

[PACKT]
PUBLISHING

The Complete Guide to Node.js

Joshua Johanan

About Me

- Author of Building Scalable Apps in Redis and Node.js and Web Developer's Reference Guide
- Over 10 years developer experience
- Used many languages and frameworks



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About Me

- Author of Building Scalable Apps in Redis and Node.js and Web Developer's Reference Guide
- Over 10 years developer experience
- Used many languages and frameworks
- Blogs at <http://ejosh.co/de/>



The Complete Guide to Node.js

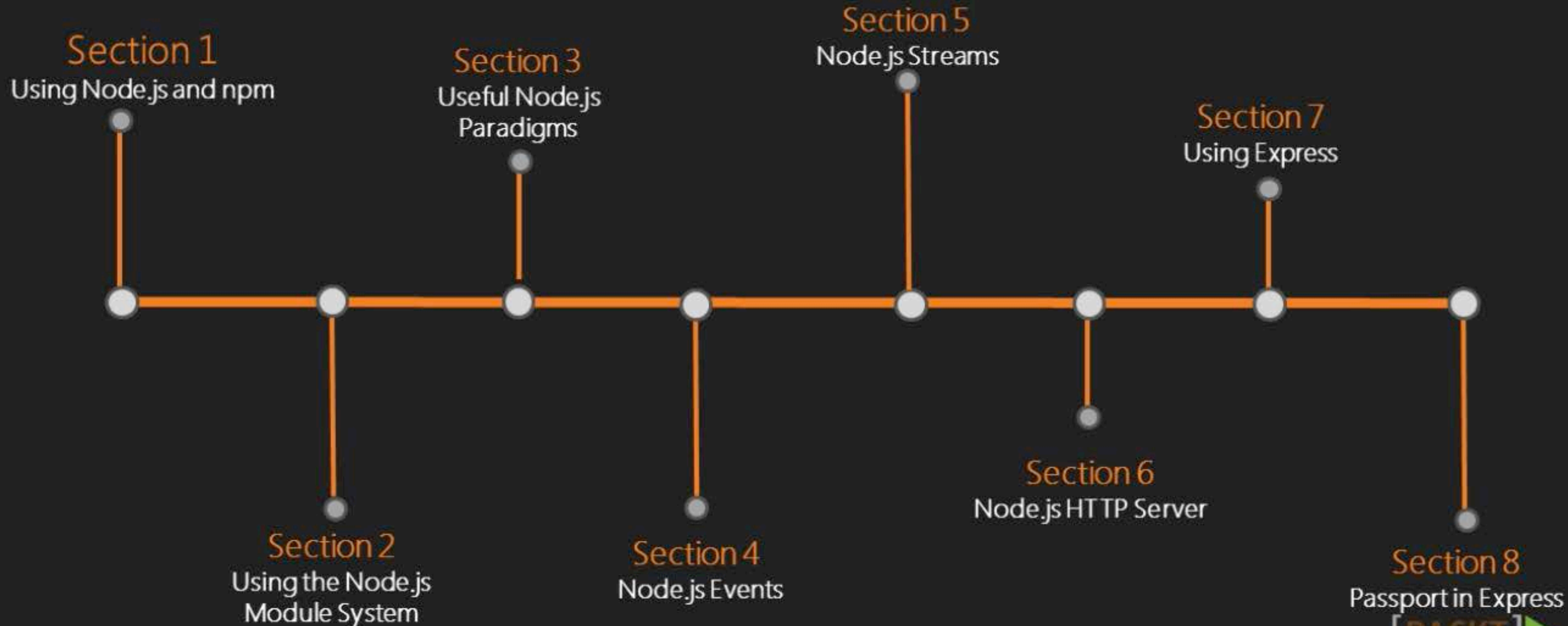
Joshua Johanan

Video 1.1

The Course Overview



The Road Map



The Complete Guide to Node.js

Joshua Johanan

Section 1

Using Node.js and npm



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

- Installing Node.js
- Node.js REPL
- Node.js is JavaScript
- Installing a package with npm

