

# CREATE IBM WATSON IOT PLATFORM AND DEVICE

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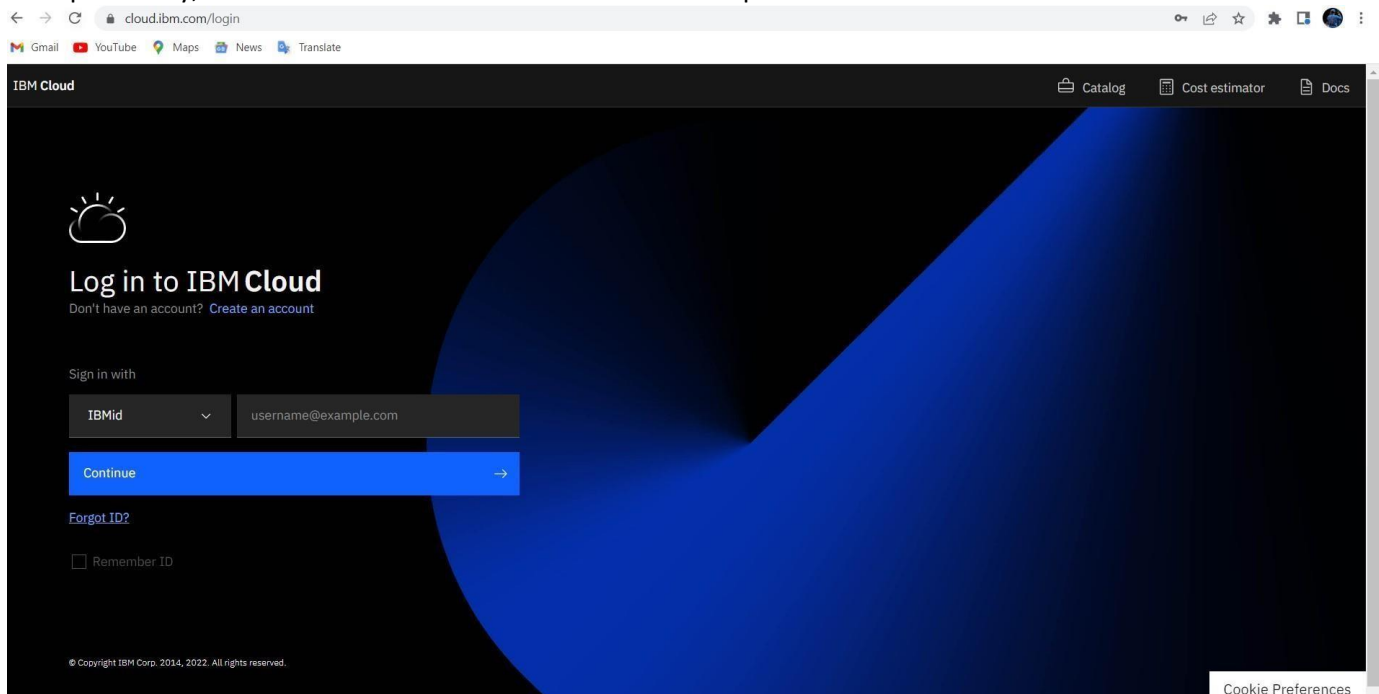
Date	10 November 2022
Team ID	PNT2022TMID01814
Project Name	Gas leakage monitoring and alerting system for industries

### AIM:

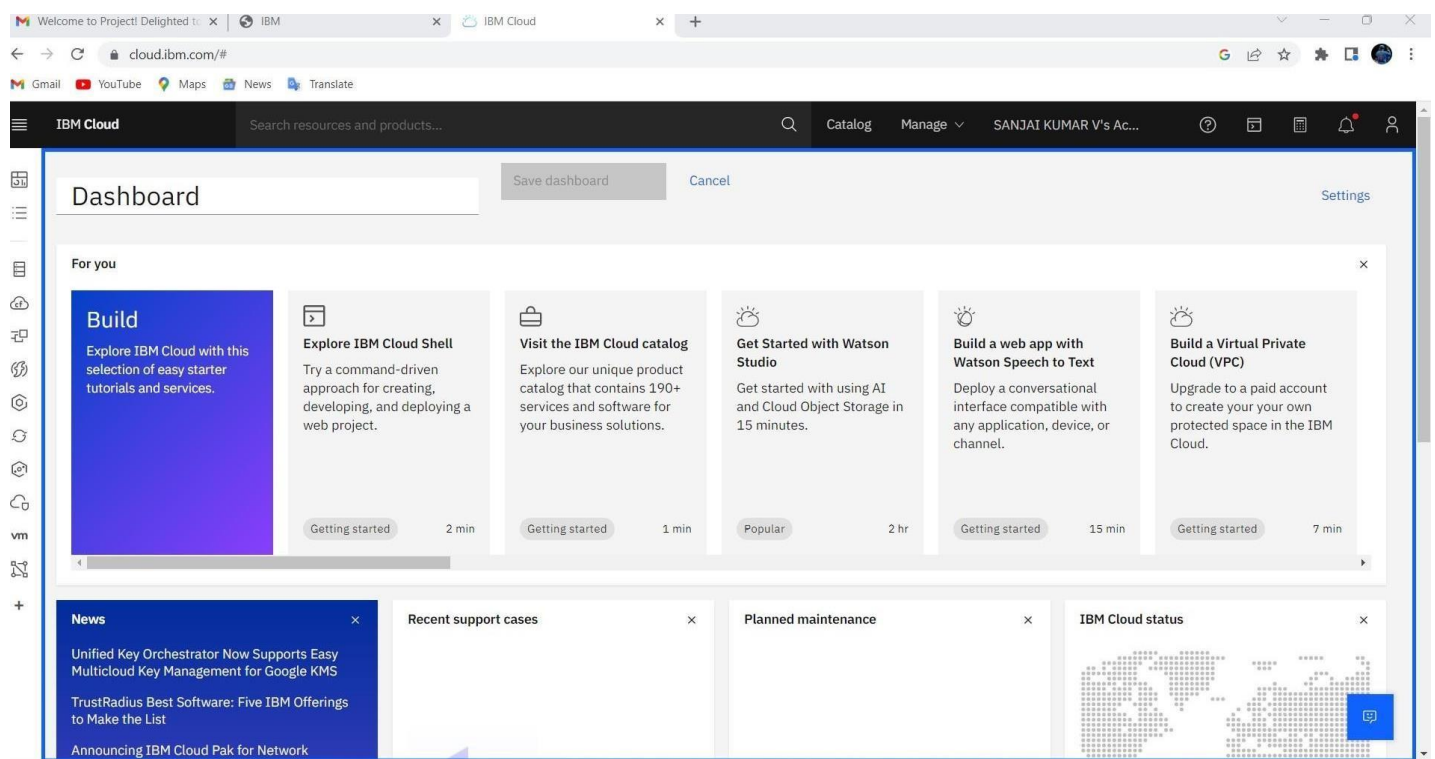
To create the IBM Watson IoT platform and device.

### Steps to be followed

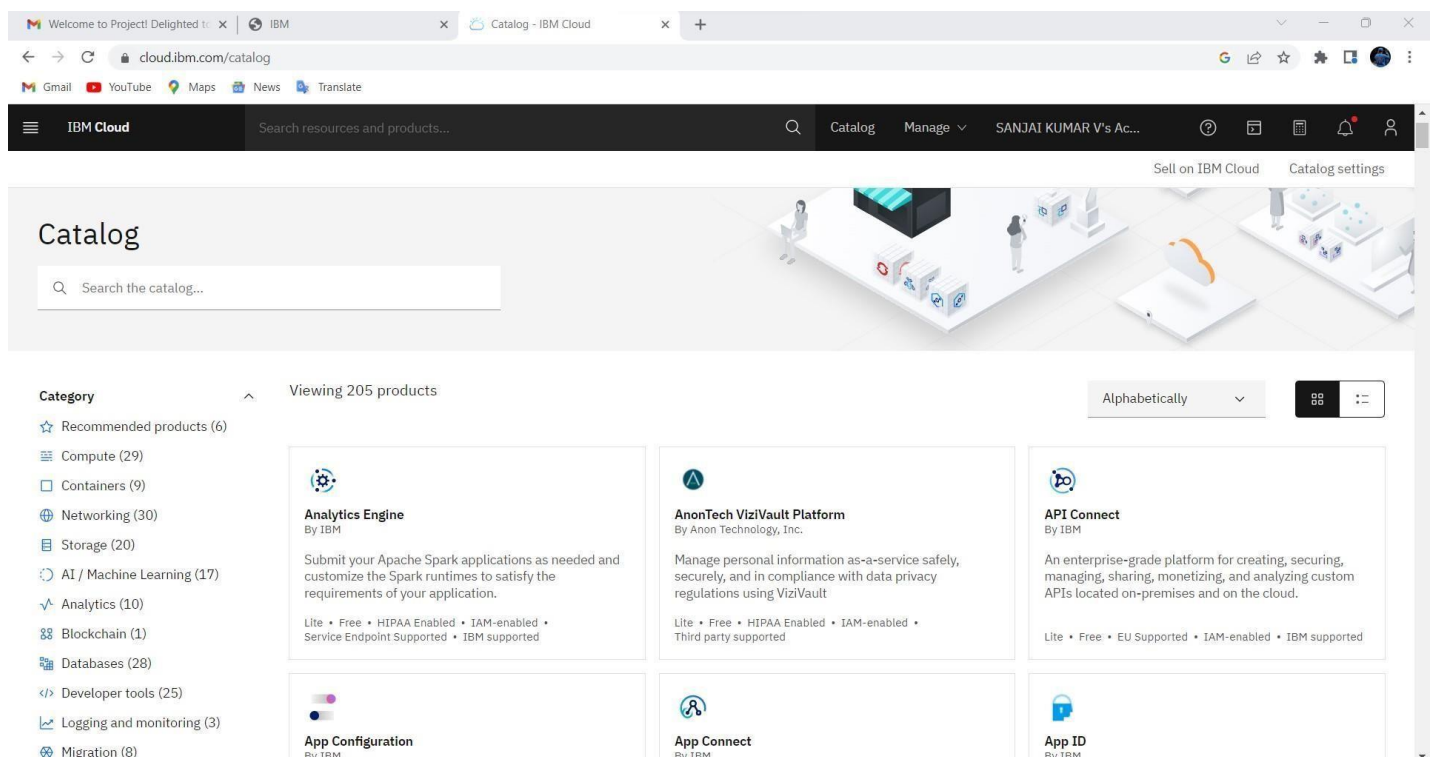
Step 1: Firstly, create an IBM cloud account with IBM id and password.



