

Improve Entity Framework Performance



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Querying in Entity Framework

You can build and execute queries using Entity Framework to fetch the data from the underlying database. EF 6 supports different types of queries which in turn convert into SQL queries for the underlying database.

Entity framework supports three types of queries: 1) LINQ-to-Entities, 2) Entity SQL, and 3) Native SQL

LINQ-to-Entities

Language-Integrated Query (LINQ) is a powerful query language introduced in Visual Studio 2008. As the name suggests, LINQ-to-Entities queries operate on the entity set (`DbSet` type properties) to access the data from the underlying database. You can use the LINQ method syntax or query syntax when querying with EDM. Visit [LINQ Tutorials](#) to learn LINQ step-by-step.

The following sample LINQ-to-Entities query fetches the data from the `Student` table in the database.

LINQ Method syntax:

```
//Querying with LINQ to Entities
using (var context = new SchoolDBEntities())
{
    var query = context.Students
                        .where(s => s.StudentName == "Bill")
                        .FirstOrDefault<Student>();
}
```

LINQ Query syntax:

```
using (var context = new SchoolDBEntities())
{
    var query = from st in context.Students
                where st.StudentName == "Bill"
                select st;

    var student = query.FirstOrDefault<Student>();
}
```

As you can see above, we created an instance of the context class `SchoolDBEntities`. It is recommended to instantiate it in `using()`, so that once it goes out of scope, then it automatically gets disposed.

Learn different types of LINQ-to-Entities projection query in the next chapter.

Entity SQL

Entity SQL is another way to create a query. It is processed by the Entity Framework's Object Services directly. It returns `ObjectQuery` instead of `IQueryable`.

You need an `ObjectContext` to create a query using Entity SQL.

The following code snippet shows the same query result as the LINQ query above.

```
//Querying with Object Services and Entity SQL
string sqlString = "SELECT VALUE st FROM SchoolDBEntities.Students " +
    "AS st WHERE st.StudentName == 'Bill'";

var objctx = (ctx as IObjectContextAdapter).ObjectContext;

ObjectQuery<Student> student = objctx.CreateQuery<Student>(sqlString);
Student newStudent = student.First<Student>();
```

You can also use `EntityConnection` and `EntityCommand` to execute Entity SQL as shown below:

```
using (var con = new EntityConnection("name=SchoolDBEntities"))
{
    con.Open();
    EntityCommand cmd = con.CreateCommand();
    cmd.CommandText = "SELECT VALUE st FROM SchoolDBEntities.Students as st where st.StudentName='Bill'";
    Dictionary<int, string> dict = new Dictionary<int, string>();
    using (EntityDataReader rdr = cmd.ExecuteReader(CommandBehavior.SequentialAccess |
        CommandBehavior.CloseConnection))
    {
        while (rdr.Read())
        {
            int a = rdr.GetInt32(0);
            var b = rdr.GetString(1);
            dict.Add(a, b);
        }
    }
}
```

Visit [MSDN blog](https://msdn.microsoft.com/en-us/library/ee694972.aspx) to learn Entity SQL.

Native SQL

You can execute native SQL queries for a relational database, as shown below:

```
using (var ctx = new SchoolDBEntities())
{
    var studentName = ctx.Students.SqlQuery("Select studentid, studentname, standardId from Student where studentname='Bill'").FirstOrDefault<Student>();
}
```

Learn to execute raw sql queries using `DbContext` in [Raw SQL Query](#) chapter.

[!\[\]\(c694a3ff3b077d76910920a6a1593ab4_img.jpg\) Download EF 6 DB-First Demo Project from Github](#)

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