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Varnostne zahteve naprav za overjanje - 3. del: Dodatna funkcionalnost za varnostne cilje

Security requirements for device for authentication - Part 3: Additional functionality for security targets

Sicherheitsanforderungen für Geräte zur Authentifizierung - Teil 3: zusätzliche Funktionalitäten für Sicherheitsziele

Profils de protection pour support d'authentification - Partie 3: Fonctionnalités additionnelles

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Security requirements for device for authentication - Part 3: Additional functionality for security targets

Profils de protection pour dispositif d'authentification - Partie 3: Fonctionnalités additionnelles

Sicherheitsanforderungen für Geräte zur Authentisierung - Teil 3: Zusätzliche Funktionalitäten für Sicherheitsziele

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Contents

Page

Figures

Tables

Foreword

This document (EN 419251-3:2013) has been prepared by Technical Committee CEN/TC 224 “Personal identification, electronic signature and cards and their related systems and operations”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2013, and conflicting national standards shall be withdrawn at the latest by September 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

EN 419251 contains the following parts:

— EN 419251-1, *Security requirements for device for authentication — Part 1: Protection profile for core functionality*;

— EN 419251-2, *Security requirements for device for authentication — Part 2: Protection profile for extension for trusted channel to certificate generation application*;

— EN 419251-3, *Security requirements for device for authentication — Part 3: Additional functionality for security targets* (the present document).

The present document was submitted to the Enquiry under the reference prEN 16248-3.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard contains packages that define security requirements for an authentication device. This document is Part 3. Part 1 and Part 2 are Protections Profiles – PP– based on the packages defined in this document. Packages contained in this document can be added in a Security Target –ST- claiming PP of Part 1 or Part 2.

2 Normative references

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.

ISO/IEC 10181-2:1996, *Information technology — Open Systems Interconnection — Security frameworks for open systems: Authentication framework*

ISO/IEC 15408-1:2009[1)], *Information technology — Security techniques — Evaluation criteria for IT security — Part 1: Introduction and general model*

ISO/IEC 15408-2[1)], *Information technology — Security techniques — Evaluation criteria for IT security — Part 2: Security functional components*

ISO/IEC 15408-3[1)], *Information technology — Security techniques — Evaluation criteria for IT security — Part 3: Security assurance components*

ISO/IEC 18045, *Information technology — Security techniques — Methodology for IT security evaluation*

3 Conformance

3.1 CC Conformance Claim

These packages are CC Part 2 extended and CC Part 3 conformant and written according to ISO/IEC 15408-1, -2, -3 and ISO/IEC 18045.

3.2 PP Claim

These packages do not claim conformance to any other Protection Profile.

3.3 Package Claim

The evaluation assurance level for these packages is EAL4-augmented with the assurance components AVA_VAN.5 and ALC_DVS.2.

3.4 Conformance Rationale

Since these packages do not claim conformance to any other protection profile, no rationale is necessary here.

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1) ISO/IEC 15408-1, -2 and -3 respectively correspond to *Common Criteria for Information Technology Security Evaluation*, Parts 1, 2 and 3.

3.5 Conformance Statement

The conformance required by these packages is the demonstrable-PP conformance. This would facilitate conformance claim to both the PP “Authentication device” and other PPs for Security Target (ST) authors.

4 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

4.1
Administrator
person who is allowed administration operations on the authentication device

Note 1 to entry: See 7.2 for more details.

4.2
Authentication Protocol sensitive data
data used in the process of authentication of the TOE by the external entity

Note 1 to entry: These data are linked to the Authentication private key, e.g. Authentication Certificate or APuK.

Note 2 to entry: Authentication Protocol sensitive data may be empty if the environment is trusted, and the holder public key known to the system.

