

CREATE IBM WATSON IOT PLATFORM AND DEVICE CREATE IBM WATSON IOT PLATFORM AND DEVICE

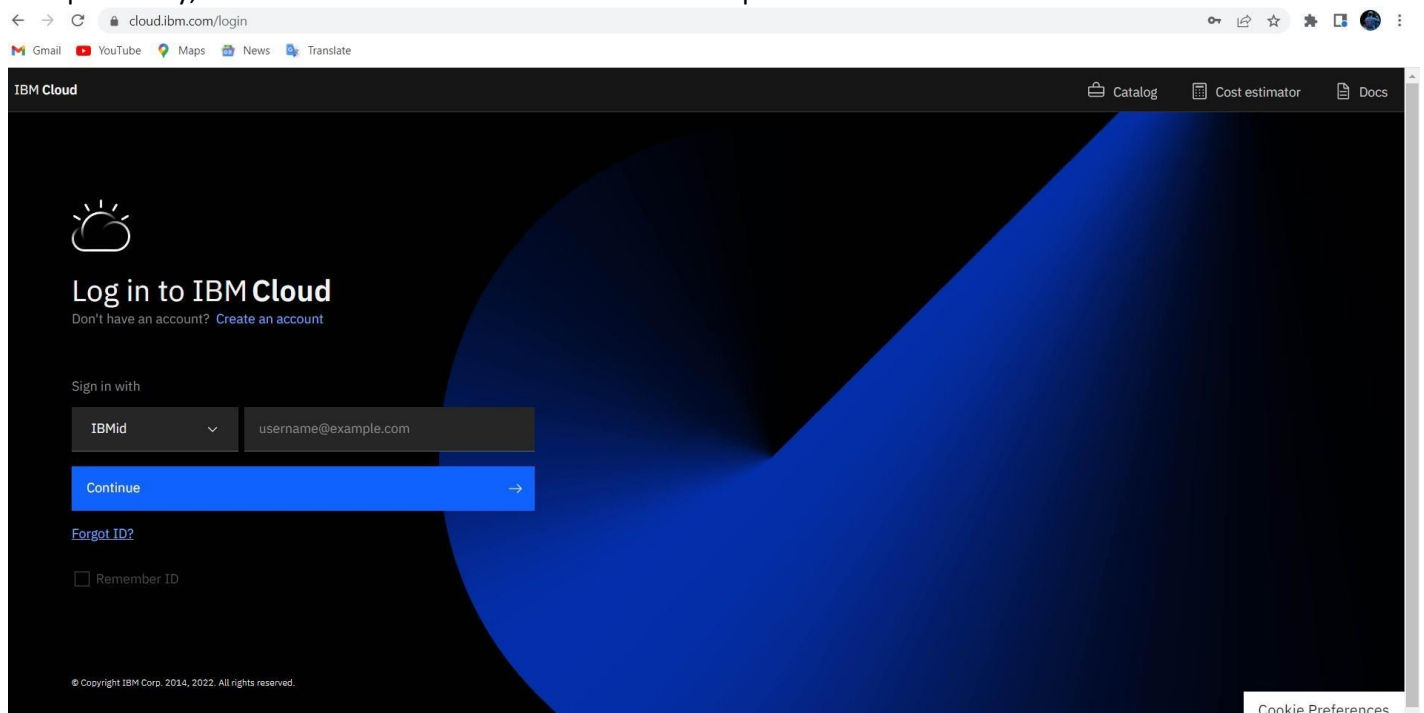
Date	19 November 2022
Team ID	PNT2022TMID09406
Project Name	Gas leakage monitoring and alerting system for industries

AIM:

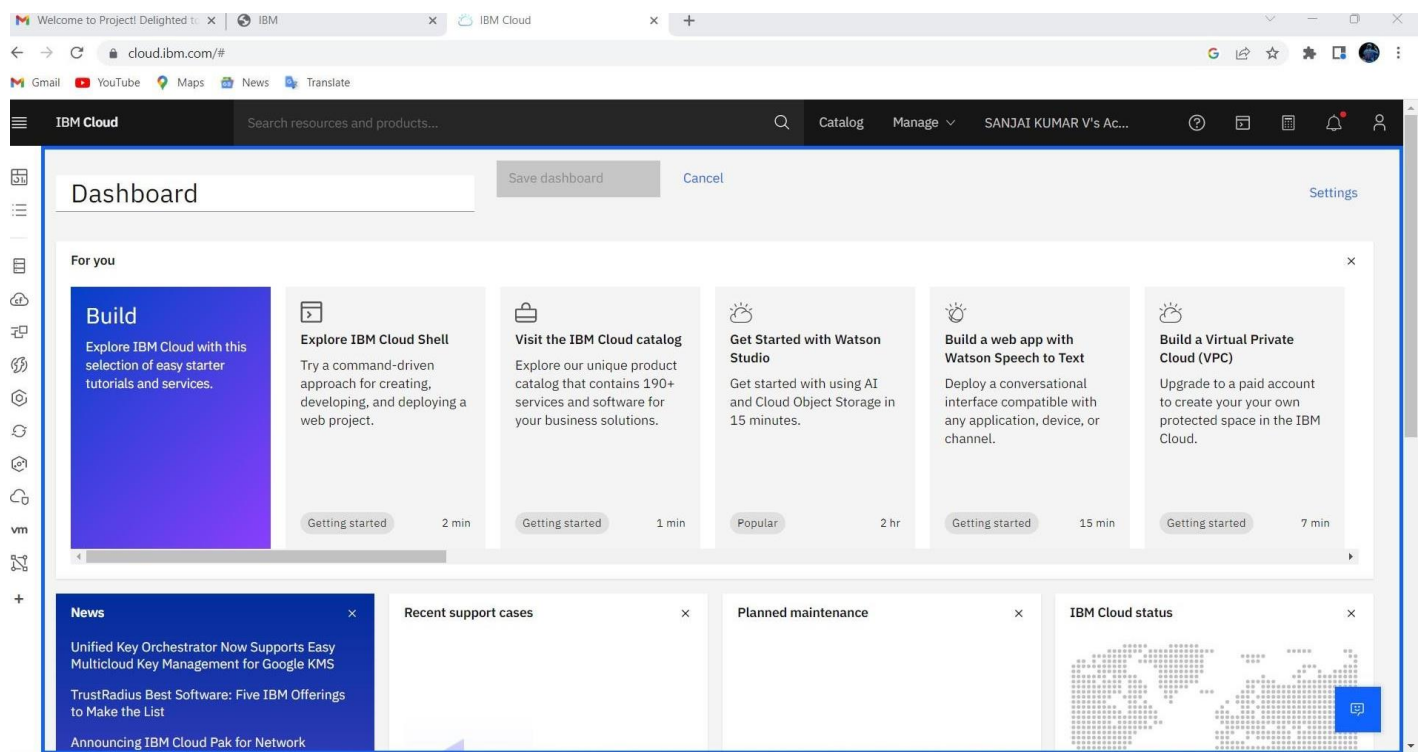
To create the IBM Watson IoT platform and device.

Steps to be followed

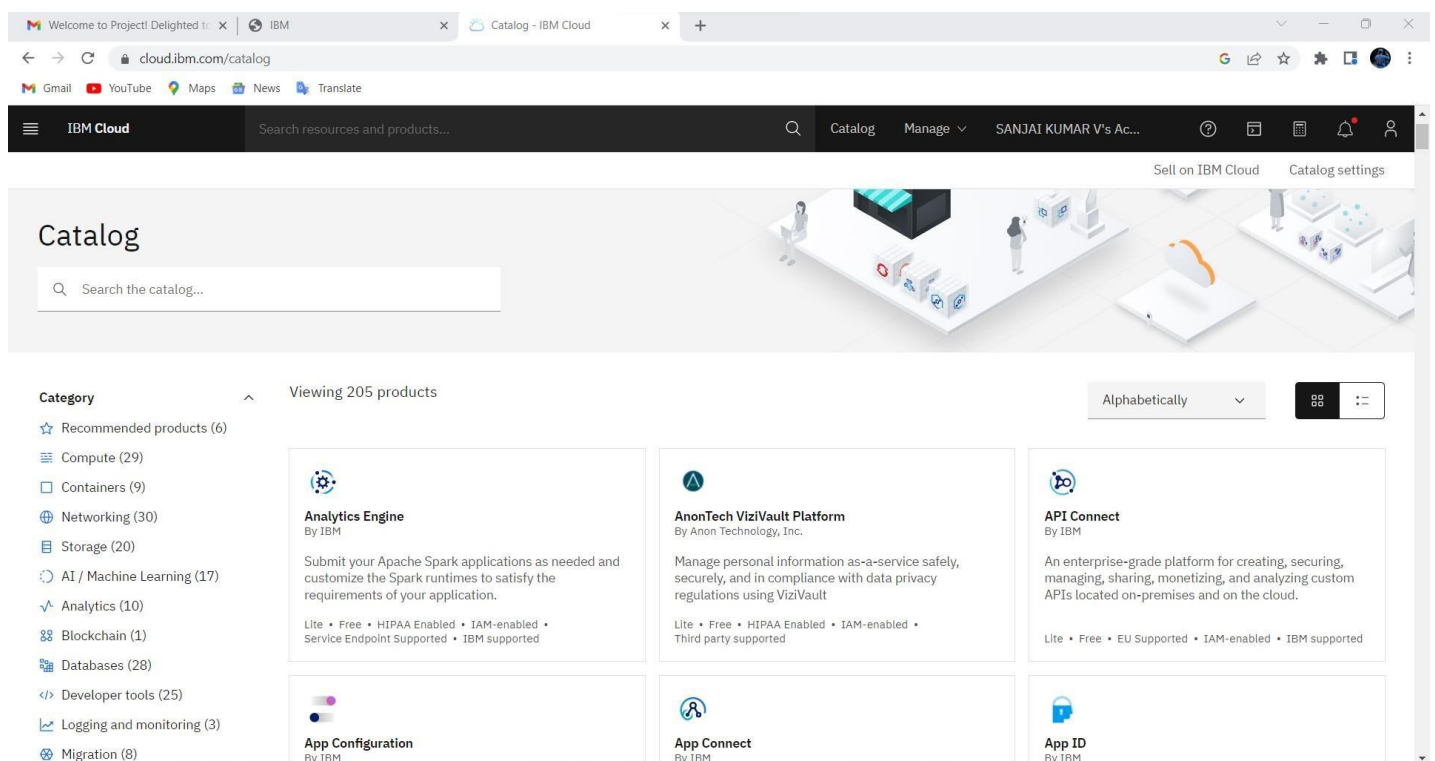
Step 1: Firstly, create an IBM cloud account with IBM id and password.



