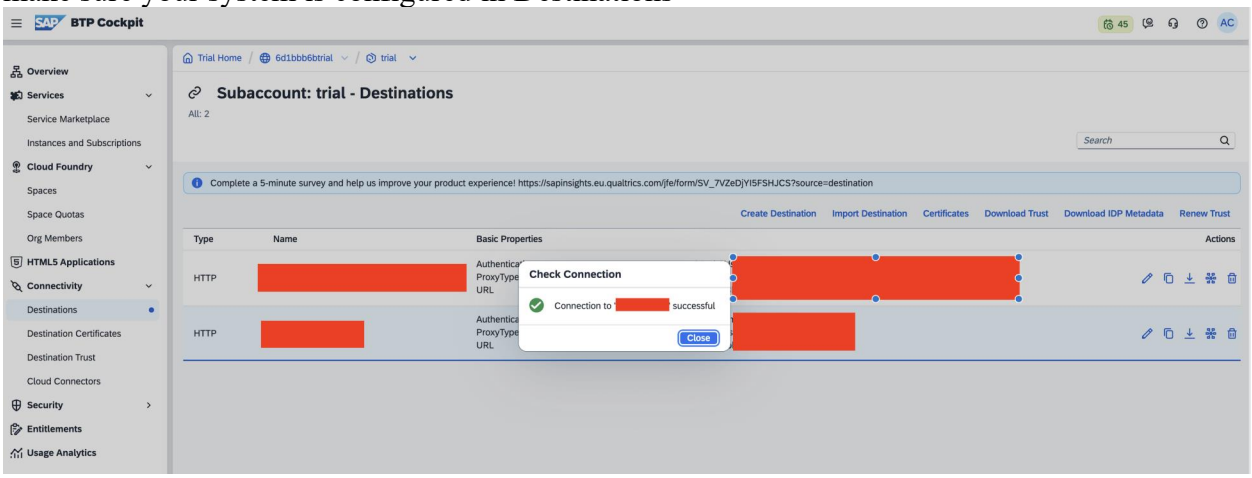
Create a new service definition for the Consumption View: ZSDEF_ZC_RAP_SALE_ORD

```
@EndUserText.label: 'Service Definition for Sale Order'
define service ZSDEF_ZC_RAP_SALE_ORD {
  expose ZC_RAP_SALE_ORD;
}
```

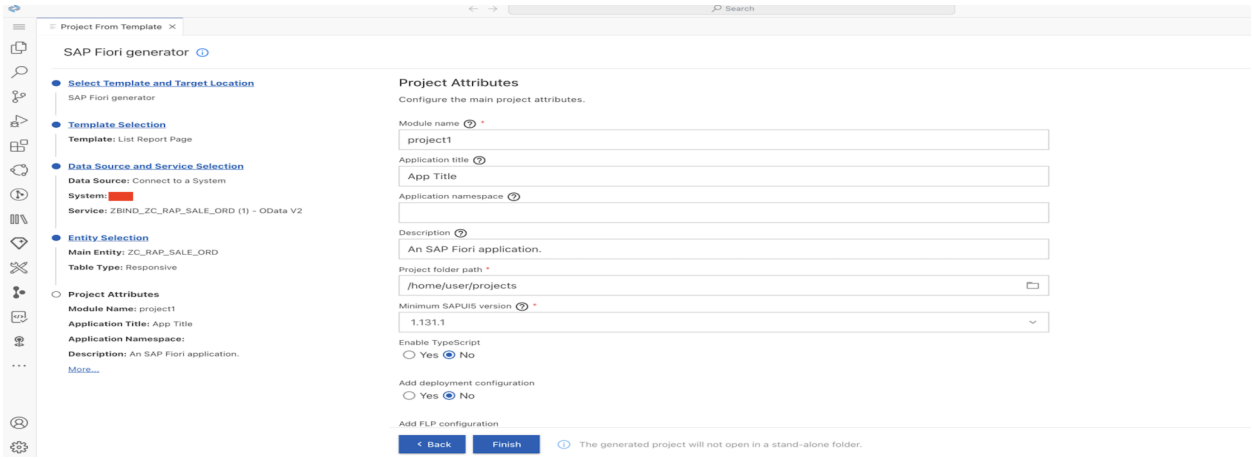
Create a new Service Bindings for the Service Definition: ZBIND_ZC_RAP_SALE_ORD of binding type ODATA V2 - UI and publish it. We can get the Metadata using Service URL



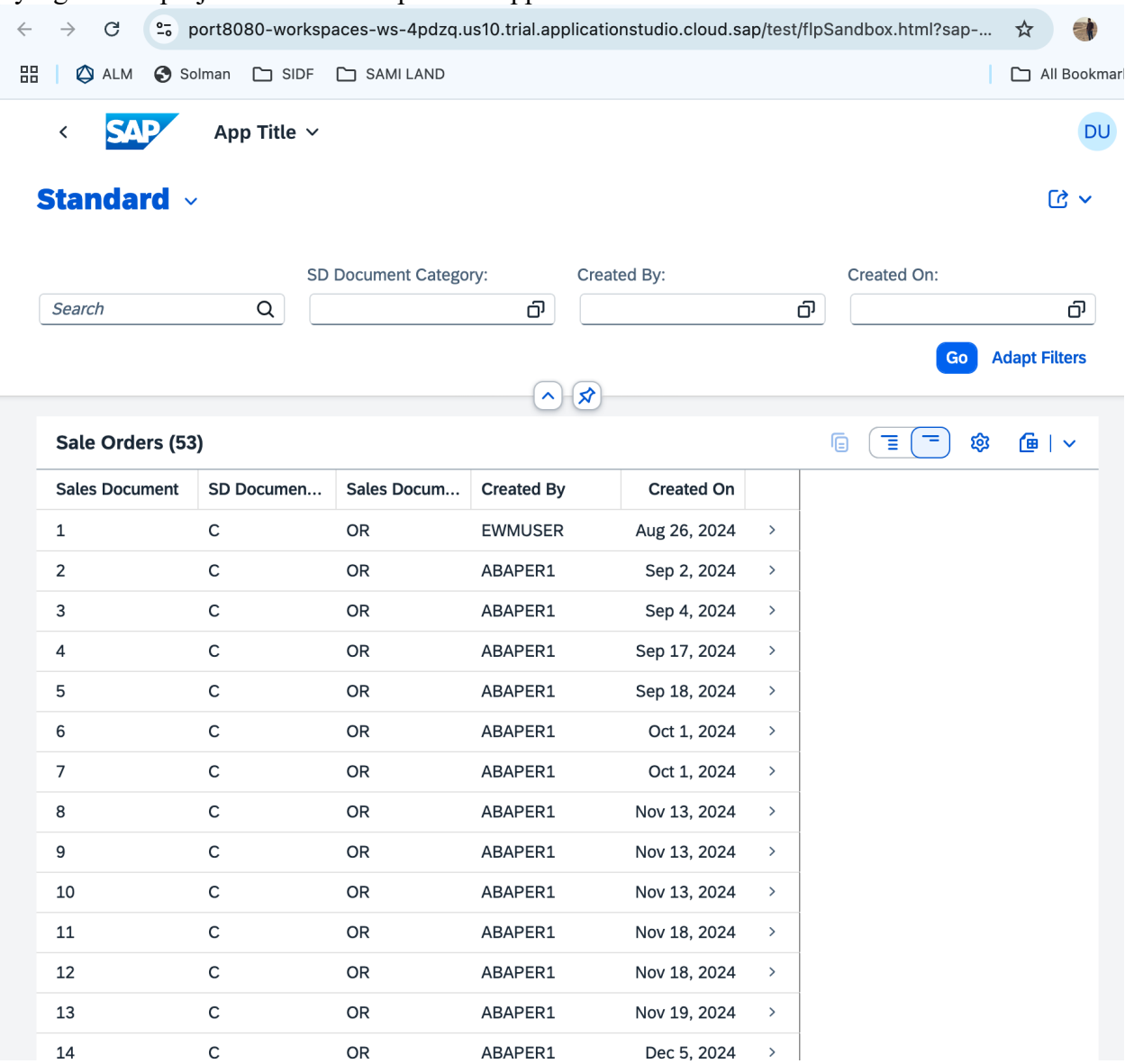
Create a new Fiori Application in Business Application Studio, Open BTP in Trail account and make sure your system is configured in Destinations



