

# MongoDB Reference



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## Installation

1. Install MongoDB from <https://www.mongodb.org/>
  - a. Help / Guidance documentation can also be found at link
2. Finish installation of MongoDB
3. Open Windows Explorer and navigate from Computer → Local Disk C: → Program Files → MongoDB → Server → 3.0 → bin
  - a. Mongod.exe = actual mongo database host; program that runs in background to allow your computer to run as database
  - b. Mongo.exe = application client / command line interface with Mongod.exe database
4. In Window Explorer navigate to Computer and your Local Disk. Then create a new folder called “data” and inside this folder create another called “db”

## Terminology

- Database (database)
- Primary Key (primary key)
- Collection (table)
- Document (row)
- Field (column)
- Embedded Documents (table join)
- Mongod (server or host)
- Mongo (client)

## Helpful Sites

- <http://www.tutorialspoint.com/mongodb/>
- <http://docs.mongodb.org/manual/reference/>

## Opening a Local Server

1. Open Start Menu and type into the search "cmd.exe" to open the windows command line
2. In the new window that opens, you will need to navigate to the mongo d and mongo .exe files in order to execute them. The following steps show how to navigate the command line...
  - a. In the box, type "cd .." and then press "Enter". This will leave your current folder location and move out of the nesting.
  - b. You need to move out more, so type "Cd .." again to reach the "Local Disk C:" spot.

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\JSW>cd ..
C:\Users>cd ..
C:\>
```

- c.
3. Now at the highest point in your folder structure, navigate into your location of the mongo files.

```
C:\Users>cd ..
C:\>cd Program Files\MongoDB\Server\3.0\bin
C:\Program Files\MongoDB\Server\3.0\bin>
```

- a.
4. Typing "dr" and pressing "Enter" now will allow you to double check that you are in the correct folder to access the Mongo files

```
Directory of C:\Program Files\MongoDB\Server\3.0\bin

07/11/2015  03:10 PM    <DIR>          .
07/11/2015  03:10 PM    <DIR>          ..
06/15/2015  04:07 PM             9,744,896  bsondump.exe
03/23/2015  10:24 PM             1,982,464  libeay32.dll
06/15/2015  04:11 PM             6,510,592  mongo.exe
06/15/2015  04:14 PM             14,468,096  mongod.exe
06/15/2015  04:15 PM             110,956,544  mongod.pdb
06/15/2015  04:09 PM             10,260,992  mongodump.exe
06/15/2015  04:08 PM             10,072,064  mongoexport.exe
06/15/2015  04:08 PM             10,013,696  mongofiles.exe
06/15/2015  04:08 PM             10,253,312  mongoimport.exe
06/15/2015  04:09 PM              9,754,624  mongooplog.exe
06/15/2015  04:15 PM             12,620,288  mongoperf.exe
06/15/2015  04:08 PM             10,374,144  mongorestore.exe
06/15/2015  04:14 PM              6,372,352  mongos.exe
06/15/2015  04:14 PM             57,036,800  mongos.pdb
06/15/2015  04:08 PM              9,971,200  mongostat.exe
06/15/2015  04:09 PM              9,841,664  mongotop.exe
03/23/2015  10:24 PM              348,672  ssleay32.dll
               17 File(s)      300,582,400 bytes
               2 Dir(s)      468,452,073,472 bytes free
```

- a.

5. Now that you are inside the “bin” folder which houses the Mongo files, type “mongod” into the command line and press “Enter”.
6. A list of lines should run down the screen until the last row says “waiting for connections on port 27017”. This means that setup was successful and your application is now running in the background of your computer

```
2015-07-11T16:08:29.542-0700 I NETWORK [initandlisten] waiting for connections
on port 27017
```

a.

## Opening a Local Client

1. In a separate command line from the “mongod” or server instance, re-navigate to the following mongo folder

```
C:\Program Files\MongoDB\Server\3.0\bin>
```

a.

2. Now type “mongo” and press enter, you have successfully opened a local client connected to “test” database on port 27017. The default database to open is “test”. A successful connection is displayed below.