4.3
Certificate
attestation, which links the APuK to a person and confirms the identity of that person (as defined in the Directive [8], article 2, Clause 9)

4.4
Certificate Info
information associated with an Authentication key pair that consists either:

— a signer's public key certificate; or

— one or more hash values of a signer's public key certificate together the identifier of the hash function used to compute these hash values, and some information which allows the signer to disambiguate between several signers certificates

4.5
Configuration
set of groups

Note 1 to entry: Each configuration corresponds to one PP. It has its own rationale. See the rest of the document.

4.6
Group
set Assets, threats, objectives, and Requirements, addressing a specific function

Note 1 to entry: See the rest of the document.

4.7
Holder
legitimate holder of the authentication device

Note 1 to entry: See 7.2 for more details.

4.8
Issuer
user of the authentication device during personalisation

Note 1 to entry: See 7.2 for more details.

4.9
Protection Profile
PP
implementation-independent statement of security needs for a TOE

[SOURCE: ISO/IEC 15408-1:2009, Clause 4 "Terms and definitions", modified — in ISO/IEC 15408-1, the protection profile refers to a TOE type instead of a TOE in this document]

4.10
PP collection
document defining groups and configurations

4.11
Reference Authentication Data
usually called RAD, data stored inside the TOE and used as a reference to which the VAD will be compared

Note 1 to entry: This RAD can be biometrics data, a PIN, or a symmetric key. It can also be a combination of these factors. The RAD is not an Asset, it is TSF data.

4.12
Trusted channel
means by which a TSF and a remote trusted IT product can communicate with necessary confidence

[SOURCE: ISO/IEC 15408-1:2009, Clause 4 "Terms and definitions"]

4.13
Trusted Environment
environment that ensures the protection of sensitive data transfers between the TOE and a remote trusted IT product (resp. a user)

Note 1 to entry: A trusted (or untrusted) environment relates to the whole communication channel between the TOE and the remote trusted IT product (resp. the user).

4.14
Untrusted Environment
environment that does not ensure the protection of sensitive data transfers between the TOE and a remote trusted IT product (resp. a user)

Note 1 to entry: This protection should be ensured by the TOE with a Trusted Channel (resp. a Trusted Path). An untrusted (or trusted) environment relates to the whole communication channel between the TOE and the remote trusted IT product (resp. the user).

4.15
User
current User of the TOE

Note 1 to entry: The User can be the Issuer, the Holder, the Administrator.

4.16
Verifier
entity which is or represents the entity requiring an authenticated identity

Note 1 to entry: A verifier includes the functions necessary for engaging in authentication exchanges.

[SOURCE: ISO/IEC 10181-2:1996, modified — the full sentence at the end of the definition in the ISO/IEC has been turned into the present Note 1 to entry]

4.17
Verification Authentication Data
usually called VAD, data entered into the TOE and checked against the RAD as a means of authentication

Note 1 to entry: As the RAD, the VAD is not an Asset, it is TSF data.

5 Symbols and abbreviations

APSD	Authentication Protocol Sensitive Data
APrK	Authentication Private Key
APuK	Authentication Public Key
CA	Certificate Authority
CC	Common Criteria
OBKG	On-Board Key Generation
PIN	Personal Identification Number
PC	Personal Computer
PP	Protection Profile
RAD	Reference Authentication Data
SSCD	Secure Signature Creation Device
ST	Security Target
TOE	Target of Evaluation
VAD	Verification Authentication Data

6 Overview of the target of evaluation

6.1 TOE Type

The aimed objective is to define security requirements that an authentication device shall conform to in the perspective of a security evaluation. The Target of Evaluation (TOE[2)]) considered in this PP corresponds to a hardware device (such as, for example, a smart card or USB token) allowing its legitimate holder to authenticate himself when accessing an on-line service or to guarantee the origin authentication of data sent by the User to a distant agent[3)].

This PP has been constructed such as to make it possible for an ST writer to claim conformance to both this PP and PP-SSCD [3], [4], [5], [6], [7] and easily merge these PPs into one ST.

