Project: Cloudant



Estimated time needed: 45 mins

You'll now put into practice the skills you learnt working with Cloudant.

Objectives

- 1. Export data from a Cloudant database
- 2. Import data into a Cloudant database
- 3. Replicate a Cloudant database
- 4. Create indexes on a Cloudant database
- 5. Query data in a Cloudant database

About This SN Labs Cloud IDE

This Skills Network Labs Cloud IDE provides a hands-on environment for course and project-related labs. It utilizes Theia, an open-source IDE (Integrated Development Environment) platform that can be run on a desktop or the cloud. To complete this lab, you will also need an instance of Cloudant running in IBM Cloud.

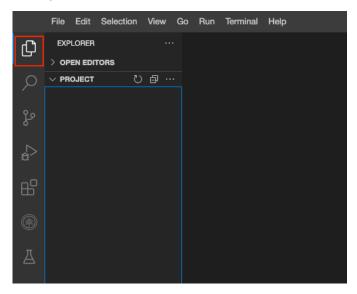
Important notice about this lab environment

Please be aware that sessions for this lab environment are not persisted. Every time you connect to this lab, a new environment is created for you. Any data you may have saved in the earlier session would get lost. Plan to complete these labs in a single session to avoid losing your data.

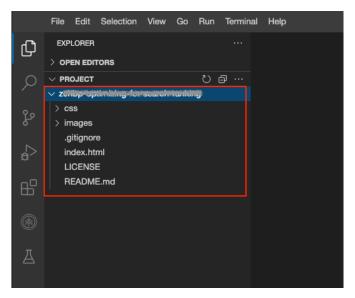
Working with Files in Cloud IDE

If you are new to Cloud IDE, this section will show you how to create and edit files that are part of your project in Cloud IDE.

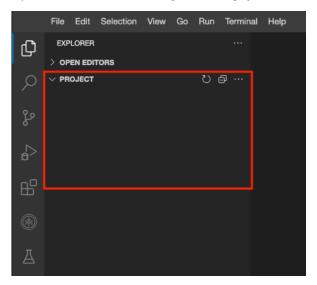
To view your files and directories inside Cloud IDE, click the file icon to reveal it.



If you have cloned (using the git clone command) boilerplate/starting code, then it will look like the image below:

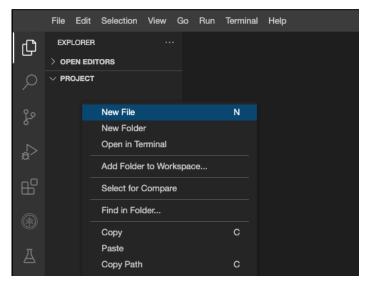


If you have not cloned and are starting with a blank project, it will look like this:

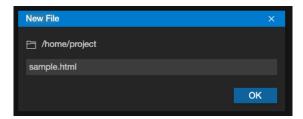


Create a New File

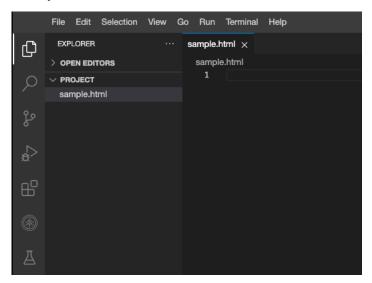
To create a new file in your project, right-click and select the New File option. You can also choose File -> New File to do the same.



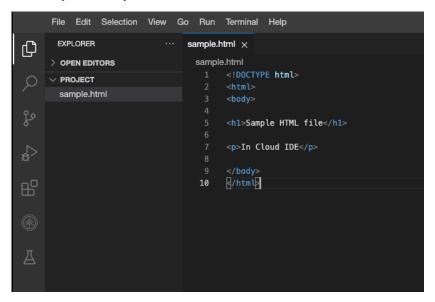
You will then be prompted to name the new file. In this scenario, let's name it sample.html.



Clicking the file name sample.html in the directory structure will open the file on the right pane. You can create all different types of files. For example, FILE_NAME.js for JavaScript files.

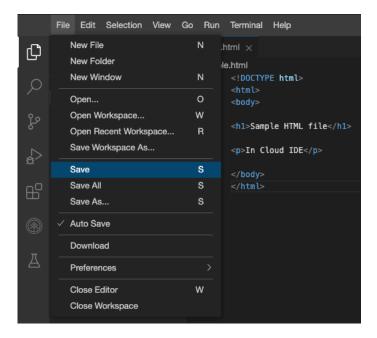


In the example below, we pasted some basic HTML code and then saved the file.



