



# Continuous Deployment from Github to WP Engine

*Zachary Watkins*

# About me

- WordPress Developer for AgriLife Communications
- JavaScript, PHP, front end, and dev ops
- Written code for thousands of sites
- B.F.A. in studio art



# What is Continuous Deployment?

- A workflow that minimizes the amount of time needed to provide users with the latest version of a code base
- Frequent commits to version control
- Automated tasks, deployment, and feedback



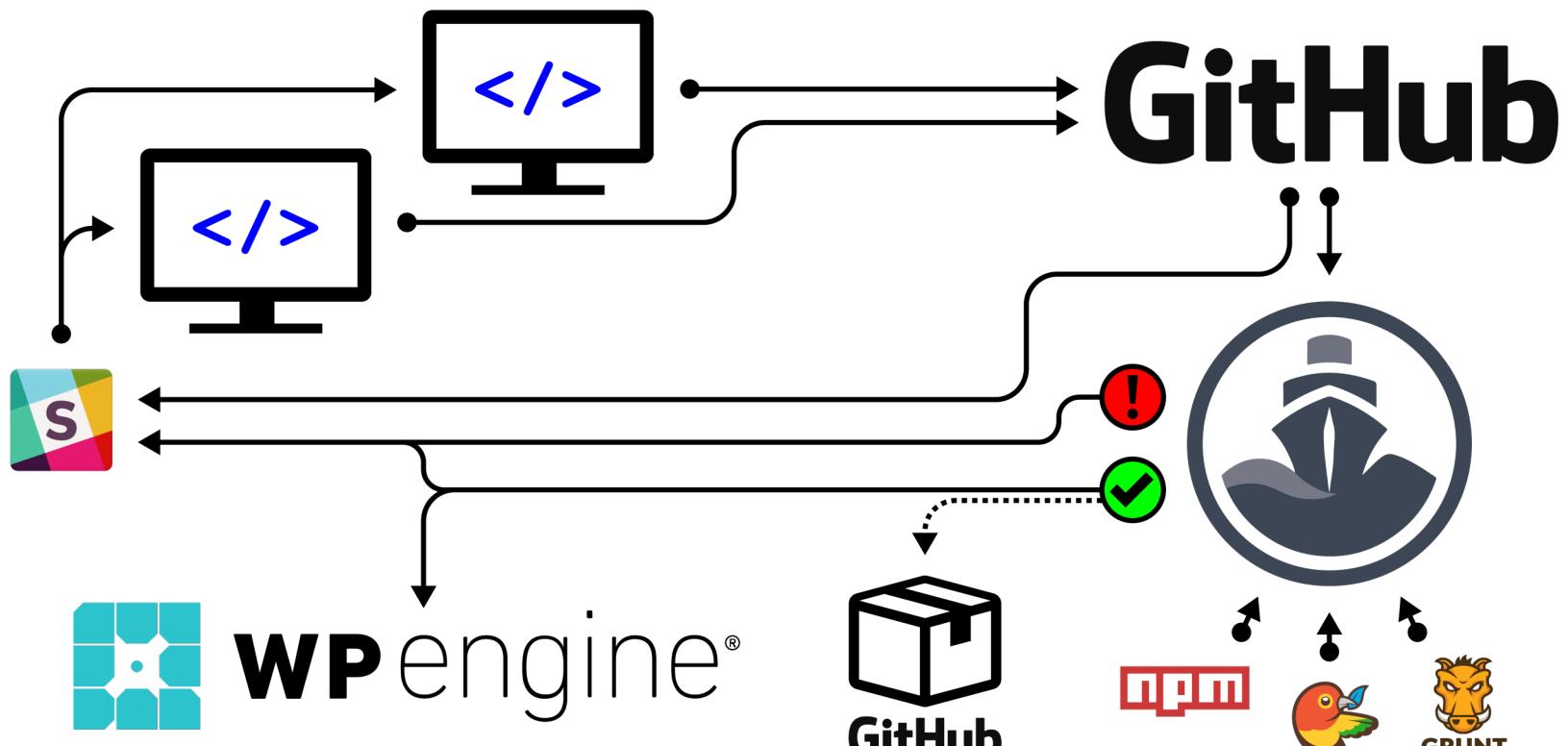
# Benefits

- Earlier return on investment <sup>1</sup>
- Earlier feedback from users <sup>1</sup>
- Faster response to users
- Automated deployment
- Increased productivity

<sup>1</sup> <https://www.agilealliance.org/glossary/continuous-deployment/>



# Deployment Cycle



# Services and software used

- Git client – Sourcetree
- Task runner – Grunt
- Package manager – npm and Bower
- Repository hosting – Github and Bitbucket



## **Services and software used, cont.**

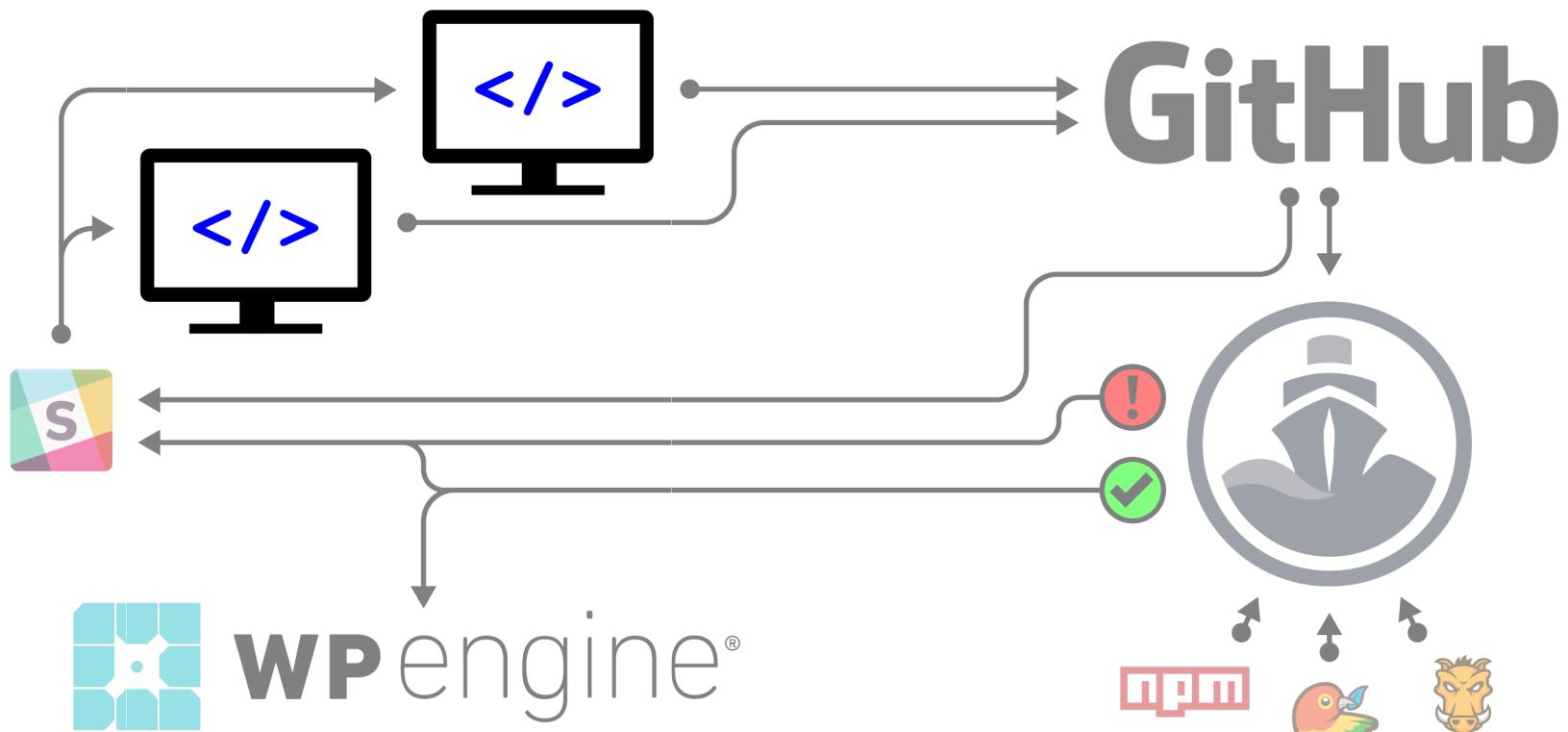
- Browser and device tests – Browserstack
- Continuous deployment service – Codeship
- Web hosting – WP Engine
- Notifications – Slack



