APPFORUM2014

Helping the developer community build
next-generation, multi-platform apps.

SCHAUMBURG, ILLINOIS | SEPTEMBER 8-10

CREATING MULTIPLE RHODES APPS THAT ARE ALL THE SAME… BUT DIFFERENT

"WAH WATUSI"
The Orlons
1962 Peaked @ #2

Jon Tara I Chief Code-Wrangler, Watusiware Corporation

APPFORUM**2014**

MOTOROLA *SOLUTIONS*

WATUSIWARE CORPORATION

THEY'RE ALL THE SAME…

… BUT THEY'RE DIFFERENT

We often need to create multiple apps that are very similar… but different.

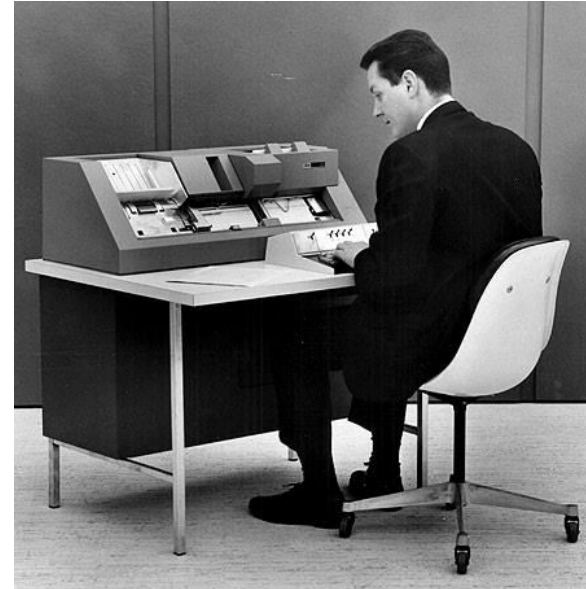How can we do that without reinventing the wheel each time?

ABOUT ME

MY FIRST COMPUTER

IBM 1620, Circa 1971

- 20K BCD Digit Core Memory
- 5000 instructions/sec MAX (simple branch)

AND THEN THESE…

TO DO THIS…

THE PROBLEM

THEY'RE ALL THE SAME…

… BUT THEY'RE DIFFERENT

We often need to create multiple apps that are very similar… but different.

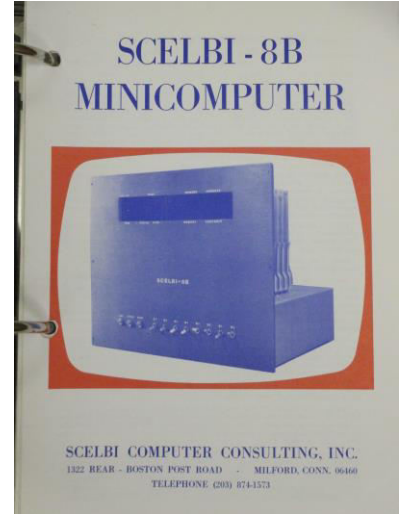How can we do that without reinventing the wheel each time?

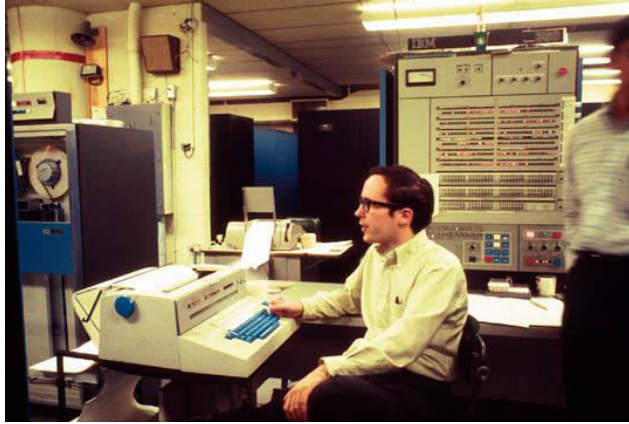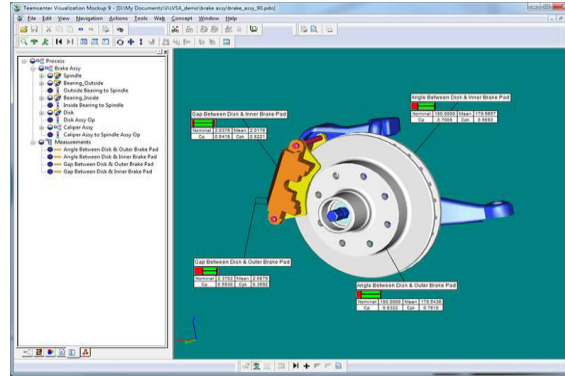# THEY'RE ALL THE SAME…

… OR ARE THEY?

NBC LA
News
Free

NBC New York
News
Free
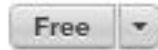
NBC Chicago
News
Free

NBC 6 South Florida
News
Free

Do they all have a "troubleshooter"?
Do they all have a regular sportsfishing segment?

THEY'RE ALL THE SAME…

… BUT THEY'RE DIFFERENT…

BOO, NO PANDAS! ☹

SanDiegoZoo
Travel
Downloaded

Cincinnati Zoo
Entertainment
Free

Smithsonian's National Zoo
Travel
$1.99

Detroit Zoo App
Travel
$1.99

YAY, PANDAS! ☺

THREE RUBY MANTRAS

WE'LL KEEP COMING BACK TO THIS…

- Don't Repeat Yourself
  "Every piece of knowledge must have a single, unambiguous, authoritative representation within a system." – Dave Thomas
- Convention Over Configuration
- Configuration Over Code

APP GENERATORS
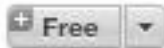## ONE WAY TO DO IT

AN APPLICATION THAT CREATES APPLICATIONS

MOBILE™ ROADIE

Taylor Swift
Music
Free

Madonna
Music
Free

The Rolling Stones Official...
Music
Free

Katy Perry Mobile App
Music
Free

Dean Koontz
Books
Free

APP GENERATORS

lim·i·ta·tion

/ˌliməˈtāSHən/ 🔊

noun

1. a limiting rule or circumstance; a restriction.
   "severe **limitations on** water use"

- Typically meant for a specific category of application
- Formulaic
- Can be inflexible
- May lack "escape hatches"
- Still can take a lot of work to create content

COPY THE APP AND GO FROM THERE…
THE NAÏVE' CHOICE

- Fast out of the gate – you start with a working app!
- But how to manage updates? Do you incorporate them into derived app?
- Drift, drift, and more drift
- Need a way to keep app features in sync

CREATE SOME LIBRARIES
EXTRACT COMMON CODE TO LIBRARIES

- Avoids duplication of effort
- Can package functionality in nice, neat units

- Interfaces and specifications, and versions, oh my!
- Maintaining compatibility can take a significant effort
- We can easily descend into "Dependency Hell"

CREATE ME SOME GIT BRANCHES

THERE'S A BRANCH FOR THAT!