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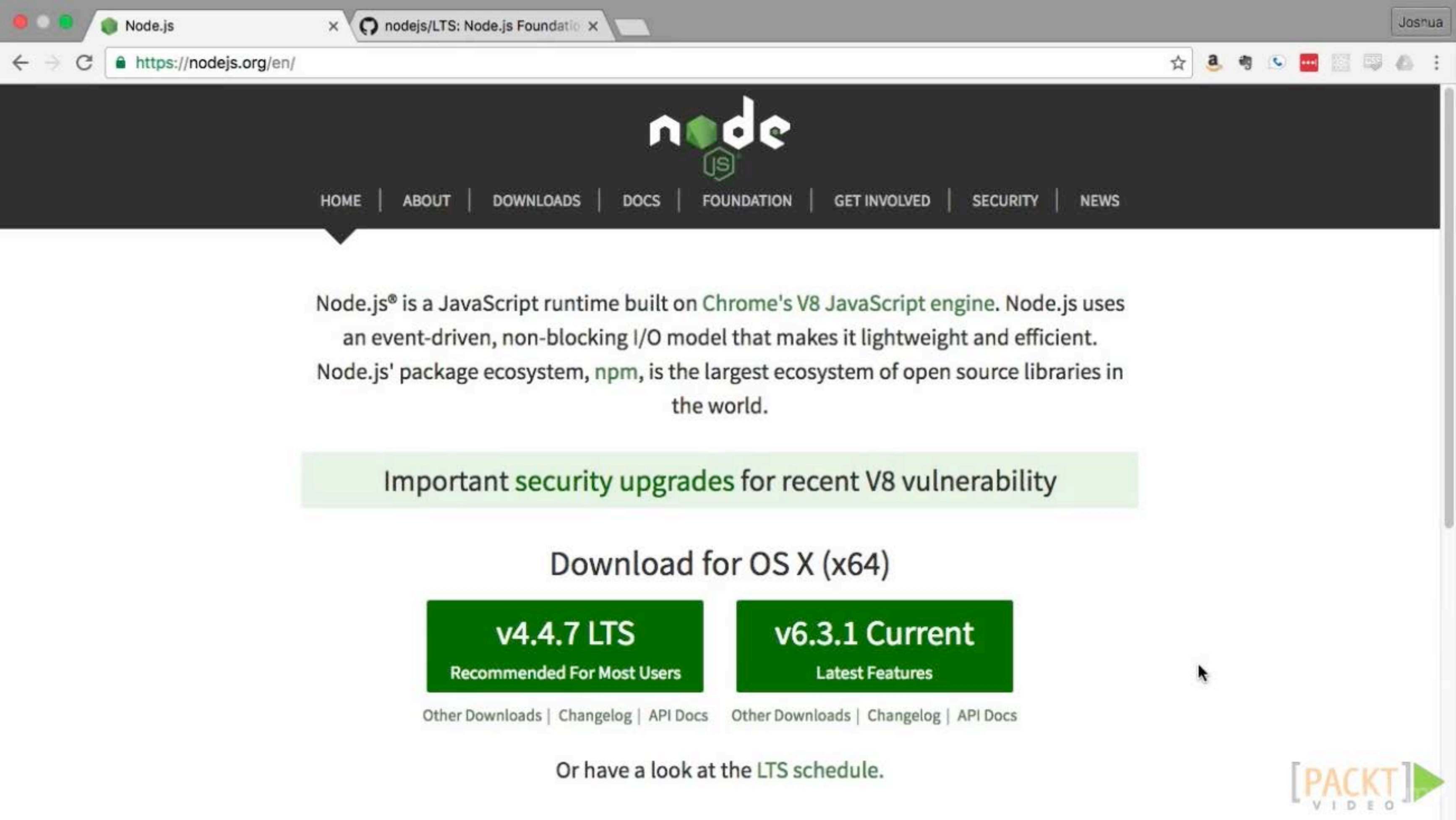
Video 1.2

Installing Node.js



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

- Installing Node.js
- Running Node.js



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Node.js® is a JavaScript runtime built on [Chrome's V8 JavaScript engine](#). Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient. Node.js' package ecosystem, [npm](#), is the largest ecosystem of open source libraries in the world.

