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Transforming RFC2629-formatted XML through XSLT

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1. Introduction

This document describes a set of XSLT transformations that can be used to transform RFC2629-compliant XML (see [RFC2629]) to various output formats, such as HTML and PDF. The main topics are

- compliance to the xml2rfc XML element set (Section 2),
- support for xml2rfc processing instructions (Section 3),
- the names of anchor elements generated in HTML and PDF output (Section 4),
- various XSLT engines that can be used (Section 5),
- outputting HTML (Section 6) and XHTML (Section 7),
- outputting CHM (Compiled Microsoft Help, Section 8),
- outputting PDF through XSL-FO (Section 9) and
- various utilities (Section 11).

2. Supported RFC2629 elements

`rfc2629.xslt` supports both all RFC2629 grammar elements and the extensions implemented in xml2rfc 1.21.

2.1 Extension elements

In addition, `rfc2629.xslt` supports a set of extension elements, using elements and attributes in the namespace "http://greenbytes.de/2002/rfcedit". They are used for

- simple issue tracking and change tracking and
- adding additional metadata to the generated documents (such as HTML LINK elements to related documents, see Section 6.2).

Note that these extensions are experimental. Please email the author in case you're interested in using these extensions.

3. Processing Instructions

All PIs can be set as XSLT parameter as well, overriding any value that is found in the source file to be transformed.

Using processing instructions:

```
<?rfc toc="yes"?>
<?rfc-ext support-rfc2731="no"?>
```

Using XSLT parameters (Saxon):

```
java -cp saxon.jar com.icl.saxon.StyleSheet source.xml rfc2629.xslt \
  xml2rfc-toc=yes xml2rfc-ext-support-rfc2731=no > result.html
```

Using XSLT parameters (xsltproc):

```
xsltproc --param xml2rfc-toc '"yes"' \
   --param xml2rfc-ext-support-rfc2731 '"no"' \
   rfc2629.xslt source.xml > result.html
```

(note the required quoting of string parameters)

3.1 Supported xml2rfc-compatible PIs

PI target	PI pseudo-attribute	XSLT parameter name	default	comment
rfc	background	xml2rfc-background	(not set)	
rfc	compact	xml2rfc-compact	"no"	only applies to HTML output method when printing
rfc	comments	xml2rfc-comments	(not set)	
rfc	editing	xml2rfc-editing	"no"	
rfc	footer	xml2rfc-footer	(not set)	
rfc	header	xml2rfc-header	(not set)	
rfc	inline	xml2rfc-inline	(not set)	
rfc	iprnotified	xml2rfc-iprnotified	"no"	
rfc	linkmailto	xml2rfc-linkmailto	"yes"	
rfc	private	xml2rfc-private	(not set)	
rfc	sortrefs	xml2rfc-sortrefs	"no"	
rfc	symrefs	xml2rfc-symrefs	"yes"	The default has changed from "no" to "yes" as of June 6, 2007 and xml2rfc 1.33pre4.
rfc	toc	xml2rfc-toc	"no"	
rfc	tocdepth	xml2rfc-tocdepth	99	
rfc	topblock	xml2rfc-topblock	"yes"	

3.2 Unsupported xml2rfc-compatible PIs

PI target	PI pseudo-attribute	comment
rfc	include	incompatible with XML/XSLT processing model
rfc	needLines	
rfc	slides	
rfc	strict	
rfc	subcompact	
rfc	tocindent	(defaults to "yes")
rfc	tocompact	

3.3 Extension PIs

PI target	PI pseudo-attribute	XSLT parameter name	default	description
rfc-ext	allow-markup-in-artwork	xml2rfc-allow-markup-in-artwork	"no"	Enables support for specific elements inside abstract elements (using this extension makes the document incompatible to the RFC2629bis DTD; see description of conversion XSLT in Section 11.4).
rfc-ext	authors-section	xml2rfc-ext-authors-section		When "end", place the authors section at the end (just before the copyright statements). This seems to be the preferred order in the newest RFCs.
rfc-ext	include-references-in-index	xml2rfc-ext-include-references-in-index		When set to "yes", index entries are generated for all references.
rfc-ext	justification	xml2rfc-ext-justification	"never"	"never": never emit justified text, "always": always emit justified text, "print": only emit justified text for print media.
rfc-ext	parse-xml-in-artwork	xml2rfc-parse-xml-in-artwork	"no"	May be used to enable parsing of XML content in figures (MSXML only).
rfc-ext	support-rfc2731	xml2rfc-ext-support-rfc2731	"yes"	Decides whether the HTML transformation should generate META tags according

PI target	PI pseudo-attribute	XSLT parameter name	default	description
				Section 6.4.
rfc-ext	sec-no-trailing-dots	xml2rfc-ext-sec-no-trailing-dots		When set to "yes", add trailing dots to section numbers. This seems to be the preferred format in the newest RFCs.

4. Anchors

The transformation automatically generates anchors that are supposed to be stable and predictable and that can be used to identify specific parts of the document. Anchors are generated both in HTML and XSL-FO content (but the latter will only be used for PDF output when the XSL-FO engine supports producing PDF anchors).

The following anchors get auto-generated:

Anchor name	**Description**
rfc.abstract	Abstract
rfc.authors	Authors section
rfc.copyright	Copyright section
rfc.copyrightnotice	Copyright notice
rfc.figure.*n*	Figures (titled)
rfc.figure.u.*n*	Figures (untitled)
rfc.index	Index
rfc.ipr	Intellectual Property
rfc.iref.*n*	Internal references
rfc.note.*n*	Notes (from front section)
rfc.references	References
rfc.references.*n*	Additional references
rfc.section.*n*	Section *n*
rfc.section.*n*.p.*m*	Section *n*, paragraph *m*
rfc.status	Status of memo
rfc.table.*n*	Tables (titled)
rfc.table.u.*n*	Tables (untitled)
rfc.toc	Table of contents
rfc.xref.*name*.*n*	References to reference *n* to *name*

5. Supported XSLT engines

The transformation requires a non-standard extension function (see exsl:node-set [1]) which is however widely available. XSLT processors that do not support this extension (or a functional equivalent) currently are not supported.

5.1 Standalone Engines

The following XSLT engines are believed to work well:

- MSXML3 and MSXML4 (<http://msdn.microsoft.com/xml>; these processors do not support exsl:node-set(), but have a similar proprietary extension)
- Saxon (<http://saxon.sourceforge.net/>)
- Xalan (<http://xml.apache.org/xalan-j/>)
- xsltproc (libxslt) (<http://xmlsoft.org/XSLT/>, make sure that you have a current version)

5.2 In-Browser Engines

The following browsers seem to work fine:

- Internet Explorer 5.5 (Windows version, if MSXML3 is installed)
- Internet Explorer 6
- Internet Explorer 7
- Firefox 3.* (currently only test builds available)
- Opera 9.5 (currently only test builds available)
- Safari 3 (starting with version 3.0.4)

The following browsers are known not to work properly:

- Firefox 1.*/2.* (missing extension function - see change request at Mozilla BugZilla 193678 [2])
- Opera 9.21: execution fails, potentially to a somewhat complex XPath expression (reported to Opera as bug 245725).
- Safari 2.* supports client-side XSLT as of MacOS X 10.4, but misses required extension functions. A problem with stylesheets producing non-ASCII output (such as NBSP characters) has been fixed as of OSX 10.4.4. Both problems have been reported through Apple's bug tracking system, see <http://drakken.dbc.mtview.ca.us/pipermail/xml2rfc/2005-May/002073.html> and <http://bugs.webkit.org/show_bug.cgi?id=4079>.

