

Skills Network

Hands-on Lab: Analyzing DB2 Data With Cognos Analytics

Objective for Exercise:

- To create a dashboard with Billing data on DB2 using Cognos Analytics and analyze the regionwise spend.

Prerequisites

Prior to starting this lab please ensure you have completed the previous labs to:

- [Create an IBM Cloud Account](#)
- [Provision an instance of DB2 on Cloud](#)
- [Provision an instance of Cognos Analytics](#)

Task 1- Load the data in DB2

If you have service credentials created, skip steps 1 and 2.

1. Click on **Service Credentials** and create new credentials.

The screenshot shows the IBM Cloud console interface. At the top, there's a breadcrumb 'Resource list /'. Below it, the resource name 'Db2-4y' is displayed with a green checkmark and the word 'Active', followed by an 'Add tags' link with a pencil icon. On the left sidebar, there are navigation links: 'Manage', 'Getting started', 'Service credentials' (which is highlighted with a blue border), and 'Connections'. The main content area is titled 'Service credentials' and contains the text: '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.' followed by a 'Learn more' link. At the bottom right, there is a search bar with a magnifying glass icon and the placeholder text 'Search credentials...'.

Resource list /

Db2-4y ✓ Active Add tags

Manage

Getting started

Service credentials

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...

2. Give the credential a name and **Manager** privilege and add it.

Create credential

Name:

Service credentials-I

Role: ⓘ

Manager

Advanced options ▾

Cancel

Add

3. Click on the down arrow next to the credential. You will see the credential details. Make a note of the username, password and jdbc connection url. These will be used in later part of the lab to connect from Cognos.

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...

▼	<input type="checkbox"/> Key name	Date created
▼	<input type="checkbox"/> Service credentials-1	2021-09

```
"db2": {
  "authentication": {
    "method": "direct",
    "password": "1cbbb1b6-3a1a-4d49-9262-3102a8f7a7c8",
    "username": "1cbbb1b6-3a1a-4d49-9262-3102a8f7a7c8"
  },
  "certificate": {
    "certificate_base64": "LS0tLS1CRUdJTiBDRVJUSUZJQ0FURSB0tLS0tCk1JSURFakNl...
3VUFN0jR4SERBYUJnTlYkQkFNTUUhbnFNUU0JFEYkc5MVpD0kVZWFlJoWW1GelPpYTXdTaGN0TWpBd01qST...
FZRuUUREQk5KUWswZ1EyeHZkV1FnUkdGMFlXSmhjMlZ6TU1JQklqQU5CZ2txCmhraUc5dzBCQVFFRkF...
iYjE4UkR4ZGwKTzRUL3FoUGMxMTREY1FUK0plRXdhG13aGljTGxaQnF2QWFMb1hrbmhqSVFOMG01L...
3M3MlZUSU5yYmx3cnRIRUlzMlJWTKV6SkNHYW5LSXdZWZVSUtrClNlR0SD15cnFsSGN0Z2pIUlF...
OY3EKY21QcHNqdDBPTnI0YnhJMVRyUWxEemNiN1hMSFBrWW91SUprdnVzMUZvaTEySmRNM1MrK3lab...
C9E0WZhamNNN0lWd2V4a0lS0TNKR1FJREFRQUJvMU13ClVUQWR0Z05WSFE0RUZnUVVlQ3JZanFJQzc...
JQzc1VUpxVmZEMDh1ZWdqeDZiUmN3RHdZRFZSMFRBUUgVqkFVd0F3RUIVEkFOQmdrcWhraUc5dzBCQV...
kRMB0tPd0hSRnF0HgXZ2dRcGVFcFBnMk5SCkx3R08yek85SWZUMmhLaWd1d2orWnJ5SGxxcHlxQ0pl...
1Ujd3ZFFuVjU0TVU4aERvNi9sVHRMRVB2Mnc3VlNPS1FDK013ejgrTFJMdjVHSW5BNlJySWNhKwozM...
G5YWkh6UG91clYS1BoaGdXZ2J5CkNDcUdIK0NWnQ1eFg3b05NS3VNSUNqRVZndnNLWnRqetQ5VW5...
xVkuN3F3VG1TbDlTU05RPT0KLS0tLS1FTkQgQ0VSVElGSUNBVEU0tLS0tLQo=",
    "name": "1cbbb1b6-3a1a-4d49-9262-3102a8f7a7c8"
  },
  "composed": [
    "db2://lfn96733:d10xxWy1FWkzIe0Y@fbd88901-ebdb-4a4f-a32e-9822b9fb237b.c...
db?authSource=admin&replicaSet=replset"
  ],
  "database": "bludb",
  "host_ros": [
    "fbd88901-ebdb-4a4f-a32e-9822b9fb237b.c1ogj3sd0tgtu0lqde00.databases.ap
  ],
  "hosts": [
    {
      "hostname": "fbd88901-ebdb-4a4f-a32e-9822b9fb237b.c1ogj3sd0tgtu0lqde00.databases.ap
      "port": 32731
    }
  ]
},
"jdbc_url": [
  "jdbc:db2://fbd88901-ebdb-4a4f-a32e-9822b9fb237b.c1ogj3sd0tgtu0lqde00.c...
word=<your_password>;sslConnection=true;"
]
```

