

## Create And Configure IBM Cloud Services

<b>Project Title</b>	SmartFarmer – IoT Enabled Smart Farming Application
<b>Team ID</b>	PNT2022TMID4716 7
<b>Content</b>	IBM Cloud Service

STEP 1:

Type IBM Cloud in Google and click on the first link.

The screenshot shows a Google search interface with the query "ibm cloud" entered in the search bar. The search results page displays "About 20,70,00,000 results (0.48 seconds)". The first result is an advertisement for IBM Cloud, with the URL "https://www.ibm.com/cloud/computing". The ad title is "IBM Cloud® - Cloud Computing" and the description states: "A robust suite of advanced data and AI tools, and deep industry expertise. Discover a faster, more secure journey to **cloud** trusted by thousands of enterprises. Enterprise-Grade **Cloud**. Chat, Call, or Email **IBM**. Types: Full Stack **Cloud** Platform, Hybrid **Cloud**, Developer Tools."

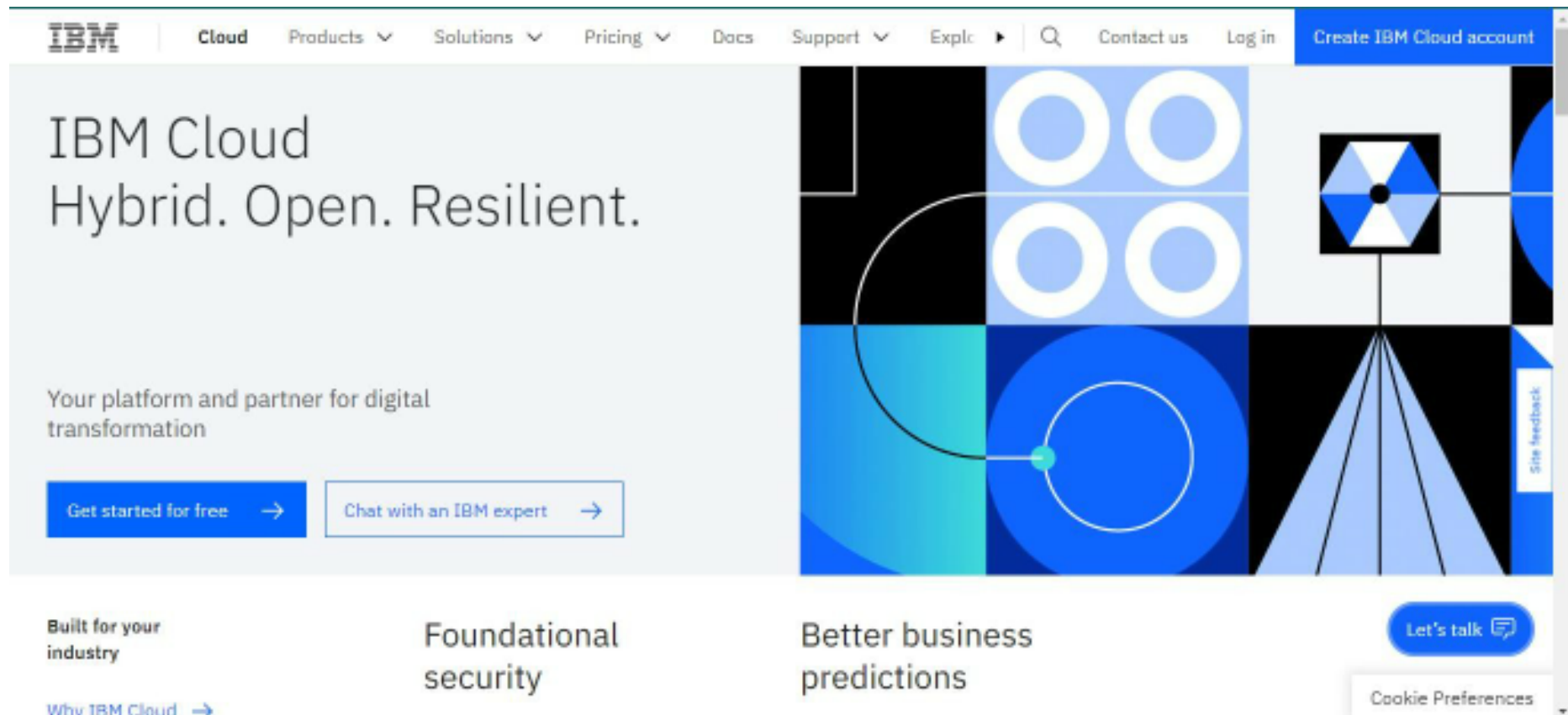
Below the ad, there are four links with descriptions:

- Watson AI**: Bring AI Tools and Apps to Your Data Wherever It Resides.
- IBM Let's Create**: Bringing Together the Technology & Expertise for a New Way to Create.
- Chat with IBM Sales**: Chat, Call, or Email IBM To Discuss Your Business Needs Today.
- Modernise Hybrid Cloud**: Let's Create Cloud Management That Requires Less Management.

On the right side of the search results, there is a knowledge panel for "IBM cloud computing". It features the IBM Cloud logo, a diagram of cloud architecture, and the text "IBM cloud computing" followed by "Computer software". A "More images" button is visible. At the bottom of the panel, it states: "IBM cloud computing is a set of cloud computing services for business offered by the information".

