

Open Access Metadata and Indicators

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*A Recommended Practice of the
National Information Standards Organization*

DRAFT

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Foreword

About this Recommended Practice

In January 2013, a new work item proposal was approved by NISO members to develop metadata and indicators that would provide information on whether a specific article is openly accessible (i.e., can be read by any user who can get to the journal website over the internet) and what re-use rights might be available to reader.

Many offerings are available from publishers under the banner of Open Access, Increased Access, Public Access, or other names. The terms used vary both between publishers and within publishers by journal, and in some cases, based on the funder. Adding to the potential confusion, a number of publishers also offer hybrid options, in which authors of an article can pay a fee to make their paper freely available to readers while the rest of the content in that journal remains under subscription control.

Currently publishers provide articles that are “free to read” under a wide range of re-use terms and licenses. Some publishers and organizations favor the Creative Commons licenses, specifically the Creative Commons Attribution license (CC BY) to provide re-use terms while others use proprietary or modified licenses for this purpose.

Funders find the lack of information and cooperation between stakeholders creates difficulty in determining whether a specific article is compliant with their policies. Publishers of hybrid journals have no simple mechanism for signaling the “free to read” status of specific articles or the re-use rights of downstream users. Authors have difficulty determining what rights they will retain and whether they are compliant with a given funder policy. Readers face the burden of figuring out what they can and cannot do with specific articles. Aggregators and service providers have no single mechanism for identifying articles that can be legitimately harvested.

The objectives of the project were to develop:

1. A specified format for bibliographic metadata and, possibly, a set of visual signals, describing the readership rights associated with a single scholarly work.
2. Recommended mechanisms for publishing and distributing this metadata.
3. A report on the feasibility of including clear information on downstream re-use rights within the current project and, if judged feasible, inclusion of these elements in outputs 1 and 2.
4. A report stating how the adoption of these outputs would answer (or not) specific use cases to be developed by the working group.

NISO D2D Topic Committee Members

The Discover to Delivery (D2D) Topic Committee had the following members at the time it approved this Recommended Practice:

[to be added by NISO after approval]

NISO Open Access Metadata and Indicators Working Group Members

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The Open Access Metadata and Indicators Working Group wishes to acknowledge those outside the formal working group membership who contributed to this effort.

[to be added to final version]

Trademarks, Services Marks

Wherever used in this standard, all terms that are trademarks or service marks are and remain the property of their respective owners.

Section 1: Introduction

1.1 Purpose and Scope

This recommended practice defines metadata indicators to be used to indicate free-to-read content and a link to license terms for the use/re-use of that content. Humans and machines will be able to assess the status of the content based on these indicators and in some cases the combination of the free-to-read and license metadata will indicate Open Access content. The indicators include a time component so that content with access and re-use rights that change over time can be adequately understood by both humans and machines using the metadata.

1.2 Terms and Definitions

The following terms, as used in this recommended practice, have the meanings indicated.

<u>Term</u>	<u>Definition</u>
CC BY license	A Creative Commons Attribution license that allows the copying, distribution, display, performance, and/or making of derivations of a work only if the author or licensor is credited in the manner specified.
embargo	A period during which a work is only available to users who have paid for access. Outside of the embargo period, the work may become free-to-read.
free-to-read	A work that is accessible without charge or authentication (including registration) to any person with access to the internet. Note: The work may not necessarily have this status throughout its lifetime.
hybrid open access journal	A journal title that contains some open access or free-to-read articles while others articles require payment to access and read.
license	Agreement related to the use of a work. Generally includes payment requirements, if any, and terms of use and re-use.
paywall	A protocol that prevents users from accessing electronic content without a paid subscription or license.
text mining	The process of analyzing text to derive patterns, trends, or other meanings.

Section 2: Summary of Recommendations

The NISO Open Access Metadata Working group was chartered to develop protocols and mechanisms for transmitting the access status of scholarly works. This is a contentious area where political views on modes of access lead to differing interpretations of what constitutes “open access.” The working group included a wide range of stakeholders with very different views of this area.

What was agreed among all stakeholders was that there is value in transmitting two key pieces of information relating to a scholarly work as a full-text online document. The first of these relates to whether a specified work is free-to-read—meaning that any person with access to the internet can access the work via the web. The second issue is that of what re-use rights are granted to a reader of a work.

