

CREATE IBM WATSON IOT PLATFORM AND DEVICE

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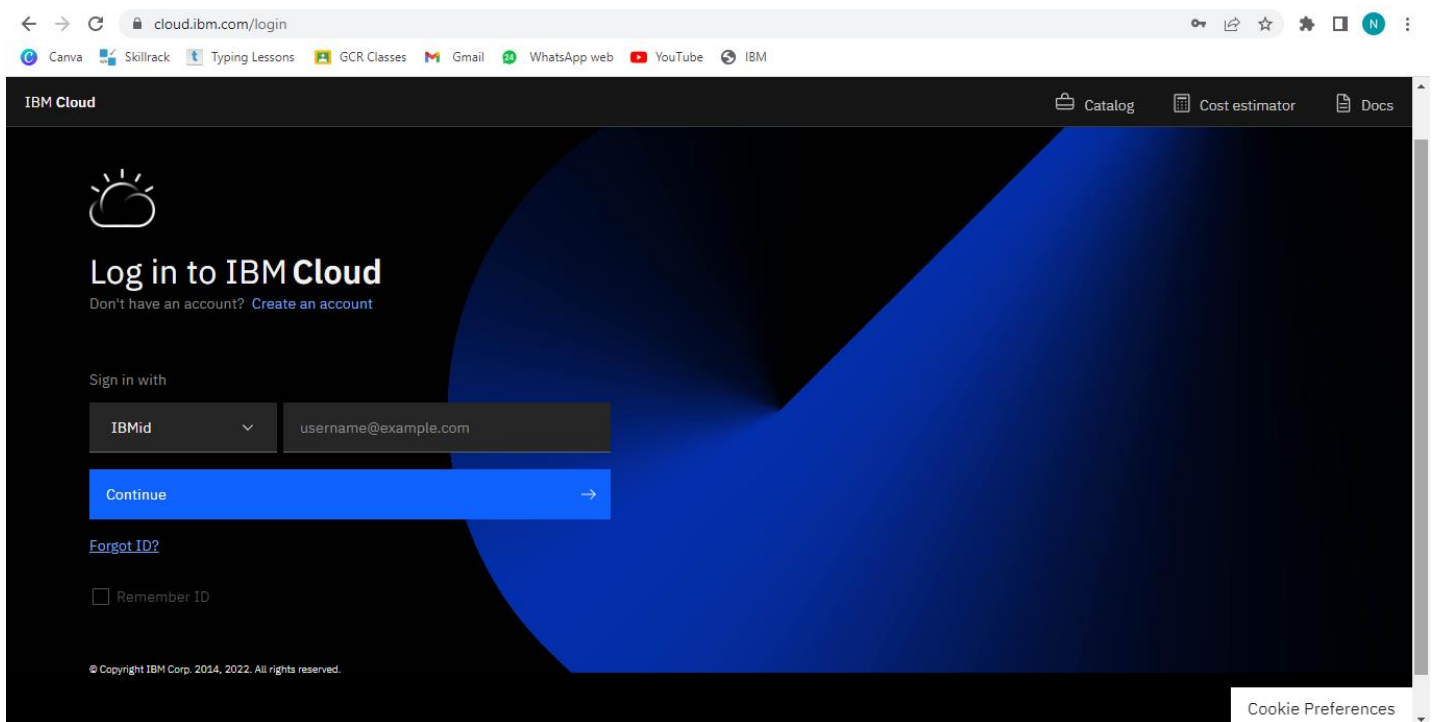
Date	25 October 2022
Team ID	PNT2022TMID05193
Project Name	Smart Waste Management System For Metropolitan Cities

AIM:

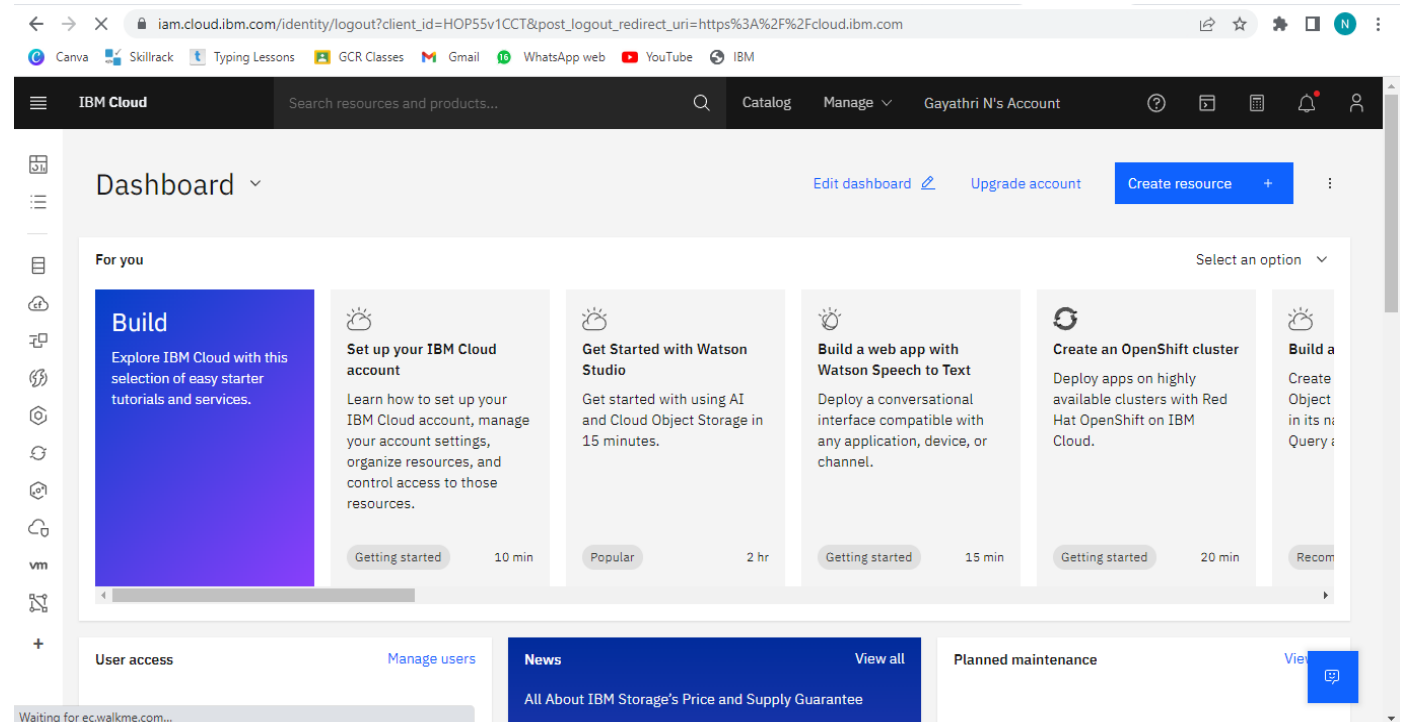
To create the IBM Watson IoT Platform and device.

STEPS TO BE FOLLOWED:

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

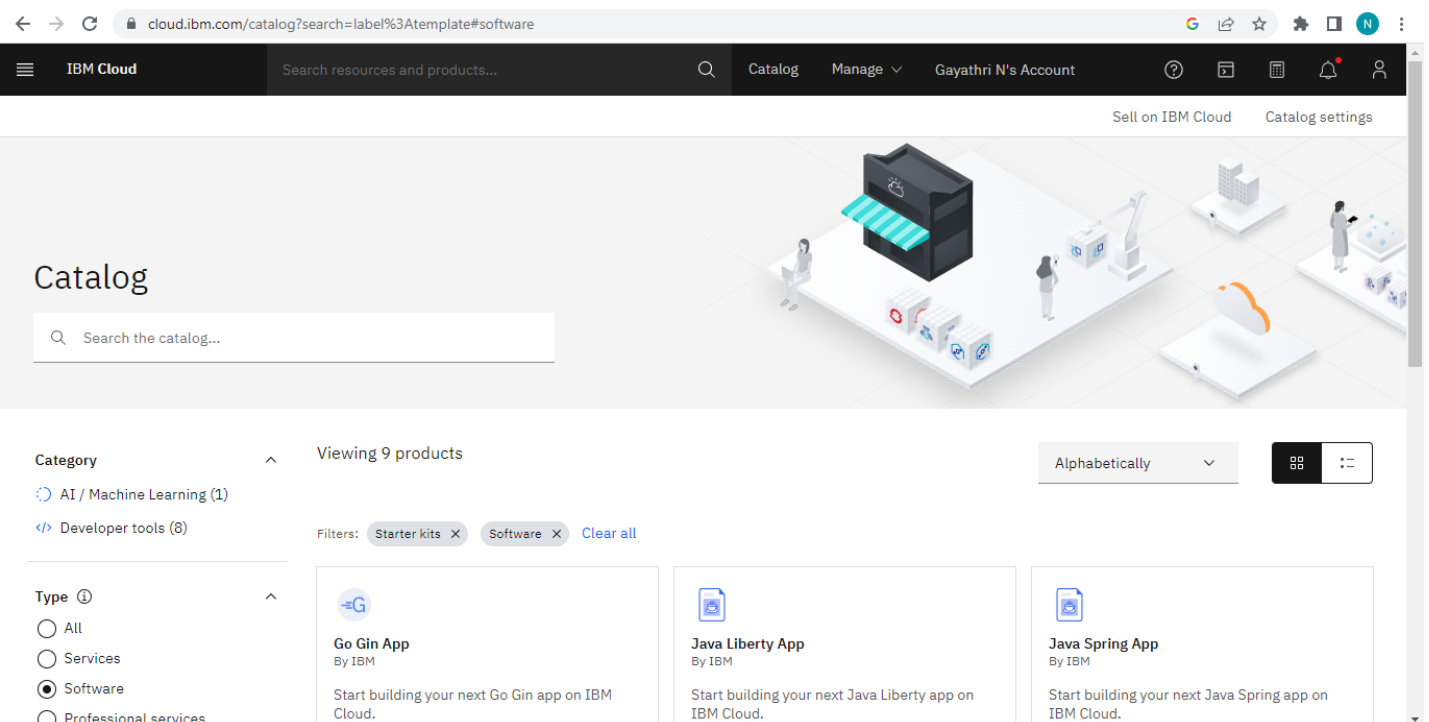


Step 2: Home page of IBM cloud.