Important [security upgrades](#) for recent V8 vulnerability

Download for OS X (x64)

v4.4.7 LTS

Recommended For Most Users

[Other Downloads](#) | [Changelog](#) | [API Docs](#)

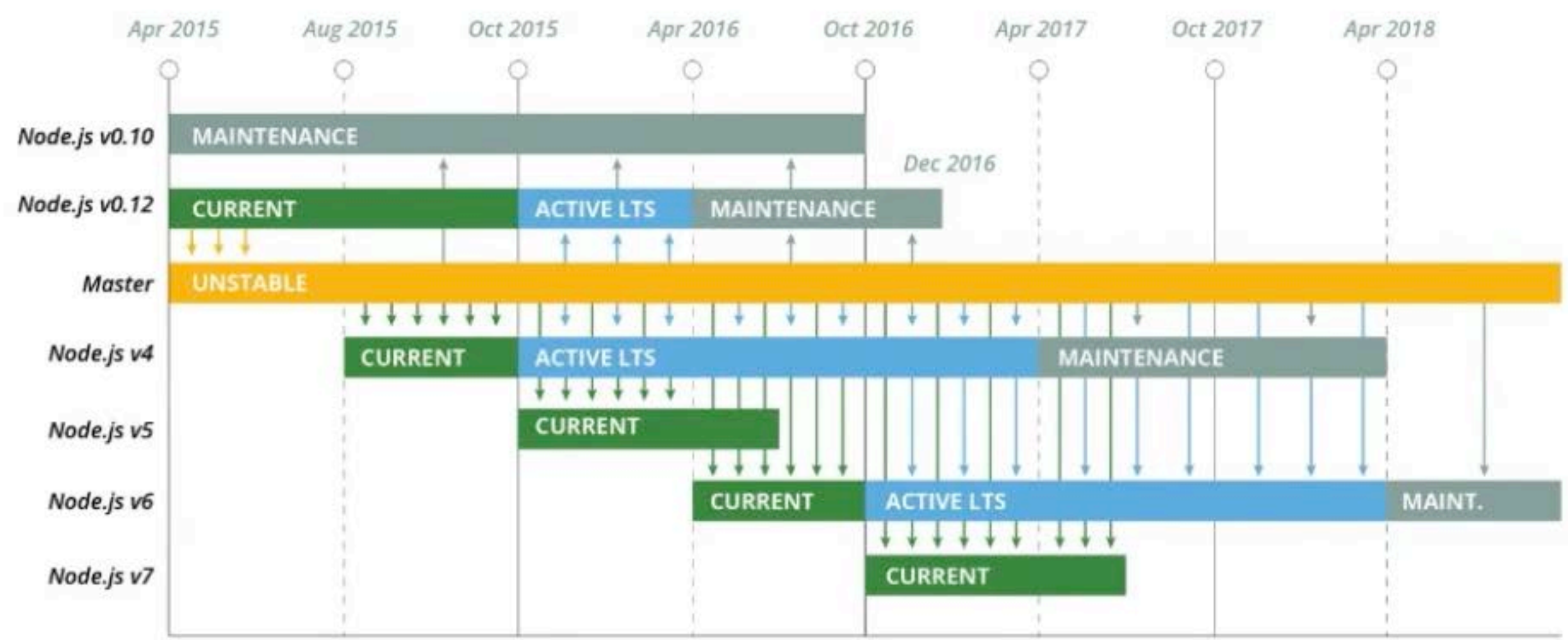
v6.3.1 Current

Latest Features

[Other Downloads](#) | [Changelog](#) | [API Docs](#)

Or have a look at the [LTS schedule](#).

