Develop an IoT Application for Thing Model

Exercises / Solutions

Domnic Savio Benedict, SAP SE

Contents

1 OVERVIEW & PREREQUISITES

This tutorial describes building a User interface for displaying the timeseries data. For the storage of the data and the creation of the UI SAP Leonardo foundation (Integration Framework & IoT Application Enablement) is used.

1.1 Technical Scenario

The Integration Framework ingests the data from the files or via FTP into the SAP Leonardo foundation. Data is forwarded to SAP IoT Application Enablement using Kafka as a message broker. Finally, we use SAP Web IDE to create an UI5 Application, completely code free and visualize the data stored in SAP IoT Application Enablement.

This tutorial walks you through all steps that are necessary to build a simple visualization and help you explore the possibilities.

1.2 Prerequisites

Following prerequisites hardware and software is required to set up and run this scenario.

Hardware Prerequisites:

- WLAN / Internet Access
- Laptop

Software Prerequisites:

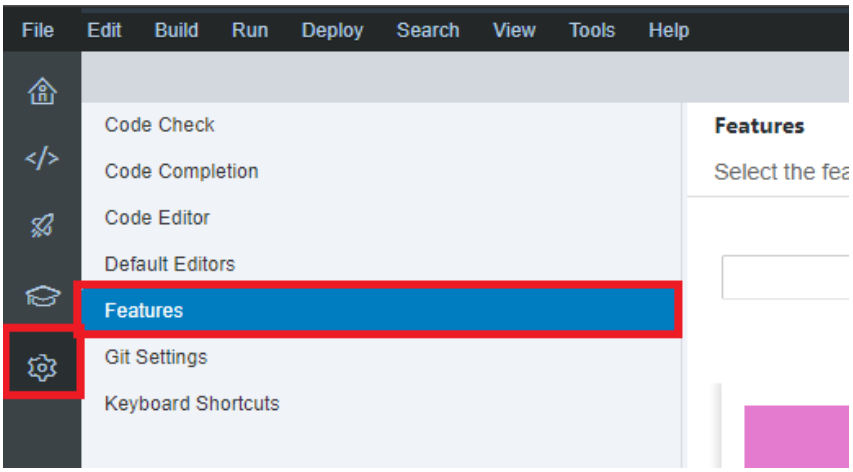
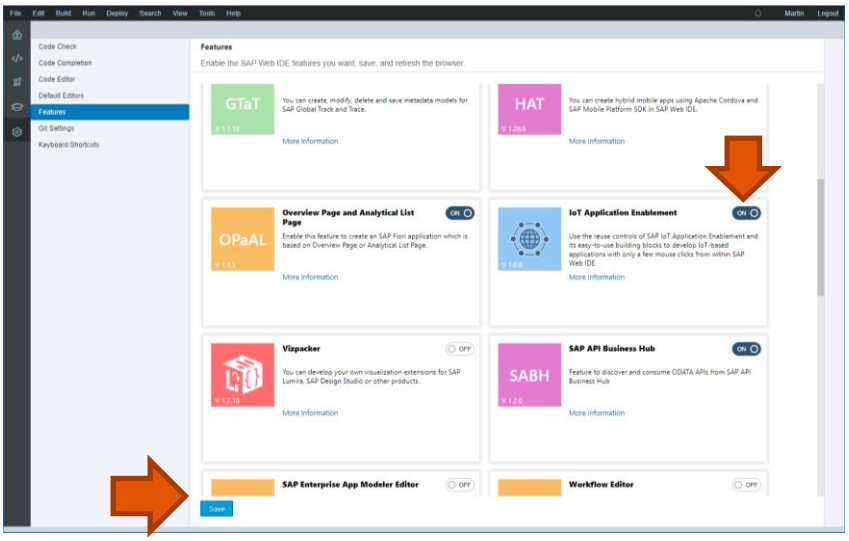
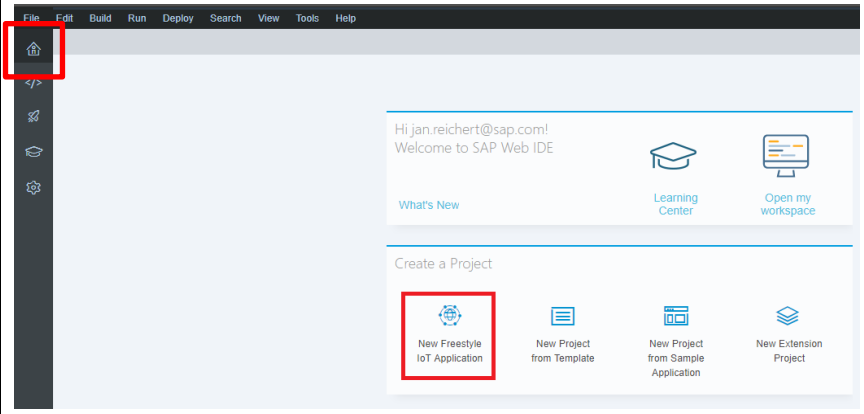
- Access to Web IDE for developing the UI

