

# Introduction to Node.js

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# Agenda

- What is Node.js?
- npm
- Why would I use it?
- Syntax
- Some examples
- Links

# What is Node.js?

- From [nodejs.org](http://nodejs.org)
- Node.js is a platform built on Chrome's JavaScript runtime for easily building fast, scalable network applications. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient, perfect for data-intensive real-time applications that run across distributed devices.

# What is Node.js?

- “...JavaScript, and therefore Node.js, introduces the concept of event-driven, asynchronous callbacks, by utilizing an event loop.”
- (call a function when you're done doing something)

# npm

- Node Package Manager, Node Packaged Modules (NPM)
- Installs packages and dependencies
- Without arguments discovers dependencies in current directory
- git url aware
- Packages can be: files, tarball, url
- npm search

# Why would I use it?

- Really quick way to put up a web server
- Quick and easy script editing
- My experience has been that installation is much quicker/easier than Rails (and gem)

# Express

- Express is a minimal and flexible node.js web application framework, providing a robust set of features for building single and multi-page, and hybrid web applications.

# Syntax

Hello World

```
var http = require('http');

http.createServer(function (request, response) {
  response.writeHead(200, {'Content-Type': 'text/plain'});
  response.end('Hello World\n');
}).listen(8124);

console.log('Server running at http://127.0.0.1:8124/');
```

```
$ node example.js
Server running at http://127.0.0.1:8124/
```

```
$ curl http://127.0.0.1:8124/
Hello World
```



# Syntax

```
$ cat functions.js
```

```
function say(word) {  
    console.log(word);  
}
```

```
function execute(someFunction, value) {  
    someFuunction(value);  
}
```

```
execute(say, "hello");
```

```
$ node functions.js
```

```
functions.js:7  
    someFuunction(value);  
    ^
```

```
ReferenceError: someFuunction is not defined  
    at execute (functions.js:7:2)  
    at Object.<anonymous> (functions.js:10:1)  
    at Module._compile (module.js:449:26)  
    at Object.Module._extensions..js (module.js:467:10)  
    at Module.load (module.js:356:32)  
    at Function.Module._load (module.js:312:12)  
    at Module.runMain (module.js:492:10)  
    at process.startup.processNextTick.process._tickCallback (node.js:244:9)
```

```
$
```

# Modules

- Libraries
- Include files
- Facilitates code organization
- Directory walk looking for 'node\_modules/' to satisfy requires

# Modules

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

```
fs.rename(files.upload.path, "/tmp/test.png",  
  function(err) {  
    if (err) {  
      console.log('error');  
    }  
  });
```

# Functions

```
function say(word) {  
    console.log(word);  
}
```

```
function execute(someFunction, value) {  
    someFunction(value);  
}
```

```
execute(say, "hello");
```

# EventEmitters

- on
- once
- removeListener
- once

# Debugging

- `console.log`
- `debugger` (`node debug file.js`)

# Tricks

- Rapid deployment
  - screen
  - node server.js
  - return to the session with 'screen -r'

# Node in the EC2

- Excellent step-by-step tutorial on running node in the EC2
- <http://www.bennadel.com/blog/2321-How-I-Got-Node-js-Running-On-A-Linux-Micro-Instance-Using-Amazon-EC2.htm>



# Live demo

- http server
- fixed protocol response
- directory list

# Links

- [nodejs.org](http://nodejs.org)
- [npmjs.org](http://npmjs.org)
- [github.com/joyent/node](https://github.com/joyent/node)
- [howtonode.org](http://howtonode.org)
- [nodebeginner.org](http://nodebeginner.org)
- [nodeguide.com](http://nodeguide.com)
- [expressjs.com](http://expressjs.com)
- [github.com/dougtoppin/node](https://github.com/dougtoppin/node)