

Internet of Things (IoT)

Using Rules and Actions with IBM Watson IoT Platform Cloud Analytics

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Published on August 15, 2016 / Updated on August 16, 2016



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2



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Overview

Skill Level: Beginner

With IBM Watson IoT Platform you can set up rules and actions that trigger from your IoT device. This recipe uses a simulated device to set cloud analytics rules and actions for three metrics: temperature, humidity, and object temperature.

Ingredients

To follow this recipe you will require:

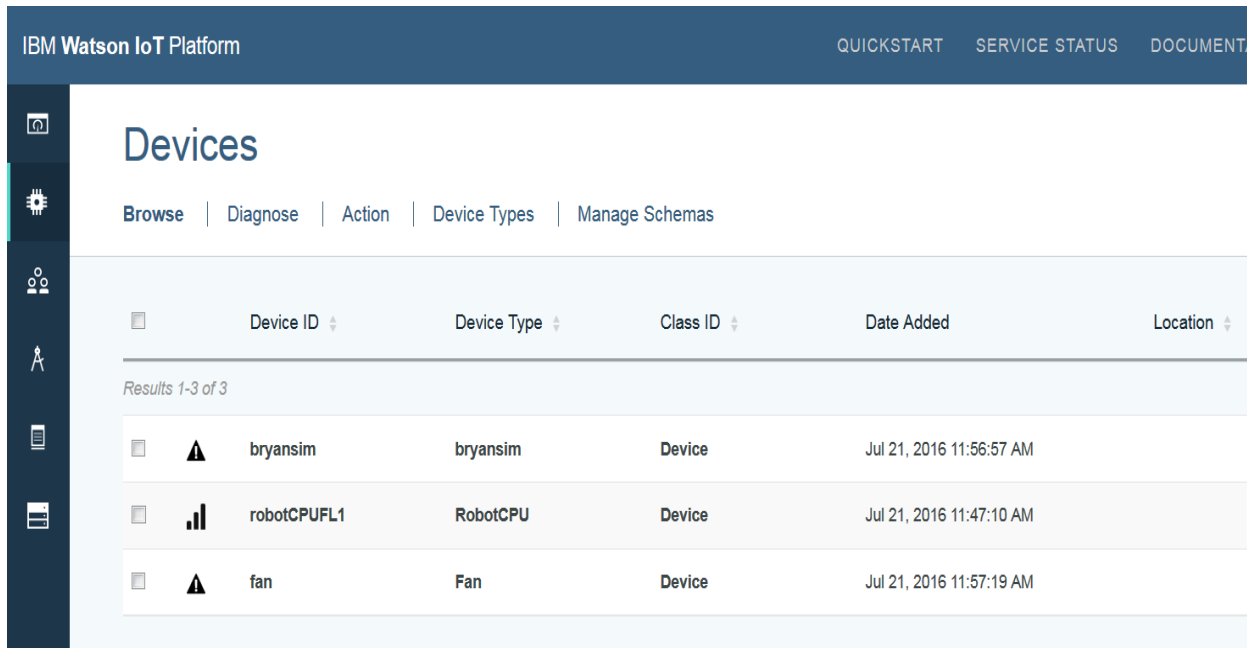
- An instance of Watson IoT Platform running in Bluemix.

Step-by-step

1 Registering the iotsensor with Watson IoT Platform

Before you can receive events and datapoints from the sensor, you must register it with Watson IoT Platform following these steps. This step is only required the first time that you follow this recipe.

1. In your Watson IoT Platform dashboard, select **Devices** from the menu pane, then click **Create device type** on the right.






