



Weather Report in SAP ByDesign

USING REST WEB SERVICE

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What is Rest Web service?

REST stands for *Representational State Transfer*, which are kind of easiest way to communicate with external systems in Cloud Solution. It is an architectural style for designing networked applications.

REST services provide a uniform interface using standard HTTP operations (such as GET, POST, PUT...) and exchange representations of resources. JSON and XML are frequently used formats in REST services.

So, I would like to document it here and let you know the same so that it will stay as a reference to everyone.

Tenant: SAP Business ByDesign.

Example: Weather Report (with Params).

Scenario: Integrate a simple weather API with SAP Cloud Solution.

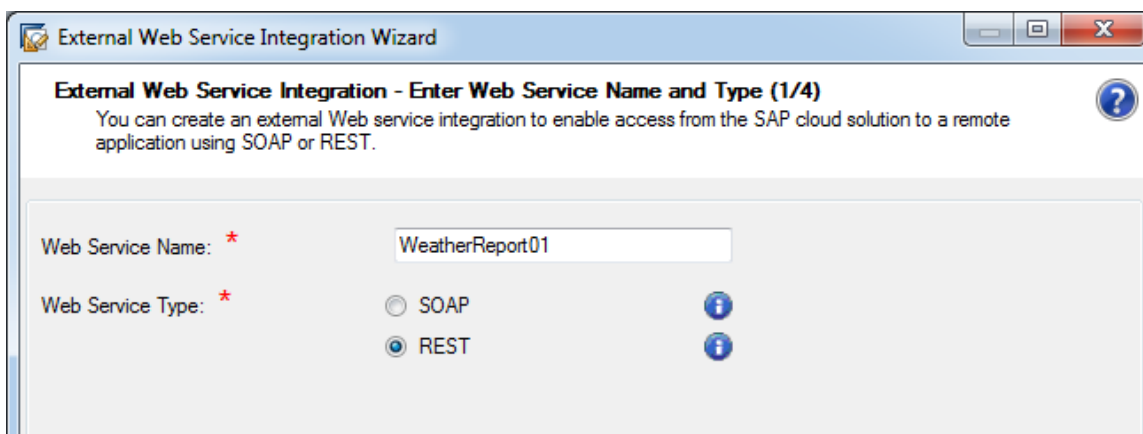
Weather API: www.sankaranss.com/tutorial/rest/weather.php. For time being I created a sample API where it accepts one location parameter. I will keep this API open in case you want to tryout. I used free resource for finding weather. So you can get only approximate weather while comparing with Google weather result.

Process Flow

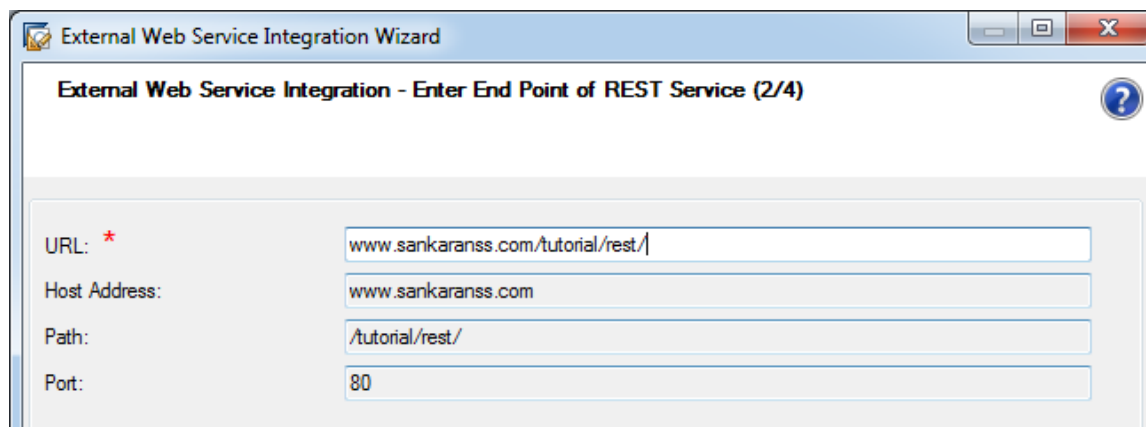
1. Create an External Web Service Using REST.
2. Create A Communication Arrangement.
3. Create A Custom Business Object.
4. Create an action script.
5. Testing.

