Tools for Creating Internet-Drafts

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Paris, France

This tutorial

1. The options

2. Overview of NroffEdit

   – Demo

3. Overview of xml2rfc

   – Demo

4. Questions

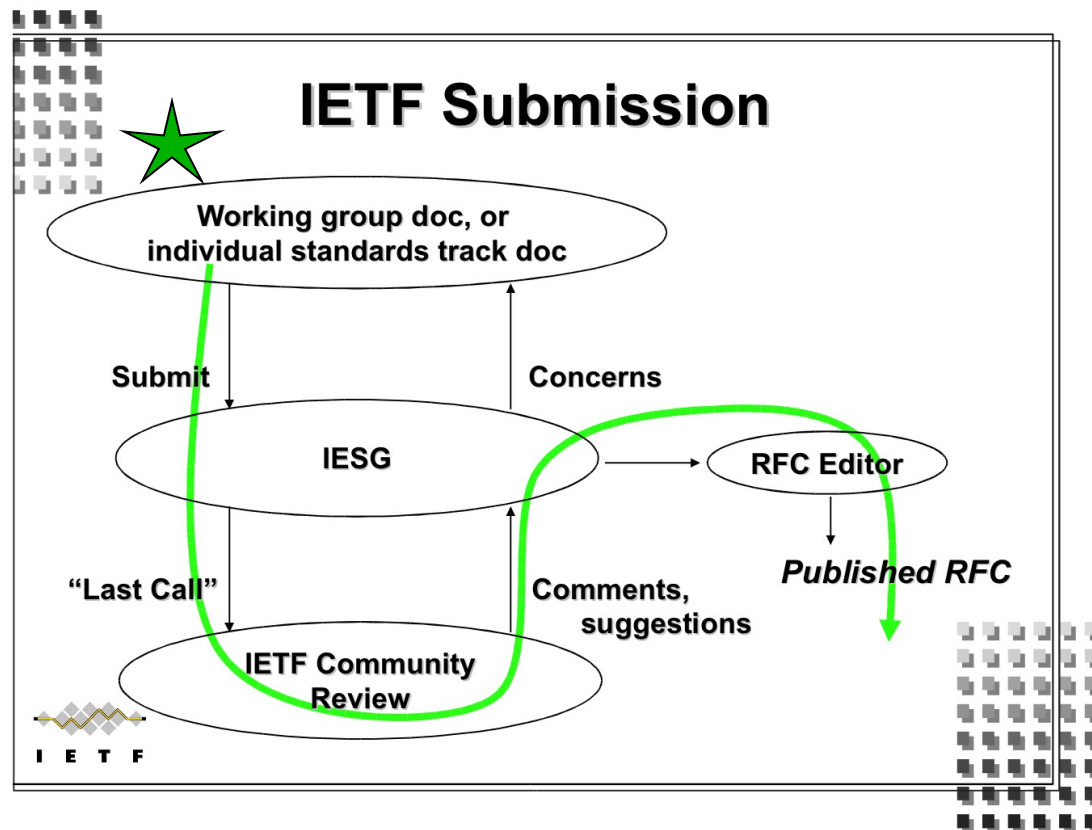# Start of the Document Life Cycle: Time to Choose an Authoring Tool

Diagram from Scott Bradner's Newcomer's Tutorial

The options

	NroffEdit	xml2rfc	Word template
Source file	nroff	XML	.doc or .docx
Web site / RFC	http://aaa-sec.com/ nroffedit	http://xml.resource.org	RFC 5385
Run locally	Yes	Yes or online	Yes
Template for I-D	Yes (auto updated)	Yes (multiple)	2-Word-v2.0.template.dot
Automated reference creation	Yes (for RFCs)	Yes (for RFCs, I-Ds, and more)	No
Automatic TOC	Yes	Yes	Yes
Post-processing necessary	No	No (XML->XML option to make standalone file)	Yes (using Perl script)

Other options include editing .txt directly or using LaTeX -> nroff conversion.

Future Options

Interested in the future of I-D authoring tools?

This is part of a larger discussion of the requirements for file formats for authoring, editing, submitting, and archiving documents.

- Come to the RFC Format BoF (Tuesday 17:10 in Maillot)

- Participate on the rfc-interest list

    (https://www.rfc-editor.org/mailman/listinfo/rfc-interest)

What is NroffEdit?

