

Web Development with Node.js and MongoDB

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Video 2.5

Working with Files



In this Video, we are going to take a look at...

- File system module
- Reading/writing files
- Watching files
- Manipulating directories

File System Module

- Define how to store/retrieve data
- Node.js file system module `require('fs')`
- Wrapper around POSIX functions
- Synchronous and asynchronous methods

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 - 04-copy-file-streams.js
 - 05-watch-directory.js
 - 06-read-directory.js
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 - config.json
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 - export-environment-variables.sh
 - ▶ scripts

01-read-file-sync.js ×

```
1 'use strict';
2
3 const fs = require('fs');
4
5 // const config = fs.readFileSync('./config.json', 'utf8');
6
7 console.log(config);
8
9 console.log('The configuration is loaded, please proceed');
10
```

FOLDERS

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01-read-file-sync.js ×

```
1 'use strict';
2
3 const fs = require('fs');
4
5 const config = fs.readFileSync('./config.json', 'utf8');
6
7 console.log(config);
8
9 console.log('The configuration is loaded, please proceed');
10
```


ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!]

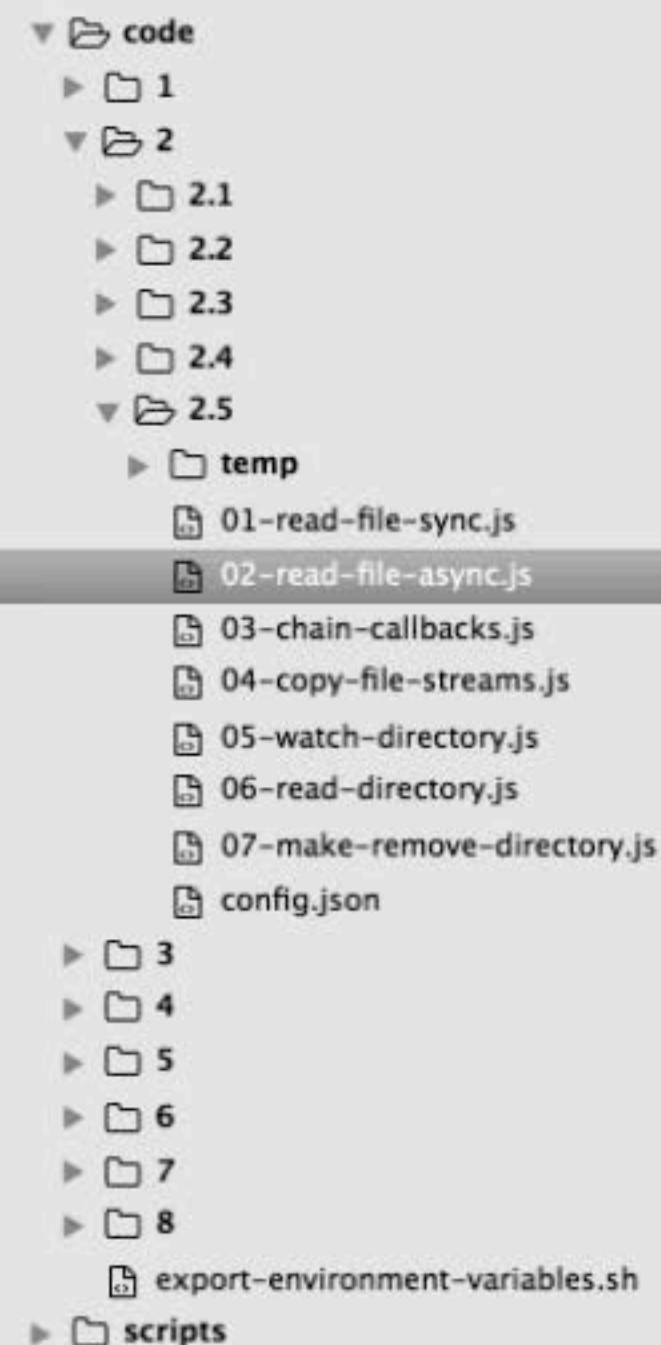
\$ node 01-read-file-sync.js

```
{  
  version: 2,  
  minVersion: 3  
}
```

The configuration is loaded, please proceed

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!]

\$



```
02-read-file-async.js x
1 'use strict';
2
3 const fs = require('fs');
4
5 fs.readFile('./config.json', 'utf8', function (error, data) {
6     console.log(data);
7
8     console.log('The configuration is loaded, please proceed');
9 });
10
11 console.log('Proceed after the configuration file will be loaded');
12
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!]
```

```
$ node 02-read-file-async.js
```

```
Proceed after the configuration file will be loaded
```

```
{  
  version: 2,  
  minVersion: 3  
}
```

```
The configuration is loaded, please proceed
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!]
```

```
$ █
```



```
1 'use strict';
2
3 const fs = require('fs');
4
5 fs.open('./temp/output.txt', 'a', function (error, fd) {
6   if (error) {
7     throw error;
8   }
9
10  let currentTime = new Date().toISOString() + '\n';
11
12  fs.write(fd, currentTime, function (error, written, string) {
13    if (error) {
14      throw error;
15    }
16
17    console.log('Bytes written:', written);
18    console.log('Written to file:', string);
19
20    fs.close(fd, function () {
21      console.log('Done writing to file');
22    });
23  });
24 });
25
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!]
```

```
$ node 03-chain-callbacks.js
```

```
Bytes written: 25
```

```
Written to file: 2016-01-15T06:18:53.258Z
```

```
Done writing to file
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?
```

```
$ node 03-chain-callbacks.js
```

```
Bytes written: 25
```

```
Written to file: 2016-01-15T06:18:54.839Z
```

```
Done writing to file
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?
```

```
$ node 03-chain-callbacks.js
```

```
Bytes written: 25
```

```
Written to file: 2016-01-15T06:18:56.711Z
```

```
Done writing to file
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?
```

```
$ █
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!]
```

```
$ node 03-chain-callbacks.js
```

```
Bytes written: 25
```

```
Written to file: 2016-01-15T06:18:53.258Z
```

```
Done writing to file
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?
```

```
$ node 03-chain-callbacks.js
```

```
Bytes written: 25
```

```
Written to file: 2016-01-15T06:18:54.839Z
```

```
Done writing to file
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?
```

```
$ node 03-chain-callbacks.js
```

```
Bytes written: 25
```

```
Written to file: 2016-01-15T06:18:56.711Z
```

```
Done writing to file
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?
```

```
$ cat temp/output.txt
```

```
2016-01-15T06:18:53.258Z
```

```
2016-01-15T06:18:54.839Z
```

```
2016-01-15T06:18:56.711Z
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?
```

```
$ █
```