We save this file by:

- Going in the menu
- Press Command + S on Mac or CTRL + S on Windows
- Alternatively, it will Autosave your work as well

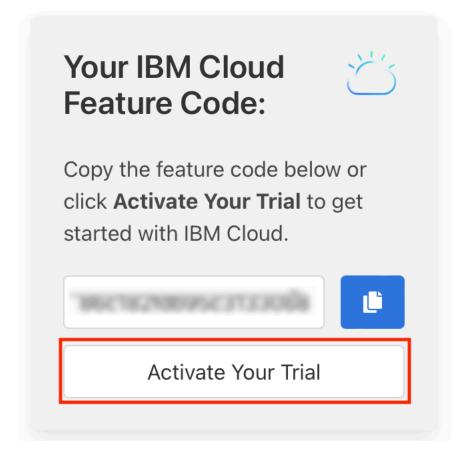


Set-up: Create IBM Cloud Account

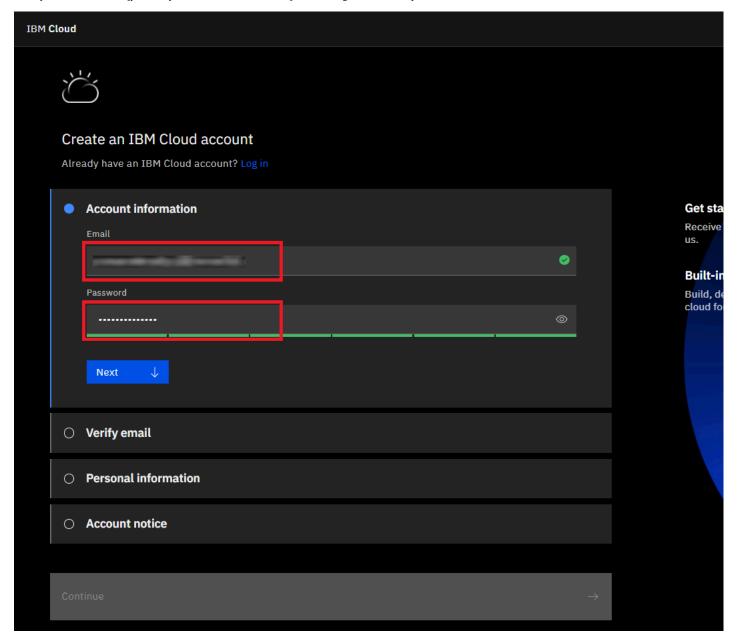
To access the resources and services that the IBM Cloud provides, you need an IBM Cloud Account. This lab will take you through step-by-step instructions to create IBM Cloud Account.

Activate Trial Account

- 1. The previous section of the lab is the first step for activating your IBM Cloud trial account using Feature Code.
- 2. On clicking on Open Tool button, you will get a unique code.
- 3. Next, click on Activate Your Trial. It will redirect you to the IBM Cloud registration page, to create an account on IBM Cloud.

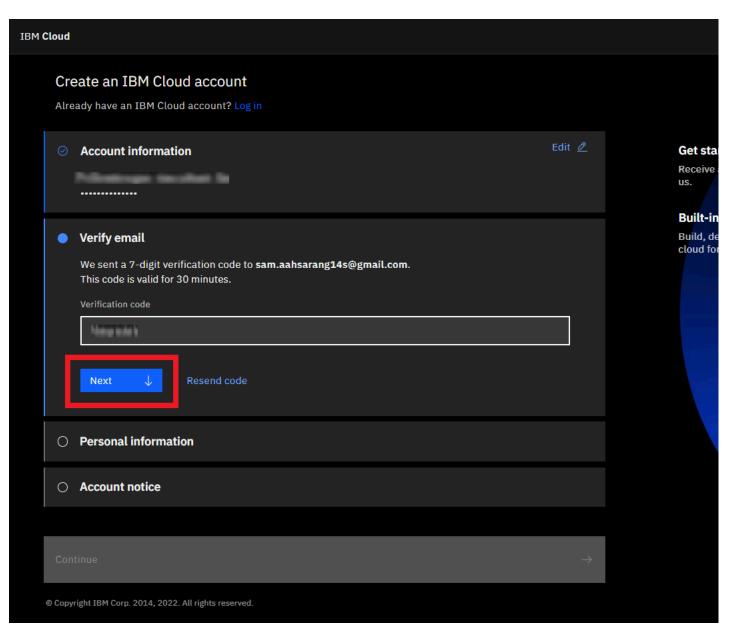


- 1. Once you are on the <u>account creation</u> page, follow the below instructions to create an IBM cloud trial account.
- 2. Enter your Email address [preferably use Gmail ID or Yahoo ID] and a strong Password, as per criteria and then click the Next button.



NOTE: Please ensure that you provide an email address that you have not used previously to create any other IBM Cloud account, and you are able to readily access your email to retrieve the verification code required in the next step.

