

IBM Bluemix

Deploying Node JS Sample Application with Cloudant NoSQL Database

Deploy Node JS application on Bluemix

Prerequisites

To complete the steps in this lab, be sure you have these prerequisites:

- _ Access to a Bluemix account
- _ Basic knowledge of Bluemix

Installables

- 1) Cloud Foundry Plugin – <https://github.com/cloudfoundry/cli/releases>

Step-by-step implementation

Follow steps to complete this Lab:

1. Creating a new Cloudant NoSQLDatabase Service
2. Get Sample Code
3. Modifications to deploy on your Bluemix instance
4. Deploy application to Bluemix, using Cloud Foundry Command line tool
5. Testing the Application

Step1:

Creating a new Cloudant NoSQLDatabase Service

Complete the following steps:

1. Log in to Bluemix and open the Dashboard.

<http://bluemix.net>

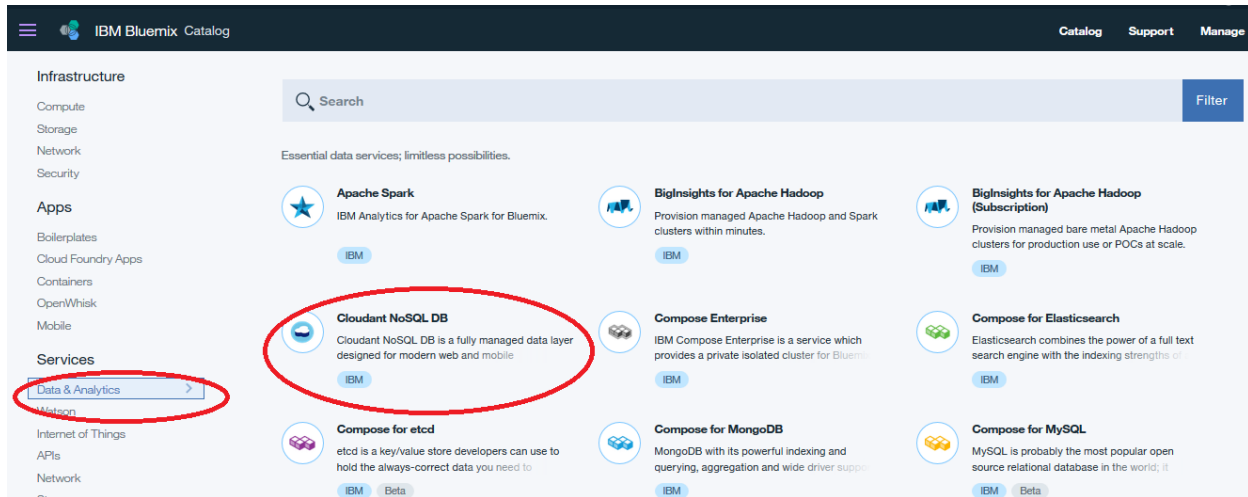
(If you have not signed up please sign up and login using credentials)

2. Creating a new Cloudant NoSQLDatabase Service Instance

Bluemix provides resources to your applications through a service instance. Before you can use the Bluemix APIs you must create an instance of the corresponding service. You will need to create a Cloudant NoSQLDatabase instance for use.

To create an instance of the Conversation service, follow these steps:

1. Log in to IBM Bluemix.
2. Click **Data & Analytics** (under Services).
The Data services that are available in Bluemix are listed.
3. Click **Cloudant NoSQL DB**.



Access the Cloudant NoSQL DB service instance

Do these steps on the next web page:

- There will be some default name, You can note the same or Enter **CloudantDbService** as the service instance name.
- Notice the credential name, Credentials-1.
- Select the pricing plan you want to use.
- Click **Create** and wait for Bluemix to create an instance of your Conversation service.

