



## Cloud Developer Certification Preparation

### **Exercise 6.3:** **Managing instances of the IBM Bluemix data services**



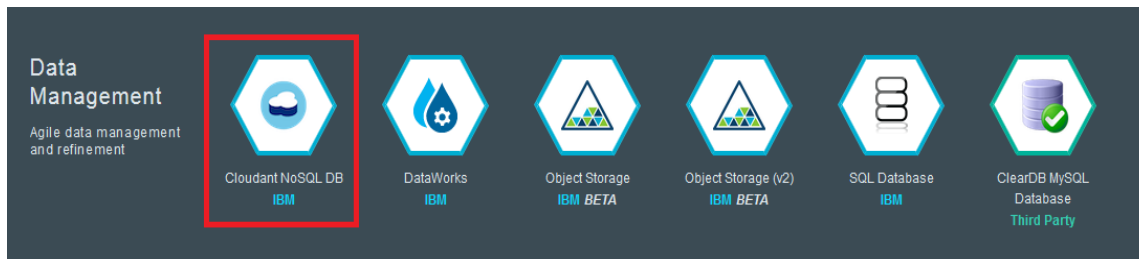
## Exercise 6.3: Managing instances of the IBM Bluemix data services

In this exercise, you'll learn the basics of managing the following data services in IBM Bluemix.

- Cloudant NoSQL Database
- dashDB
- SQL Database

### Start the Cloudant database

1. From a browser, log in to Bluemix: <http://bluemix.net>.
2. Make sure you're in the Dashboard tab. If you're not, click **Dashboard** at the top of the page.
3. Click **USE SERVICES OR APIS**.
4. Scroll down to the **Data Management** section and click **Cloudant NoSQL DB**.



5. Under **App**, select **Leave unbound**.
6. Click **CREATE** to create a new instance of Cloudant NoSQL DB.
7. Click **Launch when the service** landing page appears to launch the dashboard.

### Create a database

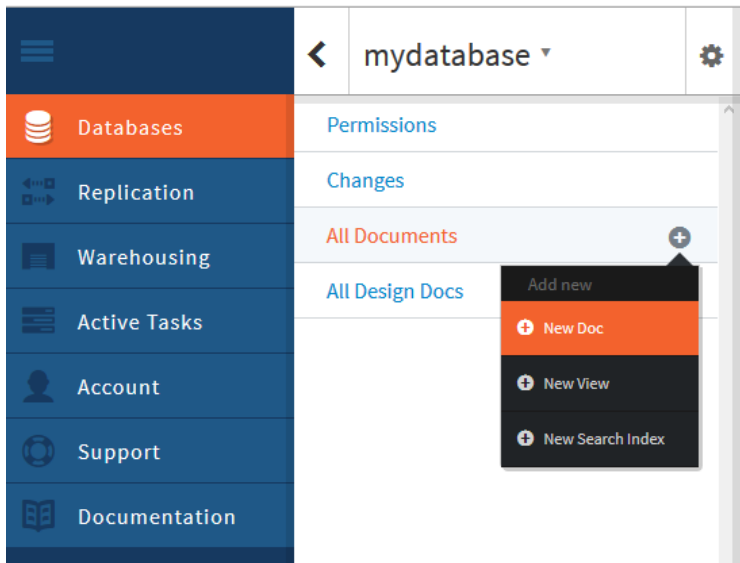
1. From the dashboard, click **Add New Database**, enter `mydatabase` as the name, and click **Create**.



You'll see the administration window for the new database.

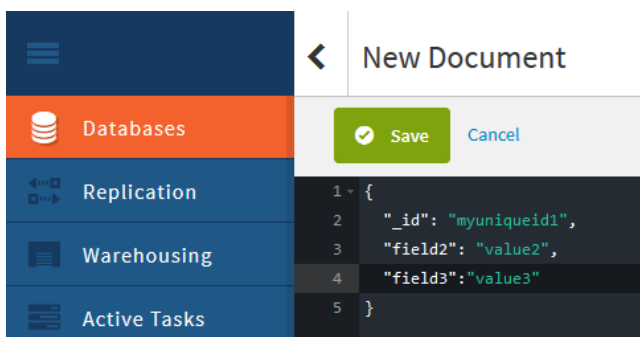
## Add data to an existing database

1. Click the **+** icon next to **All Documents** and select **New Doc** from the context menu.



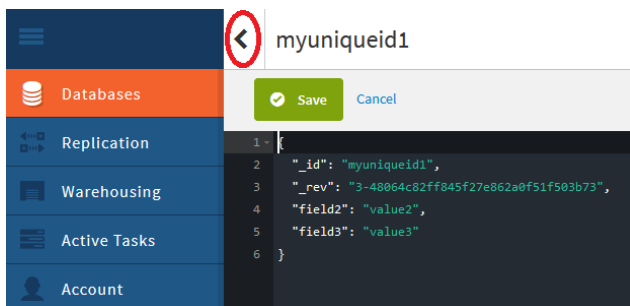
A new JSON document appears with a single attribute named `_id`. This is the unique identifier of your new document.