- Gives you some tools for maintaining multiple similar apps – branch, merge
- And of course gives us other great benefits
- But we're using version control already anyway, right?

- Impractical for more than a small number of apps
- Walking away from a branch for some time can have serious consequences

CENTER FOR ENERGY AND ENVIRONMENT
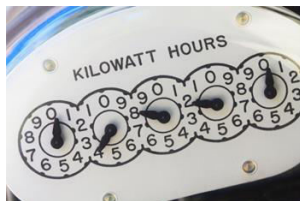
CENTER FOR ENERGY AND ENVIRONMENT

DOES…

- Program Design and Delivery
- Research
- Engagement and Education
- Energy Policy
- Lending Center
- Engineering Services

WORKING WITH…

- Homeowners
- Businesses and Non-Profits
- Rental Property Owners
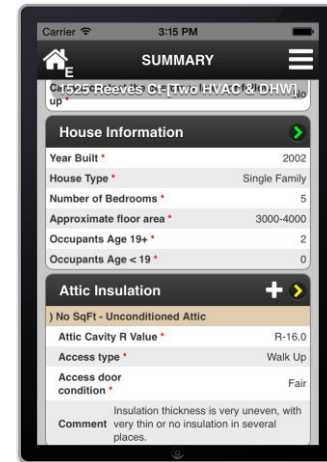- Government

http://mncee.org

CEE MOBILE APPS
6 1/2 APPS FOR PERFORMING ENERGY AUDITS

- Home Energy Retrofit Index (HERI)
- Residential (MiScore-R 2012 and 2014)
- Commercial
- Green Iowa
- Electricities of North Carolina
- Min (common features only)

CEE MOBILE APPS

CEE MOBILE APPS
miScore-R (2012, 2013)

- Home Energy Audits
- Creates Energy Label
- Scoring: DOE Berkeley Lab

CEE MOBILE APPS

miScore-C

- Commercial Building Audits
- Creates Energy Label
- Scoring: DOE Pacific Northwest National Laboratory
- Most complex data collection

Pacific Northwest
NATIONAL LABORATORY

Proudly Operated by **Battelle** *Since 1965*
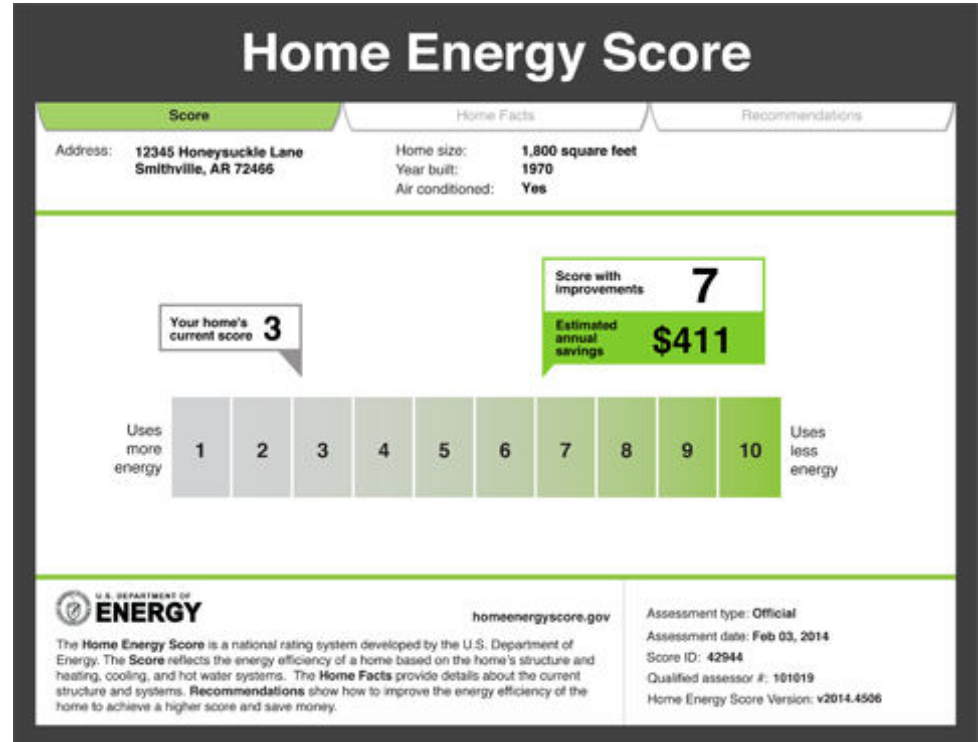
U.S. DEPARTMENT OF ENERGY

COMMERCIAL BUILDING
ENERGY ASSET SCORE
SCORE: FULL BUILDING

Building ID #: XXXXX — Gross Floor Area: **140,000 ft²**

Score with Upgrades **73**

Current Score **62**

Estimated Savings¹ **28%**

1 Uses **MORE** Energy — **100** Uses **LESS** Energy

Assumed Building Occupancy and Operating Conditions	Estimated Source Energy Use Under Building Assumptions² (kBtu/ft²)	Energy Use Intensity by Fuel Type
Number of Assumed Occupants — Various³	Current Building — 200	Site Energy Use (kBtu/ft²): 17.8, 54.2
Hours of Operation — Various³	Upgraded Building — 154	Source Energy Use (kBtu/ft²): 18.6, 181.0
Cooling Set Point — Various³		Fuel Oil, Gas, Electricity
Heating Set Point — Various³		District Heating, District Cooling
Misc. Energy Loads — Various³		

Watusiware Corporation

Agile Mobilesoft, LLC

cee
Center for Energy
and Environment

TOOLS

RVM

RVM

RVM is a command-line tool which allows you to easily install, manage, and work with multiple ruby environments from interpreters to sets of gems

- Allows you to maintain and easily switch between multiple Ruby versions
- And "gemsets" – sets of Gems you can easily switch
- Unfortunately, OSX and Linux only – Windows: try pik
- For windows, rvm can be installed if you can tolerate Cygwin
- Motorola has helpful documentation for using rvm
- Do not do a "root" installation – install in user directory
- Allows us to maintain separate Ruby/RubyGem environments for Prepare and Rhodes build

http://rvm.io

iTerm 2

iTerm 2

iTerm 2 is a terminal emulator for Mac OS X that does amazing things

- **Tabs**
- **Split Panes**
- **Search**
- **Auto-complete**
- **Paste History**
- **Scrollback buffer**

http://iterm2.com

Zsh

Zsh

Zsh is a shell designed for interactive use, although it is also a powerful scripting language

