

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.

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 screenshot shows the IBM Cloud dashboard for a Cloudant instance named 'mycloudant'. The instance is in an 'Active' state. The left sidebar contains a 'Manage' section with links to 'Service credentials', 'Plan', and 'Connections'. The main content area has tabs for 'Overview', 'Dashboard', 'Capacity', and 'Docs'. The 'Overview' tab is selected, showing 'Deployment details'. A blue arrow points to the 'Launch Dashboard' button in the top right corner of the 'Deployment details' section. Below this, the 'CRN' is displayed as 'crn:v1:bluemix:public:cloudantnosqldb:eu-gb:a/9ff7e8c5d25d4ac7aa5dcdf286:db5a8db9::'. The 'Location' is 'London'. The 'External Endpoint' is 'https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudant.com'. The 'External Endpoint (preferred)' is 'https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudantnosqldb.a'. The 'Authentication methods' are 'IBM Cloud IAM' and 'Cloudant credentials'. The 'Activity Tracker event types' are set to 'Management'. The 'Disk encryption' is 'Yes. Automatically generated disk encryption key.' The 'Capacity details' section is partially visible at the bottom.

Deployment details	
CRN	crn:v1:bluemix:public:cloudantnosqldb:eu-gb:a/9ff7e8c5d25d4ac7aa5dcdf286:db5a8db9::
Location	London
External Endpoint	https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudant.com
External Endpoint (preferred)	https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudantnosqldb.a
Authentication methods	IBM Cloud IAM and Cloudant credentials
Activity Tracker event types ⓘ	Management ▼ Save
Disk encryption	Yes. Automatically generated disk encryption key.
Capacity details	

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Databases

Database name ▼

Your Databases

Name	Size	# of Docs	Partitioned
Showing 1–0 of 0 data			

Step 1: Click on Create Database.

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Databases

Database name ▼

Your Databases

Name	Size	# of Docs	Partitioned
Showing 1–0 of 0 data			

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

Step 3: Select 'Non-partitioned'.

Step 4: Click on Create.

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Log Out

Databases

Database name ▾

Your Databases

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

Showing 1–0 of 0 data

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

A screenshot of the Databricks workspace interface. The left sidebar contains navigation icons for home, recent, workspace, clusters, jobs, and a user profile. The main area shows a breadcrumb path: < training. Below this is a list of items: All Documents (highlighted with a blue bar and a plus icon), Query, Permissions, Changes, and Design Documents (with a plus icon). A blue arrow points from the 'All Documents' item to the main content area. The main content area displays a large cloud icon and the text 'No Documents Found'. At the bottom right, it says 'Showing 0 documents'.

Exercise 3 - Perform a simple insert

Step 1: Click on Create Document.

<

training

:

No partition selected

Document ID

All Documents +

Query

Permissions

Changes

Design Documents +

No Documents Found

Showing 0 documents

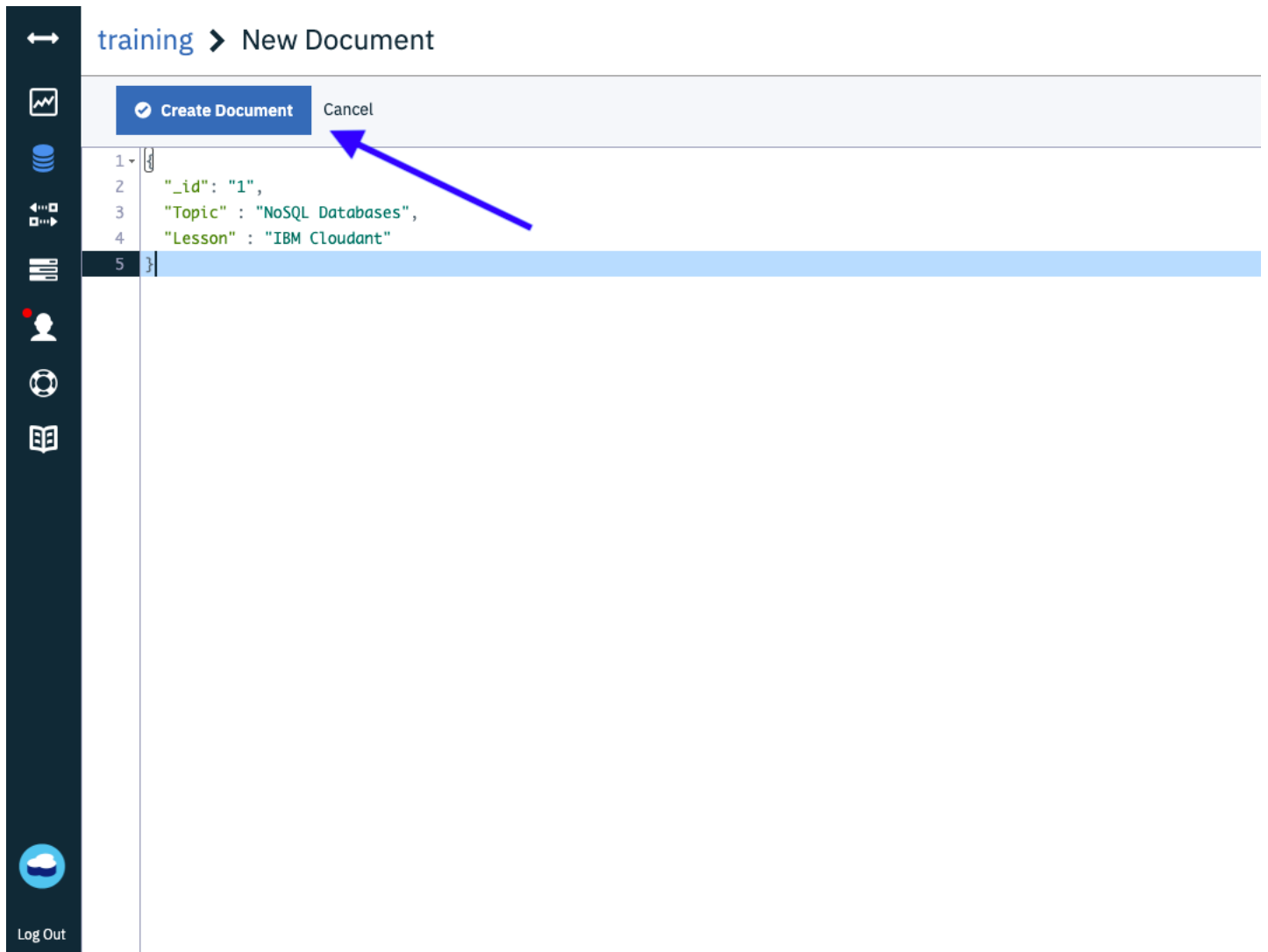
Step 2: Copy the below given JSON document and replace the default sample document given on the page.

1. 1
2. 2
3. 3
4. 4
5. 5

```
1. {
2.   "_id": "1",
3.   "Topic": "NoSQL Databases",
4.   "Lesson": "IBM Cloudant"
5. }
```

Copied!

Step 3: Click on Create Document



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

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training

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Document ID

All Documents

+

Query

Permissions

Changes

Design Documents

+

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Table

Metadata

{ } JSON

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id

key

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1

1

Showing documents

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

You should now see documents like this.

<
training
Document ID

- All Documents**
- Query
- Permissions
- Changes
- Design Documents

☐

Table

Metadata

JSON

Lesson	Topic
<input type="checkbox"/> IBM Cloudant	NoSQL Databases

Showing 3 of 4 columns. ☐ Show all columns.
Showing documents

Exercise 4 - Perform a simple query

Step 1: Click on query.

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← training

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Log Out

All Documents +

Query

Permissions

Changes

Design Documents +

Document ID

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Table

Metadata

{ } JSON

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Lesson ▾

Topic ▾

☐

📄 IBM Cloudant

NoSQL Databases

Showing 3 of 4 columns. ☐ Show all columns.

Showing documents

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

- 1.
 - 2.
 - 3.
 - 4.
- ```
1. 1
2. 2
3. 3
4. 4

1.
2. {
3. "selector": {}
4. }
```

Copied!

Step 3: Click on Run Query

You will see the query results.

training > Cloudant Query

Query history

Cloudant Query ?

1

2

3

1

2

3

1

2

3

Run Query

Explain

manage indexes

Executed in 2 ms

Table

{ } JSON

Lesson

Topic

IBM Cloudant

NoSQL Databases

Showing 3 of 4 columns. ☐ Show all columns.

Showing documents

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 Cloudbant Service Credentials.

► [Click here for Hint](#)

Step 2: Click on the Replication icon.

[illegible]

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

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

Log Out

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

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.

- 1.
2. Under Source
3. Select Type = Local database
4. Select Name = training
5. Select Authentication = "IAM Authentication"
6. Paste the api key you copied earlier in the IAM API Key textbox.
- 7.
8. Under Target
9. Select Type = New local database
10. Select Name = training\_replica
11. Select Authentication = "IAM Authentication"
12. Paste the api key you copied earlier in the IAM API Key textbox.
- 13.
14. Under Options:
15. Select Type = Continuous
- 16.

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Step 5: Click on Start Replication.

