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Information and documentation — Research activity identifier (RAiD)

Information et documentation — Identificateur d'activité de recherche (RAiD)

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 46, *Information and documentation, Subcommittee* SC 9, *Identification and description*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The research activity identifier (RAiD) is a persistent identifier for research projects and supports data management across all phases of research by placing the research activity (or project) at the centre of research workflows, creating a chain of provenance, improving discovery and access, and ensuring that output is attributable and reportable.

It also supports the F.A.I.R Principles[8] of making research data findable, accessible, interoperable, and re-usable.

A RAiD name is associated with a RAiD metadata record.

The RAiD metadata record holds metadata including standard identifiers that relate to research entities or objects encountered by or related to the activity. This includes participant institutions (by use of ISNI, GRID or ROR) and researchers (ORCID ID, ISNI or other identifier).

Information and documentation — Research activity identifier (RAiD)

1 Scope

This document defines the use and structure of the Research Activity Identifier (RAiD) system. The RAiD system includes a registry which supports the identification of research projects, i.e. projects managed in a scholarly or industrial environment which are expected to lead to specified outputs.

It also specifies the RAiD metadata record which holds key metadata relating to the identified project and indicates relationships to other entities and their persistent identifiers and metadata.

RAiD is an identifier for research projects and sub projects or tasks within such projects. It is not itself an identifier for any individual, group or institution, it is not a repository for project documentation or deliverables, nor is it a repository, platform or storage method. It does not apply to research outputs.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
Open Research and Contributor Identifier
ORCID
non-proprietary alphanumeric numbering system designed not to collide with the *ISNI* (3.2) number system and hosted by the ORCID organization, aiming to provide a unique number to scientific and other academic authors so as to uniquely identify such authors' contributions to research

Note 1 to entry: ORCID is managed by ORCID, INC which maintains a webpage at https://orcid.org/.

3.2
ISNI
international standard code data identifying the public identity of parties (a person or an organization) across multiple fields of creative activity

Note 1 to entry: ISNI is specified in ISO 27729.

Note 2 to entry: The name and contact information of the ISO 27729 Registration Authority can be found at https://www.iso.org/mara.

[SOURCE: ISO 5127:2017, modified – Note 2 to entry has been added and emphasis and terminology cross references were removed.]

3.3
grant
money or in kind assistance provided by a *research funding organization* (3.13) to allow *research* (3.10) to take place

3.4
Global Research Identifier Database
GRID
open, persistent *identifier* (3.15) for research organizations

Note 1 to entry: GRID was managed by Digital Science and Research Solutions Ltd which maintains a webpage at https://www.grid.ac/.

Note 2 to entry: GRID has been absorbed into ROR. Identifiers are included in the ROR system even if GRID is deprecated.

3.5
DOI name
string that specifies a unique object within the *DOI system* (3.7)

Note 1 to entry: Names consist of characters in a sequence specified by the *DOI syntax* (3.6).

Note 2 to entry: The terms "identifier" and "number" are sometimes but not always used in the same sense and are to be avoided where ambiguity can arise. The unqualified use of "DOI" alone can also be ambiguous. Therefore "DOI" is always used in conjunction with a specified noun [e.g. DOI name, DOI System] unless the meaning is sufficiently clear from an earlier mention or the specific context.

Note 3 to entry: A DOI name is specified in ISO 26324. The name and contact information of the ISO 26324 Registration Authority can be found at https://www.iso.org/mara.

[SOURCE: ISO 26324:2012, 3.4, modified — Note 3 to entry has been added.]

3.6
DOI syntax
rules for the form and sequence of characters comprising any *DOI name* (3.5) specifically the form and character of a prefix element, separator or suffix element

[SOURCE: ISO 26324:2012, 3.5]

3.7
DOI system
social and technical infrastructure for the assignment and administration of *DOI names* (3.5) as *identifiers* (3.15) in computer-readable form through assignment, resolution, referent description, administration, etc.

[SOURCE: ISO 26324:2012, 3.6]

3.8
Research Organization Registry
ROR
open, persistent *identifier* (3.15) for *research organizations* (3.12)

Note 1 to entry: The Research Organization Registry is managed by a group of cooperating organisations which maintain a webpage at https://ror.org.

3.9
research activity
identifiable package of work involving organized, systematic investigation

Note 1 to entry: A research activity is often described as a project but may be a program of smaller, subsidiary projects or a single task within a larger project.

3.10
research
organized, systematic investigation

3.11
researcher
person involved in *research* (3.10)

3.12
research organization
organization where *research* (3.10) occurs

3.13
research funding organization
body that supplied monetary or in-kind support for *research activities* (3.9) to occur

3.14
research output
digital, physical or performative outcomes of the *research activity* (3.9)

Note 1 to entry: *Research output* (3.14) includes publications (digital and paper), data sets, works of art and non-traditional research outputs such as performances.