- **Command completion**
- **Pattern-matching/globbing on alien steroids**
- **Themeable prompts**
- **Loadable modules**
- **Spelling correction**
- **Shares command history among running shells**
- **Global aliases**
- **All this – and mature**

http://www.slideshare.net/jaguardesignstudio/why-zsh-is-cooler-than-your-shell-16194692

http://www.zsh.org

oh-my-zsh

oh-my-zsh

oh-my-zsh is an open source, community-driven framework for managing your [Zsh configuration](#)

- 150+ plugins
- 600+ contributors
- 100+ themes

My installed plugins:

```
plugins=(autojump brew gem rake-fast git node npm osx rvm sublime)
```

http://ohmyz.sh

https://github.com/robbyrussell/oh-my-zsh

RAKE
Ruby's "make"

RAKE

Rake (inventor)

Builder (contributor)

RubyGems (collaborator)
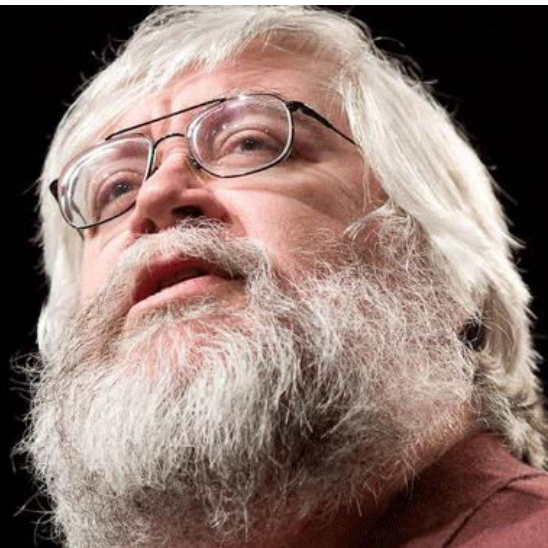
RAKE

- The standard Ruby build tool
- Use it to help build anything not just Ruby
- However, we will use it in a very stupid way

{{MUSTACHE}}

Mustache

- **Logic-less templates for many languages. (We care about Ruby)**
- **Meant for HTML, but works with any kind of text file**
- **Simple, high-readable syntax**
- **Doesn't look a thing like ERB (this is good!)**
- **Simple text insertion, helpers, partials**

We will process almost EVERY source file through Mustache!

- **HTML**
- **ERB**
- **RB**
- **JS**
- **Etc.**

Mustache Example: simple text substitution

Conducting an "audit"? Or making a "visit"?

```
:imported_on => {
  :field_label => '{{audit.name}} Imported on',
  :description => 'If this {{audit.name}} was imported, this is the
  time stamp of the import' },
:exported_on => {
  :field_label => '{{audit.name}} Exported on',
  :description => 'If this {{audit.name}} has been exported, this is
  the time stamp of the export'},
```

Mustache Example:build.yml

7 Apps. One build.yml…

```
#--- The name of the application is the string literal
attached to the icon on the smartphone and can include spaces
#--- This is the string which gets displayed in the title bar
area on Android.
name: "{{app.name}}"
```

Whoa! Watch out!

```
#--- Make sure this corresponds with the application_version
in rhoconfig.txt
version:
"{{app.major_version}}.{{app.minor_version}}.{{app.build_numb
er}}"
```

Mustache Example:

rhoconfig.txt

Not to worry…

```
cee_application_version_prior = 'none'
cee_application_version_first_start = ''
cee_application_version =
'{{app.major_version}}.{{app.minor_version}}.{{app.build_numb
er}}'
cee_application_build_date = '{{build.time.date_str}}'
cee_application_build_type = '{{build.type}}'
```
(Yes, we pollute rhoconfig.txt with our own keys. It's a convenient place for run-time configuration data. Don't do this at home. Rhom would be a better place….)

Mustache Example: build.yml

```yaml
ios-common:  &ios-common
  entitlements:      ""
  configuration:     Release
  BundleURLScheme:  "{{build.reverse_domain_identifier}}.{{build.product}}"
  BundleIdentifier: "{{build.reverse_domain_identifier}}.{{build.product}}"
  sdk:
"iphone{{build.ios.target.sdk.type}}{{build.ios.target.sdk.version}}"
iphone-simulator: &iphone-simulator
  <<: *ios-common
  emulatortarget:    "{{build.ios.target.device}}"
  emulator:          "{{build.ios.target.sdk.version}}"
iphone-hardware: &iphone-hardware
  <<: *ios-common
  codesignidentity: "{{build.ios.development.code_sign_identity}}"
  provisionprofile: "{{build.ios.development.provisioning_profile}}"
iphone-adhoc: &iphone-adhoc
  <<: *ios-common
  codesignidentity: "{{build.ios.adhoc.code_sign_identity}}"
  provisionprofile: "{{build.ios.adhoc.provisioning_profile}}"
```

Mustache Example

```
def choose_options
    options = camera_options
    {{^photo.choose_photo_obeys_resolution_preference}}
      options.delete :desired_width
      options.delete :desired_height
    {{/photo.choose_photo_obeys_resolution_preference}}
    options
  end
```

deep_merge

deep_merge

A RubyGem for efficiently and flexibly merging deeply-nested hashs and lists

- Warning: This is NOT ActiveSupport deep_merge! (It's much more.) Watch out for conflict. (workaround on website)
- Recursively merges hashes
- Top level must be a hash
- Below top level can be hash, list, simple data types (string, number, etc.)
- You can optionally "drop out" complete hashs and lists (-- prefix)

```
require 'deep_merge'
x = {:x => [3,4,5]}
y = {:x => [1,2,3]}
y.deep_merge!(x)
# results: y = {:x => [1,2,3,4,5]}
```

github.com/danielsdeleo/deep_merge

deep_merge
EXAMPLE

```
require 'deep_merge'
x = {:x => [3,4,5]}
y = {:x => [1,2,3]}
y.deep_merge!(x)
# results: y = {:x => [1,2,3,4,5]}
```

deep_merge
WHAT WILL WE USE THIS FOR?

- We can merge data loaded from multiple YAML configuration files
- Product configuration data overrides framework configuration data
- We'll reference these merged structures from template tags in our Rhodes source files.

