# Adding MongoDB in Node JS

To download and install the official MongoDB driver, open the Command Terminal and execute the following:

Download and install mongodb package:

C:\Users\Your Name>npm install mongodb

Now you have downloaded and installed a mongodb database driver.

Node.js can use this module to manipulate MongoDB databases:

```
var mongo = require('mongodb');
```

# Creating a Database

To create a database in MongoDB, start by creating a MongoClient object, then specify a connection URL with the correct ip address and the name of the database you want to create.

MongoDB will create the database if it does not exist, and make a connection to it.

### Example

Create a database called "mydb":

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/mydb";

MongoClient.connect(url, function(err, db) {
  if (err) throw err;
  console.log("Database created!");
  db.close();
});
```

Save the code above in a file called "demo\_create\_mongo\_db.js" and run the file:

```
Run "demo_create_mongo_db.js"
C:\Users\Your Name>node demo_create_mongo_db.js
```

Which will give you this result:

Database created!

**Important:** In MongoDB, a database is not created until it gets content!

MongoDB waits until you have created a collection (table), with at least one document (record) before it actually creates the database (and collection).

A collection in MongoDB is the same as a table in MySQL

# **Creating a Collection**

To create a collection in MongoDB, use the createCollection() method:

### Example

```
Create a collection called "customers":

var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";

MongoClient.connect(url, function(err, db) {
   if (err) throw err;
   var dbo = db.db("mydb");
   dbo.createCollection("customers", function(err, res) {
      if (err) throw err;
      console.log("Collection created!");
      db.close();
```

```
});
});
```

Save the code above in a file called "demo\_mongodb\_createcollection.js" and run the file:

```
Run "demo_mongodb_createcollection.js"
C:\Users\Your Name>node demo_mongodb_createcollection.js
```

Which will give you this result:

Collection created!

**Important:** In MongoDB, a collection is not created until it gets content!

MongoDB waits until you have inserted a document before it actually creates the collection.

### **Insert Into Collection**

To insert a record, or *document* as it is called in MongoDB, into a collection, we use the insertOne() method.

A document in MongoDB is the same as a record in MySQL

The first parameter of the insertOne() method is an object containing the name(s) and value(s) of each field in the document you want to insert.

It also takes a callback function where you can work with any errors, or the result of the insertion:

### Example

Insert a document in the "customers" collection:

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";

MongoClient.connect(url, function(err, db) {
   if (err) throw err;
   var dbo = db.db("mydb");
   var myobj = { name: "Company Inc", address: "Highway 37" };
   dbo.collection("customers").insertOne(myobj, function(err, res) {
     if (err) throw err;
     console.log("1 document inserted");
     db.close();
   });
});
});
```

Save the code above in a file called "demo\_mongodb\_insert.js" and run the file:

```
Run "demo_mongodb_insert.js"
C:\Users\Your Name>node demo_mongodb_insert.js
```

Which will give you this result:

1 document inserted

Note: If you try to insert documents in a collection that do not exist, MongoDB will create the collection automatically.

# **Insert Multiple Documents**

To insert multiple documents into a collection in MongoDB, we use the insertMany() method.

The first parameter of the insertMany() method is an array of objects, containing the data you want to insert.

It also takes a callback function where you can work with any errors, or the result of the insertion:

### Example

Insert multiple documents in the "customers" collection:

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";
MongoClient.connect(url, function(err, db) {
  if (err) throw err;
  var dbo = db.db("mydb");
  var myobj = [
    { name: 'John', address: 'Highway 71'},
    { name: 'Peter', address: 'Lowstreet 4'},
    { name: 'Amy', address: 'Apple st 652'},
    { name: 'Hannah', address: 'Mountain 21'},
    { name: 'Michael', address: 'Valley 345'},
    { name: 'Sandy', address: 'Ocean blvd 2'},
    { name: 'Betty', address: 'Green Grass 1'},
    { name: 'Richard', address: 'Sky st 331'},
    { name: 'Susan', address: 'One way 98'},
    { name: 'Vicky', address: 'Yellow Garden 2'},
    { name: 'Ben', address: 'Park Lane 38'},
    { name: 'William', address: 'Central st 954'},
    { name: 'Chuck', address: 'Main Road 989'},
    { name: 'Viola', address: 'Sideway 1633'}
  1;
  dbo.collection("customers").insertMany(myobj, function(err, res) {
    if (err) throw err;
    console.log("Number of documents inserted: " + res.insertedCount);
    db.close();
 });
});
```

Save the code above in a file called "demo\_mongodb\_insert\_multiple.js" and run the file:

```
Run "demo_mongodb_insert_multiple.js"
C:\Users\Your Name>node demo_mongodb_insert_multiple.js
```

Which will give you this result:

```
Number of documents inserted: 14
```

# The Result Object

When executing the insertMany() method, a result object is returned.

The result object contains information about how the insertion affected the database.

The object returned from the example above looked like this:

```
result: { ok: 1, n: 14 },
ops: [
 { name: 'John', address: 'Highway 71', _id: 58fdbf5c0ef8a50b4cdd9a84 },
  { name: 'Peter', address: 'Lowstreet 4', _id: 58fdbf5c0ef8a50b4cdd9a85 },
  { name: 'Amy', address: 'Apple st 652', _id: 58fdbf5c0ef8a50b4cdd9a86 },
  { name: 'Hannah', address: 'Mountain 21', _id: 58fdbf5c0ef8a50b4cdd9a87 },
  { name: 'Michael', address: 'Valley 345', _id: 58fdbf5c0ef8a50b4cdd9a88 },
  { name: 'Sandy', address: 'Ocean blvd 2', _id: 58fdbf5c0ef8a50b4cdd9a89 },
  { name: 'Betty', address: 'Green Grass 1', _id: 58fdbf5c0ef8a50b4cdd9a8a },
  { name: 'Richard', address: 'Sky st 331', _id: 58fdbf5c0ef8a50b4cdd9a8b },
  { name: 'Susan', address: 'One way 98', _id: 58fdbf5c0ef8a50b4cdd9a8c },
  { name: 'Vicky', address: 'Yellow Garden 2', _id: 58fdbf5c0ef8a50b4cdd9a8d },
  { name: 'Ben', address: 'Park Lane 38', _id: 58fdbf5c0ef8a50b4cdd9a8e },
  { name: 'William', address: 'Central st 954', _id: 58fdbf5c0ef8a50b4cdd9a8f },
  { name: 'Chuck', address: 'Main Road 989', _id: 58fdbf5c0ef8a50b4cdd9a90 },
  { name: 'Viola', address: 'Sideway 1633', _id: 58fdbf5c0ef8a50b4cdd9a91 } ],
```

```
insertedCount: 14,
insertedIds: [
  58fdbf5c0ef8a50b4cdd9a84,
  58fdbf5c0ef8a50b4cdd9a85,
  58fdbf5c0ef8a50b4cdd9a86,
  58fdbf5c0ef8a50b4cdd9a87,
  58fdbf5c0ef8a50b4cdd9a88,
  58fdbf5c0ef8a50b4cdd9a89,
  58fdbf5c0ef8a50b4cdd9a8a,
  58fdbf5c0ef8a50b4cdd9a8b,
  58fdbf5c0ef8a50b4cdd9a8c,
  58fdbf5c0ef8a50b4cdd9a8d,
  58fdbf5c0ef8a50b4cdd9a8e,
  58fdbf5c0ef8a50b4cdd9a8f
  58fdbf5c0ef8a50b4cdd9a90,
  58fdbf5c0ef8a50b4cdd9a91 ]
```

The values of the properties can be displayed like this:

# Example

```
Return the number of inserted documents:
```

```
console.log(res.insertedCount)
```

Which will produce this result:

14

# The \_id Field

If you do not specify an id field, then MongoDB will add one for you and assign a unique id for each document.

In the example above no <u>id</u> field was specified, and as you can see from the result object, MongoDB assigned a unique id for each document.

If you do specify the <u>id</u> field, the value must be unique for each document:

### Example

```
Insert three records in a "products" table, with specified <u>id</u> fields:
```

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";
MongoClient.connect(url, function(err, db) {
  if (err) throw err;
  var dbo = db.db("mydb");
  var myobj = [
   { _id: 154, name: 'Chocolate Heaven'},
    { _id: 155, name: 'Tasty Lemon'},
    { id: 156, name: 'Vanilla Dream'}
  1;
  dbo.collection("products").insertMany(myobj, function(err, res) {
    if (err) throw err;
    console.log(res);
    db.close();
 });
});
```