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 top navigation bar includes the IBM Cloud logo, a search bar, and links for Catalog, Manage, and the user profile (SANJAI KUMAR V's Ac...). A sidebar on the left lists various service categories with counts: 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), Security (25), and Mobile (1). The 'Internet of Things (1)' category is highlighted. Below the sidebar, there are filter sections for 'Type' (All, Services) and 'Provider' (IBM). The main content area displays a grid of service cards, including 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 provides a brief description and a list of supported features.

Step 5: Click on Internet of Things Platform.

The screenshot shows the IBM Cloud Catalog page for the 'Internet of Things Platform' service. The browser address bar displays `cloud.ibm.com/catalog?category=iot`. The top navigation bar is the same as in the previous screenshot. The sidebar on the left shows the 'Type' filter set to 'All' and the 'Provider' filter set to 'IBM (1)'. The main content area displays the 'Internet of Things Platform' service card, which includes the service icon, name, provider (IBM), a description, and supported features (Lite, Free, IAM-enabled, IBM supported). The 'Filters' section at the top of the main content area shows 'Internet of Things' selected and 'Clear all' available.

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

Welcome to Project! Delighted to... x IBM x Internet of Things Platform - IBM x +

cloud.ibm.com/catalog/services/internet-of-things-platform

IBM Cloud Search resources and products...

Category: Internet of Things

Compliance: IAM-enabled

Location: Frankfurt, London, Dallas, Washington DC

Related links: Docs, Terms

Select a pricing plan

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

Plan	Features	Pricing
Lite	Includes up to 500 registered devices, and a maximum of 200 MB of each data metric 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: Internet of Things Platform-gm

Select a resource group: Default

Tags: Examples: env:dev, version-1

Access management tags: Examples: access:dev, proj:version-1

Summary

Internet of Things Platform Free

Location: Frankfurt

Plan: Lite

Service name: Internet of Things Platform-gm

Resource group: Default

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](#).

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

Create

Add to estimate

Step 7: Tick agreements and then click on create.

Welcome to Project! Delighted to... x IBM x Internet of Things Platform - IBM x +

cloud.ibm.com/catalog/services/internet-of-things-platform

IBM Cloud Search resources and products...

Category: Internet of Things

Compliance: IAM-enabled

Location: Frankfurt, London, Dallas, Washington DC

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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.

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

Create

Add to estimate

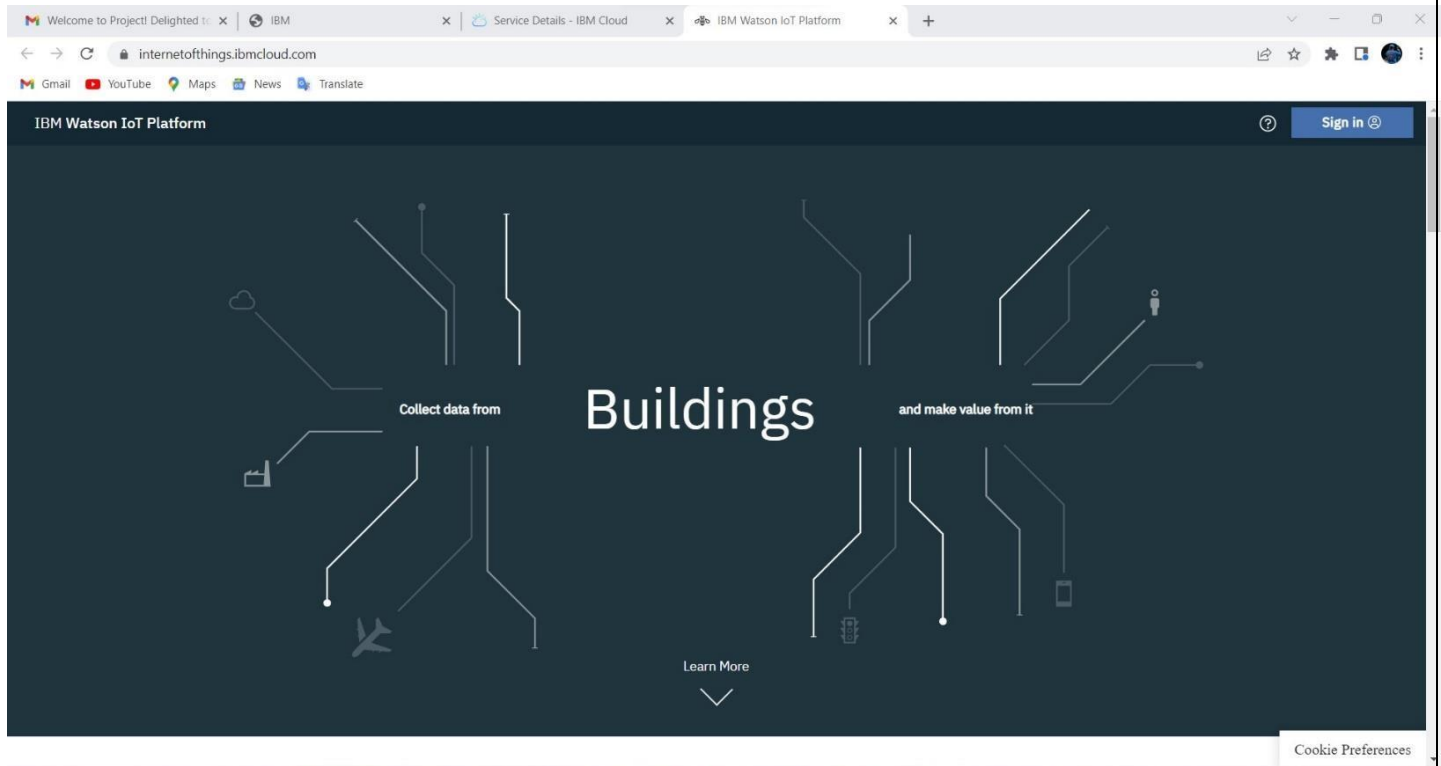
Step 8: Click on the launch button.

The screenshot shows the IBM Cloud interface for the 'Internet of Things Platform-gb' service. The page is titled 'Internet of Things Platform-gb' and shows it is 'Active'. A 'Launch' button is prominently displayed. Below the main heading, there is a section titled 'Let's get started with IBM Watson IoT Platform' with a subtext: 'Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world.' A 'Launch' button is present here as well. Further down, a 'Ready for the next level?' section introduces the 'IBM Watson IoT Platform Journey' with three stages: 'Lite', 'Non-Production', and 'Production'. Each stage has a brief description of the service plan. The 'Launch' button is located at the bottom right of the page.

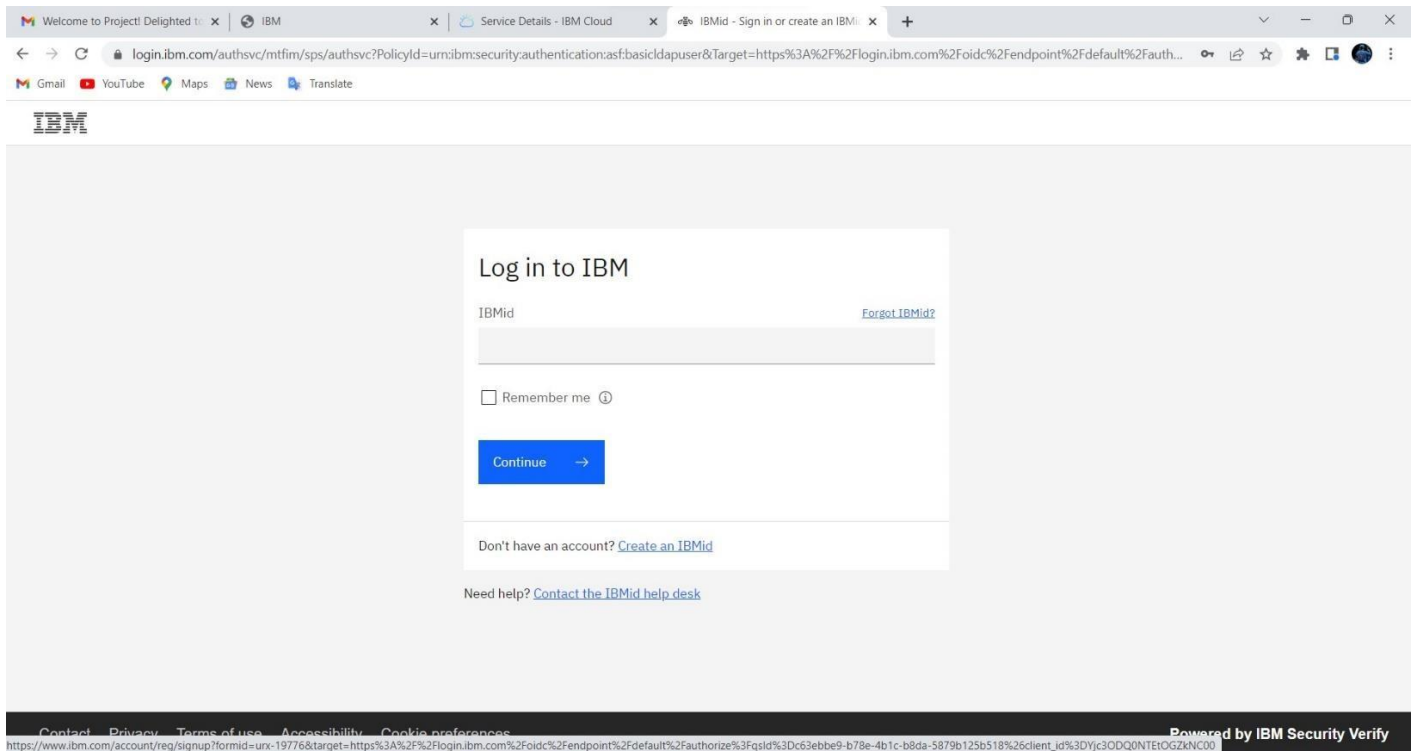
Step 9: After clicking on the launch button this tab will open.