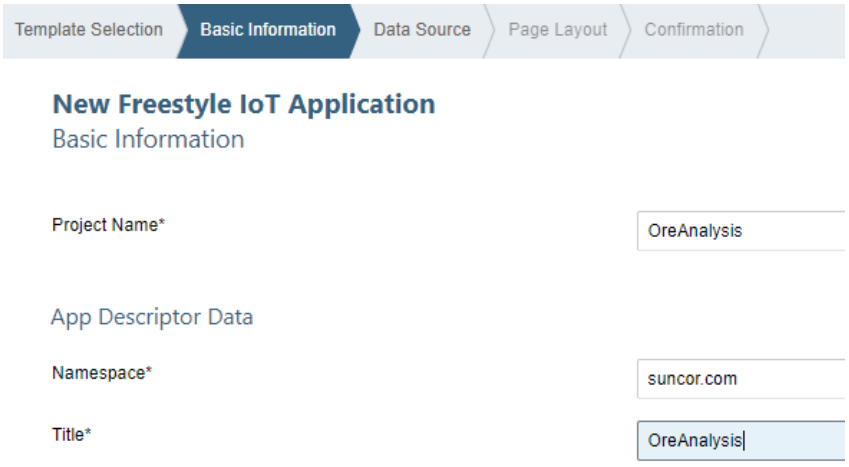
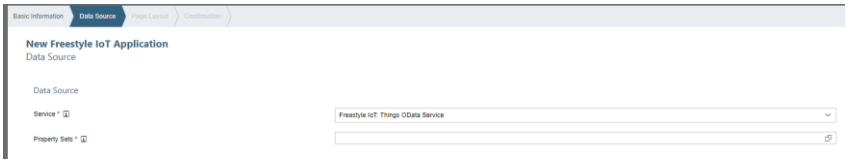
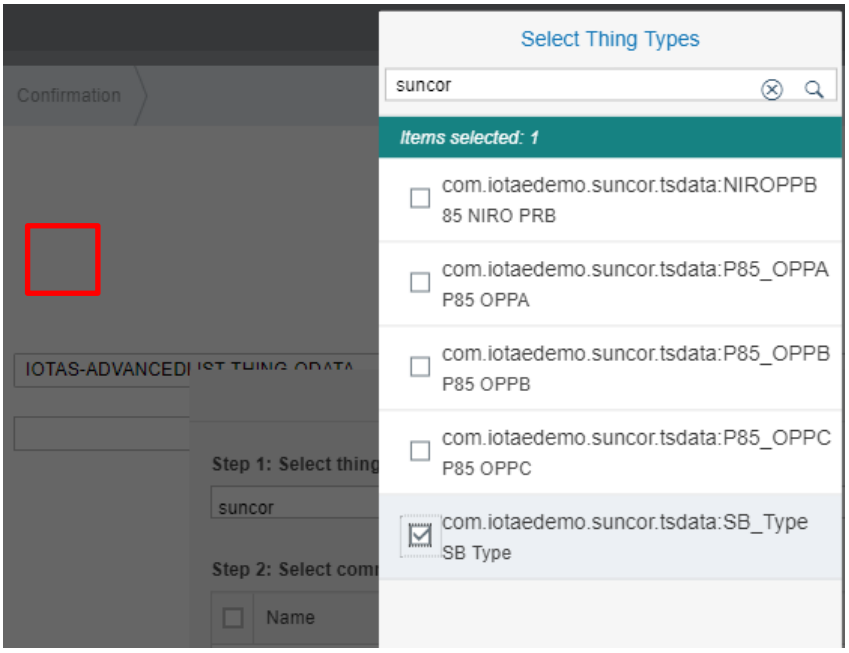
1.3 User & Tenant Access Information

