MECA: Manuscript Exchange Common Approach

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Problem

• Authors are irritated at time, effort, delays when re-submitting articles
• Reviewers’ time is wasted when reviews are re-done or replicated
• New publication flows demand transfers to/from preprint servers
• Each workflow system has to implement separate interfaces to each other system – inefficient to work ‘pairwise’

Opportunity

• A common approach to moving manuscripts solves the above use cases and can also solve some additional workflow problems!
• *All we need is for a group of competitors to collaborate!*
• A group of vendors and publishers
  o Aries: Editorial Manager
  o Clarivate: Scholar One
  o HighWire: BenchPress
  o PLOS

• Develop a common approach
  o Not software, not a central service, not a database
  o Recommended best practices
  o Non-proprietary, CC-BY

• Hope for wide adoption
  o Outreach, NISO, JATS4R, JATScen
Agenda

• Background
• Principles
• Use Cases
• Project Areas
• Action Items & Timeline
Principles

- Journals & authors set the rules on what transfers ...not MECA
- Seamless transfer between publications and platforms ...but not necessarily a complete submission
- Define minimal required data for transfer
  - The data needed to start a submission
- Define MVP (Minimal Viable Product)
  - Get going now, but build for future use cases
- Protocol based on best practices and industry standards
  - Low barriers to entry to use MECA
- Recommendations, not code
  - No hub, no software, no service
  - Not like Crossref or ORCID; no tracing of manuscripts
Use Cases – Manuscript Transfer Across Boundaries

• **Journal**
  - Submission System to Submission System (primary)

• **Preprint**
  - Preprint System to/from Submission System (primary)

• **Syndication: Import from ...**
  - Authoring Systems to Submission System (primary)

• **Syndication: Export to ...**
  - Submission System to Various Services (secondary)
Project Areas

✓ Vocabulary
✓ Packaging
✓ Manifest
✓ Transfer Metadata
✓ Submission Metadata
✓ Review Metadata
✓ Identity
✓ Transmission
Project Area – Vocabulary

• **Goal**: To provide a *standard nomenclature*
• Provides a baseline for understanding
• Includes 4 Use Cases
• Includes Term, Definition, Synonym, ‘Often-confused-with’ alternatives, and Examples
• Includes 70+ Terms
  - Terms like ‘BITS’, ‘Interoperability’, ‘Mime Type’
• Can be updated over time
Project Area - Packaging

- **Goal**: simple, flexible, standard way to assemble files
- Zip File
- Team will register a new ‘mime type’ and file extension for the package
- One manuscript per zip file
- Package contains:
  - **Manifest.xml** * (new DTD for file manifest)
  - **Transfer.xml** * (new DTD for source/destination, contact, and security information)
  - **Article.xml** * (JATS-compliant)
  - **PeerReview.xml** (optional - JATS-like)
  - Source files

* Required Item
Project Area – Manifest Information

• **Goal:** *To be able* to pass **file information** from system to system

• Each file in the zip file must have an entry in the XML file

• May include entries for items not in the zip file, e.g. URL/URI submission items

• Includes optional ‘type’ attribute – supports an optional defined list of submission item types

• Includes optional ‘submission-item-id’ to match files across systems

• Includes optional ‘mime type’ attribute

• Receiving system determines how file is imported

• **Manifest.xml** (new DTD)
<!ELEMENT manifest (item+)>
<!ATTLIST manifest xmlns CDATA #REQUIRED>
<!ATTLIST manifest version CDATA #REQUIRED>
<!ELEMENT item (title?, description?, file-order?, item-metadata?, instance+)>
<!ATTLIST item id ID #IMPLIED>
<!ATTLIST item type CDATA #IMPLIED>
<!ATTLIST item submission-item-id CDATA #IMPLIED>
<!ATTLIST item version CDATA #IMPLIED>

<!ELEMENT title (#PCDATA)>
<!ELEMENT description (#PCDATA)>

<!ELEMENT file-order (#PCDATA)>

<!ELEMENT item-metadata (metadata+)>
<!ELEMENT metadata (name, value)>
<!ELEMENT name (#PCDATA)>
<!ELEMENT value (#PCDATA)>