The screenshot shows the IBM Watson IoT Platform landing page. The page features a dark background with a large, stylized graphic of a building and a network of lines. The text 'Buildings' is prominently displayed in the center. To the left of the building, it says 'Collect data from' and to the right, 'and make value from it'. A 'Learn More' button is located at the bottom center. The top of the page has a 'Sign in' button. The page is titled 'IBM Watson IoT Platform' and includes a 'Cookie Preferences' link at the bottom right.

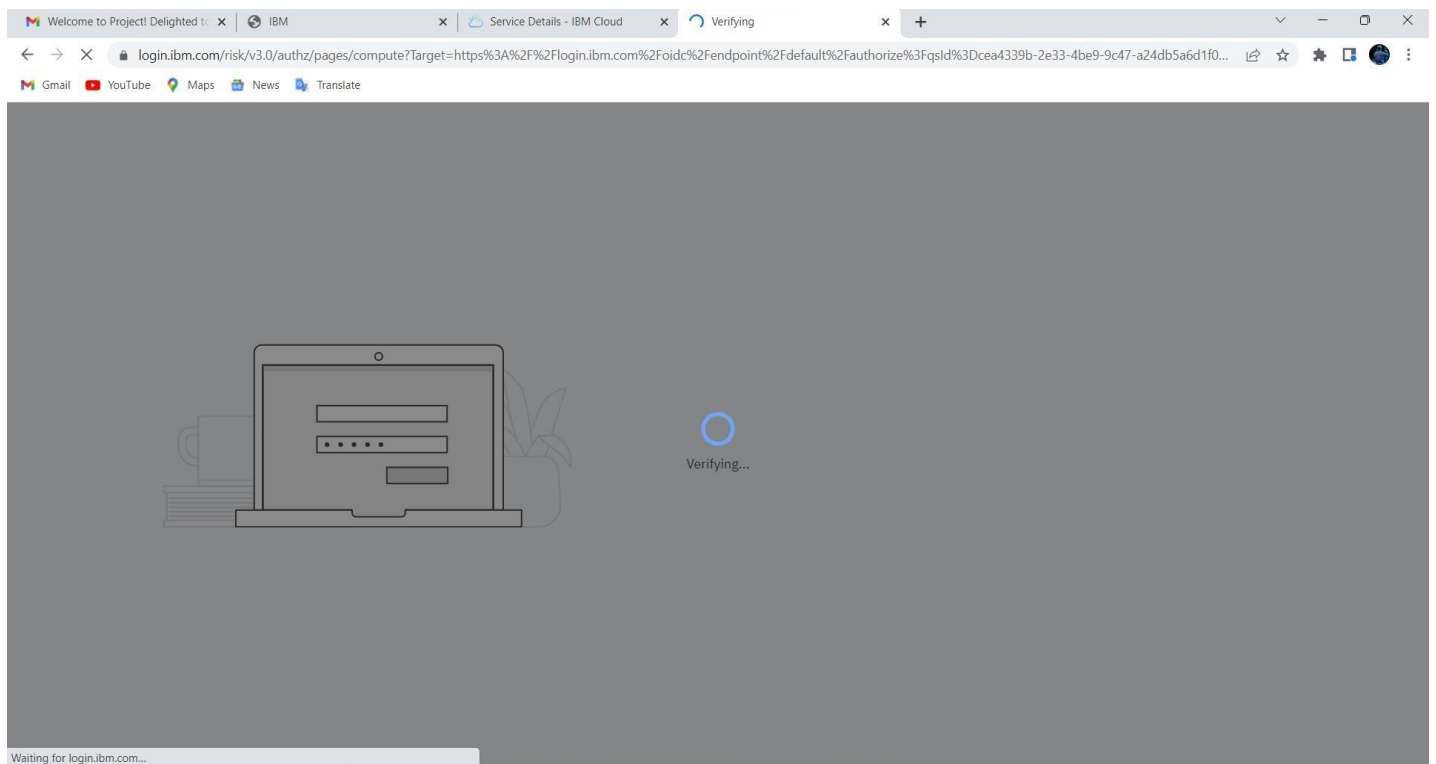
Step 10: Click on Sign in.



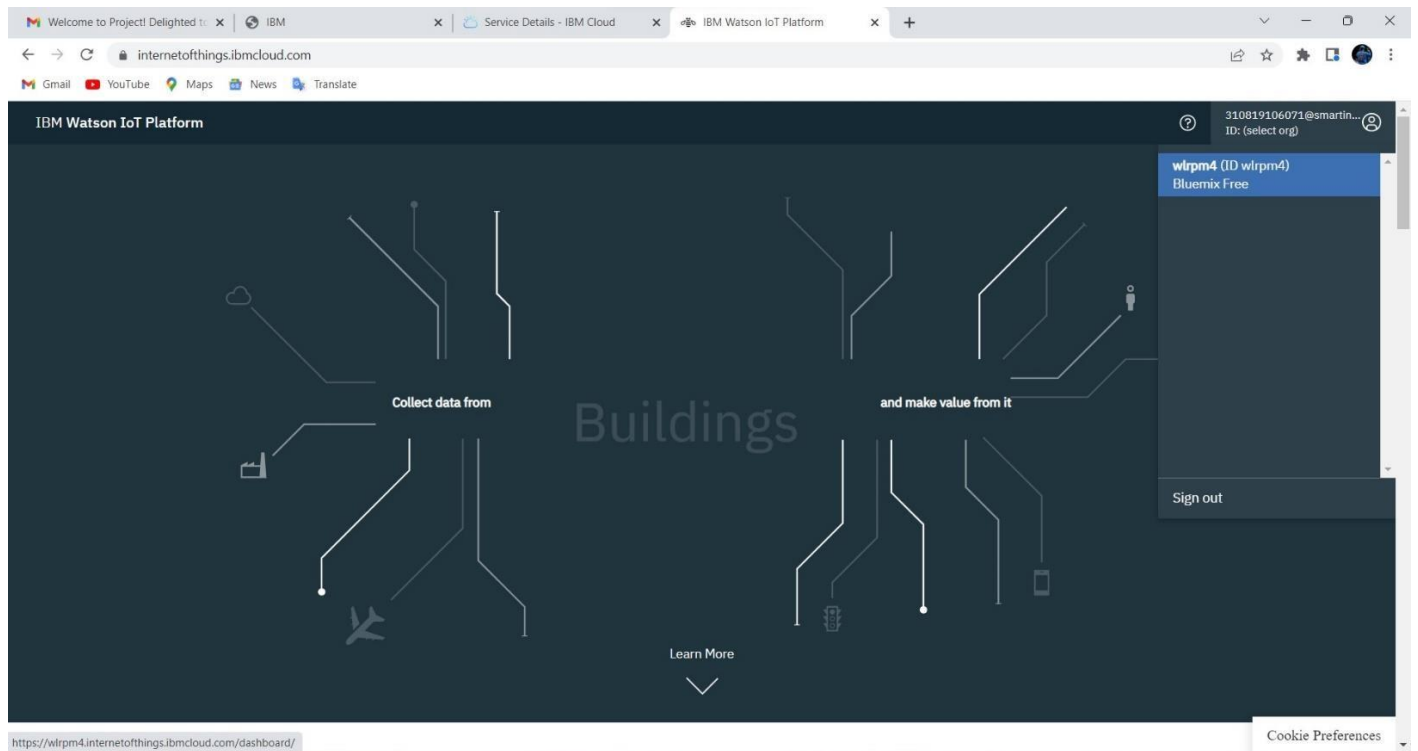
Step 11: Fill the login details.



Step 12: Sign in on progress.



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



Step 14: This is the IBM Watson platform.

Welcome to Project! Delighted to... IBM Service Details - IBM Cloud IBM Watson IoT Platform

wlrpm4.internetofthings.ibmcloud.com/dashboard/devices/browse

Gmail YouTube Maps News Translate

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 101

<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 < 1 >

Microsoft Store 0 Simulations running

Step 15: Click on Add Device.

Welcome to Project! Delighted to... IBM Service Details - IBM Cloud IBM Watson IoT Platform

wlrpm4.internetofthings.ibmcloud.com/dashboard/devices/browse

Gmail YouTube Maps News Translate

IBM Watson IoT Platform 310819106071@smartinternz.com ID: wlrpm4

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<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 < 1 >

0 Simulations running

Step 16: Click on Device Type.

The screenshot shows the 'Add Device' wizard in the IBM Watson IoT Platform. The wizard is a multi-step process with four steps: Identity, Device Information, Security, and Summary. The 'Identity' step is currently active, indicated by a blue circle and a line. Below the steps, 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 a placeholder 'Select or create a device type...' and 'Device ID' with a placeholder 'Enter Device ID'. At the bottom right of the wizard, there are 'Cancel' and 'Next' buttons. Below the wizard, there is a 'Browse Devices' section and a status bar showing '0 Simulations running' and 'Adobe Express'.

IBM Watson IoT Platform

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ID: wlrpm4

Browse Action Device Types Interfaces

Add Device

Identity Device Information Security Summary

Select a device type for the device that you are adding and give the device a unique ID.