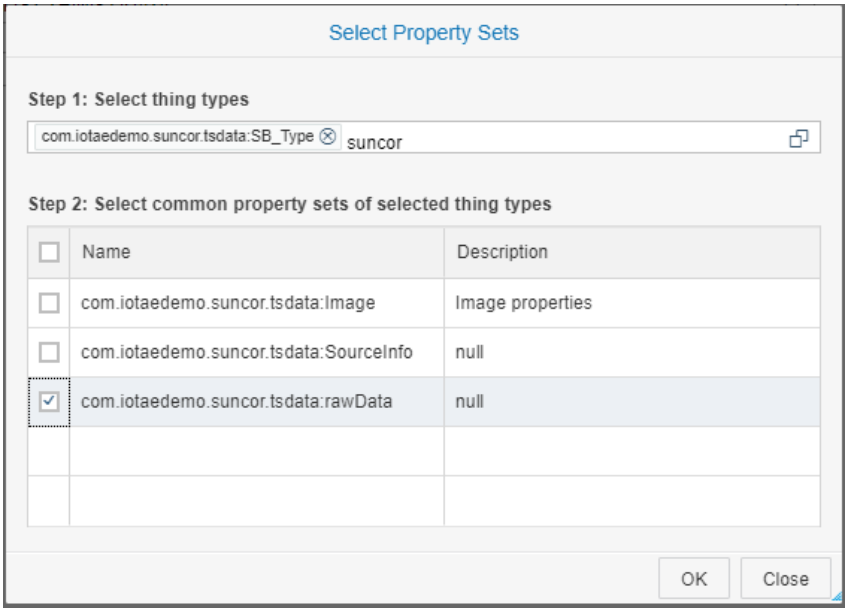
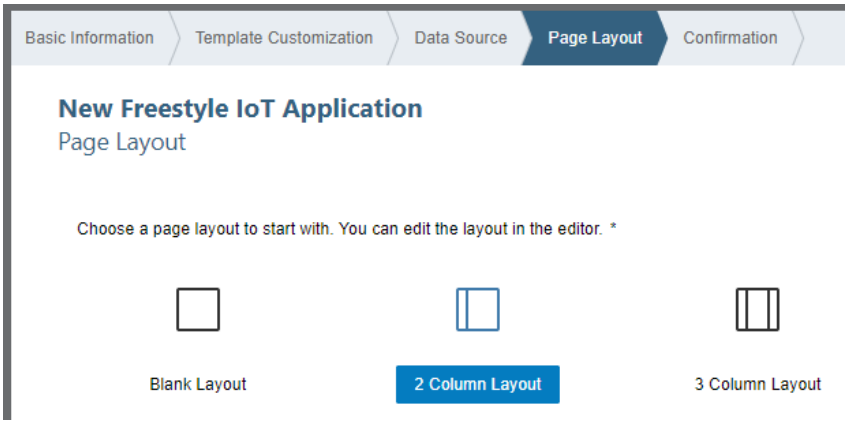
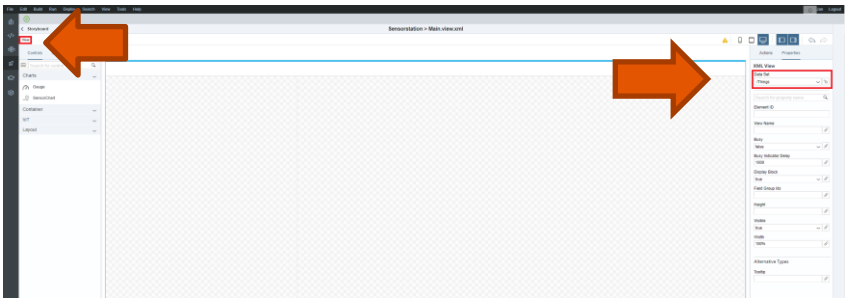
For the Leonardo live we will use the following links:

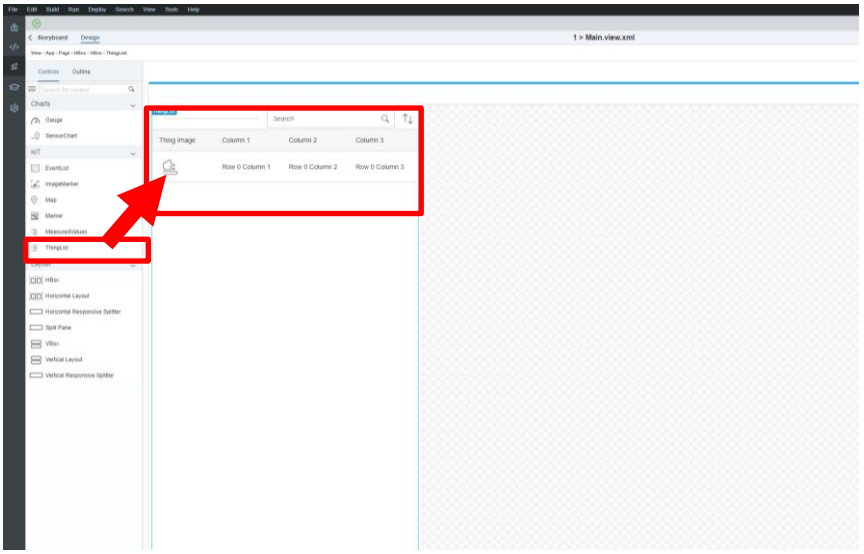
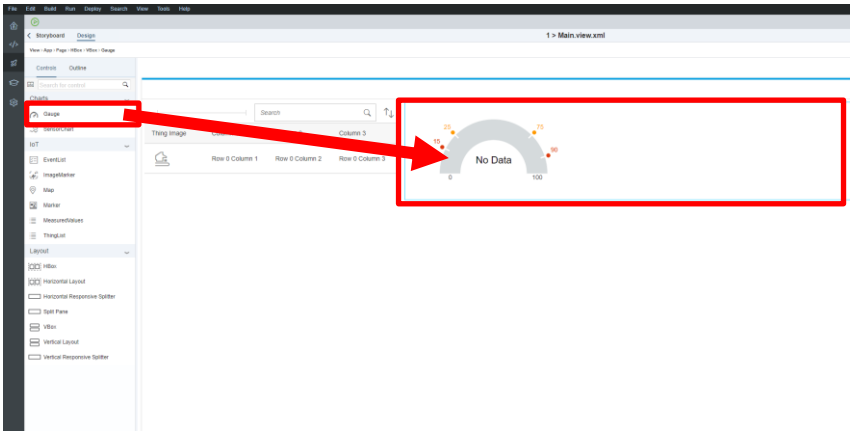
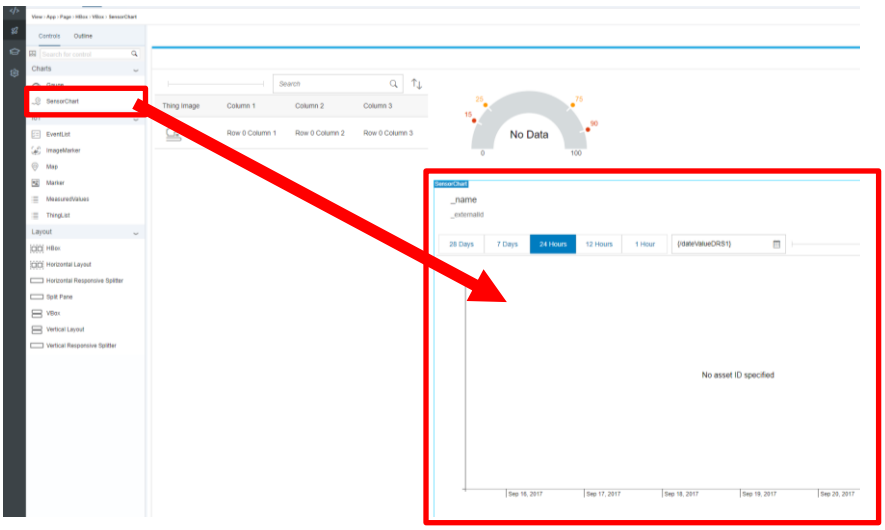
Information	Value	Comment
SAP Integration Framework	https://mb-dev.cfapps.eu10.hana.ondemand.com/B1iXcellerator/exec/dummy/com.sap.b1ip.system.cc/bfd/AdminConsole.bfd?!defdoc=/com.sap.b1i.dev.ide/ui/devIDE.xml	Select Development and Expand the package sap.suncor.
User	suncoradmin	Please do not distribute
Password	Abcd1234	Will be active till 1st April
SAP IoT Application Enablement	https://com-iotaedemo.iot-sap.cfapps.eu10.hana.ondemand.com/launchpage/#Shell-home	Launchpage to access Thing Modeler
SAP Web IDE	https://webidecp-a1213b798.dispatcher.hana.ondemand.com	WebIDE is used to create your UI5 app
User	demo-user@gmx.net	Please do not distribute
Password	DaVinci1244	Will be active till 1st April

