Magento 2 CSS Preprocessing

Less wanted.

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Hrvoje Jurisic

Magento Frontend Developer - Inchoo

twitter: @hrvojejurisic

MAGENTO 1
CSS

Magento 1

page.xml:

```
<default translate="label" module="page"
    <block type="page/html" …… template="page/3columns.phtml">
        <block type="page/html_head" name="head" as="head">
            <action method="addCss"><stylesheet>css/styles.css</stylesheet></action>
        </block>
    </block>
</default>
```


MAGENTO 2
CSS

Magento 2

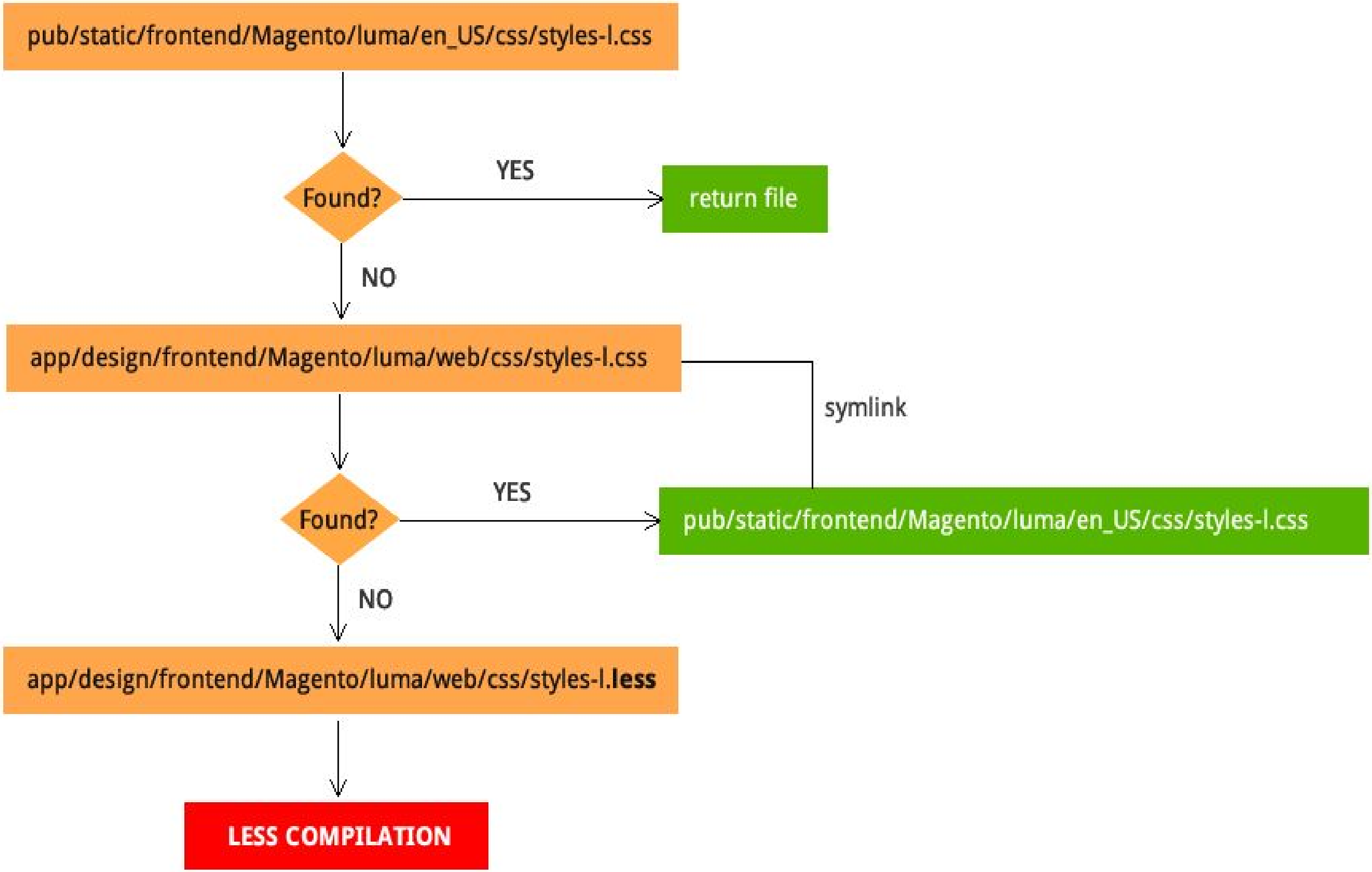
default_head_blocks.xml:

```
<page>
    <head>
        <css src="css/styles-m.css" />
        <css src="css/styles-l.css" media="screen and (min-width: 768px)"/>
        <css src="css/print.css" media="print" />
    </head>
</page>
```

Luma Theme

CSS file:

```
/pub/static/frontend/Magento/luma/en_US/css/styles-l.css
```


pub/static/frontend/Magento/luma/en_US/css/styles-l.css
Found?
YES
return file
NO
app/design/frontend/Magento/luma/web/css/styles-l.css
symlink
Found?
YES
pub/static/frontend/Magento/luma/en_US/css/styles-l.css
NO
app/design/frontend/Magento/luma/web/css/styles-l.less
LESS COMPILATION


But then...
I could have my own decoupled preprocessing workflow, and just include the end result css files via XML, just like we did on Magento 1??


