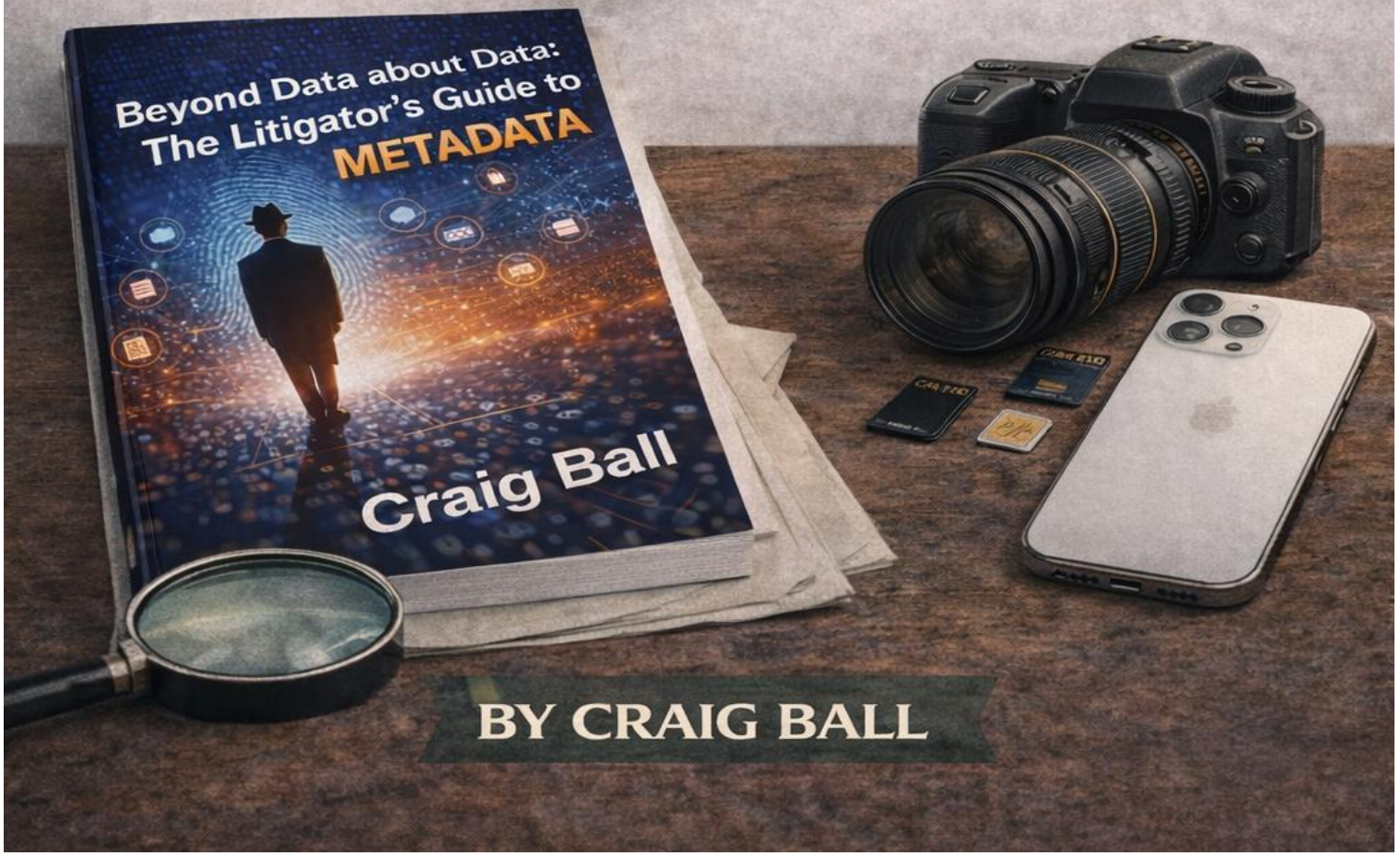
FORENSIC TELLS:

A PRACTITIONER'S GUIDE TO DETECTING DEEP FAKES AND AUTHENTICATING DIGITAL EVIDENCE



BY CRAIG BALL

Forensic Tells: A Practitioner's Guide to Detecting Deep Fakes and Authenticating Digital Evidence

By Craig Ball ©2026

Introduction: The Age of Doubt

For thirty years, I've been telling lawyers that electronic evidence is different from paper evidence—that it carries with it a hidden payload of information about its origins, handling, and integrity. Metadata, I've preached, is the DNA of digital evidence. Now, as we enter an era when any photograph, video, or audio recording can be convincingly fabricated by artificial intelligence, that metadata has become more than a curiosity for the technically inclined. It has become the last line of defense against manufactured reality.

We have arrived at a moment I long feared: the democratization of deception. What once required a Hollywood studio, a team of visual effects artists, and a budget measured in millions can now be accomplished by a teenager with a laptop and a few hours to spare. Deep fake technology—the use of artificial intelligence to create synthetic media depicting events that never occurred or words that were never spoken—has matured from a novelty to a genuine threat to the integrity of our courts.

This is not hypothetical hand-wringing. Deep fakes are appearing in litigation, and allegations of deep fakery are becoming an increasingly common defense. While reported case law remains sparse—courts do not always identify challenged evidence as AI-generated in their opinions—practitioners report encountering synthetic media issues in custody disputes, insurance matters, and employment cases. Fabricated recordings have been offered as "evidence" of confessions, affairs, and criminal conduct; conversely, authentic evidence is now routinely challenged as potentially fake. Both phenomena will only become more prevalent as the technology continues its relentless improvement.

As Texas lawyers, we pride ourselves on our ability to sniff out falsehood. We cross-examine witnesses, challenge documents, and demand proof. But how many of us are equipped to challenge a video recording that appears to show our client committing a crime he did not commit? How many of us know what questions to ask in discovery to expose a fabricated photograph? How many of us understand the technical fingerprints that distinguish authentic digital media from synthetic imposters?

This article aims to equip you with that knowledge. We will explore the technical foundations of digital media authentication, with particular emphasis on the metadata that accompanies—or conspicuously fails to accompany—genuine digital evidence. We will examine the visual, auditory, and logical tells that betray synthetic media. And we will develop practical discovery strategies for obtaining the information needed to challenge suspicious evidence.

My goal is not to make you a forensic examiner. My goal is to make you a better advocate—one who knows what to look for, what to ask for, and when to call in expert reinforcement. In an age when seeing is no longer believing, the lawyers who understand digital authenticity will be the lawyers who win.

Part I: Understanding the Enemy—What Deep Fakes Are and How They Work

The Technology Behind the Illusion

Before we can detect deep fakes, we must understand what they are. The term "deep fake" is a portmanteau of "deep learning" and "fake," referring to synthetic media created using artificial intelligence techniques. The technology has evolved rapidly, and understanding its trajectory helps explain both what we face today and what is coming.

The first wave of deep fakes emerged from generative adversarial networks, or GANs—a class of algorithms that remain historically significant even as they have been largely superseded. A GAN consists of two neural networks locked in competition: a generator that attempts to create synthetic media and a discriminator that attempts to distinguish synthetic creations from authentic media. The generator learns from its failures, improving its output until it can consistently fool the discriminator. This adversarial training process produced the first convincing face-swap videos that captured public attention around 2017-2018.

Today, the most capable synthetic media systems use different architectures. Diffusion models—the technology behind systems like Midjourney, DALL-E, and Stable Diffusion—learn to gradually add and remove noise from images, eventually gaining the ability to generate entirely new images from textual descriptions or to modify existing images in sophisticated ways. Transformer-based models, similar to those underlying large language models, now power state-of-the-art video generation and voice cloning. These newer approaches produce results that are often indistinguishable from authentic media to the naked eye.

For our purposes as lawyers, the technical details matter less than the practical implications. What you need to understand is this: modern AI systems can create photographs that never existed, videos of events that never occurred, and audio recordings of words that were never spoken. They can place a person at a location they never visited, put words in their mouth they never said, and create documentary "evidence" of conduct that never happened.

Categories of Synthetic Media

Deep fakes come in several varieties, each presenting distinct challenges for detection and authentication:

Face swaps involve transplanting one person's face onto another's body in video footage. This is the classic deep fake—taking an actor's performance and replacing

their face with that of the target individual. The underlying body movements, gestures, and environment are real; only the face is synthetic.

Face reenactment is more sophisticated. Rather than swapping faces, these systems animate an existing photograph or video of the target, making them appear to speak words or display expressions captured from a different source. The target's face remains their own, but its movements are puppeted by another.