The screenshot shows the IBM Cloud Dashboard. The top navigation bar includes the IBM Cloud logo, a search bar, and links to Catalog, Manage, and the user's account (Gayathri N's Account). The main content area is titled "Dashboard" and features a "For you" section with several recommended actions: "Build" (Explore IBM Cloud with this selection of easy starter tutorials and services), "Set up your IBM Cloud account" (Learn how to set up your IBM Cloud account, manage your account settings, organize resources, and control access to those resources), "Get Started with Watson Studio" (Get started with using AI and Cloud Object Storage in 15 minutes), "Build a web app with Watson Speech to Text" (Deploy a conversational interface compatible with any application, device, or channel), "Create an OpenShift cluster" (Deploy apps on highly available clusters with Red Hat OpenShift on IBM Cloud), and "Build a..." (Create Object in its n Query). Below the "For you" section, there are links for "User access" (Manage users), "News" (All About IBM Storage's Price and Supply Guarantee), and "Planned maintenance".

Step 3: Click on the catalog on the top.



The screenshot shows the IBM Cloud Catalog. The top navigation bar includes the IBM Cloud logo, a search bar, and links to Catalog, Manage, and the user's account (Gayathri N's Account). The main content area is titled "Catalog" and features a search bar. Below the search bar, there are filters for "Category" (AI / Machine Learning (1), Developer tools (8)) and "Type" (All, Services, Software, Professional services). The "Filters" section shows "Starter kits" and "Software" selected. The "Viewing 9 products" section displays three product cards: "Go Gin App" (By IBM), "Java Liberty App" (By IBM), and "Java Spring App" (By IBM). Each card includes a description: "Start building your next Go Gin app on IBM Cloud.", "Start building your next Java Liberty app on IBM Cloud.", and "Start building your next Java Spring app on IBM Cloud." respectively.

Step 4: Click on IoT in the category mentioned.

cloud.ibm.com/catalog

IBM Cloud Search resources and products...

Search the catalog...

Recommended products (6)

- Compute (30)
- 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)
- Mobile (1)

Analytics Engine
By IBM

Submit your Apache Spark applications as needed and customize the Spark runtimes to satisfy the requirements of your application.

Lite • Free • HIPAA Enabled • IAM-enabled • Service Endpoint Supported • IBM supported

AnonTech ViziVault Platform
By Anon Technology, Inc.

Manage personal information as-a-service safely, securely, and in compliance with data privacy regulations using ViziVault

Lite • Free • HIPAA Enabled • IAM-enabled • Third party supported

API Connect
By IBM

An enterprise-grade platform for creating, securing, managing, sharing, monetizing, and analyzing custom APIs located on-premises...

Lite • Free • EU Supported • IAM-enabled • IBM supported

App Configuration
By IBM

Centralized, in-flight configuration for web and mobile applications and distributed environments.

Lite • Free • IAM-enabled • Service Endpoint Supported • IBM supported

App Connect
By IBM

Connect your applications, automate tasks, and improve productivity

Lite • Free • IBM supported

App ID
By IBM

User Authentication and User Profiles for your apps.

Lite • Free • EU Supported • Financial Services Validated • HIPAA Enabled • IAM-enabled • IBM supported

Step 5: Click on Internet of Things Platform.

cloud.ibm.com/catalog?category=iot

IBM Cloud Search resources and products...

Internet of Things

Alphabetically

Viewing 1 product

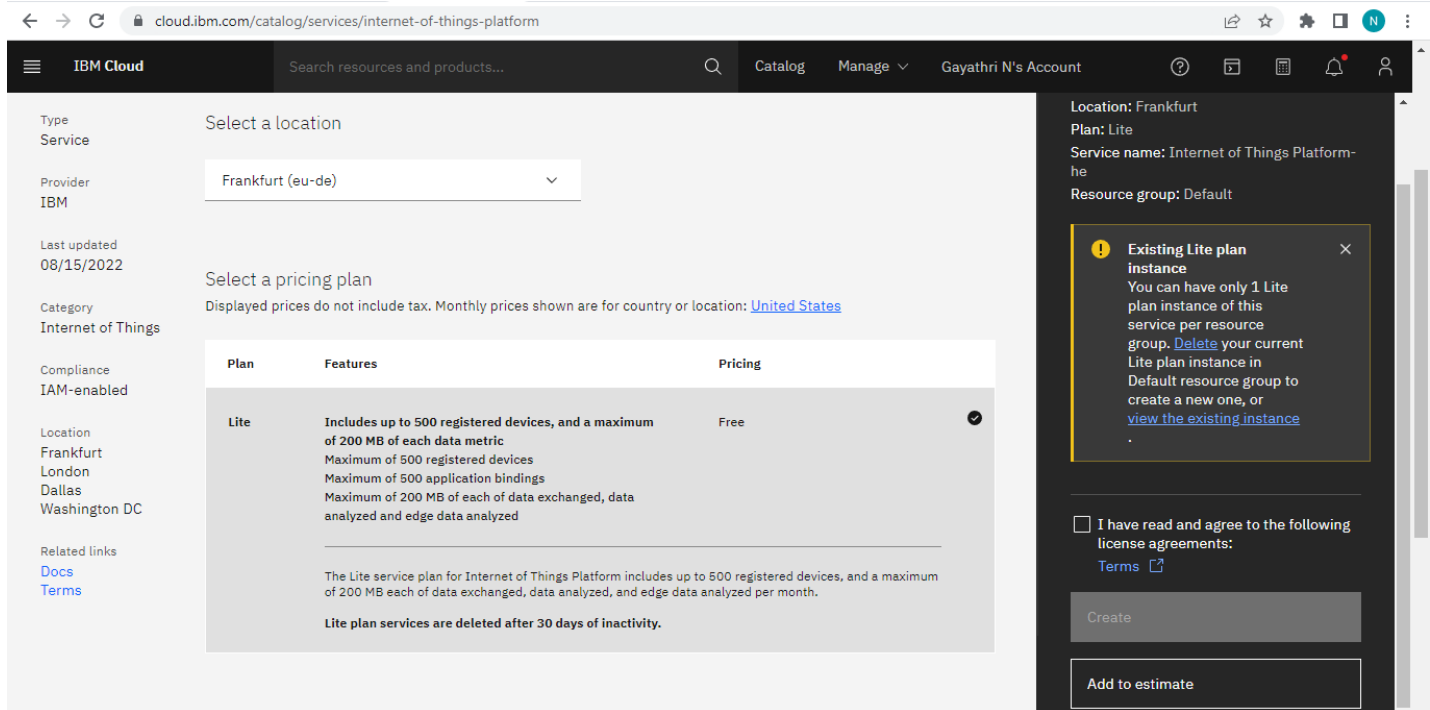
Filters: Internet of Things Clear all

Internet of Things Platform
By IBM

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.

Lite • Free • IAM-enabled • IBM supported

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



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

IBM Cloud Search resources and products... Catalog Manage Gayathri N's Account

Type Service

Provider IBM

Last updated 08/15/2022

Category Internet of Things

Compliance IAM-enabled

Location Frankfurt London Dallas Washington DC

Related links Docs Terms

Select a location

Frankfurt (eu-de)

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.

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

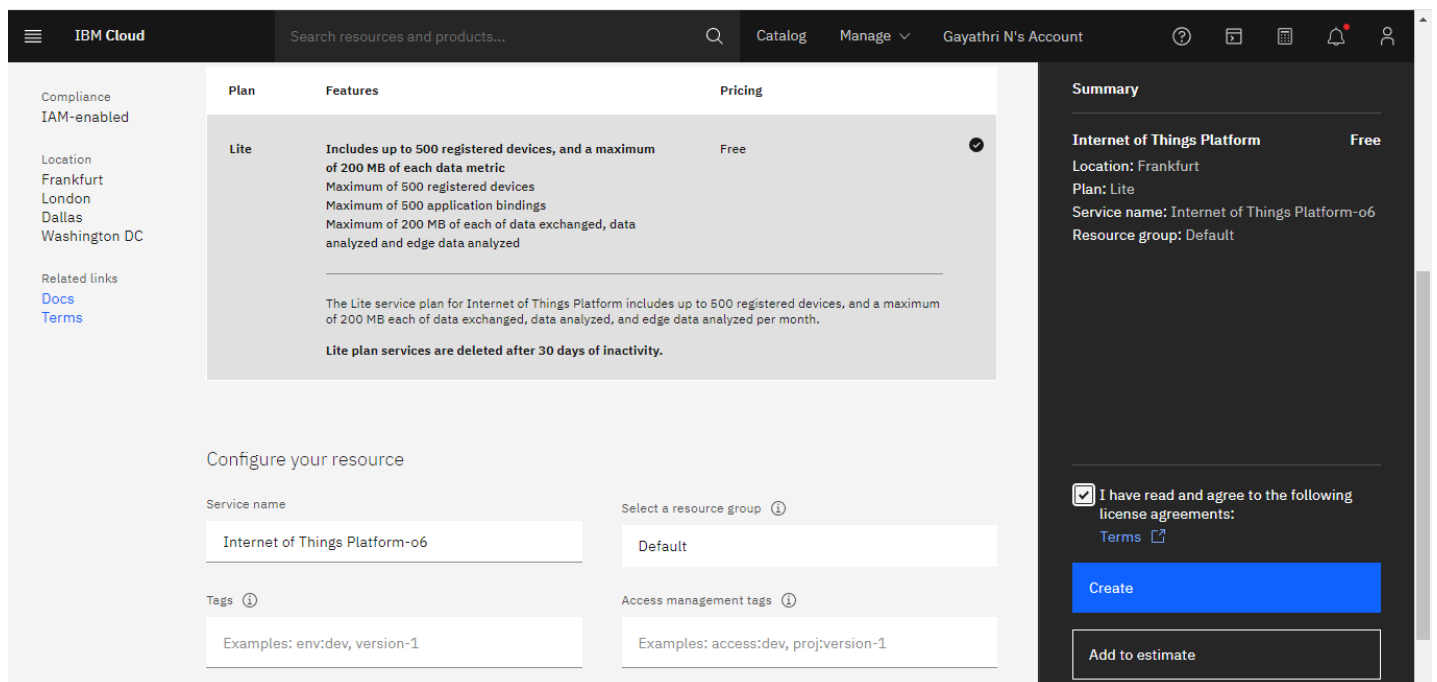
Existing Lite plan instance
You can have only 1 Lite plan instance of this service per resource group. [Delete](#) your current Lite plan instance in Default resource group to create a new one, or [view the existing instance](#).

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

Create

Add to estimate

Step 7: Tick agreements and then click on create.