*Note: You have to replace the placeholder for username and password in the jdbc url string with actual username and password. Remove the angle brackets.

4. Go to the [data link](#). Right-click and choose **Save AS....** Save the file in your local system as *cloud-billing-dataset.csv*.
5. Once the instance is created from the db2 instance page, choose **Manage** from the left menu and click on **Go to UI**.

IBM Cloud

Resource list /

Db2-4y ✓ Active [Add tags](#)

Manage

Getting started

Service credentials

Connections

Getting started

Where can I find my credentials?
Get your username and password by c
the left and selecting "New Credentials"

Go to UI [↗](#)

Getting started d

6. Click on the **Data** icon on the left menu, choose **Load Data** and browse and select the file, **cloud-billing-dataset.csv** which you saved in your local system.

The screenshot shows the AWS Glue console interface. At the top, the 'Load Data' tab is selected and highlighted with a red box. Below the tab, there are three radio buttons: 'Source' (selected), 'Target', and 'Define'. Under the 'Source' radio button, the text 'You are loading the file' is displayed. On the left sidebar, the 'Load Data' icon is highlighted with a red box. The main content area lists three source options: 'My Computer', 'Amazon S3', and 'Cloud Object Storage'. The 'My Computer' option is selected and has a description: 'A single delimited text file (CSV) without header row.' On the right side, a 'File selection' dialog is partially visible, showing a dashed box and the text 'Drag'.

7. Choose the **Schema**, click on **New Table +** and create a new table with the name **BillingData** and click on Create.

☒ Source

☒ Target

☐ Define

You are loading the file **cloud-billing-dataset.csv**

Select a load target

Schema

XQR63068☒

Table

New table +

No entries found.

8. You will see the table is added to the schema. Click on **Next** to load the data from the file.

☒ Source

☒ Target

☐ Define

You are loading the file **cloud-billing-dataset.csv** into **XQR63068.BILLINGDAT**

Select a load target

Schema

Find schemas

XQR63068

Table

Find tab

BILLINGD/

9. The table is loaded. You will see that each column has data type and column width auto generated based on the content. Edit column attributes by clicking on the pencil icon next to the respective attributes to change the width of **country** column to varchar of 30 and **month** column to varchar of 7.

☒ Source

☒ Target

You are loading the file **cloud-billing-dataset.csv** into **XQR63068.BILLINGDATA**

Code page (character encoding):

1208 (UTF-8)

▼

i

Sepa

	<div>CUSTOMERID SMALLINT</div>	<div>CATEGORY VARCHAR(10)</div>	<div>COUNTRY VARCHAR(22)</div>
1	1	Individual	Indonesia
2	614	Individual	United States
3	615	Individual	China
4	616	Individual	Russia
5	617	Individual	Chile
6	618	Individual	Nicaragua
7	41	Company	Brazil
8	619	Individual	Russia
9	620	Individual	China
10	956	Individual	Peru

month
VARCHAR(6)
2009-1
2009-1
2009-1
2009-1
2009-1

Edit column data type

Data type

VARCHAR ▾

Maximum number of character
(1 - 32592)

7|

Close

OK

country

VARCHAR(22)

Indonesia

United States

China

Russia

Chile

Edit column data type

Data type

VARCHAR ▾

Maximum number of character
(1 - 32592)

