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Evolving Standards & the Future of the DMCA Anticircumvention Rulemaking

Aaron K. Perzanowski

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INTRODUCTION

Every three years, the Copyright Office conducts a rulemaking to determine temporary exemptions from the Digital Millennium Copyright Act's (DMCA's) anticircumvention provision. These exemptions are designed to prevent likely adverse impacts on noninfringing uses created by the prohibition on removing or bypassing technological protection measures that restrict access to copyrighted works.

At the conclusion of the third and most recent rulemaking, the Librarian of Congress, acting on the advice of the Register of Copyrights, announced six classes of works exempt from the DMCA's anticircumvention provision for the three-year period ending October 27, 2009. These exemptions promise to alter both the practices of consumers and the strategies of the affected industries. In fact, one industry player has already reacted by filing a constitutional challenge to the Copyright Office's rulemaking authority. Of equal importance, this most recent rulemaking signals a significant shift in the Copyright Office's evaluation of proposed DMCA exemptions and may suggest an increase in narrowly tailored exemptions in future rulemakings. But despite the Copyright Office's apparent increased receptiveness to exemption proposals, the rulemaking process faces limitations that render it incapable of fully resolving the DMCA's adverse effect on noninfringing uses.

This article begins with a brief primer on § 1201 of the DMCA and its regulation of circumvention and related technologies. Next, the article addresses the standards and procedures established by the Copyright Office.
to govern the DMCA rulemaking. With this background in place, the article examines each of the six exemptions granted in 2006, as well as noteworthy rejected proposals. It next explores the likely implications of these exemptions for some of the industries directly affected by their adoption. The article proceeds by discussing the ways in which the 2006 rulemaking departed from standards established in prior years, permitting the Register of Copyrights greater flexibility in recommending exemptions. But despite these departures, the DMCA rulemaking faces critical limitations that constrain its ability to effectively address the concerns that motivated its creation. This article concludes with an examination of these shortcomings--some statutorily inherent, others introduced by the Copyright Office's implementation and interpretation of the statutory language.

I. AN ANTICIRCUMVENTION PRIMER

As a result of the increasing shift to digital distribution of copyrighted works in the 1990s, copyright holders faced the threat of effortless and instantaneous copying and distribution of their works. Simultaneously, digital distribution afforded copyright holders an opportunity to exert unprecedented control over the use and copying of their works through the introduction of technological protection measures. Faced with pressure from copyright industries demanding legal recognition of these technological measures, Congress enacted the Digital Millennium Copyright Act in 1998. The DMCA established, inter alia, a statutory regime designed to ensure compliance with the digital locks adopted by copyright holders by prohibiting their removal or bypass and banning tools that would enable removal or bypass.

The DMCA recognizes two overlapping varieties of digital locks. “Technological measure[s] that effectively control[] access” to a copyrighted work, or access controls, prevent users from accessing a work without authorization. The content scramble system (CSS), widely deployed on DVDs, serves as a paradigmatic example of an access control. CSS employs an algorithm to encrypt DVDs, rendering them unplayable in the absence of a licensed key. Without authorization, consumers cannot

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3 Among its various provisions, the DMCA established safe harbor protections against copyright infringement liability for internet intermediaries that comply with the statute's notice-and-takedown requirements. See 17 U.S.C. § 512 (2000).
access the content contained on the disc. As a result, practically all DVD players available in the United States contain keys licensed by the DVD Copy Control Association. In contrast, “technological measure[s] that effectively protect[] a right of a copyright owner,” commonly referred to as copy controls, prevent users from copying a work or otherwise infringing the exclusive rights granted in § 106 of the Copyright Act.\(^5\) Perhaps the most common examples of copy controls are software programs distributed on audio CDs that restrict consumers' ability to burn copies of those CDs or convert them to MP3 format.

Conceptually, these two species of controls are distinguishable. One can imagine a technological measure that controls access without preventing copying. CSS arguably provides a real world example of just such a protection measure. Similarly, one can at least conceive of a protection measure that prevents copying without limiting access to the underlying copyrighted work, even if such a measure may be difficult or impossible to engineer. Regardless of the possibility of conceptual disentanglement, in practice, the controls employed by copyright owners and their licensees typically restrict, to varying degrees, both access and copying. The distinction between these two types of controls has been further blurred by the seeming inability of courts to consistently delineate their respective scopes.\(^6\)

Despite the practical and theoretical difficulties that muddle attempts to distinguish between copy and access controls, the DMCA establishes distinct regimes for these two types of technological measures. The DMCA regulates two classes of activity: (1) circumvention--the act of descrambling a scrambled work, decrypting an encrypted work, or otherwise disabling, removing, or avoiding a technological measure without the permission of the copyright owner;\(^7\) and (2) trafficking--the manufacture, distribution, sale, or offering to the public of devices, tools, or technologies that enable circumvention.\(^8\) The statute prohibits the circumvention of access controls alone, allowing unrestricted circumvention of copy controls. The ban on

\(^6\) See Universal City Studios, Inc. v. Corley, 273 F.3d 429, 438 n.5 (2d Cir. 2001) (noting that “it might very well be that copying is not blocked by CSS itself,” but nonetheless failing to overturn district court's determination of a violation of § 1201(b)(1)); 321 Studios v. MGM Studios, Inc., 307 F. Supp. 2d 1085, 1097 (N.D. Cal. 2004) (asserting that CSS serves as a copy control because even though CSS permits the copying of encrypted data, “that copying is not particularly useful.”).
trafficking applies to technologies that enable circumvention of copy controls as well as access controls.

