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Samhällssäkerhet – Videoövervakning – Interoperabilitet vid export (ISO 22311:2012)

Societal security – Video-surveillance – Export interoperability (ISO 22311:2012)

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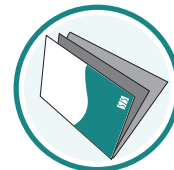
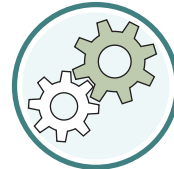
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EUROPEAN STANDARD

EN ISO 22311

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2014

ICS 03.100.01; 13.310; 35.240.99

English Version

**Societal security - Video-surveillance - Export interoperability
(ISO 22311:2012)**

Sécurité sociétale - Vidéosurveillance - Interopérabilité de
l'export (ISO 22311:2012)

Sicherheit und Schutz des Gemeinwesens -
Videoüberwachung - Datenschnittstellen (ISO 22311:2012)

This European Standard was approved by CEN on 18 October 2014.

CEN 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. 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 CEN member.

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

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

Contents		Page
Foreword		iv
Introduction		v
1 Scope		1
2 Normative references		1
3 Terms and definitions		2
4 General		3
4.1 Concept		3
4.2 Relation with other standards		5
5 Requirements		5
5.1 General		5
5.2 Requirements for the Audio-Video Package		6
5.3 Data security and integrity		15
5.4 Provisions for privacy		16
Annex A (normative) Metadata dictionary		17
Annex B (informative) Requirements concerning usability		26
Bibliography		29

Foreword

The text of ISO 22311:2012 has been prepared by Technical Committee ISO/TC 223 “Societal security” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 22311:2014 by Technical Committee CEN/TC 391 “Societal and Citizen Security” the secretariat of which is held by NEN.

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 May 2015, and conflicting national standards shall be withdrawn at the latest by May 2015.

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.

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Endorsement notice

The text of ISO 22311:2012 has been approved by CEN as EN ISO 22311:2014 without any modification.

Introduction

Video-surveillance is a crucial asset in intelligence collection, crime prevention, crisis management, forensic applications etc. The minimum requirement in societal security is for the authorities to be able to rapidly use the data collected by different CCTV systems from given locations.

This International Standard provides an export interoperability profile which constitutes the exchange format and minimum technical requirements that ensure that the digital video-surveillance contents exported are compatible with the replay systems, establish an appropriate level of quality and contain all the context information (metadata) necessary for their processing.

It is crucial for societal security that present and future video-surveillance systems implement this interface to allow efficient forensic processing of the material produced, often in massive quantities.

This International Standard also contains provisions to ensure that privacy measures can be implemented to protect the rights of the individuals.

This International Standard does not impose implementation methods or technological solutions. It relies heavily on individual technical standards separately developed and concentrates on minimum necessary profiles or subsets thereof to achieve its societal security objectives.

This International Standard is a blend of profiles of standards and practices, which combined, will achieve a minimum level of interoperability.

This implementation has only been possible because of standards produced by the following bodies:

- ISO/IEC JTC 1/SC 29/WG 11, Coding of moving pictures and audio (MPEG);
- ISO/IEC JTC 1/SC 29/WG 1, Coding of still pictures (JPEG);
- IEC/TC 79, Alarm systems and electronic security (including its European equivalent CENELEC/TC 79, Alarm systems and electronic security);
- ITU, International Telecommunication Union;
- IETF, Internet Engineering Task Force;
- SMPTE, Society of Motion Picture and Television Engineers;
- NATO, Standardization Agency.

The normative Annex A contains a metadata dictionary.

The importance of having images stored and presented to the user in such a way that their use is facilitated is presented in the informative Annex B.

Societal security — Video-surveillance — Export interoperability

1 Scope

This International Standard is mainly for societal security purposes and specifies a common output file format that can be extracted from the video-surveillance contents collection systems (stand alone machines or large scale systems) by an exchangeable data storage media or through a network to allow end-users to access digital video-surveillance contents and perform their necessary processing. The means of exchange are not part of this International Standard.

This common output file format relies on a combination of several technical standards that individually are not restrictive enough to provide the requested interoperability. These standards are formally referenced to avoid duplications or divergence. When appropriate to improve the interoperability, subsets or a limited number only of these standards are called.

Since video-surveillance recording often includes taking records of citizens, requirements relating to privacy, use of the records and their disposal are also considered.

