# debug

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A tiny node.js debugging utility modelled after node core's debugging technique.

**Discussion around the V3 API is under way** [**here**](https://github.com/visionmedia/debug/issues/370)

## Installation

$ npm install debug

## Usage

debug exposes a function; simply pass this function the name of your module, and it will return a decorated version of console.error for you to pass debug statements to. This will allow you to toggle the debug output for different parts of your module as well as the module as a whole.

Example *app.js*:

var debug = require('debug')('http')

, http = require('http')

, name = 'My App';

// fake app

debug('booting %s', name);

http.createServer(function(req, res){

debug(req.method + ' ' + req.url);

res.end('hello\n');

}).listen(3000, function(){

debug('listening');

});

// fake worker of some kind

require('./worker');

Example *worker.js*:

var debug = require('debug')('worker');

setInterval(function(){

debug('doing some work');

}, 1000);

The **DEBUG** environment variable is then used to enable these based on space or comma-delimited names. Here are some examples:

debug http and worker

debug worker

#### Windows note

On Windows the environment variable is set using the set command.

set DEBUG=\*,-not\_this

Note that PowerShell uses different syntax to set environment variables.

$env:DEBUG = "\*,-not\_this"

Then, run the program to be debugged as usual.

## Millisecond diff

When actively developing an application it can be useful to see when the time spent between one debug() call and the next. Suppose for example you invoke debug() before requesting a resource, and after as well, the "+NNNms" will show you how much time was spent between calls.



When stdout is not a TTY, Date#toUTCString() is used, making it more useful for logging the debug information as shown below:



## Conventions

If you're using this in one or more of your libraries, you *should* use the name of your library so that developers may toggle debugging as desired without guessing names. If you have more than one debuggers you *should* prefix them with your library name and use ":" to separate features. For example "bodyParser" from Connect would then be "connect:bodyParser".

## Wildcards

The \* character may be used as a wildcard. Suppose for example your library has debuggers named "connect:bodyParser", "connect:compress", "connect:session", instead of listing all three with DEBUG=connect:bodyParser,connect:compress,connect:session, you may simply do DEBUG=connect:\*, or to run everything using this module simply use DEBUG=\*.

You can also exclude specific debuggers by prefixing them with a "-" character. For example, DEBUG=\*,-connect:\* would include all debuggers except those starting with "connect:".

## Environment Variables

When running through Node.js, you can set a few environment variables that will change the behavior of the debug logging:

| **Name** | **Purpose** |
| --- | --- |
| DEBUG | Enables/disables specific debugging namespaces. |
| DEBUG\_COLORS | Whether or not to use colors in the debug output. |
| DEBUG\_DEPTH | Object inspection depth. |
| DEBUG\_SHOW\_HIDDEN | Shows hidden properties on inspected objects. |

**Note:** The environment variables beginning with DEBUG\_ end up being converted into an Options object that gets used with %o/%O formatters. See the Node.js documentation for [util.inspect()](https://nodejs.org/api/util.html#util_util_inspect_object_options) for the complete list.

## Formatters

Debug uses [printf-style](https://wikipedia.org/wiki/Printf_format_string) formatting. Below are the officially supported formatters:

| **Formatter** | **Representation** |
| --- | --- |
| %O | Pretty-print an Object on multiple lines. |
| %o | Pretty-print an Object all on a single line. |
| %s | String. |
| %d | Number (both integer and float). |
| %j | JSON. Replaced with the string '[Circular]' if the argument contains circular references. |
| %% | Single percent sign ('%'). This does not consume an argument. |

### Custom formatters

You can add custom formatters by extending the debug.formatters object. For example, if you wanted to add support for rendering a Buffer as hex with %h, you could do something like:

const createDebug = require('debug')

createDebug.formatters.h = (v) => {

return v.toString('hex')

}

// …elsewhere

const debug = createDebug('foo')

debug('this is hex: %h', new Buffer('hello world'))

// foo this is hex: 68656c6c6f20776f726c6421 +0ms

## Browser support

You can build a browser-ready script using [browserify](https://github.com/substack/node-browserify), or just use the [browserify-as-a-service](https://wzrd.in/) [build](https://wzrd.in/standalone/debug@latest), if you don't want to build it yourself.

Debug's enable state is currently persisted by localStorage. Consider the situation shown below where you have worker:a and worker:b, and wish to debug both. You can enable this using localStorage.debug:

localStorage.debug = 'worker:\*'

And then refresh the page.

a = debug('worker:a');

b = debug('worker:b');

setInterval(function(){

a('doing some work');

}, 1000);

setInterval(function(){

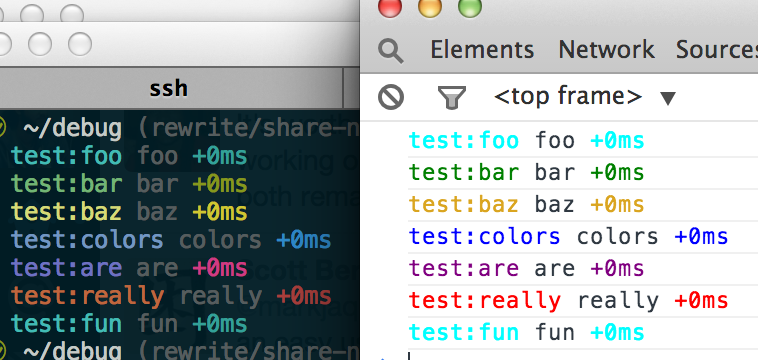
b('doing some work');

}, 1200);

#### Web Inspector Colors

Colors are also enabled on "Web Inspectors" that understand the %c formatting option. These are WebKit web inspectors, Firefox ([since version 31](https://hacks.mozilla.org/2014/05/editable-box-model-multiple-selection-sublime-text-keys-much-more-firefox-developer-tools-episode-31/)) and the Firebug plugin for Firefox (any version).

Colored output looks something like:



## Output streams

By default debug will log to stderr, however this can be configured per-namespace by overriding the log method:

Example *stdout.js*:

var debug = require('debug');

var error = debug('app:error');

// by default stderr is used

error('goes to stderr!');

var log = debug('app:log');

// set this namespace to log via console.log

log.log = console.log.bind(console); // don't forget to bind to console!

log('goes to stdout');

error('still goes to stderr!');

// set all output to go via console.info

// overrides all per-namespace log settings

debug.log = console.info.bind(console);

error('now goes to stdout via console.info');

log('still goes to stdout, but via console.info now');

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