## Step 2: Home page of IBM cloud.



## Step 3: Click on the catalog on the top.



Step 4: Click on IoT in the category mentioned.

The screenshot shows the IBM Cloud Catalog homepage. The browser address bar displays `cloud.ibm.com/catalog`. The IBM Cloud header includes a search bar and navigation links for Catalog, Manage, and the user profile (SANJAI KUMAR V's Ac...). On the left, a sidebar lists categories: Compute (29), Containers (9), Networking (30), Storage (20), AI / Machine Learning (17), Analytics (10), Blockchain (1), Databases (28), Developer tools (25), Logging and monitoring (3), Migration (8), Integration (10), Internet of Things (1) (highlighted), Security (25), and Mobile (1). Below the categories is a 'Type' filter with 'All' selected. The main content area displays a grid of product cards: Analytics Engine, AnonTech ViziVault Platform, API Connect, App Configuration, App Connect, App ID, Bare Metal Servers for Classic, Bare Metal Servers for VPC, and Block Storage. Each card includes an icon, title, provider, description, and supported features.

Step 5: Click on Internet of Things Platform.

The screenshot shows the IBM Cloud Catalog with the 'Internet of Things Platform' product selected. The browser address bar displays `cloud.ibm.com/catalog?category=iot`. The left sidebar shows the 'Type' filter with 'All' selected. The main content area displays the 'Internet of Things Platform' product card by IBM. The card includes a description: 'This service is the hub of all things IBM IoT, it is where you can set up and manage your connected devices so that your apps can access their live and historical data.' and supported features: 'Lite • Free • IAM-enabled • IBM supported'. The 'Filters' section shows 'Internet of Things' selected. The 'Provider' section shows 'IBM (1)' selected. The 'Pricing plan' section shows 'Lite' and 'Free' selected. The 'Compliance' section shows 'IAM-enabled' selected. A 'Learn more' link is visible at the bottom of the product card.

Step 6: If already a lite is present delete it else u can't create another.

The screenshot shows the IBM Cloud catalog page for the Internet of Things Platform. The 'Lite' plan is selected, and the 'Create' button is disabled. A message on the right states: 'Existing Lite plan instance. You can have only 1 Lite plan instance of this service per resource group. Delete your current Lite plan instance in Default resource group to create a new one, or view the existing instance.'

**Select a pricing plan**  
Displayed prices do not include tax. Monthly prices shown are for country or location: [United States](#)

Plan	Features	Pricing
<b>Lite</b>	<b>Includes up to 500 registered devices, and a maximum of 200 MB of each data metric</b> Maximum of 500 registered devices Maximum of 500 application bindings Maximum of 200 MB of each of data exchanged, data analyzed and edge data analyzed	Free

The Lite service plan for Internet of Things Platform includes up to 500 registered devices, and a maximum of 200 MB each of data exchanged, data analyzed, and edge data analyzed per month.

**Lite plan services are deleted after 30 days of inactivity.**

**Configure your resource**

Service name:

Select a resource group:

Tags:

Access management tags:

**Summary**

**Internet of Things Platform** **Free**

Location: Frankfurt  
Plan: Lite  
Service name: Internet of Things Platform-gm  
Resource group: Default

☐ I have read and agree to the following license agreements: [Terms](#)

**Create**

**Add to estimate**

Step 7: Tick agreements and then click on create.

The screenshot shows the same IBM Cloud catalog page, but the 'Create' button is now enabled. The license agreement checkbox is checked, and the 'Terms' link is visible.

**Select a pricing plan**  
Displayed prices do not include tax. Monthly prices shown are for country or location: [United States](#)

Plan	Features	Pricing
<b>Lite</b>	<b>Includes up to 500 registered devices, and a maximum of 200 MB of each data metric</b> Maximum of 500 registered devices Maximum of 500 application bindings Maximum of 200 MB of each of data exchanged, data analyzed and edge data analyzed	Free

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**Internet of Things Platform** **Free**

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Service name: Internet of Things Platform-gm  
Resource group: Default

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**Create**

**Add to estimate**

Step 8: Click on the launch button.

Resource list / Internet of Things Platform-gb Active Add tags

Manage  
Plan  
Connections

Let's get started with IBM Watson IoT Platform

Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world.

[Launch](#) [Docs](#)

Ready for the next level?

IBM Watson IoT Platform Journey

☒ Lite ☐ Non-Production ☐ Production

The Lite service plan provides a lightweight development environment to get you started with the connectivity capabilities of Watson IoT Platform.

The Non-Production service plan is a full-featured, fully-integrated offering that enables you to explore Watson IoT Platform to see how the service can fit into your IoT environment.

The Production service is a fully managed SaaS offering that enables you to manage and analyze enterprise IoT data.

Step 9: After clicking on the launch button this tab will open.