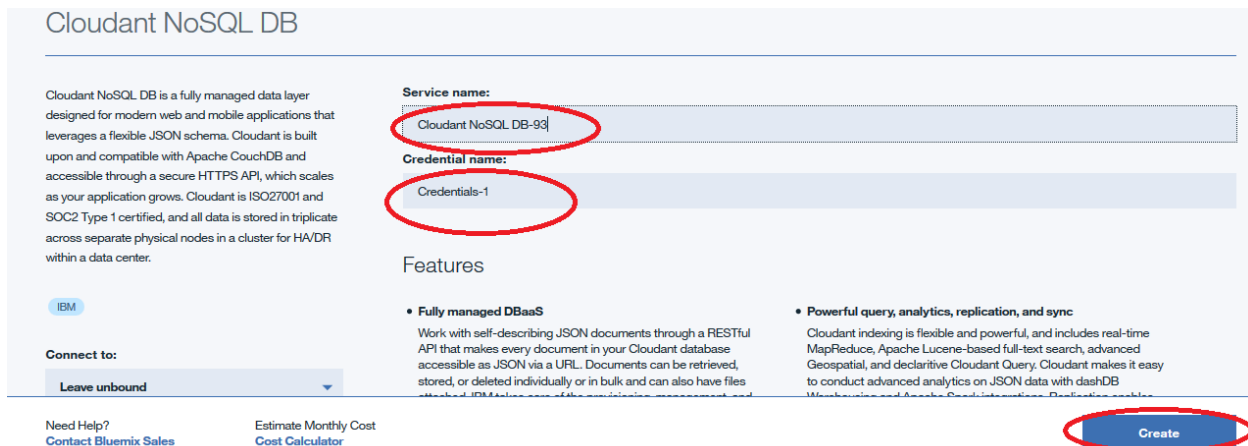


Figure: Cloudant NoSQL DB service instance name

Launching the Cloudant Service Console

The screenshot shows the Cloudant NoSQL DB service console for the instance 'Cloudant NoSQL DB-bluemixhandson'. The left sidebar has a 'Manage' tab selected, with 'Service credentials' highlighted. The main content area shows the 'Service credentials' section with a 'View More' button. On the right, a table lists the credentials, with the 'View credentials' link circled. A red circle also highlights the copy icon next to the JSON credentials.

| KEY NAME | DATE CREATED | ACTIONS |
|---------------|------------------------|------------------|
| Credentials-1 | Jun 9, 2017 - 03:25:34 | View credentials |

```
{
  "username": "acff4ff4-f783-431e-90ee-c77964d9471e-bluemix",
  "password": "94a7f4419ddf6c03e89dc6c66c327a203cbef32f82b29cc329b6127d54c55ea0",
  "host": "acff4ff4-f783-431e-90ee-c77964d9471e-bluemix.cloudant.com",
  "port": 443,
  "url": "https://acff4ff4-f783-431e-90ee-c77964d9471e-bluemix:94a7f4419ddf6c03e89dc6c66c327a203cbef32f82b29cc329b6127d54c55ea0@acff4ff4-f783-431e-90ee-c77964d9471e-bluemix.cloudant.com"
}
```

Figure: Cloudant NoSQL DB service console

2. Alternatively, you can launch the service console at a later time:

- Go to the Bluemix dashboard.
- Click your CloudantNoSQL DB service instance.
- On the service details page, click the **Manage** tab (Figure),

The screenshot shows the Cloudant NoSQL DB service details page. The left sidebar has the 'Manage' tab selected. The main content area shows the 'Cloudant NoSQL DB' service with a 'LAUNCH' button. Below the button, there is a description of the service and two sections: 'Fully managed DBaaS' and 'Powerful query, analytics, replication, and sync'.

Cloudant NoSQL DB LAUNCH

Cloudant NoSQL DB is a fully managed data layer designed for modern web and mobile applications that leverages a flexible JSON schema. Cloudant is built upon and compatible with Apache CouchDB and accessible through a secure HTTPS API, which scales as your application grows. Cloudant is ISO27001 and SOC2 Type 1 certified, and all data is stored in triplicate across separate physical nodes in a cluster for HA/DR within a data center.

