

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

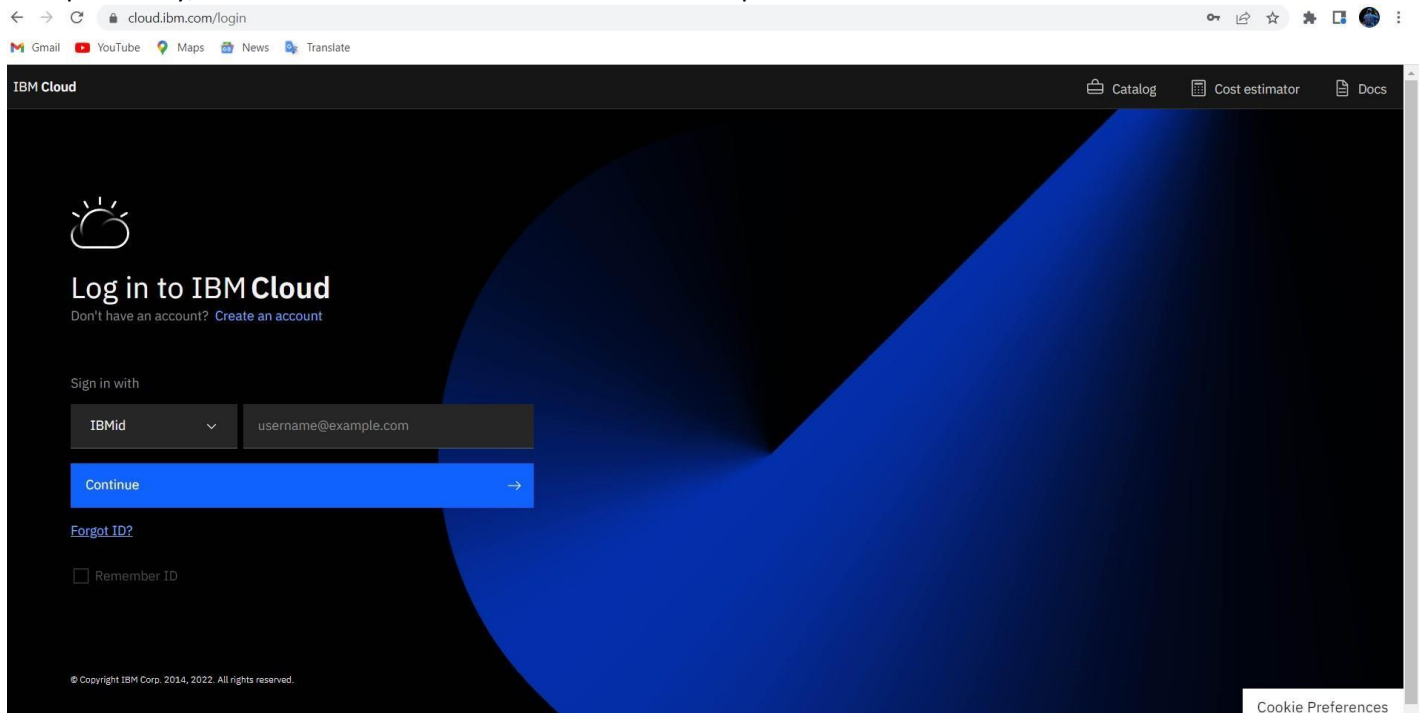
Date	10 November 2022
Team ID	PNT2022TMID12081
Project Name	Gas leakage monitoring and alerting system for industries

AIM:

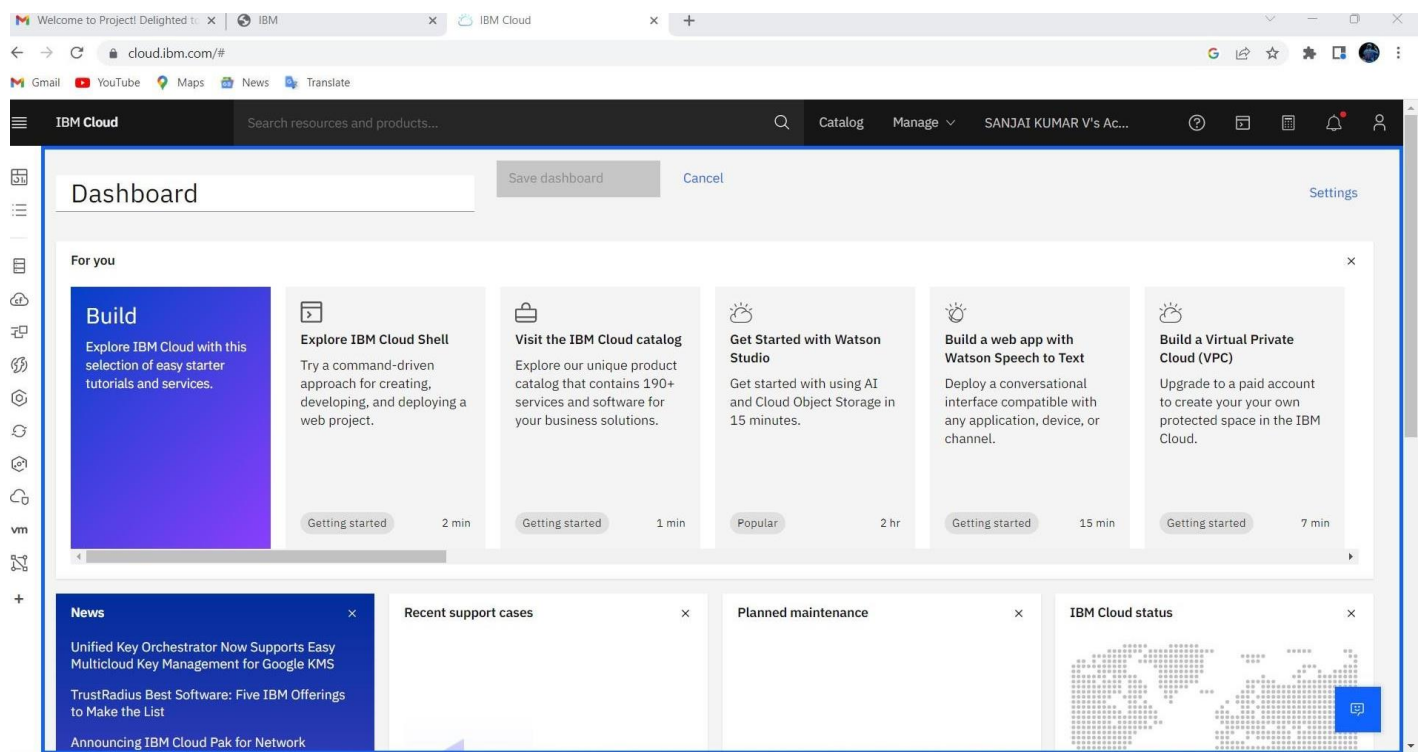
To create the IBM Watson IoT platform and device.