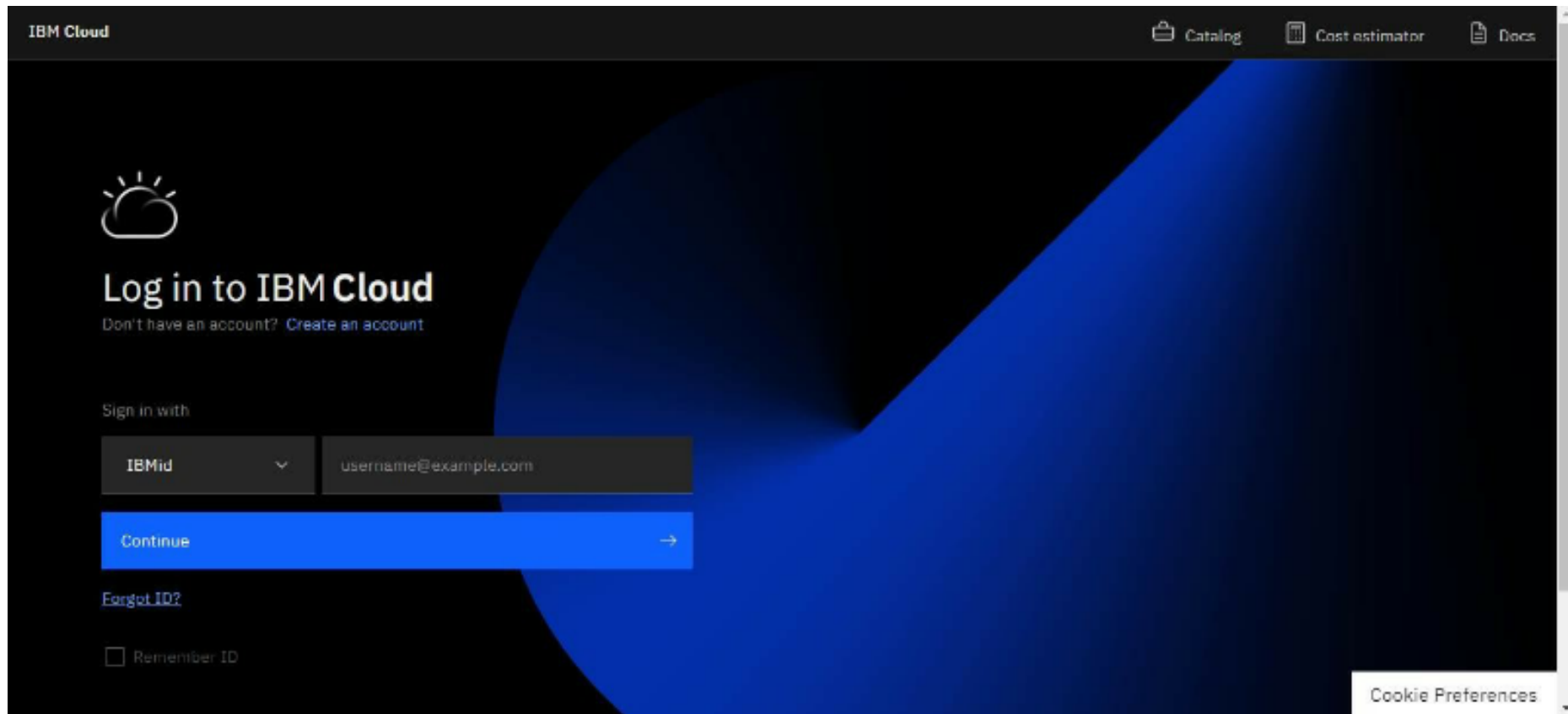
STEP 2:

Click on create IBM Cloud Account Now and enter the details.



### STEP 3:


You will get the email with your password. Type your mail Id and the password then click on the login button.



The screenshot shows the IBM Cloud login interface. At the top, there is a dark header with the 'IBM Cloud' logo on the left and navigation links for 'Catalog', 'Cost estimator', and 'Docs' on the right. The main content area has a dark background with a large blue abstract shape. On the left, there is a cloud icon, the text 'Log in to IBM Cloud', and a link 'Don't have an account? Create an account'. Below this, a 'Sign in with' section contains a dropdown menu set to 'IBMid' and a text input field containing 'username@example.com'. A large blue 'Continue' button with a right-pointing arrow is positioned below the input field. At the bottom left, there is a link 'Forgot ID?' and a checkbox labeled 'Remember ID'. In the bottom right corner, there is a 'Cookie Preferences' link.

IBM Cloud

Catalog Cost estimator Docs



**Log in to IBM Cloud**

Don't have an account? [Create an account](#)

Sign in with

IBMid

[Continue](#) →

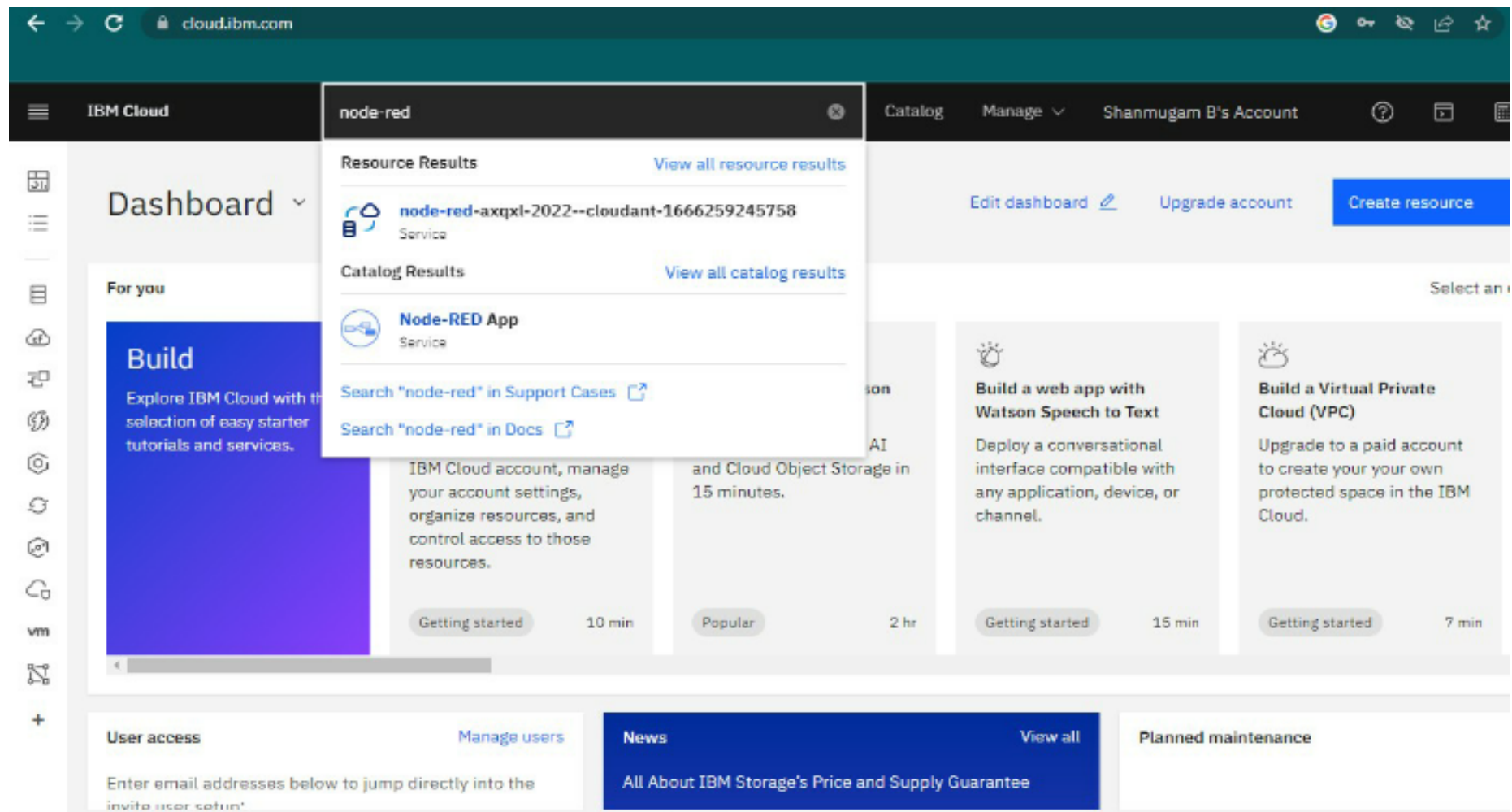
[Forgot ID?](#)

