

Skills Network

Hands on Lab : CREATE, ALTER, TRUNCATE, DROP Tables

Estimated time needed: 15 minutes

In this lab, you will learn some commonly used DDL (Data Definition Language) statements of SQL. First you will learn the CREATE statement, which is used to create a new table in a database. Next, you will learn the ALTER statement which is used to add, delete, or modify columns in an existing table. Then, you will learn the TRUNCATE statement which is used to remove all rows from an existing table without deleting the table itself. Lastly, you will learn the DROP statement which is used to delete an existing table in a database.

How does the syntax of a CREATE statement look?

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6

1. CREATE TABLE table_name (
2.     column1 datatype,
3.     column2 datatype,
4.     column3 datatype,
5.     ....
6. );
```

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How does the syntax of an ALTER statement look?

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8
9. 9
10. 10
11. 11

1. ALTER TABLE table_name
2. ADD COLUMN column_name data_type column_constraint;
3.
4. ALTER TABLE table_name
5. DROP COLUMN column_name;
6.
7. ALTER TABLE table_name
8. ALTER COLUMN column_name SET DATA TYPE data_type;
9.
10. ALTER TABLE table_name
11. RENAME COLUMN current_column_name TO new_column_name;
```

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How does the syntax of a TRUNCATE statement look?

```
1. 1

1. TRUNCATE TABLE table_name;
```

Copied!

How does the syntax of a DROP statement look?

```
1. 1

1. DROP TABLE table_name;
```

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Software Used in this Lab

In this lab, you will use [IBM Db2 Database](#). Db2 is a Relational Database Management System (RDBMS) from IBM, designed to store, analyze and retrieve the data efficiently.

To complete this lab you will utilize a Db2 database service on IBM Cloud. If you did not already complete this lab task earlier in this module, you will not yet have access to Db2 on IBM Cloud, and you will need to follow this lab first:

- [Hands-on Lab : Sign up for IBM Cloud, Create Db2 service instance and Get started with the Db2 console](#)

Database Used in this Lab

The databases used in this lab are internal databases.

Objectives

After completing this lab, you will be able to:

- Create a new table in a database
- Add, delete, or modify columns in an existing table
- Remove all rows from an existing table without deleting the table itself
- Delete an existing table in a database

Instructions

When you approach the exercises in this lab, follow the instructions to run the queries on Db2:

- Go to the [Resource List](#) of IBM Cloud by logging in where you can find the Db2 service instance that you created in a previous lab under **Services** section. Click on the **Db2-xx service**. Next, open the Db2 Console by clicking on **Open Console** button. Click on the 3-bar menu icon in the top left corner and go to the **Run SQL** page. The Run SQL tool enables you to run SQL statements.
 - If needed, follow [Hands-on Lab : Sign up for IBM Cloud, Create Db2 service instance and Get started with the Db2 console](#)

::page{title="Exercise 1: CREATE"}

In this exercise, you will use the CREATE statement to create two new tables using Db2.

1. You need to create two tables, **PETSALE** and **PET**. To create the two tables PETSAL and PET, copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**. In the **History** section below the editor box, you will be able to see if the query has been executed successfully or not.

```
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
1. CREATE TABLE PETSale (
2.   ID INTEGER NOT NULL,
3.   PET CHAR(20),
4.   SALEPRICE DECIMAL(6,2),
5.   PROFIT DECIMAL(6,2),
6.   SALEDATE DATE
7. );
8.
9. CREATE TABLE PET (
10.  ID INTEGER NOT NULL,
11.  ANIMAL VARCHAR(20),
12.  QUANTITY INTEGER
13. );
```

Copied!

The screenshot shows the IBM Db2 on Cloud interface. On the left, the 'SQL' tab is selected in the 'Data objects' panel. The main editor displays a SQL script with two CREATE TABLE statements: PETSale and PET. The 'Run all' button is highlighted in red. Below the editor, the 'History' tab is selected, showing a table of executed scripts.

