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Ending Law Review Link Rot: A Plea for Adopting DOI

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ABSTRACT

Though the vast majority of law reviews are now published online, very few law review publishers use persistent URLs, like DOI, to provide stable online access. The purpose of this article is to encourage law reviews to implement DOI, and demystifies the process for doing so.

Introduction

As librarians, we do a fair amount of research online for ourselves and the faculty and students we serve. As researchers, we know that there is nothing more frustrating than encountering a dead link to a much-needed article, particularly when there are deadlines to meet. Dead links (link/reference rot)[1] can be a particularly frequent occurrence for law review articles because the law review societies that publish them have not yet adopted standards for preserving online access to them, particularly the adoption of a standard for implementing persistent URLs.[2]

This Practical Insight is a plea to law reviews and law librarians who manage law review content to adopt the DOI, or Digital Object Identifier[3] standard. A brief description of DOI will be provided, followed by instructions for minting a DOI and integrating DOI URLs into the metadata record of a law review article.

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[1]Wikipedia, *Link rot* (2022), https://en.wikipedia.org/w/index.php?title=Link_rot&oldid=1071645487 (last visited Feb 15, 2022).

[2]Aaron Retteen & Malikah Hall, *Persistent Identifiers and the Next Generation of Legal Scholarship* (2021), https://papers.ssrn.com/abstract=3168863 (last visited Mar 8, 2021).

[3]Patricia Feeney, *DOIs for Journals: Linking and Beyond*, NISO (2010), http://www.niso.org/niso-io/2010/06/dois-journals-linking-and-beyond (last visited Feb. 15, 2022).
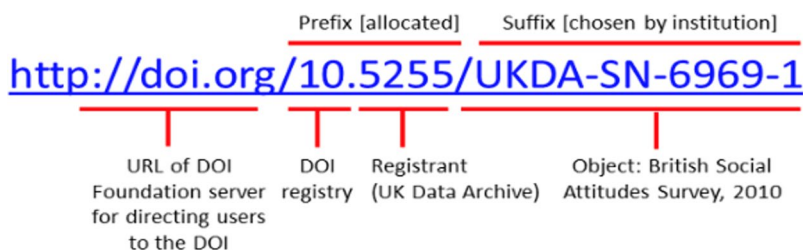
Figure 1. The structure of a DOI.

What is a DOI?

There are really two parts to a DOI. The first part is the DOI itself, which can be described as a type of persistent identifier that is created by a DOI registration agency, for its members, using an ISO[4] Standard that defines the syntax for the DOI name. In the United States, there are two DOI registration agencies: Crossref[5] and DataCite.[6] DOIs can be used for articles, books, book chapters, movie clips, and many other types of digital objects that exist on the web. The structure of a DOI is depicted in Figure 1.

The second part of a DOI is the "resolver" service that makes DOI-enabled digital objects findable and usable on the web.[7] As this article will be short, and the resolver topic is complex, the technological details of the resolver service will not be covered here. But there is an excellent Wikipedia article describing the inner workings of the "handle system," the indecs Content Model, and the various technologies that undergird the resolver.[8] Benjamin Keele's *Primer on DOIs for Law Librarians*[9] also provides a great introduction to the topic.

In general, the resolver system works by linking DOIs with digital objects via location information in a metadata record. The metadata is created by the publisher—in the context of legal scholarship, this can be the law school, law library, or even the law review itself—and deposited with a DOI registration agency (Crossref or DataCite) as part of the minting process.

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[4]ISO, *ISO—International Organization for Standardization*, https://www.iso.org/home.html (last visited Feb. 15, 2022).

[5]Crossref, Inc., *You Are Crossref*, https://www.crossref.org/ (last visited Feb 15, 2022).

[6]International Data Citation Initiative, *Welcome to DataCite*, https://datacite.org/ (last visited Feb. 15, 2022).