☐ Remember ID

[Cookie Preferences](#)

STEP 4:

Now you are in Dashboard. Now search Node-Red and click on it.



## STEP 5:

Now click on Get Started. After choose node-red-xxxxxxx in pricing plan or you can choose Lite. Then click on create option.

The screenshot shows the IBM Cloud Developer console interface for creating a new application. The URL in the browser is `cloud.ibm.com/developer/appservice/create-app?starterKit=59c9d5bd-4d31-3611-897a-f94eea80dc9f8&defaultLanguage=undefined`. The page has a dark teal header with the IBM Cloud logo, a search bar, and navigation links for Catalog, Manage, and the user's account (Shanmugam B's Account). Below the header, there's a search bar with the text "Examples: env:dev, version-1". The main content area is light gray and contains the following sections:

- Platform:** A radio button is selected for "Node.js".
- Service details:** The service "Cloudant★" is selected. A note below it says: "★ = You have existing instances of this service available to use in this kit. If you wish to use the existing service, select it from the pricing plan menu."
- Region:** "Frankfurt" is selected.
- Resource group:** "Default" is selected.
- Pricing plan:** A dropdown menu is open, showing the selected plan: "node-red-axqxl-2022--cloudant-1666259245758".
- Links:** "Pricing details" and "Terms" are visible at the bottom of the pricing plan section.
- Buttons:** "Cancel" and "Create" buttons are at the bottom of the form.

## STEP 6:

Now you will be redirected to your node-red app page.

The screenshot displays the IBM Cloud Developer console interface. The browser address bar shows the URL `cloud.ibm.com/developer/appservice/apps/993c15ba-0143-473f-b7a8-488e26ad82f4`. The top navigation bar includes the IBM Cloud logo, a search bar, and links for Catalog, Manage, and the user account (Shanmugam B's Account). The main content area is titled "Node RED CBGMG 2022-11-11" with an "Add tags" link and an "Actions..." button. The "Details" section on the left lists the App URL, Source (with a "Download code" button), Resource group (Default), Deployment target, and Created date (11/11/2022). The "Services" section on the left shows the Cloudant service with links to the Open dashboard, Documentation, and API reference, along with a Credentials dropdown. The "Deployment Automation" section on the right features a "Configure Continuous Delivery" button and a message stating that Continuous Delivery is not enabled for this app. A large blue "Deploy your app" button is prominently displayed at the bottom right.

cloud.ibm.com/developer/appservice/apps/993c15ba-0143-473f-b7a8-488e26ad82f4

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Resource list / App details /

### Node RED CBGMG 2022-11-11

Add tags Actions...

#### Details

App URL You must deploy your app first

Source [Download code](#)

Resource group [Default](#)

Deployment target You must deploy your app first

Created 11/11/2022

#### Services

Cloudant

[Open dashboard](#) [Documentation](#) [API reference](#)