2. Modify the `_id` value and add the fields **field2** and **field3** as shown:



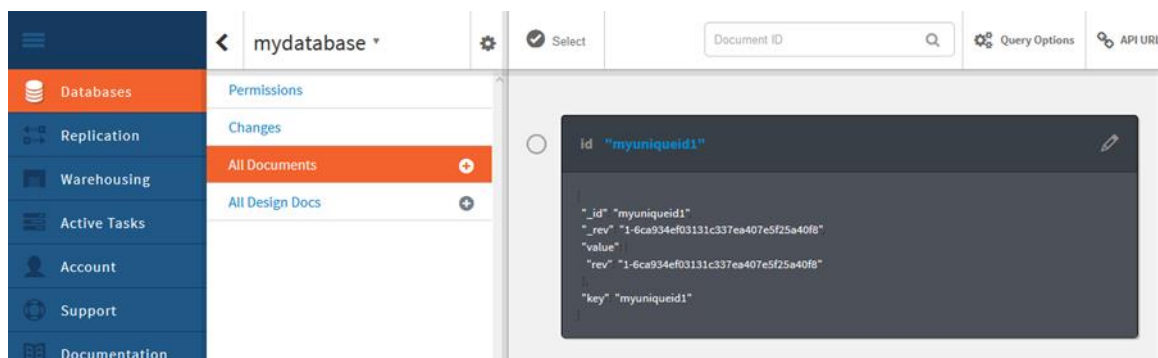
3. Click **Save** to save your changes.
4. Click the **Arrow** icon to go back to the database view.

### Exercise 6.3: Using IBM Bluemix data services

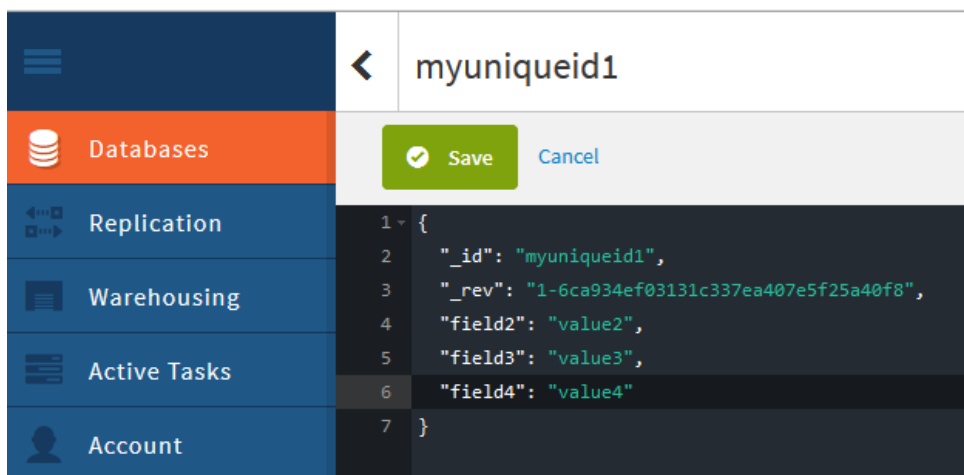


### Edit documents in a database

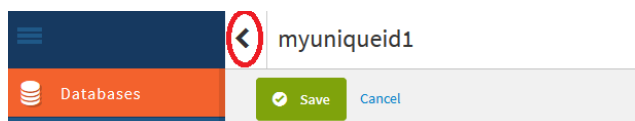
1. From the database view in the dashboard, click **All Documents**. A summary of the documents in the database appears on the right.



2. Click the **Pencil** icon of your only document to edit it. Add the field **field4** as shown:



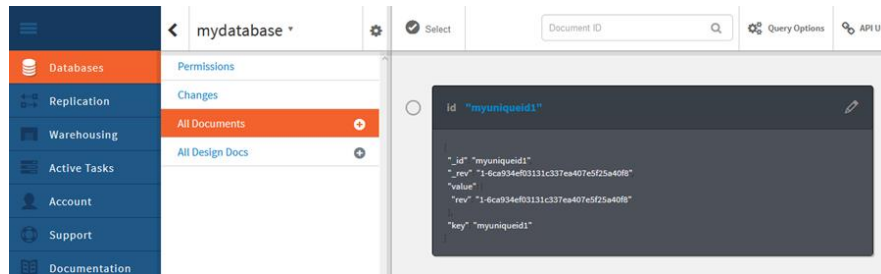
3. Click **Save** to save your changes.
4. Click the **Arrow** icon to go back to the database view.