[1] http://www.exslt.org/exsl/functions/node-set/exsl.node-set.html
[2] http://bugzilla.mozilla.org/show_bug.cgi?id=193678

6. Transforming to HTML

Transformation to HTML can be done inside the browser if it supports XSLT. To enable this, add the following processing instruction to the start of the source file:

```
<?xml-stylesheet type='text/xsl' href='rfc2629.xslt' ?>
```

(and ensure that `rfc2629.xslt` is present).

6.1 HTML compliance

The transformation result is supposed to conform to the HTML 4.01 strict DTD [HTML]. This can be checked using the W3C's online validator at <http://validator.w3.org>.

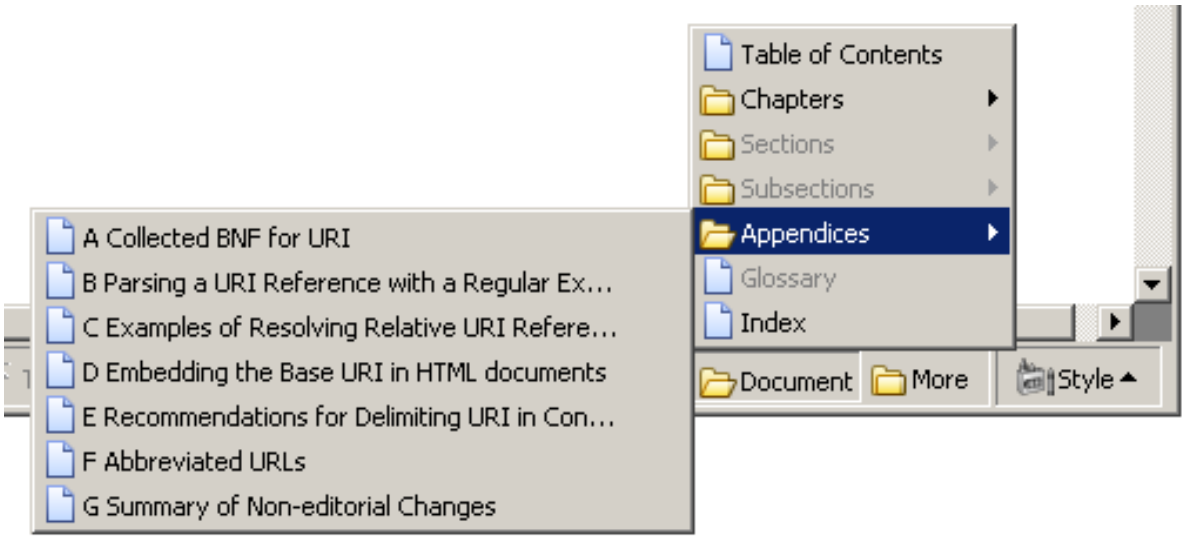
6.2 Standard HTML LINK elements

LINK elements exist since HTML 2.0. They can be used to embed content-independant links inside the document. Unfortunately, only few user agents support this element. Firefox users may want to check the Link Widgets [3] extension.

The following LINK elements are produced:

LINK type	description
alternate	for RFCs, a link to the authorative ASCII version on the IETF web site
appendic	pointer to all top-level appendics
author	pointer to "authors" section
chapter	pointer to all top-level sections
contents	pointer to table of contents
copyright	pointer to copyright statement
index	pointer to index

The figure below shows how Mozilla Firefox 1.0 displays the Site Navigation Bar for rfc2396.xml.



[3] https://addons.mozilla.org/firefox/2933/

6.3 Standard HTML metadata

The following standard HTML META elements are produced:

META name	description
generator	from XSLT engine version and stylesheet version
keywords	from keyword elements in front section

6.4 Dublin Core (RFC2731) metadata

Unless turned off using the "rfc-ext support-rfc2731" processing instruction, the transformation will generate metadata according to [RFC2731].

The following DCMI properties are produced:

META name	description
DC.Creator	from author information in front section
DC.Date.Issued	from date information in front section
DC.Description.Abstract	from abstract
DC.Identifier	document URN [RFC2648] from "docName" attribute
DC.Relation.Replaces	from "obsoletes" attribute

6.5 Experimental hCard support

The generated author information is formatted in hCard [4] format.

[4] http://microformats.org/wiki/hcard

7. Transforming to XHTML

Transforming to XHTML requires slightly different XSLT output options and is implemented by the derived transformation script `rfc2629toXHTML.xslt`.

> **Note:** Microsoft Internet Explorer does *not* support XHTML. Therefore it usually makes more sense to generate plain old HTML.

8. Transforming to CHM (Microsoft Compiled Help)

To generate a CHM file using Microsoft's HTML Help Compiler (hhc), three files are required in addition to the HTML file.

1. hhc - table of contents file (HTML)
2. hhk - index file (HTML)
3. hhp - project file (plain text)

The three files are generated with three specific transformations, each requiring the additional XSLT parameter "basename" to specify the filename prefix.

Example:

```
saxon rfc2616.xml rfc2629toHhp.xslt basename=rfc2616  > rfc2616.hhp
saxon rfc2616.xml rfc2629toHhc.xslt basename=rfc2616  > rfc2616.hhc
saxon rfc2616.xml rfc2629toHhk.xslt basename=rfc2616  > rfc2616.hhk
hhc rfc2616.hhp
```

9. Transforming to PDF via XSL-FO

9.1 Via XSL-FO

Transformation to XSL-FO [XSL-FO] format is available through `rfc2629toFO.xslt` (which includes `rfc2629.xslt`, so keep both in the same folder).

Compared to HTML user agents, XSL-FO engines unfortunately either come as open source (for instance, Apache FOP) or feature-complete (for instance, AntennaHouse XSL Formatter), but not both at the same time.

As Apache FOP needs special workarounds (page breaking, table layout), and some popular extensions aren't standardized yet, the translation produces a generic output (hopefully) conforming to [XSL-FO]. Specific backends (`xsl11toFop.xslt`, `xsl11toXep.xslt`, `xsl11toAn.xslt`) then provide post-processing for the individual processors.

> **Note:** the output is currently targeted at Apache FOP 0.20.5 (<http://xmlgraphics.apache.org/fop/0.20.5/>), not the newer versions.

9.1.1 Extension feature matrix

	PDF anchors	PDF bookmarks	PDF document information	Index cleanup
XSL 1.1 WD [5]	no, but can be auto-generated from "id" attributes	yes [6]	no, but uses XEP output extensions	yes [7]
Antenna House XSL formatter [8]	no	yes [9] (from XSL 1.1 bookmarks)	yes [10] (from XEP document info)	yes [11] (just page duplicate elimination, from XSL 1.1 page index)
Apache FOP [12]	yes [13]	yes [14] (from XSL 1.1 bookmarks)	no	no
RenderX XEP [15]	no	yes [16] (from XSL 1.1 bookmarks)	yes [17]	yes [18] (from XSL 1.1 page index)

[5] http://www.w3.org/TR/2003/WD-xsl11-20031217/
[6] http://www.w3.org/TR/2003/WD-xsl11-20031217/#d0e12873
[7] http://www.w3.org/TR/2003/WD-xsl11-20031217/#d0e12534
[8] http://www.antennahouse.com/
[9] http://www.antennahouse.com/XSL20/axf-extension.htm
[10] http://www.antennahouse.com/XSL20/axf-extension.htm
[11] http://www.antennahouse.com/XSL20/axf-extension.htm
[12] http://xml.apache.org/fop/
[13] http://xml.apache.org/fop/extensions.html#named-destinations
[14] http://xml.apache.org/fop/extensions.html#bookmarks
[15] http://xep.xattic.com/
[16] http://xep.xattic.com/xep/spec.html
[17] http://xep.xattic.com/xep/spec.html
[18] http://xep.xattic.com/xep/spec.html

9.1.2 Example: producing output for Apache FOP

Example:

```
saxon rfc2616.xml rfc2629toFo.xslt > tmp.fo
saxon tmp.fo xsl11toFop.xslt > rfc2629.fo
```

9.2 Via X(HTML)

PDF output can also be produced directly from (X)HTML. One simple approach is to rely on the browser's printing function, and to use a printer driver that produces PDF. Depending on the brower's CSS capabilities, the output will behave properly with respect to table breaks etc.

