Video surveillance systems for use in security applications - Part 2-32: Recording control and replay based on web services



EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 62676-2-32:2019 sisaldab Euroopa standardi EN IEC 62676-2-32:2019 ingliskeelset teksti.	
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 30.08.2019.	Date of Availability of the European standard is 30.08.2019.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile <u>standardiosakond@evs.ee</u>.

ICS 13.320

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN IEC 62676-2-32

August 2019

ICS 13.320

English Version

Video surveillance systems for use in security applications - Part 2-32: Recording control and replay based on web services (IEC 62676-2-32:2019)

Systèmes de vidéosurveillance destinés à être utilisés dans les applications de sécurité - Partie 2-32: Contrôle d'enregistrement et lecture en fonction des services Web (IEC 62676-2-32:2019) Videoüberwachungssysteme für Sicherheitsanwendungen -Teil 2-32: Videoübertragungsprotokolle - IP-Interoperabilität auf Basis von Webservices - Aufzeichnung (IEC 62676-2-32:2019)

This European Standard was approved by CENELEC on 2019-07-31. 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.

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.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 79/621/FDIS, future edition 1 of IEC 62676-2-32, prepared by IEC/TC 79 "Alarm and electronic security systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62676-2-32:2019.

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
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-07-31

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

Endorsement notice

The text of the International Standard IEC 62676-2-32:2019 was approved by CENELEC as a European Standard without any modification.

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	EN/HD	<u>Year</u>
IEC 60839-11-31	2016	Alarm and electronic security systems Part 11-31: Electronic access contro systems - Core interoperability protoco based on Web services	ol	2017
IEC 62676-2-31	2019	Video surveillance systems for use is security applications - Part 2-31: Liv streaming and control based on we services	⁄e	-
Internet Assigne Numbers Authority	d-	Media Types	-	-
RFC 2326	-	Real Time Streaming Protocol (RTSP)	-	-
RFC 3280	-	Internet X.509 Public Key Infrastructur Certificate and Certificate Revocation Lis (CRL) Profile		-
RFC 3550	-	RTP: A Transport Protocol for Real-Tim Applications	ne-	-
RFC 4055	-	Additional Algorithms and Identifiers for RSA Cryptography for use in the Internet X.509 Public Key Infrastructure - Certificate and Certificate Revocation List (CRI Profile	et te	-
SOAP12-PART1	-	SOAP 1.2 - Part 1, Messaging Framework	k -	-
XML-Schema 1	-	W3C XML Schema – Part 1:	- 7	-
		Structures Second Edition		
XML-Schema 2	-	W3C XML Schema – Part 2: Datatype Second Edition	es-	4
XPath 1.0	-	XML Path Language (XPath) Version 1.0	-	- U
FIPS 180-4	-	Secure Hash Standard (SHS)	-	-

CONTENTS

Г	JKEWO		0
IN	TRODU	ICTION	8
1	Scop	e	9
2	Norm	native references	9
3	Term	s, definitions and abbreviated terms	10
	3.1	Terms and definitions	
	3.2	Abbreviated terms	
4	Over	view	
	4.1	Interfaces	11
	4.2	Storage model	
	4.3	Recording control	
	4.4	Search	14
	4.5	Replay control	14
	4.6	Export file format	14
	4.6.1	Layout	14
	4.6.2	-	
	4.6.3	,	16
	4.6.4	Use case 3: Playback at players not equipped according to the present specification	16
	4.7	Receiver	
5	Reco	ording control service	16
	5.1	Overview	
	5.2	General requirements	
	5.3	Data structures	
	5.3.1	RecordingConfiguration	18
	5.3.2		
	5.3.3	3 3	
	5.4	CreateRecording	
	5.5	DeleteRecording	
	5.6	GetRecordings	
	5.7	SetRecordingConfiguration	
	5.8	GetRecordingConfiguration	
	5.9	CreateTrack	
	5.10	DeleteTrack	
	5.11	GetTrackConfiguration	
	5.12	SetTrackConfiguration	
	5.13 5.14	CreateRecordingJob DeleteRecordingJob	
	5.14	GetRecordingJobs	
	5.16	SetRecordingJobConfiguration	
	5.17	GetRecordingJobConfiguration	
	5.17	SetRecordingJobMode	
	5.19	GetRecordingJobState	
	5.20	GetRecordingOptions	
	5.21	ExportRecordedData	
	5.22	StopExportRecordedData	
	5.23	GetExportRecordedDataState	

