



# 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

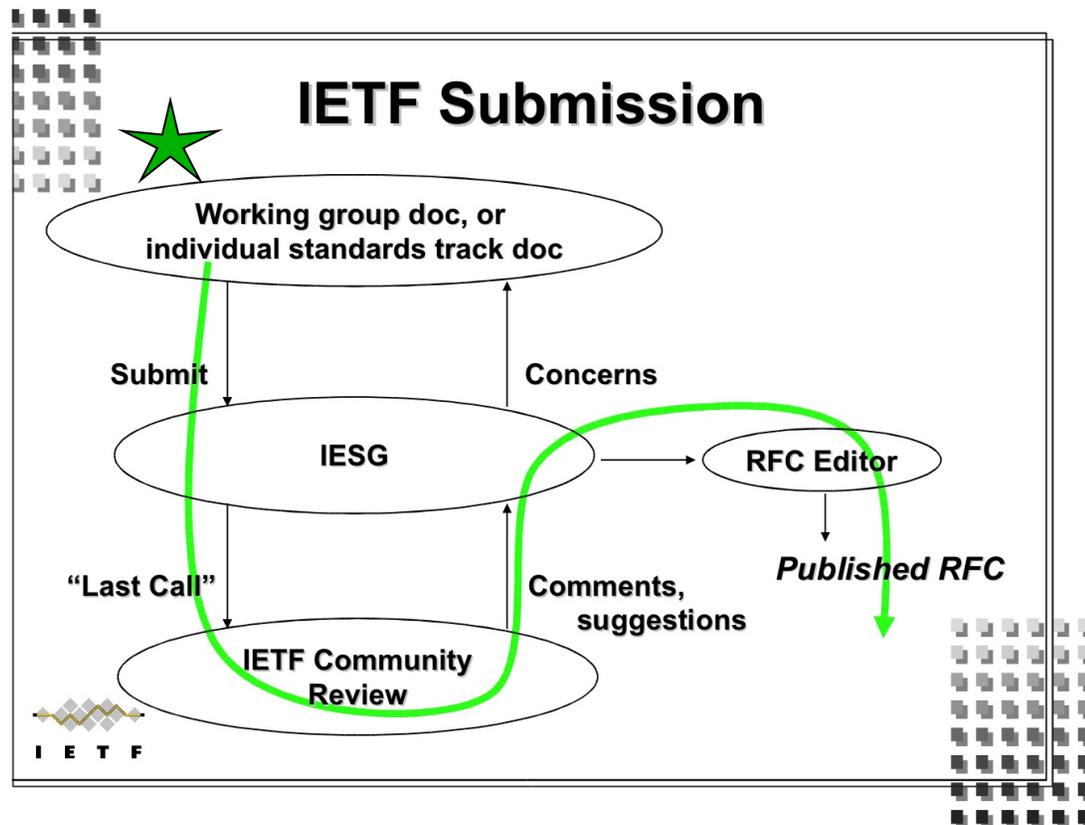


Diagram from Scott Bradner's Newcomer's Tutorial

# The options

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

*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 straightforward

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

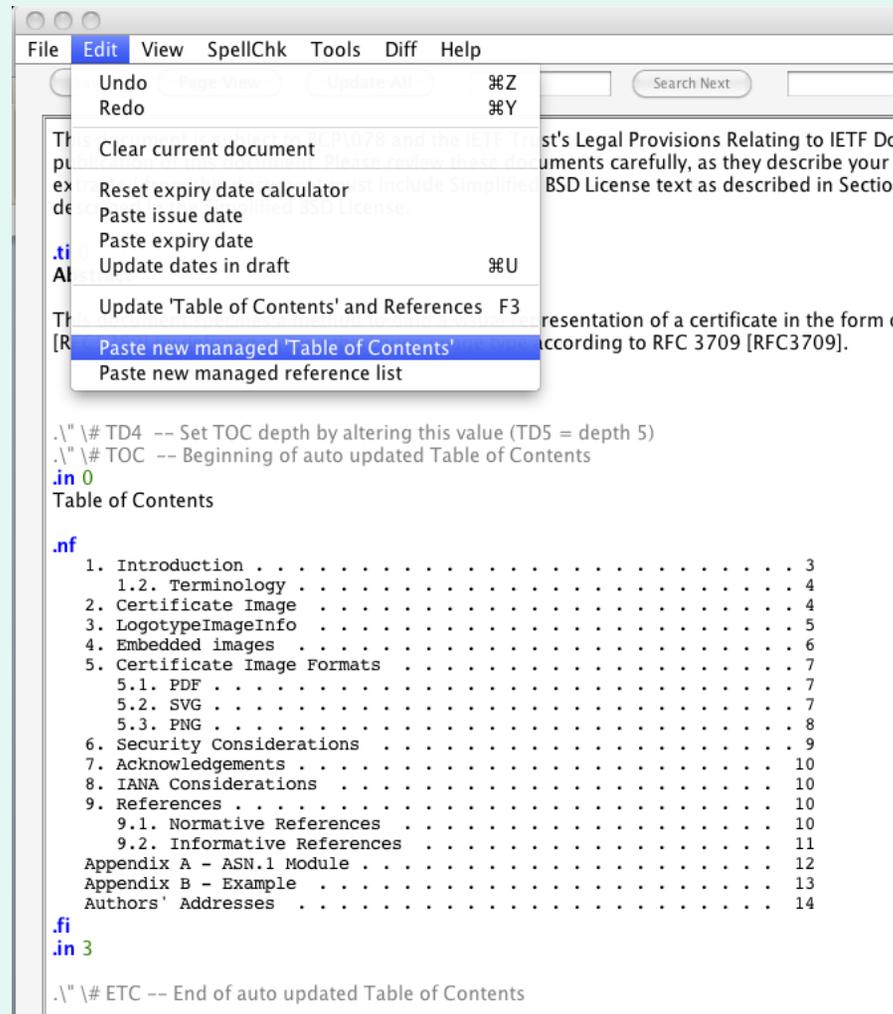
- Pre-loaded with a template, which is automatically updated. The latest version can be downloaded:
  - <http://aaa-sec.com/pub/NroffEdit/empty.nroff>
- Other template available from the RFC Editor:
  - <http://www.rfc-editor.org/rfc-editor/3-nroff.template>