Node.js Long Term Support Release Schedule



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LTS Plan

New semver-major releases of Node.js are cut from master every six months. New even-numbered versions (e.g. v6, v8, v10, etc) are cut in April. New odd-numbered versions (e.g. v5, v7, v9) are cut in October.


```
Joshuas-Mini:Section1.2 jjohanan$ clear
Joshuas-Mini:Section1.2 jjohanan$ node --help
Usage: node [options] [ -e script | script.js ] [arguments]
       node debug script.js [arguments]
```

Options:

<code>-v, --version</code>	print Node.js version
<code>-e, --eval script</code>	evaluate script
<code>-p, --print</code>	evaluate script and print result
<code>-c, --check</code>	syntax check script without executing
<code>-i, --interactive</code>	always enter the REPL even if stdin does not appear to be a terminal
<code>-r, --require</code>	module to preload (option can be repeated)
<code>--no-deprecation</code>	silence deprecation warnings
<code>--trace-deprecation</code>	show stack traces on deprecations
<code>--throw-deprecation</code>	throw an exception anytime a deprecated function is used
<code>--no-warnings</code>	silence all process warnings
<code>--trace-warnings</code>	show stack traces on process warnings
<code>--trace-sync-io</code>	show stack trace when use of sync IO is detected after the first tick
<code>--track-heap-objects</code>	track heap object allocations for heap snapshots
<code>--prof-process</code>	process v8 profiler output generated using <code>--prof</code>
<code>--zero-fill-buffers</code>	automatically zero-fill all newly allocated Buffer and SlowBuffer instances
<code>--v8-options</code>	print v8 command line options

<code>--trace-sync-io</code>	show stack trace when use of sync IO is detected after the first tick
<code>--track-heap-objects</code>	track heap object allocations for heap snapshots
<code>--prof-process</code>	process v8 profiler output generated using <code>--prof</code>
<code>--zero-fill-buffers</code>	automatically zero-fill all newly allocated Buffer and SlowBuffer instances
<code>--v8-options</code>	print v8 command line options
<code>--v8-pool-size=num</code>	set v8's thread pool size
<code>--tls-cipher-list=val</code>	use an alternative default TLS cipher list
<code>--icu-data-dir=dir</code>	set ICU data load path to dir (overrides <code>NODE_ICU_DATA</code>)
<code>--preserve-symlinks</code>	preserve symbolic links when resolving and caching modules.

Environment variables:

<code>NODE_PATH</code>	<code>':'</code> -separated list of directories prefixed to the module search path.
<code>NODE_DISABLE_COLORS</code>	set to 1 to disable colors in the REPL
<code>NODE_ICU_DATA</code>	data path for ICU (Intl object) data
<code>NODE_REPL_HISTORY</code>	path to the persistent REPL history file

Documentation can be found at <https://nodejs.org/>

Joshuas-Mini:Section1.2 jjohanan\$ node -v

v6.3.1

Joshuas-Mini:Section1.2 jjohanan\$ █

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Video 1.3

Node.js REPL



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

- What is a REPL
- Using Node.js REPL
- Building a custom REPL

Symbol	Uint16Array	Uint32Array
Uint8Array	Uint8ClampedArray	WeakMap
WeakSet	_	assert
buffer	child_process	clearImmediate
clearInterval	clearTimeout	cluster
console	crypto	dgram
dns	domain	escape
events	fs	global
http	https	module
net	os	path
process	punycode	querystring
readline	repl	require
root	setImmediate	setInterval
setTimeout	stream	string_decoder
tls	tty	unescape
url	util	v8
vm	zlib	
__defineGetter__	__defineSetter__	__lookupGetter__
__lookupSetter__	__proto__	constructor
hasOwnProperty	isPrototypeOf	propertyIsEnumerable
toLocaleString	toString	valueOf

```
> setInterval
[Function]
```

```
Joshuas-Mini:Section1.3 jjohanan$ node project_specific.js
```


