Writing Internet-Drafts in Markdown

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Why Markdown?

Because this...

```
--- middle

# Introduction

Here is some intro text.
```

is easier for *most* people to understand than this...

```
<middle>
    <section title="Introduction">
        <t>Here is some intro text.</t>
    </section>
</middle>
```

What is Markdown?

- Lightweight text formatting language
- Developed by John Gruber in 2004 with help from Aaron Schwartz
- https://daringfireball.net/projects/markdown/
- Inspired by customs and conventions emerging out of text-based email

"*The overriding design goal for Markdown's formatting syntax is to make it as readable as possible. The idea is that a Markdown-formatted document should be publishable as-is, as plain text, without looking like it's been marked up with tags or formatting instructions.*"

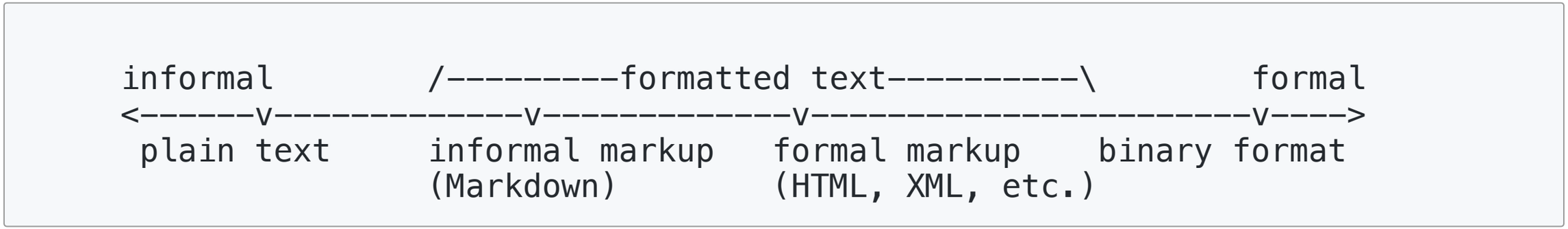
"*The idea for Markdown is to make it easy to read, write, and edit prose. HTML is a **publishing** format; Markdown is a **writing** format.*"

Markdown example

```
# First level heading

Some text

## Second level heading

- first bullet with _italic text_
- second bullet with **bold text**
- third bullet

### Third level heading

Visit [the IETF's web site](https://www.ietf.org)

## Second level heading

(you get the idea...)
```

Comparison of Markdown to other formats

RFC 7764 has this useful chart:



But what if you want to write something that is NOT in the original Markdown syntax?

(for example, tables...)

Markdown and Standardization

"*I believe Markdown's success is due to, not in spite of, its lack of standardization. And its success is not disputable.*"

"*Because different sites (and people) have different needs. No one syntax would make all happy.*"

- John Gruber, twitter thread in 2014

The many flavors of Markdown

- "Original" from John Gruber
- MultiMarkdown
- GitHub Flavored Markdown (GFM)
- pandoc
- kramdown
- Fountain
- CommonMark
  - An attempt at standardizing Markdown by a group of advocates
  - www.commonmark.org
- ***MANY*** other variants... *(including the one I used to create these slides)*

The text/markdown media type and an IANA Registry

Informational **RFC7763** (March 2016):

- registers the text/markdown media type
- defines a "Markdown Variants" registry established by IANA
- registers "Original" in that new registry

IANA Registry at:

- https://www.iana.org/assignments/markdown-variants/markdown-variants.xhtml

RFC 7764

- Informational RFC also in March 2016
- Title: "**Guidance on Markdown: Design Philosophies, Stability Strategies, and Select Registrations**"
- A good read to understand more about Markdown
- Registers with IANA:
  - a number of common Markdown variants, including:
    - kramdown-rfc2629
    - RFC7328 - Pandoc2rfc

ENOUGH ALREADY... let's build some Internet Drafts!

