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 Analytics: 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 National Information Standards Organization (NISO) – Project approved March of 2018 and Working group established
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**
  o Submission System to Submission System (primary)

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

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

• **Syndication: Export to ...**
  o Submission System to Various Services (secondary)
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’
- Is being updated over time
Project Area - Packaging

• **Goal**: simple, flexible, standard way to assemble files
• Zip File
• One manuscript per zip file
• Package contains:
  o **Manifest.xml** *(new DTD for file manifest)*
  o **Transfer.xml** *(new DTD for source/destination, contact, and security information)*
  o **Article.xml** (JATS-compliant)
  o **PeerReview.xml** *(optional - JATS-like)*
  o 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="1.0" xmlns="urn:oasis:names:tc:opendocument:xmlns:manifest:1.0">
    <item id="a-222" type="manifest" submission-item-id="custom-metadata-id-1" version="0">
        <description>This is the manuscript submitted by the author</description>
        <file-order>1</file-order>
        <instance media-type="application/vnd.openxmlformats-officedocument.wordprocessingml.document" href="samplemanuscriptwithreference.doc"/>
    </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>1</file-order>
        <instance media-type="application/msword" href="Responses.doc"/>
    </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>
    <item id="c-567" type="figure" submission-item-id="custom-metadata-id-2" version="1">
        <description>Figure</description>
        <file-order>4</file-order>
        <instance media-type="image/jpeg" href="figure2.jpg"/>
    </item>
    <item id="d-911" type="supplemental">
        <description>Supplementary Data File</description>
        <instance media-type="text/plain" href="https://landsat-pds.s3.amazonaws.com/c1/L8/L139/045/LC08_L1TP_139045">
            <instance media-type="application/pdf" href="SALLYDEV140-D-17-00013R2R0.pdf"/>
        </instance>
    </item>
    <item id="e-123" type="Manuscript" version="1">
        <description>This is an arXiv file uploaded by the Author</description>
        <file-order>2</file-order>
        <item-metadata>
            <metadata>
                <name>Includes References</name>
                <value>Yes</value>
            </metadata>
            <instance media-type="application/xtex" href="arXiv_160124. tex"/>
        </instance>
    </item>
    <item id="f-345" type="Reviewer Attachment">
        <description>This is an annotated file uploaded by the Reviewer</description>
        <instance media-type="application/msword" href="annotated-review.doc"/>
    </item>
    <item id="g-123" type="Author Proof">
        <description>This is a production file</description>
        <instance media-type="application/xml" href="marked-up-manuscript.xml"/>
    </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)
Transfer Information - DTD

```xml
<!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 given-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
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 – 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
Peer Review – Sample XML

```xml
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE review-group SYSTEM "reviews.xsd">
<review-group>
  <version revision="0">
    <reviews>
      <review type="review">
        <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>
      </review>
    </reviews>
    <contrib-group>
      <contrib contrib-type="reviewer"
        role-content-type="1"/>
      <name>
        <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>
        </name>
        <degrees>PhD</degrees>
        <email>BRReviewer@mit.edu</email>
        <ref-ref-type="aff" ref-id="aff1"/>
      </contrib>
    </contrib-group>
  </version revision="0">
  <review-item-group>
    <review-item review-item-type="recommendation"/>
    <review-item-question sequence-number="0">
      <title>Recommendation Term</title>
      <alt-title/>
      <text>
        Reject and Transfer
      </text>
    </review-item-question>
    <review-item-response>
      <review-item-response is-confidential="Yes">
        <text>This is a great paper but not for this journal</text>
      </review-item-response>
    </review-item-response>
    <review-item>
      <review-item review-item-type="comments"/>
      <review-item-question sequence-number="0">
        <title>Comments to Editor</title>
        <alt-title/>
        <text>
          This is a great paper but not for this journal
        </text>
      </review-item-question>
      <review-item-response>
        <review-item-response is-confidential="Yes">
          <text>This is a great paper but not for this journal</text>
        </review-item-response>
      </review-item-response>
    </review-item>
    <review-item>
      <review-item review-item-type="comments"/>
      <review-item-question sequence-number="0">
        <title>Comments to Author</title>
        <alt-title/>
        <text>
          Nice job but needs some work.
        </text>
      </review-item-question>
      <review-item-response>
        <review-item-response is-confidential="No">
          <text>Nice job but needs some work.</text>
        </review-item-response>
      </review-item-response>
    </review-item>
  </review-item-group>
</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/>
  </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/>
  </review-item-question>
  <review-item-response>
    <rating>5</rating>
  </review-item-response>
</review-item>

<review-item review-item-type="multiple-choice">
  <review-item-question sequence-number="3">
    <title>What is your favorite color?</title>
    <alt-title/>
  </review-item-question>
  <review-item-response>
    <rating>1</rating>
  </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>2</month>
        <day>28</day>
      </date>
    </review>
  </reviews>
</version>

<contribution>
  <contrib contrib-type="Editor-in-Chief">
    <role role-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>SEditor@mit.edu</email>
  </contrib>
</contribution>
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

## 2019
- Publish NISO Recommended Best Practice
  - Establish ongoing NISO group to evolve MECA to accommodate new uses and technology

## 2018
- Expanded the Working Group under NISO
  - Original team – Aries Systems, Clarivate, eJournal Press, Highwire, PLOS

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

- Additional Information
  - MECA’s web page: www.manuscriptexchange.org
  - NISO’s web page: www.niso.org/standards-committees/meca
- Contact us
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