STEP 1: CREATE AN EXTERNAL WEB SERVICE USING REST

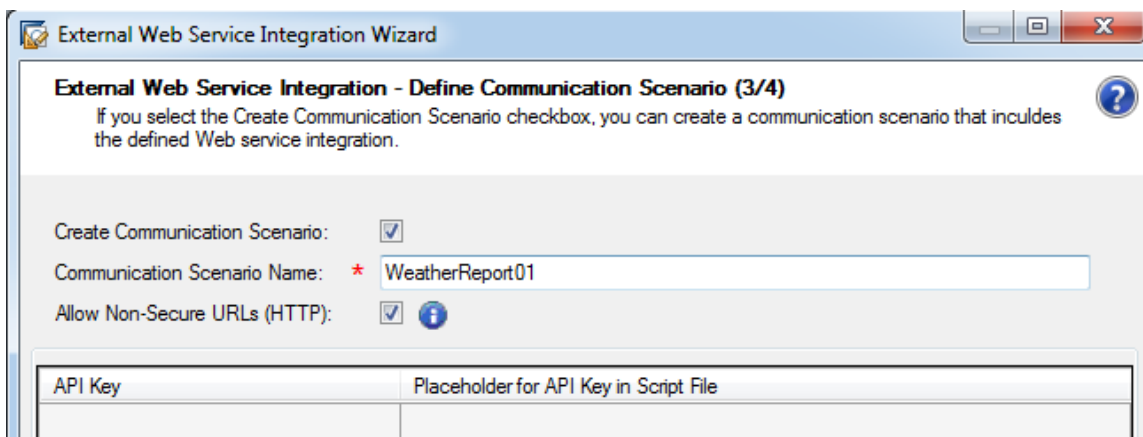
1. Login into the SDK. Select your solution from “**My Solution**” window.
2. In the Solution Explorer, right-click your solution and select Add New Item.
The Add New Item dialog opens.
3. Select SAP Service Integration **External Web Service Integration** and click Add.
The External Web Service Integration Wizard opens.
4. In the Enter Web Service Name and Type step, enter a name for the Web service and select REST. Click Next.



5. In the Enter End Point of REST Service step, do the following:
 - I. Enter www.sankaranss.com/tutorial/rest/ in the URL box. Click Next.
The Host Address, Port, and Path fields are filled automatically.