<!ELEMENT instance EMPTY>
<!ATTLIST instance media-type CDATA #IMPLIED>
<!ATTLIST instance href CDATA #REQUIRED>
<!ATTLIST instance origin CDATA #IMPLIED>
<!ATTLIST instance conversion CDATA #IMPLIED>
<!ATTLIST instance composition CDATA #IMPLIED>
<?xml version="1.0" encoding="UTF-8"?>
<manifest version="1" xmlns="">
  <item id="a-222" type="manuscript" submission-item-id="custom-metadata-id-1" version="0">
    <description>This is the manuscript submitted by the author</description>
    <file-order>3</file-order>
    <instance media-type="application/vnd.openxmlformats-officedocument.wordprocessingml.document" href="samplemanuscriptwithreference.docx"/>
  </item>
  <item id="a-123" type="author agreement" version="0">
    <description>Author Agreement</description>
    <file-order>1</file-order>
    <instance media-type="text/plain" href="Assignment-or-Rights.txt"/>
  </item>
  <item id="a-456" type="Reviewer Response">
    <description>This is the file the Author uploaded in response to comments by reviewers</description>
    <file-order>2</file-order>
    <instance media-type="application/msword" href="Responses.docx"/>
  </item>
  <item id="b-456" type="figure" submission-item-id="custom-metadata-id-2" version="0">
    <description>Figure</description>
    <file-order>3</file-order>
    <instance media-type="image/jpeg" href="figure1.jpg"/>
  </item>
</manifest>
Project Area – Transfer Information

• **Goal:** **To be able** to pass *transfer information* from system to system

  o Source Information
    ▪ Service Provider
    ▪ Contact Information
    ▪ Publication Type, Title, Acronym

  o Destination Information
    ▪ Service Provider
    ▪ Contact Information
    ▪ Publication Type, Title, Acronym

  o Security Information
    ▪ Authentication Code

  o Processing Instructions

• **Transfer.xml** (new DTD)
<ELEMENT transfer (source?, destination?, security?, processing-instructions?)>
<!ATTLIST transfer xmlns CDATA #REQUIRED>
<!ATTLIST transfer version CDATA #REQUIRED>
<!ELEMENT source (service-provider?, name?)>

<!ELEMENT service-provider (name?, contact?)>
<!ELEMENT contact (contact-name?, email?, phone?)>
<!ATTLIST contact role CDATA #IMPLIED>

<!ELEMENT contact-name (surname?, given-name?)>
<!ELEMENT surname (#CDATA)>
<!ELEMENT give-name (#CDATA)>
<!ELEMENT email (#CDATA)>
<!ELEMENT phone (#CDATA)>
<!ELEMENT name (#CDATA)>

<!ELEMENT destination (service-provider?, contact?, publication?, security?)>
<!ELEMENT publication (title?, acronym?, contact?)>
<!ATTLIST publication type CDATA #REQUIRED>
<!ELEMENT title (#CDATA)>
<!ELEMENT acronym (#CDATA)>

<!ELEMENT security (authentication-code?)>
<!ELEMENT authentication-code (#CDATA)>

<!ELEMENT processing-instructions (instruction?, comments?)>
<!ELEMENT instruction (#CDATA)>
<!ATTLIST instruction sequence CDATA #REQUIRED>
<!ELEMENT comments (#CDATA)>
Transfer Information - XML

```xml
<DOCTYPE transfer SYSTEM "transfer.dtd">
<transfer xmlns="http://mecc.org/transfer" version="1.0">
  <source>
    <service-provider>
      <provider-name>eJournalPress</provider-name>
      <contact role="Project Manager">
        <contact-name>
          <surname>Smith</surname>
          <given-names>John</given-names>
        </contact-name>
        <email>smith@ejournalpress.com</email>
        <phone>301-555-1212</phone>
      </contact>
    </service-provider>
    <publication type="journal">
      <title>The Journal of the American Medical Association</title>
      <contact role="Managing Editor">
        <contact-name>
          <surname>Smith</surname>
          <given-names>Sally</given-names>
        </contact-name>
        <email>ssmith@ama.com</email>
        <phone>301-555-1212</phone>
      </contact>
    </publication>
  </source>
  <destination>
    <service-provider>
      <provider-name>Highwire</provider-name>
      <contact role="Project Manager">
        <contact-name>
          <surname>Rogers</surname>
          <given-names>John</given-names>
        </contact-name>
        <email>jrogers@highwire.com</email>
        <phone>443-555-1212</phone>
      </contact>
    </service-provider>
    <publication type="preprint-server">
      <title>BioAxiom</title>
      <contact role="Managing Editor">
        <contact-name>
          <surname>Rogers</surname>
          <given-names>Sally</given-names>
        </contact-name>
        <email>srogers@bioaxiom.com</email>
        <phone>301-555-1212</phone>
      </contact>
    </publication>
    <security>
      <authentication-code>abdas-13123-atae</authentication-code>
    </security>
  </destination>
  <processing-instructions>
    <instruction sequence="1">Verify XML First</instruction>
    <instruction sequence="2">Load XML</instruction>
    <comments>Free form comments</comments>
  </processing-instructions>
</transfer>
```
Project Area – Submission Metadata

