

Unique identifiers for training materials

Module 8 – FAIR Training Material by Design

October 21-22, 2025

Ineke Luijten, PhD 

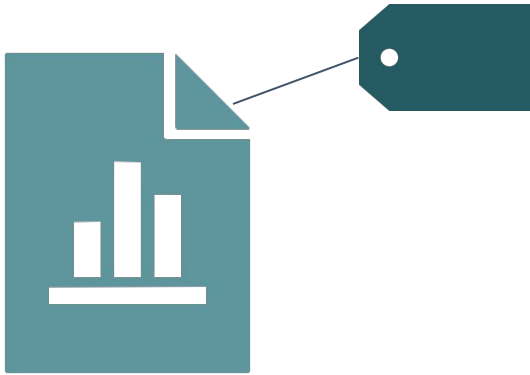
Adjusted from Elin Kronander, PhD 



Learning outcomes

- **Explain** what unique persistent identifiers are and their benefits
- **List** and differentiate the types of unique identifiers that are relevant for publishing and sharing training materials
- **Compare** different strategies for unique identifiers for training materials
- **Create** versioned DOIs for training materials

What is a unique persistent identifier?



Identify



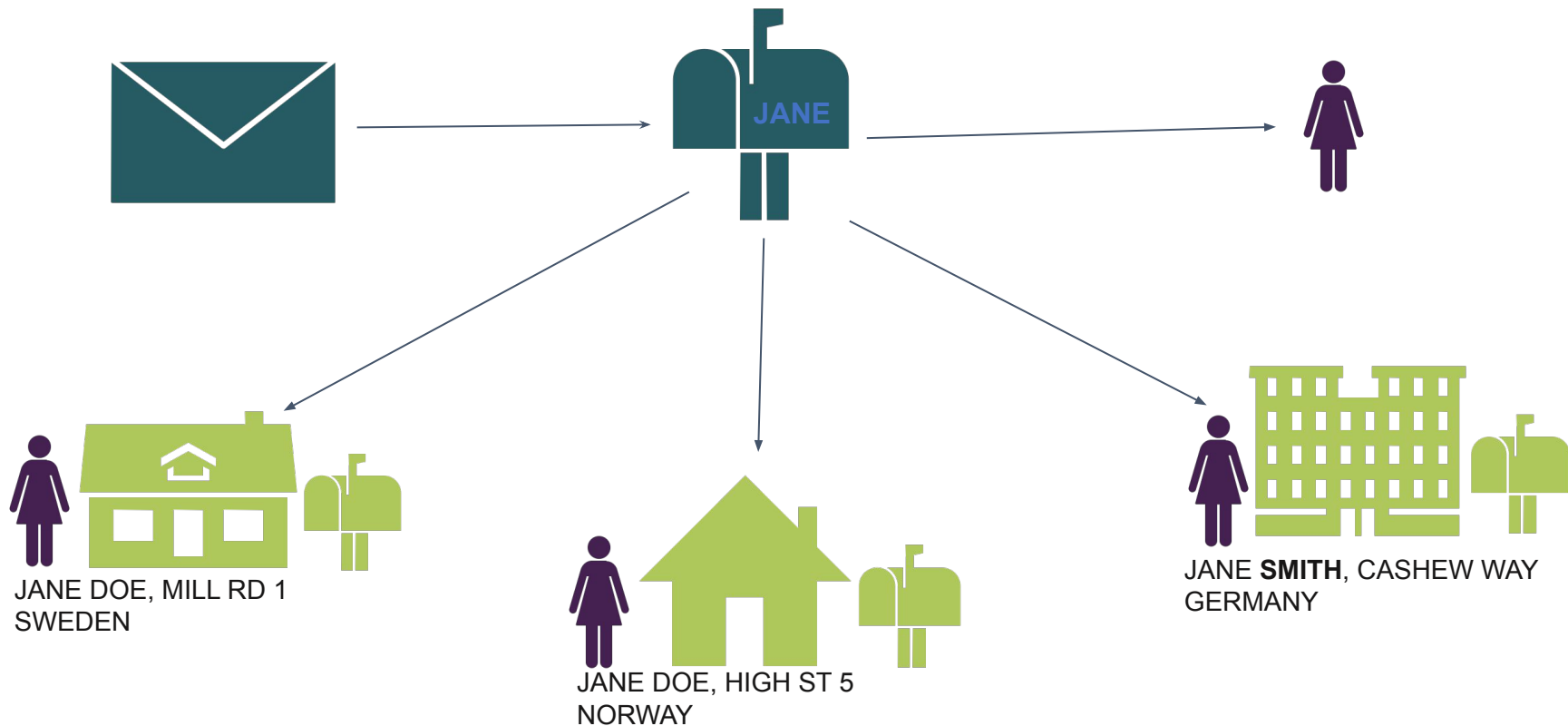
Verify



Locate



An example:



Features of PIDs

- **Globally unique**

- It should comply with a controlled syntax to avoid clashes

- **Persistent**

- It should be maintained for a long period of time. The syntax used for the identifier should also be persistent

- **Resolvable**

- It should allow both human and machine users to access the resource

Digital object identifier - DOI



WHAT ARE THEY?



A digital identifier of any object

Physical, digital, or abstract



Persistent identifiers

A long-lasting reference to an object or to information about an object



Designed to be used by machines

(As well as humans)

Here's an example

<https://doi.org/10.1000/182>

Illustration from the DOI Foundations website
<https://www.doi.org/the-identifier/what-is-a-doi/>

Digital object identifier - DOI

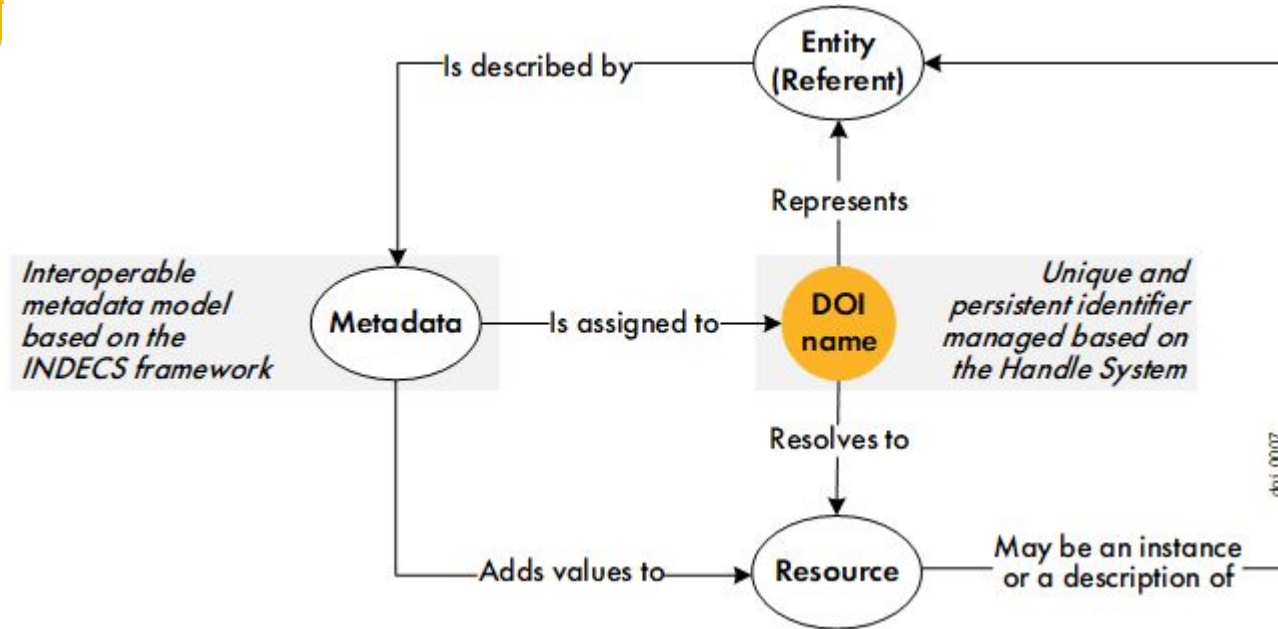


Illustration from The DOI Handbook April 2023 (<https://doi.org/10.1000/182> identifies the latest current version of the handbook)

Benefits of DOIs

- Uniquely distinguish resources from similar objects (F)
- Provides a place to store and manage metadata (F)
- Machine-actionable identifiers improve searchability and findability (F)
- Resolves to a landing page that provides info or access to the resource (A)
- Enhances citability, attribution, and long-term reuse of the resource (R)