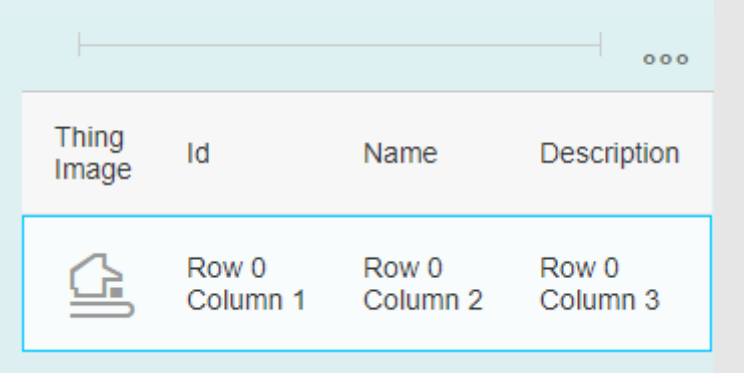
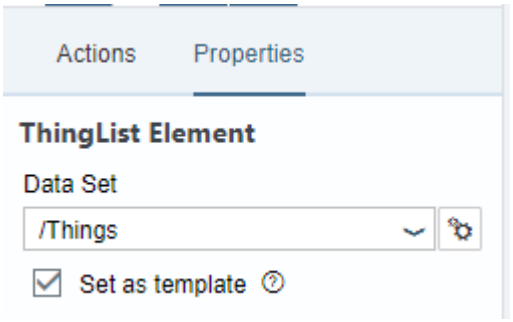
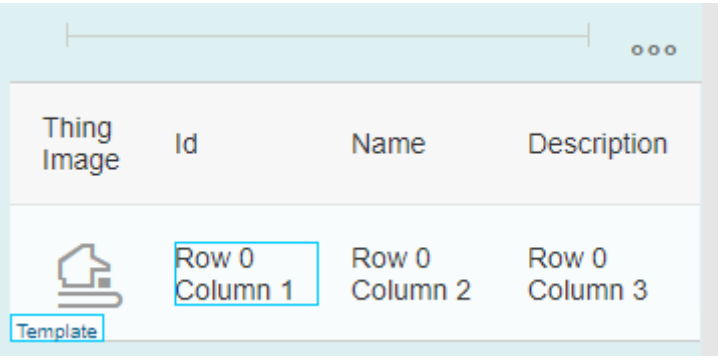
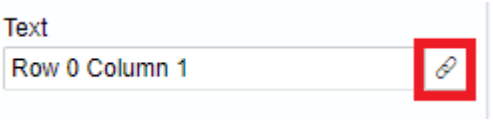
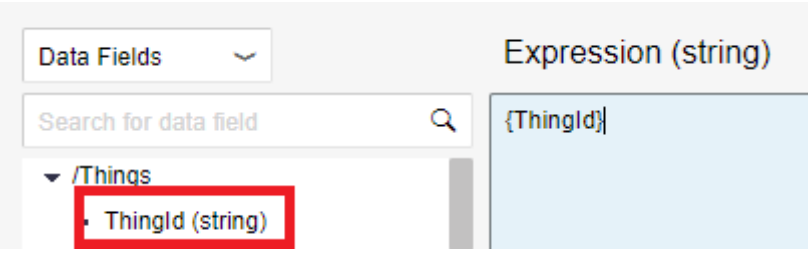
2 BUILD A UI TO DISPLAY SENSOR DATA WITH SAP IOT APPLICATION ENABLEMENT

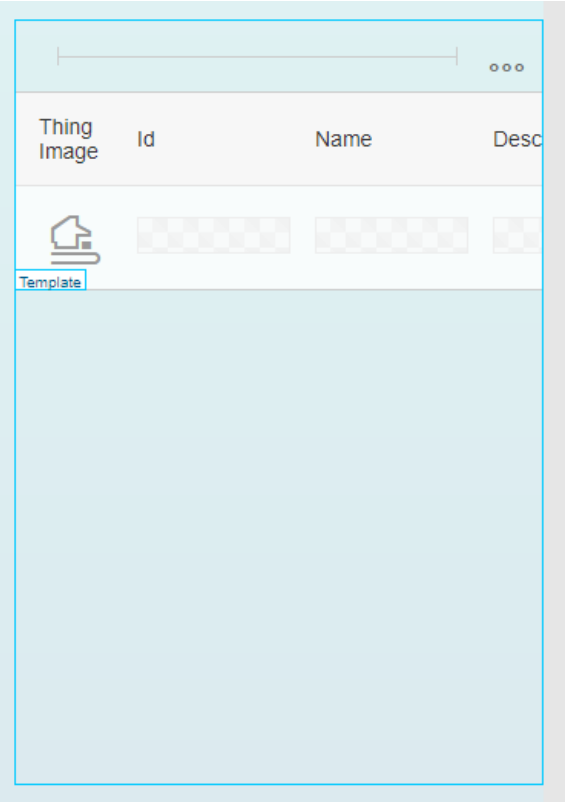
Explanation	Screenshot
1) Open the SAP Web IDE: https://webidecp-a2667617c.dispatcher.hana.ondemand.com/ 2) Enter your credentials to log in 3) Go to Preferences -> Features	
4) Make sure the **IoT Application Enablement** feature is enabled. If not, click on the **toggle button** in the upper right corner of the tile and then click on **Save** in the lower left corner. The SAP Web IDE will reload.	
5) Navigate back to the **Home** screen and select **New Freestyle IoT Application** to create your Project	