IBM Cloud Search resources and products... Catalog Manage Gayathri N's Account

Compliance IAM-enabled

Location Frankfurt London Dallas Washington DC

Related links Docs Terms

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-o6

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-o6
Resource group: Default

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

Create

Add to estimate

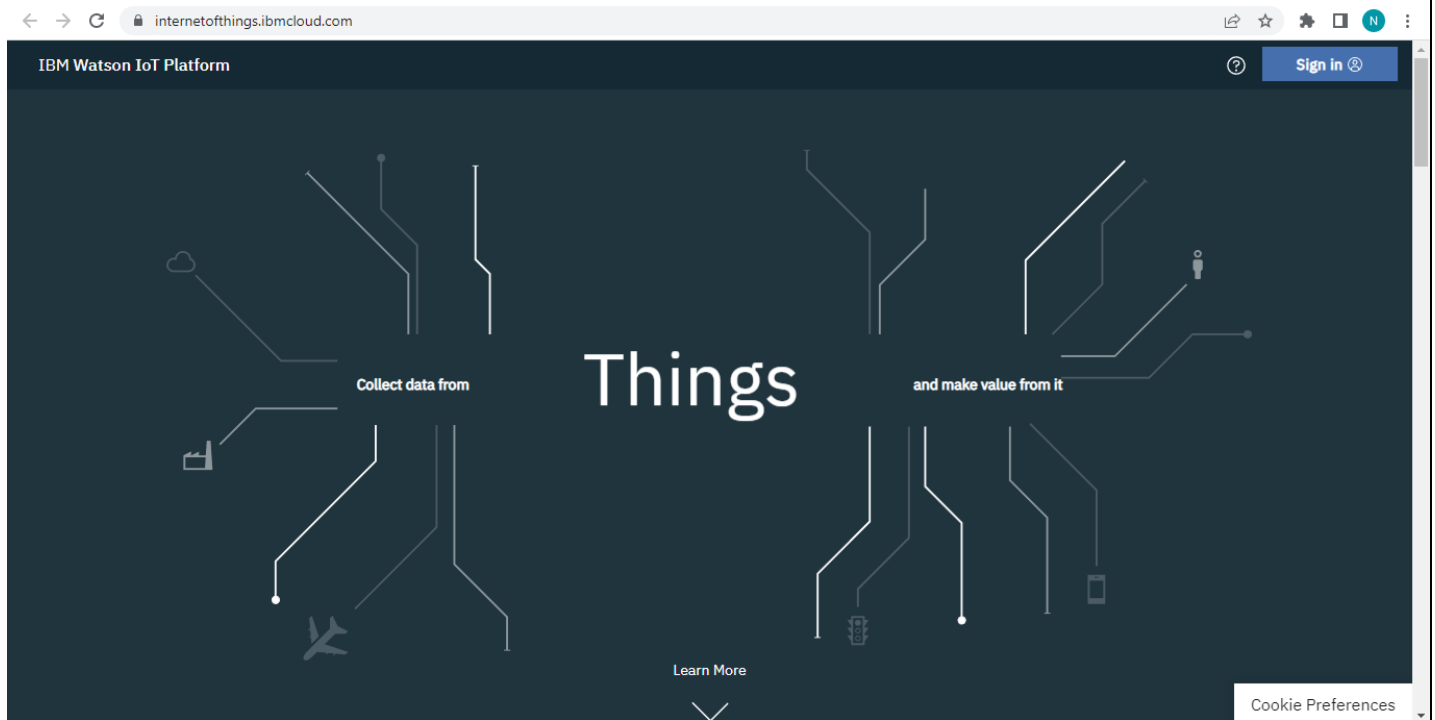
Step 8: Click on the launch button.

The screenshot shows the IBM Cloud interface for the 'Internet of Things Platform-o6'. The top navigation bar includes the IBM Cloud logo, a search bar, and links to Catalog, Manage, and the user's account (Gayathri N's Account). The main header displays 'Internet of Things Platform-o6' with a green 'Active' status and an 'Add tags' link. A 'Details' link and an 'Actions...' dropdown menu are also present. On the left, a sidebar menu lists 'Manage', 'Plan', and 'Connections'. The main content area features a large blue icon representing IoT connectivity. Below the icon, the text 'Let's get started with IBM Watson IoT Platform' is followed by a description: 'Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world.' Two buttons, 'Launch' and 'Docs', are provided. Further down, a section titled 'Ready for the next level?' introduces the 'IBM Watson IoT Platform Journey'. This journey is depicted as a horizontal timeline with three stages: 'Lite' (marked with a checkmark), 'Non-Production', and 'Production'. Each stage has a brief description of the service plan. A blue chat icon is visible in the bottom right corner.

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

The screenshot shows the IBM Watson IoT Platform landing page in a web browser. The browser's address bar displays 'internetofthings.ibmcloud.com'. The page header includes the 'IBM Watson IoT Platform' title, a help icon, and a 'Sign in' button. The main visual is a dark-themed graphic with the word 'Things' in large white letters. To the left of 'Things' is the text 'Collect data from' accompanied by icons of a cloud, a factory, and an airplane. To the right is the text 'and make value from it' with icons of a person, a smartphone, and a traffic light. A 'Learn More' link is centered at the bottom. A 'Cookie Preferences' button is located in the bottom right corner.

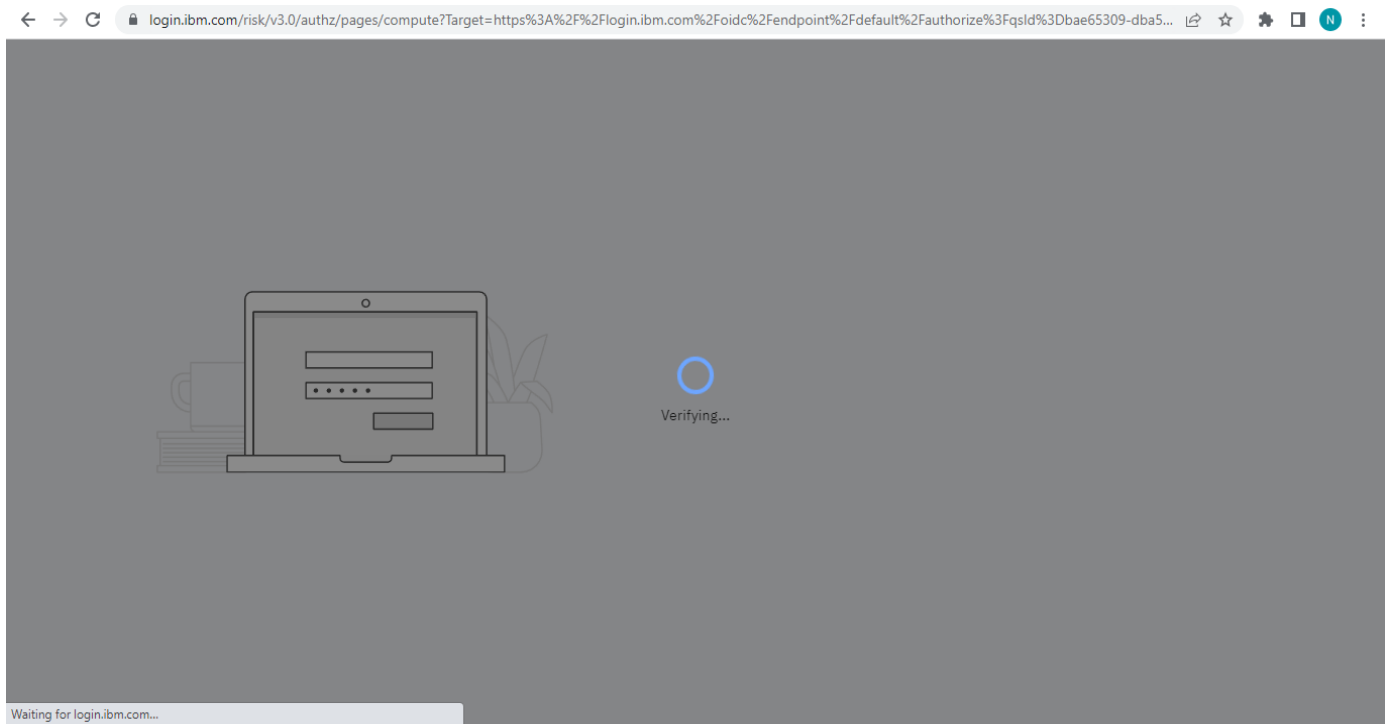
Step 10: Click on Sign in.



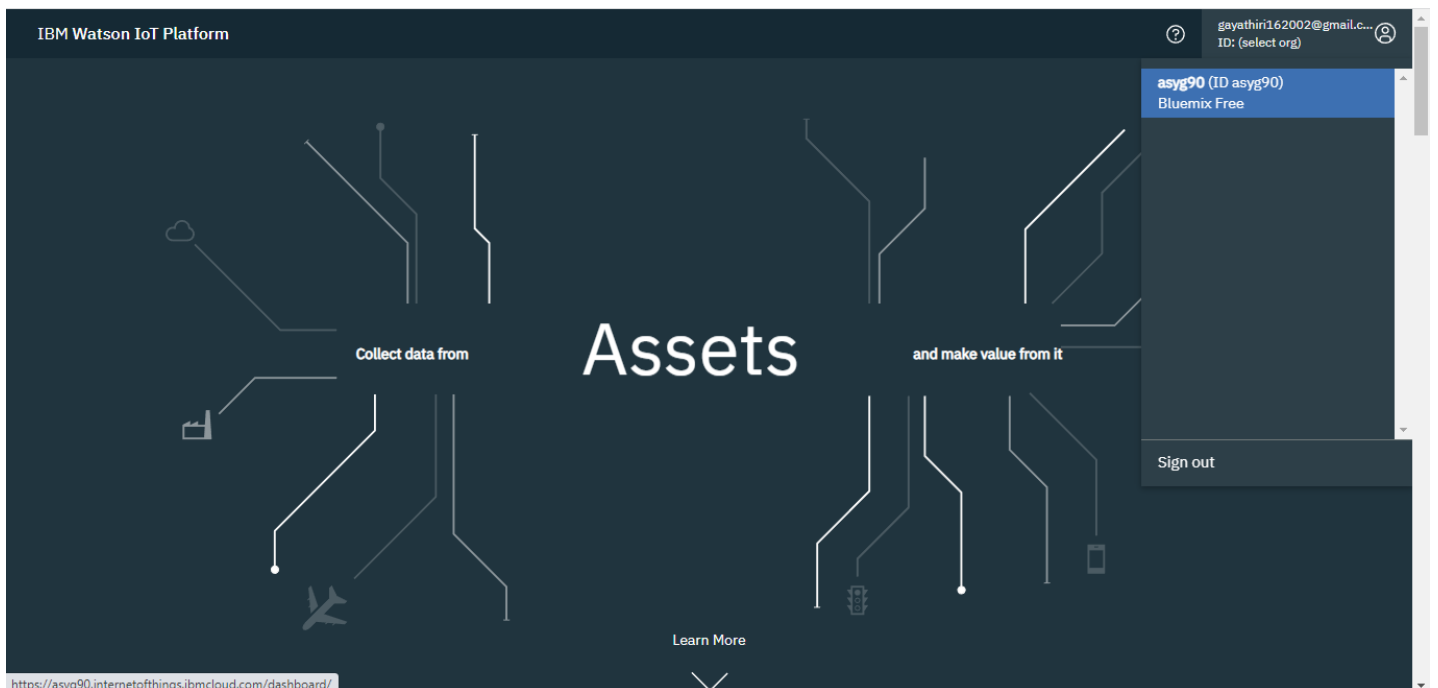
Step 11: Fill the login details.