Script	Date	Status	Runtime
Untitled - 1	Apr 21, 2023 4:03:57 PM	2	0.232 s
CREATE TABLE PETSale (ID INTEGER NOT NULL, PET CHAR(20), SALEPRIC...			0.131 s
CREATE TABLE PET (ID INTEGER NOT NULL, ANIMAL VARCHAR(20). QUANTI...			0.101 s

2. Now insert some records into the two newly created tables and show all the records of the two tables. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.

```
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
1. INSERT INTO PETSale VALUES
2. (1,'Cat',450.09,100.47,'2018-05-29'),
3. (2,'Dog',666.66,150.76,'2018-06-01'),
4. (3,'Parrot',50.00,8.9,'2018-06-04'),
5. (4,'Hamster',60.60,12,'2018-06-11'),
6. (5,'Goldfish',48.48,3.5,'2018-06-14');
7.
8. INSERT INTO PET VALUES
9. (1,'Cat',3),
10. (2,'Dog',4),
11. (3,'Hamster',2);
12.
13. SELECT * FROM PETSale;
14. SELECT * FROM PET;
```

Copied!

The screenshot shows the IBM Db2 on Cloud interface. The SQL script from the previous step is pasted into the editor. The 'Run all' button is highlighted in red. Below the editor, the 'History' tab is selected, showing a table of executed scripts. The 'Results' tab is also visible, showing the output of the SELECT queries.

Script	Date	Status	Runtime
Untitled - 1	Apr 21, 2023 4:08:06 PM	4	0.827 s
INSERT INTO PETSale VALUES (1,'Cat',450.09,100.47,'2018-05-29'), (...			0.010 s
INSERT INTO PET VALUES (1,'Cat',3), (2,'Dog',4), (3,'Hamster',2)			0.007 s
SELECT * FROM PETSale			0.005 s
SELECT * FROM PET			0.000 s

You can click on the query in the History section to check its result:

The screenshot shows the IBM Db2 on Cloud interface. The 'Results' tab is selected, displaying the output of the SELECT query. The results are shown in a table with 5 columns: ID, PET, SALEPRICE, PROFIT, and SALEDATE.

ID	PET	SALEPRICE	PROFIT	SALEDATE
1	Cat	450.09	100.47	2018-05-29
2	Dog	666.66	150.76	2018-06-01
3	Parrot	50.00	8.90	2018-06-04
4	Hamster	60.60	12.00	2018-06-11
5	Goldfish	48.48	3.50	2018-06-14

::page{title="Exercise 2: ALTER"}

In this exercise, you will use the ALTER statement to add, delete, or modify columns in two of the existing tables created in exercise 1.

Task A: ALTER using ADD COLUMN

1. Add a new **QUANTITY** column to the **PETSALE** table and show the altered table. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.

```
1. 1
2. 2
3. 3
4. 4
1. ALTER TABLE PETSale
2. ADD COLUMN QUANTITY INTEGER;
3.
4. SELECT * FROM PETSale;
```

Copied!

The screenshot shows the IBM Db2 on Cloud interface. On the left, the 'Data objects' pane shows a database named 'DMT80331'. The main area displays the SQL editor with the following code:

```
1 ALTER TABLE PETSale
2 ADD COLUMN QUANTITY INTEGER;
3
4 SELECT * FROM PETSale;
```

The 'Results' pane shows the output of the SQL execution. It displays a table with 5 rows and 6 columns: ID, PET, SALEPRICE, PROFIT, SALEDATE, and QUANTITY. The data is as follows:

ID	PET	SALEPRICE	PROFIT	SALEDATE	QUANTITY
1	Cat	450.09	100.47	2018-05-29	
2	Dog	666.66	150.76	2018-06-01	
3	Parrot	50.00	8.90	2018-06-04	
4	Hamster	60.60	12.00	2018-06-11	
5	Goldfish	48.48	3.50	2018-06-14	

2. Now update the newly added **QUANTITY** column of the **PETSALE** table with some values and show all the records of the table. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**. After the query has executed successfully, click on it to check the result set.

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
1. UPDATE PETSale SET QUANTITY = 9 WHERE ID = 1;
2. UPDATE PETSale SET QUANTITY = 3 WHERE ID = 2;
3. UPDATE PETSale SET QUANTITY = 2 WHERE ID = 3;
4. UPDATE PETSale SET QUANTITY = 6 WHERE ID = 4;
5. UPDATE PETSale SET QUANTITY = 24 WHERE ID = 5;
6.
7. SELECT * FROM PETSale;
```

Copied!

The screenshot shows the IBM Db2 on Cloud interface. On the left, the 'Data objects' pane shows a database named 'DMT80331'. The main area displays the SQL editor with the following code:

```
1 UPDATE PETSale SET QUANTITY = 9 WHERE ID = 1;
2 UPDATE PETSale SET QUANTITY = 3 WHERE ID = 2;
3 UPDATE PETSale SET QUANTITY = 2 WHERE ID = 3;
4 UPDATE PETSale SET QUANTITY = 6 WHERE ID = 4;
5 UPDATE PETSale SET QUANTITY = 24 WHERE ID = 5;
6
7 SELECT * FROM PETSale;
```

The 'Results' pane shows the output of the SQL execution. It displays a table with 5 rows and 6 columns: ID, PET, SALEPRICE, PROFIT, SALEDATE, and QUANTITY. The data is as follows:

ID	PET	SALEPRICE	PROFIT	SALEDATE	QUANTITY
1	Cat	450.09	100.47	2018-05-29	9
2	Dog	666.66	150.76	2018-06-01	3
3	Parrot	50.00	8.90	2018-06-04	2
4	Hamster	60.60	12.00	2018-06-11	6
5	Goldfish	48.48	3.50	2018-06-14	24

Task B: ALTER using DROP COLUMN

1. Delete the **PROFIT** column from the **PETSALE** table and show the altered table. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.

```
1. 1
2. 2
3. 3
4. 4
1. ALTER TABLE PETSale
2. DROP COLUMN PROFIT;
3.
4. SELECT * FROM PETSale;
```

Copied!

The screenshot shows the IBM Db2 on Cloud interface. On the left, the 'Data objects' pane shows a database named 'DMT80331'. The main area displays the SQL editor with the following code:

```
1 ALTER TABLE PETSale
2 DROP COLUMN PROFIT;
3
4 SELECT * FROM PETSale;
```

The 'Results' pane shows the output of the SQL execution. It displays a table with 5 rows and 5 columns: ID, PET, SALEPRICE, SALEDATE, and QUANTITY. The data is as follows:

ID	PET	SALEPRICE	SALEDATE	QUANTITY
1	Cat	450.09	2018-05-29	9
2	Dog	666.66	2018-06-01	3
3	Parrot	50.00	2018-06-04	2
4	Hamster	60.60	2018-06-11	6
5	Goldfish	48.48	2018-06-14	24

Task C: ALTER using ALTER COLUMN

1. Change the data type to **VARCHAR(20)** type of the column **PET** of the table **PETSALE** and show the altered table. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.

```
1. 1
2. 2
3. 3
4. 4
1. ALTER TABLE PETSale
2. ALTER COLUMN PET SET DATA TYPE VARCHAR(20);
3.
4. SELECT * FROM PETSale;
```

Copied!

The screenshot shows the IBM Db2 on Cloud console. On the left, the 'Data objects' panel shows a schema named 'DMT80331'. The main area displays a SQL editor with the following code:

```
1 ALTER TABLE PETSale
2 ALTER COLUMN PET SET DATA TYPE VARCHAR(20);
3
4 SELECT * FROM PETSale;
```

Below the editor, the 'Results' tab is active, showing 'Result set 1' with 5 rows. The table has columns: ID, PET, SALEPRICE, SALEDATE, and QUANTITY.

ID	PET	SALEPRICE	SALEDATE	QUANTITY
1	Cat	450.09	2018-05-29	9
2	Dog	666.66	2018-06-01	3
3	Parrot	50.00	2018-06-04	2
4	Hamster	60.60	2018-06-11	6
5	Goldfish	48.48	2018-06-14	24

2. Now verify if the data type of the column **PET** of the table **PETSale** changed to **VARCHAR(20)** type or not. Click on the Data Section in the left menu bar.

The screenshot shows the IBM Db2 on Cloud console. The left sidebar has a 'Data' button highlighted with a red box. The main area shows the 'Data objects' panel with the schema 'DMT80331'.

Then click on Tables:

The screenshot shows the IBM Db2 on Cloud console. The top navigation bar has a 'Tables' button highlighted with a red box. The main area shows the 'Load Data' section with a 'File selection' dialog.

Find your schema and choose the table **PETSale**

The screenshot shows the IBM Db2 on Cloud console. The top navigation bar has a 'Tables' button highlighted with a red box. The main area shows the 'Tables' section with a table named 'PETSale' highlighted with a red box.

Name	Schema	Properties
BILLING_TEST	DMT80331	...
PET	DMT80331	...
PETSale	DMT80331	...

You will see that the datatype of the column **PET** has changed to **VARCHAR(20)**

The screenshot shows the IBM Db2 on Cloud interface. On the left, the 'Tables' tab is active, displaying a list of tables: BILLING_TEST, PET, and PETSale, all under the DMT80331 schema. The 'Table definition' panel on the right shows the structure of the PETSale table, which has approximately 5 rows (32.0 KB) and was updated on 2023-04-21 10:45:45. The table has the following columns:

Name	Data type	Nullable	Length	Scale
ID	INTEGER	N		0
PET	VARCHAR	Y	20	0
SALEPRICE	DECIMAL	Y	6	2
SALEDATE	DATE	Y	4	0
QUANTITY	INTEGER	Y		0

The 'PET' column is highlighted with a red box. A 'View data' button is visible at the bottom of the table definition panel.

Task D: ALTER using RENAME COLUMN

1. In the **PETSale** table, rename the column **PET** to **ANIMAL** and show the altered table. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**.