Section 1201(a) addresses the regulation of access controls. In particular, § 1201(a)(1)(A) prohibits the circumvention of access controls. On its face, the anticircumvention provision does not require an act of infringement by the alleged circumventer. Even if the work was acquired lawfully and used in a manner that does not violate any of the exclusive rights granted in § 106 of the Copyright Act, bypassing a technological measure that controls or restricts access can constitute a violation of the DMCA. In addition to the prohibition on circumvention, § 1201(a)(2) bans the trafficking of “any technology, product, service, device, [or] component” that is primarily designed to enable circumvention of an access control, that has only limited commercial significance other than circumvention, or that is marketed for use in circumvention.

Copy controls are addressed in § 1201(b). Because the DMCA does not prohibit the circumvention of copy controls, § 1201(b) contains no provision analogous to the anticircumvention provision in § 1201(a). Section 1201(b)(1), however, does contain a prohibition against trafficking in copy control circumvention tools that mirrors § 1201(a)(2). So unlike the anticircumvention provision, the anti-trafficking provisions of the DMCA are symmetrical in their application to access and copy controls.

The DMCA's prohibitions on circumvention and trafficking are not absolute. In response to concerns voiced by a variety of interest groups and industries, Congress included a number of narrowly tailored exemptions to the DMCA's anticircumvention and anti-trafficking provisions. Two of these exemptions, §§ 1201(d) and (i), which respectively exempt circumvention by nonprofit libraries and circumvention undertaken to prevent the collection and dissemination of personally identifiable information, apply only to the anticircumvention provision. Others, like the encryption research and security testing exemptions in §§ 1201(g) and (j), apply to both the anticircumvention prohibition and the ban on trafficking in access control circumvention devices. Two other exemptions--§ 1201(e), which permits circumvention by law enforcement, and other federal actors and § 1201(f), which allows reverse engineering under limited circumstances--apply to the anticircumvention provision and both of the anti-trafficking provisions. In

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9 But see Storage Technology Corp. v. Custom Hardware Eng'g & Consulting, Inc., 421 F.3d 1307, 1318 (Fed. Cir. 2005) (“a copyright owner alleging a violation of section 1201(a) ... must prove that the circumvention of the technological measure either infringes or facilitates infringing a right protected by the Copyright Act.”).
addition to these statutory exemptions, the DMCA establishes a rulemaking procedure for the creation of additional temporary exemptions.10

II. DMCA RULEMAKING PROCEDURES AND STANDARDS

Congress recognized that the narrow and rigid statutory exemptions to the DMCA would likely prove insufficient to prevent the anticircumvention provision from adversely impacting the accessibility of copyrighted works. Given the widespread digital distribution of copyrighted works and the rapid evolution of the technological measures controlling access to them, Congress anticipated that additional safeguards may be necessary to guarantee that lawful uses of copyrighted works could continue despite the DMCA's anticircumvention provision. These concerns prompted the creation of the DMCA rulemaking, a “fail-safe’ mechanism” intended to ensure that limits on the prohibition on circumvention keep pace with developments in the market for copyrighted works.11 As the Commerce Committee Report on the DMCA explained, “The primary goal of the rulemaking proceeding is to assess whether the prevalence of these technological protections, with respect to particular categories of copyrighted materials, is diminishing the ability of individuals to use these works in ways that are otherwise lawful.”12

The statute itself lays out the basic structure and purpose of this mechanism, but leaves the Copyright Office significant leeway in formulating both the procedural and substantive contours of the rulemaking. Section 1201(a)(1)(C) calls on the Librarian of Congress, acting on the recommendation of the Register of Copyrights, to conduct a rulemaking in order to identify classes of copyrighted works the noninfringing uses of which are likely to be adversely affected by the prohibition on circumvention in the succeeding three-year period. Users of copyrighted works that fall within these identified classes are not subject to the prohibition against circumvention.13 Through this process, the rulemaking is intended to afford an opportunity to prospectively exclude from the reach of § 1201(a)(1)(A) those works most likely to be harmed by it.

12 Id. at 37.
During the first triennial DMCA rulemaking in 2000, the Copyright Office established procedures and standards that governed subsequent rulemakings in 2003 and 2006. The rulemakings commence with a Notice of Inquiry, which seeks written comments proposing classes of works for which an exemption should be granted. These initial comments must identify the proposed class and specify the factual and legal bases in support of the exemption. After the submission and publication of these initial proposals, the Register of Copyrights accepts reply comments that support, oppose, or otherwise clarify the initial comments. Once all comments have been submitted, the Register holds public hearings on selected proposals to further develop the factual record and clarify any questions unresolved by the comments. After the Register solicits written responses to post-hearing questions, the rulemaking record is closed, and the Register formulates recommendations. In each of the three DMCA rulemakings, the Librarian of Congress has adopted the recommendations of the Copyright Office without modification.

Although the procedure followed in the rulemakings is a straightforward one, the substantive standards used to evaluate proposals are more nuanced and have stirred debate in each of the three triennial rulemakings. The statutory requirement that the Librarian identify “classes of works” presents the rulemaking’s primary interpretative challenge. The legislative history offers some indication of the intended meaning of “class of works.” The Commerce Committee Report on the DMCA explained that a class should be “a narrow and focused subset of the broad categories of works of authorship ... identified in section 102 of the Copyright Act.”14 In keeping with the intended meaning of the term “class of works,” the Register of Copyrights requires proposed classes, as an initial matter, to identify one or more § 102 categories--literary works or sound recordings, for example.15 Proposed classes are further narrowed by additional descriptive limitations. These limitations may include the media on which the works are distributed, the content of the works themselves, or the features of the protection measures that restrict access to the works. In the both the 2000 and 2003 rulemakings, however, the Register determined that the scope of a proposed class could not be limited by reference to particular

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14 Commerce Comm. Report, supra note 11, at 38.
users or uses of the copyrighted works. But as discussed later, the Copyright Office revisited this determination in the 2006 proceeding.