Can we use deep_merge in Rhodes, too?

Yes! It's a small pure-Ruby Gem. Just extract the library (four files) from the Gem.

uglifier

Uglifier

A Ruby wrapper for the UglifyJS JavaScript compressor

- **Popular Javascript compressor**

- **Safe**

- **UglifyJS is written in Javascript, but runs on desktop. You do not need to install a desktop JS environment – everything is built-in to the Gem**

- **Make sure to disable Rhodes' built-in JS compression in build.yml**

```
obfuscate:
  js: no
  css: no

minify:
  js: no
  css: no
```

Uglifier: Prepare log

```
app/Skylight/skylight_edit
app/Wall/wall_edit
app/Window/envelope_window_edit
app/Floor/floor_edit
app/Fixture/fixture_edit
app/Plant/plant_edit
app/AirHandler/air_handler_edit
app/ZoneEquipment/zone_equipment_edit
app/WaterHeater/water_heater_edit
app/Operation/operation_edit

Minifying 71 Javascript files, 1090143 bytes (be patient...)

Minified to 399329 bytes

☺➡ CeeMobileApps
```

Uglifier: COMPRESSED OUTPUT

Some fine gobbledygook…

```
function jqmIscrollviewRemoveLayerXYProps(e){delete e.layerX,delete
e.layerY}function non_edit_key(e){var t={};return t[0]="Num
Lock",t[9]="Tab",t[13]="Enter",t[16]="Shift",t[17]="Ctrl",t[18]="Alt",t[20]=
"Caps Lock",t[27]="Esc",t[33]="Page Up",t[34]="Page
Down",t[35]="End",t[36]="Home",t[45]="Insert",t[91]="Windows",t[112]="F1",t[
113]="F2",t[114]="F3",t[115]="F4",t[116]="F5",t[117]="F6",t[118]="F7",t[119]
="F8",t[120]="F9",t[121]="F10",t[122]="F11",t[123]="F12",t.hasOwnProperty(e)
}function file_system_name_check(e){var t=e.val(),i=e.val();return
i=i.replace(/[\0\f\r\t\v\\:\*\?\"\<\>\|\.\/\_]/g,"-
"),t!=i?(e.val(i),!1):!0}function file_system_name_error(e,t){var
i=e.closest(".ui-page"),n=i.find(".name-check-popup"),o=n.find(".field-
name"),a=(n.find(".original-name"),n.find(".disallowed-
characters")),s=n.find(".repaired-name");o.text(t),a.text('/ \\ : * ? " < >
| . _'),s.text(e.val()),n.jqmData("associated-
element",e),n.popup("open")}function
```

Uglifier: BUNDLE EXCLUSION

When compressing, exclude source files from the app bundle in build.yml

```
excludedirs:
  all:
  - "**/*.orig.*"                    # A convenience - developer might copy file with .orig
  - "**/unused"                      # Another developer convenience - handy sometimes to st
  - "**/reference"                   # similar to unused, just semantics. Reference material
  - "**/*.vendor.*"                  # We might want to keep an original vendor file for ref
  - "**/*.bak"
  - "**/*.sw[on]"                    # Java swap file - created by Eclipse
  - "**/*.s[ac]ss"                   # Sass source files
  - "public/js/jqmobile-patch.js"
  - "public/bourbon"                 # .scss already excluded, but let's exclude the director
{{#build.minify_js}}
  - "**/*.js"                        # We use a .min-js extension as a kludge around non-neg
  - "/app/public/jquery"            # Just empty directory if minifying JS, so exclude
{{/build.minify_js}}
{{#audit.exclude_framework_classes}}
  - "app/{{.}}"                      # Things in the framework that we explicitly want to ex
{{/audit.exclude_framework_classes}}
  iphone:
```

colorize

colorize

A small RubyGem for adding color to your console output

- Make your console output purty, just like Rhodes command-line build
- Change string color
- Change string background
- Change string effect
- Needs ANSI console

```
puts "This is blue".colorize(:blue)
puts "This is light blue".colorize(:light_blue)
puts "This is also blue".colorize(:color => :blue)
puts "This is light blue with red background".colorize(
  :color => :light_blue, :background => :red)
puts "This is blue text on red".blue.on_red
```

https://github.com/fazibear/colorize

Colorize
SAMPLE OUTPUT

```
framework/app/partials [dir]
framework/app/partials/_menu.erb -> build/ios/miscore-c/development/simulator/7.1/app/partials/_menu.erb
framework/app/partials/_menu_item.erb -> build/ios/miscore-c/development/simulator/7.1/app/partials/_menu_item
framework/app/preloader.rb -> build/ios/miscore-c/development/simulator/7.1/app/preloader.rb
^ File has data in framework and product, showing merged data:

---

build:
  product: miscore-c
  type: development
  time:
    date_str: 09/05/2014
    time_str: '19:34:33'
    stamp: 1409970873
  minify_js: false
  js_debug: true
```

SASS

Syntactically Awesome Style Sheets

SASS

A CSS Preprocessor with SuperPowers

- CSS can be painful to write. Sass eases the pain

http://sass-lang.com

BOURBON

BOURBON

- Writes vendor-prefixing for you
- Many other utility functions
- A solution to the flex-box mess

http://bourbon.io

BOURBON
EXAMPLE

```scss
// Bourbon mixin with Sass

section {
  @include linear-gradient(to top, red, orange);
}
```

```css
/* Compiled CSS  */

section {
  background-color: red;
  background-image: -webkit-linear-gradient(bottom, red, orange);
  background-image:            linear-gradient(to top, red, orange);
}
```

PREPARE

PREPARE

A rakefile task for creating app source directories from a base framework, a product-specific overlay, and configuration data