IBM Watson IoT Platform

QUICKSTART SERVICE STATUS DOCUMENTATION

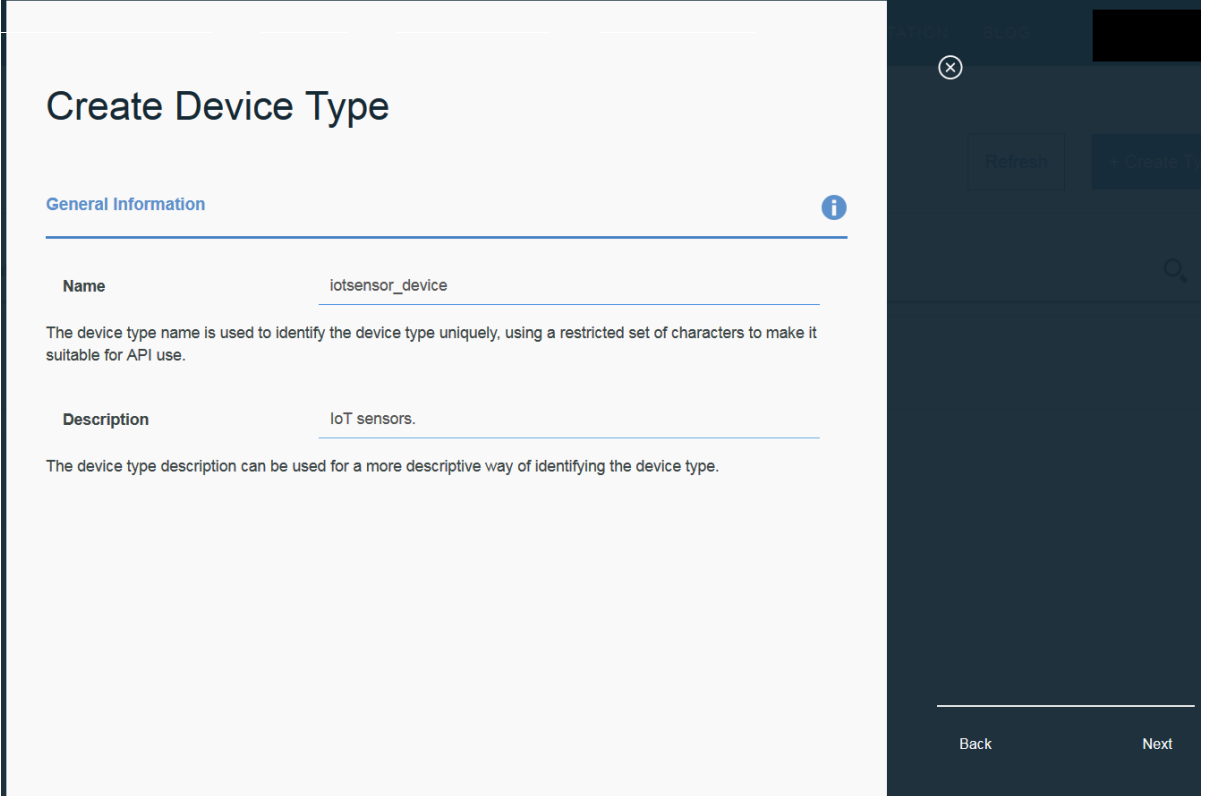
Devices

[Browse](#) | [Diagnose](#) | [Action](#) | [Device Types](#) | [Manage Schemas](#)

	Device ID	Device Type	Class ID	Date Added	Location
Results 1-3 of 3					
	bryansim	bryansim	Device	Jul 21, 2016 11:56:57 AM	
	robotCPUFL1	RobotCPU	Device	Jul 21, 2016 11:47:10 AM	
	fan	Fan	Device	Jul 21, 2016 11:57:19 AM	

2. Click **Create device type**. Creating a device type will make it easier to find and identify devices after connecting it.

3. Enter **iotsensor_device** as the device type name then click **Next** and then click **Create**.



Create Device Type

General Information

Name iotsensor_device

The device type name is used to identify the device type uniquely, using a restricted set of characters to make it suitable for API use.

Description IoT sensors.

The device type description can be used for a more descriptive way of identifying the device type.

Back **Next**

4. Click **Next**.
5. Enter **iotsensor** as the device ID.
6. Click **Next**.
7. Provide an authentication token, or accept an automatically generated token. Providing authentication token may be useful for recalling it later, for example “MyDevice”.
8. Verify that the summary information shown is correct and then click **Add**.
9. In the device information page, copy and save the following device information
- Organization ID
 - Device Type
 - Device ID
 - Authentication method
 - Authentication token

Device iotsensor

Device Refresh

Your Device Credentials i

You have registered your device to the organization. To get it connected, you need to add these credentials to your device. Once you've added these, you should see the messages sent from your device in the 'Sensor Information' section on this page.

Organization ID	
Device Type	iotsensor_device
Device ID	iotsensor
Authentication Method	token
Authentication Token	

Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the device to generate a new authentication token.

[Find out how to add these credentials to your device ↗](#)

