Use the Transact-SQL editor to create database objects - Azure Data Studio

Creating and running queries, stored procedures, scripts, etc. are the core tasks of database professionals. This tutorial demonstrates the key features in the T-SQL editor to create database objects.

In this tutorial, you learn how to use Azure Data Studio to:

- Search database objects
- Edit table data
- Use snippets to quickly write T-SQL
- View database object details using *Peek Definition* and *Go to Definition*

Prerequisites

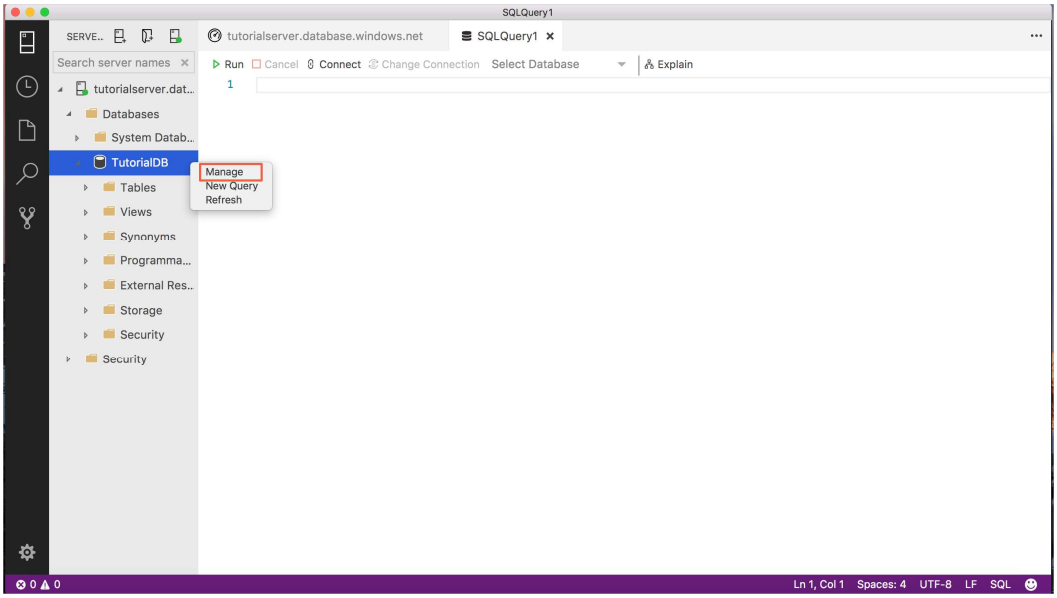
This tutorial requires the SQL Server or Azure SQL Database *TutorialDB*. To create the *TutorialDB* database, complete one of the following quickstarts:

- Connect and query SQL Server using Azure Data Studio
- Connect and query Azure SQL Database using Azure Data Studio

Quickly locate a database object and perform a common task

Azure Data Studio provides a search widget to quickly find database objects. The results list provides a context menu for common tasks relevant to the selected object, such as *Edit Data* for a table.

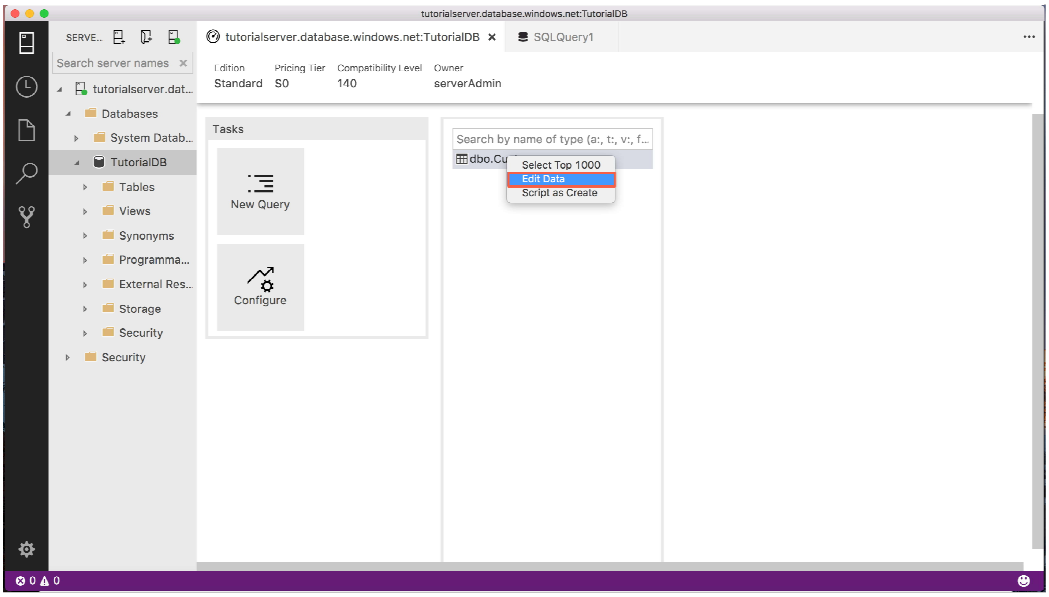
1. Open the SERVERS sidebar (**Ctrl+G**), expand **Databases**, and select **TutorialDB**.
2. Open the *TutorialDB Dashboard* by right-clicking **TutorialDB** and selecting **Manage** from the context menu:



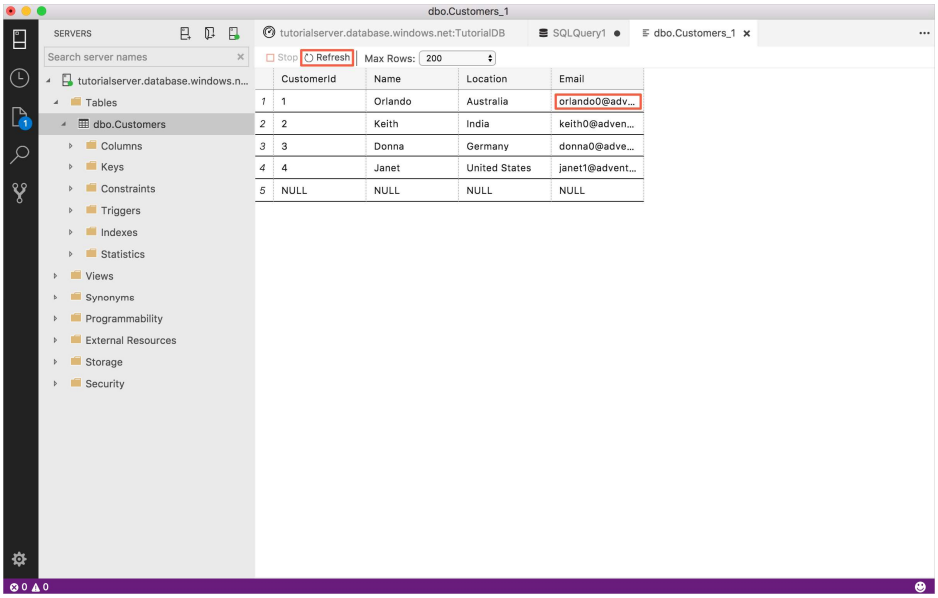
3. On the dashboard, right-click **dbo.Customers** (in the search widget) and select **Edit Data**.

Tip

For databases with many objects, use the search widget to quickly locate the table, view, etc. that you're looking for.



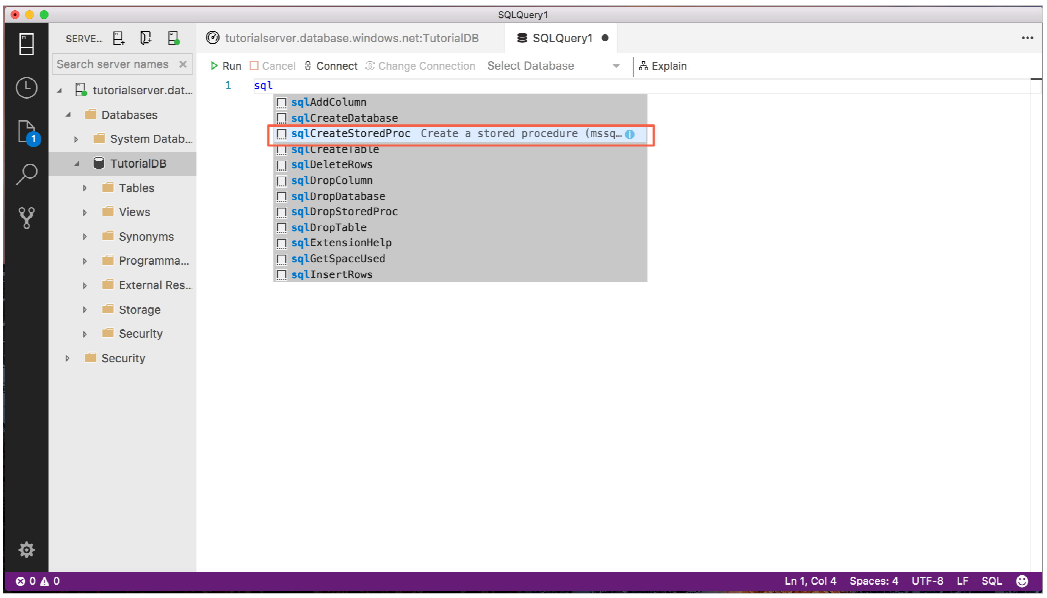
4. Edit the **Email** column in the first row, type *orlando0@adventure-works.com*, and press **Enter** to save the change.