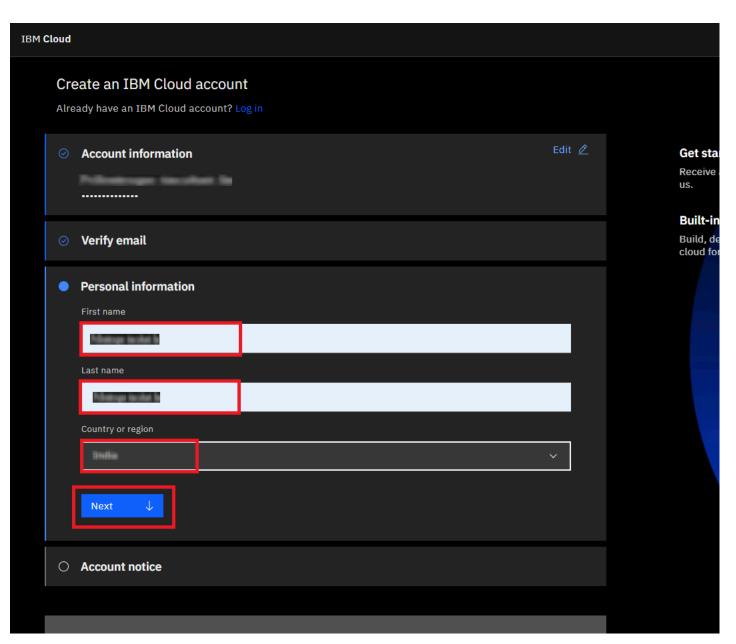
3. An email is sent to the address that you signed up with to confirm your email address. Check your email and copy and paste Verification code. Then click Next.



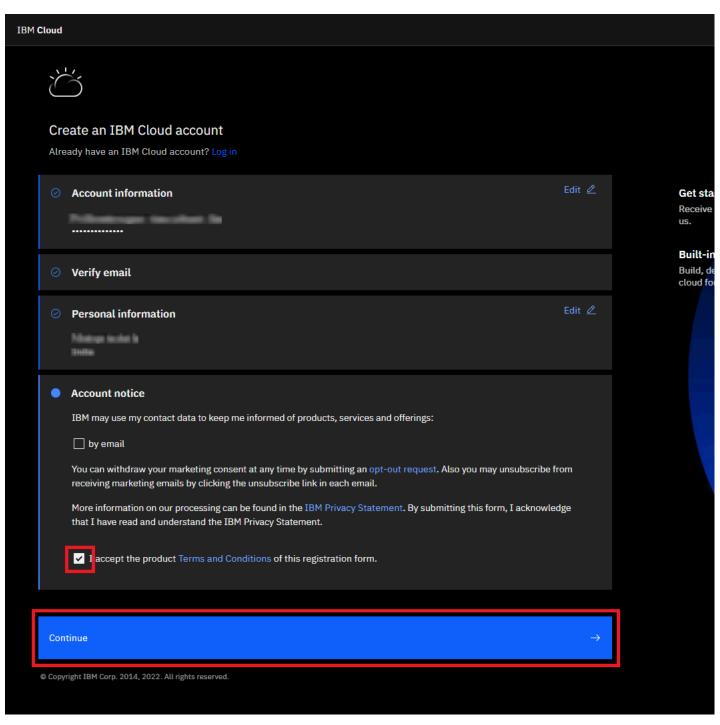
4. Once your email is successfully verified, enter your First name, Last name, and preferably select United States under Country or region then click Next.

Note: Kindly use your full last name instead of just using single letter/initials.

Example: First Name: test Last Name: skillup



5. Go through the Account Notice and opt for Email updates if you desire, accept the terms and conditions and click on Continue.



6. Before creating your account, review the account privacy notice and acknowledge that you have read and understood by checking the checkbox and click on Continue



Review your account privacy notice

About your IBMid Account Privacy

This notice provides information about accessing your IBMid user account (Account). If you have previously been presented with a version of this notice, please refer to "Changes since the previous version of this notice" below for information about the new updates.

Updates to the IBM Privacy Statement since this notice was originally published provide additional information about how your personal information is processed by IBM.

This document was last published on 2020-03-05



I acknowledge that I understand how IBM is using my Basic Personal Data and I am at least 16 years of age.

Continue

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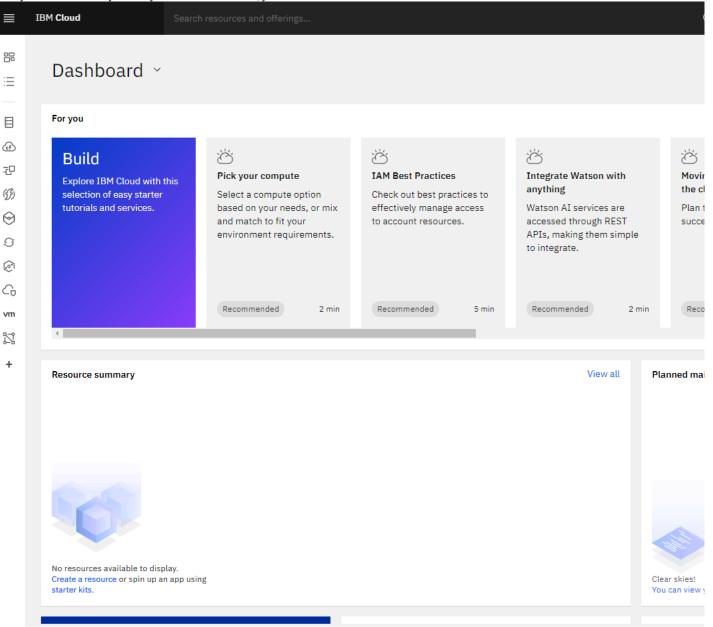
It takes a few seconds to create and set up your account.