Intl	Map	Promise
Proxy	Reflect	Set
Symbol	Uint16Array	Uint32Array
Uint8Array	Uint8ClampedArray	WeakMap
WeakSet	_	assert
buffer	child_process	clearImmediate
clearInterval	clearTimeout	cluster
console	crypto	dgram
dns	domain	escape
events	fs	global
http	https	module
net	os	path
process	punycode	querystring
readline	repl	require
root	section13	setImmediate
setInterval	setTimeout	stream
string_decoder	tls	tty
unescape	url	util
v8	vm	zlib
__defineGetter__	__defineSetter__	__lookupGetter__
__lookupSetter__	__proto__	constructor
hasOwnProperty	isPrototypeOf	propertyIsEnumerable
toLocaleString	toString	valueOf

Uint8Array	Uint8ClampedArray	WeakMap
WeakSet	_	assert
buffer	child_process	clearImmediate
clearInterval	clearTimeout	cluster
console	crypto	dgram
dns	domain	escape
events	fs	global
http	https	module
net	os	path
process	punycode	querystring
readline	repl	require
root	section13	setImmediate
setInterval	setTimeout	stream
string_decoder	tls	tty
unescape	url	util
v8	vm	zlib
__defineGetter__	__defineSetter__	__lookupGetter__
__lookupSetter__	__proto__	constructor
hasOwnProperty	isPrototypeOf	propertyIsEnumerable
toLocaleString	toString	valueOf

```

Section1.3>section13()
Loaded a module
undefined
Section1.3>

```

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Video 1.4

Node.js Is JavaScript



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

- Node.js is built on V8
- Node.js runs JavaScript with some caveats
- Node.js is ES2015 compliant

2 messages are hidden by filters. [Show all messages.](#)

```
> var numbers = [1,2,3,4,5];
< undefined
> Math.min(numbers);
< NaN
> numbers.reduce(function(p, n){ return Math.min(p,n); });
< 1
> document
< #document
> |
```

```
Joshuas-Mini:Section1.4 jjohanan$ node
> var numbers = [1,2,3,4,5];
undefined
> Math.min(numbers);
NaN
> numbers.reduce(function(p, n){ return Math.min(p,n); }
);
1
> document
ReferenceError: document is not defined
    at repl:1:1
    at sigintHandlersWrap (vm.js:32:31)
    at sigintHandlersWrap (vm.js:96:12)
    at ContextifyScript.Script.runInContext (vm.js:31:12)
    at REPLServer.defaultEval (repl.js:308:29)
    at bound (domain.js:280:14)
    at REPLServer.runBound [as eval] (domain.js:293:12)
    at REPLServer.<anonymous> (repl.js:477:10)
    at emitOne (events.js:101:20)
    at REPLServer.emit (events.js:188:7)
> 
```

2 messages are hidden by filters. [Show all messages.](#)

> var numbers = [1,2,3,4,5];
< undefined

> Math.min(numbers);
< NaN

> numbers.reduce(function(p, n){ return Math.min(p,n); });
< 1

> document
< #document

> require

Uncaught ReferenceError: require is not defined(...) VM735:1

> |

```
> numbers.reduce(function(p, n){ return Math.min(p,n); }
);
```

```
1
> document
```

```
ReferenceError: document is not defined
```

```
at repl:1:1
```

```
at sigintHandlersWrap (vm.js:32:31)
```

```
at sigintHandlersWrap (vm.js:96:12)
```

```
at ContextifyScript.Script.runInContext (vm.js:31:12)
```

```
)
```

```
at REPLServer.defaultEval (repl.js:308:29)
```

```
at bound (domain.js:280:14)
```

```
at REPLServer.runBound [as eval] (domain.js:293:12)
```

```
at REPLServer.<anonymous> (repl.js:477:10)
```

```
at emitOne (events.js:101:20)
```

```
at REPLServer.emit (events.js:188:7)
```

```
> require
```

```
{ [Function: require]
```

```
  resolve: [Function: resolve],
```

```
  main: undefined,
```

```
  extensions: { '.js': [Function], '.json': [Function],
    '.node': [Function] },
  cache: {} }
```

```
> []
```