While the statutory text offered some guidance in structuring the rulemaking by requiring that exemptions apply to classes of works, the statute is almost entirely silent on the evidentiary showing necessary to establish an adverse impact on noninfringing uses. Again the Register of Copyrights looked to the DMCA's legislative history to resolve the statute's ambiguity. The House Manager's Report referred to “substantial adverse impact” on noninfringing uses and opined that “mere inconveniences ... do not rise to th[at] level.” Offering a slightly different interpretation, the Commerce Committee Report suggested that exemptions should be granted upon a showing of “distinct, verifiable, and measurable impacts” as opposed to de minimis ones. Despite the suggestion of the National Telecommunications and Information Administration that exemptions could be justified on the basis of “reasonably anticipated impacts,” the Register relied on the legislative history and required proponents to show by a preponderance of the evidence that substantial adverse effects have occurred or are more likely than not to occur. Isolated harms and “mere inconveniences” fail to satisfy this standard. Further, the Register requires exemption proponents to demonstrate “a causal nexus between the prohibition on circumvention and the alleged harm.”

In addition to the anticircumvention provision's impact on noninfringing uses of classes of works, the Register of Copyrights considers a number of statutory factors in weighing the appropriateness of exemption proposals. The first of these factors, “the availability for use of copyrighted works,” requires the Register to broadly consider the uses of copyrighted works enabled by the current marketplace for those works. If works are available in both access-restricted and unrestricted formats, this factor would weigh against an exemption. Second, the Register must

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18 Commerce Comm. Report, supra note 11, at 37.

19 See 2000 Recommendation, supra note 16, at 64,561.

20 See Final Rule, supra note 1, at 68,473.

consider the impact of access controls on “archival, preservation, and educational” uses. The third statutory factor considers the extent to which the prohibition on circumvention affects “criticism, comment, news reporting, teaching, scholarship, or research.” The fourth factor examines the relationship between circumvention and “the market for or value of copyrighted works.” The final factor encourages the Register to consider “such other factors as the Librarian considers appropriate.”

This basic framework was developed and applied in the 2000 and 2003 rulemakings. With some modifications, these standards and procedures governed the third triennial rulemaking as well.

III. THE 2006 EXEMPTIONS

At the conclusion of the most recent DMCA rulemaking, the Copyright Office recommended and the Librarian of Congress announced six exemptions, renewing three exemptions adopted in prior rulemakings and granting three other proposals exempt status for the first time.

A. Audiovisual Works in University Film Libraries

The first new exemption granted in 2006 permits educators to circumvent protection measures that restrict access to films contained in the film or media studies libraries of a college or university.\(^{22}\) This exemption, proposed by a group of educators, sought to address the difficulty faced by film and media studies professors who routinely compile clips of films for in-class use. Under any reasonable application of § 107, copying such clips for educational purposes qualifies as a fair use. Moreover, the display of clips in the course of classroom education is protected by 17 U.S.C. § 110. Nonetheless, educators faced liability for violating the DMCA’s anticircumvention provision if they copied portions of DVDs protected by CSS. Since the overwhelming majority of DVDs distributed in the United States employ CSS, the professors argued the anticircumvention provision served as a significant impediment to an otherwise noninfringing educational use of these copyrighted works.\(^{23}\)

Opponents of this proposal argued that an exemption was

\(^{22}\) See Final Rule, supra note 1, at 68,473-68,474.

unnecessary to achieve the legitimate aims of educators.\textsuperscript{24} They pointed to the availability of DVD players that enable educators to store a series of clips from a DVD on the player's internal memory. Such devices, they argued, obviated the need for circumvention. The Joint Reply Commenters--a group that included the Motion Picture Association of America, the Recording Industry Association of America, the Business Software Alliance, and nearly a dozen other copyright industry organizations--also noted that, if educators wished to create compilations of clips from DVDs, they “can merely point a digital camcorder at a screen and record the portions of various films that they wish to show their classes.”\textsuperscript{25} Moreover, they argued, since most films are still available in VHS format, clips can be compiled without circumventing CSS. Finally, opponents argued that the availability of licenses for educational use of clips from copyright owners such as Warner Brothers demonstrated that an exemption was unnecessary to avoid an adverse impact on noninfringing uses.

These arguments failed to persuade the Register of Copyrights. None of the available means of presenting film clips in the classroom satisfied the particular legitimate needs of film and media studies professors. Available DVD players that store clips on internal memory accommodate only a single disc, rendering their in-class use unnecessarily inefficient when professors display clips from multiple films. VHS copies often distort the color and aspect ratio of films and omit extra content, such as deleted scenes and multiple camera angles, lessening their utility for educational purposes. Camcorder copies of screen displays created similar difficulties for educational use. Moreover, the mere possibility of obtaining licenses for the display of clips does not meaningfully address potential violations of the anticircumvention provision.

\textbf{B. Computer Programs and Games in Obsolete Formats}

The second exemption, proposed by the Internet Archive,\textsuperscript{26} renews an exemption first adopted in the 2003 DMCA rulemaking. It permits libraries and archives to circumvent technological protection measures that

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\item \textsuperscript{25}Joint Reply Comments, supra note 24, at 28.
\item \textsuperscript{26}See generally Comments of the Internet Archive, http://www.copyright.gov/1201/2006/comments/kahle_internetarchive.pdf.
\end{itemize}
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restrict access to computer programs and video games distributed in
obsolete formats that require the original media or hardware as a condition
of access.\textsuperscript{27}

Among its varied archival undertakings, the Internet Archive
preserves the vast catalog of out-of-print computer software and video
games. Many older programs and games require the original media or
hardware in order to function. These original-only access controls, intended
to prevent unauthorized use and copying, interfere with the Internet
Archive's attempts to create functional digital archival copies of these
works. As the Register of Copyrights noted in the 2003 rulemaking, this
archival copying is noninfringing “if the existing format in which the work
is stored has become obsolete.”\textsuperscript{28}

This proposal faced only half-hearted opposition. As the Joint Reply
Commenters noted, the Internet Archive did “a better job than anyone else
of explaining how they've used the existing exemption, first demonstrating
that they've used it ... and, second, explaining how they've used [it] and,
third, explaining why they still need it.”\textsuperscript{29} The Joint Reply Commenters did,
however, voice some concern that, as services like GameTap and game
consoles like the Nintendo Wii reintroduce classic video games, an
exemption that extended beyond libraries and archives could harm the
market for these works.

