



**NISO RP-25-201x-2B**

# **Persistent Identifiers in Scholarly Communications**

For public review and comment from May 13 – June 11, 2016

*A Recommended Practice of the  
National Information Standards Organization*

**DRAFT FOR PUBLIC COMMENT**

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## Foreword

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### About this Recommended Practice

Altmetrics are increasingly being used and discussed as an expansion of the tools available for measuring the scholarly impact of research in the knowledge environment. The NISO Alternative Assessment Metrics Project was begun in July 2013 with funding from the Alfred P. Sloan Foundation to address several areas of limitations and gaps that hinder the broader adoption of altmetrics. This document is one output from this project, intended to help organizations that wish to use altmetrics to effectively communicate about them with each other and with those outside the community.

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### NISO Business Information Topic Committee

This recommended practice is part of the portfolio of the Business Information Topic Committee. At the time the Topic Committee approved this recommended practice for publication, the following individuals were committee members:

*[to be added by NISO after approval]*

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## NISO Altmetrics Initiative Working Group B Members

The following individuals were members of the NISO Persistent Identifiers and Alternative Outputs Working Group, which developed this standard.

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NISO Persistent Identifiers and Alternative Outputs Working Group wishes to acknowledge the following individuals outside the formal working group members who contributed to this effort: Karen Gutzman (Galter Health Sciences Library at Northwestern University).

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## Trademarks, Services Marks

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## Section 1: Summary

The NISO Alternative Assessment Metrics (Altmetrics) Initiative launched in 2013 with a grant from the Alfred P. Sloan Foundation to explore, identify, and advance standards and/or best practices related to new assessment metrics in the community. The first phase of this project exposed areas for potential standardization in usage based metrics, social media references, network behavioral analysis, and non-traditional research outputs. The second phase of this project work is accomplished by three working groups, each focused upon different aspects of the altmetrics space: definitions and use cases, persistent identifiers and alternative output types, and a code of conduct.

The focus for the NISO Persistent Identifiers and Alternative Outputs Working Group included investigation of alternative research outputs and application of persistent identifiers in the scholarly environment to clearly identify research outputs and their relationships. The composition of the Persistent Identifiers and Alternative Outputs Working Group was developed to represent a balance of parties who are interested in nontraditional research outputs and identifiers, with just under half of the 33 members coming from academic institutions and libraries. Publishers and other organizations in the scholarly ecosystem make up the majority of the rest of the group's membership. The organizations represented are drawn from bodies that have an interest in research output metrics.

## Section 2: Background and Context

The use of Persistent Identifiers has increased as scholarly communications have become increasingly digital. In particular, use of the Digital Object Identifier (DOI), which began in 2000, has become pervasive when identifying scholarly articles, and latterly research data and alternative research products. In common with other persistent identifiers, the DOI Foundation obliges certain metadata and linking technologies to be adopted by its users. The consequence of using semantic and other standard approaches is that open infrastructures can be built to support interoperability and to support open science. For example, the ORCID organization, DataCite, and Crossref are able to map documents, data, and researchers using DOIs and ORCIDs.

The number of and the range of kinds of persistent identifiers used in scholarly communications are increasing. By listing and detailing a subset of them in this document, we hope to encourage efforts to support open science and interoperability, and to measure, evaluate, and report on the effectiveness of research infrastructure and communication.

This Persistent Identifiers in Scholarly Communications document is an environmental scan of common persistent identifiers that are used across a variety of scholarly domains to identify research outputs of any known type. Persistent identifiers may be applied to content at multiple levels of granularity, from links to a subset of a dataset to links to aggregated content. The purpose of this document is to raise awareness of the scope and complexity of persistent identifier use across systems, in the hopes of promoting and facilitating the use of persistent identifiers.

This document provides an alphabetized list of known persistent identifiers, with a source, links to schema information or project site, domain relevance, and additional notes about the identifier where available. The domains vary to include businesses, chemical substances, publications, standards, software, molecular biology, mathematics, drugs, patents, physics and more.

### **Section 3: Implications for Future Research**

Future work in this area could include further characterization of the persistent identifiers for attributes such as availability of an API (application programming interface) and availability of persistent identifiers as RDF (Resource Description Framework) or other data formats. A better examination of the relative amounts of data available for each identifier is also needed. Other areas of work could include assessment of the extent of nontraditional research outputs types that are not yet managed with persistent identifiers, which are a critical component of enabling long-term management of access and relationships. Finally, there is an opportunity to help support a meaningful conversation about persistent identifiers and the use of URIs (Uniform Resource Identifiers). Ultimately, work must focus on these and other key areas to support the value of persistent identifiers to support interoperability and data exchange.