An alternative is PrinceXML (see <http://www.princexml.com/>), which can produce PDF directly from (X)HTML input, based on the CSS printing information.

For instance, PDF output with text justification turned on can be produced with:

```
saxon input.xml rfc2629toXHTML.xslt xml2rfc-ext-justification=print \
  > output.xhtml
prince output.xhtml output.pdf
```

10. Generic Extensions

This section documents extensions implemented in `rfc2629.xslt`, using the extension namespace "http://purl.org/net/xml2rfc/ext".

10.1 <anchor-alias> element

Using its "value" attribute, this element allows the definition of an internal link target alias for the enclosing element. This alias can then be used with the <ref> element for intra-document references.

Note that the anchor alias is not subject to the naming constraints that apply to anchor elements (which are XML names [19]).

10.2 <bcp14> element

This element marks the content as being one of the normative keywords defined in [RFC2119].

The DOCTYPE definition below allows using these keywords using XML entity expansion: such as in "...server &MUST; accept...".

```
<!DOCTYPE rfc [
 <!ENTITY MAY "<bcp14 xmlns='http://purl.org/net/xml2rfc/ext'
   >MAY</bcp14>">
 <!ENTITY MUST "<bcp14 xmlns='http://purl.org/net/xml2rfc/ext'
   >MUST</bcp14>">
 <!ENTITY MUST-NOT "<bcp14 xmlns='http://purl.org/net/xml2rfc/ext'
   >MUST NOT</bcp14>">
 <!ENTITY OPTIONAL "<bcp14 xmlns='http://purl.org/net/xml2rfc/ext'
   >OPTIONAL</bcp14>">
 <!ENTITY RECOMMENDED "<bcp14 xmlns='http://purl.org/net/xml2rfc/ext'
   >RECOMMENDED</bcp14>">
 <!ENTITY REQUIRED "<bcp14 xmlns='http://purl.org/net/xml2rfc/ext'
   >REQUIRED</bcp14>">
 <!ENTITY SHALL "<bcp14 xmlns='http://purl.org/net/xml2rfc/ext'
   >SHALL</bcp14>">
 <!ENTITY SHALL-NOT "<bcp14 xmlns='http://purl.org/net/xml2rfc/ext'
   >SHALL NOT</bcp14>">
 <!ENTITY SHOULD "<bcp14 xmlns='http://purl.org/net/xml2rfc/ext'
   >SHOULD</bcp14>">
 <!ENTITY SHOULD-NOT "<bcp14 xmlns='http://purl.org/net/xml2rfc/ext'
   >SHOULD NOT</bcp14>">]>
```

10.3 <bb> element

Marking up a string as <bb> indicates that it represents the bottom line of a box drawing, replacing the "+" and "-" characters accordingly.

10.4 <bc> element

Marking up a string as <bc> indicates that it represents a center line of a box drawing, replacing the "|" character accordingly.

10.5 <blockquote> element

This element is like the "blockquote [20]" element in [HTML] (note this is a block-level element!). It should

[19] http://www.w3.org/TR/REC-xml/#NT-Name

contain one or more <t> child elements.

10.6 <bt> element

Marking up a string as <bt> indicates that it represents the top line of a box drawing, replacing the "+" and "-" characters accordingly.

10.7 <dfn> element

This element is like the "dfn [21]" element in [HTML].

10.8 <h> element

This element is like the "h [22]" element in [XHTML2].

10.9 <length-of> element

This element can be used to insert the length of another formatted section (in decimal).

Example: computing the Content-Length header value

```
<artwork>
...
Content-Length: <x:length-of target="req"/>

<x:span anchor="req">123456789
<x:span><artwork/>
```

The lenght computation counts line ends as two characters (CRLF).

Note that indentation characters in artwork *will* be counted. The "indented" attribute allows to specify the amount of indentation to be substracted from the computed length.

10.10 <link> element

This element can be added as a top-level child element below <rfc> to indicate additional link information. It's currently used only when generating HTML output, in which case an HTML <link> [23] element with identical attributes gets generated.

Example: generating HTML link element

```
        <x:link xmlns="http://purl.org/net/xml2rfc/ext"
            rel="Bookmark"
            title="IETF WEBDAV Working Group"
            href="http://ftp.ics.uci.edu/pub/ietf/webdav/"/>
```

10.11 <lt> element

Used for grouping multiple <t> elements into a single list item.

[20] http://www.w3.org/TR/html401/struct/text.html#edef-BLOCKQUOTE
[21] http://www.w3.org/TR/html401/struct/text.html#edef-DFN
[22] http://www.w3.org/TR/2006/WD-xhtml2-20060726/mod-structural.html#edef_structural_h
[23] http://www.w3.org/TR/html4/struct/links.html#edef-LINK

10.12 <q> element

This element is like the "q [24]" element in [HTML].

10.13 <ref> element

This element is a simplified variant of the <xref> element, in that no "target" attribute needs to be specified, instead the text contents acts as identifier. That in itself wouldn't be terribly useful, but together with the <anchor-alias>, it allows referring to other parts of the document with minimal additional markup.

For instance, given an alias definition such as

```
<section title="Test" anchor="test">
  <x:anchor-alias value="alias1"/>
  <x:anchor-alias value="alias 2"/>
  ...
</section>
```

the following simple references

```
<x:ref>test</x:ref>
<x:ref>alias1</x:ref>
<x:ref>alias 2</x:ref>
```

are equivalent to...:

```
<xref target="test">test</xref>
<xref target="test">alias1</xref>
<xref target="test">alias 2</xref>
```

10.14 <source> element

Can be used to enhance a <reference> with information about the location for the XML source. This can be used by the <xref> processing code to automatically extract the target section number.

For example:

```
...
<xref target="RFC2616" x:fmt="of" x:rel="#PUT" />
...

<reference target="RFC2616"/>
  ...
  <x:source href="rfc2616.xml"/>
  ...
```

10.15 Extensions to Xml2rfc <iref> element

The extension attribute below is allowed on the standard <iref> element:

- x:for-anchor specifies that the <iref> will also be automatically inserted whenever the specified anchor is cross-referenced -- this may save entering lots of <iref> instances. As a special case, a value of "" (empty string) refers to the anchor attribute of the closest ancestor.

