

# IOT Platform Device Data Visualization - Cards

## Overview

In this lab, you will explore Boards and Cards – a built-in way of visualizing connected device data in the Watson IoT Platform. Boards are dashboards built to show specific data and contain Cards. Cards are graphical widgets such as graphs and digital displays. Boards and Cards are added using a very simple user interface. Boards may also be shared with other IoT Platform users.

Some cards display data from connected devices. In these cases, you must also define a Device Data Schema. Cards may only display data from a schema. For example, if your devices have fifty different sensors – the schema allows you to filter those to only the ones you want to visualize.

It is assumed that you have completed Lab 1 and have connected devices to an instance of the IoT Platform.

Note: some of the tasks below contain a shortened link to the Bluemix dashboard that opens the US South Region. If you wish to use the UK region instead then substitute the link below

- US South: [http://bit.ly/bluemix\\_new\\_us](http://bit.ly/bluemix_new_us)
- UK: [http://bit.ly/bluemix\\_new\\_uk](http://bit.ly/bluemix_new_uk)

These links also open the new Bluemix dashboard (the classic dashboard is still available through a link on the web page).

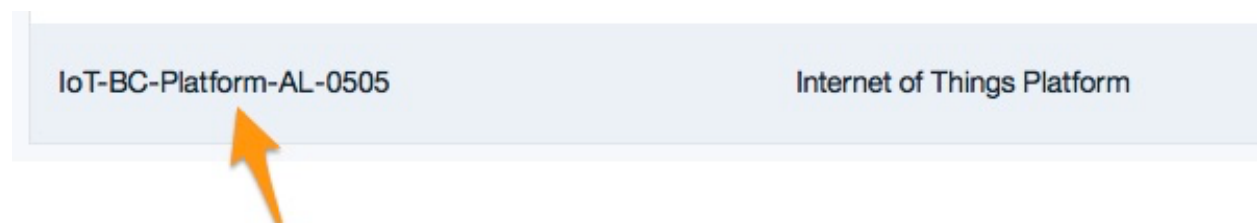
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### Task 1. Open the Watson IoT Platform

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In this task, you will open the Watson IoT Platform you created in Lab 1. You will then define a new data schema in Task 2 and modify that schema in Task 3. If you have already completed the Real Time Insights lab then you will not need to perform Task 2 since you will have already added a new schema in that Lab.

1. Login to Bluemix:
  - a. Open a web browser and navigate to Bluemix: [http://bit.ly/bluemix\\_new\\_us](http://bit.ly/bluemix_new_us)
  - b. Login with your IBM ID
2. Open the IoT Platform Service Dashboard:
  - a. Scroll down to the **All Services** section and click the IoT Platform Service you created in Lab 1



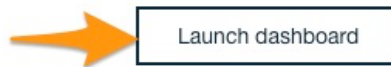
- b. Click **Launch Dashboard**:



## Connect your devices

Use our [recipes](#) to find out how to add your devices. We work with partners and have sample connection recipes for many devices.

Launch the Watson IoT Platform dashboard and add your devices by clicking the 'Add Device' button under the 'Devices' tab.



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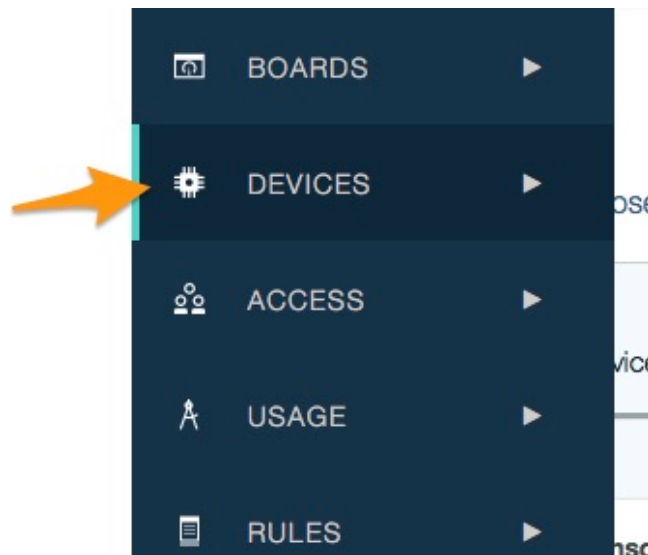
## Task 2. Define a New Data Schema

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**Important** – if you have completed Lab 3 (Real Time Insights) then you have already created a schema for the Sensor Tag device. In this case skip this task and instead perform Task 3 to edit and modify that Schema.