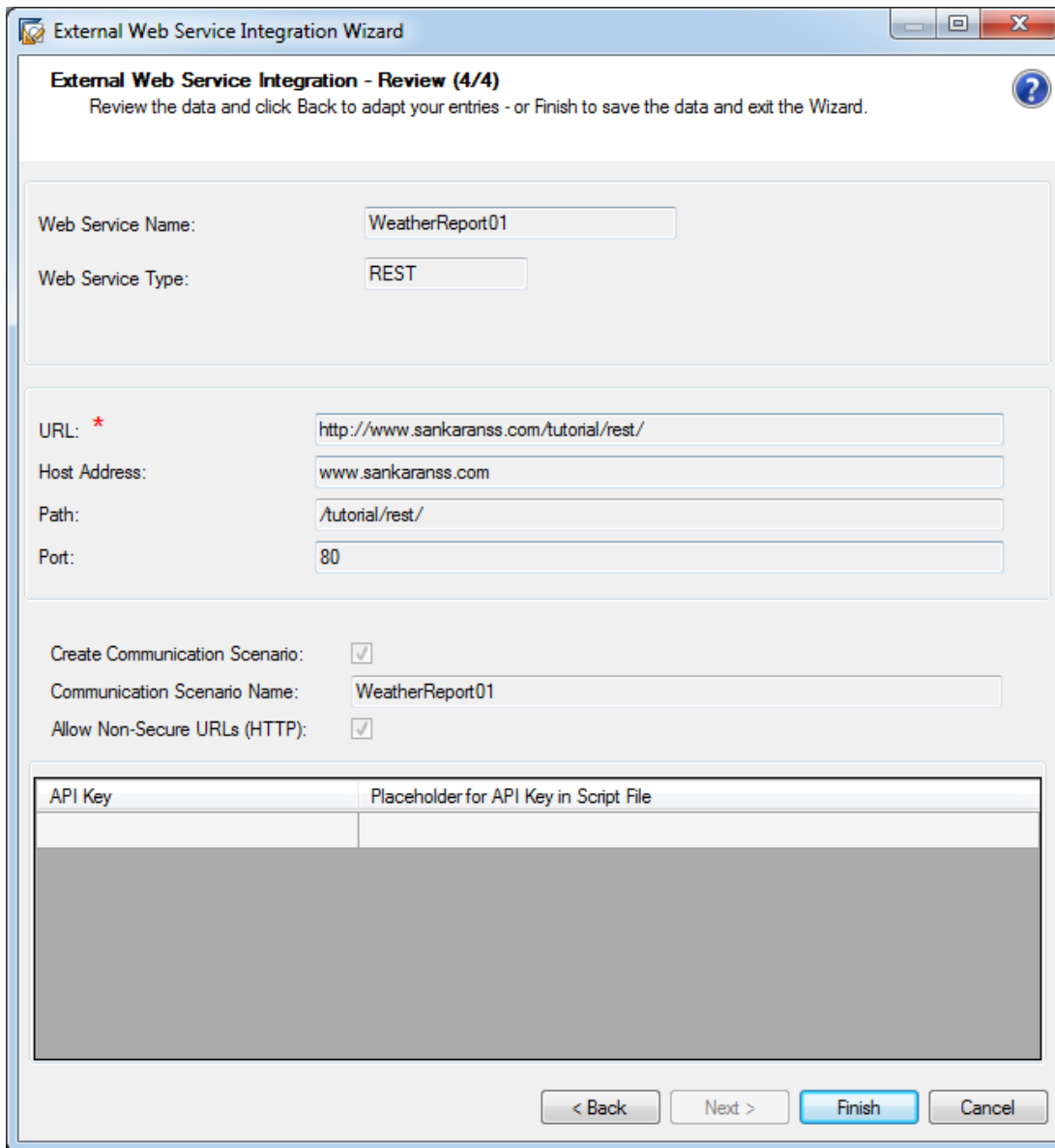
6. In the Define Communication Scenario step, do the following:
 - I. Select the **Create Communication Scenario checkbox** to create a communication scenario.
 - II. Enter a name for the communication scenario. It must start with a capital letter and can have 25 characters (letters, digits, and underscores).
 - III. Select the Allow Non-Secure URLs (HTTP) checkbox to allow non-secure communication.
 - IV. Click Next.



The screenshot shows the 'External Web Service Integration Wizard' dialog box, specifically the 'Define Communication Scenario (3/4)' step. The dialog has a title bar with standard window controls. Below the title bar, the text reads: 'External Web Service Integration - Define Communication Scenario (3/4)' followed by a help icon and a note: 'If you select the Create Communication Scenario checkbox, you can create a communication scenario that includes the defined Web service integration.' The main area contains three settings: 'Create Communication Scenario:' with a checked checkbox; 'Communication Scenario Name:' with a red asterisk and a text box containing 'WeatherReport01'; and 'Allow Non-Secure URLs (HTTP):' with a checked checkbox and an information icon. At the bottom, there is a table with two columns: 'API Key' and 'Placeholder for API Key in Script File'.