On the next screen, you will	be asked to verify identity where you will	see the feature code has been applied	for you already. Then click on Create account.	
IBM Cloud				
	Ś			
Ver	ify identity			
•	Apply code		Register without a code	(i)
	Enter the code that he code to only one account ID:		you. You can apply the removed.	
Crea	te account			<u>A</u>
© Copyri	ght IBM Corp. 2014, 2022.	All rights reserved.		

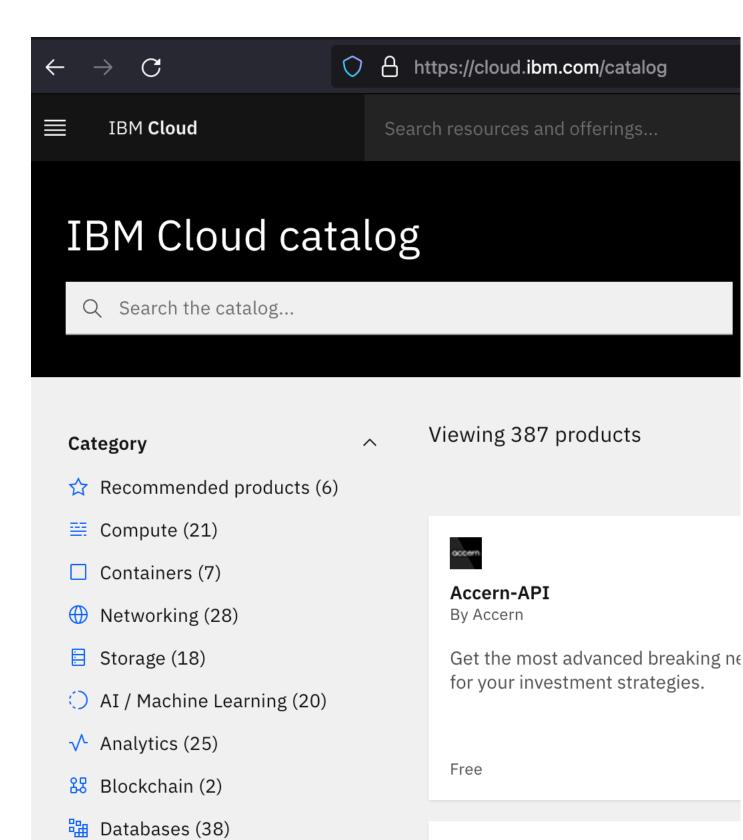
Note: It might take a couple of minutes to create your account.

Note: Please ensure you should not use the Credit Card option to verify your account for course work as that can result in unnecessary charges and delays in activating your account.

8. Once you have successfully created your IBM Cloud account, you should see the dashboard.



9. Now you may explore the <u>IBM Catalog</u> for exploring the services and resources offered by IBM Cloud.						



Obveloper tools (170)

integration (12)

Logging and monitoring (7)



Analytics Engine

By IBM

Flexible framework to deploy Hado analytics applications.



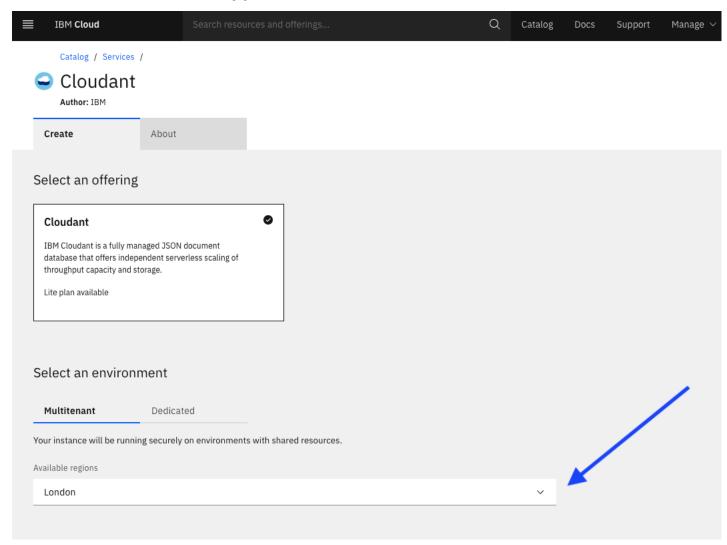
Set-up: Create IBM Cloudant Instance

Create an IBM Cloudant instance

• Click on <u>cloud.ibm.com/catalog/services/cloudant</u> to create a Cloudant instance.

Or you can alternatively click on Create Resource, search for Cloudant on the Dashboard page.