Device Type Select or create a device type...

Device ID Enter Device ID

Cancel Next

Browse Devices

0 Simulations running
Adobe Express

Step 17: Fill the details.

The screenshot shows the 'Add Type' wizard in the IBM Watson IoT Platform. The wizard is a multi-step process with two steps: Identity and Device Information. The 'Identity' step is currently active, indicated by a blue circle and a line. Below the steps, there is a text prompt: '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 a dropdown menu showing 'Device' and 'Gateway', 'Name' with a text input field containing '12345', and 'Description' with a text input field. At the bottom right of the wizard, there is a status bar showing '0 Simulations running'.

IBM Watson IoT Platform

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ID: wlrpm4

Browse Action Device Types Interfaces

Add Type

Identity Device Information

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.

Type Device Or Gateway

Name 12345

Description

0 Simulations running

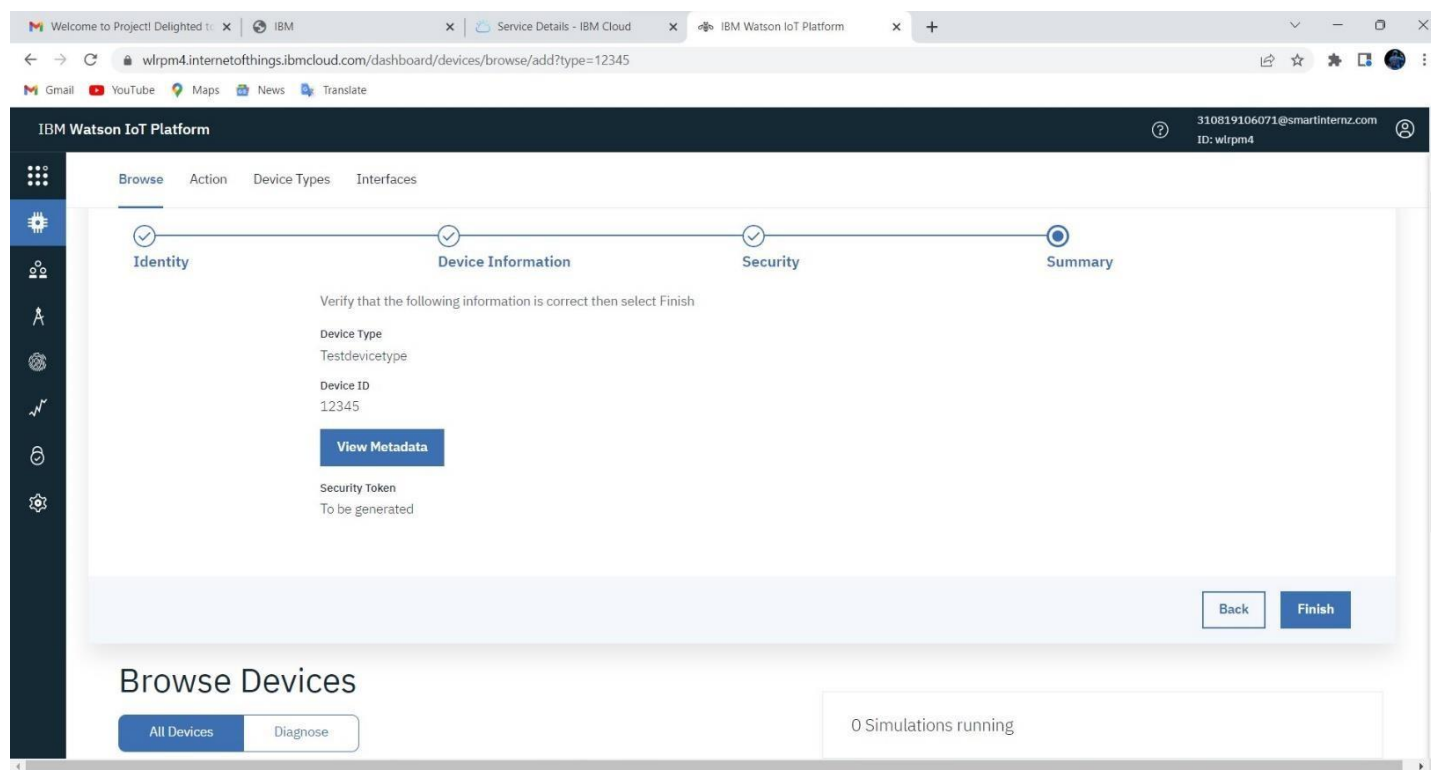
Step 18: Click on Register Devices.

The screenshot shows the IBM Watson IoT Platform dashboard. 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 'Register Device' tab contains a section titled 'Optional Register Devices, Define Interfaces' with the text 'Now that you added a device type, you can register and connect devices for this type.' and a blue 'Register Devices' button. To the right of this section is a large grey area with a circuit board icon and the text '0 Simulations running'.

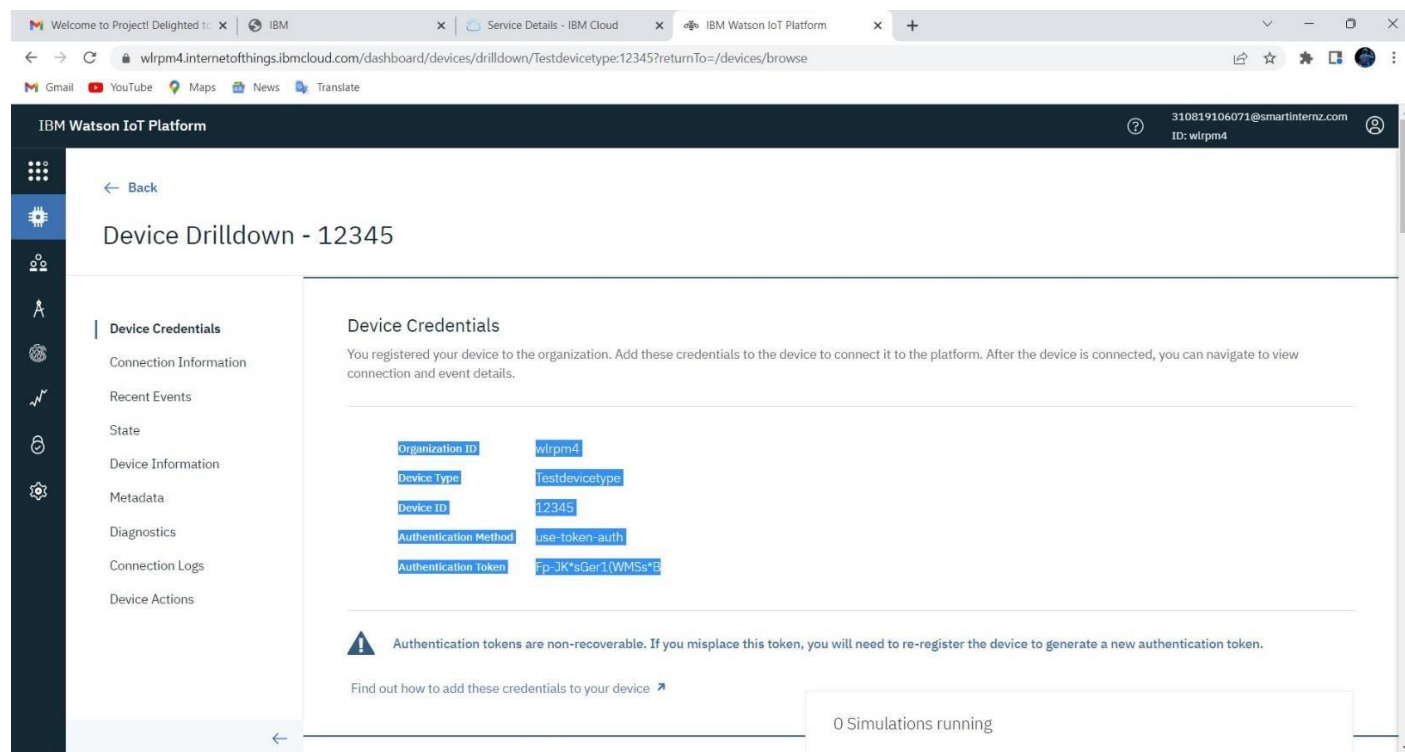
Step 19: Give the device name which you have created and give Device ID.

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 input field for 'Device Type' with the value 'Testdevicetype' and a text input field for 'Device ID' with the value '12345'. At the bottom right of the dialog are 'Cancel' and 'Next' buttons. The background shows the 'Browse Devices' section of the dashboard with '0 Simulations running'.