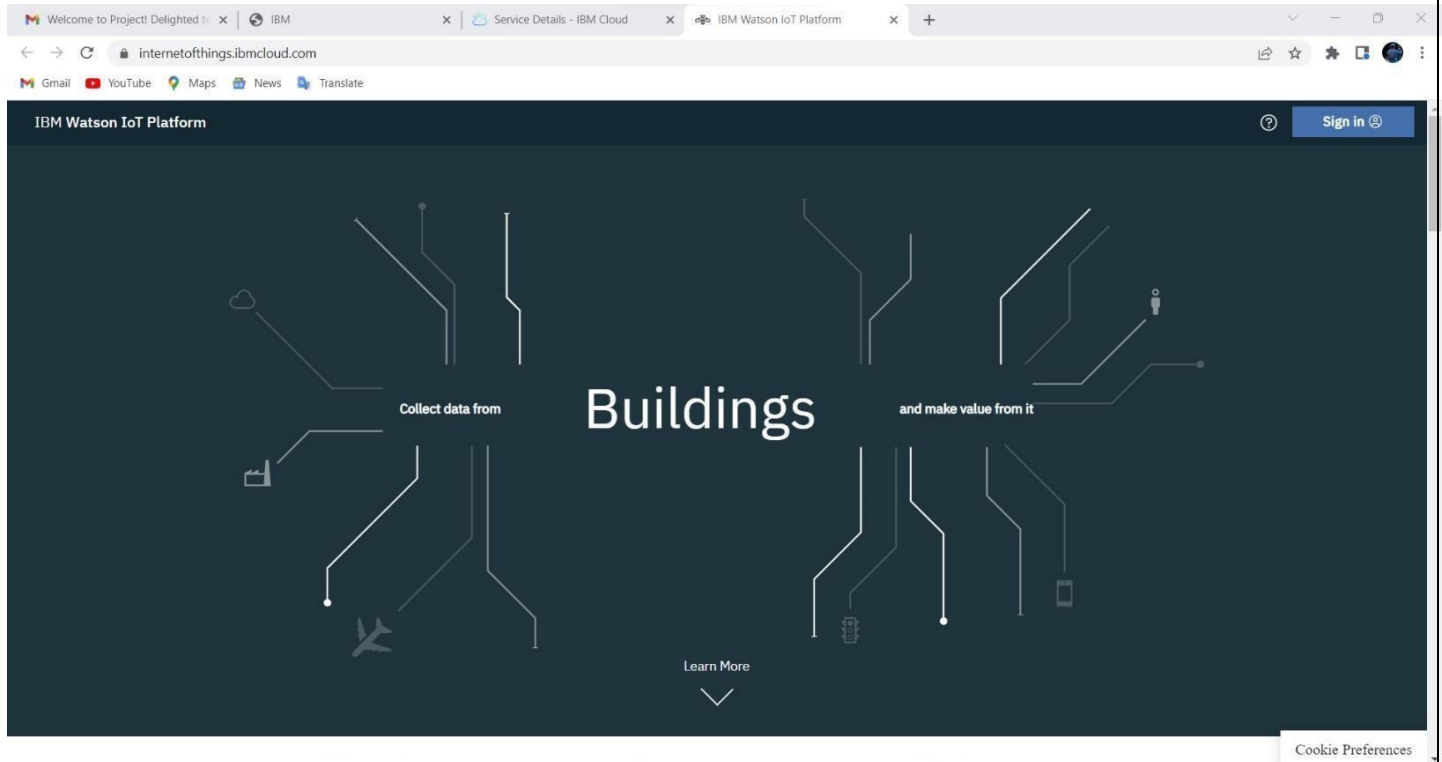
IBM Watson IoT Platform Sign in

Collect data from **Buildings** and make value from it

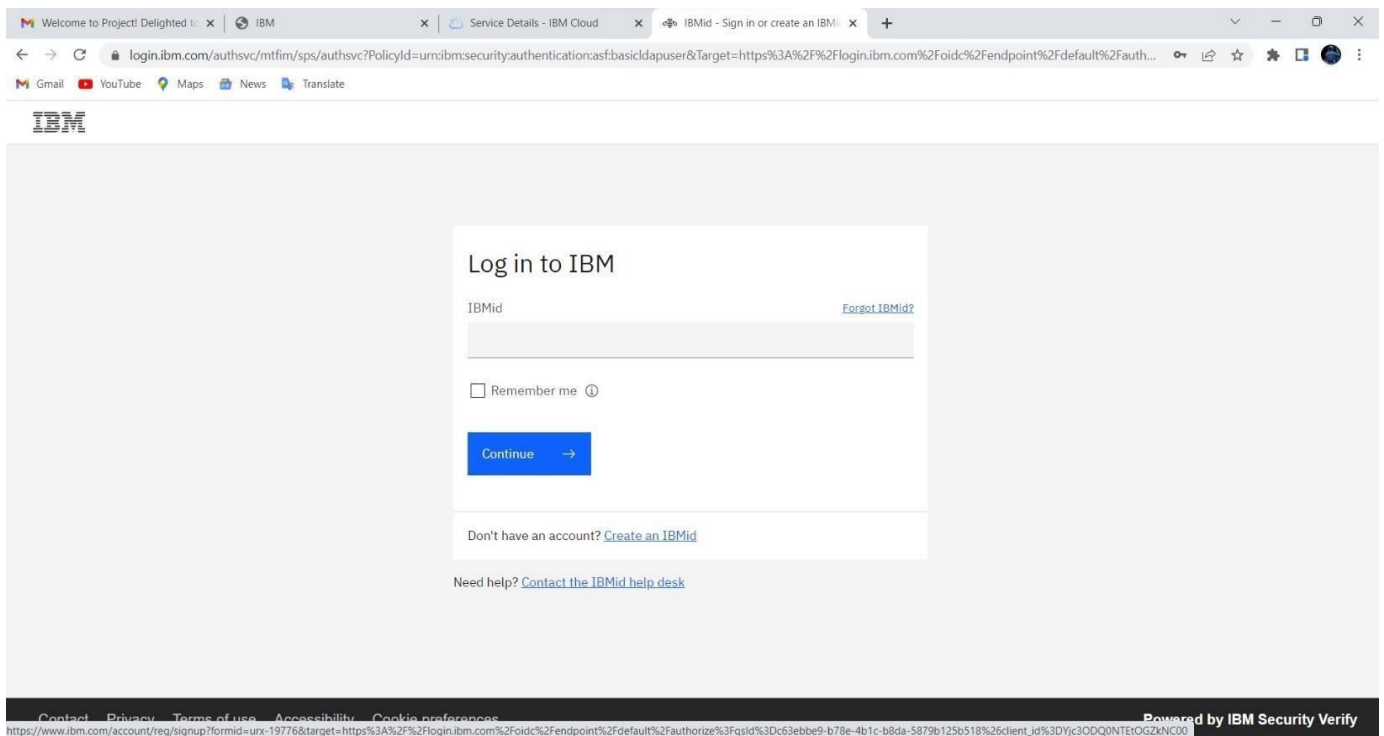
[Learn More](#)

Cookie Preferences

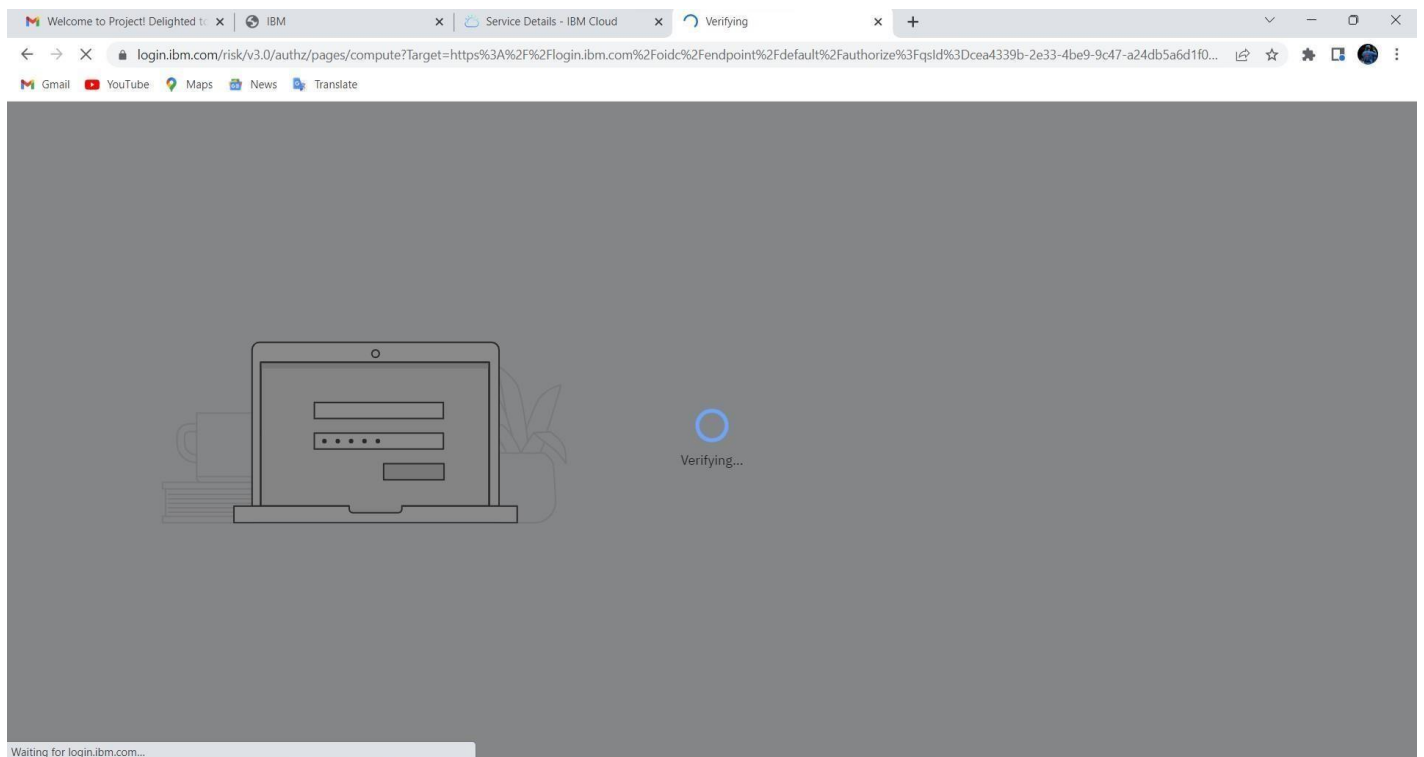
Step 10: Click on Sign in.



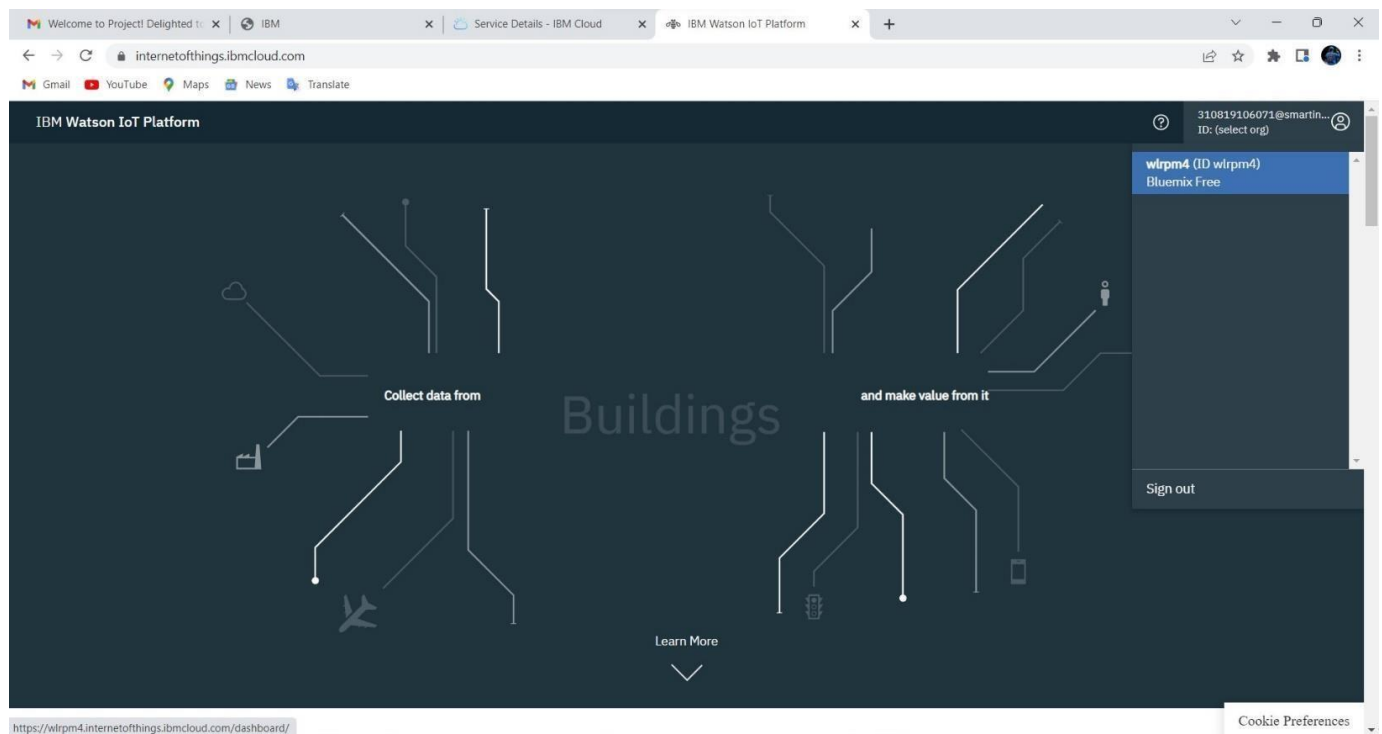
Step 11: Fill the login details.



