The Internet Society

on behalf of

The IETF Administrative Oversight Committee

<u>**REQUEST FOR PROPOSALS**</u>

for

Software Development of XML2RFC Tool

Date of Issuance: February 11, 2011
Proposal Submission Deadline: February 28, 2011 no later than 5:00 P.M. EST

IETF Request for Proposals

Software Development of XML2RFC Tool

The Internet Society ("ISOC") on behalf of the IETF Administrative Oversight Committee (IAOC) is soliciting this Request for Proposals ("RFP") to develop the xml2rfc tool. Those submitting a Proposal ("Vendor") shall do so in accordance with this RFP.

I.   Introduction

The Internet Engineering Task Force (IETF) desires to provide mission-critical tools to IETF participants in support of its standards development efforts. Currently there is an xml2rfc tool that has been developed and maintained in Tcl. The tool is used by authors to compose Internet-Drafts and by the RFC Production Center to produce RFCs. This xml2rfc tool is often accessed from http://xml.resource.org/. This development effort is intended to produce an xml2rfc tool that uses the same input format with a few enhancements, is easy to install on a personal machine, and is easier to maintain and enhance in the future.

II.   Instructions and Procedures

A.   Submissions

Proposals must be received via email at rpelletier@isoc.org no later than February 28, 2011 at 5:00 P.M. EST.

Vendor assumes all risk and responsibility for submission of its Proposal by the above deadline. ISOC shall have no responsibility for non-receipt of Proposals due to network or system failures, outages, delays or other events beyond its reasonable control.

Vendor may submit more than one proposal if they wish to present more than one approach to providing the new xml2rfc tool.

All Proposals shall become the property of the Internet Society.

B.   Questions and Inquiries

Any inquiries regarding this RFP must be submitted in writing to the email address listed in II.A above. Other than such inquiries, Vendors are prohibited from contacting any person or institution involved in the selection process concerning this RFP.

All questions/inquiries must be submitted in writing and must be received no later than midnight EST on February 18, 2011.

Responses to questions and inquiries shall be posted on the IAOC website, http://iaoc.ietf.org/rfpsrfis.html, by midnight EST on February 22, 2011.

C. Addenda and Updates

Any addenda and updates to this RFP shall be posted on the IAOC website, http://iaoc.ietf.org/rfpsrfis.html. The RFP addenda and update deadline is February 22, 2011. Each Vendor is responsible for checking the IAOC website prior to submission of any Proposal to ensure that it has complied with all addenda and updates to this RFP.

D. Selection Criteria

Each Proposal must specifically address each of the selection criteria listed in Section III.B, and each proposal must use the format provided in Section IV.A. Each Proposal should also be accompanied by any technical or product literature that the Vendor wishes the IAOC and the Internet Society to consider.

The IAOC will seek to enter into a contract with a Vendor that the IAOC deems, in its sole discretion, to represent the best value combination of performance and cost, not necessarily the low bidder.

E. Cancellation; Rejection

The Internet Society reserves the right to cancel this RFP, in whole or in part, at any time. The IAOC may reject any or all Proposals received in response to this RFP in its sole discretion. The Internet Society makes no guarantee or commitment to purchase, license or procure any goods or services resulting from this RFP.

F. Costs and Expenses

Each Vendor is responsible for its own costs and expenses involved in preparing and submitting its Proposal and any supplemental information requested by the IAOC. The Internet Society shall not reimburse any such costs or expenses.

G. Public Information

The IETF is a community committed to transparency in the manner in which it conducts its operations. Accordingly, the following principles will apply to the Proposal and negotiations:

The names of all Vendors submitting Proposals may be announced publicly, but the Proposals and individual negotiations with Vendors will not be publicly announced.

Any Agreement negotiated with a Vendor, excluding cost, will be made public after execution.

H.   Intellectual Property Rights

All work performed, all software and other materials developed by the Vendor under the Agreement, shall be "works for hire" and shall be owned exclusively by the IETF Trust, and the Vendor shall not obtain or retain any rights or licenses from any work.