In this task you will define a device data schema to make device data available for visualization.

1. Add a schema for the Sensor Tag:
  - a. In the sidebar, click **Devices**:



- b. Click Manage Schemas:

# Devices

**Browse** | Diagnose | Action | Device Types | **Manage Schemas**



- c. Click Add Schema:

**+ Add Schema**

- d. For **Device Type**, select the **SensorTag** device type you added in Lab 1:

## Add A Schema

**Device Type**

Properties

Device Type

Select a device type to associate with

Name

SensorTag



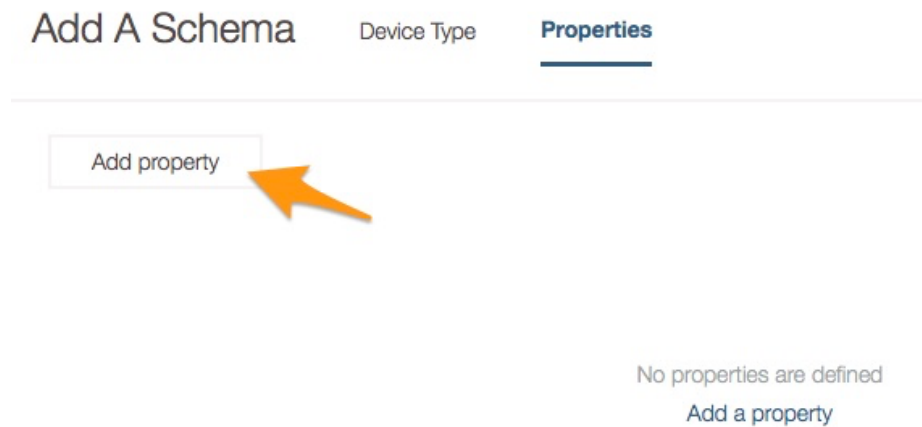
- e. Click **Next**:



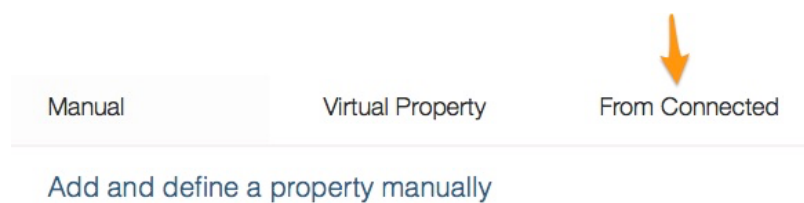
**Next >**

2. Add properties:

- a. Click Add property:



- b. Click the **From Connected** tab:



**TIP:** Make sure your device is connected to the platform

- c. Note that the properties for the connected device are listed. Note also that the application on your mobile phone, which is acting as a gateway for the device, is sending these properties as strings:

## Add multiple properties from connected devices

Select one or more properties to add to the schema. These properties can later be edited to attributes, such as name and data unit.

**Important:** Each property must be unique for a schema.

<input type="checkbox"/>	Property	Type
<input type="checkbox"/>	d.myName	string
<input type="checkbox"/>	d.ambientTemp	string
<input type="checkbox"/>	d.objectTemp	string
<input type="checkbox"/>	d.humidity	string

d. Select the **d.light** property:

<input type="checkbox"/>	d.gyroX	string
<input type="checkbox"/>	d.gyroZ	string
<input type="checkbox"/>	d.magX	string
<input type="checkbox"/>	d.magY	string
<input type="checkbox"/>	d.magZ	string
<input checked="" type="checkbox"/>	d.light	string

e. Click **OK**

**TIP:** In this example, you will only use the light property, however you could select multiple properties at the same time - you could extend the example on your own to use other sensor data.