Other important PIDs



ORCID - Open Researcher and Contributor ID

Persistent identifiers for individual researchers

Solves name ambiguity (handles homonyms)

Allows aliases if your name changes

Remains the same when affiliation changes

Other important PIDs



ROR - The Research Organization Registry

Persistent identifiers for research organizations

Disambiguates institution names and connections

Open, community-led global registry

 <https://ror.org/04ev03g22>

Science for Life Laboratory

ORGANIZATION TYPES

Facility, Funder

OTHER NAMES

Aliases

SciLifeLab (en)

Persistent identifiers



Reflect

In the context of training materials, why are PIDs needed?

Which identifier would you use for each purpose?

DOI strategies for courses

1. Group discussion 10 minutes

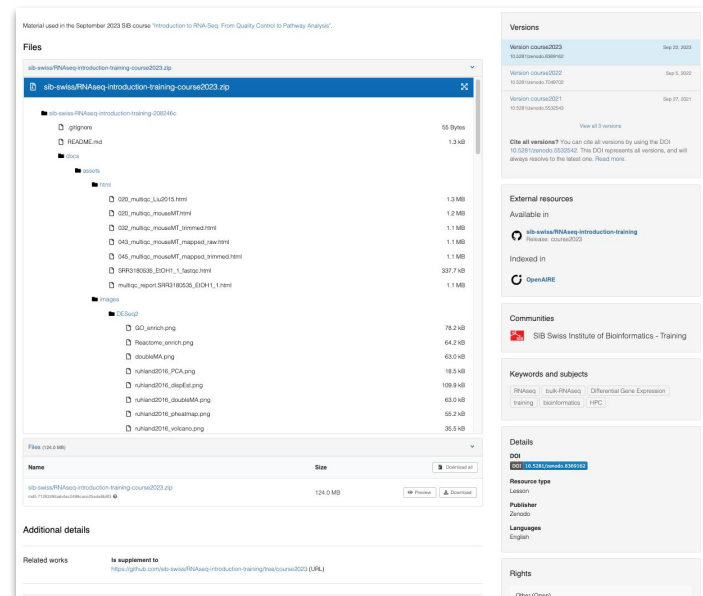
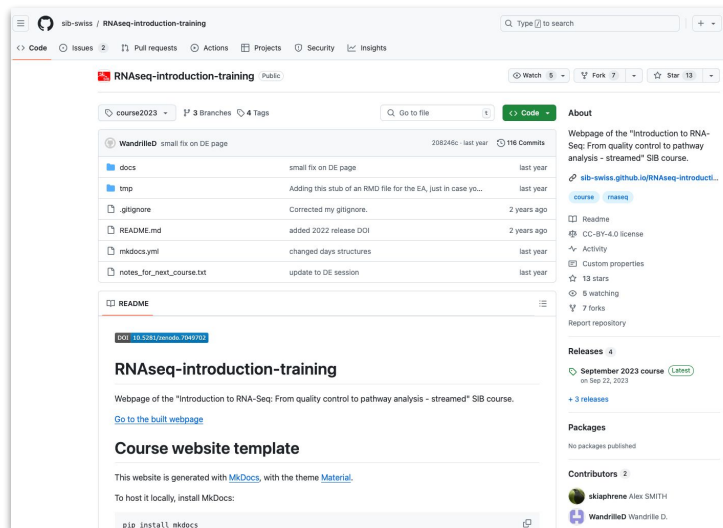
- a. Assign 1 person to take notes in the shared document under session 8.3
- b. Read through the use case assigned to your group from the FAIR training handbook
- c. Discuss and write down a short summary of the strategy used as well as pros and cons with this strategy