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Log Out

Job Configuration

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 ReplicationClear

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

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Log Out

Replication

Replicator DB Activity

\_replicate Activity

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

⌵ Filter replications

| <input type="checkbox"/> | Source ▾                                                                                                                                                            | Target ▾                                                                                                                                                                            | Start Time ▲      | Type  |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------|
| <input type="checkbox"/> | <a href="https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudant.com/training">https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudant.com/training</a> | <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> | Apr 12th, 4:11 pm | Conti |

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



## Database name

| Your Databases                   |        |           |             |
|----------------------------------|--------|-----------|-------------|
| Name                             | Size   | # of Docs | Partitioned |
| <a href="#">_replicator</a>      | 4.7 KB | 2         | No          |
| <a href="#">training</a>         | 1.1 KB | 1         | No          |
| <a href="#">training_replica</a> | 1.2 KB | 1         | No          |

Log Out

Showin

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

<
training\_replica
⋮

Table
Metadata
{ } JSON

|                          | Lesson       | Topic           | _id |
|--------------------------|--------------|-----------------|-----|
| <input type="checkbox"/> | IBM Cloudant | NoSQL Databases | 1   |

Showing 3 of 4 columns.
☐ Show all columns.

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.

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Replication

Replicator DB Activity

\_replicate Activity

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

Filter replications

| Source ▼                                                                                                                                                                                     | Target ▼                                                                                                                                                                            | Start Time ▲      | Type |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------|
| <input type="checkbox"/> <a href="https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudant.com/training">https://4646e655-6aee-42d8-8b93-d2bde6e9a6ca-bluemix.cloudant.com/training</a> | <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> | Apr 12th, 4:11 pm | Con  |

Log Out

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.

| Type        | Database                                                                                                                                                                                                                                                                                                                                                         | Started on                                | Updated on                                | PID          | Status                                                                  |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|--------------|-------------------------------------------------------------------------|
| replication | From: <a href="https://d360fd11-57ef-46cd-af46-496f14ace2bb-bluemix.cloudant.com/orders/">https://d360fd11-57ef-46cd-af46-496f14ace2bb-bluemix.cloudant.com/orders/</a><br>To: <a href="https://d360fd11-57ef-46cd-af46-496f14ace2bb-bluemix.cloudant.com/orders-replica/">https://d360fd11-57ef-46cd-af46-496f14ace2bb-bluemix.cloudant.com/orders-replica/</a> | Jun 9th, 10:34:20 am<br>a minute ago      | Jun 9th, 10:35:40 am<br>a few seconds ago | 0.27010.5142 | 7341 docs written.<br>44301 pending changes.                            |
| indexer     | shards/60000000-6fffffffd360fd11-57ef-46cd-af46-496f14ace2bb-bluemix/orders.1549538088<br>(View: _design/app)                                                                                                                                                                                                                                                    | Jun 9th, 10:35:38 am<br>a few seconds ago | Jun 9th, 10:35:41 am<br>a few seconds ago | 0.12427.5145 | Progress: 96%<br>Processed 2929 of 3029 changes.<br>2929 Changes done.  |
| indexer     | shards/60000000-6fffffffd360fd11-57ef-46cd-af46-496f14ace2bb-bluemix/orders.1549538088<br>(View: _design/app)                                                                                                                                                                                                                                                    | Jun 9th, 10:35:38 am<br>a few seconds ago | Jun 9th, 10:35:41 am<br>a few seconds ago | 0.19505.5145 | Progress: 100%<br>Processed 3074 of 3073 changes.<br>3074 Changes done. |
| indexer     | shards/60000000-6fffffffd360fd11-57ef-46cd-af46-496f14ace2bb-bluemix/orders.1549538088<br>(View: _design/app)                                                                                                                                                                                                                                                    | Jun 9th, 10:35:38 am<br>a few seconds ago | Jun 9th, 10:35:41 am<br>a few seconds ago | 0.21199.5144 | Progress: 93%<br>Processed 2929 of 3123 changes.<br>2929 Changes done.  |
| indexer     | shards/60000000-6fffffffd360fd11-57ef-46cd-af46-496f14ace2bb-bluemix/orders.1549538088<br>(View: _design/app)                                                                                                                                                                                                                                                    | Jun 9th, 10:35:38 am<br>a few seconds ago | Jun 9th, 10:35:41 am<br>a few seconds ago | 0.23474.5145 | Progress: 91%<br>Processed 2929 of 3187 changes.<br>2929 Changes done.  |
| indexer     | shards/60000000-6fffffffd360fd11-57ef-46cd-af46-496f14ace2bb-bluemix/orders.1549538088<br>(View: _design/app)                                                                                                                                                                                                                                                    | Jun 9th, 10:35:38 am<br>a few seconds ago | Jun 9th, 10:35:41 am<br>a few seconds ago | 0.23837.5146 | 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.