The working group considered a wide range of mechanisms for transmitting this information in addition to the scope of information that would be transmitted. Considering the political, legal, and technical issues involved, the working group agreed that a simple approach for transmitting a minimal set of information would be preferred. The working group therefore recommends the following:

1. Adoption of two core pieces of metadata that can be transmitted through existing channels:
 - a) **Free-to-read** (<free_to_read>) – A simple status that defines whether the work is accessible, without charge or other restriction (such as registration), to read online. This status can optionally carry a start date to define the timepoint when the work will become free-to-read. It may also specify an end date when it will cease to be free-to-read where appropriate. (See Section 3.1.)
 - b) **License reference** (<license_ref>) – A reference to a URI that carries the license terms specifying how a work may be used. There will be no limitations on the license specified or on the terms contained within the license. Multiple license reference elements can be provided. Each of these may have a different start date. (See Section 3.2.)
2. That NISO *not* create a logo or icon to be displayed along with the free-to-read tag. The group discussed this issue at length and decided that creating a logo would be out of scope. The goal of the group is to create a simple means for metadata to be exchanged and each site or system will determine how best to convey the status of content to their users.

It is the view of the working group that these two metadata elements can cover most current use cases of delayed access and of license terms (see Section 5) that activate at a particular time post publication. While not completely covering *all* use cases, this simple approach provides a framework for conveying essential information that addresses the most common use cases.

The Working Group recommends that the “free to read” and “license reference” metadata will be encoded in XML and included in existing metadata distribution channels and with the content itself where appropriate. Therefore, this Recommended Practice presents <free_to_read> and <license_ref> as XML tags to be added to existing schemas and workflows. The free-to-read and license reference metadata can be used by systems to display appropriate status icons to users.

Use cases that are not entirely dealt with are the management of rights for components of works (e.g. figures, images, datasets). Where components are separately identified, the <free_to_read> and <license_ref> tags can apply to the components but in many cases components are not separately identified. It is outside the scope of this Recommended Practice to determine how components should be identified. The group further felt that there would be value in a separate initiative to identify best practice in the issues that licenses for scholarly research content should address.

The Working Group decided against proposing metadata items that were labeled or named “Open Access” as there are different definitions of this term. The approach agreed by the Working Group was to provide factual metadata to be disseminated to enable people and machines to make decisions according to their own criteria.

Another important decision was that the Working Group decided that re-use rights should not be expressed in metadata for a number of reasons. Re-use rights will vary depending on who the user is (i.e., someone coming from an institution with a site license versus an unaffiliated/unrecognized user). If rights are described both in metadata and in a license, there are almost certain to be incompatibilities of expression and therefore inconsistencies. No one will be able to trust the metadata because they know they are bound by the legal document and the metadata could be useless or actively misleading. For corporate or institutional users, no legal team is going to agree to allow any specific use based on metadata unless they have agreed that the license allows it. Therefore, the agreed approach is to have a reference in the metadata to a license.

Section 3: Metadata Elements

The working group recommends the adoption of two core pieces of metadata that can be transmitted through existing channels, as defined in this section.

3.1 <free_to_read>

There was consensus that a number of the key use cases can be addressed by a simple metadata tag to indicate that content can be read or viewed by any user without payment or authentication—the <free_to_read> tag. The absence of the <free_to_read> metadata tag would indicate that either the content was not freely available or that additional information about its use is needed, which would be explained through the <license_ref> element, described in Section 3.2.

The presence of the <free_to_read> tag would provide a very simple indication of the status of the content without making statements about any additional re-use rights or restrictions. In some situations the presence of the <free_to_read> tag would be enough to provide a visual indication to the user that the content was available to read without payment or authentication. Whatever system is using the metadata needs to decide what visual indicator to show a user based on the presence of the <free_to_read> tag.

The <free_to_read> tag has two defined attributes, that should be used, if applicable, to indicate start and end dates. Start and end dates would accommodate delayed access models (embargoes), special offers, etc., where content was free-to-read for a period of time or after a particular date. The absence of both a start and end date will mean a permanent state of free-to-read access.

- **start_date** – Use of this attribute indicates that the content is not publicly available immediately and/or indefinitely. For example, it may not be available from its date of publication but becomes available at some future time, i.e. there is a temporary embargo on its free availability. Or alternatively, it might be available in the first few months of publication, but then go behind a paywall. In the latter case, the **start_date** attribute would need to be used in combination with the **end_date** attribute.