I.   Relationships

Describe any relationship between your company, or any parent, subsidiary or related company, or any director or officer of any of them, with the Internet Society, IAOC, IETF, IETF Trust, or any employee, director, officer or consultant of any of them.

J.   Process Modification

1. In the case where responses to this RFP fail to meet the basic requirements defined herein, the IAOC reserves the right to modify this RFP process.

2. The IAOC may choose to re-open the RFP or to enter into further negotiations with one or more of the Vendors if the situation warrants at the discretion of the IAOC.

III.   Selection

A.   Selection Procedure

1. The IAOC will or will cause the review and evaluation of each proposal to determine if the Vendor is qualified.
2. The IAOC will contact references.
3. The IAOC will conduct interviews and may require oral presentations.
4. Requests for clarity may be made of the Vendor.
5. Qualified Vendor will be notified of their selection for advancement to the negotiation phase by March 4, 2011.

B.   Selection Criteria as Judged by the IAOC

The IAOC must have confidence in the Vendor - its qualifications, experience, capabilities, personnel, timely performance, and professionalism. To that end the IAOC will evaluate the following to inform its decision:

1. Vendor Qualifications and Experience performing similar services
2. Key Personnel qualifications
3. Vendor Ability to Meet Requirements
4. Proposal as a reflection of the Vendor's understanding of the Supported Organizations, their processes, culture, and the scope of work and methodologies
5. Oral presentation, if conducted
6. Cost to furnish the services in USD; note that the lowest cost offer will not necessarily be awarded a contract

C.   Schedule

The IAOC intends to process this RFP in accordance with the following schedule:

Projected Schedule of Events	
Date	**Action**
11 Feb 2011	RFP Issued
18 Feb	Questions and Inquiries deadline
22 Feb	Answers to questions issued
22 Feb	RFP Addenda & Update issued
28 Feb	Proposals due
3 Mar	Negotiations Begin
17 Mar	Contract Award
23 May (or sooner)	Tool Delivery Target

IV.   Proposal Format

A.   Proposal Submissions

Proposals shall be submitted using the following format:

1. Executive Summary
2. Project Approach & Plan
    2.1. Method
    2.2. Requirements management
    2.3. Communication channels
    2.4. Quality assurance
    2.5. Project plan
    2.6. Version control
    2.7. Language(s) for software development
3. Schedule
4. Test Plan
    4.1. Overview
    4.2. Test types
    4.3. Test levels
    4.4. Testing strategies
    4.5. Detailed test plans
    4.6. Test reports
    4.7. Test responsibilities
    4.8. Test coverage
    4.9. Testing effort
    4.10. Test summary table
5. Cost & Payment Schedule
    5.1. Total cost
    5.2. Payment schedule and terms
6. Warranty & Late Delivery Consequence
    6.1. Warranty

6.2. Penalties for late delivery
7. Technical Support & Maintenance
8. Documentation
9. Experience, Qualifications and Accomplishments
10. Key Personnel Resumes
11. References (Two references attesting to performance)
12. Subcontractor Information (if any)
13. Assumptions
14. Intellectual Property
15. Miscellaneous

Attachment I
Statement of Work
for
xml2rfc Tool Development

Many people use the xml2rfc tool to compose Internet-Drafts, and the RFC Production
Center uses xml2rfc to compose RFCs. The xml2rfc tool is often accessed from
http://xml.resource.org/. This development effort is intended to produce an xml2rfc tool
that uses the same input format with a few enhancements, is easy to install on a personal
machine, and is easier to maintain and enhance in the future.

This Statement of Work for the xml2rfc tool can be accomplished in several ways. One
approach would gather several existing programs, including possibly nroff or groff, and
develop software that handles the xml2rfc input format and then calls upon the existing
programs as needed to complete the overall task. Another approach is to develop a single
program that handles the xml2rfc input format and does all of the processing. Both
approaches have pros and cons. The first approach may require less development time for
the basic tool, but a user-friendly installer may require more work due to the
dependencies. The second approach may require more development time for the basic
tool, but the installation will likely be more straightforward.