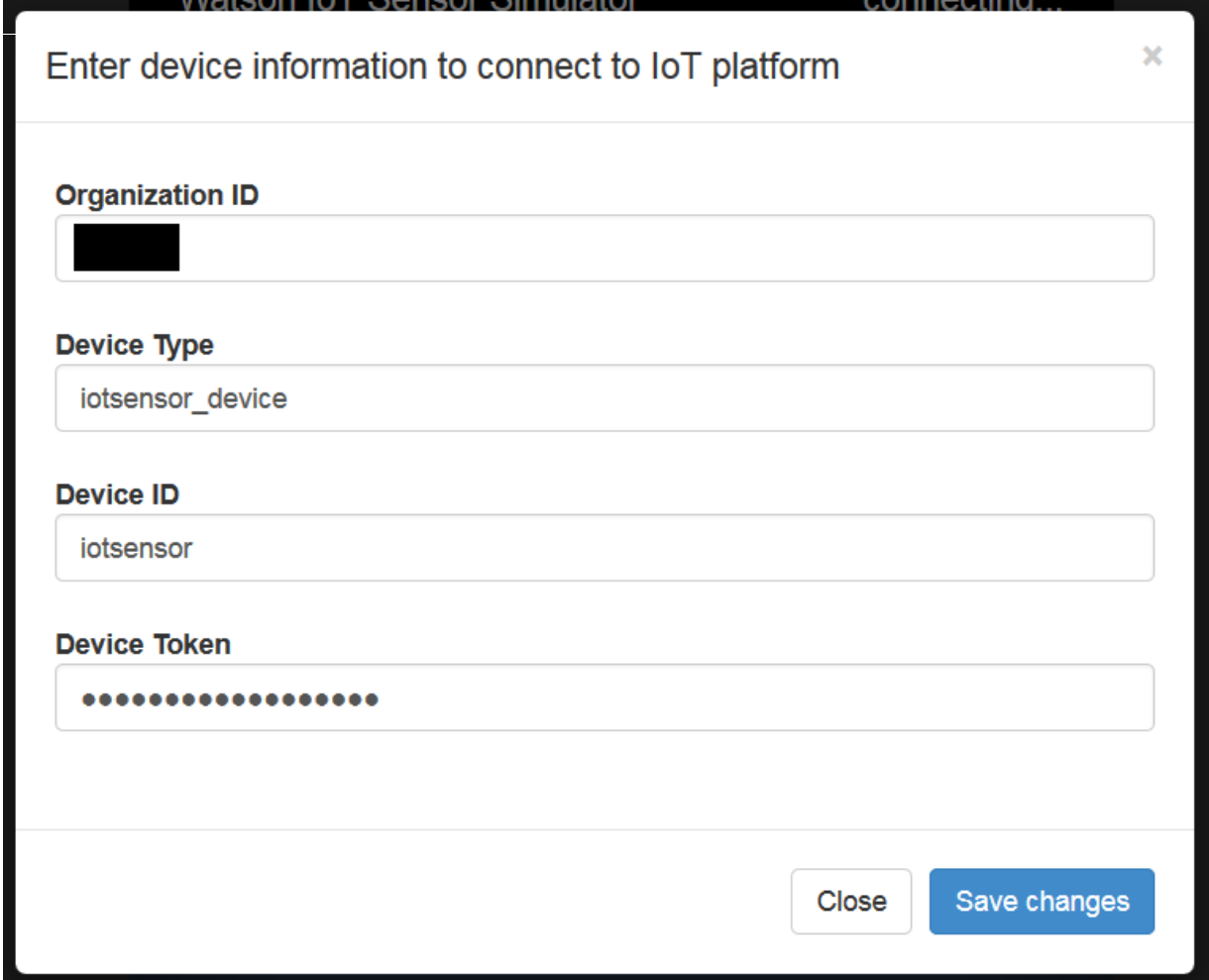
2

Connect the iotsensor to the Watson IoT Platform

This step connects the iotsensor to the registered device in your Watson IoT Platform orgar

1. Go to: <http://watson-iot-sensor-simulator.mybluemix.net/>

2. When prompted, enter the device information to connect to Watson IoT Platform.



The screenshot shows a dialog box titled "Enter device information to connect to IoT platform" with a close button (X) in the top right corner. The dialog contains four input fields:

- Organization ID:** A text input field containing a blacked-out value.
- Device Type:** A text input field containing the value "iotsensor_device".
- Device ID:** A text input field containing the value "iotsensor".
- Device Token:** A text input field containing a series of 16 dots, indicating a masked token.

At the bottom right of the dialog, there are two buttons: "Close" and "Save changes".

3. Verify that the connecting message changes to the name of your device, i.e. iotsensor. 1 connected to Watson IoT Platform.

4. In the Device browse dashboard, click your device and verify that data is being received.

Device iotsensor

Device Refresh

Connection Information ⓘ

Device ID	iotsensor
Device Type	iotsensor_device
Date Added	Friday, July 22, 2016
Added By	[REDACTED]
Connection State	Connected on Friday, July 22, 2016 at 11:31:56 AM from [REDACTED] with a secure connection Refresh

Recent Events ⓘ

Event	Format	Time Received
iotsensor	json	Jul 22, 2016 11:35:06 AM
iotsensor	json	Jul 22, 2016 11:35:08 AM
iotsensor	json	Jul 22, 2016 11:35:10 AM
iotsensor	json	Jul 22, 2016 11:35:12 AM
iotsensor	json	Jul 22, 2016 11:35:14 AM
iotsensor	json	Jul 22, 2016 11:35:16 AM
iotsensor	json	Jul 22, 2016 11:35:18 AM
iotsensor	json	Jul 22, 2016 11:35:20 AM
iotsensor	json	Jul 22, 2016 11:35:22 AM
iotsensor	json	Jul 22, 2016 11:35:24 AM