Credentials

#### Deployment Automation

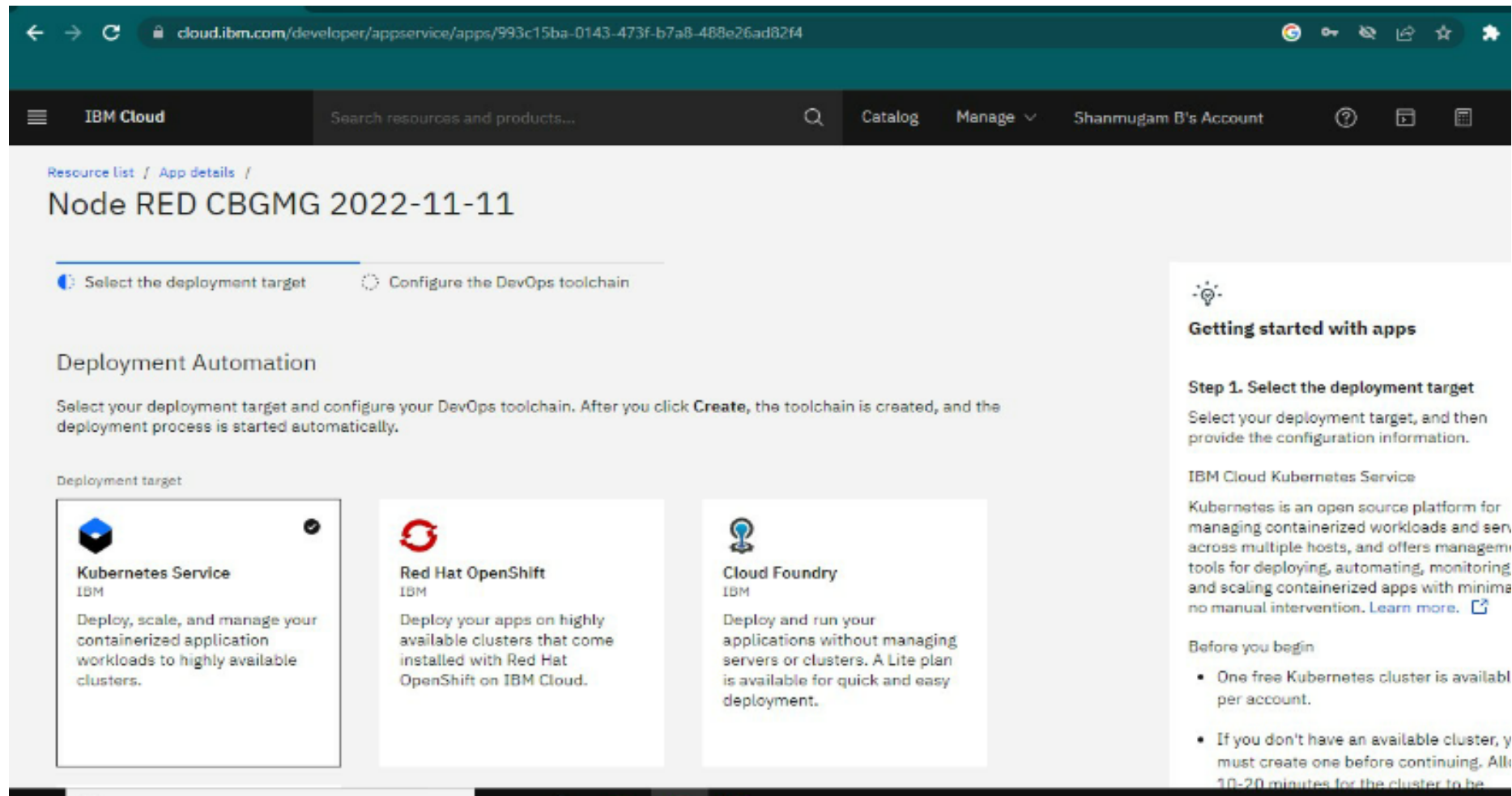
#### Configure Continuous Delivery

Continuous Delivery is not enabled for this app. Enable Continuous Delivery to automate builds, tests, and deployments through Deliver Pipeline, GitLab, and more.

[Deploy your app](#)

## STEP 7:

Now click Deploy your app option.



cloud.ibm.com/developer/appservice/apps/993c15ba-0143-473f-b7a8-488e26ad82f4

IBM Cloud Search resources and products... Catalog Manage Shanmugam B's Account

Resource list / App details /


# Node RED CBGMG 2022-11-11

Select the deployment target Configure the DevOps toolchain

## Deployment Automation

Select your deployment target and configure your DevOps toolchain. After you click **Create**, the toolchain is created, and the deployment process is started automatically.


Deployment target



### Kubernetes Service

IBM


Deploy, scale, and manage your containerized application workloads to highly available clusters.



### Red Hat OpenShift

IBM

Deploy your apps on highly available clusters that come installed with Red Hat OpenShift on IBM Cloud.



### Cloud Foundry

IBM

Deploy and run your applications without managing servers or clusters. A Lite plan is available for quick and easy deployment.

### Getting started with apps

#### Step 1. Select the deployment target

Select your deployment target, and then provide the configuration information.

#### IBM Cloud Kubernetes Service

Kubernetes is an open source platform for managing containerized workloads and services across multiple hosts, and offers management tools for deploying, automating, monitoring and scaling containerized apps with minimal manual intervention. [Learn more.](#)