## Section 4: A Living Document

The scholarly environment is growing and evolving at a breakneck pace. Work that is accomplished with this attempt to identify and characterize ongoing efforts regarding persistent identifiers will become obsolete almost as soon as it is published. For this reason, and to promote ongoing engagement with the broader scholarly community, we have produced a version of this table as an editable Google Spreadsheet at <https://goo.gl/1Ka76p>. We invite public comment and edits to the document to support an ongoing discussion on the topic of persistent identifiers leveraged as part of modern research and scholarly work.

## Appendix A: Persistent Identifiers in Scholarly Communications

Persistent Identifier	Description	Source	Schema Information, link to project site	Domain relevance	Notes/Description
ABN	Australian Business Number	<a href="https://en.wikipedia.org/wiki/Identifier">https://en.wikipedia.org/wiki/Identifier</a>	<a href="http://downloads.icbglobal.org/au/ATO/ATO_Format_of_the_ABN_NAT2956.pdf">http://downloads.icbglobal.org/au/ATO/ATO_Format_of_the_ABN_NAT2956.pdf</a>	Australian businesses, government agencies, charities, super funds	Issued by the Australian Business Register (ABR) which is operated by the Australian Taxation Office <a href="https://abr.gov.au/">https://abr.gov.au/</a>
AGR	Agricola identifier	<a href="https://members.orcid.org/api/supported-work-identifiers">https://members.orcid.org/api/supported-work-identifiers</a>		Agriculture	Several identifiers are available in Agricola. See here for more information: <a href="http://agricola.nal.usda.gov/help/disphlp1.htm">http://agricola.nal.usda.gov/help/disphlp1.htm</a>
ANSI/NISO Number	ANSI/NISO number	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://id.loc.gov/vocabulary/identifiers/ansi.html">http://id.loc.gov/vocabulary/identifiers/ansi.html</a>	General use	American National Standards Institute and National Information Standards Organization number for an ANSI or ANSI/NISO standard
ARK	Archival Resource Key	<a href="http://dictionary.casra.i.org/Output_ID_Types/ARK">http://dictionary.casra.i.org/Output_ID_Types/ARK</a>	<a href="https://wiki.ucop.edu/display/Curation/ARK">https://wiki.ucop.edu/display/Curation/ARK</a>	General use	Actionable identifiers that can connect to three things: the object itself, a metadata record, and a commitment statement. ARKs are championed by the California Digital Library and there are no fees for assigning or using them.
arXiv	Eprints identifier for published works	<a href="http://dictionary.casra.i.org/Output_ID_Types/ARXIV">http://dictionary.casra.i.org/Output_ID_Types/ARXIV</a>	<a href="https://arxiv.org/help/arxiv_identifier">https://arxiv.org/help/arxiv_identifier</a>	Published works	ArXiv offers a community-based sustainability model for scientific papers in the fields of physics, mathematics, computer science, quantitative biology, quantitative finance, and statistics.
AAVSO ID	AAVSO (American Association of Variable Star Observers) Unique Identifier	<a href="https://www.aavso.org/aavso-unique.identifier">https://www.aavso.org/aavso-unique.identifier</a>	<a href="https://www.aavso.org/aavso-unique-identifier">https://www.aavso.org/aavso-unique-identifier</a>	Astronomical data literature	Replaces use of the Harvard Designation, which identified stars by their position in the sky. This system supports variable stars, and scales to identify the hundreds of thousands expected to be discovered as modern surveys come online.
AUID (Elsevier's Scopus)	Scopus author identifier	<a href="https://www.elsevier.com/solutions/scopus/support/authorprofile">https://www.elsevier.com/solutions/scopus/support/authorprofile</a>		General	The Scopus author identifier distinguishes authors from one another by assigning each a unique number and then grouping all documents by the same person together.