## Step 12: Sign in on progress.



## Step 13: Once it id logged in, the name will be displayed click on it and then click on Bluemix Free.





Step 14: This is the IBM Watson platform.

IBM Watson IoT Platform

310819106071@smartinternz.com  
ID: wlrpm4

Browse Action Device Types Interfaces

Add Device +

## Browse Devices

All Devices Diagnose

This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.

Search by Device ID

Device Simulator ☒

<input type="checkbox"/>	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
> <input type="checkbox"/>	14325	Disconnected	Testdevicetype	Device	Nov 5, 2022 5:33 AM	

Items per page 50 | 1-1 of 1 item

1 of 1 page

Microsoft Store

0 Simulations running

Step 15: Click on Add Device.

IBM Watson IoT Platform

310819106071@smartinternz.com  
ID: wlrpm4

Browse Action Device Types Interfaces

Add Device +

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> <input type="checkbox"/>	14325	Disconnected	Testdevicetype	Device	Nov 5, 2022 5:33 AM	

Items per page 50 | 1-1 of 1 item

1 of 1 page

0 Simulations running



## Step 16: Click on Device Type.

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The 'Add Device' dialog box is open, displaying a progress bar with four steps: Identity (selected), Device Information, Security, and Summary. Below the progress bar, a message states: 'Select a device type for the device that you are adding and give the device a unique ID.' There are two input fields: 'Device Type' with a placeholder 'Select or create a device type...' and 'Device ID' with a placeholder 'Enter Device ID'. At the bottom right of the dialog are 'Cancel' and 'Next' buttons. Below the dialog, the 'Browse Devices' section is visible, showing '0 Simulations running' and an 'Adobe Express' button.

## Step 17: Fill the details.

The screenshot shows the IBM Watson IoT Platform interface with the 'Add Type' dialog box open. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The 'Add Type' dialog box has a progress bar with two steps: Identity (selected) and Device Information. A message states: 'Device types group devices that have similar characteristics, such as model number, firmware version, or location. Give the device type a unique name and a description that identifies characteristics that are shared by devices of this type.' There are three input fields: 'Type' with buttons for 'Device' and 'Gateway' separated by 'Or', 'Name' with the value '12345' and a note 'The device type name is used to identify the device type uniquely and uses a restricted set of characters to make it suitable for API use.', and 'Description'. At the bottom right of the dialog is a 'Next' button. Below the dialog, the 'Browse Devices' section is visible, showing '0 Simulations running' and an 'Adobe Express' button.

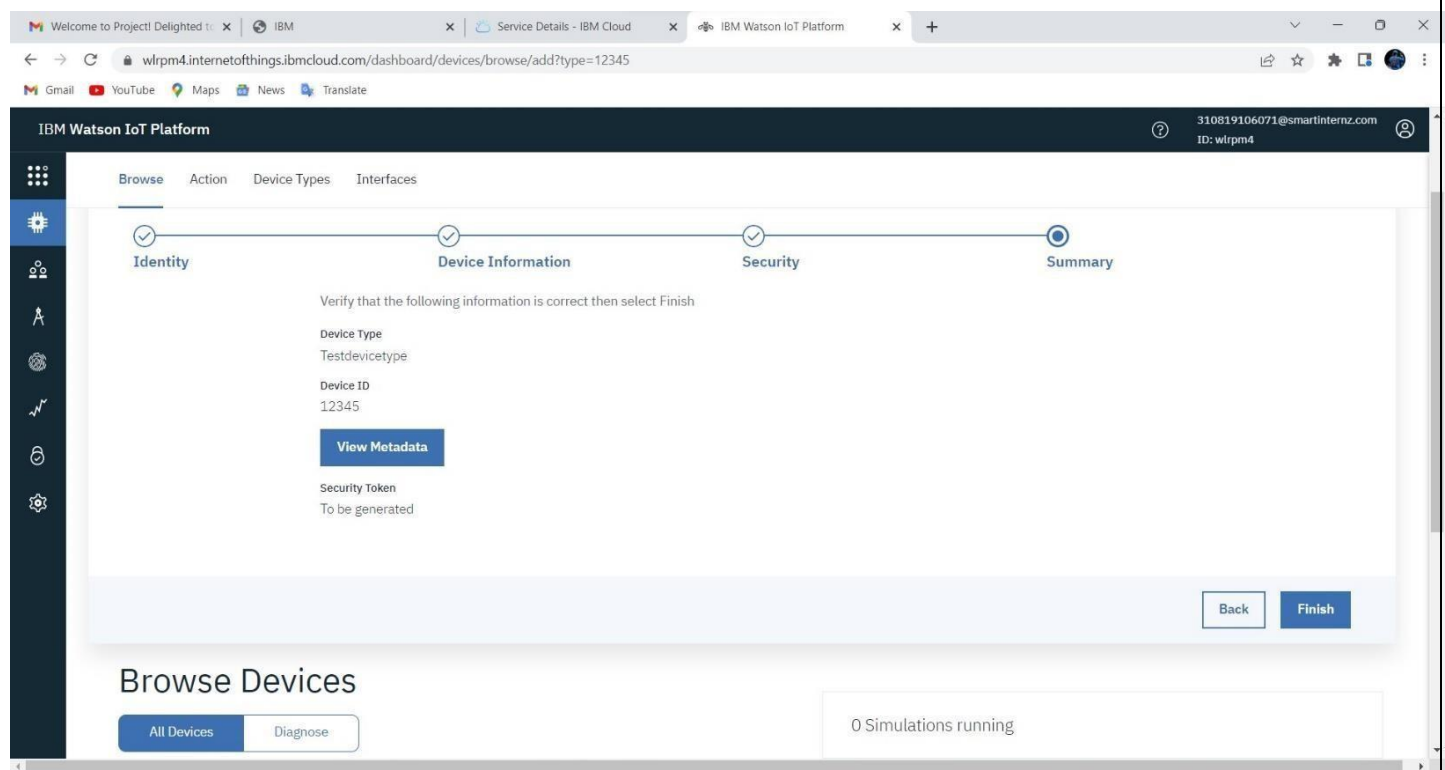
## Step 18: Click on Register Devices.

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The 'Device Types' tab is active. A message at the top states 'You added the new device type: 12345'. Below this, there are two tabs: 'Register Device' (selected) and 'Advanced Flow'. The main content area is titled 'Optional Register Devices, Define Interfaces' and includes the text 'Now that you added a device type, you can register and connect devices for this type.' A blue button labeled 'Register Devices' is visible. On the right side, there is a large grey area with a circuit board icon and a status bar at the bottom right indicating '0 Simulations running'.

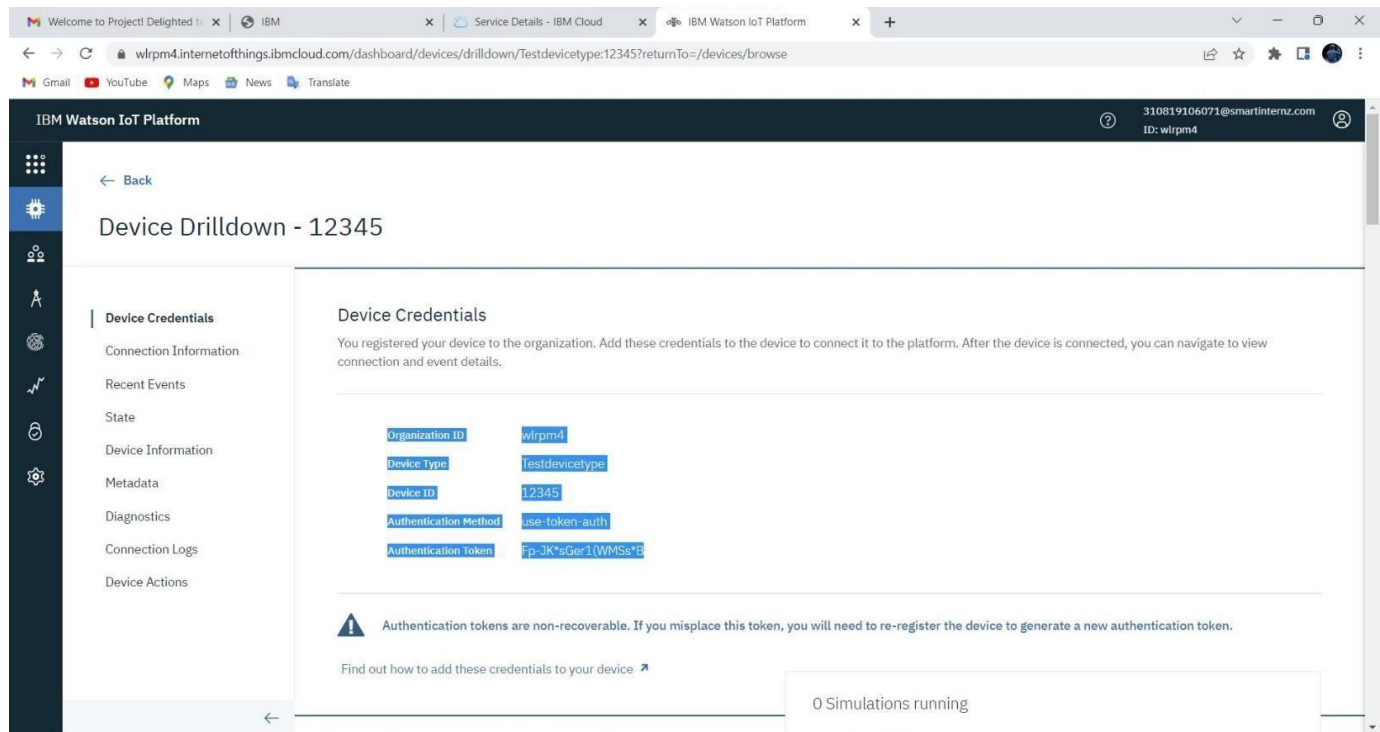
## Step 19: Give the device name which you have created and give Device ID.