Yes, you can!

Yes, you can!

But what about:

1. Extensions ?
2. Maintainability ?
3. Certification ?

LESS Preprocessing

LESS

- Preprocessor
- Extending CSS
- Introduces:
  - Variables
  - Mixins
  - Functions
  - Nesting

LESS variables

```
@heading-color: #00FF00;
```

LESS variables

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@heading-color: #00FF00;
```

Less file:

```
h1 {
   color: @heading-color;
}
```

LESS variables

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@heading-color: #00FF00;
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Less file:

```
h1 {
   color: @heading-color;
}
```

CSS:

```
h1 {
   color: #00FF00;
}
```


LESS variables

```
@heading-color: #00FF00;
```

New Module Less file:

```
.my-heading {
   color: @heading-color;
}
```

CSS:

```
.my-heading {
   color: #00FF00;
}
```


Why Preprocessing? Why LESS?

- Variables allow simple module and theme “communication”
- Modules and themes can easily override defaults
- At the time of decision-making, LESS was the only preprocessor with stable PHP compiler

LESS Preprocessing

1. Client Side
2. Server Side

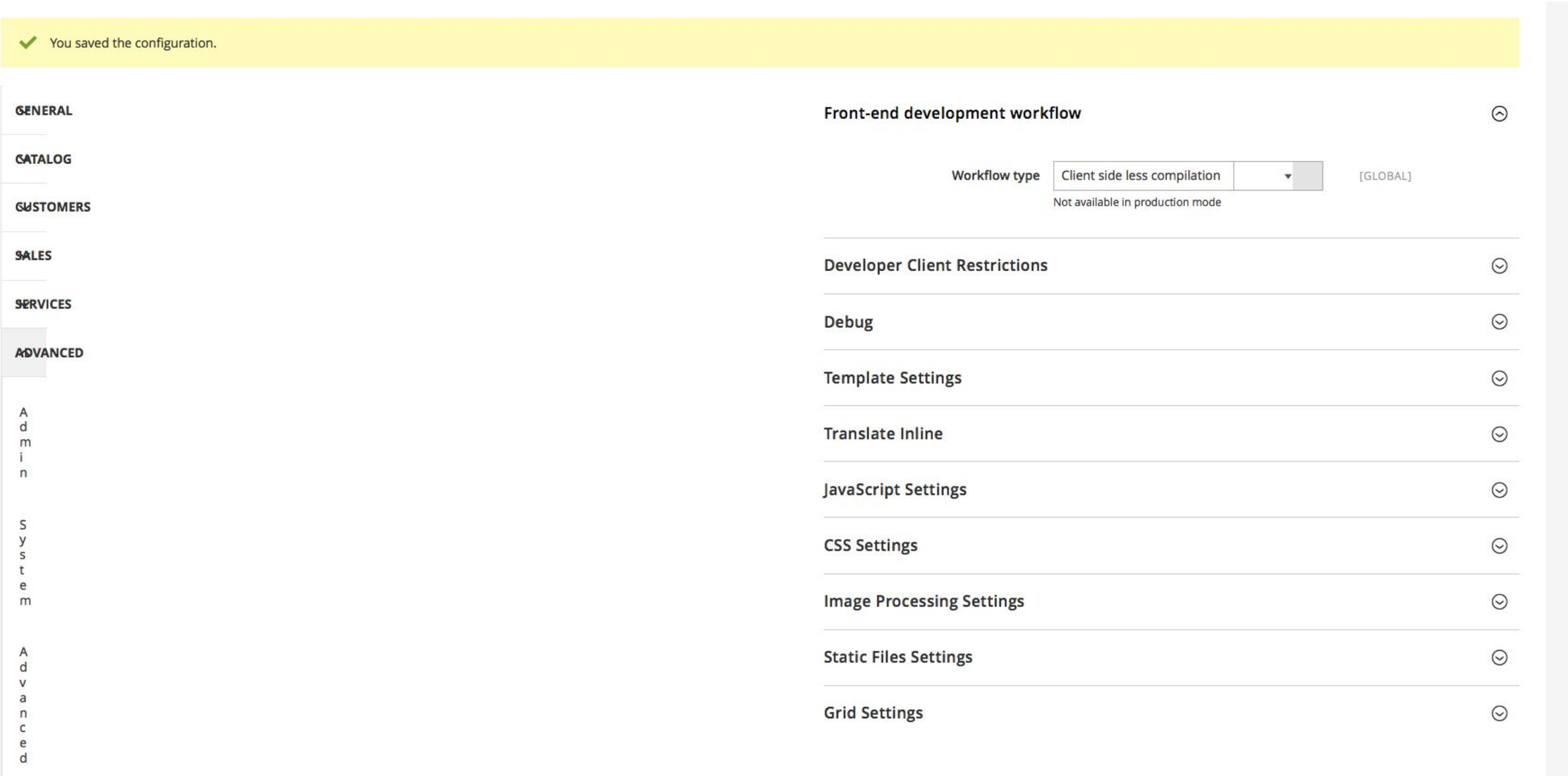
Settings:

Stores > Configuration > Advanced > Developer > Frontend development workflow

Client side LESS compilation

- Compilation inside the browser
- Uses native less.js compiler

Frontend development workflow - for admin too :)



Server side LESS compilation

- Default workflow
- Only option available in ***Production Mode***
- Uses built-in PHP compiler

Server side LESS compilation - how?

1. System searches for included files in pub/static/frontend/vendor/theme/locale
2. If found - return files
3. If not found - searches for them in active theme folder
4. If found - creates symlinks in pub/static/frontend/vendor/theme/locale
5. Not found - searches for same file names with .less extension
6. LESS Compile
    a. Reads .less files content and resolves **@magento_import** and default LESS **@import** directives
    b. Resolves all paths in LESS files to relative paths using fallback mechanism
    c. All files resolved by LESS preprocessor are copied to var/view_preprocessed/
    d. All source files are passed to PHP LESS compiler
    e. Resulting .css files are published to pub/static/frontend/vendor/theme folder

@magento_import

LESS **@import** imports content of specified single file into current file.

@magento_import - Magento specific import allows including multiple files with the same name.

Unprocessed:

```
//@magento_import 'source/_module.less';
```

Processed:

```
@import '../Magento_AdvancedCheckout/css/source/_module.less';
@import '../Magento_Bundle/css/source/_module.less';
@import '../Magento_Catalog/css/source/_module.less';
@import '../Magento_CatalogEvent/css/source/_module.less';
@import '../Magento_CatalogSearch/css/source/_module.less';
```

```
pub/static/frontend/vendor/theme/web/css
var/view_preprocessed
```

That’s a lot of cleaning!

Automated Preprocessing with Grunt

What is Grunt?

- Javascript task runner
- Automation of repetitive tasks
  - Watch
  - Compile
  - Clean
  - LiveReload

Working with Grunt

Prerequisites:

1. Install node.js
2. Install Grunt globally

   ```
   npm install -g grunt-cli
   ```

3. Install Grunt in your Magento 2 project

   ```
   npm install
   npm update
   ```

4. Add theme to Grunt configuration in dev/tools/grunt/configs/themes.js
5. Set up LiveReload


//@magento_import?
Magento Theme Fallback??

bin/magento dev:source-theme:deploy

1. Resolve all file fallback paths
2. Create symlinks to source (.less) files
3. Expand all “@magento_import” to import single files
4. Publish all files in a tree to pub/static folder

Magento 2 comes with built-in grunt tasks

- **grunt clean:<theme>**

  Removes static files from pub and var folders

- **grunt exec:<theme>**

  Creates whole tree with symlinks to the source .less files in pub/static/frontend/vendor/theme/web

- **grunt less:<theme>**

  Compiles .css files using symlinks published in pub folder

- **grunt watch**

  Watches for changes in source .less files, compiles .css and injects new styles in browser without page refresh (via Livereload)

Stop... Rebuild... Watch...

- If you change root source files (*styles-l.less*):
- If you add, delete or rename imported .less files:

1. Stop the Watcher
2. Grunt exec
3. Grunt watch

Alternatives

Gulp

Cake

Broccoli

Npm

Build... Watch...

1. bin/magento dev:source-theme:deploy
2. Watch changes in pub/static/... and write resulting css to that folder

Community:

https://github.com/poddubny/magento2-gulp

https://github.com/SnowdogApps/magento2-frontools

Sass

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You can add custom preprocessor

Documentation:

http://devdocs.magento.com/guides/v2.0/frontend-dev-guide/css-topics/custom_preprocess.html

Sample Scss Module

https://github.com/magento/magento2-samples/tree/master/module-sample-scss

- Proof of concept
- Ignores @import directives

Blank Theme on Sass

https://github.com/SnowdogApps/magento2-theme-blank-sass

Sass
What's the point?

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Thank You!

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