30

Close

OK

10. Once the column attributes are changed, check to see if it reflects and then click on **Next**

✓ Source

✓ Target

You are loading the file **cloud-billing-dataset.csv** into **XQR63068.BILLING DATA**

Code page (character encoding):1208 (UTF-8)

▼ ⓘ

Separator: ,

	<div>CUSTOMERID SMALLINT</div>	<div>CATEGORY VARCHAR(10)</div>	<div>COUNTRY VARCHAR(30)</div>
1	1	Individual	Indonesia
2	614	Individual	United States
3	615	Individual	China
4	616	Individual	Russia
5	617	Individual	Chile
6	618	Individual	Nicaragua
7	41	Company	Brazil
8	619	Individual	Russia
9	620	Individual	China
10	956	Individual	Peru

11. Review the settings and click on **Begin Load** to load the data.

☒ Source

☒ Target


You are loading the file **cloud-billing-dataset.csv** into **XQR63068.BILLINGDATA**

Review settings

Summary

Code page:	1208 (Default)
Separator:	, (Default)
Time format:	HH:MM:SS (Default)
Date format:	YYYY-MM-DD (Default)
Timestamp format:	YYYY-MM-DD HH:MM:SS
String delimiter:	(Default)

12. If the data is successfully loaded, you get a message on the screen indicating the number of rows that have been loaded.



COMPLETE

My computer


cloud-billing-data.csv

Target

XQR63068.BILLING_DATA

Status

Settings



132,000

Rows read

132,000

Rows loaded

0

Rows rejected

Start time

09/20/2021 12:24:04 PM

End time

09/20/2021 12:24:08 PM

The

Task 2 - Connect Cognos to DB2

- 1. Navigate to myibm.ibm.com. Login with your IBM Cloud credentials and launch Cognos Analytics.



