MONGODB: THE MONGO SHELL & BASIC COMMANDS

This article is about the default client for MongoDB: the MongoDB **Mongo shell**. In this article, we'll:

- Define the mongo shell
- Share essential features
- Give connection tips
- Introduce basic commands
- Explore disadvantages
- Compare alternatives

This tutorial is part of our multi-part MongoDB Guide, which you can navigate using the right-hand menu.

What is the MongoDB Mongo shell?

MongoDB Mongo shell is an interactive JavaScript interface that allows you to interact with MongoDB instances through the command line. The shell can be used for:

- Data manipulation
- Administrative operations such as maintenance of database instances

MongoDB Mongo shell features

MongoDB Mongo shell is the default client for the MongoDB database server. It's a command-line interface (CLI), where the input and output are all console-based. The Mongo shell is a good tool to manipulate small sets of data.

Here are the top features that Mongo shell offers:

- Run all MongoDB queries from the Mongo shell.
- Manipulate data and perform administration operations.
- Mongo shell uses JavaScript and a related API to issue commands.
- See previous commands in the mongo shell with up and down arrow keys.
- View possible command completions using the tab button after partially entering a command.
- Print error messages, so you know what went wrong with your commands.

MongoDB has recently introduced a new mongo shell known as **mongosh**. It has some additional features, such as extensibility and embeddability—that is, the ability to use it inside other products such as VS Code.

Installing the mongo shell

The mongo shell gets installed when you install the MongoDB server. It is installed in the same location as the MongoDB server binary.

If you want to install it separately, you can visit the MongoDB download center, from there select the version and package you need, download the archive, and copy it to a location in your file system.

Mongo shell is available for all main operating systems, including:

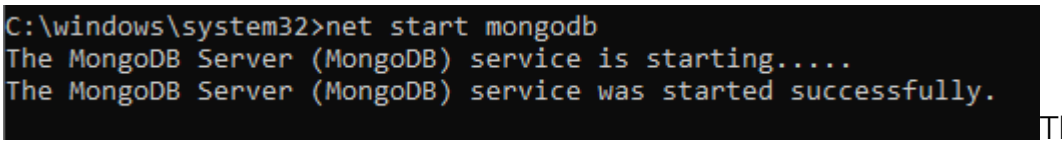
- Windows
- Linux
- Mac OS

Connect to MongoDB database

Once you've downloaded and installed MongoDB, you can use the mongo shell to connect with a MongoDB server that is up and running.

Note: It is required that your server is already running before you connect with it through the shell. You can start the server in CMD using the following command.

```
net start MongoDB
```



Then type mongo command to run the shell.

```
Mongo
```

```
C:\windows\system32>mongo
MongoDB shell version v4.4.1
connecting to: mongodb://127.0.0.1:27017/?compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("9ceb061f-d0a2-4d65-8a9f-745c7adb3e33") }
MongoDB server version: 4.4.1
---
The server generated these startup warnings when booting:
        2020-09-29T21:17:06.636+05:30: ***** SERVER RESTARTED *****
        2020-09-29T21:17:13.995+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
---
---
        Enable MongoDB's free cloud-based monitoring service, which will then receive and display
        metrics about your deployment (disk utilization, CPU, operation statistics, etc).

        The monitoring data will be available on a MongoDB website with a unique URL accessible to you
        and anyone you share the URL with. MongoDB may use this information to make product
        improvements and to suggest MongoDB products and deployment options to you.

        To enable free monitoring, run the following command: db.enableFreeMonitoring()
        To permanently disable this reminder, run the following command: db.disableFreeMonitoring()
---
>
```

Now you are in the Mongo shell.

If you want, you can run the mongo and mongod without the command prompt. To do this, go to the installation location and double click on the mongod and mongo applications. You will get the same result as the above.

Different port

The above **mongo** command only works if your MongoDB server runs on the default port, which is 27017. If your MongoDB server runs on a different port, you have to explicitly specify it in the command, as shown below:

```
mongo --port 28010
```

Remote server

Both of the above commands only work if your MongoDB server is running on the localhost. If you want to connect to a remote server, use the `--host` option with the mongo command, as shown below.

```
mongo --host mongodb0.example.com --port 28010
```

Basic commands for Mongo shell

Now it's time to work with the Mongo shell. First, we will learn some basic commands that will help you to get started with using MongoDB.