# Staging Deployment Cycle

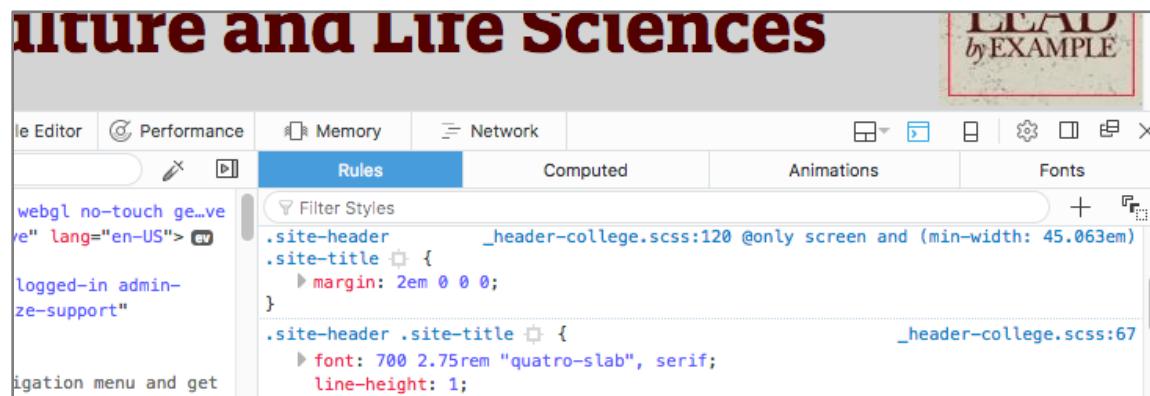


# Write code locally

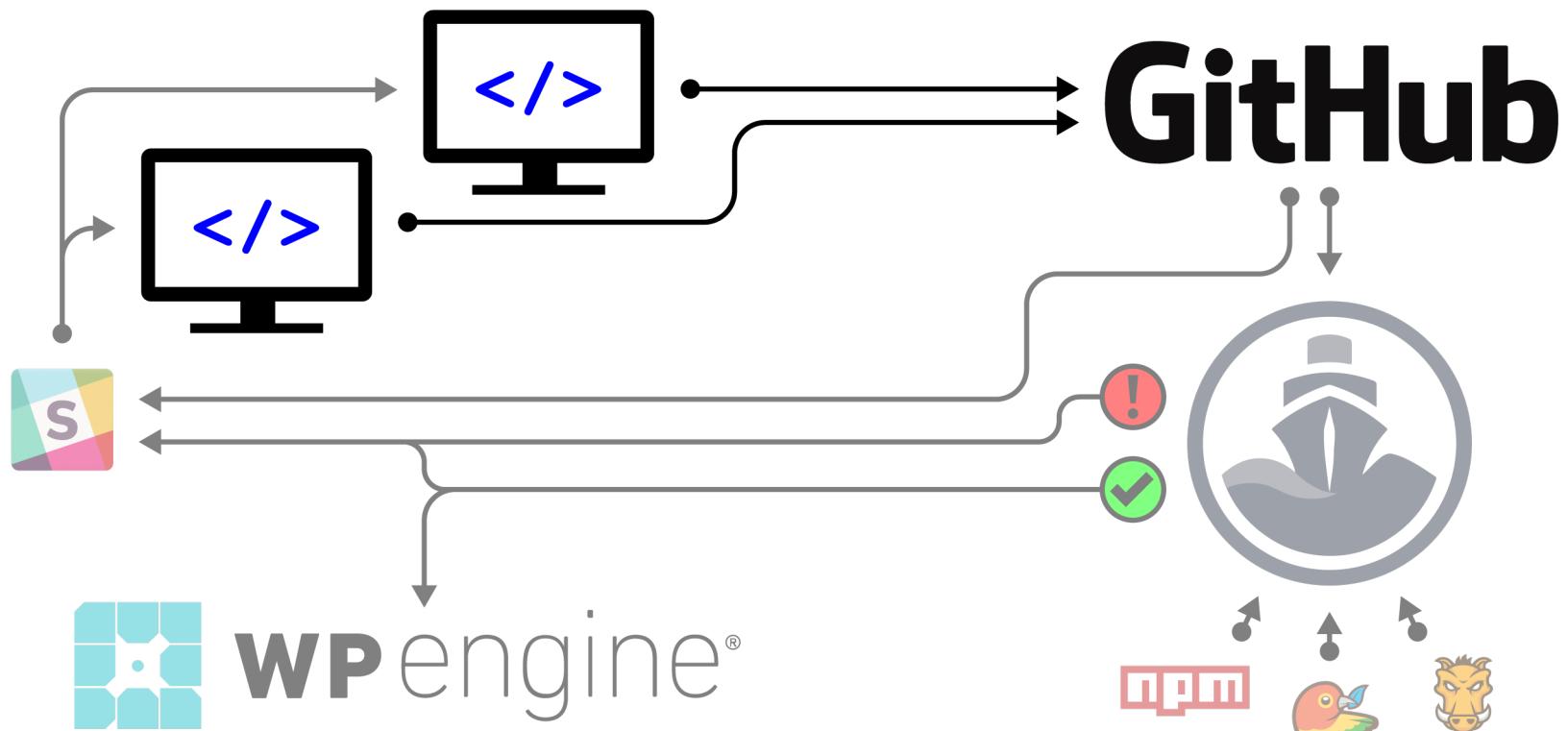


# Local Development

- WordPress virtual server using VVV
- Browserstack
- Sass source maps



# Commit, then push to staging branch

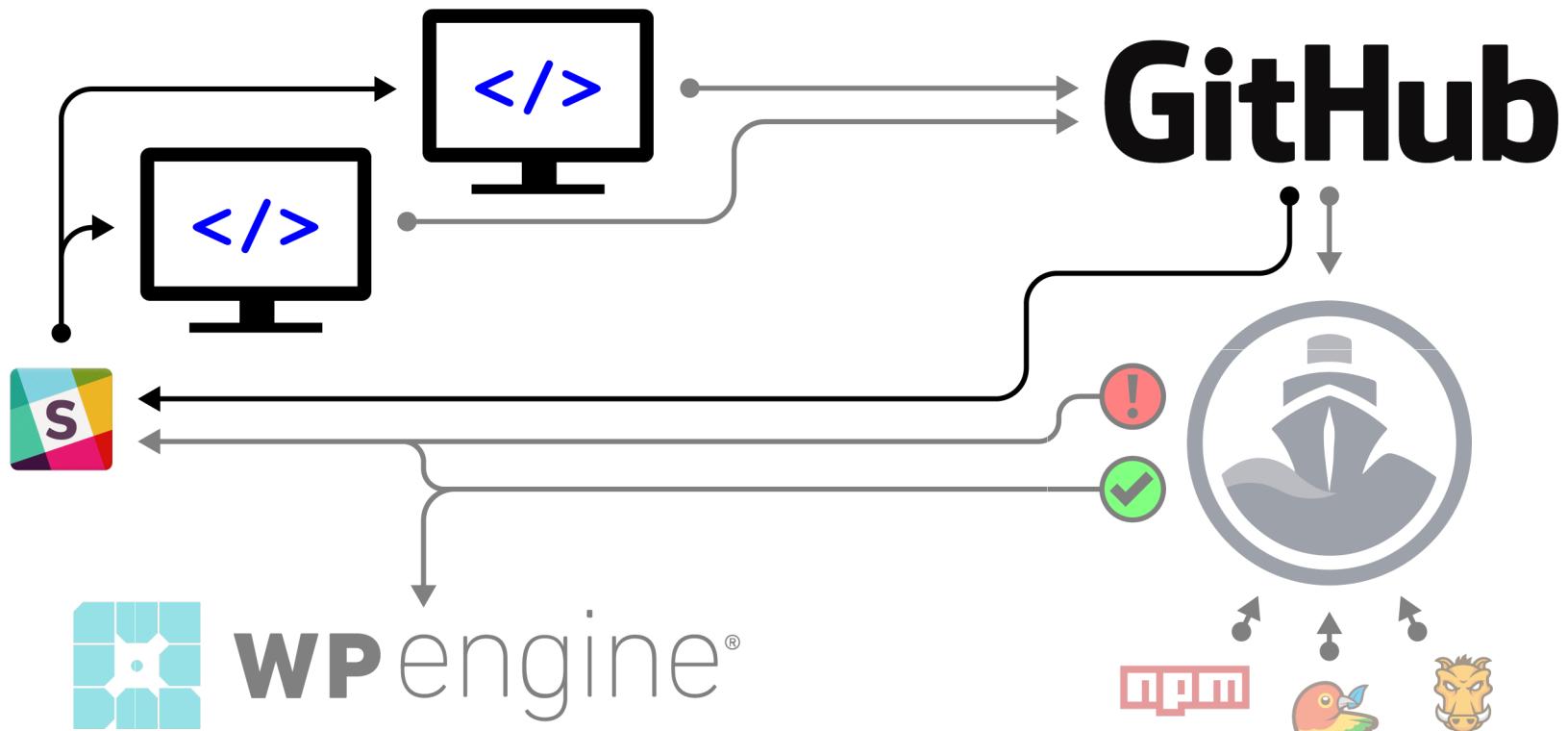


# Commit and push

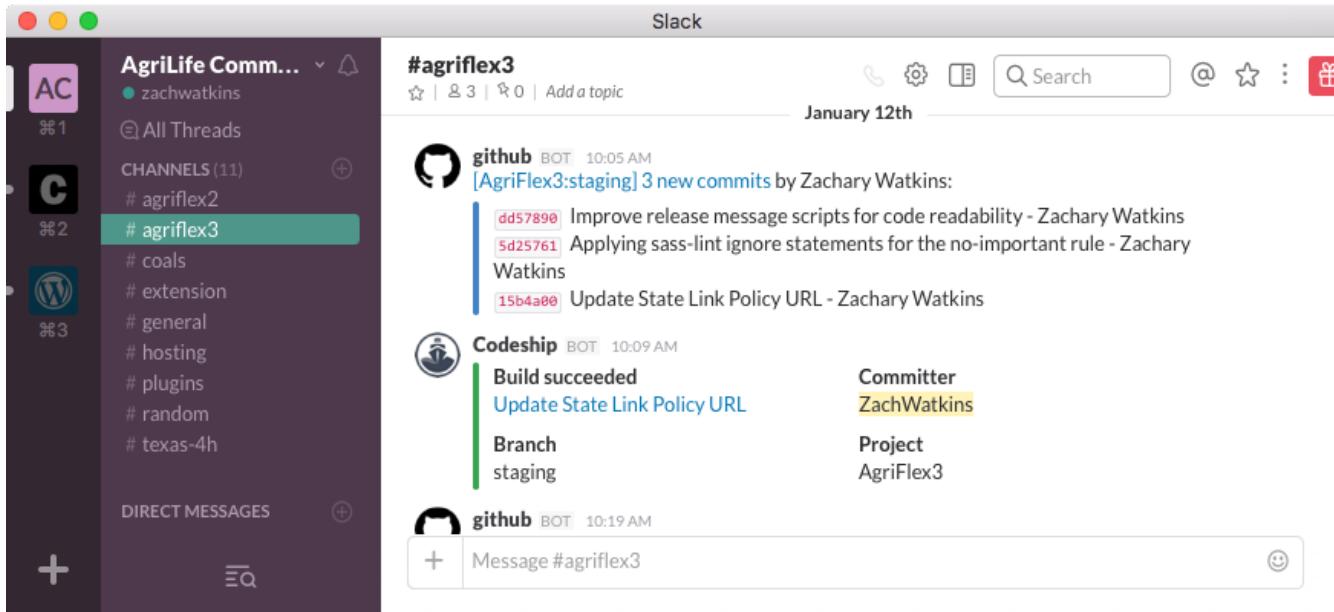
- If first commit after a release, also update version number in package.json
- Include [skip ci] in commit message to avoid triggering Codeship