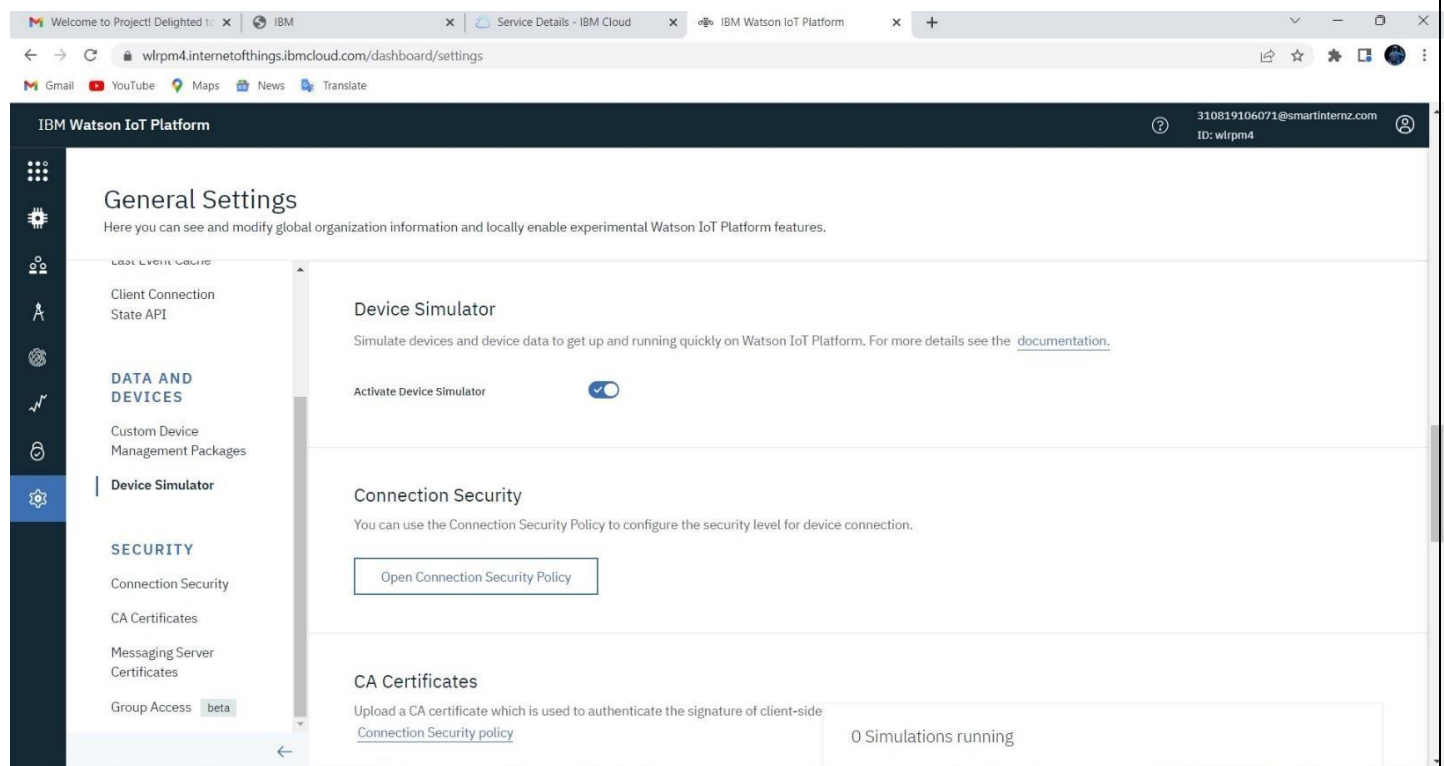
Step 20: After giving all the data, Click on Finish.



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

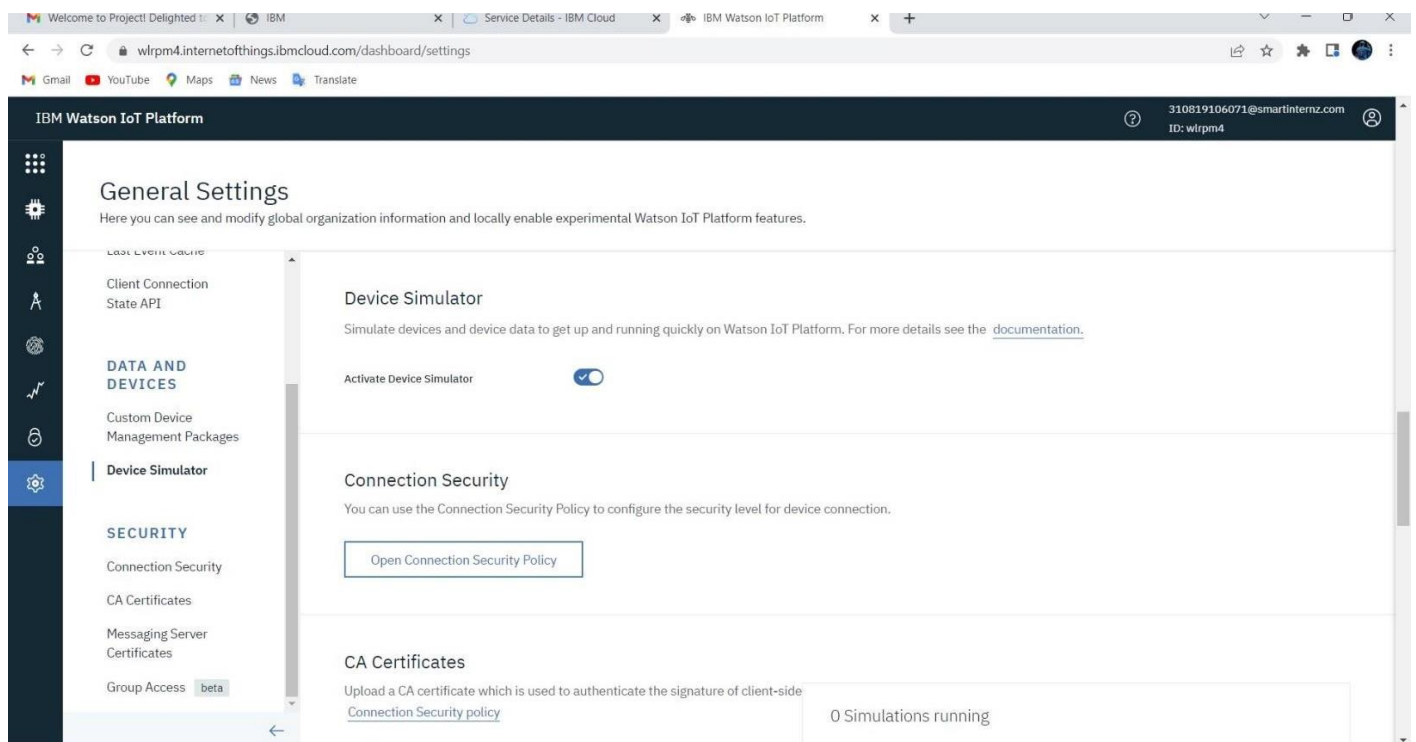


Step 22: Go to Setting, click on Data and Devices.



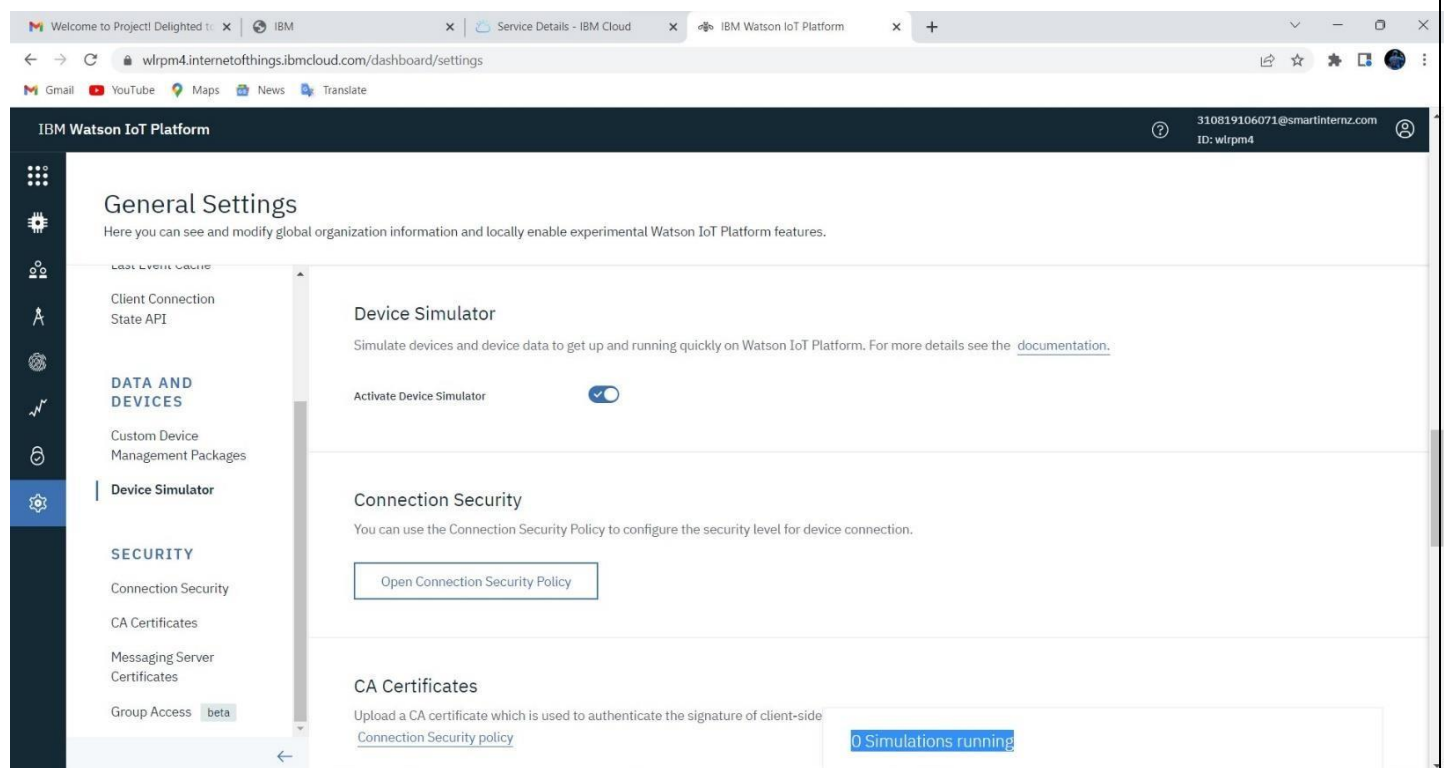
The screenshot shows the IBM Watson IoT Platform dashboard. The browser address bar displays `wlrpm4.internetofthings.ibmcloud.com/dashboard/settings`. The left sidebar contains a navigation menu with categories: **General Settings** (Last Event Cache, Client Connection, State API), **DATA AND DEVICES** (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, an 'Activate Device Simulator' toggle switch that is turned on, 'Connection Security' with a description and an 'Open Connection Security Policy' button, and 'CA Certificates' with a description and a link to the 'Connection Security 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 previous one, showing the IBM Watson IoT Platform settings page. The 'Device Simulator' toggle switch is confirmed to be turned on. The interface elements, including the sidebar navigation, main content sections, and status indicators, are consistent with the previous image.