3 Optional step: Create a board and some cards

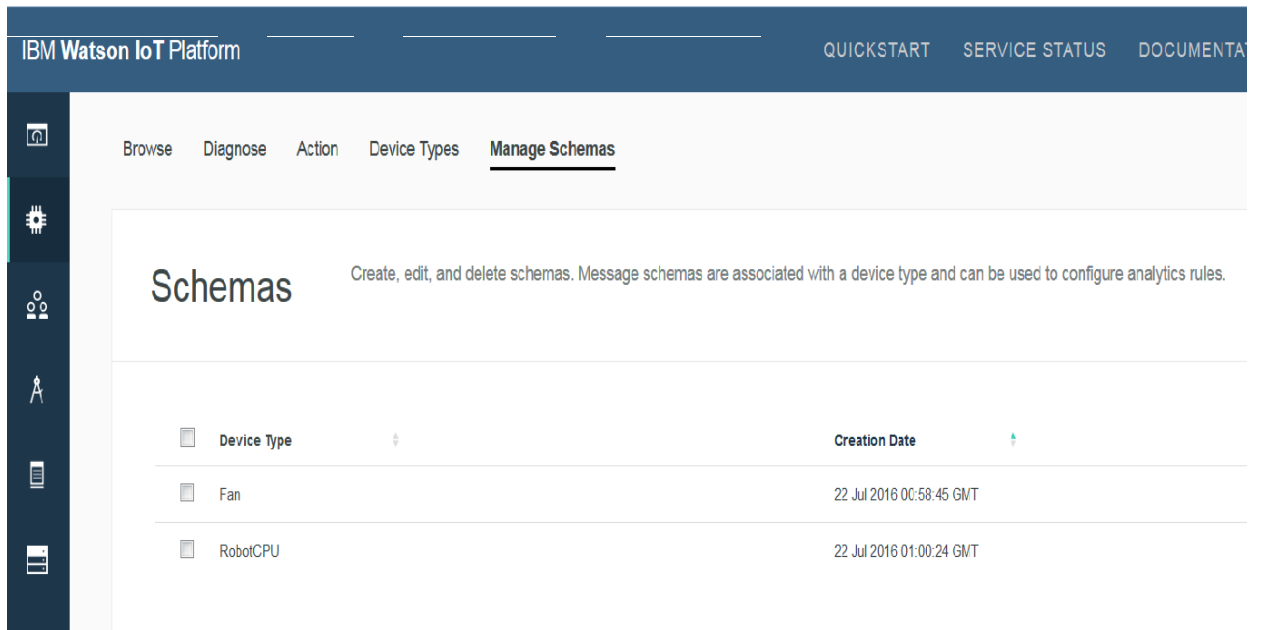
At this point, you can create a board and some cards from your Watson IoT Platform dashboard. A board can be used to keep track of device data, for example the temperature, humidity and objects sent by the iotsensor. To set up a new board follow these steps.

1. In your Watson IoT Platform dashboard click **Create New Board** in the upper right.
2. Give the board a name and description.
3. Click **Next** then **Create**.
4. Click on the board you have just created.
5. Click **Add New Card** in the upper right.
6. Select the style of visualization, and select the iotsensor as the data source.

4 Create an iotsensor_device Schema

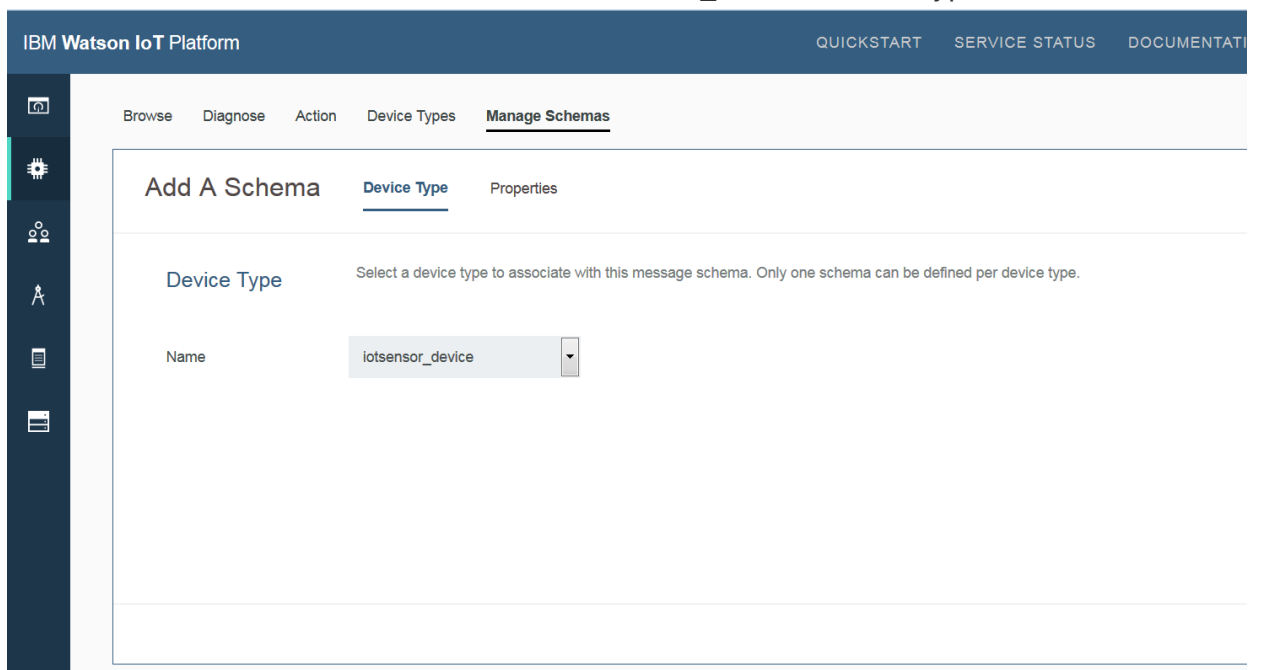
To be able to create rules that are triggered based on the datapoints from your device properties, you need to define these properties in a device type schema.