API Key	Placeholder for API Key in Script File

7. On the Review page, review your entries and click Finish.



The screenshot shows the 'External Web Service Integration Wizard' window at the 'Review (4/4)' step. The window title is 'External Web Service Integration Wizard'. The main heading is 'External Web Service Integration - Review (4/4)' with a sub-instruction: 'Review the data and click Back to adapt your entries - or Finish to save the data and exit the Wizard.' The form contains the following fields and options:

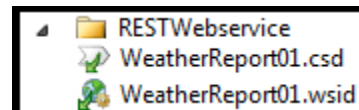
- Web Service Name: WeatherReport01
- Web Service Type: REST
- URL: * http://www.sankaranss.com/tutorial/rest/
- Host Address: www.sankaranss.com
- Path: /tutorial/rest/
- Port: 80
- Create Communication Scenario:
- Communication Scenario Name: WeatherReport01
- Allow Non-Secure URLs (HTTP):

Below these fields is a table for API keys:

API Key	Placeholder for API Key in Script File

At the bottom of the wizard are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

8. In the Solution Explorer, an external Web service integration file **WeatherReport01.wsid** and a communication scenario definition file **WeatherReport01.csd** are displayed. Save and Activate both the files.

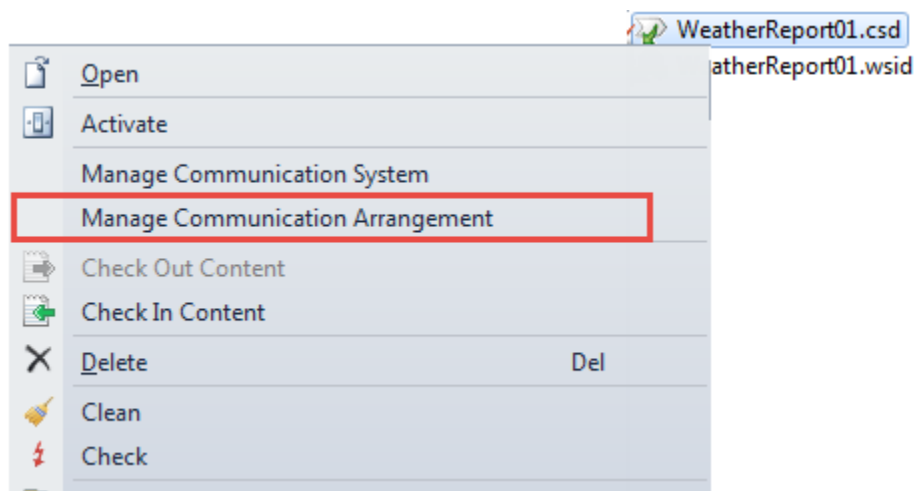


A communication scenario and a communication system (The communication system is created automatically) are generated in the SAP cloud solution. These can be used to create a communication arrangement.

STEP 2: CREATE A COMMUNICATION ARRANGEMENT

To test the communication scenario, you need to create a communication arrangement in the SAP cloud solution.

1. In the studio, in the Solution Explorer, right-click the communication scenario definition (**WeatherReport01.csd**) file and click **Manage Communication Arrangement**.



2. Log on to the SAP cloud solution.
The Communication Arrangements work center view opens.
3. Click **New**.
4. The New Communication Arrangement view opens.
5. In the Select Scenario step, select the communication scenario **WeatherReport01** which you have created in the studio and click Next.

6. In the Define Business Data step, select the System Instance ID as “WeatherReport01” and click Next.

New Communication Arrangement: WeatherReport01(Patch)

1 Select Scenario | **2 Define Business Data** | 3 Define Technical Data | 4 Review | 5 Confirmation

Communication System My Communication Data

System Instance ID: * My System: 0M1QELQ

Communication System: WEATHERREPORT01-YHN8HM2JY

7. In the Define Technical Data step, Click **Edit Advance Settings** Button do the following:
 - a. Uncheck “Use Basic Setting”
 - b. Application Protocol: **Http**

New Communication Arrangement: WeatherReport01(Patch)