[24] http://www.w3.org/TR/html401/struct/text.html#edef-Q

10.16 Extensions to Xml2rfc <list> element

The extension attribute below is allowed on the standard <list> element:

- x:indent specifies the amount of indentation for list items in hanging lists. This can be useful when the output format, such as XSL-FO, does not support automatical formatting. The value takes an XSL-FO width, such as "5em". The default is *length of longest label in characters* times *0.8em*.

Also, the <list> element can take <x:lt> child elements instead of <t>, allowing to insert multiple paragraphs into a single list item.

10.17 Extensions to Xml2rfc <section> element

The extension attribute below is allowed on the standard <list> element:

- x:fixed-section-number can be used to specify a fixed section number. This can be useful when formatting historic documents that used a different numbering style.

10.18 Extensions to Xml2rfc <xref> element

Three extension attributes are allowed on the standard <xref> element:

1. x:sec can be specified to point to a specific section of the referenced document,
2. x:rel may specify a relative reference to use when linking into the referenced document (if linking by section number is not available),
3. x:fmt defines the text format to be used.

The following formats are defined for the x:fmt attribute:

, (Comma)	[*reference*], Section *sec*
()	[*reference*] (Section *sec*)
anchor	Like the default format, but without brackets.
of	Section *sec* of [*reference*]
number	*sec*
none	No output (can be used to have xrefs to references without having them rendered as such)
sec	Section *sec*

These extensions are currently only supported for <xref> elements without child nodes.

If the processor knows how to reference the target section, it will generate a link directly to the target section, such as in [RFC2119], Section 5.

11. Utilities

11.1 Checking References

`check-references.xslt` can be used to check all references to RFC- and ID-series IETF publications and to W3C publications (note this script requires local copies of <ftp://ftp.isi.edu/in-notes/rfc-index.xml> and <http://www.w3.org/2002/01/tr-automation/tr.rdf> and will use the XML status information provided at <http://tools.ietf.org/>).

If the document is supposed to be published on the IETF standards track, the desired level can be specified using the parameter `intended-level` as 'PROPOSED', 'DRAFT' or 'STANDARD'.

For instance, as of 2006-08-06, the script produces for <http://greenbytes.de/tech/webdav/rfc2518.xml>:

```
> saxon rfc2518.xml check-references.xslt

Normative References:
ISO-11578: not checked
ISO-639: not checked
ISO-8601: not checked
REC-xml-19980210: [FirstEdition] obsoleted by REC-xml-20001006
REC-xml-names-19990114: [REC] obsoleted by PER-xml-names-20060614
RFC1766: [PROPOSED STANDARD] obsoleted by RFC3066 RFC3282
RFC2068: [PROPOSED STANDARD] obsoleted by RFC2616
RFC2069: [PROPOSED STANDARD] obsoleted by RFC2617
RFC2119: [BEST CURRENT PRACTICE] (-> BCP0014) ok
RFC2141: [PROPOSED STANDARD] ok
RFC2277: [BEST CURRENT PRACTICE] (-> BCP0018) ok
RFC2396: [DRAFT STANDARD] obsoleted by RFC3986
RFC2279: [DRAFT STANDARD] obsoleted by RFC3629

Informational References:
REC-PICS-labels-961031: [REC] ok
RFC1807: [INFORMATIONAL] ok
RFC2026: [BEST CURRENT PRACTICE] (-> BCP0009) ok
RFC2291: [INFORMATIONAL] ok
RFC2376: [INFORMATIONAL] obsoleted by RFC3023
RFC2413: [INFORMATIONAL] ok
USMARC: not checked
WF: not checked
```

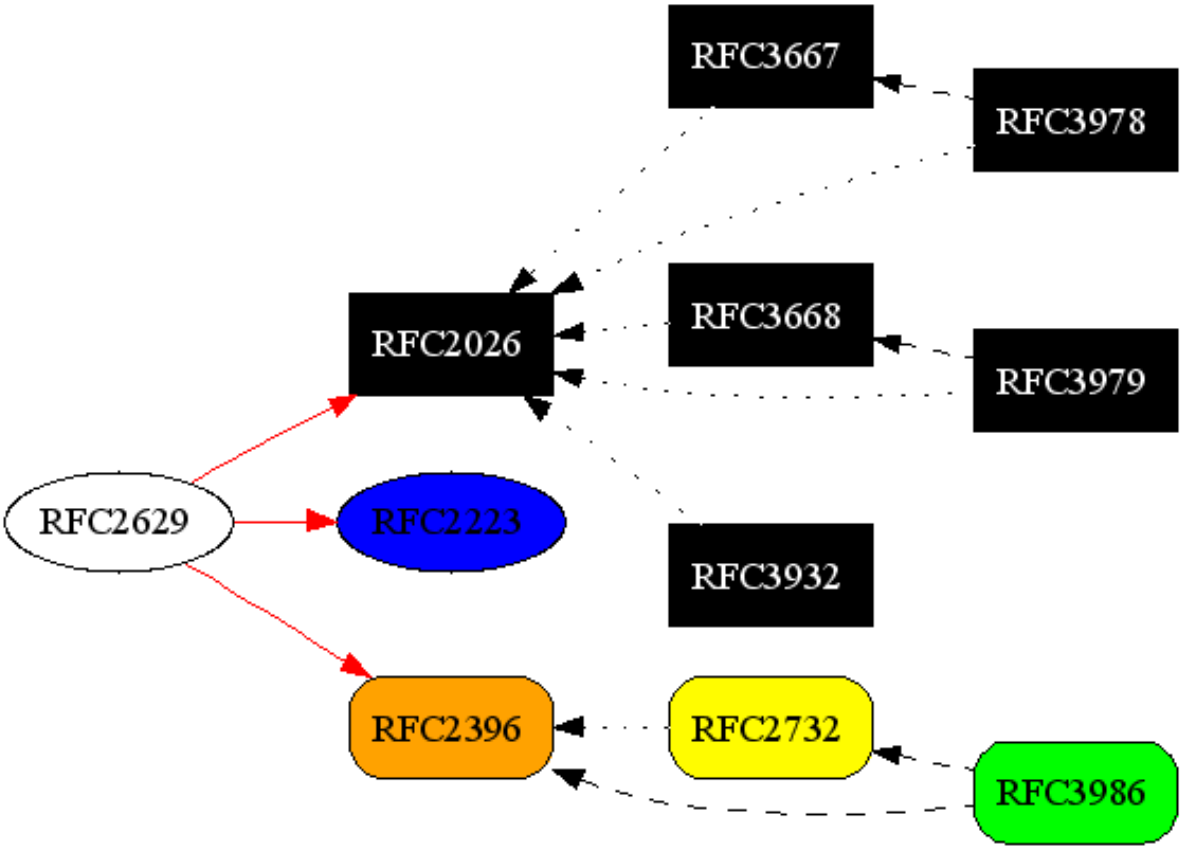
Recognized formats in the <seriesInfo> element are:

- for RFCs, the name attribute must be "RFC", and the value attribute must be the number of the RFC,
- for Internet Drafs, the name attribute must be "ID" or "Internet-Draft", and the value attribute must be the file name of the draft (including the two-digit running number, but excluding a file extension),
- for W3C documents, the name attribute must be "W3C", must start with "W3C ", or must start with "World Wide Web Consortium ", and the value attribute must be the "shorthand" name of the specification, such as "REC-xml-19980210".

11.2 Generating Graphs from References

`gen-reference-graph.xslt` generates a graph of RFC dependencies, using the same base data as in `check-references.xslt` (see Section 11.1). Its output is a "dot" file, to be processed by GraphViz (see <http://www.graphviz.org/>).

