



**Statement of Interest and Comment**  
**United States Copyright Office's Consultation on Technical Measures**

86 Fed. Reg. 72638 (Dec. 22, 2021)  
[Docket No. 2021-10]

February 8, 2022

Google appreciates the opportunity to submit comments and a statement of interest in connection with the U.S. Copyright Office (the "Office") Consultation on Technical Measures: Notice and Request for Public Comment, 86 FR 572638. We detail our answers to questions two and seven of the notice below. In addition, Google's Copyright Counsel, Annemarie Bridy, requests to represent Google at the upcoming consultations.

Google employs a range of technical measures across our products to identify and/or protect copyrighted works. All of these measures have been adopted voluntarily and iteratively over time, in cooperation with a broad spectrum of rightsholders and creators, based on our mutual interest in mitigating online infringement and promoting a sustainable, healthy Internet. The voluntary nature of this cooperation has enabled us to innovate in this space in a way that responds to the needs of rightsholders, protects the rights of users and creators, and integrates with the complex architecture of our many systems and products. This voluntary cooperative approach is optimal because technology evolves quickly, and bad actors dedicated to infringement are constantly adapting their tactics to exploit new products and find new ways of exploiting existing products. Accordingly, we don't believe there is a role for the government to play at this time.

Maintaining the wide range of measures we have implemented over the years requires a continuous commitment of substantial financial, engineering, and legal operational resources. The implementation of these measures to some extent impacts our ability to provide services to our users, because the measures to varying degrees are subject to abuse and error. The more automated and architecturally integrated these measures become, and the more widely they are deployed across our products, the greater the potential for abuse and error – with inevitable collateral harm to creativity, access to information, and freedom of expression. We dedicate human and technical resources to mitigate collateral harms, for the protection of our users, our mission, and our good will in the marketplace. Existing safe harbors afford us the

legal certainty we need to do so. While we believe our efforts in this space have been effective and targeted, we remain concerned about the potential impact of proposals to condition safe harbors on the implementation of any specific technical measures, in particular the automated filters that would be necessary to operationalize a “notice and staydown” regime.

The following list of Voluntary Technical Measures (VTMs), organized by product, illustrates Google’s present and historical commitment to combating copyright piracy and enabling rightsholders to effectively manage their rights on our services. Some of these VTMs incorporate existing technical standards developed to identify or protect copyright works.

## YouTube

- **Content ID:** In 2007, YouTube launched Content ID, a first-of-its-kind copyright management system that helps rightsholders effectively manage their works on YouTube. Rightsholders or their agents who are granted access to Content ID provide YouTube with reference files for the works they own, along with metadata such as the title and detailed ownership rights. Based on these references, YouTube creates digital “fingerprints” for the works in question and then scans the platform to determine when content in an uploaded video matches the reference content. Rightsholders use YouTube’s content management system (CMS) — the interface for managing the use of their content on the platform — to instruct the system to either block, monetize, or track matching content and to address ownership conflicts and disputes among Content ID partners and uploaders. Over 98% of copyright issues on YouTube are handled through Content ID. And today, thousands of partners use Content ID to manage their rights effectively (including many third party vendors that manage smaller and independent creators who are otherwise not affiliated with more traditional, institutional rightsholders). These partners in turn represent several hundred thousand artists and creators. Content ID has proven to be an effective revenue generation tool for rightsholders, generating an entirely new income stream from monetized claims. We have paid more than \$5.5 billion to rightsholders in ad revenue alone from content claimed and monetized through the tool.
- **Copyright Match Tool:** The Copyright Match Tool brings the power of Content ID matching technology to even more creators and rightsholders. Creators using the Copyright Match Tool simply need to be the first to upload a video to YouTube, and then they are shown subsequent re-uploads of those videos. For each video match, the Copyright Match Tool shows the user information on total views, the channel that uploaded it, what percentage of the video is made of their content, and a collection of representative screenshots of the video. From this interface, rightsholders can choose to leave a video up, request removal, archive the match, or contact the uploader. Creators who choose not to distribute their content on the platform can use our private

upload feature in conjunction with the Copyright Match Tool to help them effectively manage their content on YouTube. As of November 2021, over 2 million channels have access to the Copyright Match Tool.