The Register renewed the exemption for computer programs and
video games distributed in obsolete formats. But in recognition of the
concern expressed by the Joint Reply Commenters, the Register added
language restricting the exemption to circumvention conducted by archives
and libraries for the purpose preservation or archival reproduction.

\textbf{C. Computer Programs with Obsolete Dongles}

A related exemption, first adopted in the 2000 rulemaking and
renewed in both 2003 and 2006, includes computer programs protected by
obsolete hardware dongles that prevent access due to malfunction or

\textsuperscript{27} See Final Rule, \textit{supra} note 1 at 68474.

\textsuperscript{28} 17 U.S.C. § 108(c) (2000). A format is obsolete if: (1) the library or archives has,
after a reasonable effort, determined that an unused replacement cannot be obtained at a
fair price; and (2) any such copy or phonorecord that is reproduced in digital format is not
made available to the public in that format outside the premises of the library or archives in
lawful possession of such copy. \textit{Id.}

hearings/transcript-mar23.pdf.
Dongles are “hardware locks attached to a computer that interact with software programs to prevent unauthorized access to that software.”

Since, unlike software itself, these hardware locks cannot be easily duplicated, they restrict access to unauthorized copies of computer programs.

However, when dongles malfunction, they can prevent authorized access by software licensees as well. Because the developers of such software may have ceased operations or may be otherwise unresponsive to the difficulty faced by those unable to access lawfully acquired software, proponents of this exemption argued that circumvention of the dongle access control was justified.

While the legal rationale for this exemption was not in dispute in the most recent rulemaking, the Joint Reply Commenters argued that the proponents had failed to establish the factual basis for the exemption. Indeed, the submitted proposal offered no factual support for the contention that obsolete dongles continued to present a likely adverse impact on noninfringing uses; however, during the hearings on this proposal, its primary proponent offered supplemental factual support for the exemption detailing, at least anecdotally, persistent difficulties with dongle-based access controls for authorized users. This evidence, “albeit not abundant,” coupled with the failure of opponents of the proposal to demonstrate any harm suffered during the previous six years, led the Register of Copyrights to recommend renewing this exemption for a third term.

D. Ebooks Inaccessible to the Blind

The third renewed exemption, originally proposed by the American Federation for the Blind in 2003, permits the circumvention of technological protection measures that restrict access to ebooks if all existing ebook editions of a work prevent the use of the read-aloud function or screen readers that render text in specialized formats such as Braille.

Ebooks are electronic versions of texts distributed in digital format that, with the use of software programs like Adobe Reader, can be read by computer users. Among the features offered by ebook software is a read-
aloud function, which translates an ebook's text into audio using a synthesized voice. This feature enables blind computer users to listen to digital works that they could not otherwise read. Similarly, other software programs called screen readers can render ebooks as either synthesized speech or Braille. Despite the obvious benefits to the blind, some publishers use technological protection measures to disable the read-aloud function and prevent the use of standalone screen readers.

Proponents of the exemption argued that reading an ebook by way of the read-aloud function or a screen reader that enabled text-to-Braille functionality was a noninfringing use. The Register agreed that such use was both noninfringing and served an important societal interest.

Nonetheless, the Register took issue with the evidence offered by proponents to demonstrate that the ban on circumvention was likely to adversely affect the ability of users to make noninfringing use of ebooks. The American Foundation for the Blind presented a flawed anecdotal survey of the availability of unrestricted ebook titles and offered no evidence of any actual use of the already existing exemption during the prior three year period.\(^{35}\) Despite misgivings with respect to this factual showing, the Register recommended renewal of the exemption, in part because of the admissions of copyright holders that ebooks inaccessible to the blind were still on the market.

**E. Mobile Telephone Handset Firmware**

The second new exemption established in the 2006 rulemaking permits circumvention of technological protection measures that control access to firmware installed on mobile telephones, but only when such circumvention occurs for the sole purpose of lawfully connecting to a wireless network.\(^{36}\)

Mobile wireless telephones contain firmware programs called bootloaders that control the operation of the phone's hardware. Often these bootloaders are designed to prevent phones from connecting to competing mobile service networks. As a result, a phone purchased from one mobile service provider will not function on a competitor's network should the customer choose to switch providers. To prevent customers from unlocking their mobile phones, that is, deleting or replacing the phone's firmware in


\(^{36}\) See Final Rule, *supra* note 1, at 68,476.
order to achieve compatibility with rival networks, manufacturers and service providers often employ technological protection measures to restrict access to bootloaders.

The Wireless Alliance and Robert Pinkerton, both represented by Stanford Law School's Cyberlaw Clinic, proposed an exemption that would permit the unlocking of mobile phones regardless of access controls implemented by phone manufacturers or service providers.\textsuperscript{37} The proponents argued that, even assuming that the bootloader programs are copyrightable works, their removal or replacement for the purpose of lawfully accessing a competing network could not constitute copyright infringement.

The Register of Copyrights agreed. Her recommendation concluded that “no evidence in the record ... demonstrates or even suggests that obtaining access to the mobile firmware in a mobile handset that is owned by a consumer is an infringing act.”\textsuperscript{38} Nor did the record reflect any “argument or suggestion that a consumer desiring to switch a lawfully purchased mobile handset from one network carrier to another is engaging in copyright infringement or in activity that in any way implicates copyright infringement or the interests of the copyright owner.”\textsuperscript{39} Because circumvention did not implicate the rights of the copyright holder and because the access controls at issue were intended to limit the functionality of a device rather than to protect a copyrighted work, a strict application of § 1201(a)(1) was inappropriate and an exemption was warranted.

