

Recommendation

ITU-T Y.4812 (03/2025)

SERIES Y: Global information infrastructure, Internet protocol aspects, next-generation networks, Internet of Things and smart cities

Internet of things and smart cities and communities –
Identification and security

Interoperability of the identity of Internet of things devices across metaverse platforms

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Global information infrastructure, Internet protocol aspects, next-generation networks, Internet of Things and smart cities

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Recommendation ITU-T Y.4812

Interoperability of the identity of Internet of things devices across metaverse platforms

Summary

Recommendation ITU-T Y.4812 describes identity interoperability for IoT devices across metaverse platforms and provides relevant technical features and reference framework.

With regard to the Internet of things (IoT) (Recommendation ITU-T Y.4000), each IoT device may have a single or multiple unique identities in multiple IoT systems. Similarly, each IoT device also may have a single or multiple identities in multiple metaverses. The identity of an IoT device usually includes a unique identifier and a corresponding identity object (Recommendation ITU-T Y.4811).

Although it may take advantage of one IoT device having one unique identity in multiple metaverses, there are challenges; how those metaverses identify, authenticate, and authorize the IoT devices when they are roaming across metaverse platforms, and how the trustworthy shared storages interact with each other to support identity interoperability across storages.

History*

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Functional requirements, identity, Internet of things, interoperability, IoT device, metaverse.

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Recommendation ITU-T Y.4812

Interoperability of the identity of Internet of things devices across metaverse platforms

1 Scope

This Recommendation describes identity interoperability for IoT devices across metaverse platforms, and provides relevant technical features, functional requirements and reference frameworks.

The scope of this Recommendation includes:

- Overview of interoperability of identity of IoT device across metaverse platforms.
- Technical features, and requirements of identity interoperability for IoT devices across metaverse platforms.
- Reference framework of identity interoperability for IoT devices across metaverse platforms.

Use cases and analysis on the identity solutions for IoT devices across metaverses are provided in the appendix.

NOTE – The Recommendation will not bring new underlying identity standards for IoT devices, and blockchain itself is outside the scope of this Recommendation.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[[ITU-T Y.4000](#)] Recommendation ITU-T Y.4000/Y.2060 (2012), *Overview of the Internet of things*.

[[ITU-T Y.4811](#)] Recommendation ITU-T Y.4811 (2021), *Reference framework of converged service for identification and authentication for IoT devices in a decentralized environment*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 application [b-ITU-T Y.2091]: A structured set of capabilities, which provide value-added functionality supported by one or more services, which may be supported by an API interface.

3.1.2 blockchain [b-ITU-T X.1400]: A type of distributed ledger which is composed of digitally recorded data arranged as a successively growing chain of blocks with each block cryptographically linked and hardened against tampering and revision.

3.1.3 decentralized system [b-ITU-T X.1400]: Distributed system wherein the control is distributed among the persons or organizations participating in the operation of the system.