1. In the Watson IoT Platform dashboard, select **Devices** from the menu pane, then select



2. Click **Add Schema**.

3. In the **Add a schema** editor, select the **iotsensor_device** device type and click **Next**.



4. Click **Add property**.

5. Selected the **From Connected** tab.

Manual **Virtual Property** **From Connected**

Add multiple properties from connected devices

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

Important: Each property must be unique for a schema.

<input checked="" type="checkbox"/>	Property	Type
<input checked="" type="checkbox"/>	d.name	string
<input checked="" type="checkbox"/>	d.temperature	float
<input checked="" type="checkbox"/>	d.humidity	float
<input checked="" type="checkbox"/>	d.objectTemp	float

Cancel

6. Select the following properties:

- name
- temperature
- humidity
- objectTemp

7. Click **OK** to save the schema.

5 Create iotsensor rules and actions

This step creates the rules and actions which will trigger based on data from the iotsensor.

1. In the Watson IoT Platform dashboard select **Rules** from the menu pane then click **Cre**

The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes 'IBM Watson IoT Platform', 'QUICKSTART', 'SERVICE STATUS', and 'DOCUMENTATION'. A left sidebar contains icons for Home, Rules, Actions, and other functions. The main content area is titled 'Browse Rules' with a subtitle 'Create, edit, and delete rules for your devices. Use rules to create alerts or trigger actions when trigger conditions are met for'. Below this is a table with columns: Name, Description, Applies To, State, and Rule Type. One rule is listed: 'Robot overload' with 'Device Type: RobotCPU' and a 'Deactivated' toggle switch. A 'Download Edge Agent' button is visible in the top right.

Name	Description	Applies To	State	Rule Type
Robot overload		Device Type: RobotCPU	<input type="checkbox"/> Deactivated	Cloud

2. Click **Create A Rule**.
3. Name the rule **Temp too high**.

4. Select the **iotsensor_device** device type and then click **Next**.

Add New Cloud Rule

* **Name:** Temp too high

Description: The temperature exceeds 21 C.

* **Applies to:** iotsensor_device

Cancel **Next**

5. In the rule builder, click **New Condition** rule block to edit it.

6. Select the temperature property and enter **21** as the static value to compare to.

Temp too high

The temperature exceeds 21 C.

