

Document DB



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About the Tutorial

DocumentDB is Microsoft's newest NoSQL document database platform that runs on Azure. DocumentDB is designed keeping in mind the requirements of managing data for latest applications. This tutorial explains the basics of DocumentDB with illustrative examples.

Audience

This tutorial is designed for beginners, i.e., for developers who want to get acquainted with how DocumentDB works.

Prerequisites

It is an elementary tutorial that explains the basics of DocumentDB and there are no prerequisites as such. However, it will certainly help if you have some prior exposure to NoSQL technologies.

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Table of Contents

About the Tutorial.....	i
Audience	i
Prerequisites	i
Disclaimer & Copyright.....	i
Table of Contents	ii
1. DOCUMENTDB – INTRODUCTION.....	1
NoSQL Document Database	1
Azure DocumentDB.....	1
DocumentDB –	2
Pricing	2
2. DOCUMENTDB – ADVANTAGES.....	3
3. DOCUMENTDB – ENVIRONMENT SETUP	5
4. DOCUMENTDB – CREATE ACCOUNT.....	14
5. DOCUMENTDB – CONNECT ACCOUNT	22
Endpoint	22
Authorization Key	24
6. DOCUMENTDB – CREATE DATABASE.....	27
Create a Database for DocumentDB using the Microsoft Azure Portal	27
Create a Database for DocumentDB Using .Net SDK.....	30
7. DOCUMENTDB – LIST DATABASES	33
8. DOCUMENTDB – DROP DATABASES	37
9. DOCUMENTDB – CREATE COLLECTION.....	45
10. DOCUMENTDB – DELETE COLLECTION	53

11. DOCUMENTDB – INSERT DOCUMENT	61
Creating Documents with the Azure Portal	61
Creating Documents with the .NET SDK.....	68
12. DOCUMENTDB – QUERY DOCUMENT.....	73
Querying Document using Portal.....	73
Querying Document using .Net SDK	75
13. DOCUMENTDB – UPDATE DOCUMENT.....	79
14. DOCUMENTDB – DELETE DOCUMENT.....	82
15. DOCUMENTDB – DATA MODELING	85
Relationships.....	85
Embedding Data.....	86
16. DOCUMENTDB – DATA TYPES.....	95
17. DOCUMENTDB – LIMITING RECORDS	98
18. DOCUMENTDB – SORTING RECORDS.....	102
19. DOCUMENTDB – INDEXING RECORDS	104
Hash	104
Range	104
Indexing Policy	104
Include / Exclude Indexing	105
Automatic Indexing	105
Manual Indexing	108
20. DOCUMENTDB – GEOSPATIAL DATA	111
Create Document with Geospatial Data in .NET	112

21. DOCUMENTDB – PARTITIONING.....	114
Spillover Partitioning.....	114
Range Partitioning.....	115
Lookup Partitioning.....	115
Hash Partitioning	115
22. DATA MIGRATION	119
JSON Files.....	122
SQL Server.....	131
CSV File	149
23. DOCUMENTDB – ACCESS CONTROL	155
24. DOCUMENTDB – VISUALIZE DATA.....	165

1. DOCUMENTDB – INTRODUCTION

In this chapter, we will briefly discuss the major concepts around NoSQL and document databases. We will also have a quick overview of DocumentDB.

NoSQL Document Database

DocumentDB is Microsoft's newest NoSQL document database, so when you say NoSQL document database then, what precisely do we mean by NoSQL, and document database?

- SQL means Structured Query Language which is traditional query language of relational databases. SQL is often equated with relational databases.
- It's really more helpful to think of a NoSQL database as a non-relational database, so NoSQL really means non-relational.

There are different types of NoSQL databases which include key value stores such as:

- Azure Table Storage.
- Column-based stores like Cassandra.
- Graph databases like NEO4.
- Document databases like MongoDB and Azure DocumentDB.

Azure DocumentDB

Microsoft officially launched Azure DocumentDB on April 8th, 2015, and it certainly can be characterized as a typical NoSQL document database. It's massively scalable, and it works with schema-free JSON documents.

