



# SLOVENSKI STANDARD

## SIST EN 62351-9:2017

01-september-2017

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**Upravljanje elektroenergetskega sistema in pripadajoča izmenjava informacij - Varnost podatkov in komunikacij - 9. del: Upravljanje računalniške varnosti opreme napajalnih sistemov**

Power systems management and associated information exchange - Data and communications security - Part 9: Cyber security key management for power system equipment

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EUROPEAN STANDARD

**EN 62351-9**

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July 2017

ICS 33.200

English Version

Power systems management and associated information  
exchange - Data and communications security -  
Part 9: Cyber security key management for power system  
equipment  
(IEC 62351-9 :2017)

Gestion des systèmes de puissance et échanges  
d'informations associés - Sécurité des communications et  
des données - Partie 9: Gestion de clé de cybersécurité des  
équipements de système de puissance  
(IEC 62351-9 :2017)

Energiemanagementsysteme und zugehöriger  
Datenaustausch - IT-Sicherheit für Daten und  
Kommunikation - Teil 9: Cyber security Schlüssel-  
Management für Stromversorgungsanlagen  
(IEC 62351-9 :2017)

This European Standard was approved by CENELEC on 2017-06-22. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

SIST EN 62351-9:2017

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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

**EN 62351-9:2017****European foreword**

The text of document 57/1838/FDIS, future edition 1 of IEC 62351-9, prepared by IEC/TC 57 "Power systems management and associated information exchange" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62351-9:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2018-03-22
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-06-22

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This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

**Endorsement notice**

The text of the International Standard IEC 62351-9:2017 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 62351-3	NOTE	Harmonized as EN 62351-3. <a href="https://standards.iteh.ai/catalog/standards/sist/10edd2e1-3765-4e6a-b4df-f8ba7f874be5/sist-en-62351-9-2017">https://standards.iteh.ai/catalog/standards/sist/10edd2e1-3765-4e6a-b4df-f8ba7f874be5/sist-en-62351-9-2017</a>
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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/TS 62351-2	-	Power systems management and associated information exchange - Data and communications security - Part 2: Glossary of terms	-	-
ISO/IEC 9594-8/ Rec. ITU-T X.509	2017 2016	Information technology - Open Systems Interconnection - The Directory - Part 8: Public-key and attribute certificate frameworks	-	-
ISO/IEC 9834-1/ Rec. ITU-T X.660	2012 2011	Information technology - Procedures for the operation of object identifier registration authorities: General procedures and top arcs of the international object identifier tree	-	-
RFC 5246	-	The Transport Layer Security (TLS) Protocol Version 1.2	-	-
RFC 5272	-	Certificate Management over CMS (CMC)	-	-
RFC 5934	-	Trust Anchor Management Protocol (TAMP)	-	-
RFC 6407	-	The Group Domain of Interpretation	-	-
IETF RFC 6960	-	X.509 - Internet Public Key Infrastructure Online Certificate Status Protocol - OCSP	-	-
RFC 7030	-	Enrolment over Secure Transport	-	-

SCEP IETF Draft, Simple Certificate Enrolment Protocol, draft-gutmann-scep-04.txt

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# INTERNATIONAL STANDARD



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**Power systems management and associated information exchange – Data and communications security – Part 9: Cyber security key management for power system equipment**