IF: Add one or more conditions. **Trig**

temperature **> 21**

OR

Set The Condition

* **Property:** temperature x

Operator: **>** **>=** **<** **<=** **==** **!=**

Compare with: ☒ Static value ☐ Property

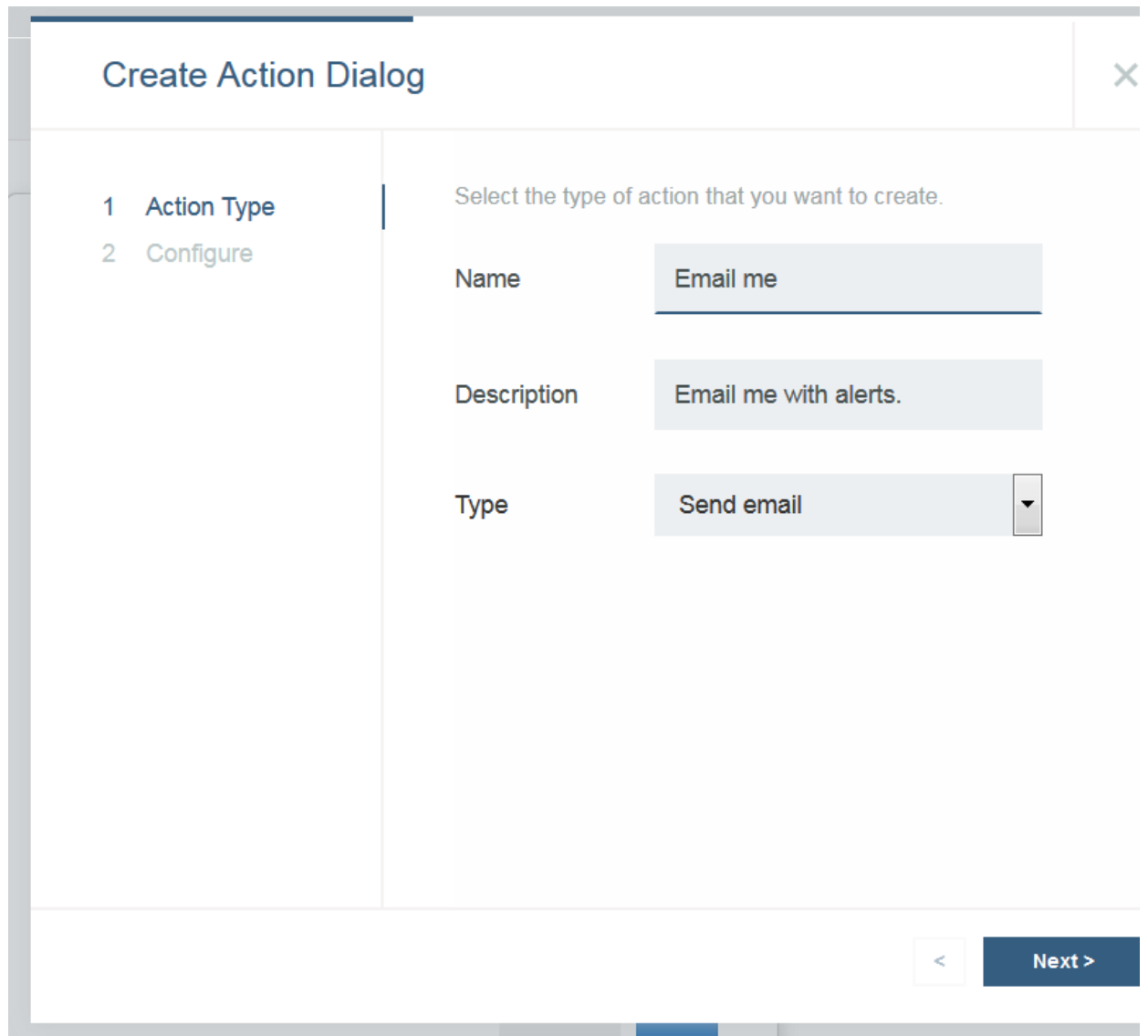
* **Value:** 21

Cancel **OK**

7. Click **OK** to save the condition.

8. Click the **New Action** block.

9. In the **Set The Action** dialog, click **Add action**.

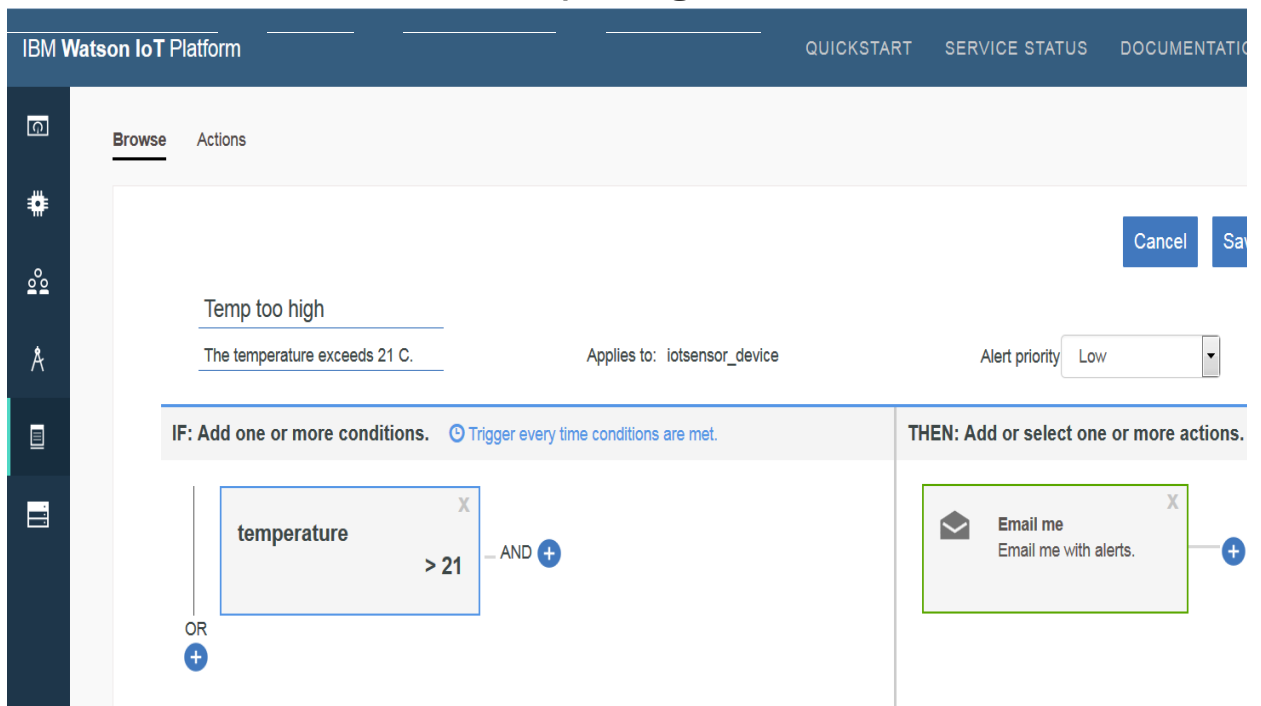


The screenshot shows a 'Create Action Dialog' window. On the left, there is a sidebar with two steps: '1 Action Type' (highlighted) and '2 Configure'. The main area on the right has a heading 'Select the type of action that you want to create.' Below this are three fields: 'Name' with the value 'Email me', 'Description' with the value 'Email me with alerts.', and 'Type' with a dropdown menu showing 'Send email'. At the bottom right, there are two buttons: a back button with a left arrow and a 'Next >' button.