3. Modify the data type:

a. Click the **pencil** icon next to the **light** property:

Property	Name	
d -	d	 
light	light	 

- b. Change the **Data type** to **Float**:

#### Property Details

Name	light
Data type	Float 
Property	light

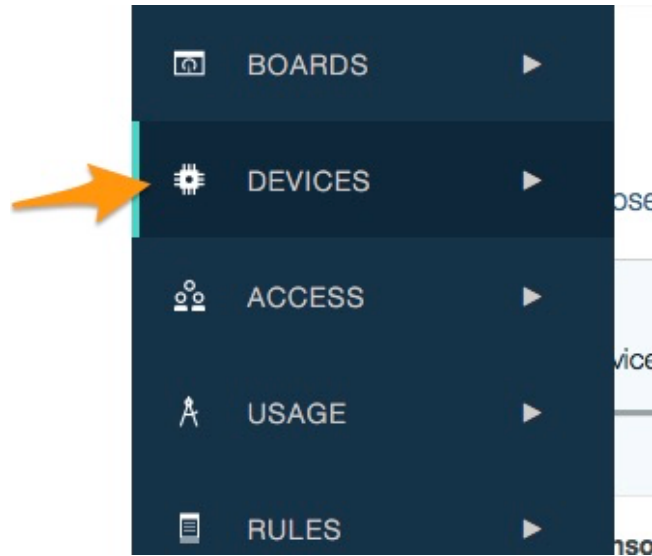
- c. Click **OK**
- d. Click **Finish**:



### Task 3. Modify an Existing Schema

In this task, you will modify an existing schema by adding extra properties to it such that they may be visualized in cards on dashboards.

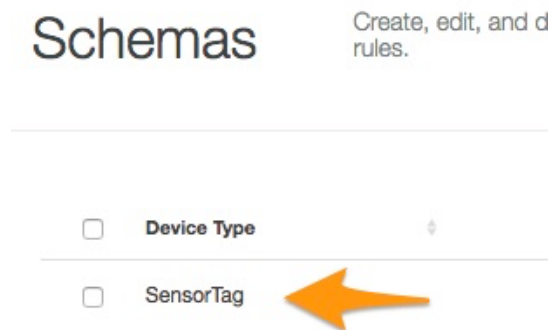
- Open an existing schema:
  - In the sidebar, click **Devices**:



b. Click **Manage Schemas**:

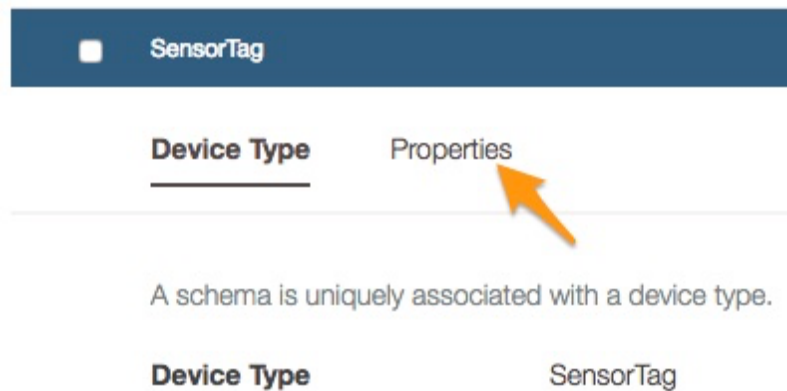


c. Click the **SensorTag** schema in the list to expand it:



2. Add a new property:

a. Click the **Properties** tab:



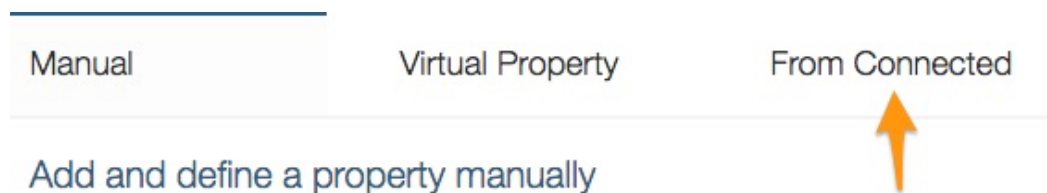
- b. Click the **pencil** icon to edit the **Properties**:



- c. Click **Add Property**:



- d. Click the **From Connected** tab:




**TIP:** Make sure your Sensor Tag is connected and sending data



- e. Select the **d.objectTemp** property:

**TIP:** If you are using an Android device then the property will instead be called `object_temp`

<input type="checkbox"/>	d.myName	string
	<input checked="" type="checkbox"/>	d.objectTemp
		string

- f. Click **OK**

**TIP:** Note that this is still a string. This is fine for visualizing data – the dashboard widgets are smart enough to be able to display number-strings in gauges and graphs. If you were using the same schema in Real Time Insights you should change the data type for properties (see that lab for details).