# 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]
```

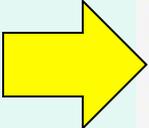
```
.\" \# 2119;KEYWORDS, 5996;IKEv2
```

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

The screenshot shows a web browser window displaying a side-by-side comparison of two draft documents. The left document is titled '<draft-ietf-pkix-certimage-11.txt' and the right is 'temp.txt'. Both documents are 'INTERNET-DRAFT' by Stefan Santesson (3xA Security), Russ Housley (Vigil Security), Siddharth Bajaj (VeriSign), and Leonard Rosenthol (Adobe). The left document has an intended status of 'Proposed Standard', updates of 3709, and expires on August 19, 2011. The right document has the same intended status and updates, but expires on September 18, 2011. The main title of the draft is 'Internet X.509 Public Key Infrastructure - Certificate Image'. The left document is labeled '<draft-ietf-pkix-certimage-11>' and the right is '<draft-ietf-pkix-certimage-12>'. The status of the memo is identical in both: 'This Internet-Draft is submitted to IETF in full conformance with the provisions of BCP 78 and BCP 79. Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.' A grey bar indicates a skip in both documents: 'skipping to change at page 10, line 10'. The text following the skip is also identical: 'colliding certificates with identical certificate signatures. Certificates, and hence their cert images, are commonly public objects and as such usually will not contain privacy sensitive information. However, when a cert image that is referenced from a certificate contains privacy sensitive information appropriate security controls should be in place to protect the privacy of that information. Details of such controls are outside the scope of this document.' The left document has a section '5. Certificate Image Formats' with the text 'Implementations of this specification MUST support JPEG and GIF as defined in IETF RFC 2311. This specification specifies the use of PDF, SVG and PNG as image formats.' The right document has a section '7. Acknowledgements' with the text 'The Authors recognize valuable contributions from members of the PKIX work group, the CA Browser Forum and James Manger for review and sample data.' and a section '8. IANA Considerations' with the text 'This document requires no actions from IANA.' A menu is open over the 'Diff' button in the browser's toolbar, showing options: 'Browse published Draft', 'Temporary Diff' (highlighted), 'Temporary Diff settings', 'Publish Diff', and 'FTP settings for Diff publication'. The browser's address bar shows the URL 'http://tools.ietf.org/rfcdiff?url1=http://tools.ietf.org/id/draft-ietf-pkix-certimage-11.txt&url2=http://aaa-sec.com/\_te'. The browser's search bar contains 'Google'. The browser's tabs include 'Trust Legal ...isions (TLP)', 'TrekStor - Support', 'http://www.i...ff.template', 'Higgins Home', 'Bandit', 'IPR Search', 'Apple', 'Yahoo!', 'Google Maps', and 'YouTube'.

# 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](mailto: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, you can use Bill Fenner'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 &lt; for < and &amp; for &
- See “XML basics” for more details

[http://xml.resource.org/authoring/draft-mrose-writing-rfcs.html#xml\\_basics](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 indented 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 &lt;) 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
<code>&lt;xref target="RFC2119" /&gt;</code>	<code>[RFC2119]</code>
<code>&lt;xref target="I-D.ietf-roll-of0"/&gt;</code>	<code>[I-D.ietf-roll-of0]</code>
<code>&lt;xref target="IEEE.802-11H.2003"/&gt;</code>	<code>[IEEE.802-11H.2003]</code>

# Inserting References

Use the citation libraries!

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

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

```
<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 [RFC5996]):  
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

(figure/artwork elements are another option.)

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

Table 1: IETF Meetings in 2005

# 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](mailto:sts@aaa-sec.com)

xml2rfc:

Join the xml2rfc mailing list:

<https://www.ietf.org/mailman/listinfo/xml2rfc>

RFC Editor:

[rfc-editor@rfc-editor.org](mailto:rfc-editor@rfc-editor.org) or stop by the desk this week