6.2 TOE Usage

In order to connect to an on-line service with restricted access or send data whose origin should be authenticated, the Holder shall use his personal authentication device. The service provided by the device requires the prior input of authentication data by the Holder on a terminal device (as specified in 6.4). The authentication service included in the TOE relies solely on public-key cryptography mechanisms to allow the Holder to authenticate himself and access to the on-line service with restricted access or to enable the origin authentication of data sent by the Holder.

Note that authentication devices implementing shared key (i.e. symmetric-key) mechanisms for authentication purposes are therefore not considered in this PP.

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2) In the document the terms authentication device, device and TOE are equivalent.

3) He is a physical person that receives some authenticated data from the users.

6.3 Security Features of the TOE

The primary functionality of the TOE is to enable the Holder to authenticate himself in order to access an on-line service or guarantee the origin authentication of data sent by the Holder to a distant agent.

To implement such services, a chain of trust shall be created between the TOE and the on-line restricted-access service or the agent in charge of authenticating the origin of data sent by the Holder. This trust chain is created in two phases:

— Authentication of the Holder by the TOE;

— Authentication of the TOE by the verifier on behalf of the Holder.

6.4 Required non-TOE Hardware and Software

The authentication device requires the services provided by a terminal device to enable the Holder to input his authentication data. Typically, this terminal device (e.g., a PINPad terminal) ensures the protection of authentication data input in confidentiality and integrity and its secure transfer to the TOE. The general features of this terminal along with the method employed to enable the input of authentication data are considered out of the TOE scope.

It should be however noted that the level of security of the whole operational system including the TOE depends on the security level of the TOE operational environment. In particular, an authenticated terminal device for the input and transfer of the Holder authentication data could be required in usage environments considered as untrusted.

6.5 Protection Profile Usage

The requirements present in this PP define the minimum security rules an ST of an authentication device shall conform to but are in no way exhaustive. It remains indeed possible to add functionalities or also refer to another PP. However, any modifications to this PP are restricted by the rules defined by the conformance as set forth in Clause 3.

In other respects, this PP aims at ensuring compatibility with PP-SSCD [3], [4], [5], [6], [7], in order to define complementary security requirements for products offering both authentication and signature services.

6.6 Groups

6.6.1 General

A group is a set of Assets, Threats, Objectives, and Requirements, addressing a specific function, e.g. KeyGen addresses key generation on TOE.

6.6.2 Main groups

6.6.2.1 General

This PP has the following main groups: Core, KeyImp, KeyGen, and Admin.

6.6.2.2 Core group

Core group applies to all Configurations. It contains the basic security features for all Authentication devices.

6.6.2.3 KeyImp group

KeyImp group contains the security features directly linked to the import of the Authentication Private Key into the card.

6.6.2.4 KeyGen group

KeyGen group contains the security features directly linked to the On Board Key Generation (OBKG) of the Authentication Private Key.

6.6.2.5 Admin group

Admin group contains the security features directly linked to the following Administration functions, which take place during the Usage phase:

— Import and export of the public key and certificate by administrator.

— Storage and export of log data by administrator.

— Reset of Holder authentication failures counter by administrator.

6.6.3 Environment groups

6.6.3.1 General

This PP has additional groups in order to deal with Trusted and Untrusted environments. The TOE exports and imports sensitive data to and from the following environments:

— Personalisation application

— Authentication application

— Verifier

— CA (KeyGen group)

— Administration application (Admin group)

For each environment, two groups are defined, a Trusted one and an Untrusted one. Each configuration selects one group in each pair. A configuration cannot include both groups of the same pair but it can include none if the TOE does not import or export sensitive data from the corresponding environment.

6.6.3.2 Trusted PersoAppli

Trusted PersoAppli group contains the security features directly linked to the transfer of sensitive data between the Personalisation application and the TOE, when these transfers take place in a protected environment, i.e. when potential attacks are countered by the environment.