BIBCODE	Bibliographic codes in astronomy	<a href="http://dictionary.casra.i.org/Output_ID_Types/BIBCODE">http://dictionary.casra.i.org/Output_ID_Types/BIBCODE</a>	<a href="http://adsabs.harvard.edu/abs/_doc/help_pages/data.html">http://adsabs.harvard.edu/abs/_doc/help_pages/data.html</a>	Astronomical data literature	A 19-digit identifier that describes astronomy and physics journal articles. Originally adopted by SMBAD and NED projects.
CAGE Code	Commercial and Government Entity Code for governmental suppliers	<a href="http://www.nato.int/structure/AC/135/main/pdf/NCS_codes_chart.pdf">http://www.nato.int/structure/AC/135/main/pdf/NCS_codes_chart.pdf</a>	<a href="https://en.wikipedia.org/wiki/Commercial_and_Government_Entity_code">https://en.wikipedia.org/wiki/Commercial_and_Government_Entity_code</a>	Government	CAGE codes are unique identifiers assigned to suppliers of government or defense agencies, as well as to government agencies and other organizations. The National Codification Bureau (NCB) of each NATO or NATO-sponsored nation is responsible for the maintenance of the CAGE code information for entities in these respective countries. There are at least 1.5 million entities in the catalog.
CASRN	Chemical Abstracts Service (CAS) unique numerical identifier	<a href="https://en.wikipedia.org/wiki/CAS_Registry_Number">https://en.wikipedia.org/wiki/CAS_Registry_Number</a>	<a href="https://www.cas.org/content/chemical-substances/faqs">https://www.cas.org/content/chemical-substances/faqs</a>	Chemical substances	Uniquely identifies every chemical substance described in the open scientific literature (from 1957 to the present); actively maintained in a registry. Also known as CAS Number or CAS Registry Number.
CBA	Chinese biological abstracts identifier	<a href="https://members.orcid.org/api/supported-work-identifiers">https://members.orcid.org/api/supported-work-identifiers</a>	<a href="http://english.sibs.cas.cn/sp/CBA/CBADatabase/">http://english.sibs.cas.cn/sp/CBA/CBADatabase/</a>	Publishing	Chinese Biological Abstract (CBA) Database, a comprehensive literature database collecting the research achievements in the Chinese life sciences.
CCDS ID	Consensus Coding Sequence (CCDS) identifier	<a href="https://www.ncbi.nlm.nih.gov/CCDS/CcbsBrowse.cgi">https://www.ncbi.nlm.nih.gov/CCDS/CcbsBrowse.cgi</a>	<a href="https://www.ncbi.nlm.nih.gov/CCDS/CcbsBrowse.cgi#idtracking">https://www.ncbi.nlm.nih.gov/CCDS/CcbsBrowse.cgi#idtracking</a>	Life Sciences	The Consensus CDS (CCDS) project is a collaborative effort to identify a core set of human and mouse protein coding regions that are consistently annotated and of high quality. The long term goal is to support convergence towards a standard set of gene annotations.
CODEN	CODEN	<a href="http://bibframe.org/vocab/coden.html">http://bibframe.org/vocab/coden.html</a>	<a href="https://en.wikipedia.org/wiki/CODEN">https://en.wikipedia.org/wiki/CODEN</a>	Technical and chemistry-related publications	An identifier for scientific and technical periodical titles assigned by the International CODEN Section of Chemical Abstracts Service.
DIN	Drug Identification Number	<a href="http://encyclopedia.thefreedictionary.com/Drug+Identification+Number">http://encyclopedia.thefreedictionary.com/Drug+Identification+Number</a>		Drugs approved by the Therapeutic Products Directorate which permits sale of the drug in Canada	Any product defined as a drug under the Canadian Food and Drugs Act must have a Drug Identification Number (DIN).
DIN Standard Number	Document Identification Number	<a href="https://en.wikipedia.org/wiki/Identifier">https://en.wikipedia.org/wiki/Identifier</a>	<a href="http://www.din.de/en/about-standards/din-spec-en">http://www.din.de/en/about-standards/din-spec-en</a>	Standards	Originated in Germany, but now used internationally, these identifiers are assigned to standards similarly to NISO/ISO standards numbers. Example: DIN SPEC 91342 is the "Characterization of volume flux of droplets in sprays and flows."