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## CONTENTS

FOREWORD.....	6
1 Scope.....	8
2 Normative references .....	8
3 Terms and definitions .....	9
4 Abbreviations and acronyms.....	14
5 Cryptographic applications for power system implementations.....	15
5.1 Cryptography, cryptographic keys, and security objectives.....	15
5.2 Types of cryptography .....	16
5.3 Uses of cryptography .....	16
5.3.1 Goals of cyber security .....	16
5.3.2 Confidentiality.....	17
5.3.3 Data integrity.....	17
5.3.4 Authentication.....	18
5.3.5 Non-repudiation.....	18
5.3.6 Trust.....	18
6 Key management concepts and methods in power system operations .....	19
6.1 Key management system security policy .....	19
6.2 Key management design principles for power system operations .....	19
6.3 Use of Transport Layer Security (TLS).....	19
6.4 Cryptographic key usages.....	19
6.5 Trust using a public-key infrastructure (PKI).....	20
6.5.1 Registration authorities (RA).....	20
6.5.2 Certification authority (CA).....	20
6.5.3 Public-key certificates.....	20
6.5.4 Attribute certificates.....	21
6.5.5 Public-key certificate and attribute certificate extensions .....	21
6.6 Trust via non-PKI self-signed certificates .....	22
6.7 Authorization and validation lists.....	22
6.7.1 General .....	22
6.7.2 AVLs in non-constrained environments .....	23
6.7.3 AVLs in constrained environments .....	23
6.7.4 Use of self-signed public-key certificates in AVLs .....	23
6.8 Trust via pre-shared keys.....	23
6.9 Session keys .....	24
6.10 Protocols used in trust establishment.....	24
6.10.1 Certification request .....	24
6.10.2 Trust Anchor Management Protocol (TAMP) .....	24
6.10.3 Simple Certificate Enrolment Protocol (SCEP) .....	24
6.10.4 Internet X.509 PKI Certificate Management Protocol (CMP).....	24
6.10.5 Certificate Management over CMS (CMC) .....	25
6.10.6 Enrolment over Secure Transport (EST) .....	25
6.10.7 Summary view on the different protocols .....	25
6.11 Group keys .....	26
6.11.1 Purpose of group keys.....	26
6.11.2 Group Domain of Interpretation (GDOI) .....	26
6.12 Key management lifecycle .....	31



6.12.1	Key management in the life cycle of an entity .....	31
6.12.2	Cryptographic key lifecycle .....	32
6.13	Certificate management processes .....	34
6.13.1	Certificate management process .....	34
6.13.2	Initial certificate creation .....	34
6.13.3	Enrolment of an entity .....	34
6.13.4	Certificate signing request (CSR) process .....	36
6.13.5	Certificate revocation lists (CRLs) .....	37
6.13.6	Online certificate status protocol (OCSP) .....	38
6.13.7	Server-based certificate validation protocol (SCVP) .....	41
6.13.8	Short-lived certificates .....	41
6.13.9	Certificate renewal .....	42
6.14	Alternative process for asymmetric keys generated outside the entity .....	43
6.15	Key distribution for symmetric keys with different time frames .....	44
7	General key management requirements .....	44
7.1	Asymmetric and symmetric key management requirements .....	44
7.2	Required cryptographic materials .....	44
7.3	Public-Key certificates requirements .....	45
7.4	Cryptographic key protection .....	45
7.5	Use of existing security key management infrastructure .....	45
7.6	Use of object identifiers .....	45
8	Asymmetric key management .....	45
8.1	Certificate generation and installation .....	45
8.1.1	Private and public key generation and installation .....	45
8.1.2	Private and public key renewal .....	46
8.1.3	Random Number Generation .....	46
8.1.4	Certificate policy .....	46
8.1.5	Entity registration for identity establishment .....	46
8.1.6	Entity configuration .....	47
8.1.7	Entity enrolment .....	47
8.1.8	Trust anchor information update .....	48
8.2	Public-key certificate revocation .....	49
8.3	Certificate validity .....	49
8.3.1	Validity of certificates .....	49
8.3.2	Certificate revocation .....	50
8.3.3	Certificate revocation status checking .....	50
8.3.4	Handling of authorization and validation lists (AVLs) .....	50
8.4	Certificate expiration and renewal .....	55
8.5	Secured Time Synchronization .....	55
9	Symmetric key management .....	56
9.1	Group based key management (GDOI) .....	56
9.1.1	GDOI requirements .....	56
9.1.2	Internet Key Exchange Version 1 (IKEv1) .....	56
9.1.3	Phase 1 IKEv1 main mode exchange type 2 .....	57
9.1.4	Phase 1/2 ISAKMP informational exchange type 5 .....	60
9.1.5	Phase 2 GDOI GROUPKEY-PULL exchange type 32 .....	62
9.1.6	GROUPKEY-PULL group key download exchange .....	70
10	Connections to the IEC 62351 parts and other IEC documents .....	71