The screenshot shows the 'Add Device' dialog box in the IBM Watson IoT Platform. The dialog has a progress bar with four steps: 'Identity' (selected), 'Device Information', 'Security', and 'Summary'. Below the progress bar, there is a text prompt: 'Select a device type for the device that you are adding and give the device a unique ID.' There are two input fields: 'Device Type' with the value 'Testdevicetype' and 'Device ID' with the value '12345'. At the bottom right of the dialog, there are 'Cancel' and 'Next' buttons. The background shows the 'Browse Devices' screen with a status bar indicating '0 Simulations running'.

Step 20: After giving all the data, Click on Finish.



Step 21: After creating the device, Copy the Device Credentials.



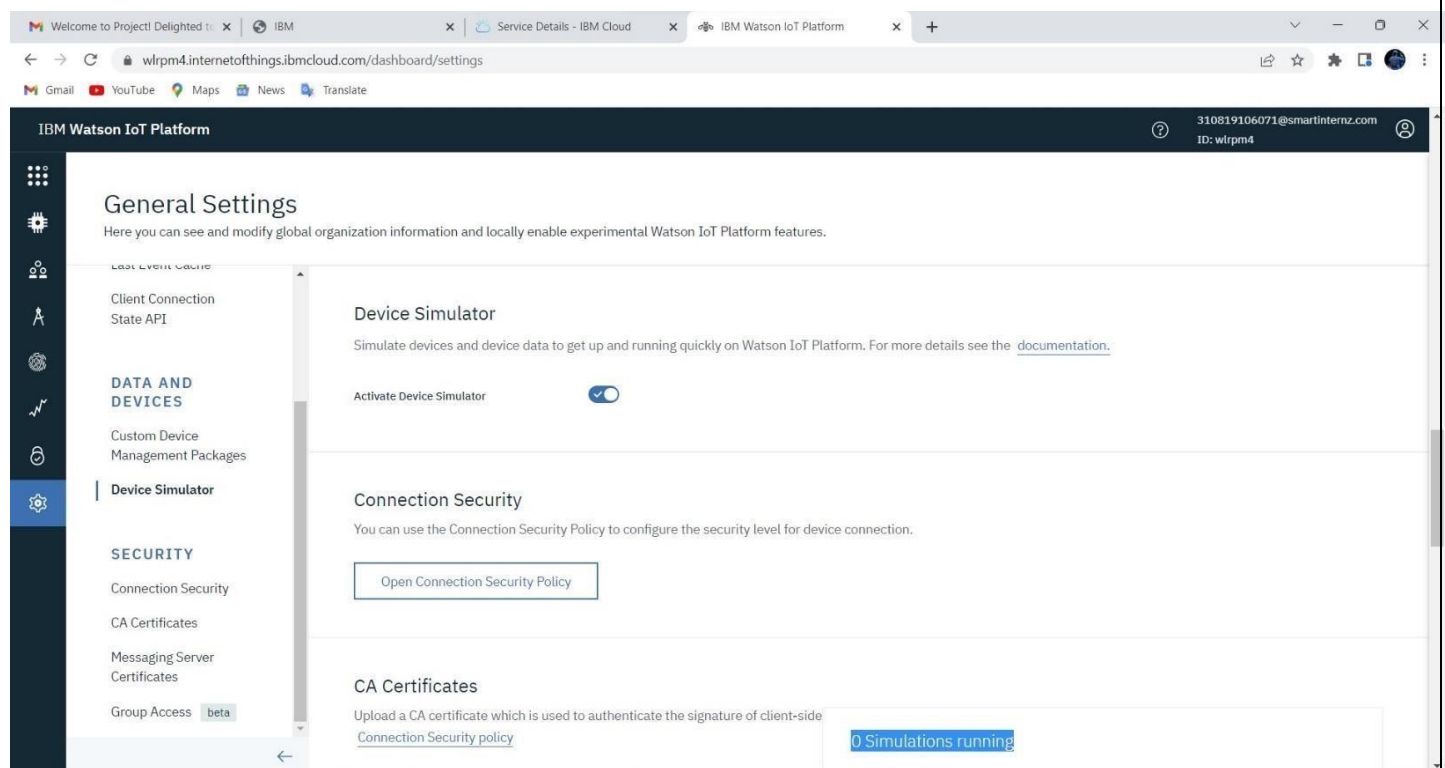
Step 22: Go to Setting, click on Data and Devices.

The screenshot shows the IBM Watson IoT Platform dashboard at the URL `wlrpm4.internetofthings.ibmcloud.com/dashboard/settings`. The left sidebar contains a navigation menu with categories: **General Settings** (Last Event Cache, Client Connection, State API), **DATA AND DEVICES** (Custom Device Management Packages, **Device Simulator**), and **SECURITY** (Connection Security, CA Certificates, Messaging Server Certificates, Group Access *beta*). The main content area is titled "General Settings" and includes a description: "Here you can see and modify global organization information and locally enable experimental Watson IoT Platform features." It contains three sections: **Device Simulator** (with a description and a link to documentation, and a toggle switch for "Activate Device Simulator" which is turned on), **Connection Security** (with a description and a button "Open Connection Security Policy"), and **CA Certificates** (with a description and a link to the policy). At the bottom right, it states "0 Simulations running".

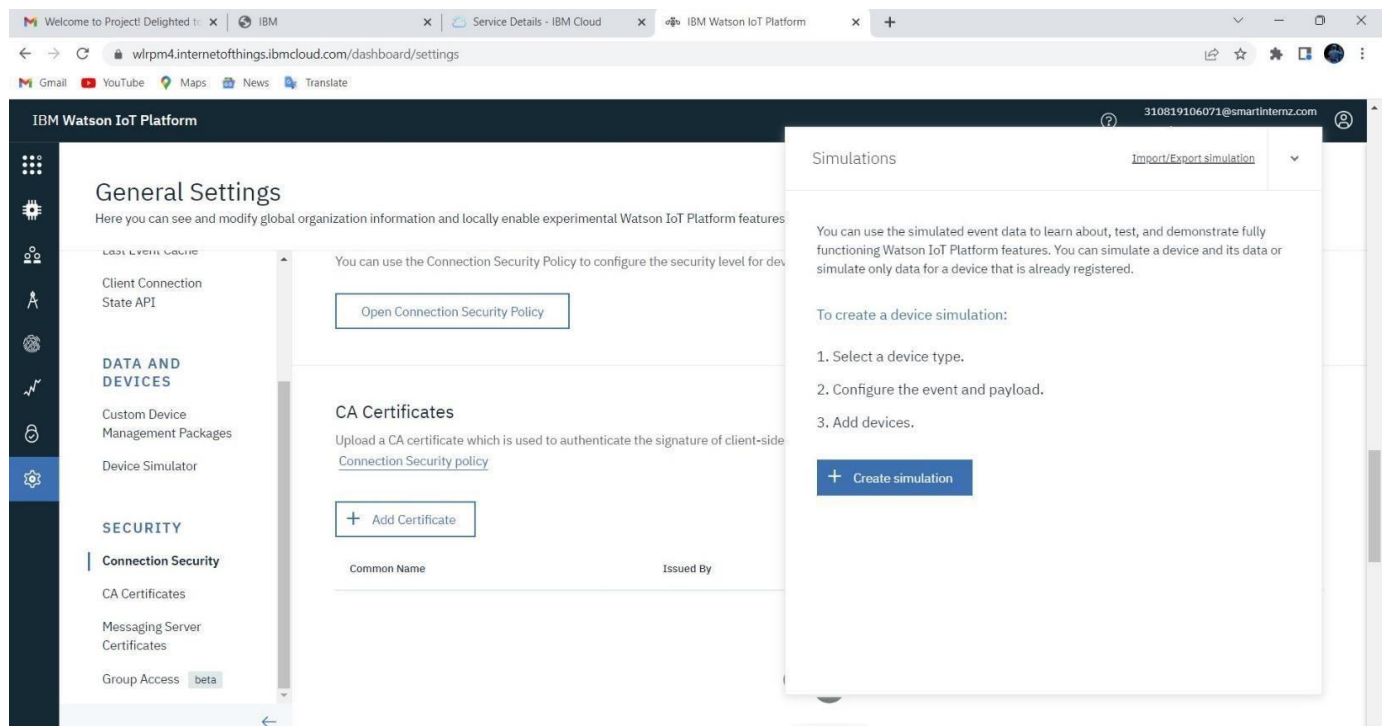
Step 23: Then click on Device Simulator and Activate Device Simulator.

This screenshot is identical to the one above, showing the IBM Watson IoT Platform dashboard settings page. The left sidebar navigation menu is the same, with **Device Simulator** highlighted under **DATA AND DEVICES**. The main content area shows the "General Settings" section with the "Activate Device Simulator" toggle switch turned on. The "Connection Security" and "CA Certificates" sections are also visible, along with the "0 Simulations running" status at the bottom right.

