

DOI: The Persistence of Memory



by Richard W. Boss

In late 1997 the Enabling Technologies Committee of the Association of American Publishers, a trade association, launched the Digital Object Identifier (DOI) at the Frankfurt Book Fair. The committee defined the DOI as a “*unique, persistent identifier of intellectual property in the digital environment.*”

Using the DOI, an original electronic publication or the full-text or image of a print publication, or part thereof, can be given a unique identifier just before or at the time of its creation, and the DOI would remain with it throughout its life span. DOIs are created by and meant for the publishing community, not the individual web user.

The DOI is Unique

Its prefix identifies its publisher, much as the first numbers of an ISBN identify a publisher. That is followed by a slash (/) and a suffix that identifies the piece down to a level of “granularity” that the publisher determines: a book, an article, an issue, an image, or even a paragraph within a larger document.

An example of a complete DOI name is 10.1000/182:

10.1000 is the prefix with 10 the directory code with which all DOI names start and 1000 is the registrant code, which may be a publisher or a journal. The prefix is assigned by a DOI Registration Agency.

182 is the suffix or item ID that identifies a single digital object. For this DOI name, the object corresponding to doi:10.1000/182 is the latest version of the “DOI Handbook.” The suffix is assigned by the registrant and must be unique within a prefix. It need not be a simple number such as in the foregoing example, but can integrate an existing standard identifier such as an ISBN, ISSN, or SICL.

The DOI is Persistent

It stays for the life span of the piece, which means that while the URL or other web

address may change, the persistence of the DOI means that the object will always be found—no more 404s. The way that happens is through software called the “Handle System.” The Corporation for National Research Initiatives (www.cnri.reston.va.us), a not-for-profit organization, adapted its Handle System for the DOI. What Handle does is connect the DOI to the document’s current location on the web or to a location that points to the document, such as a request form. In technical terms, it “resolves” the DOI to the URL where the document can be found. If the URL changes, the publisher informs Handle’s directory. The DOI does not change, and so all the links to that document are then mapped to the new URL.

The DOI Identifies a Piece of Digital Intellectual Property

How publishers choose to define “a piece” can be macro: an entire online book or an entire online issue of a journal; or it can be micro: a single article, excerpt, image, or chart. It is possible that information about how to access a particular digital object may include fees. Sometimes, for some objects, it will, but that is not its entire purpose, even as foreseen by some in the publishing community.

The International DOI Foundation, a not-for-profit organization, based in New York and Geneva and founded in 1997, maintains a web site, www.doi.org, that explains DOI, the Handle technology that supports it, links to papers and other publications exploring the implications of DOI.

Publishers have been able to register with the Foundation since October of 1998. As of late 2009, more than forty million DOI names had been assigned by DOI System Registration Agencies in North America, Europe, and Australia.

While the DOI was designed as a tool for publishers, its use has implications for librarians. Given the many sources of information that one can now access from a patron access catalog, a library portal, and a variety of search engines, the DOI makes it possible to determine which documents that have been retrieved are actually identical even though they may have different metadata in the respective databases.

The DOI is an important element in the Vocabulary Mapping Framework (VMF) Project, an initiative of the International DOI Foundation to create an extensive and authoritative mapping tool among major metadata standards such as MARC21, FRBR, and a dozen others. As the VMF matures, it is expected to make access to digital information easier, faster, and increasingly less subject to unwanted duplication in search results.

Prepared by Richard W. Boss, February 19, 2010

ALA American Library Association

50 E Huron St., Chicago IL 60611 | 1.800.545.2433