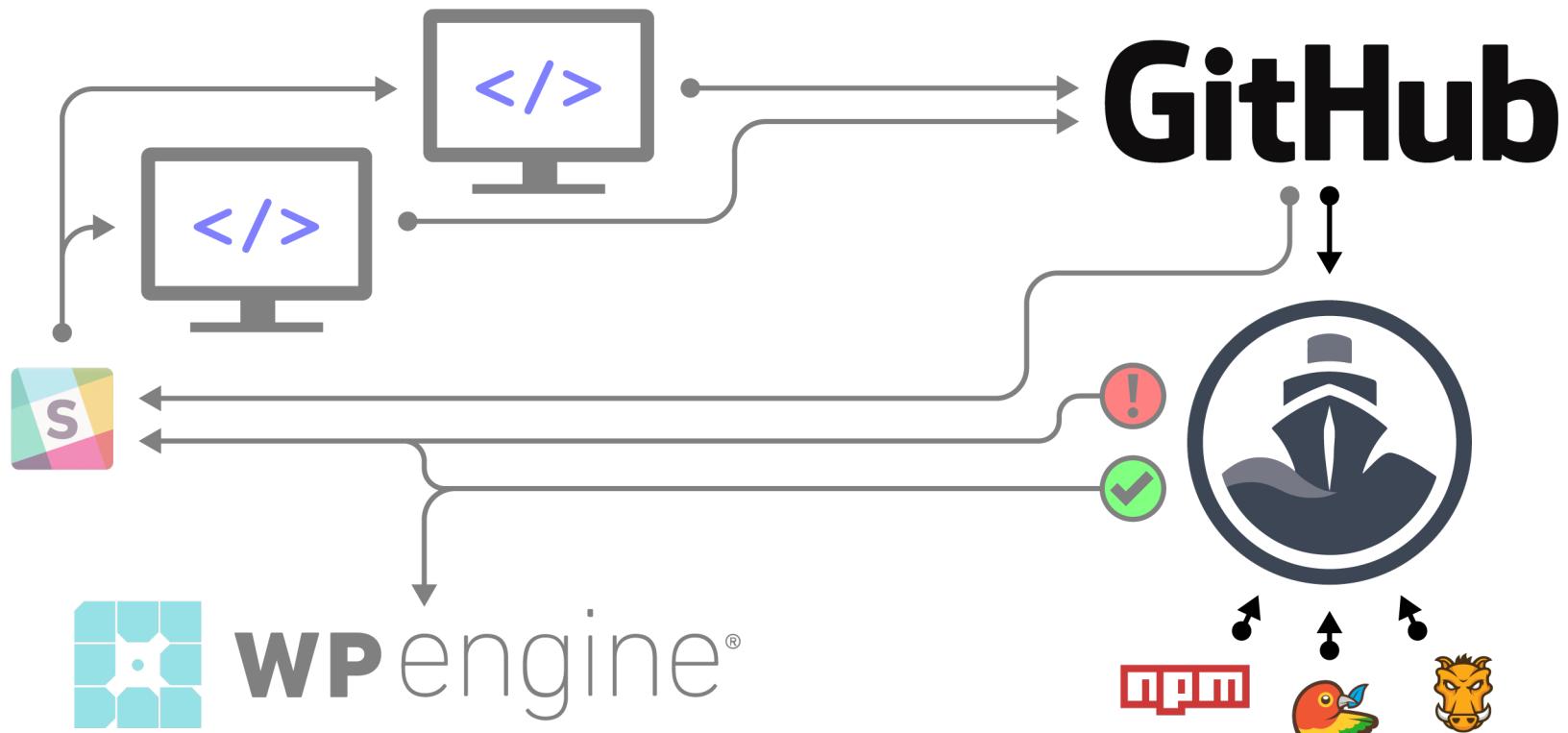
# Slack notifies



# Slack channel notification



# Codeship triggers and executes



# Codeship execution

- Clone staging branch (automatic)
- Run custom bash commands
  - Address shallow clone limitation
  - Set up repository info
  - Rearrange files
  - Import modules
  - Lint/Compile CSS/JS files, with source maps
  - Commit and force push



# Custom bash commands

```
1 # Get around shallow update restriction
2 if [ -f ${HOME}/clone/.git/shallow ]; then git fetch --unshallow; fi
3 # Add User Data
4 git config --global user.name "codeship-agriflex3"
5 git config --global user.email "zachary.watkins@ag.tamu.edu"
6 # Add servers
7 git remote add servers $AGRILIFE_STAGING
8 git remote set-url --add --push servers $AGRILIFE_STAGING
9 git remote set-url --add --push servers $COALS_STAGING
10 git remote set-url --add --push servers $COUNTIES_STAGING
11 git remote set-url --add --push servers $AGRILIFEEXTENSION_STAGING
12 git remote set-url --add --push servers $TXMG_STAGING
13 git remote set-url --add --push servers $TXMN_STAGING
14 # Install needed modules
15 npm install -g grunt-cli
16 npm install -g grunt@0.4.0
17 npm install -g bower
18 npm install -g ruby
19 gem install compass
20 # Move repo files to a named folder
21 mkdir $FOLDERNAME
22 shopt -s extglob
23 mv !($FOLDERNAME) $FOLDERNAME
```

# Custom bash commands, cont.

```
24 # Move repo files whose name begins with a period
25 mv .sass-lint.yml $FOLDERNAME/.sass-lint.yml
26 # Exclude development-only files from commit
27 rm .gitignore
28 mv .codeshipignore $FOLDERNAME/.gitignore
29 # Move named folder into a structure identical to the
30 # root directory of a WordPress server
31 mkdir -p $DIRECTORY
32 mv $FOLDERNAME $DIRECTORY
33 cd $DIRECTORY/$FOLDERNAME/
34 # Build
35 composer install
36 npm install
37 bower install html5shiv#3.7.0
38 bower install respond#1.4.1
39 grunt develop
40 # Deploy
41 git add --all :/
42 git commit -m "DEPLOYMENT"
43 git push servers HEAD:master --force
44
```

# .codeshipignore

```
1 # RECOMMENDED BY WPENGINE
2 *~
3 .DS_Store
4 .svn
5 .cvs
6 *.bak
7 *.swp
8 Thumbs.db
9
10 # large/disallowed file types
11 # a CDN should be used for these
12 *.hqx
13 *.bin
14 *.exe
15 *.dll
16 *.deb
17 *.dmg
18 *.iso
19 *.img
20 *.msi
21 *.msp
22 *.msm
23 *.mid
24 *.midi
25 *.kar
26 *.mp3
27 *.ogg
28 *.m4a
29 *.ra
30 *.3gpp
31 *.3gp
32 *.mp4
33 *.mpeg
34 *.mpg
35 *.mov
36 *.webm
37 *.flv
38 *.m4v
39 *.mng
40 *.asx
41 *.ASF
42 *.WMV
43 *.avi
44
```

# .codeshipignore, cont.

```
45 # Don't deploy
46 package.json
47 bower.json
48 .bower.json
49 .bowerrc
50 config.rb
51 node_modules
52 .sass-cache
53 *.md
54 *.txt
55 *.ai
56 *.scss
57 *.coffee
58 .gitignore
59 LICENSE
60 LICENSE-MIT
61 gruntfile.js
62 Gruntfile.js
63 worker.yml
64 .editorconfig
65 bower_components/**/foundation/scss/
66 bower_components/**/jquery/src/
67 bower_components/**/modernizr*/
68 bower_components/**/modernizr/grunt.js
69 bower_components/**/picturefill/index.html
70 bower_components/**/picturefill/logos/*.png
71 bower_components/**/superfish/examples/
72 bower_components/html5shiv/
73 !bower_components/html5shiv/dist/html5shiv.js
74 css/src
75 js/src
76
77 # Prevent Composer files from being loaded if
78 # they are only used for PHP5.6+
79 # vendor/composer/autoload_static.php
80
81 # Ignore release file
82 AgriFlex3.zip
83
```

# grunt “develop” task: sasslint

- Enforce style guide for our sass files

```
40      ]
41  sasslint:
42    options:
43      configFile: '.sass-lint.yml'
44    target: ['css/src/**/*.{s+(a|c)ss}']
45  compress: true
```



# grunt “develop” task: compass:dev

- Compile sass to css, expanded and with sourcemaps
- Include the Foundation import path

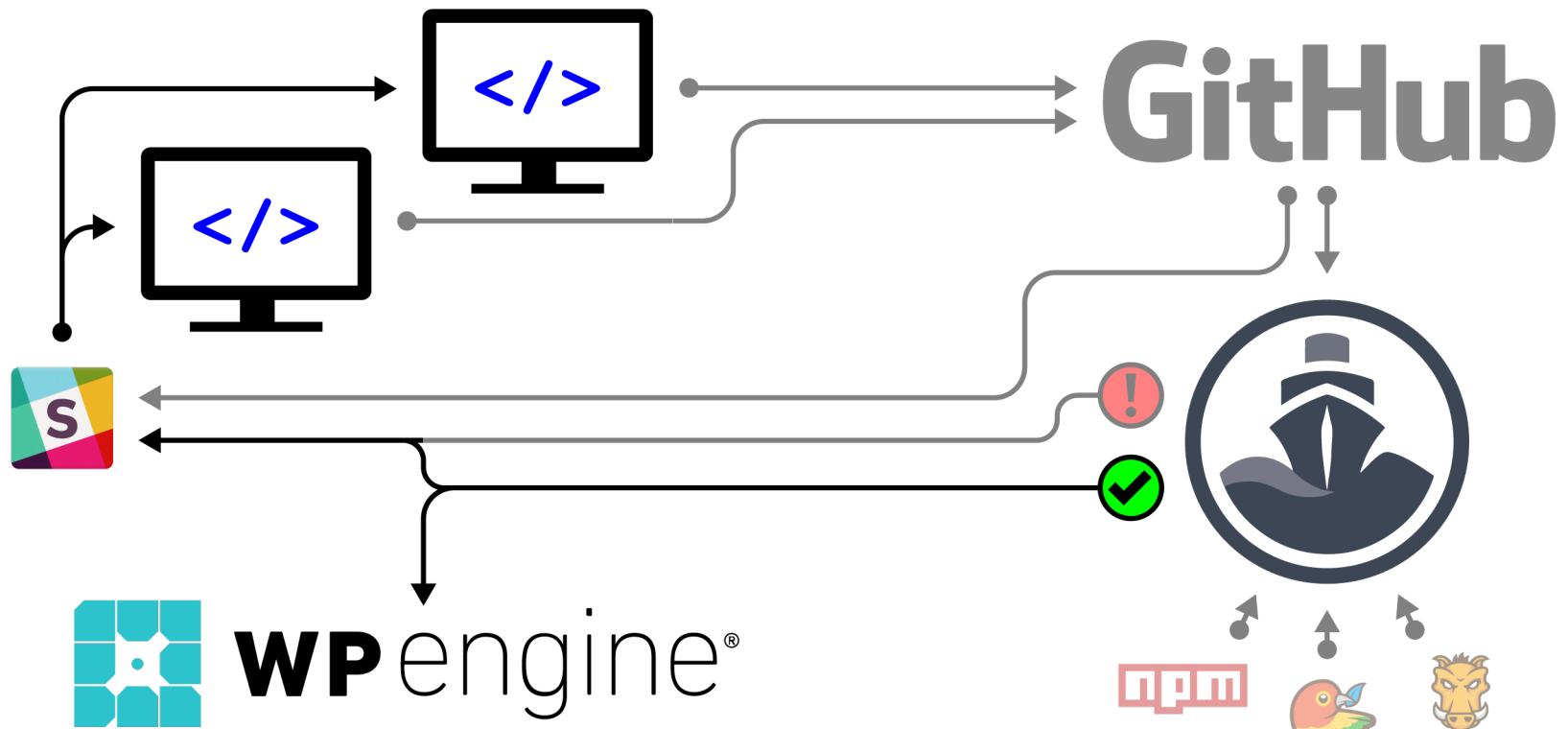
```
8      tasks: [ 'develop' ]
9
10    compass:
11      pkg:
12        options:
13          config: 'config.rb'
14          force: true
15      dev:
16        options:
17          config: 'config.rb'
18          force: true
19          outputStyle: 'expanded'
20          sourcemap: true
21          noLineComments: true
22
23      invalidate:
```