3.15
identifier
data string or pointer that establishes the identity of an item, organization or person alone or in combination with other elements

[SOURCE: ISO 5127:2017, modified – removed cross references.]

3.16
RAiD register
database, or similar, of the RAiD names and metadata record contents

3.17
international Geo Sample Number
IGSN
open, persistent *identifier* (3.15) for physical objects

Note 1 to entry: IGSN maintain a webpage at https://www.igsn.org/.

3.18
handle
distributed information system designed to provide an efficient, extensible, and secured global name service for use on networks such as the Internet

[SOURCE: IETF RFC 3650]

4 RAiD components

RAiD names are case-insensitive.

A RAiD name shall be a unique string of alphanumeric characters according to a syntax specified by the Registration Authority following the general format:

<prefix_part>/<suffix_part>

The prefix part is taken from a list maintained and authorized by the Registration Authority. The combination of the prefix part and suffix part shall be managed to be unique to each identified research activity. RAiD names are registered (and assigned if appropriate) by the Registration Authority on request.

A RAiD metadata record is a manifest containing the name by which the activity is known along with structured metadata describing entities associated with a research activity, as specified by the Registration Authority and relating it to the identifiers for the entities. It is stored in the RAiD register.

The metadata may optionally include the relevant names and standard identifiers for entities associated with the research activity.

Each of the elements has a zero to many cardinalities. It is not intended that there be artificial limits on the data stored in a RAiD metadata record if it is useful to users.

At least the elements in Table 1 shall be accommodated.

Table 1 — Elements for the RAiD metadata record

Related entity	Identifiers
Activity name	(string)
Research organization	ISNI, GRID, ROR, other
Research contributor	ORCID, email address, ISNI
Instrument	DOI, other
Stored data	DOI, handle, other
Physical specimen	IGSN, other
Journal articles, pre-prints, conference papers	DOI, other
Research grant	Grant identifier
Funding organization	Organisational identifier
Projects	RAiD
Other	Local identifiers

The Registration Authority shall specify the minimum initial metadata and recommend the richer metadata for a maturing research activity that should appear in the RAiD metadata record.

5 Assignment of a RAiD

The Registration Authority shall, on application, assign or register a RAiD number in accordance with the principles in Annex A to a research activity when appropriate metadata are submitted.

The RAiD name shall be unique to a particular activity, and it shall be managed to be persistent over the expected relevance of that activity.

The Registration Authority shall from time to time publish technical information to enable RAiD system users to request the assignment of a RAiD by the Registration Authority.

6 RAiD register

A register of RAiD names and their associated RAiD metadata records shall be maintained by the Registration Authority. This will be an official registration database managed by the Registration Authority containing all RAiD identifiers and associated metadata records for those RAiDs that have been assigned to date.

The Registration Authority shall publish technical information to allow RAiD system users to query this register and retrieve RAiD names and RAiD metadata records.

7 Presentation of RAiD names

When a RAiD identifier is presented for human consumption on screen or in print media, it shall be preceded by the characters "RAID" in upper case characters and a space.

EXAMPLE 1 If the prefix_part is "123456" and the suffix_part is "654321", the RAiD name is "123456/654321" and it is presented as "RAID 123456/654321".

When a RAiD number is intended to be actionable, it may be presented as or associated with a form of the RAiD which includes the address of a resolution service, which may provide useful information to a user.

EXAMPLE 2 If a RAiD name can be resolved by a service at "https://raid_resolver.org", then an on-screen appearance of "RAID 123456/654321" will be associated with a link to "https://raid_resolver.org/123456/654321".

8 Administration of the RAiD system

The name and contact information of the Registration Authority for this document can be found at https://www.iso.org/mara.

The RAiD system network shall be supervised, coordinated and administered by the ISO 23527 Registration Authority in accordance with the requirements specified in Annex B.

Guidance on implementing the RAiD system is provided in Annex C.

Annex A
(normative)

General principles for the assignment and use of RAiD

A.1 A RAiD name shall not contain semantic information, which shall be restricted to the RAiD metadata record.

A.2 The Registration Authority shall assign a RAiD identifier on request to a research activity if the request meets the requirements of the RAiD system assignment policy established by the Registration Authority.

A.3 Where a research activity forms part of a larger activity, each may be assigned a RAiD identifier and the relationship between the two shall be documented in the metadata record of each.

A.4 A RAiD shall not be assigned to a research activity when a RAiD has already been assigned to an activity which is not materially different to it. The Registration Authority shall publish in the RAiD Handbook guidance on what shall be considered a material difference.

A.5 When a research activity is divided, a new RAiD name may be assigned to each of the parts and the relationships between the parts and the original shall be documented in the relevant RAiD metadata records.

A.6 When two or more research activities are merged, a new RAiD name may be assigned to the new combined activity and the relationship between the combined activity and the original parts shall be documented in the relevant RAiD metadata records.

A.7 The Registration Authority may require users to observe formalities necessary for the protection of the RAiD system.

