



# Hands-on Lab: Dashboards in Cloudant

Estimated time needed: **30** minutes

## Objectives

After completing this lab you will be able to:

- Create a database through the Cloudant dashboard
- Perform simple operations, such as inserting a document and querying data
- Replicate, or copy data, from one database to another
- Monitor your active tasks and your instance to detect potential issues

## Prerequisite

In order to complete this lab, you will need to create an instance of Cloudant on IBM Cloud. If you haven't yet created one, you can create one by referring to the [Create an Instance of IBM Cloudant](#) lab.

Note: While working on this lab, you may be prompted to login when ever your session expires. Use your credentials to authenticate. This may happen when you step out or leave your Cloudant session unattended.

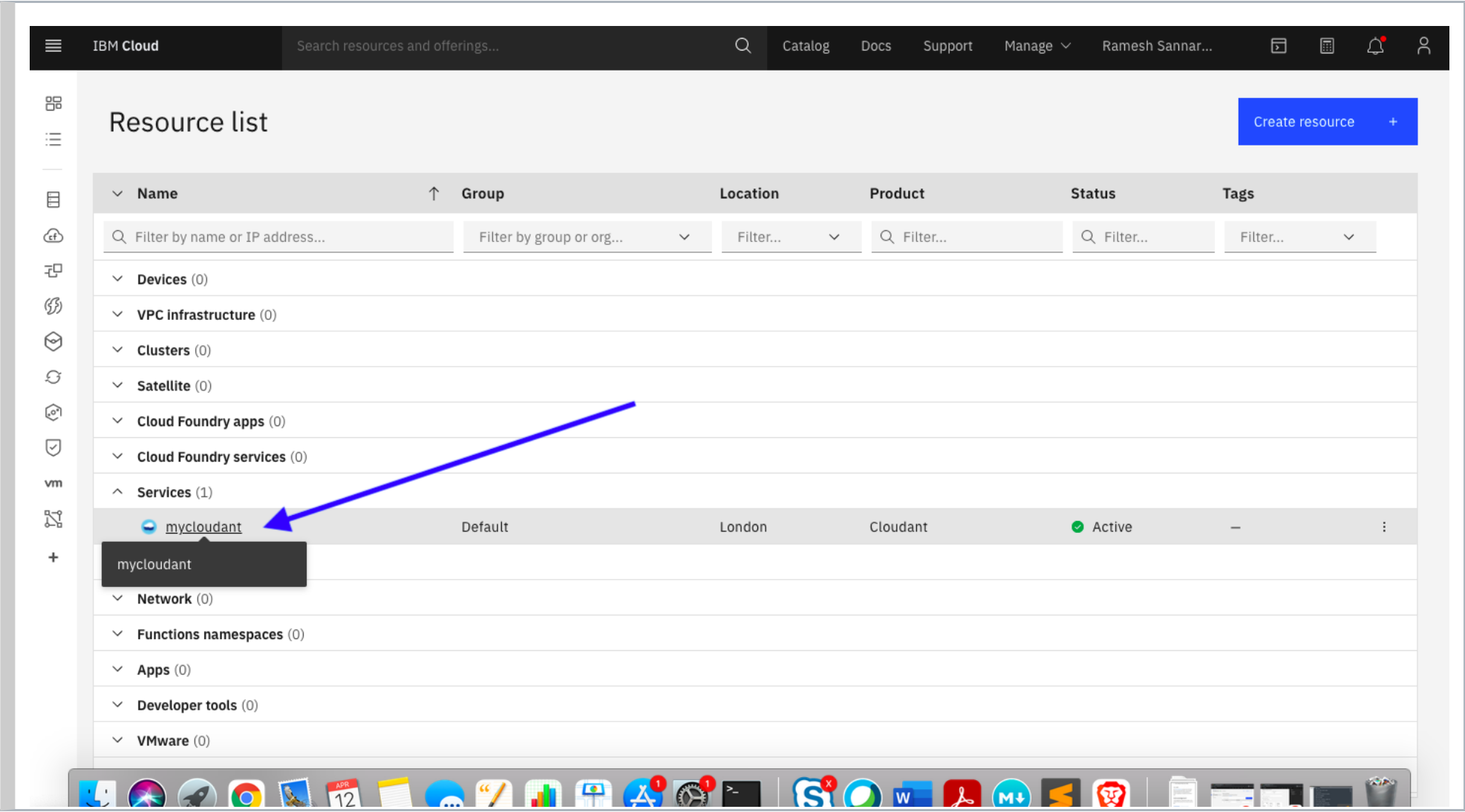
## Exercise 1 - Launch Cloudant Dashboard

Step 1: Click on [cloud.ibm.com/resources](https://cloud.ibm.com/resources).