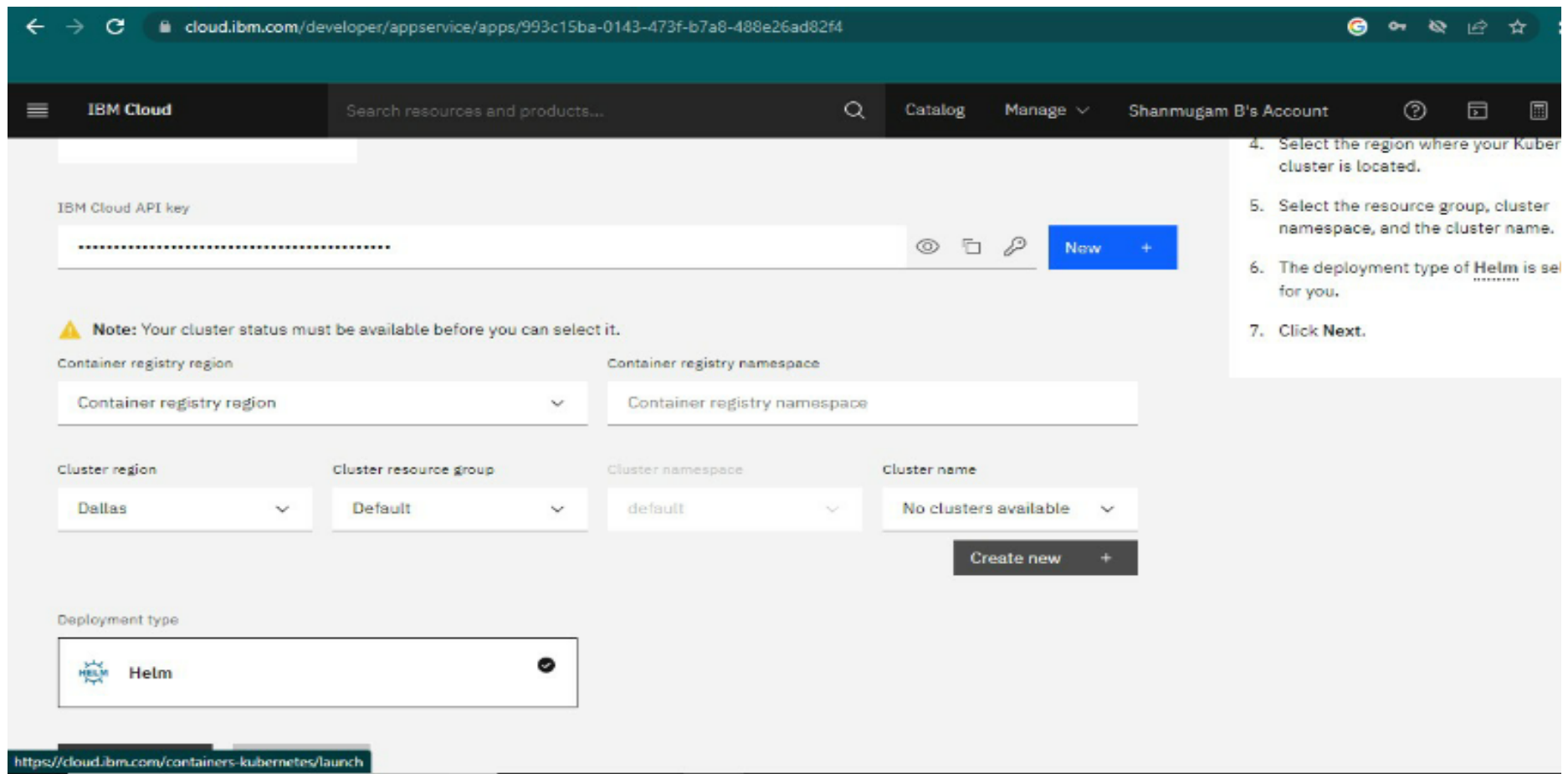
#### Before you begin

- One free Kubernetes cluster is available per account.
- If you don't have an available cluster, you must create one before continuing. Allow 10-20 minutes for the cluster to be ready.



## STEP 8:

Now choose Kubernetes Service and below you will see IBM Cloud API Key there click on New and then click OK. Your API Key will be generated.



The screenshot shows the IBM Cloud developer console interface. The top navigation bar includes the IBM Cloud logo, a search bar, and links to Catalog, Manage, and the user's account (Shanmugam B's Account). The main content area is titled "IBM Cloud API key" and features a text input field with a masked API key, an eye icon, a key icon, and a blue "New +" button. Below this, a note states: "Note: Your cluster status must be available before you can select it." The configuration section includes several dropdown menus: "Container registry region" (set to "Container registry region"), "Container registry namespace" (set to "Container registry namespace"), "Cluster region" (set to "Dallas"), "Cluster resource group" (set to "Default"), "Cluster namespace" (set to "default"), and "Cluster name" (set to "No clusters available"). A "Create new +" button is located below the cluster name dropdown. The "Deployment type" section shows "Helm" selected with a checkmark icon. A URL bar at the bottom left displays "https://cloud.ibm.com/containers-kubernetes/launch".

4. Select the region where your Kubernetes cluster is located.

5. Select the resource group, cluster namespace, and the cluster name.

6. The deployment type of Helm is selected for you.

7. Click Next.

## STEP 9:

Now click on Create New below the cluster name. You will be redirected to new page. In new page, choose pricing plan as Free and then click on Create.

The screenshot shows the IBM Cloud Kubernetes cluster creation interface. The browser address bar displays `cloud.ibm.com/kubernetes/catalog/create`. The top navigation bar includes the IBM Cloud logo, a search bar, and links for Catalog, Manage, and the user's account (Shanmugam B's Account). The main content area is titled "Kubernetes cluster" with links for Author, Docs, and API docs. Below the title are tabs for "Create" and "About". A banner for Red Hat OpenShift is visible. The "Plan details" section includes a link to learn more about pricing plans and a "Pricing plan" dropdown menu currently set to "Free". The "Kubernetes version" section is partially visible at the bottom. On the right, a "Summary" sidebar shows the "Kubernetes cluster" configuration, including a "Worker node" with specifications: Free - 2 vCPUs 4GB RAM, Virtual - shared, and Ubuntu 18. Below this, the "Total estimated cost" section provides additional information about charges and estimates. At the bottom of the sidebar are "Create" and "Add to estimate" buttons.

cloud.ibm.com/kubernetes/catalog/create

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### Kubernetes cluster

Author: IBM • Docs • API docs

Create About

Deliver your apps quicker across clouds with Red Hat OpenShift

#### Plan details

Learn more about the differences between plans in our docs.

Pricing plan

Free

#### Kubernetes version

Select the Kubernetes platform version for your cluster. For more information

#### Summary

United States

##### Kubernetes cluster

1 Worker node

Free - 2 vCPUs 4GB RAM  
Virtual - shared  
Ubuntu 18

##### Total estimated cost

Additional charges for networking and might apply.  
Actual monthly total will vary with tier.  
Estimate does not include costs for ins

Create

Add to estimate

## STEP 10:

For cluster creation you need to wait for 20 minutes. After creation come back to node red app tab.

The screenshot shows the IBM Cloud Kubernetes Clusters overview page for a free cluster named 'mycluster-free'. The page includes a navigation bar with 'IBM Cloud', a search bar, and links to 'Catalog', 'Manage', and 'Shanmugam B's Account'. The cluster status is 'Normal' and it 'Expires in 30 days'. A warning banner states: 'Expires in 30 days: Be sure to back up your data, your cluster will be deleted in 30 days. To access the full capabilities of the service, try out a standard cluster.' The overview section displays four status cards: Node status (1 of 1, Normal), Add-on status (0 of 0, Normal), Master status (Normal), and Ingress status (Unknown). A 'Details' section below shows the Cluster ID (cdmth3gf0uv95es1i540), Version (1.24.7\_1542), Infrastructure (Classic), and Zones (Milan 01). A right-hand sidebar provides a 'Help' menu with links to 'Log in to your cluster', 'Deploy your app', 'Expose your app', 'Add storage to your app', 'Connect integrations', 'Install add-ons', and 'Troubleshoot'.

cloud.ibm.com/kubernetes/clusters/cdmth3gf0uv95es1i540/overview

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Clusters / mycluster-free

Normal Expires in 30 days Add tags

Help Kubernetes dashboard Actions...

**Expires in 30 days:**  
Be sure to back up your data, your cluster will be deleted in 30 days. To access the full capabilities of the service, try out a [standard cluster](#).