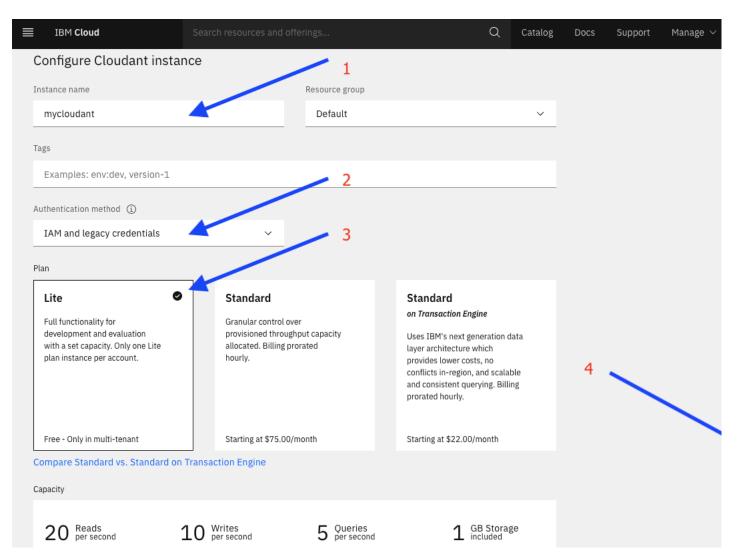
You will be taken to the Cloudant instance creation page.



• Select the region under the "Available regions."

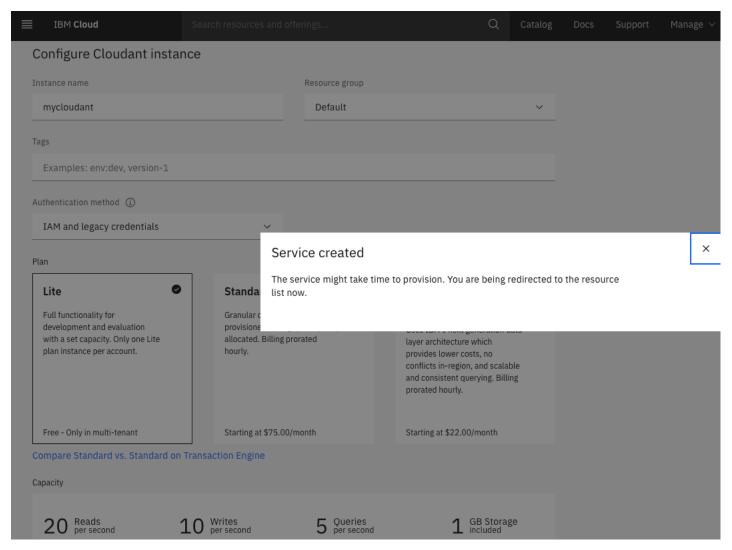
It is OK to go with the default option, if you cannot figure out which region to choose.

• Scroll down to configure Cloudant instance.



- Set your instance name to mycloudant or anything else that you prefer.
- Authentication Method is a critical setting. Select "IAM and legacy Credentials" as your Authentication Method. If you choose any other Authentication Method, some labs will not work.
- Select the Lite plan.
- $\bullet \quad Click \ on \ {\tt Create}$

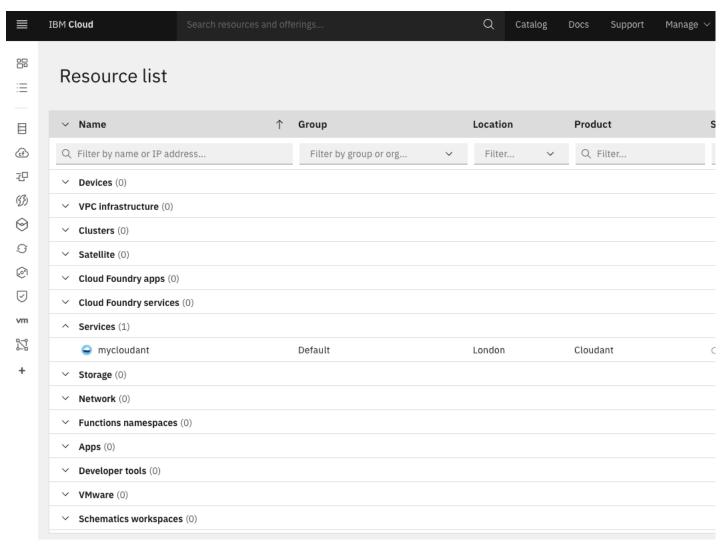
You should see a screen like this:



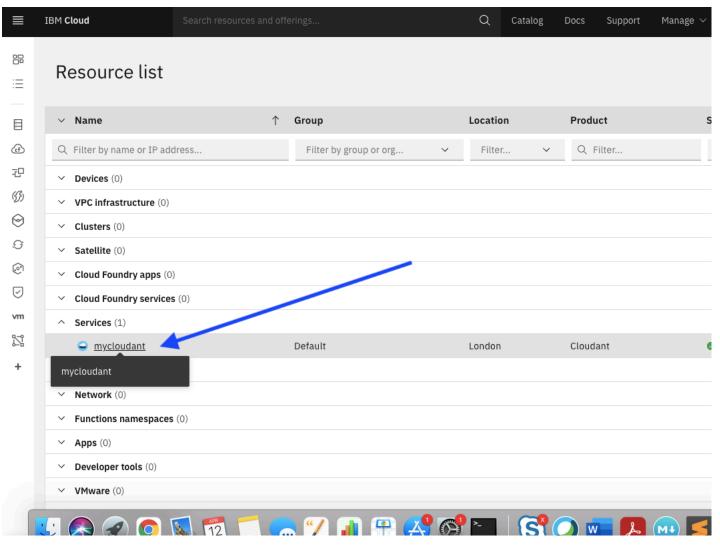
Your Cloudant service will be created and you will be redirected to the Resource list page.