FYI... it's actually a 2-step process

At a basic level, the various tools do this:

1. Take a markdown file and generate "xml2rfc" XML

- Originally often called "RFC 2629 XML", but then later defined in RFC 7749 "xml2rfc v2" and now RFC 7991 "xml2rfc v3"

2. Run "xml2rfc" on the resulting XML to generate TXT

First Step: Choosing your tool chain

- Kramdown-rfc
  - https://github.com/cabo/kramdown-rfc2629
  - Developed in Ruby by Carsten Bormann
  - Can be used online at: https://xml2rfc.tools.ietf.org/experimental.html
- mmark
  - https://github.com/miekg/mmark
  - Developed in Go by Miek Gieben
  - Supported by Docker image from Paul Jones: https://github.com/paulej/rfctools

Other Markdown tool options

- pandoc
  - https://www.rfc-editor.org/rfc/rfc7328.txt
  - pandoc2rfc - http://github.com/miekg/pandoc2rfc - by Miek Gieben
  - Based on pandoc from John MacFarlane - http://pandoc.org/
  - Unable to generate XML2RFC v3 XML
  - Miek views mmark as the successor
- draftr
  - https://ipv.sx/draftr/
  - Quick visual tool from Richard Barnes that allows you to see the conversion
  - Currently based on an older version of kramdown-rfc

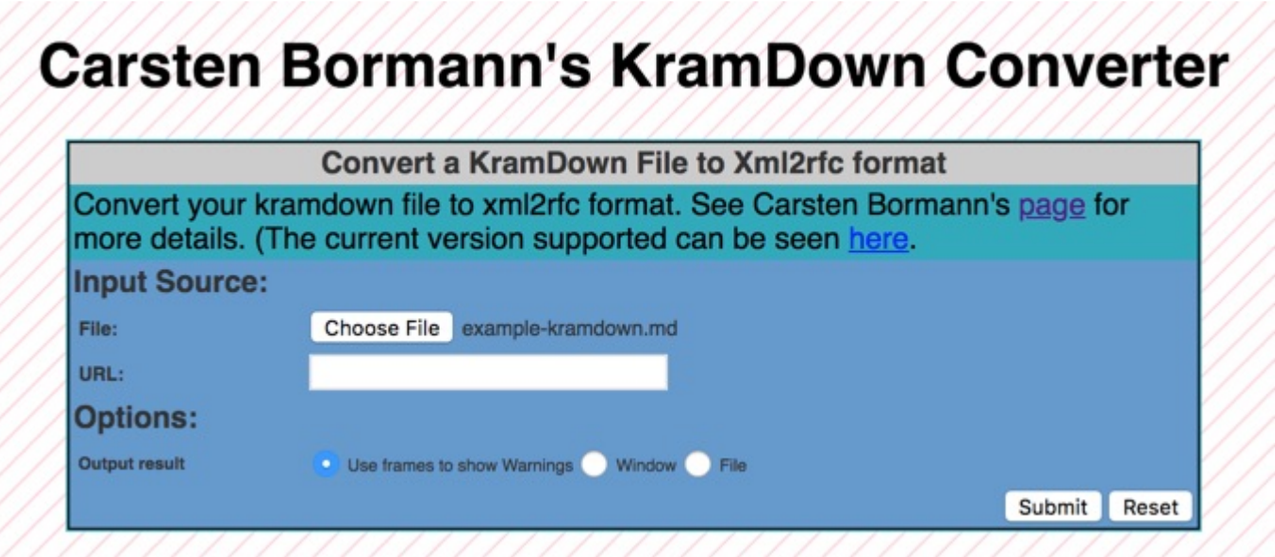
Getting Started with kramdown-rfc (locally)

1. Assuming your computer has Ruby, install the `kramdown-rfc2629` package:
   `gem install kramdown-rfc2629`
2. Create your file using your favorite text editor
   - Many "markdown editors" also available
   - Convention is to end file with `.md` or `.mkd`
3. Just execute the `kdrfc` command:
   `$ kdrfc draft-whomever-some-witty-name.md`
4. Output is two files: `.xml` and `.txt`

More info: https://github.com/cabo/kramdown-rfc2629

Using kramdown-rfc remotely

1. Create your file using your favorite text editor
2. Visit https://xml2rfc.tools.ietf.org/experimental.html
3. Find the kramdown box:



4. Choose file and submit for processing

Kramdown-rfc Notes

- Based on kramdown parser by Thomas Leitner. Syntax:
  - https://kramdown.gettalong.org/syntax.html
- File starts with `---`
- Header based on YAML. Example

```
title: Your amazing title
abbrev: Your Abbreviation
docname: draft-todo-your-name-here
ipr: trust200902
area: General
author:
    ins: C. Bormann
    name: Carsten Bormann
    email: cabo@tzi.org
```