2. Plenary discussion 10 minutes

- a. Each group will share their observations and reflections

DOI strategies for GitHub repositories

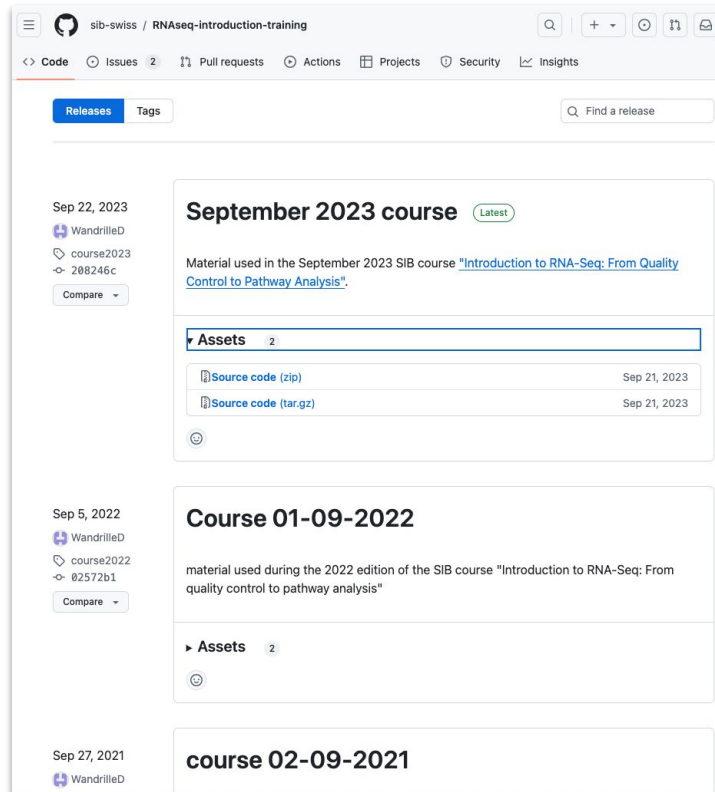
GitHub



[10.5281/zenodo.5532542](https://doi.org/10.5281/zenodo.5532542)

DOI strategies for GitHub repositories: releases

- Snapshot of project at specific time point
- Packaged with re-use in mind
- Downloadable (zip file and tarball)
- Attached with version number/name via a tag
- Release notes to describe the specifics of the snapshot



DOI strategies for GitHub repositories: releases

Material used in the September 2023 SIS course "Introduction to RNA-Seq: From Quality Control to Pathway Analysis".

Files

sis-swiss/RNAseq-introduction-training-course2023.zip

- sis-swiss/RNAseq-introduction-training-course2023.zip
- gigamon
- README.md
- data
- results
- scripts
- figures
- scripts

Name	Size
sis-swiss/RNAseq-introduction-training-course2023.zip	124.0 MB

Additional details

Related works

<https://github.com/isis-swiss/RNAseq-introduction-training-the-course2023> (URL)

Versions

Version	Date
Version course2023	Sep 25, 2023
Version course2022	Sep 5, 2022
Version course2021	Sep 27, 2021

Cite all versions? You can cite all versions by using the DOI 10.5281/zenodo.5532542. This DOI represents all versions, and will always resolve to the latest one. Read more.

External resources

Available in

Indexed in

Communities

SIS Swiss Institute of Bioinformatics - Training

Keywords and subjects

RNAseq, bulk-RNAseq, Differential Gene Expression, training, bioinformatics, HPC

Details

DOI: 10.5281/zenodo.5532542

Resource type: Lesson

Publisher: Zenodo

Language: English

Rights: Other (Open)

Versions

Version	Date
Version course2023	Sep 22, 2023
Version course2022	Sep 5, 2022
Version course2021	Sep 27, 2021

[View all 3 versions](#)

Cite all versions? You can cite all versions by using the DOI 10.5281/zenodo.5532542. This DOI represents all versions, and will always resolve to the latest one. [Read more.](#)

DOI strategies

Reflect

What could a good DOI strategy look like for your own context?

- Do you want to assign a DOI to each individual training material, such as a video, slide deck, or document?
- Would it be more useful to have one DOI for the entire course or training package?
- If your course is divided into multiple topics or modules, would you prefer to assign a separate PID to each of them?
- Or would you rather create a collection PID that represents the whole course, while still assigning individual PIDs (and metadata) to each topic or component within it?

Tutorial

Get a DOI for your training material

- Use Zenodo Sandbox to get a DOI for your training material
 - By using GitHub integration
 - By manually uploading a zip file of your GDrive folder
- Enrich the Zenodo record with the metadata from previous session
- Add the DOI to your hosting platform
- Add the DOI to your TeSS record

Go to the tutorial in [Chapter 08](#)

The background of the slide features a faint, stylized illustration of green fireworks exploding in the center, with several green stars scattered around them.

You now have FAIR
training material!