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



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

DATA AND DEVICES

Custom Device Management Packages

Device Simulator

Activate Device Simulator ☒

Connection Security

You can use the Connection Security Policy to configure the security level for device connection.

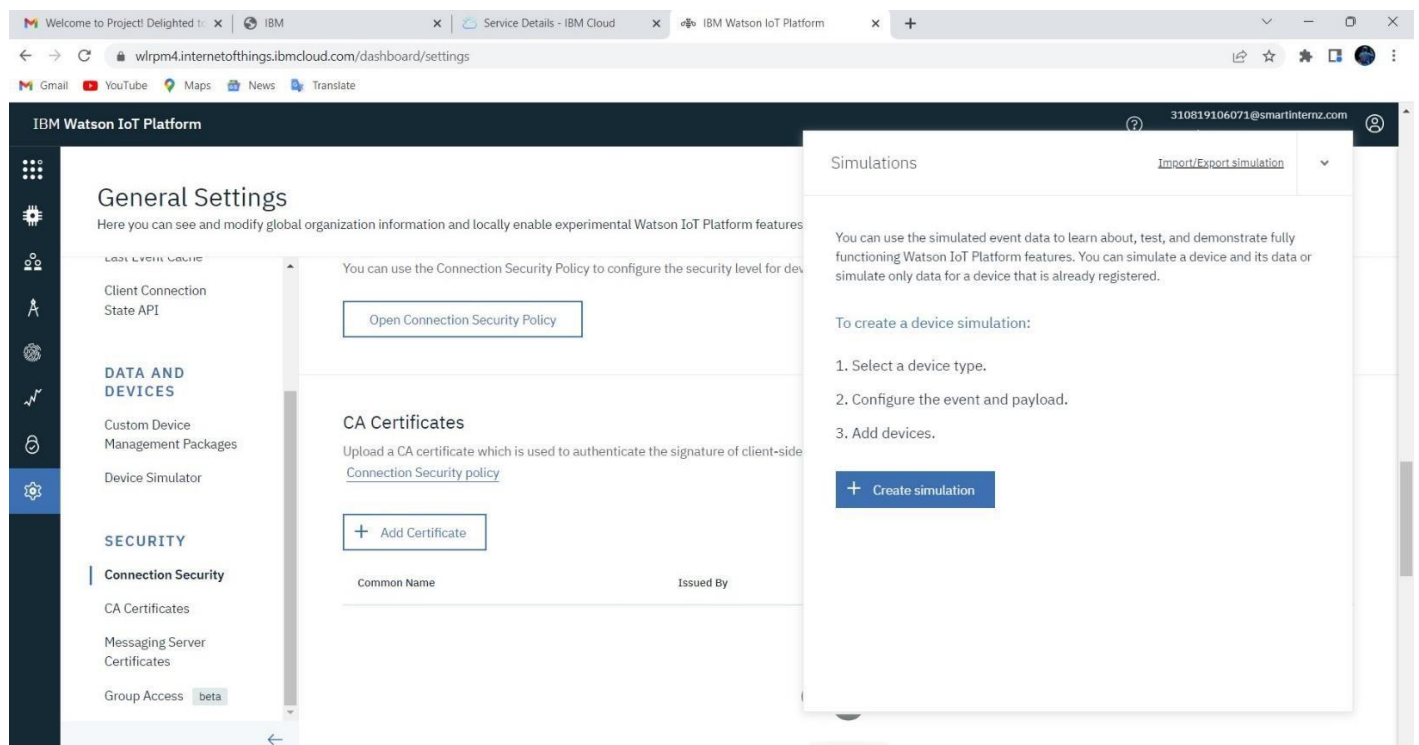
Open Connection Security Policy

CA Certificates

Upload a CA certificate which is used to authenticate the signature of client-side Connection Security policy

0 Simulations running

Step 25: Click on Create Simulation.



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

DATA AND DEVICES

Custom Device Management Packages

Device Simulator

SECURITY

Connection Security

CA Certificates

Messaging Server Certificates

Group Access beta

You can use the Connection Security Policy to configure the security level for device connection.

Open Connection Security Policy

CA Certificates

Upload a CA certificate which is used to authenticate the signature of client-side Connection Security policy

+ Add Certificate

Common Name Issued By

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.

+ Create simulation

Step 26: Choose the Device.

The screenshot shows the IBM Watson IoT Platform dashboard. 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 Policy'. A modal window titled 'Simulations' is open on the right, providing instructions on how to create a device simulation. The modal includes a list of 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 background page shows the 'General Settings' page with a sidebar on the left containing links for 'Client Connection State API', 'DATA AND DEVICES', and 'SECURITY'. The 'DATA AND DEVICES' section includes 'Custom Device Management Packages' and 'Device Simulator'. The 'SECURITY' section includes 'Connection Security', 'CA Certificates', 'Messaging Server Certificates', and 'Group Access' (marked as beta). The 'CA Certificates' section has a button to 'Add Certificate' and a table with columns 'Common Name' and 'Issued By'.

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. 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 'Events' is open on the right, allowing the user to configure an event. The modal includes fields for 'Event type name' (event_1) and 'Frequency' (20 x Every Minute). The 'Payload' section contains a JSON editor with the following code:

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

. The modal also includes a 'Send' button and a 'What functions can I apply?' link. The background page shows the 'Browse Devices' page with a sidebar on the left containing links for 'Browse', 'Action', 'Device Types', and 'Interfaces'. The main content area is titled 'Browse Devices' and includes a button to 'All Devices' and a 'Diagnose' button. Below the buttons is a table with columns 'Device ID', 'Status', 'Device Type', 'Class ID', and 'Data'. The table contains two rows of data: one for device ID 12345 and another for device ID 14325, both with a status of 'Disconnected' and a device type of 'Testdevicetype'. The table also includes a search bar and a 'Items per page' dropdown set to 50.

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	Testdevicetype	Device	No
14325	Disconnected	Testdevicetype	Device	No

Items per page 50 | 1-2 of 2 items

Events

Testdevicetype 12345

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.

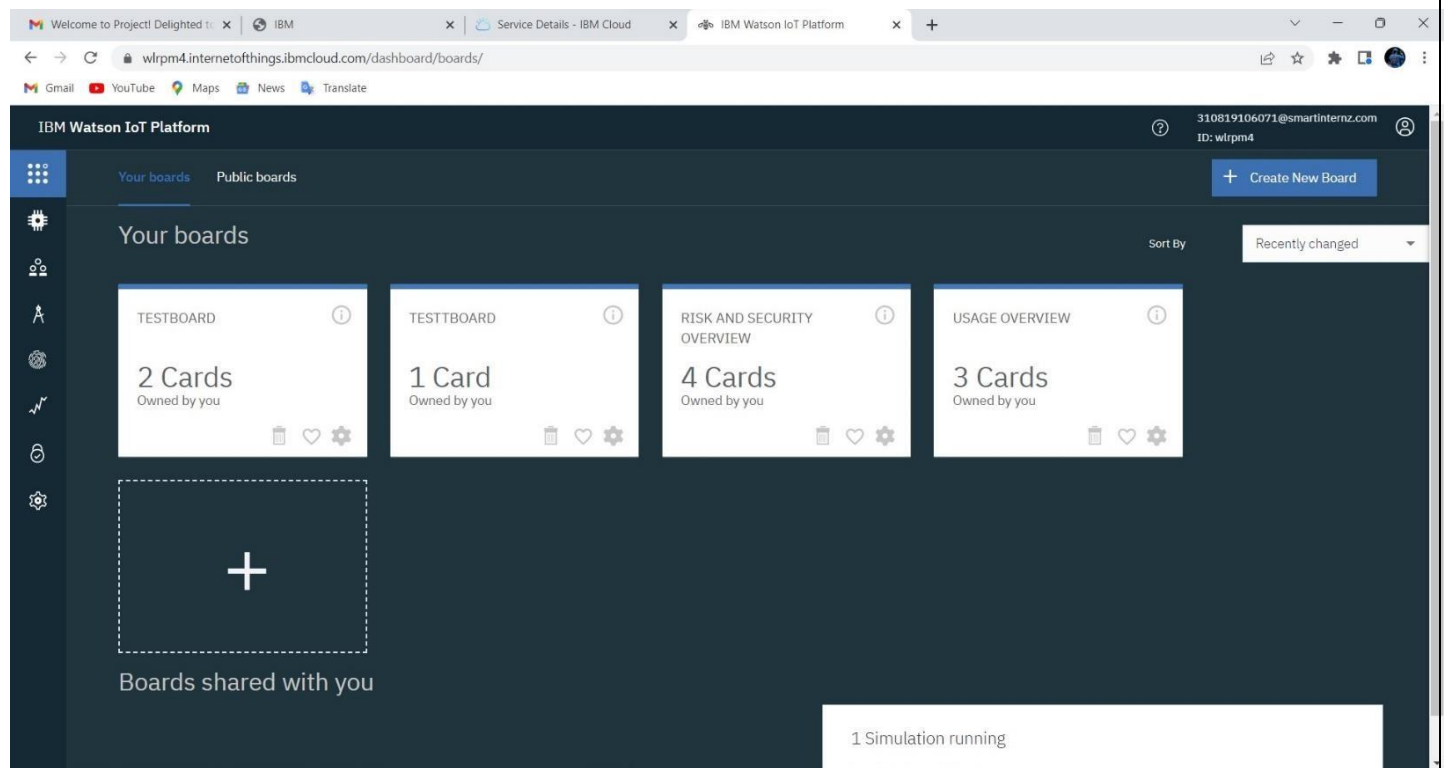
The screenshot shows the IBM Watson IoT Platform 'General Settings' page. The left sidebar contains navigation links for 'General Settings', 'DATA AND DEVICES', and 'SECURITY'. The main content area includes sections for 'Connection Security Policy', 'CA Certificates', and 'Group Access'. An overlay window titled 'Simulations' is open on the right, showing '1/50 Simulations Running' and a list of devices. The device '12345' is selected, and the 'Use Registered Device' button is highlighted. The overlay also shows '2 events sent' and '76 bytes sent'.