Save the code above in a file called "demo\_mongodb\_insert\_id.js" and run the file:

```
Run "demo_mongodb_insert_id.js"
C:\Users\Your Name>node demo_mongodb_insert_id.js
```

```
{
  result: { ok: 1, n: 3 },
  ops: [
      { _id: 154, name: 'Chocolate Heaven },
      { _id: 155, name: 'Tasty Lemon },
      { _id: 156, name: 'Vanilla Dream } ],
  insertedCount: 3,
  insertedIds: [
      154,
      155,
      156 ]
}
```

In MongoDB we use the **find** and **findOne** methods to find data in a collection.

Just like the **SELECT** statement is used to find data in a table in a MySQL database.

### Find One

To select data from a collection in MongoDB, we can use the findOne() method.

The findOne() method returns the first occurrence in the selection.

The first parameter of the findOne() method is a query object. In this example we use an empty query object, which selects all documents in a collection (but returns only the first document).

### Example

Find the first document in the customers collection:

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";

MongoClient.connect(url, function(err, db) {
  if (err) throw err;
  var dbo = db.db("mydb");
```

```
dbo.collection("customers").findOne({}, function(err, result) {
   if (err) throw err;
   console.log(result.name);
   db.close();
   });
});
```

Save the code above in a file called "demo\_mongodb\_findone.js" and run the file:

```
Run "demo_mongodb_findone.js"

C:\Users\Your Name>node demo_mongodb_findone.js
```

Which will give you this result:

Company Inc.

## Find All

To select data from a table in MongoDB, we can also use the find() method.

The find() method returns all occurrences in the selection.

The first parameter of the find() method is a query object. In this example we use an empty query object, which selects all documents in the collection.

No parameters in the find() method gives you the same result as **SELECT** \* in MySQL.

### Example

Find all documents in the customers collection:

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";

MongoClient.connect(url, function(err, db) {
    if (err) throw err;
    var dbo = db.db("mydb");
    dbo.collection("customers").find({}).toArray(function(err, result) {
        if (err) throw err;
        console.log(result);
        db.close();
    });
});

Save the code above in a file called "demo_mongodb_find.js" and run the file:
Run "demo_mongodb_find.js"

C:\Users\Your Name>node demo_mongodb_find.js
```

### Find Some

The second parameter of the find() method is the projection object that describes which fields to include in the result.

This parameter is optional, and if omitted, all fields will be included in the result.

### Example

```
Return the fields "name" and "address" of all documents in the customers collection:
```

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";

MongoClient.connect(url, function(err, db) {
    if (err) throw err;
    var dbo = db.db("mydb");
    dbo.collection("customers").find({}, { projection: { _id: 0, name: 1, address: 1 } }).toArray(function(err, result) {
        if (err) throw err;
        console.log(result);
        db.close();
    });
});
```

Save the code above in a file called "demo\_mongodb\_find\_fields.js" and run the file:

```
Run "demo_mongodb_find_fields.js"
```

C:\Users\Your Name>node demo\_mongodb\_find\_fields.js

### Example

This example will exclude "address" from the result:

specify a field with the value 0, all other fields get the value 1, and vice versa:

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";

MongoClient.connect(url, function(err, db) {
   if (err) throw err;
   var dbo = db.db("mydb");
   dbo.collection("customers").find({}, { projection: { address: 0 } }).toArray(function(err, result) {
    if (err) throw err;
    console.log(result);
    db.close();
   });
});
```

To exclude the \_id field, you must set its value to 0:

### Example

This example will return only the "name" field:

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";

MongoClient.connect(url, function(err, db) {
   if (err) throw err;
   var dbo = db.db("mydb");
   dbo.collection("customers").find({}, { projection: { _id: 0, name: 1 } }).toArray(function(err, result) {
      if (err) throw err;
      console.log(result);
      db.close();
   });
});
});
```

### Example

This example will give you the same result as the first example; return all fields except the \_id field:

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";

MongoClient.connect(url, function(err, db) {
   if (err) throw err;
   var dbo = db.db("mydb");
   dbo.collection("customers").find({}, { projection: { _id: 0 } }).toArray(function(err, result) {
     if (err) throw err;
     console.log(result);
     db.close();
   });
});
```