The Joint Reply Commenters expressed concern that the ability to reprogram the firmware of a mobile phone may permit users to avoid digital rights management schemes that protect music and video content purchased for mobile phones. Although the Copyright Office deemed this concern speculative, it narrowed the application of the exemption to those instances in which circumvention was undertaken to gain access to a wireless network.

\textit{F. Sound Recordings and Audiovisual Works on Compact Discs that Create Security Flaws}

The final exemption adopted in the 2006 rulemaking permits the

\textsuperscript{38} 2006 Recommendation, \textit{supra} note 15, at 50.
\textsuperscript{39} \textit{Id.}
circumvention of technological protection measures distributed on audio compact discs when those measures create or exploit vulnerabilities that compromise the security of personal computers. Such circumvention, however, is exempted only to the extent that it occurs for the sole purpose of good faith testing, investigating, or correcting such security vulnerabilities.\textsuperscript{40}

In recent years, a number of major record labels have introduced a variety of protection measures that restrict access to and copying of audio and related “bonus” audiovisual works distributed on CDs. In 2005, security researchers discovered that millions of Sony BMG CDs contained a protection measure developed by First4Internet that, when inserted into a Windows PC, surreptitiously installed a rootkit, which is a software tool that conceals processes and files from the operating system.\textsuperscript{41} Presumably, Sony BMG’s rootkit was intended to frustrate the efforts of computer users who might attempt to remove its protection measure by rendering the files undetectable by most users. But the rootkit resulted in a gaping security hole that enabled malicious hackers to take control of the personal computers of Sony BMG customers.\textsuperscript{42} In the months after its release, the Sony BMG rootkit had been installed on an estimated 500,000 computer networks globally, including university and government networks.\textsuperscript{43}

A separate protection measure developed by SunnComm introduced distinct risks for consumers. SunnComm's MediaMax technology failed to set adequate file permissions, enabling non-privileged users to replace the executable code installed by Media Max with malicious code.\textsuperscript{44} In addition, MediaMax collected and transmitted data about consumers despite statements to the contrary in both the software EULA and SunnComm's website. Moreover, the MediaMax software installed when inserted into a PC despite the user's explicit rejection of the software EULA.

In response to the widespread deployment of these protection measures, Princeton University computer security experts Professor Edward W. Felten and J. Alex Halderman submitted a proposal to exempt

\textsuperscript{40}See Final Rule, supra note 1, at 68,477.
\textsuperscript{42}Id. at 19.
\textsuperscript{44}Halderman, supra note 41, at 17.
circumvention of access controls that create security vulnerabilities. Represented by the Samuelson Law, Technology & Public Policy Clinic of the University of California, Berkeley School of Law, Felten and Halderman argued that, despite the security risks posed by these protection measures, a literal application § 1201 would expose those who removed or bypassed the Sony BMG protection measures, including the rootkit, to potential liability under the DMCA. This threat of liability, they argued, impeded legitimate academic research on the impact of these technologies. Further, it forced consumers to endure security threats simply in order to listen to music on their computers.

The Joint Reply Commenters offered three primary arguments against the exemption proposal. First, they contended that the protection measures used on CDs were copy controls rather than access controls and were thus outside the scope of the rulemaking. Second, they argued that existing statutory exemptions, most notably the security testing exemption of § 1201(j), rendered an exemption unnecessary. Third, they argued that Sony BMG’s voluntary release of a tool to uninstall the rootkit obviated the need for an exemption.

The Register of Copyrights determined that protection measures distributed on CDs can serve simultaneously as both copy and access controls. Because these protection measures require the use of particular software applications in order to play a CD on a computer, the Register was satisfied that the measures in question control access as well as copying.

Further, the Register found that because the scope of § 1201(j)–a provision not yet meaningfully interpreted by the courts–was ambiguous, consideration of the exemption on its merits was appropriate. Section 1201(j) permits circumvention for the purposes of “security testing,” defined as “accessing a computer, computer system, or computer network, solely for the purpose of good faith testing, investigating, or correcting, a security flaw or vulnerability, with the authorization of the owner or operator of such computer, computer system, or computer network.” While the Register acknowledged that the suggestion that § 1201(j) already insulated security researchers from liability was “a reasonable argument,” she also recognized the interpretative challenge of determining the applicability of § 1201(j) to circumvention that enables access to works.


2006 Recommendation, supra note 15, at 56.
stored on removable media such as CDs.\textsuperscript{47}

In light of the need for researchers to identify security vulnerabilities created by CD protection measures, the dangers posed by such measures to consumers, the unclear potential liability under the DMCA, and the resulting adverse impact on the ability to engage in noninfringing uses, the Register recommended adoption of the exemption.

\textit{G. Denied Exemptions}

The initial call for comments drew 74 exemption proposals, the vast majority of which were denied. Two of these rejected proposals are worthy of note.

The first sought an exemption for compilations of Internet addresses blocked by filtering software. Commercially available applications designed to prevent access to inappropriate Web sites, sometimes referred to as censorware, function by use of blacklists, or internal lists of prohibited internet locations. In order to maintain the secrecy of these lists, software developers frequently employ access controls to prevent potential competitors or critics from determining the content of their censorware blacklists.

In both 2000 and 2003, the Librarian of Congress adopted exemptions that allowed the circumvention of access controls protecting blacklists. Proponents of these exemptions sought to engage in research related to the over-inclusiveness of filtering software.