 $\bullet \ \ \text{If you are not redirected, you can click on this link} \ \underline{\text{cloud.ibm.com/resources?} \underline{\text{groups=resource-instance}}}$

You may see a screen like this, indicating the Provision in progress.



• Wait till the status turns 'Active' and click on mycloudant or your custom instance name.

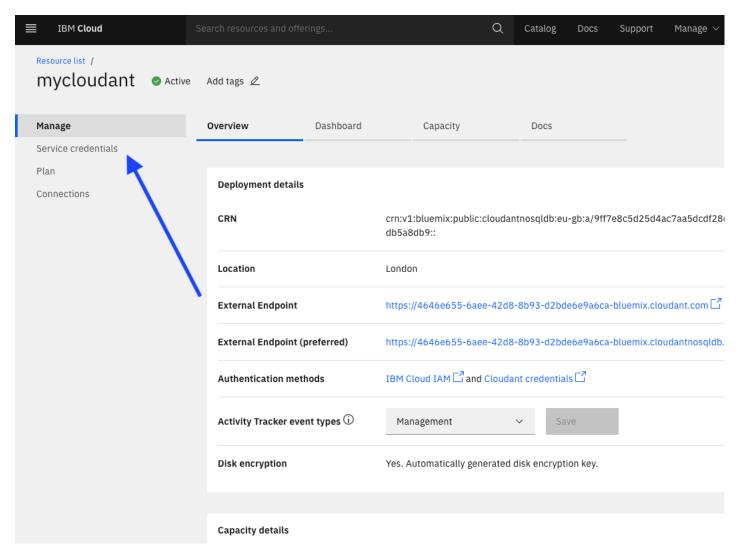


You will be taken to the Cloudant instance page.

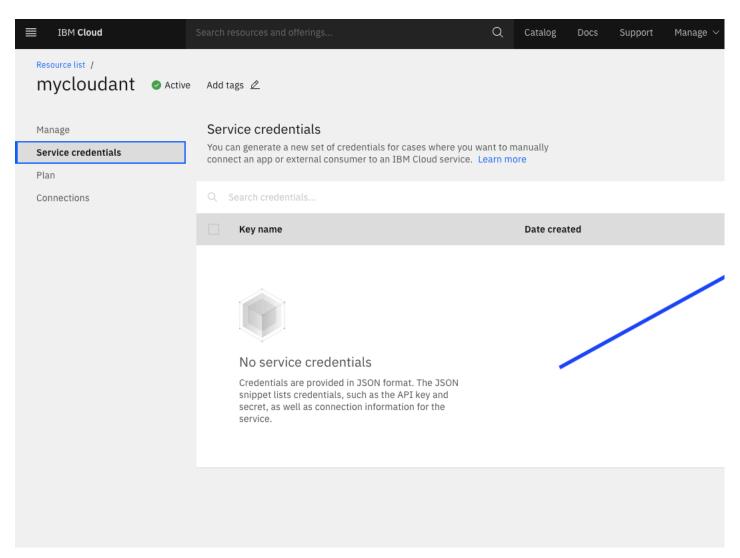
You have successfully created the Cloudant instance.

Create Cloudant Service credentials

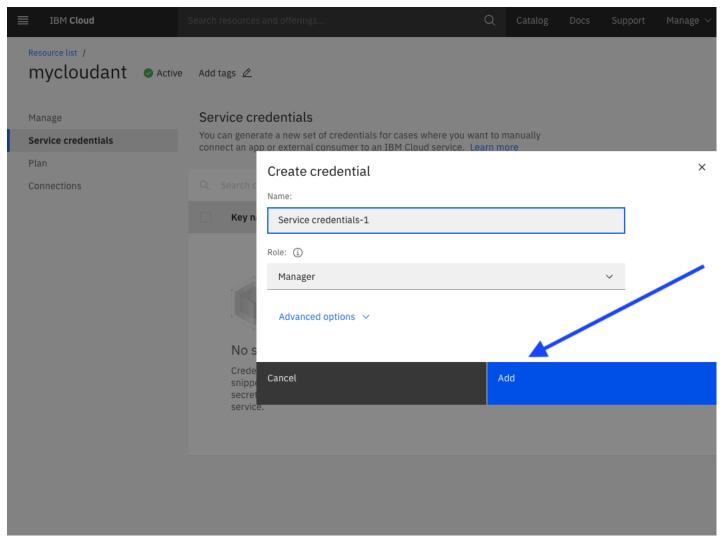
• On the Cloudant instance page, click on Service Credentials