Annex A (normative) Protocol Implementation Conformance Statement (PICS).....	73
Annex B (informative) Random Number Generation (RNG) .....	74
B.1 Random number generation types.....	74
B.2 Deterministic random bit generators.....	74
B.3 Non-deterministic random number generation .....	75
B.4 Entropy sources .....	75
Annex C (informative) Certificate enrolment and renewal flowcharts .....	76
C.1 Certificate enrolment.....	76
C.2 Certificate renewal .....	76
Annex D (informative) Examples of certificate profiles.....	78
Bibliography.....	82
Figure 1 – Relationship between public-key certificates and attribute certificates .....	21
Figure 2 – Group key management distribution .....	26
Figure 3 – GDOI IKE Phase 1 – Authentication and securing communication channel.....	27
Figure 4 – GDOI Pull Phase 2.....	28
Figure 5 – Key renewal triggered by the entities.....	30
Figure 6 – Key management in product life cycle .....	31
Figure 7 – Simplified certificate life cycle .....	32
Figure 8 – Cryptographic key life cycle .....	33
Figure 9 – Example of the SCEP entity enrolment and CSR process.....	35
Figure 10 – Example of the EST entity enrolment and CSR process .....	36
Figure 11 – CSR processing.....	37
Figure 12 – Certificate revocation list.....	38
Figure 13 – Overview of the online certificate status protocol (OCSP).....	39
Figure 14 – Diagram using a combination of CRL and OCSP processes .....	40
Figure 15 – Call Flows for the Online Certificate Status Protocol (OCSP).....	41
Figure 16 – Overview Server-Based Certificate Validation Protocol using OCSP Backend .....	41
Figure 17 – SCEP certificate renewal.....	42
Figure 18 – EST certificate renewal/rekeying .....	43
Figure 19 – Central certificate generation .....	44
Figure 20 – IKEv1 (RFC 2409) main mode exchange with RSA digital signatures .....	57
Figure 21 – IKEv1 main mode exchange and security association messages .....	58
Figure 22 – IKEv1 main mode exchange: key exchange messages .....	59
Figure 23 – IKEv1 Main Mode Exchange: ID authentication messages.....	59
Figure 24 – IKEv1 HASH_I calculation .....	60
Figure 25 – Phase 1 Informational Exchange .....	61
Figure 26 – GD004FI GROUPKEY-PULL as define in RFC 6407 .....	62
Figure 27 – GROUPKEY-PULL hash computations .....	63
Figure 28 – GROUPKEY-PULL initial SA request exchange .....	64
Figure 29 – RFC 6407 Identification Payload .....	64
Figure 30 – ID_OID Identification Data.....	65
Figure 31 – 61850_UDP_ADDR_GOOSE/SV ASN.1 BNF .....	66

Figure 32 – IPADDRESS ASN.1 BNF .....	66
Figure 33 – Example IecUdpAddrPayload ASN.1 Data with DER Encoding .....	67
Figure 34 – 61850_UDP_TUNNEL Payload ASN.1 BNF .....	67
Figure 35 – 61850_ETHERNET_GOOSE/SV Payload ASN.1 BNF .....	67
Figure 36 – RFC 6407 SA TEK Payload .....	68
Figure 37 – IEC-61850 SA TEK Payload .....	69
Figure 38 – GROUPKEY-PULL Key Download Exchange .....	70
Figure 39 – IEC 62351 Part 9 relationship to other IEC 62351 parts .....	71
Figure C.1 – Certificate enrolment .....	76
Figure C.2 – Certificate renewal state machine .....	77
Table 1 – KDC IKEv1 Requirements .....	56
Table 2 – IEC 61850 Object IDs: Mandatory (m) and Optional (o) .....	65
Table D.1 – Examples of operator public-key certificates .....	79
Table D.2 – Examples of OEM certificates .....	80
Table D.3 – Example of OCSP certificate .....	81

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**POWER SYSTEMS MANAGEMENT AND  
ASSOCIATED INFORMATION EXCHANGE –  
DATA AND COMMUNICATIONS SECURITY –**

**Part 9: Cyber security key management for power system equipment**

**FOREWORD**

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International Standard IEC 62351-9 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
57/1838/FDIS	57/1853/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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

A list of all parts in the IEC 62351 series, published under the general title *Power systems management and associated information exchange – Data and communications security*, can be found on the IEC website.