# grunt “develop” task: jsvalidate

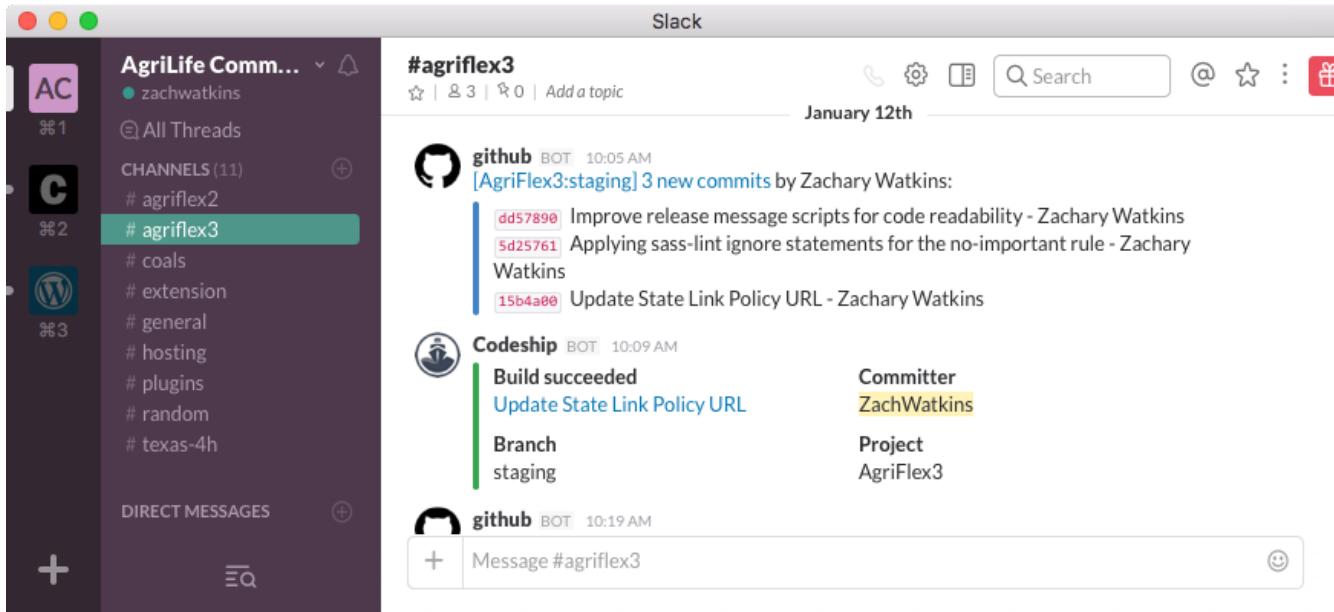
- Check js files for syntax errors

```
20      noLineComments: true
21  jsvalidate:
22    options:
23      globals:
24        jQuery: true
25        console: true
26        module: true
27        document: true
28    targetName:
29    files:
30      src: [
31        'js/*.js',
32        'bower_components/foundation/js/vendor/fastclick.js',
33        'bower_components/foundation/js/foundation/foundation?(.topbar).js',
34        'bower_components/modernizr/modernizr.js',
35        'bower_components/jquery/{dist,sizzle}/**/*.js',
36        'bower_components/jquery-placeholder/*.js',
37        'bower_components/jquery.cookie/jquery.cookie.js',
38        'bower_components/respond/{cross-domain,dest}/*.js',
39        'bower_components/html5shiv/dist/html5shiv.js'
40      ]
41  eslint:
```

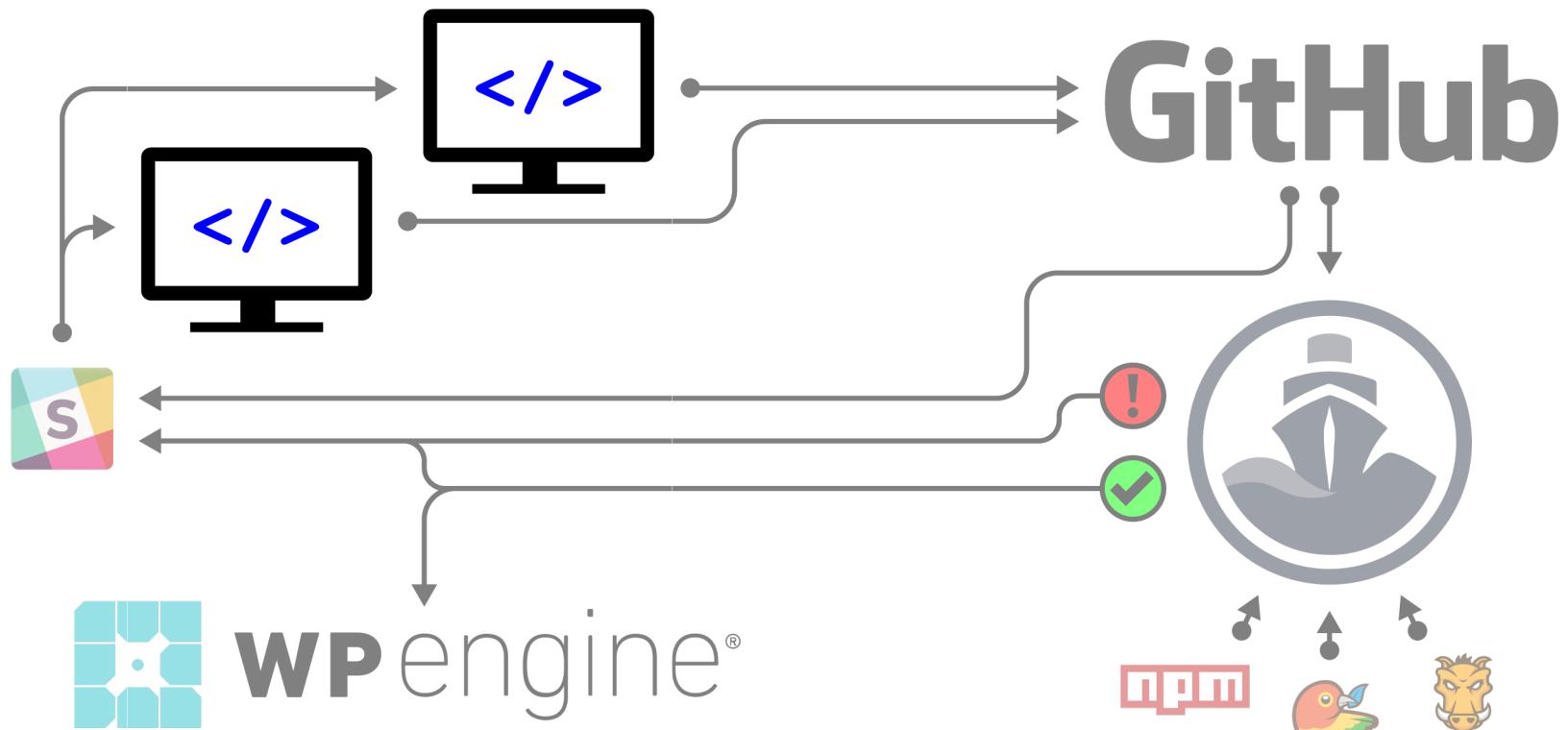
# If passing: deploy to staging, notify



# Slack channel notification



# Perform manual tests

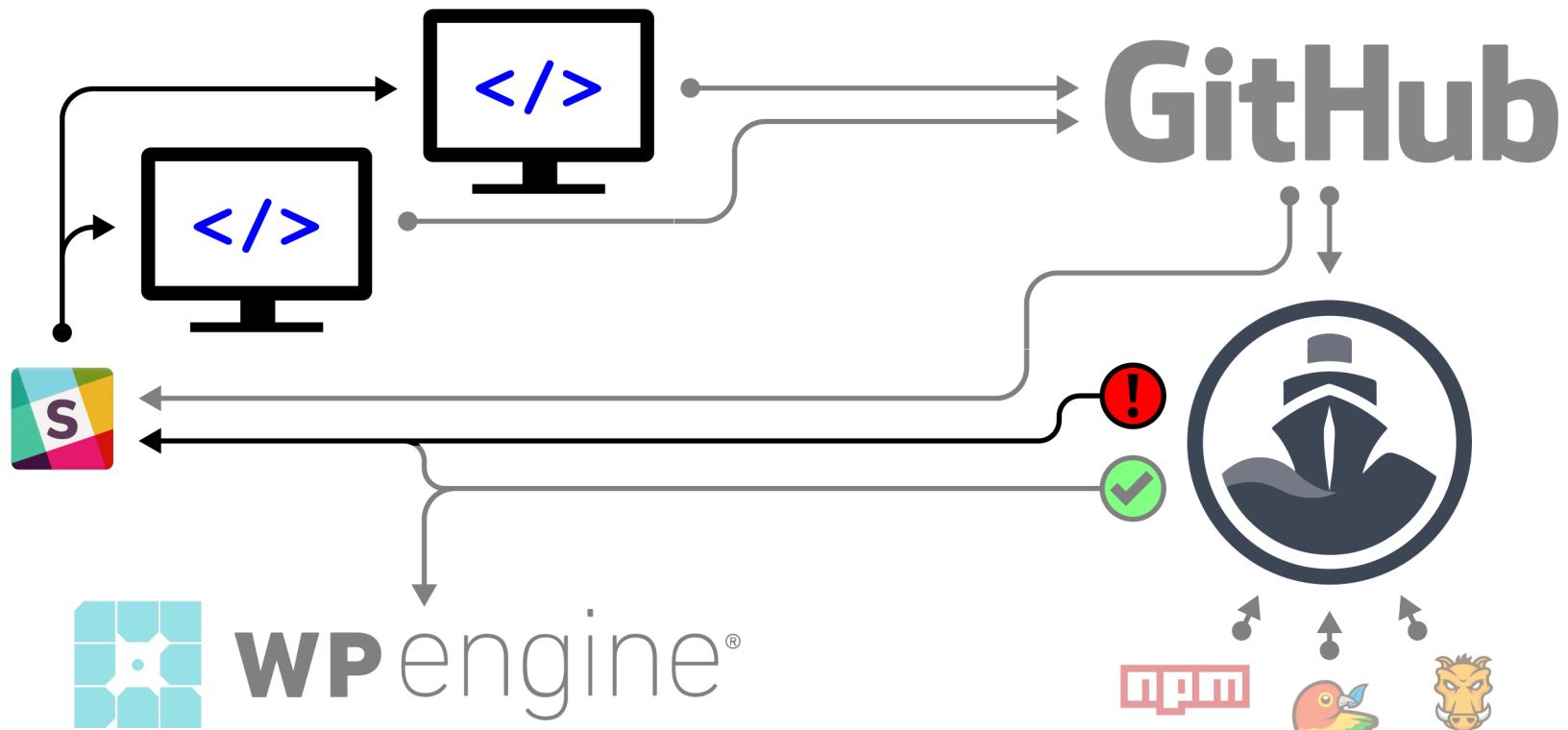


# Manual Tests

- Double-check that changes are working on staging sites
- Sass source maps expedite troubleshooting and revisions



# If failing: troubleshoot and restart



# Reasons it might fail

- PHP files incompatible with server
- Grunt tasks

```
35 grunt develop                               0 min 4 sec ⚠
Scroll down to bottom

Running "sasslint:target" (sasslint) task

css/src/college-template-aglifesciences.scss
330:1 error Please check validity of the block starting from line #330 Fatal

css/src/college.scss
2:9 warning Strings must use single quotes quotes
3:9 warning Strings must use single quotes quotes
6:9 warning Strings must use single quotes quotes
8:9 warning Strings must use single quotes quotes
9:9 warning Strings must use single quotes quotes
10:9 warning Strings must use single quotes quotes
13:9 warning Strings must use single quotes quotes
```