Full synthetic generation creates entirely artificial media from scratch. Using only photographs of a target (often scraped from social media), these systems can generate novel images or videos placing the target in fabricated scenarios. No source video is required—the entire creation is synthetic.

Audio deep fakes clone a person's voice from sample recordings, then generate speech in that voice from text input. With as little as a few seconds of source audio, modern systems can produce convincing vocal performances in the target's voice.

Hybrid approaches combine multiple techniques. A fabricated video might use a real background environment, synthetic face animation, and cloned audio to create a seamless—and entirely false—record of events.

The Litigation Landscape

Deep fakes have already infiltrated our courtrooms, and their presence will only grow. Consider the contexts in which synthetic evidence might appear:

In **family law**, a spurned spouse produces a video appearing to show their partner engaged in domestic violence, substance abuse, or inappropriate conduct with the children. The video is compelling, the children's welfare is at stake, and the accused party insists—truthfully—that the events depicted never occurred.

In **employment litigation**, a plaintiff offers an audio recording of their supervisor making racist or sexist remarks. The recording sounds authentic. The supervisor denies ever making such statements. Without the tools to challenge the recording's authenticity, how does the defense proceed?

In **personal injury cases**, surveillance footage appears to show the plaintiff engaging in physical activities inconsistent with their claimed injuries. The plaintiff insists the footage is fabricated. Is it?

In **criminal matters**, the stakes are highest of all. A defendant's alibi may depend on proving that video evidence has been manipulated. A victim's credibility may hinge on demonstrating that an exculpatory recording is synthetic.

These scenarios are not speculation. They are happening now, in courts across Texas and the nation. And as deep fake technology becomes more accessible and more convincing, they will become commonplace.

The Liar's Dividend

But there is another dimension to the deep fake threat that we must confront—one that may prove even more corrosive to the pursuit of truth in our courts. Law professors Robert Chesney (Dean, University of Texas School of Law) and Danielle Citron (University of Virginia School of Law) have given it a name: the Liar's Dividend.[1]

The Liar's Dividend is the benefit that accrues to liars from the mere existence of deep fake technology. Once the public—and juries—become aware that any video or audio recording *might* be fabricated, wrongdoers can dismiss authentic evidence of their misconduct as fake. "That's not me in that video—it's a deep fake." "That recording was generated by AI." "You can't trust anything you see anymore."

This is not a hypothetical concern. We are already seeing it in courtrooms and oval offices. Defendants confronted with damaging recordings claim fabrication. Litigants caught on video deny the evidence of their own eyes. The existence of deep fake technology provides a ready-made excuse for anyone seeking to evade accountability.

The Liar's Dividend thus operates as a two-pronged attack on evidentiary truth. First, fabricators can create synthetic evidence to frame the innocent or support false claims. Second, the guilty can invoke the specter of fabrication to escape genuine evidence of their wrongdoing. Both prongs corrode the fact-finding process, and both demand that lawyers become sophisticated consumers and challengers of digital media.

This is why the authentication tools discussed in this article matter as much for *defending* authentic evidence as for *attacking* fabricated evidence. When your client has genuine video evidence of the opposing party's misconduct, and that party claims the video is a deep fake, you must be prepared to prove authenticity—through metadata, through chain of custody, through forensic examination—with the same rigor you would apply to challenging suspicious evidence. The Liar's Dividend can only be defeated by evidentiary competence on both sides of the authenticity question.

Part II: The Metadata Foundation—Why Digital Evidence Carries Its Own Authentication

The Hidden Payload

Here is the good news, and it is significant good news: authentic digital evidence does not merely consist of the visible content—the image you see, the audio you hear, the video you watch. It carries with it a wealth of contextual information about its creation, handling, and integrity. This information, broadly termed metadata,[2] can serve as a powerful tool for distinguishing genuine evidence from synthetic fabrications.

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[1] Robert Chesney & Danielle Keats Citron, *Deep Fakes: A Looming Challenge for Privacy, Democracy, and National Security*, 107 Cal. L. Rev. 1753 (2019).

[2] For more on metadata: Ball, *Beyond Data about Data: The Litigator's Guide to Metadata*, http://www.craigball.com/metadataguide2026.pdf

Metadata is data about data. When you take a photograph with your smartphone, the resulting image file contains far more than the visual content. It contains information about the camera that captured it, the settings used, the date and time of capture, and often the precise GPS coordinates where the photograph was taken. It may contain a thumbnail of the original image, a history of editing operations, and cryptographic signatures verifying its integrity.

This metadata is the digital equivalent of a chain of custody. It tells us where the evidence came from, how it was created, and what has happened to it since. And critically, when digital evidence is fabricated, this metadata is almost always absent, incomplete, or inconsistent.

Think of it this way: authentic digital evidence has a birth certificate, a family history, and a paper trail. Fabricated evidence is a foundling—appearing from nowhere, with no documented origin and no verifiable lineage.

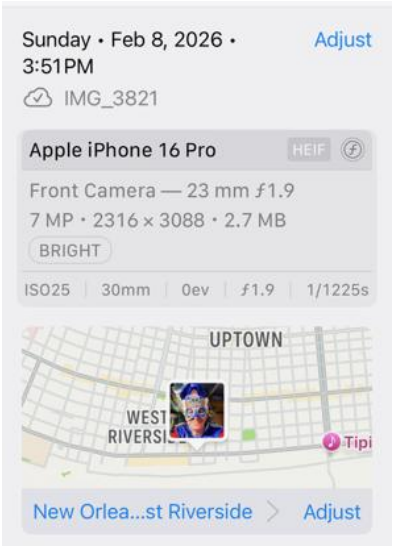
EXIF Data: The Birth Certificate of Digital Images

The most important category of metadata for image authentication is EXIF data—Exchangeable Image File Format information embedded in photographs at the moment of capture. EXIF data is automatically generated by digital cameras and smartphones, and it provides a detailed record of the circumstances of image creation.

A photograph taken with an iPhone, for example, will typically contain the following EXIF information:

Device identification: The make and model of the camera or phone, often including the specific hardware identifiers that can trace the image to a particular device.

Capture settings: The aperture, shutter speed, ISO sensitivity, focal length, and other technical parameters used to capture the image. These settings constrain what the image can plausibly depict, *e.g.,* a photograph taken at f/1.6 with a short focal length will have different depth-of-field characteristics than one taken at f/2.8 with a telephoto lens.



Date and time: The timestamp of capture typically drawn from the device's internal clock. Multiple timestamps may be present, including the original capture time, any modification times, and the time zone in which the device was operating.

GPS coordinates: If location services are enabled, the precise latitude, longitude and altitude where the photograph was taken, often accurate to within a meter or two. This information can place the image at a specific, verifiable location.

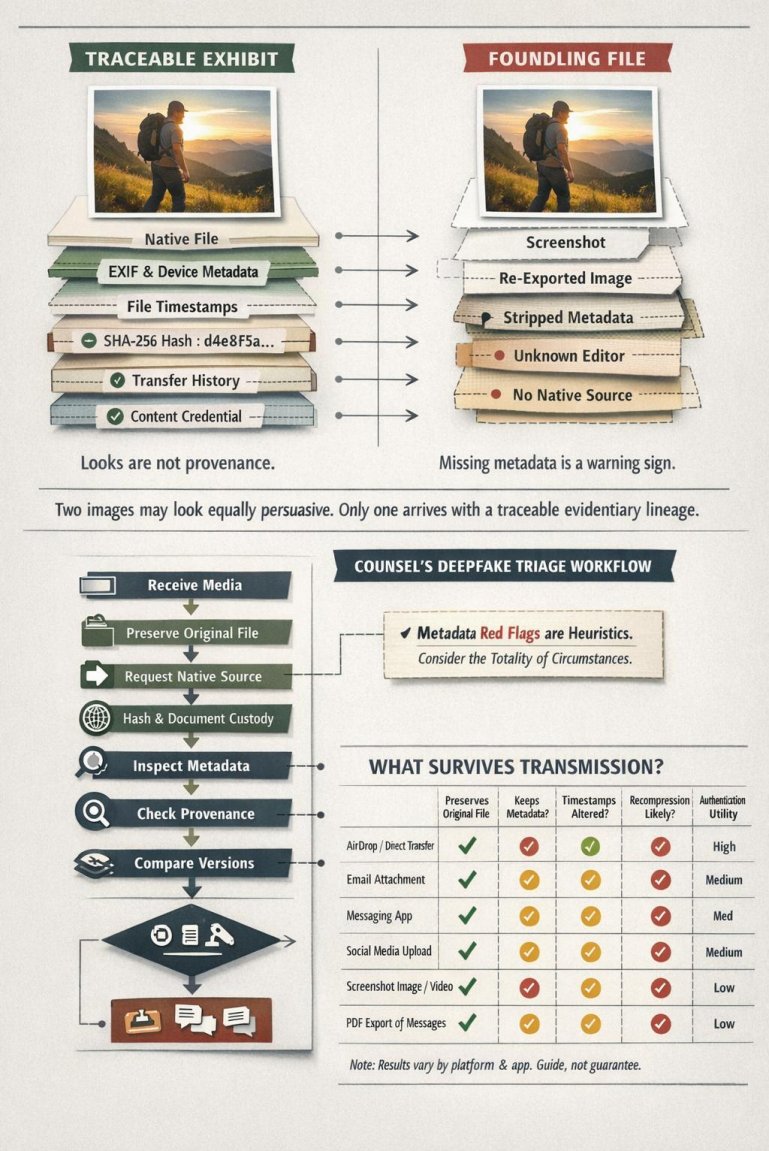
Software information: The firmware version of the camera and any processing software applied to the image.