Although the Register's 2006 recommendation recognized that “the legal and analytical rationale for this exemption remain[ed] unchanged,” renewal was not appropriate.\textsuperscript{48} Proponents of the exemption offered no factual showing in support of the need for or effects of a renewal of the blacklist exemption. They could offer no evidence that the existing exemption was in use or that a renewed exemption was likely to be used during the next three-year period. In light of the absence of factual support, the Librarian, acting on the advice of the Register, refused to extend the exemption for a third term.

As in prior rulemakings, a number of commenters sought exemptions permitting circumvention for the purpose of space-shifting, the practice of transferring a lawfully acquired copyrighted work from one

\textsuperscript{47} \textit{Id.} at 59

\textsuperscript{48} \textit{Id.} at 68.
playback or storage medium to another, often requiring the copying of the work in another format.

The transfer of audio files from a CD to an iPod, and the attendant conversion from the CDDA to MP3 file formats, serves as a familiar example of space-shifting. Exemption proponents pointed to access controls that prevented the storage of copies of DVD movies on their computer hard drives and others that disabled the transfer of lawfully downloaded audio to the portable player of their choice as emblematic of technological measures that interfere with noninfringing uses commonly sought by consumers.

Because space-shifting requires the creation of a copy of the work at issue, proponents bore the burden of establishing that such use was noninfringing. The Register found that this burden was not satisfied, noting that the proponents of the space-shifting proposal had failed to cite any legal authority in support of the proposition that space-shifting is noninfringing. According to the Register, even if proponents could establish that space-shifting was noninfringing, the inability to engage in that noninfringing use is a mere inconvenience that could not support an exemption. The space-shifting proposals were, therefore, rejected.

The Register's recommendation dutifully sets out her rationale for rejecting the remaining exemptions, a full examination of which is unnecessary here.

IV. IMPLICATIONS FOR AFFECTED INDUSTRIES

The exemptions to the DMCA's anticircumvention provision granted in the 2006 rulemaking are all narrow in scope. As a result, their immediate effects will likely be felt, if at all, only in the specific industries that they were intended to reach. The three renewed exemptions, given their limited applicability and maintenance of the status quo, are unlikely to significantly alter the practices or conditions within the relevant industries. Similarly, although the film archive exemption is likely to prove a valuable legal refuge for academics who rely on multimedia presentations, neither Hollywood nor the consumer electronics industry is likely to alter its strategies as a result. But, within their narrow confines, the exemptions that apply to mobile phones and CDs with security vulnerabilities are likely to influence the design and adoption of access controls, as well as more

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49 In Recording Indus. Ass'n of Am. v. Diamond Multimedia Sys., Inc., 180 F.3d 1072, 1079 (1999), the Ninth Circuit described space-shifting as “paradigmatic noncommercial personal use” exempted from infringement liability under the Audio Home Recording Act.
general strategic decisions, over the next three years.

The rootkit exemption may have sounded the death knell in the already beleaguered history of CD-based technological protection measures. Some early attempts caused permanent damage to the computers of customers who tried to play their lawfully purchased CDs in their Apple iMacs, while other early forays in CD copy-and-access protection were thwarted by nothing more than a felt tip pen or the timely pressing of the Shift key.\(^50\) Later attempts were even less successful. Sony BMG's deployment of First4Internet's rootkit-infected XCP protection scheme and SunnComm's surreptitiously installed MediaMax technology led to multimillion dollar settlements in various lawsuits filed by state Attorneys General and the Electronic Frontier Foundation.\(^51\) Most recently, Sony BMG agreed to a consent order with the Federal Trade Commission that requires Sony to prominently notify customers of future protection measures, provide effective means to uninstall such measures, and reimburse each customer whose computer was damaged by the XCP software by as much as $150.\(^52\)

In light of Sony BMG's experience and the exemption now available to consumers and researchers, CD-based protection measures hold significantly diminished legal and commercial appeal. In fact, a number of major labels have suspended plans to introduce protected CDs in the future. To the extent that deployment of protected CDs remains viable, however, both protection measure vendors and content owners should be expected to take additional steps to ensure that these controls do not introduce security threats onto the computers of consumers. In addition to the potential liability and negative publicity brought on by the discovery of such threats, the public will have significant latitude in removing or disabling these controls. These developments make clear that if CD-based protection measures enjoy a resurgence, transparency and consumer security will prove key competitive differentiators.

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\(^{50}\) J. Alex Halderman, *Analysis of the MediaMax CD3 Copy-Prevention System*, http://www.cs.princeton.edu/~jhalderm/cd3/.


While record labels are understandably reluctant to publicly begrudge their first defeat in a DMCA rulemaking, one mobile phone service provider has reacted aggressively, filing a lawsuit that claims that the rulemaking proceeding itself violates the Constitution.

Tracfone, a seller of low cost wireless hand sets and prepaid wireless service that previously invoked the DMCA against competitors who resold its handsets, filed comments with the Copyright Office opposing the mobile phone exemptions some seven months after the close of the reply comment period. When the Register of Copyrights refused to consider the substance of Tracfone's submission, Tracfone filed suit against the Register and the Librarian of Congress alleging, inter alia, that the Register had failed to provide Tracfone adequate notice of the rulemaking and that the adoption of the exemption was arbitrary and capricious, in violation of both the Administrative Procedures Act and the Due Process Clause of the Fifth Amendment. In addition, Tracfone alleged that, because the Copyright Office and the Library of Congress are legislative rather than executive agencies, Congress' delegation of rulemaking authority violated the separation of powers. The Register and Librarian have moved to dismiss the claim for lack of standing and failure to state a claim or, in the alternative, summary judgment.

Assuming that Tracfone's challenge fails, the mobile phone exemption may force a rethinking of industry-wide practices by handset and service providers, particularly those in the business of providing inexpensive prepaid handsets. If consumers are able to take advantage of the ability to remove the software that ties their handset to a particular network, providers may be forced to consider new methods of ensuring customer retention. These could include new technological controls that fall outside the scope of the current exemption, or they may rely on altered pricing structures that either reduce incentives to defect to other networks or account for estimated levels of customer loss. More likely, providers will rely on more restrictive contractual or license obligations to prevent subscribers from choosing another network provider.