Fully managed DBaaS
Work with self-describing JSON documents through a RESTful API that makes every document in your Cloudant database accessible as JSON via a URL. Documents can be retrieved, stored, or deleted individually or in bulk and can also have files attached. IBM takes care of the provisioning, management, and scalability of the data store, freeing up your time to focus on your application.

Powerful query, analytics, replication, and sync
Cloudant indexing is flexible and powerful, and includes real-time MapReduce, Apache Lucene-based full-text search, advanced Geospatial, and declarative Cloudant Query. Cloudant makes it easy to conduct advanced analytics on JSON data with dashDB Warehousing and Apache Spark integrations. Replication enables cross-geo deployments and Cloudant Sync provides data access for mobile devices to run connected or off-line.

Figure Launching CloudantNoSQL DB service

Cloudbant NoSQL DB Console

This section describes basics of console

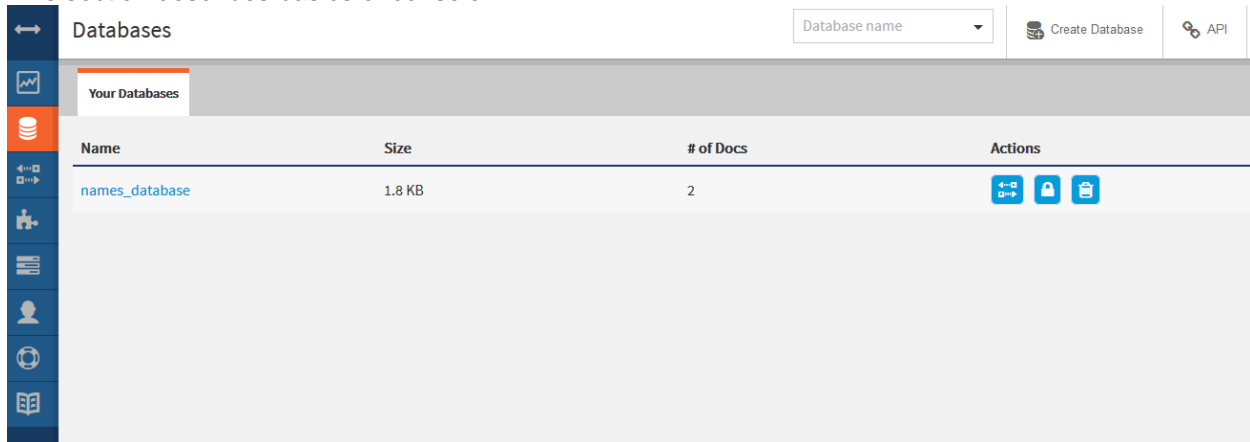
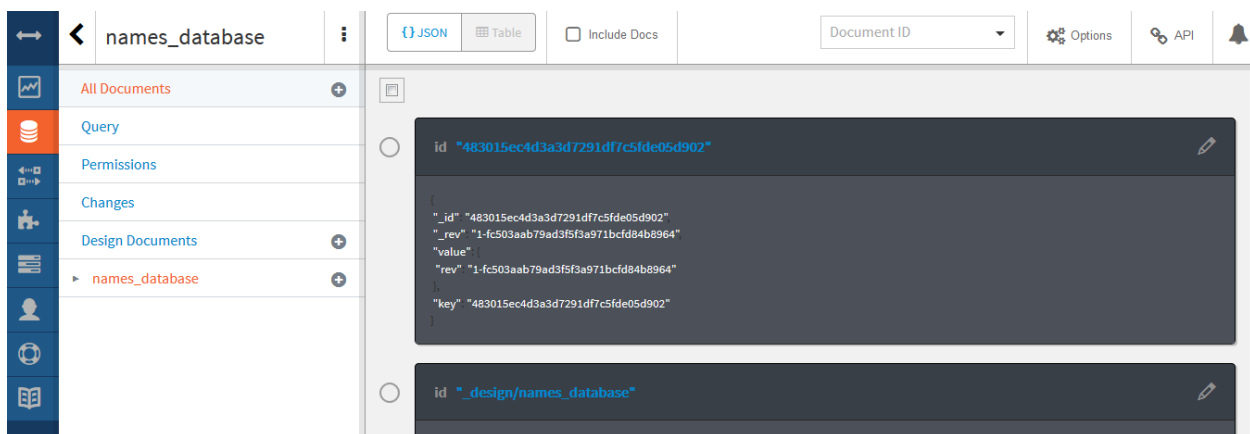


Figure Database Console

Created databases are listed.