Thumbnail data: A smaller version of the image embedded within the file, which should match the main image but may reveal prior editing if it does not.

Orientation data: Information about how the camera was held when the image was captured.

When you encounter a photograph offered as evidence, the presence of complete, internally consistent EXIF data is a strong indicator of authenticity. Conversely, the absence of EXIF data, or the presence of EXIF data inconsistent with the purported origin of the image, is a red flag that warrants investigation.

A critical caveat: the absence of metadata is not, by itself, proof of fabrication. Legitimate transmission pathways may strip or normalize metadata. When you text a photograph through iMessage or share it via WhatsApp, the messaging platform often removes EXIF data for privacy reasons. Social media uploads routinely strip GPS coordinates and device identifiers. Screenshots capture only pixels, not the metadata of the underlying image. Cloud synchronization services may alter timestamps. Email attachments may be re-encoded.



This means that metadata analysis is most powerful when you can obtain the *original* file from the source device, *before* it has passed through any transmission pathway that might strip or alter metadata. It also means that absent metadata is a question to be answered, not a conclusion to be drawn. The question becomes: *is there an innocent explanation for the missing metadata, or does the absence—combined with other factors—suggest fabrication?*

Why Deep Fakes Lack Authentic Metadata

Here is the critical insight: artificial intelligence systems that generate synthetic images do not create authentic metadata. They are not cameras. They are software programs running on computers, and the "images" they produce are mathematical outputs, not optical captures.

When a deep fake image is generated, several telltale metadata anomalies typically result:

Missing EXIF data: The image may contain no EXIF data at all, or only the minimal metadata added by the software that saved the file. There will be no camera identification, no capture settings, no GPS coordinates—because no camera was involved.

Inconsistent EXIF data: The fabricator may attempt to add EXIF data to make the image appear authentic, but creating consistent, plausible EXIF data requires technical sophistication that most fabricators lack. The added data may contain internal inconsistencies, impossible combinations of settings, or identifiers that do not correspond to real devices.

Software signatures: Deep fake generators often leave their own fingerprints in the metadata. The image may be tagged as having been created by specific AI software, or it may bear the telltale characteristics of particular image processing pipelines.

Mismatched thumbnails: If the fabricator modifies an authentic image to create the fake, the original thumbnail may remain embedded in the file, revealing the true original content.

Impossible timestamps: The metadata may show creation dates that are impossible or inconsistent with the purported events depicted.

This is not to say that a sophisticated fabricator cannot *create* convincing metadata. They can, with sufficient effort and expertise. But the effort required to fabricate consistent metadata is substantial (at present), and most fabricators do not bother—or make mistakes when they try. The absence or inconsistency of metadata thus provides a valuable first-line filter for identifying suspicious evidence.

Video and Audio Metadata

The principles that apply to photographs extend to video and audio evidence, though the specific metadata formats differ.

Video files contain extensive metadata about their creation and encoding. Authentic smartphone video will include information about the recording device, the codec used to encode the video, the frame rate and resolution, and often GPS coordinates and timestamps. Video files also contain structural metadata about how the video was encoded—information that reveals whether the file is a direct camera output or has been re-encoded (which would be necessary to incorporate deep fake modifications).

The container format of a video file (MP4, MOV, AVI, etc.) carries its own metadata distinct from the video stream itself. Examining both the container metadata and the stream metadata can reveal inconsistencies suggesting manipulation.

Audio files similarly contain metadata about their recording. Common formats like WAV, MP3, and AAC include information about the recording device, sample rate, bit depth, and encoding parameters. Voice recordings from phones often include call metadata, carrier information, and timestamps that can be verified against carrier records.

More sophisticated audio analysis can examine the acoustic characteristics of a recording—the background noise profile, room acoustics, and compression artifacts—to determine whether the audio is consistent with its purported recording environment.

The Digital Chain of Custody

Beyond creation metadata, digital evidence carries information about its subsequent handling. Every time a digital file is copied, modified, or transmitted, metadata may be created or modified. File system metadata records when files were created, accessed, and modified on particular storage devices. Email headers record the transmission path of attachments. Cloud storage services maintain access logs and version histories.

This handling metadata can establish—or undermine—the chain of custody for digital evidence. If a photograph is offered as having been taken on a particular date but the file system metadata shows it was created months later, the discrepancy demands explanation. If a video is claimed to be an unmodified original but the metadata shows it has been re-encoded, further investigation is warranted.

For attorneys, understanding this metadata ecosystem is essential to both authenticating favorable evidence and challenging suspicious evidence. The metadata is there, embedded in the files themselves and recorded in the systems that have handled them. We simply need to know how to find it and what it means.

Part III: Discovery Strategies for Digital Authenticity

The Fundamental Principle: Ask for the Original

The first and most important discovery strategy for authenticating digital evidence is deceptively simple: obtain the original file, in its original format, just as it came from the original device.

This sounds obvious, but it is routinely neglected. Lawyers too often accept printed photographs, compressed video clips, or transcribed audio recordings without demanding the underlying digital files. This is poor practice in an age of synthetic media. The printed photograph has been stripped of its metadata. The compressed video clip may have been re-encoded in ways that destroy evidence of manipulation or impair resolution. The transcription tells you nothing about whether the original audio was authentic.

Under Texas Rule of Civil Procedure 196.4, parties may request production of electronic data in the form in which it is ordinarily maintained or in a reasonably usable form. For authentication purposes, you should specify that you want the data in its original format—the format in which it was created by the recording device, prior to any conversion, compression, or processing.

Your production request should seek:

The original digital file in its native format (JPEG, HEIC, MP4, MOV, WAV, etc.), not converted or re-encoded into any other format.

All application metadata associated with the file, including EXIF data, container metadata, and any embedded information.

File system metadata from the device or storage medium on which the file was originally stored, including creation dates, modification dates, and access dates.

Transmission records if the file was sent via email, text message, or other electronic communication, including complete message headers and any cloud storage records.

The source device or forensic image thereof, if the authenticity of the evidence is genuinely contested and the stakes warrant it.

Interrogatories Targeting Authenticity

Interrogatories provide an opportunity to lock down the opposing party's authentication claims before the metadata speaks for itself. Consider interrogatories such as:

For each photograph, video, or audio recording that you intend to offer as evidence, state:

(a) The make and model of the device used to create the recording;

(b) The date, time, and location of creation;

(c) The identity of the person who created the recording;

(d) Whether the recording has been edited, modified, enhanced, or altered in any way since its original creation, and if so, describe each modification;

(e) The complete chain of custody of the recording from creation to the present, including every device and storage medium on which the recording has been stored;

(f) Whether any artificial intelligence, deep learning, or synthetic media generation tools were used to create or modify the recording.

These interrogatories serve multiple purposes. They establish a baseline account against which the metadata can be compared. They require the opposing party to commit to specific claims that can later be challenged. And they create a record that can be used for impeachment if the evidence is ultimately shown to be fabricated.

Requests for Admission

Texas Rule of Civil Procedure 198 permits requests for admission, which can be powerful tools for challenging suspicious evidence. Consider requests such as:

Admit that the photograph marked as Exhibit A was created by a digital camera or smartphone, not by artificial intelligence software.