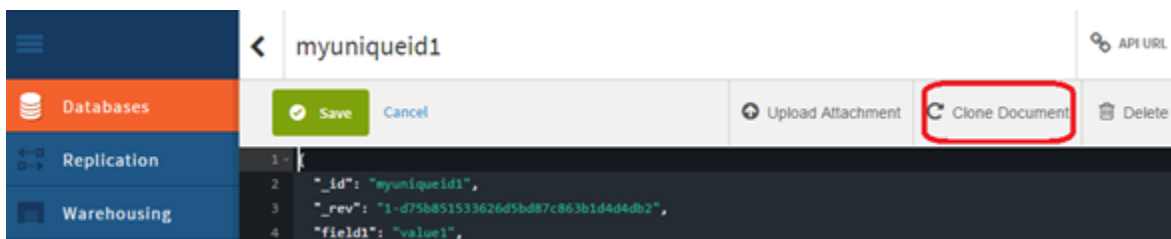
## Exercise 6.3: Using IBM Bluemix data services

### Clone documents in a database

1. From the database view in the dashboard, click **All Documents**. A summary of the documents in the database appears on the right.

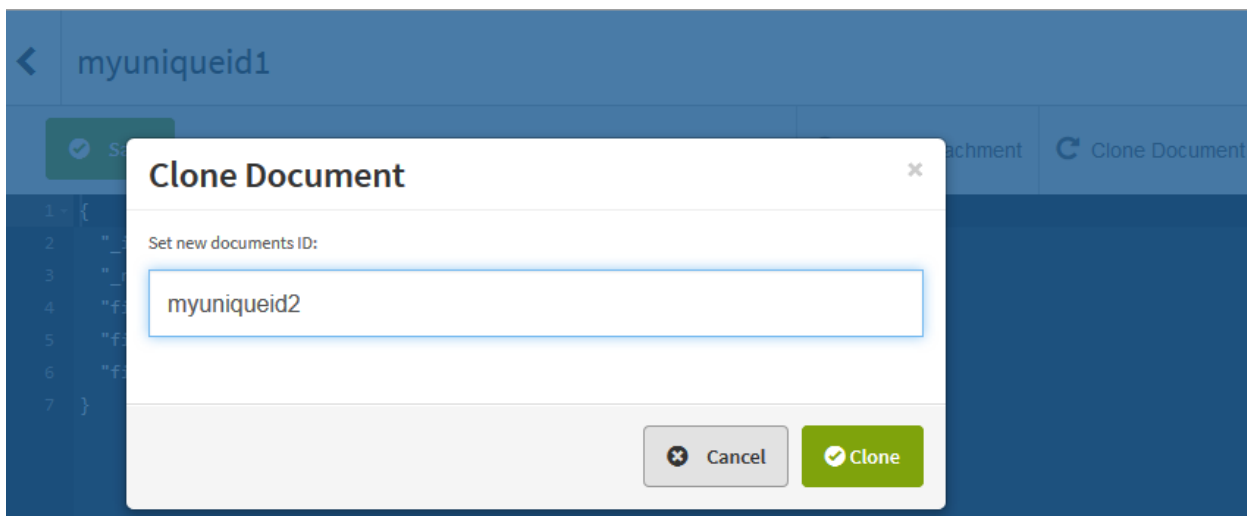


2. Click the **Pencil** icon of your only document to edit it.
3. Click **Clone Document** in the document editor.



You'll be prompted to accept a system generated unique id for the new clone or to provide your own value.