- References:
  - Normative: `{{!RFC2119}}` or Informative: `{{?RFC1925}}`

Getting Started with mmark

1. Ensure that the Go language is available.
2. (Follow instructions on https://github.com/miekg/mmark to build application.)
3. Use the `mmark` command to generate XML:

   ```
   ./mmark/mmark -xml2 -page draft-whomever-some-witty-name.md
   ```

4. Use `xml2rfc` to generate TXT:

   ```
   xml2rfc --text draft-whomever-some-witty-name.xml
   ```

(Make files can automate this.)

More info: https://github.com/miekg/mmark

Automating mmark with a Docker image

- Paul Jones provides Docker image with both `mmark` and `xml2rfc`
  - https://github.com/paulej/rfctools
  - Docker Hub: https://hub.docker.com/r/paulej/rfctools/
- With Docker installed, just do:

  `docker pull paulej/rfctools`
- Actual command is rather long:

  `$ docker run --rm --user=$(id -u):$(id -g) -v $(pwd):/rfc -v $HOME/.cache/xml2rfc:/var/cache/xml2rfc -w /rfc paulej/rfctools md2rfc draft-jones-markdown-example-00.md`
- Sooo... just grab Paul's sample Makefile and reduce your command to:

  `make`
  - *(assumes the file starts with 'draft-')*

Mmark Notes

- Syntax draws from kramdown, pandoc and more. Defined:
  - https://miek.nl/2016/march/05/mmark-syntax-document/
- File starts with `%%%`
- Header based on TOML (https://github.com/toml-lang/toml):

```
% title = "Your amazing title"
% abbrev = "Your abbreviation"
% docName = "draft-todo-your-name-here"
% ipr= "trust200902"
% [[author]]
% initials="R."
% surname="Gieben"
% fullname="R. (Miek) Gieben"
%   [author.address]
%   email = "miek@miek.nl"
```

- References:
  - Normative: `[@!RFC2119]` or Informative: `[@?RFC1925]`

Finding examples to get started

- Easiest way to begin is to find other people's Markdown I-Ds
- Examples provided in Github repos of both kramdown-rfc and mmark

For people wanting a deeper dive:

- Martin Thomson provides a thorough git repo:
  - https://github.com/martinthomson/i-d-template
  - See features: https://github.com/martinthomson/i-d-template/blob/master/doc/FEATURES.md
  - Supports files in both kramdown-rfc and mmark formats

My own examples

- Created using mmark via Docker image (primarily because at the time I was learning more about Docker and this gave me a reason to experiment more)
- **draft-york-manycouches-completely-virtual-meetings**
  - https://github.com/danyork/draft-york-manycouches-completely-virtual-meetings
  - https://tools.ietf.org/html/draft-manycouches-completely-virtual-meetings-04
- **draft-york-dnsop-deploying-dnssec-crypto-algs**
  - https://github.com/danyork/draft-deploying-dnssec-crypto-algs
  - https://tools.ietf.org/html/draft-york-dnsop-deploying-dnssec-crypto-algs

Resources

- RFC 7763 - https://tools.ietf.org/html/rfc7763
- RFC 7764 - https://tools.ietf.org/html/rfc7764
- Tutorial: **Writing RFCs and Internet-Drafts in markdown and a bit of YAML**
  - https://www.ietf.org/about/participate/tutorials/process/writing-rfcs-and-internet-drafts-markdown-and-bit-yaml/
  - Presented at IETF 92 in Dallas in 2015
  - Tools have evolved but still provides good foundation

One other alternative

- asciirfc
  - Not Markdown, but a similar idea
  - https://tools.ietf.org/html/draft-ribose-asciirfc
  - https://github.com/riboseinc/rfc-asciirfc-minimal
  - Based on https://asciidoctor.org/
  - Provides a more formal, structured text markup

Getting more involved

If you want to do more with writing Internet Drafts in Markdown,

you can join the rfc-markdown list:

https://www.ietf.org/mailman/listinfo/Rfc-markdown

Thank You

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FYI, these slides were created in Markdown and rendered using MARP (https://yhatt.github.io/marp/)

Slides can be found at:

- https://github.com/danyork/writing-internet-drafts-in-markdown