The screenshot shows the IBM login page. The browser's address bar displays a long URL starting with 'login.ibm.com'. The IBM logo is in the top left corner. The main content area is a light gray box with the title 'Log in to IBM'. Below the title is a label 'IBMid' and a text input field. To the right of the input field is a link 'Forgot IBMId?'. Below the input field is a checkbox labeled 'Remember me' with a small information icon. Below the checkbox is a blue 'Continue' button with a right-pointing arrow. At the bottom of the login box, there is a link 'Don't have an account? Create an IBMId'. Below the login box is a link 'Need help? Contact the IBMId help desk'. At the very bottom of the page is a dark blue footer bar with links for 'Contact', 'Privacy', 'Terms of use', 'Accessibility', and 'Cookie preferences' on the left, and 'Powered by IBM Security Verify' on the right.

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.

IBM Watson IoT Platform

gayathiri162002@gmail.com
ID: asyg90

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

Device ID	Status	Device Type	Class ID	Date Added
12345	Disconnected	TestDeviceType	Device	Nov 16, 2022 10:11 AM

Items per page 50 | 1-1 of 1 item

1 of 1 page

Step 15: Click on Add Device.

IBM Watson IoT Platform

gayathiri162002@gmail.com
ID: asyg90

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.

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Device Simulator

Device ID	Status	Device Type	Class ID	Date Added
12345	Disconnected	TestDeviceType	Device	Nov 16, 2022 10:11 AM

Items per page 50 | 1-1 of 1 item

1 of 1 page

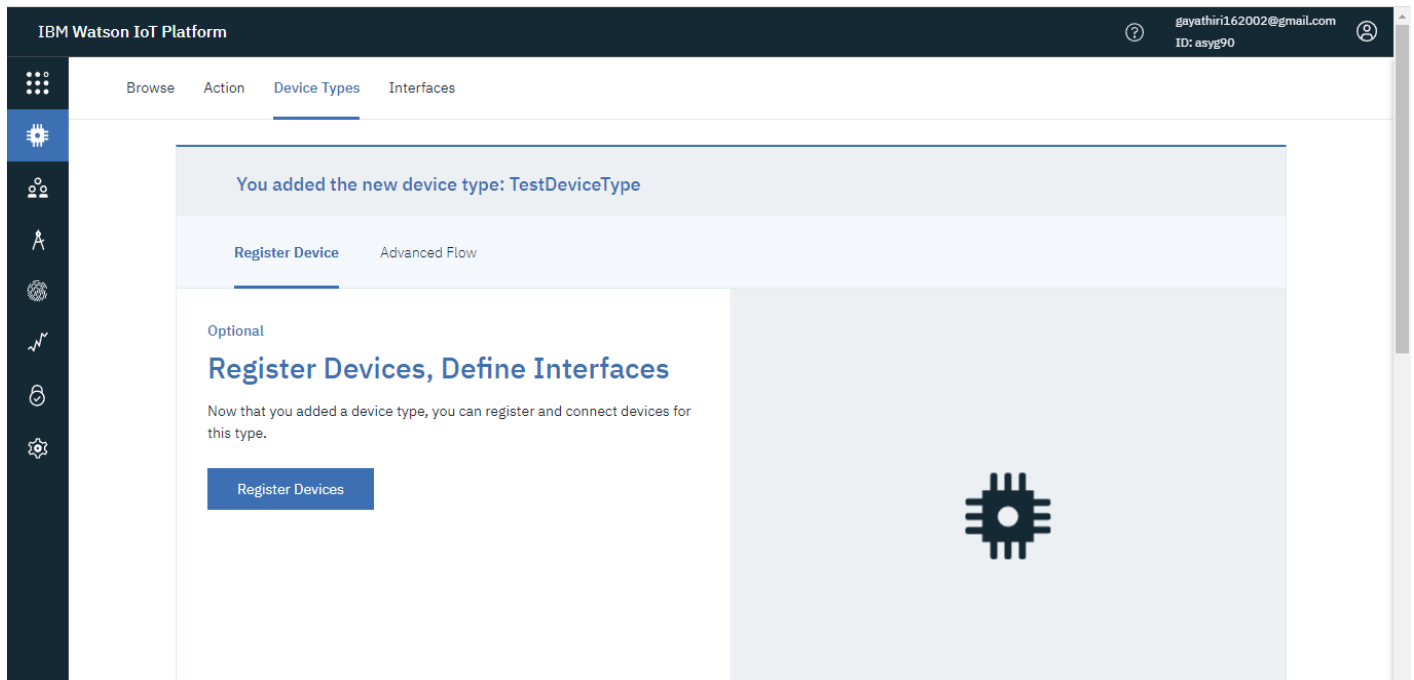
Step 16: Click on Device Type.

The screenshot shows the 'Add Device' dialog box in the IBM Watson IoT Platform. The dialog has a title bar with a close button (X) and 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 a dropdown menu showing 'Select or create a device type...' and 'Device ID' with a text input field showing 'Enter Device ID'. At the bottom right, there are 'Cancel' and 'Next' buttons.

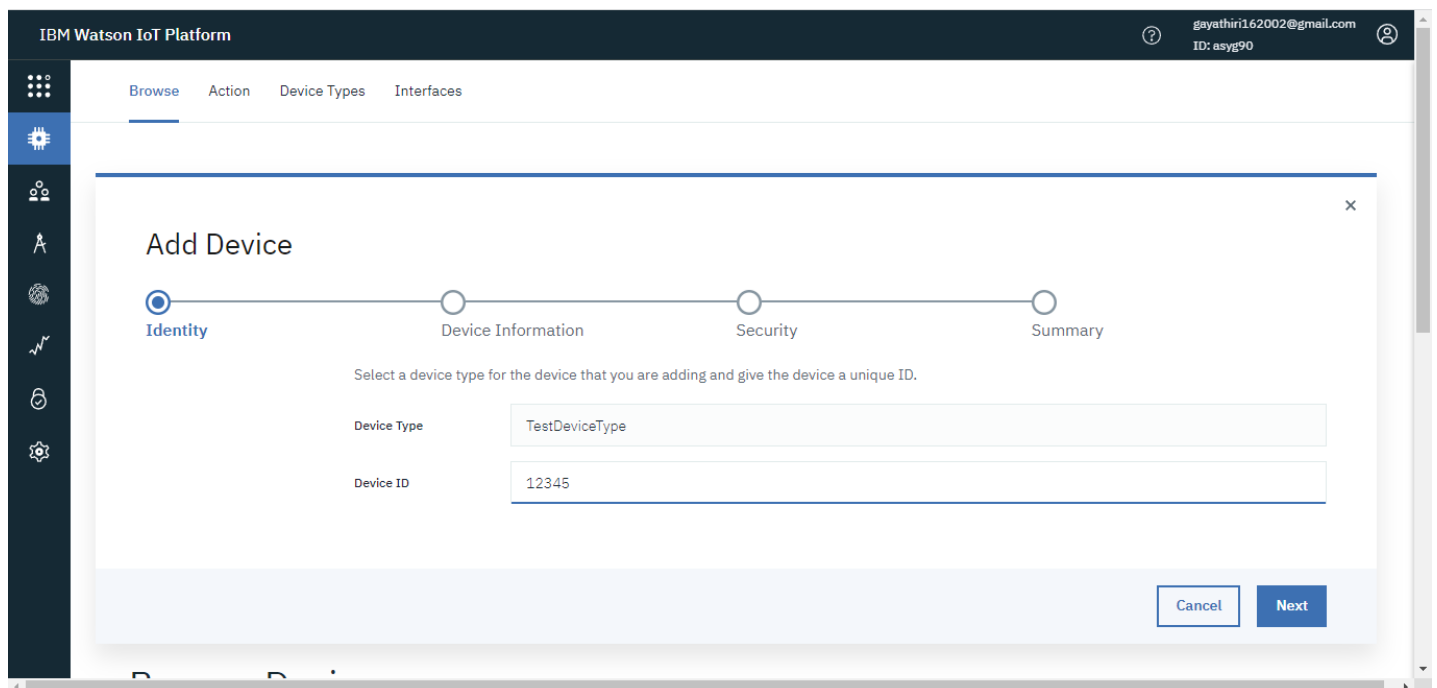
Step 17: Fill the details.

The screenshot shows the 'Add Type' dialog box in the IBM Watson IoT Platform. The dialog has a title bar with a close button (X) and a progress bar with two steps: Identity (selected) and Device Information. Below the progress bar, 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' (selected) and 'Gateway' (available), 'Name' with a text input field showing 'TestDeviceType', and 'Description' with a text input field. Below the 'Name' field, there is 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.' At the bottom right, there are 'Cancel' and 'Next' buttons.

Step 18: Click on Register Devices.



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



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

The screenshot shows the 'Add Device' wizard in the IBM Watson IoT Platform. The wizard has four steps: Identity, Device Information, Security, and Summary. The Summary step is currently active, indicated by a blue circle. The previous steps are marked with checkmarks. The Summary step prompts the user to verify the information and then select 'Finish'. The information to be verified is as follows:

Field	Value
Device Type	TestDeviceType
Device ID	12345
Security Token	To be generated

There is a 'View Metadata' button below the information. The top navigation bar shows 'Browse', 'Action', 'Device Types', and 'Interfaces'. The user's profile is visible in the top right corner with the email 'gayathiri162002@gmail.com' and ID 'asyg90'.