1 Select Scenario | 2 Define Business Data | **3 Define Technical Data** | 4 Review | 5 Confirmation

Communication Method:

Outbound

Enabled	Use Bas...	Service	Application Protocol	Service URL
<input checked="" type="checkbox"/>	No	WeatherReport01	Http	http://www.sankaranss.com:80/tutorial/rest/

Details: WeatherReport01

Use Basic Settings:

Application Protocol:

Protocol:

Host Name:

Port:

Path:

Service URL:

Authentication Method:

- c. Set Protocol as **Hypertext Transfer Protocol(http)**.
 - d. Host Name: **www.sankaranss.com**
 - e. Port: 80
 - f. Path: **/tutorial/rest/weather.php**
 - g. Authentication Method: **None**
 - h. Click Next.
8. In the Review step, review your entries and click Check Completeness. Then click Finish and close.

To Test Weather Rest web service

1. Choose **Communication Arrangement (WeatherReport01) -> Technical data -> Edit Advance Settings -> Check Connections**. If you see message as “Ping Successful”, your rest service is perfectly working.

<input type="button" value="Check Service"/>	<input type="button" value="Check Connection"/>	<input type="button" value="Download WSDL"/>
Enabled	Use Bas...	Service
<input checked="" type="checkbox"/>	No	WeatherReport01

Details: WeatherReport01

Use Basic Settings:

Application Protocol:


Protocol:

Host Name:

Port:

Path:

Service URL:

 Ping successful

- If you see any error message, first check your URL and port number.

Enabled	Use Bas...	Service
<input checked="" type="checkbox"/>	No	WeatherReport01

Details: WeatherReport01

Use Basic Settings:

Application Protocol:

Protocol:

Host Name:

Port:

Path:

Service URL:

❗ Checking connection failed

❗ Ping failed

❗ Forbidden

- If you have done any modification in URL or in any other options, you have to click “Save and Reactive”, before checking “Check Connection”.

STEP 3: CREATE A CUSTOM BUSINESS OBJECT

Integrate the Weather Report with SAP Business ByDesign.

- Create a custom Business Object **WeatherReport**.
- Define elements as shown in the below screenshot.
- Save and Activate.

For more information about the Custom Business Object creation, see

<http://blog.sankaranss.com/2016/03/29/sap-byd-business-object/>.

```

WeatherReport.bo X
WeatherReport getWeather
import AP.Common.GDT as apCommonGDT;

/*
  Author      : Sankaran
  Created On  : 18.10.2016
  Purpose     : Get weather report depends on location
*/

businessobject WeatherReport {

    [Label("Location")]      element location      : LANGUAGEINDEPENDENT_EXTENDED_Text;
    [Label("Weather Result")] element WeatherResult : LANGUAGEINDEPENDENT_EXTENDED_Text;

    //Perform the Opertaion
    action getWeather;

}

```

4. Create screens for the WeatherReport BO and Design it.

For more information about the Screen creation and Design, see

<http://blog.sankaranss.com/2016/04/28/sap-byd-screen-types/>.

STEP 4: CREATE AN ACTION SCRIPT

1. Create **getWeather** Action script file for WeatherReport BO.

For more information about the Business Logic, see

<http://blog.sankaranss.com/2016/04/11/sap-byd-actions-and-events/>.

2. Copy and paste below code.

```

import ABSL;

// Communication details

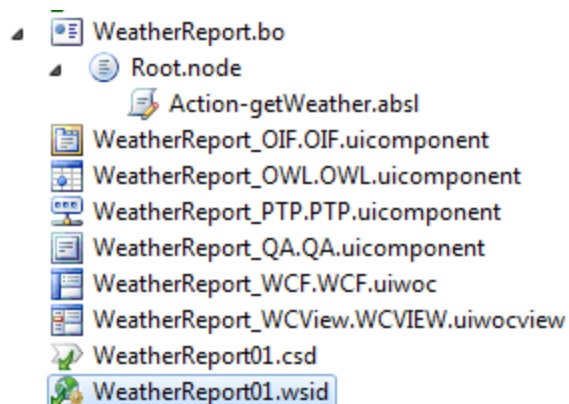
var ScenarioName = "WeatherReport01";
var ServiceName = "WeatherReport01";