Admit that the photograph marked as Exhibit A has not been modified, altered, or edited since its original creation.

Admit that the EXIF data embedded in Exhibit A accurately reflects the circumstances of its creation.

Admit that you do not possess the original device used to create Exhibit A.

The beauty of requests for admission is that they require a definitive response. The opposing party must admit, deny, or explain why they cannot admit or deny. A failure to respond results in deemed admission and a false response can have serious consequences.

If the opposing party admits that the evidence was created by a camera and not by AI, they are locked into that position. When your expert examines the metadata and finds telltale signs of synthetic generation, you have a powerful impeachment.

Deposing the Custodian and Creator

The deposition of the person who allegedly created digital evidence, or who serves as its custodian, is essential when authenticity is contested. Your deposition outline should cover:

The alleged circumstances of creation: Where were you when you took this photograph? What device did you use? What were you doing? When and why did you take it? Was anyone else present? Were other photos taken at the same time? These questions establish a narrative that can be compared against the metadata.

The device used: What is the make and model of the device? When did you acquire it? Where is the device now? Can you produce it? Is it associated with any cloud accounts that might have backup copies of the evidence? Have you factory reset the device since the alleged creation date?

Technical knowledge probing: Have you ever used image editing software? Have you ever used Photoshop, GIMP, or similar tools? Are you familiar with artificial intelligence image generation tools? Have you ever used Midjourney, DALL-E, Stable Diffusion, or similar systems? Have you ever used face-swapping or filter applications?

The chain of custody: After you created this recording, what did you do with it? Did you send it to anyone? Did you upload it anywhere? Where has it been stored? Have you made copies? Have you edited or modified it in any way?

Confrontation with metadata: If you have already obtained and analyzed the metadata, confront the deponent with any inconsistencies. "You testified that you took this photograph on June 15th at your home in Houston. Why does the metadata show it was created on June 20th in Austin?" Let them explain—or try to explain.

Forensic Examination of Devices

In high-stakes cases where authenticity is genuinely contested, you may need forensic examination of the source device. This means taking possession of the phone or camera allegedly used to create the evidence and conducting a forensic acquisition—a complete, bit-by-bit copy of the storage media or the device's storage.

Forensic acquisition is powerful because it can recover:

Deleted files: Photos and videos that have been deleted from a device are often recoverable from unallocated storage space (although the ability to do so is quite limited on modern phones). If the opposing party claims an image is original but forensic examination reveals an earlier, different version of the same image, you have strong evidence of fabrication.

Editing history: Some devices and applications maintain logs of editing operations. Forensic examination can reveal what modifications were made and when.

Application data: If the device user has installed deep fake applications or AI image generators, that fact will likely be visible in the application data.

Browser and AI history: Most deep fakes are created using online tools and AI large language models. That activity may be shown from browser history, cache and AI application history.

Timeline reconstruction: The file system metadata, combined with other device activity, can establish a detailed timeline of when files were created, modified, and accessed.

Under Texas law, obtaining forensic access to an opposing party's device requires demonstrating specific, credible evidence that the device contains relevant information not obtainable through less intrusive means. *In re Weekley Homes, L.P.*, 295 S.W.3d 309 (Tex. 2009), established the framework for court-ordered forensic examination in Texas. The requesting party must show that the responding party has somehow defaulted on its discovery obligations, such as by failing to search for relevant evidence or producing documents inconsistent with the producing party's claims.

If you have already obtained metadata showing anomalies suggestive of fabrication, that evidence can support a motion for forensic examination. The inconsistencies themselves may constitute the "specific, credible evidence" that *Weekley Homes* requires. Consider use of a neutral forensic examiner to balance the need to know against the right to safeguard privileged- and confidential content.

Third-Party Discovery

Do not neglect third-party discovery. Digital evidence often touches third-party systems that maintain independent records:

Cloud storage providers: Apple iCloud, Google Photos, Dropbox, and similar services maintain extensive metadata about stored files, including upload dates, modification histories, and access logs. Subpoenas to these providers can yield valuable authentication evidence.

AI service providers: As most deep fakes are now fabricated by large language models, the AI service provider may have a record of the fabrication.

Social media platforms: If the evidence or related files were posted to social media, the platforms maintain records of upload times, source IP addresses, and sometimes original file metadata.

Communication providers: If the evidence was transmitted via email or messaging services, those providers may have records of the transmission, including original file hashes.

Telecommunications carriers: For audio recordings, carriers maintain call records that can verify whether calls occurred when and where claimed.

Surveillance systems: If the evidence purportedly depicts events at a particular location, independent surveillance footage from that location can corroborate or contradict the evidence.

These third-party records can be powerful because they are created and maintained by neutral parties with no stake in the litigation. Inconsistency between the offered evidence and third-party records is strong evidence of fabrication.

Part IV: The Tells of Synthetic Media—What to Look For

Proving Physical Impossibility

While metadata provides the most reliable indicators of authenticity, visual and auditory examination of the evidence itself can reveal telltale signs of synthetic generation. The fundamental principle is this: artificial intelligence systems learn to mimic the appearance of real media, but they do not understand the three-dimensional physical world that real media depicts. As a result, deep fakes often contain artifacts that are physically impossible in the real world.

Your eye has spent a lifetime learning the physics of reality. Somewhere in your visual cortex, you understand how light falls on faces, how fabric drapes on bodies, how reflections work in eyes, and how shadows correspond to light sources. Deep fake detection, at its core, is about systematically applying that intuitive physical knowledge to suspicious media.

Facial Anomalies

Temporal Inconsistencies in Video

Video deep fakes must maintain consistency not just within a single frame but across thousands of frames. This is technically demanding, and temporal inconsistencies are common tells.

Flickering: Watch the face closely across multiple frames. In deep fakes, the face may flicker or shimmer subtly, particularly around the boundaries. This flickering results from frame-to-frame inconsistencies in the synthetic generation process.

Unnatural motion: The motion of the face should correspond naturally to the motion of the head and body. In deep fakes, the face may seem to slide or drift relative to the underlying head, or it may fail to track properly with head rotation.

Lighting inconsistencies: As a subject moves through a scene, the lighting on their face should change consistently with the lighting in the environment. Deep fakes may fail to maintain this consistency, with the face appearing to have its own independent lighting that does not correspond to the scene.

Audio-visual synchronization: In videos with speech, the lip movements should correspond precisely to the audio. Deep fakes often exhibit subtle synchronization errors—lips that move slightly before or after the corresponding sound, or mouth shapes that do not match the phonemes being spoken.

Environmental Artifacts

The environment surrounding a deep faked subject often contains tells:

Inconsistent shadows: Every object in a scene casts shadows consistent with the light sources in that scene. Deep fakes may introduce faces or figures whose shadows are

inconsistent with the environmental lighting—pointing in the wrong direction, having the wrong intensity, or being absent entirely.

Reflection failures: Beyond eye reflections, consider reflections in other surfaces—windows, mirrors, water, polished floors. A synthetic figure may fail to appear in reflections where they should appear, or may appear differently than expected.

Perspective errors: The synthetic elements of a deep fake may not conform to the perspective geometry of the scene. A face may be slightly too large or too small for the body, or may be oriented at an angle inconsistent with the figure's posture.

Edge artifacts: At the boundaries of manipulated regions, look for halos, color fringing, or unusual blurring. These artifacts result from the compositing process that blends synthetic elements into authentic backgrounds.

Audio Deep Fake Tells

Audio deep fakes—synthetic voice cloning—have their own characteristic artifacts:

Unnatural prosody: Human speech has natural rhythms of emphasis, pitch variation, and pacing. Synthetic speech often has a subtly mechanical quality, with prosody that is too regular or that fails to correspond naturally to the emotional content of the words.

Breathing anomalies: Real people breathe. Their speech is punctuated by inhalations, their sentences constrained by lung capacity. Synthetic speech may lack natural breathing patterns or may insert breaths at unnatural locations.

Background inconsistencies: The acoustic environment of a recording—the room tone, background noise, and reverberation characteristics—should be consistent throughout. If the voice was synthetically inserted into an authentic recording, there may be subtle mismatches in the acoustic environment.

Clipping and artifacts: Synthetic audio generation can produce subtle digital artifacts—clicks, pops, or moments of distortion—that are not characteristic of natural speech.

Vocabulary and phrasing: This is a softer tell, but a person's speech patterns, vocabulary, and habitual phrases are as distinctive as their voice. A synthetic recording may capture the voice accurately but use words or constructions that the purported speaker would not naturally use.