3.Create a new Fiori Application using the template and use our above ODATA V2-UI service in BAS



Once the Project is created and all the dependencies is installed. You can preview the application by right click project1 and choose preview application -> start Fiori-run



Now our RAP Application is ready and separate form driver program is also ready. Let us see on how to integrate it. This Integration can be Done by the following two ways

- ➔ Using SEGW ODATA -> GET_STREAM
- ➔ Using Custom View Entity that is implemented by ABAP class using Object model query

4.Create a New SEGW ODATA Project and Implement GET Stream method That consumes the common driver program and send back the content

Entity properties

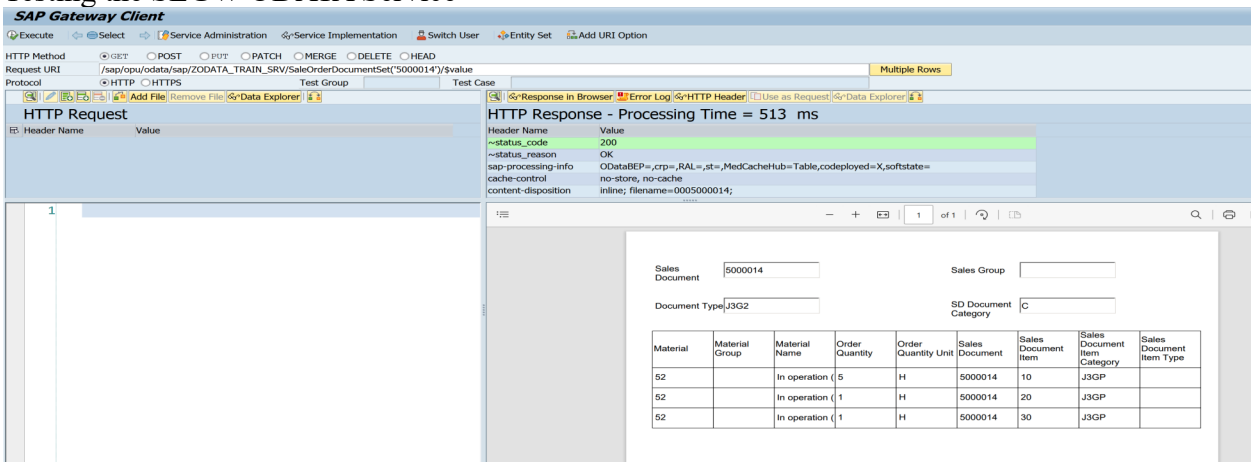
Properties

Name	Is Key	Edm T...	Prec.	Scale	Max L...	Unit Pr...	Creat...	Updat...
docId	☑	Edm.St...	0	0	0		☐	☐
value	☐	Edm.St...	0	0	0		☐	☐
mimeType	☐	Edm.St...	0	0	0		☐	☐
fileName	☐	Edm.St...	0	0	0		☐	☐

GET Stream Code:

```
  ""->Read Document ID from input
  DATA(lv_doc) = VALUE numc10( IT_KEY_TAB[ name = 'docId' ]-value  OPTIONAL ).

  ""->Call Form Driver Program to get the Form Content
  DATA(lv_form_content) = new ZCL_SALE_ORDER_PDF( )->GET_SALE_ORDER_FORM(
                                  im_so_order_no = conv #( lv_doc ) ).
  ""->Build Document Name and Set it in Header
  set_header( is_header = VALUE #( name  = 'Content-Disposition'
                                   value = |inline; filename={ lv_doc };| ) ).
  copy_data_to_ref( exporting
                      is_data = VALUE /IWFND/IF_MGW_CORE_RUNTIME=>TY_S_MEDIA_RESOURCE(
                                mime_type = 'application/pdf'
                                value     = lv_form_content )
                    changing
                    cr_data = er_stream ).
```

Testing the SEGW ODATA Service



Add the Following line in the Interface View:ZI_RAP_SALE_ORD

We are adding two fields

ShowPDF -> Has the text Preview(SEGW) in the table

LinkToPDF -> Get Stream Link to be used to navigate as link to open PDF File

Lines:

```
'Preview(SEGW)' as ShowPDF,
concat('/sap/opu/odata/sap/ZODATA_TRAIN_SRV/SaleOrderDocumentSet('',
    concat(SalesDocument, '')/$value')) as LinkToPDF
```

```
define root view entity ZI_RAP_SALE_ORD
 as select from I_SalesDocumentBasic
{
  key SalesDocument,
      SDDocumentCategory,
      SalesDocumentType,
      CreatedByUser,
      CreationDate,
      'Preview(SEGW)' as ShowPDF,
      concat('/sap/opu/odata/sap/ZODATA_TRAIN_SRV/SaleOrderDocumentSet(''',
      concat(SalesDocument, ''')/$value')) as LinkToPDF
 }
```

Add the Following highlighted Line in the Consumption view ZC_RAP_SALE_ORD to expose the fields