```
C:\Program Files\MongoDB\Server\3.0\bin>mongo
2015-08-07T19:52:34.470-0700 I CONTROL Hotfix K
MongoDB shell version: 3.0.4
connecting to: test
>
```

a.

3. The server will also have a log of the connection. The entry will say “connection accepted from <XXX.XXX.XXX.XXX>:<PORT> ##” and then list the current number of connections on the server.

a. connection accepted from 127.0.0.1:61229 #1

## Creating a Database

1. After this structure has been created, you must open a server AKA the “mongod.exe” in a command line.
2. In a second command line, you will now use the “mongo.exe” method to open a client connection with the server opened in the step above.

1. A successful connection will display a final line like the following

```
C:\Program Files\MongoDB\Server\3.0\bin>mongo
2015-07-24T01:42:11.558-0700 I CONTROL Hotfix K
installed, will zero-out data files
MongoDB shell version: 3.0.4
connecting to: test
```

3. You will now type the following to access an existing method to open a database on the server “use <databaseName>” and then press enter
4. You may type “db” to see a result print of the current open database’s name
5. More detailed steps may be found at - [LINK](#)

## Creating a Collection

1. In the client command line, use the syntax of “db.createCollection(<name>, <options>) and then press enter to execute and create a collection in the currently connected database
  - a. Default database is “test”
2. The following displays the full method call and option syntax
  - a. Full Method Call:
    - i. `db.createCollection("<collectionName">, { capped : <T/F>, autoIndexID : <T/F>, size : #, max : # } ) { "ok" : 1 }`
    - ii. More details on parameters can be found here – [LINK](#)
3. To see the new collection in the current database, the following can be entered “show collections” and pressing enter will result in a print out of the existing collections

## Creating a Document

1. In the client, use the following syntax “db.<collectionName>.insert(<document>) and then press enter to execute and a document in the specified collection and current database.
2. The following displays the full method call and option syntax
  - a. Full Method Call:
    - i. `db.<collectionName>.insert( { <detailsName>: <details>, <detailsName2>: <detail2> } )`
    - ii. More details can be found here - [LINK](#)
3. It is useful to note that mongo auto-generates a 12 byte hexadecimal number that is unique for each document using the following scheme
  - a. 4 bytes timestamp, 3 bytes machine id, 2 bytes process id, 3 bytes incrementer
4. Multiple documents can be inserted by including a “,” between the sets of curly brackets that are located in the method’s pair of parenthesis
5. Another note is that the use of the “save()” method instead of “insert()” will allow for an optional specification of the “\_id” field instead of the auto-generated number.

## Exporting Data

1. The “mongoexport” extension can run if an instance of mongod is also running. Using a second window navigate to the mongo bin
2. In the non-server command line, type the following to execute the method with parameters and options:
  - a. Full Method Call:
    - i. `mongoexport - - db <databaseName> - - collection <collectionName> - - type =csv - - fields <field1,field2> - - out <location/exportFileName.csv>`
    - ii. More details on parameters can be found at - [LINK](#)

3. Query results can also be exported by using a similar method:
  - a. Full Method Call:
    - i. `mongoexport --db <databaseName> --collection <collectionName> --query '{"<field>": <#>}'`
  - b. Single quotes must be used to ensure no interactions with the shell environment

## Importing Data

1. To import data to a mongo database, you must first create an instances of the database name and collections that are to be imported
2. After this structure has been created, you must open a server AKA the “mongod.exe” in a command line.
3. In a second command line, you will now use the “mongoimport.exe” method with the following parameters and options.
  - a. Full Method Call:
    - i. `mongoimport -h <serverName> -port 27017 -d <datebaseName> -c <collectionName> -u <username> -p <password> -type <csv> -file <location/name.csv> -headerline`
    - ii. More details on the parameters can be found at - [LINK](#)
  - b. Output:
    - i. Connected to: <serverName>:<port>
    - ii. Imported <#> objects
4. If you would like to specify the document ID instead of auto-generate you can do the following
  - a. Column for the “\_id” field is in header row
  - b. Add a “-upsert” parameter to the import method call

## Query a Document

1. Information can be queried from a mongo database using the “find” method
  1. `Db.<collectionName>.find()`
2. There is also an option that can be looked into using which is the method “find().pretty()” to format the results display
3. Conditions can also be used to query for documents by using key values like those seen under the “RDMS Where Clause Equivalents in MongoDB” at the following link.
  1. [http://www.tutorialspoint.com/mongodb/mongodb\\_query\\_document.htm](http://www.tutorialspoint.com/mongodb/mongodb_query_document.htm)

## Other Tips

- Start Menu and type into the search “cmd.exe” to open the windows command line
- Mongo Files located in the following folder... C:\Program Files\MongoDB\Server\3.0\bin\
- Edit properties by right clicking on Computer and use advanced systems setting to select the “environment variables” option so navigation is simplified

- In the new environmental variables window that opens, select “New”
    - Create a new variable with name “PATH” and a value of “C:\Program Files\MongoDB\Server\3.0\bin”
    - Select OK
    - Close all windows, now the path is preset for typing in the “mongod” executable in the Windows command line
  - Include a comment or note in a convenient location to copy and paste into the command line for navigating into mongo file folders.
-