# Reasons it might fail, cont.

- Module(s) causing errors

35 grunt develop 0 min 4 sec A

Scroll down to bottom

```
Running "sasslint:target" (sasslint) task
Warning: /home/rof/src/github.com/AgriLife/AgriFlex3/wp-content/themes/AgriFlex3/node_modules/grunt-sass-lint
/node_modules/sass-lint/node_modules/eslint/lib/formatters/stylish.js:7
const chalk = require("chalk"),
^^^^^
Use of const in strict mode. Use --force to continue.

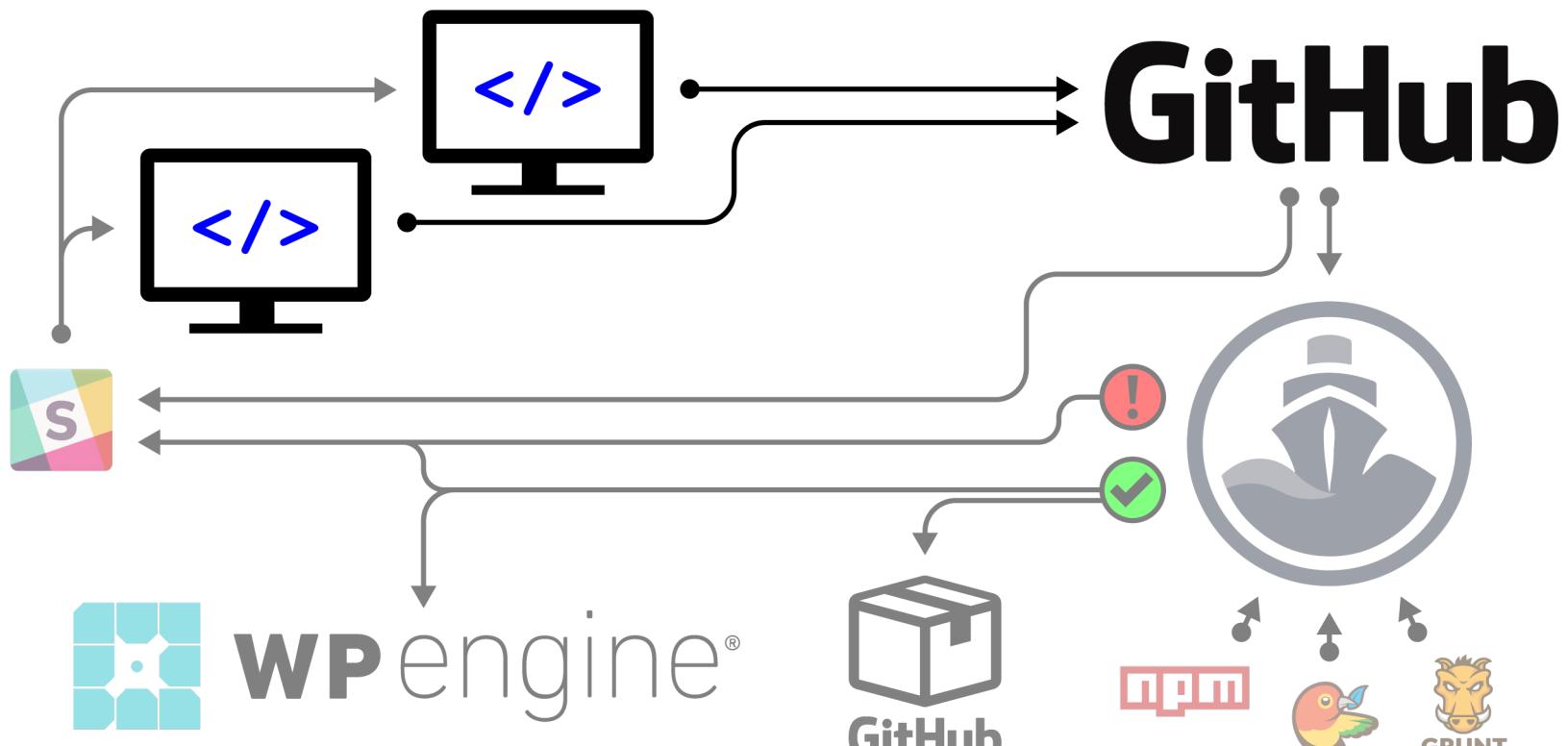
Aborted due to warnings.
```



# Production Deployment Cycle

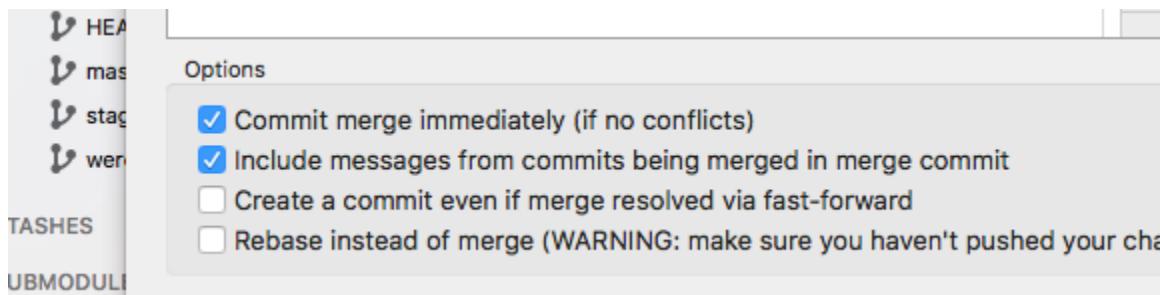


# Merge staging branch, then push

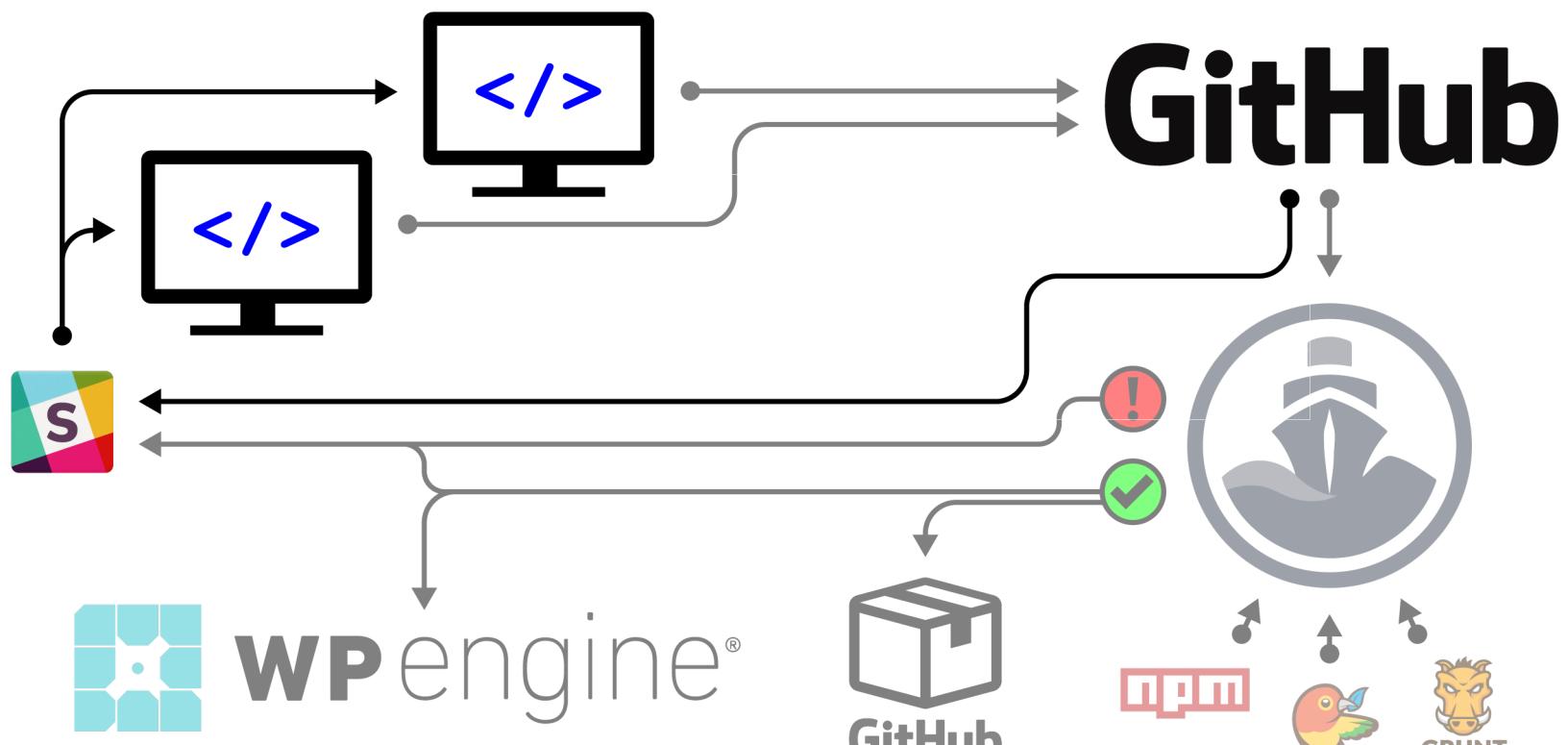


# Merge and push

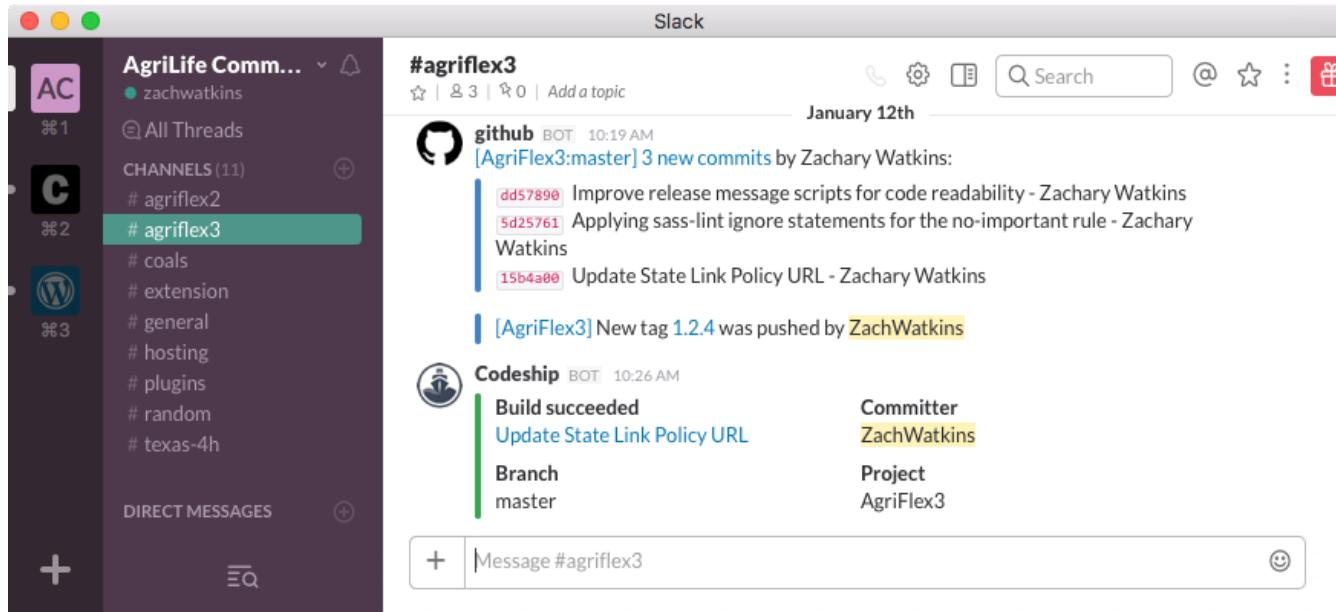
- If using [skip ci] in commit(s) to merge, and don't want to deploy, then check box to include previous commit messages



