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IEEE Recommended Practice for E-Invoice Business Using Blockchain Technology

IEEE Consumer Technology Society

Developed by the
Blockchain Standards Committee

IEEE Std 2142.1™-2021

IEEE

STANDARDS

IEEE Recommended Practice for E-Invoice Business Using Blockchain Technology

Developed by the

Blockchain Standards Committee
of the
IEEE Consumer Technology Society

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Abstract: Described in this standard is the blockchain-based application reference architecture of e-invoice business, including roles of participants, typical business scenarios, platform frameworks, and security requirements.

Keywords: blockchain, e-invoice, IEEE 2142.1™

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Introduction

This introduction is not part of IEEE Std 2142.1–2021, IEEE Recommended Practice for E-Invoice Business Using Blockchain Technology.

Today, electronic invoices (e-invoices) are stored separately in each business system, and it is difficult to perform tracking or auditing. Without robust auditing capabilities, fraud is possible, e.g., an e-invoice may be submitted multiple times. Trust between each participant is not established in a systematic way. Definition of a standardized framework for e-invoices based-on blockchain will provide a common understanding and enable innovation and trust.

This standard provides a foundation recommended practice for the blockchain-based implementation solutions of e-invoice business, which will help to optimize user experience and business efficiency.

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IEEE Recommended Practice for E-Invoice Business Using Blockchain Technology

1. Overview

In order to accelerate the automation level of the end-to-end electronic invoice (e-invoice) business process, cut costs, and reduce administrative burden, many corporations and governments are trying to utilize modern information technology to support their business. Paper-based invoice systems are now replaced by e-invoice systems all around the world. The replacement of a paper-based invoice into electronic mode can also reduce paper consumption. While there are many challenges to be resolved in traditional e-invoice solutions such as security risk, nontransparent issues, complexity caused by dispersed systems, and business processes, by using blockchain and other advanced technology (e.g., cloud computing and mobile payment) it will bring more secure, trustworthy, efficient, and interoperable improvements to e-invoice business.

1.1 Scope

This standard describes the blockchain-based application reference architecture of e-invoice business, including roles of participants, typical business scenarios, platform frameworks, and security requirements.

1.2 Purpose

This standard provides a foundation for the blockchain-based implementation solutions of e-invoice business, which will help to optimize user experience and business efficiency.

1.3 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*).

[1]The use of the word *must* is deprecated and cannot be used when stating mandatory requirements, *must* is used only to describe unavoidable situations.
[2]The use of *will* is deprecated and cannot be used when stating mandatory requirements, *will* is only used in statements of fact.