Use T-SQL snippets to create stored procedures

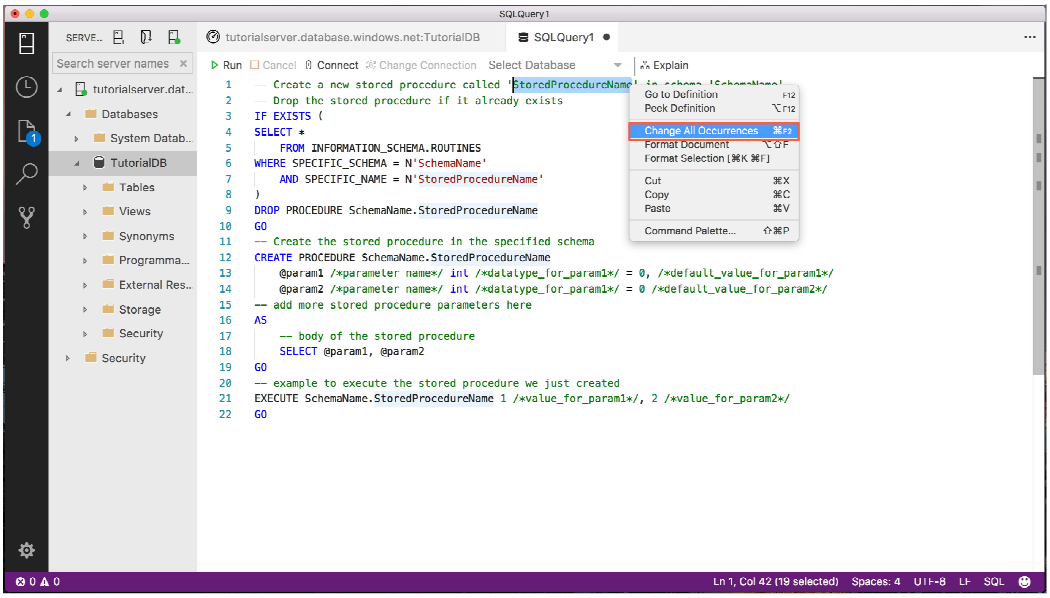
Azure Data Studio provides many built-in T-SQL snippets for quickly creating statements.

1. Open a new query editor by pressing **Ctrl+N**.
2. Type **sql** in the editor, arrow down to **sqlCreateStoredProcedure**, and press the *Tab* key (or *Enter*) to load the create stored procedure snippet.



3. The create stored procedure snippet has two fields set up for quick edit, *StoredProcedureName* and *SchemaName*. Select *StoredProcedureName*, right-click, and

select **Change All Occurrences**. Now type *getCustomer* and all *StoredProcedureName* entries change to *getCustomer*.



4. Change all occurrences of *SchemaName* to *dbo*.
5. The snippet contains placeholder parameters and body text that needs updating.
   The *EXECUTE* statement also contains placeholder text because it doesn't know how many parameters the procedure will have. For this tutorial update the snippet so it looks like the following code:

SQLCopy

```
-- Create a new stored procedure called 'getCustomer' in schema 'dbo'
-- Drop the stored procedure if it already exists
IF EXISTS (
SELECT *
FROM INFORMATION_SCHEMA.ROUTINES
WHERE SPECIFIC_SCHEMA = N'dbo'
AND SPECIFIC_NAME = N'getCustomer'
)
DROP PROCEDURE dbo.getCustomer
GO
-- Create the stored procedure in the specified schema
CREATE PROCEDURE dbo.getCustomer
@ID int
-- add more stored procedure parameters here
AS
-- body of the stored procedure
SELECT  c.CustomerId,
c.Name,
c.Location,
c.Email
FROM dbo.Customers c
WHERE c.CustomerId = @ID
FOR JSON PATH
```

```
GO
-- example to execute the stored procedure we just created
EXECUTE dbo.getCustomer 1
GO
```

6. To create the stored procedure and give it a test run, press **F5**.

The stored procedure is now created, and the **RESULTS** pane displays the returned customer in JSON. To see formatted JSON, click the returned record.