However, you can create your own database as well.

Once you click on the database, it will display the documents in database.



Through this console, you can query, design, view your documents from database.

Completed First step !!!!!

Step2:

Get Sample Node JS Application code

In this section, you will pull/download from GitHub repository

Please download code from below link

<https://github.com/IBM-Bluemix/nodejs-cloudantdb-crud-example>

Once you download, extract downloaded zip file to folder

Completed 2nd Step !!!!

Step3:

Modifications to deploy on your Bluemix instance

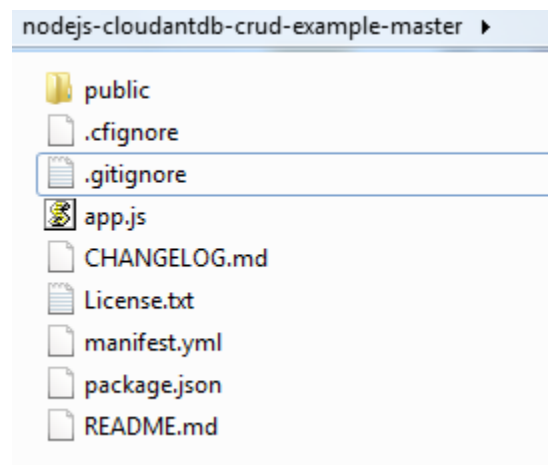


Figure Extracted Folder of sample application

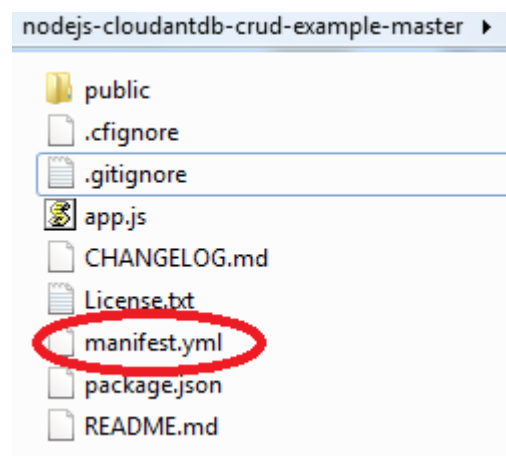


Figure : Files to be changed for deployment

You will have to modify **manifest.yml** for deployment to your Bluemix instance

1) Changes in manifest.yml

```
declared-services:
  cloudant-nodejs:
    label: cloudantNoSQLDB
    plan: Shared
applications:
- path: .
  memory: 256M
  instances: 1
  domain: mybluemix.net
  name: NodeJSCloudantSampleApp
  host: NodeJSCloudantSampleApp
  disk_quota: 1024M
  services:
  - cloudant-nodejs
```

- Add unique name to application as this will be deployed on public Bluemix cloud
- And Service name defined in first step of this exercise (Cloudant NoSQL DB) Instance name

```
declared-services:
  cloudant-nodejs:
    label: cloudantNoSQLDB
    plan: Shared
applications:
- path: .
  memory: 256M
  instances: 1
  domain: mybluemix.net
  name: NodeJSCloudantSampleAppMdp
  host: NodeJSCloudantSampleAppMdp
  disk_quota: 1024M
  services:
  - Cloudant NoSQL DB-blueemixhandson
```

Save the changes
Completed 3rd Step !!!!