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55 Id.
56 Memorandum of Law in Support of Defendants' Motion to Dismiss or, in the Alternative, for Summary Judgment at 2-3, Tracfone Wireless, Inc. v. Billington, No. 06-22942 (S.D. Fl. Feb. 5, 2007).
V. DEPARTURE FROM PRIOR RULEMAKINGS

Although it generally followed the procedural guidelines and legal standards developed in the prior two triennial proceedings, the 2006 Rulemaking differed from its predecessors in important and, in some instances, determinative respects.

The primary point of departure from previous DMCA rulemakings relates to the specificity with which the Register of Copyrights permitted proponents to craft would-be classes of exempted works. In prior rulemakings, the Register determined that the definition of a class of works should begin with a § 102 category. That broad category should then be refined by reference to “attributes of the works themselves and not by reference to some external criteria such as the intended use or users of the works.”57 Permissible inherent attributes of the works included the medium in which the work was distributed and the protection measure employed to control access. Definitions that attempted to narrow the proposed class by reference to particular classes of users or uses were uniformly rejected in the first two rulemakings. Simultaneously, exemption proposals that appeared amenable to narrowing by use or user were denied, in part, because of the potential harm to the market for copyrighted works that could ensue from a broad exemption.

In apparent recognition of the dilemma facing exemption proponents, the Register's resistance to narrowly tailored proposals eased during the 2006 rulemaking. In fact, of the six classes of works exempted, only two contain no use- or user-based limitation.

The first two exempt classes--audiovisual works in university film archives and obsolete computer programs and video games--contain limits on both the identity of user and the type of use in defining the scope of the class.

Neither of these exemptions applies to the public at large. The first permits circumvention of technological measures protecting audiovisual works in the film archive of a college or university, but only when circumvention occurs to enable in-class educational uses and even then only when such uses are made by media studies or film professors. Although the text of the exemption does not require that the professor personally engage in the act of circumvention, it is clear that the circumventer's sole purpose must be to enable the professor's educational use. As a result, other

university employees, for example, would fall within the scope of the exemption to the extent that they circumvent solely to aid a qualified professor in making an educational use. Otherwise, the exemption is unavailable.

Under the rationale adopted in prior rulemakings, this exemption almost certainly would have been rejected because of its reliance on use- and user-based qualifications. Without those limitations, an exemption for audiovisual works, even narrowed to those contained in a university library or archive, likely would have failed because of its potential widespread implications for the value of and market for the copyrighted works at issue.

The second exempt class contains similar limitations. That exemption permits circumvention of technological measures that control access to obsolete computer programs and video games, but only to the extent that such circumvention occurs for preservation or archival purposes and only when undertaken by a library or archive. The use- and user-based limitations included in this class are particularly noteworthy since this exemption was postured as a renewal of a proposal adopted in 2003 that contained no such limitations. But in 2006, The Register of Copyrights not only permitted the narrowing of this class on the basis of use and user, but inserted such limits into a class that previously satisfied the requirements of the rulemaking without them.

Not all renewed exemptions were narrowed on similar grounds, however. Neither the dongled software nor ebook exemptions were further narrowed on the basis of the manner in which the works would be used or by whom they would be used.

The final two exemptions include no user-based limitations and are thus equally available to all would-be circumventers, but both exemptions are limited by intended use. The mobile phone exemption permits circumvention of firmware only when accomplished solely to lawfully connect to a wireless network. In addition to ensuring that circumvention does not permit unlicensed network use, this limitation also serves to prevent circumvention aimed at gaining access to protected ringtones or other media files stored on mobile handsets.

Similarly, even though the rootkit exemption permits both consumers and researchers to circumvent access controls that introduce security vulnerabilities, they can do so “solely for the purpose of good faith

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testing, investigating, or correcting such security flaws or vulnerabilities.” The exemption permits researchers like Felten and Halderman to continue to discover these dangerous schemes and alert the public, but it also allows consumers to take action to remove security-flawed protection measures installed on their computers. The protection offered by this exemption, however, does not extend to acts of circumvention directed to other purposes, such as space-shifting, even if those purposes are noninfringing.

The apparent shift in the willingness of the Copyright Office to define classes of works by reference to specific groups of users and particular types of use could signal an opportunity for those adversely impacted by the DMCA's anticircumvention provision. The exemptions granted in the first two DMCA rulemakings were, at least theoretically, available to all for any noninfringing purpose. But because of their breadth, exemptions for classes of works that make no reference to users or uses are more likely to adversely impact the market for or value of copyrighted works. As a result, successful generally applicable exemption proposals have been few.

Conversely, the inclusion of use- and user-based limitations, while potentially lessening the direct utility of exemptions for the general public, may greatly increase the likelihood of success of narrowly tailored exemption proposals. Because of their limited applicability, the potential market harm to copyright holders presented by these proposals is reduced. By crafting exemption proposals in a manner that circumscribes arguments for market harm, exemption proponents face less daunting odds. As a result, future rulemakings may produce a relatively high number of narrow exemptions to the anticircumvention provision of the DMCA.

VI. SHORTCOMINGS OF THE RULEMAKING PROCESS

Even assuming that this more forgiving method of evaluating proposed classes of works persists in future proceedings, other features of the DMCA rulemaking prevent it from fully addressing the statute's adverse impacts on noninfringing uses. Some of these features are inherent in the statute itself and can be addressed only through additional legislation. Others are the product of the Copyright Office's interpretation of the statute and are thus more easily remedied in future rulemakings.