- **Goal**: To be able to pass submission information from system to system
- **Article.xml** (file in JATS format – Green DTD compliant)
- Defines minimal required data*
- Only the highest revision of the submission is written to the XML
  - Article Identifiers (Manuscript Number, UUID, DOI)
  - Article Title *
  - Article Type, Category, Classifications, Keywords
  - Corresponding Author* and Co-Authors (with affiliations)
  - Related articles, Preprints
  - Funding Information, Custom Metadata
  - Figures, tables, supplementary material
Project Area – Submission Metadata
Project Area – Submission Metadata

```xml
<contrib-group>
  <contrib contrib-type="author" corresp="yes">
    <role content-type="1"/>
    <role vocab="CRediT" vocab-identifier="http://dictionary.casrai.org/Contributor_Roles">
      <vocabulary-term vocab-term-identifier="Writing – original draft" vocab-term="Writing – original draft" specific-use="Lead"/>
    </role>
    <role vocab="CRediT" vocab-identifier="http://dictionary.casrai.org/Contributor_Roles">
      <vocabulary-term vocab-term-identifier="Writing – review & editing" vocab-term="Writing – review & editing"/>
    </role>
    <role vocab="CRediT" vocab-identifier="http://dictionary.casrai.org/Contributor_Roles">
    </role>
  </contrib>
  <name>
    <surname>Smith</surname>
    <given-names>Mary Margaret</given-names>
    <prefix>Ms</prefix>
  </name>
  <contrib-id contrib-id-type="internal">999999</contrib-id>
  <contrib-id contrib-id-type="orcid" specific-use="authenticated">0000-0003-2141-4459</contrib-id>
  <contrib-id contrib-id-type="isni">1234</contrib-id>
  <contrib-id contrib-id-type="pubmed">56781</contrib-id>
  <contrib-id contrib-id-type="researcherid">9999</contrib-id>
  <contrib-id contrib-id-type="scopusid">8888</contrib-id>
  <degrees>PhD, MD</degrees>
  <email>test@ariessc.com</email>
  <xref ref-type="aff" rid="aff1"/>
</contrib>
```
Project Area – Peer Review Data

• **Goal**: To be able to pass **review information** from system to system
  - Questions/Answers
  - Ratings
  - Comments
  - Annotations
  - Red lines / Marked up files

• **Privacy**
  - Reviewer names/contact information can be redacted
  - Based on sending journal’s privacy policy

