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C2PA Attaches Provenance to Content. The Content Itself Has No Identity.

by [Nick Clark](#) | Published March 27, 2026 | [PDF](#)

The Coalition for Content Provenance and Authenticity built a standard for attaching signed metadata to media files, recording who created content, what tools were used, and how it was modified. Adobe, Microsoft, Intel, and major camera manufacturers adopted it. The standard is real. But C2PA provenance is attached metadata. If the metadata is stripped, the content has no identity. If the content is re-encoded, the attachment breaks. The structural gap is between provenance attached to content and identity derived from the content itself.

C2PA represents a serious cross-industry effort. The technical specification for signed manifests, ingredient tracking, and claim chains is thorough. The gap described here is not about the quality of the standard. It is about the architectural assumption that provenance is metadata attached to content.

Attached provenance is strippable provenance

C2PA embeds a signed manifest in the media file's metadata container. The manifest records creation information, editing history, and a chain of custody. The signature ensures the manifest has not been tampered with.

But the manifest is metadata. Social media platforms routinely strip metadata during upload and re-encoding. A screenshot of an image carries no C2PA manifest. A re-encoded video loses its manifest. A copy-paste of an image into a document does not transfer the manifest. In every case where content is separated from its metadata container, the provenance disappears.

Identity depends on the container, not the content

C2PA identifies content through cryptographic hashes of the media file. If the file is modified in any way, including lossless format conversion or resolution change, the hash no longer matches. The identity is bound to the specific binary representation, not to what the content structurally is.

Two visually identical images encoded at different quality levels have different hashes and cannot be recognized as the same content. A crop of a verified image is unverifiable. The identity model does not survive the transformations that content routinely undergoes.

What content anchoring provides

Content anchoring derives identity from the content's own structural properties: its entropy distribution, spatial frequency patterns, and structural signatures. The identity is not attached metadata. It is computed from what the content structurally is.

In this model, stripping metadata does not remove identity because the identity was never in the metadata. Re-encoding does not break identity because the structural properties that define identity are preserved through standard transformations. A cropped image retains partial identity because the structural properties of the retained region are intact.

C2PA's signed manifest chain would serve as complementary provenance: rich creator and editing information attached to content that also has intrinsic identity. When the manifest is present, both provenance and identity are available. When the manifest is stripped, the content's intrinsic identity persists.

The remaining gap

C2PA built a provenance standard. The remaining gap is in content identity: whether content can be identified from its own structural properties rather than depending on attached metadata that routine handling removes.

[Content Anchoring All 21 steps →](#)

Computable identity for media. Provenance from structural entropy.

Patent

US 63/808,372 · provisional

Primary Technical Disclosure

[◦ Content Anchoring: Computable Identity for Media That Changes](#)

Secondary Technical

[◦ Multi-Axis Entropy Vector Extraction: Nine Dimensions of Structural Content Identity](#)[◦ Quadrant Decomposition: Spatial Sub-Region Fingerprinting for Partial Similarity Detection](#)[◦ 320-Bit UID Construction: Multi-Segment Hashing for Negligible Collision Probability](#)[◦ Structure Signature: Background-Invariant Matching Through Gradient-Only Descriptors](#)[◦ Constellation Signature: Geometry-Invariant Matching Across Crop, Scale, and Occlusion](#)[◦ Five-Band Entropy Classification: Content Routing by Structural Complexity](#)[◦ Entropy Saturation-Governed Cache Eviction: UID Density Replacing Static TTL](#)[◦ Multi-Root Composite Lineage Graphs: Provenance Through Entropy Vector Similarity](#)[◦ Multi-Modal Content Identity: Unified Pipeline Across Image, Audio, Text, and Video](#)[◦ Rights-Grade Pre-Release Admissibility: Policy Evaluation Before Content Commitment](#)[◦ Training Corpus Governance: Verifiable Lineage From Training Data to Model](#)[◦ Consultation Event Logging: Deterministic Records of Every Generation Reference](#)[◦ Model Output Provenance Fingerprint: Structural Proximity Without Model Access](#)[◦ Creator Attribution and Compensation Routing: Payment From Consultation Lineage](#)[◦ Adversarial Robustness and Deepfake Detection: Content Identity as Detection Substrate](#)[◦ Client-Side Execution Architecture: Privacy-Preserving Entropy Computation on Device](#)[◦ UID Resolution Query Protocol: Distributed Lookup Across Anchor Node Networks](#)[◦ Orientation Canonicalization: Rotation-Invariant Processing Through Gradient Normalization](#)[◦ Cross-Band Resolution Pathfinding: Traversal Between Entropy Bands Under Mutation](#)

Applications (General)

[◦ Rights-Grade Generative AI: How to Pay Creators, Exclude Forbidden Content, and Prevent Infringement Before Release](#)[◦ Deepfake Detection Through Structural Provenance](#)[◦ Creator Economy Attribution Without Platform Intermediaries](#)[◦ Content Anchoring for Journalism Verification](#)[◦ Content Anchoring for Academic Research Integrity](#)[◦ Content Anchoring for Legal Evidence Chains](#)[◦ Content Anchoring for Insurance Claims Evidence](#)[◦ Content Anchoring for Real Estate Documentation](#)[◦ Content Anchoring for Art Authentication](#)

Applications (Specific)

[● C2PA Attaches Provenance to Content. The Content Itself Has No Identity.](#)[◦ Google SynthID Watermarks AI Output. Watermarks Are Not Identity.](#)[◦ Shutterstock Tracks Licensed Media. The Media Itself Cannot Prove Its Own Identity.](#)[◦ Spotify Tracks Every Stream. The Music Itself Has No Computable Identity.](#)[◦ Getty Images Built the World's Largest Licensed Image Library. Image Identity Still Depends on Metadata.](#)[◦ Adobe Stock Integrates Licensed Content Into Creative Workflows. Content Identity Is Still External.](#)[◦ YouTube Content ID Matches Audio and Video. The Content Has No Intrinsic Identity.](#)[◦ Audible Magic Identifies Audio Content. The Audio Has No Self-Identifying Properties.](#)[◦ Digimarc Embeds Invisible Watermarks. The Watermark Is Added, Not Intrinsic.](#)[◦ Irdeto Protects Digital Content Through DRM. The Protection Is Applied, Not Intrinsic.](#)[◦ Content Anchoring overview →](#)

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