### Example

You get an error if you specify both 0 and 1 values in the same object (except if one of the fields is the \_id field):

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";
MongoClient.connect(url, function(err, db) {
```

```
if (err) throw err;
var dbo = db.db("mydb");
dbo.collection("customers").find({}, { projection: { name: 1, address: 0 } }).toArray(function(err, result))
{
   if (err) throw err;
   console.log(result);
   db.close();
});
});
```

# The Result Object

As you can see from the result of the example above, the result can be converted into an array containing each document as an object.

To return e.g. the address of the third document, just refer to the third array object's address property:

```
Example

Return the address of the third document:

console.log(result[2].address);
```

Which will produce this result:

Apple st 652

### Filter the Result

When finding documents in a collection, you can filter the result by using a query object.

The first argument of the find() method is a query object, and is used to limit the search.

```
Example
Find documents with the address "Park Lane 38":
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";
MongoClient.connect(url, function(err, db) {
  if (err) throw err;
  var dbo = db.db("mydb");
  var query = { address: "Park Lane 38" };
  dbo.collection("customers").find(query).toArray(function(err, result) {
    if (err) throw err;
    console.log(result);
    db.close();
 });
});
Save the code above in a file called "demo_mongodb_query.js" and run the file:
Run "demo mongodb query.js"
C:\Users\Your Name>node demo mongodb query.js
Which will give you this result:
  { id: 58fdbf5c0ef8a50b4cdd9a8e , name: 'Ben', address: 'Park Lane 38' }
```

# Filter With Regular Expressions

You can write regular expressions to find exactly what you are searching for.

### Regular expressions can only be used to query strings.

To find only the documents where the "address" field starts with the letter "S", use the regular expression /^S/:

### Example

Find documents where the address starts with the letter "S":

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";

MongoClient.connect(url, function(err, db) {
   if (err) throw err;
   var dbo = db.db("mydb");
   var query = { address: /^S/ };
   dbo.collection("customers").find(query).toArray(function(err, result) {
      if (err) throw err;
      console.log(result);
      db.close();
   });
});
```

Save the code above in a file called "demo\_mongodb\_query\_s.js" and run the file:

```
Run "demo_mongodb_query_s.js"

C:\Users\Your Name>node demo_mongodb_query_s.js
```

### **Delete Document**

To delete a record, or document as it is called in MongoDB, we use the deleteOne() method.

The first parameter of the deleteOne() method is a query object defining which document to delete.

```
Note: If the guery finds more than one document, only the first occurrence is deleted.
Example
Delete the document with the address "Mountain 21":
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";
MongoClient.connect(url, function(err, db) {
  if (err) throw err;
  var dbo = db.db("mydb");
  var myquery = { address: 'Mountain 21' };
  dbo.collection("customers").deleteOne(myquery, function(err, obj) {
    if (err) throw err;
    console.log("1 document deleted");
    db.close();
 });
});
Save the code above in a file called "demo_delete.js" and run the file:
Run "demo_delete.js"
C:\Users\Your Name>node demo delete.js
Which will give you this result:
```

1 document deleted

# **Delete Many**

To delete more than one document, use the deleteMany() method.

The first parameter of the deleteMany() method is a query object defining which documents to delete.

### Example

```
Delete all documents were the address starts with the letter "O":
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";
MongoClient.connect(url, function(err, db) {
  if (err) throw err;
  var dbo = db.db("mydb");
  var myquery = { address: /^0/ };
  dbo.collection("customers").deleteMany(myquery, function(err, obj) {
    if (err) throw err;
    console.log(obj.result.n + " document(s) deleted");
    db.close();
 });
});
Save the code above in a file called "demo_delete_many.js" and run the file:
Run "demo_delete_many.js"
C:\Users\Your Name>node demo_delete_many.js
```

```
2 document(s) deleted
```

# The Result Object

The deleteMany() method returns an object which contains information about how the execution affected the database.

Most of the information is not important to understand, but one object inside the object is called "result" which tells us if the execution went OK, and how many documents were affected.

The result object looks like this:

```
{ n: 2, ok: 1 }
```

You can use this object to return the number of deleted documents:

### Example

Return the number of deleted documents:

```
console.log(obj.result.n);
```

Which will produce this result:

2

# **Drop Collection**

You can delete a table, or collection as it is called in MongoDB, by using the <a href="drop()">drop()</a> method.