2 messages are hidden by filters. [Show all messages.](#)

```
> var numbers = [1,2,3,4,5];
```

```
< undefined
```

```
> Math.min(numbers);
```

```
< NaN
```

```
> numbers.reduce(function(p, n){ return Math.min(p,n); });
```

```
< 1
```

```
> document
```

```
< #document
```

```
> require
```

```
< Uncaught ReferenceError: require is not defined(...) VM735:1
```

```
> numbers.reduce((p,n) => Math.min(p,n));
```

```
< 1
```

```
> Math.min(...numbers);
```

```
< 1
```

```
>
```

ReferenceError: document is not defined

at repl:1:1

at sigintHandlersWrap (vm.js:32:31)

at sigintHandlersWrap (vm.js:96:12)

at ContextifyScript.Script.runInContext (vm.js:31:12)

)

at REPLServer.defaultEval (repl.js:308:29)

at bound (domain.js:280:14)

at REPLServer.runBound [as eval] (domain.js:293:12)

at REPLServer.<anonymous> (repl.js:477:10)

at emitOne (events.js:101:20)

at REPLServer.emit (events.js:188:7)

```
> require
```

```
{ [Function: require]
```

```
  resolve: [Function: resolve],
```

```
  main: undefined,
```

```
  extensions: { '.js': [Function], '.json': [Function],
```

```
  '.node': [Function] },
```

```
  cache: {} }
```

```
> numbers.reduce((p,n) => Math.min(p,n));
```

```
1
```

```
> Math.min(...numbers);
```

```
1
```

```
>
```

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Video 1.5

Installing a Package with npm



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

- Installing a package with npm
- Loading the package in the REPL
- Uninstalling the package with npm