Each bid must describe the development approach that will be used, include the list of
existing programs that will be used, and describe how the xml2rfc tools will be installed
on Windows, Mac, and Linux. A bidder may provide one or more bid, one for each
approach that they are interested in proposing.

The python language is preferred for software development. Proposals that use other
languages will be accepted, but the proposal must explain why a language other than
python is desirable for the tasks proposed.

The xml2rfc tool created under this effort shall generate output comparable to the current
version xml2rfc.tcl with the current version of the DTD, fixes to the various issues that
have been filed in and resolved in the bug tracker, and the enhancements specified below.
To the greatest extent practical, the xml2rfc tools needs to accommodate changes by the
community to the DTD; several potential improvements are under discussion.

The current development version xml2rfc.tcl can be found at:
  http://trac.tools.ietf.org/tools/xml2rfc/trac/export/134/trunk/xml2rfc.tcl

The current development version of the DTD can be found at:
  http://trac.tools.ietf.org/tools/xml2rfc/trac/browser/trunk/rfc2629.dtd

The most recent version of a document to replace RFC 2629 can be found at:
  http://trac.tools.ietf.org/tools/xml2rfc/trac/browser/trunk/draft-mrose-writing-rfcs.html

A further description of the current tool, including a description of the XML processing
elements (PIs) supported by the current tool, can be found at:

http://trac.tools.ietf.org/tools/xml2rfc/trac/browser/trunk/README.txt

The bug tracker can be found at:
http://trac.tools.ietf.org/tools/xml2rfc/trac/report

Input files for testing can be found at:
http://trac.tools.ietf.org/tools/xml2rfc/trac/browser/archive

The new xml2rfc tool must properly process all of the testing input files.

During development, the winning bidder may come up with ideas to further improve the usability or maintainability of the xml2rfc tools. Such changes require the approval of the Project Manager, and this approval will not be given for any changes that impact the xml2rfc input without discussion on a mail list that includes many users of the xml2rfc tools. The winning bidder will be encouraged to participate in the mail list discussions.

The remainder of this Statement of Work includes three sections. The first section discusses xml2rfc processing. The second section describes required enhancements to the current xml2rfc tool. The third section describes the preferred nroff output, which is a bit different than the nroff output produced by the current xml2rfc tool.

1. Desired xml2rfc processing

Sample XML input is provided along with the output that is produced in each of the required formats. (See zip file with RFP at http://iaoc.ietf.org/rfpsrfis.html) The input file is not intended to test all xml2rfc features, but rather as illustration of the xml2rfc input and output formats.

The xml2rfc tools currently support historical boilerplate. The new xml2rfc tool shall continue to do so.

Non-well-formed XML should produce an error, but any well-formed XML input that represents the same XML Infoset (<http://www.w3.org/TR/xml-infoset/>) shall be supported.

The new xml2rfc tool will have five output modes:
1. paginated plain text with headers, footers, and page breaks;
2. unpaginated plain text without headers, footers, or page breaks;
3. nroff to produce paginated plain text making use of commands described below;
4. HTML conforming to W3C HTML 4.01 specification or later with support for XHTML, and including CSS paged media support for printing (the output should work in browsers supporting CSS 2.1, but should degrade well in browsers without CSS support); and
5. stand-alone XML with citation library reference elements and XML entities expanded.

Currently use of PI strict="yes" enforces IDnits conventions and DTD validity. Checking for DTD validity and other also for constraints not expressed in the DTD shall cause the input to be rejected with appropriate

error messages. The use of PI-based inclusion is not described by the DTD; however, using this capability should not cause the input to be rejected. In addition, since there is a stand-alone I-D nits checker available at http://www.ietf.org/tools/idnits/, there is no reason to incorporate the same checking into the new xml2rfc tool.

2. Enhancements to xml2rfc

Improved Error Messages
The improved xml2rfc tool must look for common errors in the input and report them to the user in a manner that aids error correction. These errors include, at a minimum, missing `</t>` and `</list>` closings, bad entity references, and improper order of an ordered element. Correct handling of XML input is of higher priority than error reporting, but this enhancement is in response to user feedback that the current xml2rfc tool error messages are often unhelpful in resolving problems.