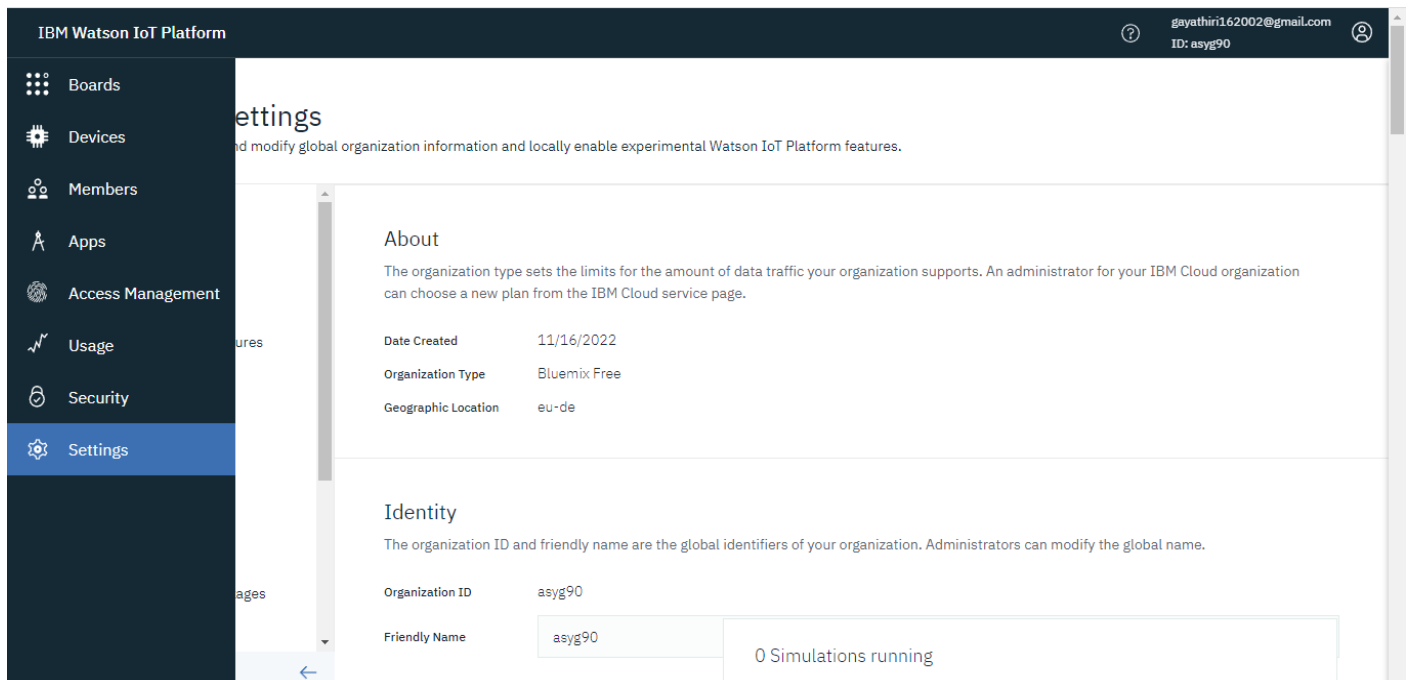
Step 21: After creating the device, Copy the Device Credentials.

The screenshot shows the 'Device Drilldown' page for device 12345 in the IBM Watson IoT Platform. The page has a left sidebar with a navigation menu and a main content area. The navigation menu includes: Device Credentials (selected), Connection Information, Recent Events, State, Device Information, Metadata, Diagnostics, Connection Logs, and Device Actions. The main content area is titled 'Device Credentials' and contains the following information:

Field	Value
Organization ID	asyg90
Device Type	TestDeviceType
Device ID	12345
Authentication Method	use-token-auth
Authentication Token	DqUoIG(tjKnCOFj+U+

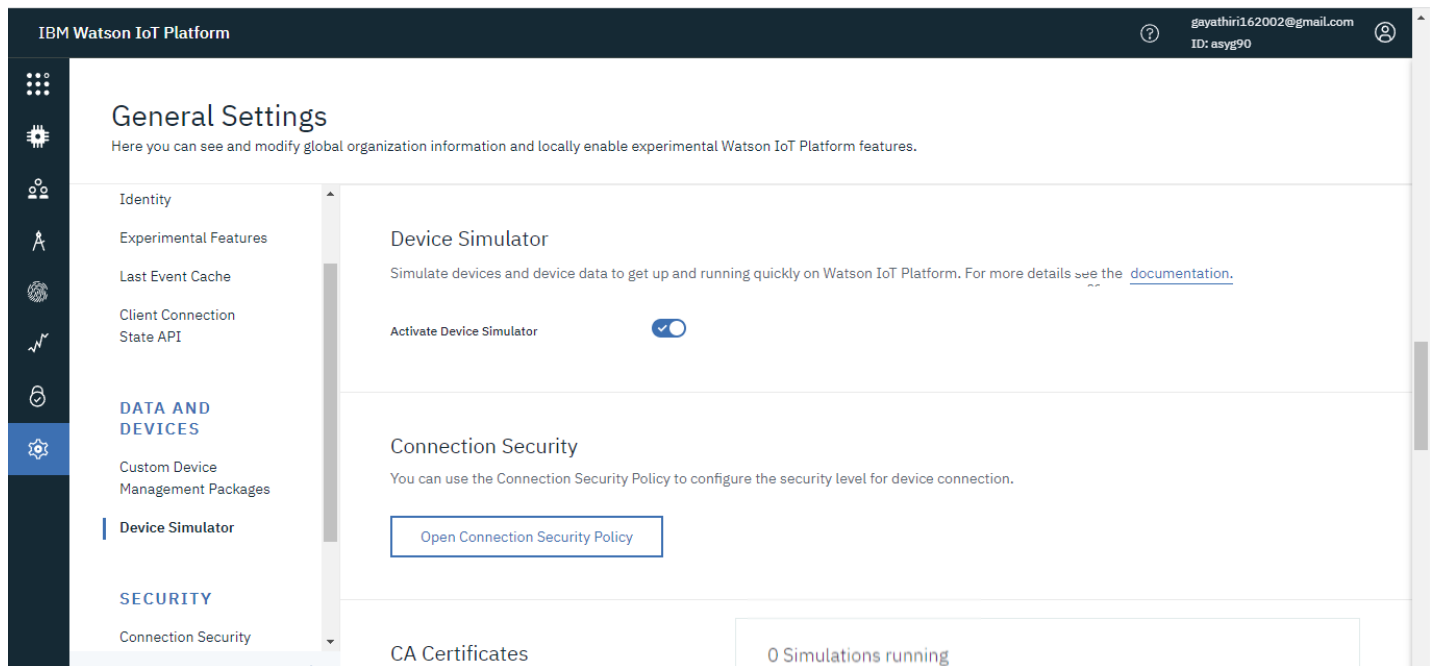
Below the table, there is a warning icon and a message: 'Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the device to generate a new authentication token.' At the bottom, there is a link: 'Find out how to add these credentials to your device'.

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



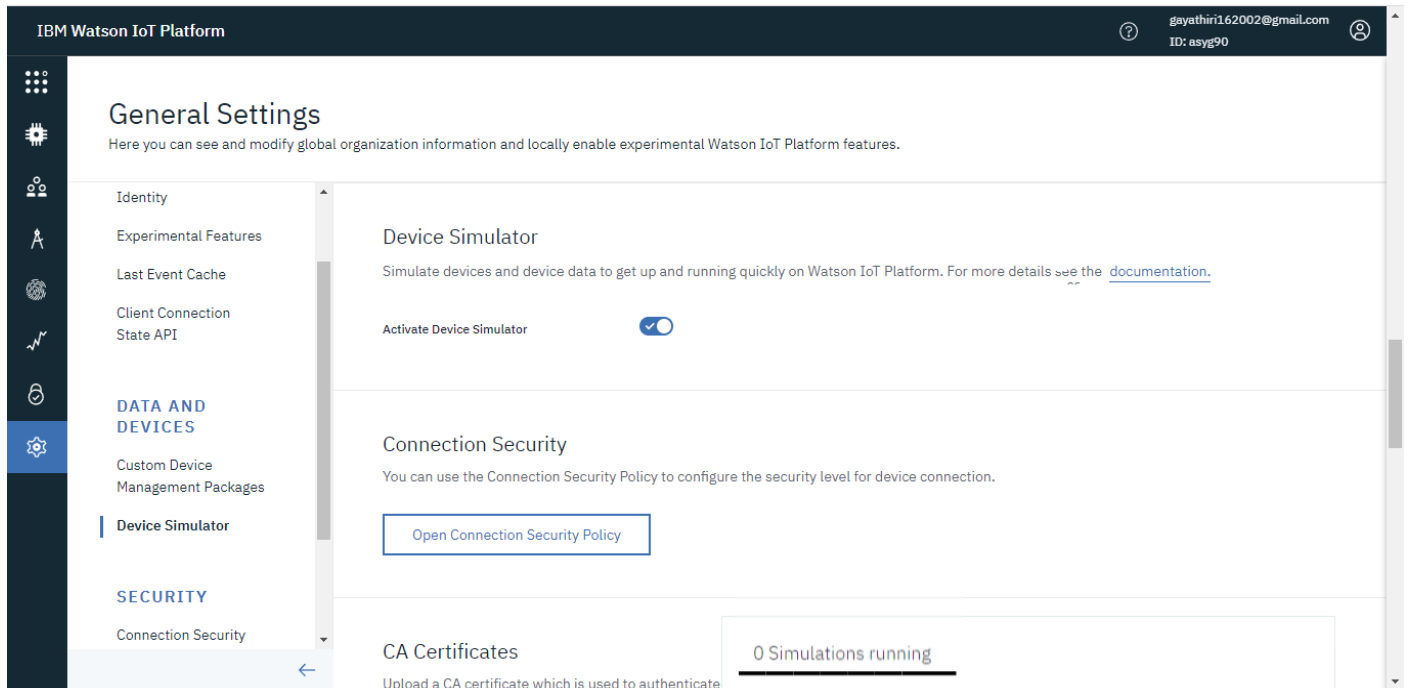
The screenshot shows the IBM Watson IoT Platform Settings page. The left sidebar contains a navigation menu with the following items: Boards, Devices, Members, Apps, Access Management, Usage, Security, and Settings (highlighted). The main content area is titled 'Settings' and includes a subtitle: 'Here you can see and modify global organization information and locally enable experimental Watson IoT Platform features.' The 'About' section displays the following information: Date Created (11/16/2022), Organization Type (Bluemix Free), and Geographic Location (eu-de). The 'Identity' section shows the Organization ID (asyg90) and the Friendly Name (asyg90). A status bar at the bottom right indicates '0 Simulations running'.