- DocumentDB is a true schema-free NoSQL document database service designed for modern mobile and web applications.
- It also delivers consistently fast reads and writes, schema flexibility, and the ability to easily scale a database up and down on demand.
- It does not assume or require any schema for the JSON documents it indexes.
- DocumentDB automatically indexes every property in a document as soon as the document is added to the database.

- DocumentDB enables complex ad-hoc queries using a SQL language, and every document is instantly queryable the moment it's created, and you can search on any property anywhere within the document hierarchy.

DocumentDB – Pricing

DocumentDB is billed based on the number of collections contained in a database account. Each account can have one or more databases and each database can have a virtually unlimited number of collections, although there is an initial default quota of 100. This quota can be lifted by contacting Azure support.

- A collection is not only a unit of scale, but also a unit of cost, so in DocumentDB you pay per collection, which has a storage capacity of up to 10 GB.
- At a minimum, you'll need one S1 collection to store documents in a database that will cost roughly \$25 per month, which gets billed against your Azure subscription.
- As your database grows in size and exceeds 10 GB, you'll need to purchase another collection to contain the additional data.
- Each S1 collection will give you 250 request units per second, and if that's not enough, then you can scale the collection up to an S2 and get a 1000 request units per second for about \$50 a month.
- You can also turn it all the way up to an S3 and pay around \$100 a month.

2. DOCUMENTDB – ADVANTAGES

DocumentDB stands out with some very unique capabilities. Azure DocumentDB offers the following key capabilities and benefits.

Schema Free

In a relational database, every table has a schema that defines the columns and data types that each row in the table must conform to.

In contrast, a document database has no defined schema, and every document can be structured differently.

SQL Syntax

DocumentDB enables complex ad-hoc queries using SQL language, and every document is instantly queryable the moment it's created. You can search on any property anywhere within the document hierarchy.

Tunable Consistency

It provides some granular, well-defined consistency levels, which allows you to make sound trade-offs between consistency, availability, and latency.

You can select from four well-defined consistency levels to achieve optimal trade-off between consistency and performance. For queries and read operations, DocumentDB offers four distinct consistency levels:

- Strong
- Bounded-staleness
- Session
- Eventual

Elastic Scale

Scalability is the name of the game with NoSQL, and DocumentDB delivers. DocumentDB has already been proven its scale.

- Major services like Office OneNote and Xbox are already backed by DocumentDB with databases containing tens of terabytes of JSON documents, over a million active users, and operating consistently with 99.95% availability.
- You can elastically scale DocumentDB with predictable performance by creating more units as your application grows.

Fully Managed

DocumentDB is available as a fully managed cloud-based platform as a service running on Azure.