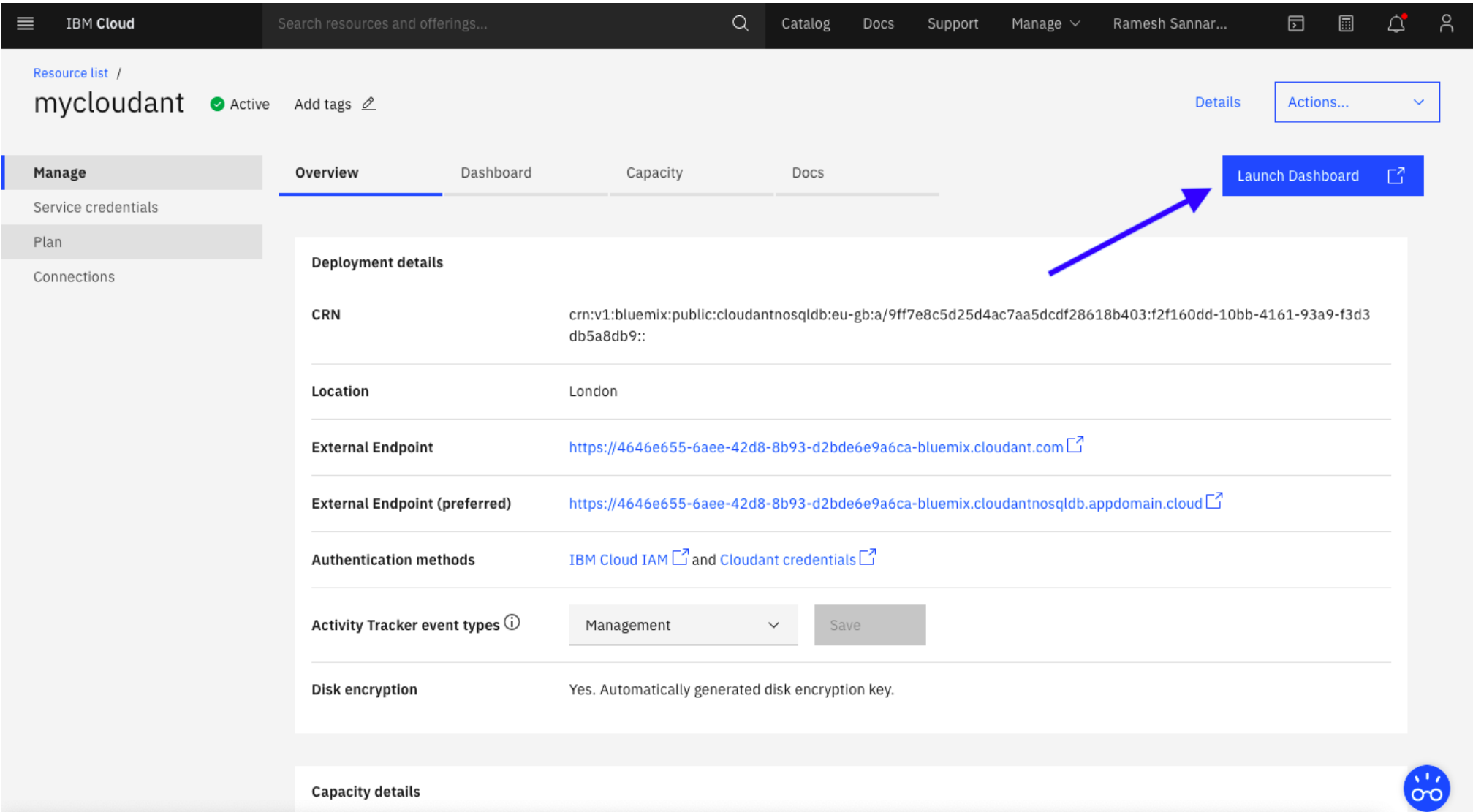
Step 2: Click on the Services chevron.

Step 3: Click on your instance of Cloudant.

▼ Click here for Hint



Step 4: Click on **Launch Dashboard**.



The Cloudant dashboard looks like this.

↔

📈

🗄️

🔗

📄

👤

⚙️

📖

☁️

Log Out

Databases

Database name ▾

Create Database

{ } JSON

📖

🔔

Your Databases

Name	Size	# of Docs	Partitioned	Actions
------	------	-----------	-------------	---------

Showing 1–0 of 0 databases.   Databases per page 20 ▾   « 1 »

## Exercise 2 - Create a database

Step 1: Click on **Create Database**.

