

# ToIP Governance Architecture Specification

This is the home page of the **ToIP Governance Architecture Specification**, a **draft deliverable** of the [ToIP Governance Stack Working Group](#) (GSWG). When this specification becomes a **ToIP Approved Deliverable**, it will be published as a PDF in the [Tools and Specifications](#) section of the ToIP website.

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## Contributors

To comply with the intellectual property rights protections in [the charter of the ToIP Foundation](#) (as required by all Joint Development Foundation projects hosted the Linux Foundation), all contributors to this draft deliverable **MUST** be current members of the ToIP Foundation. The following contributors each certify that they meet this requirement:

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## Terminology and Notation

The **keywords** "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [BCP 14 \[RFC2119\] \[RFC8174\]](#) when, and only when, they appear in all capitals, as shown here.

All terms appearing in **bold** on this page are listed in either the [ToIP Core Glossary](#) (based on the [ToIP Core terms wiki](#)) or the [ToIP Governance Glossary](#) (based on the [GSWG terms wiki](#).) For more information see the [Terms Wiki](#) page of the [Concepts and Terminology Working Group](#).

## Purpose

The purpose of this ToIP **specification** is to specify the standard **requirements** that apply to all ToIP-compatible **governance frameworks** (GFs) regardless of their layer in the **ToIP stack**.



### Note

The technical counterpart to this **specification** is the [ToIP Technology Architecture Specification](#).

## Motivations

The overall purpose of the **ToIP governance stack** is to enable users of the **ToIP technology stack** to make **trust decisions** (especially those requiring **transitive trust**) based on GFs that include both **human-auditable requirements** and **machine-testable requirements**. While GFs are expected to be specialized for all four layers of the **ToIP stack**, certain interoperability **requirements** apply to all ToIP-compliant GFs regardless of layer. The goal of this **specification** is to specify those interoperability requirements in one place.

## ToIP Governance Metamodel Specification

The GSWG has developed a single **metamodel** for GF documents called the **ToIP governance metamodel**. Because it brings together all **requirements** for the structure and content of ToIP-compliant GFs in one place, it is defined in a separate **specification**. All ToIP-compliant GFs **MUST** conform to the **requirements** of the [ToIP Governance Metamodel Specification](#).

## Identification Requirements

To support **transitive trust** across trust boundaries, ToIP-compliant GFs and their components and **authorities** need to be identified by persistent, verifiable globally-unique identifiers.

1. The following **MUST** have **public DIDs** compliant with the [ToIP Technology Architecture Specification](#):
  - a. **Governing authority(ies)**.
  - b. **Administering authority** (if any).

- c. **Primary document.**
  - d. All **governed parties** fulfilling **roles** defined in the GF (e.g., **issuers, verifiers, trust registries**).
- 2. The following SHOULD have **public DIDs** or **DID URLs** compliant with the [ToIP Technology Architecture Specification](#):
  - a. Each **controlled document**.
  - b. Each **policy, rule** or other normative subcomponent of a **controlled document**.
- 3. All **DIDs** and **DID URLs** specified in this section are subject to the following **policies**:
  - a. The **DID** for a GF document MUST remain the same for all versions of the document it identifies.
  - b. A new **versionId** parameter value MUST be assigned for every version of the identified document.
- 4. The GF MUST include one or more **policies** specifying the format for version identifier values and the **process** for assigning them.
  - a. These **policies** SHOULD be the same for all versions of all documents in the GF.
  - b. It is RECOMMENDED to use sequential integers for every version starting with "1".
  - c. The use of minor version numbers (e.g., "1.1", "1.2", "1.3") is NOT RECOMMENDED.
- 5. A **DID URL** that includes a **resource** parameter with a value of **true** MUST return the identified document directly.
  - a. If this **DID URL** does not include a **versionId** parameter value, it MUST return the current version of the identified document
  - b. If this **DID URL** includes a **versionId** parameter value, it MUST return the identified version of the identified document.
  - c. If this **DID URL** includes a **versionId** parameter value for a version that does not exist, it MUST return a "Resource Not Found" error.

## Verification Requirements

To support the verifiability needed for **transitive trust**, the following verification **requirements** apply to ToIP-compliant GFs:

- 1. The **governing authority** SHOULD publish a digital signature in its current **DID document** over the hash of the current version of its **primary document**.
- 2. The **governing authority** or **administering authority** SHOULD:
  - a. Register the public DID and all authorized **roles** for a **governed party** in a **trust registry**.
  - b. Issue **verifiable credentials** to all **governed parties** serving in a **role** defined by the GF.
  - c. Issue those same **verifiable credentials** in a publicly-available **credential registry** as specified by the GF.
- 3. If the GF includes **certification policies**, the qualified **certifying parties** SHOULD:
  - a. Issue **certification credentials** to **governed parties** as directed by the GF.
  - b. Issue those same **verifiable credentials** in a publicly-available **credential registry** as specified by the GF.

## Transparency Requirements

To support the transparency needed for **transitive trust**, a publicly-available ToIP-compliant GF:

- 1. MUST be published at a publicly-accessible URL.
- 2. MUST have a **DID**.
- 3. MUST publish the following in the corresponding **DID document**:
  - a. An **alsoKnownAs** property whose value is the publicly-accessible URL.
  - b. The public key(s) for the DID.
  - c. All **service endpoints** specified in the GF.
- 4. SHOULD be localized into all human languages required by its **trust community**.
- 5. SHOULD be accessible under the [W3C Accessibility Guidelines](#).

## Technical Interoperability Requirements

To support the interoperability needed for **transitive trust**, a publicly-available ToIP-compliant GF:

- 1. MUST specify technical interoperability **requirements** using ToIP **specifications** and **recommendations** whenever possible.
- 2. SHOULD specify any additional technical interoperability **requirements** using publicly available open standard **specifications** or **specification profiles**.