```
1. 1
2. 2
3. 3
4. 4
1. ALTER TABLE PETSale
2. RENAME COLUMN PET TO ANIMAL;
3.
4. SELECT * FROM PETSale;
```

Copied!

The screenshot shows the IBM Db2 on Cloud interface with the SQL editor open. The SQL code entered is:

```
1 ALTER TABLE PETSale
2 RENAME COLUMN PET TO ANIMAL;
3
4 SELECT * FROM PETSale;
```

The 'Run all' button is visible. Below the editor, the 'Results' tab is active, showing 'Result set 1' with 5 rows of data. The 'ANIMAL' column is highlighted with a red box.

ID	ANIMAL	SALEPRICE	SALEDATE	QUANTITY
1	Cat	450.09	2018-05-29	9
2	Dog	666.66	2018-06-01	3
3	Parrot	50.00	2018-06-04	2
4	Hamster	60.60	2018-06-11	6
5	Goldfish	48.48	2018-06-14	24

In this exercise, you will use the TRUNCATE statement to remove all rows from an existing table created in exercise 1 without deleting the table itself.

1. Remove all rows from the **PET** table and show the empty table. Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**. You will see **no data in the Result section**.

```
1. 1
2. 2
3. 3
1. TRUNCATE TABLE PET IMMEDIATE;
2.
3. SELECT * FROM PET;
```

Copied!

The screenshot shows the IBM Db2 on Cloud interface with the SQL editor open. The SQL code entered is:

```
1 TRUNCATE TABLE PET IMMEDIATE;
2
3 SELECT * FROM PET;
```

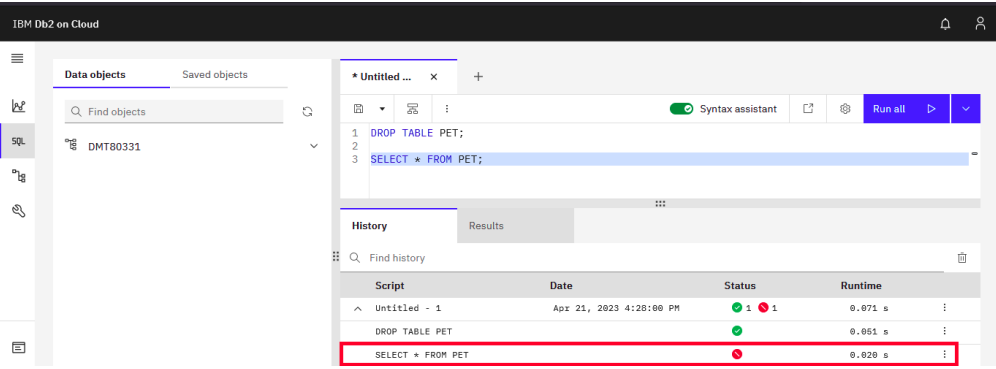
The 'Run all' button is visible. Below the editor, the 'Results' tab is active, showing 'Result set 1' with 0 rows of data. The message 'You don't have any data currently' is displayed.

In this exercise, you will use the DROP statement to delete an existing table created in exercise 1.

1. Delete the **PET** table and verify if the table still exists or not (SELECT statement won't work if a table doesn't exist). Copy the code below and paste it to the textbox of the **Run SQL** page. Click **Run all**. You will see that the **select statement fails**.

```
1. 1
2. 2
3. 3
1. DROP TABLE PET;
2.
3. SELECT * FROM PET;
```

Copied!



Congratulations! You have completed this Lab. You are ready for the next topic.

Author(s)

- [Sandip Saha Joy](#)

Changelog

Date	Version	Changed by	Change Description
2023-04-21	1.2	Shreya Khurana	Updated screenshots and instructions
2020-12-24	1.1	Steve Ryan	ID reviewed
2020-12-07	1.0	Sandip Saha Joy	Initial version created

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