The Limitations of Visual Detection

A word of caution: the visual and auditory tells I have described are useful, but they are not definitive. Deep fake technology is improving rapidly. Artifacts that were obvious in early deep fakes have been largely eliminated in current systems. What constitutes a reliable tell today may be undetectable tomorrow.

Moreover, human perception is fallible. We see what we expect to see. If a juror believes an image is authentic, they may overlook or rationalize anomalies. If they

believe it is fake, they may perceive artifacts where none exist. Even when they learn an image is fake, they can have trouble dismissing it in deliberations.

For these reasons, visual examination should complement, not replace, metadata analysis and forensic examination. The metadata provides objective, verifiable evidence of authenticity or fabrication. The visual tells provide supporting evidence that can help explain to a jury why the metadata matters.

Part V: Authentication Under Texas Law

The Rule 901 Framework

Texas Rule of Evidence 901 establishes the authentication requirement for all evidence: the proponent must produce evidence sufficient to support a finding that the item is what the proponent claims it is. This is a relatively low bar: the proponent need not conclusively prove authenticity, only provide sufficient evidence from which a reasonable juror could find the evidence authentic.

Rule 901(b) provides an illustrative list of authentication methods, several of which are relevant to digital evidence:

Testimony of a witness with knowledge (Rule 901(b)(1)): A witness who perceived the events depicted can testify that the evidence accurately depicts those events. "I was there when this happened, and this video accurately shows what I saw."

Distinctive characteristics (Rule 901(b)(4)): Evidence can be authenticated by its appearance, contents, substance, or internal patterns, taken in conjunction with circumstances. Metadata can serve as such a distinctive characteristic: the EXIF data in a photograph is an internal pattern that, taken together with testimony about the circumstances of creation, can support authenticity.

Evidence about a process or system (Rule 901(b)(9)): For evidence produced by a technological process, authentication can be established by showing that the process produces accurate results. This is relevant to demonstrating that EXIF data accurately reflects capture parameters, or that forensic acquisition tools reliably preserve digital evidence.

The Sufficiency Dispute: Laying the Predicate

When you offer digital evidence, opposing counsel may object that you have not laid a sufficient foundation for authentication. When you challenge opposing evidence, you may argue that the proponent has not met their authentication burden.

The Texas courts have addressed digital evidence authentication with increasing frequency. In *Tienda v. State*, 358 S.W.3d 633 (Tex. Crim. App. 2012), the Court of Criminal Appeals considered the authentication of social media evidence and articulated a totality-of-the-circumstances approach. The court held that authentication does not require conclusive proof of authenticity, but rather sufficient evidence from which a jury could reasonably conclude that the evidence is what its proponent claims.

Under *Tienda*, relevant circumstances for digital evidence authentication include: (1) testimony from someone with personal knowledge of the evidence's creation; (2) metadata or other embedded information indicating origin; (3) distinctive content that identifies the creator or confirms the depicted events; and (4) circumstances foreclosing the possibility of fabrication.

For deep fake challenges, this framework suggests that you should:

When offering evidence: Establish a clear chain of custody from the recording device to trial. Provide testimony from the person who created the recording, if available. Offer the metadata as corroborating evidence of authenticity. If the evidence has been forensically examined, present that examination.

When challenging evidence: Attack the weakest links in the authentication chain. If the proponent cannot produce the original device, note that absence. If the metadata is missing or inconsistent, highlight those deficiencies. If visual examination reveals artifacts suggestive of manipulation, present expert testimony explaining those artifacts.

The Best Evidence Rule and Digital Originals

Texas Rule of Evidence 1001 defines "original" for electronically stored information as "any printout—or other output readable by sight—if it accurately reflects the information." This somewhat awkward formulation means that a printout of a digital photograph can qualify as an "original" for best evidence purposes.

However, for authentication purposes as distinct from best evidence purposes, the original digital file is far more valuable than any printout. The printout lacks the metadata. The printout cannot be examined for synthetic generation artifacts at the pixel level. The printout has lost information that cannot be recovered.

When you demand original digital files in discovery, you are not making a best evidence rule argument. You are making an authentication argument: you need the original digital file because that file contains information necessary to evaluate whether the evidence is what the proponent claims it to be. That information is simply not present in any derivative version.

Part V-A: Federal Court Practice—A Companion Guide

Many Texas lawyers practice in federal court or handle matters that may land in either state or federal court. While Texas and federal evidence rules share common ancestry, federal practice offers some distinct tools and considerations for digital evidence authentication.

Federal Rule of Evidence 901 and the Conditional Relevance Framework

Federal Rule of Evidence 901 mirrors its Texas counterpart: the proponent must produce "evidence sufficient to support a finding that the item is what the proponent claims it is." The federal courts apply the same conditional relevance framework under Rule 104(b)—the judge determines whether a reasonable jury could find the evidence authentic, and if so, the jury makes the ultimate determination.

Federal courts have generally followed the same totality-of-the-circumstances approach to digital evidence authentication that Texas adopted in *Tienda*. The leading federal articulation appears in *United States v. Vayner*, 769 F.3d 125 (2d Cir. 2014), which emphasized that authentication requires evidence that the item is what its proponent claims—not merely that it appears genuine on its face.

Self-Authentication Under Rules 902(13) and 902(14)

Federal Rules of Evidence 902(13) and 902(14), added in 2017, provide a streamlined authentication pathway for certain electronic evidence. These rules allow self-authentication of electronic records when accompanied by a certification from a qualified person that the records were generated by an electronic process or system that produces accurate results (Rule 902(13)) or that the records' integrity can be verified through a digital identification process such as a hash value (Rule 902(14)).

For deep fake challenges, these rules cut both ways. A proponent of digital evidence may invoke Rule 902(14) to authenticate a recording by showing that its hash value matches a hash created at the time of capture—powerful evidence of integrity if the original hash was reliably created. Conversely, the absence of such verification, when it could have been provided, may support a challenge to authenticity.

The Federal Judicial Center's guidance on these rules emphasizes their application to evidence whose integrity depends on the reliability of electronic systems—precisely the territory that deep fake challenges occupy.[3]

Federal Discovery: Rules 26, 34, and 37(e)

Federal discovery rules provide robust tools for obtaining digital evidence in native format.

Under **Federal Rule of Civil Procedure 34(b)(2)(E)**, a party must produce electronically stored information in the form requested, or if no form is specified, in the form in which it is ordinarily maintained or in a reasonably usable form. Specify native format production in your requests to preserve metadata.[4]

Rule 26(f) requires parties to confer about ESI issues, including the form of production, early in the case. Use the Rule 26(f) conference to establish protocols for digital media evidence, including requirements for native format production and metadata preservation.

Rule 37(e) addresses spoliation of ESI. If a party fails to preserve digital evidence that should have been preserved, the court may order measures no greater than necessary to cure the prejudice, or—if the party acted with intent to deprive—may presume the lost information was unfavorable, instruct the jury accordingly, or dismiss the action or enter

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[3] Paul W. Grimm et al., Federal Judicial Center, *Authenticating Digital Evidence* 4–10 (2017) (explaining authentication of electronic evidence through proof of reliable systems, hash values, and certifications under Fed. R. Evid. 902(13) and 902(14)).

[4] For more on forms of production: See Ball, *Forms That Function* (2026); http://www.craigball.com/Ball_Forms_That_Function_2026.pdf.

default judgment. When challenging evidence authenticity, consider whether spoliation of metadata or original files has occurred and whether Rule 37(e) remedies are available.

Federal Expert Testimony: Daubert

Federal courts apply *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), to expert testimony, including testimony on digital forensics and synthetic media detection. While the *Daubert* factors (testing, peer review, error rates, general acceptance) overlap substantially with the Texas *Robinson* framework,[5] federal courts sometimes apply them with greater rigor.

For deep fake detection testimony, be prepared to establish: (1) that the expert's detection methodology has been tested and validated; (2) that the methodology has been subjected to peer review; (3) the known or potential error rate; and (4) general acceptance in the relevant scientific community. The field of synthetic media detection is evolving rapidly, and not all detection methods have the established track record that *Daubert* analysis favors.

Expert Testimony on Authentication

Texas Rule of Evidence 702 governs the admissibility of expert testimony. An expert may testify if the expert's scientific, technical, or other specialized knowledge will help the trier of fact understand the evidence or determine a fact in issue.

