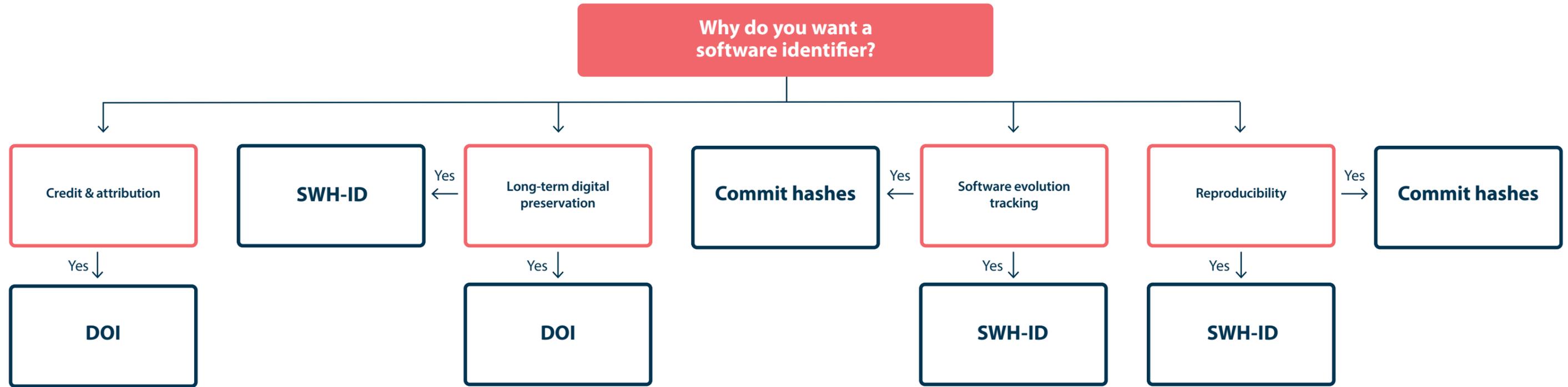


# Software Identifiers

A decision tree to distinguish between the different types of persistent identifiers typically used for software to use in a research data repository, software development platform or other type of administrative system. The tree covers various considerations which were identified by FREYA partners as effecting their choice of identifier. Some identifiers are suitable for more than one purpose and some identifiers can be implemented in a very specific way and have similar coverage. Therefore, some of these options repeat.



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## Commit hashes

Commit hashes are commonly used internal identifiers for software commits using Git, but their persistence greatly depends on the preservation of services like GitHub. An example for commit hashes are SHA-1 hashes.

*Format: 35e32b6a00dec02ae7d7c45c6b7106779a124685*

## € Membership/Subscription Fees

All services with this symbol charge some sort of membership or subscription fee for full access to the service. Full access can include features such as minting the PIDs and API access. These fees can vary depending on the service and the type of organisation who wishes to use them. Many of the PID services which do not have membership or subscription fees require more technical resources from your organisation to set up and maintain the service.

## DOI €

A Digital Object Identifier is a persistent identifier using the Handle system and is used to identify objects, based on an ISO standard. The developer and administrator of the DOIs is the International DOI Foundation (IDF). The DOI system is implemented through a federation of registration agencies, such as DataCite and Crossref, coordinated by the IDF. DataCite is a membership organization which provides services to create, find, cite, connect, and use datasets and other research objects. Crossref is a membership organization which provides content registration services to assign DOIs and register metadata for journal articles, books, conference proceedings and preprints.

*Format: 10.17026/dans-x5j-6ruy*

## For more information on Software Identifiers

- FREYA Knowledge Hub page on Identifiers for Publications and Data  
<https://www.pidforum.org/t/pids-forpublications-and-data/297>
- D3.1 Survey of Current PID Services Landscape  
<https://doi.org/10.5281/zenodo.3554254>

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## SWH-ID

The SoftWare Heritage persistent IDentifier is used by the Software Heritage Archive to identify software artifacts. SWH-IDs are cryptographic intrinsic hashes computed on the entire set of artifact properties to form a Merkle structure. They can refer to the software content but also to specific revisions, releases, snapshots, or directories.

*Format: swh:1:cnt:94a9ed024d3859793618152ea559a168bbcbb5e2*