DNB/PersID	Person identifier	<a href="http://www.dnb.de/EN/Wir/Projekte/Archiv/persId.html">http://www.dnb.de/EN/Wir/Projekte/Archiv/persId.html</a>	<a href="http://www.persid.org/">http://www.persid.org/</a>	Digital preservation in Europe	From October 2009 to March 2011, the German National Library was involved in a project aimed at standardizing and integrating persistent identifier (PI) solutions in Europe. The objective of the "PersID" project was to help set up a European infrastructure for persistent identifiers. The PersID initiative provides an independent, flexible, and trustworthy system of identifying resources and making reliable links to them through implementation of an international standard system, the National Bibliography Number (NBN).
DOI	Digital Object Identifier System	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://dx.doi.org/">http://dx.doi.org/</a>	Object identifier	Technically based on the Handle system. DOIs are centrally administered by the IDF (International Data Foundation). The system was founded in 1998, and nine registration agencies existed in 2012. DOIs are expressed in an ISO (International Organization for Standardization) standard and are used in CrossCite content negotiation ( <a href="http://crosscite.org/cn/">http://crosscite.org/cn/</a> ). See the handbook at <a href="http://www.doi.org/hb.html">http://www.doi.org/hb.html</a>
E number	Europe Number	<a href="https://en.wikipedia.org/wiki/Identifier">https://en.wikipedia.org/wiki/Identifier</a>	<a href="https://en.wikipedia.org/wiki/E_number">https://en.wikipedia.org/wiki/E_number</a>	Chemistry; food industry	E numbers are codes for substances that are permitted to be used as food additives for use within the European Union and Switzerland. <a href="http://ec.europa.eu/food/safety/food_improvement_agents/index_en.htm">http://ec.europa.eu/food/safety/food_improvement_agents/index_en.htm</a>
EAN	International Article Number	<a href="http://id.loc.gov/vocabulary/identifiers/ean.html">http://id.loc.gov/vocabulary/identifiers/ean.html</a>		Publishing/Books	An EAN-13 barcode (originally European Article Number, but now renamed International Article Number even though the abbreviation EAN has been retained) is a 13-digit (12 data and one check) barcoding standard that is a superset of the original 12-digit Universal Product Code (UPC) system developed in 1970 by George J. Lauer. The EAN-13 barcode is defined by the standards organization GS1.
EC Number	Enzyme Commission Number	<a href="https://en.wikipedia.org/wiki/Enzyme_Commission_number">https://en.wikipedia.org/wiki/Enzyme_Commission_number</a>	<a href="http://www.chem.qmul.ac.uk/iubmb/enzyme/">http://www.chem.qmul.ac.uk/iubmb/enzyme/</a>	Biochemistry, molecular biology	A classification schema for enzyme-catalyzed reactions, started in 1955, when the International Congress of Biochemistry in Brussels set up an Enzyme Commission. Additions continue to be published at the website of the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology.
EID	Electronic ID (Scopus)	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>		Publishing	The EID refers to objects in Scopus, Elsevier's abstract and citation database of peer-reviewed literature, including scientific journals, books, and conference proceedings.
EIDR	Entertainment Identifier Registry	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://eidr.org/">http://eidr.org/</a>	Entertainment	The EIDR ID system creates the universal, unique identifiers for movie and TV assets across the global entertainment supply chain.
Ensembl IDs	Ensembl ID	<a href="http://useast.ensembl.org/index.html">http://useast.ensembl.org/index.html</a>	<a href="http://useast.ensembl.org/info/genome/stable_ids/index.html">http://useast.ensembl.org/info/genome/stable_ids/index.html</a>	Life Sciences	A unique identifier for a record from the Ensembl database.

ETHOS	Electronic Theses Online Service Persistent Identifier	<a href="https://members.orcid.org/api/supported-work-identifiers">https://members.orcid.org/api/supported-work-identifiers</a>	<a href="http://ethos.bl.uk/Help.do">http://ethos.bl.uk/Help.do</a>	Theses and Dissertations	EThOS records have a unique, persistent EThOS identifier, beginning with uk.bl.ethos. The number following this (e.g., uk.bl.ethos.235656) is a unique identifier for the EThOS record.
GO identifier	Gene Ontology identifier	<a href="http://geneontology.org/page/about">http://geneontology.org/page/about</a>	<a href="http://geneontology.org/page/download-ontology">http://geneontology.org/page/download-ontology</a>	Life Sciences	A controlled vocabulary of terms for describing gene product characteristics and gene product annotation data from GO Consortium members, as well as tools to access and process these data.
GRID	Global Research Identifier Database	<a href="https://www.grid.ac/">https://www.grid.ac/</a>	<a href="https://www.grid.ac/pages/policies">https://www.grid.ac/pages/policies</a>	Locations	GRID is comprised of a worldwide collection of institutes associated with academic research. The institutes contained are distinguished by a unique identifier, called a GRID ID. Each unique GRID record also contains relevant metadata, and details relationships between associated institutes.
GUID	Globally Unique Identifier	<a href="http://www.niso.org/news/events/niso/past/ID-06-wkshp/definitions.html">http://www.niso.org/news/events/niso/past/ID-06-wkshp/definitions.html</a>	<a href="http://www.ietf.org/rfc/rfc4122.txt">http://www.ietf.org/rfc/rfc4122.txt</a>	Computer software	GUIDs are usually stored as 128-bit values, and are commonly displayed as 32 hexadecimal digits with groups separated by hyphens, such as: 21EC2020-3AEA-4069-A2DD-08002B30309D.
IGSN	International Geo Sample Number	<a href="https://en.wikipedia.org/wiki/International_Geo_Sample_Number">https://en.wikipedia.org/wiki/International_Geo_Sample_Number</a>	<a href="http://www.geosamples.org/igsn/about">http://www.geosamples.org/igsn/about</a>	Geosciences	IGSN stands for International Geo Sample Number. The IGSN is nine-digit alphanumeric code that uniquely identifies samples from our natural environment and related sampling features. You can get an IGSN for your sample by registering it in the System for Earth Sample Registration, SESAR.
InChI	IUPAC International Chemical Identifier	<a href="https://en.wikipedia.org/wiki/International_Chemical_Identifier">https://en.wikipedia.org/wiki/International_Chemical_Identifier</a>	<a href="http://iupac.org/who-we-are/divisions/division-details/inchi/">http://iupac.org/who-we-are/divisions/division-details/inchi/</a>	Chemical substances	The IUPAC International Chemical Identifier (InChI) is a nonproprietary identifier for chemical substances that can be used in printed and electronic data sources, enabling easier linking of diverse data compilations. It was developed under IUPAC Project 2000-025-1-800 during the period 2000-2004.
ISAN	International Standard Audiovisual Number	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://www.isan.org">http://www.isan.org</a>	Audiovisual	ISAN (International Standard Audiovisual Number) is a voluntary numbering system and metadata schema for the unique and persistent identification of audiovisual works and versions thereof including films, shorts, documentaries, television programs, sports events, advertisements, etc.