**Node status**  
1 of 1  
Normal  
[Details ↓](#)

**Add-on status**  
0 of 0  
Normal  
[Details ↓](#)

**Master status**  
Normal  
[Docs ↗](#)

**Ingress status**  
Unknown  
[Docs ↗](#)

**Details**

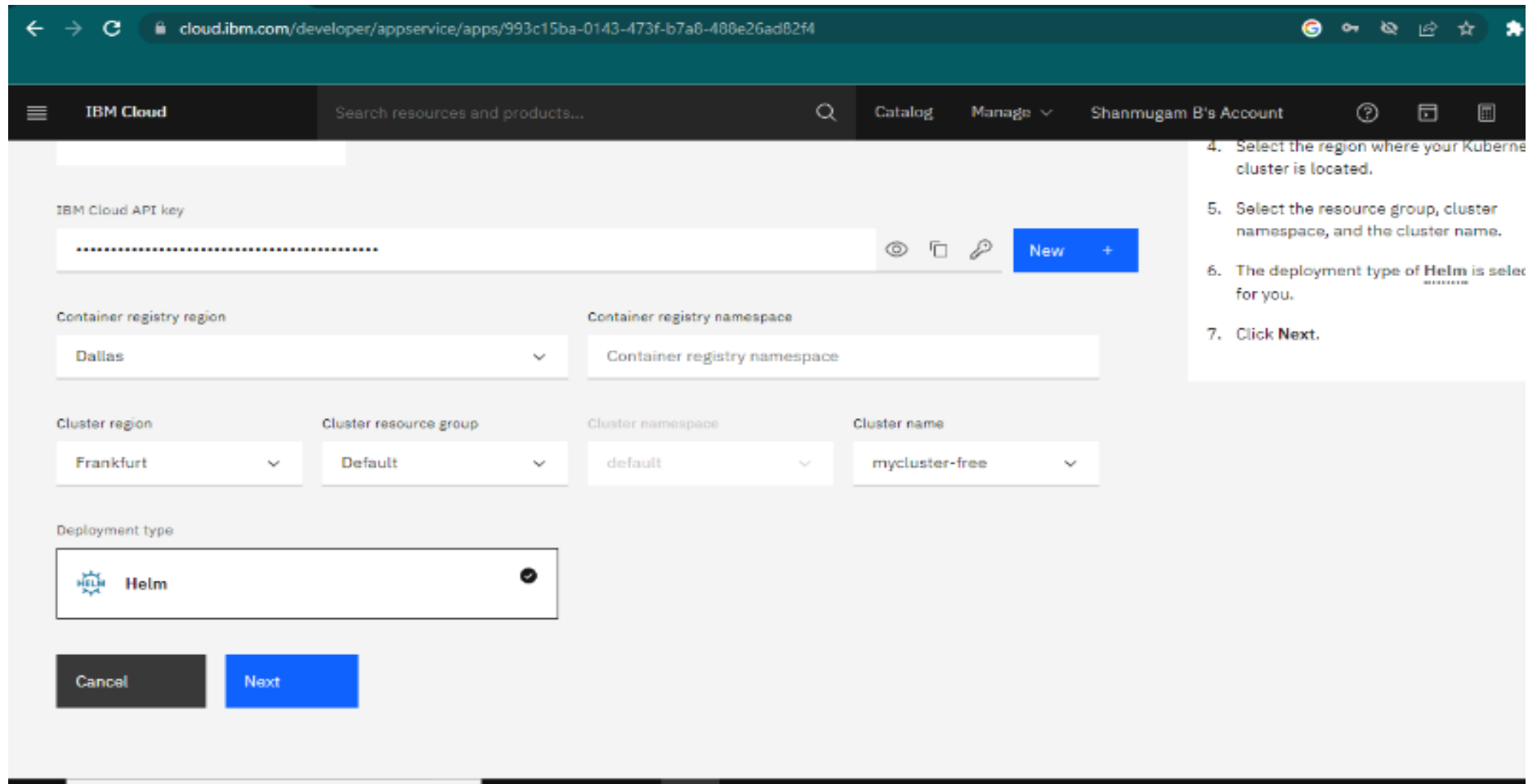
Cluster ID	Version	Infrastructure	Zones
cdmth3gf0uv95es1i540	1.24.7_1542	Classic	Milan 01
Created	Resource group	Image security enforcement	

Help

- Log in to your cluster
- Deploy your app
- Expose your app
- Add storage to your app
- Connect integrations
- Install add-ons
- Troubleshoot

## STEP 11:

In cluster name, choose mycluster-free and click on Next.



The screenshot shows the IBM Cloud Developer console interface for creating a new cluster. The browser address bar displays the URL: `cloud.ibm.com/developer/appservice/apps/993c15ba-0143-473f-b7a8-480e26ad82f4`. The top navigation bar includes the IBM Cloud logo, a search bar, and links to Catalog, Manage, and the user's account (Shanmugam B's Account).

The main form contains the following fields and options:

- IBM Cloud API key:** A text field with a masked value and a "New +" button.
- Container registry region:** A dropdown menu set to "Dallas".
- Container registry namespace:** A text field with the placeholder "Container registry namespace".
- Cluster region:** A dropdown menu set to "Frankfurt".
- Cluster resource group:** A dropdown menu set to "Default".
- Cluster namespace:** A dropdown menu set to "default".
- Cluster name:** A dropdown menu set to "mycluster-free".
- Deployment type:** A dropdown menu set to "Helm".