Step 24: Click on the pop-up screen on the right side.



Step 25: Click on Create Simulation.



## Step 26: Choose the Device.

The screenshot shows the IBM Watson IoT Platform dashboard at the 'Settings' page. The left sidebar contains navigation links for 'General Settings', 'DATA AND DEVICES', and 'SECURITY'. The main content area is titled 'General Settings' and includes sections for 'Client Connection State API', 'CA Certificates', and 'Connection Security'. A modal window titled 'Simulations' is open on the right, displaying instructions on how to create a device simulation. The modal lists three steps: 1. Select a device type, 2. Configure the event and payload, and 3. Add devices. Below the steps is a text input field labeled 'Select or create a device type...'. The browser's address bar shows the URL 'wlrpm4.internetofthings.ibmcloud.com/dashboard/settings'.

IBM Watson IoT Platform

### General Settings

Here you can see and modify global organization information and locally enable experimental Watson IoT Platform features

Client Connection State API

Open Connection Security Policy

#### DATA AND DEVICES

Custom Device Management Packages

Device Simulator

#### SECURITY

Connection Security

CA Certificates

Messaging Server Certificates

Group Access beta

#### Simulations

[Import/Export simulation](#)

You can use the simulated event data to learn about, test, and demonstrate fully functioning Watson IoT Platform features. You can simulate a device and its data or simulate only data for a device that is already registered.

To create a device simulation:

1. Select a device type.
2. Configure the event and payload.
3. Add devices.

Select or create a device type...

## Step 27: Type the code.

The screenshot shows the IBM Watson IoT Platform dashboard at the 'Browse Devices' page. The left sidebar contains navigation links for 'Browse', 'Action', 'Device Types', and 'Interfaces'. The main content area is titled 'Browse Devices' and includes a table of devices. A modal window titled 'Testdevice' is open on the right, displaying configuration options for a device simulation. The modal includes fields for 'Event type name' (event\_1) and 'Frequency' (20 x Every Minute). Below these is a 'Payload' section with a text area containing a JSON payload: 

```
{
  "temperature": random(0, 100),
  "humidity": random(0, 100)
}
```

. The modal also has a 'Send' button and a 'Cancel' button. The browser's address bar shows the URL 'wlrpm4.internetofthings.ibmcloud.com/dashboard/devices/browse'.

IBM Watson IoT Platform

### Browse Devices

All Devices Diagnose

This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.

Search by Device ID

Device ID	Status	Device Type	Class ID	Data
12345	Disconnected	Testdevice	Device	No
14325	Disconnected	Testdevice	Device	No

Items per page: 50 | 1-2 of 2 items

#### Testdevice 12345

Events 1

Event type name: event\_1 Frequency: 20 x Every Minute Send

Payload

You can override field values in the event payload that is sent by this device. Specify the override values in the editor window.

```
0 {
1   "temperature": random(0, 100),
2   "humidity": random(0, 100)
3 }
4
```

[What functions can I apply?](#)

Cancel Save



Step 28: Click on Use Registered Device and choose the device and run it.

The screenshot shows the IBM Watson IoT Platform 'General Settings' page. The left sidebar contains navigation links for 'General Settings', 'DATA AND DEVICES', and 'SECURITY'. The main content area is titled 'General Settings' and includes sections for 'Client Connection State API', 'CA Certificates', and 'Connection Security'. A 'Simulations' panel is open on the right, showing '1/50 Simulations Running' and a 'Device Type' dropdown set to 'Testdevicetype'. Below this, a list of devices is shown with '12345' selected. At the bottom of the panel, there are buttons for 'Create Simulated Device' and 'Use Registered Device'. The 'Use Registered Device' button is highlighted.

Step 29: Go to devices then click on devices and check the recent events whether the code is running or not.

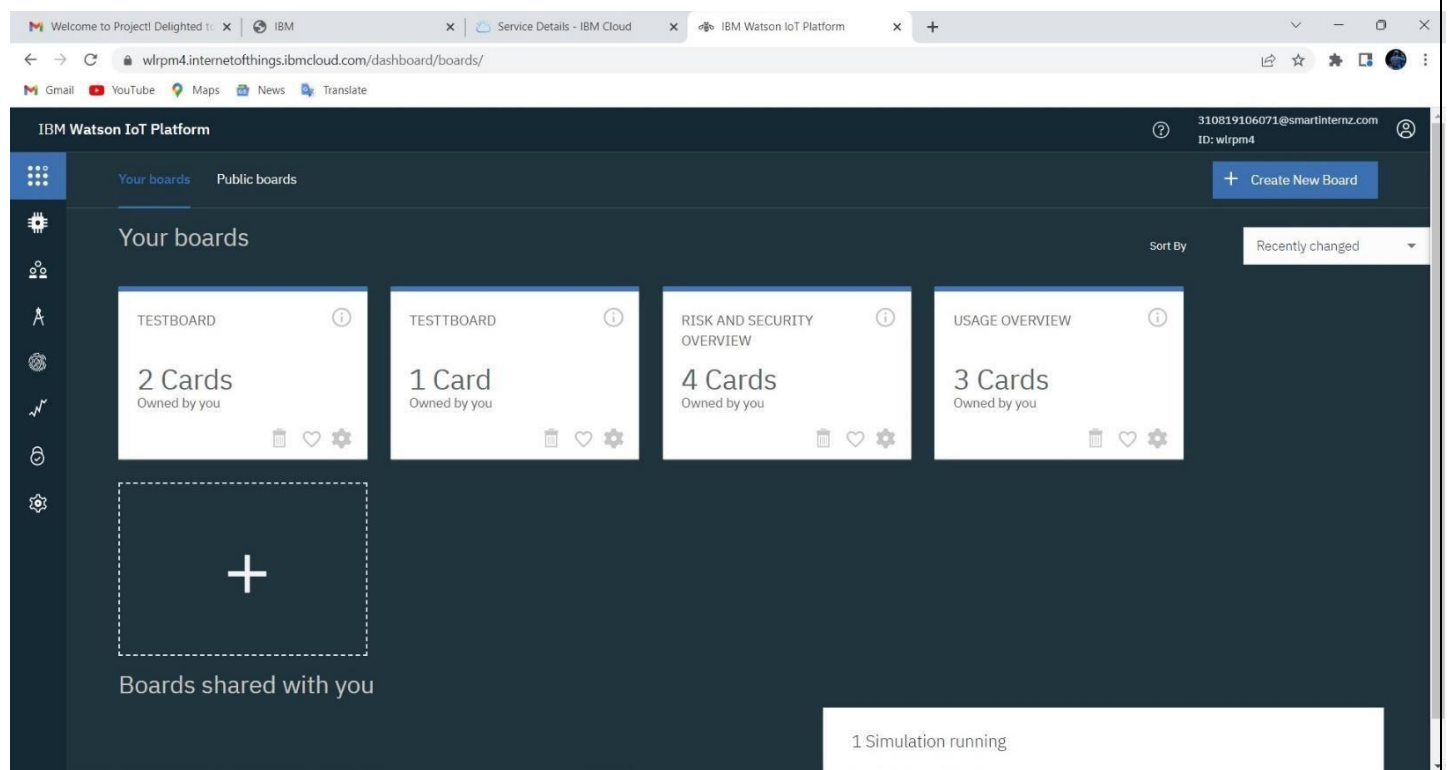
The screenshot shows the IBM Watson IoT Platform 'Devices' page. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar is present with the text 'Search by Device ID'. Below the search bar, a table lists devices. The first device, '12345', is selected and its details are shown in a modal window. The modal window has tabs for 'Identity', 'Device Information', 'Recent Events', 'State', and 'Logs'. The 'Recent Events' tab is active, showing a list of events with columns for 'Event', 'Value', 'Format', and 'Last Received'. The events are listed as follows:

Event	Value	Format	Last Received
event_1	{"temperature":63,"humidity":8}	json	a few seconds ago
event_1	{"temperature":56,"humidity":9}	json	a few seconds ago
event_1	{"temperature":40,"humidity":76}	json	a few seconds ago
event_1	{"temperature":61,"humidity":36}	json	a few seconds ago