4. Change the id to myuniqueid2.

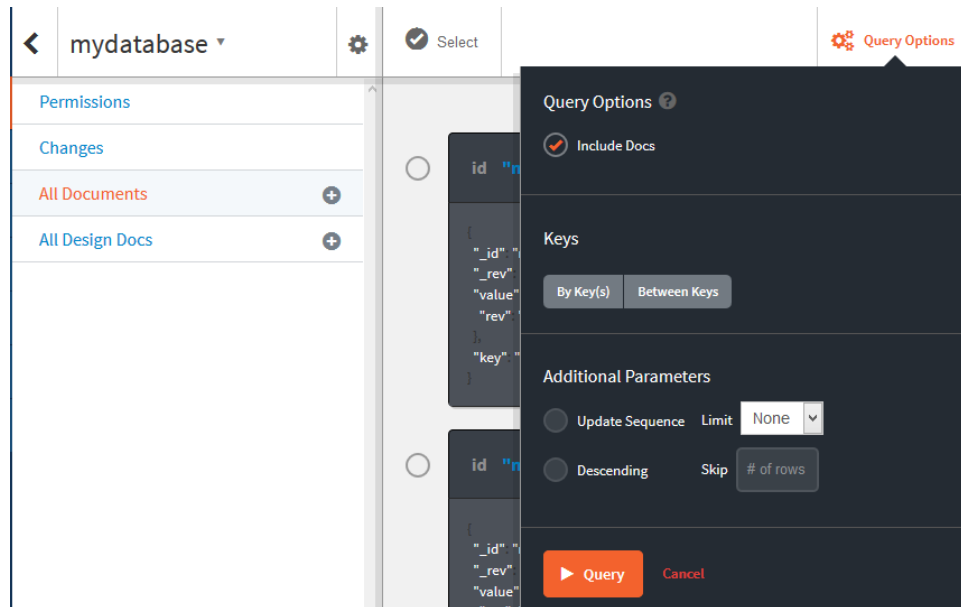


5. Click **Clone**. Your clone is added to the database.
6. Click the **Arrow** icon to go back to the database view.

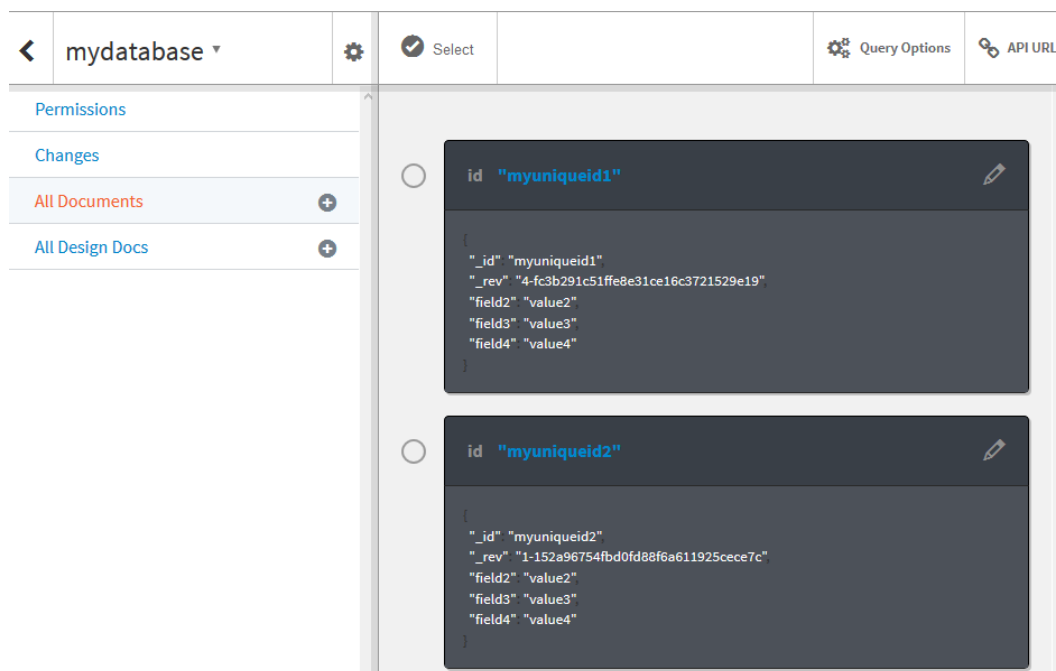


## Create a simple query of all documents in a database

1. From the database view in the dashboard, click **All Documents**. A summary of the documents in the database appears on the right.
2. Click **Query Options**, select **Include Docs**, and click **Query**.



3. Verify that all the fields in your two documents are present.

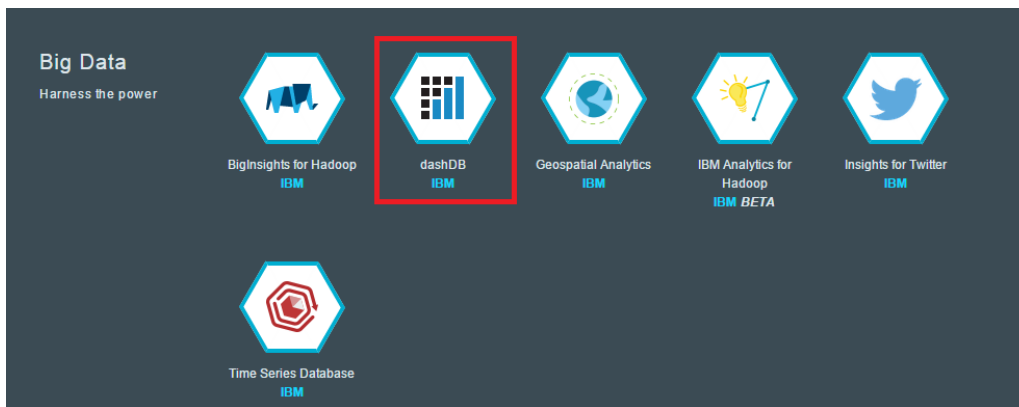


## Exercise 6.3.1: Managing instances of dashDB

In this section, you'll learn the basics of managing the dashDB service in IBM Bluemix.