It's a WYSIWYG editor for writing and editing Internet-Drafts.

- Provides a side-by-side view of nroff source and text output.

- Is available for download http://aaa-sec.com/nroffedit/

- Includes various features such as spellcheck and a template when starting an I-D.

Why use NroffEdit?

This tool:

- creates an Internet-Draft in the proper format
- has a pre-loaded template
- includes an auto-generated table of contents
- generates references from rfc-ref.txt
- is straightfoward

You will have a source file that:

- the RFC Editor can edit

Quick-Start Guide

- Download and install the tool.
  (Latest version: 2.08)

- Select File > New Draft from Template.

- Build reference list (automatically pulls entries from ftp://ftp.rfc-editor.org/in-notes/rfc-ref.txt)
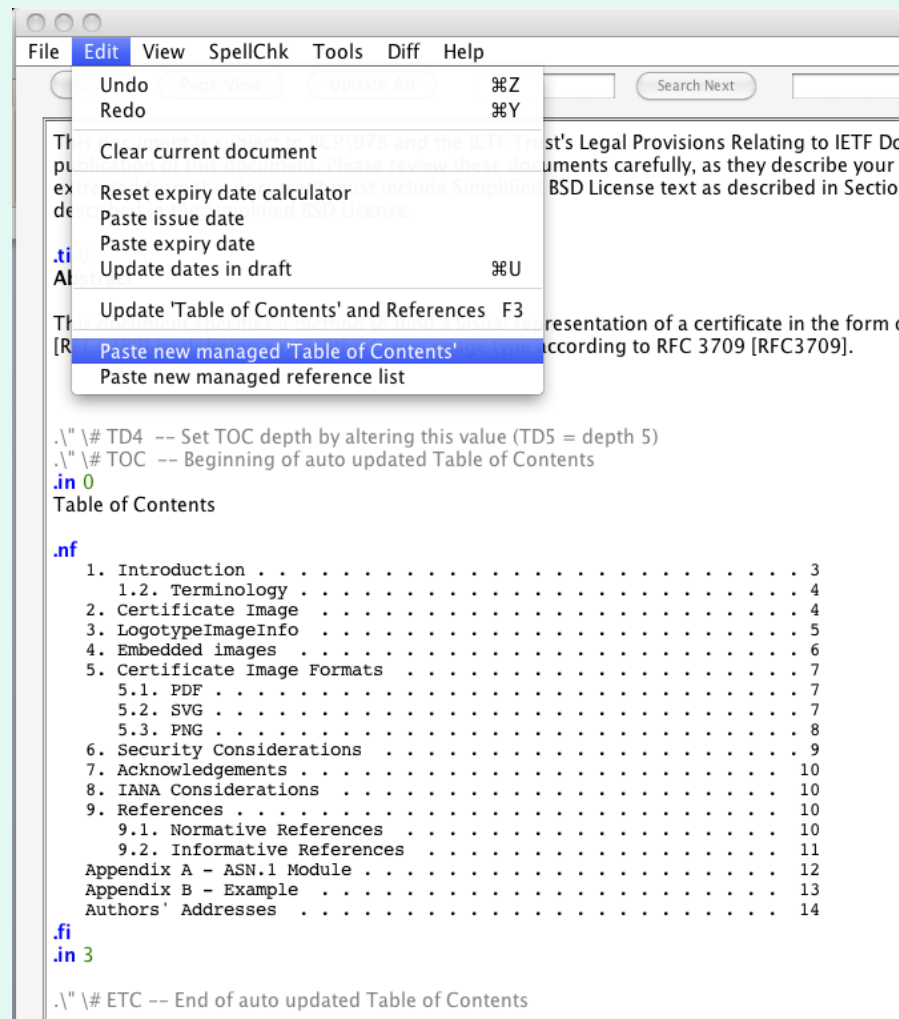
Templates

- Pre-loaded with a template, which is automatically updated. The latest version can be downloaded:
  - http://aaa-sec.com/pub/NroffEdit/empty.nroff

- Other template available from the RFC Editor:
  - http://www.rfc-editor.org/rfc-editor/3-nroff.template

nroff Basics

- Indentation

  .in x - Set indent to x spaces from left column.