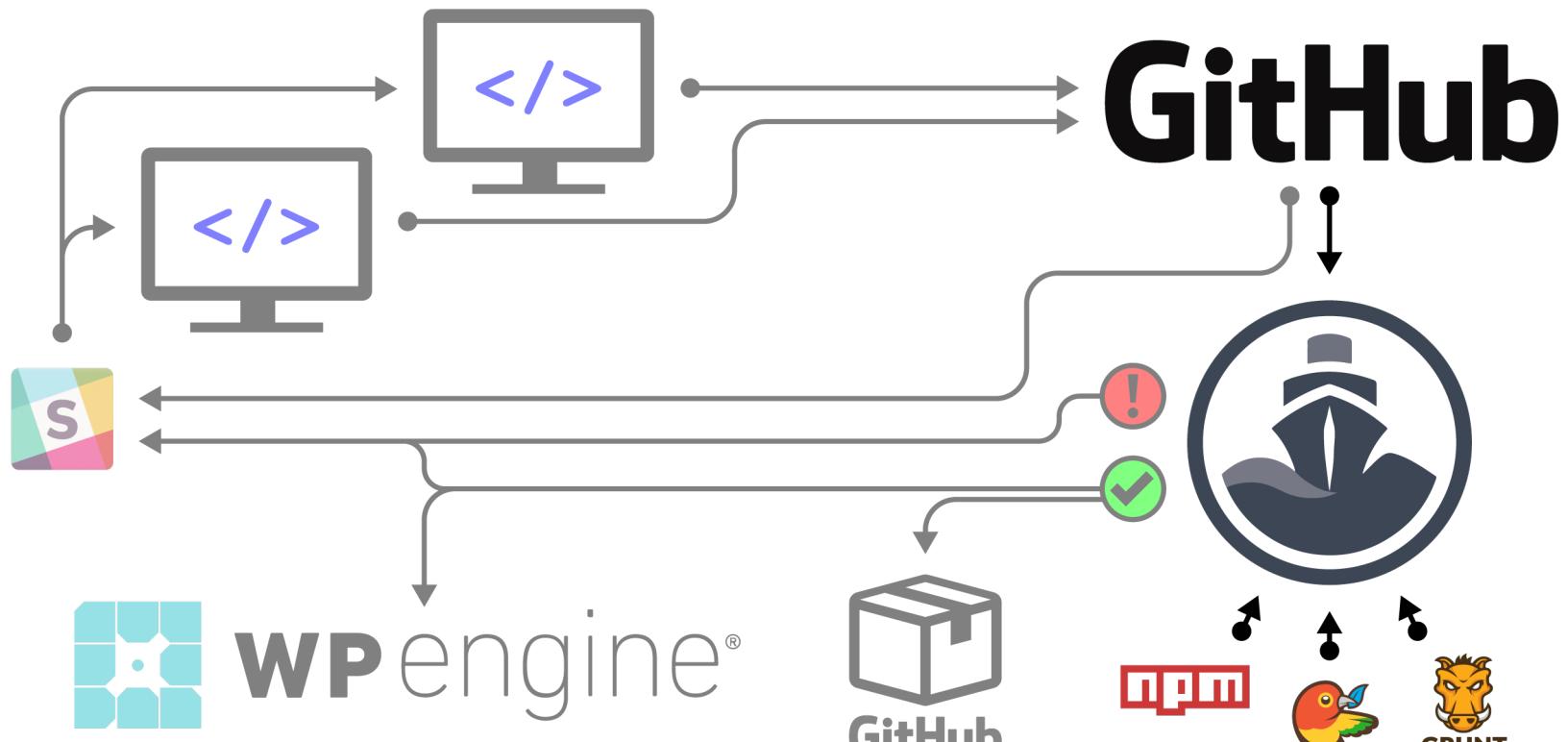
# Slack notifies



# Slack channel notification



# Codeship triggers and executes



# Codeship execution

- Clone production branch (automatic)
- Run custom bash commands
  - Address shallow clone limitation
  - Set up repository info
  - Rearrange files
  - Import modules
  - Lint/Compile CSS/JS files, compressed
  - Release
  - Commit and force push



# Custom bash commands

```
1 # Get around shallow update restriction
2 if [ -f ${HOME}/clone/.git/shallow ]; then git fetch --unshallow; fi
3 # Add User Data
4 git config --global user.name "codeship-agriflex3"
5 git config --global user.email "zachary.watkins@ag.tamu.edu"
6 # Add servers
7 git remote add servers $AGRILIFE_PRODUCTION
8 git remote set-url --add --push servers $AGRILIFE_PRODUCTION
9 git remote set-url --add --push servers $COALS_PRODUCTION
10 git remote set-url --add --push servers $COUNTIES_PRODUCTION
11 git remote set-url --add --push servers $AGRILIFEEXTENSION_PRODUCTION
12 git remote set-url --add --push servers $TXMG_PRODUCTION
13 git remote set-url --add --push servers $TXMN_PRODUCTION
14 # Install needed modules
15 npm install -g grunt-cli
16 npm install -g grunt@0.4.0
17 npm install -g bower
18 npm install -g ruby
19 gem install compass
20 # Move repo files to a named folder
21 mkdir $FOLDERNAME
22 shopt -s extglob
23 mv !($FOLDERNAME) $FOLDERNAME
```

# Custom bash commands, cont.

```
24 # Move repo files whose name begins with a period
25 mv .sass-lint.yml $FOLDERNAME/.sass-lint.yml
26 # Exclude development-only files from commit
27 rm .gitignore
28 mv .codeshipignore $FOLDERNAME/.gitignore
29 # Move named folder into a structure identical to the root
30 # directory of a WordPress server
31 mkdir -p $DIRECTORY
32 mv $FOLDERNAME $DIRECTORY
33 cd $DIRECTORY/$FOLDERNAME/
34 # Build
35 composer install
36 npm install
37 bower install html5shiv#3.7.0
38 bower install respond#1.4.1
39 grunt package
40 # Release
41 grunt release
42 # Deploy
43 git add --all :/
44 git commit -m "DEPLOYMENT"
45 git push servers HEAD:master --force
46
```

# .codeshipignore

```
1 # RECOMMENDED BY WPENGINE
2 *~
3 .DS_Store
4 .svn
5 .cvs
6 *.bak
7 *.swp
8 Thumbs.db
9
10 # large/disallowed file types
11 # a CDN should be used for these
12 *.hqx
13 *.bin
14 *.exe
15 *.dll
16 *.deb
17 *.dmg
18 *.iso
19 *.img
20 *.msi
21 *.msp
22 *.msm
23 *.mid
24 *.midi
25 *.kar
26 *.mp3
27 *.ogg
28 *.m4a
29 *.ra
30 *.3gpp
31 *.3gp
32 *.mp4
33 *.mpeg
34 *.mpg
35 *.mov
36 *.webm
37 *.flv
38 *.m4v
39 *.mng
40 *.asx
41 *.ASF
42 *.WMV
43 *.avi
44
```

# .codeshipignore, cont.

```
45 # Don't deploy
46 package.json
47 bower.json
48 .bower.json
49 .bowerrc
50 config.rb
51 node_modules
52 .sass-cache
53 *.md
54 *.txt
55 *.ai
56 *.scss
57 *.coffee
58 .gitignore
59 LICENSE
60 LICENSE-MIT
61 gruntfile.js
62 Gruntfile.js
63 worker.yml
64 .editorconfig
65 bower_components/**/foundation/scss/
66 bower_components/**/jquery/src/
67 bower_components/**/modernizr*/
68 bower_components/**/modernizr/grunt.js
69 bower_components/**/picturefill/index.html
70 bower_components/**/picturefill/logos/*.png
71 bower_components/**/superfish/examples/
72 bower_components/html5shiv/
73 !bower_components/html5shiv/dist/html5shiv.js
74 css/src
75 js/src
76
77 # Prevent Composer files from being loaded if
78 # they are only used for PHP5.6+
79 # vendor/composer/autoload_static.php
80
81 # Ignore release file
82 AgriFlex3.zip
83
```

# grunt “package” task: compass:pkg

- Compile sass to css, compressed
- Include the Foundation import path

```
8      tasks: [ 'develop' ]
9
10     compass:
11       pkg:
12         options:
13           config: 'config.rb'
14           force: true
15       dev:
16         options:
17           config: 'config.rb'
18           force: true
19           outputStyle: 'expanded'
20           sourcemap: true
21           noLineComments: true
22
23     compass:pkg:dev
24     compass:pkg:prod
25
26   watch:
27     files: [
28       'app/assets/stylesheets/*.sass'
29     ]
30     tasks: [ 'compass:dev' ]
```

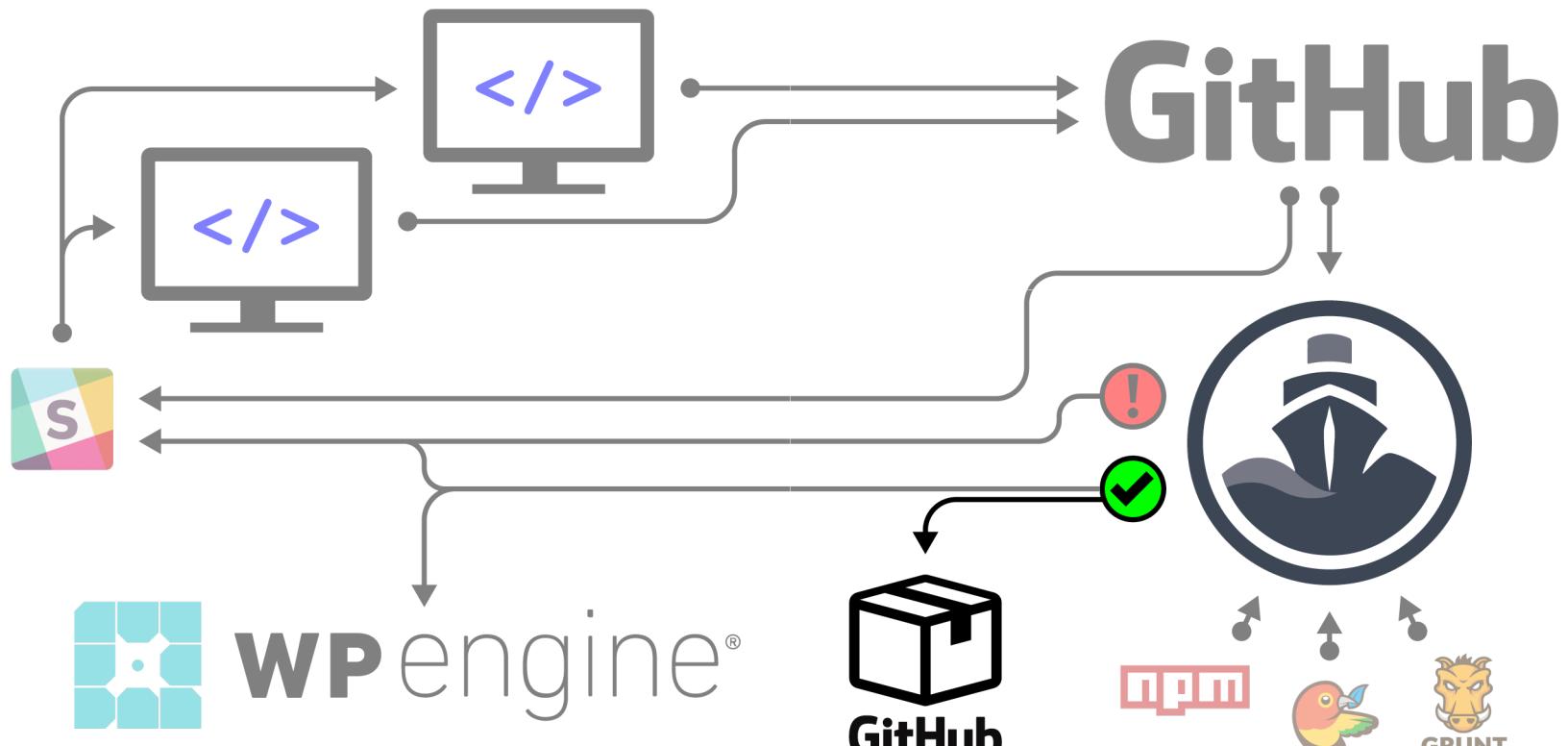


# grunt “package” task: jsvalidate

- Check js files for syntax errors

```
20      noLineComments: true
21  jsvalidate:
22    options:
23      globals:
24        jQuery: true
25        console: true
26        module: true
27        document: true
28    targetName:
29    files:
30      src: [
31        'js/*.js',
32        'bower_components/foundation/js/vendor/fastclick.js',
33        'bower_components/foundation/js/foundation/foundation?(.topbar).js',
34        'bower_components/modernizr/modernizr.js',
35        'bower_components/jquery/{dist,sizzle}/**/*.js',
36        'bower_components/jquery-placeholder/*.js',
37        'bower_components/jquery.cookie/jquery.cookie.js',
38        'bower_components/respond/{cross-domain,dest}/*.js',
39        'bower_components/html5shiv/dist/html5shiv.js'
40      ]
41  eslint:
```