### Launch the dashDB Dashboard

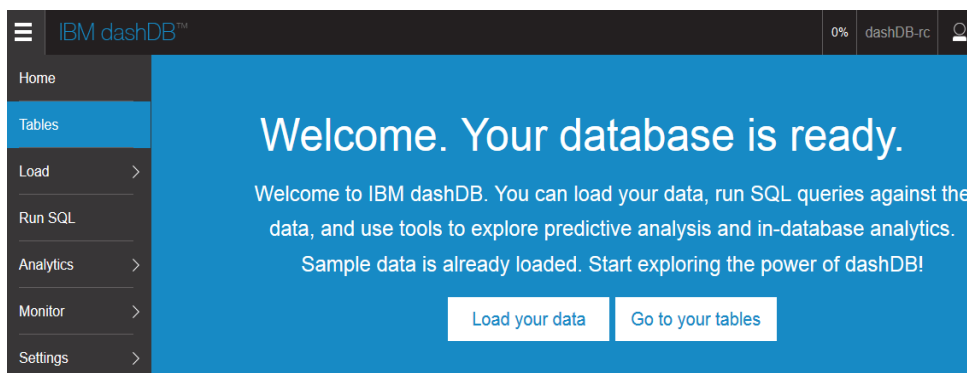
1. From a browser, log in to Bluemix: <http://bluemix.net>.
2. Make sure you're in the Dashboard tab. If you're not, click **Dashboard** at the top of the page.
3. Click **USE SERVICES OR APIS**.
4. Scroll down to the **Big Data** section and click **dashDB**.



5. Under **App**, select **Leave unbound**.
6. Click **CREATE** to create a new instance of dashDB.
7. Click **Launch** when the service's landing page shows the dashDB console.

### Create a new table

1. From the dashDB console, click **Tables**.



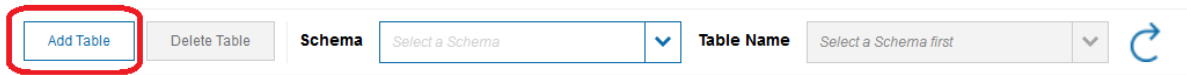


## Exercise 6.3: Using IBM Bluemix data services

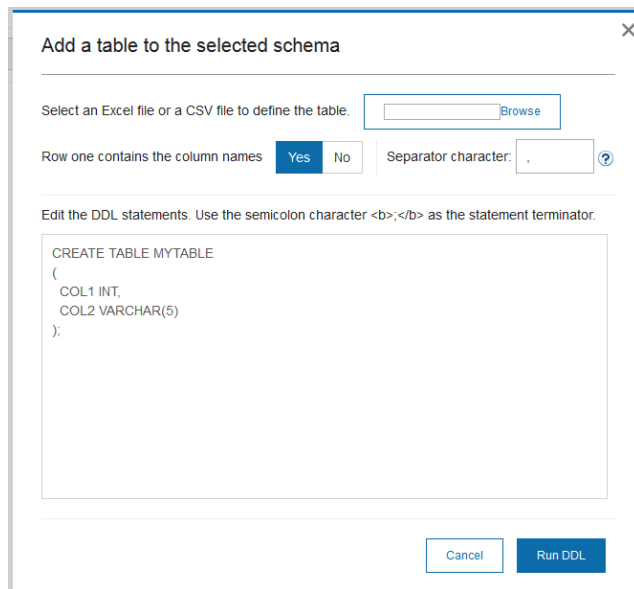
### 2. Click **Add Table**.

#### Create, drop, and work with tables

For existing tables, you can view details, browse data, and export data. [Learn more](#)



Some sample DDL to create a table is generated for you.



### 3. Use the sample DDL for this exercise. Click **Run DDL**.

### 4. Click **OK** in the dialog that indicates the DDL ran successfully and then click **Cancel** to exit the dialog with the sample DDL.

## Browse an existing table

### 1. In the dashDB console, select **GOSALES** as the **Schema** and **BRANCH** as the **Table Name** and then click **Browse Data**.

#### Create, drop, and work with tables

For existing tables, you can view details, browse data, and export data. [Learn more](#)







### 2. Verify that the data in the **BRANCH** table is displayed.

### Exercise 6.3: Using IBM Bluemix data services

[Table Definition](#) **Browse Data**

Click a row to see its details.

Maximum number of rows to retrieve: <input type="text" value="1000"/> <input type="button" value="Apply"/>    										
BRANCH_CODE	ADDRESS1	ADDRESS1_MB	ADDRESS2	ADDRESS2_MB	CITY	CITY_MB	PROV_STATE	PROV_STATE_MB	POSTAL_ZONE	
6	75, rue du Faubourg St-Honoré	75, rue du Faubourg St-Honoré			Paris	Paris			F-75008	

3. Verify that you can click a row to see all the data for the row.

[Table Definition](#) **Browse Data**

Click a row to see its details.