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

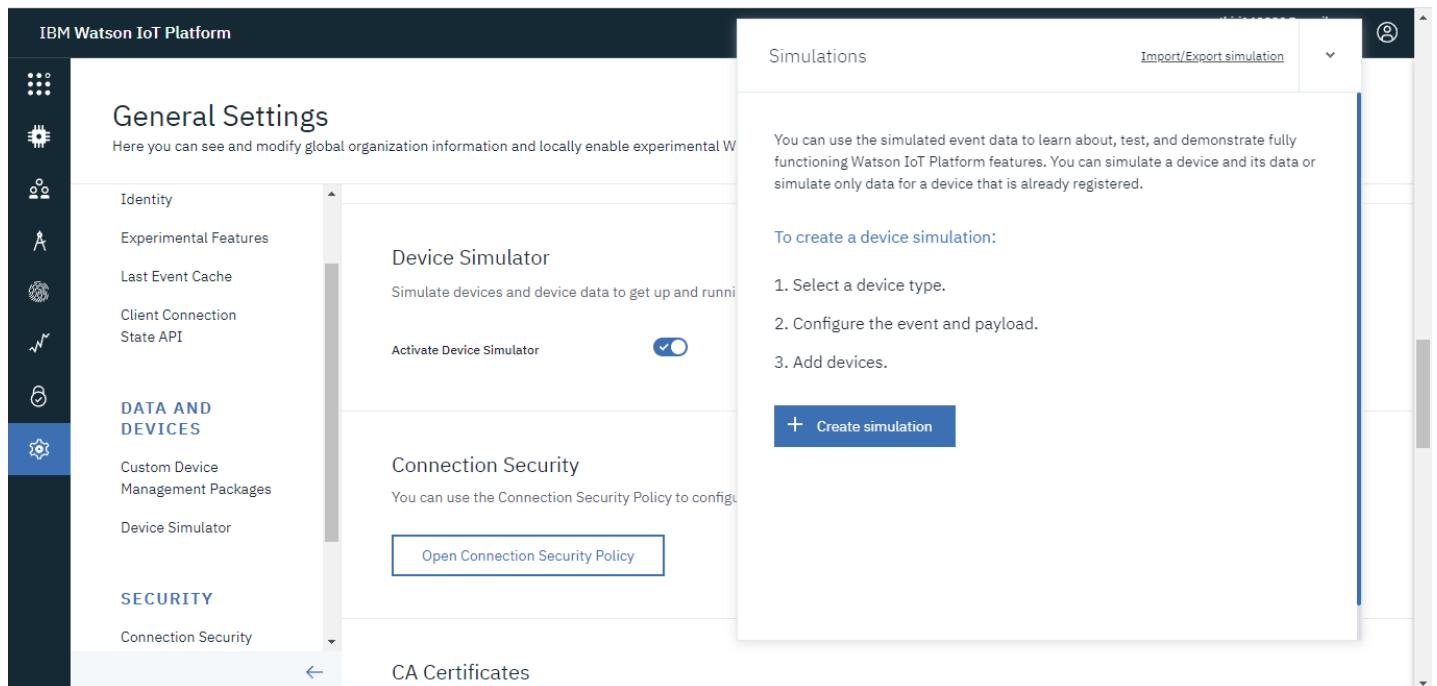


The screenshot shows the IBM Watson IoT Platform General Settings page. The left sidebar contains a navigation menu with the following items: Identity, Experimental Features, Last Event Cache, Client Connection, State API, DATA AND DEVICES (highlighted), Custom Device Management Packages, Device Simulator, and SECURITY. The main content area is titled 'General Settings' and includes a subtitle: 'Here you can see and modify global organization information and locally enable experimental Watson IoT Platform features.' The 'Device Simulator' section displays the following information: Simulate devices and device data to get up and running quickly on Watson IoT Platform. For more details see the [documentation](#). The 'Activate Device Simulator' toggle is turned on. The 'Connection Security' section displays the following information: You can use the Connection Security Policy to configure the security level for device connection. A button labeled 'Open Connection Security Policy' is visible. A status bar at the bottom right indicates '0 Simulations running'.

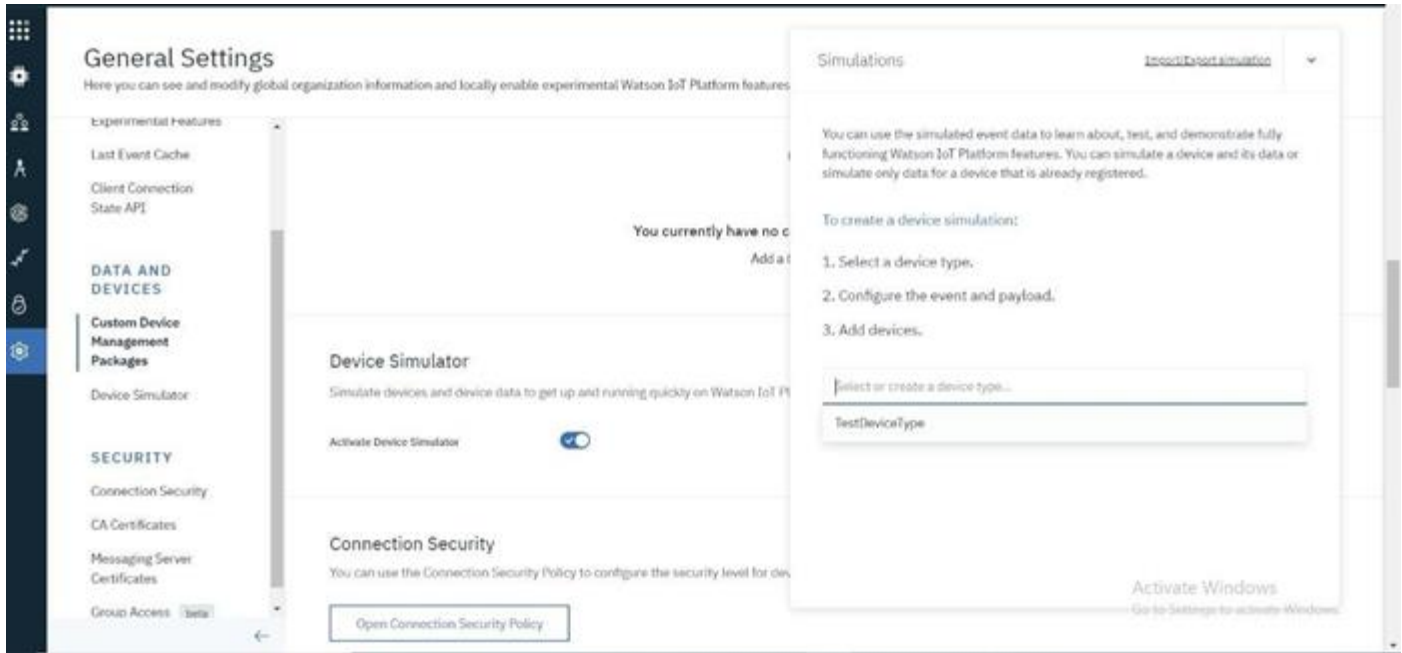
Step 24: Click on the pop-up screen on the right side.



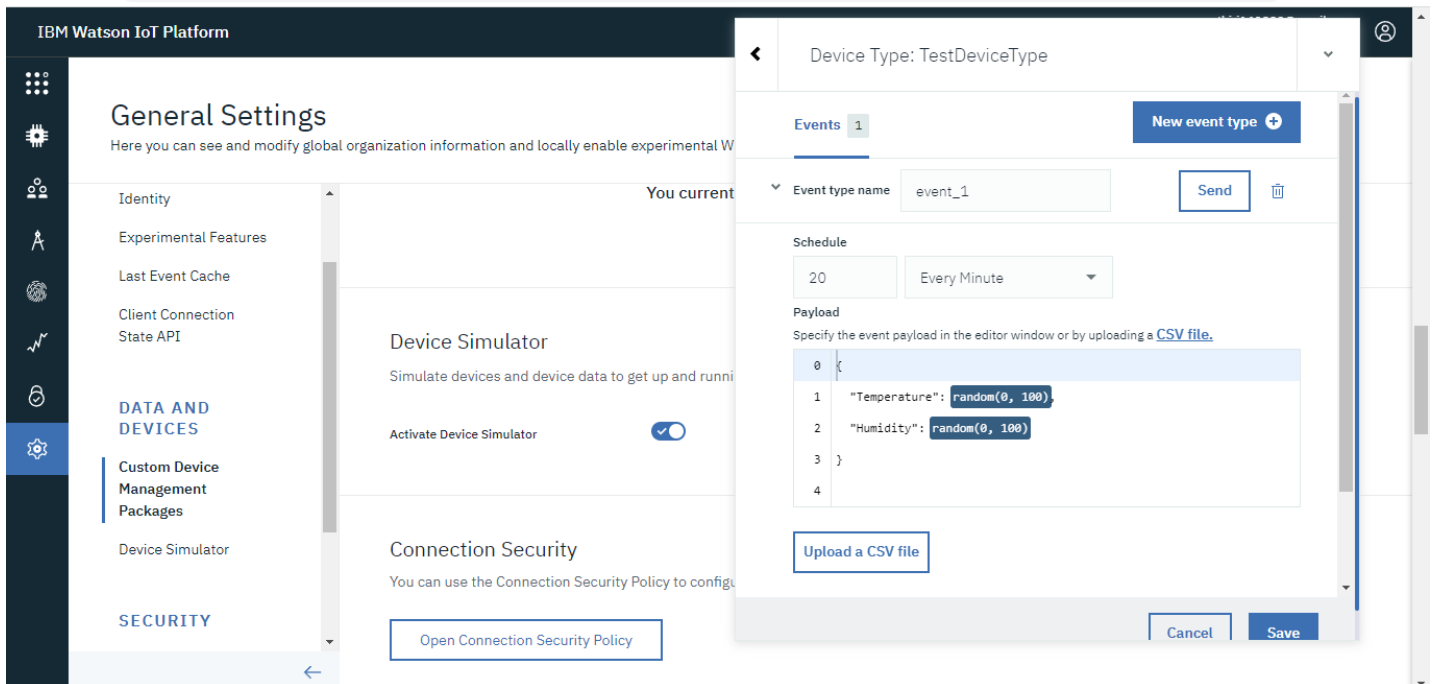
Step 25: Click on Create Simulation.



Step 26: Choose the Device.



Step 27: Type the code.