My IBM Profile Billing

Products

Trials

2 Offerings



IBM Cloud

Active

Launch

Manage



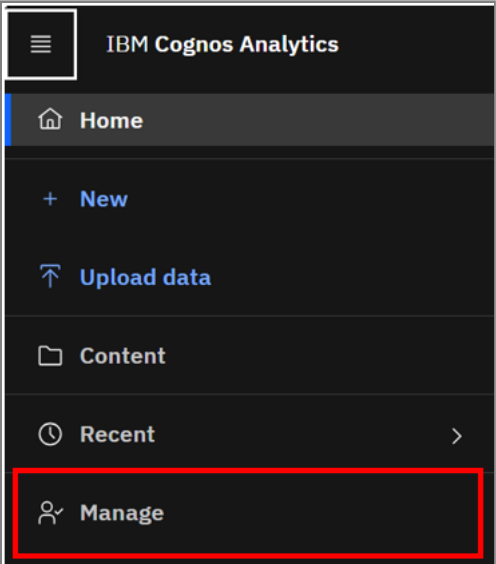
**IBM Cognos Analyt
Cloud - Trial**

Active

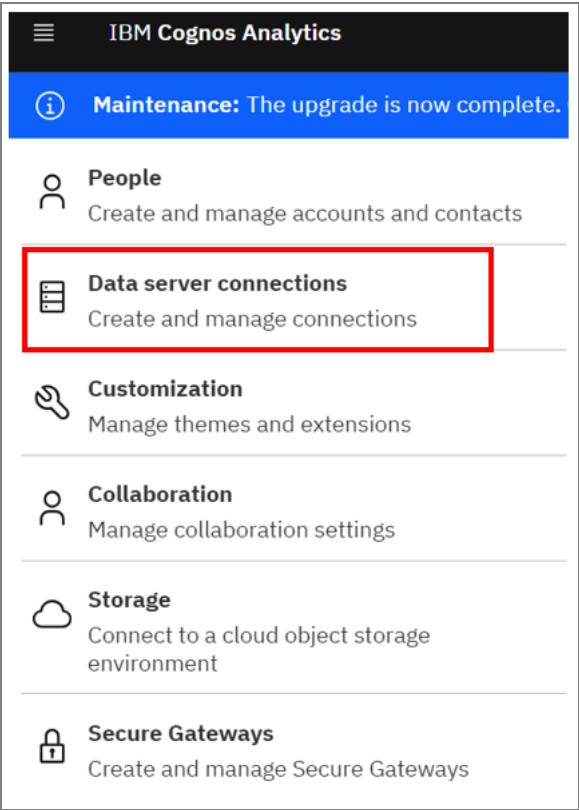
Expires on 16 Oct 2021

Launch

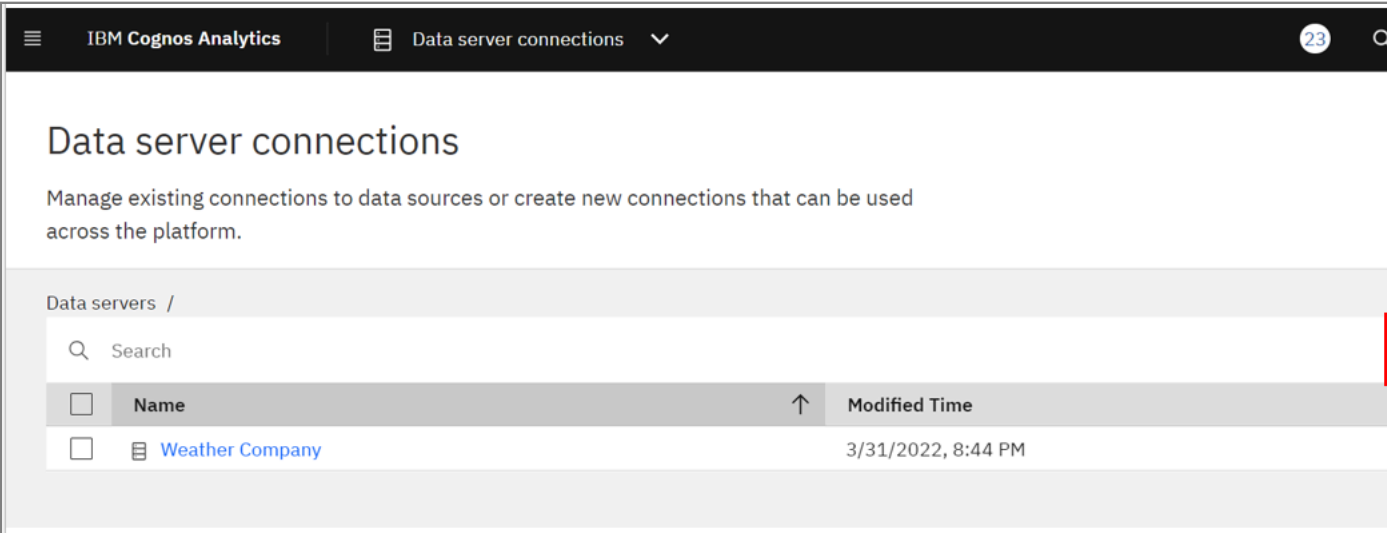
2. Click the hambuger menu on the upper left and select **Manage**.



3. Select **Data Server Connections**.



4. Click on **Add data Server** to add a new server.



5. Provide a name **MyDB2** to the connection. Select **IBM DB2** from the list in the Connection type. Click on **Next**.

IBM Cognos Analytics

Data server connections

23

Create data server connection

Type

Connection

Commands

Name

MyDB2

Description (optional)

Connection type

IBM Db2

Cancel

Previous

Next

6. Provide hostname, port, and database for JDBC URL. (While adding the database, make sure to add the username, password, and the SSL connection to true as shown below:

1. 1
1. jdbc:db2://<Hostname>:<Port>/<Database>;user=<username>;password=<Password>;sslConnection=true;

Copied!

IBM Cognos Analytics

Data server connections

23

Create data server connection

Type

Connection

Commands

Connection type

IBM Db2

Details

JDBC URL

jdbc:db2://<hostname>:<port>/<databasename>;user=<username>;password=<Password>;sslConnectio