	5.24	GetServiceCapabilities	34
	5.25	Events	35
	5.25.	.1 General	35
	5.25.	.2 Recording job state changes	35
	5.25.	3 Configuration changes	35
	5.25.	.4 Data deletion	36
	5.25.	.5 Recording and track creation and deletion	36
	5.26	Examples	37
	5.26.	.1 Example 1: setup recording of a single camera	37
	5.26.		
		recording	
6	Sear	ch service	38
	6.1	General	38
	6.2	Concepts	39
	6.2.1	Search direction	39
	6.2.2	Recording event	39
	6.2.3	Search session	39
	6.2.4	Search scope	40
	6.2.5		
	6.2.6	Time information	40
	6.3	Data structures	40
	6.3.1	RecordingInformation structure	40
	6.3.2	RecordingSourceInformation structure	41
	6.3.3	TrackInformation structure	41
	6.3.4	SearchState Enumeration	42
	6.3.5	MediaAttributes structure	42
	6.3.6	FindEventResult structure	42
	6.3.7	FindPTZPositionResult structure	42
	6.3.8		
	6.3.9	MetadataFilter structure	43
	6.3.1	0 FindMetadataResult structure	43
	6.4	GetRecordingSummary	43
	6.5	GetRecordingInformation	43
	6.6	GetMediaAttributes	44
	6.7	FindRecordings	45
	6.8	GetRecordingSearchResults	45
	6.9	FindEvents	46
	6.10	GetEventSearchResults	47
	6.11	FindPTZPosition	48
	6.12	GetPTZPositionSearchResults	
	6.13	FindMetadata	50
	6.14	GetMetadataSearchResults	51
	6.15	EndSearch	52
	6.16	GetServiceCapabilities	
	6.17	Recording event descriptions	
	6.18	XPath dialect	
7	Repla	ay control	
	7.1	Request replay URI	
		ReplayConfiguration	56 56

	7.3	SetReplayConfiguration	56
	7.4	GetReplayConfiguration	56
	7.5	GetServiceCapabilities	57
8	Playb	pack	57
	8.1	RTSP Usage	57
	8.2	RTSP describe	58
	8.3	RTP header extension	58
	8.3.1	General	58
	8.3.2	NTP timestamps	59
	8.3.3	Compatibility with the JPEG header extension	59
	8.4	RTSP feature tag	60
	8.5	Initiating playback	60
	8.5.1	General	60
	8.5.2	Range header field	60
	8.5.3	Rate-Control header field	61
	8.5.4	Frames header field	61
	8.5.5	Synchronization points	
	8.6	Reverse replay	62
	8.6.1	Initiation	62
	8.6.2	Packet transmission order	62
	8.6.3	RTP sequence numbers	64
	8.6.4		
	8.7	RTSP Keepalive	65
	8.8	Currently recording footage	
	8.9	End of footage	
	8.10	Go To Time	
	8.11	Use of RTCP	
9	Expo	rt file format	
	9.1	Required side information	66
	9.2	Timing	68
	9.3		68
	9.4	Signature	
	9.4.1	Preparing the signature input	
	9.4.2	- 5 5	
	9.4.3	Include the generated signature in the file	
	9.5	Repeated signing	
10	Rece	iver service	
	10.1	General	71
	10.2	Synchronization points	72
	10.3	Persistence	
	10.4	Receiver modes	
	10.5	Receiver commands	
	10.5.		
	10.5.		
	10.5.	3 CreateReceiver	73
	10.5.		
	10.5.	5 ConfigureReceiver	74
	10.5.		
	10.5.	7 GetReceiverState	75