- g. Click **Finish**

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## Task 4. Watson IoT Platform Cards

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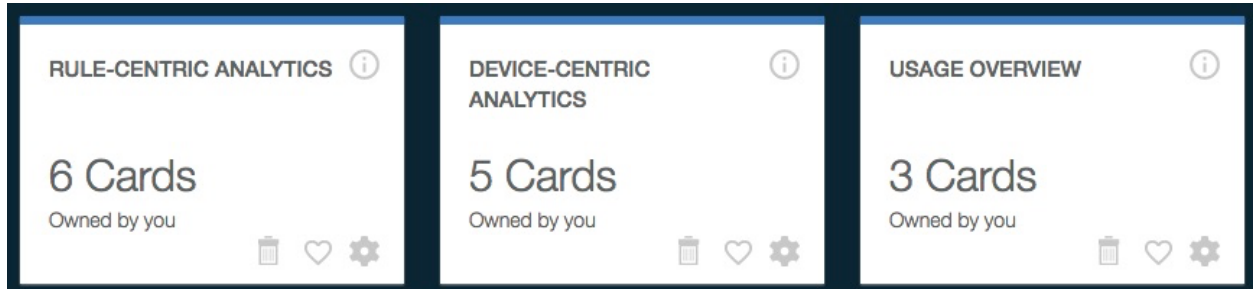
In this lab you will explore visualization of sensor data using the cards feature in the IoT Platform.

1. View Boards:

- a. In the sidebar, click **Boards**:



- b. Note that the default installation includes several **Boards**.



2. Add a Board:

- a. In the top-right-hand corner of the page, click **Create New Board**:



- b. In the **Board name** field, type My Device Dashboard  
c. Select **Make this board my landing page**

*TIP:* This also auto-selects **Favorite**

## Create a new board

Provide a name and description for your new board.

Board name

**My Device Dashboard**

Description



- ☒ Make this board my landing page.  
☒ Favorite (this also adds this board to your navbar)

- d. Click **Next**  
e. Note that you can **share** your Board with others:

## Create a new board

Adding viewers allows them to see your dashboard.

Owner

andy.lapping@uk.ibm.com (YOU)

### Members

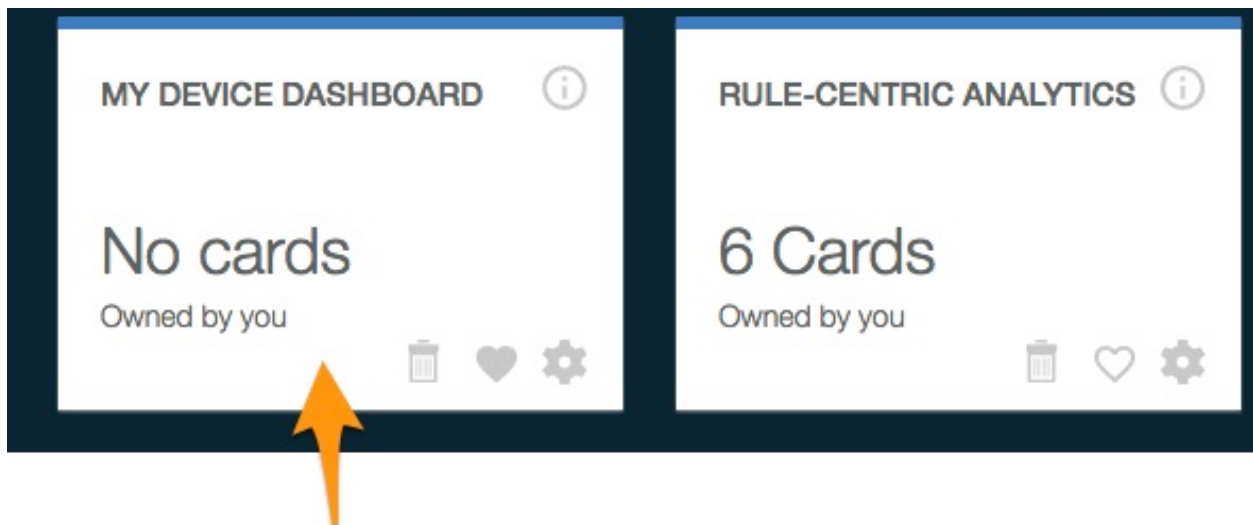
☐ Share as read-only with everyone?