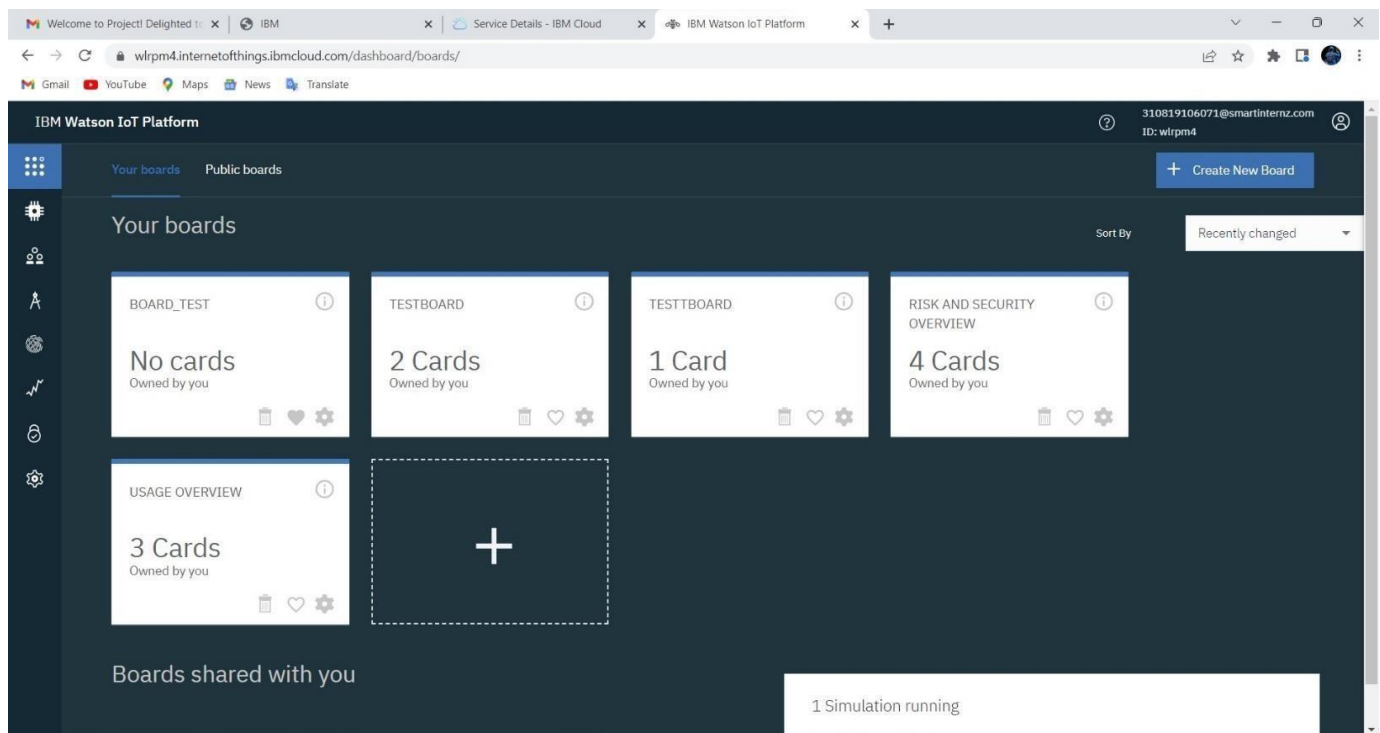
At the bottom right of the modal window, a status indicator shows '1 Simulation running'.



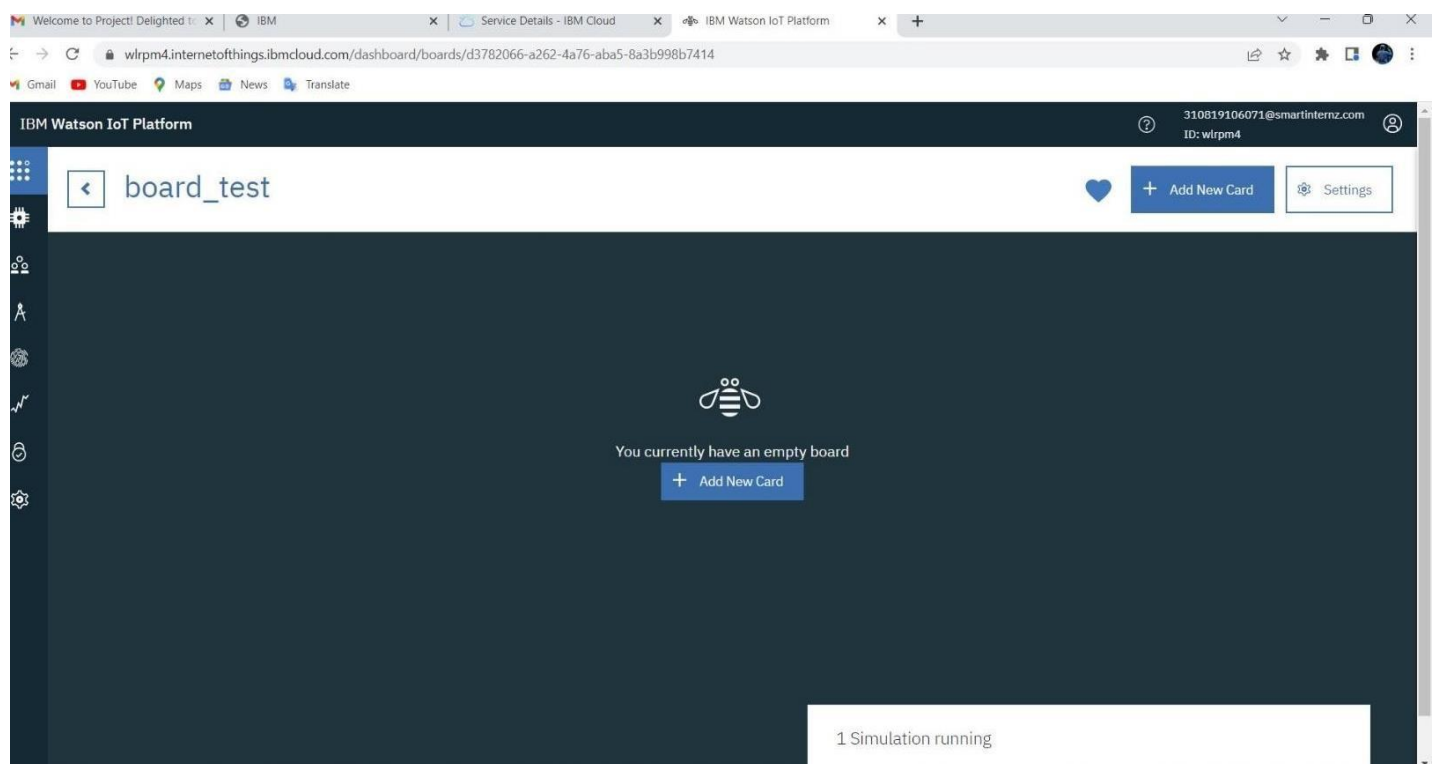
Step 30: Go to Board and click on + Create New Board, fill the details and create a board.



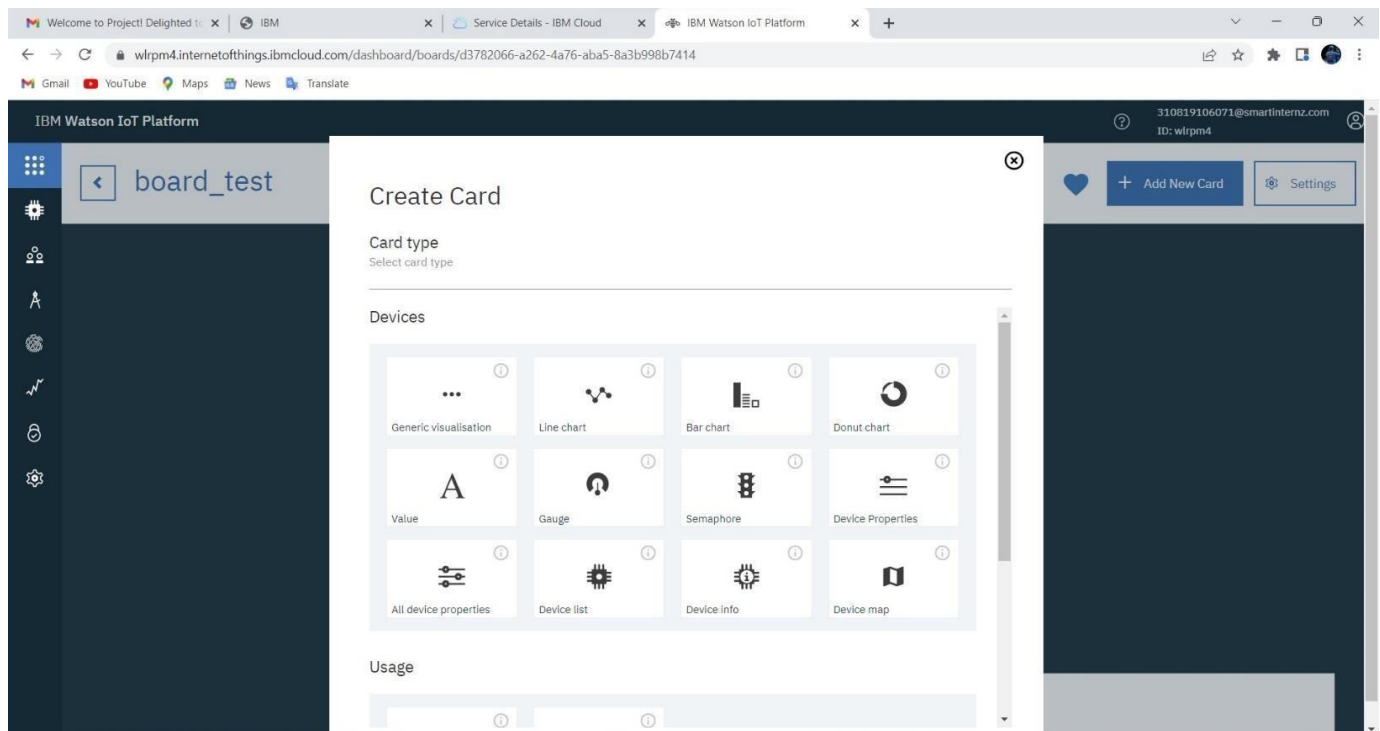
Step 31: Click on the board which is created.