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

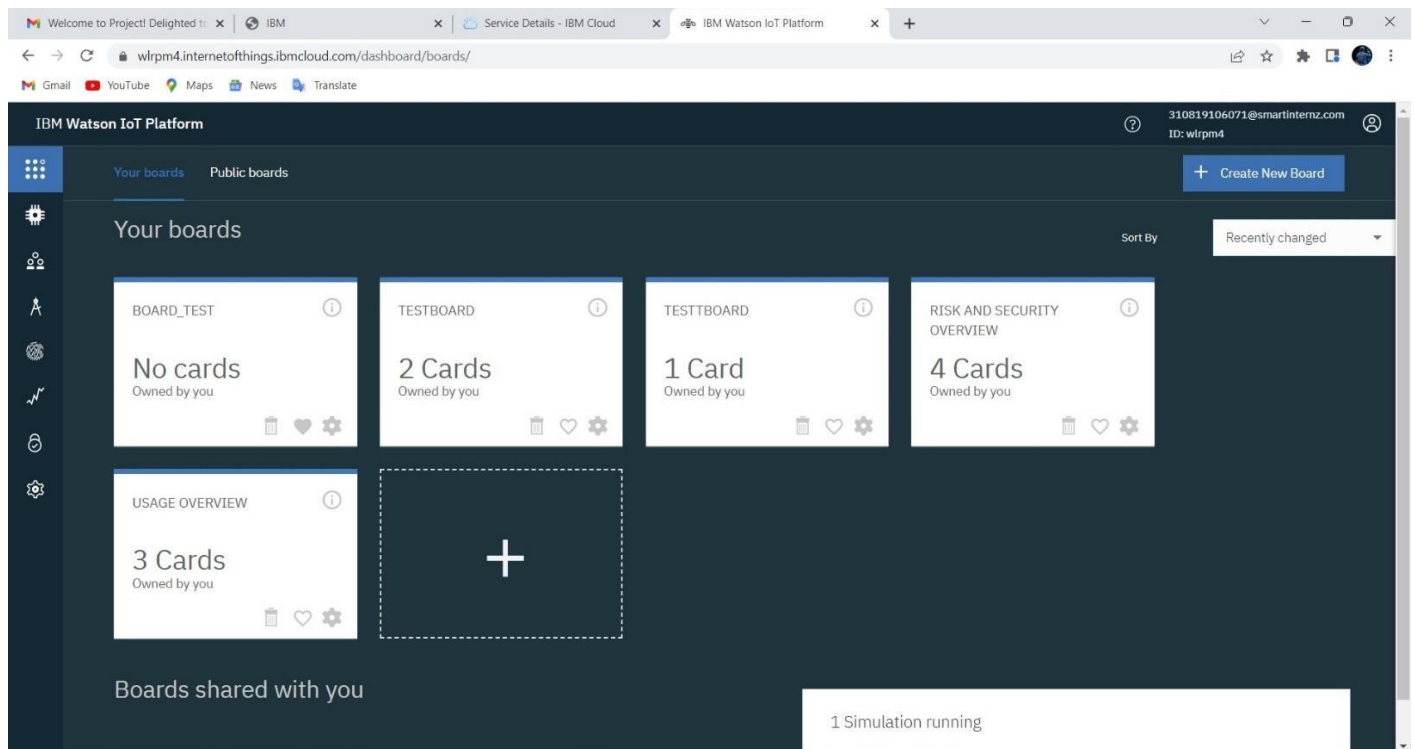
The screenshot shows the IBM Watson IoT Platform 'Devices' page. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The main content area displays a table of devices. The device '12345' is selected, and its 'Recent Events' tab is active. The table shows four recent events, each with a timestamp of 'a few seconds ago'. A notification at the bottom right indicates '1 Simulation running'.

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

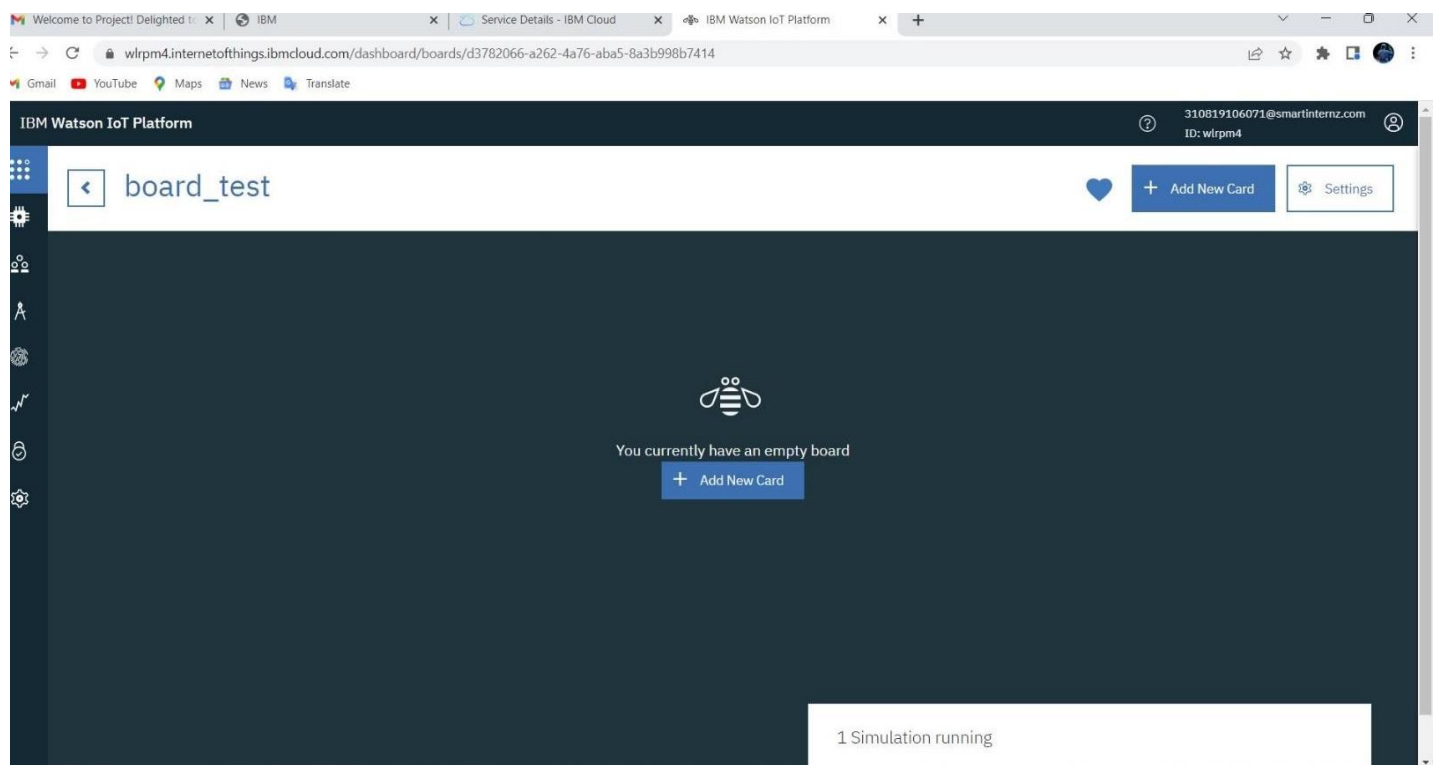
Step 30: Go to Board and click on + Create New Board, fill the details and create a board.



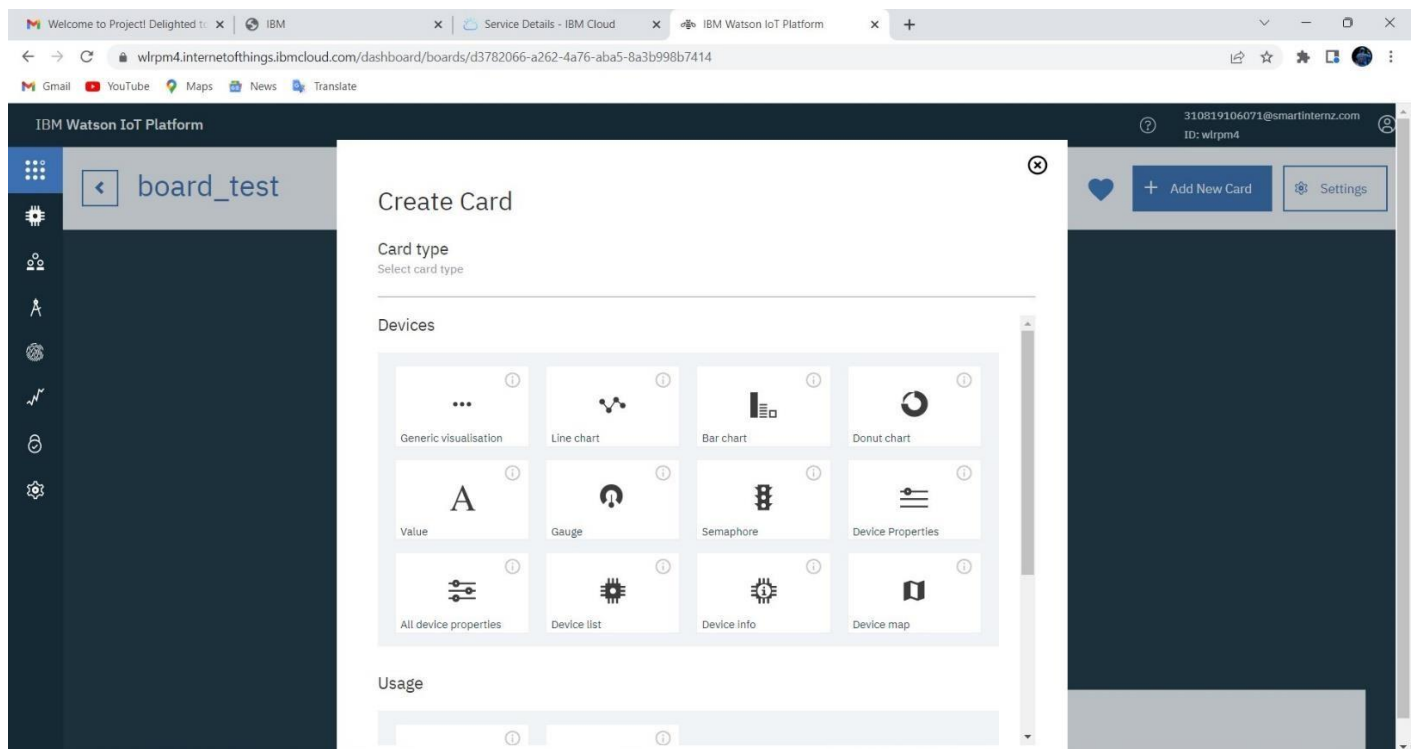
Step 31: Click on the board which is created.