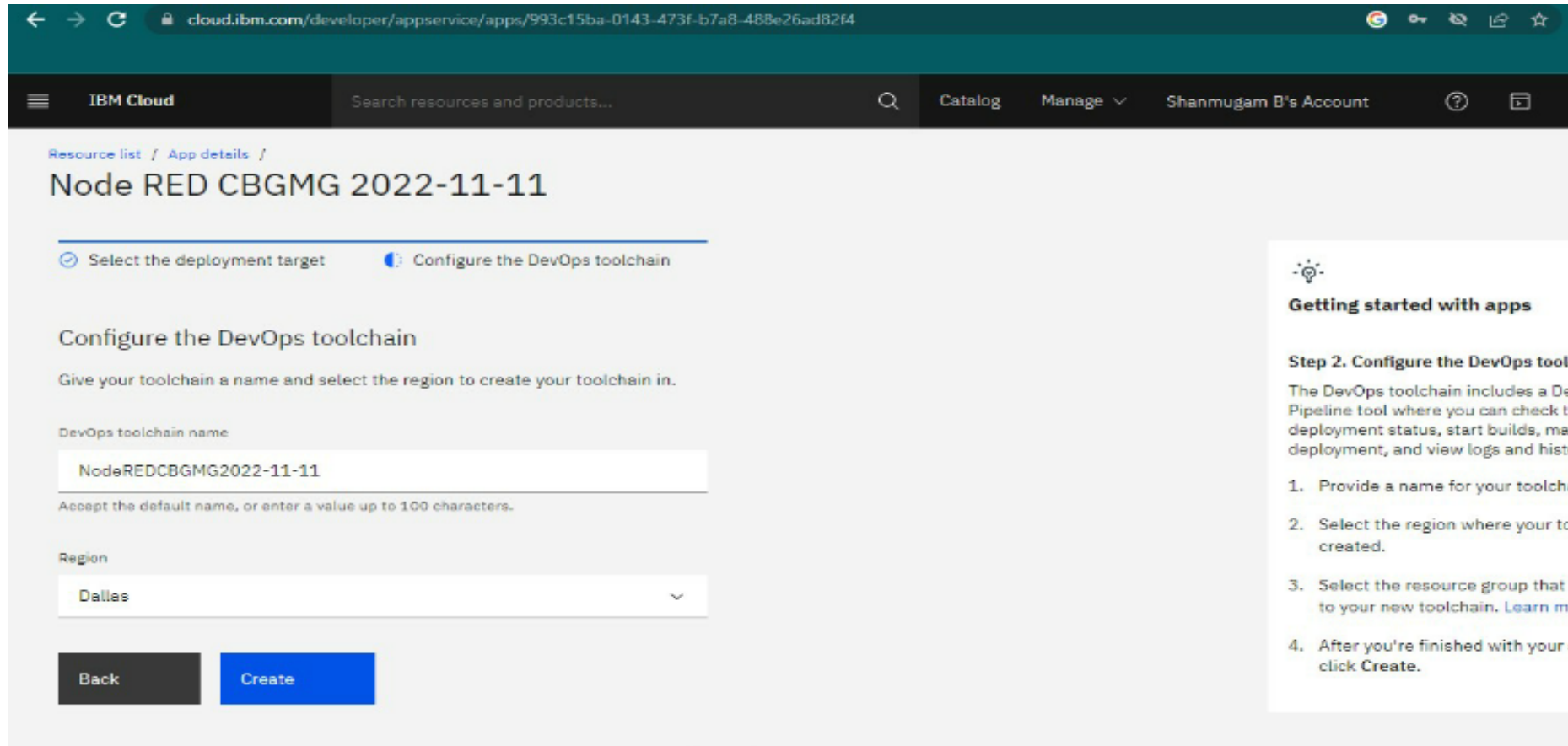
At the bottom of the form are "Cancel" and "Next" buttons.

On the right side of the screen, a list of instructions is displayed:

4. Select the region where your Kubernetes cluster is located.
5. Select the resource group, cluster namespace, and the cluster name.
6. The deployment type of Helm is selected for you.
7. Click Next.

## STEP 12:

### Then click on Create.



The screenshot shows the IBM Cloud Developer console interface. The browser address bar displays the URL: `cloud.ibm.com/developer/appservice/apps/993c15ba-0143-473f-b7a8-488e26ad82f4`. The top navigation bar includes the IBM Cloud logo, a search bar, and links for Catalog, Manage, and the user account (Shanmugam B's Account). The main content area is titled "Node RED CBGMG 2022-11-11" and shows two steps: "Select the deployment target" (completed) and "Configure the DevOps toolchain" (active). The "Configure the DevOps toolchain" section instructs the user to "Give your toolchain a name and select the region to create your toolchain in." It features a text input field for the "DevOps toolchain name" containing "NodeREDCBGMG2022-11-11" and a dropdown menu for the "Region" set to "Dallas". At the bottom, there are "Back" and "Create" buttons. A sidebar on the right titled "Getting started with apps" provides a "Step 2. Configure the DevOps tool" guide, explaining that the DevOps toolchain includes a Dev Pipeline tool for checking deployment status, starting builds, managing deployment, and viewing logs and history. It lists four steps: 1. Provide a name for your toolchain, 2. Select the region where your toolchain is created, 3. Select the resource group that you want to create your new toolchain in (with a link to "Learn more"), and 4. After you're finished with your configuration, click Create.

Resource list / App details /

## Node RED CBGMG 2022-11-11

✓ Select the deployment target    ⚙️ Configure the DevOps toolchain

### Configure the DevOps toolchain

Give your toolchain a name and select the region to create your toolchain in.

DevOps toolchain name

Accept the default name, or enter a value up to 100 characters.

Region

Back    Create

#### Getting started with apps

##### Step 2. Configure the DevOps tool

The DevOps toolchain includes a Dev Pipeline tool where you can check the deployment status, start builds, manage deployment, and view logs and history.

1. Provide a name for your toolchain.
2. Select the region where your toolchain is created.
3. Select the resource group that you want to create your new toolchain in. [Learn more](#)
4. After you're finished with your configuration, click Create.

## STEP 13:

You need to wait until ci-pipeline status success.

The screenshot displays the IBM Cloud Developer console interface. The top navigation bar includes the IBM Cloud logo, a search bar, and links to Catalog, Manage, and the user's account (Shanmugam B's Account). The main content area is divided into two columns. The left column contains the 'Details' section for an application, showing fields like App URL, Source (with a 'Download code' button), Resource group (Default), Deployment target, and Created date (11/11/2022). Below this is the 'Services' section, featuring a 'Cloudant' service with links to its dashboard, documentation, and API reference, and buttons to 'Connect existing services' or 'Create service'. The right column shows the 'Deployment Automation' section, listing two delivery pipelines: 'pr-pipeline' (status: No stages detected) and 'ci-pipeline' (status: Success, indicated by a green checkmark). The URL in the browser's address bar is cloud.ibm.com/developer/appservice/apps/993c15ba-0143-473f-b7a8-488e26ad82f4.

cloud.ibm.com/developer/appservice/apps/993c15ba-0143-473f-b7a8-488e26ad82f4

IBM Cloud Search resources and products... Catalog Manage Shanmugam B's Account

### Details

App URL You must deploy your app first

Source [Download code](#)

Resource group [Default](#)

Deployment target You must deploy your app first

Created 11/11/2022

### Services

Cloudant

[Open dashboard](#) [Documentation](#) [API reference](#)

Credentials

[Connect existing services](#) [Create service](#)

### Deployment Automation

Name [NodeREDCBGMG2022-11-11](#)

Location Dallas

Tool integrations

### Delivery Pipelines

Name [pr-pipeline](#)