Steps to be followed

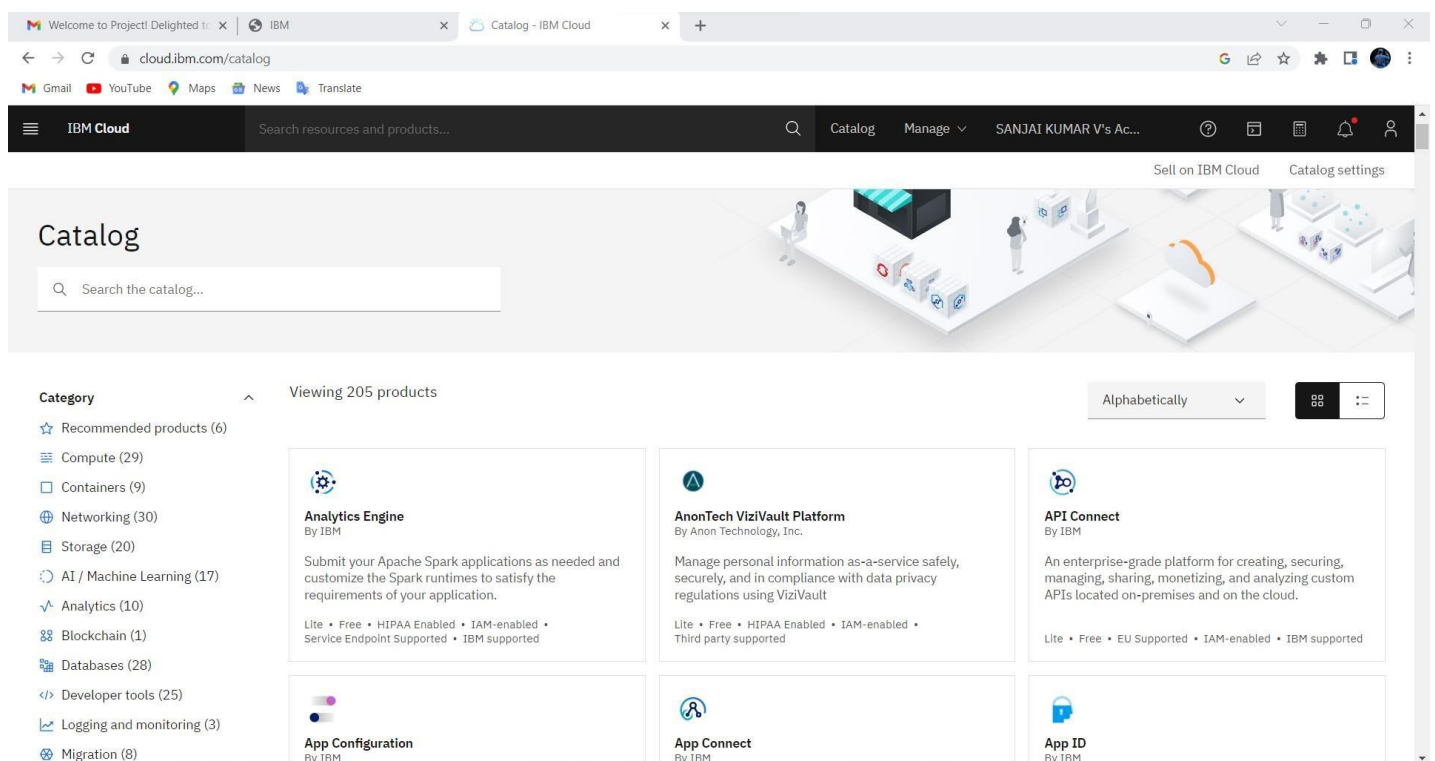
Step 1: Firstly, create an IBM cloud account with IBM id and password.



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 page features a dark header with the IBM Cloud logo, a search bar, and navigation links for Catalog, Manage, and the user profile (SANJAI KUMAR V's Ac...). Below the header, a search bar prompts "Search the catalog...". On the left, a sidebar lists various service 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, a "Type" filter is set to "All". 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 filtered view for the Internet of Things Platform. The browser address bar displays `cloud.ibm.com/catalog?category=iot`. The page features a dark header with the IBM Cloud logo, a search bar, and navigation links for Catalog, Manage, and the user profile (SANJAI KUMAR V's Ac...). Below the header, a search bar prompts "Search the catalog...". On the left, a sidebar lists various service categories. Below the categories, a "Type" filter is set to "All". The main content area displays a single service card for the Internet of Things Platform. The card includes the IBM IoT icon, the title "Internet of Things Platform", the provider "By IBM", 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 a list of supported features: Lite, Free, IAM-enabled, and IBM supported.

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, which includes up to 500 registered devices and a maximum of 200 MB of each data metric. The pricing is free. A warning message 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.' The 'Configure your resource' section shows the service name as 'Internet of Things Platform-gm' and the resource group as 'Default'. The 'Summary' panel on the right shows the service name as 'Internet of Things Platform' and the resource group as 'Default'.

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

Step 7: Tick agreements and then click on create.

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Step 7: Tick agreements and then click on create.

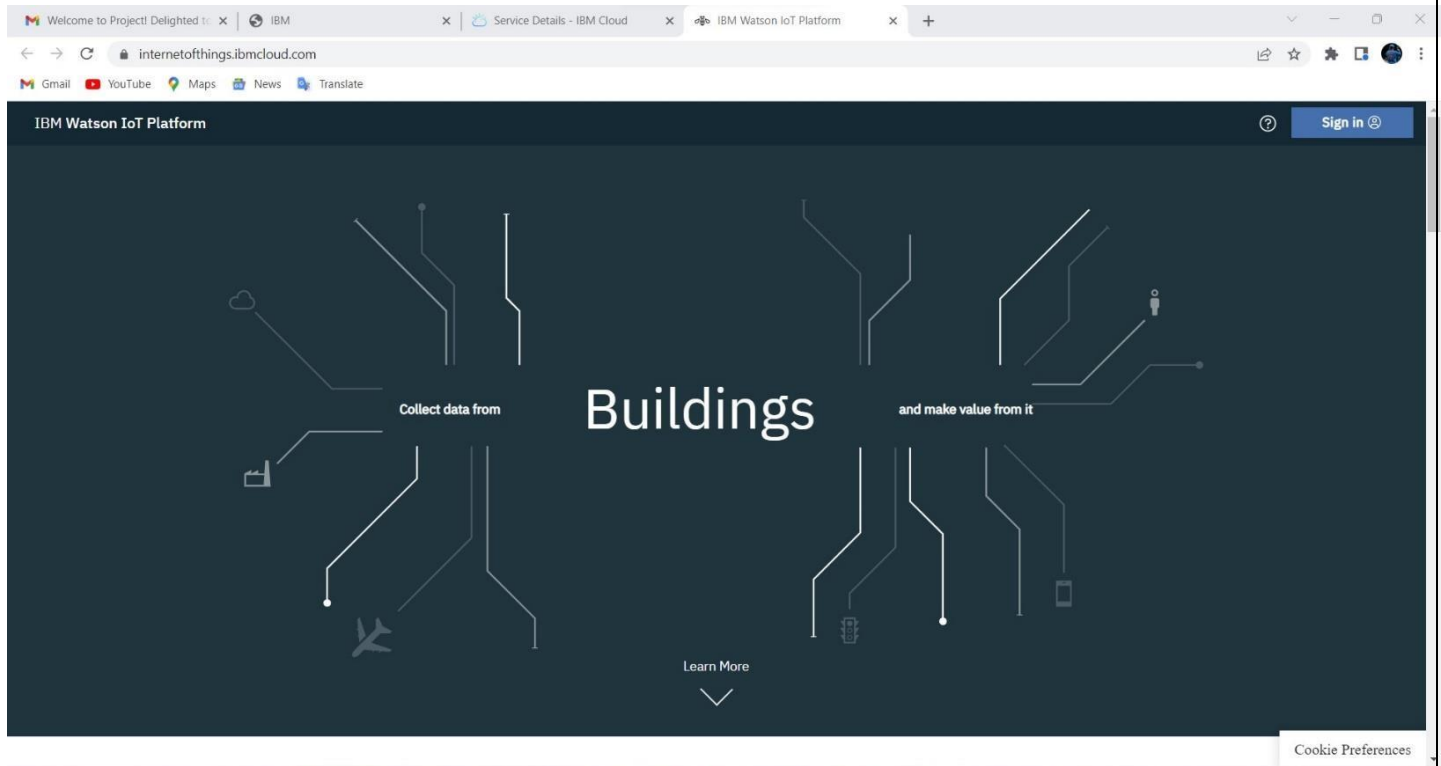
Step 8: Click on the launch button.

