Journal Article Tag Suite (JATS)
Set 1.0: New ISO standard of journal XML and ScienceCentral

Sun Huh
Hallym University

The 2nd Council of Asian Science Editors’ Preconference Workshop I
August 20 (Thurs), 2015; Hanoi University of Science and Technology
After this class, attendees should be able to

1. Explain the reasons to produce JATS XML for journal publishing
2. Describe the process of rendering JATS XML in the Web
3. Code the tagging according to JATS DTD 1.0
4. Explain the function of DTD, XSL, and CSS
5. Present with a variety of languages such as Vietnamese and English
6. Validate the JATS XML files
7. Add journal to ScienceCentral for better visibility
Use Firefox as browser

• If you did not install Firefox, install it available from:  http://www.mozilla.org

• Please install Add-on for epub3 available from:

• https://addons.mozilla.org/en-US/firefox/addon/epubreader/
History of JATS

• a standard ([NISO Z39.96-2012](https://www.niso.org/standards/z39-96-2012)) that defines a set of XML elements and attributes for tagging journal articles and describes three article models.

• JATS is a continuation of the NLM Archiving and Interchange DTD work begun in 2002 by [NCBI](https://www.ncbi.nlm.nih.gov)

• PMC to JATS in 2012
Process of viewing JATS in the web

- XML document
- XSL transformation
- CSS layout
- XHTML output
**eXtensible Stylesheet Language (XSL)**

- Style sheet language for XML documents
- XSL describes how XML document displayed.

<table>
<thead>
<tr>
<th>CSS (Style Sheets for HTML)</th>
<th>XSL (Style Sheets for XML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>uses predefined tags</td>
<td><strong>does not</strong> use predefined tags</td>
</tr>
<tr>
<td>each tag is well understood</td>
<td>each tag is <strong>not well</strong> understood</td>
</tr>
<tr>
<td>browser knows how to display it</td>
<td>browser <strong>does not</strong> know how to display it</td>
</tr>
</tbody>
</table>
Cascading Style Sheets (CSS)

- Styles define how to display HTML elements
- Styles were added to HTML 4.0 to solve a problem
- External Style Sheets can save a lot of work
- External Style Sheets are stored in CSS files
Required files for JATS XML

• Put followings in the same directory:

1. sample.xml
2. JATS-journalpublishing1.dtd
3. jats-html.xsl
4. Jats-preview.css
Example of coding

Browsing JATS XML file

• Open sample.xml with Firefox

• Change the dtd file with different file name
• Change the xsl file with different file name
• Change the css file with different file name

• Compare the result of browsing in each step
Structure of JATS XML

- Declaration of XML, XSL, and DTD
- `<article>`
  - `<front>` bibliographic info, license, abstract, keywords
  - `</front>`
  - `<body>` main text
  - `</body>`
  - `<back>` conflict of interest, acknowledgement, references, appendix, audiovisual file, supplements
  - `</back>`
- `</article>`
Declaration of XML, XSL, and DTD

- `<?xml version="1.0" encoding="UTF-8"?>`
- `<?xml-stylesheet type="text/xsl" href="jats-html.xsl"?>`
- `<!DOCTYPE article PUBLIC "-//NLM//DTD JATS (Z39.96) Journal Publishing DTD v1.0 20120330//EN" "JATS-journalpublishing1.dtd" >`
Production of Journal Article Tag Set eXtensible Markup Language (JATS XML) files can be done by anyone who can understand English and have minimum knowledge on journal editing and publishing....
No potential conflict of interest relevant to this article was reported.

This work is supported by the research grant of the National Research Foundation of Korea (policy research-2013-003-academic infrastructure promotion) and the Korean Federation of Science and Technology Societies (KOFST-2013), Government of the Republic of Korea.
• <ref-list>
• <ref id="b1-sciedit-1-15">
• <label>1</label>
• <element-citation publication-type="journal">
• <person-group person-group-type="author">
• <name>
• <surname>Huh</surname>
• <given-names>S</given-names>
• </name>
• ..
• </person-group>
• <article-title>
• Using Journal Article Tag Suite extensible markup language for scholarly journal articles written in Korean.
• </article-title>
• <source>Sci Ed</source>
• <year iso-8601-date="2014">2014</year>
• <volume>1</volume>
• <fpage>19</fpage>
• <lpage>23</lpage>
• </element-citation>
• </ref>
• </ref-list>
Encoding of languages

• <article xml:lang="en"/>
• xml:lang="vi" ➔ Vietnamese
• xml:lang="ja" ➔ Japanese
• xml:lang="ko"
• "hi" ➔ hindi
Validation


- What is the difference of two validation methods?
Merits of JATS XML production?

1. To be added to international databases
2. Compatible to public access policy
3. Beautiful journal homepage
4. Easy conversion to other viewers
5. Easy conversion to other XMLs
6. Cited-by function, reference hyperlink
7. Error is minimized
ScienceCentral (e-sc.org)

• Visibility is dependent to platform

Homepage of ScienceCentral [cited 2015, August 1].
PubMed Central

• free full-text archive of biomedical and life sciences journal literature at US NIH/NLM

The starting page of PubMed Central.
Chronological change in the impact factor of 7 non-MEDLINE journals indexed in PubMed Central from Korea
<table>
<thead>
<tr>
<th>Item</th>
<th>ScienceCentral</th>
<th>PMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope</td>
<td>All Science</td>
<td>Bio-Medicine</td>
</tr>
<tr>
<td>Language</td>
<td>All languages</td>
<td>English only</td>
</tr>
<tr>
<td>Deposit format</td>
<td>JATS XML</td>
<td>JATS XML or SGM L PMC 2.3</td>
</tr>
<tr>
<td>translation</td>
<td>Google translation</td>
<td>No</td>
</tr>
<tr>
<td>Cited by</td>
<td>ScienceCentral CrossRef</td>
<td>PMC PubMed</td>
</tr>
</tbody>
</table>
## Comparison between ScienceCentral and PMC (II)

<table>
<thead>
<tr>
<th></th>
<th>PubReader, Epub</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Availability as Landing page</strong></td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Producer</strong></td>
<td>KOFST</td>
<td>US NLM</td>
<td></td>
</tr>
<tr>
<td><strong>Year of launch</strong></td>
<td>2013</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td><strong>Number of journal</strong></td>
<td>60</td>
<td>1,700</td>
<td></td>
</tr>
<tr>
<td><strong>Number of article</strong></td>
<td>10,000</td>
<td>3,300,000</td>
<td></td>
</tr>
</tbody>
</table>
Conclusion-Action Plan

• Let’s produce full text JATS XML files
• Deposit XML files to ScienceCentral/PubMed Central
• Get privilege of better visibility and higher citation frequency
• Devote to world citizens’ needs of scientific knowledge