Quickstart: Use .NET (C#) to connect and query data in Azure Database for MySQL

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APPLIES TO: ✓ Azure Database for MySQL - Single Server

Important

Azure Database for MySQL - Single Server is on the retirement path. We strongly recommend for you to upgrade to Azure Database for MySQL - Flexible Server. For more information about migrating to Azure Database for MySQL - Flexible Server, see **What's happening to Azure Database for MySQL Single Server**?

This quickstart demonstrates how to connect to an Azure Database for MySQL by using a C# application. It shows how to use SQL statements to query, insert, update, and delete data in the database.

Prerequisites

For this quickstart you need:

- An Azure account with an active subscription. Create an account for free .
- Create an Azure Database for MySQL single server using Azure portal or Azure CLI if you do not have one.
- Based on whether you are using public or private access, complete **ONE** of the actions below to enable connectivity.
- Install the .NET SDK for your platform (Windows, Ubuntu Linux, or macOS) for your platform.

Action	Connectivity method	How-to guide
Configure firewall rules	Public	Portal CLI
Configure Service Endpoint	Public	Portal CLI

Action	Connectivity method	How-to guide
Configure private link	Private	Portal CLI

- Create a database and non-admin user

Create a C# project

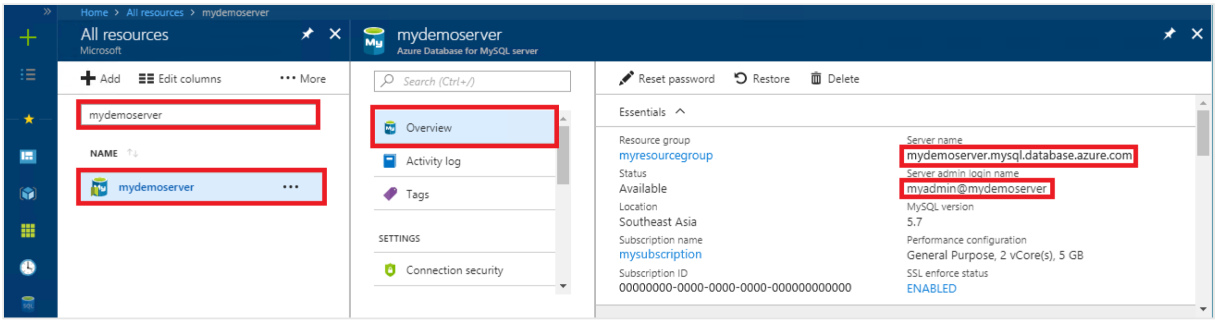
At a command prompt, run:

```
mkdir AzureMySqlExample
cd AzureMySqlExample
dotnet new console
dotnet add package MySqlConnector
```

Get connection information

Get the connection information needed to connect to the Azure Database for MySQL. You need the fully qualified server name and login credentials.

1. Log in to the Azure portal .
2. From the left-hand menu in Azure portal, click **All resources**, and then search for the server you have created (such as **mydemoserver**).
3. Click the server name.
4. From the server's **Overview** panel, make a note of the **Server name** and **Server admin login name**. If you forget your password, you can also reset the password from this panel.



Resource group
myresourcegroup
Status
Available
Location
Southeast Asia
Subscription name
mysubscription
Subscription ID
00000000-0000-0000-0000-000000000000
Server name
mydemoserver.mysql.database.azure.com
Server admin login name
myadmin@mydemoserver
MySQL version
5.7
Performance configuration
General Purpose, 2 vCore(s), 5 GB
SSL enforce status
ENABLED

Step 1: Connect and insert data

Use the following code to connect and load the data by using `CREATE TABLE` and `INSERT INTO` SQL statements. The code uses the methods of the `MySqlConnection` class:

- OpenAsync() to establish a connection to MySQL.
- CreateCommand(), sets the CommandText property
- ExecuteNonQueryAsync() to run the database commands.

Replace the `Server`, `Database`, `UserID`, and `Password` parameters with the values that you specified when you created the server and database.

C#

```csharp
using System;
using System.Threading.Tasks;
using MySqlConnector;

namespace AzureMySqlExample
{
    class MySqlCreate
    {
        static async Task Main(string[] args)
        {
            var builder = new MySqlConnectionStringBuilder
            {
                Server = "YOUR-SERVER.mysql.database.azure.com",
                Database = "YOUR-DATABASE",
                UserID = "USER@YOUR-SERVER",
                Password = "PASSWORD",
                SslMode = MySqlSslMode.Required,
            };

            using (var conn = new MySqlConnection(builder.ConnectionString))
            {
                Console.WriteLine("Opening connection");
                await conn.OpenAsync();

                using (var command = conn.CreateCommand())
                {
                    command.CommandText = "DROP TABLE IF EXISTS inventory;";
                    await command.ExecuteNonQueryAsync();
                    Console.WriteLine("Finished dropping table (if existed)");

                    command.CommandText = "CREATE TABLE inventory (id serial
PRIMARY KEY, name VARCHAR(50), quantity INTEGER);";
                    await command.ExecuteNonQueryAsync();
                    Console.WriteLine("Finished creating table");

                    command.CommandText = @"INSERT INTO inventory (name, quan-
tity) VALUES (@name1, @quantity1),
                        (@name2, @quantity2), (@name3, @quantity3);";
                    command.Parameters.AddWithValue("@name1", "banana");
                    command.Parameters.AddWithValue("@quantity1", 150);
                    command.Parameters.AddWithValue("@name2", "orange");
                    command.Parameters.AddWithValue("@quantity2", 154);
                    command.Parameters.AddWithValue("@name3", "apple");
                    command.Parameters.AddWithValue("@quantity3", 100);

                    int rowCount = await command.ExecuteNonQueryAsync();
                    Console.WriteLine(String.Format("Number of rows inserted=
{0}", rowCount));
                }

                // connection will be closed by the 'using' block
                Console.WriteLine("Closing connection");
            }

            Console.WriteLine("Press RETURN to exit");
            Console.ReadLine();
        }
    }
}
```

Step 2: Read data

Use the following code to connect and read the data by using a `SELECT` SQL statement. The code uses the `MySqlConnection` class with methods:

- OpenAsync() to establish a connection to MySQL.
- CreateCommand() to set the CommandText property.
- ExecuteReaderAsync() to run the database commands.
- ReadAsync() to advance to the records in the results. Then the code uses GetInt32 and GetString to parse the values in the record.