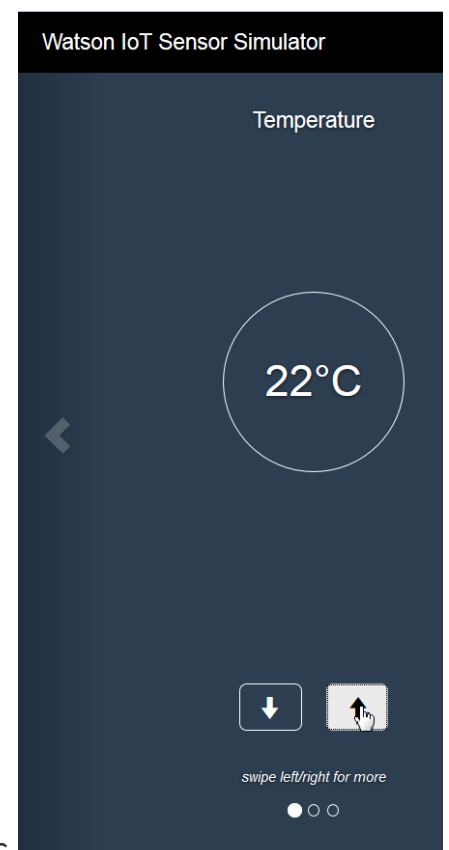
10. Add the email action and click **OK**.

6 **Activate the rule and send some data to test the rule**

1. In the **Rules** browser, activate the **Temp too high** rule.



2. Open the iotsensor at <http://watson-iot-sensor-simulator.mybluemix.net/> Note: If you are already logged in, you must reconnect by using the same credentials as in step 2.
- 3.



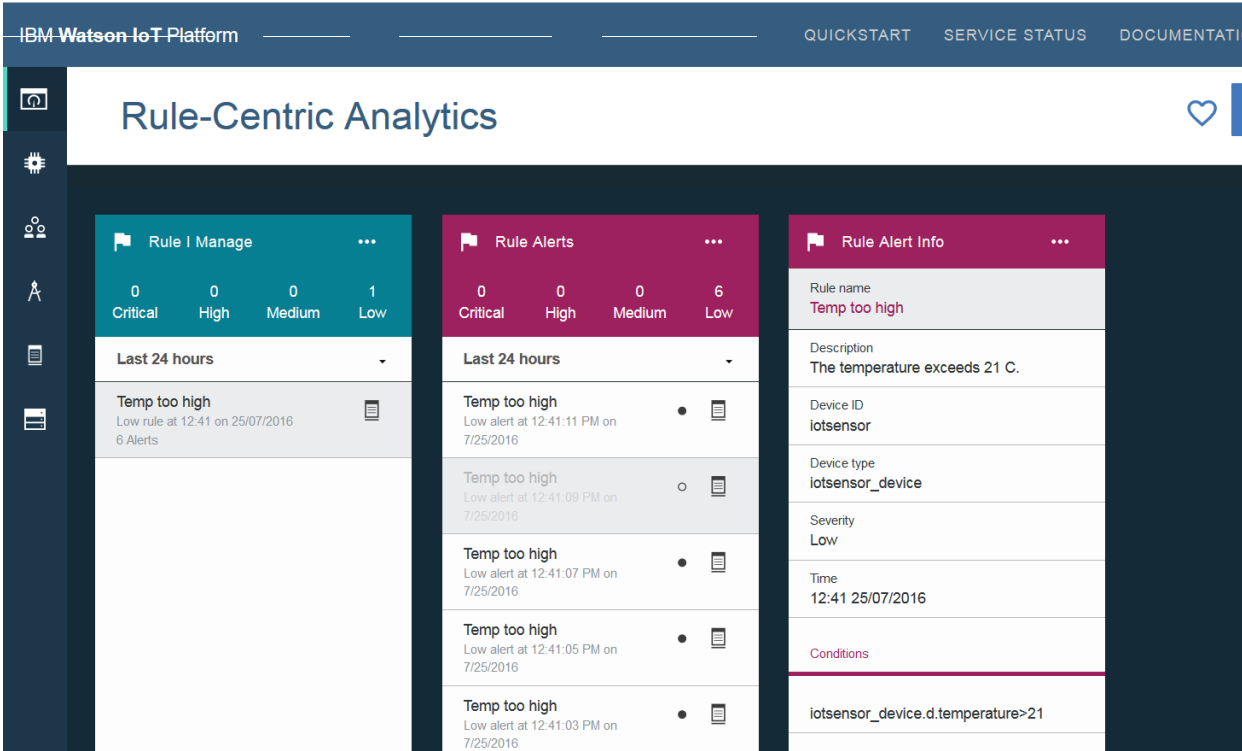
Use the up arrow to raise the temperature to 22 degrees.