# If passing: upload release



# Example release

The screenshot shows a GitHub release page for the repository "AgriLife/AgriFlex3". The release is titled "1.2.4" and has a commit hash "15b4a00". The title of the page is "Release". A user profile picture for "ZachWatkins" is shown, along with the text "ZachWatkins released this 6 days ago · 6 commits to master since this release". Below this, a section for "Zachary Watkins (3)" lists three commits:

- Improve release message scripts for code readability
- Applying sass-lint ignore statements for the no-important rule
- Update State Link Policy URL

Below the commits, there is a section titled "Downloads" with three options:

- [AgriFlex3.zip](#) 1.31 MB
- [Source code \(zip\)](#)
- [Source code \(tar.gz\)](#)



# Gruntfile.coffee: release task

```
@registerTask 'release', ['compress', 'setreleasemsg', 'gh_release']
```

- Create .zip of all non-development files
- Create release message
- Upload release to Github



# grunt-contrib-compress module

- List of file paths, some using “glob” patterns

```
44      target: 'CSS/STC/**/*.{ttf|OTF|EOT|woff|woff2|css}'
45
46  compress:
47    main:
48      options:
49        archive: 'AgriFlex3.zip'
50      files: [
51        {src: ['AgriFlex/*.php']},
52        {src: ['css/*.css']},
53        {src: ['img/**']},
54        {src: ['js/*.js']},
55        {src: ['bower_components/fastclick/lib/fastclick.js']},
56        {src: ['bower_components/foundation/{css,js}/**']},
57        {src: ['bower_components/modernizr/modernizr.js']},
58        {src: ['bower_components/jquery/{dist,sizzle}/**/*.js']},
59        {src: ['bower_components/jquery-placeholder/*.js']},
60        {src: ['bower_components/jquery.cookie/jquery.cookie.js']},
61        {src: ['bower_components/respond/{cross-domain,dest}/*.js']},
62        {src: ['bower_components/html5shiv/dist/html5shiv.js']},
63        {src: ['vendor/**', '!vendor/composer/autoload_static.php']},
64        {src: ['functions.php']},
65        {src: ['README.md']},
66        {src: ['rtl.css']},
67        {src: ['screenshot.png']},
68        {src: ['search.php']},
69        {src: ['style.css']}
70    ]
71  ab_releases:
```

# Custom setreleasemsg task

- Store the repo's last tag for use by the shortlog task
- Execute the shortlog task

```
97  @registerTask 'release', [ compress, setreleasemsg, gitRelease ]
98  @registerTask 'setreleasemsg', 'Set release message as range of commits', ->
99    done = @async()
100   grunt.util.spawn {
101     cmd: 'git'
102     args: [ 'tag' ]
103   }, (err, result, code) ->
104     if result.stdout isnt ''
105       matches = result.stdout.match /([^\n]+)$/
106       grunt.config.set 'lasttag', matches[1]
107       grunt.task.run 'shortlog'
108       done(err)
109     return
110   return
111   @registerTask 'shortlog', 'Set gh release body with commit messages since last release'
```



# Custom shortlog task

- Get commit messages since last release
- Remove [skip ci] and make into bulleted list
- Assign to release message

```
110  return
111  @registerTask 'shortlog', 'Set gh_release body with commit messages since last release', >
112  done = @async()
113  releaserange = grunt.template.process '<=> lasttag ..HEAD'
114  grunt.util.spawn {
115    cmd: 'git'
116    args: ['shortlog', releaserange, '--no-merges']
117  }, (err, result, code) =>
118  if result.stdout isnt ''
119    message = result.stdout.replace /(\n)\s\s+/g, '$1- '
120    message = message.replace /\s*\[skip ci\]/g, ''
121    grunt.config 'gh_release.release.body', message
122    done(err)
123    return
124  return
125
```

# grunt-gh-release module

- Github personal access token for release key
- Pull info from package.json

```
1  module.exports = (grunt) =>
2    @initConfig
3      pkg: @file.readJSON('package.json')
4      watch:
5        gh_release:
6          options:
7            token: process.env.RELEASE_KEY
8            owner: 'agrilife'
9            repo: '<%= pkg.name %>'
10           release:
11             tag_name: '<%= pkg.version %>'
12             target_commitish: 'master'
13             name: 'Release'
14             body: 'Release'
15             draft: false
16             prerelease: false
17             asset:
18               name: '<%= pkg.name %>.zip'
19               file: '<%= pkg.name %>.zip'
20               'Content-Type': 'application/zip'
```

# Result

A screenshot of a GitHub release page for the repository "AgriLife/AgriFlex3". The page shows a release titled "1.2.4" (tagged at commit "15b4a00"). The release was made by ZachWatkins 6 days ago, with 6 commits to master since this release. The release notes, written by Zachary Watkins, mention three improvements: improving release message scripts for readability, applying sass-lint ignore statements for the no-important rule, and updating the State Link Policy URL. Below the release notes, there are download links for "AgriFlex3.zip" (1.31 MB) and source code in both zip and tar.gz formats.

Releases · AgriLife/AgriFlex3

1.2.4

15b4a00

## Release

ZachWatkins released this 6 days ago · 6 commits to master since this release

Zachary Watkins (3):

- Improve release message scripts for code readability
- Applying sass-lint ignore statements for the no-important rule
- Update State Link Policy URL