- **Tackling Live Stream Abuse:** At YouTube, we have continually invested in Content ID as live streaming has become more prevalent. Content ID can be used to scan YouTube live streams for reuses of rightsholders' copyrighted content, including live sporting events and music festivals, as well as pre-recorded content.
- **Content Verification Program (CVP):** YouTube also offers a Content Verification Program for creators and rightsholders who have a regular need to submit high volumes of copyright removal notices and have demonstrated high accuracy in their prior submissions. This program makes it easier to search YouTube and quickly identify allegedly infringing videos.

## YouTube and Drive

- **Hash Matching for Previously Removed Content:** Where possible and appropriate, Google and YouTube use technology to prevent the reappearance of matching content on the same service. Google Drive uses hash matching technology to prevent the public sharing of content that we previously removed pursuant to a valid notice. In addition, all of the tools in YouTube's Copyright Management Suite, including the webform for notice submission, use technology to prevent the reupload of matching content, as described above.

## Web Search, Blogger, Docs, Drive, Photos, and Google Sites

- **Trusted Content Removal Program (TCRP):** Similar to YouTube's CVP program, Google also provides a tool for copyright owners with a proven track record of submitting accurate notices and a consistent need to submit thousands of URLs each day. TCRP allows rightsholders or their enforcement agents to submit large volumes of takedown notices on a consistent basis.

## Web Search and Image Search

- **Removal of Piracy-Associated Terms from Autocomplete and Related Search:** Google has taken steps to prevent terms closely associated with piracy from appearing in Autocomplete and Related Search and continues to work on refining those steps.
- **Demotion of Websites That Receive A Large Volume of Notices:** We have developed a "demotion signal" for Google Search that causes sites for which we have received a

large number of valid removal notices to appear much lower in search results. We have also made it much harder for infringing sites to evade demotion by redirecting people to a new domain. Finally, we have added a “still-in-theaters/prerelease” flag for DMCA notices involving this category of content to enhance the Search demotion signal. When a site is demoted, the traffic Google Search sends it drops, on average, by 89% on average.

- **Demonetization of Claimed Infringing URLs:** When a URL is delisted from Search following a DMCA notice, any Google ads running on that page are automatically disabled. We also will not run ads on Search that link to delisted pages.
- **Free Access to Custom Search APIs:** Google has partnered with rightsholder industry associations to provide millions of dollars’ worth of access to Google’s Custom Search API to help them locate infringing content on the web.
- **IPTC Metadata for Images and Licensable Badge:** Google Image Search recognizes and displays structured data or IPTC (International Press Telecommunications Council) metadata for images when rightholders use it to mark up the images on their websites. When a photographer specifies license information for the images on their website, the image can display with a licensable badge on image thumbnails in Google Images. This badge tells people that license information is available for the image, and provides a link to the license in the Image Viewer, which offers more detail on how someone can use the image.
- **Schemas for Identifying Creative Works on Websites:** In addition to recognizing and displaying structured data and IPTC metadata for images, Google Search – through standard schemas developed in an open community process under the auspices of the W3C (World Wide Web Consortium) – affords website operators a means to identify and provide detailed markup for different types of creative works they make available online, including books, movies, sound recordings, and TV series. Each of these standard schemas includes dedicated fields for recording copyright information.

## **Browsers and Devices**

- **Encrypted Media Extensions (EME):** For the protection of copyrighted streaming video content, Google Chrome incorporates the EME standard for web browsers. The EME standard was developed within the W3C and adopted in 2016 by all major browser distributors, including Google. EME provides an API that enables playback of encrypted audio and video from web applications in any browser, regardless of the underlying content protection system.

- **Widevine DRM:** Widevine is Google's content protection system for premium media. It is a licensed product used across a wide range of devices and platforms by major partners around the world. The focus of Widevine is to provide the best experience for viewing premium content over digital distribution. Currently, millions of consumers enjoy digital entertainment secured and optimized by Widevine on retail consumer electronics devices from all major consumer brands.

Google appreciates the opportunity to share its perspective and experience, and we look forward to continued engagement with the Office on this topic.