↔

📈

🗄️

🔗

📄

👤

⚙️

📖

☁️

Log Out

Databases

Database name ▾

Create Database

{ } JSON

📖

🔔

Your Databases

Name	Size	# of Docs	Partitioned	Actions
------	------	-----------	-------------	---------

Showing 1–0 of 0 databases.   Databases per page 20 ▾   « 1 »

Step 2: Enter *training* as the name of the database.

Step 3: Select 'Non-partitioned'.

Step 4: Click on **Create**.

↔

📈

🗄️

🔗

📋

👤

⚙️

📖

☁️

Log Out

Databases

Database name ▾

Create Database

{ } JSON

📖

🔔

Your Databases

Name	Size	# of Docs	Partitioned
------	------	-----------	-------------

Showing 1–0 of 0 databa

Create Database

Database name

training

Partitioning

☐ Partitioned ☒ Non-partitioned

> What is a Partitioned Database?

Cancel Create

The database will be created. You should see a screen like this.

↔

📈

🗄️

🔗

📋

👤

⚙️

📖

☁️

Log Out

< training

⋮

🔍 No partition selected

Document ID ▾

⚙️ Options

{ } JSON

📖

🔔

All Documents +

Query

Permissions

Changes

Design Documents +

Create Document

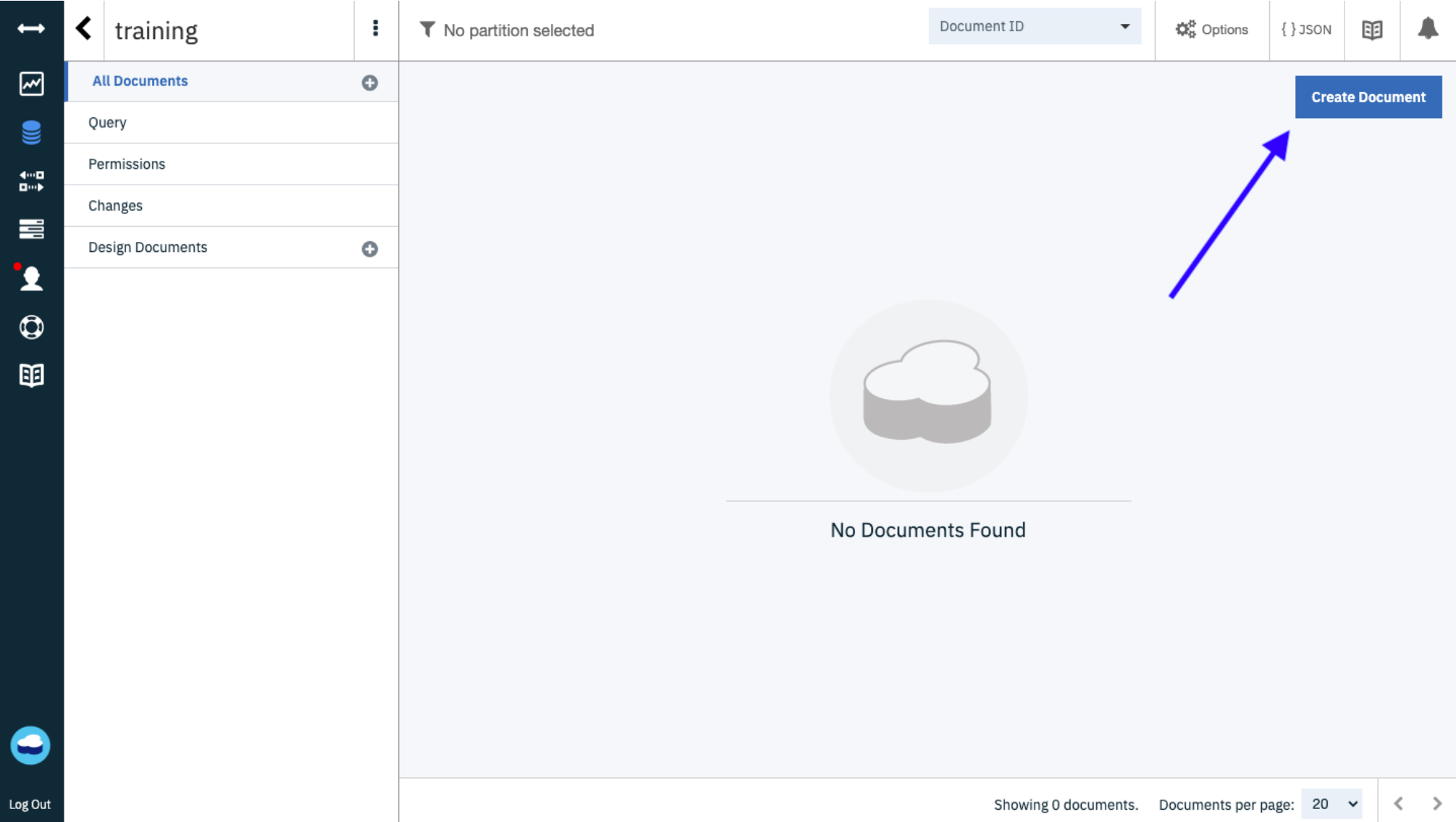
☁️

No Documents Found

Showing 0 documents. Documents per page: 20 ▾ < >

# Exercise 3 - Perform a simple insert

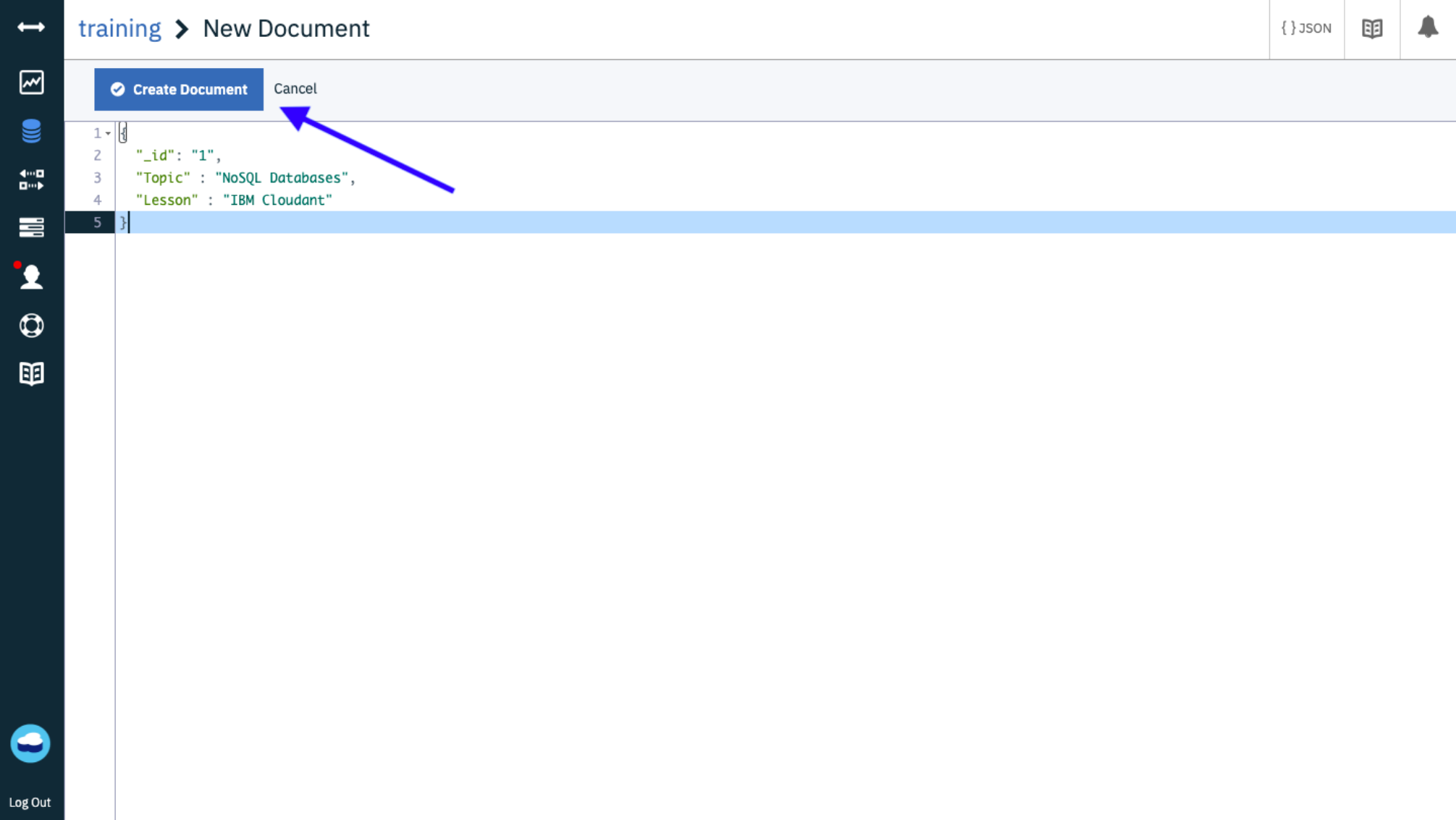
Step 1: Click on **Create Document**.