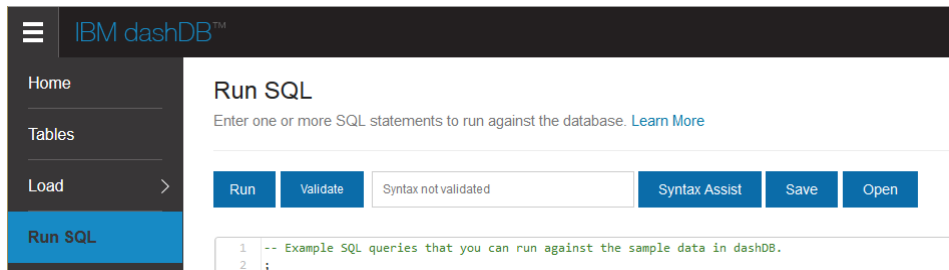
[Results](#) > **Record Details**

BRANCH_CODE:	6
ADDRESS1:	75, rue du Faubourg St-Honoré
ADDRESS1_MB:	75, rue du Faubourg St-Honoré
ADDRESS2:	--
ADDRESS2_MB:	--
CITY:	Paris
CITY_MB:	Paris

## Exercise 6.3: Using IBM Bluemix data services



### Run SQL Scripts

1. In the dashDB console, click **Run SQL** in the left navigation.






A sample script is preloaded that runs against the sample data in dashDB.

2. Click **Run** to run the sample script.
3. Navigate through the results to see the data that is returned.

Status	Run time (seconds)	Statement	Date
▼  Succeeded - BLUDB	0.23		6/24/2015, 12:39:24 PM
▼  Succeeded	0.064	SELECT * FROM GOSALESDW.EMP_EXPENSE_F...	6/24/2015, 12:39:25 PM

Run Query in Excel via ODC file

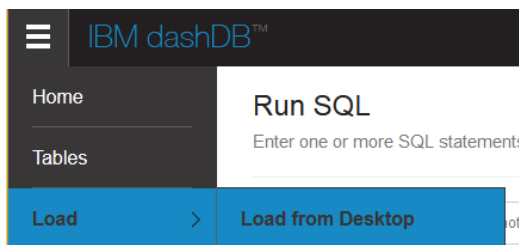
Log



DAY_KEY	ORGANIZATION_KEY	POSITION_KEY	EMPLOYEE_KEY	EXPENSE_TYPE_KEY	ACCOI
20100131	11101	43639	4001	2120	8052
20100131	11101	43639	4001	2122	8054

### Import CSV data

1. Download the file IDS\_CSV.zip file to your local machine from [http://databank.worldbank.org/data/download/IDS\\_CSV.zip](http://databank.worldbank.org/data/download/IDS_CSV.zip). This file contains data that is maintained by the World Bank and has data about each country's external debt.
2. Extract the contents of the file into a folder of your choice.



3. In the dashDB console, click **Load > Load from Desktop**.

### Exercise 6.3: Using IBM Bluemix data services

- Click **Browse files**, select **IDS\_Series.csv**, which is one of the files in the ZIP file that you just downloaded, and click **Load File**.

Do a one-time load from an Excel file or from a delimited text file such as a comma-separated value (CSV) file. [Learn more](#)

1. Upload a file

2. Choose the target

3. Select a table

4. Load complete

---

Supported filetypes: XLS, XLSX, CSV

File name:

---

Specify the codepage, separator, and date or time formats of the source file.

Row one contains the column names ☒ Yes ☐ No

Code page:

Separator character:

☒ comma  
☐ tab  
☐ colon  
☐ other:

Does the file have columns that contain dates or times? ☐ Yes ☒ No

- Click **Next**.
- Select **Create a new table and load**.

1. Upload a file

2. Choose the target

3. Select a table

4. Load complete

---

☐ Load into an existing table  
☒ Create a new table and load

---

- Click **Next**.
- Accept the defaults for the new table definition and click **Finish**. You'll see a preview of the data in the new table and the number of rows that were imported.