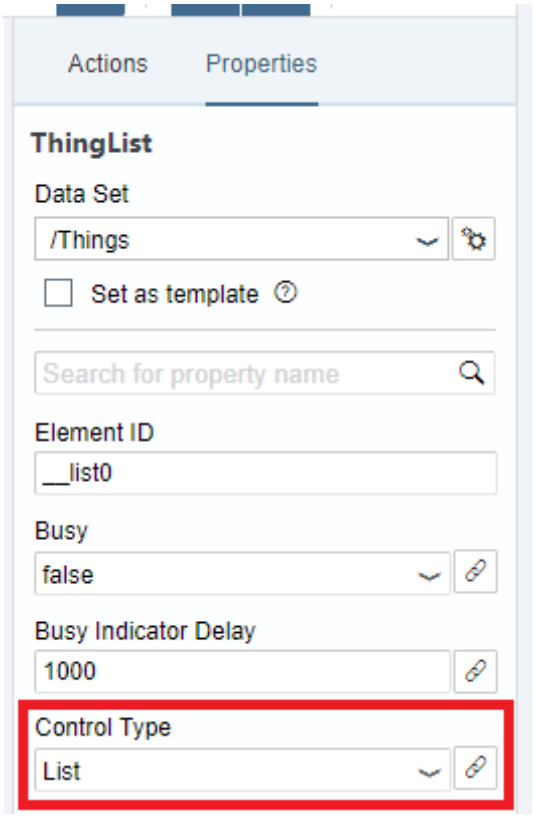
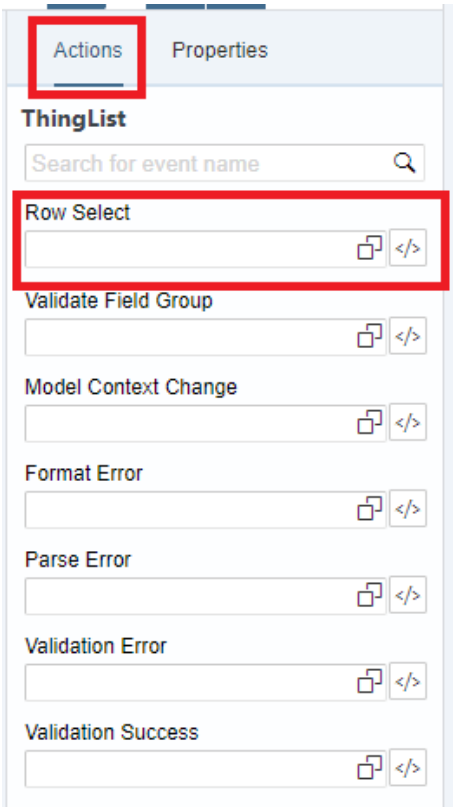
Explanation	Screenshot
6) Enter the following information and click Next • Project Name: “OSIPiData” • Namespace: “suncor” • Title: “OreAnalysis” **Hint:** If the project name already exists, add your initials to the name and click **Next**.	
7) Select the service **Freestyle IoT: Things OData Service** from the drop-down menu	
8) Make use of the value help (F4) to select the **Property Sets**. A pop-up called **Select Property Sets** will open. 9) For selecting the thing type open the value help (F4) in Step1. 10) Search for **suncor**, select the thing type with name **com.iotaedemo.suncor.tsdata** and click **OK**. 11) In Step 2 of the **Select Property Sets** popup select all property sets. 12) Click **OK** and then **Next**.	

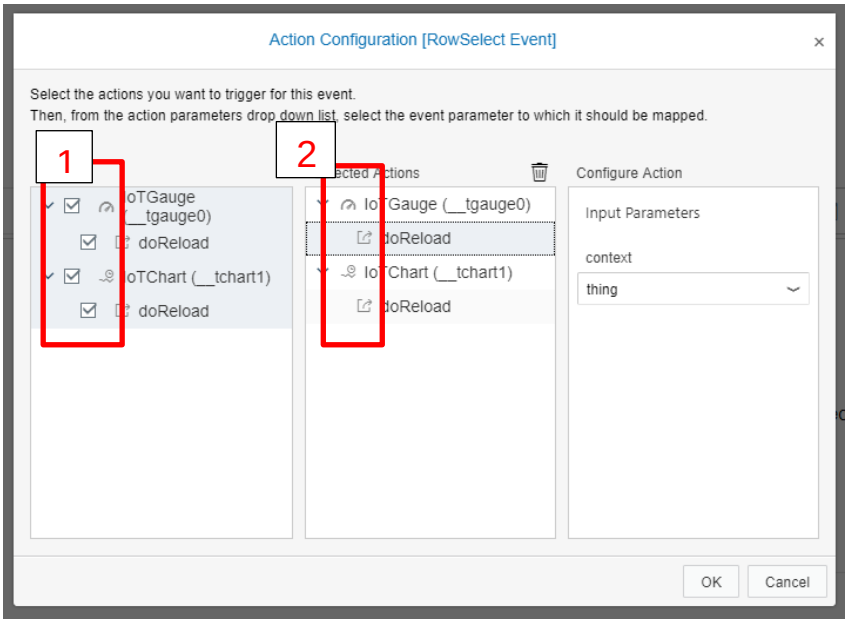
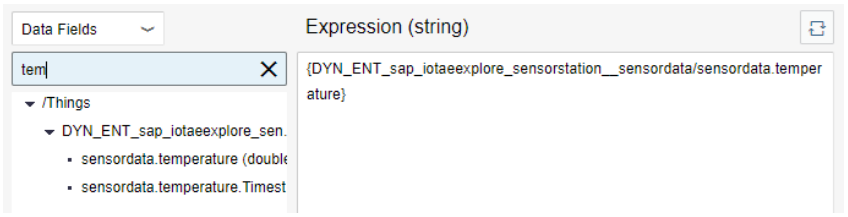
Explanation	Screenshot
	
