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

How to query the level on each platform

Platform	How to query the level	What to do with the result
Web (any)	navigator.requestMediaKeySystemAccess('com.widevine.alpha', config)	Try HW_SECURE_ALL first; fall back through HW_SECURE_DECODE → SW_SECURE_CRYPTO; cap manifest to renditions the resolved level permits.
Android native	MediaDrm.getPropertyString('securityLevel')	Returns 'L1', 'L2' or 'L3' directly. Pair with HDCP check (Display.getFlags() & FLAG_SECURE) before advertising 4K.
Android TV (ExoPlayer)	FrameworkMediaDrm.getProperty('securityLevel')	Same as Android native; ExoPlayer surfaces the level in its DRM session manager events.
End-user QA	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.