ISBN	International Standard Book Number (the actionable ISBN)	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="https://en.wikipedia.org/wiki/International_Standard_Book_Number">https://en.wikipedia.org/wiki/International_Standard_Book_Number</a>	Books	The International Standard Book Number (ISBN) is a unique commercial book identifier. An ISBN is assigned to each edition and variation (except reprintings) of a book. For example, an e-book, a paperback, and a hardcover edition of the same book would each have a different ISBN. The ISBN is 13 digits long if assigned on or after 1 January 2007, and ten digits long if assigned before 2007. The method of assigning an ISBN is nation-based and varies from country to country, often depending on how large the publishing industry is within a country.
ISMN	International Standard Music Number	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://www.ismn-international.org/whatis.html">http://www.ismn-international.org/whatis.html</a>	Music	A unique number for the identification of all notated music publications from all over the world, whether available for sale, hire, or gratis—whether a part, a score, or an element in a multimedia kit.
ISWC	International Standard Musical Work Code	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://www.iswc.org">http://www.iswc.org</a>	Music	ISWC (International Standard Musical Work Code) is a unique, permanent, and internationally recognized ISO reference number for the identification of musical works.
ISNI	International Standard Name Identifier	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="https://en.wikipedia.org/wiki/International_Standard_Name_Identifier">https://en.wikipedia.org/wiki/International_Standard_Name_Identifier</a>	Name	The International Standard Name Identifier (ISNI) is an identifier for uniquely identifying the public identities of contributors to media content such as books, TV programs, and newspaper articles. Such an identifier consists of 16 digits. It can optionally be displayed as divided into four blocks.
ISO	International Organization for Standardization number for an ISO standard	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://www.iso.org/iso/catalogue_detail?csnumber=44292">http://www.iso.org/iso/catalogue_detail?csnumber=44292</a>	Creator ID	ISO has published more than 19,000 International Standards and related documents, covering almost every industry, from technology, to food safety, to agriculture and healthcare.
ISRC	International Standard Recording Code	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>		Sound	International Standard Recording Code. The ISRC is separated into four distinct elements in order to ensure that the ISRCs you assign will be unique. Since recording rights can change ownership over time, it is particularly dangerous to assume ownership based on the Registrant portion of the code. The Year of Reference now represents the year in which the ISRC was assigned. The date of copyright should not be inferred from this portion of an ISRC. The issuance of an ISRC does not imply the registration of a copyright.
ISSN	International Standard Serial Number	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://www.issn.org/">http://www.issn.org/</a>	Serials and other continuing resources	An International Standard Serial Number (ISSN) is an eight-digit serial number used to uniquely identify a serial publication. The ISSN is especially helpful in distinguishing between serials with the same title. ISSN are used in ordering, cataloging, interlibrary loan, and other practices in connection with serial literature.

