

# publish your code with Octave

Kai T. Ohlhus  
k.ohlhus@gmail.com

OctConf 2017

March 20, 2017

This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.  
<http://creativecommons.org/licenses/by-sa/4.0/>



# What is `publish` about?

- Old MATLAB teaching PDF with very simple example function `linear`
- Students trying to call their first function failed!

```
>> y = linear(2)
Error using linear (line 52)
Invalid calling syntax for the "linear" command. Type
"help linear" for more information.
```

# What is `publish` about?

— 1. Stale, outdated, incorrect example code.

- Old MATLAB teaching PDF with very simple example function `linear`
- Students trying to call their first function failed!

```
>> y = linear(2)
Error using linear (line 52)
Invalid calling syntax for the "linear" command. Type
"help linear" for more information.
```

- The function `linear` became 2007 part of Matlab's System Identification Toolbox
- $\implies$  Need to rewrite documentation
- Decision to use `publish` (not part of GNU Octave before 4.2.0)

# What is publish about?

## — 2. Display the output.

Most of Octave's example code is “**static**” as well:

- Copy & run to see the output (*incomplete?*)
- Never checked before a release (*stale, outdated?*)

```
>> help plot # shortened
```

Here are some plot examples:

```
t = 0:0.1:6.3;
plot (t, cos(t), "-;cos(t);", t, sin(t), "-b;sin(t);");
```

This will plot the cosine and sine functions and label them accordingly in the legend.

- Situation better with “doc plot” (or more descriptive Manual)

⇒ **Bad user experience, questions, bug reports** ([#50282](#) [#50148](#),...)

# What is `publish` about?

— 3. Certainly no panacea!

Intended for “small to medium” sized **scripts**:

- One section level
- Supports HTML and  $\LaTeX$  (PDF) output (but see later)
- No cross references (but URLs)
- No function *docstring* or class documentation

$\implies$  No substitute for  $\LaTeX$  or Texinfo

## Two short demos

- Simple markup in comment blocks
- **Execution** of example code, print results

```
## My script
```

```
#  
# *Row* vector creation.  
##
```

```
a = 1:5
```

```
%%  
% Using the <octave:plot plot funtion>.  
%
```

```
x = 0:.2:2*pi;  
y = sin (x);  
plot (x,y)
```

Documentation with markup

Example code with output

Example code with plot output

# The publish – grabcode workflow

```
script.m

## My script
#
##

plot (sin (1:5));
```

`publish("script.m")` →

```
script.html

<!DOCTYPE html>
<html>
<body>
<!--
##### SOURCE BEGIN #####
## My script
#
##

plot (sin (1:5));
##### SOURCE END #####
-->
</body>
</html>
```

← `grabcode("script.html")`

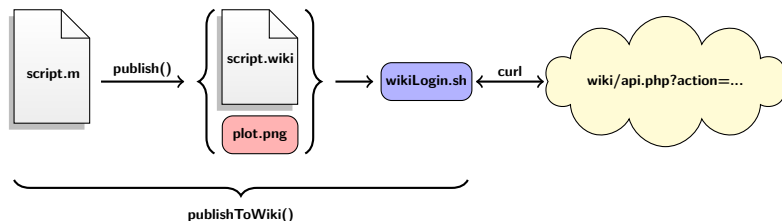
```
tmp.m

## My script
#
##

plot (sin (1:5));
```

# Customize publish (GNU Octave 4.3.0+)

- Pure Octave code → easy to extend/modify
- Designed for extension:
  - ▶ Implement all callback subfunctions in some `__publish_my_markup_output__.m` and run `publish("script.m", "my_markup")`
- Some interesting experiment with MediaWiki action API<sup>1</sup>.



<sup>1</sup>Read more: <https://siko1056.github.io/blog/2017/03/10/getting-to-know-the-mediawiki-api.html>.



# A new Agora approach?

— Maybe GSoC 2017 project?

- Pros:
  - ▶ Login system
  - ▶ History (revert vandalism)
  - ▶ Editor
  - ▶ Syntax highlighting
- Cons:
  - ▶ Expose `api.php` (*security concern?*)
  - ▶ Image storage limitation
  - ▶ Login required (*limited access / vandalism*)
  - ▶ Deal with HTML escaping
- `urlread` cannot handle **session cookies**. The demo relies on bash script calling `curl` appropriately. → This can be fixed.

# Thank you for your attention. Questions?

Find the sources at <https://github.com/siko1056/OctConf2017>.

# Discussion: A survey of documentation

- **Octave repo** (24 committers, overwhelming bug reports)
  - ▶ **Manual** for end-users, description, and function reference
    - ★ updated with each releases ( twice each year)
  - ▶ **Doxygen** (C/C++ only)
    - ★ not actively presented, not updated
- **Octave forge** ( 70 maintainers?)
  - ▶ individual package docs, updates by maintainers
  - ▶ Octave core and package **function reference**
- **Wiki** ( 25 active and 600 passive) registered users)
  - ▶ docs for installation, forge packages, contribution guidelines, ...
  - ▶ updated occasionally, not release specific, many outdated articles

## Discussion: A survey of documentation (cont.)

- **Manual** (static, **dynamic** graphic generation)
  - ▶ [Texinfo](#) and helper scripts (AWK, Bash, Octave, Perl)
  - ▶ HTML, PDF output
  - ▶ markup, links
- **Doxygen** (static, **dynamic** completeness checking)
  - ▶ Special [comment blocks](#), no real overhead
  - ▶ (very rich) HTML, LaTeX, RTF, XML, Man page, DocBook output
  - ▶ markup (Markdown), links
- **Wiki** (static)
  - ▶ the power of [MediaWiki](#)
  - ▶ not related to Octave (but syntax highlighting!)
- **Octave forge packages** (static, dynamic elements?)
  - ▶ [Texinfo](#) and [generate\\_html](#) package
  - ▶ HTML
  - ▶ markup, links