The picture below shows the RFC dependencies in RFC2629.



11.3 Producing reference entries for books

`amazon-asin.xslt` uses the Amazon web services to generate a <reference> element for a given ASIN (ISBN).

For instance:

```
<?xml version="1.0" encoding="utf-8"?>
<references>
 <reference target="urn:isbn:0134516591">
   <front>
     <title>Simple Book, The: An Introduction to Internet Management,
               Revised Second Edition</title>
     <author surname="Rose"
               fullname="Marshall T. Rose" initials="M. T. ">
       <organization/>
     </author>
     <author surname="Marshall"
               fullname="Rose T. Marshall" initials="R. T.">
       <organization/>
     </author>
     <date year="1996" month="March"/>
   </front>
   <seriesInfo name="Prentice Hall" value=""/>
 </reference>
</references>
```

Note that the resulting XML usually requires checking, in this case Amazon's database is playing tricks with Marshall's name...

11.4 Down-converting to RFC2629bis DTD

`clean-for-DTD.xslt` can be used to down-convert some extensions to a format that is supported by the base xml2rfc distribution. Note that these extensions are experimental (feedback appreciated).

The following mappings are done:

- <iref> elements inside <artwork> elements are moved in front of the enclosing <figure> element.
- <xref> elements inside <artwork> are expanded just like in regular text (that is, the markup is stripped, but the element is replaced by the applicable replacement text).
- <x:anchor-alias> elements get stripped.
- <x:bcp14> elements get stripped.
- <x:bb>, <x:bc> and <x:bt> elements get stripped.
- <x:blockquote> elements get converted to indented text (through a <list> element).
- <x:dfn> elements get stripped.
- <x:h> elements get stripped.
- <x:link> elements get stripped.
- <x:q> elements get stripped, with apostrophes added around the text.
- <x:ref> elements get replaced by <xref> elements, targetting either the anchor or another anchor with matching <x:anchor-alias> child element.

11.5 Extracting artwork

With `extract-artwork.xslt`, artwork elements named through the "name" attribute can be extracted. This can be used to automatically check their syntax (for instance, when ABNFs appear within a figure element).

For instance:

```
saxon rfc3986.xml extract-artwork.xslt name=uri.abnf
```

In addition, artwork of a specific type can be extracted, such as with:

```
saxon rfc3986.xml extract-artwork.xslt type=abnf
```

11.6 GRRDL

`rfc2629grddl.xslt` extracts RDF information. This is experimental work-in-progress. See <http://www.w3.org/TR/grddl/> for more information.

12 Informative References

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

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[RFC2629] Rose, M.T., "Writing I-Ds and RFCs using XML", RFC 2629, June 1999.

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[RFC5234] Crocker, D., Ed. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", STD 68, RFC 5234, January 2008.

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[XSL-FO] Berglund, A., "Extensible Stylesheet Language (XSL) Version 1.1", W3C REC-xsl11-20061205, Dec 2006, <http://www.w3.org/TR/2006/REC-xsl11-20061205/>.

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A. RELAX NG Compact Schema

The RelaxNG schema ([RNC]) below can be used to validate input documents (for instance, with Jing [25]).

Note that this is work in progress, and doesn't yet cover all extensions completely.

```
                # WORK IN PROGRESS! PLEASE REPORT PROBLEMS TO THE AUTHOR.

                # Define our extension namespace
namespace x = "http://purl.org/net/xml2rfc/ext"

# Define GRDDL namespace
namespace grddl = "http://www.w3.org/2003/g/data-view#"

# Include rfc2629bis RNC grammar
include "rfc2629.rnc" {

  # Redefine <artwork> to allow markup
  artwork =
    element artwork {
      attlist.artwork,
      (TEXT
        | eref
                | iref
                | spanx
                | xref
                | x_bb
                | x_bc
                | x_bt
                | x_length-of
                | x_ref
                | x_span
                | x_x
                )*
    }

  # Redefine <c> to allow our extension elements
  c =
    element c {
      attlist.c,
      (TEXT
        | xref
        | eref
        | iref
```

[25] http://www.thaiopensource.com/relaxng/jing.html

```
      | cref
      | spanx
      | x_ref
            )*
  }

# Redefine <cref> to allow more child elements
cref =
  element cref {
    attlist.cref,
    (TEXT
      | eref)*
  }

# Redefine <list> element to allow <x:lt> child elements
\list =
  element list {
    attlist.list,
    (t+ | x_lt+)
  }

# Redefine <preamble> to allow our extension elements
preamble =
  element preamble {
    attlist.preamble,
    (TEXT
      | xref
      | eref
      | iref
      | cref
      | spanx
      | x_anchor-alias
            )*
  }

# Redefine <postamble> to allow our extension elements
postamble =
  element postamble {
    attlist.postamble,
    (TEXT
      | xref
      | eref
      | iref
      | cref
      | spanx
      | x_bcp14
            )*
  }

# Redefine <reference> to allow our extension elements
reference =
  element reference {
    attlist.reference,
    front,
    seriesInfo*,
    format*,
    annotation*,

                x_source?
  }

# Redefine <rfc> to allow our extension elements
rfc =
  element rfc {
    attlist.rfc,
```

```
                x_link*,

                x_assign-section-number*,
    front,
    middle,
    back?
  }

# Redefine <section> to allow our extension elements
section =
  element section {
    attlist.section,
    (t
     | figure
     | texttable
     | iref
     | section
     | x_anchor-alias

             | x_blockquote
             )*
  }

# Redefine <spanx> to allow some markup
spanx =
  element spanx {
    attlist.spanx,
    (TEXT
      | iref

             | xref

             | x_ref
             )*
  }

# Redefine <t> to allow our extension elements
t =
  element t {
    attlist.t,
    (TEXT
     | \list
     | figure
     | xref
     | eref
     | iref
     | cref
     | spanx
     | vspace
     | x_anchor-alias

             | x_bcp14

             | x_dfn

             | x_h

             | x_q
```

```
                | x_ref
                )*
    }
}

# Extend attribute set for <iref> (see Section 10.15)
attlist.iref &=
  attribute x:for-anchor { ATEXT }?

# Extend attribute set for <list> (see Section 10.16)
attlist.list &=
  attribute x:indent { ATEXT }?

# Extend attribute set for <preamble>
attlist.preamble &=
  attribute anchor { xsd:ID }?

# Extend attribute set for <rfc>
attlist.rfc &=
  attribute grddl:transformation { ATEXT }?

# Extend attribute set for <section> (see Section 10.17)
attlist.section &=
  attribute x:fixed-section-number { ATEXT }?

# Allow anchor attribute on <spanx>
attlist.spanx &=
  attribute anchor { xsd:ID }?

# Extend attribute set for <xref> (see Section 10.18)
attlist.xref &=
  attribute x:fmt  { "()" | "," | "anchor" | "of" | "number" | "sec" |
                     "none" }?,
  attribute x:rel  { ATEXT }?,
  attribute x:sec  { ATEXT }?




# Aliasing of anchors (see Section 10.1)

               x_anchor-alias =
  element x:anchor-alias {
    attribute value { TEXT },
    empty
  }




# Setting section numbers for internally generated sections
# (experimental)

               x_assign-section-number =
  element x:assign-section-number {
    attribute builtin-target { "authors" },
    attribute number { TEXT },
    empty
  }
```

```
# Bottom line of box drawing (see Section 10.3)

                x_bb =
  element x:bb {
    (TEXT
      | iref
      | xref
      | x_bb
      | x_bc
      | x_bt
      | x_ref)*
  }



# Center line of box drawing (see Section 10.4)

                x_bc =
  element x:bc {
    (TEXT
      | iref
      | xref
      | x_bb
      | x_bc
      | x_bt
      | x_ref)*
  }



# BCP14/RFC2119 keywords (see Section 10.2)

                x_bcp14 =
  element x:bcp14 {
    "MAY"
    | "MUST"
    | "MUST NOT"
    | "NOT RECOMMENDED"
    | "OPTIONAL"
    | "RECOMMENDED"
    | "REQUIRED"
    | "SHALL"
    | "SHALL NOT"
    | "SHOULD"
    | "SHOULD NOT"
  }



# Blockquote (see Section 10.5)

                x_blockquote =
  element x:blockquote {
    attribute cite { URI }?,
    t+
  }
```

```
# Top line of box drawing (see Section 10.6)

                x_bt =
  element x:bt {
    (TEXT
      | iref
      | xref
      | x_bb
      | x_bc
      | x_bt
      | x_ref)*
  }



# Definition (see Section 10.7)

                x_dfn =
  element x:dfn {
    (TEXT
      | iref)*
  }



# Heading (see Section 10.8)

                x_h =
  element x:h {
    TEXT
  }



# Length Measurement (see Section 10.9)

                x_length-of =
  element x:length-of {
    attribute indented { NUMBER }?,
    attribute target { xsd:IDREF },
    empty
  }



# Link (see Section 10.10)

                x_link =
  element x:link {
    attribute href { URI },
    attribute title { TEXT }?,
    attribute rel { TEXT },
```

```
    empty
  }
```

```
# Extended list item (see Section 10.11)

                x_lt =
  element x:lt {
    attribute anchor { xsd:ID }?,
    attribute hangText { TEXT }?,
    t+
  }
```

```
# Inline quote (see Section 10.12)

                x_q =
  element x:q {
    TEXT
  }
```

```
# Anchor reference (see Section 10.13)

                x_ref =
  element x:ref {
    TEXT
  }
```

```
# source information (see Section 10.14)

                x_source =
  element x:source {
    attribute basename { ATEXT }?,
    attribute href { URI },
    empty
  }
```

```
# Inline Span

                x_span =
  element x:span {
    attribute anchor { xsd:ID }?,
    TEXT
  }
```

```
# Nop (for alignment in source)

                x_x =
  element x:x {
    empty
  }
```