[7]DOI International Foundation, *DOI Resolution Documentation*, https://www.doi.org/factsheets/DOIProxy.html (last visited Nov. 12, 2020).

[8]Wikimedia Foundation, *Digital Object Identifier* (2022), https://en.wikipedia.org/w/index.php?title=Digital_object_identifier&oldid=1069536868 (last visited Feb. 15, 2022).

[9]Benjamin John Keele, *A Primer on Digital Object Identifiers for Law Librarians*, 20 Trends in Law Library Management and Technology 35–40 (2010).

The metadata record contains the typical fields like Title, Author, Publication Date, etc. But most importantly, the metadata form requires the online location information for the digital object—which is usually the URL for the article on the law review's website. Alternative identifiers can also be included, such as Archival Resource Keys (ARKs),[10] SSRN URLs, or author identifiers like ORCID.[11] Publishers are required to update a DOI metadata record in the event that any of this information changes, especially URLs.

Why DOIs?

There are several types of persistent identifiers, so why use DOI? DOI is a NISO[12] standard that has become ubiquitous in journal publishing. Academic journal publishers, particularly those in the sciences, have adopted DOI at a rate of over 90%.[13] In terms of ease of use, having a registration agency manage DOI metadata and tracking over the long term is much easier than asking law review staff and/or law librarians to do the work themselves. Other persistent identifier schemes, like ARK, may be free and do not impose membership fees, but users must create and manage their own metadata records and the systems required to host this metadata. Not many law schools have the extra resources to make this approach work. If cost is a concern, it is possible to piggyback onto a Crossref or DataCite membership with a campus library, which may offer access to DOI minting services as part of the services they provide other authors on campus.

DOIs are already being created for legal scholarship

The following describes the DOI minting process of three different law libraries: the James E. Faust Law Library at the University of Utah, the Indiana University Robert H. McKinney School of Law, and Texas A&M University School of Law.

The Faust Law Library at the University of Utah accesses their DOI minting service through their main campus library (J. Willard Marriott Library), which has a DataCite membership as a consortial partner of the California Digital Library. When Faust requested DOI minting services

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[10]N2T—California Digital Library, *Archival Resource Key (ARK) Identifiers ARK* (2021), https://n2t.net/e/ark_ids.html (last visited May 25, 2021).

[11]ORCID, Inc., *About ORCID*, https://info.orcid.org/what-is-orcid/ (last visited Feb. 15, 2022).

[12]National Information Standards Organization, *Welcome to NISO!,* http://www.niso.org/welcome-to-niso (last visited Feb. 15, 2022).

[13]International DOI Foundation, *DOIernational DOI Foundation, N {"citat*, doi.org (2015), https://perma.cc/7AQ4-4F7G (last visited Nov. 18, 2020).

from Marriott, there were no technical or administrative requirements to fulfill. Marriott simply gave Faust access to the metadata deposit form that mints DOIs when the metadata is submitted. An example of the metadata deposit form used by the Utah Law Review can be downloaded at http://cdn.law.utah.edu/articles/minting-form.pdf.

The three law reviews at Indiana University Robert H. McKinney School of Law also partner with its campus University Library's Center for Digital Scholarship to mint DOIs. University Library joined Crossref as a publisher and assigns DOIs to articles in a number of scholarly journals, including the law reviews. The law reviews are published on the Open Journal System (OJS) platform, which has a module for minting DOIs. Once a law librarian has published an issue, a librarian at University Library registers the DOIs for those articles. Through this platform, all IU McKinney law reviews have DOIs for the full run of their articles. An example of an article with a DOI can be found at https://journals.iupui.edu/index.php/inlawrev/article/view/26096. Once the initial backlog of articles are published and assigned DOIs, it takes around 30 minutes per new issue (six to 10 articles) to upload the articles to OJS and assign DOIs.