The screenshot shows the IBM Cloud interface for the 'Internet of Things Platform-gb'. The page has a dark header with the IBM Cloud logo and a search bar. Below the header, there's a sidebar with 'Manage', 'Plan', and 'Connections' options. The main content area features a large graphic of a central square with four lines extending from it, each ending in a small circle. To the right of this graphic, the text reads 'Let's get started with IBM Watson IoT Platform' followed by a sub-header 'Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world.' Below this text are two buttons: 'Launch' (in blue) and 'Docs' (in grey). Further down, there's a section titled 'Ready for the next level?' with the heading 'IBM Watson IoT Platform Journey'. This section contains three cards: 'Lite' (with a checkmark icon), 'Non-Production' (with a circle icon), and 'Production' (with a circle icon). Each card has a brief description of the service plan. A blue chat bubble icon is visible in the bottom right corner of the main content area.

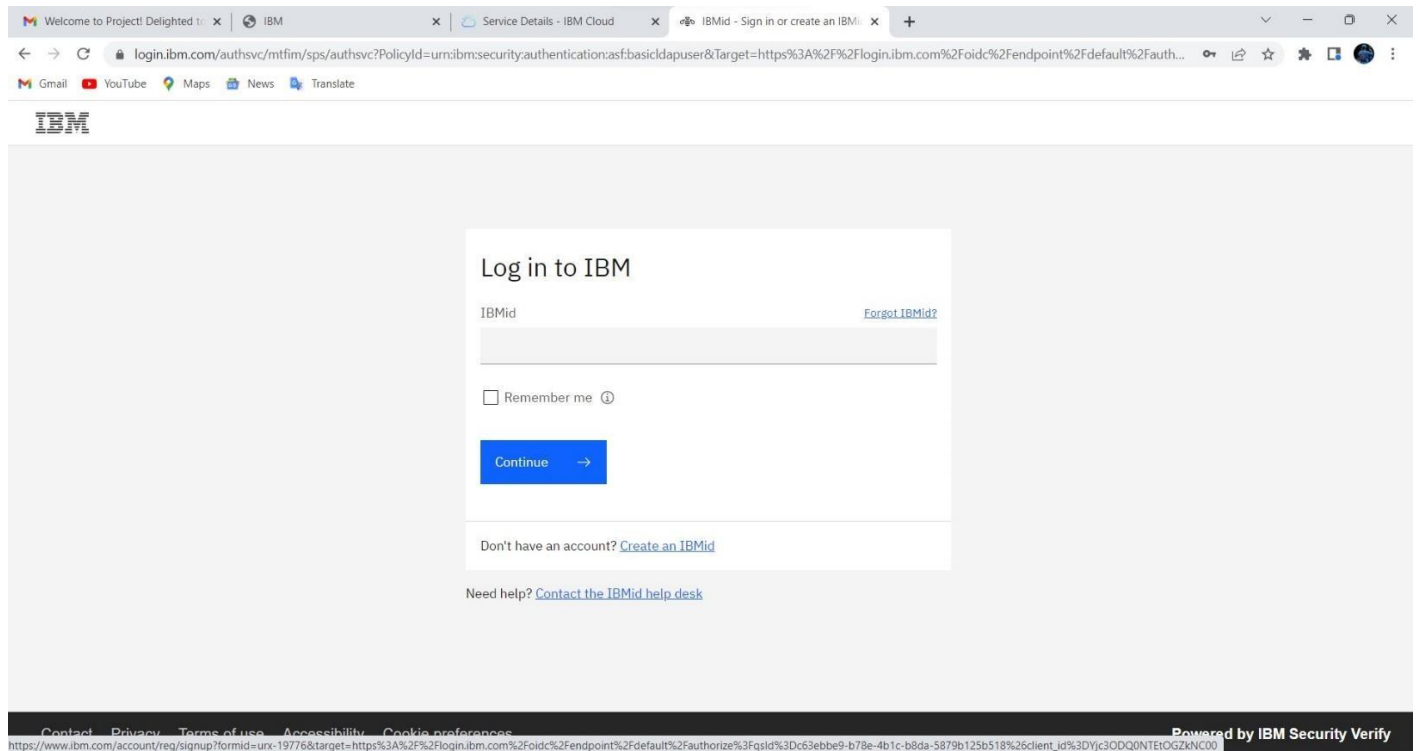
Step 9: After clicking on the launch button this tab will open.

The screenshot shows the IBM Watson IoT Platform landing page. The page has a dark background with a large, stylized graphic of a building. The word 'Buildings' is prominently displayed in the center. To the left of the building, the text 'Collect data from' is visible, and to the right, 'and make value from it' is visible. Below the building graphic, there's a 'Learn More' link with a downward arrow. In the top right corner, there's a 'Sign in' button. A 'Cookie Preferences' link is visible in the bottom right corner.

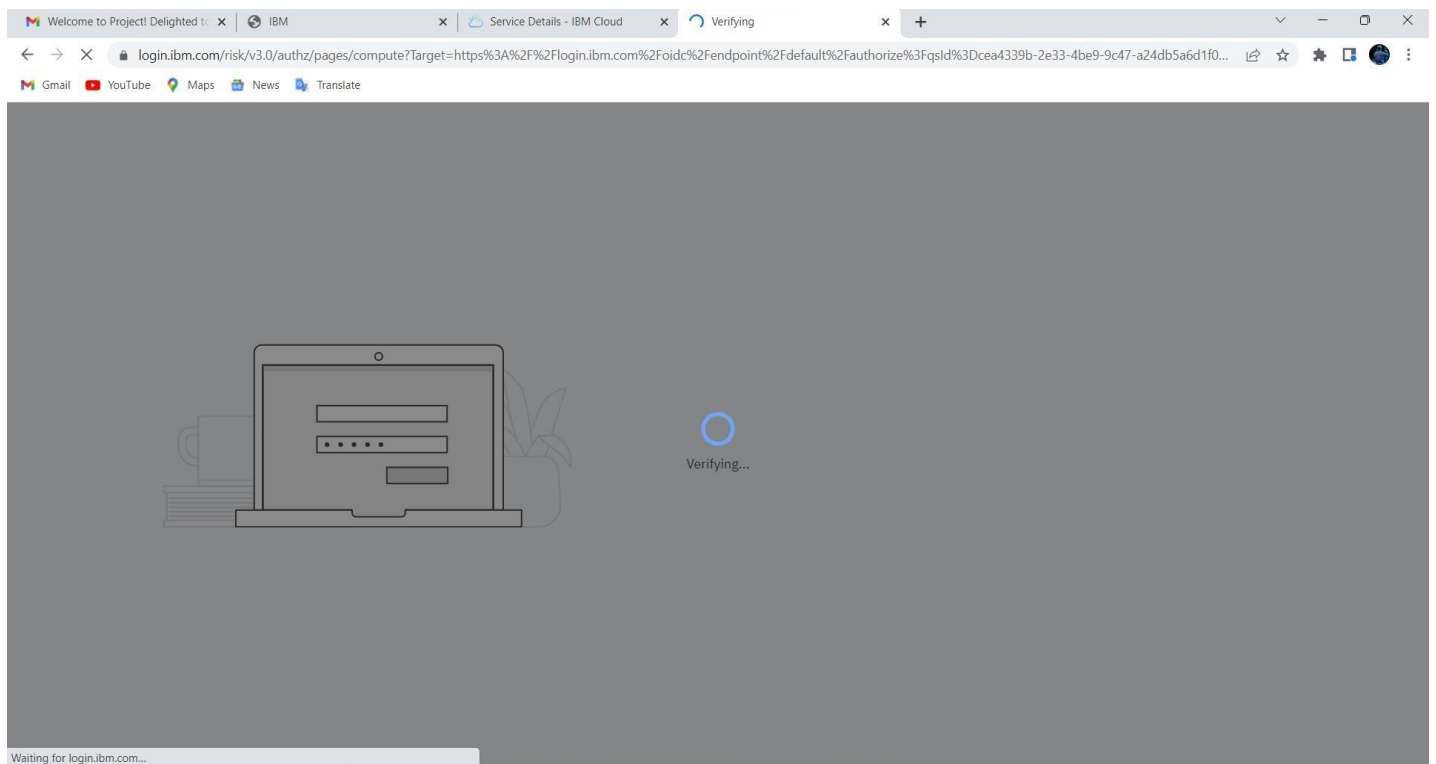
Step 10: Click on Sign in.