+ add user ID

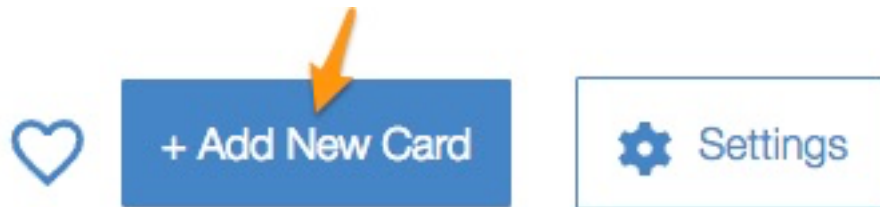
Name	Editor?
<input type="text"/>	<input type="text"/>

- f. Click **Create**
3. Add a new Card:
  - a. Click the **My Device Dashboard** Board to open it:

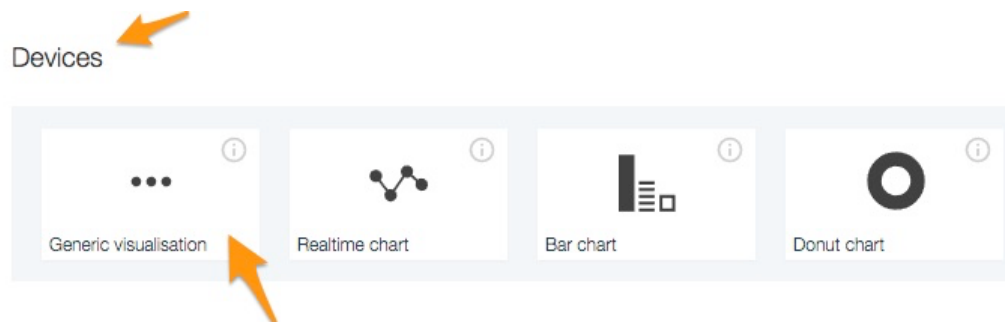
*TIP:* You may need to refresh the page to see the new Board



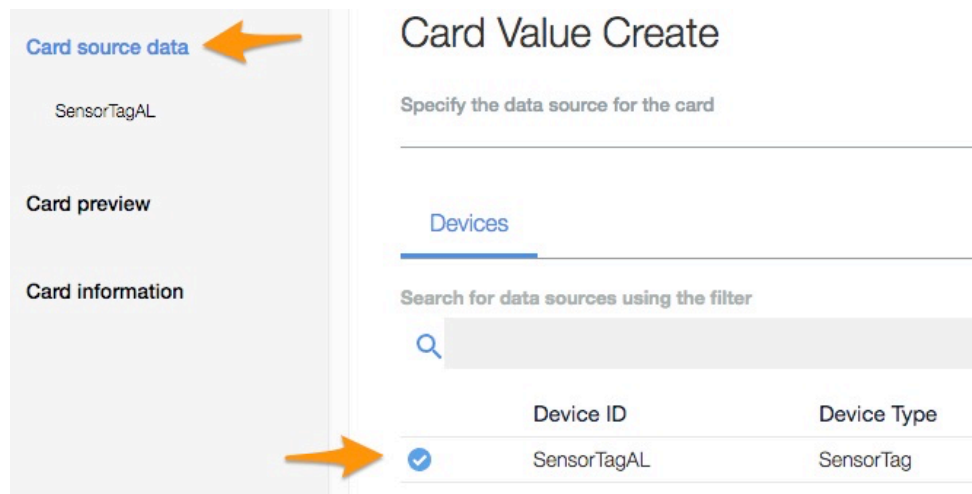
- b. In the top-right-hand corner of the page, click **Add New Card**:



- c. In the **Devices** section, click **Generic visualisation**



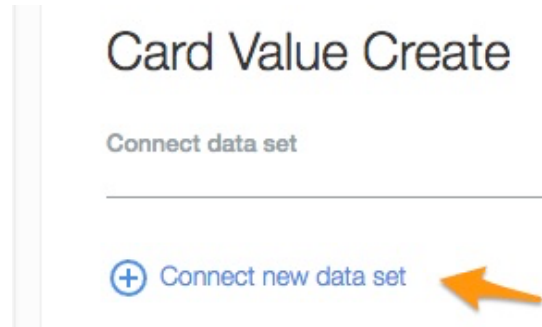
- d. In the **Card source data** section, select your **Sensor Tag** device:



