Recommendation 4.0

Recommendation to use IGSN as the standard reference in technical infrastructures to samples where appropriate

Description

Status: Draft 20.5.2025

Motivation for this Recommendation:

The International Generic Sample Number (IGSN) is a globally unique and persistent identifier designed specifically for physical samples and related objects. At Helmholtz, we recommend the use of IGSNs to ensure that samples—and other tangible sources from which data are derived—can be reliably identified, referenced, and linked across research workflows. The motivation to use IGSNs lies in their ability to improve traceability, reproducibility, and data integration across disciplines. By assigning a persistent identifier to a sample, researchers can unambiguously connect it to associated datasets, publications, instruments, and collection metadata, supporting FAIR principles and enabling long-term reuse and verification of research outcomes.

Recommendation

IGSN is used to identify samples in data infrastructures.

For organizations this means:

- a person or unit should be made responsible to maintain the centres IGSNs.

For data curators this means:

- Enable, train and encourage staff to register IGSN when samples are taken.
- Enable, train and encourage staff to record any parent IGSNs with subsamples.

For researchers it means:

- Record an IGSN with any sample taken.
- Record the parent IGSN with any subsample measured

For data infrastructures:

- record a IGSN to identify samples and parent samples and make this data part of the metadata available for harvesting.
- treat IGSN metadata as the primary source of truth and update your own metadata accordingly.

Binding Convention:

	mandatory	conditional	optional
Helmholtz FAIR Principle			

Precondition for Implementation:

Related Recommendations

Parent:

Dependent:

Other: none

Contributors

Names of contributors to this recommendation

Manu

Content

[1] Plankytė, Vaida, Macneil, Rory, & Chen, Xiaoli. (2023). Guiding principles for implementing persistent identification and metadata features on research tools to boost interoperability of research data and support sample management workflows. Zenodo. https://doi.org/10.5281/zenodo.8284206

1. Explanation of the Background and Benefits of the Recommendation

About

History and structure

Current Use of ...

Motivation

2. Possible alternative solutions

3. Consideration of the advantages and disadvantages of implementing the recommendation

(quality of content, limitations, interoperability, sustainability: expected future dissemination / technical availability / funding)

4. The Recommendation

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Also see [3] Baldewein et al. (2023). FAIR WISH D7 -Standard Operating Procedure for automatic IGSN registration. Zenodo. https://doi.org/10.5281/zenodo.10401380

5. Naming of communities that have already implemented the recommendation

6. Documentation of the test to validate correct implementation

7. Examples of Instances

IGSN is implemented within the Helmholtz association at AWI, GFZ, and Hereon through the FAIRWish Project [4]. See [3] for more information.

Another implementation is documented at the Kiel University (CAU) [6]

8. Further Information

References

[1] Plankytė, Vaida, Macneil, Rory, & Chen, Xiaoli. (2023). Guiding principles for implementing persistent identification and metadata features on research tools to boost interoperability of research data and support sample management workflows. Zenodo. https://doi.org/10.5281/zenodo.8284206

[2] Klump, J., Lehnert, K., Ulbricht, D., Devaraju, A., Elger, K., Fleischer, D., Ramdeen, S., Wyborn, L. (2021): Towards Globally Unique Identification of Physical Samples: Governance and Technical Implementation of the IGSN Global Sample Number. - Data Science Journal, 20, 1, 1-16., DOI: https://doi.org/10.5334/dsj-2021-033

[3] Baldewein, L., Kleeberg, U., Brauser, A., Elger, K., Frenzel, S., Heim, B., & Wieczorek, M. (2023). FAIR WISH D7 - Standard Operating Procedure for automatic IGSN registration. Zenodo. https://doi.org/10.5281/zenodo.10401380

[4] The FAIR Wish Project: https://helmholtz-metadaten.de/de/inf-projects/fair-wish-fair-workflows-to-establish-igsn-for-samples-in-the-helmholtz-association

[5] IGSN Documentation on forschungsdaten.org https://www.forschungsdaten.org/index.php/IGSN

[6] IGSN Service and Documentation at the University Kiel https://igsn.uni-kiel.de/de

Relevant Community Recommendations

9. History of this document