• Click on New Credential

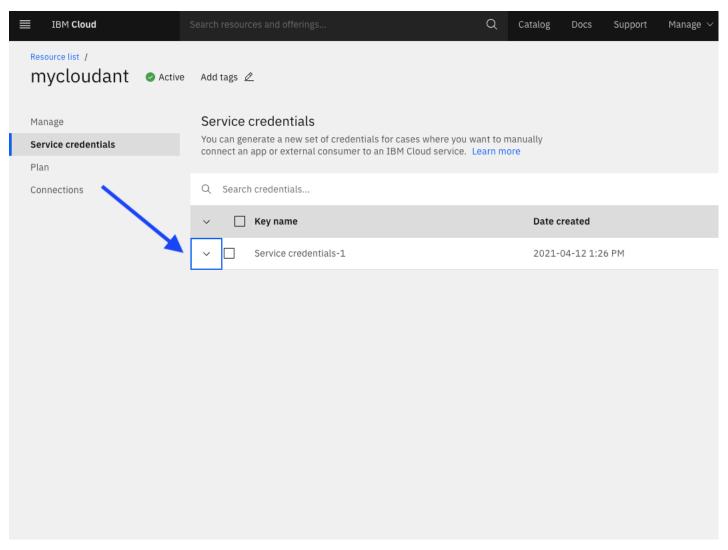


• Create credential pop up appears. Accept the default values for Name and Role and click on Add

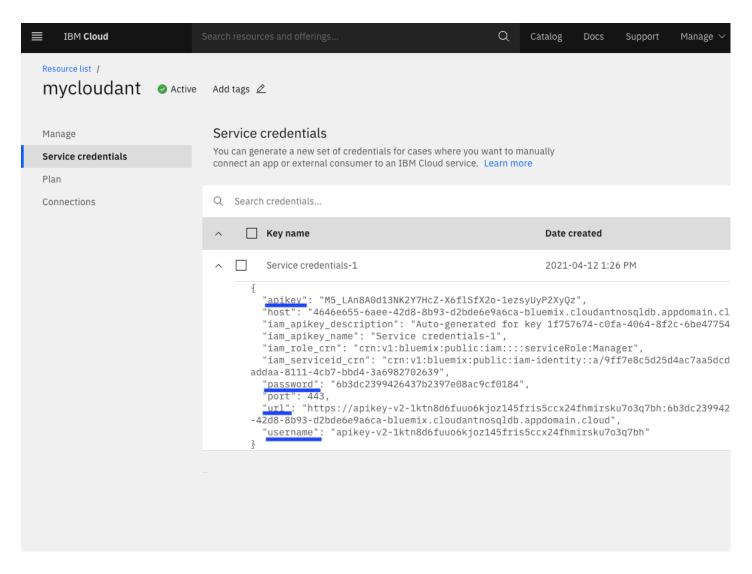


• Your Cloudant Service credentials will be created. Click on the chevron to view the credentials.

DO NOT attempt to use the credentials shown here. These are expired credentials.



• You will be using the username, password and url in the next labs.



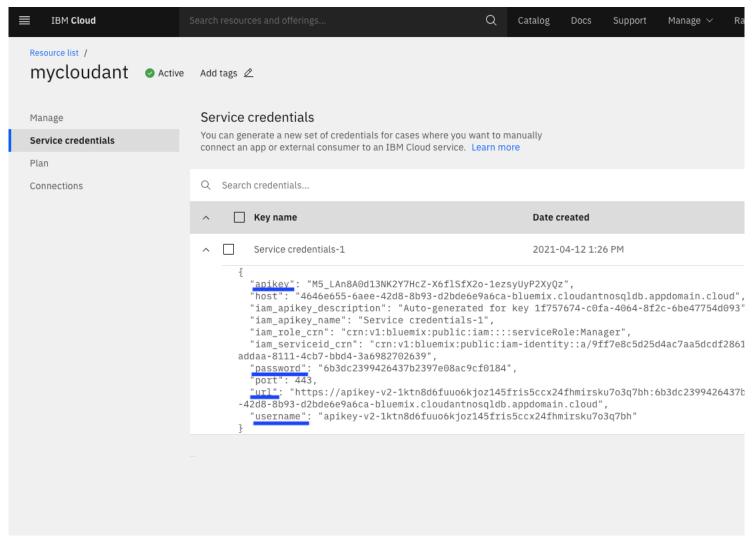
You have successfully created a Cloudant instance and Service credentials for your instance.

Note: If you do not see the password field in your credentials, it is because in Exercise 2, Step 5 you have not selected "IAM and legacy credentials." You can fix it by deleting your current Cloudant instance and following this lab from the beginning to create a new instance of Cloudant.

Set-up: Using HTTP API to create and query Cloudant databases

Before you start working with the HTTP API to access the Cloudant, you need to collect the below details of your Cloudant instance, from the Service Credentials.

- 1. Your Cloudant username
- 2. Your Cloudant password
- 3. Your Cloudant URL



Copy the url without the double quotes on either side.

Replace the value of CLOUDANTURL given below with yours.

DO NOT use the values given below. They are all expired credentials.