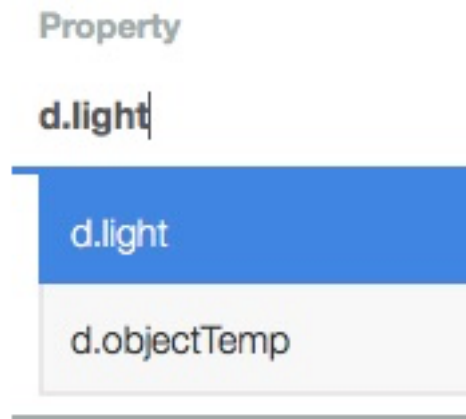
- e. Click **Next**



- f. Click **Connect new data set**:



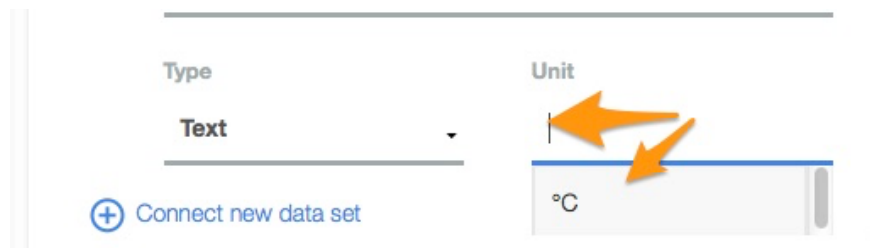
- g. Click the **Property** field. Note that only properties you added to the device data schema appear.



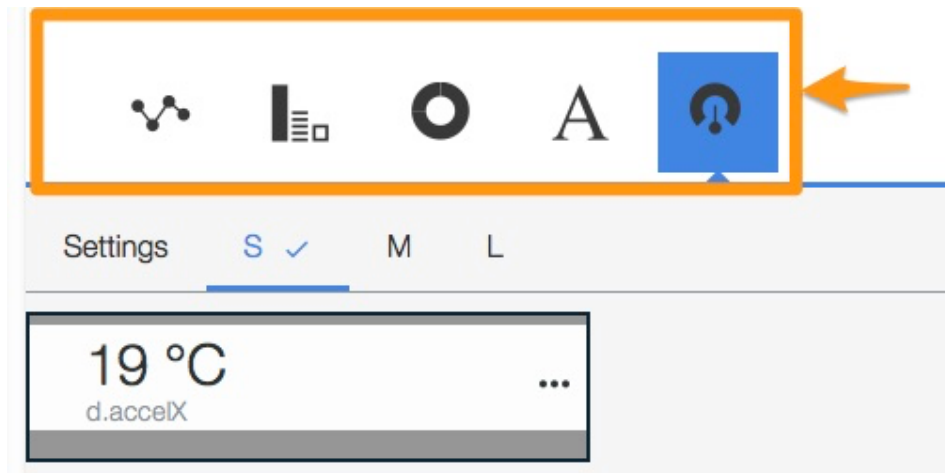
- h. Select the **d.objectTemp** property

*TIP:* On an Android device the property is called object\_temp

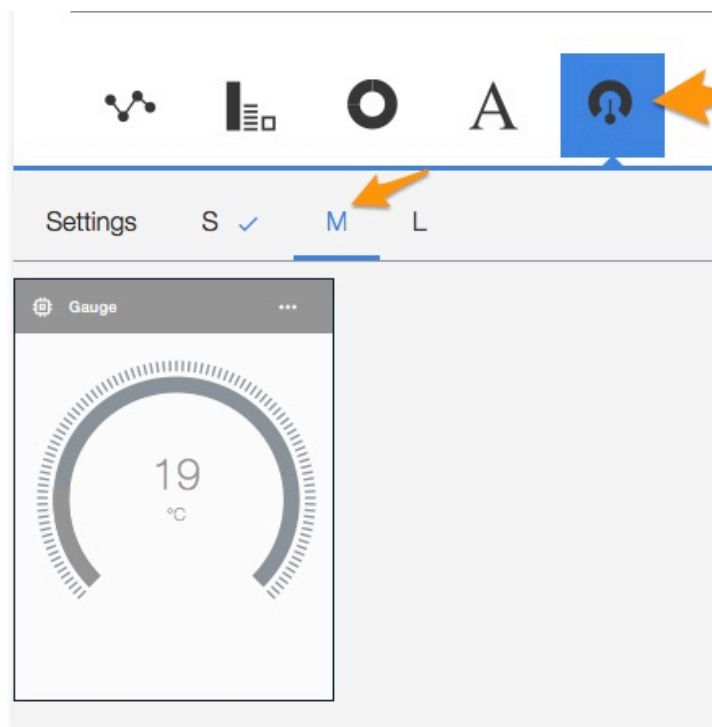
- i. Click inside the **Unit** field and click °C:



