

Blockchain and distributed ledger technologies — Vocabulary

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: + 41 22 749 01 11
~~Email~~E-mail: copyright@iso.org
Website: 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 ~~nongovernmental~~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~~document 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).

~~Attention is drawn~~ISO draws attention to the possibility that ~~some of the~~elements~~implementation~~ of this document may ~~be involve~~the subject of (a) patent(s). ~~ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. 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).~~

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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.

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

This second edition cancels and replaces the first edition (ISO 22739:2020), which has been technically revised.

The main changes are as follows:

— inclusion of new terms and definitions.

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.

Introduction

This document defines **basic** terms relating to blockchain and distributed ledger technologies (**DLTs**) to clarify the meaning of terms and concepts used in other documents within the domain of ISO/TC 307 **standards**.

Clear, consistent and coherent standards require clear, consistent and coherent terminology. This document follows **the** rules and guidelines set by ISO/TC 37, *Language and terminology*, for terminology standards.

This document applies to all types of organizations (e.g., commercial enterprises, government agencies, and non-profits). The target audience includes but is not limited to academics, solution architects, customers, users, tool developers, regulators, auditors and standards development organizations.

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Blockchain and distributed ledger technologies — Vocabulary

1 Scope

This document ~~provides~~defines fundamental terminology for blockchain and distributed ledger technologies.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/> ~~http://www.electropedia.org/~~

3.1

asset

anything that has value to a stakeholder

[SOURCE: ISO ~~TS 17573-2~~ 19299:2020, 3.9] ~~1, modified — The Note to entry has been removed.~~

3.2

block

structured data comprising a *block header* ~~(3.4)~~ and *block data* ~~(3.3)~~

3.3

block data

structured data comprising zero or more *transaction records* ~~(3.95)~~ or references to transaction records ~~(3.95)~~

3.4

block header

structured data that includes a *hash link* ~~(3.47)~~ to the previous *block* ~~(3.2)~~, if present

Note 1 to entry: A block header can also contain a *timestamp* ~~(3.91)~~, a *nonce* ~~(3.62)~~, and other *distributed ledger technology (DLT) platform* ~~(3.33)~~ specific data, including a *hash value* ~~(3.48)~~ of corresponding *transaction records* ~~(3.95)~~.

3.5

block reward

reward given to *miners* ~~(3.59)~~ or *validators* ~~(3.99)~~ after a *block* ~~(3.2)~~ is *confirmed* ~~(3.9)~~ in a *blockchain system* ~~(3.7)~~

Note 1 to entry: A reward can be in the form of a *cryptoasset* ~~(3.14)~~.

3.6

blockchain

distributed ledger ~~(3.23)~~ with *confirmed blocks* ~~(3.10)~~ organized in an append-only, sequential chain using *hash links* ~~(3.47)~~

3.7

blockchain system

system that implements a *blockchain* ~~(3.6)~~

Note 1 to entry: A blockchain system is a type of *distributed ledger technology (DLT) system* (3.35).

3.8 blockchain technology

technology that enables the operation and use of *blockchains* (3.6)

3.9 confirmed

accepted by *consensus* (3.12) to be recorded in a *distributed ledger* (3.23)

3.10 confirmed block

block (3.2) that has been *confirmed* (3.9)

3.11 confirmed transaction

transaction (3.93) that has been *confirmed* (3.9)

3.12 consensus

agreement among *distributed ledger technology (DLT) nodes* (3.31) that 1) a *transaction* (3.93) is validated (3.97), and 2) that the *distributed ledger* (3.23) contains a consistent set and ordering of records of validated transactions

Note 1 to entry: Consensus does not necessarily mean that all DLT nodes agree.

Note 2 to entry: The details regarding consensus differ among *DLT systems* (3.35) and this can be a distinguishing characteristic between one DLT system and another.

3.13 consensus mechanism

set of rules and procedures by which *consensus* (3.12) is reached

Note 1 to entry: These rules and procedures are interrelated.

3.14 cryptoasset crypto-asset

digital asset (3.21) implemented using cryptographic techniques

Note 1 to entry: *distributed ledger technology (DLT) systems* (3.35) can be used to manage or transfer cryptoassets.

3.15 cryptocurrency

cryptoasset (3.14) designed to work as a medium of payment or value exchange

Note 1 to entry: Cryptocurrency involves the use of decentralized control and *cryptography* (3.16) to secure *transactions* (3.93), control the creation of additional *assets* (3.1), and verify the transfer of assets in a *distributed ledger technology (DLT) system* (3.35).

3.16 cryptography

discipline that embodies the principles, means, and methods for the transformation of data in order to hide their semantic content, prevent their unauthorized use, or prevent their undetected modifications

[SOURCE: ISO 7498-2:1989, 3.3.20, modified — The Note to entry has been removed.]

3.17 decentralized application

Dapp

application that runs on a *decentralized system* ~~(3.20)~~

3.18 decentralized identifier

DID

identifier ~~(3.49)~~ that is issued or managed in a *decentralized system* ~~(3.20)~~ and designed to be unique within a context

Note 1 to entry: Decentralized identifiers are used in systems that do not rely on central registration authorities.

3.19 decentralized identity

identity ~~(3.50)~~ that is managed in a *decentralized system* ~~(3.20)~~

3.20 decentralized system

distributed system ~~(3.24)~~ wherein control is distributed among the persons or organizations participating in the operation of the system

Note 1 to entry: In a decentralized system, the distribution of control among persons or organizations participating in the system is determined by the system's design.

3.21 digital asset

asset ~~(3.1)~~ that exists only in digital form or ~~which~~that is the digital representation of another asset ~~⊖~~

3.22 digital signature

data which, when appended to data to be signed, ~~enables~~enable the user of the data to authenticate ~~it~~their origin and integrity

[SOURCE: ISO ~~14161~~: 14641:2018, 3.17, modified — “digital document” has been replaced with “data to be signed”.]

3.23 distributed ledger

ledger ~~(3.54)~~ that is shared across a set of *distributed ledger technology (DLT) nodes* ~~(3.31)~~ and synchronized between the DLT nodes ~~⊖~~ using a *consensus mechanism* ~~(3.13)~~

Note 1 to entry: A distributed ledger is designed to be *immutable* ~~(3.51)~~, tamper-resistant, tamper-evident, and append-only, containing final and definitive *ledger records* ~~(3.55)~~ of *confirmed* ~~(3.9)~~ and *validated* ~~(3.97)~~ *transactions* ~~(3.93)~~.

3.24 distributed system

system in which components located on networked computers communicate and coordinate their actions by interacting with each other

3.25 DLT distributed ledger technology

technology that enables the operation and use of *distributed ledgers* ~~(3.23)~~