- Combine, transform, modify source files
- Follows conventions to do this in specific ways
- Emulates an overlay filesystem
- Every source file is potentially a Mustache template
- Uses YML files to provide data to Mustache
- Compiles SASS files to CSS and optionally combines/minifies
- Optionally combines/minifies Javascript files
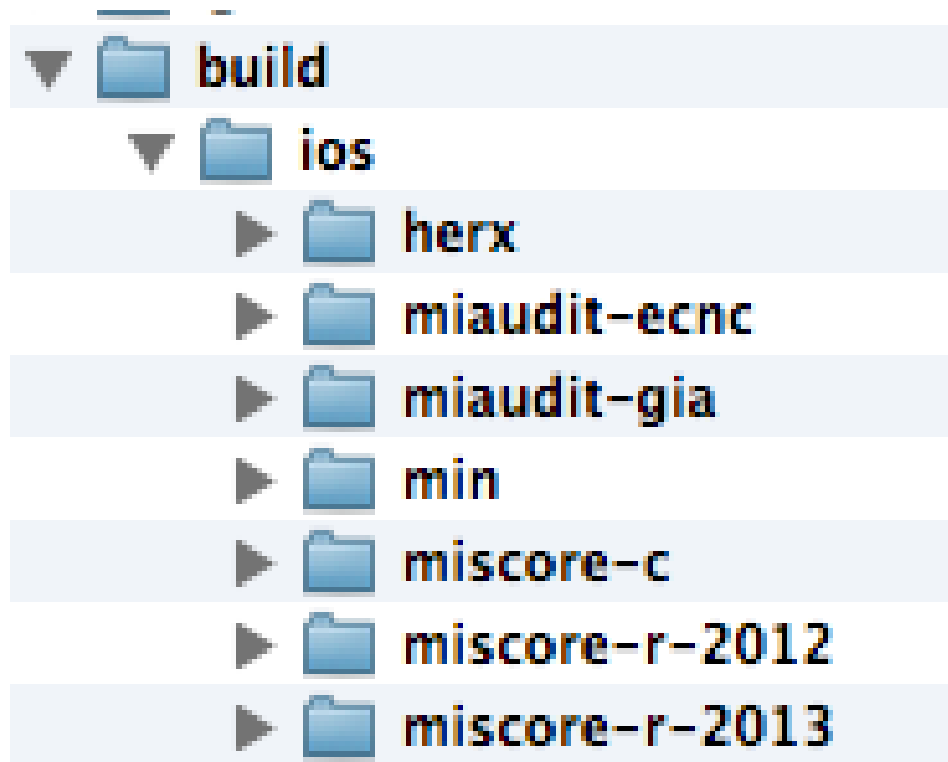
Prepare

Live Demo

PREPARE

PROJECT DIRECTORY STRUCTURE

▼ 🗁 **CeeMobileApps**
  ▶ 📁 docs
  ▶ 📁 framework
  ▶ 📁 git-hooks
  ▶ 📁 herx
  ▶ 📁 miaudit-ecnc
  ▶ 📁 miaudit-gia
  ▶ 📁 min
  ▶ 📁 miscore-c
  ▶ 📁 miscore-r-2012
  ▶ 📁 miscore-r-2013
  ▶ 📁 prepare
  ▶ 📁 script
  ▶ 📁 tool

PREPARE

BUILD DIRECTORY STRUCTURE

PREPARE

BUILD DIRECTORY STRUCTURE
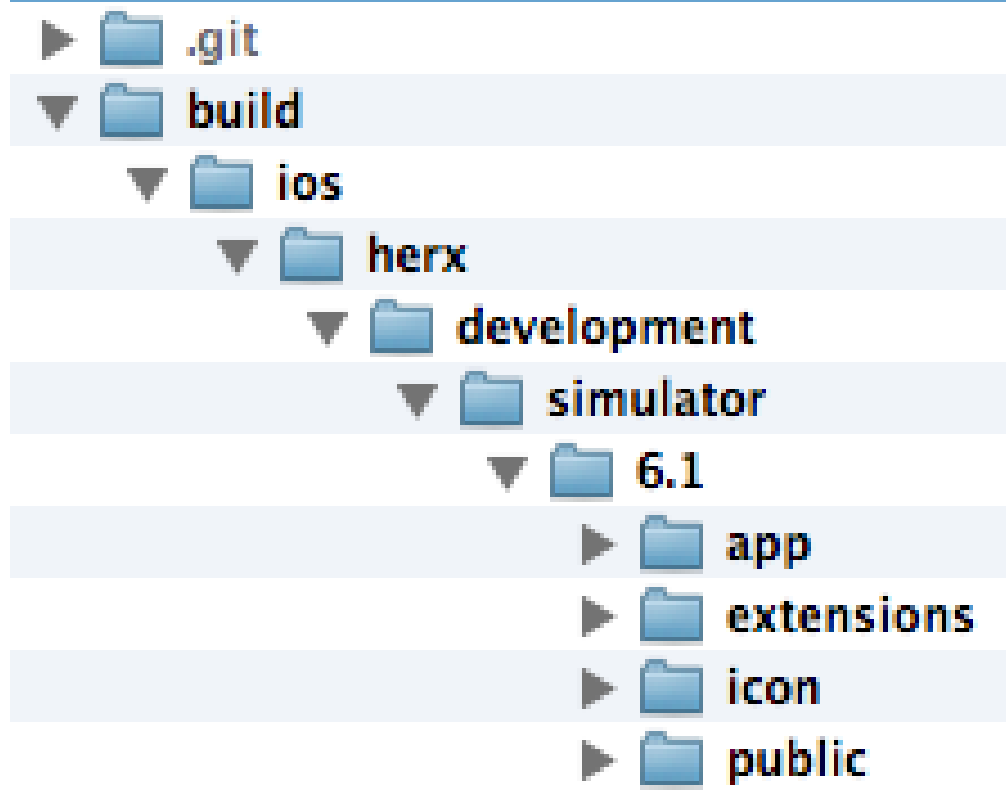
PREPARE

UP-FRONT SUMMARY

```
●➜ CeeMobileApps rake prepare:development[miaudit-ecnc]

Environment variables...
--- {}

**** gather_build_data @product = 'miaudit-ecnc'

Preparing product miaudit-ecnc for development using iOS simulator 7.1 SDK for simulator deployment...
102 Product files
651 Framework files

Excluding bin from target directory clean
Excluding project from target directory clean
```

PREPARE

```
Copying product files to build target...

miaudit-ecnc/README-prepare-sanity-check.txt -> build/ios/miaudit-ecnc/development/s
miaudit-ecnc/app [dir]
miaudit-ecnc/app/Appliance [dir]
miaudit-ecnc/app/Appliance/appliance.rb -> build/ios/miaudit-ecnc/development/simula
miaudit-ecnc/app/Appliance/appliance_controller.rb -> build/ios/miaudit-ecnc/develop
miaudit-ecnc/app/Appliance/appliance_edit.js -> build/ios/miaudit-ecnc/development/s
miaudit-ecnc/app/Appliance/edit.erb -> build/ios/miaudit-ecnc/development/simulator/
miaudit-ecnc/app/Attic [dir]
miaudit-ecnc/app/Attic/attic.rb -> build/ios/miaudit-ecnc/development/simulator/7.1/
miaudit-ecnc/app/Attic/attic_controller.rb -> build/ios/miaudit-ecnc/development/sim
miaudit-ecnc/app/Attic/attic_edit.js -> build/ios/miaudit-ecnc/development/simulator
miaudit-ecnc/app/Attic/edit.erb -> build/ios/miaudit-ecnc/development/simulator/7.1/
miaudit-ecnc/app/Attic/edit_list.erb -> build/ios/miaudit-ecnc/development/simulator
```

