
**Blockchain and distributed ledger
technologies — Security management
of digital asset custodians**

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO/TR 23576:2020](https://standards.iteh.ai/catalog/standards/iso/6474f0ce-2dcc-4457-ba51-741180ccacd1/iso-tr-23576-2020)

<https://standards.iteh.ai/catalog/standards/iso/6474f0ce-2dcc-4457-ba51-741180ccacd1/iso-tr-23576-2020>



iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO/TR 23576:2020](https://standards.iteh.ai/catalog/standards/iso/6474f0ce-2dcc-4457-ba51-741180ccacd1/iso-tr-23576-2020)

<https://standards.iteh.ai/catalog/standards/iso/6474f0ce-2dcc-4457-ba51-741180ccacd1/iso-tr-23576-2020>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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

Published in Switzerland

Contents

Page

Foreword.....	v
Introduction.....	vi
1 Scope.....	1
2 Normative reference.....	1
3 Terms and definitions.....	1
4 Abbreviated terms.....	2
5 Basic description of a model of online system for digital asset custodianship.....	3
5.1 General.....	3
5.2 Example of a system for digital asset custodians and its functional components.....	3
5.3 Examples of transactions.....	5
5.4 Description of keys used for signature and encryption.....	6
5.4.1 Type of keys.....	6
5.4.2 Flow for key generation and key usage.....	6
5.4.3 Using multiple keys.....	8
5.4.4 Suspension of keys.....	8
5.5 Characteristics of digital assets held in DLT / blockchain systems.....	8
5.5.1 General.....	8
5.5.2 Importance of signature keys.....	8
5.5.3 Diversity of implementations.....	9
5.5.4 Possibility of blockchain forks.....	9
5.5.5 Risks for unapproved transactions.....	10
6 Basic objectives of security management for digital asset custodians.....	11
7 Approaches to basic security controls.....	11
8 Digital asset custodians' risks.....	12
8.1 General.....	12
8.2 Risks related to the system / platform of the digital asset custodian.....	12
8.2.1 General.....	12
8.2.2 Signature key risks.....	13
8.2.3 Risks on asset data.....	16
8.2.4 Risks related to suspension of systems and operations.....	17
8.3 Risks from external factors.....	17
8.3.1 General.....	17
8.3.2 Risks related to the internet infrastructure and authentication infrastructure.....	18
8.3.3 Risks inherent to digital asset DLT systems / blockchains.....	18
8.3.4 Risks arising from external reputation databases and anti-money-laundering regulations.....	19
9 Consideration on security controls of digital asset custodians.....	20
9.1 General.....	20
9.2 Basis for considerations about security management.....	20
9.3 Considerations about security controls on digital asset custodians.....	21
9.3.1 Guidelines for the information security management.....	21
9.3.2 Information security policies.....	21
9.3.3 Organization of information security.....	21
9.3.4 Human resource security.....	22
9.3.5 Asset management.....	22
9.3.6 Access control.....	22
9.3.7 Security controls on signature keys.....	24
9.3.8 Physical and environmental security.....	28
9.3.9 Operations security.....	28
9.3.10 Communications security.....	30
9.3.11 Supplier relationships.....	32

9.3.12	Information security incident management.....	32
9.3.13	Information security aspect of business continuity management.....	32
9.3.14	Compliance.....	33
9.4	Other digital asset custodian system specific issues — Advance notice to user for maintenance.....	34
Bibliography.....		35

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

[ISO/TR 23576:2020](https://standards.itih.ai/catalog/standards/iso/6474f0ce-2dcc-4457-ba51-741180ccacd1/iso-tr-23576-2020)

<https://standards.itih.ai/catalog/standards/iso/6474f0ce-2dcc-4457-ba51-741180ccacd1/iso-tr-23576-2020>

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).

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).

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.

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

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.

<https://standards.iteh.ai/catalog/standards/iso/6474f0ce-2dcc-4457-ba51-741180ccacd1/iso-tr-23576-2020>

Introduction

A digital asset custodian holds customers' digital assets for safekeeping in order to minimize the risk of their theft or loss. This document illustrates the security risks, threats, and measures which digital asset custodians consider, design, and implement in order to protect the assets of their customers, based on best practices, existing standards and research. For example, the management of signature keys for digital assets requires special attention, taking into account the specific nature of blockchains and DLT systems and the security challenges they face. A key topic discussed is the appropriate management of signature keys by digital asset custodians in order to prevent misuse and transactions by unauthorized individuals.

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

[ISO/TR 23576:2020](https://standards.itih.ai/catalog/standards/iso/6474f0ce-2dcc-4457-ba51-741180ccacd1/iso-tr-23576-2020)

<https://standards.itih.ai/catalog/standards/iso/6474f0ce-2dcc-4457-ba51-741180ccacd1/iso-tr-23576-2020>