Digital forensic experts can provide crucial testimony on deep fake authentication:

Metadata examination: A forensic expert can examine the metadata in a digital file and testify about what that metadata reveals about the file's origins, handling, and integrity. They can explain the significance of missing or inconsistent metadata and compare the metadata to the proponent's authentication claims and identify discrepancies.

Forensic acquisition and analysis: An expert can describe the process of forensic device examination and testify about what such examination revealed, and establish the reliability of forensic tools and the integrity of the acquisition process.

Deep fake detection: Experts specializing in synthetic media detection can examine questioned evidence and testify about whether it exhibits characteristics consistent with deep fake generation. They can explain the technical basis for their conclusions in terms a jury can understand.

General technical education: An expert can provide the jury with background information necessary to evaluate the evidence, explaining what metadata is, how deep fakes are created, and why certain artifacts are inconsistent with authentic media.

For deep fake challenges, expert testimony is almost always necessary. The technical concepts are beyond common knowledge, and jurors will need guidance to understand

[5] E.I. du Pont de Nemours and Co., Inc. v. Robinson, 923 S.W.2d 549 (Tex. 1995)

what the metadata reveals and what the visual artifacts mean. If you anticipate challenging digital evidence as potentially fabricated, budget for expert assistance.

Beyond Authentication: Hearsay, Completeness, and Prejudice

A brief but important reminder: authentication is necessary but not sufficient for admissibility. Even if digital evidence is authenticated, that is, even if you establish that it is what its proponent claims, other evidentiary hurdles remain.

Hearsay: A video recording offered to prove the truth of statements made in it is hearsay, subject to all the usual exceptions and exclusions. Authentication establishes that the recording is genuine; it does not establish that the statements are admissible.

Completeness: Texas Rule of Evidence 107 (and its federal counterpart, Rule 106) may require admission of additional portions of a recording when fairness demands context. A selectively edited clip, even if authentic, may be excludable or may open the door to additional evidence.

Prejudice: Under Texas Rule of Evidence 403 (and Federal Rule 403), even relevant, authenticated evidence may be excluded *if its probative value is substantially outweighed by the danger of unfair prejudice, confusion, or waste of time.* Graphic or inflammatory synthetic media—or genuine media, for that matter—may face Rule 403 challenges.

These doctrines interact with deep fake challenges in important ways. A fabricated recording is not merely inauthentic; it is also potentially excludable as unfairly prejudicial, misleading, or a waste of time. When challenging suspicious evidence, consider our full evidentiary toolkit.

Challenging Admissibility Versus Challenging Weight

An important tactical distinction: you can challenge digital evidence at the admissibility stage, arguing that the proponent has not laid a sufficient authentication foundation under Rule 901, or you can allow the evidence to be admitted and challenge its weight before the jury.

Each approach has advantages and risks. Challenging admissibility, if successful, keeps the evidence from the jury entirely. But the authentication threshold under Rule 901 is low, and judges are often reluctant to exclude facially relevant evidence on authentication grounds. A failed admissibility challenge may telegraph your concerns to opposing counsel, giving them opportunity to shore up their authentication before trial.

Challenging weight allows the evidence to be admitted but attacks its credibility before the jury. This approach gives you the opportunity to present your full case for fabrication—the missing metadata, the visual anomalies, the expert testimony—in front of the fact-finder. Texas juries are capable of evaluating competing claims about evidence authenticity, and a well-presented challenge can be devastating.

In most cases, I recommend a hybrid approach: raise authentication objections to preserve the record and to educate the court about your concerns, but prepare primarily

for a weight challenge before the jury. The admissibility objection may succeed, particularly if the metadata evidence is stark, but the weight challenge gives you a second opportunity if it does not.

Part VI: Building Your Deep Fake Challenge—A Practical Checklist

Phase One: Identification and Preservation

When you first suspect that evidence may be fabricated, your immediate priorities are identification and preservation.

Identify all versions: Determine what versions of the evidence exist. Is there an "original" file? Has the evidence been produced in multiple formats? Has it appeared in any third-party contexts—social media, news coverage, other litigation?

Preserve everything: Send a preservation demand immediately.[6] The opposing party has a duty to preserve relevant evidence once litigation is reasonably anticipated, but fabricators have powerful incentives to destroy evidence of their fabrication. A clear, documented preservation demand strengthens any later spoliation arguments.

Document your receipt: When you receive the evidence, document exactly what you received, when, and in what format. Create forensic hash values (MD5 or SHA-256) for every digital file. These hash values serve as fingerprints that will reveal any subsequent modification.

Secure chain of custody: From the moment you receive the evidence, maintain a clear chain of custody. Store the files securely. Document every access. Use only working copies when opening the evidence in an application. This protects against claims that any anomalies you discover resulted from your handling rather than fabrication.

Phase Two: Metadata Extraction and Analysis

With the evidence preserved, proceed to metadata examination.

Extract all metadata: Use forensic tools to extract every piece of metadata from the digital files. ExifTool is a powerful and free command-line utility for extracting metadata from image and video files. Commercial forensic tools like EnCase, X-Ways Forensics or FTK provide more comprehensive extraction capabilities.

Document your extraction: Record exactly what tool you used, what version, and what extraction parameters. This documentation supports the reliability of your extraction process under Rule 702. And again, *use only working copies when opening the evidence in an application.*

Analyze for consistency: Compare the extracted metadata to the proponent's claims. Does the device identification match the claimed source device? Does the timestamp

[6] For more on preservation demands, see, Ball, The Perfect Preservation Letter (2020); http://www.craigball.com/Perfect_Preservation_Letter_Guide_2020.pdf

match the claimed date of creation? Do the GPS coordinates match the claimed location?

Look for anomalies: Examine the metadata for anomalies suggestive of fabrication. Is EXIF data missing where it should be present? Is there evidence of image editing software? Are the capture parameters plausible for the depicted scene?

Research device signatures: Different devices produce characteristic metadata signatures. A photograph from an iPhone will have different metadata characteristics (and even a different storage format) than a photograph from a Samsung Galaxy. A synthetic image will have different characteristics than either. Research the expected characteristics for the claimed source device and compare.

Phase Three: Visual and Technical Examination

While metadata examination proceeds, conduct or commission visual examination of the evidence.

High-resolution examination: Obtain the highest-resolution version available and examine it at magnification. Compression artifacts and synthetic generation artifacts are often more visible at close examination.

Facial analysis: If the evidence depicts faces, conduct the facial examination described earlier—eye reflections, facial boundaries, asymmetry, expression consistency, teeth.

Environmental analysis: Examine the broader scene for environmental artifacts—shadow consistency, reflection accuracy, perspective correctness.

Temporal analysis: For video, examine frame-by-frame. Look for flickering, temporal inconsistencies, and audio-visual synchronization errors.

Consider AI detection tools: Several software tools claim to detect deep fakes using artificial intelligence. These tools can be useful as screening mechanisms, but they are not infallible—they have both false positive and false negative rates. Never rely solely on an automated detection tool; use it as one input among many.

Phase Four: Corroboration and Contradiction

Digital evidence does not drop like manna from Heaven, nor does it exist in isolation. Investigate the broader evidentiary context.

Independent verification: Can the events depicted in the evidence be independently verified? Are there other witnesses? Other recordings? Physical evidence? Documentary evidence?

Contradiction search: What evidence might contradict the offered evidence? If the evidence purportedly shows the plaintiff at a particular location, do cell phone records, credit card receipts, or witness testimony place them elsewhere?

Device investigation: What can be learned about the device allegedly used to create the evidence? Does the device exist? Can it be examined? Does its forensic state corroborate or contradict the authentication claims?

Digital forensics: Consider whether forensic examination of the proponent's devices might reveal deleted evidence, deep fake software, or other indicators of fabrication.

Phase Five: Expert Engagement

For any serious deep fake challenge, expert assistance is essential.

Forensic examiner: Engage a qualified, certified digital forensics expert to conduct or validate your metadata examination and to provide testimony explaining the findings.

Deep fake specialist: Consider engaging an expert specifically skilled in synthetic media detection. Academic researchers and specialists in this area can provide cutting-edge analysis and compelling testimony.

Prepare for Daubert/Robinson: Under Texas Rule of Evidence 702 and the framework established in *E.I. du Pont de Nemours & Co. v. Robinson*, 923 S.W.2d 549 (Tex. 1995), expert testimony must be based on reliable principles and methods, reliably applied to the facts of the case. Prepare your expert for reliability challenges and ensure their methodology is documented and defensible.

