

IEEE Standard for Framework of Blockchain-based Internet of Things (IoT) Data Management

IEEE Consumer Technology Society

Developed by the
Blockchain Standards Committee

IEEE Std 2144.1™-2020

IEEE Standard for Framework of Blockchain-based Internet of Things (IoT) Data Management

Developed by the

Blockchain Standards Committee
of the
IEEE Consumer Technology Society

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Abstract: A framework of blockchain-based Internet of Things (IoT) data management is defined in this standard. It identifies the common building blocks of the framework that blockchain enabled during IoT data lifecycle including data acquisition, processing, storage, analyzing, usage/exchange and obsolescence, and the interactions among these building blocks.

Keywords: blockchain, data management, IEEE 2144.1™, internet of things, trust data

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Introduction

This introduction is not part of IEEE Std 2144.1-2020, IEEE Standard for Framework of Blockchain-based Internet of Things (IoT) Data Management.

This standard is applicable to business scenarios that employ data management system with data collected from Internet of Things (IoT) devices for internal business decision making, data sharing and/or data trade with external parties. This standard also serves as a framework guide for establishing data management with blockchain and IoT technologies.

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1. Overview

This standard is applicable to business scenarios that employ data management system with data collected from Internet of Things (IoT) devices for internal business decision making, data sharing and/or data trade with external parties. This standard also serves as a framework guide for establishing data management with blockchain and IoT technologies.

1.1 Scope

This standard defines a framework of blockchain-based Internet of Things (IoT) data management. It identifies the common building blocks of the framework that blockchain enabled during IoT data lifecycle including data acquisition, processing, storage, analyzing, usage/exchange and obsolescence, and the interactions among these building blocks.

1.2 Word usage

The word *shall* indicates mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (*shall equals is required to*).^{1,2}

The word *should* indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (*should equals is recommended that*).

The word *may* is used to indicate a course of action permissible within the limits of the standard (*may equals is permitted to*).

The word *can* is used for statements of possibility and capability, whether material, physical, or causal (*can equals is able to*).

¹The use of the word *must* is deprecated and cannot be used when stating mandatory requirements; *must* is used only to describe unavoidable situations.

²The use of *will* is deprecated and cannot be used when stating mandatory requirements; *will* is only used in statements of fact.