Ability to Select Reference Element Anchor
Add the ability to use a reference element from the citation library, but assign it an anchor other than the one provided. This allows the author to use a nickname (such as "ABNF") for the anchor instead of an RFC number or I-D string (such as "RFC5234").

For example, while recognizing that these would be different if using ENTITYs instead of PIs to pull from the citation libraries:

```
<reference-alias anchor="ABNF">
  <?rfc include="reference.RFC.5234.xml" ?>
</reference-alias>

<reference-alias anchor="ICE">
  <?rfc include="reference.I-D.ietf-mmusic-ice.xml"
</reference-alias>
```

Note: this feature request requires a change of the vocabulary, so a detailed proposal must be discussed on the mail list before it is implemented as described above.

Check for Newer Version
When installed on a personal machine, the program shall include a feature that optionally checks for the availability of a newer version of xml2rfc. If an update is available, simple and clear instructions for fetching and installing the newer version shall be provided to the user.

Improved Documentation
Clear documentation on how to use xml2rfc shall be provided. The documentation shall include all built-in options, and how to deal with error conditions.

Clear documentation for installation on each platform shall be provided.

Line Breaks in Document Titles
Currently for plain text and nroff output, there is no way to explicitly insert a line break into a document title. That is, line breaks can only be controlled by inserting   and

&nbhy; instead of the spaces and hyphens, respectively. The new xml2rfc tool shall allow authors to insert line breaks in the title. For nroff output when this feature is used, .br shall appear in the nroff output to implement the line break.

One possible way to implement the feature is:

```
<title abbrev="ACAP Vendor Subtrees Registry"
 The Internet Assigned Number Authority (IANA)
 <?rfc break?> Application Configuration Access
 Protocol (ACAP) Vendor Subtrees Registry </title>
```

Note: this feature request requires a change of the vocabulary, so a detailed proposal must be discussed on the mail list before it is implemented as described above.

Citation library cache processing
There are citation libraries available from http://xml.resource.org/. The new xml2rfc tool may be configured to cache these locally. If xml2rfc determines that the local cache is more than a configurable time old, it would attempt to fetch the most recent citation libraries. Stale citation libraries may be used to facilitate extended off-line use of xml2rfc, and a user must be able to skip this check to avoid delays when not connected to the network. Further, the xml2rfc tool shall allow authors to easily configure a different location for fetching the citation libraries.

Personal citation library additions
The documentation for the new xml2rfc tool must describe the process for creating personal citations to reference documents that are not in the citation library, including Internet-Drafts that have not yet been added to the citation library. Users will declare the entity with a local (relative URI), and reference it as needed.

This enhancement will also require that the web server support allow a user to provide their personal citations library along with the currently provided XML file containing the document.

3. Preferred nroff output

The sample XML input and output files include files that demonstrate the difference between the nroff output produced by the current xml2rfc tool and the preferred output. The *current_output.nroff* file shows the nroff output produced by the current xml2rfc tool, and the *current_output.txt* file shows the plain text produced by that nroff. The *sample_output.nroff* file shows the preferred nroff output, and the *sample_output.txt* file shows the plain text produced by that nroff.

The RFC Production Center uses GNU nroff (groff) version 1.18.1. Using the xml2rfc tool to produce nroff output that is in turn processed as described in Section 20 of RFC 2223 shall produce the expected paginated plain text output.