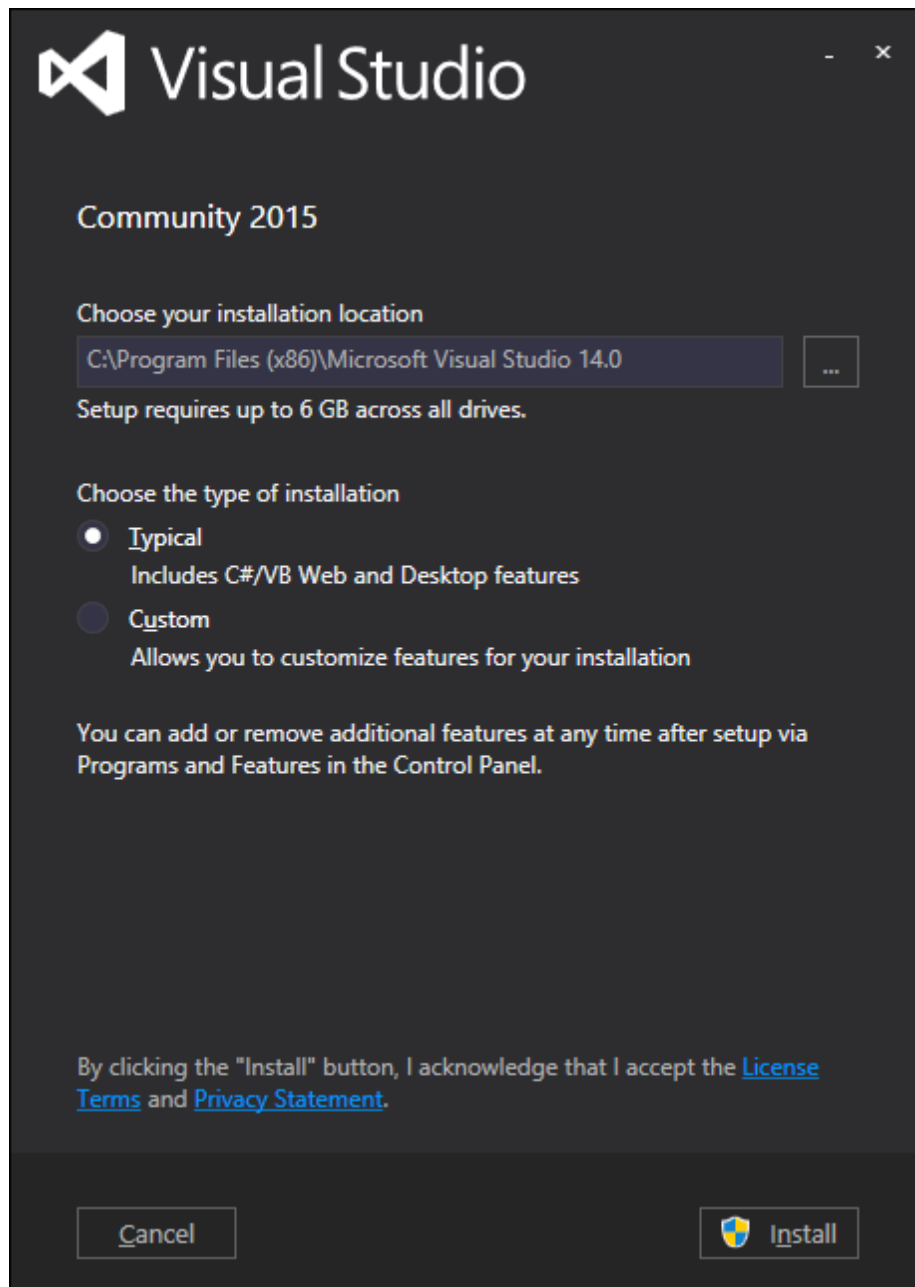
- There is simply nothing for you to install or manage.
- There are no servers, cables, no operating systems or updates to deal with, no replicas to set up.
- Microsoft does all that work and keeps the service running.
- Within literally minutes, you can get started working with DocumentDB using just a browser and an Azure subscription.