PREPARE

```
miaudit-ecnc/public/samples/import-sample-visits.csv -> build/ios/miaudit-ecnc/devel

Copying framework files to build target...

framework/README [no-copy]
framework/README-prepare-sanity-check.txt [overridden]
framework/README-prepare-sanity-check2.txt -> build/ios/miaudit-ecnc/development/sim
^ File has data in framework, showing merged data:
---
build:
  product: miaudit-ecnc
  type: development
  time:
    date_str: 09/08/2014
    time_str: '01:39:37'
    stamp: 1410165577
  minify_js: false
```

PREPARE

```
framework/app/Location/_address_app_inputs.erb [overridden]
framework/app/Location/device_location.rb -> build/ios/miaudit-ecnc/development/simu
framework/app/Location/edit.erb -> build/ios/miaudit-ecnc/development/simulator/7.1/
framework/app/Location/location.rb -> build/ios/miaudit-ecnc/development/simulator/7
framework/app/Location/location_controller.rb -> build/ios/miaudit-ecnc/development/
framework/app/Location/location_edit.js -> build/ios/miaudit-ecnc/development/simula
framework/app/Location/location_help.html -> build/ios/miaudit-ecnc/development/simu
framework/app/Location/schema.rb [overridden]
framework/app/Location/summary_field_markup.rb -> build/ios/miaudit-ecnc/development

framework/app/Message [dir]
framework/app/Message/message.rb -> build/ios/miaudit-ecnc/development/simulator/7.1
framework/app/Message/message_controller.rb -> build/ios/miaudit-ecnc/development/si

framework/app/Photo [dir]
framework/app/Photo/edit.erb -> build/ios/miaudit-ecnc/development/simulator/7.1/app
framework/app/Photo/edit_list.erb -> build/ios/miaudit-ecnc/development/simulator/7.
```

PREPARE

3. COMPILE SASS, COMBINE, MINIFY

```
framework/unused/rhoconfig.jgtjr.production.txt [no-copy]
framework/unused/rhoconfig.rrj.development.txt [no-copy]
framework/unused/rhoconfig.rrj.production.txt [no-copy]
framework/xcode.rb -> build/ios/miaudit-ecnc/development/simulator/7.1/xcode.rb

Compiling Sass files to CSS...
build/ios/miaudit-ecnc/development/simulator/7.1/public/css/main.scss -> build/ios/miaudit-ecnc/developmen
build/ios/miaudit-ecnc/development/simulator/7.1/public/css/main_x.scss -> build/ios/miaudit-ecnc/developm
build/ios/miaudit-ecnc/development/simulator/7.1/public/css/layout_2_column.scss -> build/ios/miaudit-ecnc
build/ios/miaudit-ecnc/development/simulator/7.1/public/css/tail.scss -> build/ios/miaudit-ecnc/developmen
build/ios/miaudit-ecnc/development/simulator/7.1/public/css/dictionary_standalone.scss -> build/ios/miaudi


build.minify_js = false, skipping Javascript concatenation/minification

☺➡ CeeMobileApps
                              ☺➡ CeeMobileApps
```

```
build/ios/miaudit-ecnc/development/simulator/7.1/public/css/tail.scss > build/
build/ios/miaudit-ecnc/development/simulator/7.1/public/css/dictionary_standalo


Concatenating Javascript files...
public/js/console
public/jquery/jquery-1.8.3
public/js/jquery-timeout
public/js/jquery.caret
public/js/jquery.haversine.0.2-cee
public/js/jquery.mobile.custom
public/js/jquery.mobile.transition-handler-simple
public/js/jquery.mobile.simultaneous-transitions-replace-simple
public/jqmobile/jquery.mobile-1.2.1.cee
public/js/iscroll
public/js/jquery.mobile.iscrollview
public/js/sketch
```

```
app/Location/location_edit_county
app/House/house_edit
app/Attic/attic_edit
app/Wall/wall_edit
app/Foundation/foundation_edit
app/Heating/heating_edit
app/Cooling/cooling_edit
app/Duct/duct_edit
app/HotWater/hot_water_edit
app/Appliance/appliance_edit
app/EcmChecklist/ecm_checklist_edit


Minifying 73 Javascript files, 1152463 bytes (be patient...)


Minified to 419458 bytes


CeeMobileApps
```

PREPARE
MERGING YML DATA

- **Data from YML files is merged using deep_merge**
    - **Developers.yml**
    - **Built-ins**
    - **Framework**
    - **Product**
    - **Developer**
- **Developer merged only if prepare for development**
- **Within each of framework and product, additional YML files (caution: of dubious value!)**
    - **Per-directory**
    - **Per file e.g. building.rb**

PREPARE **DEFAULT ROOT DATA (RUBY)**

```ruby
@default_root_data = {
  'build' => {
    'product' => @product,
    'type' => @build_type,
    'time' => {
      'date_str' => now.strftime('%m/%d/%Y'),
      'time_str' => now.strftime('%H:%M:%S'),
      'stamp' => now.to_time.to_i  # Seconds since start of epoch
    },
    # All Javascript gets minified and aggregated into one main.js file
    # (slow to prepare, not for debugging, but best runtime performance)
    # If you want to build for development with minification, override
    # build.minify_js in your root developer-specific nn.prepare.yml
    'minify_js' => @build_type != 'development',
    'js_debug' => false,         # Developer should override in nn.prepare.yml
```

PREPARE DEFAULT ROOT DATA (RUBY)

```ruby
'minify_js' => @build_type != 'development',
'js_debug' => false,          # Developer should override in nn.prepare.yml
'js_kybd_debug' => false,     # Developer should override if wanted
'js_calc_debug' => false,
'git_commit_hash' => @git_commit_hash,   # SHA1 of this commit
'git_commit_short_hash' => @git_commit_short_hash,
'git_local_branch' => @git_local_branch,
'git_remote_branch' => @git_remote_branch,
'git_dirty' => @git_dirty,    # true if git had uncommited changes
'reverse_domain_identifier' => @developer_reverse_domain,   # should this
'developer' => {
  'initials' => @developer_initials
},
'rvm' => {
  #'ruby_version'  => '1.9.3-p547',      # version of Ruby to build wit
```

