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International

ISO 20435

Framework for representing physical assets using tokens

Cadre pour la représentation des actifs physiques à l'aide de jetons

First edition
2026-10

Reference number
ISO 20435:2026(en)

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Published in Switzerland

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This document was prepared by Technical Committee ISO/TC 307, *Blockchain and distributed ledger technologies*.

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This document outlines a framework for representing physical assets by means of tokens. The standard is neutral on the choice of distributed ledger technology (DLT). This document introduces the universal serial number (USN), which is a standardized identifier derived algorithmically from existing asset identifiers. It also outlines methods for securely encoding physical asset data using decentralized identifiers (DIDs), creating a standardized and verifiable framework that enables seamless transfers across different systems.

The framework enables comprehensive tracking of physical assets throughout their lifecycle, offering significant environmental advantages. Additionally, this framework enables tokenization in initiatives such as digital product passports (DPP).

The framework includes the following key components:

— A DID generation method: How to transform the existing identifiers of any physical asset that has a serial number into a standard reproducible DID format called a USN.

— Physical asset data model: How to combine data objects about a physical asset into a standard provable structure, using a hash tree format.

— DID method scheme with standardized application programming interface (API) endpoints: To allow the digital representation to be transportable across independent DID registries.

— Business document classification: The minimum viable semantics that allow disparate systems to recognize the purpose (and legal requirements) of data objects.

— Physical layer verification: How to use trust anchors to verify and tie information about the real-world object to its digital representation as per ISO/TR 23644.

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