	GetServiceCapabilitites	
	Events	76
10.7.	1 General	76
10.7.2	3	
10.7.		_
Annex A ((informative) Repeated signing	77
•	(normative) Schema files	
	Recording control	
	Search	
	Replay control	
	Receiver	
	Common Schema	
Bibliograp	bhy	110
•	- Storage model with tracks	
Figure 2 –	- Sealing and examination in a nutshell (Source: Wikipedia)	15
Figure 3 –	- Example of recordings and tracks	17
Figure 4 –	- RecordingJobConfiguration structure	19
Figure 5 –	- RecordingJobStateInformation structure	30
Figure 6 –	- Recording state chart	41
Figure 7 –	- Packet transmission during forward playback	63
Figure 8 –	- Packet transmission during reverse playback	64
	- Packet transmission during reverse playback	
Figure A.1	1 – Single signature box arrangement	77
Figure A.1	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77
Figure A.1 Figure A.2	1 – Single signature box arrangement2 – Repeated signature box arrangement	77 77
Figure A.1 Figure A.2 Table 1 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 77
Figure A.1 Figure A.2 Table 1 – Table 2 –	1 – Single signature box arrangement	77 77 12
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58
Figure A.1 Figure A.2 Table 1 – Table 2 – Table 3 –	1 – Single signature box arrangement 2 – Repeated signature box arrangement	77 12 21 58

INTERNATIONAL ELECTROTECHNICAL COMMISSION

VIDEO SURVEILLANCE SYSTEMS FOR USE IN SECURITY APPLICATIONS –

Part 2-32: Recording control and replay based on web services

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62676-2-32 has been prepared by IEC technical committee 79: Alarm and electronic security systems.

This first edition, together with IEC 60839-11-31 and IEC 62676-2-31, cancels and replaces IEC 62676-2-3:2013.

This edition includes the following significant technical changes with respect to IEC 62676-2-3:2013:

a) an export file format has been added.

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

FDIS	Report on voting
79/621/FDIS	79/623/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 62676 series, published under the general title *Video surveillance* systems for use in security applications, can be found on the IEC website.

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

- reconfirmed,
- withdrawn,
- · replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

The goal of this document is to provide a fully interoperable network video recording and reply implementation comprised of products from different vendors. This document describes the network video recording model, interfaces, data types and data exchange patterns. The s e. yy whe aply. document reuses existing relevant standards where available, and introduces new specifications only where necessary to support the specific requirements for network video recording and reply.

VIDEO SURVEILLANCE SYSTEMS FOR USE IN SECURITY APPLICATIONS –

Part 2-32: Recording control and replay based on web services

1 Scope

This part of IEC 62676 specifies the web service interface for the configuration of the recording of video, audio and metadata. Additionally, associated events are defined.

Clause 4 provides a definition of the storage model this document is based on.

Web service usage is outside the scope of this document. Please refer to the IEC 60839-11-31 for more information

2 Normative references

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 60839-11-31:2016, Alarm and electronic security systems – Part 11-31: Electronic access control systems – Core interoperability protocol based on Web Services

IEC 62676-2-31:2019, Video surveillance system for use in security applications – Part 2-31: Live streaming and control based on web services

Internet Assigned Numbers Authority (IANA), Media Types, *Media Types* [online]. Edited N. Freed et al. [viewed 2019-02-28]. Available at https://www.iana.org/assignments/media-types/media-types.xhtml

INTERNET ENGINEERING TASK FORCE (IETF). RFC 2326: Real Time Streaming Protocol (RTSP) [online]. Edited by H. Schulzrinne et al. April 1998 [viewed 2019-02-28]. Available at http://www.ietf.org/rfc/rfc2326.txt

INTERNET ENGINEERING TASK FORCE (IETF). RFC 3280, Internet X.509 Public Key Infrastructure – Certificate and Certificate Revocation List (CRL) Profile [online]. Edited by Housley, et. al. April 2002 [Viewed 2019-02-28]. Available at http://www.ietf.org/rfc/rfc3280.txt

INTERNET ENGINEERING TASK FORCE (IETF). RFC 3550, RTP: A Transport Protocol for Real-Time [online]. Edited by Schulzrinne, et al. Jul 2003 [viewed 2019-02-28]. Available at https://www.ietf.org/rfc/rfc3550.txt

INTERNET ENGINEERING TASK FORCE (IETF). RFC 4055, Additional Algorithms and Identifiers for RSA Cryptography for use in the Internet X.509 Public Key Infrastructure – Certificate and Certificate Revocation List (CRL) Profile [online]. Edited by Schaad, et al. June 2005 [viewed 2019-02-28]. Available at https://www.ietf.org/rfc/rfc4055.txt

The World Wide Web Consortium (W3C). SOAP12-PART1, SOAP 1.2 - Part 1, Messaging Framework [online]. Edited by M, Gudgin et al. Apr 2007 {Viewed 2019-02-28]. Available at https://www.w3.org/TR/soap12-part1/