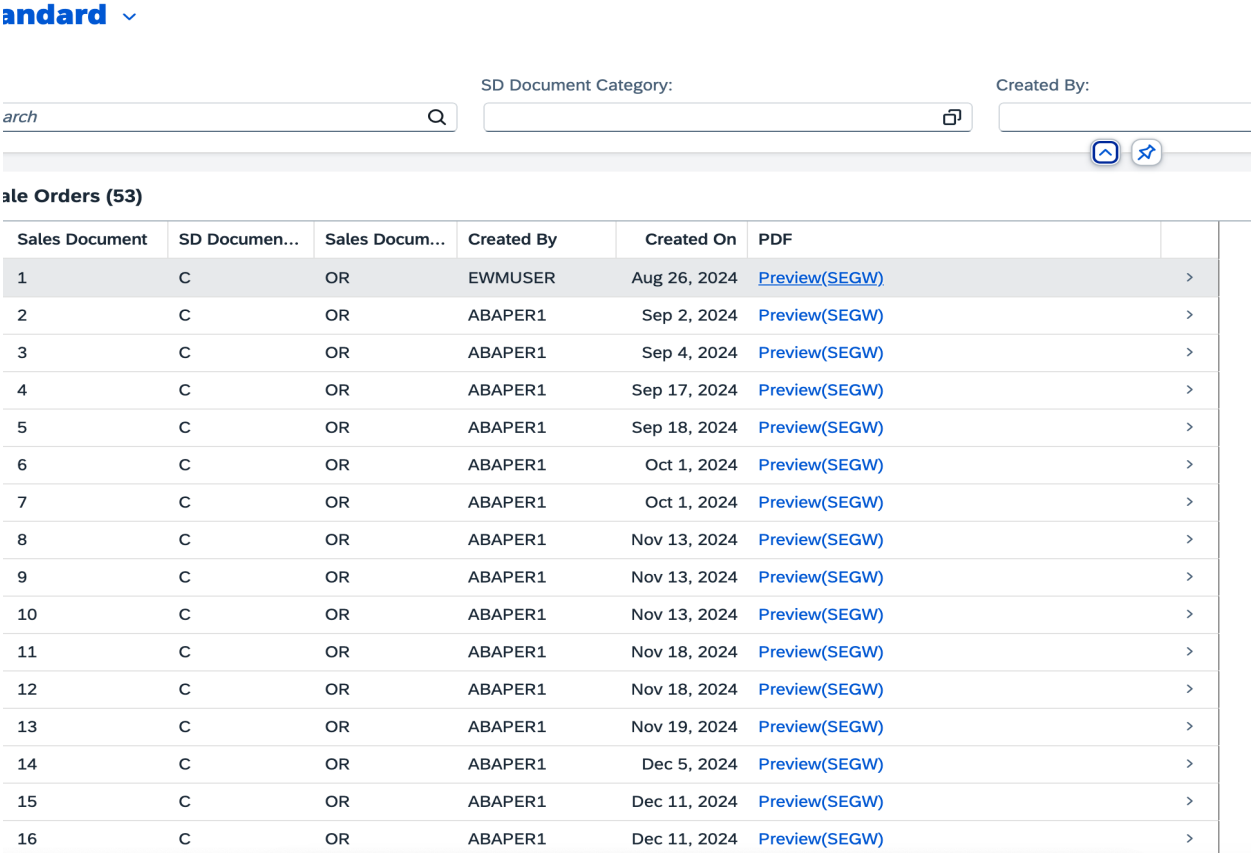
```
@AccessControl.authorizationCheck: #NOT_REQUIRED
@EndUserText.label: 'Consumption View for Sales Order'
@Metadata.allowExtensions: true
define root view entity ZC_RAP_SALE_ORD
provider contract transactional_query
as projection on ZI_RAP_SALE_ORD
{
    key SalesDocument,
    SDDocumentCategory,
    SalesDocumentType,
    CreatedByUser,
    CreationDate,
    ShowPDF,
    LinkToPDF
}
```

Add the Following Lines in the Metadata extension file to establish the link to:

```
@UI:{
lineItem: [{ position : 60, label : 'PDF'}, { type : #WITH_URL, url:'LinkToPDF' }]
 }
ShowPDF;
```

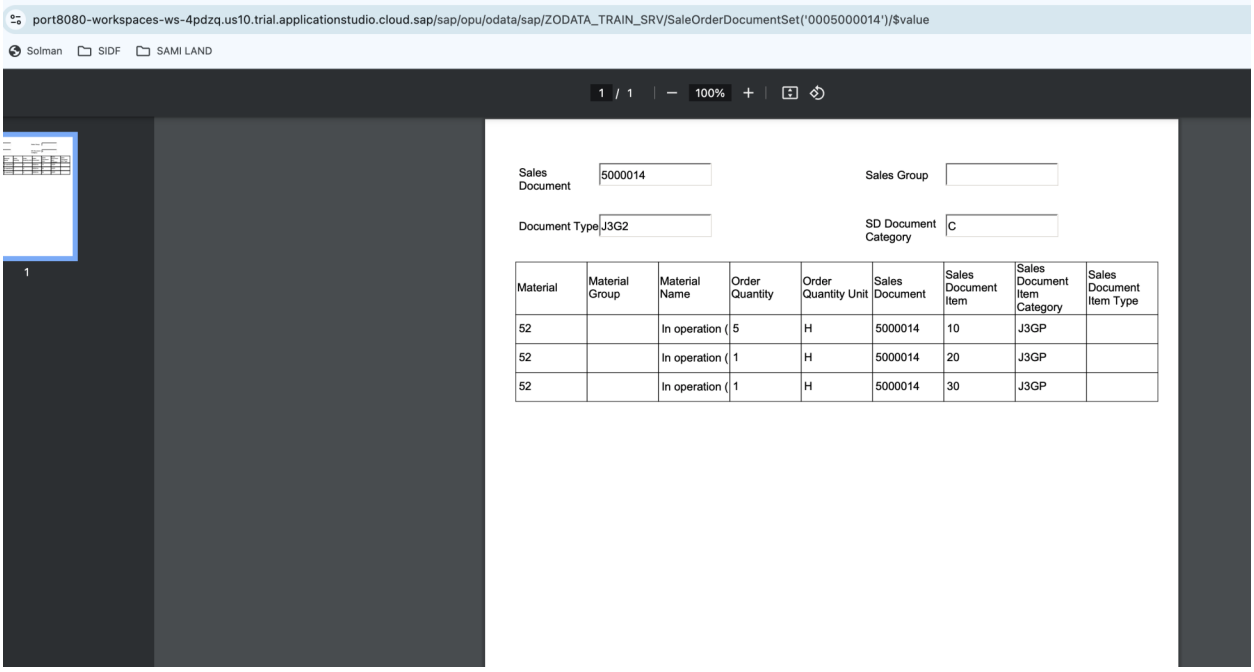
```
@Metadata.layer: #CORE
@Search.searchable: true
@UI.headerInfo:{
  typeName: 'Sales Order',
  typeNamePlural: 'Sale Orders',
  title:{ type:#STANDARD,
     label:'Document' ,
     value:'SalesDocument'}

}
annotate view ZC_RAP_SALE_ORD with
{
  @UI:{ lineItem: [{ position : 10}] }
  @Search:{ defaultSearchElement: true,
            fuzzinessThreshold: 0.7 }
  SalesDocument;

  @UI:{ lineItem: [{ position : 20}],
        selectionField: [{ position : 20 }] }
  @Search:{ defaultSearchElement: true,
            fuzzinessThreshold: 0.7 }
  SDDocumentCategory;

  @UI:{ lineItem: [{ position : 30}] }
  @Search:{ defaultSearchElement: true,
            fuzzinessThreshold: 0.7 }
  SalesDocumentType;

  @UI:{ lineItem: [{ position : 40}],
     selectionField: [{ position : 40 }] }
  CreatedByUser;

  @UI:{ lineItem: [{ position : 50}],
     selectionField: [{ position : 50 }] }
  CreationDate;
   @UI:{
   lineItem: [{ position : 60, label : 'PDF'}, { type : #WITH_URL, url:'LinkToPDF' }]
    }
  ShowPDF;
}
```

Testing the RAP Application- Now we can see the New Field as clickable link



Sales Document	SD Documen...	Sales Docum...	Created By	Created On	PDF
1	C	OR	EWMUSER	Aug 26, 2024	Preview(SEGW)
2	C	OR	ABAPER1	Sep 2, 2024	Preview(SEGW)
3	C	OR	ABAPER1	Sep 4, 2024	Preview(SEGW)
4	C	OR	ABAPER1	Sep 17, 2024	Preview(SEGW)
5	C	OR	ABAPER1	Sep 18, 2024	Preview(SEGW)
6	C	OR	ABAPER1	Oct 1, 2024	Preview(SEGW)
7	C	OR	ABAPER1	Oct 1, 2024	Preview(SEGW)
8	C	OR	ABAPER1	Nov 13, 2024	Preview(SEGW)
9	C	OR	ABAPER1	Nov 13, 2024	Preview(SEGW)
10	C	OR	ABAPER1	Nov 13, 2024	Preview(SEGW)
11	C	OR	ABAPER1	Nov 18, 2024	Preview(SEGW)
12	C	OR	ABAPER1	Nov 18, 2024	Preview(SEGW)
13	C	OR	ABAPER1	Nov 19, 2024	Preview(SEGW)
14	C	OR	ABAPER1	Dec 5, 2024	Preview(SEGW)
15	C	OR	ABAPER1	Dec 11, 2024	Preview(SEGW)
16	C	OR	ABAPER1	Dec 11, 2024	Preview(SEGW)