In this standard, the following print types are used:

- ASN.1 notions is presented in bold Courier New typeface;
- when ASN.1 types and values are referenced in normal text, they are differentiated from normal text by presenting them in bold Courier New typeface.

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

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- withdrawn,
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# POWER SYSTEMS MANAGEMENT AND ASSOCIATED INFORMATION EXCHANGE – DATA AND COMMUNICATIONS SECURITY –

## Part 9: Cyber security key management for power system equipment

### 1 Scope

This part of IEC 62351 specifies cryptographic key management, namely how to generate, distribute, revoke, and handle public-key certificates and cryptographic keys to protect digital data and its communication. Included in the scope is the handling of asymmetric keys (e.g. private keys and public-key certificates), as well as symmetric keys for groups (GDOI).

This part of IEC 62351 assumes that other standards have already chosen the type of keys and cryptography that will be utilized, since the cryptography algorithms and key materials chosen will be typically mandated by an organization's own local security policies and by the need to be compliant with other international standards. This document therefore specifies only the management techniques for these selected key and cryptography infrastructures. The objective is to define requirements and technologies to achieve interoperability of key management.

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The purpose of this part of IEC 62351 is to guarantee interoperability among different vendors by specifying or limiting key management options to be used. This document assumes that the reader understands cryptography and PKI principles.

[SIST EN 62351-9:2017](https://standards.iteh.ai/catalog/standards/sist/10edd2e1-3765-4e6a-b4df-f8ba7f874be5/sist-en-62351-9-2017)

### 2 Normative references

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The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC TS 62351-2, *Power systems management and associated information exchange – Data and communications security – Part 2: Glossary of terms*

ISO/IEC 9594-8:2017 | Rec. ITU-T X.509 (2016), *Information technology – Open systems interconnection – The Directory: Public-key and attribute certificate frameworks*

ISO/IEC 9834-1:2012 | Rec. ITU-T X.660 (2011), *Information technology – Procedures for the operation of object identifier registration authorities: General procedures and top arcs of the international object identifier tree*

SCEP IETF Draft, *Simple Certificate Enrolment Protocol, draft-gutmann-scep-04.txt*

RFC 5246, *The Transport Layer Security (TLS) Protocol Version 1.2*

RFC 5272, *Certificate Management over CMS (CMC)*

RFC 5934, *Trust Anchor Management Protocol (TAMP)*

RFC 6407, *The Group Domain of Interpretation*

RFC 6960, *X.509 Internet Public Key Infrastructure Online Certificate Status Protocol – OCSP*

RFC 7030, *Enrolment over Secure Transport*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC TS 62351-2 and the following apply.

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

##### **asymmetric keys**

two related keys, a public key and a private key, that are used to perform complementary operations, such as encryption and decryption or signature generation and signature verification

#### 3.2

##### **authorization and validation list**

##### **AVL**

signed list containing information to an AVL entity about potential communications entities and possible restrictions on the communications with such entities

[SOURCE: ISO/IEC 9594-8:2017 | Rec. ITU-T X.509 (2016), 3.5.9]

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#### 3.3

##### **authorization and validation list entity**

##### **AVL entity**

entity, when acting as a relying party, which is dependent on an AVL issued by a designated authorizer

[SOURCE: ISO/IEC 9594-8:2017 | Rec. ITU-T X.509 (2016), 3.5.10]

#### 3.4

##### **authorizer**

entity trusted by one or more entities operating as AVL entities to create, maintain and sign authorization and validation lists

[SOURCE: ISO/IEC 9594-8:2017 | Rec. ITU-T X.509 (2016), 3.5.11]

#### 3.5

##### **certification path**

ordered list of one or more public-key certificates, starting with a public-key certificate signed by the trust anchor, and ending with the end-entity public-key certificate to be validated

Note 1 to entry: All intermediate public-key certificates, if any, are CA certificates in which the subject of the preceding public-key certificate is the issuer of the following public-key certificate.

[SOURCE: ISO/IEC 9594-8:2017, 3.5.18 | Rec. ITU-T X.509 (2016), 3.5.21]