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**Digital token identifier (DTI) —  
Registration, assignment and  
structure —**

**Part 2:  
Data elements for registration**

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ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 68, *Financial services*, Subcommittee SC 8, *Reference data for financial services*.

A list of all parts in the ISO 24165 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

With the rise in popularity of peer-to-peer payment systems, relying less on centralized authorities and instead on aspects of cryptography, decentralized processing and a distributed network for the maintenance of a shared record of transaction activity, the need to identify the digital tokens issued, traded, transacted or stored on these networks has grown. Stakeholders in the trading community, service providers, custodians and regulatory bodies have identified numerous use cases where a standard identifier for accounting, research, tracking and management of these digital tokens would improve efficiency and eliminate confusion in the marketplace.

However, the nature of these new types of digital asset means they do not fit within the structure of existing ISO identifiers, in part because they possibly lack clear reference to an issuing authority and will therefore not be considered the liability of an issuing authority or corporate governing body. These digital assets, in many cases, are cross geographic and monetary governance jurisdictions.

Though these digital assets are sometimes referred to as cryptocurrencies, virtual currencies or digital currencies, the term 'currency' has a specific meaning as defined by ISO 4217. This definition is in conflict with the nature of the digital tokens identified within this document due to the reasons described above; namely, the lack of monetary authority and geographic location.

Where traditional financial instruments or currencies are tokenized for electronic exchange and issued by a legal entity including also monetary authority responsible for it, other International Standards, such as ISO 6166 or ISO 4217, can apply. To eliminate confusion for users of this document, care has been taken to provide a clear definition and eligibility criteria for assignment of a digital token identifier (DTI).

This document is addressed to applicants seeking to identify digital tokens conforming to the definition provided in ISO 24165-1. The data elements described in this document are used to distinguish one set of digital tokens from another and are, wherever possible, objective and publicly available. Inclusion in the registry and the issuance of an identifier signifies only the existence of the token and its 1:1 relationship to its identifier.

The ISO 24165 series is organized into the following parts:

- ISO 24165-1 describes the method of registration and assignment of a DTI.
- ISO 24165-2 describes the data elements required for registration and display on the DTI registry.

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# Digital token identifier (DTI) — Registration, assignment and structure —

## Part 2: Data elements for registration

### 1 Scope

This document defines the data elements included in the registry record and used to establish the 1:1 relationship between a digital token and the identifier assigned according to the method in ISO 24165-1.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 10646, *Information technology — Universal coded character set (UCS)*

ISO 24165-1, *Digital token identifier—Registration, assignment and structure—Part 1: Method for registration and assignment*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 24165-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

#### 3.1

##### **auxiliary digital token**

non-native digital token created as an application on an existing blockchain or other distributed ledger technology for its issuance, storage or transaction record

Note 1 to entry: A distributed ledger may support zero or more auxiliary digital tokens.

#### 3.2

##### **auxiliary digital token distributed ledger**

assigned digital token identifier of a distributed ledger without a native digital token or with a native digital token when the distributed ledger is used as the platform for one or more *auxiliary digital tokens* (3.1)

**EXAMPLE** If registering an ERC-20 token operating on the Ethereum blockchain, this data element will contain the DTI assigned to Ether because Ether is the native digital token on a distributed ledger platform that supports one or more auxiliary digital tokens.

Note 1 to entry: This indicates the DTI of either the type = 1 or type = 2 digital token identifier type used by the auxiliary digital token (see 5.3).

### 3.3 auxiliary digital token mechanism

protocol used to create an auxiliary digital token

EXAMPLE ERC-20 (used for Ethereum) and Omni Layer (used for Bitcoin.)

### 3.4 auxiliary digital token technical reference

element, such as a smart contract address, used to uniquely identify an *auxiliary digital token's* (3.1) origin on a distributed ledger technology platform

Note 1 to entry: For *each auxiliary digital token mechanism* (3.3), refer to the specifications of the element, including the syntax for that element, on the RA website ([https://www.iso.org/maintenance\\_agencies.html](https://www.iso.org/maintenance_agencies.html)). For example, for an auxiliary token mechanism ERC-20, the auxiliary token technical reference would likely be a smart contract address with a designated syntax.

### 3.5 block hash

cryptographic hash value of the information contained in a block in a blockchain as specified by the consensus mechanism

### 3.6 block hash algorithm

cryptographic hash function, specified by the consensus mechanism of a blockchain, used to produce the *block hash* (3.5)

EXAMPLE A double SHA-256 hash (a SHA-256 hash of a SHA-256 hash).

### 3.7 block header

data structure that includes a cryptographic link to the previous block

Note 1 to entry: A block header can also contain a timestamp, a nonce and other DLT platform-specific data, including a hash value of corresponding transaction records.

[SOURCE: ISO 22739:2020, 3.4, modified]

### 3.8 block height

number of blocks preceding a given block in a blockchain

EXAMPLE A *genesis block* (3.27) has block height = 0.

### 3.9 consensus mechanism change response

binary choice denoting, if true, that the consensus mechanism used to validate the block at the *fork block height* (3.23) identified in the fork record differs from the consensus mechanism used to validate the block immediately prior to the block at the fork block height identified in the fork record

Note 1 to entry: See 4.1 and 5.3.

### 3.10 digital token external identifiers type

enumerated list of *external identifier* (3.18) types for the digital token

### 3.11 digital token external identifiers value

list of other *external identifiers* (3.18) for the digital token



**3.12****digital token identifier type**

categorization of the digital token identifier within the registry

Note 1 to entry: See [5.3](#).