For example, if an article published on February 3, 2014 does not become freely available to all readers until one year after publication (i.e., on February 3, 2015), the metadata would be encoded as:

```
<free_to_read start_date="2015-02-03"/>
```

- **end_date** – This attribute will be used where there is a temporary <free_to_read> period. The end date attribute indicates when the content will no longer be freely available.

For example, an article that is freely available from February 3, 2013 through October 3, 2013 would be encoded as:

```
<free_to_read start_date="2013-02-03" end_date="2013-10-03"/>
```

3.2 <license_ref>

The <license_ref> tag should be included in any metadata for specific journal articles or other scholarly content (book chapters, articles from conference proceedings, etc.) to point to a license—human and/or machine readable—that explains the terms for use or re-use of the content. The data within this tag would include a stable identifier expressed as an HTTP URI (see examples in Table 1).

The supplied URI in this element would be the responsibility of the platform making the content available.

Table 1: Examples of <license_ref> URIs

Publisher	Possible existing URIs that might be used
American Chemical Society	http://pubs.acs.org/userimages/ContentEditor/1218220609981/authorchoice_form.pdf
University of California Press	http://ucpressjournals.com/assets/ucp_sample_auth_agr.pdf
BioMed Central (CC BY v 2.0)	http://creativecommons.org/licenses/by/2.0
Rockefeller University Press	http://www.rupress.org/site/subscriptions/terms.xhtml and http://creativecommons.org/licenses/by-nc-sa/3.0/
British Institute of Radiology	http://bjr.birjournals.org/site/misc/terms.xhtml

For some publishers it is important to be able to express how usage rights change over time. To enable the simplest cases, a `start_date` attribute (see 3.1) should be used with the `<license_ref>` element, as shown in the following examples:

```
<license_ref start_date="2014-02-03">http://www.psychoceramics.org/license_v1.html</license_ref>
```

```
<license_ref start_date="2015-02-03">http://www.psychoceramics.org/open_license.html</license_ref>
```

The publisher can register a URI to a license from the date of publication and then indicate that a different license supersedes the proprietary license on an indicated start date. This addresses the issue of embargoes. By way of example, the following coding indicates that the content is under a proprietary license from its date of publication on February 3, 2014 and then is under a CC-BY license a year later, beginning on February 3, 2015:

```
<license_ref start_date="2014-02-03">http://www.psychoceramics.org/license_v1.html</license_ref>
<license_ref start_date="2015-02-03">http://creativecommons.org/licenses/by/3.0/deed.en_US</license_ref>
```

Neither the `start_date` attribute, nor the license URI itself provides any technical means of enforcement of these attributes. Any downstream user who is using the content will be responsible for identifying which specific terms applies at the time the content is being used. It will be the downstream user's responsibility to check for the `start_date` attribute of each `<license_ref>` element to determine which terms currently apply.

Note that there is *no* corresponding `end_date` attribute for the `<license_ref>` element. This is because including end dates could introduce ambiguities. For example:

- Open licenses, such as Creative Commons (CC), do not have end dates.
- The use of end dates could inadvertently create gaps between applicable licenses.

The `<license_ref>` approach will enable community norms to develop around recognized licenses. This could be done by a single organization or a group of organizations, establishing a whitelist of recognized licenses. This gives the flexibility required for tracking compliance with various funder and institutional mandates. For instance, the public access requirements of the Australian Research Council allow for a link to a free-to-read copy to be provided, whereas the Research Councils UK policy requires that where a publishing fee is paid the article be both free-to-read and available under a CC BY license.

The combination of `<free_to_read>` and `<license_ref>` metadata provides a mechanism for signaling or determining compliance with most funder and institutional policies that allow compliance through the article publisher's site.

Many publishers use custom licenses so there is potentially a scalability issue if hundreds of publishers all have different licenses. However, the existence of the `<license_ref>` tag might encourage some convergence.

Section 4: Recommended Mechanisms for Distributing Metadata

To ensure the widest dissemination of metadata, publishers, aggregators, and other content providers are encouraged to include the <free_to_read> and <license_ref> elements in all of their standard metadata sets. Wherever possible, creation and population of these elements should become part of standard editorial/production workflows. The metadata should be made an integral part of the feeds to CrossRef and other DOI registration agencies, included alongside (or within) article/chapter content on hosting websites, and delivered in content feeds to third parties.

The metadata should be embedded in the content itself along with other metadata; for example, in HTML META tags and in PDF files where bibliographic and other metadata are being included.