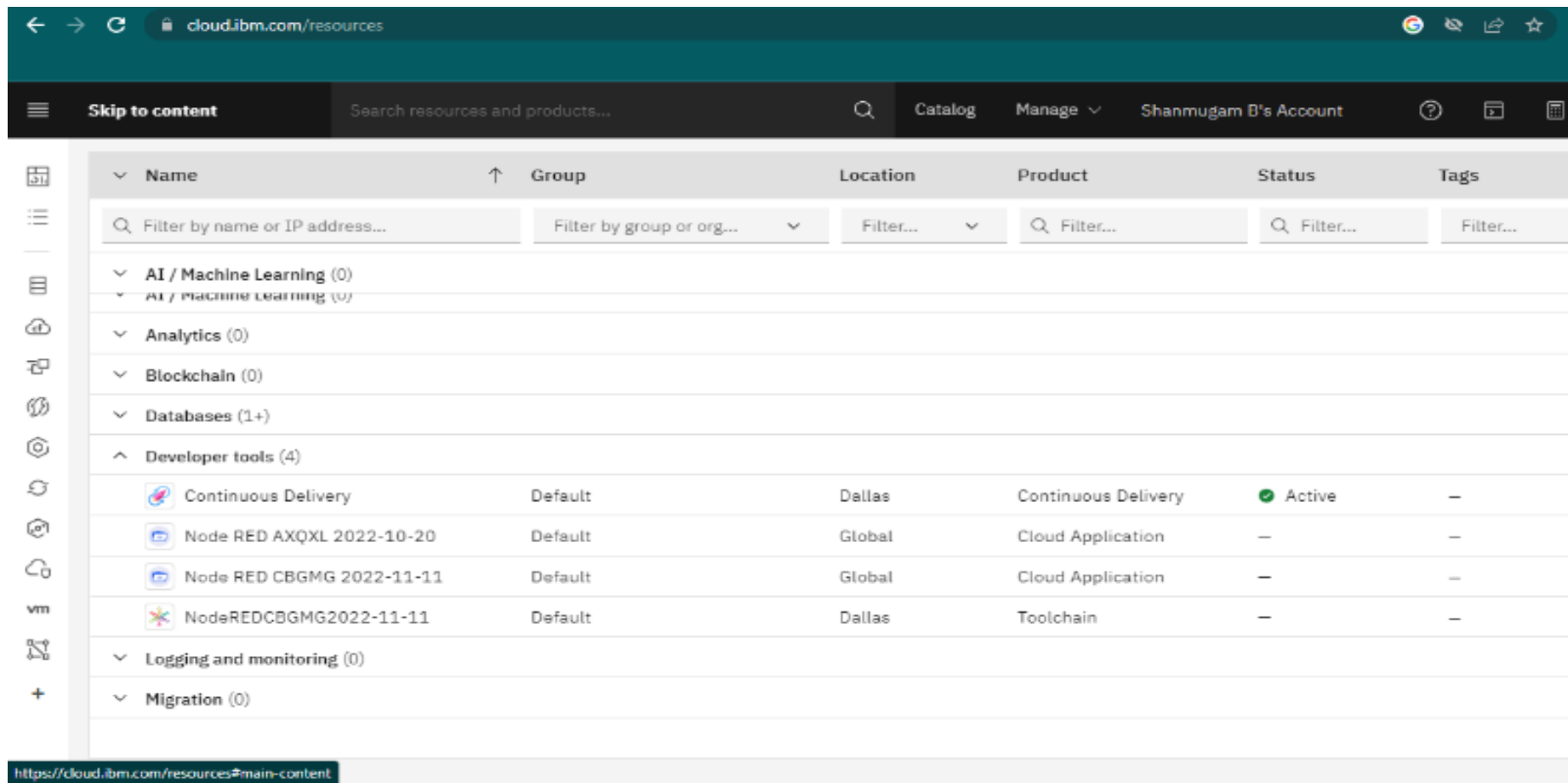
Status [No stages detected](#)

Name [ci-pipeline](#)

Status [Success](#)

## STEP 14:

Now go to Dashboard, in sidebar menu choose Resource list > Developer Tools. Click on your Node-red (Cloud Application)



The screenshot shows the IBM Cloud Resources page. The browser address bar displays [cloud.ibm.com/resources](https://cloud.ibm.com/resources). The page header includes a "Skip to content" link, a search bar, and navigation links for "Catalog", "Manage", and the user account "Shanmugam B's Account".

The main content area displays a table of resources. The table has columns for Name, Group, Location, Product, Status, and Tags. The "Developer tools" group is expanded, showing four resources:

Name	Group	Location	Product	Status	Tags
Continuous Delivery	Default	Dallas	Continuous Delivery	Active	—
Node RED AXQXL 2022-10-20	Default	Global	Cloud Application	—	—
Node RED CBGMG 2022-11-11	Default	Global	Cloud Application	—	—
NodeREDCBGMG2022-11-11	Default	Dallas	Toolchain	—	—

The URL bar at the bottom shows <https://cloud.ibm.com/resources#main-content>.

## STEP 15:

Now you will be redirected your Node-red app there you can see your App Source. To open Node-red editor copy the app url and paste in new tab.

The screenshot shows the IBM Cloud Developer App Service interface. The browser address bar displays the URL: `cloud.ibm.com/developer/appservice/apps/993c15ba-0143-473f-b7a8-488e26ad82f4`. The page title is "Node RED CBGMG 2022-11-11".

**Details**

App URL	<a href="http://169. [REDACTED]">http://169. [REDACTED]</a>
Source	<a href="https://us-south.git.cloud.ibm.com/312819106035/NodeREDCBGM...">https://us-south.git.cloud.ibm.com/312819106035/NodeREDCBGM...</a>
Resource group	Default
Deployment target	mycluster-free
Created	11/11/2022

**Services**

Cloudant

- [Open dashboard](#)
- [Documentation](#)
- [API reference](#)

[Credentials](#)

**Deployment Automation**

Name	NodeREDCBGMG2022-11-11
Location	Dallas
Tool integrations	

**Delivery Pipelines**

Name	pr-pipeline
Status	No stages detected
Name	ci-pipeline
Status	Success

At the bottom, there are two buttons: "Connect existing services" and "Create service".



## STEP 16:

Click on Next and then choose Not Recommended and click on next and finish. Then click on go to Node-RED flow editor. Now start work on your flows.