• **Reviews.xml** (file is similar to JATS)
  - Group decided information does not belong in article.xml
  - Multiple reviews & revisions in one file
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE review-group SYSTEM "reviews.xsd">
<review-group>
  <version revision="0">
    <reviews>
      <review type="review">
        <history>
          <date date-type="completed" iso-8601-date="2018-02-28">
            <year>2018</year>
            <month>2</month>
            <day>28</day>
          </date>
          <date date-type="due" iso-8601-date="2018-02-14">
            <year>2018</year>
            <month>2</month>
            <day>14</day>
          </date>
          <date date-type="assigned" iso-8601-date="2018-01-29">
            <year>2018</year>
            <month>1</month>
            <day>29</day>
          </date>
        </history>
        <contrib-group>
          <contrib contrib-type="reviewer">
            <role content-type="1" />
            <surname>Reviewer</surname>
            <given-names>Bob</given-names>
            <prefix>Dr.</prefix>
            <name>
              <contrib-id contrib-id-type="orcid" authenticated="true">1234-0052-2141-3325</contrib-id>
              <degrees>PhD</degrees>
              <email>BJReviewer@mit.edu</email>
              <ref-ref-type="aff" ref-id="aff1" />
            </name>
          </contrib>
          <review-item review-item-type="recommendation">
            <review-item-question sequence-number="1">
              <title>Recommendation Term</title>
              <alt-title/>
              <text>Reject and Transfer</text>
            </review-item-question>
            <review-item-response is-confidential="Yes"/>
            <text>This is a great paper but not for this journal</text>
          </review-item>
          <review-item review-item-type="comments">
            <review-item-question sequence-number="1">
              <title>Comments to Editor</title>
              <alt-title/>
              <text>
                <text>This is a great paper but not for this journal</text>
              </text>
            </review-item-question>
            <review-item-response is-confidential="Yes"/>
            <text>Nice job but needs some work</text>
          </review-item>
        </contrib-group>
      </review>
    </reviews>
  </version>
</review-group>
<review-item review-item-type="rating">
  <review-item-question sequence-number="1">
    <title>On a scale of 1 to 10, how "novel" is the idea presented in this manuscript?</title>
    <alt-title/>
    <text/>
  </review-item-question>
  <review-item-response>
    <rating>5</rating>
  </review-item-response>
</review-item>

<review-item review-item-type="rating">
  <review-item-question sequence-number="2">
    <title>How would you best describe this manuscript?</title>
    <alt-title/>
    <text/>
  </review-item-question>
  <review-item-response>
    <rating>5</rating>
  </review-item-response>
</review-item>

<review-item review-item-type="file">
  <review-item-question sequence-number="3">
    <title>Reviewer Attachment</title>
    <alt-title/>
    <text/>
  </review-item-question>
  <review-item-response>
    <ext-link specific-use="attachment" xlink:href="my manuscript.docx" xlink:title="description of the file"/>
  </review-item-response>
</review-item>

<version revision="1">
  <reviews>
    <review review-type="decision">
      <date date-type="completed" iso-8601-date="2018-03-02">
        <year>2018</year>
        <month>3</month>
        <day>28</day>
      </date>
      <history>
        <contra-group>
          <contra contrib-type="Editor-in-Chief">
            <role content-type=""/>
            <name>
              <surname>Editor</surname>
              <given-names>Sally</given-names>
              <prefix>Dr.</prefix>
            </name>
            <contrib-id contrib-id-type="orcid" authenticated="true">0000-0003-2141-4459</contrib-id>
            <degrees>PhD</degrees>
            <email>S.Editor@mit.edu</email>
          </contra>
        </contra-group>
      </history>
    </review>
  </reviews>
</version>
Project Area - Identity

• **Goal**: Unique, **consistent identity** across systems
• Unique identifier
  o When manuscripts are passed from system to system
  o Article number, but not journal specific
• DOI was considered
  o Need for something without a DOI ‘prefix’ or implied source
• Universally unique identifier - UUID
  o Type 1
    ▪ Date, time, MAC Address, random number
    ▪ d6bf8782-30f7-4cd7-82a8-94ff62352ac4
    ▪ Guarantees no collisions across vendors
    ▪ Support found in many standard coding libraries
Project Area - Transmission

- **Goal**: Simple, consistent way to send the information across systems
- SFTP (FTP over SSH) in 2018
  - Phase 1
  - Asynchronous
- Potential future development – move to API (REST, SWORD)
  - Provide status message to sender
  - Synchronous
  - Influenced by specific use cases
Action Items & Timeline

2018
• Expand the Working Group
  o Looking to include diverse set of stakeholders
  o Interested? Look at manuscriptexchange.org or email info@manuscriptexchange.org
• NISO Working Group
• Will need community volunteers to participate in that process
• Vendor and Supplier Implementations

2017
• Present to organizations and communities of interest
  o JATS-Con, CASRAI, SSP, OASPA, Force11, STM, ISMTE, CSE, ALPSP...
  o Authoring platforms, composition vendors, repositories, preprint servers...
• Gather input from these interested parties
  o Input via manuscriptexchange.org
• Host Informational Webinars
  o General and Technical sessions planned for July/August
• Build trial/pilot/reference implementation
  o Refine approach and documentation
Interested in Participating?

• Additional Information on our web page:
  www.manuscriptexchange.org

• Contact us – comment on documents/plans, volunteer:
  info@manuscriptexchange.org