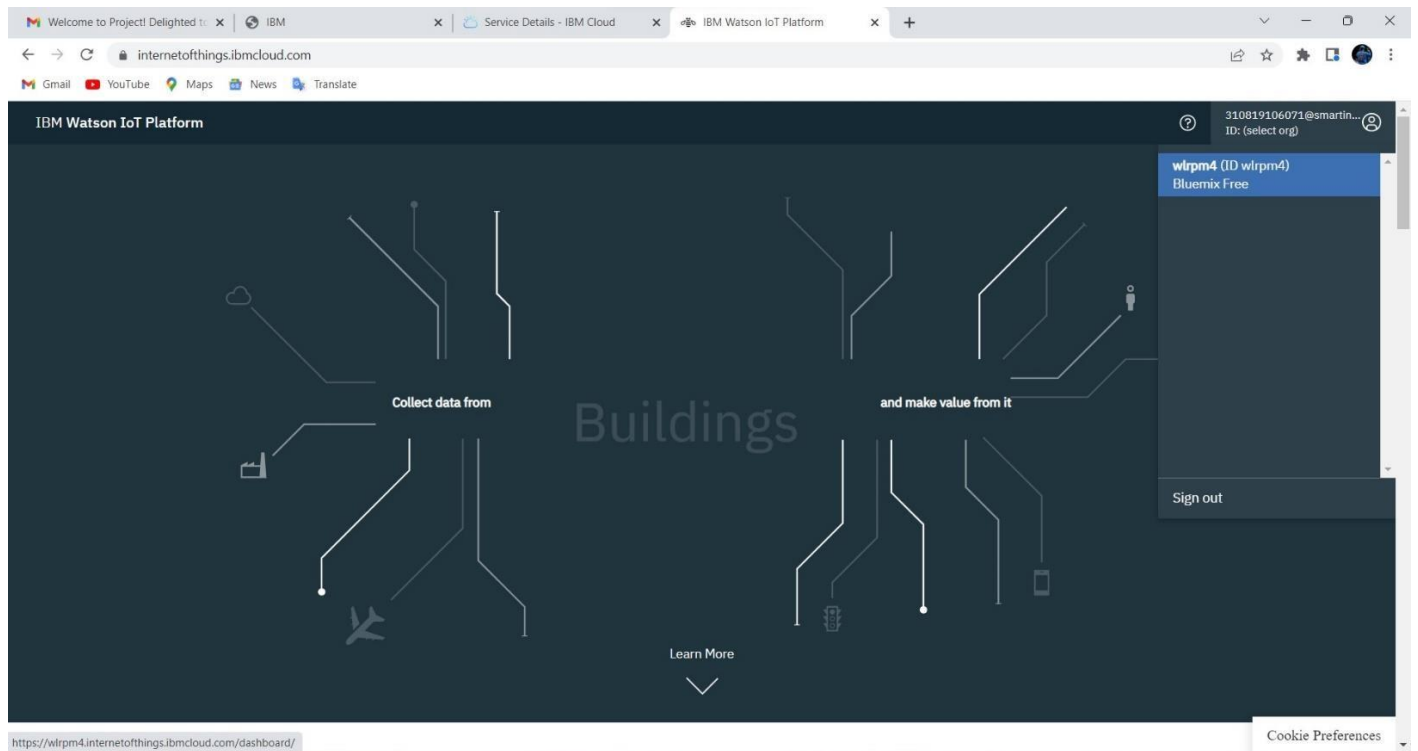
Step 11: Fill the login details.



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@smartintemz.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@smartintemz.com ID: wlrpm4

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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' form in the IBM Watson IoT Platform. The form is titled 'Add Device' and has a progress bar with four steps: Identity, Device Information, Security, and Summary. The 'Identity' step is currently active. 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 placeholder 'Select or create a device type...' and 'Device ID' with a placeholder 'Enter Device ID'. At the bottom right of the form, there are 'Cancel' and 'Next' buttons. Below the form, there is a 'Browse Devices' section and a status indicator '0 Simulations running' with a sub-label 'Adobe Express'.

Step 17: Fill the details.

The screenshot shows the 'Add Type' form in the IBM Watson IoT Platform. The form is titled 'Add Type' and has a progress bar with two steps: Identity and Device Information. The 'Identity' step is currently active. 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' and 'Gateway' options, 'Name' with a text input field containing '12345', and 'Description' with a text input field. Below the form, there is a status indicator '0 Simulations running'.

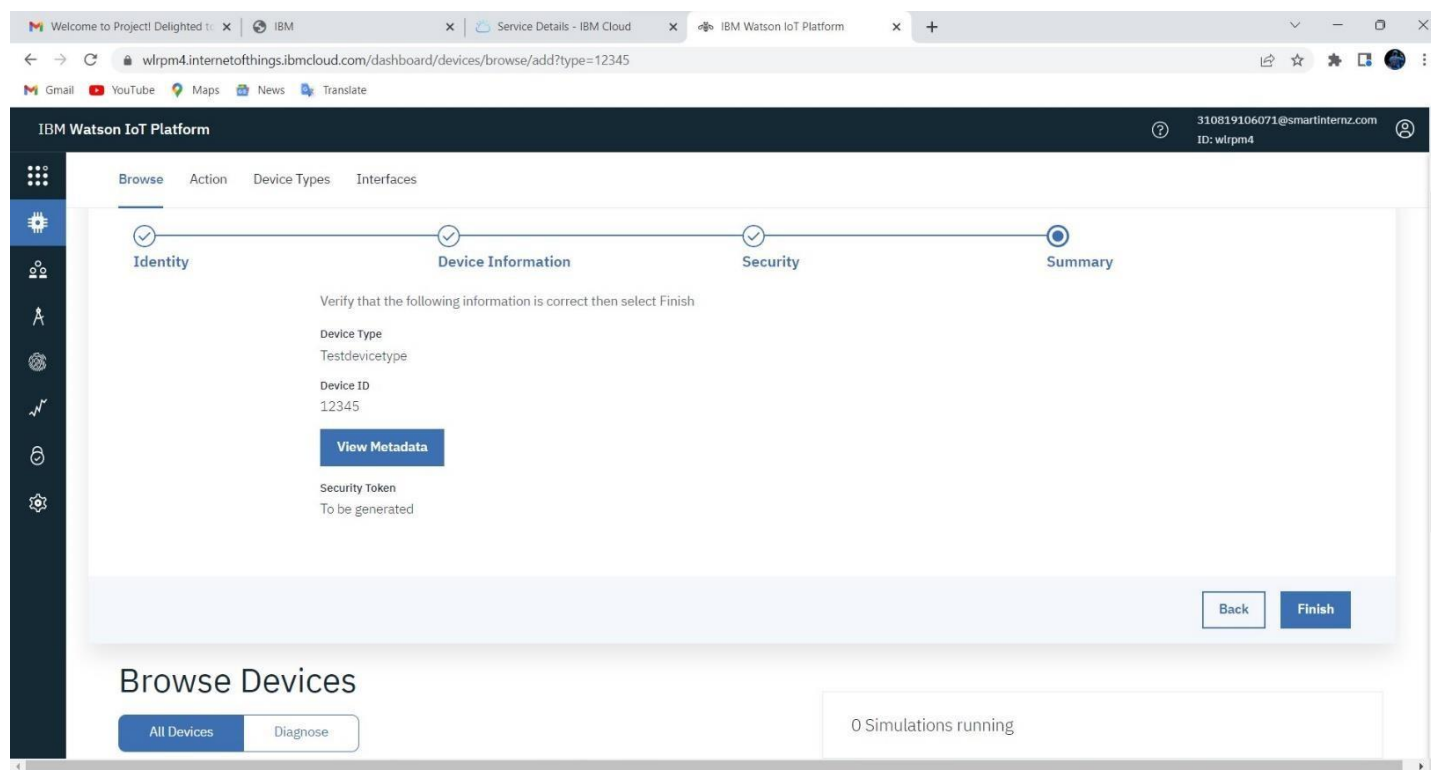
Step 18: Click on Register Devices.