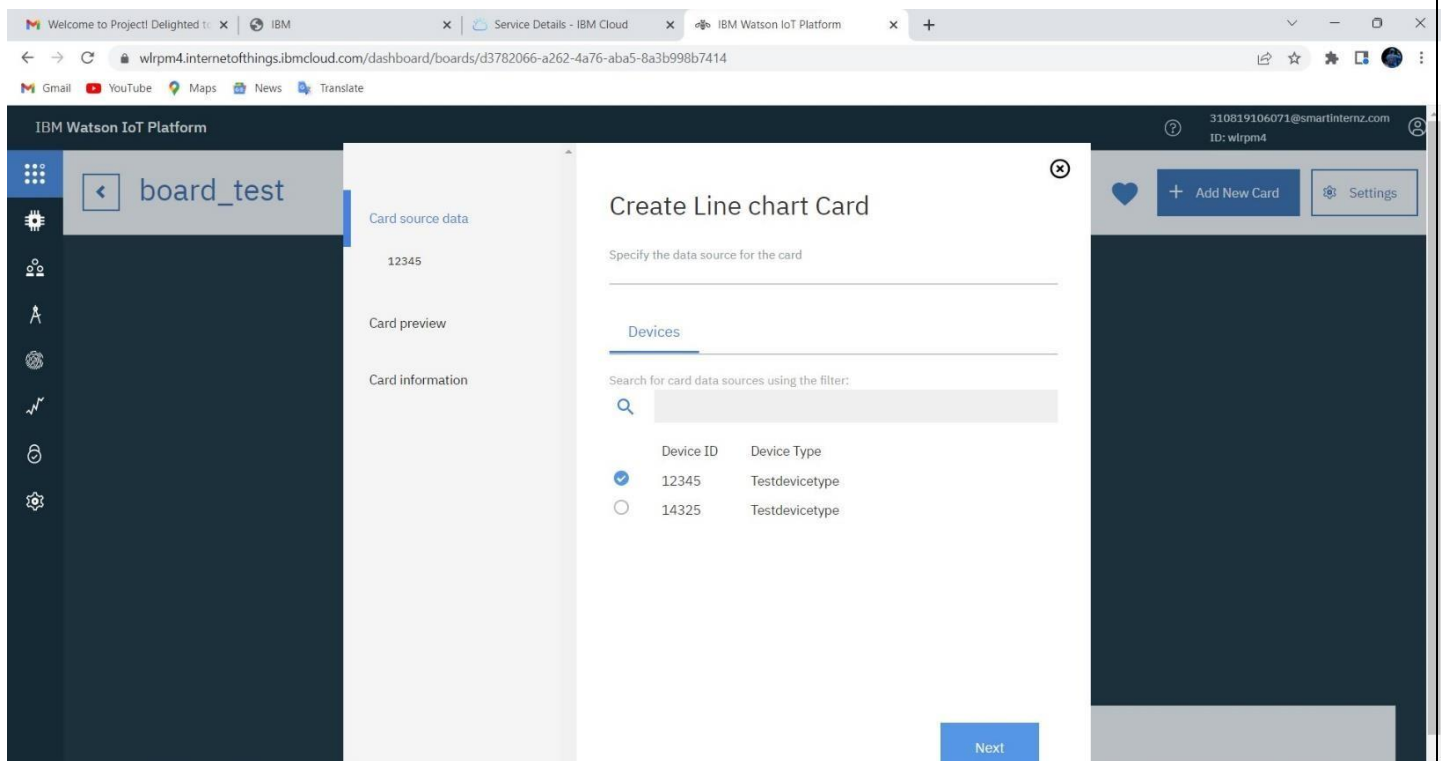
Step 32: Go Add New Card.



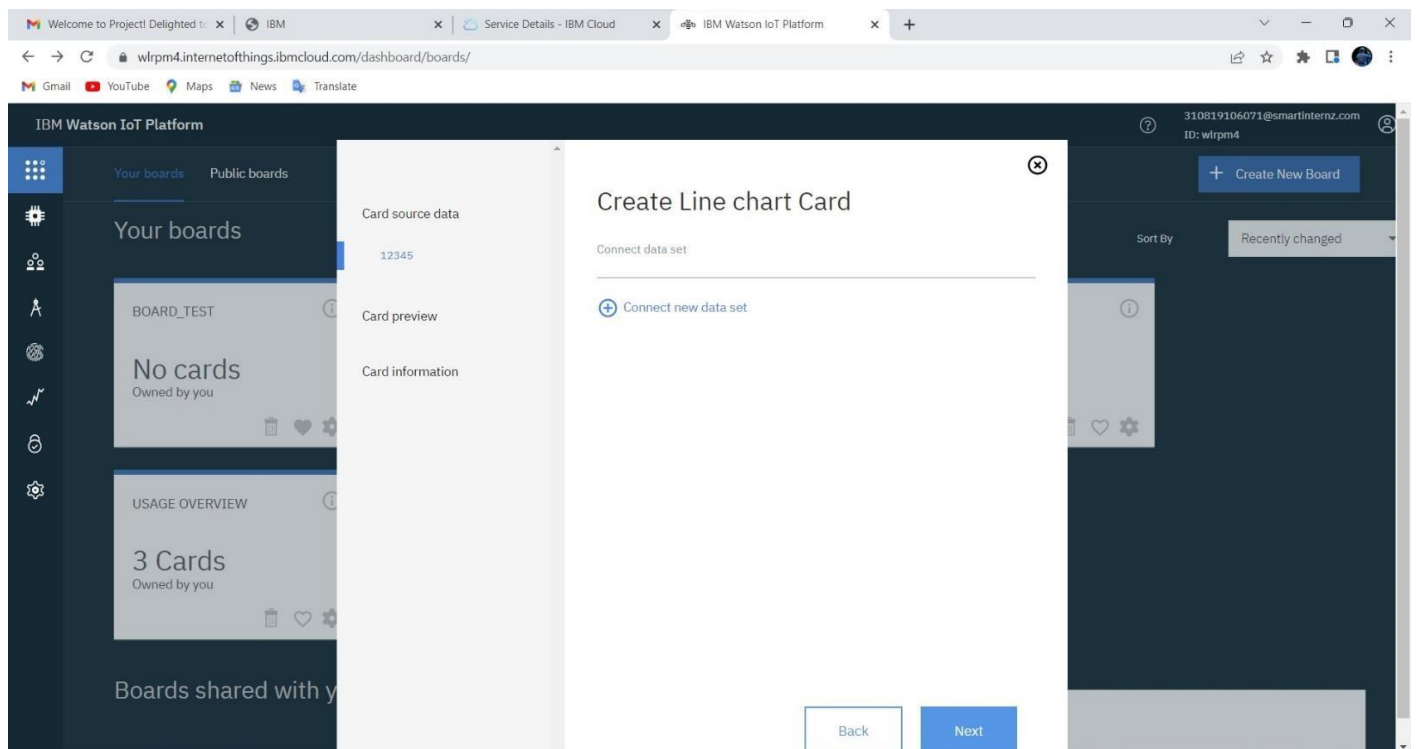
Step 33: Choose the Card Type.



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' (with a dropdown menu showing 'temperature'), 'Event' (with a text input field containing 'event_1'), 'Property' (with a text input field containing 'temperature'), 'Name' (with a text input field containing 'temperature'), 'Type' (with a dropdown menu showing 'Number'), 'Unit' (with a text input field containing '°C'), 'Min' (with a text input field containing '0'), and 'Max' (with a text input field containing '100'). At the bottom of the form are 'Back' and 'Next' buttons. The background shows the IBM Watson IoT Platform dashboard with a sidebar containing icons for various functions and a top navigation bar with the text 'board_test'.

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' (with a text input field), 'Title' (with a text input field containing 'Line chart'), 'Color scheme' (with a dropdown menu showing 'Line chart' and a color palette with five color swatches: purple, red, green, blue, and teal), and a description: 'A line chart to display time series information with historic and live data'. At the bottom of the form are 'Back' and 'Submit' buttons. The background shows the IBM Watson IoT Platform dashboard with a sidebar containing icons for various functions and a top navigation bar with the text 'Your boards' and 'Public boards'.

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 dashboard components. 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 visible at the bottom right of the dialog.

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 configuration. The 'board_test' dashboard now features two cards: a 'Gauge' card on the left and a 'Line chart' card on the right. The 'Gauge' card displays a value of '80.0 %'. The 'Line chart' card shows a time-series plot of 'temperature' data, with the y-axis ranging from 0 to 80 and the x-axis showing time from 13:21 to 13:25. A '5 minutes' time range selector is visible below the chart. At the bottom right of the dashboard, a status bar indicates '1 Simulation running'.

Result:

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