3. DOCUMENTDB – ENVIRONMENT SETUP

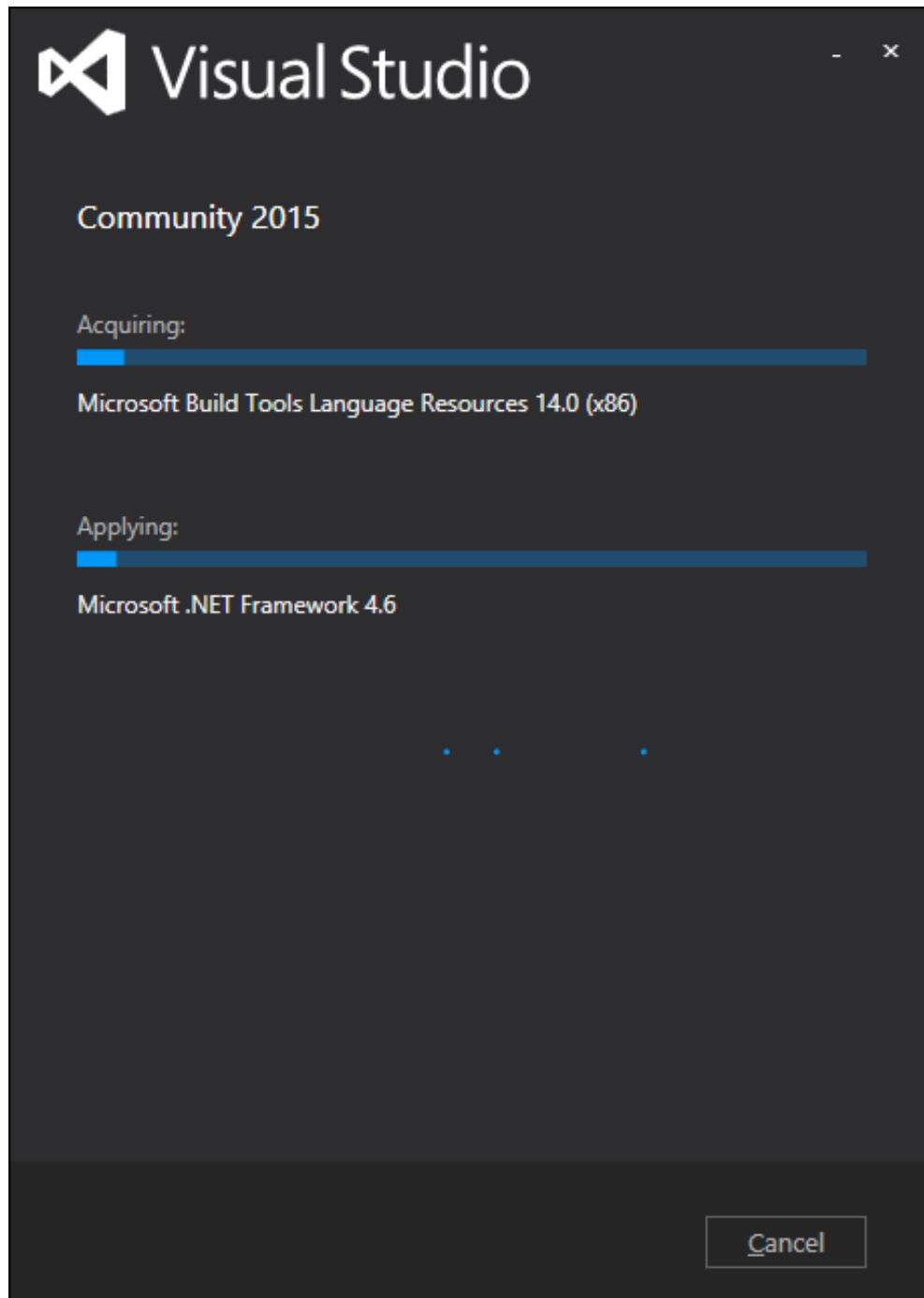
Microsoft provides a free version of Visual Studio which also contains SQL Server and it can be downloaded from <https://www.visualstudio.com/en-us/downloads/download-visual-studio-vs.aspx>.