B. Implementation Notes

B.1 Recognized type attributes for <artwork> element

Specific values in the <artwork> element's "type" attribute are recognized and cause a different visual style to be used:

Media Type	Comment
abnf	ABNF as per [RFC5234]
abnf2616	ABNF as per [RFC2616], Section 2.1
application/relax-ng-compact-syntax	Relax NG Compact Syntax as per [RNC]
application/xml-dtd	XML DTD
message/http; msgtype="request"	HTTP message, as per [RFC2616], Section 19.1
message/http; msgtype="response"	HTTP message, as per [RFC2616], Section 19.1

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D. Change Logs

D.1 Package

2006-01-01	Switch to BSD License.
2007-01-12	Update to xml2rfc v1.33pre2.
2007-03-31	Update to xml2rfc v1.33pre3.
2007-05-01	Add XSLT test cases.

D.2 amazon-asin.xslt

2003-11-16	Initial release.
2005-04-02	Fix two DTD issues.

D.3 check-references.xslt

2003-11-16	Initial release.
2003-11-16	Initial release.
2004-05-11	Add document status; print references type.
2005-01-01	Add experimental check for ID status.
2005-04-01	Add fixes from Bill Fenner.
2005-12-03	Add checks against local copy of <http://www.w3.org/2002/01/tr-automation/tr.rdf>.
2006-07-22	Add checks for standards levels.
2006-08-06	"check-ietf-references.xslt" replaced by "check-references.xslt".
2007-01-04	Use information online at <http://tools.ietf.org/> to retrieve Internet-Draft status information.
2007-06-16	Fix bug looking up ref type when inside change markup.

D.4 gen-reference-graph.xslt

2006-09-03	New.
2007-06-07	Use Carlisle method [26] to define exslt:node-set in msxsml (which means that the stylesheet can now be used with MSXML as well).
2007-10-15	Use W3C data from tr.rdf as well (experimental).

D.5 rfc2629.xslt

2001-03-28	Code rearranged, generate numbered section anchors for paragraphs (t) as well. Fixes in index handling.
2001-04-12	Moved HTML output into XHTML namespace.
2001-10-02	Fixed default location for RFCs and numbering of section references. Support ?rfc editing processing instruction.
2001-10-07	Made telephone number links active.

[26] http://dpcarlisle.blogspot.com/2007/05/exslt-node-set-function.html

2001-10-08	Support for vspace element.
2001-10-09	Experimental support for rfc-issue PI.
2001-11-11	Support rfc private PI. Removed bogus code reporting the WG in the header.
2001-11-11	Support rfc private PI. Removed bogus code reporting the WG in the header.
2001-12-17	Support title attribute on references element
2002-01-05	Support for list/@style="@format"
2002-01-09	Display "closed" RFC issues as deleted
2002-01-14	Experimentally and optionally parse XML encountered in artwork elements (requires MSXSL).
2002-01-27	Some cleanup. Moved RFC issues from PIs into namespaced elements.
2002-01-29	Added support for sortrefs PI. Added support for figure names.
2002-02-07	Highlight parts of artwork which are too wide (72 characters).
2002-02-12	Code rearrangement for static texts. Fixes for section numbering. TOC generation rewritten.
2002-02-15	Support for irefs in sections; support iref @primary=true
2002-03-03	Moved anchor prefix into a constant. Added sanity checks on user anchor names.
2002-03-23	Bugfix in detection of matching org names when creating the header. Fixed sorting in subitems.
2002-04-02	Fix TOC link HTML generation when no TOC is generated (created broken HTML table code).
2002-04-03	Made rendering of references more tolerant re: missing parts.
2002-04-08	Fixed reference numbering when references are split into separate sections.
2002-04-16	Fix default namespace (shouldn't be set for HTML output method).
2002-04-19	Lowercase internal CSS selectors for Mozilla compliance. Do not put TOC into ul element.
2002-04-21	Make numbered list inside numbered lists use alphanumeric numbering.
2002-05-05	Updated issue/editing support.
2002-05-15	Bugfix for section numbering after introduction of ed:replace
2002-06-21	When producing private documents, do not include document status, copyright etc.
2002-07-08	Fix xrefs to Appendices.
2002-07-19	Make artwork lightyellow for easier reading. (fielding)
2002-10-09	Translate references title to anchor name to avoid non-uri characters. (fielding)
2002-10-13	Support for tocdepth PI.
2002-11-03	Added temporariry workaround for Mozilla/Transformiix result tree fragment problem. (search for 'http://bugzilla.mozilla.org/show_bug.cgi?id=143668')
2002-12-25	xref code: attempt to uppercase "section" and "appendix" when at the start of a sentence.
2003-02-02	fixed code for vspace blankLines="0", enhanced display for list with "format" style, got rid of HTML blockquote elements, added support for "hangIndent"
2003-04-10	experimental support for appendix and spanx elements
2003-04-19	fixed counting of list numbers in "format %" styles (one counter per unique format string). Added more spanx styles.
2003-05-02	experimental texttable support
2003-05-02	Make mailto links optional (default = none) (jre: default and PI name changed) (fielding)