Reset

Driver class name (optional)

com.ibm.db2.jcc.DB2Driver

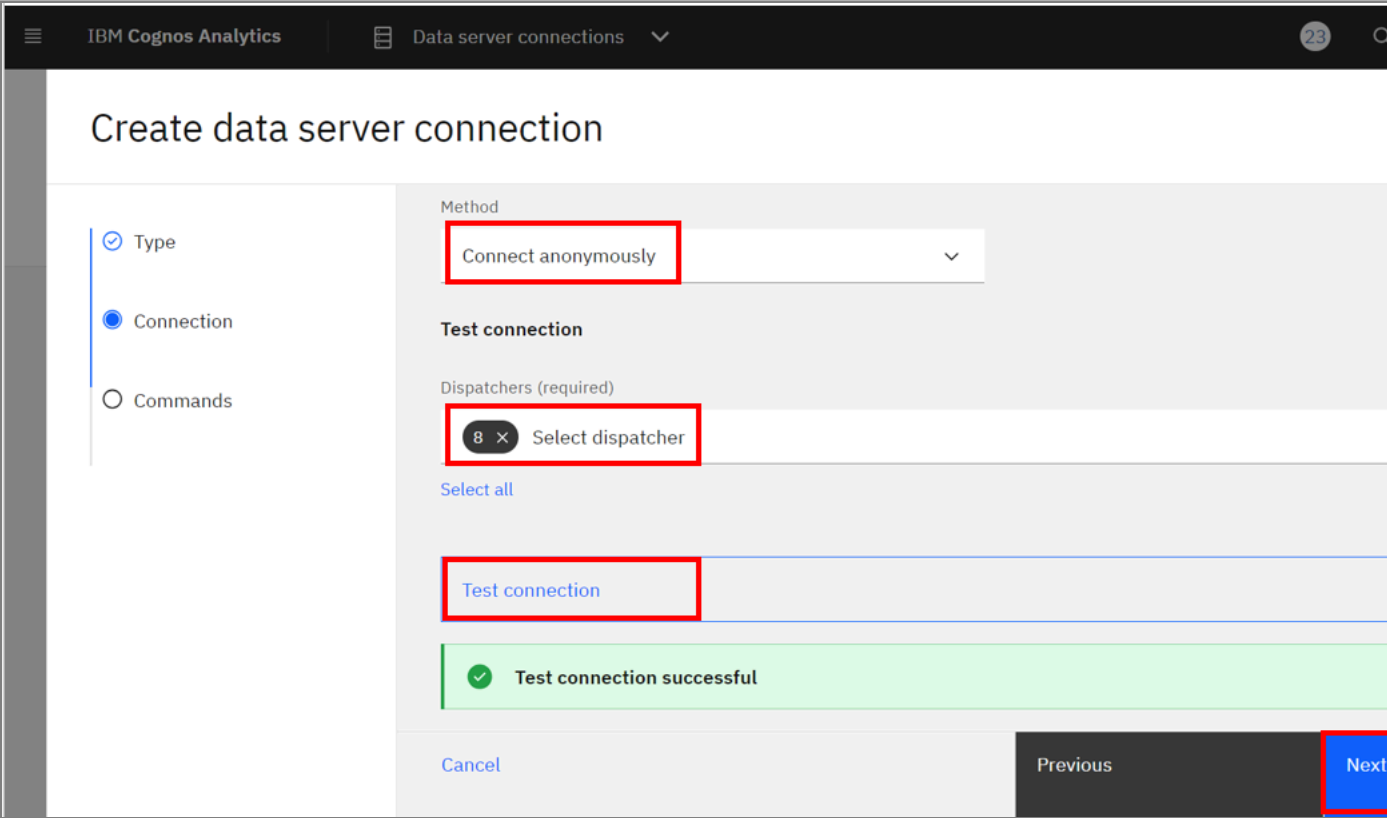
Reset

Cancel

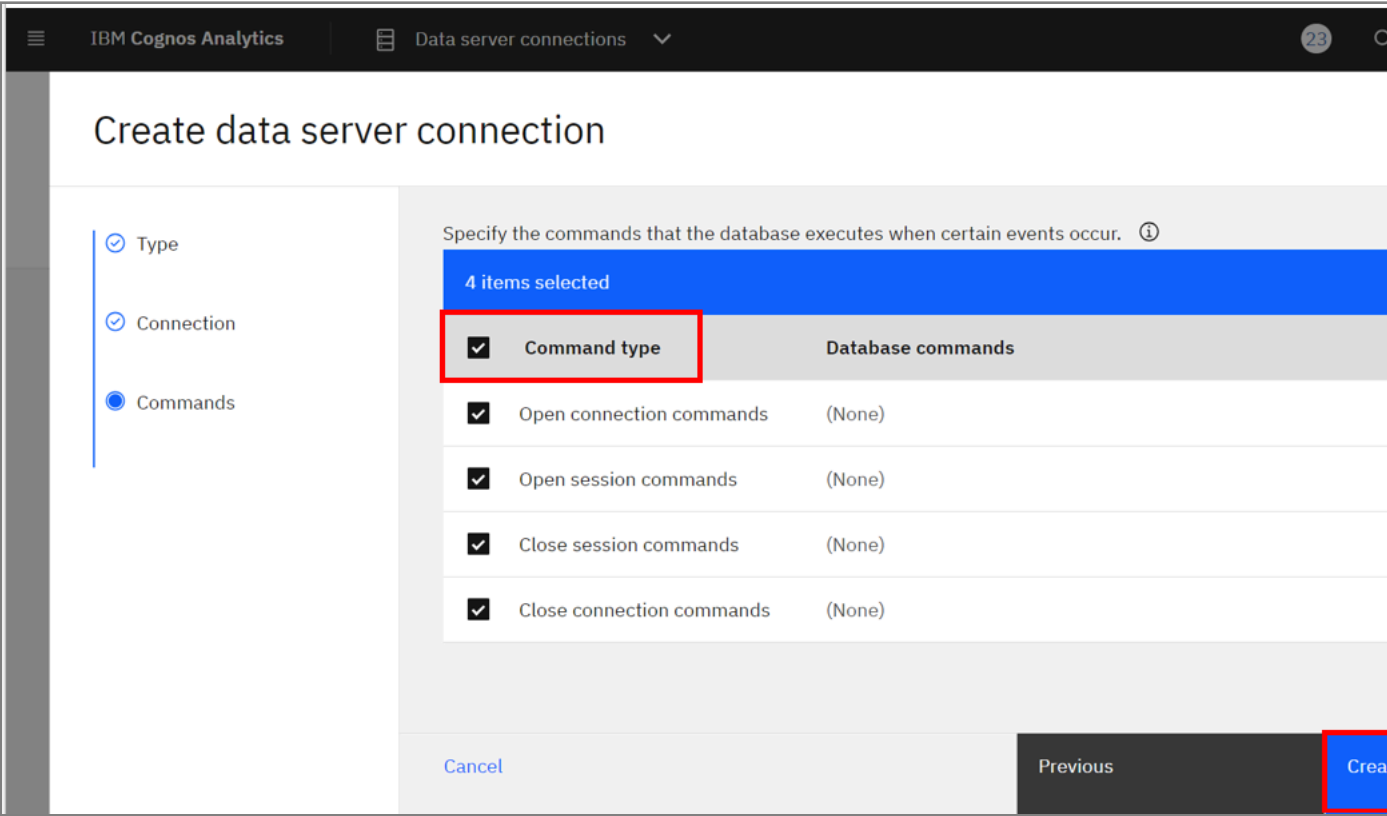
Previous

Next

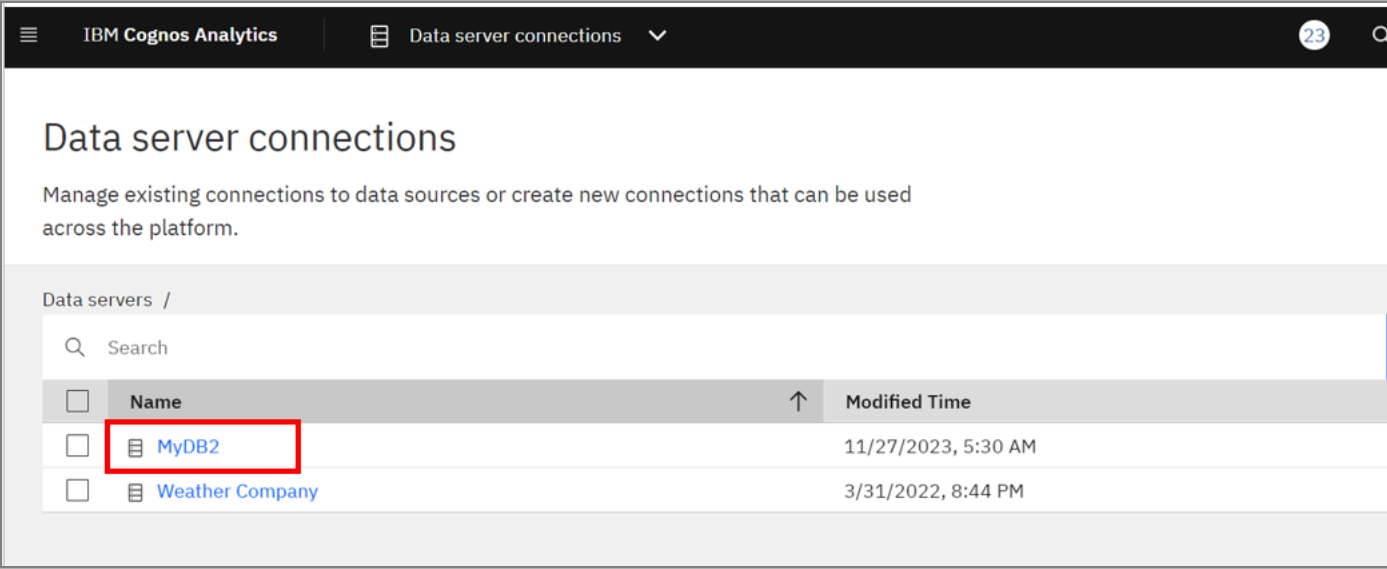