Based on the above mentioned technical standards, the following format components are covered:

- Video;
- Audio;
- Metadata:
 - Descriptive (location, camera identifier, etc.)
 - Dynamic (date, time, pan, tilt, zoom, identification results, etc.)
- Encapsulation/packaging for the output file;
- Data/access security and integrity;
- Provisions for privacy;
- Informative data regarding the presentation to users.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO/IEC 10918-1:1994, *Information technology — Digital compression and coding of continuous-tone still images: Requirements and guidelines — Part 1*

ISO/IEC 10918-5, *Information technology — Digital compression and coding of continuous-tone still images: JPEG File Interchange Format (JFIF) — Part 5*¹⁾

ISO/IEC 14496-2:2004, *Information technology — Coding of audio-visual objects — Part 2: Visual*

ISO/IEC 14496-3:2009, *Information technology — Coding of audio-visual objects — Part 3: Audio*

1) To be published.

ISO/IEC 14496-10:2012, *Information technology — Coding of audio-visual objects — Part 10: Advanced Video Coding*

ISO/IEC 14496-12:2012, *Information technology — Coding of audio-visual objects — Part 12: ISO base media file format*

ISO/IEC 14496-14:2003, *Information technology — Coding of audio-visual objects — Part 14: MP4 file format*

ISO/IEC 14496-15:2010, *Information technology — Coding of audio-visual objects — Part 15: Advanced Video Coding (AVC) file format*

ISO/IEC 15444-1:2004, *Information technology — JPEG 2000 image coding system: Core coding system — Part 1*

ISO/IEC 23000-10, *Information technology — Multimedia application format (MPEG-A) — Part 10: Surveillance application format²⁾*

IEC 62676-1-1, *Video surveillance systems for use in security applications — Part 1-1: Video system requirements³⁾*

IEC 62676-2-3, *Video surveillance systems for use in security applications — Part 2-3: Video transmission protocols — IP interoperability implementation based on web services⁴⁾*

ITU-T/Rec G.711, *Pulse code modulation (PCM) of voice frequencies*

SMPTE RP210.11-2008, *Metadata Dictionary Contents*

SMPTE 335M-2001, *Metadata Dictionary Structure*

SMPTE 336M-2007, *Data Encoding Protocol Using Key-Length Value*

3 Terms and definitions

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

3.1 video-surveillance

surveillance by video means

3.2 forensic

related to or used in courts of law

NOTE This applies to video-surveillance used to produce legal evidence.

3.3 metadata

information to describe audiovisual content and data essence in a format defined by ISO or any other authority

EXAMPLE Time and date, text strings, location identifying data, audio and any other associated, linked or processed information.

3.4 static metadata

data associated with a digital image aside from the pixel values that does not change over time (or at least does not change over the addressed sequence)

2) To be published.

3) To be published.

4) To be published.

3.5

dynamic metadata

data associated with a digital image aside from the pixel values, which can change for each frame of a video sequence

3.6

CCTV system

surveillance system comprised of cameras, recorders, interconnections and displays that are used to monitor activities in a store, a company or more generally a specific infrastructure and/or a public place

3.7

logical structure

arrangement of data to optimize their access or processing by given user (human or machine)

3.8

geo-location

specific location defined by one of several means to represent latitude, longitude, elevation above sea level, and coordinate system

NOTE Geo-location generally means the meaningful specification of the position of a point or object on the earth. The term itself does not carry a prescription of the coordinate system to be used. Additional attributes associated with a geo-location are not a part of a geo-location specification.

3.9

scene location

collection of geo-locations that defines the perimeter of the viewable scene of a camera

NOTE The coordinate system is the same for each geo-location in the collection. There is at least one geo-location in the scene location. The geo-locations are ordered in either clockwise or counter clockwise order. Single geo-location scenes interpret the geo-location as the centre of the scene.

4 General

4.1 Concept

4.1.1 Video-surveillance systems generic architecture

A CCTV system usually consists of hardware, software and human elements.

A CCTV system for security applications presented as functional blocks, which portray the various parts and functions of the system, as well as the interactions with the human stakeholders is outlined in Figure 1.

This International Standard specifies the packaging and format of the data exchanged between the video and system management functional blocks of a CCTV system and societal security end-users external to the system as covered by the dotted zone of Figure 1.

Informative data regarding the presentation to users are given in Annex B.

The interactions between the components of the different functional modules of a CCTV system are specified by the IEC 62676 series of normative documents. This International Standard is an implementation of the provisions of 6.1.3 in IEC 62676-1-1 (to be published), which calls for publication of all necessary information allowing intended usage of the data produced. Accordingly this International Standard introduces the necessary extra requirements to the IEC 62676 series, without being in contradiction with them.