2003-05-04	experimental support for HTML link elements; fix default for table header alignment default
2003-05-06	support for "background" PI.
2003-05-11	change %c format to lowercase alphabetic. add support for keyword elements (generate META tag). fix various HTML conformance problems. added experimental support for role attribute. do not number paragraphs in unnumbered sections. update boilerplate texts. support for "iprnotified" PI. bugfix list numbering. strip whitespace when building tel: URIs.
2003-05-12	more conformance fixes (layout moved into CSS, move lists and figures out of para content, do not use tables for list formatting)
2003-05-13	add DC.Creator meta tag, refactoring
2003-05-16	put nbsps between "section" and section number (xref).
2003-05-18	author summary: add missing comma.
2003-06-06	fix index generation bug (transposed characters in key generation). Enhance sentence start detection (xref starting a section was using lowercase "section").
2003-06-22	exp. support for xref/@format. Add missing support for eref w/o content. exp. support for annotations in reference elements. Code cleanup reference table formatting.
2003-07-09	Another fix for DC.Creator meta tag creation based on RFC2731
2003-07-24	Fix namespace name for DC.Creator.
2003-08-06	Cleanup node-set support (only use exslt (saxon, xalan, libxslt) extension functions; remove Transformix workarounds that stopped to work in Moz 1.4)
2003-08-09	Generate HTML lang tag.
2003-08-10	Map spanx/verb to HTML "samp" element. Fix author name display in references (reverse surname/initials for last author), add "Ed.". Fix internal bookmark generation.
2003-08-17	Add DCMI dates, identifiers and abstract. Add PI to suppress DCMI generation. Do not add TOC entry to Copyright Statement when there is none. Align RFC2629 PI names and parameter names. Change style for inline URIs generated by eref. Add header and footer support. Enhance CSS paging properties. Support topblock PI. Added hooks for proper XHTML generation through separate XSLT. Enhance warning and error messages. Add support for artwork image display. Table formatting fixes (borders, thead continuation).
2003-08-18	Add workaround for MSXML4 node-set and Mozilla node-set issues (fallback just displays are warning).
2003-10-06	Add workaround for broken pre/ins handling in Mozilla (see <http://bugzilla.mozilla.org/show_bug.cgi?id=204401>). Make use of cite attribute on ed:replace. CSS cleanup.
2003-10-08	Fix minor issue detecting the same org for the header (caused by IE's non-standard whitespace handling). Fix default handling for /rfc/@category.
2003-11-09	Inherit ed:entered-by from ancestor elements. Change CSS color for inserted text to green. Generate issues-list anchor. Do not complain about missing targets when the xref element is below ed:del. Remove code that attempted to distinguish section/Section when producing links - always use uppercase. Fix date rendering for issue resolutions.
2003-11-29	Fix color values for table backgrounds for issue rendering. Change rendering of issue links to use inline-styles. Add colored issue markers to issues.
2003-12-13	Fix inheritance of ed:entered-by attribute. Display note elements inside change tracking as well.
2004-01-18	When PI compact = 'yes', make most CSS print page breaks conditional.
2004-02-20	Support for RFC3667 IPR changes (xml2rfc 1.22); see <http://lists.xml.resource.org/pipermail/xml2rfc/2004-February/001088.html>.
2004-03-11	Add "(if approved)" to "updates" and "obsoletes" unless the document has an RFC number.

2004-04-01	Fix RFC3667 output, see <http://lists.xml.resource.org/pipermail/xml2rfc/2004-April/001208.html>.
2004-04-04	Add support for section/top attribute. Move references into plain section container.
2004-04-06	Do not emit identical para anchors for deleted content.
2004-04-14	Fix references TOC generation when there are no references.
2004-04-24	Fix RFC3667 output, see <http://xml.resource.org/pipermail/xml2rfc/2004-April/001246.html>.
2004-05-09	Add custom support for generating compound index documents. Add anchors for each Index letter. Add experimental cref support. Fix conditional page breaks before References section.
2004-05-16	Refactor external index generation.
2004-05-20	Rewrite anchor generation for comments.
2004-05-22	Enhance issues rendering (add links to changes).
2004-05-30	Allow single quote as delimiter in processing instructions as well. Move block-level issue pointers to floats. Disable issue pointers for print media. Add "purple numbers". Add hrefs to section headings. Add non-printing index key letter list to start of index.
2004-06-01	Use ¶ instead of # for PNs.
2004-07-18	Add support for list style=letters (thanks Roy F.). Make PNs optional; add new PI.
2004-09-05	Fix index links into unnumbered sections. Bring IPR boilerplate in-line with xml2rfc 1.25. Add experimental CSS3 paged media support. Various HTML fixes.
2004-09-21	Enhance checking of artwork width.
2004-09-26	Add check for unused references. Uppercase letters in list style letters when nested into another list.
2004-10-10	Fix internal change track pointers.
2004-11-01	Allow change tracking on references (as a whole). Rewrite artwork handling so that it allows change tracking inside artwork. Also allow a subset of text markup inside artwork, such as xrefs (note this requires post-processing the source to make it compliant to RFC2629bis).
2004-11-03	Enhanced placement of iref anchors.
2004-11-06	Index: display irefs that appeared (with primary=true) inside artwork elements in a monospaced font.
2004-11-14	Add special code so that changes in section titles can be change-tracked.
2005-01-14	Bugfixes for HtmlToXhtml converter.
2005-01-22	Enhance generation of HTML h* elements (for Mozilla Outliner).
2005-01-31	Put vertical space around top-level TOC entries in TOC. Switch to pt-based CSS. Re-arrange top section. Make hr elements reflect new-page settings in TXT output (compact-PI). Fix page number in footer (CSS print) and add some more experimental support for paged media (tested with Prince 4.1 alpha). Rewrite TOC and Index generation to generate HTML lists. Cleanup id generation for paragraphs. Reduce whitespace in output. Fix vspace implementation. Use right/left dqoutes and copyright sign where appropriate.
2005-02-04	Add <link> element to references section. Fix newly introduced bug in references processing.
2005-02-05	Integrate various fixes/enhancements by Roy Fielding: spelling of "Authors' Addresses", comma setting in references, position of "Authors" section, optionally place authors addresses at end (PI), trailing dots in section numbers, switch to verdana default font in CSS. Add experimental support for centered artwork.