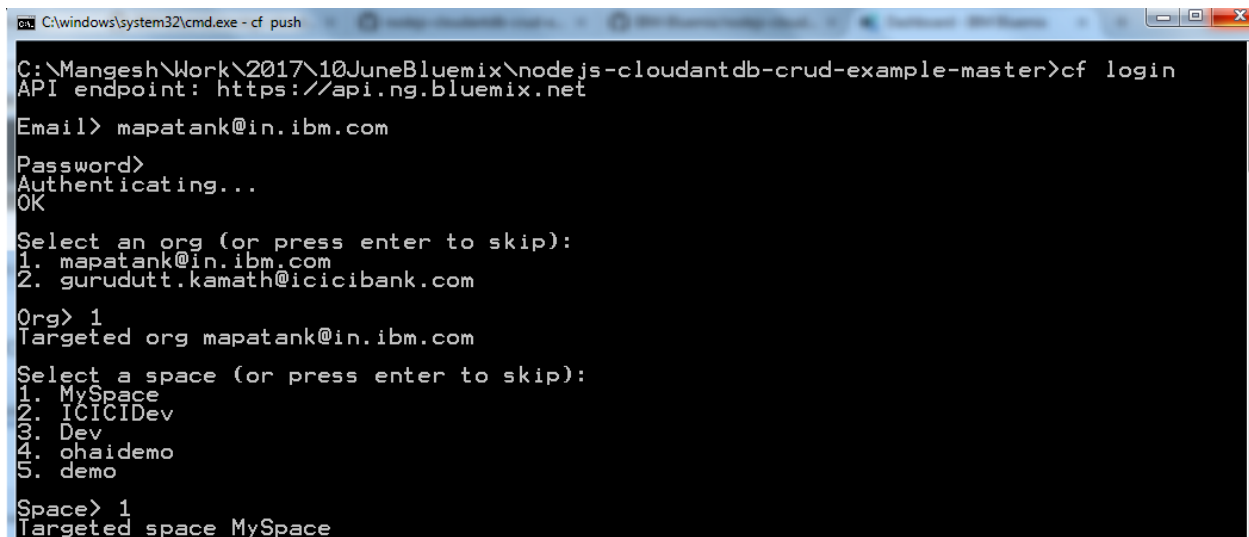
Step 4:

Deploy application to Bluemix, using Cloud Foundry Command line tool

This section describes how to deploy this node js application that integrates with the Cloudant NoSQL DB Service. And deploy it to your Bluemix workspace.

Follow the steps to Push the application to Bluemix

1. Open a command prompt (cmd.exe).
2. Go to directory where Sample application is modified. Lets say C:\NodeSampleApp directory.
3. Push the modified code to Bluemix
 - At the command prompt, change to the C:\NodeSampleApp <app-name> director
 - Log in to Cloud Foundry by using the **cf login** command. When prompted enter the email and password that you use to log in to your Bluemix account.



```

C:\Mangesh\Work\2017\10JuneBluemix\nodejs-cloudantdb-crud-example-master>cf login
API endpoint: https://api.ng.bluemix.net

Email> mapatank@in.ibm.com
Password>
Authenticating...
OK

Select an org (or press enter to skip):
1. mapatank@in.ibm.com
2. gurudutt.kamath@icicibank.com

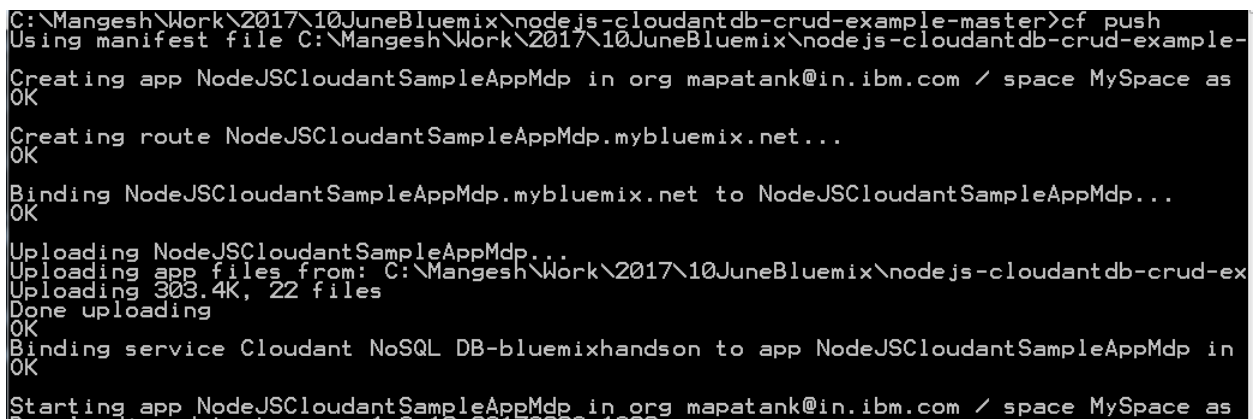
Org> 1
Targeted org mapatank@in.ibm.com

Select a space (or press enter to skip):
1. MySpace
2. ICICIDev
3. Dev
4. ohaidemo
5. demo

Space> 1
Targeted space MySpace
  