7. Then **Scroll down**. Select **Connect Anonymously** from the **Method** drop-down list. Select **Select all** in **Dispatcher**. Then Click on **Test Connection** to test the connection. If the test succeeded you will see **Test connection successfull**. Click on **Next**.



8. Select all check boxes for Command type and Click on **Create**.



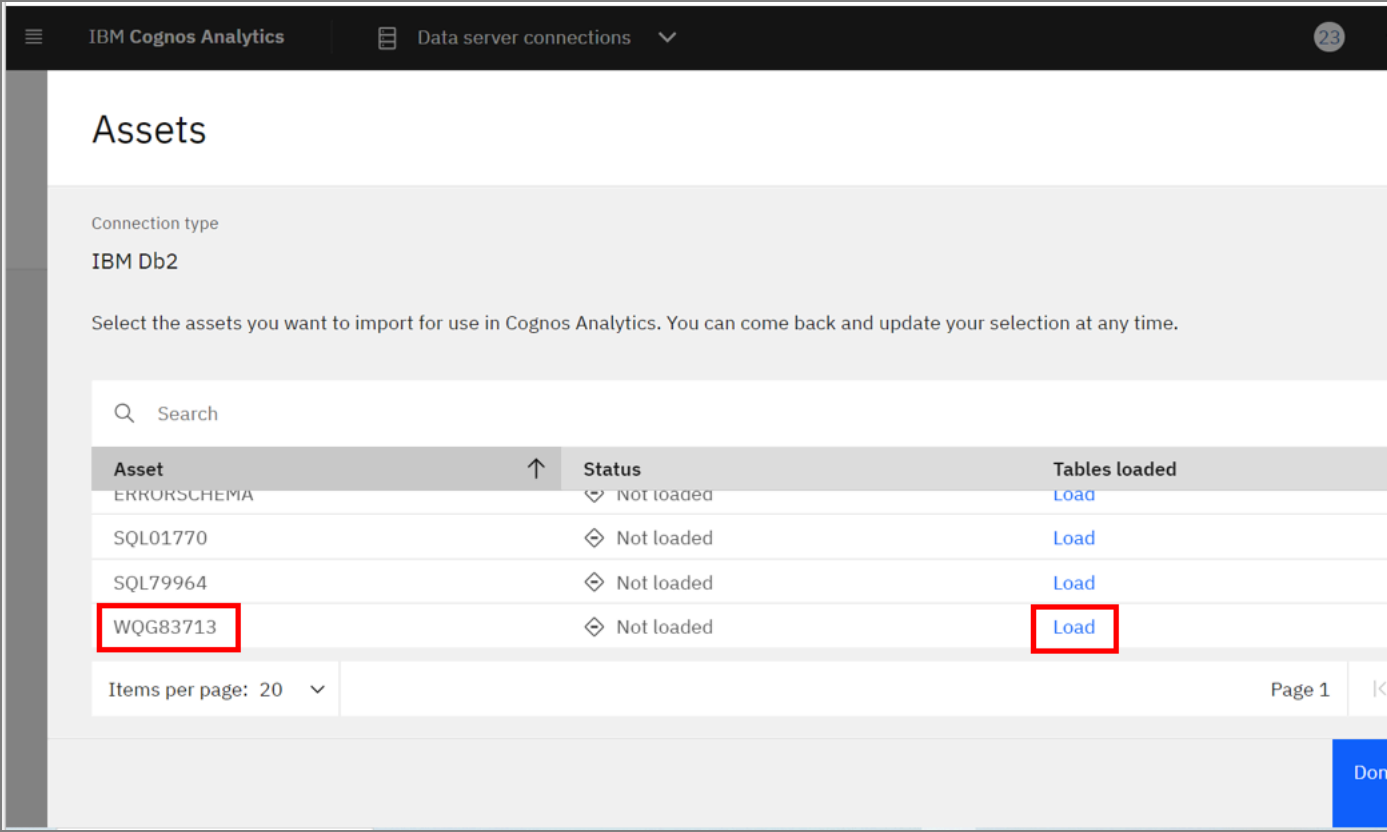
9. Click on the Data Server **MyDB2** created previously.