  .ti x - Next line has a temporary indent of x spaces, then back to normal indent.

- Text Wrapping

  .fi - Fill subsequent lines until page width.

  .nf - No fill. Subsequent output lines are neither filled nor adjusted. Input text lines are copied directly to output lines without regard for the current line length.

  .br - Line break.

- Page breaks

  .bp - Break page.

  .ne x - Keep next x lines on same page.

For more: go to Help > Supported Features and the template

Automated Table of Contents

Inserting References

For RFCs:

Select "Paste new managed reference list" from the Edit menu. Enter RFC numbers and optional labels.
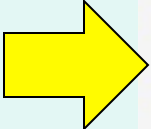
.\" \# [RFC]nnnn[;label], … , [RFC]nnnn[;label]

.\" \# 2119;KEYWORDS, 5996;IKEv2

For I-Ds and other documents:

Copy & paste from other I-Ds, or type from scratch. Use **.ti 3** before each entry.

Managed reference list

```
.ti 0
5   References

.ti 0
5.1   Normative References

.in 14
.\"  \# REF  -- Managed reference list. Syntax: [RFC]nnnn[;Label], ... ,[RFC]nnnn[;Label]
.\"  \# 2119;KEYWORDS, 1776, 1924, RFC1925;TRUTHS, 1926, 1927
.ti 3
[KEYWORDS] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP
14, RFC 2119, March 1997.

.ti 3
[RFC1776]  Crocker, S., "The Address is the Message", RFC 1776, April 1 1995.

.ti 3
[RFC1924]  Elz, R., "A Compact Representation of IPv6 Addresses", RFC 1924, April 1 1996.

.ti 3
[TRUTHS]   Callon, R., "The Twelve Networking Truths", RFC 1925, April 1 1996.

.ti 3
[RFC1926]  Eriksson, J., "An Experimental Encapsulation of IP Datagrams on Top of ATM",
RFC 1926, April 1 1996.

.ti 3
[RFC1927]  Rogers, C., "Suggested Additional MIME Types for Associating Documents", RFC
1927, April 1 1996.
```

Editing an existing I-D

- Convert existing draft from text to nroff
- Update dates, author list, etc.
- Invoke managed table of contents
- Invoke managed reference lists
- Integration with IETF tools diff service to view changes made since previous draft
- Publish URL to diff for wider review

Automated diff generation

There's lots more functionality.

- Spell check

- Expiration calculator

- Page View

- Selectable fonts

- Styled output and warning if lines exceed 72 characters

- Automated check for updates (NroffEdit, template, and RFC citation library)

For more information:
http://aaa-sec.com/nroffedit/nroffedit/faqbugs.html

Demo

1. Installation
2. nroff to text
3. text to nroff

What is xml2rfc?

A tool that:

- Converts an XML source file into a text, HTML, nroff, unpaginated text, or expanded XML file.

- Creates a document in the format of an Internet-Draft (or RFC).

- Is available from http://xml.resource.org as a web-based service or for download.

Why use xml2rfc?

This tool:

- creates an Internet-Draft in the proper format
- inserts boilerplate text
- formats reference entries
- outputs various formats including HTML, PDF, and ePub (experimental version)

You will have a source file that:

- can be used to exchange comments with coauthors
- can be used for metadata extraction
- the RFC Editor can edit

About xml2rfc v2

- The tool has been rewritten from scratch
- Try http://xml.resource.org/experimental.html
- As noted there, it is stricter
- Start with a template
- Send questions to xml2rfc@ietf.org
- Report bugs on http://trac.tools.ietf.org/tools/xml2rfc/trac/
- Switching to v2 in the next few months

Initial Setup: Choices

- Use the tool on the web or install it locally.
- Use the citation libraries online or maintain a local copy.
- Edit in your favorite editor or use an XML editor such as XMLmind.
- With XMLmind, use Bill's add-on that provides a WYSIKN (What You See Is Kinda Neat) interface

  http://code.google.com/p/xml2rfc-xxe/

Quick-Start Guide

- Use the tool online.

- Use the citation libraries online.

- Use your favorite text editor and edit raw XML.