```

Figure Log in to Cloud Foundry (cf login)

Once you are logged in and in targeted space, use command
>> cf push



```

C:\Mangesh\Work\2017\10JuneBluemix\nodejs-cloudantdb-crud-example-master>cf push
Using manifest file C:\Mangesh\Work\2017\10JuneBluemix\nodejs-cloudantdb-crud-example-
Creating app NodeJSCloudantSampleAppMdp in org mapatank@in.ibm.com / space MySpace as
OK

Creating route NodeJSCloudantSampleAppMdp.mybluemix.net...
OK

Binding NodeJSCloudantSampleAppMdp.mybluemix.net to NodeJSCloudantSampleAppMdp...
OK

Uploading NodeJSCloudantSampleAppMdp...
Uploading app files from: C:\Mangesh\Work\2017\10JuneBluemix\nodejs-cloudantdb-crud-ex
Uploading 303.4K, 22 files
Done uploading
OK

Binding service Cloudant NoSQL DB-bluemixhandson to app NodeJSCloudantSampleAppMdp in
OK

Starting app NodeJSCloudantSampleAppMdp in org mapatank@in.ibm.com / space MySpace as
  
```

Figure Pushing Application using CF command line


```

Uploaded droplet (21.1M)
Uploading complete
Destroying container
Successfully destroyed container

0 of 1 instances running, 1 starting
1 of 1 instances running

App started

OK

App NodeJSCloudantSampleAppMdp was started using this command './vendor/initial_startu
Showing health and status for app NodeJSCloudantSampleAppMdp in org mapatank@in.ibm.co
OK

requested state: started
instances: 1/1
usage: 256M x 1 instances
urls: NodeJSCloudantSampleAppMdp.mybluemix.net
last uploaded: Fri Jun 9 15:36:09 UTC 2017
stack: cflinuxfs2
buildpack: SDK for Node.js(TM) (ibm-node.js-0.12.18, buildpack-v3.12-20170505-0656)

#0    state    since                cpu    memory    disk    details
running 2017-06-09 09:07:33 PM 0.0%  72.6M of 256M  100M of 1G

```

Figure Pushing application completed and app is running

Wait until the build and deployment are completed (above Figure). Wait until the application is running

Step 5:

Testing the application

To test the application, follow these steps:

1. Open your application route (URL to access your application) in a web browser; Note your application name unique as shown below/

```

requested state: started
instances: 1/1
usage: 256M x 1 instances
urls: NodeJSCloudantSampleAppMdp.mybluemix.net
last uploaded: Fri Jun 9 15:36:09 UTC 2017
stack: cflinuxfs2
buildpack: SDK for Node.js(TM) (ibm-node.js-0.12.18, buildpack-v3.12-20170505-0656)

```

```

#0    state    since                cpu    memory    disk    details
running 2017-06-09 09:07:33 PM 0.0%  72.6M of 256M  100M of 1G

```

<http://<your-app-name>.mybluemix.net/>

Your application opens in the browser (Figure).

Or You can browse this from Bluemix Dashboard

Congratulations!! Completed Lab yourself!!!