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 - ▶ scripts

04-copy-file-streams.js

```
1 'use strict';  
2  
3 const fs = require('fs');  
4 const readStream = fs.createReadStream('config.json');  
5 const writeStream = fs.createWriteStream('temp/copy.json');  
6  
7 readStream.pipe(writeStream);  
8  
9 console.log('Finished copying the file');  
10
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]
```

```
$ node 04-copy-file-streams.js
```

```
Finished copying the file
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]
```

```
$ cat t
```



```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]
$ node 04-copy-file-streams.js
```

```
Finished copying the file
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]
$ cat temp/copy.json
```

```
{
  version: 2,
  minVersion: 3
}
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]
$
```

```
1 'use strict';
2
3 const fs = require('fs');
4
5 const watchOptions = {
6   persistent: true,
7   recursive: true
8 };
9
10 fs.watch('./temp', watchOptions, function(event, filename) {
11   let message = 'Event "' + event + '" on "' + filename + '"';
12
13   console.log(message);
14 });
15
16 console.log('Watching directory for changes');
17
```

Section 2, Lecture 10

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]
$ node 05-watch-direct
```

~/projects/nodejs-mongodb-video-course/code/2/2.5/temp

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]
$
```

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]

\$ node 05-watch-directory.js

Watching directory for changes

Event "rename" on "new-file.txt"

Event "rename" on "new-file.txt"

█

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ touch new-file.txt

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ touch new-file.txt

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ █

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]

\$ node 05-watch-directory.js

Watching directory for changes

Event "rename" on "new-file.txt"

Event "rename" on "new-file.txt"

Event "rename" on "new-dir"

Event "rename" on "new-dir/subdir"

Event "rename" on "new-dir/subdir/subsubdir"

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ touch new-file.txt

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ touch new-file.txt

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ mkdir -p new-dir/subdir/subsubdir

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ echo 'te'

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]

\$ node 05-watch-directory.js

Watching directory for changes

Event "rename" on "new-file.txt"

Event "rename" on "new-file.txt"

Event "rename" on "new-dir"

Event "rename" on "new-dir/subdir"

Event "rename" on "new-dir/subdir/subsubdir"

Event "rename" on "new-dir/new-file.txt"

█

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ touch new-file.txt

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ touch new-file.txt

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ mkdir -p new-dir/subdir/subsubdir

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ echo 'text' > new-dir/new-file.txt

ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5/temp on master [!?]

\$ █

```
1 'use strict';
2
3 const fs = require('fs');
4
5 fs.readdir('./temp', function (error, files) {
6     if (error) {
7         throw error;
8     }
9
10    console.log('Here are the files and directories in directory:');
11    console.log(files);
12 });
13
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]
$ node 06-read-directory.js
```

```
Here are the files and directories in directory:
```

```
[ '.DS_Store',  
  '.gitkeep',  
  'copy.json',  
  'new-dir',  
  'new-file.txt',  
  'output.txt' ]
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]
$
```



```
1 'use strict';
2
3 const fs = require('fs');
4 const path = './temp/dir-from-script';
5
6 fs.mkdir(path, function (error) {
7     if (error) {
8         throw error;
9     }
10     console.log('Directory created');
11 });
12
13 fs.rmdir('non-existing', function (error) {
14     if (error) {
15         console.log('Directory does not exist');
16     } else {
17         console.log('Directory removed');
18     }
19 });
20
21
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]
```

```
$ node 07-make-remove-directory.js
```

```
Directory created
```

```
Directory does not exist
```

```
ifdattic at ifdattic-mbp13 in ~/projects/nodejs-mongodb-video-course/code/2/2.5 on master [!?]
```

```
$ █
```


Node.js (1)

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File System

#

Stability: 2 - Stable

File I/O is provided by simple wrappers around standard POSIX functions. To use this module do `require('fs')`. All the methods have asynchronous and synchronous forms.

The asynchronous form always takes a completion callback as its last argument. The arguments passed to the completion callback depend on the method, but the first argument is always reserved for an exception. If the operation was completed successfully, then the first argument will be `null` or `undefined`.

When using the synchronous form any exceptions are immediately thrown. You can use `try/catch` to handle exceptions or allow them to bubble up.

Here is an example of the asynchronous version:

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

fs.unlink('/tmp/hello', (err) => {
  if (err) throw err;
  console.log('successfully deleted /tmp/hello');
```

Summary

- CommonJS
- npm
- The Event Loop
- Worked with streams
- Worked with files

Next Section

Creating MVC Apps with Express.js