

# HOW TO USE MONGOOSE FOR MONGODB AND NODEJS



Here we show how to use [Mongoose](#) to save data to a MongoDB. This is a two part blog post. In the second post, we will show how to run **aggregation** functions. The last previous post was an [intro to MongoDB](#), so read that first.

## Mongoose

In this example, we will use **NodeJS**. Do not worry if you do not know NodeJS. We will explain every line of code. It is server-side JavaScript. It is a little difficult to understand at first, in part because it is asynchronous, meaning multi-threaded. So you have to either use synchronous functions only or use what are called **callbacks**. Otherwise when you do statement **n**, statement **n+1** will run right away too. So you can be, for example, processing a text file before you have read it completely.

Mongoose is an API on top of an API. It makes using the MongoDB NodeJS API easier to use.

## Prerequisites

First, you need NodeJS version 6 or higher. Then install mongoose like this:

```
npm install mongoose
```

## Sample Data

We will use data on smokers from the CDC (Center for Disease Control). Download that like this:

```
wget https://chronicdata.cdc.gov/views/wsas-xwh5
```

This dataset is a survey of smokers. We are only interested in the part of the data that shows which states have the most smokers (i.e., certain **cachedContents** JSON sections). That section looks like this:

```
{
  "id" : 320867377,
  "name" : "LocationDesc",
  "dataTypeName" : "text",
  "description" : "Location description",
  "fieldName" : "locationdesc",
  "position" : 3,
  "renderTypeName" : "text",
  "tableColumnId" : 20084901,
  "width" : 109,
  "cachedContents" : {
    "largest" : "Wyoming",
    "non_null" : 14069,
    "null" : 0,
    "top" : ,
    smallest : String,
    format : {
      displayStyle : String,
      align : String
    }
  }
};
```

We then compile the schema into a model like this:

```
var Smokers = mongoose.model('smokers', schema);
```

Read the JSON string data (**fs.readFileSync**) into a JSON JavaScript object (using **JSON.parse**). Notice that we use **fs.readFileSync** (i.e., synchronous) instead of **fs.readFile** so that the next sections of code will wait until the read is complete.

```
fs = require('fs');

var d = fs.readFileSync('/home/walker/Documents/mongodb/tobacco.json',
  'utf8', (err, data) => {
  if (err) throw err;
  return (d); });

var e = JSON.parse(d);
```

Next is the most complex part. The tobacco JSON file is two levels of JSON. So we have a loop inside a loop. Then we refer to **cachedContents** part of the JSON object using **e.columns.cachedContents**. We only want those records with **e.columns.cachedContents.top**, i.e., **top** is defined. (The other ones are geolocation data.)

We supply the **e.columns.cachedContents** to the constructor for the Smokers schema. Then we

use the **save** method. Save runs asynchronously. But we don't care about that as it comes at the end of the program.

```
for (i in e) {
  for (j in i) {

    if (e.columns.dataTypeName !== 'location') {
      if (typeof(e.columns.cachedContents.top) !== 'undefined') {
        var smokers = new Smokers(e.columns.cachedContents);
        console.log(e.columns.cachedContents);
        smokers.save(function (err) {
          if (err) return console.log(err);
        })
      }
    }
  }
}
```

## The Complete Code

Copy and save this as loaddata.js. Then run it using: **node loaddata.js**. Notice there is no **main** or anything like that. It just runs top-to-bottom.

```
fs = require('fs');

var mongoose = require('mongoose');
mongoose.connect('mongodb://localhost/tobacco', { useMongoClient: true });
mongoose.Promise = global.Promise;

var schema = new mongoose.Schema({
  cachedContents : {
    largest : String,
    non_null : Number,
    null : Number,
    top : ,
    smallest : String,
    format : {
      displayStyle : String,
      align : String
    }
  }
});

var d = fs.readFileSync('/home/walker/Documents/mongodb/tobacco.json',
  'utf8', (err, data) => {
  if (err) throw err;
  return (d); });

var e = JSON.parse(d);
```

```

var Smokers = mongoose.model('smokers', schema);

for (i in e) {
  for (j in i) {

    if (e.columns.dataTypeName !== 'location') {
      if (typeof(e.columns.cachedContents.top) !== 'undefined') {
        var smokers = new Smokers(e.columns.cachedContents);
        console.log(e.columns.cachedContents);
        smokers.save(function (err) {
          if (err) return console.log(err);
        })
      }
    }
  }
}

```

As saved record will look something like this:

```

{ largest: 'Wyoming',
  non_null: 14069,
  null: 0,
  top:
  ,
  smallest: 'Alabama' }

```

## Tips

As you work with this you can delete and then show objects as shown below. **Remove** requires a filter. **{}** is a filter meaning all records. You use **db** instead of **tobacco** to denote the database. And **smokers** is the collection. And if you spell anything wrong it does not give you an error as it assumes you want to create a new object. (JavaScript is like that too as it has no error checking with regards to spelling variable names.)

```

use tobacco
db.smokers.remove({})
db.smokers.find({}).pretty()

```

And then you can step through the data like this with the interactive node interpreter (i.e., run node and then paste in whatever code you want to study:

```

for (i in e) { for (j in i)
{"i=",i,"j=",j,console.log(e.columns.cachedContents) }}

```

## Additional Resources

[Mongoose: MongoDB object modelling for Node.js](#) from [Yuriy Bogomolov](#)