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'.

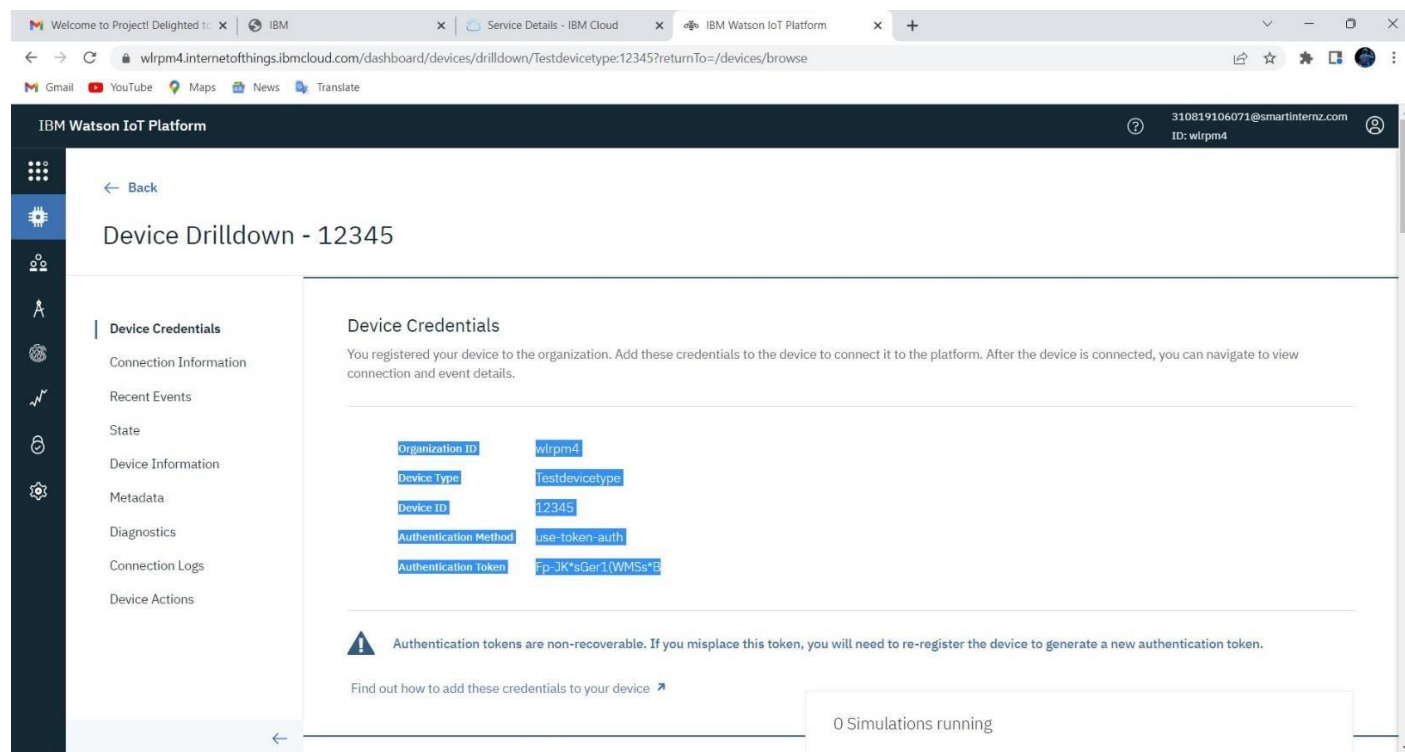
Step 19: Give the device name which you have created and give Device ID.

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, it says '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 are 'Cancel' and 'Next' buttons. Below the dialog, the 'Browse Devices' section is visible, showing '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 the following items: **General Settings**, **DATA AND DEVICES** (highlighted), **Device Simulator**, **SECURITY**, **Connection Security**, **CA Certificates**, **Messaging Server Certificates**, and **Group Access** (marked as 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." Below this, there are three sections: **Device Simulator** (with a description and a link to documentation), **Connection Security** (with a description and a button to "Open Connection Security Policy"), and **CA Certificates** (with a description and a link to the "Connection Security policy"). At the bottom right, it shows "0 Simulations running".

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

This screenshot is similar to the previous one, but the **Device Simulator** section is expanded. The left sidebar remains the same, with **DATA AND DEVICES** highlighted. The main content area now shows the **Device Simulator** section in more detail, including a description and a link to documentation. The **Activate Device Simulator** toggle switch is now visible and is turned on. The **Connection Security** and **CA Certificates** sections are still present below it. The status at the bottom right remains "0 Simulations running".

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

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 'Device Simulator', 'Connection Security', and 'CA Certificates'. In the 'CA Certificates' section, a blue box highlights the text '0 Simulations running'.

Step 25: Click on Create Simulation.

The screenshot shows the same IBM Watson IoT Platform dashboard as before, but with a 'Simulations' pop-up screen open on the right side. The pop-up screen contains the following text:

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". A modal window titled "Simulations" is open on the right, displaying instructions on how to create a device simulation and a dropdown menu to "Select or create a device type...".

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, displaying a configuration for an event named "event_1" with a frequency of "20 x Every Minute". The payload is a JSON object with "temperature" and "humidity" fields, both using the "random(0, 100)" function.

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	Device Name
12345	Disconnected	Testdevicetype	Device	No
14325	Disconnected	Testdevicetype	Device	No

Items per page 50 | 1-2 of 2 items

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 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 Type' is set to 'Testdevicetype'. A table lists one device with ID '12345'. At the bottom of the overlay, it shows '2 events sent' and '76 bytes sent'. Buttons for 'Create Simulated Device' and 'Use Registered Device' are visible.