Exercise 6.3: Using IBM Bluemix data services

1. Upload a file

2. Choose the target

3. Define new table

4. Load complete

Load from desktop succeeded for table **IDS\_SERIES** in schema **DASH103566**

Load more data

Quick Stats:

Number of rows committed = 215

Number of rows loaded = 215

Number of rows rejected = 0

Number of rows deleted = 0

Number of rows skipped = 0

Number of rows read = 215

View the log for this load

View full table structure and details

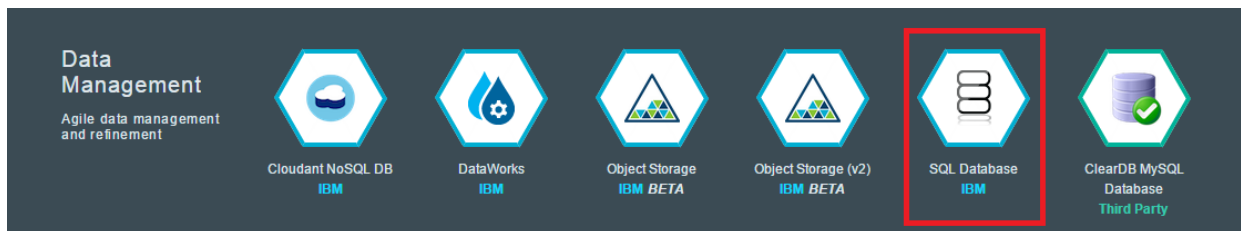
SERIES_CODE	TOPIC	DATASET	INDICATOR_NAME	SHORT_DEFINITION	LONG_DEFINITION	PERIODICITY	BASE_PERIOD	AGGREGATION_METHOD	GENERAL_COMMENTS
DT.INR.OFFT	Economic Policy & Debt: External Terms	International Debt Statistics	Average interest on new external debt commitments, official	Interest represents the average interest rate on all new public	Interest represents the average interest rate on all new public	Annual		Weighted average	

## Exercise 6.3.2: Managing instances of an SQL database

In this section you'll go through the basics of managing the SQL Database service in IBM Bluemix.

### Launch the SQL Database console

1. From a browser, log in to Bluemix: <http://bluemix.net>.
2. Make sure you're in the Dashboard tab. If you're not, click **Dashboard** at the top of the page.
3. Click **USE SERVICES OR APIS**.
4. Scroll down to the **Data Management** section and click **SQL Database**.



5. Under **App**, select **Leave unbound**.
6. Click **CREATE** to create a new instance of SQL Database.
7. Click **Launch** when the service landing page appears to launch the dashboard.

### Create a new table

1. From the SQL Database console, click **Work with Tables**.
2. Click the **+** icon to enter the SQL DDL to create a new table. Some example DDL is created. Use that DDL and add a line to insert some data. Add the following line:

```
INSERT INTO MYTABLE VALUES(1, 'Hello');
```

## Exercise 6.3: Using IBM Bluemix data services

### Create, drop, and work with tables

For existing tables, you can view details, browse data, and export data.

Select an Excel file or a CSV file to define the table.

Edit the DDL statements. Use the semicolon character ; as the statement terminator.

```
CREATE TABLE MYTABLE
(
  COL1 INT,
  COL2 VARCHAR(5)
);
INSERT INTO MYTABLE VALUES(1,'Hello');
```

Cancel Run DDL

3. Click **Run DDL** to create the table.

## Browse an existing table

1. In the SQL Database console, select your schema and **MYTABLE** as the **Table Name**.
2. Click **Browse Data**.

### Create, drop, and work with tables

For existing tables, you can view details, browse data, and export data.

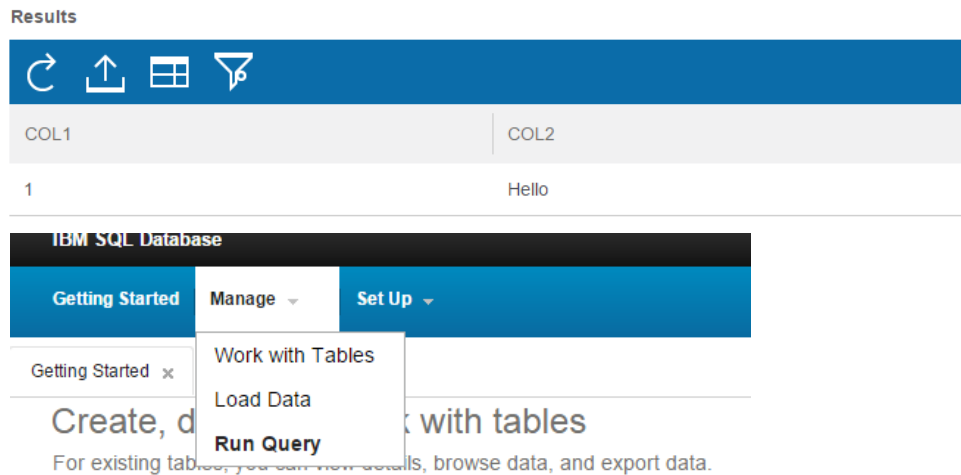
Table Definition Browse Data

Column Name	Data Type	Length	Scale	Allow Nulls
COL1	INTEGER	4	0	YES_TEXT
COL2	VARCHAR	5	0	YES_TEXT