The new xml2rfc tool shall produce nroff output that is paginated, includes a table of contents and, if defined, an index.

xml2rfc automatically performs the following formatting for nroff and plain text output:

- Adds 2 spaces after every period, except a period after a single letter (e.g. "This is Example A.[one space]") because it is interpreted as an initial.

xml2rfc automatically performs the following formatting of the nroff output:

- Inserts one or more \ or \\\\ before each \ (backslash), depending on where the backslash is being output. This is necessary for proper –ms macro processing.
- Inserts \& at the beginning of a line that begins with a period (.)
- Inserts \ before each apostrophe ('). These backslashes are only necessary before a single apostrophe that begins a new line or preceded by space characters, and the new xml2rfc may omit the unneeded backslashes.
- Inserts \0 when figures, tables, and sections are named by a number. For example, outputs Figure\01 and Section\05. This is not necessary: \0 should simply be a space.
- In the references section, \0 is inserted between each date element's month and year attributes, and between each seriesInfo element's name and value attributes. This is not necessary: \0 should simply be a space.
- Inserts .in 4 (or higher, based on the length of the section number) before section titles. (See description below.)

With this improvement, the xml2rfc output is adjusted as appropriate.

XML input:

```
<reference anchor="RFC2119">
   <front>
      <title>Key words for use in RFCs to Indicate
             Requirement Levels</title>
      <author initials="S." surname="Bradner" />
      <date month="March" year="1997" />
   </front>
   <seriesInfo name="BCP" value="14" />
   <seriesInfo name="RFC" value="2119" />
</reference>
```

The current xml2rfc produces this nroff output:

```
[RFC2119]  Bradner, S., "Key words for use in RFCs to Indicate
Requirement Levels", BCP\014, RFC\02119, March\01997.
```

The preferred nroff output is:

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

The plain text output is:

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

The following table describes the preferred nroff output.

XML	nroff
all text in <t> tags will be wrapped and indented 3 spaces (not including lists or artwork)	.fi .in 3
<artwork> </artwork>	.nf / .fi
<?rfc needLines="X" ?>	.ne X
<?rfc needLines="100" ?> (this is a hack to get a page break; it doesn't always work. perhaps there could be a new command created to insert a page break)	.bp
<vspace blankLines="0" /> or <vspace />	.br
<figure align="center">	.ce X where X is the number of lines of the total figure (includes the text in the figure's title, preamble, and postamble elements, if any.) Note: currently this is handled oddly by xml2rfc. See .ce 8192 in current_output.nroff.
<texttable>	[no simple translation. .nf and the data of the table formatted using the current logic.]
<![CDATA[...]]>	[no simple translation. used inside of artwork element to prevent characters from being interpreted as XML. Should continue to function as it does currently.]
<list style="empty">	.in 6
<list style="numbers">	.in 6 .ti 3 1. <item1> .ti 3 2. <item2> .ti 3 3. <item3> etc.
<list style="letters">	.in 6 .ti 3 a. <item1> .ti 3

	b. <item2> .ti 3 c. <item3> etc.
<list style="symbols">	.in 6 .ti 3 o <item1> .ti 3 o <item2> .ti 3 o <item3> etc. Note: the character of the bullet depends on if the list is nested. The default order is: o, *, +, and -
<list style="hanging"> <t hangText="Item A:">	.in 6 .ti 3 Item A: [.ti 3 before each item in the list]
<list style="hanging" hangIndent="X"> <t hangText="Item A:">	.in X .ti 3 Item A: [.ti 3 before each item in the list] where X is equal to the hangIndent plus 3. In this example, as in sample_input.xml), X =11. Note: in the current nroff output, hangIndent does not have the expected result when the length of the hangText is over a certain number of characters. See current_output.nroff where .in 37 appears.
<list style="format REQ%d:"> (for example)	.in X .ti 3 REQ1: <item1> .ti 3 REQ2: <item2> .ti 3 REQ3: <item3> Note: X = the number of chars in the

	text plus 5. So, X = 10 in this example.
&nbhy;	\- Note: this is currently translated by xml2rfc as \% before the string containing the hyphen, but would be better translated as \- in the actual place of the hyphen.
	\0

Section Titles

Before each section title, .ti 0 should appear. Also, .in 4 (and higher depending on the depth of the section) should be inserted so that if the section title wraps, it will be indented below the text. For example:

Preferred nroff output:

```
.in 4
.ti 0
5.   This Is a Very Long Section Title That Wraps to the
Next Line
```

Which results in the following plain text output:

```
5.   This Is a Very Long Section Title That Wraps to the
     Next Line
```

References Sections

In the references section, each reference element has .ti 3 before it. The indent for the section (.in X below) is set to the length of the longest anchor attribute plus 7. (That is 3 for the regular indent plus 2 for the brackets and plus 2 more for spaces.)

```
.in X
.ti 3
```

where, for example, if the longest anchor is 7 characters (e.g., RFC2119), X = 14.

