



**International  
Standard**

**ISO/IEC 21617-1**

**Information technology — JPEG  
Trust —**

**Part 1:  
Core foundation**

**First edition  
2025-01**



**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

|  | Page      |
|--|-----------|
| <b>Foreword</b> .....                                  | <b>v</b>  |
| <b>Introduction</b> .....                              | <b>vi</b> |
| <b>1 Scope</b> .....                                   | <b>1</b>  |
| <b>2 Normative references</b> .....                    | <b>1</b>  |
| <b>3 Terms and definitions</b> .....                   | <b>1</b>  |
| <b>4 JPEG Trust framework</b> .....                    | <b>5</b>  |
| 4.1 Description.....                                   | 5         |
| 4.2 Overview.....                                      | 5         |
| 4.3 Trust Record.....                                  | 6         |
| 4.4 Trust Manifests.....                               | 7         |
| 4.4.1 General.....                                     | 7         |
| 4.4.2 Components of a Trust Manifest.....              | 8         |
| 4.4.3 Details of a Trust Manifest.....                 | 8         |
| 4.4.4 Trust Declaration.....                           | 9         |
| 4.5 Trust Indicators.....                              | 9         |
| 4.6 Trust Credential.....                              | 9         |
| 4.6.1 General.....                                     | 9         |
| 4.6.2 For media asset content.....                     | 10        |
| 4.6.3 For Trust Manifests.....                         | 10        |
| 4.6.4 Claim.....                                       | 13        |
| 4.6.5 For claim signature.....                         | 14        |
| 4.6.6 For verifiable credentials.....                  | 15        |
| 4.6.7 For media asset metadata.....                    | 15        |
| 4.6.8 Example Trust Credentials.....                   | 16        |
| 4.7 Trust Profile.....                                 | 20        |
| 4.7.1 General.....                                     | 20        |
| 4.7.2 Trust Profile information.....                   | 20        |
| 4.7.3 Statements.....                                  | 20        |
| 4.7.4 Expressions.....                                 | 21        |
| 4.7.5 Predefined statement IDs.....                    | 21        |
| 4.7.6 Examples.....                                    | 22        |
| 4.8 Trust Report.....                                  | 27        |
| 4.8.1 General.....                                     | 27        |
| 4.8.2 Examples.....                                    | 28        |
| 4.8.3 Trust Report generation procedure.....           | 31        |
| <b>5 Media asset life cycle annotations</b> .....      | <b>31</b> |
| 5.1 Overview.....                                      | 31        |
| 5.2 Assertions.....                                    | 32        |
| 5.2.1 Description.....                                 | 32        |
| 5.2.2 IPR information.....                             | 32        |
| 5.2.3 Using existing metadata standards.....           | 35        |
| 5.2.4 Actions.....                                     | 35        |
| 5.2.5 Bindings (hashes).....                           | 36        |
| 5.3 Assertion metadata.....                            | 37        |
| 5.3.1 General.....                                     | 37        |
| 5.3.2 Actors.....                                      | 37        |
| 5.3.3 When (date and time).....                        | 37        |
| 5.3.4 Extent of modification(s).....                   | 37        |
| <b>6 Embedding and referencing</b> .....               | <b>38</b> |
| 6.1 Use of JUMBF.....                                  | 38        |
| 6.2 Embedding manifests into JPEG assets.....          | 38        |
| 6.2.1 Embedding manifests into JPEG 1 and JPEG XT..... | 38        |
| 6.2.2 Embedding manifests into JPEG XL.....            | 39        |

# ISO/IEC 21617-1:2025(en)

|  |   |           |
|--|---|-----------|
| 6.2.3  | Embedding manifests into JPEG 2000.....           | 39        |
| 6.2.4  | Embedding manifests into JPEG XS.....             | 40        |
| 6.3  | Embedding manifests into other asset types.....   | 40        |
| 6.4  | External manifests.....                           | 40        |
| 6.5  | Embedding a reference to the active manifest..... | 40        |
| <b>7</b>   | <b>Identification of actors.....</b>              | <b>40</b> |
| 7.1  | Identity and actors.....                          | 40        |
| 7.1.1  | Verifiable credentials.....                       | 40        |
| <b>8</b>   | <b>Media asset content binding.....</b>           | <b>43</b> |
| 8.1  | General.....                                      | 43        |
| 8.2  | Cryptographic binding to content.....             | 43        |
| 8.3  | Use of digital signatures.....                    | 43        |
| 8.4  | Validation.....                                   | 43        |
| <b>9</b>   | <b>Privacy and protection.....</b>                | <b>44</b> |
| 9.1  | General.....                                      | 44        |
| 9.2  | Anonymization.....                                | 44        |
| 9.2.1  | W3C Verifiable Credentials.....                   | 44        |
| 9.2.2  | Redaction.....                                    | 45        |
| 9.3  | Obfuscation.....                                  | 47        |
| 9.3.1  | General.....                                      | 47        |
| 9.3.2  | Protecting an assertion.....                      | 47        |
| 9.3.3  | Protecting the media asset content.....           | 49        |
| <b>Annex A (informative) Threat vectors.....</b>   |   | <b>51</b> |
| <b>Annex B (informative) Relationship between this document (JPEG Trust) and C2PA.....</b> |   | <b>54</b> |
| <b>Bibliography.....</b>   |   | <b>55</b> |

## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives) or [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs)).

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC had received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents) and <https://patents.iec.ch>. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html). In the IEC, see [www.iec.ch/understanding-standards](http://www.iec.ch/understanding-standards).

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

A list of all parts in the ISO 21617 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html) and [www.iec.ch/national-committees](http://www.iec.ch/national-committees).

## Introduction

Current technologies permit the modification or synthetic creation of media assets. Some, like deep learning methods, can create media assets that are hard for people to distinguish from natural media assets. These technologies open new, creative opportunities that are useful for business and research usage. However, these technologies can also lead to issues relating to the use of manipulated media to spread misinformation or disinformation. Misuse of manipulated media can cause social unrest, spread rumours for political gain or encourage hate crimes.

Media modifications are not always negative as they are increasingly a normal and legal component of many production pipelines. However, in many application domains, creators need or want to declare the type of modifications that were performed on the media asset. A lack of such declarations in these situations may reveal the lack of trustworthiness of media assets or the intention to hide the existence of manipulations. To address such problems and attempt to avoid negative impacts, some companies, including social media platforms and news outlets, are developing mechanisms to clearly detect and annotate manipulated media when they are shared.

There is a need to have a standardized way to annotate media assets (regardless of the intent) and securely link the assets and annotations together. This document (JPEG Trust) ensures interoperability between a wide range of applications dealing with media asset creation and modification, providing a set of standard mechanisms to describe and embed information about the creation and modification of media assets.

Furthermore, a key aspect of understanding the trustworthiness of a media asset is the nature of trust itself. No single trust model can accommodate all the expressions of media asset trust in society. This means that the standard requires a flexible architecture for accommodating diverse trust models. Through the mechanism of user-defined trust profiles, this document empowers various communities to define trust models that meet the specific demands of their trust requirements.

This document (JPEG Trust) provides a comprehensive framework for individuals, organizations, and governing institutions interested in establishing an environment of trust for the media that they use, and to support trust in the media they share online. This framework addresses aspects of providing provenance information, extracting and evaluating trust indicators, and handling privacy and security concerns.

# Information technology — JPEG Trust —

## Part 1: Core foundation

### 1 Scope

This document specifies a framework for establishing trust in media. This framework includes aspects of authenticity, provenance and integrity through secure and reliable annotation of the media assets throughout their life cycle.

### 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.

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

ISO/IEC 15444-1:2024, *Information technology — JPEG 2000 image coding system — Part 1: Core coding system*

ISO/IEC 18181-2:2024, *Information technology — JPEG XL image coding system — Part 2: File format*

ISO/IEC 18477-1, *Information technology — Scalable compression and coding of continuous-tone still images — Part 1: Core coding system specification*

ISO/IEC 18477-3, *Information technology — Scalable compression and coding of continuous-tone still images — Part 3: Box file format*

ISO/IEC 19566-4, *Information technologies — JPEG systems — Part 4: Privacy and security*

ISO/IEC 19566-5:2023, *Information technologies — JPEG systems — Part 5: JPEG universal metadata box format (JUMBF)*

ISO/IEC 19566-6, *Information technologies — JPEG systems — Part 6: JPEG 360*

ISO/IEC 19566-7, *Information technologies — JPEG systems — Part 7: JPEG linked media format (JLINK)*

ISO/IEC 19566-8, *Information technologies — JPEG systems — Part 8: JPEG Snack*

ISO/IEC 21122-1, *Information technology — JPEG XS low-latency lightweight image coding system — Part 1: Core coding system*

IETF RFC 4122, *A Universally Unique Identifier (UUID) URN Namespace*, available at: <https://www.rfc-editor.org/info/rfc4122>

W3C Recommendation JSON-LD 1.1, *A JSON-based Serialization for Linked Data*, available at: <https://www.w3.org/TR/json-ld11/>