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Internet of things (IoT) – Vocabulary

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INTERNET OF THINGS (IoT) – VOCABULARY

FOREWORD

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This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

– reconfirmed,
– withdrawn,
– replaced by a revised edition, or
– amended.

INTERNET OF THINGS (IoT) – VOCABULARY

1 Scope

This document provides a definition of Internet of Things along with a set of terms and definitions. This document is a terminology foundation for the Internet of Things.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

3.1 General terms

3.1.1
address
<endpoint> value that can be used to identify an endpoint, which can designate the originating source or destination of data being transmitted

3.1.2
application
software designed to fulfil a particular purpose

[SOURCE: ISO/IEC 24713-2:2008, 4.1, modified – “program or piece of” has been removed from the beginning of the definition.]

3.1.3
architecture
<system> set of fundamental concepts or properties of a system in its environment embodied in its elements, relationships, and in the principles of its design and evolution

[SOURCE: ISO/IEC/IEEE 42010:2011, 3.2, modified – "set of" has been added to the beginning of the definition.]

3.1.4
asset
physical entity or digital entity that has value to an individual, an organization or a government

[SOURCE: ISO/IEC 27032:2012, 4.6, modified – "anything" has been replaced by "physical entity or digital entity" at the beginning of the definition.]

3.1.5
availability
property of being accessible and usable upon demand by an authorized entity

Note 1 to entry: IoT systems can include both human users and service components as "authorized entities".

[SOURCE: ISO/IEC 27000:2018, 3.7]

3.1.6
characteristic
abstraction of a property of an entity or of a set of entities

[SOURCE: ISO 18104:2014, 3.1.4]

3.1.7
cloud computing
paradigm for enabling network access to a scalable and elastic pool of shareable physical or virtual resources with self-service provisioning and administration on-demand

[SOURCE: ISO/IEC 17788:2014, 3.2.5]

3.1.8
cloud service
one or more capabilities offered via cloud computing invoked using a defined interface

[SOURCE: ISO/IEC 17788:2014, 3.2.8]

3.1.9
cloud service provider
party which makes cloud services available

[SOURCE: ISO/IEC 17788:2014, 3.2.15]

3.1.10
compliance
characteristic of conformance to rules, such as those defined by a law, a regulation, a standard, or a policy

3.1.11
component
modular, deployable, and replaceable part of a system that encapsulates implementation and exposes a set of interfaces

[SOURCE: ISO 14813-5:2010, B.1.31]

3.1.12
confidentiality
property that information is not made available or disclosed to unauthorized individuals, entities, or processes

[SOURCE: ISO/IEC 27000:2018, 3.10]

3.1.13
data store
persistent repository for digital information

Note 1 to entry: A data store can be accessed by a single entity or shared by multiple entities via a network or other connection.

3.1.14
digital entity
computational and/or data element

Note 1 to entry: A digital entity can exist as a cloud service or as a service in a data centre, or as a network element or as an IoT gateway.

3.1.15
digital user
digital entity that uses an IoT system

Note 1 to entry: digital user includes automation services that act on behalf of human users.

3.1.16
discovery service
service to find unknown resources, entities or services based on a specification of the desired target

Note 1 to entry: Discovery service can be used by a human user or a digital user.

3.1.17
endpoint
component that exposes or uses one or more network interfaces

3.1.18
entity
thing (physical or non-physical) having a distinct existence

[SOURCE: ISO/IEC 15459-3:2014, 3.1]

3.1.19
functional component
functional building block needed to engage in an activity, backed by an implementation

Note 1 to entry: See also “component”, which is a superset containing all functional components and other types of component that are deployable.

[SOURCE: ISO/IEC 17789:2014, 3.2.3, modified – Note 1 to entry has been added.]

3.1.20
human user
natural person who uses a system

3.1.21
identifier
information that unambiguously distinguishes one entity from other entities in a given identity context

3.1.22
identity context
environment where an entity can use a set of attributes for identification

3.1.23
interface
shared boundary between two functional components, defined by various characteristics pertaining to the functions, physical interconnections, signal exchanges, and other characteristics, as appropriate

[SOURCE: ISO/IEC 13066-1:2011, 2.15, modified – In the definition, "units" has been replaced by "components".]

3.1.24
interoperability
ability of two or more systems or applications to exchange information and to mutually use the information that has been exchanged

[SOURCE: ISO/IEC 17788:2014, 3.1.5]

3.1.25
network
infrastructure that connects a set of endpoints, enabling communication of data between the digital entities reachable through them

3.1.26
physical entity
entity that has material existence in the physical world

Note 1 to entry: In the Internet of Things reference architecture, the physical entity is the thing to be sensed and/or actuated by IoT devices or IoT systems.

3.1.27
reference architecture
architecture description that provides a proven template solution when developing or validating an architecture for a particular solution

3.1.28
service
distinct part of the functionality that is provided by an entity through interfaces

[SOURCE: ISO/IEC TR 14252:1996, 2.2.2.46, modified – In the definition, "on one side of an interface to an entity on the other side of the interface" has been replaced by "through interfaces".]

3.1.29
service provider
organization or part of an organization that manages and delivers a service or services to the customer

[SOURCE: ISO/IEC TR 20000-10:2015, 2.32]

3.1.30
stakeholder
individual, team, organization, or classes thereof, having an interest in a system

[SOURCE: ISO/IEC/IEEE 42010:2011, 3.10]

3.1.31
tag
human- or machine-readable mark, or digital identity used to communicate information about an entity

Note 1 to entry: A tag can contain information that can be read by sensors to aid in identification of the physical entity.

3.1.32
trustworthiness
property of deserving trust or confidence

3.1.33
virtual entity
digital entity that represents a physical entity

3.2 Internet of Things specific terms

3.2.1
Internet of Things
IoT
infrastructure of interconnected entities, people, systems and information resources together with services which processes and reacts to information from the physical world and virtual world

3.2.2
actuator
<Internet of Things> IoT device that changes one or more properties of a physical entity in response to a valid input

3.2.3
IoT conceptual model
common structure and definitions for describing the concepts, relationships, and behaviour within an IoT system

3.2.4
IoT device
entity of an IoT system that interacts and communicates with the physical world through sensing or actuating

Note 1 to entry: An IoT device can be a sensor or an actuator.

3.2.5
IoT domain
major functional group of an IoT system

Note 1 to entry: Every entity in an IoT system participates in one or more IoT domains and is said to be included or contained by that domain.

Note 2 to entry: The IoT domain consists of six domains: user domain, operation & management domain, application & service domain, resource access & interchange domain, sensing & controlling domain, physical entity domain.

3.2.6
IoT gateway
entity of an IoT system that connects one or more proximity networks and the IoT devices on those networks to each other and to one or more access networks

3.2.7
IoT system
system providing functionalities of Internet of Things

Note 1 to entry: IoT system is inclusive of IoT devices, IoT gateways, sensors, and actuators.

3.2.8
IoT user
user of an IoT system

Note 1 to entry: An IoT user can be a human user or a digital user.

3.2.9
sensor
<Internet of Things> IoT device that measures one or more properties of one or more physical entities and outputs digital data that can be transmitted over a network

3.2.10
IoT trustworthiness
property of deserving trust or confidence within the entire lifecycle of an Internet of Things implementation to ensure security, privacy, safety, reliability and resiliency