Texas A&M University School of Law has implemented DOIs for the content it publishes, including its law journals, reports and white papers, and other digital content. The Law Library supports the process by incorporating the annual Crossref membership fee and all content registration fees into its operating budget and having a scholarly communications law librarian manage the registration and upkeep tasks. Crossref provides web forms for minting DOIs for individual articles and supports batch upload using XML. The total cost of minting DOIs and being a Crossref member has not exceeded $400 in a fiscal year so far. A law librarian also consults with journal students about publishing best practices and implementing DOIs, meets with editors each year to train them to use Digital Commons to publish online, and provides resources like their Law Journal Editor Resource LibGuide.[14] The law journals create DOI strings and include them on the first page of each new article during the layout process, becoming a normal part of preparing articles for publication. Once the students publish a new issue using Digital Commons, a law librarian registers the new DOIs. It takes about five minutes to mint a DOI for a new article using Crossref's online forms. The Law Library helped the law journals add DOI to the backlog of published volumes by providing staff support to put the DOI string on the first page of each article and to register the DOIs with Crossref. The entire system is easy to

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[14]Aaron Retteen, *Research Guides: Law Journal Editor Resource Guide: Getting Started*, https://law.tamu.libguides.com/c.php?g=1160316&p=8469565 (last visited Feb. 15, 2022).

maintain after the initial steps are completed. An example of a Digital Commons metadata record and law review article with DOI can be found at https://scholarship.law.tamu.edu/lawreview/vol8/iss1/6/.

The Law Library also supports the implementation of ORCIDs for authors by educating faculty about ORCID profiles and encouraging registration. ORCID profiles are free to set up, and law librarians can be set up as delegates to help manage profiles. ORCID profiles support importing metadata[15] of content with DOI, and recently HeinOnline has added support[16] for communicating with ORCID profiles.

A plea for adoption

It is long overdue for publishers of legal scholarship to adopt standards like persistent identifiers that have been ubiquitously adopted by other academic publishers and disciplines.[17] Law libraries can be central to the solution by being the connection between law journals and registration agencies like Crossref and DataCite. The benefits of adopting identifiers in legal scholarship touch all stakeholders: faculty authors, student journals, law libraries, the general public, and the law school academic community as a whole. Editors of citation manuals like the Bluebook can look to other citation manuals like the APA Style[18] for examples of how to adopt identifiers like DOIs into citation rules.[19] The barriers to entry, in both cost and achievability, for publishers of legal scholarship are low. A type of "chicken and the egg" situation has emerged where it is unclear to some how to transition from the traditions of print publication models. But almost two decades after the introduction of standards like persistent identifiers, it is time to cook the chicken, scramble the egg, and start leveraging the benefits of modern scholarly communications best practices! If law librarians across the country advocate for law journals at their schools to adopt DOIs, it could lead to the momentum push and snowball effect needed to make this change possible.[20]

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[15]ORCID, Inc., *Add Works Using an Identifier*, https://support.orcid.org/hc/en-us/articles/360022298153-Add-works-using-an-identifier (last visited Feb. 15, 2022).

[16]Heinonline Knowledge Base, *Linking a Pre-Existing ORCID Account to HeinOnline*, https://help.heinonline.org/kb/linking-a-pre-existing-orcid-account-to-heinonline/ (last visited Feb. 15, 2022).

[17]Valeri Craigle, *Adopting DOI in Legal Citation: A Roadmap for the Legal Academy* (2021), https://papers.ssrn.com/abstract=3800465 (last visited Feb. 15, 2022).

[18]International DOI Foundation (IDF), *DOIs and URLs*, https://apastyle.apa.org/style-grammar-guidelines/references/dois-urls (last visited Feb. 15, 2022).

[19]*Id.*

[20]Benjamin J. Keele, *What If Law Journal Citations Included Digital Object Identifiers? A Snapshot of Major Law Journals* (2010), https://papers.ssrn.com/abstract=1577074 (last visited Apr. 23, 2020).