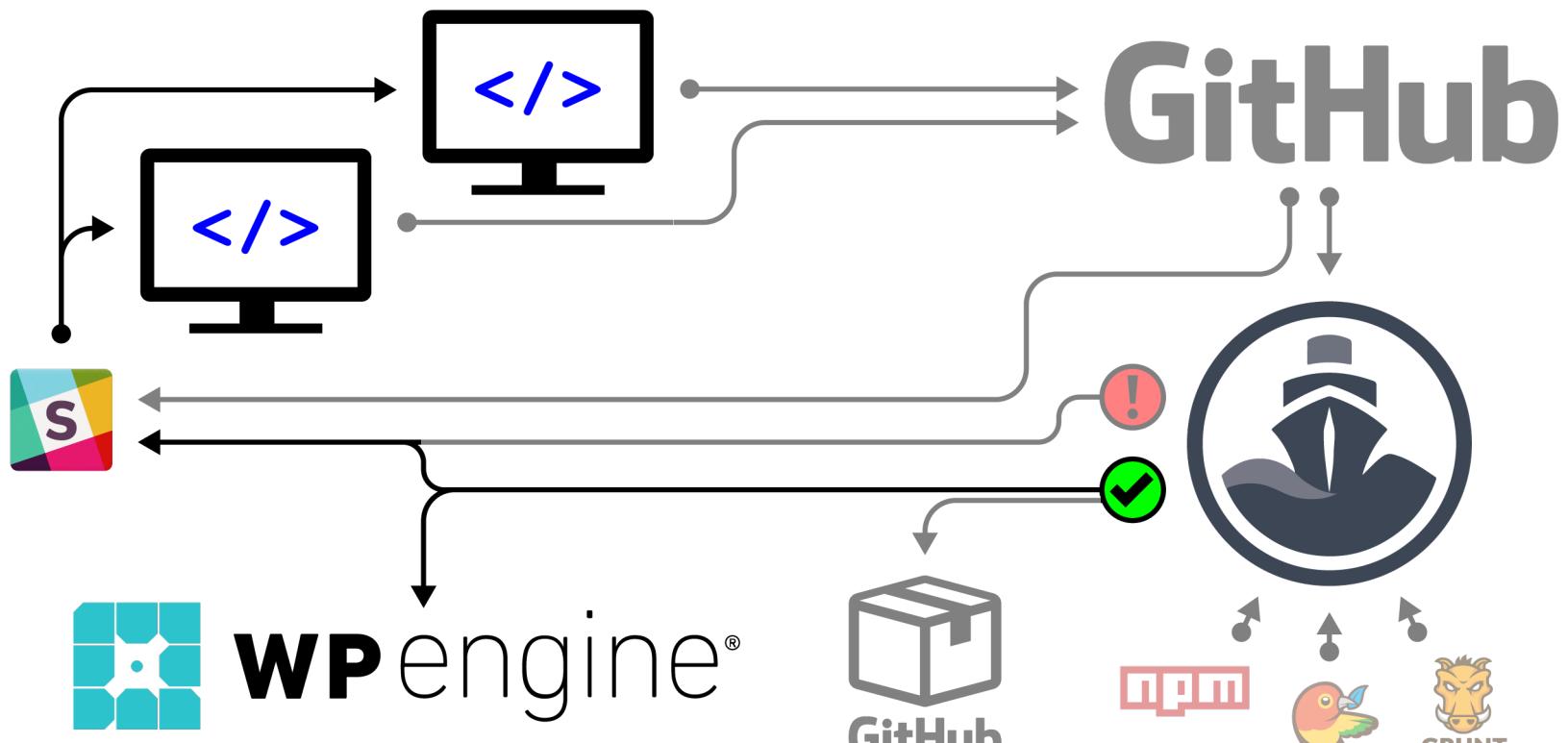
## Downloads

[AgriFlex3.zip](#) 1.31 MB

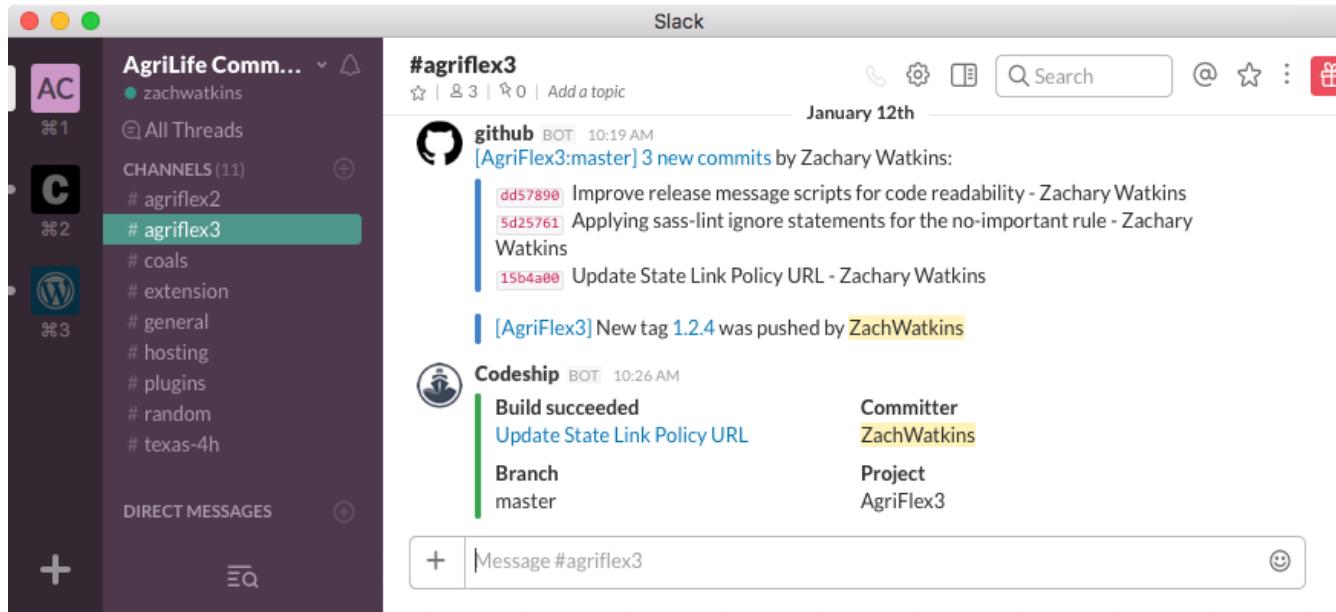
[Source code \(zip\)](#)

[Source code \(tar.gz\)](#)

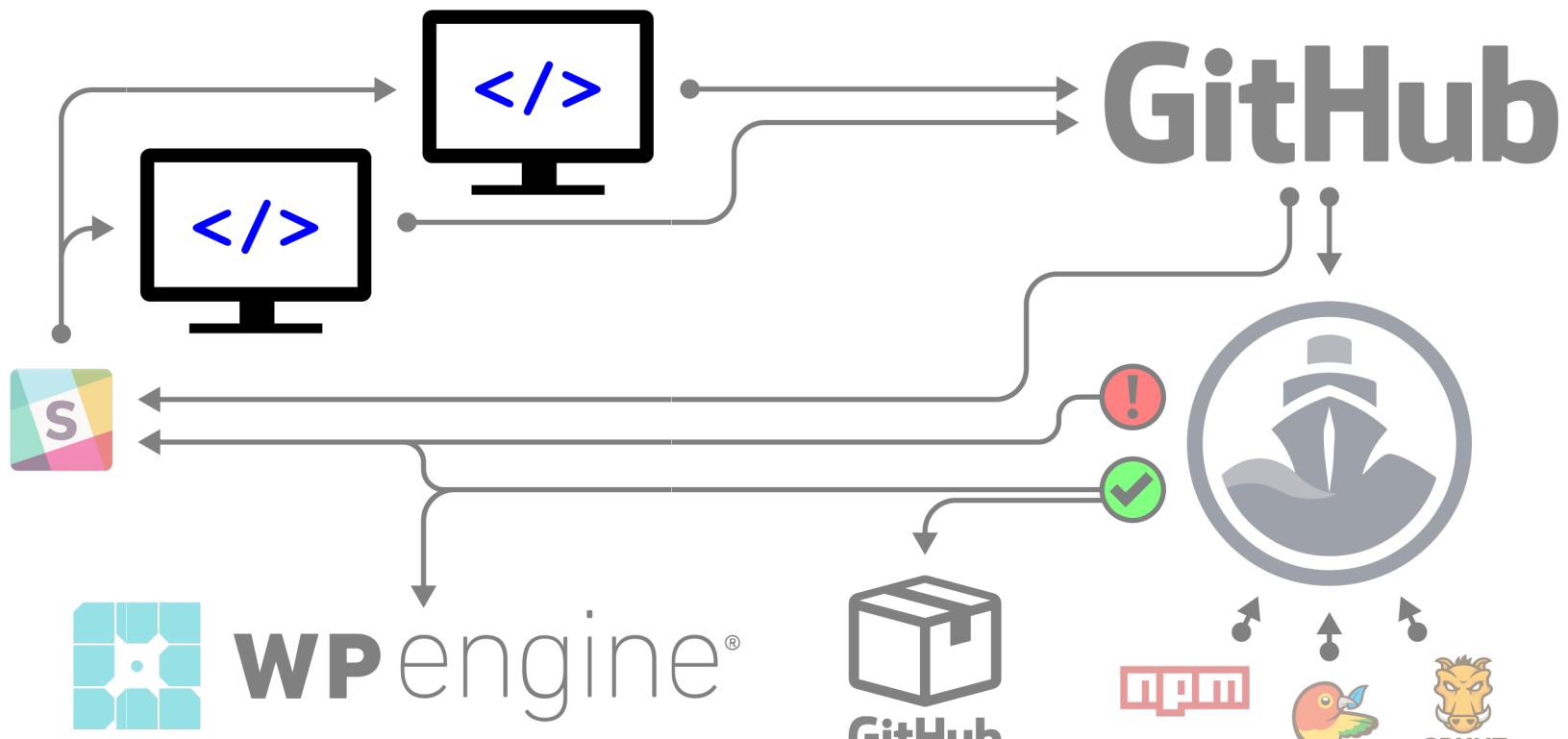
# If still passing: deploy, notify



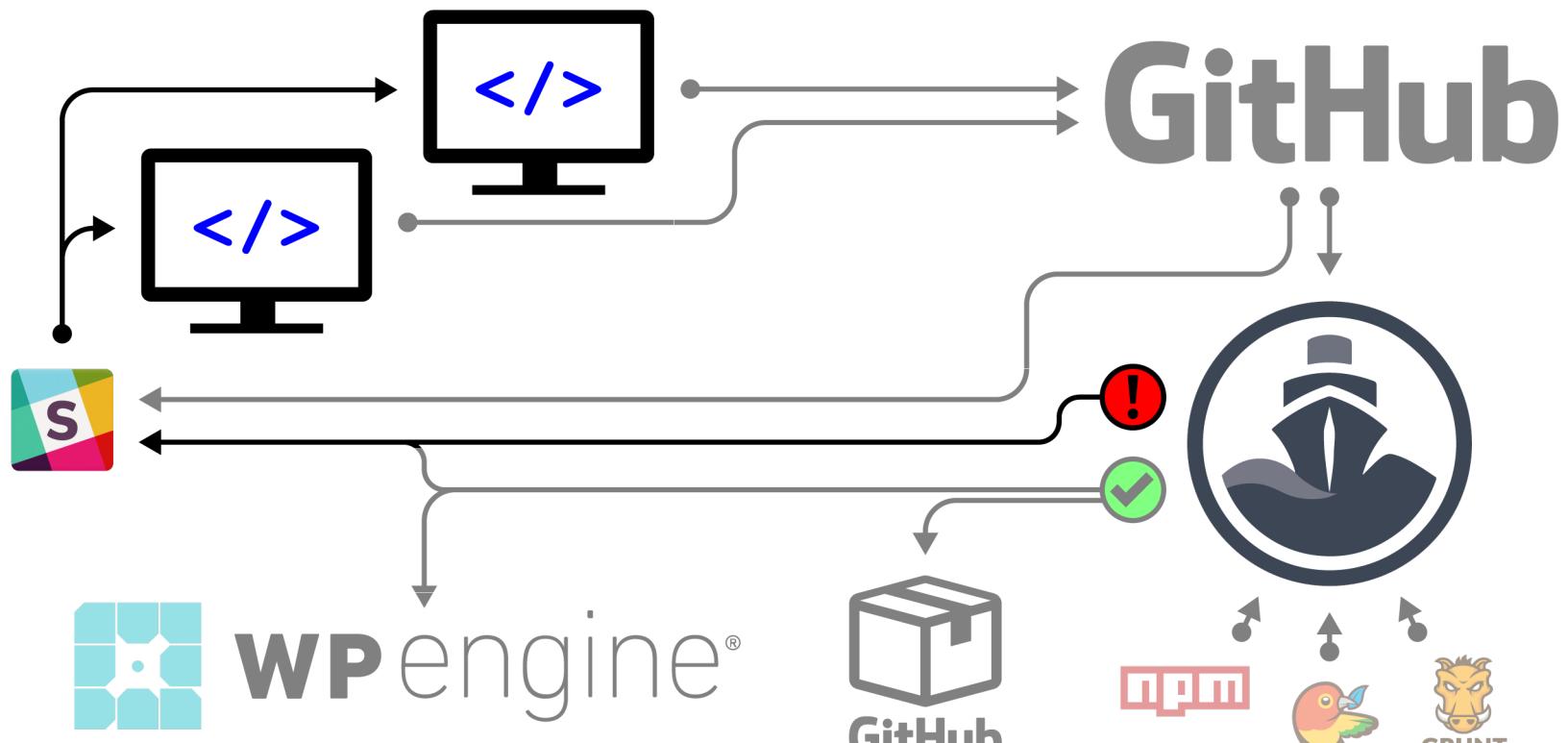
# Slack channel notification



# Perform manual tests



# If failing: troubleshoot and restart



# Reasons it might fail

- PHP files incompatible with server
- Grunt tasks

```
35 grunt develop                               0 min 4 sec ⚠
Scroll down to bottom

Running "sasslint:target" (sasslint) task

css/src/college-template-aglifesciences.scss
330:1 error Please check validity of the block starting from line #330 Fatal

css/src/college.scss
2:9 warning Strings must use single quotes quotes
3:9 warning Strings must use single quotes quotes
6:9 warning Strings must use single quotes quotes
8:9 warning Strings must use single quotes quotes
9:9 warning Strings must use single quotes quotes
10:9 warning Strings must use single quotes quotes
13:9 warning Strings must use single quotes quotes
```



# Reasons it might fail, cont.

- Module(s) causing errors

35 grunt develop 0 min 4 sec A

Scroll down to bottom

```
Running "sasslint:target" (sasslint) task
Warning: /home/rof/src/github.com/AgriLife/AgriFlex3/wp-content/themes/AgriFlex3/node_modules/grunt-sass-lint
/node_modules/sass-lint/node_modules/eslint/lib/formatters/stylish.js:7
const chalk = require("chalk"),
^^^^^
Use of const in strict mode. Use --force to continue.

Aborted due to warnings.
```



“Why should I do this again?”



# Benefits

- Earlier return on investment <sup>1</sup>
- Earlier feedback from users <sup>1</sup>
- Faster response to users
- Automated deployment
- Increased productivity

<sup>1</sup> <https://www.agilealliance.org/glossary/continuous-deployment/>



# Questions?



# Credits

- [Continuous Deployment](#), agilealliance.org
- Alex Zuniga (WP Engine) for pointing me to an [improved shallow push solution](#)



# Resources

- [AgriFlex3 Github repository](#)
- [grunt-contrib-compress](#)
- [grunt-gh-release](#)
- [node-glob file path rules](#)
- [Continuously Deploy your Wordpress Theme to WP Engine with Codeship, by Roman Kuba](#)