Use Peek Definition

Azure Data Studio provides the ability to view an objects definition using the peek definition feature. This section creates a second stored procedure and uses peek definition to see what columns are in a table to quickly create the body of the stored procedure.

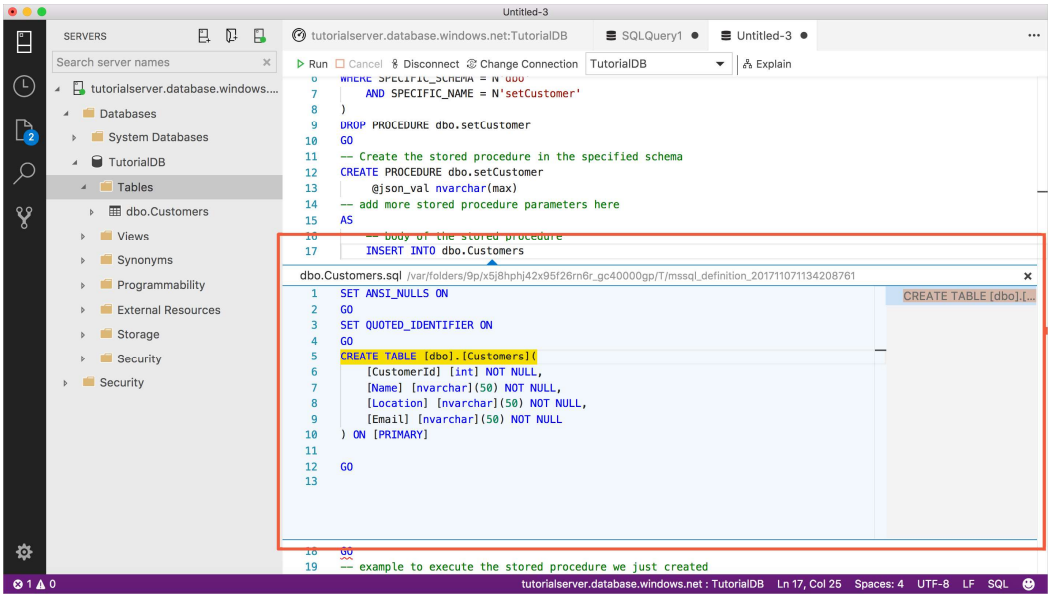
1. Open a new editor by pressing **Ctrl+N**.
2. Type *sql* in the editor, arrow down to *sqlCreateStoredProcedure*, and press the *Tab* key (or *Enter*) to load the create stored procedure snippet.
3. Type in *setCustomer* for *StoredProcedureName* and *dbo* for *SchemaName*
4. Replace the @param placeholders with the following parameter definition:

   SQLCopy
   ```
   @json_val nvarchar(max)
   ```

5. Replace the body of the stored procedure with the following code:

   SQLCopy
   ```
   INSERT INTO dbo.Customers
   ```

6. In the *INSERT* line you just added, right-click **dbo.Customers** and select **Peek Definition**.



7. The table definition appears so you can quickly see what columns are in the table. Refer to the column list to easily complete the statements for your stored procedure. Finish creating the INSERT statement you added previously to complete the body of the stored procedure, and close the peek definition window:

SQLCopy

```
INSERT INTO dbo.Customers (CustomerId, Name, Location, Email)
    SELECT CustomerId, Name, Location, Email
    FROM OPENJSON (@json_val)
    WITH(   CustomerId int,
            Name nvarchar(50),
            Location nvarchar(50),
            Email nvarchar(50)
 )
```

8. Delete (or comment out) the *EXECUTE* command at the bottom of the query.
9. The entire statement should look like the following code:

SQLCopy

```
-- Create a new stored procedure called 'setCustomer' in schema 'dbo'
-- Drop the stored procedure if it already exists
IF EXISTS (
SELECT *
    FROM INFORMATION_SCHEMA.ROUTINES
    WHERE SPECIFIC_SCHEMA = N'dbo'
    AND SPECIFIC_NAME = N'setCustomer'
)
DROP PROCEDURE dbo.setCustomer
GO
-- Create the stored procedure in the specified schema
CREATE PROCEDURE dbo.setCustomer
    @json_val nvarchar(max)
```

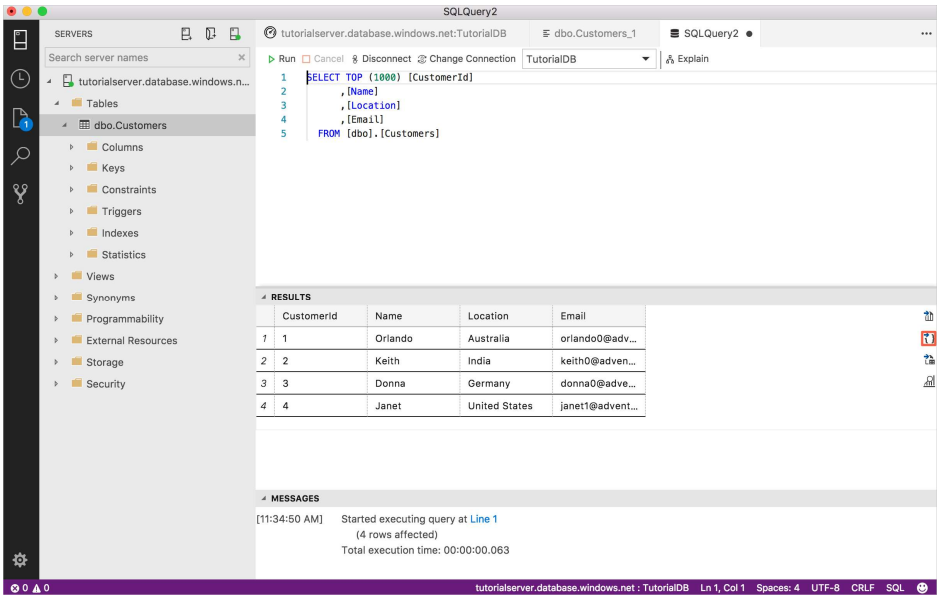
```
AS
    -- body of the stored procedure
    INSERT INTO dbo.Customers (CustomerId, Name, Location, Email)
    SELECT CustomerId, Name, Location, Email
    FROM OPENJSON (@json_val)
    WITH(   CustomerId int,
            Name nvarchar(50),
            Location nvarchar(50),
            Email nvarchar(50)
    )
GO
```

10. To create the *setCustomer* stored procedure, press **F5**.

Use save query results as JSON to test the setCustomer stored procedure

The *setCustomer* stored procedure created in the previous section requires JSON data be passed into the *@json_val* parameter. This section shows how to get a properly formatted bit of JSON to pass into the parameter so you can test the stored procedure.

1. In the **SERVERS** sidebar right-click the *dbo.Customers* table and click **SELECT TOP 1000 Rows**.
2. Select the first row in the results view, make sure the entire row is selected (click the number 1 in the left-most column), and select **Save as JSON**.
3. Change the folder to a location you'll remember so you can delete the file later (for example desktop) and click **Save**. The JSON formatted file opens.



4. Select the JSON data in the editor and copy it.
5. Open a new editor by pressing **Ctrl+N**.

6. The previous steps show how you can easily get the properly formatted data to complete the call to the *setCustomer* procedure. You can see the following code uses the same JSON format with new customer details so we can test the *setCustomer* procedure. The statement includes syntax to declare the parameter and run the new get and set procedures. You can paste the copied data from the previous section and edit it so it is the same as the following example, or simply paste the following statement into the query editor.

   SQLCopy

   ```
   -- example to execute the stored procedure we just created
   declare @json nvarchar(max) =
   N'[
       {
           "CustomerId": 5,
           "Name": "Lucy",
           "Location": "Canada",
           "Email": "lucy0@adventure-works.com"
       }
   ]'

   EXECUTE dbo.setCustomer @json_val = @json
   GO

   EXECUTE dbo.getCustomer @ID = 5
   ```

7. Execute the script by pressing **F5**. The script inserts a new customer and returns the new customer's information in JSON format. Click the result to open a formatted view.