The most fundamental statutory inadequacy of the rulemaking is its limited scope. As discussed, the DMCA prohibits not only the circumvention of technological protection measures but also the distribution
or trafficking in tools or services that enable circumvention. While the
DMCA rulemaking can exempt certain classes of works from the
anticircumvention provision, Congress vested no authority in the Copyright
Office or Librarian of Congress to grant corresponding exemptions from the
anti-trafficking provisions.

In many instances this asymmetry can give rise to a rather perverse
result: An act of circumvention is permitted by an exemption, but the tools
necessary to take advantage of that privileged use remain illegal. Film
studies professors, for example, could face difficulty in legally obtaining
tools to engage in the very sort of circumvention privileged by the new
exemption. While DeCSS, a tool for circumventing CSS, is available on the
Internet, those who make it available, even to film studies professors, risk
liability for trafficking in circumvention tools. Moreover, DeCSS alone is
insufficient for all but the most sophisticated users to engage in
circumvention and user-friendly software tools built around DeCSS have
been pulled from store shelves as a result of DMCA liability. Even if film
studies professors can locate or develop such tools, they would still face
liability for sharing them amongst themselves.

This result is particularly troubling for exemptions aimed at the
general public. What good is served by permitting consumers to remove
rootkits or unlock their mobile phones if the tools necessary to achieve
these ends are unavailable to the public? Without some availability of
circumvention tools, the DMCA exemptions will, in many cases, extend
effects to consumers while the anti-trafficking provisions simultaneously
deny them the means of exercising those rights.

A second important limitation on the value of the rulemaking is the
vagueness of the term “noninfringing.” The statute permits the Librarian of
Congress to exempt classes of works to the extent the anticircumvention
 provision interferes with the “ability to make noninfringing uses.”
Determinations of infringement often require complicated and fact intensive
inquiries. Because they involve new technologies, the uses at issue in the
rulemaking are particularly likely to fall within the vast grey areas that
separate clearly infringing uses from clearly noninfringing ones.

This difficulty is particularly pronounced as it relates to exemption
proposals based on claims of fair use. Fair use determinations, of course, are
notoriously fact intensive and difficult to predict. Not surprisingly, very few
exemption proposals that rely on fair use have succeeded. The film studies

exemption is a notable exception, but there the case for fair use was nearly indisputable. Small snippets of copyrighted works were used to create transformative compilations for non-profit educational purposes. Further, the statutory exception in § 110 of the Copyright Act established the in-class display of the clips as noninfringing. But other less clear-cut claims of fair use have been rejected in the rulemaking process.

This problem is largely one created by the statute itself. It forces the Copyright Office to make a binary determination, either a use is noninfringing or it isn't. The Copyright Office, of course, possesses neither the institutional competence nor the authority to determine on its own, in a non-judicial proceeding, which uses are noninfringing. So the Register of Copyrights is left to rely on the often silent and conflicting case law to determine whether a particular use satisfies the statutory requirement of noninfringement.

The Copyright Office has gone to great lengths to avoid overstepping its statutory and constitutional powers by deferring to the courts and considering exemptions only where the use is unquestionably noninfringing as a matter of well-settled law. While the Register's restraint in this regard is warranted, if taken to extremes, it risks rendering the rulemaking useless for its intended purpose.

Congress created the DMCA rulemaking, in part, as a means to ensure that the scope of the anticircumvention provision kept pace with the rapid technological change in the use and protection of digital works. Clearly Congress contemplated that the exemptions would address uses that grew out of these developments, precisely those uses least likely to fall within clearly established doctrine. So although the Copyright Office should certainly avoid the temptation to create new law through the rulemaking, in the absence of cases directly on point, it should apply well-established standards to the facts presented in proposed exemptions.

So long as it does so reasonably, the risks are minimal. Even once adopted, DMCA exemptions apply only if long as the use made by the circumventer is noninfringing. In the end, when an exemption is raised as a defense to a claim under § 1201, the determination of infringement will be in the hands of a court. And of course, unless circumvention occurs, courts may never have the opportunity to determine whether those particular uses are indeed noninfringing. Without an initial act of circumvention, many potentially fair uses will never occur and thus courts will be prevented from passing upon their legality.

The final difficulty posed by the rulemaking is the Copyright
Office's insistence on a new showing of ongoing harm in order to renew an existing exemption. As the denial of the censorware blacklist exemption demonstrated, even when a well-supported legal rationale justifies renewal of an exemption, the proposal will be denied absent an independent showing of future harm. Where the exempted works are still protected by the same or similar technological measures, this requirement is sensible and can typically be satisfied. However, if applied to all exemption renewal requests, this approach fails to recognize the potential impact of existing exemptions on the market for technological protection measures.

The rootkit exemption provides a useful example. As a result of the fallout of the Sony BMG rootkit debacle, including the granting of the DMCA exemption, it is possible that no protection measures that create security risks will be released on CDs in the coming three years. If so, the exemption will function to protect noninfringing uses in two distinct ways. First, it will enable circumvention of those measures already released that fall within the scope of the exemption. But additionally, the exemption will have discouraged the introduction of new security-flawed protection measures that threaten noninfringing uses.

Under these facts, the very success of the exemption in preventing harm to noninfringing uses will weigh against its renewal. If no security-flawed protection measures are on the market, making the requisite showing of likely harm could prove impossible. Of course, if the exemption renewal were denied, the incentive for copyright holders to ensure the safety of their protection measures would be reduced, and such measures could find their way back into the hands of consumers who would no longer enjoy the protection of an exemption. This inefficient cycle could be avoided if the Copyright Office recognized that the very existence of a prior exemption could prevent the appearance of future harm.

CONCLUSION

Compared to its predecessors, the 2006 DMCA rulemaking made significant strides toward addressing the adverse impact of the anticircumvention provision on noninfringing uses of copyrighted works. Nonetheless, without further reconsideration of past practices by the Copyright Office and, ultimately, substantial legislative reform, the DMCA will continue to inhibit otherwise lawful uses of copyrighted works.