

Forensic Watermarking Deployment Checklist

Pre-launch checks for server-side A/B watermarking: integration, payload, robustness, vendors, detection SLA.

1. Standards & integration

ETSI TS 104 002 / DASH-IF A/B model.

- Use ETSI TS 104 002 V1.1.1 (2023-08) WMPaceInfo structure.
- Embed marks at the packager; CDN edge selects A/B per session.
- CENC-encrypted variants; same content-key per session.
- Confirm DASH-IF Watermarking API conformance for the encoder.
- Reject vendors that cannot expose WMPaceInfo or equivalent.

3. Robustness expectations

What the mark must survive in the wild.

- Transcoding / re-mux: expect $\geq 99\%$ across vendors.
- 1080p $\rightarrow$ 720p downscaling: target 90-98%.
- Edge cropping & overlay: target 85-95%.
- Cam-cord (analogue capture): realistic 70-85%, not 100%.
- Collusion 2-4 colluders: ECC handles; larger = research.

5. Vendor selection

Six tier-1 vendors cover $\geq 90\%$ of production.

- NAGRA NexGuard — pay-TV, OTT premium live (Akamai edge).
- Synamedia ContentArmor — sports; 2026 Edge Watermarking.
- Verimatrix — OTT, IPTV, telco TV (VMX Streamkeeper).
- Friend MTS ASiD — subscriber-level + iQ anti-fraud.
- Irdeto TraceMark — premium movies, AI-resilient research.
- DoveRunner (PallyCon) — integrated DRM + watermarking.

2. Payload sizing

Bits in the mark = sessions you can attribute.

- 32 bits = 4.3B sessions (default for VOD subscribers).
- 40 bits = 1.1T (default for premium live).
- 64 bits when title-ID + region + tier baked in.
- Embedding time $\approx$ bits $\times$ segment_seconds $\times$ 1.5 for ECC.
- Document mapping payload $\rightarrow$ (subscriber, device, IP, time, title).

4. Storage & CHR impact

Two variants per segment is not free.

- Origin storage multiplier $\sim 1.7\times$ (top 1-2 ABR rungs only).
- Edge cache-hit ratio drop 3-6 points; mitigate with shield.
- Run content steering with variant-aware shields.
- Single variant on mobile / emergency rungs is acceptable.
- Re-measure CHR after every ABR-ladder revision.

6. Detection-time SLA

2026 live-sports target: under 5 minutes.

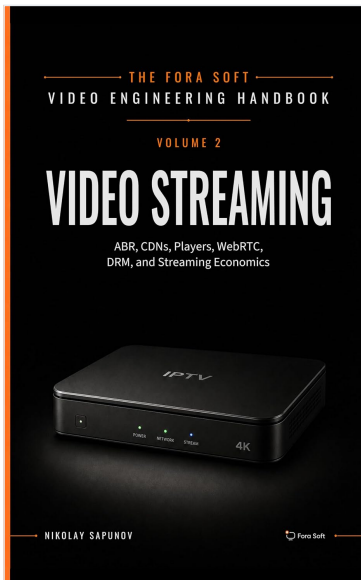
- Discovery: 30s – 2 min (fingerprint hub coverage).
- Capture: 45 s (32-bit payload @ 2s segments).
- Extraction: 60-120 s (algorithm + ECC).
- DB lookup + enforcement: under 30 s.
- Test the full pipeline weekly; alert if p95 > 5 min.

7. Five production traps — the things that block launch the week before launch

Trap	Mitigation
Cache poisoning by variant URL	Variant-A response served from variant-B URL after a CDN purge — disable cross-variant cache keys; alert on cross-variant collision.
Transmuxer drops the mark	Going through ffmpeg / a re-multiplexer on the path can strip the mark — test the full pipeline end to end, not just the packager.
Robust-against-screen-capture claims	Vendor marketing claims 100% cam-cord robustness; independent tests show 70-85%. Demand third-party test reports under your content.
False-positive extraction	Extractor returns a bit pattern that maps to a real but innocent subscriber — require ECC + checksum + 2 independent extractions before enforcement.
GDPR personal-data status of session IDs	EU regulators treat a session ID linked to a real subscriber as personal data — DPIA the watermarking pipeline before launch in DE/FR/IT/ES.

Companion to: 'Forensic Watermarking and A/B Variant Streaming'

www.forasoft.com/learn/video-streaming/articles-streaming/forensic-watermarking-ab-streaming



GO DEEPER · VOLUME 3 OF 7

Video Streaming: A Complete Guide to Video Delivery

From ABR and CDNs to Players, WebRTC, DRM, and the Economics of Streaming

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This checklist covers payload sizing, robustness targets, vendors, cache impact and the detection SLA for A/B watermarking. Volume 3 explains the delivery side in depth: CDN caching and hit ratio, DRM and encrypted variants, player behavior, and the economics of streaming that the second variant changes.

WHAT YOU WILL FIND INSIDE

- CDN caching and hit-ratio effects
- Player behavior with A/B segments
- DRM with encrypted variants
- Delivery economics per viewer

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