ITAR	Import service and authority files - Norway	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://www.heal-link.gr/SELL/OA_reports/NordicCountries.pdf">http://www.heal-link.gr/SELL/OA_reports/NordicCountries.pdf</a>	Publishing	Importtjeneste og autoritetsregistre (Norwegian for “Import service and authority files”). ITAR is both an authority record for scientific publication channels, publication types, and institutions and a service that imports scientific publication data from the data providers ISI, NorArt, and BIBSYS. These data are available to all registrants in ForskDoc or FRIDA. Norwegian Social Science Data Services (NSD) is responsible for the running and updating of the authority record.
LCCN	Library of Congress Control Number	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>		Library-owned items for which the Library of Congress has a record on file.	The Library of Congress was established in 1800, making this a very stable assigning agency. To access a bibliographic record in the Library of Congress Linked Data Service, see: <a href="http://id.loc.gov/authorities/names/nr97026911">http://id.loc.gov/authorities/names/nr97026911</a> To access a bibliographic record in the Library of Congress catalogs via a Permalink, see: <a href="http://lcn.loc.gov/99209023">http://lcn.loc.gov/99209023</a>
LSID	Life Science Identifier - not current	<a href="http://www.ipni.org/luids.html">http://www.ipni.org/luids.html</a> ; <a href="https://en.wikipedia.org/wiki/LSID">https://en.wikipedia.org/wiki/LSID</a>	<a href="http://www.ipni.org/luids.html">http://www.ipni.org/luids.html</a> ; <a href="https://en.wikipedia.org/wiki/LSID">https://en.wikipedia.org/wiki/LSID</a>	Bioinformatics and biodiversity communities	Life Science Identifiers (LSIDs) are persistent, globally unique identifiers for biological objects.
MR	Mathematical Reviews	<a href="https://members.orscid.org/api/supported-work-identifiers">https://members.orscid.org/api/supported-work-identifiers</a>	<a href="https://en.wikipedia.org/wiki/Mathematics_Subject_Classification">https://en.wikipedia.org/wiki/Mathematics_Subject_Classification</a>	Mathematics	Equivalent to MathSciNet, <i>Mathematical Reviews</i> is a journal and online bibliographic database published by the American Mathematical Society (ASM) that contains brief synopses of many articles in mathematics, statistics, and theoretical computer science.
MSC	Mathematical Subject Classification	<a href="https://en.wikipedia.org/wiki/Mathematics_Subject_Classification">https://en.wikipedia.org/wiki/Mathematics_Subject_Classification</a>	<a href="http://msc2010.org/mediawiki/index.php?title=MSC2011">http://msc2010.org/mediawiki/index.php?title=MSC2011</a>	Mathematics	The Mathematics Subject Classification (MSC) is an alphanumeric classification scheme collaboratively produced by staff of, and based on the coverage of, the two major mathematical reviewing databases, <i>Mathematical Reviews</i> and <i>Zentralblatt MATH</i> . It is used by many mathematics journals, which ask authors of research papers and expository articles to list subject codes from the Mathematics Subject Classification in their papers. The current version is MSC2010.
NDC	National Drug Code	<a href="http://encyclopedia.thefreedictionary.com/National+Drug+Code">http://encyclopedia.thefreedictionary.com/National+Drug+Code</a>	<a href="http://www.fda.gov/downloads/ForIndustry/DataStandards/StructuredProductLabeling/UCM164053.pdf">http://www.fda.gov/downloads/ForIndustry/DataStandards/StructuredProductLabeling/UCM164053.pdf</a>	Drugs in the US	A unique ten-digit, three-segment numeric identifier assigned to each medication listed under Section 510 of the U.S. Federal Food, Drug, and Cosmetic Act. The segments identify the labeler or vendor, product, and trade package.
NIPO	Número de Identificación de las Publicaciones Oficiales	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://www.bne.es/es/Inicio/Perfiles/Bibliotecarios/NumerosNormalizados/">http://www.bne.es/es/Inicio/Perfiles/Bibliotecarios/NumerosNormalizados/</a>	Publishing	Número de Identificación de las Publicaciones Oficiales (Publication numbering system by the National Library of Spain, Biblioteca Nacional de España.)