Phase Six: Presentation

Finally, plan how you will present your challenge to the court and jury.

Demonstratives: Technical evidence is most effective when presented visually. Prepare demonstratives that show the metadata anomalies, highlight the visual artifacts, and explain the technical concepts in accessible terms.

Narrative: Develop a narrative that explains why the evidence is fabricated and who fabricated it. Juries find technical evidence more persuasive when it fits within a comprehensible human story.

Anticipate rebuttal: Consider how the proponent will respond to your challenge and prepare counter-arguments. They may claim the metadata was stripped by innocent transmission. They may claim the visual anomalies result from compression. Have answers ready.

Part VII: Emerging Authenticity Technologies

The Content Authenticity Initiative

The deep fake problem has not escaped the notice of the technology industry. Several initiatives are underway to build authenticity verification into digital media from the moment of creation.

The Content Authenticity Initiative, led by Adobe in partnership with camera manufacturers, news organizations, and technology companies, is developing a system called Content Credentials. Under this system, cameras and editing software cryptographically sign media at each stage of creation and modification. The resulting credential—embedded in the file as metadata—provides a verifiable chain of provenance from camera capture through any editing to final publication.

If this technology achieves widespread adoption, authentication will become simpler. Evidence carrying valid Content Credentials can be traced to its source; evidence lacking credentials will be immediately suspect. But adoption is not yet universal, and retrofitting the billions of existing devices and software tools will take years.

C2PA and the Provenance Standard

The Coalition for Content Provenance and Authenticity (C2PA) has developed technical standards for content provenance that multiple manufacturers are beginning to adopt. Under the C2PA specification, digital media carries cryptographically signed "manifests" that record its creation and modification history.

Apple, Google, Nikon, Sony, and other major manufacturers have announced support for C2PA standards in their devices. As this technology proliferates, expect to see provenance information become a routine component of digital evidence.

For practitioners, the advent of provenance technology creates new discovery opportunities. If the claimed source device supports Content Credentials or C2PA, demand production of the provenance manifest. If the manifest is missing, ask why. If the manifest is present, verify its cryptographic signatures.

Blockchain and Distributed Verification

Some systems use blockchain technology to create immutable records of media provenance. When media is created, a cryptographic hash of the content is recorded on a distributed ledger. Any subsequent modification changes the hash, making tampering detectable.

These systems are not yet common, but they are gaining traction in contexts where authenticity is paramount—journalism, legal evidence, insurance documentation. Awareness of these technologies is valuable as they may appear in your practice.

The Computational Detection Arms Race

Artificial intelligence tools designed to detect deep fakes are engaged in an ongoing arms race with tools designed to create them. Detection systems learn to identify artifacts; generation systems learn to eliminate those artifacts; detection systems adapt to the improvements; and the cycle continues.

Current detection tools are useful but imperfect. They should be employed as one component of a comprehensive authentication strategy, not as definitive arbiters of authenticity. A negative result from a detection tool does not prove authenticity; a positive result does not conclusively prove fabrication.

Metadata remains one of the most valuable authentication tools—but it is a heuristic, not a rule. Unlike visual artifacts, which can be eliminated by improvements in generation technology, metadata anomalies are harder to eliminate because authentic metadata requires an authentic source. A sophisticated fabricator can strip metadata, alter it, or attempt to transplant metadata from an authentic source—but each of these manipulations creates its own forensic artifacts and inconsistencies. Stripped metadata raises questions; altered metadata often contains internal inconsistencies; transplanted metadata rarely survives close scrutiny against the purported source device. The absence of a coherent metadata story is not proof of fabrication, but it is a powerful indicator that demands explanation.

Part VIII: Ethical Obligations and Practical Considerations

The Duty of Competence

Texas Disciplinary Rule of Professional Conduct 1.01 requires competent representation, including the legal knowledge, skill, thoroughness, and preparation reasonably necessary for the representation. Comment 8 to ABA Model Rule 1.1 (on which the Texas rule is based) specifically notes that competence includes understanding "the benefits and risks associated with relevant technology."

In an age of deep fakes, competent representation requires awareness of synthetic media technology and the ability to either challenge suspicious evidence or engage appropriate expert assistance. Lawyers who remain ignorant of these issues do so at their clients' peril…and their own.

This does not mean every lawyer must become a digital forensics expert. It means every lawyer must know *enough* to recognize when deep fake issues may be present, what questions to ask, what discovery to pursue, and when expert consultation is necessary. This article is a step toward that competence, but only a step.

Candor to the Tribunal

The corollary to challenging fabricated evidence is the duty not to offer it. Texas Disciplinary Rule 3.03 prohibits making false statements of fact to a tribunal and offering evidence the lawyer knows to be false.

If you discover that evidence supporting your client's case is fabricated, you have an ethical obligation not to offer it. If you have already offered evidence and subsequently discover its falsity, you must take reasonable remedial measures, including disclosure to the tribunal if necessary.

This obligation extends to situations where you do not know the evidence is false but have serious doubts. The rules require knowledge of falsity before they prohibit offering evidence, but prudence and professionalism counsel against presenting evidence you suspect is fabricated. At minimum, investigate before offering.

The Danger of False Accusations

A word of caution: accusing an opponent of fabricating evidence is a serious matter. If you are wrong, you risk sanctions, professional embarrassment, and damage to your client's case, not to mention the unwarranted harm to your opponent. The mere existence of anomalies in digital evidence does not prove fabrication; there may be innocent explanations.

Pursue deep fake challenges when the evidence warrants suspicion, but do so responsibly. Base your challenge on documented technical evidence, not speculation. Engage qualified experts. Consider alternative explanations. Present your challenge as raising questions that require answers, not as foregone conclusions.

And if investigation demonstrates that initially suspicious evidence is in fact authentic, accept that conclusion. Persistence in a baseless fabrication claim is itself a form of advocacy misconduct.

The Jury's Common Sense

Never underestimate the jury. Jurors may not understand EXIF data or generative adversarial networks, but they understand when something feels off. They understand that photographs come from cameras and have digital fingerprints. They understand that authentic evidence has a history and fabricated evidence does not.

Your job is to translate the technical evidence into terms the jury can grasp and relate to their common sense. "This photograph has no birth certificate. It appeared out of nowhere, from no device, with no record of its creation. The metadata that every authentic photograph carries is simply not here. Why not?"

If you have done your technical homework, the jury's common sense will do much of your work for you.

Part IX: Case Studies and Practical Examples

Case Study 1: The Custody Video

Consider a hypothetical custody dispute in which Mother produces a video appearing to show Father striking the child. The video was allegedly recorded on Mother's iPhone and depicts Father losing his temper during a visitation exchange.

Father categorically denies the incident occurred. He was present for the exchange, but insists no striking took place and that the video has been fabricated.

How should Father's counsel proceed?

Discovery: Demand production of the original video file in its native format (likely .MOV for iPhone). Demand all metadata associated with the file. Demand production of Mother's iPhone for forensic examination by a neutral examiner or, alternatively, that a forensic image of the device be obtained and held pending examination. Propound interrogatories asking Mother to identify the precise device, date, time, and

circumstances of recording, and to state whether any editing or modification has occurred.

Metadata examination: Extract and analyze the video metadata. Does the file contain the expected QuickTime metadata for an iPhone recording? Does the creation timestamp correspond to the date and time of the alleged incident? Do the GPS coordinates correspond to the location of the exchange? Does the device identifier correspond to Mother's actual iPhone?

Visual examination: Examine the video at frame level. Does Father's face exhibit any of the tells associated with face-swapping or face reenactment? Are there temporal inconsistencies, lighting anomalies, or edge artifacts? Is the audio properly synchronized with the lip movements?

Corroboration: Were there any other witnesses to the exchange who can testify that no striking occurred? Are there any independent recordings—security cameras at the exchange location, dashcam footage, bystander videos? Do Father's text messages or calls around the time of the exchange suggest any disturbance?

Expert engagement: Engage a digital forensics expert to conduct the metadata examination and document findings. If the metadata analysis suggests potential fabrication, engage a synthetic media detection expert to examine the video for deep fake artifacts.

Case Study 2: The Workplace Recording

In an employment discrimination case, Plaintiff produces an audio recording purportedly capturing a conversation with her supervisor in which the supervisor makes racist comments. The recording is allegedly from Plaintiff's smartphone, made covertly during a one-on-one meeting.