An odd case occurs occasionally when one (or more) of the references has an anchor that is a very long string (over some max number of characters):

rfcedstyle="no": xml2rfc inserts a line break so the reference entry starts on a new line underneath the anchor. Normative and Informative References may have different indentation.

rfcedstyle="yes": xml2rfc keeps increasing the indent for all entries to accommodate this very long anchor. This is problematic because most entries are followed by spaces to match, and all entries are moved right because of one long anchor.

Ideally, when rfcedstyle="yes" or "no", the behavior would be:

- very long anchors (over a larger number of max characters than currently used) cause a line break to be inserted.
- both reference sections (Normative and Informative) use the same amount of indentation.

Headers

The nroff commands used in the first-page header are as follows. There are many permutations of this header based on:

- If the rfc element contains a number attribute, then an RFC header is created instead of the I-D header.
- The number of authors and various attributes such as updates, obsoletes, and seriesNo impact the formatting.

The new xml2rfc tools shall follow the RFC Editor's conventions for the title page header as follows:

- The \0 between RFC and <number> is not necessary because this command creates the running header, where a space is sufficient since there is no risk of a line break between RFC and <number>.
- The inclusion of .nh seems redundant with .hy 0 (turning off hyphenation).

This is a basic example for an RFC header.

Current nroff output from xml2rfc:

```
.pl 10.0i
.po 0
.ll 7.2i
.lt 7.2i
.nr LL 7.2i
.nr LT 7.2i
.ds LF <author lastname>, et al.
.ds RF FORMFEED[Page %]
.ds CF <category>
.ds LH RFC\0<number>
.ds RH <month> <year>
.ds CH <title or title's abbrev attribute, if specified>
.hy 0
.nh
.ad l
.nf
.in 0
...
```

Preferred nroff output:

```
.pl 10.0i
.po 0
.ll 7.2i
.lt 7.2i
.nr LL 7.2i
.nr LT 7.2i
.ds LF <author1 lastname>, et al.
.ds RF FORMFEED[Page %]
.ds CF <category name>
.ds LH RFC <number>
.ds RH <month> <year>
.ds CH <title or abbreviated title>
.hy 0
.ad l
.nf
.tl "<stream name>""<author1 initial> <author1 lastname>"
.tl "Request for Comments: <number>""<author2 initial> <author2
lastname>"
.tl "Updates: <numbers of RFCs>""<author1 and 2 organization>"
.tl "Category: <category>""<author3 initial> <author3 lastname>"
.tl "ISSN: 2070-1721""<author3 organization>"
.tl """<author4 initial> <author4 lastname>"
.tl """<author4 organization>"
.tl """<month> <year>"
```

For a specific example:

```
.pl 10.0i
.po 0
.ll 7.2i
.lt 7.2i
.nr LL 7.2i
.nr LT 7.2i
.ds LF Papadimitriou, et al.
.ds RF FORMFEED[Page %]
.ds CF Standards Track
.ds LH RFC 6001
.ds RH October 2010
.ds CH GMPLS Protocol Extensions for MLN/MRN
.hy 0
.ad l
.nf
.tl "Internet Engineering Task Force (IETF)""D. Papadimitriou"
.tl "Request for Comments: 6001""M. Vigoureux"
.tl "Updates: 4202, 4203, 4206, 4874, 4974, 5307""Alcatel-Lucent"
.tl "Category: Standards Track""K. Shiomoto"
.tl "ISSN: 2070-1721""NTT"
.tl """D. Brungard"
.tl """ATT"
.tl """JL. Le Roux"
.tl """France Telecom"
.tl """October 2010"
```