Step 2: Copy the below given JSON document and replace the default sample document given on the page.

```
{
  "_id": "1",
  "Topic" : "NoSQL Databases",
  "Lesson" : "IBM Cloudant"
}
```

Step 3: Click on **Create Document**



The document is created, and you should see a screen like this.

training

All Documents

Query

Permissions

Changes

Design Documents

Document ID

Options

JSON

Create Document

Table

Metadata

JSON

id	key	value
1	1	{ "rev": "1-aac247d23ba3a355634f9d759..." }

Showing document 1 - 1.

Documents per page: 20

Step 4: Select **Table** view to view the documents in a tabular form.

You should now see documents like this.

[illegible]

## Exercise 4 - Perform a simple query

Step 1: Click on **Query**.

training

All Documents

Query

Permissions

Changes

Design Documents

Log Out

Document ID

Options

JSON

Table

Metadata

JSON

Create Document

Lesson

Topic

\_id

IBM Cloudant

NoSQL Databases

1

Showing 3 of 4 columns.

Show all columns.

Showing document 1 - 1.

Documents per page: 20

Step 2: Copy the below given query and replace the default sample query given on the page.

```
{
  "selector": {}
}
```

Step 3: Click on **Run Query**

training > Cloudant Query

Query history

Cloudant Query

1

2

3

"selector": {}

Run Query

Explain

manage indexes

JSON

Create Document

No Documents Found

Showing 0 documents.

Documents per page: 20

You will see the query results.

training > Cloudant Query

Query history

Cloudant Query

1 {

2 "selector": {}

3 }

Run Query

Explain

manage indexes

Executed in 2 ms

Table

JSON

Create Document

Lesson

Topic

\_id

IBM Cloudant

NoSQL Databases

1

Showing 3 of 4 columns. Show all columns. Showing document 1 - 1. Documents per page: 20

Cloudant queries are also in the JSON format. What we have queried here is the equivalent of select \* from training.

# Exercise 5 - Replicate a database

Step 1: Api Key is needed for setting up replication. Fetch the apikey from Cloudant Service Credentials.

▼ Click here for Hint

Step 1: Go to <http://cloud.ibm.com/resources>.

Step 2: Under Services click on your instance of Cloudant.

Step 3: On the Cloudant instance page, click on **Service Credentials**.

Step 4: Click on the chevron of your Service Credentials. You should see your Service Credentials.

IBM Cloud

Search resources and offerings...

Catalog Docs Support Manage

Ramesh Sannar...

Resource list / mycloudant

Active

Add tags

Details

Actions...

Manage

Service credentials

Plan

Connections

Service credentials

You can generate a new set of credentials for cases where you want to manually connect an app or external consumer to an IBM Cloud service. [Learn more](#)

Search credentials...

New credential

Key name

Date created

Service credentials-1

2021-04-12 1:26

This is your apikey

```
{
  "apikey": "M5_LAn8A0d13NK2Y7HcZ-X6f1SfX2p-1ezsyUyP2XyQz",
  "host": "4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudantnosqldb.appdomain.cloud",
  "iam_apikey_description": "Auto-generated for key 1f757674-c0fa-4064-8f2c-6be47754d093",
  "iam_apikey_name": "Service credentials-1",
  "iam_role_crn": "crn:v1:bluemix:public:iam:::serviceRole:Manager",
  "iam_serviceid_crn": "crn:v1:bluemix:public:iam-identity::a/9ff7e8c5d25d4ac7aa5dcdcf28618b403::serviceid:ServiceId-7f3ad4aa-8111-4cb7-bbd4-3a6982702639",
  "password": "6b3dc2399426437b2397e08ac9cf0184",
  "port": 443,
  "url": "https://apikey-v2-1ktn8d6fuuo6kjoz145fris5ccx24fhmirsku7o3q7bh:6b3dc2399426437b2397e08ac9cf0184@4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudantnosqldb.appdomain.cloud",
  "username": "apikey-v2-1ktn8d6fuuo6kjoz145fris5ccx24fhmirsku7o3q7bh"
}
```

Step 5: Copy the apikey without the double quotes on either side.



Example : My expired api key is M5\_LAn8A0d13NK2Y7HcZ-X6flSfX2o-1ezsyUyP2XyQz

End of hint.

Step 2: Click on the **Replication** icon.

training > Cloudant Query

Query history

Cloudant Query ?

1 {

2 | "selector": {}

3 }

Run Query

Explain

Executed in 2 ms

manage indexes

Log Out

Table

{ } JSON

Create Document

Lesson

Topic

\_id

IBM Cloudant

NoSQL Databases

1

Showing 3 of 4 columns.

Show all columns.

