IOT Based Smart Crop Protection System for Agriculture .

Team ID - PNT2022TMID44156.

Create Node-Red Services .

Knowledge objectives :-

In this lecture, you will study how to:

- Create a Node-RED starter presentation running in the IBM Cloud
- Secure the presentation
- Modify the Node-RED Starter Kit by adding additional nodes

Prerequisites :-

To complete this lecture, you need an IBM Cloud account.

This lecture requires an IBM Cloud Pay-As-You-Go account. For upgrading your Lite account, go to your account settings. In the Account Upgrade section, click **Add credit card** to upgrade to a Pay-As-You-Go account, or click **Upgrade** for a Subscription account.
See Upgrading your account for more data.

This Node-RED starter lecture provides directions on organizing the app to IBM Cloud Code Engine, which is entirely managed, server less platform that runs your containerized assignments and manages the essential structure for you. IBM Cloud Code Engine provides 100000 vCPU seconds per month at no charge. Your Node-RED flow will often scale to 0, which means that you won't incur any charges for light to moderate usage. Evaluate your consumption and approve your billing on a regular basis.

Estimated time:-

Steps :-

1. Find the Node-RED Starter Kit in the IBM Cloud catalog
2. Generate your application
3. Allow the Continuous Distribution feature
4. Open the Node-RED application
5. Construct your Node-RED application
6. Attach extra nodes to your Node-RED palette

Step1. Find the Node-RED Starter Kit in the IBM Cloud catalog

1. Log in to IBM Cloud.
2. Open the catalog and look for **node-red**.
3. Snap on the **Node-RED App** tile.

   This will show you an outline of the Starter Kit and what it offers.

Step2. Create your application

Now you need to generate the Node-RED starter application.

1. On the *Create* tab, a casually produced **App name** will be recommended. Either receive that defaultname or make available unique name for your application. This will turn into part of the application URL.

2. The Node-RED starter application needs an occasion of the **Cloudant database service** with IBM Cloud IAM and Cloudant credentials to store your application flow structure. Select the region the service should be generated in and what pricing plan it should use.

3. Click the **Create** button to continue. This will create your application and, if essential a Cloudant database service instance, but it is not yet deployed to IBM Cloud.

Step3. Enable the Continuous Delivery feature

1. On the next screen, click the **Deploy your app** button to enable the *Continuous Delivery* attribute for your application.

2. On the next screen, click the **Code Engine** tile.

3. Scroll down after selecting the **Code Engine** tile. You will need to generate an **IBM Cloud API** key to permit the deployment process to access your properties. Click the **New** button to generate the key. A message dialog will appear. You can receive the default values and approve to close the dialog.

4. Select the **Region** and **Container registry region**, to deploy your application to. This should match the region you generated your Cloudant instance in.

5. Afford a unique **Project** name or accept the default 'project-name'

   Click **Next** to continue.

6. Organize the **DevOps toolchain** by selecting the **region** it should be generated in. Again, try to match the region you selected before.

7. After a few minutes, the **Deployment Automation** section will restore with the details of your newly generated Delivery Pipeline. The Status field of the pipeline will eventually show **In progress**.That means your application is being constructed and deployed.

8. The Deploy stage will take a few minutes to complete. You can click on the ci-pipeline **Status** link to check the progress of the Delivery Pipeline. Ultimately the Deploy stage will display a green checkmark and a **Success** message to show it has passed. This means your Node-RED starter application is now running.

Step 4. Open the Node-RED application

Now deployed your Node-RED application, let's open it up! May have to restore your page.

On the application details page, you should now see the **App URL**, **Source** and **Deployment target** fields occupied in.

Click on the **App URL** to open up your Node-RED application in a fresh browser tab.

Step 5. Configure your Node-RED application

First time when you open your Node-RED app, you'll need to configure it and set up security.

1. A fresh browser tab will open with the Node-RED start page.

2. On the first screen, click **Next** to continue.

3. Protect your Node-RED editor by providing a **username** and **password**. If you need to modifythese at any point, you can either correct the values in the Cloudant database, or override them using *environment variables*. The documentation on nodered.org pronounces how to do this.

   Click **Next** to continue.

4. The finishing screen summarizes the choices you've made and best part the environment variables you can use to modify the options in the future. Click **Finish** to proceed.

5. Node-RED will save your changes and then load the core application. From here you can click the **Go to your Node-RED flow editor** button to open the editor.

   The Node-RED editor opens showing the default flow.

Step 6. Attach extra nodes to your Node-RED palette

The suggested approach is to edit your application's package.json file to include the further node modules and then redeploy the application.

This step shows how to do that in order to add the **node-red-dashboard** module.

1. On your application's details page, click **Source** url. This will yield you to a git repository where you can edit the application basis code from your browser.

2.. Scroll down the list of records and click on **package.json**. This file lists the element dependencies ofyour application.

3. Click the **Edit** button

4. Add the following entry to the top of the dependencies section (1):

5. "node-red-dashboard": "2.x",

Add a **Commit message** (2) and click **Commit changes** (3)

6. At this point, the Continuous Delivery pipeline will automatically run to build and deploy that variation into your application. If you view the Delivery Pipeline you can lookout its progress. The Build section shows you the last commit made and the Deploy section shows the growth of redeploying the application.

7. Once the Deploy stage completes, your application will have start over and now have the node-reddashboard nodes preinstalled.

Summary :-

Now create a Node-RED application that is introduced in the IBM Cloud. You have also learned how to edit the application source code and automatically deploy modifications.