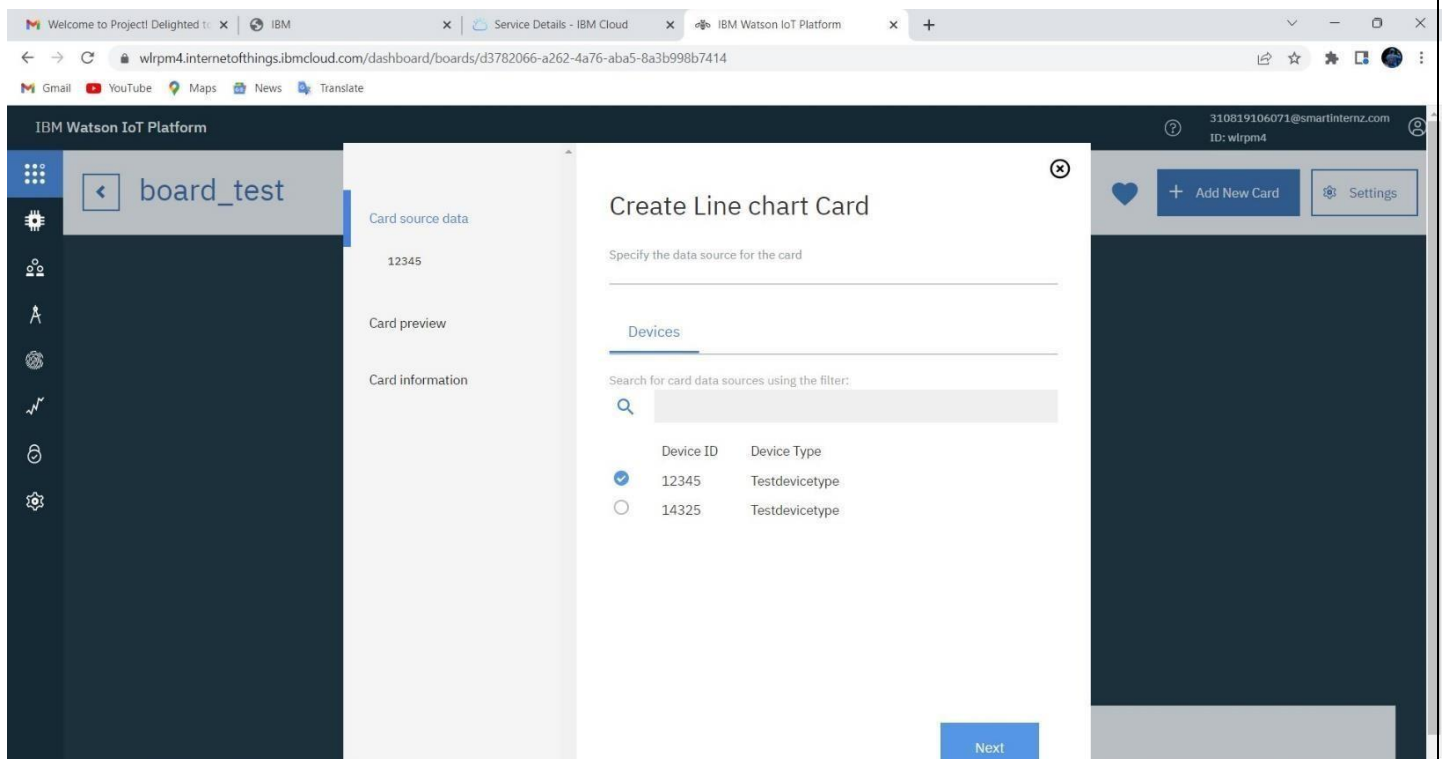
## Step 32: Go Add New Card.



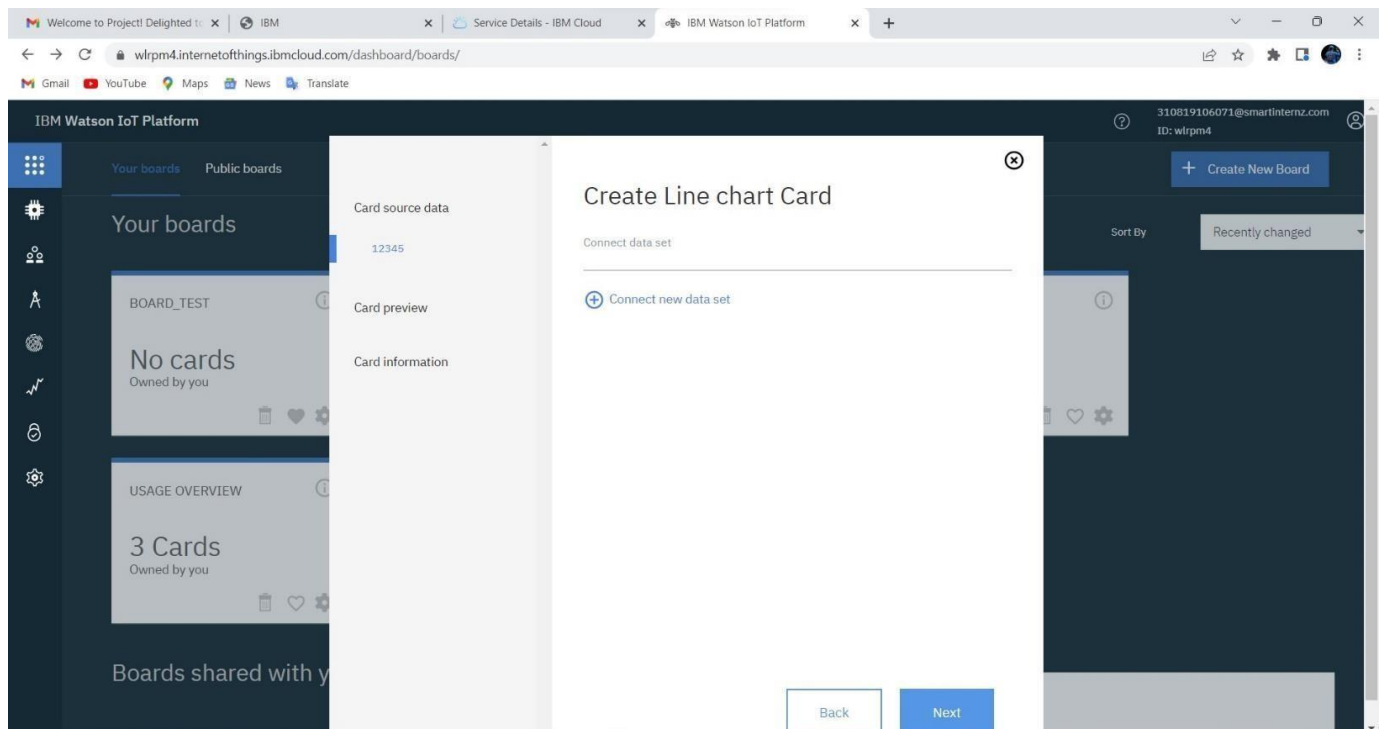
## Step 33: Choose the Card Type.



## Step 34: Choose the device.



## Step 35: Click on Connect new data set.



Step 36: Fill the details to get Temperature graph.

The screenshot shows the 'Create Line chart Card' form in the IBM Watson IoT Platform. The form is titled 'Create Line chart Card' and has a close button (X) in the top right corner. It is divided into several sections:

- Connect data set:** A dropdown menu is set to 'temperature'.
- Event:** A text field contains 'event\_1'.
- Property:** A text field contains 'temperature'.
- Name:** A text field contains 'temperature'.
- Type:** A dropdown menu is set to 'Number'.
- Unit:** A text field contains '°C'.
- Min:** A text field contains '0'.
- Max:** A text field contains '100'.

At the bottom of the form are two buttons: 'Back' and 'Next'.

Step 37: Choose the Colour.

The screenshot shows the 'Create Line chart Card' form in the IBM Watson IoT Platform, specifically the 'Choose the Colour' step. The form is titled 'Create Line chart Card' and has a close button (X) in the top right corner. It is divided into several sections:

- Enter title and description of the card:** A text field contains 'Line chart'.
- Title:** A text field contains 'Line chart'.
- Color scheme:** A section with the heading 'Color scheme:' and five color swatches: purple, red, green, blue, and teal.
- Description:** A text field contains 'A line chart to display time series information with historic and live data'.

At the bottom of the form are two buttons: 'Back' and 'Submit'.

Step 38: Repeat the same process again to get the Humidity graph.

The screenshot shows the IBM Watson IoT Platform interface. On the left, a sidebar contains icons for various functions. The main area displays a 'board\_test' dashboard with a 'Line chart' card. A 'Create Gauge Card' dialog is open, prompting the user to 'Specify the data source for the card'. The dialog has a 'Devices' tab selected, showing a search bar and a table of available devices. The table lists two devices: '12345' and '14325', both of type 'Testdevicetype'. The '12345' device is selected with a blue checkmark. A 'Next' button is at the bottom right of the dialog. The background dashboard shows a line chart with a y-axis from 0 to 80 and an x-axis with a time label '13:19'. A '5 minutes' refresh interval is indicated at the bottom left of the chart area.

Device ID	Device Type
<input checked="" type="radio"/> 12345	Testdevicetype
<input type="radio"/> 14325	Testdevicetype

Step 39: Here is the Final graph.

The screenshot shows the final dashboard in the IBM Watson IoT Platform. The dashboard is titled 'board\_test' and features two main cards: a 'Gauge' card on the left and a 'Line chart' card on the right. The 'Gauge' card displays a semi-circular gauge with the value '80.0 %'. The 'Line chart' card shows a line graph with a y-axis from 0 to 80 and an x-axis with time labels '13:21', '13:22', '13:23', '13:24', and '13:25'. The graph shows a highly volatile data series labeled 'temperature'. A '5 minutes' refresh interval is indicated at the bottom left of the chart area, and a 'now' button is at the bottom right. At the bottom of the dashboard, a status bar indicates '1 Simulation running'. The top right of the interface shows the user's profile and ID: '310819106071@smartinternz.com ID: wlrpm4'.

**Result:**

An IBM Watson cloud for IoT and a device is created successfully.