- Start with a template

Templates

- Available here:
  http://tools.ietf.org/tools/templates

- Recommend starting with:

  – For a generic draft:

    draft-davies-template-bare.xml

  – For a draft containing a MIB:

    mib-doc-template-xml.txt

Other Options
for Creating an XML File

- xml2rfc I-D Creation Wizard

http://xml.resource.org/xml2rfc-wizard/

NEW

- pandoc2rfc – wiki-style markup

  uses `pandoc` and `xsltproc` to create XML
  for insertion into middle or back elements.

XML Basics

```
<outer>
...
<inner>
...
</inner>
...
</outer>
```

- Elements are nested
- Matching start and end tags
  (or simply an empty tag, e.g., <organization />)
- Attributes have quoted values
- Case-sensitive

  <author initials="J." surname="Joyce">

- Use < for < and & for &
- See "XML basics" for more details

  http://xml.resource.org/authoring/draft-mrose-writing-rfcs.html#xml_basics

Overall Document Structure

<rfc>

    front

        author

        abstract

    middle   See the DTD for details!

        section

           t, list, figure

    back

        references

</rfc>

Creating an Internet-Draft

- Make an author element for yourself
- <t> tags around paragraphs
- <figure><artwork> around figures
- Enter references as

  <xref target="RFCXXXX" />

- Use citation libraries for references

Setting the ipr attribute

The transition to the current copyright (http://trustee.ietf.org/license-info/) led to additional options for the ipr attribute.

<rfc category="info" docName="draft-example-00"
   ipr="trust200902">

- **trust200902** *commonly used
- noModificationTrust200902
- noDerivativesTrust200902
- **pre5378Trust200902** *used to add 6.c.iii paragraph

See the IETF Trust Copyright FAQ for further information:
http://trustee.ietf.org/docs/Copyright–FAQ–2010–6–22.pdf

Author Info

Template for author info block:

```
<author initials="" surname="”” fullname="" role="" >
    <organization></organization>
      <address>
        <postal>
          <street></street>
          <city></city>
          <country></country>
        </postal>
        <phone></phone>
        <email></email>
        <uri></uri>
      </address>
  </author>
```

Using Lists

Use the style attribute of the list element:

style="empty": simply indents list items. (default)

style="numbers": 1., 2., 3.

style="letters": a., b., c.

style="symbols": bulleted with o, o, o

nested lists are bulleted with *, then +

You can control this with PI <?rfc text-list-symbols="o*+-"?>

style="hanging": for text idented under a term

(using hangText attribute of <t> tag)

style="format %d": for customized lists

Customized Lists

(1)

(2)   is   <list style="format (%d)">

(3)

(a)

(b)   is   <list style="format (%c)">

(c)

REQ1:

REQ2: is   <list style="format REQ%d:">

REQ3:

What is CDATA for?

A CDATA block is left alone by xml2rfc. It does not try to parse XML inside of a CDATA block. (For example, if a figure contains "<", you don't have to use <) It is useful for including XML examples in the document.

```
<figure><artwork><![CDATA[
    Here is a figure that mentions XML elements such
    as <xref>.
]]></artwork></figure>
```

Citing References

All are cited textually in the same way: using xref elements with the target set to the anchor of the reference element, e.g.,

XML	text
`<xref target="RFC2119" />`	`[RFC2119]`
`<xref target="I-D.ietf-roll-of0"/>`	`[I-D.ietf-roll-of0]`
`<xref target="IEEE.802-11H.2003"/>`	`[IEEE.802-11H.2003]`

Inserting References

Use the citation libraries!

(available from http://xml.resource.org)

citation library	retrieve entire directory as a file	retrieve entire directory using wget -r -l 1 -A .xml -nd -nc ...	rss feed	rsync
RFC	zip or tgz	http://xml.resource.org/public/rfc/bibxml/	rss 1.0	yes
Internet-Draft	zip or tgz	http://xml.resource.org/public/rfc/bibxml3/	rss 1.0	yes
W3C	zip or tgz	http://xml.resource.org/public/rfc/bibxml4/	rss 1.0	yes
JSF	zip or tgz	http://www.xmpp.org/extensions/refs/	rss 0.92	no
3GPP	zip or tgz	http://xml.resource.org/public/rfc/bibxml5/	rss 1.0	yes
Miscellaneous	zip or tgz	http://xml.resource.org/public/rfc/bibxml2/	no	yes

