Node.js by Example

Node.js Modules

Modules

- Modules are libraries that extend the functionality of node.js

- Some modules are packaged with the node.js distribution
  - These modules make up the node.js API

- Other modules are written by external developers in the node.js community

Node API Modules

A brief review of notable API modules

Node API Modules

- The Node.js distribution provides a number of built-in modules on installation

- These modules:
  - Provide standard development framework features
  - Add some standard library functions that JavaScript lacks
    - E.g. STDIO

- Let's look at a few examples of notable modules…

STDIO

- Allows you to print to stdout and stderr from your node.js application

- E.g.:
  - console.log()
  - console.error()
  - console.assert()

- Full Spec: http://nodejs.org/api/stdio.html

HTTP / HTTPS

- The HTTP and HTTPS modules enable robust HTTP/HTTPS communication capabilities

- Designed to support advanced HTTP protocol features
  - Large messages
  - Chunk-encoded messages

- HTTP Full Spec: http://nodejs.org/api/http.html

- HTTPS Full Spec: http://nodejs.org/api/https.html

Net

- An asynchronous network wrapper

- Can create servers and clients for TCP connections

- E.g.
  - net.createServer([options], [connectionListener])

- Full Spec: http://nodejs.org/api/net.html

URL

- Utility module for resolution and parsing of URLs

- E.g.:
  - url.parse(urlStr, …)
  - url.format(urlObj)
  - url.resolve(form, to)

- Full Spec: http://nodejs.org/api/url.html

File System

- Provides file I/O capabilities

- All methods have synchronous and asynchronous forms

- E.g.
  - fs.readFile(filename, …)
  - fs.write(fd, buffer, offset, length, position, [callback])
  - …

- Full Spec: http://nodejs.org/api/fs.html

Crypto

- Provides cryptographic functions

- Enables creation of secure credentials for HTTPS connections, hash creation, and much more

- Requires OpenSSL to be installed on the system

- Offers wrappers for many OpenSSL methods

- Full Spec: http://nodejs.org/api/crypto.html

See the full node.js API at:

http://nodejs.org/api/

3rd Party Node Modules

The Node.js community at work!

3rd Party Modules

- One of the most powerful features of node.js is the extremely active developer community

- Community-created modules
  - Extend the functionality of Node
  - Provide powerful new features and patterns
  - Simplify common programming needs

- Let's check out some popular 3rd party modules…

Express

- Lightweight web development framework for node.js

- Inspired by Sinatra (for Ruby)

- Enables quick and efficient generation of web applications built on node.js

- Project website: http://expressjs.com/

CoffeeScript

- Slick, efficient programming language syntax that compiles into JavaScript
  - Makes code more readable
  - Quicker development

- Not node.js-specific, per se
  - But, works great with node.js!

- Project website: http://coffeescript.org/

Async.js

- Utility module to aid in working with asynchronous JavaScript

- Common async functions
  - Map, reduce, filter, etc

- Common async control flow patterns
  - Parallel, series, waterfall, etc

- Github: https://github.com/caolan/async

Search all registered modules at:

http://search.npmjs.org/