However even in a trusted environment the Authentication private key shall be imported within a trusted channel.

6.6.3.3 Trusted AuthAppli

Trusted AuthAppli group contains the security features directly linked to the transfer of sensitive data between the Authentication application and the TOE, when these transfers take place in a protected environment, i.e. when potential attacks are countered by the environment.

Under some conditions, which are not specified in this document, a PC in an office or at home can be considered a trusted environment.

6.6.3.4 Trusted Verifier

Trusted Verifier group contains the security features directly linked to the transfer of sensitive data between the Verifier and the TOE, when these transfers take place in a protected environment, i.e. when potential attacks are countered by the environment.

This group is also required when a trusted channel, eg using SSL, is established from the Authentication application to the Verifier but not from the TOE to the Verifier.

6.6.3.5 Trusted CA

Trusted CA group contains the security features directly linked to the transfer of sensitive data between the TOE and the CA, when these transfers take place in a protected environment, i.e. when potential attacks are countered by the environment.

This group only applies when KeyGen group belongs to the configuration.

6.6.3.6 Trusted AdminAppli

Trusted AdminAppli group contains the security features directly linked to the transfer of sensitive data between the Administration application and the TOE, when these transfers take place in a protected environment, i.e. when potential attacks are countered by the environment.

This group only applies when admin group belongs to the configuration.

6.6.3.7 Untrusted PersoAppli

Untrusted PersoAppli group contains the security features directly linked to the transfer of sensitive data between the Personalisation application and the TOE, when these transfers do not take place in a protected environment.

This means that the TOE has to establish a trusted channel with the Personalisation application.

6.6.3.8 Untrusted AuthAppli

Untrusted AuthApp group contains the security features directly linked to the transfer of sensitive data between the Authentication application and the TOE, when these transfers do not take place in a protected environment.

This means that the TOE has to establish a trusted channel with the Authentication application.

6.6.3.9 Untrusted Verifier

Untrusted Verifier group contains the security features directly linked to the transfer of sensitive data between the Verifier and the TOE for the authentication of TOE, when these transfers do not take place in a protected environment.

This means that the TOE has to use a secure protocol for the authentication of TOE by the Verifier.

6.6.3.10 Untrusted CA

Untrusted CA group contains the security features directly linked to the export of the Authentication public key to the CA, when thes export does not take place in a protected environment.

This means that the TOE has to establish a trusted channel with the CA.

This group only applies when KeyGen group belong to the configuration.

6.6.3.11 Untrusted AdminAppli

Untrusted AdminApp group contains the security features directly linked to the transfer of sensitive data between the Administration application and the TOE, when these transfers do not take place in a protected environment.

This means that the TOE has to establish a trusted channel with the Administration application.

This group only applies when admin group belong to the configuration.

6.7 Configurations

6.7.1 General

A Configuration is a set of groups. Each configuration corresponds to one PP and has to be certified separately. It has its own rationale.

6.7.2 Rules

Due to the nature of groups, the following rules apply:

— **Core**

Core group is mandatory.

— **KeyImp/KeyGen**

A Configuration shall include at least KeyImp group or KeyGen group. It can also include both groups.

— **Admin**

Admin group is optional.

— **Trusted PersoAppli / Untrusted PersoAppli**

A Configuration shall include either Trusted PersoAppli group or Untrusted PersoAppli.group. It cannot include both.

— **Trusted AuthAppli / Untrusted AuthAppli**

A Configuration shall include either Trusted AuthAppli group or Untrusted AuthAppli.group. It cannot include both.

— **Trusted Verifier / Untrusted Verifier**

A Configuration shall include either Trusted Verifier group or Untrusted Verifier.group. It cannot include both.

— **Trusted CA / Untrusted CA**

These groups are related to KeyGen group

A Configuration including KeyGen group shall include either Trusted CA group or Untrusted CA.group. It cannot include both.