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# Introduction

This document defines the scope of a WG03 exploration on media authentication and AI-generated/altered content marking in the MPEG Systems standards.

Media authentication, i.e. verification of the truthfulness of media content, through various means has been the subject of discussion, especially in the light of AI generated and altered content. Various news incidences involving the deepfakes, misinformation and disinformation about politics and elections, and public figures, and even in other popular subjects caused the legal authorities in various countries looking into legal aspects of media authentication and the need to require the means of authentication of a publish content for some applications and distribution platforms. While those activities are moving forward and their impact will be anticipated, the technical means enabling media authentication are highly desired to implement those legal requirements as well as the market needs.

# Background

The need for media authentication and AI generated/altered content marking has been raising recently. Legislative works have been started in several jurisdictions that attempt to provide requirements for such solutions.

The recent standard activities such as C2PA and JPEG TRUST address some of the needed functionalities for certain media authentication use cases. However, the ranges of use cases and application are vast. The extend of the use cases and application, as well as various delivery schemes are outline in WG02-NXXXX.

In the technical field, the standard organizations and consortia have been recently investigated or started development of standards around media authentication. In MPEG, WG3 with the exploration on marking AI generated/altered media ([MDS24619\_WG03\_N01411](https://dms.mpeg.expert/doc_end_user/documents/148_Kemer/wg11/MDS24619_WG03_N01411.zip)), and JVET/WG5 with digital signed SEI messages have been working on this topic (JVET-AK2006). Recently, WG02 completed the requirements work on the media authentication (WG02\_N0427), with the goal of creating an umbrella media authentication requirement document for the entire MPEG community. This document defines the main use cases and the technical requirements. Futhermore, contribution m71392 proposed a subset of the WG02\_N00413 requirements for the MPEG system standards and contribution m71125 proposed a method for the use of C2PA with MPEG DASH to address some of the requirements.

# Scope of this exploration

The MPEG Systems standards are widely used for the delivery of the media. Therefore, the goal of this exploration is to investiage to what extend the MPEG System standards (in particular ISOBMFF and DASH) address the relevant media authentication and AI generated/altered content marking use-cases by the use of the existing tools, and/or by combining them with the non-MPEG standards.

The following tasks are identified to achieve the goals of this exploration:

1. Identify the subset of WG02\_N0427 usecases and requirements applicable to MPEG Systems standards and related workflows, in particular using ISOBMFF and DASH, to support media authentication and AI generated/altered content marking.
2. Study the existing MPEG ISOBMFF and DASH standards and identify the subset of requirements of 1 that are already addressed by these standards, and identify gaps.
3. Study the existing non-MPEG standards, and identify the subset of requirements of 1 that are already addressed by these standards, and identify gaps.
4. Solicit initial candidate solutions for addressing these gaps.