Simulations

1/50 Simulations Running

+ New Simulation

Device Type: Testdevicetype

1 Device

12345

1 x Create Simulated Device Use Registered Device

2 events sent 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'. A search bar is present. Below the navigation, there is a table of devices. The first device listed has ID '12345', status 'Disconnected', and type 'Testdevicetype'. A modal window is open for this device, showing tabs for 'Identity', 'Device Information', 'Recent Events', 'State', and 'Logs'. The 'Recent Events' tab is active, displaying a table of events. The events table has columns for 'Event', 'Value', 'Format', and 'Last Received'. The events are JSON objects containing temperature and humidity data. A notification at the bottom right of the modal says '1 Simulation running'.

Device ID Status Device Type Class ID Date Added Descriptive Location

12345	Disconnected	Testdevicetype	Device	Nov 5, 2022 1:04 PM	
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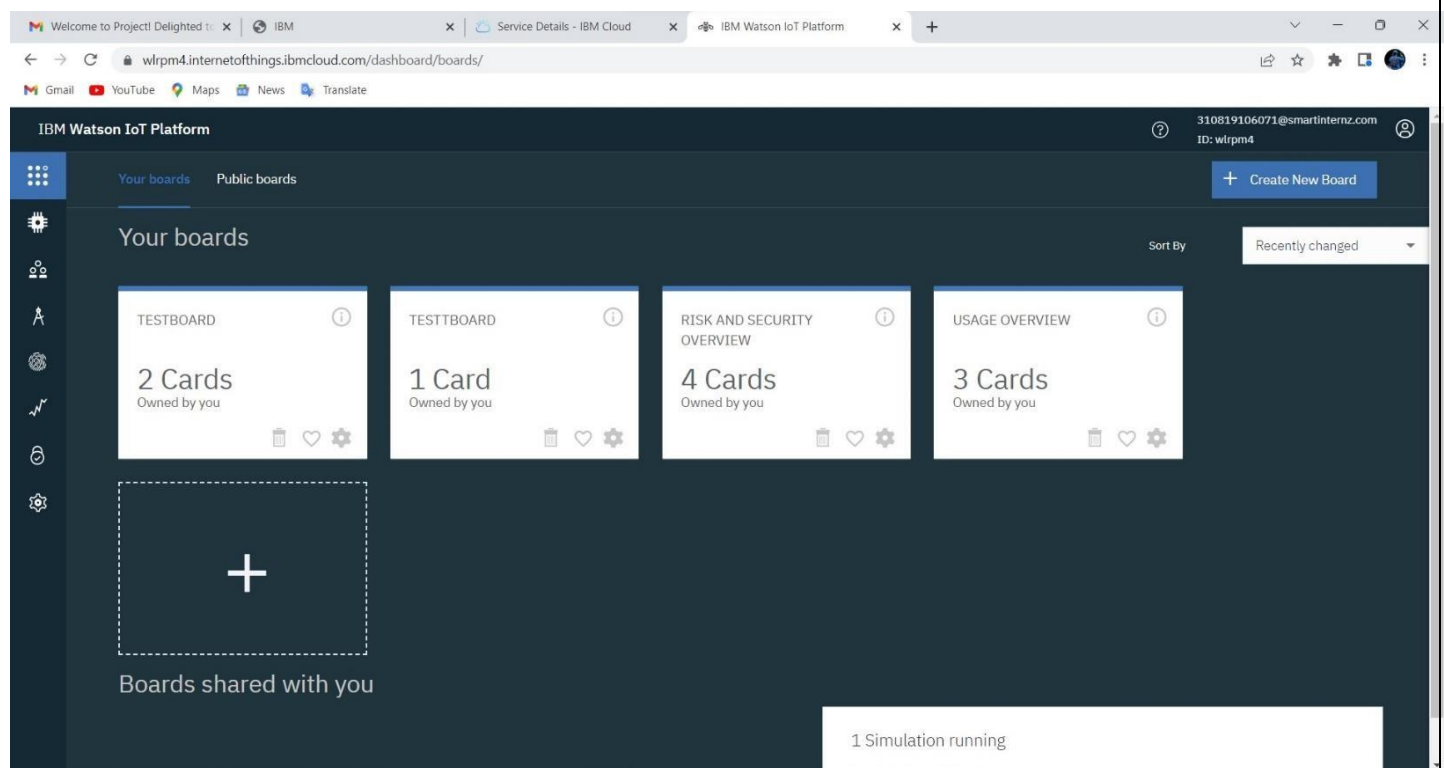
Identity Device Information Recent Events State Logs

The recent events listed show the live stream of data that is coming and going from this device.

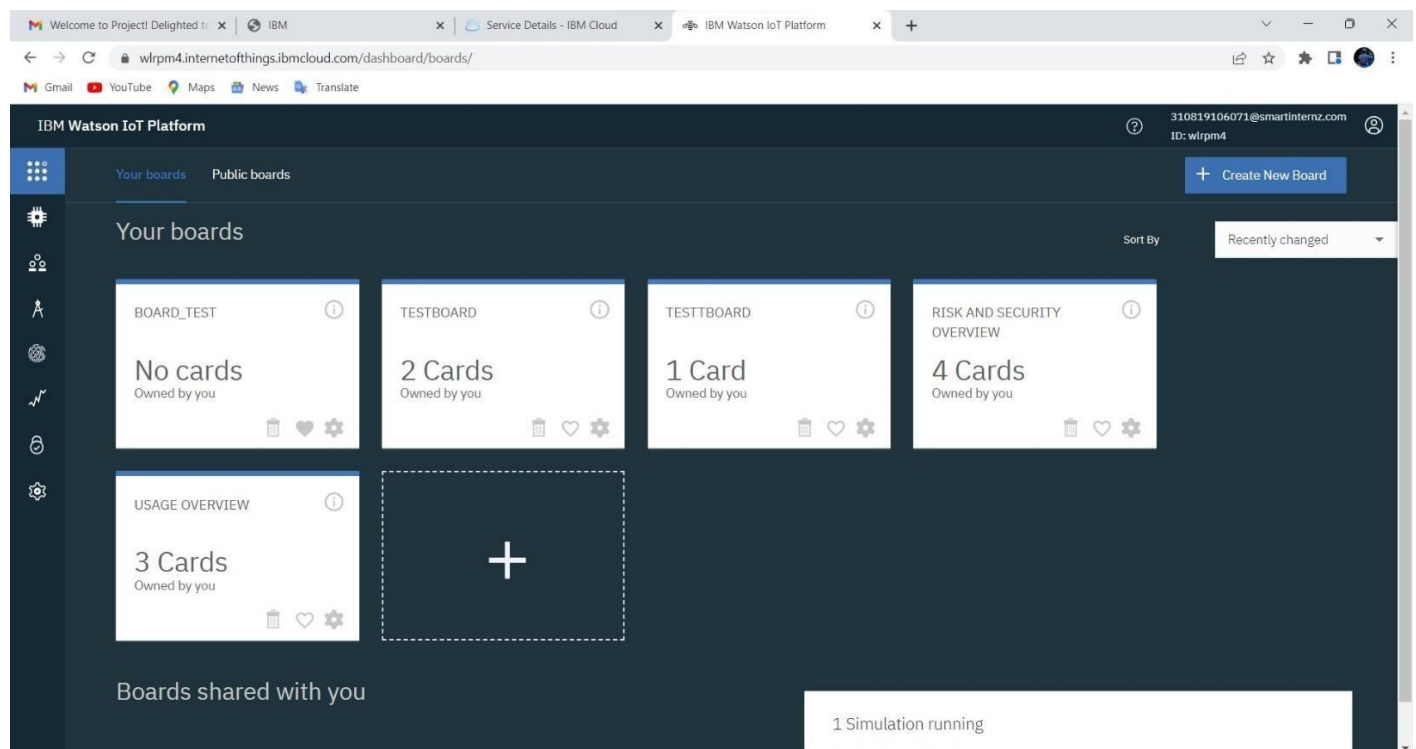
Event	Value	Format	Last Received
event_1	{"temperature":63,"humidity":8}	json	a few seconds ago
event_1	{"temperature":56,"humidity":9}	json	a few seconds ago
event_1	{"temperature":40,"humidity":76}	json	a few seconds ago
event_1	{"temperature":61,"humidity":36}	json	a few seconds ago