```

```
var HttpMethod = "GET";  
var HttpResource = "weather.php"; //URL - File Name  
// not required for this example  
var ContentType = "";  
var Body = "";  
var HeaderParameter : collectionof NameAndValue; // Set URL Parameter  
var URLParameter : collectionof NameAndValue;  
var URLParameterEntry : NameAndValue;  
URLParameterEntry.Name = "location";  
URLParameterEntry.Value = this.location;  
URLParameter.Add(URLParameterEntry);  
  
// Execute webservice call  
  
var ws_result = WebServiceUtilities.ExecuteRESTService(ScenarioName,  
ServiceName, HttpMethod, HttpResource, URLParameter,  
HeaderParameter, ContentType, Body);  
  
//Parse result of Web service and retrieve city name; you may have to  
adapt the logic to the Web service used  
  
this.WeatherResult = ws_result.Content;
```

3. Save and Active.

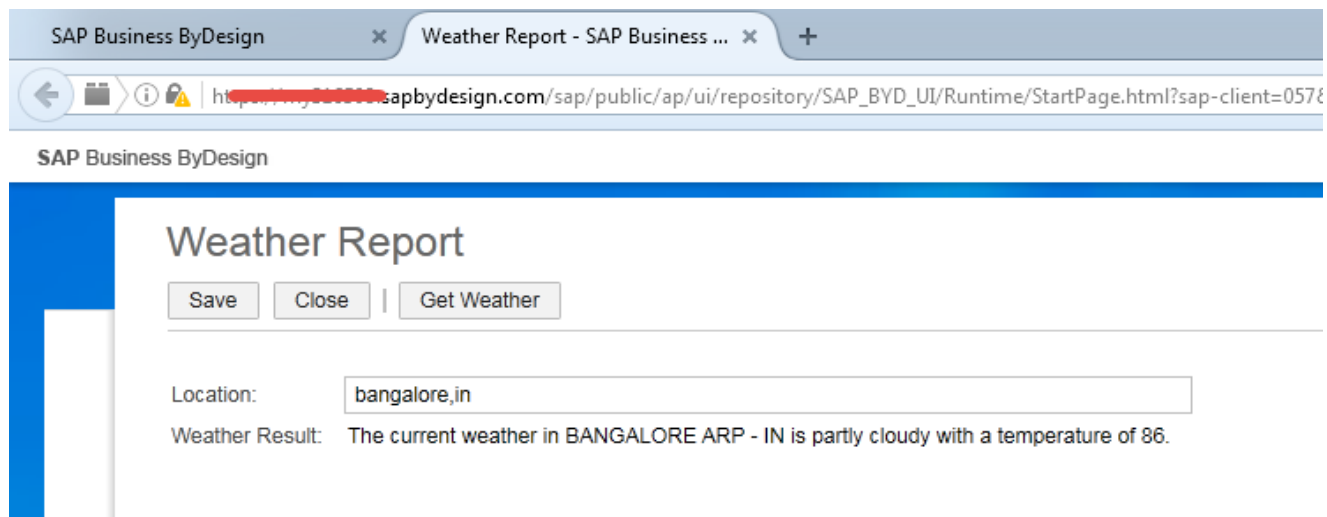
Finally, your files look as like below screenshot.



STEP 5: TESTING

1. Log in as a business user.
2. Navigate to the QA Screen by creating a custom BO instance.
3. Enter the location. Ex. Bangalore,IN
4. Click **Get Weather** Button.

You can see Weather Report in Result area.



We have seen about integrate weather report with ByDesign using Rest Web service, and in the future article, we will learn more about it. Don't forget to subscribe my blog and leave your comments to improve this article.

Thanks,

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