Installation

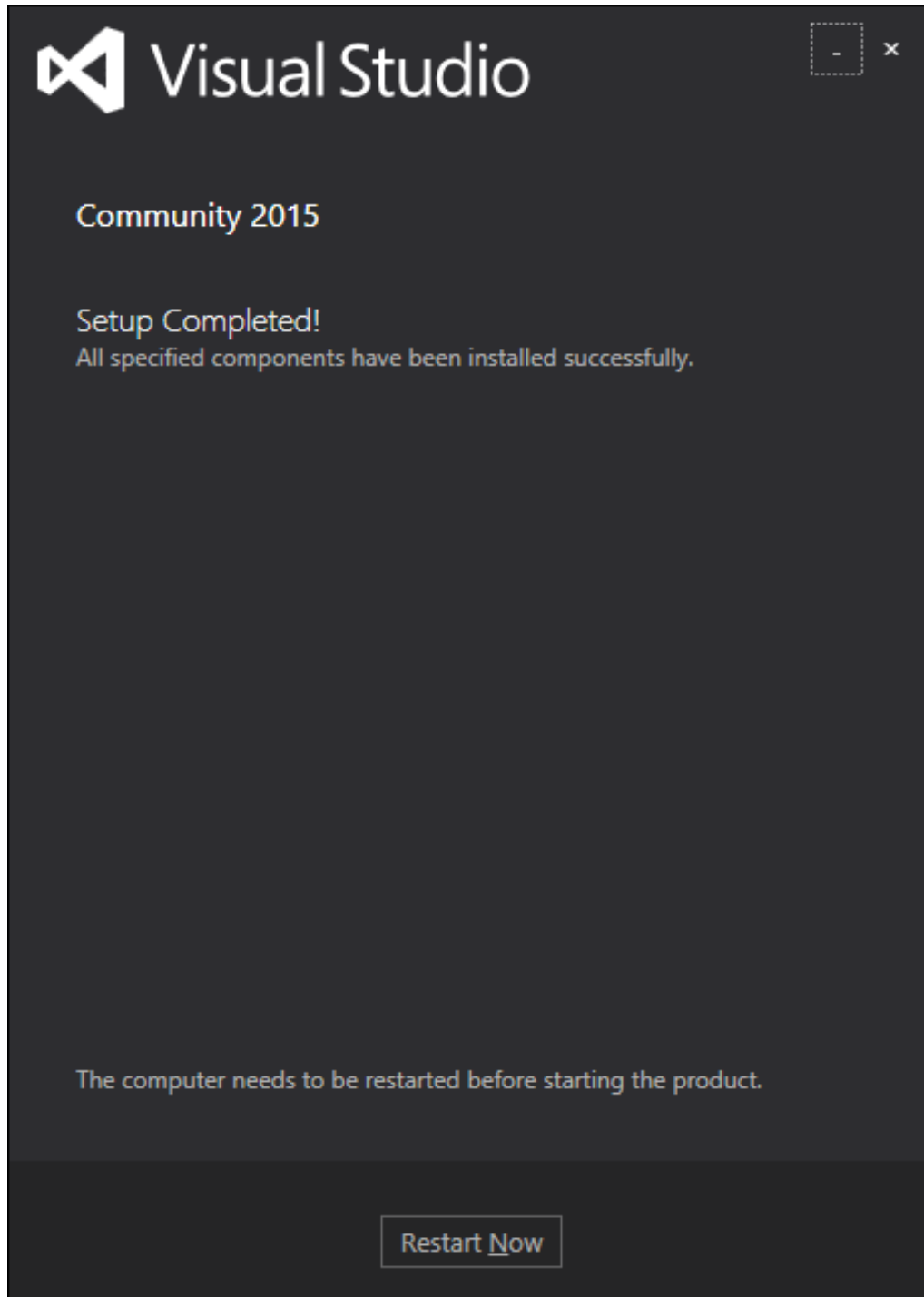
Step 1: Once downloading is completed, run the installer. The following dialog will be displayed.



Step 2: Click on the Install button and it will start the installation process.

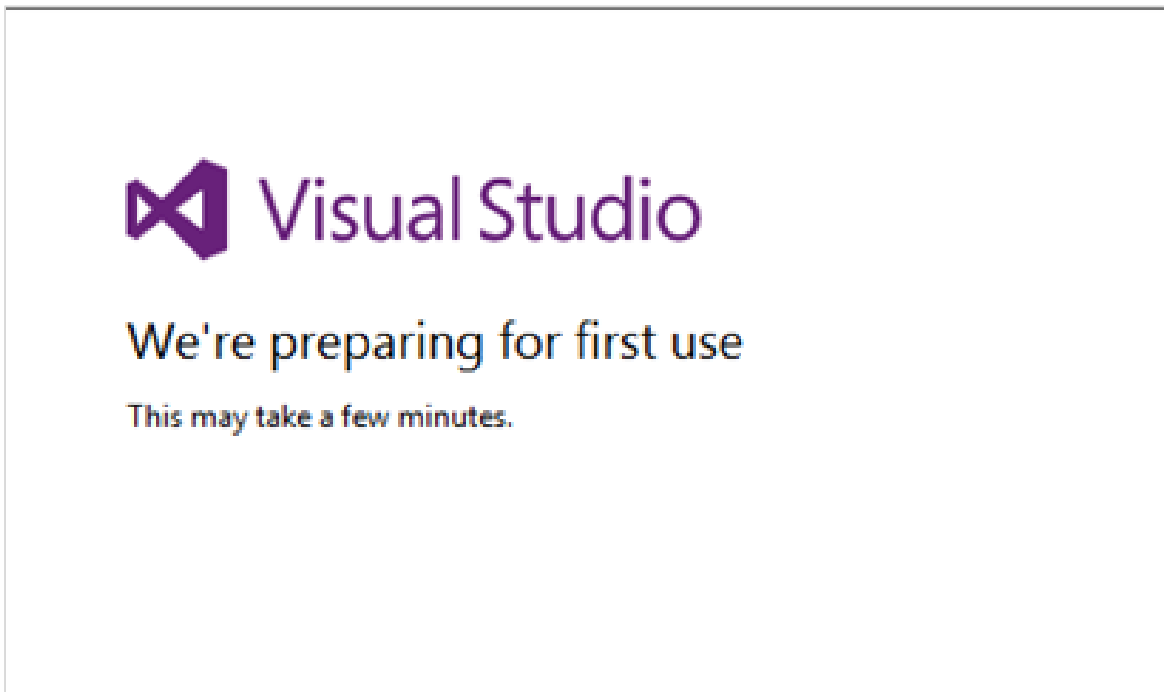


Step 3: Once the installation process is completed successfully, you will see the following dialog.