1 Simulation running

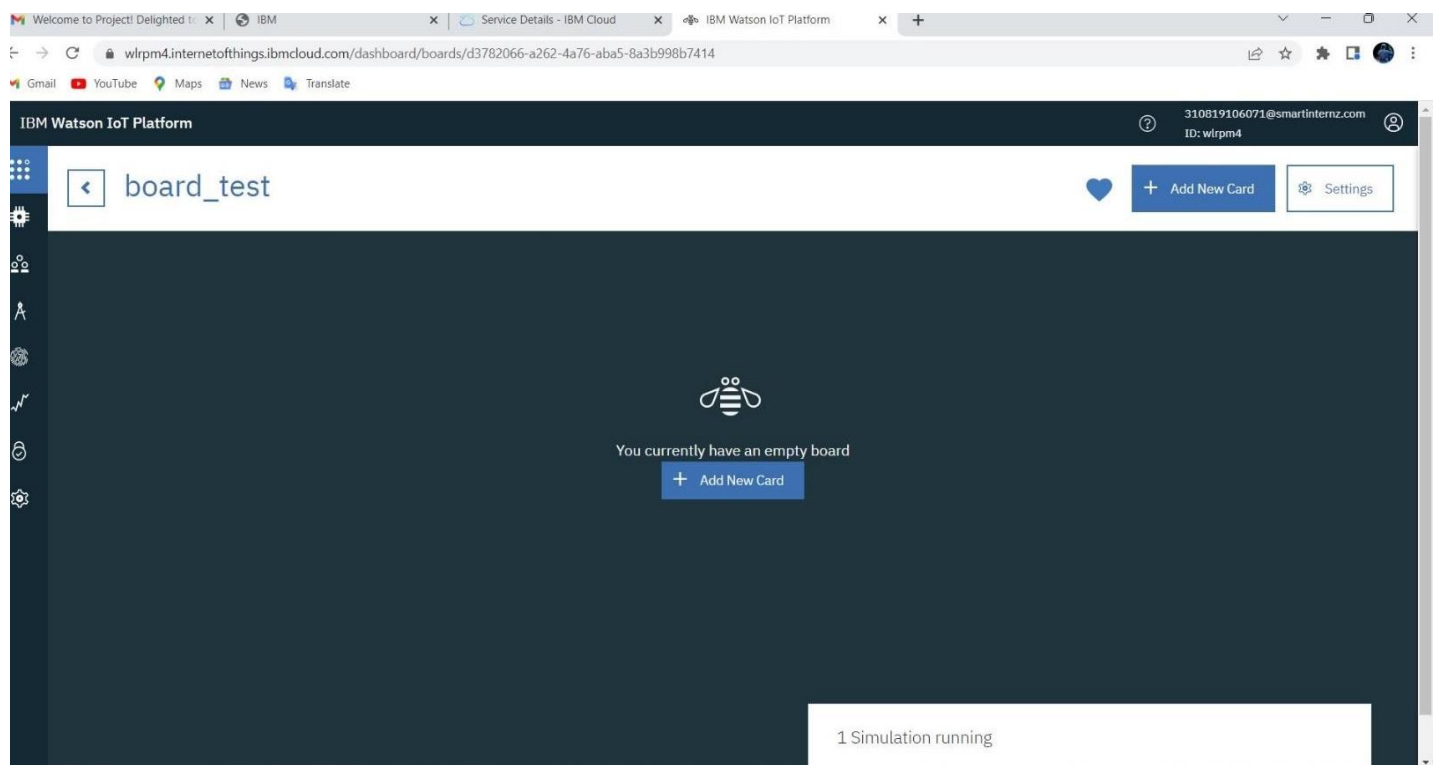
Step 30: Go to Board and click on + Create New Board, fill the details and create a board.



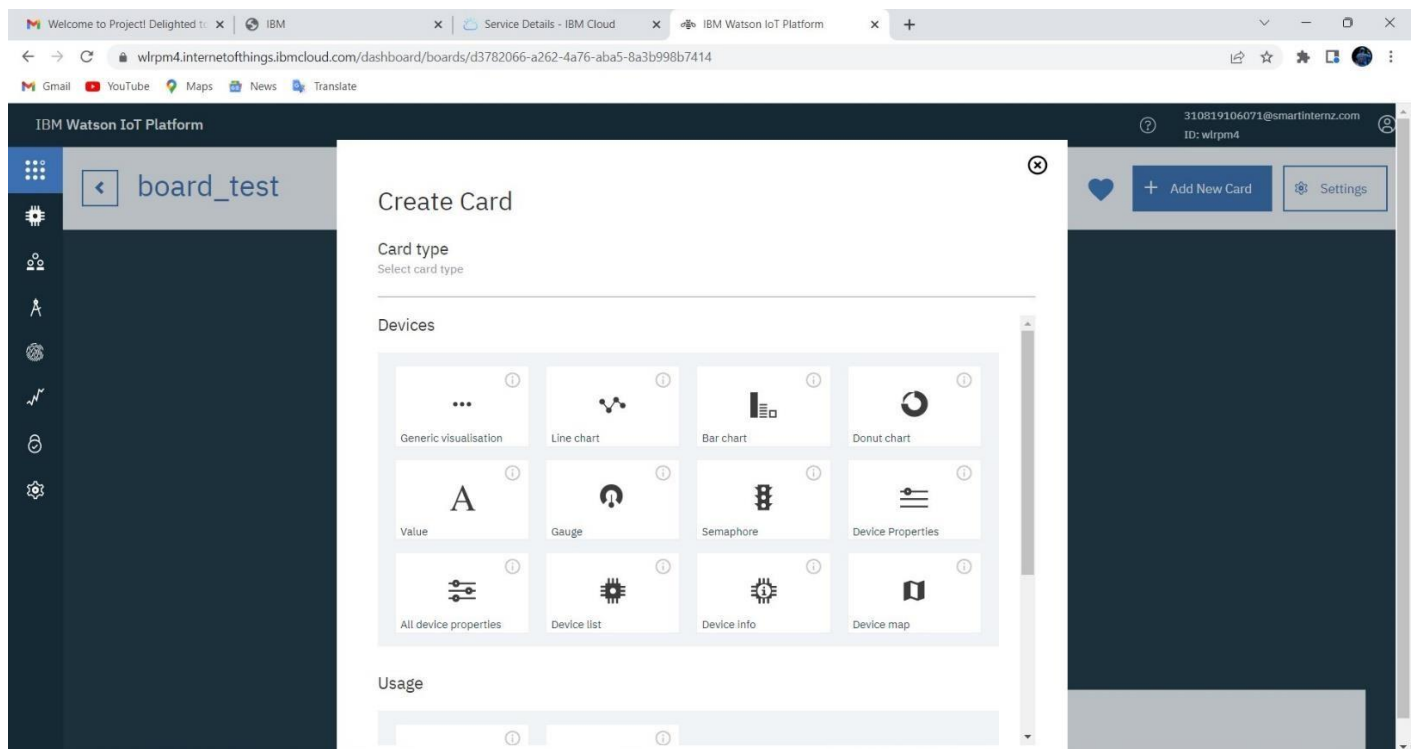
Step 31: Click on the board which is created.