A.8 The Registration Authority shall specify the circumstances under which changes to a RAiD metadata record can be made and the authority required to initiate such changes.

Annex B
(normative)

Administration of the RAiD system

B.1 General

The RAiD system shall be administered by the Registration Authority in accordance with the specifications outlined in B.2.

B.2 Registration Authority responsibilities

B.2.1 The Registration Authority shall perform the following functions:

B.2.1.1 Promote, coordinate, and supervise the RAiD system in accordance with the specifications of this document.

B.2.1.2 Represent the interests of RAiD users to other relevant entities and promote interoperability with other identifier systems in related fields.

B.2.1.3 Develop, maintain, and make available documentation for users of the RAiD system, including the provision of a RAiD Handbook or similar documentation.

B.2.1.4 Publish the specification of the syntax of a RAiD name in accordance with Clause 4.

B.2.1.5 Manage the list of allowed prefixes specified in Clause 4 and manage their allocation to users, ensuring that all prefixes in use adopt consistent syntaxes.

B.2.1.6 Publish the specification of the RAiD metadata record structure in accordance with Clause 4.

B.2.1.7 Accept so far as is possible existing compatible identifiers into the RAiD system at launch and publish a report on the implementation of this exercise.

B.2.1.8 Select appropriate technology for the RAiD register and operate it to provide the services described in this document, in particular the registration and retrieval services specified in Clause 6.

B.2.1.9 On presentation of a request associated with appropriate metadata, assign a new RAiD and enter it and the metadata into the RAiD register or, if the request is a duplicate, report the existing RAiD.

B.2.1.10 Publish technical specifications of the interfaces to be used by RAiD system users to request the assignment of a RAiD number or registration of an existing research activity identifier as a RAiD.

B.2.1.11 Facilitate the translation of the RAiD Handbook or similar documents and other RAiD material into languages for worldwide consumption and ensure that appropriate levels of support are provided in these languages.

B.2.1.12 Implement policies and procedures governing the processes for RAiD assignment as described in the RAiD handbook or similar documents.

B.2.1.13 Review and decide on appeals of decisions in such matters as rejection of RAiD applications and disputes concerning the appropriateness of assignments of RAiDs.

B.2.1.14 Secure the maintenance of RAiD names and their associated DRM structures.

B.2.1.15 Facilitate the review and resolution of duplicate assignments of RAiDs.

B.2.1.16 Ensure that continuous service is maintained.

B.2.1.17 Compile and maintain statistics about RAiD assignments and service.

B.2.1.18 Implement and maintain sustainable arrangements as necessary to support the operations of the RA.

B.3 Delegation to Registration Agencies

The Registration Authority may delegate certain tasks and services listed in B.2 to Registration Agencies. Potential registrants are advised to consult the website of the Registration Authority to find information concerning the most appropriate Registration Agency to contact and the tasks and services it has been delegated with.

Annex C
(informative)

Implementing the RAiD system

C.1 Overview

The effect of Clause 4 of this document is that the Registration Authority is required to define the prefix-part and then assign a unique suffix-part to each research activity. This allows it to adopt or create a system for resolution (look-up) and query of the resulting database. The syntax in Clause 4 is compatible with many different approaches and this annex outlines some options that the Registration Authority has as it implements the RAiD system.

The benefits of adopting an existing identifier framework include interoperability with other systems that use it and the exploitation of established infrastructure. An entirely new system however allows for capability to be tailored to the specific needs of the RAiD system.

Annex B requires that the Registration Authority make appropriate decisions on these issues and publish its determinations. Any change in the system parameters (such as a change of prefix) over time may create problems for previously assigned identifiers and the Registration Authority is required by Annex B to take this into consideration.

C.2 Adopting an existing national system

An existing identifier system can be adopted for the RAiD system.

An existing national system of research activity identification in Australia uses a syntax and data record schema that is compatible with this document. This national system uses the handle system specified in RFC 3651 under the auspices of the Australian Research Data Commons, a not-for-profit entity that supports data management for scholarly research in Australia. This system uses the handle prefix “10378.1” and assigns handle suffixes to research projects. Thus, an existing national identifier looks like:

10378.1/1590349

By adopting the same prefix and designating the handle system as the means to access the RAiD database, RAiD names assigned under this document can take the same form and indeed previously assigned national identifiers can be accepted into the RAiD system in accordance with B.2.1.7.

C.3 Adopting another existing system

Alternatively, the Registration Authority can adopt the framework of ISO 26324 and declare that the RAiD prefix was “10.98765” so that RAiD identifiers took the form:

10.98765/1590349

ISO 26324 states that this should be presented for human consumption in the form:

doi: 10.98765/1590349

though it can also be presented as an http URI:

https://doi.org/10.98765/1590349

C.4 Create new system

The Registration Authority might take other approaches and might declare the RAiD prefix to be "https://raid_identifier.org" so the RAiD names take the form of an http URI:

https://raid_identifier.org/1590349

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