

# Widevine Level Detection Checklist

Detect the security level, request the right robustness, and ship the right resolution — in one page.

## EME robustness strings to Widevine levels (W3C EME §5.1.3)

| EME robustness string    | Maps to    | Keys                     | Decode / frames                     | Studio-cleared resolution                 |
|--------------------------|------------|--------------------------|-------------------------------------|-------------------------------------------|
| <b>HW_SECURE_ALL</b>     | L1 strict  | Hardware TEE             | Hardware decode + secure video path | <b>Up to 4K UHD</b> (Netflix 4K minimum)  |
| <b>HW_SECURE_DECODE</b>  | L1         | Hardware TEE             | Hardware decode (frames may leak)   | Up to 1080p, sometimes 4K                 |
| <b>HW_SECURE_CRYPTO</b>  | L2         | Hardware TEE             | Software decode                     | Usually 1080p capped                      |
| <b>SW_SECURE_DECODE</b>  | L3         | White-box AES (software) | Software decode                     | 720p (often 540p / 480p)                  |
| <b>SW_SECURE_CRYPTO</b>  | L3         | White-box AES (software) | Software decode                     | 720p — same as above                      |
| <b>empty string ("")</b> | L3 default | Browser picks            | Browser picks                       | <b>Silent downgrade</b> — never ship this |

## How to query the level on each platform

| Platform                      | How to query the level                                                           | What to do with the result                                                                                                                      |
|-------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Web (any)</b>              | <code>navigator.requestMediaKeySystemAccess('com.widevine.alpha', config)</code> | Try HW_SECURE_ALL first; fall back through HW_SECURE_DECODE → SW_SECURE_CRYPTO; cap manifest to renditions the resolved level permits.          |
| <b>Android native</b>         | <code>MediaDrm.getPropertyString('securityLevel')</code>                         | Returns 'L1', 'L2' or 'L3' directly. Pair with HDCP check ( <code>Display.getFlags()</code> & <code>FLAG_SECURE</code> ) before advertising 4K. |
| <b>Android TV (ExoPlayer)</b> | <code>FrameworkMediaDrm.getProperty('securityLevel')</code>                      | Same as Android native; ExoPlayer surfaces the level in its DRM session manager events.                                                         |
| <b>End-user QA</b>            | DRM Info app on Google Play                                                      | Single-screen report of Widevine level + supported codecs + secure-decoder list. Use in the device matrix.                                      |

### License-server policy (per KID)

**One KID per resolution tier.** Encrypt 240p–720p with KID\_A; 1080p with KID\_B; 4K with KID\_C. Server releases KID\_A to any level; KID\_B only to L1; KID\_C only to L1 + HDCP 2.2. The device gets the keys it is entitled to and the manifest exposes only the matching renditions.

### Robustness fallback ladder

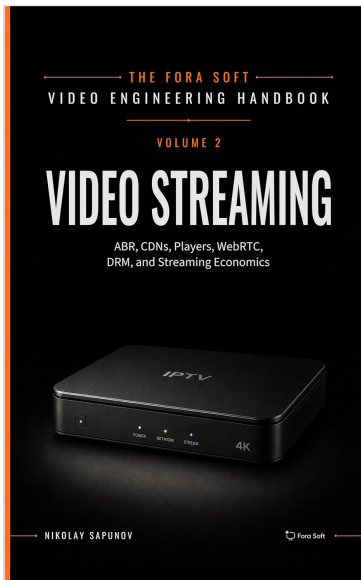
1. HW\_SECURE\_ALL — 4K-eligible.
  2. If rejected → HW\_SECURE\_DECODE — 1080p.
  3. If rejected → SW\_SECURE\_DECODE — 720p.
  4. If rejected → no playback / show 'unsupported device'.
- Never start at empty string — the browser silently picks L3.

### Four pitfalls that ship to production

1. Single KID for the whole ladder — L3 unlocks 4K.
2. Empty robustness — L1 hardware sees L3 licence.
3. Rooted Android — verified boot fails, level drops to L3 silently.
4. HDCP 1.4 on the receiver — Netflix UHD returns SD.

### Decision in one line

Detect the level explicitly, request the strictest robustness available, package one KID per resolution tier, and never trust a 4K rendition until the licence server has released its key.



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This checklist maps EME robustness strings to Widevine levels and shows how to query them on each platform. Volume 3 covers DRM in depth, together with players, ABR ladders and the delivery rules that decide which rendition each device receives.

### WHAT YOU WILL FIND INSIDE

- DRM: Widevine, PlayReady, FairPlay
- ABR ladders per device
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## Is 4K leaking to L3 devices or blocked on L1 hardware?

We will set up per-KID license policy, test robustness detection on your device matrix and cap each ladder correctly. 250+ video products shipped since 2005.

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