

Recommendation **ITU-T F.743.24 (02/2024)**

SERIES F: Non-telephone telecommunication services

Multimedia services

Scenarios and requirements for distributed ledger technology (DLT) in video surveillance system interworking

ITU-T F-SERIES RECOMMENDATIONS
Non-telephone telecommunication services

TELEGRAPH SERVICE	F.1-F.109
Operating methods for the international public telegram service	F.1-F.19
The gentex network	F.20-F.29
Message switching	F.30-F.39
The international telemesssage service	F.40-F.58
The international telex service	F.59-F.89
Statistics and publications on international telegraph services	F.90-F.99
Scheduled and leased communication services	F.100-F.104
Phototelegraph service	F.105-F.109
MOBILE SERVICE	F.110-F.159
Mobile services and multideestination satellite services	F.110-F.159
TELEMATIC SERVICES	F.160-F.399
Public facsimile service	F.160-F.199
Teletex service	F.200-F.299
Videotex service	F.300-F.349
General provisions for telematic services	F.350-F.399
MESSAGE HANDLING SERVICES	F.400-F.499
DIRECTORY SERVICES	F.500-F.549
DOCUMENT COMMUNICATION	F.550-F.599
Document communication	F.550-F.579
Programming communication interfaces	F.580-F.599
DATA TRANSMISSION SERVICES	F.600-F.699
MULTIMEDIA SERVICES	F.700-F.799
ISDN SERVICES	F.800-F.849
UNIVERSAL PERSONAL TELECOMMUNICATION	F.850-F.899
ACCESSIBILITY AND HUMAN FACTORS	F.900-F.999

For further details, please refer to the list of ITU-T Recommendations.

Recommendation ITU-T F.743.24

Scenarios and requirements for distributed ledger technology (DLT) in video surveillance system interworking

Summary

Recommendation ITU-T F.743.24 provides an overview of video surveillance system interworking (VSSI) based on distributed ledger technology (DLT), for which it specifies application scenarios and capability requirements to realize interoperability, high reliability and high efficiency of VSSI identity authentication and authorization.

History *

Edition	Recommendation	Approval	Study Group	Unique ID
1.0	ITU-T F.743.24	2024-02-13	16	11.1002/1000/15846

Keywords

DLT, requirements, scenarios, video surveillance.

* To access the Recommendation, type the URL <https://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents/software copyrights, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the appropriate ITU-T databases available via the ITU-T website at <http://www.itu.int/ITU-T/ipr/>.

© ITU 2024

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

Table of Contents

	Page
1 Scope.....	1
2 References.....	1
3 Definitions	1
3.1 Terms defined elsewhere	1
3.2 Terms defined in this Recommendation.....	2
4 Abbreviations and acronyms	2
5 Convention.....	2
6 Overview of DLT in video surveillance system interworking	3
7 General framework of DLT in video surveillance system interworking.....	4
7.1 Ecosystem and roles	4
7.2 General framework of DLT in video surveillance system interworking.....	4
7.3 General flow of DLT in video surveillance system interworking.....	5
8 Requirements for DLT in video surveillance system interworking.....	6
8.1 Basic requirements for DLT in video surveillance system interworking.....	6
8.2 Advanced video surveillance system interworking based on DLT	7
Appendix I – Scenarios and use cases of video surveillance system interworking based on DLT.....	9
I.1 Registration in VSSI.....	9
I.2 Authentication and authorization	10
I.3 Request the surveillance video data in the cloud.....	11
I.4 Video resource upload to the DLT and verification.....	12
I.5 Video data resources sharing.....	13
Bibliography.....	15

Recommendation ITU-T F.743.24

Scenarios and requirements for distributed ledger technology (DLT) in video surveillance system interworking

1 Scope

This Recommendation specifies application scenarios and requirements for distributed ledger technology (DLT) in video surveillance system interworking (VSSI), based on the requirements and architectures specified in [ITU-T F.743], [ITU-T H.626] and [ITU-T H.626.1], which includes:

- 1) overview;
- 2) scenarios, including registration, authentication and authorization, request and sharing;
- 3) requirements, including basic and advanced.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- | | |
|-----------------|--|
| [ITU-T F.743] | Recommendation ITU-T F.743 (2019), <i>Requirements and service description for video surveillance.</i> |
| [ITU-T F.751.0] | Recommendation ITU-T F.751.0 (2020), <i>Requirements for distributed ledger systems.</i> |
| [ITU-T F.751.2] | Recommendation ITU-T F.751.2 (2020), <i>Reference framework for distributed ledger technologies.</i> |
| [ITU-T H.626] | Recommendation ITU-T H.626 (2019), <i>Architectural requirements for video surveillance system.</i> |
| [ITU-T H.626.1] | Recommendation ITU-T H.626.1 (2013), <i>Architecture for mobile visual surveillance.</i> |

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 customer unit [ITU-T F.743]: A device located at the customer part of a video surveillance system and used to present multimedia information (such as audio, video, image, alarm signal, etc.) to the end user.

3.1.2 distributed ledger [b-ITU-T X.1400]: A type of ledger that is shared, replicated, and synchronized in a distributed and decentralized manner.

3.1.3 distributed ledger technology (DLT) [b-ITU-T X.1400]: Technology that enables the operation and use of distributed ledgers.

3.1.4 premises unit [ITU-T F.743]: A device located at the remote part of a video surveillance system and used to capture multimedia information (such as audio, video, image, alarm signal, etc.) from a surveilled object.

3.1.5 video surveillance system [ITU-T H.626]: A telecommunication service focusing on video (including audio and image) application technology, which is used to remotely capture multimedia (such as audio, video, image, alarm signals, etc.) and present them to the end user in a user-friendly manner, based on a managed broadband network with ensured quality, security and reliability.

3.2 Terms defined in this Recommendation

This Recommendation defines the following term:

3.2.1 video surveillance system interworking platform: A series of devices and subsystems located at the centred part of the interworking video surveillance systems. The platform is used to integrate the capabilities of different video surveillance systems and enable the resource and data sharing of different video surveillance systems.

NOTE – Definition based on [b-ITU-T F.743.3]; "video" replaces "visual".

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

BVSSI	DLT in Video Surveillance System Interworking
CU	Customer Unit
DLT	Distributed Ledger Technology
ID	Identifier
IPU	Intelligent Premises Unit
ISP	Internet Service Provider
MCU	Mobile Customer Unit
MSU	Media Storage Unit
PU	Premises Unit
SC	Smart Contract
SHA	Secure Hash Algorithm
VS	Video Surveillance
VSS	Video Surveillance System
VSSI	Video Surveillance System Interworking

5 Convention

In this Recommendation:

- The phrase "is required" indicates a requirement that must be strictly followed and from which no deviation is permitted, if conformance to this Recommendation is to be claimed.
- The phrase "is recommended" indicates a requirement that is recommended but which is not absolutely required. Thus, this requirement need not be present to claim conformance.
- The phrase "can optionally" indicates an optional requirement that is permissible, without implying any sense of being recommended. This term is not intended to imply that the vendor's implementation must provide the option, and the feature can be optionally enabled