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

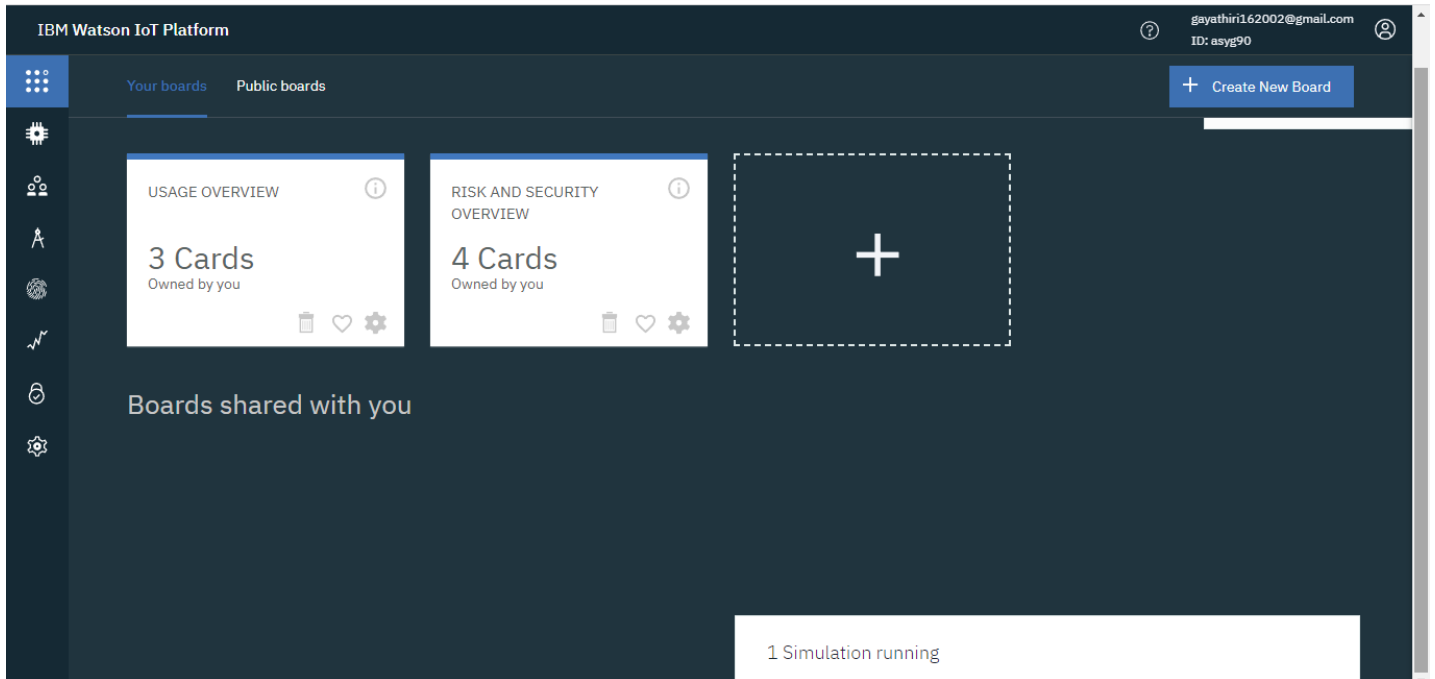
The screenshot shows the 'General Settings' page of the IBM Watson IoT Platform. The left sidebar contains navigation links for Identity, Experimental Features, Last Event Cache, Client Connection State API, DATA AND DEVICES (highlighted), Custom Device Management Packages, Device Simulator, and SECURITY. The main content area includes sections for 'Device Simulator' (with an 'Activate Device Simulator' toggle) and 'Connection Security' (with an 'Open Connection Security Policy' button). A 'Simulations' modal is open on the right, displaying '1/50 Simulations Running' and a 'Select or create a device type...' dropdown. Below this, it shows 'Device Type: TestDeviceType' with '1 Event' and a '1 Device' list containing device ID '12345'. At the bottom of the modal are two buttons: 'Create Simulated Device' and 'Use Registered Device'.

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

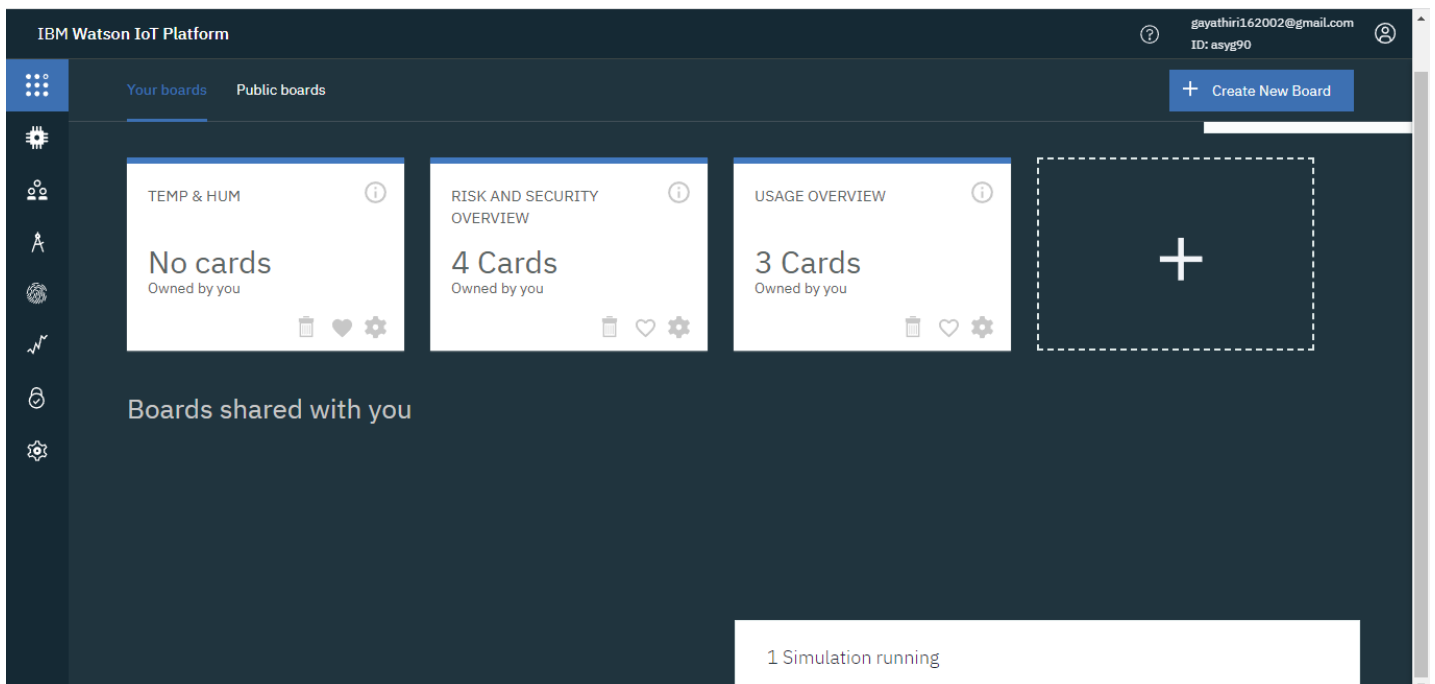
The screenshot shows the 'Recent Events' tab for device '12345' in the IBM Watson IoT Platform. The device status is 'Disconnected' and the type is 'TestDeviceType'. The 'Recent Events' section displays a table of live stream data. The table has four columns: 'Event', 'Value', 'Format', and 'Last Received'. It lists three events, all with a format of 'json' and received 'a few seconds ago'. The values are JSON objects representing temperature and humidity data. At the bottom, there is a pagination bar showing 'Items per page: 50' and '1-1 of 1 item'. A '1 Simulation running' notification is visible at the bottom right.

Event	Value	Format	Last Received
event_1	{"Temperature":42,"Humidity":88}	json	a few seconds ago
event_1	{"Temperature":71,"Humidity":36}	json	a few seconds ago
event_1	{"Temperature":3,"Humidity":53}	json	a few seconds ago

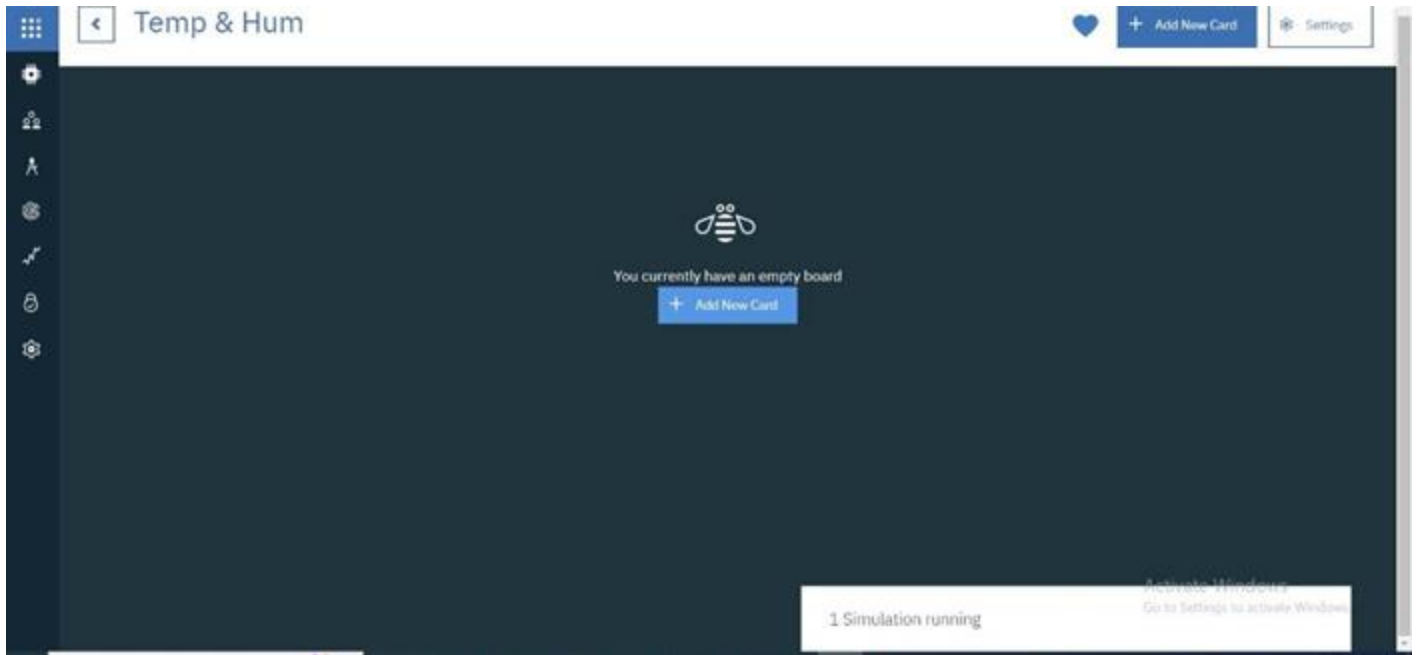
Step 30: Go to Board and click on + Create New Board, fill the details and create a board.