PREPARE

```ruby
  },
  'rvm' => {
    #'ruby_version'  => '1.9.3-p547',      # version of Ruby to build with
    #'ruby_gemset'   => 'rhodes_4.1.0'     # gemset to use when building
    'ruby_version'  => '2.1.2',            # version of Ruby to build with
    'ruby_gemset'   => 'rhodes_5.0.2'      # gemset to use when building
    },
  'ios' => {
    'xcode' => {
      'version' => '5.1.1'
    },
    'target' => {
      'device' => 'ipad',
      'environment' => @ios_target_environment,
      'sdk'       => {
        'type' => @ios_target_sdk_type
```

PREPARE

```yaml
prepare.yml                    ×

1    ---
2    app:
3      framework_version: "1.0.3"
4      title: unconfigured
5      long_title: unconfigured
6      description: unconfigured
7      app_mode: long
8      current_upgrade_fields: hide
9      survey_mode: disabled
10     unanswered_selector_indicator: "?"
11
12   photo:
13     choose_photo_obeys_resolution_preference: true
14
15   database:
16     # We will automatically create an index for these properties
17     # Note: if you don't want to auto-index any properties, use
18     # alternative YML syntax auto_index_properties: []
19     auto_index_properties:
20       - audit_id
21     # Set to true to create a compound index for calc records
22     # [:audit_id, :model_name, :record_id, :field_name]
23     # Note that audit_id index is emitted for calc models in this case
```

PREPARE

```
prepare.yml                    ✕

22    # [:audit_id, :model_name, :record_id, :field_name]
23    # Note that audit_id index is omitted for calc models in this case,
24    # as it is redundant. SQLite will just use the compound index if the
25    # audit_id index is omitted.
26    create_calc_compound_index: true
27
28  js:
29    epsilon: 0.0001    # Javascript does not define floating-point Epsilon. We'l
30
31  debug:
32    js:
33      detached_node_canary: false
34    css:
35      photo_page: false
36      sketch_page: false
37    rhodes_server:
38      use_fixed_port: false
39      port: 8080
40    weinre:
41      enable: false
42      host: localhost
43      port: 8081
44
```

PREPARE

prepare.yml ✕

```yaml
43        port: 8081
44
45    audit:
46      name: Visit
47      name_plural: Visits
48      date_field_name: id_date
49      # Note: each product should define audit.child_classes, the ordered list of
50
51    dictionary:
52      include_survey_properties: false
53      include_value_list_values: true
54      # If the application has a primary API, then it should be set here
55      api_value_key: "api_val"
56
57    development:
58      debug:
59        logging:
60          # minimum level to log
61          # 0-trace, 1-info(app level), 2-warnings, 3-errors, 4-fatal errors
62          min_severity: 1
63          cee_log_preference: "info"
64          memory: false
65          memory_period: 20000   # If we do log memory, we will log every memory
```

PREPARE
FRAMEWORK ROOT YML

```yml
 94
 95    license:
 96      # Ordered list of roles from most features/permissions to least
 97      allowable_roles:
 98      - Developer
 99      - CEE Administrator
100      - Evaluator
101      - Administrator
102      - Auditor/Admin
103      - Auditor
104      - Auditor (Restricted)
105
106    assets:
107      js:
108        core:
109          - public/js/console
110          - public/jquery/jquery-1.8.3
111          - public/js/jquery-timeout
112          - public/js/jquery.caret
113          - public/js/jquery.haversine.0.2-cee
114          #- public/js/imagesloaded.pkgd
115          - public/js/jquery.mobile.custom
116          - public/js/jquery.mobile.transition-handler-simple
```

PREPARE

```yaml
104        - Auditor (Restricted)
105
106    assets:
107      js:
108        core:
109          - public/js/console
110          - public/jquery/jquery-1.8.3
111          - public/js/jquery-timeout
112          - public/js/jquery.caret
113          - public/js/jquery.haversine.0.2-cee
114          #- public/js/imagesloaded.pkgd
115          - public/js/jquery.mobile.custom
116          - public/js/jquery.mobile.transition-handler-simple
117          - public/js/jquery.mobile.simultaneous-transitions-replace-simple
118          - public/jqmobile/jquery.mobile-1.2.1.cee
119          - public/js/iscroll
120          - public/js/jquery.mobile.iscrollview
121          - public/js/sketch
122      # "framework" here is a bit of misnomer
123      # These files might be defined in either the product directory or framewo
124      # The "framework" name is just to distinguish from files that might be sp
125      # a particular product.
```

```
145        - app/Addit/new_scheduled_county
146        - app/layout-calculators
147        - app/Settings/registration
148        - app/Settings/preferences
149        - app/Settings/advanced
150        - app/Settings/delete_options
151        - app/Settings/dropbox_access
152        - app/Settings/dropbox_authorize
153        - app/Settings/password_prompt
154        - app/Settings/startup_name
155        - app/Export/export_programs
156        - app/Import/restore
157        - app/Import/program_folders
158        - app/Import/import_programs
159        - app/Import/restore
160        - app/Import/user_folders
161        - app/Import/users
162        - app/Import/visits
163        - app/ProgressView/progress
164      product: [] # Define any product-specific JS in the app's YML. These will
165      # Note that you can still override any JS listed above in js.framework by
166      # a file with the same name in the app. assets.js.app is for any assets AD
167      # in the app.
168  ...
169
```

PREPARE

```yaml
---
app:
  major_version: "1"
  minor_version: "0"
  build_number: "63"
  name: miAudit-ECNC
  title: miAudit-ECNC
  single_letter_identifier: E
  long_title: ElectriCities North Carolina Energy Audit
  description: Mobile application for ElectriCities North Carolina energy aud
  app_mode: short
  survey_mode: disabled
  analysis_api:
    class_name: "NoAnalysisIncluded"
    result_class_name: "NoAnalysisIncluded"
  dropbox:
    app_key:
    app_secre

development:
  app:
    password:
```