On clicking the Link, the SEGW Service is called and PDF is shown



5.**Using Custom View Entity that is implemented by ABAP class using Object model query**

Create a new Custom View Entity: ZI_SALE_ORDER_PDF

```
@EndUserText.label: 'Sale Order PDF'
@ObjectModel.query.implementedBy: 'ABAP:ZCL_SALE_ORDER_PDF'
define custom entity ZI_SALE_ORDER_PDF
with parameters
 p_so_document_id : vbeln
 {
   key so_doc_pdf : abap.string(0);
 }
```

Create a new Class : ZCL_SALE_ORDER_PDF and use interface IF_RAP_QUERY_PROVIDER and redefine the Select method

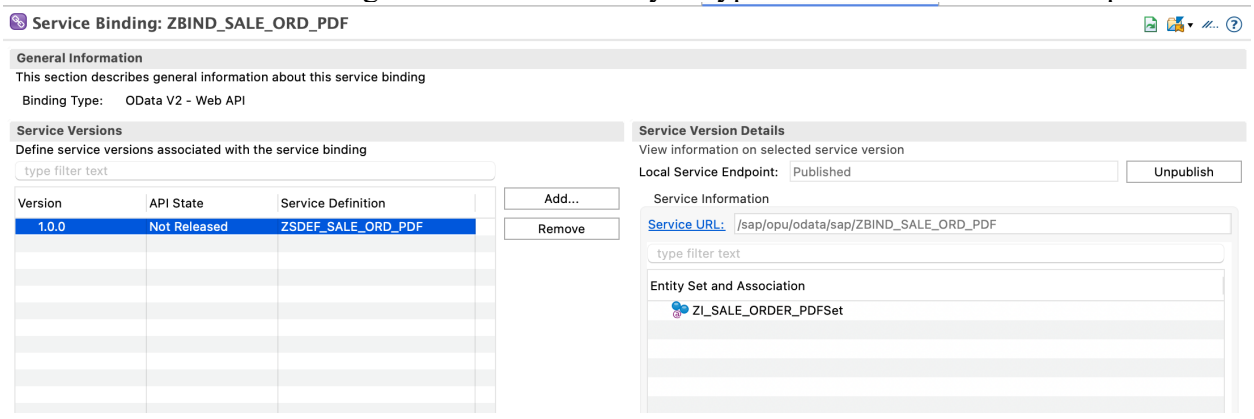
```
class ZCL_SALE_ORDER_PDF definition
  public
  final
  create public .

public section.

  interfaces IF_RAP_QUERY_PROVIDER .
  PROTECTED SECTION.
  PRIVATE SECTION.
ENDCLASS.

CLASS ZCL_SALE_ORDER_PDF IMPLEMENTATION.
  METHOD if_rap_query_provider~select.
    ""->Internal Table Declaration
```

```
DATA : lt_pdf TYPE TABLE OF zi_sale_order_pdf.
""->Object Declaration
DATA : lo_somu_form_services TYPE REF TO cl_somu_form_services.

DATA : lv_form_out TYPE string.

TRY.
   IF io_request->is_data_requested( ).
    DATA(lv_offset) = io_request->get_paging( )->get_offset( ).
    DATA(lv_page_size) = io_request->get_paging( )->get_page_size( ).
    DATA(lv_max_rows) = COND #( WHEN lv_page_size = if_rap_query_paging=>page_size_unlimited
                        THEN 0 ELSE lv_page_size ) .

      DATA(lt_params) = io_request->get_parameters( ).
      ""->Take the Input Parameter Name from Custom Entity which is using this ABAP Class
      DATA(lv_so_doc_id) = VALUE numc10(
            lt_params[ parameter_name = 'P_SO_DOCUMENT_ID' ]-value  OPTIONAL ).
      ""->Call the PDF Content Common Driver Method
      data(lv_so_form) = get_sale_order_form( im_so_order_no = conv #( lv_so_doc_id ) ).
      IF lv_so_form IS NOT INITIAL.
        ""->Convert Xstring to Base64
       CALL FUNCTION 'SCMS_BASE64_ENCODE_STR'
         EXPORTING
           input  = lv_so_form
         IMPORTING
           output = lv_form_out.
      ENDIF.
      lt_pdf = VALUE #( ( so_doc_pdf = lv_form_out ) ).
      io_response->set_total_number_of_records( 1 ).
      io_response->set_data( lt_pdf ).
   ENDIF.
  CATCH cx_rap_query_provider.
 ENDTRY.
ENDMETHOD.
ENDCLASS.
```

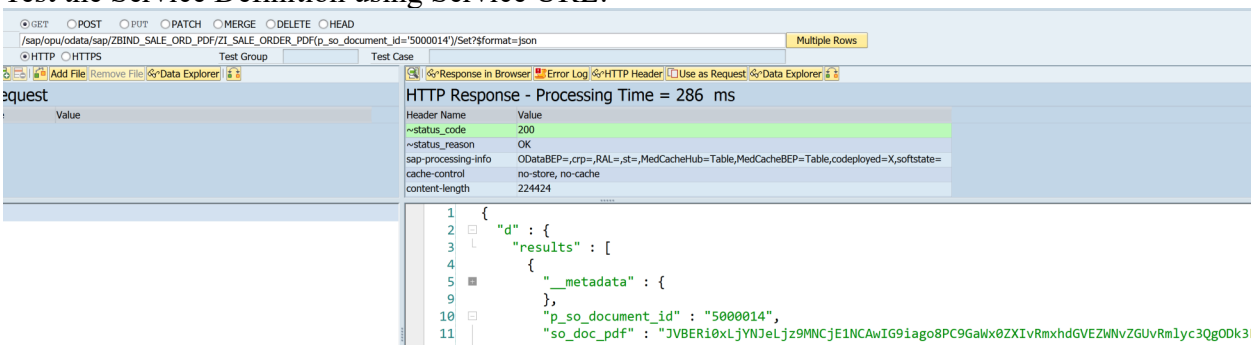
Create a new Service Definition for the Custom Entity: ZSDEF_SALE_ORD_PDF

```
@EndUserText.label: 'Service Definition for Sale Order PDF'
define service ZSDEF_SALE_ORD_PDF {
  expose ZI_SALE_ORDER_PDF;
}
```