/Users/jjohanan/projects/node.js

1. bash

node.js

Section1

Section1.1

Section1.2

Section1.3

Section1.4

Section1.5

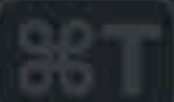
Section2

Section3

Volume2

.DS_Store

You can quickly open
files with the Fuzzy
Finder. Try it by using

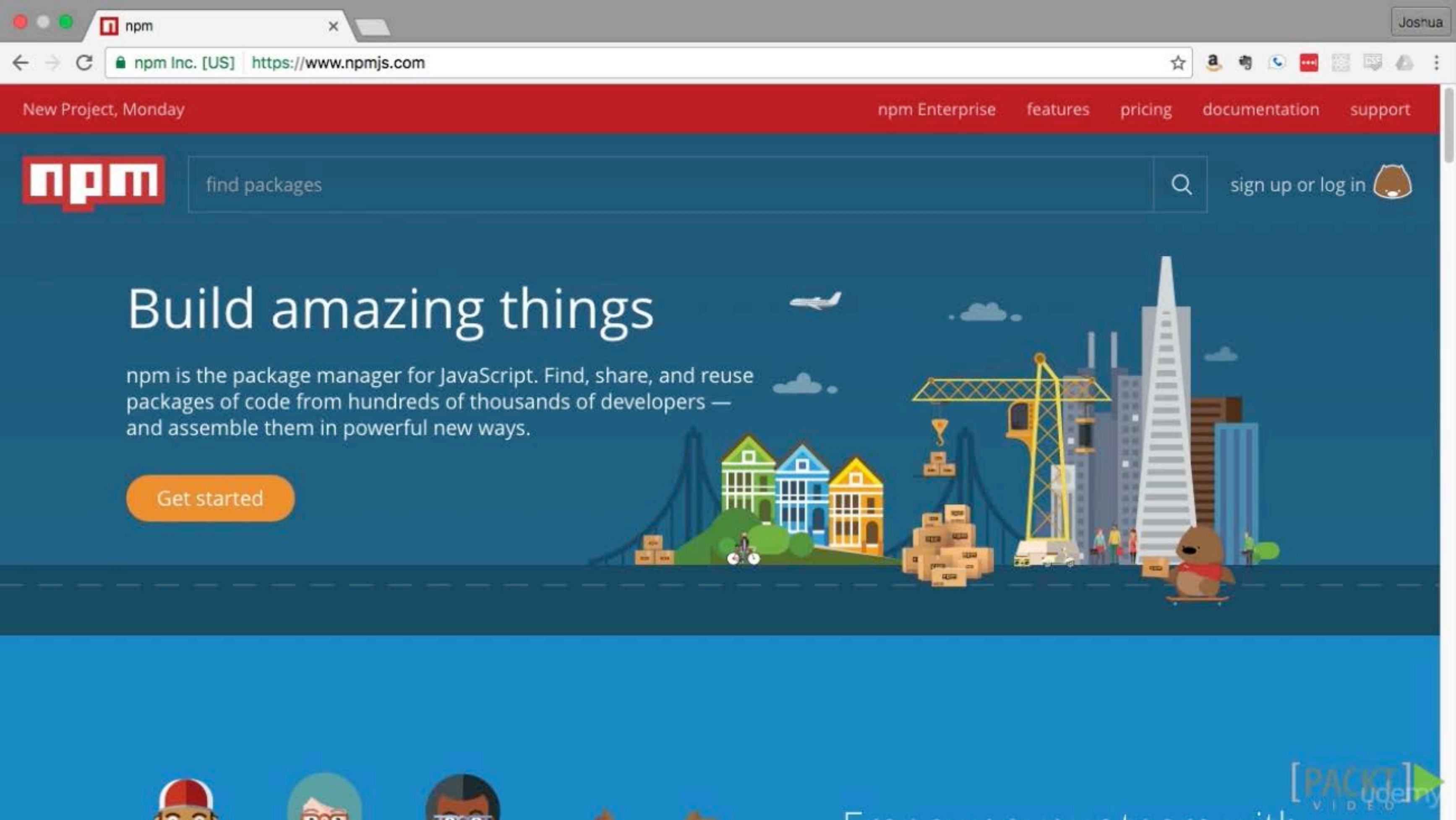


Usage: npm <command>

where <command> is one of:

access, adduser, bin, bugs, c,
cache, completion, config, ddp,
dedupe, deprecate, dist-tag,
docs, edit, explore, get, help,
help-search, i, init, install,
install-test, it, link, list,
ln, logout, ls, outdated, owner,
pack, ping, prefix, prune,
publish, rb, rebuild, repo,
restart, root, run, run-script,
s, se, search, set, shrinkwrap,
star, stars, start, stop, t,
tag, team, test, tst, un,
uninstall, unpublish, unstar,
up, update, v, version, view,
whoami

npm <cmd> -h	quick help on <cmd>
npm -l	display full usage info
npm help <term>	search for help on <term>
npm help npm	involved overview



New Project, Monday

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Build amazing things

npm is the package manager for JavaScript. Find, share, and reuse packages of code from hundreds of thousands of developers — and assemble them in powerful new ways.

Get started



/Users/jjohanan/projects/node.js

- node.js
 - Section1
 - Section1.1
 - Section1.2
 - Section1.3
 - Section1.4
 - Section1.5
 - node_modules
 - Section2
 - Section3
 - Volume2
 - .DS_Store

You can quickly open
files with the Fuzzy
Finder. Try it by using

⌘T

1. bash

Specify configs in the ini-formatted file:

/Users/jjohanan/.npmrc

or on the command line via: `npm <command> --key value`

Config info can be viewed via: `npm help config`

npm@3.10.3 /usr/local/lib/node_modules/npm

Joshuas-Mini:Section1.5 jjohanan\$ npm help install

Joshuas-Mini:Section1.5 jjohanan\$ npm install lodash

/Users/jjohanan/projects/node.js/Section1/Section1.5

--- lodash@4.15.0

npm WARN enoent ENOENT: no such file or directory, open '/Users/jjohanan/projects/node.js/Section1/Section1.5/package.json'

npm WARN Section1.5 No description

npm WARN Section1.5 No repository field.

npm WARN Section1.5 No README data

npm WARN Section1.5 No license field.