Inserting References
3 ways to use the citation libraries
(details to follow)

1. The Short Way
   Use a PI in the references section: <?rfc include="reference.RFC.2119.xml"?>

2. The Long Way
   Define an ENTITY at the top and use &rfc2119; in the references section.

3. The Really Long Way
   Include the complete reference element.

ALL yield the same text output:

➔ ```
   [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate
              Requirement Levels", BCP 14, RFC 2119, March 1997.
   ```

# (1) The Short Way

Use a PI in the references section.

<?rfc include="reference.RFC.2119.xml"?>

➜ [RFC2119]   Bradner, S., "Key words for use in RFCs to Indicate
              Requirement Levels", BCP 14, RFC 2119, March 1997.

<?rfc include="reference.I-D.ietf-roll-of0.xml"?>

➜ [I-D.ietf-roll-of0]   Thubert, P., Ed., "RPL Objective Function Zero"
                        draft-ietf-roll-of0-15 (work in progress), July 2011.

<?rfc include="reference.IEEE.802-11H.2003.xml"?>

➜ [IEEE.802-11H.2003] "Information technology - Telecommunications and information
                      exchange between systems - Local and metropolitan area networks
                      - Specific requirements - Part 11: Wireless LAN Medium Access
                      Control (MAC) and Physical Layer (PHY) specifications -
                      Amendment 5: Spectrum and Transmit Power Management Extensions
                      in the 5 GHz band in Europe", IEEE Standard 802.11h, Oct 2003,
                      <http://standards.ieee.org/getieee802/download/802.11h-2003.pdf>.

# (2) The Long Way

Define an ENTITY inside the DOCTYPE reference at the top.

```
<!DOCTYPE rfc SYSTEM "rfc2629.dtd" [
<!ENTITY rfc2119 SYSTEM "http://xml.resource.org/public/rfc/bibxml/
      reference.RFC.2119.xml">
<!ENTITY roll-of0 SYSTEM "http://xml.resource.org/public/rfc/bibxml3/
      reference.I-D.ietf-roll-of0.xml">
<!ENTITY 80211H SYSTEM "http://xml.resource.org/public/rfc/bibxml2/
      reference.IEEE.802-11H.2003.xml>
]>
```

Then in the references section:

```
&rfc2119;
&roll-of0;
&80211H;
```

(3) The Really Long Way

Include the complete reference element.

```xml
<reference anchor='RFC2119'>
 <front>
  <title abbrev='RFC Key Words'>Key words for use in RFCs to Indicate Requirement Levels</title>
  <author initials='S.' surname='Bradner' fullname='Scott Bradner'>
   <organization>Harvard University</organization>
   <address> [snip] </address>
  </author>
  <date year='1997' month='March' />
  <area>General</area>
  <keyword>keyword</keyword>
  <abstract>
    [snip]
  </abstract>
 </front>

 <seriesInfo name='BCP' value='14' />
 <seriesInfo name='RFC' value='2119' />
 <format type='TXT' octets='4723' target='http://www.rfc-editor.org/rfc/rfc2119.txt' />
 <format type='HTML' octets='17491' target='http://xml.resource.org/public/rfc/html/rfc2119.html' />
 <format type='XML' octets='5777' target='http://xml.resource.org/public/rfc/xml/rfc2119.xml' />
</reference>
```

A Reference from Scratch

```
<reference anchor="" target="">
    <front>
        <title></title>
        <author initials="" surname="" fullname="">
            <organization />
        </author>
        <date month="" year="" />
    </front>
    <seriesInfo name="" value="" />
</reference>
```

Note: It's preferable that you use the citation libraries esp. for RFCs and Internet-Drafts.

Reference Tags

- How to get numbered refs instead of symbolic (e.g., [1] instead of [RFC2119]):
  Use the PI <?rfc symrefs="no" ?>
  (Note: "yes" is the default.)

- How to get names instead of RFC numbers (e.g, [IKEv2] instead of [RFC4306]):
  Insert the complete reference element and change the anchor attribute.

  <reference anchor="IKEv2">

  Also, update any corresponding xref targets.

Inserting a table

The texttable element contains ttcol elements to define the columns and c elements to hold the contents of each cell.