13) As page layout select **2 Column Layout** and click **Finish**. Your project is now generated.	
14) Click on **View** on the breadcrumb menu in the corner of SAP Web IDE. 15) In the menu on the right select the tab **Properties.** 16) Open the drop down **Data Set** select **/Things**. 17) Confirm to change the data set for the selected control. This will be you default service for all UI controls in the application.	

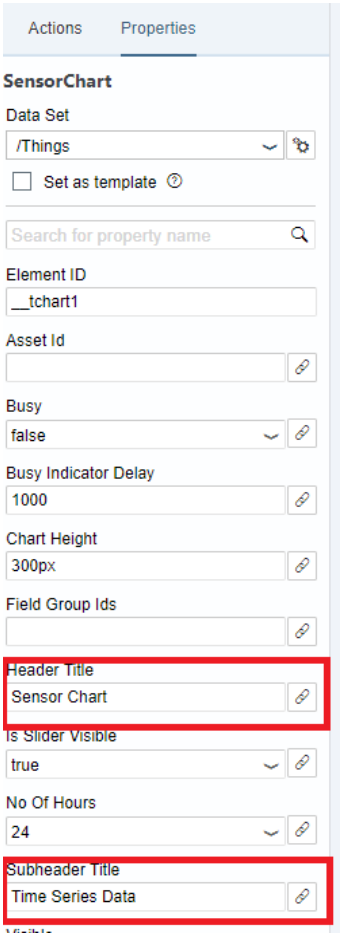
Explanation	Screenshot
18) On the left side of the screen open the group **IoT** which contains IoT specific controls 19) Drag&drop the **Thing List** to the left column of your application.	
20) Open the group **Charts** 21) Drag&Drop the **Gauge** chart to the upper right	
22) Drag&Drop the **Sensor Chart** to the lower right	

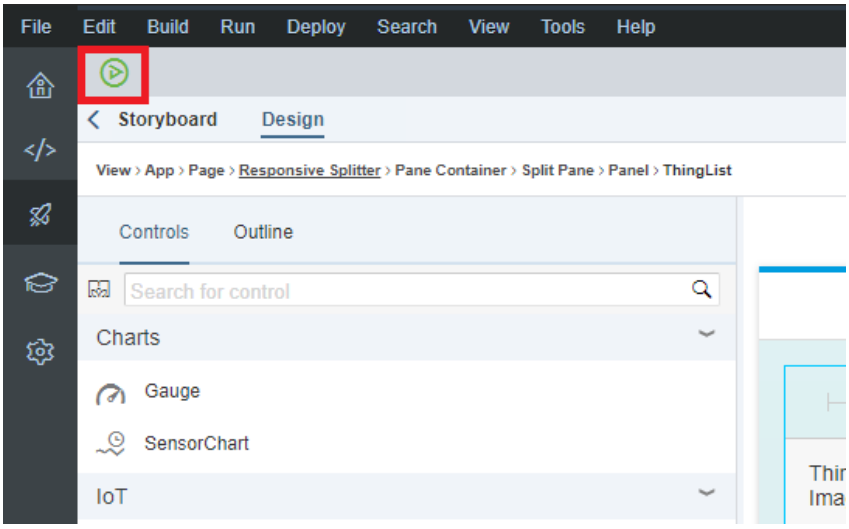
Explanation	Screenshot
23) Select the second row of the Thing List control you have dragged in the left column of your application. **Hint:** You must see the blue frame around the whole row.	
24) On the right side of the screen in the tab **Properties**, activate the check box **Set as template**. 25) A pop up will be shown. Confirm the creation of a template by selecting **OK**.	
26) Select the **Row 0 Column 1** in the second row of the Thing List control.	
27) On the right side of the screen in the tab **Properties** click on the icon with the **chain symbol** in the field **Text.** You can then bind this property to a data field. 28) A popup will open.	
29) Delete all expressions in the text field on the right 30) Search for Data Field **ThingId** 31) Double click on **ThingId**. 32) Click on **OK**.	

Explanation	Screenshot
33) Repeat step 27 to 30 for the other two columns. Select **ThingName** and **ThingDescription**.	
34) Select the complete **Thing List**. **Hint:** The blue frame must be around the complete **Thing List**.	