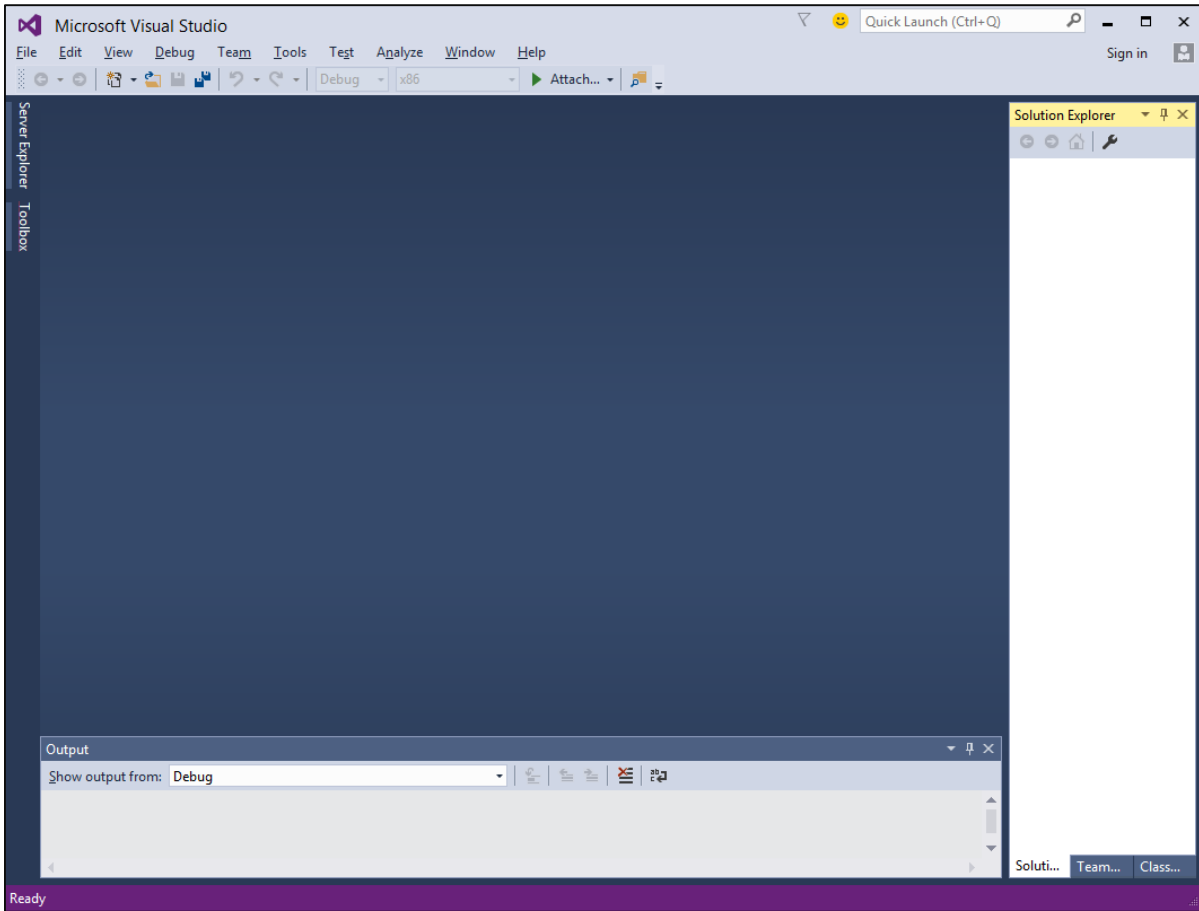


Step 4: Close this dialog and restart your computer if required.