It may also be worthwhile for content providers to consider including the metadata elements within other alerting channels, such as e-ToCs and RSS subscription feeds as well as information provided directly to abstracting and indexing services. Whatever channel is used, wider distribution of this (and other) article, chapter, or book metadata is likely to be helpful in driving discovery and usage for the materials concerned.

The group recognizes that if the recommendations are adopted, there will need to be further work on implementation and an analysis done on the best way to incorporate the free-to-read and license reference metadata into existing formats, such as ONIX, RDF, OAI-PMH, and Dublin Core (DC).

Section 5: Use Case Review

The Working Group identified and analyzed a number of potential use cases, both to aid in development of the recommendations and to test whether the recommendations would completely address the case.

5.1 Use Case: End User Seeks to Discover, Identify, and Access Free-to-Read Items

Actor(s): End users, indexing and abstracting services, institutions, publishers, metadata harvesters

Description: When an interested party is searching for an item, it would be helpful to have the item's accessibility status identified in the search results. For items that are openly accessible via a hybrid/"open choice" plan, library Electronic Resource Management (ERM) systems at present may not convey this accessibility. This is because the availability status often comes from the knowledge base of a link resolver or the library ERM and is managed on a journal/volume/issue level.

Use Case Addressed? Yes

Publishers should transmit a machine-readable <free_to_read> indication in their article metadata. Discovery systems, knowledge bases, and other third party mechanisms can use those indicators to provide the correct availability status. Search engines can include this material in their harvesting programs.

5.2 Use Case: End User Seeks to Know the Readability Status of an Item

Actor(s): End users, indexing and abstracting services, institutions, publishers, metadata harvesters

Description: Readers, on arrival at a standard article page for a journal, may not be aware that an article is free-to-read. One example of this is the scenario in which a reader who does not generally have access to subscription content runs a Google search and pay-for-use scholarly articles are among the returned results. For this user, reaching a paywall can be frustrating and might lead such a user to copies other than the definitive versions-of-record. In some cases technical/procedural problems in combination with confusion can mean that readers are not aware they *should* be able to read an article when they are blocked for some extraneous reason (e.g., end user is not using an authorized network connection). Clear identification of free-to-read content could help reduce time wastage as readers attempt to reach alternative versions. This identification will need to be understandable to an audience that is inexperienced with scholarly and subscription content.

Use Case Addressed? Yes

Publishers should transmit machine-readable <free_to_read> indication in the metadata. Discovery systems, knowledge bases, and other third party mechanisms should use those indicators to provide the correct availability status. Search engines can include this material in their harvesting program.

5.3 Use Case: End User Seeks to Know Re-Use Permissions of an Item

Actor(s): End users, publishers, repositories

Description: Researchers are unsure what they can and cannot legally do with content they find online; for example, whether they can distribute articles (or parts of them) to a class, include full text in their reference management tools or academic social networking profiles, or share material in Open

Educational Resources (OERs). Attempts to educate readers about the benefits of Creative Commons and ease of re-use of licensed material are thwarted because it is not easy to identify material that can be re-used, especially if the reader wants to share it outside his/her institution. This potentially has a corresponding benefit of discouraging copyright infringement of non-licensed material.

Use Case Addressed? Yes

Publishers should provide a machine-readable <license_ref> indicator in the article metadata. Note that interpretation of re-use rights would be the responsibility of the user. Based on the information in the tags, sites/systems should display the status of content in a human readable form.

5.4 Use Case: End User Seeks to Know Re-Use Permissions of a Sub-Component of an Item

Actor(s): End users, authors, publishers

Description: A person wants to use a sub-component of an article (i.e., the abstract, an image, a full poem quoted within a scholarly article, but not a full article), either in a single case or in some automated re-use pipeline. It is not clear if the sub-component has the same re-use rights and restrictions as the full article. The overall article (for instance, the original text contribution of the author) might be licensed CC BY, but the article may contain content (possibly, though not under all circumstances, from a third party) such as photographs, datasets, or figures under a different open license (or even a custom license) that is not clearly marked. This increases the likelihood that re-users will violate those terms, that licensors will refrain from incorporating valuable sub-components, and that third-party providers will object to having their content included in free-to-read articles.

Use Case Addressed? Yes

Where components of a content item (e.g., figures in a journal article or book chapter) are separately identified, the <license_ref> URI can be applied to the component. It is not currently common practice to uniquely identify sub-components of content so for now there will be limited use of <license_ref> for sub-components. The current focus for the community should be on making sure that the licensing for the main content item is clear and then further work will be necessary to address how components are identified.

