



**International
Standard**

ISO/IEC 27565

**Information security, cybersecurity
and privacy protection —
Guidelines on privacy preservation
based on zero-knowledge proofs**

*Sécurité de l'information, cybersécurité et protection de la vie
privée — Lignes directrices relatives à la préservation de la vie
privée basée sur des preuves à divulgation nulle de connaissance*

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Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Abbreviated terms	4
5 Introduction to zero-knowledge proofs	4
5.1 General	4
5.2 Interactive and Non-interactive ZKP	5
5.2.1 General	5
5.2.2 Interactive zero-knowledge proofs	5
5.2.3 Non-interactive zero-knowledge proofs	6
5.3 Components of a ZKP system	7
5.3.1 General	7
5.3.2 Setup module	7
5.3.3 Prover module	9
5.3.4 Verifier module	9
5.4 Characteristics of ZKPs	10
5.5 ZKP performance	11
6 Considerations of implementing ZKPs for attribute verification	11
6.1 Attribute providers	11
6.2 Replay attack detection or protection	11
6.3 Prevention of collusions between users	12
6.4 Use of an authoritative document or of a trusted authority	12
7 Use cases of ZKPs	12
7.1 Proving some properties of a hidden attribute	12
7.2 Proving the contents in an authoritative document	13
7.3 Proving the contents across several authoritative documents	14
7.4 Selective disclosure of attributes	14
7.4.1 General	14
7.4.2 Pre-generation of digital credentials	14
7.4.3 On-demand generation of digital credentials	15
8 Privacy preservation using zero-knowledge proofs	15
8.1 Privacy principles in the context of ZKP	15
8.2 Privacy risk assessment	15
8.3 Privacy functional requirements for ZKP	16
8.3.1 General	16
8.3.2 Collection limitation	16
8.3.3 Data minimization	16
8.3.4 Options and choice	17
8.3.5 Selective disclosure	17
8.3.6 Purpose legitimacy and specification	17
8.3.7 Anonymity of the authority that has issued the attestation	17
8.3.8 Non-disclosure of the identity of the verifiers to the attribute issuer	17
8.3.9 Use, retention and disclosure limitation	17
8.3.10 Accuracy and quality	17
8.3.11 Openness, transparency and notice	17
8.3.12 Individual participation and access	17
8.3.13 Accountability	17
8.3.14 Information security	18
8.3.15 Unlinkability	18
8.4 Security considerations	18

9	Functional use cases	18
9.1	Functional use examples	18
9.2	Selection of ZKP models	19
10	Business use examples	20
10.1	Age verification	20
10.2	Fraud prevention	20
10.3	Auction	20
10.4	Disability proof	20
10.5	Distributed ledger technologies and blockchains	21
10.6	Central bank digital currencies	21
Annex A	(informative) Factors facilitating or hindering ZKP developments	22
Annex B	(informative) Subject binding	23
Annex C	(informative) Example of a consistency check between two documents	24
Annex D	(informative) Example of ZKP for selective disclosure	26
Annex E	(informative) Examples of selective disclosure without using ZKPs	28
Annex F	(informative) Example of secure comparison of two numbers	29
Annex G	(informative) Implementing digital credentials with ZKP	31
Bibliography		36

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 27, *Information security, cybersecurity and privacy protection*.

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 and www.iec.ch/national-committees.

Introduction

The world is witnessing unprecedented data-driven innovation and growth in digital technologies that include use of big data, AI and blockchain. These technologies are providing societal and economic benefits, as well as improving efficiency, user experience and convenience. At the same time, there is a corresponding increase in privacy risks that requires stronger privacy preserving measures to minimize such risks when designing and implementing solutions. Legislators are introducing new data privacy laws and regulations, and strengthening existing ones, to make organizations accountable and compliant with data privacy protection requirements. They also require support for investigation and regulatory enforcement, where privacy protections are being misused to harm society.

A number of new technologies enable organizations to operate and do business in new ways that are compliant with many regulations, while still protecting privacy. These privacy-enhancing technologies (PETs) apply data protection principles intended to minimize the exposure and use of personal data.

Zero-knowledge proof (ZKP) technology is one such PET, which preserves privacy by eliminating the need to expose or share personal information and personally identifying information (PII), while achieving its desired function. ZKP is a privacy-enhancing technology that can be used to adhere to the principles of collection limitation, user consent and choice and disclosure limitation as mentioned in ISO/IEC 29100.

ZKP allows the validation of data held by an authoritative or an authentic source if it is known to both the prover and the verifier. This results in greater compliance with the data minimization principle of ISO/IEC 29100, since only necessary data are disclosed.

This document begins with an explanation of ZKP and its features. It then describes the privacy and functional requirements that ZKP can address and provides guidelines for using ZKP in a way that is most useful for privacy practitioners.

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