**3.13****digital token long name**

string containing the full name of the digital token, as represented in alphanumeric basic Latin characters

**3.14****digital token reference implementation URL**

uniform resource locator (URL) pointing to the digital token's reference implementation or software repository

Note 1 to entry: The supported set of protocols shall be provided in the RA website [https://www.iso.org/maintenance\\_agencies.html](https://www.iso.org/maintenance_agencies.html).

**3.15****digital token short name**

short name or ticker symbol used to represent this digital token, as represented in alphanumeric basic Latin characters

**3.16****digital token unit multiplier**

multiplier used to map from the unit of value stored on the distributed ledger to the unit of value associated with the *digital token long name* ([3.13](#))

EXAMPLE Bitcoin has a digital token unit multiplier of 100,000,000.

**3.17****distributed ledger technology type**

category of systems implementing distributed ledger technology based on their consensus mechanisms

Note 1 to entry: The applicability of the data elements in base records and *fork* ([3.19](#)) records is dependent on the combination of *digital token identifier type* ([3.10](#)) and distributed ledger technology type, see [5.3](#).

**3.18****external identifier**

identifier, external to this document, that may be used to identify either the digital token or the underlying asset that this digital token represents

EXAMPLE ISIN (see ISO 6166).

**3.19****fork**

creation of two or more different versions of a distributed ledger originating from a common starting point with a single history

Note 1 to entry: A fork might or might not result in the creation of a new digital token.

Note 2 to entry: Terms such as hard fork and soft fork are sometimes used to distinguish backwards compatibility changes to the consensus mechanism of a blockchain. This document uses the term fork to encompass both scenarios.

[SOURCE: ISO 22739:2020, 3.45, modified — Notes to entry added.]

**3.20****fork block**

block having a *block height* ([3.8](#)) equal to the *fork block height* ([3.23](#)) data element specified in a fork record

### 3.21

#### **fork block hash**

*block hash* (3.5) of the block with a *block height* (3.8) equal to the *fork block height* (3.23)

### 3.22

#### **fork block hash algorithm**

*block hash algorithm* (3.6) of the *fork block* (3.20)

Note 1 to entry: The fork block hash algorithm may differ from the *genesis block hash algorithm* (3.29) when a *fork* (3.19) defines a new block hash algorithm as part of a consensus mechanism change

### 3.23

#### **fork block height**

*block height* (3.8) of the first block after a *fork* (3.19)

Note 1 to entry: When a digital token is created as a result of a fork, the original blockchain and the new blockchain are identical for all blocks with a block height less than the fork block height. Blocks on the original and the new blockchains at the block height equal to or greater than the fork block height will differ.

### 3.24

#### **fork block UTC timestamp**

timestamp, expressed in Coordinated Universal Time, recorded in the *fork block* (3.20)

Note 1 to entry: Frequently, the fork block UTC timestamp is located in the fork block header.

### 3.25

#### **functionally fungible**

not technically compatible, but considered equivalent

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### 3.26

#### **functionally fungible group**

set of digital tokens which are *functionally fungible* (3.25)

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### 3.27

#### **genesis block**

first block in a blockchain

Note 1 to entry: A genesis block has no previous block and serves to initialize the blockchain.

[SOURCE: ISO 22739:2020, 3.37]

### 3.28

#### **genesis block hash**

*block hash* (3.5) of the genesis block

Note 1 to entry: The genesis block hash is typically recorded in the second block of the blockchain.

### 3.29

#### **genesis block hash algorithm**

*block hash algorithm* (3.6) used to produce the *block hash* (3.5) of the *genesis block* (3.27)

### 3.30

#### **genesis block UTC timestamp**

timestamp, expressed in Coordinated Universal Time, recorded in the *genesis block* (3.27)

Note 1 to entry: Frequently, the genesis block UTC timestamp is located in the *genesis block header* (3.7).

### 3.31

#### **native digital token**

digital token with a privileged position in the distributed ledger technology protocol

Note 1 to entry: Also known by the non-standard term *protocol token*.

**3.32****original language digital token long name**

string containing the full name of the digital token

**3.33****original language digital token short name**

short name or ticker symbol used to represent this digital token

**3.34****public distributed ledger indicator**

binary choice indicating, if true, that access to reading the distributed ledger is unrestricted, and the data elements specified in this document are accessible for independent verification by the general public

**3.35****underlying asset external identifiers type**

enumerated list expressing the types of underlying asset *external identifiers* (3.18) for the digital token

**3.36****underlying asset external identifiers value**

list of underlying asset *external identifiers* (3.18) for the digital token

**4 Constituents of a registry record****4.1 General**

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A registry record of a digital token shall consist of:

- a) a base record (see 5.3) containing data elements specified in Annex A for the applicable digital token identifier type and distributed ledger technology type.
- b) one or more fork records when:
  - 1) the digital token was created as a result of a fork; or
  - 2) the digital token is unchanged, but a new digital token was created as the result of a fork of the digital token; or
  - 3) a new digital token was not created but a *consensus mechanism* (3.14) change was made.

Each digital token registry record shall be noted according to the RA guidelines.

**4.2 Classes of information**

The registry shall note the class of information for each data element and provide access to users of the meaning of the notations according to the notational RA guidelines of the registry.

- Validated: normative or informative data elements that are verified according to the RA guidelines and can be independently verified by the general public.
- Privately managed: normative or informative data elements that are verified according to the RA guidelines but may not be independently verifiable by the general public.
- Descriptive: informative data elements that are provided by the applicant but not verified.
- Preliminary: normative or informative data elements in a provisional request for a DTI when one or more data elements (which may include data elements specified in Annex A as mandatory) are not yet available.

NOTE The guidelines for provisional digital token registration and DTI assignment are available from the RA website: [www.iso.org/maintenance\\_agencies.html](http://www.iso.org/maintenance_agencies.html).