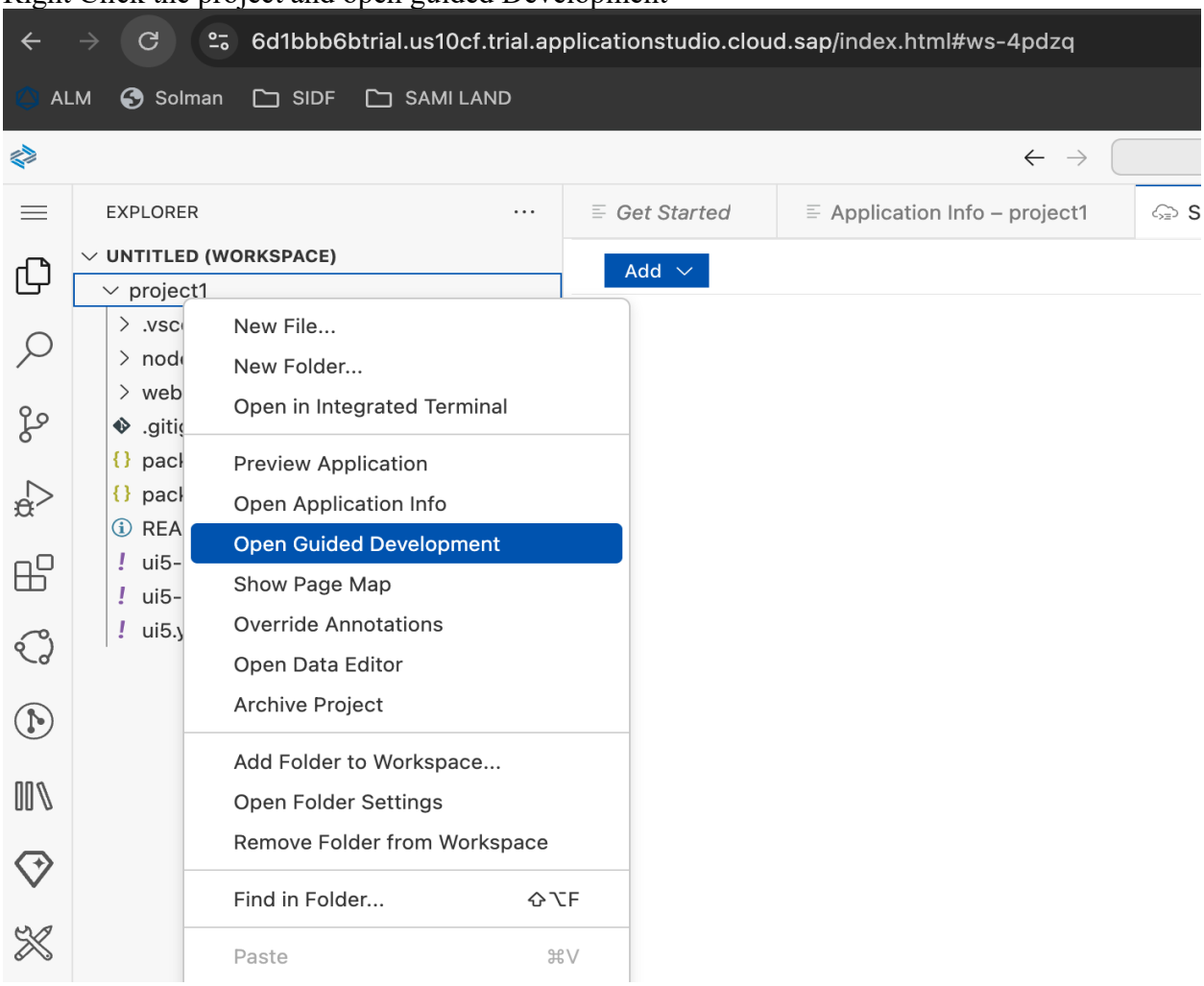
Create a new Service binding for the Custom Entity of type ODATA V2 Web API and publish it



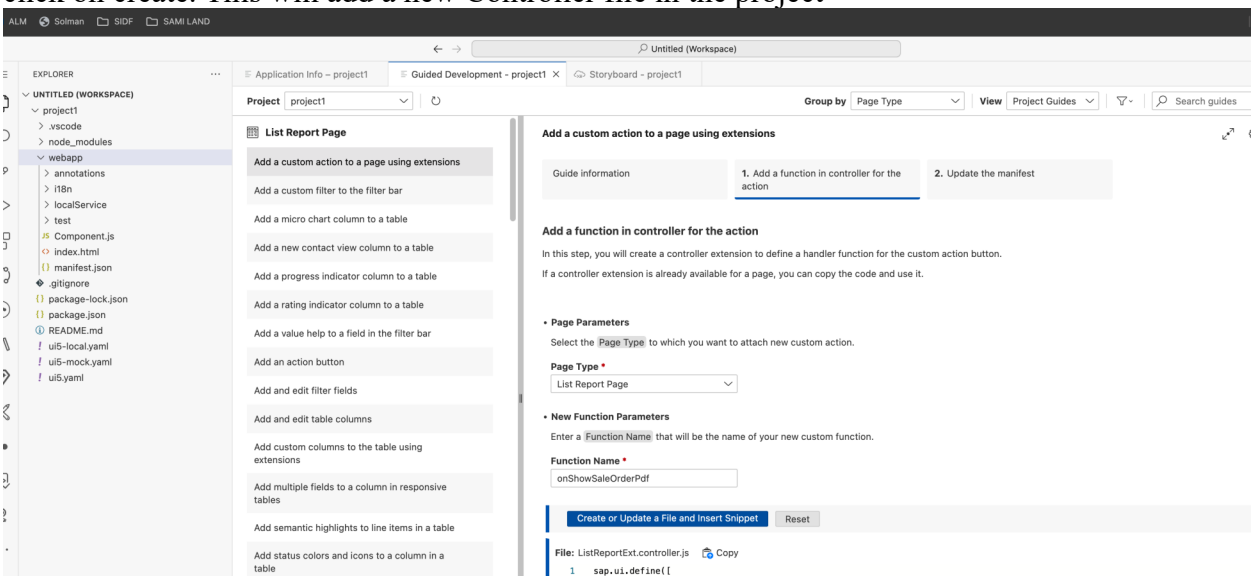
Test the Service Definition using Service URL:



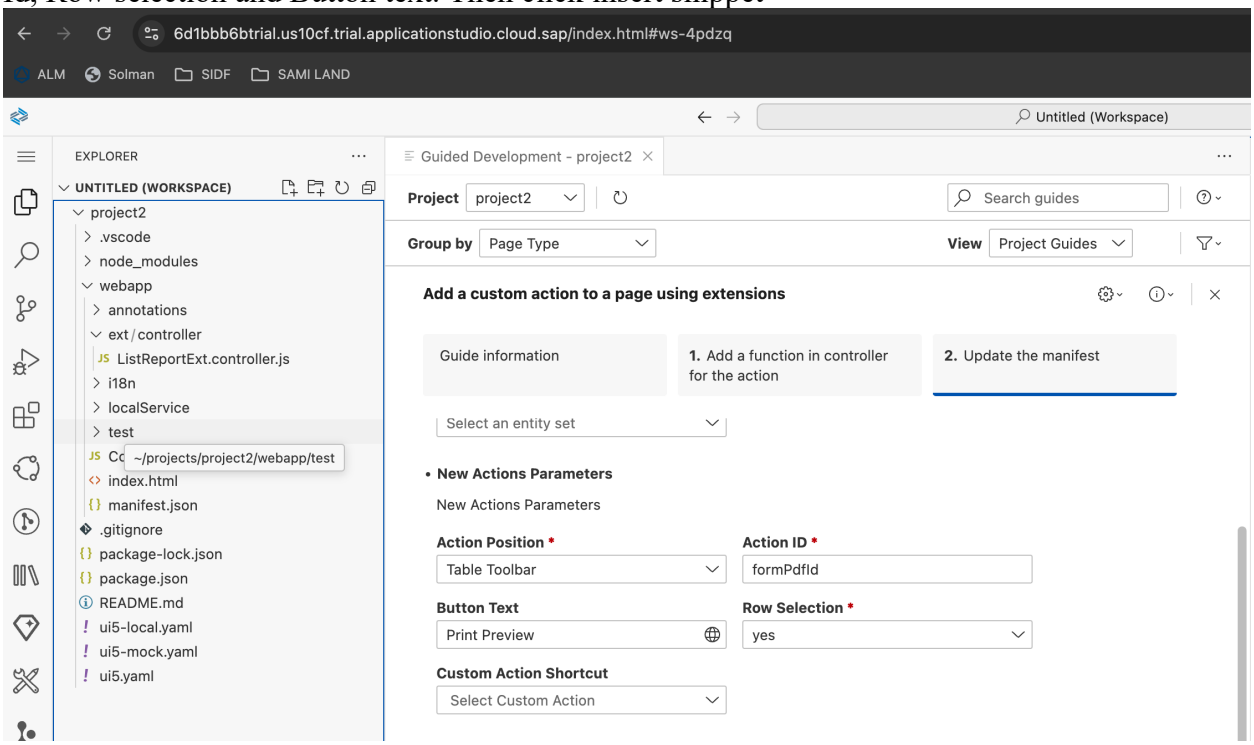
Since we get the Data in Base64 format we need to create a extension in the UI application.
Right Click the project and open guided Development