PREPARE

```
Framework root data:
---
app:
  framework_version: 1.0.3
  title: unconfigured
  long_title: unconfigured
  description: unconfigured
  app_mode: long
  current_upgrade_fields: hide
  survey_mode: disabled
  unanswered_selector_indicator: "?"
photo:
  choose_photo_obeys_resolution_preference: true
database:
  auto_index_properties:
  - audit_id
  create_calc_compound_index: true
js:
  epsilon: 0.0001
```

```
Developer framework root data:
---
build:
  minify_js: false
  js_debug: true
  js_kybd_debug: true
  js_calc_debug: false
  ios:
    target:
      device: iphone
debug:
  js:
    detached_node_canary: true
  css:
    photo_page: false
    sketch_page: false
  rhodes_server:
    use_fixed_port: true
photo:
```

```
Product root data:
---

app:
  major_version: '1'
  minor_version: '0'
  build_number: '63'
  name: miAudit-ECNC
  title: miAudit-ECNC
  single_letter_identifier: E
  long_title: ElectriCities North Carolina Energy Audit
  description: Mobile application for ElectriCities North Carolina energy audit
  app_mode: short
  survey_mode: disabled
  analysis_api:
    class_name: NoAnalysisIncluded
    result_class_name: NoAnalysisIncluded
  dropbox:
```

```yaml
audit:
  name: Audit
  name_plural: Audits
  child_classes:
  - Photo
  - Location
  - Contact
  - Service
  - House
  - Attic
  - Wall
  - Foundation
  - Window
  - Heating
  - Cooling
  - Duct
  - Thermostat
```

PREPARE

```
Merged root data:
---
build:
  product: miaudit-ecnc
  type: development
  time:
    date_str: 09/08/2014
    time_str: '01:39:37'
    stamp: 1410165577
  minify_js: false
  js_debug: true
  js_kybd_debug: true
  js_calc_debug: false
  git_commit_hash: 5494c9b1b2f8267a06c7f55cb63368d951356670
  git_commit_short_hash: 5494c9b
  git_local_branch: dev
```

PREPARE

```
Discovered Audit child class JS files in framework (available in 'assets.js.audit_ch
    app/Photo/photo_edit
    app/Photo/photo_edit_list
    app/Photo/signature_capture
    app/Photo/sketch_edit
    app/Location/location_edit
    app/Contact/contact_edit
    app/Thermostat/thermostat_edit
    app/CalcAreaHeightVolume/calc_area_height_volume_edit
    app/CalcArea/calc_area_edit
    app/CalcInsulation/calc_insulation_edit
    app/CalcInsulationAvg/calc_insulation_avg_edit
    app/CalcYear/calc_year_edit
    app/Recommendation/recommendation_edit
    app/Report/report_edit
```

```
        app/Report/report_edit

Discovered Audit child class JS files in product (available in 'assets.js.audit_chil
        app/Location/location_edit_county
        app/House/house_edit
        app/Attic/attic_edit
        app/Wall/wall_edit
        app/Foundation/foundation_edit
        app/Heating/heating_edit
        app/Cooling/cooling_edit
        app/Duct/duct_edit
        app/HotWater/hot_water_edit
        app/Appliance/appliance_edit
        app/EcmChecklist/ecm_checklist_edit

Root data:
---
```

PREPARE

```
 87
 88    {{^build.minify_js}}
 89      <!-- Core JS files -->
 90      {{#script_tags}} {{assets.js.core}} {{/script_tags}}
 91
 92      <!-- framework JS files (can be overridden in product) -->
 93      {{#script_tags}} {{assets.js.framework}} {{/script_tags}}
 94
 95      <!-- Any additional product-specific JS files -->
 96      {{#script_tags}} {{assets.js.product}} {{/script_tags}}
 97
 98      <!-- framework audit child JS files -->
 99      {{#script_tags}} {{assets.js.audit_children.framework}} {{/script_tags}}
100
101      <!-- product audit child JS files -->
102      {{#script_tags}} {{assets.js.audit_children.product}}   {{/script_tags}}
103    {{/build.minify_js}}
104
105    {{#build.minify_js}}
106      <script src='/public/js/main.min-js?{{build.time.stamp}}'></script>
107    {{/build.minify_js}}
108
```
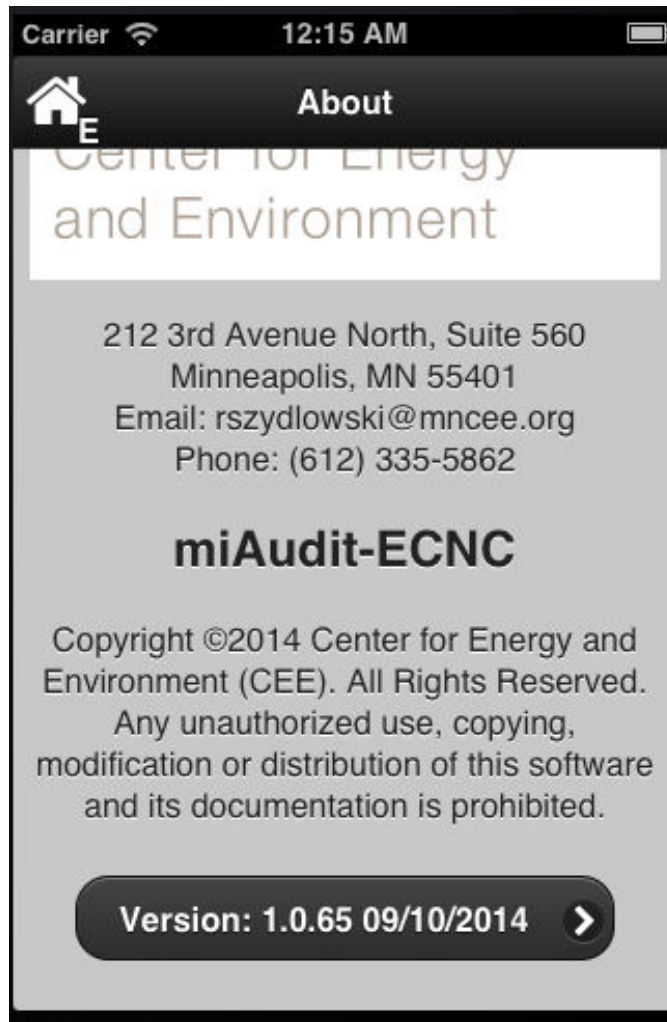
PREPARE

GIT AND OTHER ENVIRONMENT DATA

```
^ Directory has data in framework, showing merged data:
---
build:
  product: miaudit-ecnc
  type: development
  time:
    date_str: 09/08/2014
    time_str: '01:39:37'
    stamp: 1410165577
  minify_js: false
  js_debug: true
  js_kybd_debug: true
  js_calc_debug: false
  git_commit_hash: 5494c9b1b2f8267a06c7f55cb63368d951356670
  git_commit_short_hash: 5494c9b
  git_local_branch: dev
  git_remote_branch: github/dev
```

PREPARE

VERSION INFO

PREPARE

VERSION INFO

THANK YOU

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MOTOROLA *SOLUTIONS*

WATUSIWARE CORPORATION