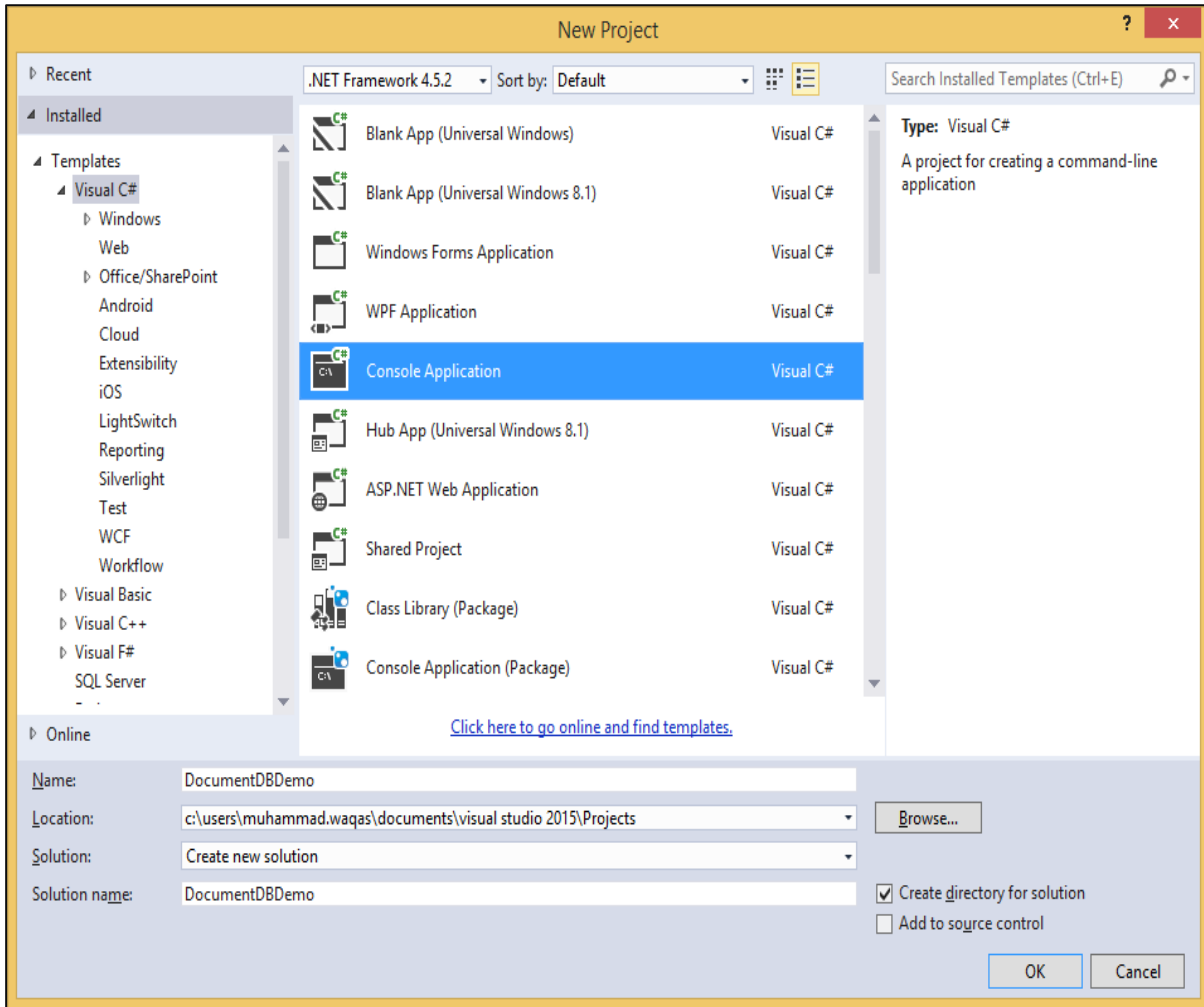
Step 5: Now open Visual studio from start Menu which will open the below dialog. It will take some time for the first time only for preparation.



Once all is done, you will see the main window of Visual Studio.



Step 6: Let's create a new project from File -> New -> Project.



Step 7: Select Console Application, enter DocumentDBDemo in the Name field and click OK button.

End of ebook preview
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