5.5 Use Case: Repositories Seek to Expose Free-to-Read Items

Actor(s): Repositories, both institutional and subject-based; publishers

Description: Currently it is difficult and labor-intensive for both authors and repository managers to be sure what they can and cannot do with potential deposits, including which articles (and which parts of articles) they can make directly available and which articles they can disseminate to other repositories.

Use Case Addressed? Yes

Publishers should provide a machine-readable <license_ref> URI in the article metadata, which also references any part of the article licensed under a different license to that governing the article as a whole. Interpretation of re-use rights would be the responsibility of the user.

5.6 Use Case: End User Seeks to Text Mine Content

Actor(s): End users, text miners, repositories

Description: Currently it is difficult and labor-intensive for text miners to know what they can access for mining content (which articles and which parts of articles, for example), and what they can do with the information they mine.

Use Case Addressed? Partially

Publishers should provide a machine-readable `<license_ref>` URI in the article metadata, which references any part of the article licensed under a different license to that governing the article as a whole. Licenses should indicate whether or not text and data mining is allowed and whether there are additional terms and conditions. Note that interpretation of re-use rights would be the responsibility of the user.

5.7 Use Case: Ensure Author/Publisher Rights Assertions Align with License Statements

Actor(s): Authors, publishers, end users

Description: A user wishes to use visual images from an article, either in a single case or in some automated re-use pipeline. Acting in good faith, the user seeks licensing information, e.g., at PubMed Central or a similar source, to ascertain his/her rights. However, in some cases the article licensing metadata is contradictory or incorrect. For example, an article might be properly licensed under CC BY, but the publisher (or whoever is adding metadata) is making conflicting licensing statements or identifies other restrictions not provided for in the license.¹

Use Case Addressed? Partially

Publishers should provide a machine-readable `<license_ref>` license URI in the article metadata, which references any part of the article licensed under a different license to that governing the article as a whole. There will always be mistakes and inconsistencies as described in the footnoted GLAM article¹ but the URI in the `<license_ref>` tag should override any text provided about licenses that might be contradictory.

5.8 Use Case: Funding Agency Seeks to Track Compliance of Research Outputs to Open Access Mandates

Actor(s): Funding agencies, institutions

Description: At present it is difficult and inefficient for funding agencies to track the published outputs of funded work and ensure they are published in or through compliant channels.

Use Case Addressed? Partially

Machine-readable `<free_to_read>` and `<license_ref>` metadata could be used by funding agencies to develop various automated reports to track and analyze funded research outputs, but it is beyond the scope of this working group to address the wider issue of tracking research outputs.

¹ For a discussion of this issue, see the “Metadata at Pub Med Central” section in: *The Open Access Media Importer at full speed; Publishers deliver inconsistent XML to PubMed Central; Importing from other sources*. GLAM, November 2012, volume II, issue XI. Available at: http://outreach.wikimedia.org/wiki/GLAM/Newsletter/November_2012/Contents/Open_Access_report_under_the_section

5.9 Use Case: Institution Seeks to Report on Open Access Compliance of Research Outputs

Actor(s): Institutions, funding agencies

Description: It is challenging for institutions to report to funders on policy compliance levels and for funding agencies to manage and monitor transition to wider access or report to their sponsors in government.

Use Case Addressed? Partially

Machine-readable <free_to_read> and <license_ref> metadata could be used by institutions to develop various automated reports to track and analyze funded research outputs, but it is beyond the scope of this working group to address the wider issue of tracking compliance.

Section 6: Additional Recommendations Regarding Licenses

In order to better serve end users and improve the quality and usefulness of the recommended indicators (<free_to_read> and <license_ref>), it is also recommended that licenses provided to end users be clearly and plainly understandable. To that end, the following best practices are recommended for providing license text to end users:

- Provide a human-readable version of the license, keeping the language simple.
 - Describe what end users can do with the content.
 - Describe if there are any conditions that apply (something the end user must do if they use the content).
 - If possible, make this the only version of the license.
- Use <license_ref> to point to a human-readable license first, then link from the human-readable license to actual license text or a structured/tagged machine-readable license, if necessary.
- Provide section headers to break up the license text for easier reading/scanning of the license document (human-readable version and actual license).
- Provide definitions for named entities (for example, author, work, user, you).
- Provide the license (human-readable and actual) in well-formed HTML or as accessible PDF (tagged with headers) so that everyone can read it on any device that can access the content in question.

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