Choose the “1. Add Custom Action to page Using Extensions”, then give the Function Name and click on create. This will add a new Controller file in the project



Now Choose the “2. Update the manifest”, then give the Entity Set as the root entity set, Action Id, Row selection and Button text. Then click insert snippet



Extensions will be added by guided development in manifest file

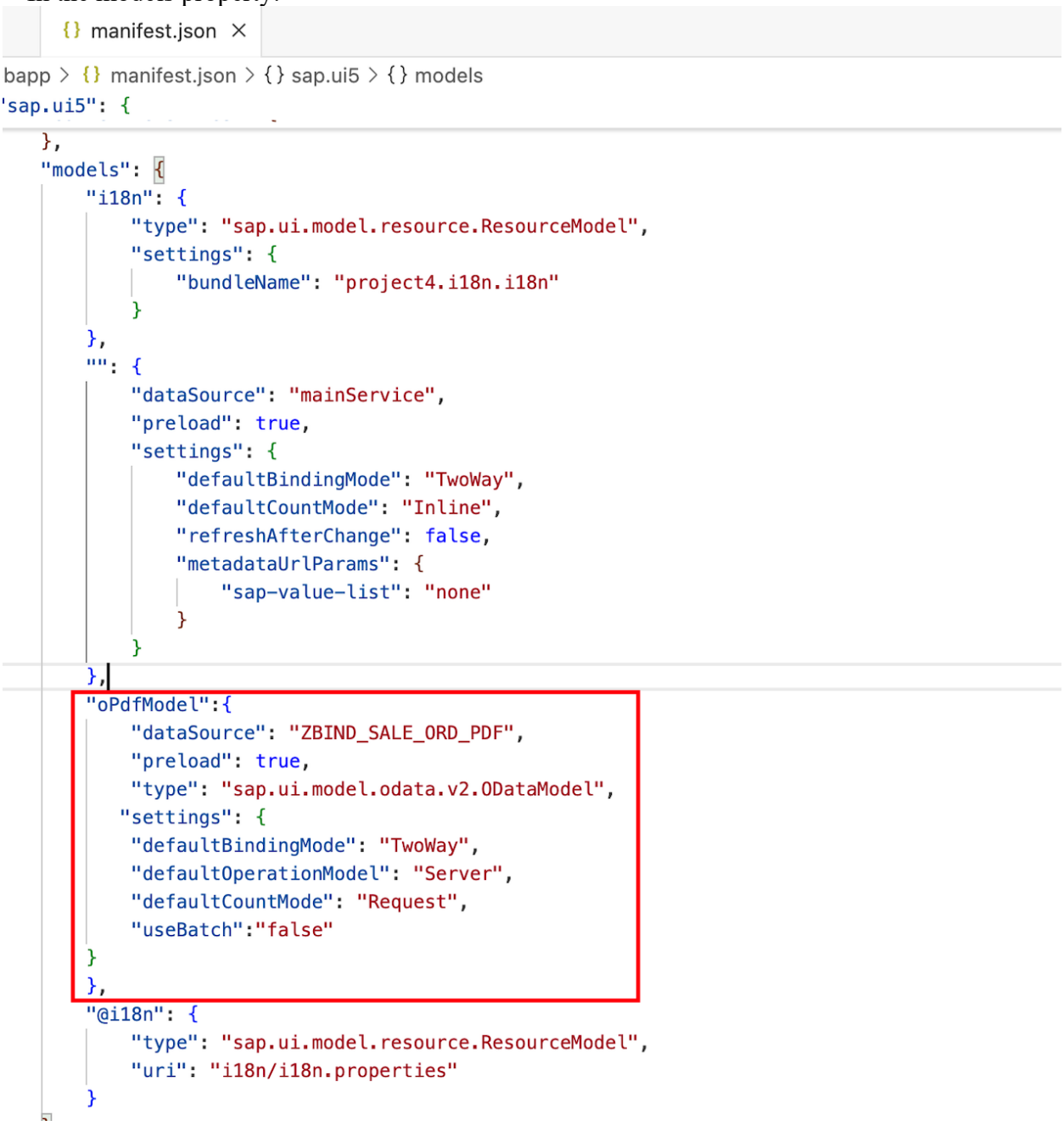
```
        },
        "extends": {
            "extensions": {
                "sap.ui.controllerExtensions": {
                    "sap.suite.ui.generic.template.ListReport.view.ListReport": {
                        "controllerName": "project3.ext.controller.ListReportExt",
                        "sap.ui.generic.app": {
                            "ZC_RAP_SALE_ORD": {
                                "EntitySet": "ZC_RAP_SALE_ORD",
                                "Actions": {
                                    "formPdfId": {
                                        "id": "formPdfIdButton",
                                        "text": "Print Preview",
                                        "press": "onShowSaleOrderPdf",
                                        "requiresSelection": true
                                    }
                                }
                            }
                        }
```

Need to add the following lines in the Manifest.json file

->In the dataSources property:

```
    },
    "dataSources": {
        "mainService": {
            "uri": "/sap/opu/odata/sap/ZBIND_ZC_RAP_SALE_ORD/",
            "type": "OData",
            "settings": {
                "annotations": [
                    "ZBIND_ZC_RAP_SALE_ORD_VAN",
                    "annotation"
                ],
                "localUri": "localService/metadata.xml",
                "odataVersion": "2.0"
            }
        },
        "ZBIND_ZC_RAP_SALE_ORD_VAN": {
            "uri": "/sap/opu/odata/IWFND/CATALOGSERVICE;v=2/Annotations(TechnicalName='ZBIND_ZC_RAP_SALE_ORD_VAN',Version='0001')/$value/",
            "type": "ODataAnnotation",
            "settings": {
                "localUri": "localService/ZBIND_ZC_RAP_SALE_ORD_VAN.xml"
            }
        },
        "ZBIND_SALE_ORD_PDF":{
          "uri": "/sap/opu/odata/sap/ZBIND_SALE_ORD_PDF",
          "type": "OData",
          "settings": {
            "localUri": "localService/ZBIND_SALE_ORD_PDF/metadata.xml"
          }
        },
        "annotation": {
            "type": "ODataAnnotation",
            "uri": "annotations/annotation.xml",
            "settings": {
                "localUri": "annotations/annotation.xml"
```

->In the models property:



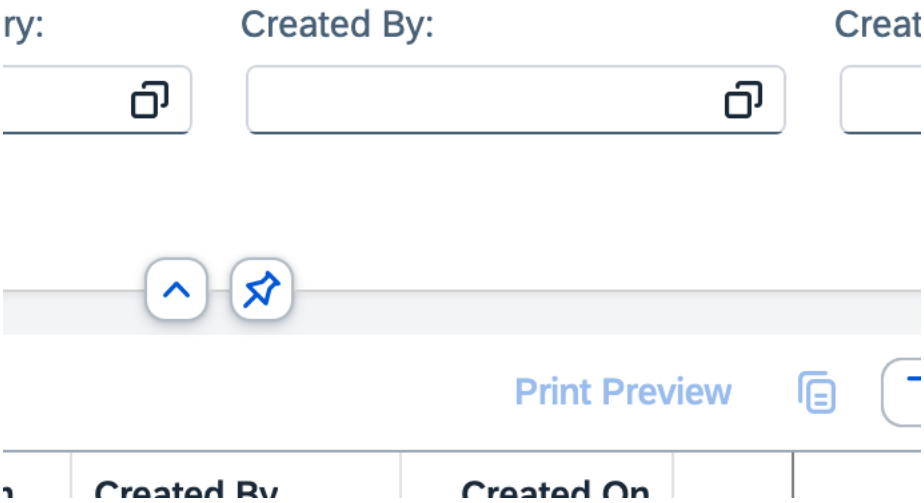
We can write out custom code in the added Controller file to open PDF Preview
To get the PDF data from RAP ODATA Web API

ListReportExt.controller.js

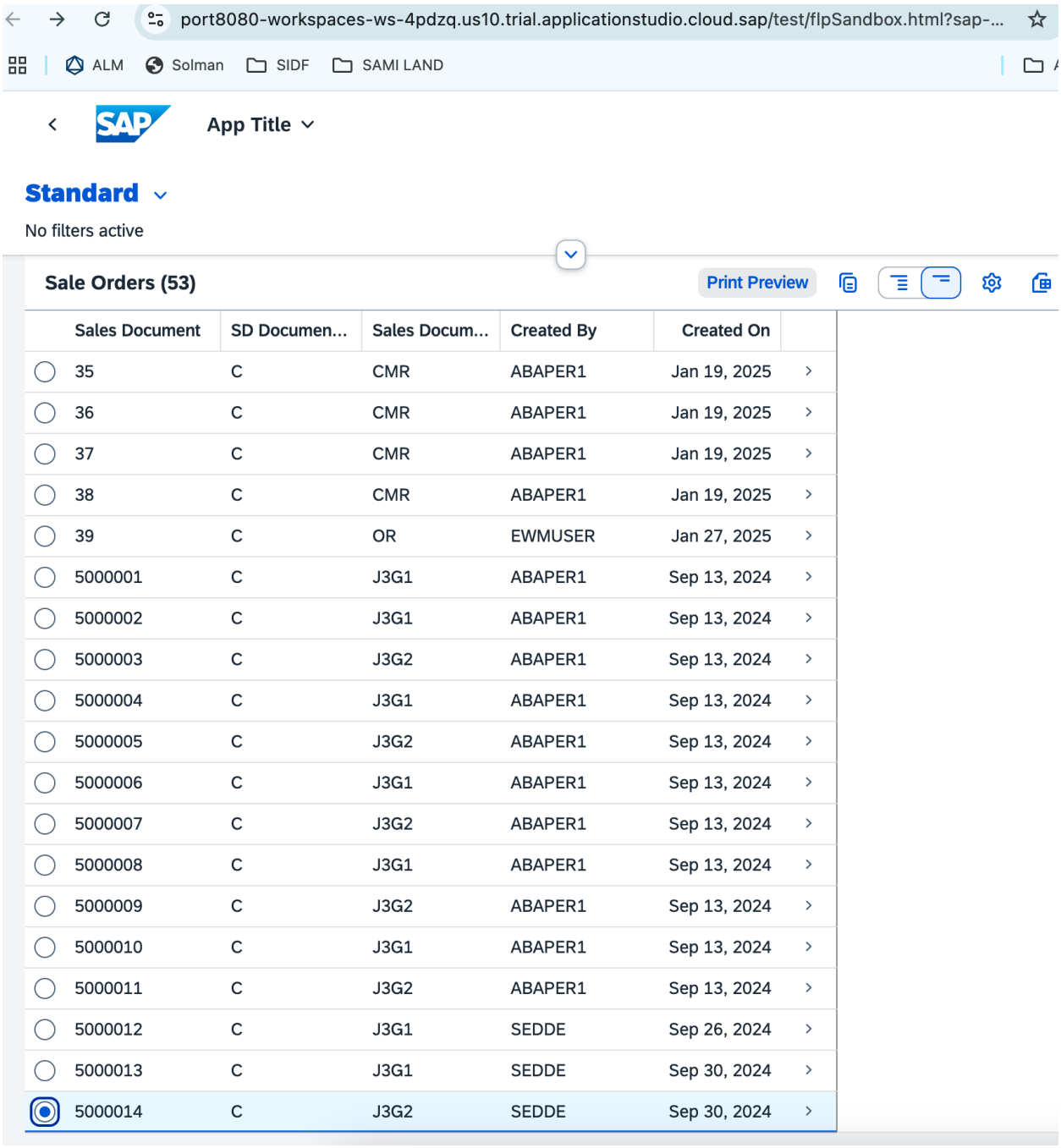
```
sap.ui.define([
    "sap/m/MessageToast",
    "sap/m/PDFViewer"

], function (MessageToast,PDFViewer) {
    'use strict';
    return {
        getPdffromOdata: function () {
            var oModel = this.getView().getModel("oPdfModel");
            var oGrid =
this.getView().byId("project4::sap.suite.ui.generic.template.ListReport.view.ListReport::ZC_RAP_SALE_ORD--
responsiveTable");
            // get Sales Order from selected index
            var saleDocument = oGrid.getSelectedItem().getBindingContext().getObject().SalesDocument;
            return new Promise((resolve, reject) => {
                // Perform Read operation and document number as parameter to URL
                oModel.read("/ZI_SALE_ORDER_PDF(p_so_document_id='" + saleDocument + "')/Set",
                    {
                        success: function (oData, Response) {
                            resolve(oData);
                        },
                        error: function (oError) {
                            reject(oError);
                        }
                    });
            })
        },
        onShowSaleOrderPdf: async function (oEvent) {
            var opdfViewer = new PDFViewer();
```

```
            this.getView().addDependent(opdfViewer);
            var oBusyDialog = new sap.m.BusyDialog({
                title: 'Generating Form...'
            });
            oBusyDialog.open();
            // Get the PDF data
            var vPDF = await this.getPdffromOdata();
            let base64EncodedPDF = vPDF.results[0].so_doc_pdf;
            let decodedPdfContent = atob(base64EncodedPDF);
            let byteArray = new Uint8Array(decodedPdfContent.length);
            for (var i = 0; i < decodedPdfContent.length; i++) {
                byteArray[i] = decodedPdfContent.charCodeAt(i);
            }
            var blob = new Blob([byteArray.buffer], {
                type: 'application/pdf'
            });
            var pdfurl = URL.createObjectURL(blob);
            jQuery.sap.addUrlWhitelist("blob"); // register blob url as whitelist
            opdfViewer.setSource(pdfurl);
            opdfViewer.setVisible(true);
            opdfViewer.setTitle("Billing Document ");
            opdfViewer.open();
            oBusyDialog.close();
        }
    };
});
```