OCCL PURL	Persistent URLs that act as permanent identifiers	<a href="http://www.purlz.org/">http://www.purlz.org/</a>	<a href="https://purl.org/docs/index.html">https://purl.org/docs/index.html</a>	General	Persistent URLs (PURLs) are URLs that offer a simple redirection service, with the main advantage of being very simple to use. A free service to support the registration and resolution of PURLs is offered by OCLC.
OCN	OCLC Control Number (Online Computer Library Center)	<a href="https://members.orcid.org/api/supported-work-identifiers">https://members.orcid.org/api/supported-work-identifiers</a>	<a href="https://www.oclc.org/batchload/controlnumber.en.html">https://www.oclc.org/batchload/controlnumber.en.html</a>	Libraries	The OCLC Control Number is a unique, sequentially assigned number associated with a record in WorldCat. The number is included in a WorldCat® record when the record is created. The OCLC Control Number enables successful implementation and use of many OCLC products and services, including WorldCat Local and WorldCat Navigator.
OLID	Open Library Identifier		<a href="https://www.wikidata.org/wiki/Property:P648">https://www.wikidata.org/wiki/Property:P648</a>	Open library	Open Library’s identifier for works, editions, and authors.
OMIM ID	Online Mendelian Inheritance in Man (OMIM) identifier	<a href="http://www.omim.org/help/faq">http://www.omim.org/help/faq</a>		Life Sciences	Online Mendelian Inheritance in Man (OMIM) is a continuously updated catalog of human genes and genetic disorders and traits, with particular focus on the molecular relationship between genetic variation and phenotypic expression.
ORCID	Open Researcher and Contributor Identifier	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://orcid.org/">http://orcid.org/</a>	Contributor ID	ORCID IDs are persistent digital identifiers that distinguish among researchers.
OSTI ID	Office of Scientific and Technical Information Identifier	<a href="https://www.osti.gov/elink/aboutDataIDService.jsp">https://www.osti.gov/elink/aboutDataIDService.jsp</a>		Science and technology	This is a unique number that identifies the record in any of OSTI's databases. OSTI is a component of the Office of Science within the U.S. Department of Energy, which maintains publicly available collections of scientific and technical information resulting from research, development, demonstration, and commercial applications. publicly available collections of scientific and technical information resulting from research, development, demonstration, and commercial applications in the United States.
PAT	Patent Number	<a href="https://members.orcid.org/api/supported-work-identifiers">https://members.orcid.org/api/supported-work-identifiers</a>	<a href="http://www.uspto.gov/patent-s-application-process/applying-online/patent-number">http://www.uspto.gov/patent-s-application-process/applying-online/patent-number</a>	Patented discoveries, improvements, creations	A Patent Number includes an eight-character number that is assigned by the USPTO.
PDB ID	Protein Data Bank identifier	<a href="http://www.rcsb.org/pdb/static.do?p=general_information/about_pdb/index.html">http://www.rcsb.org/pdb/static.do?p=general_information/about_pdb/index.html</a>	<a href="http://www.rcsb.org/pdb/statusHelp.do?p=help/advancedsearch/pdbIDs.html">http://www.rcsb.org/pdb/statusHelp.do?p=help/advancedsearch/pdbIDs.html</a>	Life Sciences	A four-character unique identifier of every structural entry in the Protein Data Bank (PDB). The PDB archive is the single worldwide repository of information about the 3D structures of large biological molecules, including proteins and nucleic acids. These are the molecules of life that are found in all organisms including bacteria, yeast, plants, flies, other animals, and humans.
PDG Identifiers	Particle Data Group Identifiers, Lawrence Berkeley National Laboratory	<a href="http://pdg.lbl.gov/2015/pdgid/PDGIdentifiers.html">http://pdg.lbl.gov/2015/pdgid/PDGIdentifiers.html</a>	<a href="http://pdg.lbl.gov/2013/pdgid/PDGIdentifierProposal.pdf">http://pdg.lbl.gov/2013/pdgid/PDGIdentifierProposal.pdf</a>	Physics	PDG Identifiers are references to items of PDG data such as particles, particle properties, decay modes, and review articles.

