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Part 21: Visual identity management application format

Technologies de l'information — Format pour application multimédia (MPEG-A) —

Partie 21: Format pour application de gestion d'identité visuelle

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Introduction

The main goal of the ISO/IEC 23000 series (also known as “MPEG-A”) is to facilitate the swift development of innovative, standards-based multimedia services and applications by selecting and combining readily tested and verified tools taken from the MPEG body of standards.

Visual identity management is designed to enable users to control and manage privacy protection by defining a new framework and tools. It also provides to industry a coherent and consistent approach to manage privacy protection in order to be implemented in a variety of scenarios, applications or systems.

The main objective of preserving privacy protection is to enable security and confidentiality in the multimedia content chain. Many usages of image/video communication services, social networking and video sharing platforms have led to an increasing interest to protect users’ privacy.

Traditionally, multimedia data security is achieved by cryptography solutions, which deal with encryption of data. This approach is called Naive Encryption Algorithm (NEA) and it treats the video bitstream as text data without paying attention to the structure of the compressed video. To this end, MPEG common encryption has been standardized in order to support encryption and key mapping methods for file format in ISO/IEC 23001-7 and for transport streaming in ISO/IEC 23001-9[3]. Consequently, bitstreams encrypted by those documents are decodable only after a correct decryption process even when only parts of the video are encrypted. Nevertheless, none of these formats allow signalling the encryption of a part of the picture (region), or indicating to the decoder that the encrypted bitstream can be partially decoded.

Moreover, all the access control is provided and performed globally without taking into account the image/video content and context. To restore citizens’ confidence in online data collection practices, submitted media should be encrypted to protect privacy and only viewed with limited access that the user chooses: group of people, purpose of sharing, time, date, metadata, etc.

In order to provide privacy protection over processing and sharing of multimedia content, a flexible, effective and scalable mechanism is required to provide users a way to express their control desires in a form that can be processed and monitored systematically, consistently and persistently throughout the lifecycle of the multimedia content. There is currently no standardized format to represent privacy description information (PDI), hindering the interoperability between secured systems.

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