The supervisor denies making any such statements and suggests the recording has been fabricated using voice cloning technology.

Discovery: Demand the original audio file. Demand all metadata. Demand production or forensic imaging of Plaintiff's phone. Demand the phone's call logs and any logs from the recording application. Propound interrogatories identifying the recording application used, the date and time of recording, and the circumstances of the meeting.

Metadata examination: Analyze the audio file metadata. Does it carry the expected metadata for a smartphone audio recording? Does the creation timestamp correspond to a time when the alleged meeting could have occurred? Can calendar records, badge access logs, or other business records verify that Plaintiff and the supervisor were present in the same location at that time?

Audio analysis: Engage an audio forensic expert to examine the recording. Is the acoustic environment consistent throughout the recording, or are there discontinuities suggesting splicing or insertion? Does the supervisor's voice have characteristics

consistent with natural speech, or are there artifacts suggesting synthesis? Is the background room tone consistent with the alleged recording location?

Voice comparison: Obtain authenticated samples of the supervisor's voice—voicemails, recorded meetings, deposition testimony. Engage an expert to compare the questioned recording against these known samples, examining both acoustic characteristics and speech patterns.

Corroboration: Can anyone else verify the meeting occurred? Are there calendar entries, emails, or other documentation of the meeting? Is there any independent evidence of the discriminatory animus that would make the alleged statements plausible?

Case Study 3: The Surveillance Video

In a personal injury case, Defendant produces surveillance video appearing to show Plaintiff engaged in physical activities inconsistent with her claimed disabilities. The video is allegedly from an investigator's camera, recorded over several days of surveillance.

Plaintiff insists she has never engaged in the activities depicted and that the video must have been manipulated to insert her likeness into footage of another person.

Discovery: Demand the original video files. Demand all metadata. Demand the investigator's work records, notes, and chain of custody documentation. Demand production of the recording equipment for examination. Propound interrogatories identifying the equipment used, the dates and locations of surveillance, and any processing or editing applied to the footage.

Investigator deposition: Depose the investigator in detail. What equipment was used? What are its technical specifications? How is footage stored and transferred? What processing was applied? Can the investigator identify Plaintiff in the footage with certainty? What were the circumstances of each recording session?

Metadata examination: Analyze the video metadata for consistency with the investigator's account. Do the timestamps correspond to the claimed surveillance dates? Is the device information consistent with the claimed recording equipment? Has the video been re-encoded or processed in ways inconsistent with the investigator's account?

Visual examination: Examine the video for deep fake artifacts. Is Plaintiff's face consistent throughout the footage? Are there edge artifacts, lighting inconsistencies, or temporal anomalies? Is the apparent camera perspective consistent with the claimed recording circumstances?

Geolocation verification: Can the surveillance locations be independently verified? Do the environmental details in the video—signage, vehicles, weather—correspond to the claimed locations and dates?

Part X: Looking Forward—The Evolving Landscape

The Technology Will Get Better

Let me be direct: the deep fake technology available today is not the technology we will face tomorrow. The artifacts I have described—facial boundary anomalies, reflection inconsistencies, temporal flickering—are artifacts of current technology. Future systems will reduce or eliminate these tells.

The rate of improvement in synthetic media generation has been startling. What was obviously fake two years ago is convincing today. What is detectable today may be undetectable in six months. We are in an arms race between generation and detection, and generation has the structural advantage: the generators only need to eliminate the tells that current detectors look for, while detectors must anticipate new artifacts appearing daily.

This is why metadata remains the most reliable authentication tool. Metadata cannot be authentically fabricated because authentic metadata requires an authentic source. As the visual tells become less reliable, the importance of metadata examination will only increase.

The Courts Will Adapt

The legal system is not well-suited to rapid technological change, but it does adapt in time. Courts are beginning to recognize the deep fake challenge and to develop doctrines responsive to it.

We can expect developments in several areas:

Authentication standards: Courts will likely require more robust authentication foundations for digital media evidence, particularly in high-stakes cases. The minimal foundation that suffices for uncontested evidence will not suffice when fabrication is credibly alleged.

Presumptions and burdens: Courts may develop evidentiary presumptions related to metadata. Evidence carrying complete, consistent metadata might benefit from a presumption of authenticity; evidence lacking expected metadata might face heightened scrutiny.

Expert evidence: As deep fake challenges become more common, courts will develop clearer standards for the admission of expert testimony on synthetic media detection. The reliability requirements of *Robinson* and *Daubert* will be applied to new detection methodologies.

Jury instructions: Pattern jury instructions may eventually address deep fake issues, providing guidance to juries on how to evaluate disputed digital evidence.

Discovery practices: Courts may impose enhanced disclosure obligations for digital evidence, requiring production of original files with metadata rather than derivatives.

Rules amendments: The challenge of synthetic media has not gone unnoticed by the rulemakers. Thoughtful scholars and jurists—including my good friends Judge Paul Grimm (retired, U.S. District Court for the District of Maryland) and Professor Maura Grossman (University of Waterloo and Osgoode Hall Law School)—have been at the forefront of efforts to consider whether amendments to the Federal Rules of Evidence are needed to address AI-generated evidence. While formal rule changes take time, the conversation is underway. Practitioners should monitor developments from the Advisory Committee on Evidence Rules, as amendments addressing authentication of digital media may emerge in coming years. In the meantime, the existing rules—properly understood and vigorously applied—provide substantial tools for challenging synthetic evidence.

The Practitioner's Imperative

For practitioners, the imperative is clear: education and preparation. The attorneys who understand these issues today will be better equipped to serve their clients tomorrow.

Familiarize yourself with metadata and how to extract it. Learn to use basic forensic tools like ExifTool. Develop relationships with qualified, certified forensic examiners. Follow the evolving research on synthetic media detection.

When you encounter digital evidence, cultivate healthy skepticism. Do not assume authenticity simply because the evidence *looks* real. Ask the foundational questions: Where did this come from? What device created it? What does the metadata show? What should be here that is not?

And when you suspect fabrication, pursue that suspicion rigorously. The discovery tools are available. The authentication challenges are cognizable. The experts exist. The only question is whether you have the knowledge and the will to deploy these resources effectively.

Conclusion: The Metadata Is Not a Lie

We stand at an inflection point in the history of evidence. The assumption that photographs, videos, and recordings depict reality—an assumption that has undergirded evidentiary practice for a century and a half—is no longer safe. The technology to fabricate convincing synthetic media is accessible to anyone with a computer and an internet connection. Deep fakes are here, they are improving, and they are appearing in litigation.

But this is not cause for despair. It is cause for adaptation. The same digital technology that enables fabrication also enables authentication. Every authentic photograph carries within it the fingerprints of its creation. Every legitimate video bears the metadata of its recording. Every genuine audio file has a provenance that can be traced.

The synthetic imposter typically has no such lineage. It springs into existence fully formed as if from Zeus' forehead, from no camera, at no location, bearing no authentic record of its creation. When we know what to look for—and we do—the absence of that lineage is as revealing as any physical tell at the poker table. This is not an absolute

rule; sophisticated fabricators may attempt to spoof provenance, and legitimate evidence may lose its metadata through innocent handling. But the probability calculus favors the prepared advocate: *authentic evidence usually has a coherent origin story, and fabricated evidence usually does not.*

The tools for challenging deep fakes exist: metadata examination, forensic analysis, expert testimony, robust discovery practice, detection tools. What remains is for the bar to develop the knowledge and skill to deploy those tools effectively.

This article has endeavored to provide a foundation for that knowledge. We have examined what deep fakes are and how they work. We have explored the metadata that accompanies genuine digital evidence and developed discovery strategies for obtaining that metadata. We have catalogued the visual and auditory tells that betray synthetic media and reviewed the authentication framework under both Texas and federal law. Finally, we have considered practical approaches to building and presenting deep fake challenges.

The knowledge in these pages will require updating as technology evolves. But the fundamental principles will endure. Authentic digital evidence usually has a provenance; fabricated evidence usually lacks one or has a fabricated provenance riddled with inconsistencies. Authentic evidence can ordinarily be traced to its source; fabricated evidence typically cannot withstand that scrutiny. Metadata is not infallible—it can be stripped, altered, or spoofed—but the effort required to create a convincing false provenance is substantial, and most fabricators fail the test.

In a world where seeing is no longer believing, metadata and forensic rigor are our anchors to truth. Learn to read them, demand them in discovery, and deploy them in advocacy. Your clients—and the integrity of our system of justice—are counting on you.

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