PII	Publisher Item Identifier	<a href="https://en.wikipedia.org/wiki/Publisher_Item_Identifier">https://en.wikipedia.org/wiki/Publisher_Item_Identifier</a>	<a href="https://en.wikipedia.org/wiki/Publisher_Item_Identifier">https://en.wikipedia.org/wiki/Publisher_Item_Identifier</a>	Publishing	A PII uses the preexisting ISSN or ISBN of the publication in question, and adds a character for source-publication type, an item number, and a check digit.
PMCID	PubMed Central reference number	<a href="http://www.ncbi.nlm.nih.gov/pmc/about/public-access-info/#p3">http://www.ncbi.nlm.nih.gov/pmc/about/public-access-info/#p3</a>	<a href="http://asklib.hsl.unc.edu/a.php?qid=37565">http://asklib.hsl.unc.edu/a.php?qid=37565</a>	Publishing	PMCID is the unique identifier number used in PubMed Central. People are usually looking for this number in order to comply with the NIH Public Access Regulations. PMCID numbers can be found at the bottom of an article citation in PubMed, but only for articles that have been deposited in PubMed Central.
PMID	PubMed reference number	<a href="http://www.ncbi.nlm.nih.gov/pmc/about/public-access-info/#p3">http://www.ncbi.nlm.nih.gov/pmc/about/public-access-info/#p3</a>	<a href="http://asklib.hsl.unc.edu/a.php?qid=37565">http://asklib.hsl.unc.edu/a.php?qid=37565</a>	Publishing	PMID is the unique identifier number used in PubMed. One is assigned to each article record when it enters the PubMed system, so an in-press publication will not have one unless it is issued as an electronic pre-pub. The PMID number is always found at the end of a PubMed citation.
ResearcherID (Thomson Reuters)	Author identification system	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://www.researcherid.com/Home.action?SID=4AJwR4ahYYmxD1CT3Bd&amp;returnCode=ROUTER.Success&amp;SrcApp=CR&amp;Init=Yes">http://www.researcherid.com/Home.action?SID=4AJwR4ahYYmxD1CT3Bd&amp;returnCode=ROUTER.Success&amp;SrcApp=CR&amp;Init=Yes</a>	Author ID	Each person is assigned a unique identifier to enable researchers to manage their publication lists, track their times cited counts and h-index, identify potential collaborators, and avoid author misidentification. In addition, ResearcherID information integrates with the Web of Science and is ORCID compliant, allowing individuals to claim and showcase publications from a single account.
RRID	Research Resource Identifier	<a href="https://www.force11.org/group/resource-identification-initiative">https://www.force11.org/group/resource-identification-initiative</a>		Neuroscience/ Publishing	The Resource Identification Initiative aims to enable resource transparency within the biomedical literature through promoting the use of unique Research Resource Identifiers (RRIDs).
SICI	Serial Item and Contribution Identifier	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://www.niso.org/apps/group_public/download.php/6514/Serial%20Item%20and%20Contribution%20Identifier%20%28SICI%29.pdf">http://www.niso.org/apps/group_public/download.php/6514/Serial%20Item%20and%20Contribution%20Identifier%20%28SICI%29.pdf</a>	Publishing	This standard defines the requirements for providing in coded form an identifier for each item of a serial and each contribution contained in a serial.
STRN	Standard Technical Report Number	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="http://www.loc.gov/marc/bibliographic/bd027.html">http://www.loc.gov/marc/bibliographic/bd027.html</a>	Science and technology	Assigned to technical reports by the National Technical Information Service (NTIS), which also maintains an assignment registry. These are free to generate and access.
UniProt	Universal Protein Resource	<a href="https://en.wikipedia.org/wiki/UniProt">https://en.wikipedia.org/wiki/UniProt</a>	<a href="http://web.expasy.org/docs/uiserman.html#ID_line">http://web.expasy.org/docs/uiserman.html#ID_line</a>	Bioinformatics, biomedical research, genome sequencing	The Resource Identification Initiative (#RII) is designed to help researchers sufficiently cite the key resources used to produce the scientific findings reported in the biomedical literature.
UPC	Universal Product Code	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="https://en.wikipedia.org/wiki/Universal_Product_Code">https://en.wikipedia.org/wiki/Universal_Product_Code</a>	Commercial products	The Universal Product Code (UPC) is a barcode symbology (i.e., a specific type of barcode) that is widely used in the United States, Canada, United Kingdom, Australia, New Zealand, and in other countries for tracking trade items in stores.

URI	Uniform Resource Identifier	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="https://en.wikipedia.org/wiki/Uniform_Resource_Identifier">https://en.wikipedia.org/wiki/Uniform_Resource_Identifier</a>	General	A string of characters used to identify a resource. Such identification enables interaction with representations of the resource over a network, typically the World Wide Web, using specific protocols. Schemes specifying a concrete syntax and associated protocols define each URI. The most common form of URI is the Uniform Resource Locator (URL).
VIAF	Virtual International Authority File number	<a href="http://id.loc.gov/vocabulary/identifiers.html">http://id.loc.gov/vocabulary/identifiers.html</a>	<a href="https://viaf.org/">https://viaf.org/</a>	General	The Virtual International Authority File (VIAF) combines multiple name authority files into a single OCLC-hosted name authority service. The goal of the service is to lower the cost and increase the utility of library authority files by matching and linking widely-used authority files and making that information available on the Web.