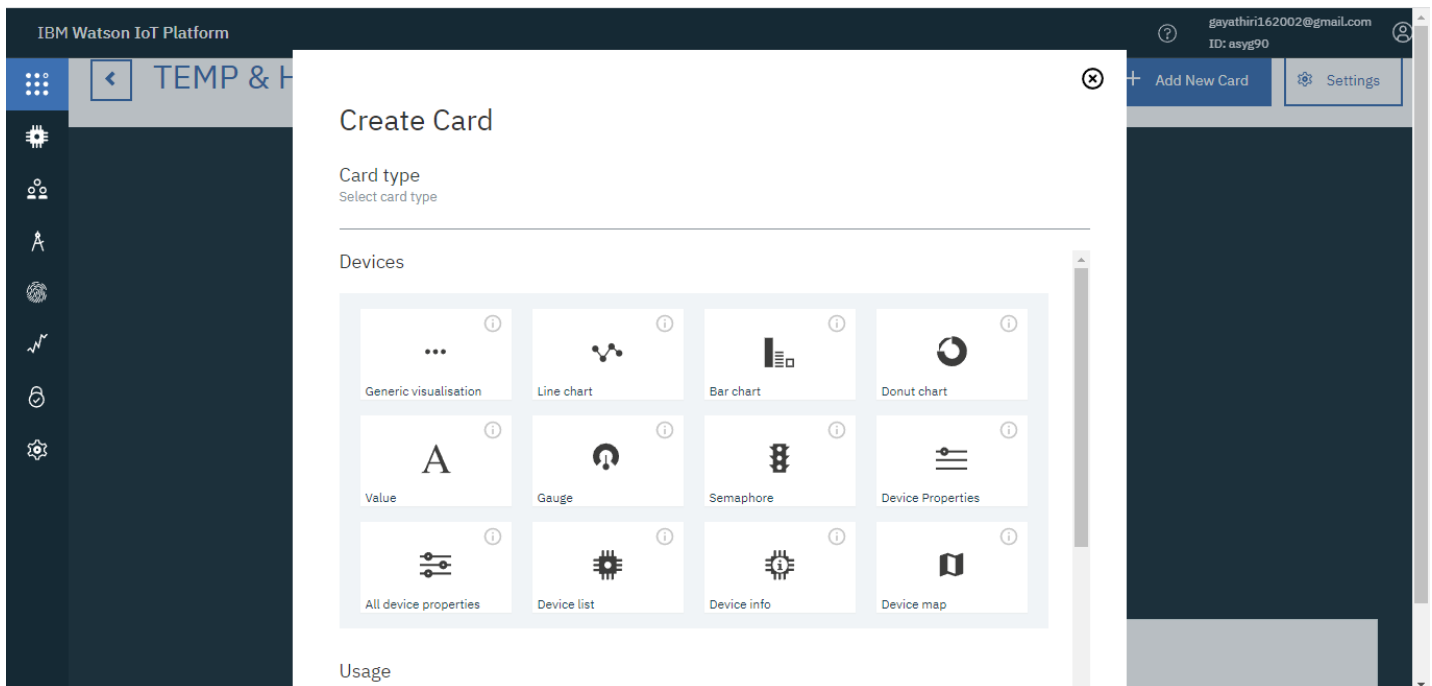
Step 31: Click on the board which is created.



Step 32: Go Add New Card.



Step 33: Choose the Card Type.



Step 34: Choose the device.

The screenshot shows the 'Create Line chart Card' wizard in the IBM Watson IoT Platform. The left sidebar contains a navigation menu with icons for various functions. The main content area is titled 'Create Line chart Card' and has a subtitle 'Specify the data source for the card'. Below this, there is a 'Devices' section with a search bar and a table of available devices. The table has two columns: 'Device ID' and 'Device Type'. A single device is listed with ID '12345' and Type 'TestDeviceType'. A 'Next' button is located at the bottom right of the main content area.

Device ID	Device Type
12345	TestDeviceType

Step 35: Click on Connect new data set.

The screenshot shows the 'Create Line chart Card' wizard in the IBM Watson IoT Platform. The left sidebar contains a navigation menu with icons for various functions. The main content area is titled 'Create Line chart Card' and has a subtitle 'Connect data set'. Below this, there is a 'Connect new data set' button. At the bottom right of the main content area, there are 'Back' and 'Next' buttons.

Step 36: Fill the details to get Temperature graph.

IBM Watson IoT Platform

TEMP & H

Card source data

12345

Card preview

Card information

Create Line chart Card

Connect data set

event_1

Property

Temperature

Name

Temperature

Type

Number

Unit

Min

0

Max

100

[Connect new data set](#)

Back Next

Step 37: Choose the Colour.

IBM Watson IoT Platform

TEMP & H

Card source data

12345

Card preview

Card information

Create Line chart Card

Enter title and description of the card

Title

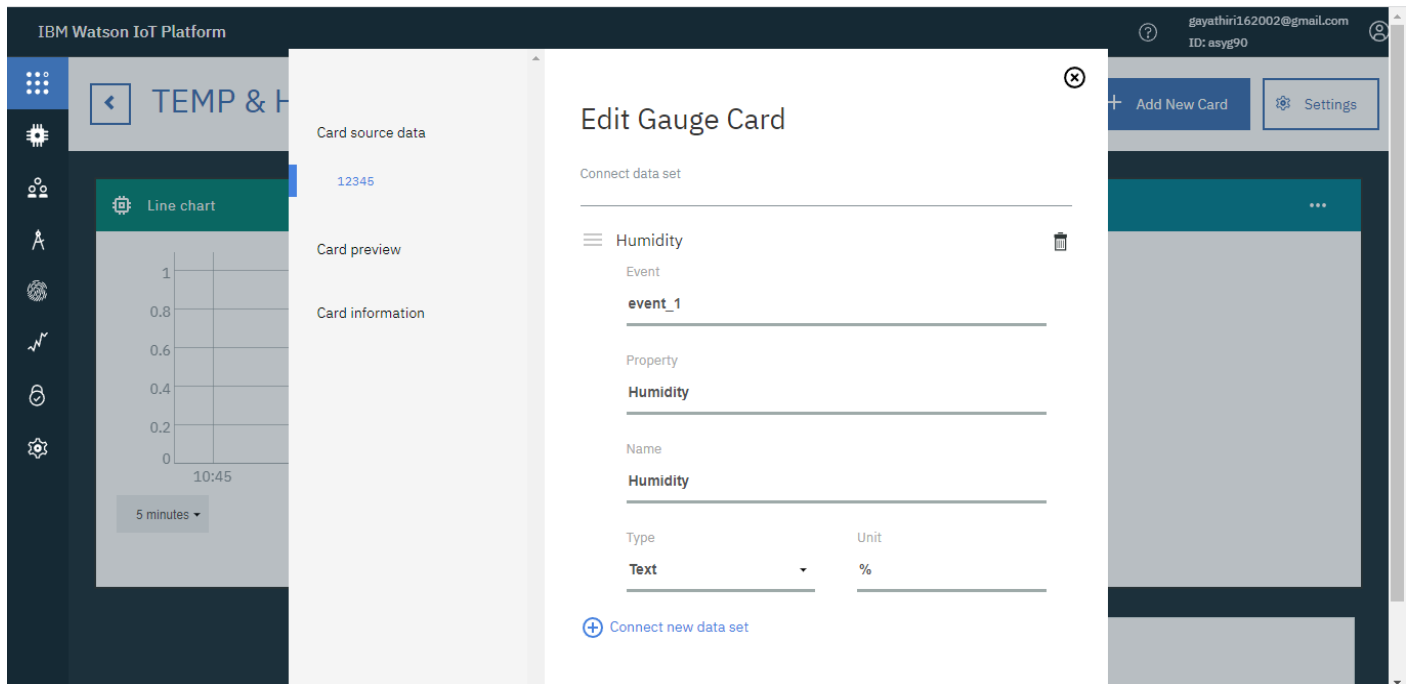
Line chart

Color scheme

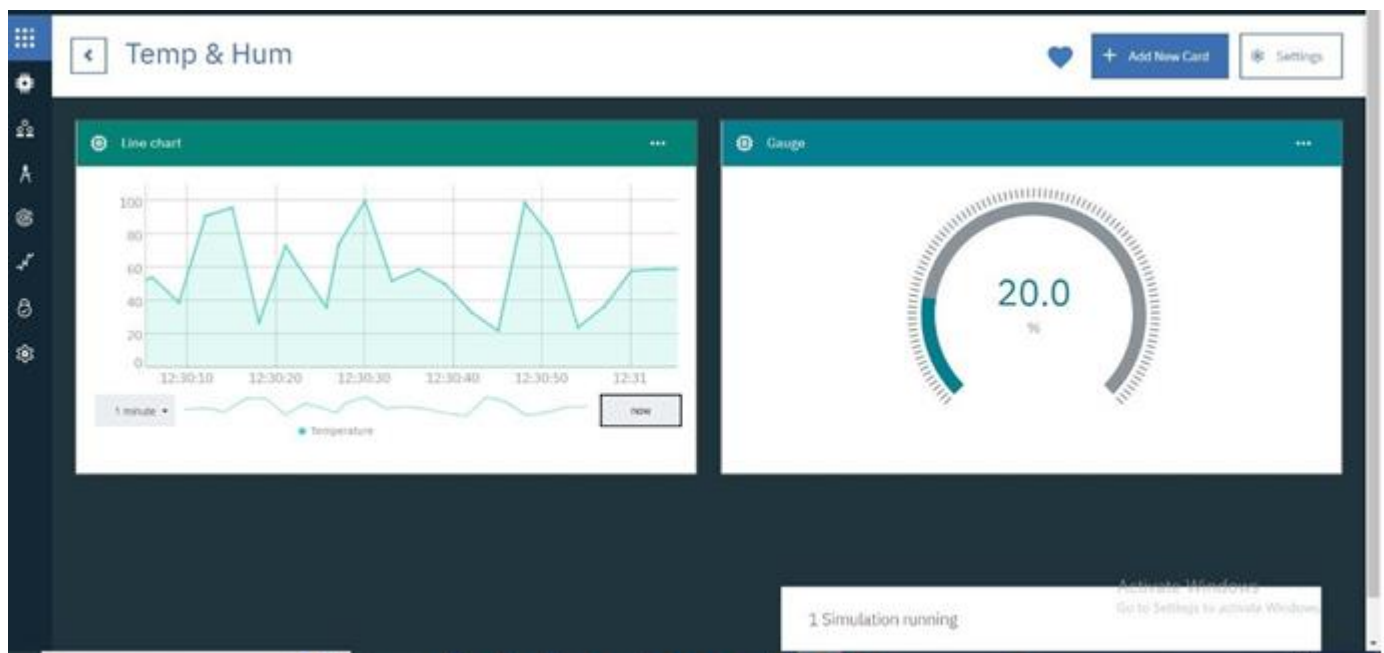
A line chart to display time series information with historic and live data

Back Submit

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



Step 39: Here is the Final graph.



RESULT:

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