LAB - Create Schema

In this tutorial, you will learn how to use the `CREATE SCHEMA` to create a new schema in the current database.

What is a schema in SQL Server

A schema is a collection of database objects including tables, views, triggers, stored procedures, indexes, etc. A schema is associated with a username which is known as the schema owner, who is the owner of the logically related database objects.

A schema always belongs to one database. On the other hand, a database may have one or multiple schemas. For example, in our `BikeStores` sample database, we have two schemas: `sales` and `production`. An object within a schema is qualified using the `schema_name.object_name` format like `sales.orders`. Two tables in two schemas can share the same name so you may have `hr.employees` and `sales.employees`.

Built-in schemas in SQL Server

SQL Server provides us with some pre-defined schemas which have the same names as the built-in database users and roles, for example: `dbo`, `guest`, `sys`, and `INFORMATION_SCHEMA`.

Note that SQL Server reserves the `sys` and `INFORMATION_SCHEMA` schemas for system objects, therefore, you cannot create or drop any objects in these schemas.

The default schema for a newly created database is `dbo`, which is owned by the `dbo` user account. By default, when you create a new user with the `CREATE USER` command, the user will take `dbo` as its default schema.

Syntax

The `CREATE SCHEMA` statement allows you to create a new schema in the current database.

The following illustrates the simplified version of the `CREATE SCHEMA` statement:

```
CREATE SCHEMA schema_name
    [AUTHORIZATION owner_name]
```

In this syntax,

- First, specify the name of the schema that you want to create in the `CREATE SCHEMA` clause.
- Second, specify the owner of the schema after the `AUTHORIZATION` keyword.

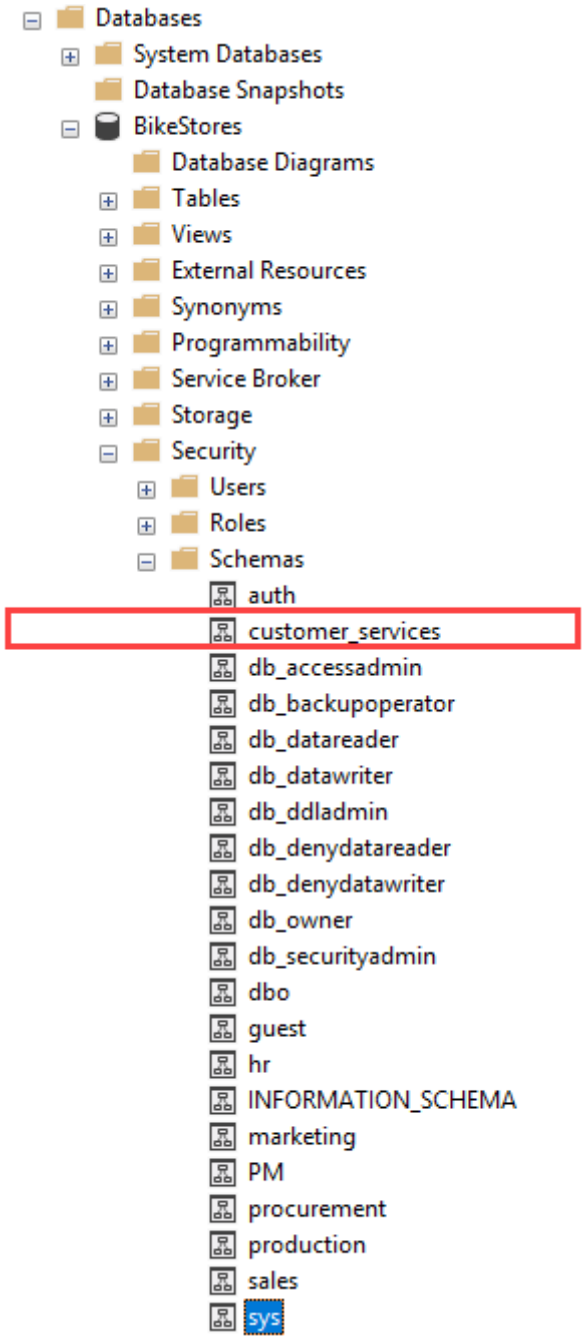
Example

The following example shows how to use the `CREATE SCHEMA` statement to create the `customer_services` schema:

```
CREATE SCHEMA customer_services;
GO
```

Note that `GO` command instructs the SQL Server Management Studio to send the SQL statements up to the `GO` statement to the server to be executed.

Once you execute the statement, you can find the newly created schema under the **Security > Schemas** of the database name.



If you want to list all schemas in the current database, you can query schemas from the `sys.schemas` as shown in the following query:

```
SELECT
    s.name AS schema_name,
    u.name AS schema_owner
FROM
    sys.schemas s
INNER JOIN sys.sysusers u ON u.uid = s.principal_id
ORDER BY
    s.name;
```

Here is the output:

schema_name	schema_owner
auth	dbo
customer_services	dbo
db_accessadmin	db_accessadmin
db_backupoperator	db_backupoperator
db_datareader	db_datareader
db_datawriter	db_datawriter
db_ddladmin	db_ddladmin
db_denydatareader	db_denydatareader
db_denydatawriter	db_denydatawriter
db_owner	db_owner
db_securityadmin	db_securityadmin
dbo	dbo
guest	guest
hr	dbo
INFORMATION_SCHEMA	INFORMATION_SCHEMA
marketing	dbo
PM	dbo
procurement	dbo
production	dbo
sales	dbo
sys	sys

After having the `customer_services` schema, you can create objects for the schema. For example, the following statement creates a new table named `jobs` in the `customer_services` schema:

```
CREATE TABLE customer_services.jobs(
    job_id INT PRIMARY KEY IDENTITY,
    customer_id INT NOT NULL,
    description VARCHAR(200),
    created_at DATETIME2 NOT NULL
);
```

In this lab, you have learned how to use the SQL Server `CREATE SCHEMA` statement to create a new schema in the current database.