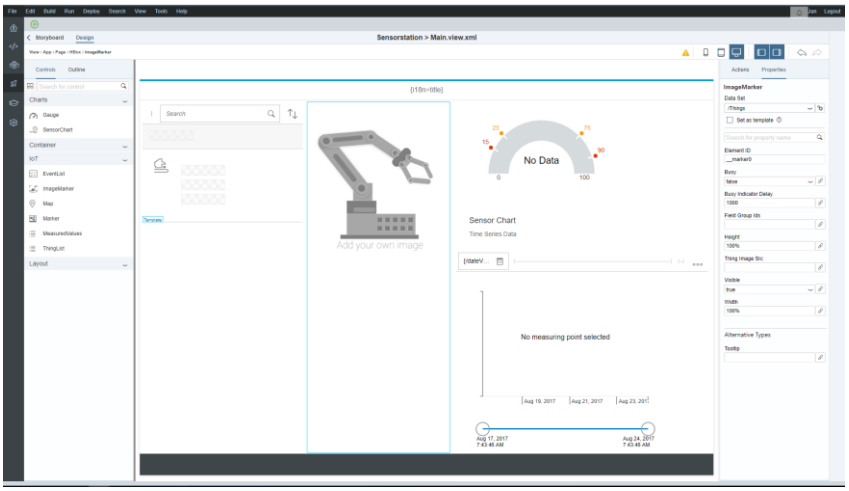
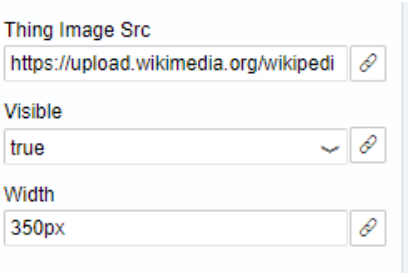
Explanation	Screenshot
35) Change the **Control Type** to **List**.	
36) Click on **Actions**, select the field **Row Select** and click F4.	

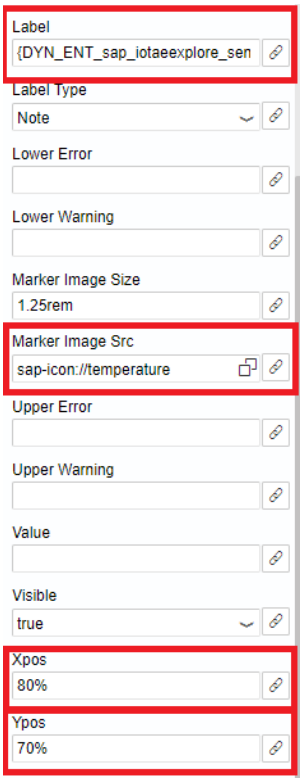
Explanation	Screenshot
37) Select all check boxes and click **OK**.	
38) Select the **Gauge** chart and select the tab **Properties** on the right panel 39) In the field **Value** click on **Bind this Property** (chain symbol). 40) A Popup will open. 41) Delete all expressions in the text field on the right, if there are any 42) Under Data Fields search for **temp** 43) Select the entry **temperature.temperature(double)** 44) Click on OK 45) Optional: Now enter the following values to the other fields: • Lower Error: 15 • Lower Warning: 18 • Max Value: 40 • Upper Error:	

Explanation	Screenshot
28 • Upper Warning: 25 • Unity Of Measure: °C • Label Temperature	
46) Select the **Sensor Chart**. 47) Enter **Sensor Chart** as **Header Title** and **Time Series Data** as **Subheader Title**.	

Explanation	Screenshot
48) Click on the green Arrow in the upper left corner. The app will open in a preview version.	

3. OPTIONAL: EXTEND YOUR APPLICATION

Explanation	Screenshot
1) Go back to the Application Builder. 2) Drag and drop the **Image Marker** between the **ThingList** and the **Gauge.**	
3) In the **Properties** tab enter https://upload.wikimedia.org/wikipedia/commons/e/e6/Raspberry-Pi-3-Flat-Top.jpg in the **Thing Image Src** field. 4) Set the **Width** to **350px**.	

Explanation	Screenshot
5) Drag and drop a **Marker** on top of the **ImageMarker**. 6) In the **Properties** tab enter **80%** as **Xpos** and **70%** as **Ypos**. 7) Click on **Bind this property.** for the the **Label** property and select the temperature in the pop up. 8) Go to the **Marker Image Src** property and click **F4**. 9) In the pop up search for **temperature** and select the icon.	
10) Select the other **Marker** in the upper left corner of the **ImageMarker** and enter the following values: • Xpos: 20% • Ypos: 20% • Label: Select humidity in the pop up • Animation Type: GrowPulse • Animation If Error Status: false	

Explanation	Screenshot
11) Click on the **ThingList** and go to the **Actions** tab. 12) Select **Row Select** and mark the checkbox **doReload** for the **IoTImageMarker**. 13) Press **OK** and **simulate** the app via the **green arrow** button again to show the results in the running application