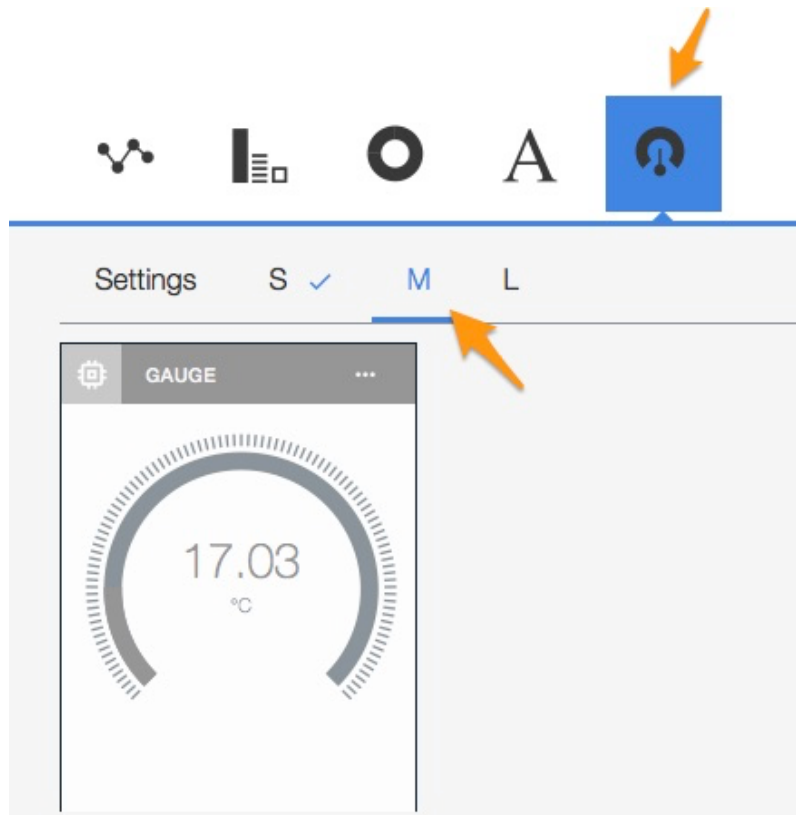
- j. Click **Next**
- k. Click each of the visualization options for a preview of that Card option:



- l. Click each of the size options [S, M, L, XL, XXL] for a preview of what the Card will look like:



- m. Select a **Medium** sized **Gauge**:



- n. Click **Next**
- o. In the **Title** field, type **Temperature**
- p. Select a colour scheme:

Title

**Temperature**

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Description

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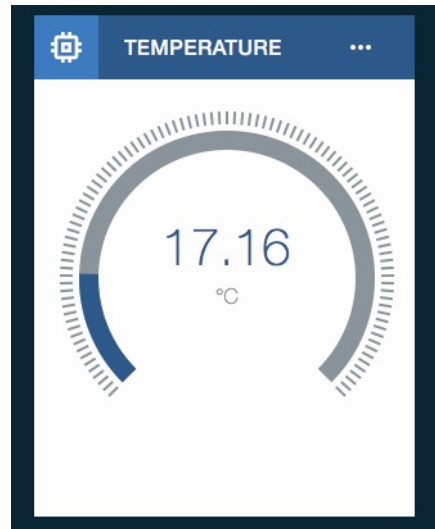
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Color scheme

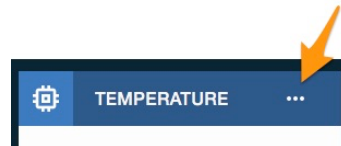
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- q. Click **Submit**:

Submit



Click here to edit /  
delete the card





## Task 5. Unguided Exercise – Add More Cards

Experiment by adding more cards to the Overview. Try adding multiple data sets to a card. Note that you can drag Cards around the page to reposition them. You may also need to modify the device data schema to bring in more properties.

My Device Data

♥ + Add New Card Undo