Joshuas-Mini:Section1.5 jjohanan\$

/Users/jjohanan/projects/node.js

```
node.js
└─ Section1
   └─ Section1.1
   └─ Section1.2
   └─ Section1.3
   └─ Section1.4
   └─ Section1.5
      └─ node_modules
         └─ lodash
└─ Section2
└─ Section3
└─ Volume2
└─ .DS_Store
```

You can split a pane
with `pane:split-right`

or on the command line via: `npm <command> --key value`

Config info can be viewed via: `npm help config`

```
npm@3.10.3 /usr/local/lib/node_modules/npm
Joshuas-Mini:Section1.5 jjohanan$ npm help install
```

```
Joshuas-Mini:Section1.5 jjohanan$ npm install lodash
/Users/jjohanan/projects/node.js/Section1/Section1.5
```

```
--- lodash@4.15.0
```

```
npm WARN enoent ENOENT: no such file or directory, open '/Users/jjohanan/projects/node.js/Section1/Section1.5/package.json'
```

```
npm WARN Section1.5 No description
```

```
npm WARN Section1.5 No repository field.
```

```
npm WARN Section1.5 No README data
```

```
npm WARN Section1.5 No license field.
```

```
Joshuas-Mini:Section1.5 jjohanan$ node
```

```
> var lodash = require('lodash')
undefined
```

```
>
```



```
node.js
└─ Section1
   └─ Section1.1
      Section1.2
      Section1.3
      Section1.4
      Section1.5
         └─ node_modules
            └─ lodash
               Section2
               Section3
               Volume2
               .DS_Store
```

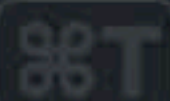
You can split a pane
with `pane:split-right`

```
sortedLastIndexOf: [Function: sortedLastIndex0f],
startCase: [Function],
startsWith: [Function: startsWith],
subtract: [Function],
sum: [Function: sum],
sumBy: [Function: sumBy],
template: [Function: template],
times: [Function: times],
toFinite: [Function: toFinite],
toInteger: [Function: toInteger],
toHaveLength: [Function: toLength],
toLowerCase: [Function: toLower],
toNumber: [Function: toNumber],
toSafeInteger: [Function: toSafeInteger],
toString: [Function: toString],
toUpperCase: [Function: toUpper],
trim: [Function: trim],
trimEnd: [Function: trimEnd],
trimStart: [Function: trimStart],
truncate: [Function: truncate],
unescape: [Function: unescape],
uniqueId: [Function: uniqueId],
uppercase: [Function],
```


/Users/jjohanan/projects/node.js

- node.js
 - Section1
 - Section1.1
 - Section1.2
 - Section1.3
 - Section1.4
 - Section1.5
 - node_modules
 - Section2
 - Section3
 - Volume2
 - .DS_Store

You can quickly open
files with the Fuzzy
Finder. Try it by using



1. bash

```
trim: [Function: trim],
trimEnd: [Function: trimEnd],
trimStart: [Function: trimStart],
truncate: [Function: truncate],
unescape: [Function: unescape],
uniqueId: [Function: uniqueId],
upperCase: [Function],
upperFirst: [Function],
each: [Function: forEach],
eachRight: [Function: forEachRight],
first: [Function: head],
VERSION: '4.15.0',
_: [Circular] }
> Joshuas-Mini:Section1.5 jjohanan$ npm uninstall
lodash
- lodash@4.15.0 node_modules/lodash
npm WARN enoent ENOENT: no such file or director
y, open '/Users/jjohanan/projects/node.js/Section
1/Section1.5/package.json'
npm WARN Section1.5 No description
npm WARN Section1.5 No repository field.
npm WARN Section1.5 No README data
npm WARN Section1.5 No license field.
Joshuas-Mini:Section1.5 jjohanan$
```


Summary

- Installed Node.js
- Learned what a REPL is
- Learned about Node.js and JavaScript
- Used npm