Replace the `Server`, `Database`, `UserID`, and `Password` parameters with the values that you specified when you created the server and database.

C#

```
using System;
using System.Threading.Tasks;
using MySqlConnector;

namespace AzureMySqlExample
```

```
{
    class MySqlRead
    {
        static async Task Main(string[] args)
        {
            var builder = new MySqlConnectionStringBuilder
            {
                Server = "YOUR-SERVER.mysql.database.azure.com",
                Database = "YOUR-DATABASE",
                UserID = "USER@YOUR-SERVER",
                Password = "PASSWORD",
                SslMode = MySqlSslMode.Required,
            };

            using (var conn = new MySqlConnection(builder.ConnectionString))
            {
                Console.WriteLine("Opening connection");
                await conn.OpenAsync();

                using (var command = conn.CreateCommand())
                {
                    command.CommandText = "SELECT * FROM inventory;";

                    using (var reader = await command.ExecuteReaderAsync())
                    {
                        while (await reader.ReadAsync())
                        {
                            Console.WriteLine(string.Format(
                                "Reading from table=({0}, {1}, {2})",
                                reader.GetInt32(0),
                                reader.GetString(1),
                                reader.GetInt32(2)));
                        }
                    }
                }

                Console.WriteLine("Closing connection");
            }

            Console.WriteLine("Press RETURN to exit");
            Console.ReadLine();
        }
    }
}
```

Step 3: Update data

Use the following code to connect and read the data by using an `UPDATE` SQL statement. The code uses the `MySqlConnection` class with method:

- OpenAsync() to establish a connection to MySQL.
- CreateCommand() to set the CommandText property
- ExecuteNonQueryAsync() to run the database commands.

Replace the `Server`, `Database`, `UserID`, and `Password` parameters with the values that you specified when you created the server and database.

C#

```
using System;
using System.Threading.Tasks;
using MySqlConnector;

namespace AzureMySqlExample
{
    class MySqlUpdate
    {
        static async Task Main(string[] args)
        {
            var builder = new MySqlConnectionStringBuilder
            {
                Server = "YOUR-SERVER.mysql.database.azure.com",
                Database = "YOUR-DATABASE",
                UserID = "USER@YOUR-SERVER",
                Password = "PASSWORD",
                SslMode = MySqlSslMode.Required,
            };

            using (var conn = new MySqlConnection(builder.ConnectionString))
            {
                Console.WriteLine("Opening connection");
                await conn.OpenAsync();

                using (var command = conn.CreateCommand())
                {
                    command.CommandText = "UPDATE inventory SET quantity = 
@quantity WHERE name = @name;";
                    command.Parameters.AddWithValue("@quantity", 200);
                    command.Parameters.AddWithValue("@name", "banana");

                    int rowCount = await command.ExecuteNonQueryAsync();
                    Console.WriteLine(String.Format("Number of rows updated=
{0}", rowCount));
                }
                Console.WriteLine("Closing connection");
            }

            Console.WriteLine("Press RETURN to exit");
            Console.ReadLine();
        }
    }
}
```

Step 4: Delete data

Use the following code to connect and delete the data by using a `DELETE` SQL statement.

The code uses the `MySqlConnection` class with method

- OpenAsync() to establish a connection to MySQL.
- CreateCommand() to set the CommandText property.
- ExecuteNonQueryAsync() to run the database commands.

Replace the `Server`, `Database`, `UserID`, and `Password` parameters with the values that you specified when you created the server and database.

C#

```
using System;
using System.Threading.Tasks;
using MySqlConnector;

namespace AzureMySqlExample
{
    class MySqlDelete
    {
        static async Task Main(string[] args)
        {
            var builder = new MySqlConnectionStringBuilder
            {
                Server = "YOUR-SERVER.mysql.database.azure.com",
                Database = "YOUR-DATABASE",
                UserID = "USER@YOUR-SERVER",
                Password = "PASSWORD",
                SslMode = MySqlSslMode.Required,
            };

            using (var conn = new MySqlConnection(builder.ConnectionString))
            {
                Console.WriteLine("Opening connection");
                await conn.OpenAsync();

                using (var command = conn.CreateCommand())
                {
                    command.CommandText = "DELETE FROM inventory WHERE name =
@name;";
                    command.Parameters.AddWithValue("@name", "orange");

                    int rowCount = await command.ExecuteNonQueryAsync();
                    Console.WriteLine(String.Format("Number of rows deleted=
{0}", rowCount));
                }

                Console.WriteLine("Closing connection");
            }

            Console.WriteLine("Press RETURN to exit");
            Console.ReadLine();
        }
    }
}
```

Clean up resources

To clean up all resources used during this quickstart, delete the resource group using the following command:

Azure CLI

```
az group delete \
    --name $AZ_RESOURCE_GROUP \
    --yes
```

Next steps

Manage Azure Database for MySQL server using Portal

Manage Azure Database for MySQL server using CLI

Cannot find what you are looking for?Let us know.