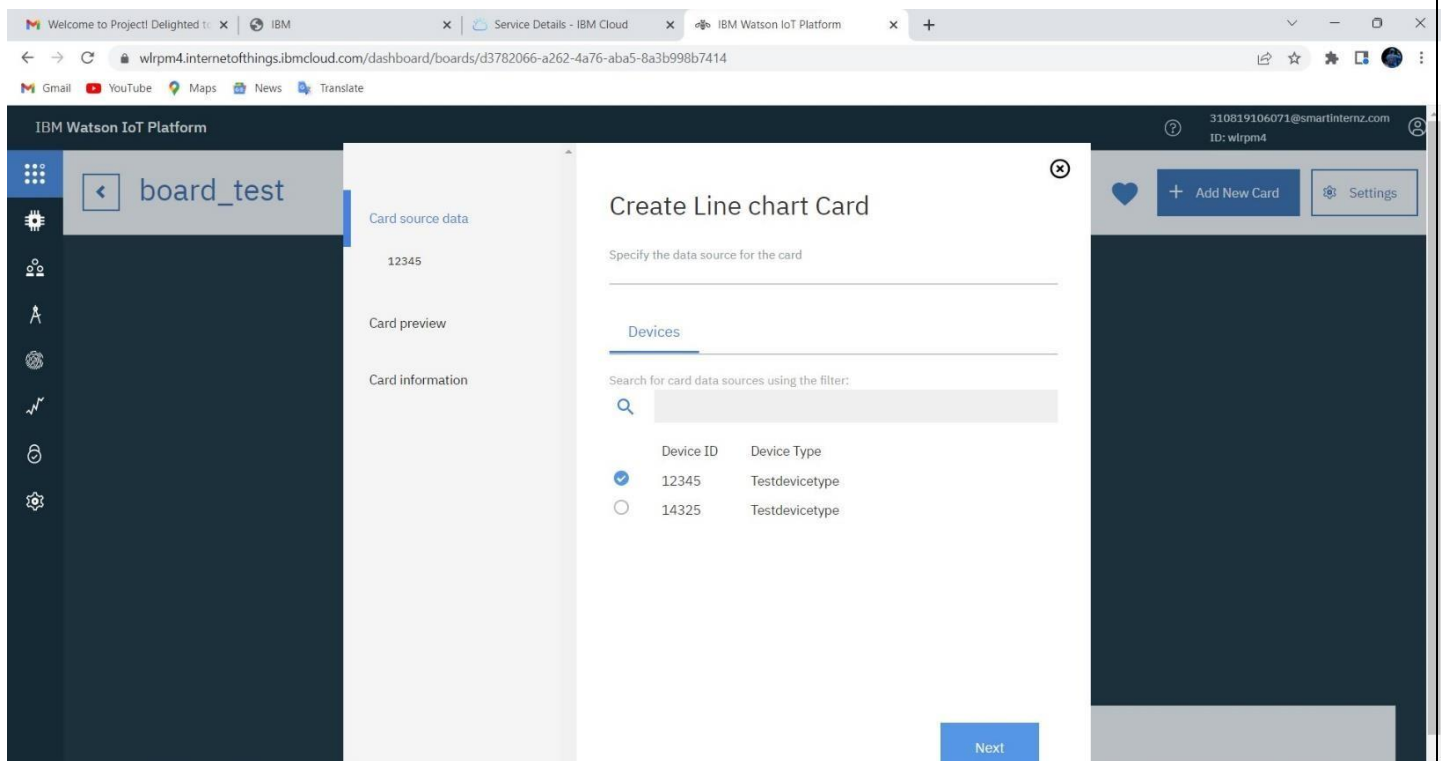
Step 32: Go Add New Card.



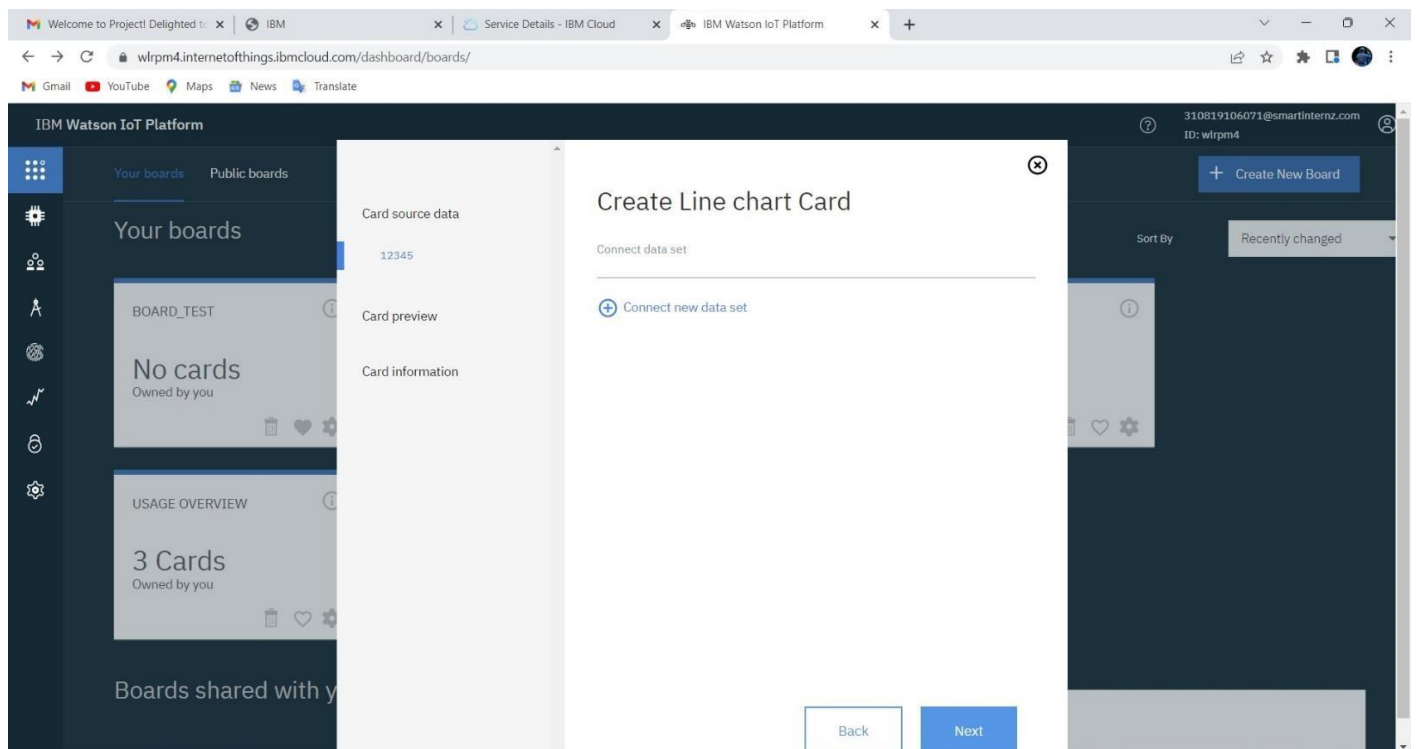
Step 33: Choose the Card Type.



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' (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 actions. The main area displays a 'board_test' dashboard with a line chart. 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.

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. The left card is a 'Gauge' card displaying a value of '80.0 %'. The right card is a 'Line chart' card showing a fluctuating line graph for 'temperature' over time, with a '5 minutes' time range selected. The dashboard includes a sidebar with navigation icons and a top bar with user information and 'Add New Card' and 'Settings' buttons. A status bar at the bottom indicates '1 Simulation running'.

Result:

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