2005-02-09	Fixes in spacing and links of references section titles. Enhance sorting in references when change tracking is in place. Re-add figure centering support. Add missing 2nd part of "Author's Adresses" fix.
2005-02-25	Align section number format with xml2rfc1.29.
2005-03-28	Get rid of table elements in Author's section. Add experimental hCard (<http://developers.technorati.com/wiki/hCard>) support.
2005-04-03	Add RFC3978-style IPR statement support. (fenner@research.att.com)
2005-04-11	Cleanup author display. hCard related fixes.
2005-05-07	Minor fixes to allow change tracking in doc title. Add experimental support for table border styles. CSS cleanup.
2005-06-18	Implement missing support for references to texttables.
2005-09-25	Use (-moz-)column-count when printing the index.
2005-10-04	Report missing element templates with xsl:message.
2005-10-15	Process t/@anchor.
2005-10-23	More workarounds for Mozilla's broken del/ins handling (this time for figures).
2005-10-27	lowercase hCard class names
2005-11-22	Enhance diagnostics for XML-in-artwork extension
2005-11-26	Fix formatting of section numbers for sections inserted into <back>.
2005-12-12	Fix some validity problems when change tracking occured inside lists.
2005-12-18	Add change tracking inside the index.
2006-02-04	Add prev/next links to highlighted changes (change tracking extension).
2006-02-10	Catch errors instantiating MSXML component.
2006-02-11	References: add "work in progress" for Internet Drafts.
2006-02-27	Fix front matter (lowercase Internet-Draft, say "Intended status" for non-RFC documents). Start work on experimental extension for simplified internal links.
2006-03-19	Tweaks to IESG Copyright stuff; support submissionType attribute. Fix duplicate reference anchors in HTML output. Reduce HTML Tidy warnings. Fix reference to normative ASCII version (now requires trailing ".txt"). Tweaks to hCard generation. Started to move non-issue-tracking extensions into namespace "http://purl.org/net/xml2rfc/ext".
2006-03-27	Moved "simple reference" extension into namespace "http://purl.org/net/xml2rfc/ext" and add documentation. HTML conformance enhancements.
2006-04-02	Cleanup special code for automated XHTML XSLT generation.
2006-04-21	Generate <CITE> elements where appropiate. Introduce x:blockquote, x:dfn, x:h and x:q elements.
2006-05-06	Introduce x:bcp14 element.
2006-05-14	Fix content model for x:blockquote.
2006-06-18	Add box drawing support (x:bt, x:bc, x:bb).
2006-06-20	HTML validity fixes (legal chars in anchors in index).
2006-06-24	Reduce leading empty lines in artwork. Move <dt> style info into CSS.
2006-07-14	Fix rendering of multiple street address entries (missing line break).
2006-07-24	Add extension for deep linking into RFCs, do not generate empty list items in TOC output, avoid empty <dt> elements for list items without hangText attribute.
2006-08-01	Allow @anchor on more elements; start work on Relax NG grammar for extensions. Reduce generated style elements (use CSS classes instead). Consistently use "id" instead of

	"name". Change default target for RFC links to "http://tools.ietf.org/html/rfcNNNN".
2006-08-06	Include appendices defined in <appendix> elements in TOC (please consider them deprecated anyhow!). Generate links to "http://tools.ietf.org/html/draft-*" for Internet Drafts. Replace x:frag by x:rel, allowing any kind of relative reference instead of just fragments.
2006-08-30	Reduce textual differences between HTML output and what xml2rfc produces in TXT output mode (section refs/reference targets). Add small workaround for Opera 9.0.1's problem with node-set().
2006-10-29	Fix problem generating internal links to change markup within references section. Enhancements when generating numbered references for deleted references. Allow inclusion of references into the index (through include-references-in-index extension). Fix a bug that caused the newer version of the IETF boilerplate to be produced rather than the pre-RFC3667 one. Update to RFC4287 boilerplate.
2006-11-11	Add extension attribute x:for-anchor to <iref> handling.
2006-11-26	Experimental (and limited) support for <x:lt>.
2006-12-04	Fix bugs in processing documents that have both the ipr and the number attribute set on the rfc root element. Add support for x:fmt='none' on xrefs. Add different pre style based on artwork type attributes (experimental).
2006-12-13	Add x:fmt='anchor' for xref elements.
2007-01-07	Fix root template for compatibility for the exslt:node-set implementation in Firefox3.
2007-01-29	Avoid empty table entry in front matter when organization is not specified for an author.
2007-02-10	Allow change tracking in table rows.
2007-03-09	Add hcard profile URI (<http://www.w3.org/2006/03/hcard>) to head element. Add warning for misplaced <t> elements (after section).
2007-03-21	Fix internal linking from reference entries in index for some xref types. Minor CSS tweaks contributed by MTR. Allow turning on text justification through a PI. Improve iref anchor generation to generate less instable anchors.
2007-03-28	Fixes for numbering of ed:inserted references sections.
2007-05-04	Do not generate anchors for edits in deleted sections. Enhance HTML conformance.
2007-05-19	Enhance diagnostics when using Saxon (needs Saxon's "-l" command line parameter to keep line number information). Add warning when symref PI is missing (default will change in the future). Add support for overriding computed section numbers (when formatting historic documents).
2007-06-07	Change default for symrefs PI to "yes" (see change in xml2rfc 1.33pre4). Warn about docName attributes that appear to contain a file extension.
2007-06-26	Workaround author/@initials values without trailing dot, as in xml2rfc.tcl.
2007-07-14	Enhance index generation for references that use @x:sec attribute.
2007-09-09	Fix: sortrefs is a nop when symrefs=no.
2007-10-17	Work in progress: add support for referencing sections in sibling documents by anchor name.
2007-10-17	Work in progress (continued): support for referencing sections in sibling documents by anchor name.
2007-12-31	Emit warning when updating/obsoleting stuff that's not referenced.
2008-02-03	Support xml2rfc-1.33pre5's suppress-title attribute on texttable and figure.
2008-02-06	Extension: allow <eref> below <cref>.
2008-02-17	Extensions: add x:span and x:length-of.

2008-02-20	Add new RFC boilerplate (as changed in 2007-08).
2008-02-27	Improve diagnostics for artwork width problems; add defaulting of publication dates (requires XSLT processor supporting exslt:date, or msxml).
2008-02-29	Enhance CSS for link elements in the front header, update rules for generating "Acknowledgment" statement.
2008-03-01	Use line numbers in diagnostics in Saxon8/9 as well.
2008-03-02	Fix a bug in the logic choosing the boilerplate, resulting in obsolete text being inserted into IDs.

D.6 rfc2629toFO.xslt

2003-11-16	Initial release.
2003-11-29	Enhance handling of unknown list styles.
2004-04-04	Update reference section handling.
2004-04-17	Use XSL-WD-1.1-style fo:bookmark and index handling and add postprocessors for existing implementations. Unify PDF info generation by using XEP (postprocessors) will convert.
2004-04-20	Add experimental cref support.
2004-06-14	Set correct index-item defaults.
2004-07-18	Add list style=letters.
2004-09-03	Make URLs in text break where they are allowed to break by inserting zero-width spaces.
2004-09-26	Fix letter-style inside nested lists.
2004-10-31	Update handling of artwork.
2004-11-13	Fix handling of references inside ed:* markup. Fix whitespace handling in artwork.
2004-11-27	Irefs in artwork generate monospaced entries in index.
2005-01-31	Fix TOC generation that was broken after changes in main XSLT.
2005-02-05	Bring in sync with cosmetic changes in rfc2629.xslt.
2005-05-07	Minor fix for change tracking in document title. Support for table styles.
2005-06-18	Fix references to tables.
2005-10-15	Process t/@anchor.
2006-02-11	References: add "work in progress" for Internet Drafts.
2006-06-02	Use XSL 1.1 WD Feb 2006.
2007-03-21	Support optional text justification.
2007-05-19	Various improvements in spacing; also allow overriding the automatic list indentation via list/x:indent.

D.7 xsl11toAn.xslt

2004-05-17	Initial release.
2006-06-02	Use XSL 1.1 WD Feb 2006.

D.8 xsl11toFop.xslt

2004-05-17	Initial release.
2006-06-02	Use XSL 1.1 WD Feb 2006.

D.9 xsl11toXep.xslt

2004-05-17	Initial release.
2004-09-04	Fix xep:index-item attributes.
2006-06-02	Use XSL 1.1 WD Feb 2006.

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