Range: 1-2 Total: 2 Selected: 0 10 | 25 | 50 +

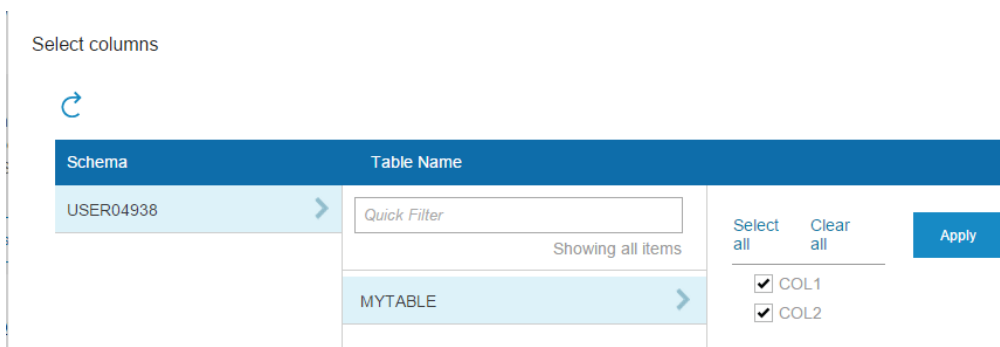
3. Verify that your single row of data is displayed.

### Exercise 6.3: Using IBM Bluemix data services



## Run SQL Scripts

1. From the SQL Database console navigation menu, click **Manage > Run Query**.
2. Click **Select Tables and Columns**.
3. Select your schema and your table and verify that all columns are selected. Click **Apply**.
4. Click **Run Query**.
5. Verify that the query results are returned.



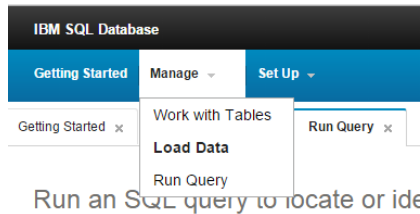


## Exercise 6.3: Using IBM Bluemix data services

### Import CSV data

If you've already downloaded the IDS\_CSV.zip file, skip to Step 3.

1. Download the file **IDS\_CSV.zip** to your local machine from [http://databank.worldbank.org/data/download/IDS\\_CSV.zip](http://databank.worldbank.org/data/download/IDS_CSV.zip). This file contains data that is maintained by the World Bank and has data about each country's external debt.
2. Extract the contents of the file into a folder of your choice.
3. In the SQL Database console select **Manage > Load Data**.



4. Click **Browse files**, select **IDS\_Series.csv**, and click **Load File**.

Do a one-time load from an Excel file or from a delimited text file such as a comma-separated value (CSV) file

1. Upload a file 2. Choose the target 3. Select a table 4. Load complete

Supported filetypes: Excel files, CSV

File Name:    
Maximum file size 20 MB

Specify the codepage, separator, and date or time formats of the source file.

Row one contains the column names ☒ Yes ☐ No

Code page  Default for ASCII systems is 1208.

Separator character:

☒ comma  
☐ tab  
☐ colon  
☐ other

Does the file have columns that contain dates or times? Yes ☐ No ☒

5. Click **Next**.
6. Select **Create a new table and load**.

1. Upload a file 2. Choose the target 3. Select a table 4. Load complete

☐ Load into an existing table  
☒ Create a new table and load

7. Click **Next**.

### Exercise 6.3: Using IBM Bluemix data services

- Accept the defaults for the new table definition and click **Finish**. You'll see a preview of the data in the new table and the number of rows that were imported.

Quick load succeeded for table **IDS\_Series** in schema **USER04938**

[Load more data](#)

#### Quick Stats:

Number of rows committed = 215  
Number of rows loaded = 215  
Number of rows rejected = 0  
Number of rows deleted = 0  
Number of rows skipped = 0  
Number of rows read = 215

[View the log for this load](#)

[View full table structure and details](#)

#### Preview of Table: "IDS\_Series"

Series Code	Topic	Dataset	Indicator Name	Short definition	Long definition	Periodicity	Base Period	Aggregation method	General comments
BX.KLT.DI NV.CD.DT	Economic Policy & Debt: Balance of payments: Capital & financial account	International Debt Statistics	Foreign direct investment, net inflows in reporting economy (DRS, current US\$)	Foreign direct investment is net inflows of investment to acquire a lasting interest in or management con	Foreign direct investment (net) shows the net change in foreign investment in the reporting country. F	Annual		Sum	Note: Data starting from 2005 are based on the sixth edition of the IMF's Balance of Payments Manual (B

Now, you've learned the basics of managing the following data services in IBM Bluemix:

- Cloudbant NoSQL Database
- dashDB
- SQL Database