

ACTORS in the PID ecosystem

(version 07/03/24 - RvH)

Goal of this document:

Understanding of the role and function of the main actors in the PID ecosystem by using an analogy with vehicle licence plates as identifiers.

Below licence plates used in EU countries.



http://www.worldlicenseplates.com/world/EU_EURO.html

Actors:

- Scheme
- Authority
- Service provider
- Manager
- Owner

Actor	Number Plates	Persistent Identifiers
Scheme	Specific licence plate template for each country	Template of specific PID. E.g. Handle/ DOI/ ORCID/ ROR
Authority	National or State Government. Manages uniqueness of number plates	DONA foundation (for the Handle id) ARK alliance (ARK for the ARK id). Manages namespaces within the scheme to guarantee uniqueness.
Provider	Government agency, e.g. a province or local authority issues a number plate on behalf of the owner on registration by (1) ensuring a unique local number and lodging it with the authority, or (2) requesting a number from the authority if the scheme is centralised.	Datacite (legal entity) <ul style="list-style-type: none"> • Crossref (legal entity) • National Library (URN:NBN id) • CLARIN (ePIC) (legal entity) Manages kernel metadata.
Manager	Ensuring that the information linked to the number plate (engine number, owner ID and address, ..) is provided and submitted to the provider - can be the owner, or a service provider, or the car dealership, for example. Ensures updating when ownership changes.	Registers the PID on behalf of the owner and ensures minimum (kernel) metadata is available. Ensures that the PID remains linked to the object or concept being referenced.
Owner	Owner of the vehicle	The owner of the work is the owner of the PID. E.g. author of work / legal depositor. The person that can be held responsible to maintain the metadata.

Scheme

Vehicle licence plate:

- specific licence plate template for each country

PID scheme:

- Template of specific PID. E.g. Handle / DOI / ORCID / ROR

Owner

Vehicle licence plate:

- Owner of the vehicle

PID owner:

- Researcher / contributor (ORCID id).

Manager

Vehicle licence plate:

- Licence plate producer

PID manager:

- Datacite members (e.g. repositories)
- URN namespace members (e.g. repositories)
- ORCID member organisations
- Etc.

Service provider

Vehicle licence plate:

- Government agency, providing services such as providing information on the owner of the vehicle (e.g. to the police)

PID service provider

- Datacite (legal entity)
- Crossref (legal entity)
- CLARIN (ePIC) (legal entity)
- etc.

Authority

Vehicle licence plate:

- State government

PID authority

- DONA foundation (for the Handle id)
- ARK alliance (ARK for the ARK id)
- etc.

Definitions:

PID landscape:

The PID Landscape refers to a loosely coupled collection of services, end users, and governance mechanisms that impact either users, services, or both - in essence, the supply of and demand for PID services and the rules that govern the exchange.

PID ecosystem:

The PID Ecosystem refers more specifically to the collection of standards, services, actors, and roles that enable a specific PID Stack to provide a service, together with the specific end users of the PID Stack.

PID Stack

A collection of services, supported by standardisation, resolution mechanisms, and namespace management that results in a branded or unique PID service to PID Managers.

Scheme: A set of rules and standards defining the nature of a PID. This would include a set of lexical formatting rules for PIDs within a namespace. It could also define for example: associated PID Type; definition of associated metadata; quality assurance conditions; usage rights, terms and conditions, and algorithmic methods for generating PID names and enforcing PID properties.

Owner: An actor (an organisation or individual) who has the authority to create a PID, assign PID to an entity, provide and maintain accurate Kernel Information for the PID. A new PID Owner must be identified, and these responsibilities transferred, if the current PID Owner is no longer able to carry them out.

Manager: PID Managers have responsibilities to maintain the integrity of the relationship between entities and their PIDs, in conformance to a PID Scheme defined by a PID Authority. A PID Manager will typically subscribe to PID services to offer functionality to PID Owners within the PID Manager's services. One example is a Service Provider which uses PID Services as part of its own service delivery. For example, PID Managers may include a provider of a data repository, a data catalogue, or a research workflow system.

Service provider: An organisation which provides PID services in conformance to a PID Scheme, subject to its PID Authority. PID Service Providers have responsibility for the provision, integrity, reliability, and scalability of PID Services, in particular the issuing and resolution of PIDs, but also lookup and search services, and interoperability with a generic resolution system.

Authority: A controller responsible for maintaining the rules for defining the integrity of PIDs within a PID Scheme. These rules may include setting standards for lexical formats, algorithms, and protocols to ensure global uniqueness, together with setting quality of service conditions to enforce compliance to the rules. PID Authorities may be organisations (e.g., DOI.org), which enforce control over a PID infrastructure. A Persistent Identifier (PID) policy for the European Open Science Cloud (EOSC) 8 may also be Authorities which do not have a central control (for example Software Heritage persistent identifiers¹ and W3C's Decentralised Identifiers), but provide a community standardisation mechanism that specifies the conformance of PIDs to a PID Scheme.