7 View the dashboard alert and the email alert

Contents

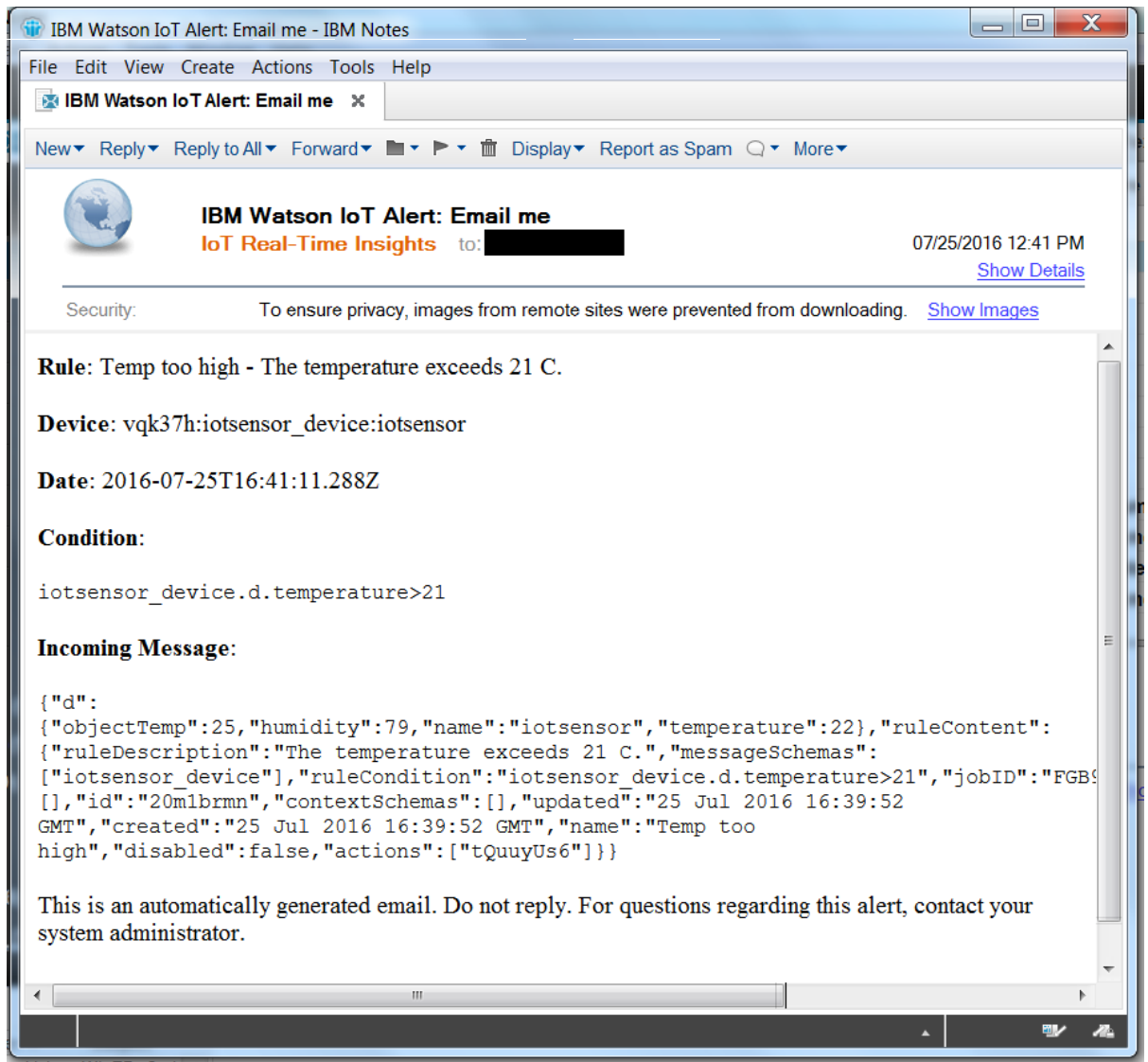
- Overview 1. In the Watson IoT Platform dashboard select **Boards** from the menu pane, then select the **Alerts** card to open it.
- Ingredients

2. The rule is now included in the **Rules I Manage** card and alerts from this rule will appear



3. Select an alert instance to see the alert details, the triggering condition, the property data that the rule was triggered, and the action that was taken.

4. Go to your email client to verify that the alert was sent as an email as expected.



TAGS ANALYTICS, IOT, IOT PLATFORM, REAL-TIME, REAL-TIME ANALYTICS, REAL-TIME INSIGHTS, RTI, RULES, WATSON IOT

by EdProsser

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