The drop() method takes a callback function containing the error object and the result parameter which returns true if the collection was dropped successfully, otherwise it returns false.

### Example

```
Delete the "customers" table:

var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://localhost:27017/";

MongoClient.connect(url, function(err, db) {
    if (err) throw err;
    var dbo = db.db("mydb");
    dbo.collection("customers").drop(function(err, delOK) {
        if (err) throw err;
        if (delOK) console.log("Collection deleted");
        db.close();
        });
    });

Save the code above in a file called "demo_drop.js" and run the file:
Run "demo_drop.js"

C:\Users\Your Name>node demo_drop.js
```

Which will give you this result:

Collection deleted

# db.dropCollection

var url = "mongodb://localhost:27017/";

You can also use the dropCollection() method to delete a table (collection).

The <a href="dropCollection">dropCollection</a>() method takes two parameters: the name of the collection and a callback function.

### Example

Delete the "customers" collection, using dropCollection():
var MongoClient = require('mongodb').MongoClient;

```
if (err) throw err;
var dbo = db.db("mydb");
dbo.dropCollection("customers", function(err, delOK) {
    if (err) throw err;
    if (delOK) console.log("Collection deleted");
    db.close();
    });
});

Save the code above in a file called "demo_dropcollection.js" and run the file:
Run "demo_dropcollection.js"
C:\Users\Your Name>node demo_dropcollection.js
Which will give you this result:
```

# **Update Document**

Collection deleted

MongoClient.connect(url, function(err, db) {

You can update a record, or document as it is called in MongoDB, by using the updateOne() method.

The first parameter of the updateOne() method is a query object defining which document to update.

**Note:** If the query finds more than one record, only the first occurrence is updated.

The second parameter is an object defining the new values of the document.

### Example

Update the document with the address "Valley 345" to name="Mickey" and address="Canyon 123":

```
var MongoClient = require('mongodb').MongoClient;
var url = "mongodb://127.0.0.1:27017/";
MongoClient.connect(url, function(err, db) {
  if (err) throw err;
  var dbo = db.db("mydb");
  var myquery = { address: "Valley 345" };
  var newvalues = { $set: {name: "Mickey", address: "Canyon 123" } };
  dbo.collection("customers").updateOne(myquery, newvalues, function(err, res) {
    if (err) throw err;
    console.log("1 document updated");
    db.close();
 });
});
Save the code above in a file called "demo_update_one.js" and run the file:
Run "demo_update_one.js"
C:\Users\Your Name>node demo_update_one.js
```

Which will give you this result:

1 document updated

# Update Only Specific Fields

When using the \$set operator, only the specified fields are updated:

## Example

```
Update the address from "Valley 345" to "Canyon 123":

...
var myquery = { address: "Valley 345" };
var newvalues = { $set: { address: "Canyon 123" } };
```

```
dbo.collection("customers").updateOne(myquery, newvalues, function(err, res) {
...
```

# **Update Many Documents**

To update all documents that meets the criteria of the query, use the updateMany() method.

dbo.collection("customers").updateMany(myguery, newvalues, function(err, res) {

# Update all documents where the name starts with the letter "S": var MongoClient = require('mongodb').MongoClient; var url = "mongodb://127.0.0.1:27017/"; MongoClient.connect(url, function(err, db) { if (err) throw err; var dbo = db.db("mydb"); var myquery = { address: /^S/ }; var newvalues = {\$set: {name: "Minnie"} }; };

Save the code above in a file called "demo\_update\_many.js" and run the file:

console.log(res.result.nModified + " document(s) updated");

```
C:\Users\Your Name>node demo_update_many.js
```

Which will give you this result:

Run "demo update many.js"

if (err) throw err;

db.close();

});
});

```
2 document(s) updated
```

# The Result Object

The updateOne() and the updateMany() methods return an object which contains information about how the execution affected the database.

Most of the information is not important to understand, but one object inside the object is called "result" which tells us if the execution went OK, and how many documents were affected.

The result object looks like this:

```
{ n: 1, nModified: 2, ok: 1 }
```

You can use this object to return the number of updated documents:

### Example

Return the number of updated documents:

```
console.log(res.result.nModified);
```

Which will produce this result:

2