10. On the right side, click on the three dots and select **Assets** from the menu that appears.

.

11. Select the **schema** in which you have loaded the tables in DB2 and click on **Load**.



12. Once the data is loaded, you can see that how many tables available in the schema for analysis.

IBM Cognos Analytics

Data server connections

23

Assets

Connection type
IBM Db2

Select the assets you want to import for use in Cognos Analytics. You can come back and update your selection at any time.

Search

Asset	Status	Tables loaded
ERRORSCHEMA	Not loaded	Load
SQL01770	Not loaded	Load
SQL79964	Not loaded	Load
WQG83713	Loaded	1 / 1 tables loaded

Items per page: 20

Page 1

Done

Task 3 - Create Data Module in Cognos

- 1. From the menu, choose **New** and then from the submenu choose **Data Module**.

IBM Cognos Analytics

Home

New

Upload files

Content

Recent

Manage

New

- Data
 - Data module
- Explore
 - Exploration
- Present
 - Dashboard
 - Report
 - Story

- 2. Click the **Data servers** icon and choose the **MyDB2** connection that we created in the previous task.
- 3. Choose the schema from where you want to load data.

Select sources

← Data servers / MyDB2

Type any text to filter items in this folder

LFN96733

9/16/2021 3:52 AM

Cancel

OK

4. Choose the **Select Tables** option and click **OK**.

about:blank

20/22

Add tables

Specify how to add tables to your data module.



Select tables

Select the tables that you want to include in your data module, and create the data module manually.

Cancel

5. It will list the tables available in the schema. For this lab, we will use the **Billing data** table. Choose the table and click on **OK**. If you want to view the data you may click on **Refresh**.

▪

6. The **Data module** loaded with the data appears. Click on **Save**, once you see that the data is correctly loaded.

▪

7. You can now save it with an appropriate name under **My Content**.

▪

Task 4 - Create Dashboard

1. From the IBM Cognos menu, choose, **New** and click on **Dashboard**.

2. Choose the **Tabbed** as shown in the following image.

▪

3. Click on **Select Source** to choose the source for the template.

▪

4. From the list, choose the data module we just created and click on **Add**.

Task 5 - Visualization

You will now see the table listed on the left panel with all the attributes.

1. Drag and drop the **Billed Amount** on the template.
2. The total billed amount will now appear on the Dashboard. The size and position can be adjusted as per requirement and the text display can be edited and formatted by double-clicking on it.
3. Drag and drop **Billed Amount** and **Industry** onto the dashboard as shown in the following image. With this, we can visualize the build amount per industry.
4. Drag and drop **Billed Amount, Country and Industry** onto the dashboard as shown in the following image. This will generate a heat map of spending by country and by industry.
5. The finished dashboard will appear as in the following image.
6. Optionally, try to change the properties and settings to see how the dashboard changes. You can also observe the billed amount changing as you click on a region on the heat map or the bar graph.

Credits

Author(s)

[Lavanya T S](#)

Changelog

Date	Version	Changed by	Change Description
2020-09-20	1.0	Lavanya	Created the lab
2021-10-07	1.1	Steve Hord	Copy Edit lab
2023-05-07	1.2	Vladislav Boyko	Indented images and added pages

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