Run the **db** command to see the database you are currently working with

```
db
```

```
> db
test
>
```

Run the **use** command to switch to a different database. If you don't have a database, learn how to create a new database.

```
use company
```

```
> use company
switched to db company
>
```

You can create collections and insert data with the following command:

- **db** refers to the current database in use.
- **employee** is the collection name.
- **insertOne** is the method to insert a document to the collection.

```
db.employee.insertOne( { name: "mark" } );
```

```
> db.employee.insertOne( { name: "mark" } );
{
        "acknowledged" : true,
        "insertedId" : ObjectId("5f736ec9cb9ff210daae2271")
}
>
```

Use the **find** method to fetch data in a collection. The **forEach(printjson)** method will print them with JSON formatting

```
db.employee.find().forEach(printjson)
```

```
> db.employee.find().forEach(printjson)
{ "_id" : ObjectId("5f736ec9cb9ff210daae2271"), "name" : "mark" }
>
```

Use the show dbs command to Show all databases

```
show dbs
```

```
> show dbs
admin    0.000GB
company  0.000GB
config   0.000GB
local    0.000GB
>
```

One important command will help you work with the Mongo shell easily: the **help** command. Run the help command to get a list of help options available in the mongo shell.

```
Help
```

```
> help
        db.help()                    help on db methods
        db.mycoll.help()             help on collection methods
        sh.help()                    sharding helpers
        rs.help()                    replica set helpers
        help admin                   administrative help
        help connect                 connecting to a db help
        help keys                    key shortcuts
        help misc                    misc things to know
        help mr                      mapreduce

        show dbs                     show database names
        show collections             show collections in current database
        show users                   show users in current database
        show profile                 show most recent system.profile entries with time >= 1ms
        show logs                    show the accessible logger names
        show log [name]              prints out the last segment of log in memory, 'global' is default
        use <db_name>                set current database
        db.mycoll.find()             list objects in collection mycoll
        db.mycoll.find( { a : 1 } )  list objects in mycoll where a == 1
        it                           result of the last line evaluated; use to further iterate
        DBQuery.shellBatchSize = x   set default number of items to display on shell
        exit                         quit the mongo shell
>
```

To get a full list of commands that you can execute on the current database, type **db.help()**

```
        db.printCollectionStats()
        db.printReplicationInfo()
        db.printShardingStatus()
        db.printSecondaryReplicationInfo()
        db.resetError()
        db.runCommand(cmdObj) run a database command.  if cmdObj is a string, turns it into {cmdObj: 1}
        db.serverStatus()
        db.setLogLevel(level,<component>)
        db.setProfilingLevel(level,slowms) 0-off 1-slow 2-all
        db.setVerboseShell(flag) display extra information in shell output
        db.setWriteConcern(<write concern doc>) - sets the write concern for writes to the db
        db.shutdownServer()
        db.stats()
        db.unsetWriteConcern(<write concern doc>) - unsets the write concern for writes to the db
        db.version() current version of the server
        db.watch() - opens a change stream cursor for a database to report on all  changes to its non-system collections.
>
>
>
> help
        db.help()                    help on db methods
        db.mycoll.help()             help on collection methods
        sh.help()                    sharding helpers
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        show dbs                     show database names
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        it                           result of the last line evaluated; use to further iterate
        DBQuery.shellBatchSize = x   set default number of items to display on shell
        exit                         quit the mongo shell
>
```

We will discuss more data manipulation commands in coming tutorials. For a full list of commands, check out the official Mongo shell page.

Mongo shell keyboard shortcuts

There are two important keyboard shortcuts that you should know:

1. **Use up and down arrows** to go back and forth in the commands history.
2. **Press the tab key** to get a full list of possible commands. For example, type **d** and press tab twice. You will get the following output.

```
> d
DBCommandCursor(          DataConsistencyChecker(  db                       defaultPrompt(          doassert(
DBExplainQuery(           Date(                    decodeURI(               defineProperties
DBPointer(                DriverSession(           decodeURIComponent(      defineProperty
> d
```

Disadvantages of the mongo shell

Although the Mongo shell is an excellent tool for learning and testing the MongoDB server, it is difficult to be used in a production environment. Being a shell inherently carries certain disadvantages. Let's see what they are:

- The Mongo shell is strictly a console centric method of data manipulation. While some find it easy and quick, others might not find those characteristics appealing.
- If you are working on multiple sessions, you need multiple terminals.
- If the results are too long, they scroll away.
- Repetitive commands or debugging a function need the programmer to traverse the long command line history manually.

Alternatives to MongoDB mongo shell

So now you know the mongo shell has some disadvantages. At this point, you may want to know what other options are available. MongoDB developers have introduced drivers specific to each programming language to connect with the MongoDB databases when using MongoDB in your applications. You can find them here.

Additionally, many people prefer to use GUIs to work with databases nowadays. One of the best GUI tools for MongoDB is the MongoDB Compass. Some other useful GUI tools are:

- NoSQLBooster
- Mongo Management Studio
- Robo 3T

Remember that the best MongoDB GUI depends on the task that needs to be accomplished. MongoDB Compass is the go-to option if you need to avoid the command line completely. Robo 3T is simple and well supported by the community, while NoSQLBooster is shell centric smart GUI tool.

With that, we've reached the end of this tutorial. Now, play with the shell and get practice.

Additional resources

For more tutorials like this, explore these resources:

- BMC Machine Learning & Big Data Blog
- MongoDB Guide, a series of tutorials
- PostgreSQL vs MongoDB: Comparing Databases
- MongoDB vs Cassandra: NoSQL Databases Compared
- How To Connect Amazon Glue to a JDBC Database