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Log Out

Active Tasks

Polling 1

All Tasks

Replication

Database Compaction

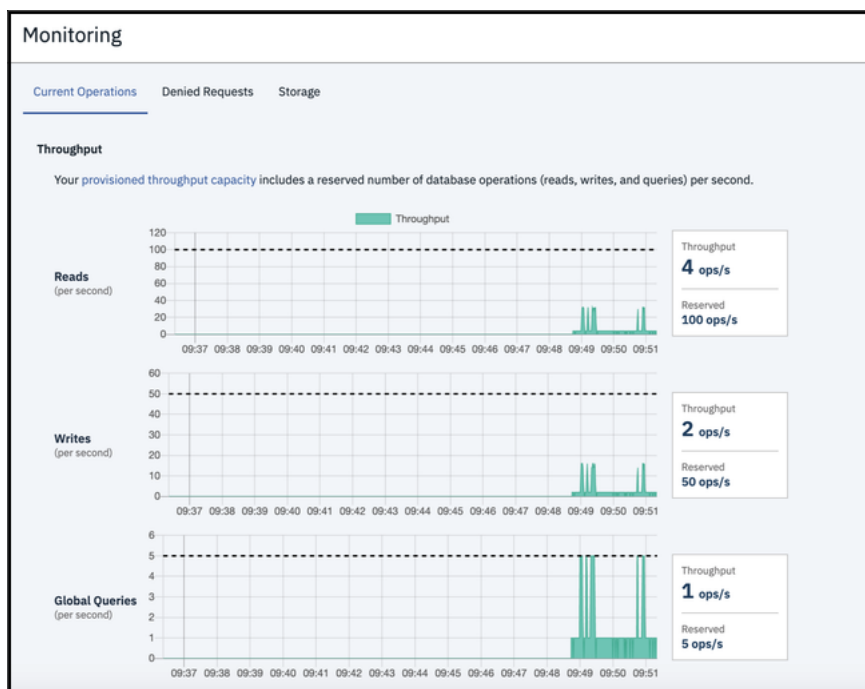
Indexer

View Compaction

Search for databases...

| Type            | Database | Started on ▲ | Updated on | PID |
|-----------------|----------|--------------|------------|-----|
| No active tasks |          |              |            |     |

Here is a sample monitoring view for Current Operations.



Note: Your monitoring output could be different from the screen shot above, mostly 0 ops/s as there may not be any load on your instance.

Step 2: Click on the Denied Requests tab.

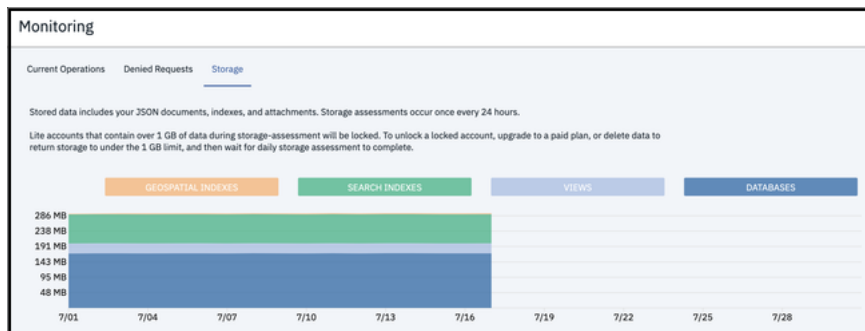
Here is a sample monitoring view for Denied Requests. Whenever we perform more reads or writes than our plan allows, those requests will be denied and shown here.



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

Step 3: Click on the **Storage** tab.

Here is a sample Storage view. It shows how much storage is used for data, indexes and views.



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`.

1. 1
  2. 2
  3. 3
  4. 4
  5. 5
- ```

1. {
2.   "_id": "1",
3.   "Topic": "NoSQL Databases",
4.   "Lesson": "MongoDB"
5. }
```

Copied!

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.

1. 1
 2. 2
 3. 3
 4. 4
 5. 5
 6. 6
 7. 7
 8. 8
 9. 9
 10. 10
 11. 11
 12. 12
 13. 13
 14. 14
 15. 15
 16. 16
- 1.
 2. Under Source
 3. Select Type = Local Database
 4. Select Name = test
 5. Select Authentication = "IAM Authentication"
 6. Paste the api key you copied earlier in the IAM API Key textbox.
 - 7.
 8. Under Target
 9. Select Type = Local Database
 10. Select Name = test_replica
 11. Select Authentication = "IAM Authentication"
 12. Paste the api key you copied earlier in the IAM API Key textbox.
 - 13.
 14. Under Options:
 15. Select Type = Continuous
 - 16.

Copied!

4. Problem:

Find out if any denied requests were denied.

▼ Click here for Hint

Go to the monitoring page.
Click on denied requests.

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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

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