```
<texttable anchor="table_ex" title="IETF Meetings in 2005">
   <ttcol align="center">IETF #</ttcol>
   <ttcol align="center">City</ttcol>
   <ttcol align="center"># of Attendees</ttcol>
   <c>62</c><c>Minneapolis</c><c>1133</c>
   <c>63</c><c>Paris</c><c>1450</c>
   <c>64</c><c>Vancouver</c><c>1240</c>
   <postamble>Data from http://www.ietf.org/meeting/past.html</postamble>
</texttable>
```

yields:

```
+--------+-------------+----------------+
| IETF # |    City     | # of Attendees |
+--------+-------------+----------------+
|   62   | Minneapolis |      1133      |
|        |             |                |
|   63   |    Paris    |      1450      |
|        |             |                |
|   64   |  Vancouver  |      1240      |
+--------+-------------+----------------+

Data from http://www.ietf.org/meeting/past.html

      Table 1: IETF Meetings in 2005
```

(figure/artwork elements are another option.)

Dos and Don'ts

- Do use xref for references.

- Do use xref for section cross-references.

- Do use list elements for lists.

- Don't hard-code your references.

- Don't hard-code a section number (to refer within a document).

- Don't insert a list as a figure.

Put your XML file to work

- Share comments/edits with your coauthors.
- Upload it to the I-D Submission Tool when you post your draft

  https://datatracker.ietf.org/idst/upload.cgi

- Send it to the RFC Editor if your draft is approved for publication as an RFC. (They will already have it if you uploaded it.)

- Create and read the HTML version. Check out Julian Reschke's XSLT for an alternative to xml2rfc's HTML output.

What is Julian's rfc2629.xslt?

a set of XSLT transformations that can be used to transform RFC2629-compliant XML to various output formats, such as HTML and PDF.

Documentation:

http://greenbytes.de/tech/webdav/rfc2629xslt/rfc2629xslt.html

No conversion required - just open the XML file in the browser.

If submitting your XML file to the RFC Editor

- If you used multiple files, consolidate your XML source into one file.

    (For example, if you used a local citation library, insert the files.)

- Run the file using xml2rfc as available online. Make sure it creates a text file.

- If using PIs that are local or specific to alternate XML converters, please note they will be ignored by xml2rfc.

How do I control whitespace?

(a.k.a. How do I get blank lines between list items?)

Use the PIs compact and subcompact. We recommend compact="yes" and subcompact="no".

- compact="yes" will not start each main section on a new page.
- subcompact="no" will put one blank line between list items.
- This should minimize the need for vspace.

There's lots more functionality.
For more information:

HOW TO (a.k.a. unofficial successor to RFC 2629):

    http://xml.resource.org/authoring/draft-mrose-writing-rfcs.html

    contains descriptions of elements & attributes, and the DTD

README: http://xml.resource.org/authoring/README.html

    contains instructions for installing xml2rfc locally

    contains full list of processing instructions (PIs) & their descriptions

xml2rfc FAQ: http://xml.resource.org/xml2rfcFAQ.html

xml2rfc mailing list: https://www.ietf.org/mailman/listinfo/xml2rfc

Demos

1. Classic: editing in your favorite editor and converting via the web page

2. I-D Creation Wizard (Beta)

3. rfc2629.xslt and Firefox

Beyond creating I-Ds,
lots of useful links on tools.ietf.org

Prepare documents

- xml2rfc, NroffEdit, Word template
- I-D nits

Search and view documents

- HTMLized documents
- Retrieve from search bar (IETF Doc Fetch)
- Diff tool options

Be aware and communicate

- Daily Dose
- WG wikis
- Email aliases

Find Atom and RSS feeds

  http://trac.tools.ietf.org/group/tools/trac/wiki/AtomFeeds

Follow an IETF meeting

- Agendas
- Apps
- Tarballs of WG drafts

Check formal languages

- Where to find ABNF parsers, MIB review tools

Questions?

NroffEdit:

Stefan Santesson, sts@aaa-sec.com

xml2rfc:

Join the xml2rfc mailing list:
https://www.ietf.org/mailman/listinfo/xml2rfc

RFC Editor:
rfc-editor@rfc-editor.org or stop by the desk this week