Now test the Application: Print Preview Button is added



You can select any Sale order to enable the Print Preview button and click it to open the PDF file


port8080-workspaces-ws-4pdzq.us10.trial.applicationstudio.cloud.sap/test/flpSandbox.html?sap-...
ALM
Solman
SIDF
SAMI LAND
App Title
Standard
No filters active
Sale Orders (53)
Print Preview
Sales Document
SD Documen...
Sales Docum...
Created By
Created On
35 C CMR ABAPER1 Jan 19, 2025
36 C CMR ABAPER1 Jan 19, 2025
37 C CMR ABAPER1 Jan 19, 2025
38 C CMR ABAPER1 Jan 19, 2025
39 C OR EWMUSER Jan 27, 2025
5000001 C J3G1 ABAPER1 Sep 13, 2024
5000002 C J3G1 ABAPER1 Sep 13, 2024
5000003 C J3G2 ABAPER1 Sep 13, 2024
5000004 C J3G1 ABAPER1 Sep 13, 2024
5000005 C J3G2 ABAPER1 Sep 13, 2024
5000006 C J3G1 ABAPER1 Sep 13, 2024
5000007 C J3G2 ABAPER1 Sep 13, 2024
5000008 C J3G1 ABAPER1 Sep 13, 2024
5000009 C J3G2 ABAPER1 Sep 13, 2024
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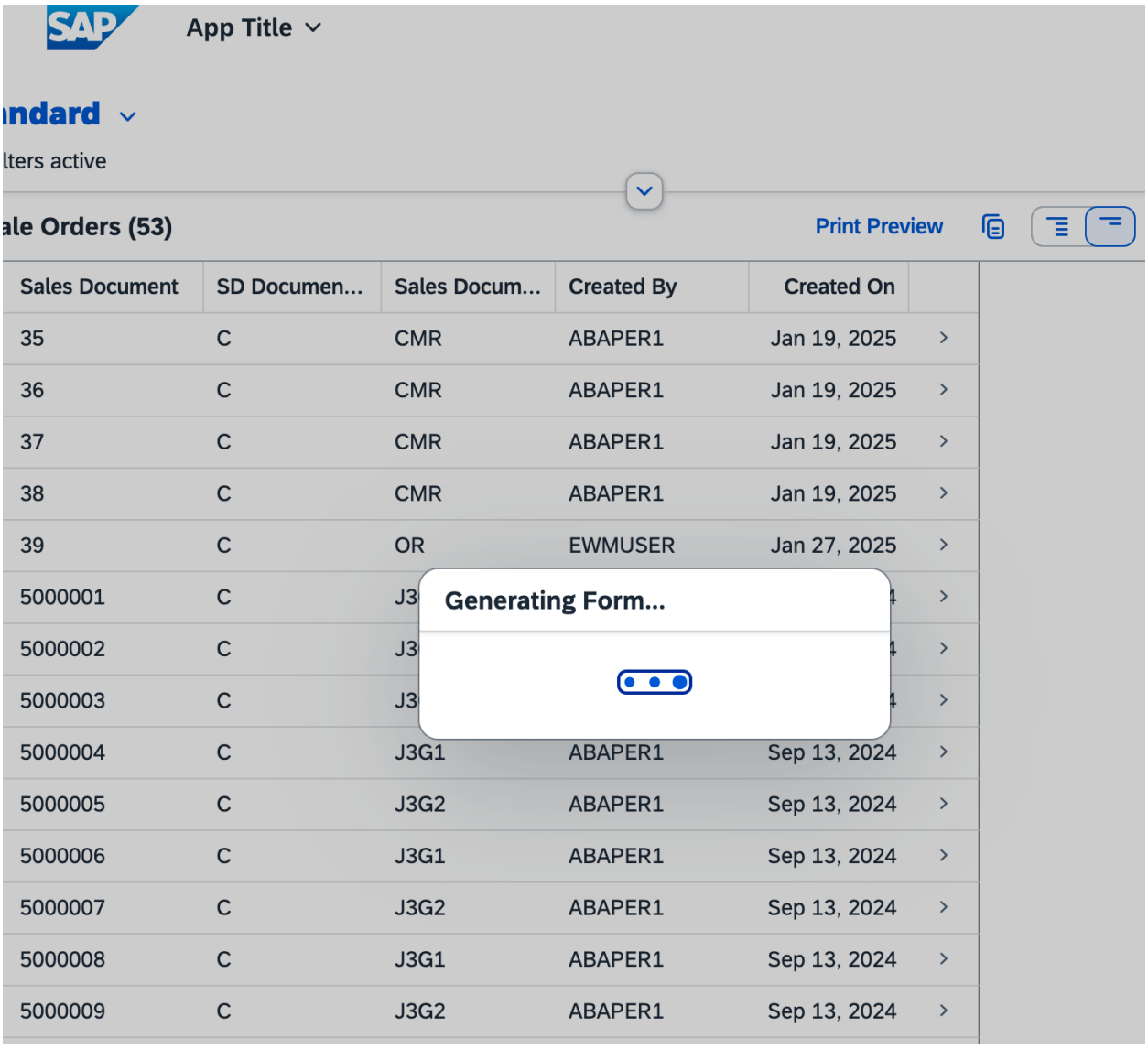
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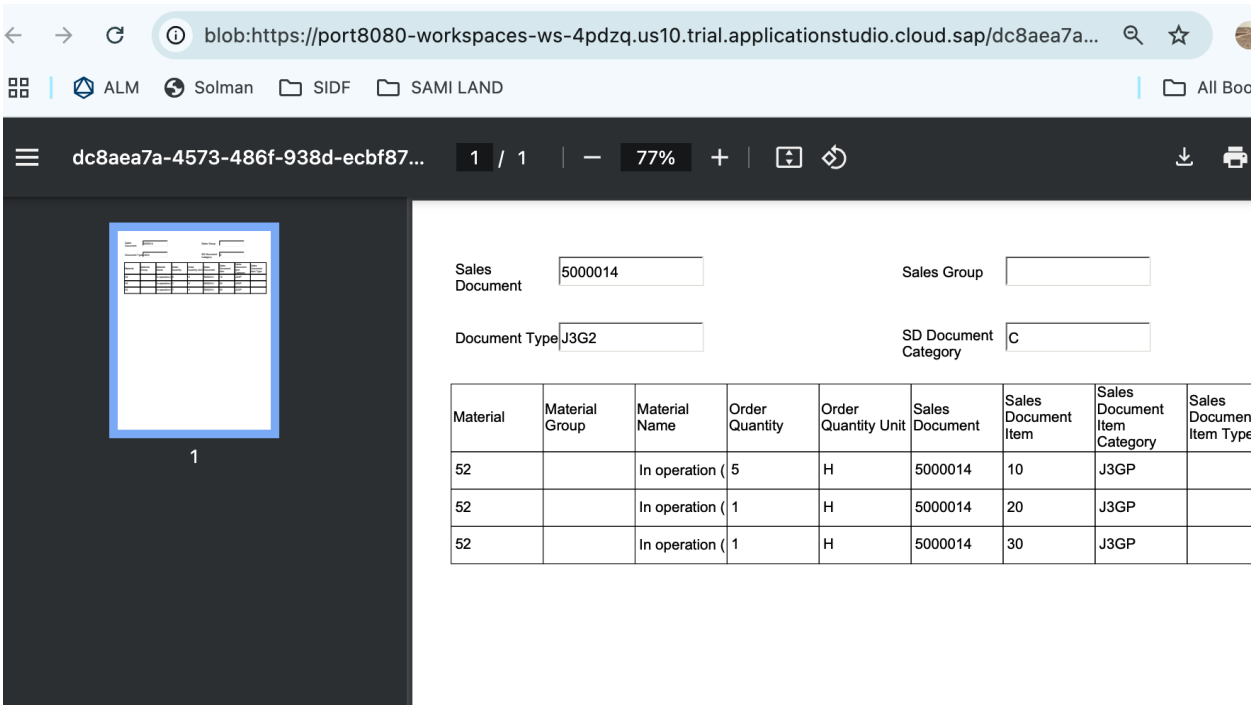
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