Showing document 1 - 1.

Documents per page: 20

Step 3: You will land on the Replication dashboard. Click on **New Replication**.

Replication

Replicator DB Activity

\_replicate Activity

Replications must have a replication document to display in the following table.

Filter replications

Source

Target

Start Time

Type

State

Actions

There is no replicator-db activity or history to display.

Log Out

5 minutes

Refresh

New Replication

Step 4: On the Job Configuration page, select the following details.

Under Source

Select Type = Local database

Select Name = training

Select Authentication = "IAM Authentication"

Paste the api key you copied earlier in the IAM API Key textbox.

Under Target

Select Type = New local database

Select Name = training\_replica

Select Authentication = "IAM Authentication"

Paste the api key you copied earlier in the IAM API Key textbox.

Under Options:

Select Type = Continuous

Step 5: Click on **Start Replication**.

↔

Job Configuration

🔔

📊

🗄️

🔄

📋

👤

🌐

📖

☁️

Log Out

Source

Type: Local database

Name: training

Authentication: IAM Authentication

.....

Target

Type: New local database

New database: training\_replica

New database options: ☐ Partitioned

Authentication: IAM Authentication

.....

Options

Replication type: Continuous

Replication document: Custom ID (optional)

⚙️ Start Replication

Clear

Step 6: A replication status of **running** indicates that the replication is working.

https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DB0151EN-SkillsNetwork/labs/Cloudant/Lab - Dashboards in Cloudant/Lab - Dashboards in Cloudant.md.html?origin=www.coursera.org

10/16



Step 7: Click on the **Database** icon. You should see a new database named **training\_replica**.

Showing 1–3 of 3 databases. Databases per page 20 « 1 »

Step 8: Click on the **training\_replica** database. You should see the document you have inserted in the training database.

training\_replica

All Documents

Query

Permissions

Changes

Design Documents

Document ID

Options

JSON

Table

Metadata

JSON

Create Document

Lesson

Topic

\_id

IBM Cloudant

NoSQL Databases

1

Showing 3 of 4 columns. Show all columns.

Showing document 1 - 1. Documents per page: 20

You have successfully setup continuous replication between the training and training\_replica databases. Whatever changes you make on the training database will be replicated to the training\_replica database.

## Exercise 6 - Monitor active tasks

Step 1: Click on the **Active Tasks** icon.

Replication

Polling Interval

5 minutes

Refresh

Replicator DB Activity

\_replicate Activity

Replications must have a replication document to display in the following table.

Filter replications

New Replication

Source	Target	Start Time	Type	State	Actions
<div><div></div><div><a href="https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudant.com/training">https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudant.com/training</a></div></div>	<div><div></div><div><a href="https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudant.com/training_replica">https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudant.com/training_replica</a></div></div>	Apr 12th, 4:11 pm	Continuous	Running	<div><div></div><div></div><div></div></div>

The Active tasks page displays a list of all running tasks. You can use this to find out what is happening on your Cloudant instance. You can see a list of active tasks, which includes compaction, replication, and indexing.

Here is a sample Active Tasks view.

Active Tasks

Polling Interval15 seconds

{ } JSON

All TasksReplicationDatabase CompactionIndexerView Compaction

Search for databases...

Type	Database	Started on	Updated on	PID	Status
replication	From: https://d360fd11-57ef-46cd-af46-496f14ace2bb-bluemix.cloudant.com/orders/  To: https://d360fd11-57ef-46cd-af46-496f14ace2bb-bluemix.cloudant.com/orders-replica/	Jun 9th, 10:34:20 am a minute ago	Jun 9th, 10:35:40 am a few seconds ago	0.27010.5142	7341 docs written. 44301 pending changes.
indexer	shards/b0000000-bffffff/d360fd11-57ef-46cd-af46-496f14ace2bb-bluemix/orders.1549538088  (View: _design/app)	Jun 9th, 10:35:38 am a few seconds ago	Jun 9th, 10:35:41 am a few seconds ago	0.12427.5145	Progress: 96% Processed 2929 of 3029 changes. 2929 Changes done.
indexer	shards/e0000000-bffffff/d360fd11-57ef-46cd-af46-496f14ace2bb-bluemix/orders.1549538088  (View: _design/app)	Jun 9th, 10:35:38 am a few seconds ago	Jun 9th, 10:35:41 am a few seconds ago	0.19505.5145	Progress: 100% Processed 3074 of 3073 changes. 3074 Changes done.
indexer	shards/e0000000-bffffff/d360fd11-57ef-46cd-af46-496f14ace2bb-bluemix/orders.1549538088  (View: _design/app)	Jun 9th, 10:35:38 am a few seconds ago	Jun 9th, 10:35:41 am a few seconds ago	0.21199.5144	Progress: 93% Processed 2929 of 3123 changes. 2929 Changes done.
indexer	shards/a0000000-bffffff/d360fd11-57ef-46cd-af46-496f14ace2bb-bluemix/orders.1549538088  (View: _design/app)	Jun 9th, 10:35:38 am a few seconds ago	Jun 9th, 10:35:41 am a few seconds ago	0.21474.5145	Progress: 91% Processed 2929 of 3187 changes. 2929 Changes done.
indexer	shards/a0000000-bffffff/d360fd11-57ef-46cd-af46-496f14ace2bb-bluemix/orders.1549538088  (View: _design/app)	Jun 9th, 10:35:38 am a few seconds ago	Jun 9th, 10:35:41 am a few seconds ago	0.22837.5145	Progress: 94%