After replacing with your credentials, copy and paste the below command on the terminal.

This url contains your Cloudant username and password. DO NOT MAKE IT PUBLIC OR SHARE IT WITH ANYONE.

- 1. 1
- export CLOUDANTURL="<COPIED_VALUE>"

Copied! Executed!

Test if you can reach your Cloudant server from the lab environment.

Run the below command on the terminal.

- 1. 1
- 1. curl \$CLOUDANTURL

Copied! Executed!

If you get an output similiar to the one below, it means you are able to reach your Cloudant server.

```
Problems theia@theiadocker::/home/project ×

theia@theiadocker::/home/project$ curl $CLOUDANTURL
{"couchdb":"Welcome", "version":"2.1.1", "vendor":{"name":"IBM Cloudant", "version":"8169", "vari ant":"paas"}, "features":["geo", "access-ready", "iam", "partitioned", "pluggable-storage-engines", "scheduler"], "features_flags":["partitioned"]}
theia@theiadocker-::/home/project$
```

Test your credentials.

Copied!

If you get a list of your databases, it indicates that your credentials are correct. Now we can proceed with the rest.

Exercise 1 - Cloudant export data

Before going ahead set the environment varible CLOUDANTURL to your actual cloudant url from your service credentials.

Create sample data

Let's create some data if you don't have already.

```
2. 2
3. 3
  4. 4
 10. 10
 13. 13
 14. 14
 15. 15
 16. 16
 19. 19
 20. 20
21. 21
 22. 22
  1. curl -X DELETE $CLOUDANTURL/diamonds
  2. curl -X PUT $CLOUDANTURL/diamonds
  3.
  4. curl -X PUT $CLOUDANTURL/diamonds/1 -d '{
           1 -X PUT $CLOUDANT
"carat": 0.31,
"cut": "Ideal",
"color": "J",
"clarity": "SI2",
"depth": 62.2,
"table": 54,
"nice": 220
  8.
  9.
 10.
        caule": 54,
"price": 339
}'
 11.
 13.
"depth": 60.2,
"table": 62,
"price": 351
 19.
 20.
 21.
Copied! Executed!
```

Export in CSV format

Export data from the $\operatorname{diamonds}$ database into csv format.

```
    1. 1
    1. couchexport --url $CLOUDANTURL --db diamonds --delimiter ","

Copied!
```

You should see all the documents in the diamonds database printed in csv format.

Export in JSON format

Export data from the diamonds database into json format (one document per line).

couchexport --url \$CLOUDANTURL --db diamonds --type jsonl

Copied!

You should see all the documents in the diamonds database printed in json format.

Export data from the diamonds database into json format and save to a file named diamonds. json.

1. 1

1. couchexport --url \$CLOUDANTURL --db diamonds --type jsonl > diamonds.json

Copied!

Export data from the diamonds database into csv format and save to a file named diamonds.csv.

1. 1

1. couchexport --url \$CLOUDANTURL --db diamonds --delimiter "," > diamonds.csv

Copied!

Exercise 2 - Import data into Cloudant

Right-click on the link and "open in a new tab" to obtain the content of the json file and copy the entire content: movies.json

Now, go to the lab environment by clicking on the Launch/Open Tool button, and create a new file named movie.json under the project directory and paste the entire content copied earlier into the newly created json file.

Import data from json into your Cloudant Database

Go to your Cloudant Service created on IBM Cloud and then click on Launch Dashboard to launch the cloudant databases. Then, click on New database on the top-right corner and create a Non-patitioned database named movies.

Run the given command in the terminal to import movies. json into your Cloudant database movies:

1. 1

1. curl -XPOST \$CLOUDANTURL/movies/_bulk_docs -Hcontent-type:application/json -d @movies.json

Copied! Executed!

Exercise 3 - Replicate a local database into your Cloudant instance

Using the replication page in the Cloudant dashboard, replicate the below source database using one time replication.

Source

• Type: Local Database

Name: movies

• Authentication : IAM Authentication

Add your Cloudant API key below (you can find it in the service credentials tab).

Target

• Type: New local database

• Authentication : IAM Authentication

Add your Cloudant API key below (you can find it in the service credentials tab).

Options

• Replication type: One time

Click on Start Replication

Exercise 4 - Create indexes using HTTP API

Create an index for the "Director"

- ► Click here for Hint
- ► Click here for Solution

Create an index for the "title"

▶ Click here for Hint

Exercise 4 - Query data using HTTP API

Find movies by Director

Write a query to find all movies directed by 'Richard Gage' using the HTTP API

- ► Click here for Hint
- ▶ Click here for Solution

Find movie by title

Write a query to list only the year and Director keys for the title 'Top Dog' movies using the HTTP API.

- ▶ Click here for Hint
- ► Click here for Solution

Summary

In this lab, you have practiced the skills you learnt using IBM Cloudant.

Author(s)

Muhammad Yahya

Changelog

Date	Version	Changed by	Change Description
2024-01-10	0.5	Mercedes Schneider	QA pass with edits
2023-10-23	0.4	Muhammad Yahya	Refreshed

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