# Exercise 7 - Monitor your instance

Monitor your usage in realtime with a graph that shows your throughput by reads, writes, and global queries. You can see your current operations, denied requests, and storage usage.

Step 1: Click on the **Monitoring** icon.

↔

📈

🗄️

🔄

📊

👤

🌐

📖

🌐

Log Out

Active Tasks

Polling Interval15 seconds

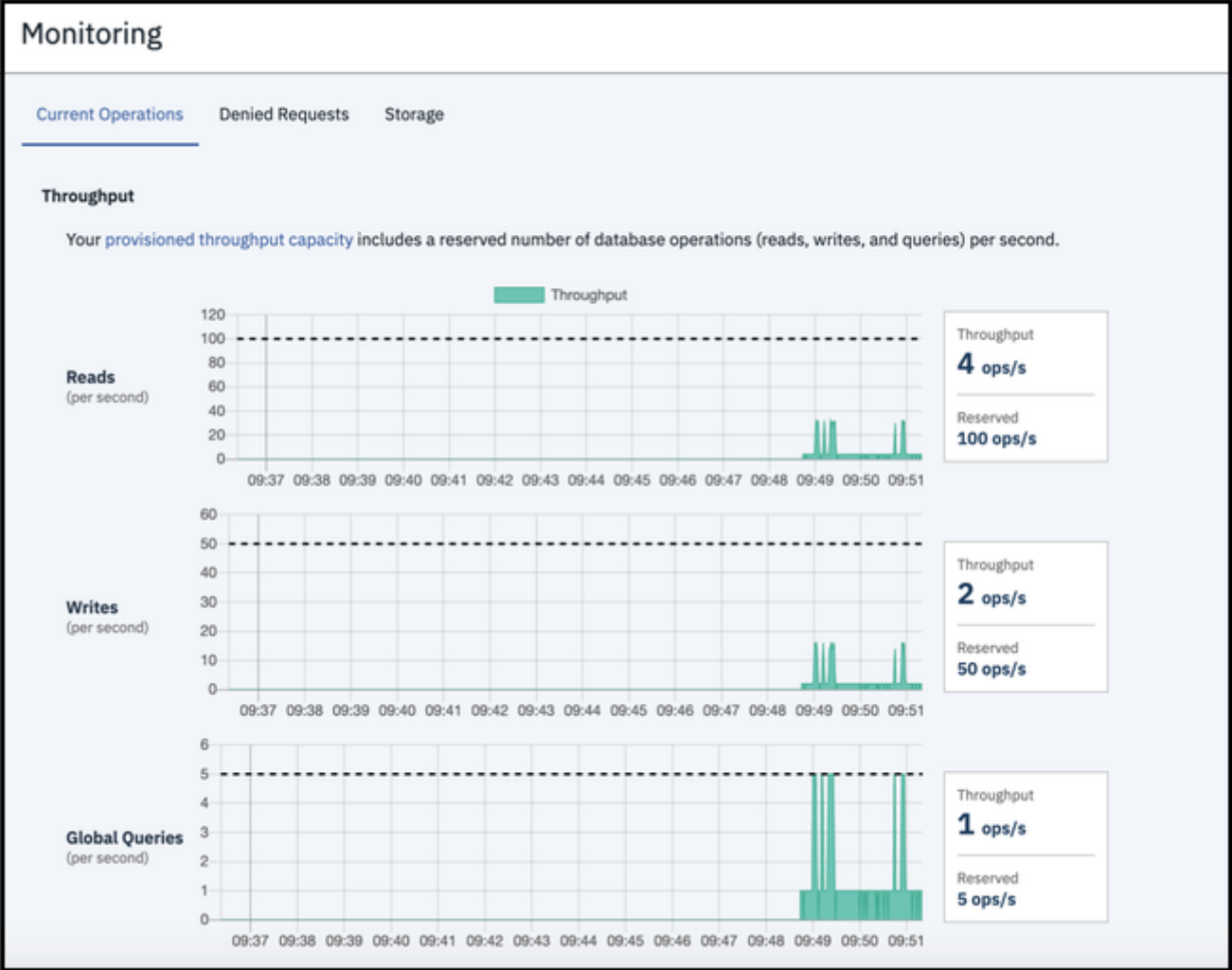
{ } JSON

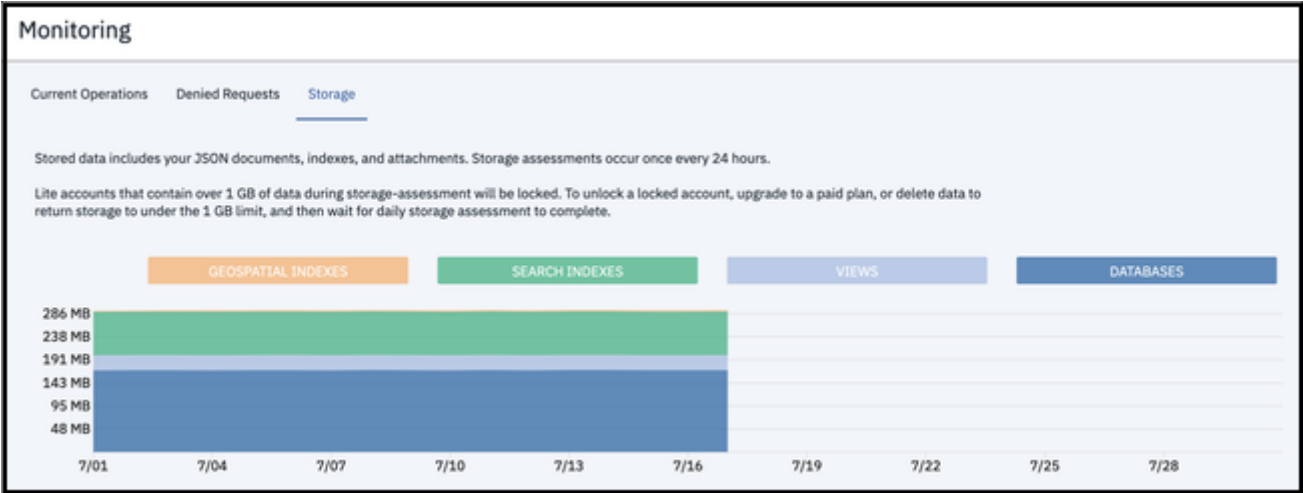
All TasksReplicationDatabase CompactionIndexerView Compaction

Search for databases...

Type	Database	Started on	Updated on	PID	Status
No active tasks					

Here is a sample monitoring view for Current Operations.





Note: Your monitoring output could be different from the screen shot above, depending upon your usage.

## Practice exercises

1. Problem:

Create a database named **test**.

▼ Click here for Hint

On the Cloudant dashboard, click on the Databases icon, click on Add Database.

2. Problem:

Insert a sample document.

▼ Click here for Hint

Remember the `_id` key is mandatory.

Click on **test** on the databases screen. Click on **Create Document**. Replace the default text with the following JSON and click **Create Document**.

```
{
  "_id": "1",
  "Topic" : "NoSQL Databases",
  "Lesson" : "MongoDB"
}
```

3. Problem:

Setup continuous replication between test and test\_replica databases.

▼ Click here for Hint

Keep you api key handy. Go to the replication page. Click on New Replication. Select these details.

Under Source

Select Type = Local Database

Select Name = test

Select Authentication = "IAM Authentication"

Paste the api key you copied earlier in the IAM API Key   textbox.

Under Target

Select Type = Local Database

Select Name = test\_replica

Select Authentication = "IAM Authentication"

Paste the api key you copied earlier in the IAM API Key   textbox.

Under Options:

Select Type = Continuous

4. Problem:

*Find out if any denied requests were denied.*

▼ Click here for Hint

Go to the monitoring page. Click on denied requests.

Authors

Ramesh Sannareddy

Other Contributors

Rav Ahuja

Change Log

Date (YYYY-MM-DD)	Version	Changed By	Change Description
2021-10-25	0.4	Kathy An	Updated lab instructions
2021-04-28	0.3	Steve Ryan	Changed IBM cloud links to markdown format
2021-04-13	0.2	Steve Ryan	Review pass
2021-04-11	0.1	Ramesh Sannareddy	Created initial version of the lab

Copyright (c) 2021 IBM Corporation. All rights reserved.